Oracle® Utilities Data Model

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Primary Author: Thomas Van Raalte

Contributing Author: Tanaya Bhattacharjee

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Preface

The *Oracle Utilities Data Model Reference* describes the data model structures for Oracle Utilities Data Model. Since the needs of each Oracle Utilities Data Model environment are unique, Oracle Utilities Data Model is configurable so it can be modified to address each customer's needs.

Audience

The audience for the *Oracle Utilities Data Model Reference* includes the following:

- IT specialists, who maintain and adjust Oracle Utilities Data Model. They are assumed to have a strong foundation in Oracle Database and PL/SQL, Analytic Workspace Manager, and Oracle Business Intelligence Suite Enterprise Edition.

- Database administrators, who will administer the data warehouse and the database objects that store the data. They are assumed to understand Intra-ETL, which is used to transfer data from one format to another; as well as PL/SQL and the Oracle Database.

- Business analysts, including information and data analysts, market analysts and sales analysts.

This document is also intended for data modelers, data warehouse administrators, IT staff, and ETL developers.

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Related Documents

For more information about Oracle Utilities Data Model, see the following documents in the Oracle Utilities Data Model documentation set:

- *Oracle Utilities Data Model Installation Guide*

- *Oracle Utilities Data Model Release Notes*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Part I

Logical and Physical Data Model

This part provides introductory information and details for the Oracle Utilities Data Model Logical and Physical Data model.

Part I contains the following chapters:

- Chapter 1, "Introducing Oracle Utilities Data Model"
- Chapter 2, "Logical Data Model Foundation"
- Chapter 3, "Logical Data Model Dimensions"
- Chapter 4, "Oracle Utilities Data Model Physical Data Model"
- Chapter 5, "Oracle Utilities Data Model Logical to Physical Mapping"
- Chapter 6, "Oracle Utilities Data Model Partitioning"

1

Introducing Oracle Utilities Data Model

This chapter introduces the Oracle Utilities Data Model, which is a standards-based, pre-built approach to utilities data warehousing.

This chapter includes the following sections:

- Overview of Oracle Utilities Data Model
- What Are the Benefits of Using Oracle Utilities Data Model?
- What Are the Components of Oracle Utilities Data Model?
- What is Oracle Utilities Data Model
- What Oracle Technologies are in Oracle Utilities Data Model
- About Common Information Model (CIM) Users Group

Overview of Oracle Utilities Data Model

Oracle Utilities Data Model is a pre-built, standards-based data warehouse solution designed and optimized for Oracle database and hardware. Oracle Utilities Data Model can be used in any applications environment and is easily extensible. Oracle Utilities Data Model enables utilities to establish a foundation for business intelligence and analytics across the enterprise, allowing each business domain to leverage a common analytics infrastructure and pre-defined cross-domain relationships, driving unprecedented levels of intelligence and discovery.

Oracle Utilities Data Model offers a single-vendor solution package that is tightly integrated with the business intelligence platform. With pre-built data mining, Oracle Online Analytical Processing (Oracle OLAP) and dimensional models, Oracle Utilities Data Model provides you with industry-specific metrics and insights that you can act on immediately to improve your bottom line. These business intelligence solution offerings take advantage of Oracle's scalability and reliability, using Oracle's familiar optimization, parallelism, and performance engineering within the database.

Oracle Utilities Data Model includes an exhaustive set of embedded advanced analytics, using Oracle's OLAP and data mining technology. You can take advantage of pre-built and pre-tested solution sets designed by industry experts that deliver relevant insights, are actionable, and aimed at improving both top-line and bottom-line results. You can see summarized, aggregated information or quickly navigate to drill-down transaction details to better understand business issues.

Oracle Utilities Data Model, combined with Oracle technology, provides all of the components required for a complete and extendable utilities Data Warehouse and Business Intelligence framework to eliminate complex and costly integration requirements, all designed to reduce your total cost of ownership.

What Are the Benefits of Using Oracle Utilities Data Model?

With Oracle Utilities Data Model, you can jump-start the design and implementation of a data warehouse to quickly achieve a positive ROI for your data warehousing and business intelligence project with a predictable implementation effort.

Oracle Utilities Data Model provides the following features:

- Query and Reporting for information: provides extraction of detailed and summary data.

- OLAP for data analysis: provides summaries, trends, and forecasts.

- Data Mining for insight and prediction: provides knowledge discovery of hidden patterns and insights.

- Oracle Utilities Data Model is aligned with the CIM Users Group. For more information, see "About Common Information Model (CIM) Users Group".

Oracle Utilities Data Model provides an off-the-shelf data warehouse framework that is both adaptable and extendable. Alignment with utilities industry standards ensures interoperability with other systems. The pre-built, pretuned data model with intelligent insight into detailed utilities and market data, allows you to quickly gain value from your data warehousing effort, supports diverse analytical requirements, and assists in building future analytical applications. Fast, easy and predictable implementation reduces risks and enables you to achieve strategic value more rapidly by eliminating deployment delays and expenses associated with built-from-scratch or proprietary data warehouse solutions.

Benefit	Description
Delivers Compelling Business Improvements	▪ Accelerate business value with configurable, pre-built data model and analytics samples ▪ Provide better service and decision making by enabling the cross-domain data and business analysis ▪ Increase operational efficiency with streamlined and enterprise scale Analytics/DW solution
Provides Common, Accurate Data Definition Across All Applications	▪ Improve quality and information accuracy between applications and establish a single source of truth ▪ Join new, existing or 3rd party customer and operational information on a robust, open industry standards-based platform
Provides Common, Accurate Data Definition Across All Applications	▪ Reduce need for costly custom BI/DW development with pre-built model and architecture based on best practices ▪ Accelerate user adoption of Analytics/DW strategy and drive holistic analytics use as strategic business differentiator ▪ Simplify model extensions as future analytical needs change

What Are the Components of Oracle Utilities Data Model?

Oracle Utilities Data Model includes the following components:

- Logical Data Model Foundation

  Chapter 2, "Logical Data Model Foundation" describes the logical data model.

- Logical Data Model Dimensions

  Chapter 3, "Logical Data Model Dimensions" describes the dimensions.

- Physical Model

Chapter 4, "Oracle Utilities Data Model Physical Data Model" describes the physical data model. The logical to physical mapping is detailed in Chapter 5, "Oracle Utilities Data Model Logical to Physical Mapping".

- Intra-ETL database packages and SQL scripts to extract, transform, and load (ETL) data from one layer of Oracle Utilities Data Model to another.

  See the intra-ETL packages and SQL scripts in Chapter 7, "Oracle Utilities Data Model Intra-ETL".

- OLAP Models for Oracle Utilities Data Model

  Chapter 8, "Oracle Utilities Data Model OLAP Model Dimensions" and Chapter 9, "Oracle Utilities Data Model OLAP Model Cubes" describe the OLAP Models.

- Pre-defined Data Mining Model

  For more detail see Chapter 10, "Oracle Utilities Data Model Data Mining Model".

- Utility Scripts

  For more information, see Chapter 11, "Oracle Utilities Data Model Utility Scripts".

- Reports and dashboards

  Chapter 12, "Oracle Utilities Data Model Sample Reports" shows the reports.

- Installation scripts

  For more information on installation, refer to the *Oracle Utilities Data Model Installation Guide*.

What Oracle Technologies are in Oracle Utilities Data Model

Several Oracle technologies are involved in building the infrastructure:

Oracle Database with OLAP, Data Mining and Partitioning Option

Oracle Utilities Data Model utilizes a complete Oracle technical stack. It leverages the following data warehousing features of the Oracle database: SQL model, compression, partitioning, advanced statistical functions, materialized views, data mining, and online analytical processing (OLAP).

> **Tip:** To achieve cost-effective scalability, availability, and reliability, you can consider using Oracle Real Application Clusters (Oracle RAC) and commodity hardware.

Oracle Development Tools

Use the Oracle tools shown in Table 1–1 to customize the predefined logical and physical models provided with Oracle Utilities Data Model, or to populate the target relational tables, materialized views, or OLAP cubes.

Table 1–1   Oracle Development Tools Used with Oracle Utilities Data Model

Name	Use
Oracle SQL Data Modeler	To create the logical model
SQL Developer or SQL*Plus	To create or modify database objects
Analytic Workspace Manager	To populate the target OLAP cubes

Oracle Business Intelligence Suite Enterprise Edition Presentation Tools

Oracle Business Intelligence Suite Enterprise Edition is a comprehensive suite of enterprise Business Intelligence products that delivers a full range of analysis and reporting capabilities. You can use Oracle Business Intelligence Suite Enterprise Edition Answers and Dashboard presentation tools to customize the predefined dashboard reports that are provided with Oracle Utilities Data Model.

What is Oracle Utilities Data Model

Oracle Utilities Data Model leverages several Oracle Database data warehouse and Business Intelligence concepts that need to be clarified to understand the structure and use of Oracle Utilities Data Model.

Oracle Utilities Data Model provides "One Single True Vision of the Business". This unique architecture provides the utilities Service Provider (CSP) Flexibility, Agility, Scalability and Accuracy to obtain a real competitive advantage.

A typical enterprise data warehouse architecture, as shown in Figure 1–1, is composed of several layers ordered by the growing actionable value of the information in the warehouse:

- The Data Source layer (operational systems, Commercial-Off-The shelf solution, unstructured and syndicated data, with possibly a Master Data Management system).

- The Staging layer: Typically used for transformation and data cleansing. It is also sometimes used as Operational Data Store, in particular for real-time operational reporting.

- The Foundation layer: It is typically used to store all transactions and reference data at the most atomic level. Best practices require that this level is 3rd normal form, to avoid data redundancy.

- The Access and Performance or Analytical layer: this is the layer optimized for the business end-users. It usually contains the star schema to answer business questions, as well as OLAP tools and mining models.

- The Information (or Information Access) layer: This is the metadata layer and above, accessed by end-users through their Business Intelligence and/or reporting tools, or even external analytical tools (other OLAP or Mining tools). This layer is usually changeable by normal end-users (within their roles and responsibility). This is where the performance management applications provide their reports, where user roles, alerts, guided analytics, dashboards and reports are defined (usually by a specific BI administrator).

- The data movement from one layer to the other is run through ETL / ELT tools. One distinguishes the standard ETL/ELT (from data sources to foundation layer) from the intra-ETLs (from foundation layer up to the reporting).

Figure 1–1   Data Warehouse Reference Architecture with Oracle Utilities Data Model
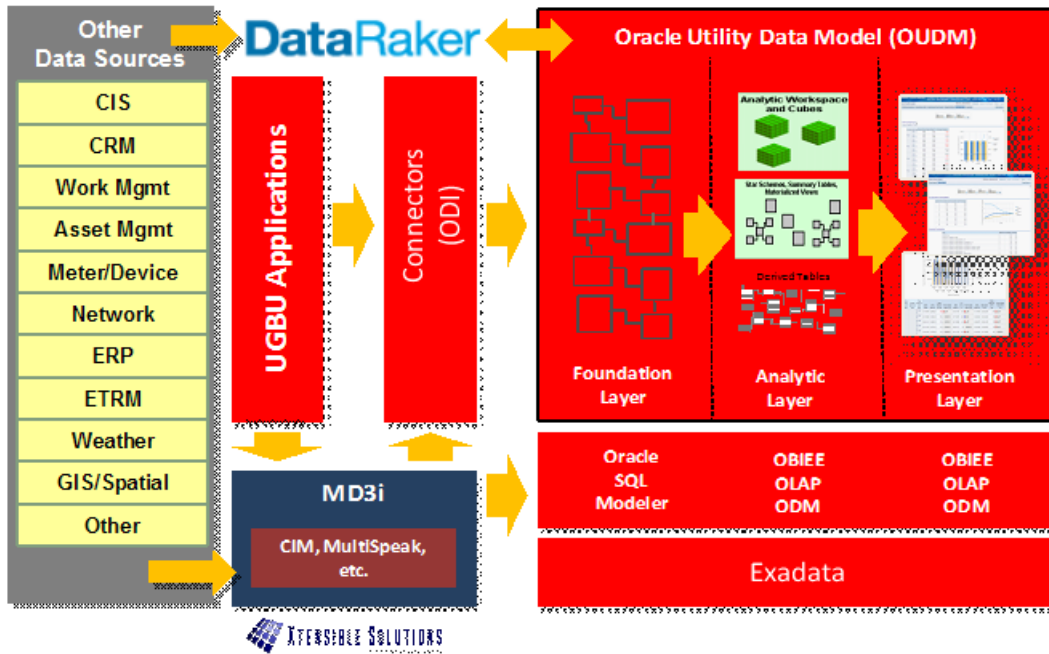
Within a standard enterprise data warehouse architecture, as shown in Figure 1–1, if an adapter is used, for example DataRaker, the Staging area is also provided. Oracle Utilities Data Model covers Foundation Layer, plus the intra-ETL part, and includes parts of the reporting area if OBIEE is used (Oracle Utilities Data Model also includes the pre-built OBIEE repository).

To summarize Oracle Utilities Data Model includes the parts shown in Figure 1–2.

Figure 1–2   Oracle Utilities Data Model Inner Structure
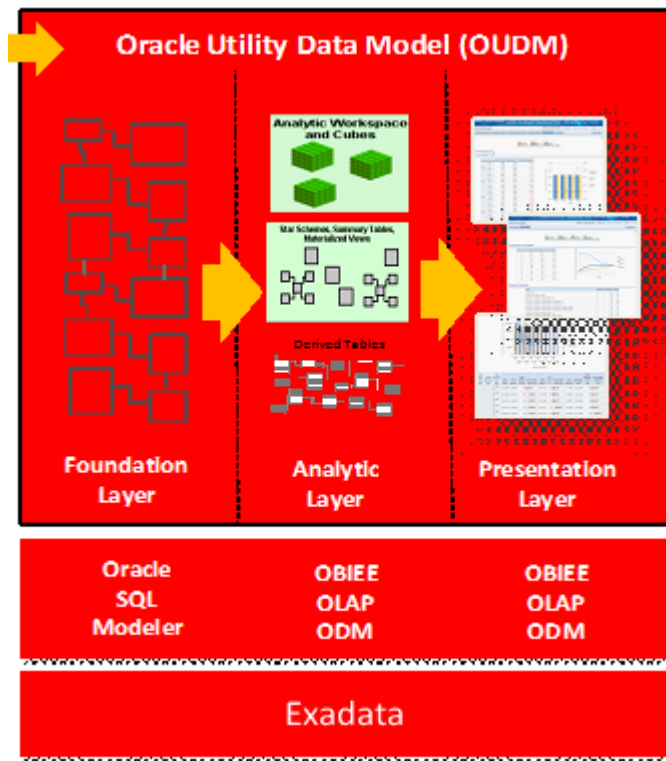
The Oracle Utilities Data Model Foundation Layer is composed of the components shown in Table 1–2.

Table 1–2   Oracle Utilities Data Model Foundation Layer Components

Component	Usage
Reference entities and tables	■ Used to store master reference entities required by a utility operation
	■ Non-changing infrequently-changing data
	■ These entities translate into dimensions and hierarchies
	■ Physically, table names start with "DWR_"
Base entities and tables	■ Store transactions from systems of record.
	■ It contains data at atomic level with the lowest level of granularity possible
	■ Required to perform detailed analysis, and uncovering causal effects and associations
	■ Physically, table names start with "DWB_"
Lookup entities and tables	■ Hold descriptions for common code lookups.
	■ Their goal is to save space since one does not have to store long descriptions in each transaction record.
	■ Physically, table names start with "DWL_"
Control tables	■ These are only used and filled by the intra-ETLs.
	■ Physically, tables names start with "DWC_"

The Analytic Layer serves as an abstraction layer to simplify analytical access; this layer is a subject oriented representation of data ("shellfish" model). The analytic layer is easily understood by end-users and is simpler to navigate. This layer consists of

aggregates, summaries, hierarchical relationships, and so on. The analytic layer is composed of star schemas, materialized views, OLAP cubes, and so on and is populated using intra-ETL processes from data in the Foundation Data Layer (FDL). The Oracle Utilities Data Model Analytic layer is composed of the components shown in Table 1–3.

Table 1–3   Oracle Utilities Data Model Analytic Layer Components

Component	Usage
DERIVED entities and tables	Provide a transition level to STARs. This layer is denormalized and is typically used for operational reporting and data mining, to uncover new insights and predict the future and:
	■ Provides information that can only be derived from base data, usually at day level.
	■ Leverages data mining, advanced statistics, and complex queries.
	■ Physically, tables start with "DWD_".
	Examples of derived tables include: DWD_MTR_RDNG_DAY, for meter reading day, DWD_OUTG_DAY, for outage by day, and DWD_RLBLTY_IND_CITY_MO for reliability indicies by city by month, and so on.
	There is also a mining model at this level:.
AGGREGATE entities and tables	Provide information to analyze and summarize, usually at the monthly level and:
	■ Leverages base and derived data models to provide aggregated data such as summaries, averages, and so on.
	■ Enables dimensional analysis on wide variety of subject areas.
	■ Leverages Oracle OLAP cubes (pre-built OLAP cubes are available. For more information, see Chapter 9, "Oracle Utilities Data Model OLAP Model Cubes".
	■ Contains tables starting with "DWA_"; usually materialized views.
	■ Represents the information access layer: It covers all the metadata.

About Business Areas and Subject Areas in Oracle Utilities Data Model

A **Business Area** is a broad slice through Oracle Utilities Data Model grouping where all tables that cover the associated business processes (reports, metadata, Mining, OLAP, 3NF) are all accessible through the same GUI (if OBIEE is used). A business area is a conceptual grouping, used at the default report level. The reports are organized by related subject areas gathered in "business areas". Table 1–4 lists the Oracle Utilities Data Model business areas.

A **Subject Area** is a thin slice through Oracle Utilities Data Model grouping all tables, mainly at the foundation layer, that cover a specific (logical) concept, business process or question. For example, the subject area PARTY defines the notion of a "PARTY". The "Individual" and "Organization" are both a subset of PARTY.

From an implementation perspective, Oracle Utilities Data Model can be filled by subject or business area, without taking care of having to feed all tables to have tangible and usable results.

After filling all reports of a given business area with data, this does not mean that the whole business area is covered. Feeding all the tables needed to have all reports of a given business area probably also feeds some reports of other business areas. For example, some PRODUCT, COST and COLLECTION AGENCY entities are required in the Business Area Revenue (for the Revenue OLAP cube). This also partly covers the Product Management, Cost and Contribution, as well as the Partner Management business areas.

About the Logical Data Model and Physical Data Model

A logical data model describes how to store information that defines business processes. The logical data model is an interface between business and technical staff, and allows these groups to provide a common understanding of business data elements and requirements.

The logical data model also provides the foundation for designing an Enterprise Data Warehouse. In Oracle Utilities Data Model, the logical data model is designed to avoid data redundancy, as much as possible, without impacting performance, and thus prevent data and business transaction inconsistency. The idea is to facilitate data reuse and sharing, hence reducing development and maintenance cycle and cost.

The logical data model is a single source for the model definition, with its own naming conventions that are valid for both business and IT.

In describing the business processes independently of the data sources and the technology, the logical data model clarifies the functional specifications, while avoiding (unnecessary) assumptions.

This implies that, in principle, the logical data model of Oracle Utilities Data Model could work on any platform. However, on top of the fact that it would not be supported by Oracle, such an implementation would not benefit from all the pre-built pre-integrated technologies leveraged with Oracle Utilities Data Model, in particular in the analytical layer, such as Partitioning, OLAP, Mining models, and so on.

The Oracle Utilities Data Model physical data model is the concrete implementation of the logical data model. It is fully technology dependent. The physical data model transforms business relationships into keys or indexes. It takes into account the infrastructure and technology to optimize the performance for end-users. The physical data model has its own naming convention in parallel to the one of the logical data model. Looking at the physical data model, one should be able to "build-back" the logical data model from the entity relationship, even if one could not have all the key understanding of a business process behind, unless one knows the business.

About Entity Relationships in Oracle Utilities Data Model

A relationship between two entities should exist in the model only if there is a direct (business) relationship between those entities. You can categorize the relationships as:

- Description or added information (typically for Lookup tables): An entity contains codes that describe or validate the various values that an attribute of the original entity has. Physically, the two entities are related through a Foreign Key.

- Direct relationship: Typically, when two entities are related from a business point of view, the model needs to ensure that this relationship is explicitly present and described. A direct relationship contains a direct business link between the entities (typically serves, uses, owns, and so on). There must be a distinction between clear 1 to many (1:n) or 0 to many (0:n), and many to many (n:m) relationship.

    - 0:n or 1:n relationships: typically business types like "owns", "has got", "serves", "uses"… It is usually directly linked to an attribute (like description), and may be a foreign key link.

    - m:n relationships: If the relationship can be "many to many", use an "Assignment" Entity between the entities to transform this m:n relationship in m:1 (or 0) and (0 or) 1:n.

PARTY ASSIGNMENT represents the relationship between two parties uniquely identified in Oracle Utilities Data Model, whatever the role they play within the model: As Customer, Employee, dealer or even all three for the same individual!

The only exception to this rule is with ADDRESS LOCATION. One uses the "ADDRESS RELATED" table, for example to feed the fact that an alternative billing address has been given by customer when the first one fails or because he is in holiday.

Very often, two rows of a given entity (say "ENTITY") have to be related with one another. Most of the time, Oracle Utilities Data Model uses a table named "ENTITY ASSIGNMENT". For example, PARTY and PARTY ASSIGNMENT.

In Party, the *PARTY TYPE* is a "person", an "organization", or an "organization business unit". It is not "Customer". This is a Party role. A given Party can have several roles which are "chosen" depending on the type of business interaction that takes place. However, the type never changes.

Self-Relationship: When an entity have a self-referencing attributes.

Sometimes a customer is referred by another customer. To keep the referral customer details Oracle Utilities Data Model has a self-referencing column REFERRAL CUSTOMER CODE in CUSTOMER entity, which refers to the primary key CUSTOMER CODE of CUSTOMER entity.

Understanding Named and Flexible Hierarchies

- A named hierarchy is a pre-built hierarchy of general interest, usually used/seen in the market, with fixed levels (with a specific name for each).

- A flexible hierarchy is a hierarchical structure that is freely definable: for levels, attributes per level, relationships and numbers of hierarchies (for the same base entity) with various possible versions.

- These hierarchies do the following

  - Follow Slowly Changing dimension Type II rules.

  - Have the same leaf level (Organization Business Unit for "Organization" and Address Location for "Geography")

  - Have pre-built tools to feed/change them easily (for implementation team).

  - Can be associated in parallel (for example, In an Organization, several hierarchies can be defined: Administrative Hierarchy and Sales Hierarchy)

- ORGANIZATION BUSINESS UNIT refers to lowest-level internal business unit of the organization that delivers a limited range of specific utilities services or merchandise through any sales channel (Web site, store, and so on), as shown in .

Figure 1–3 Organization Business Unit Entity (Named Hierarchy)
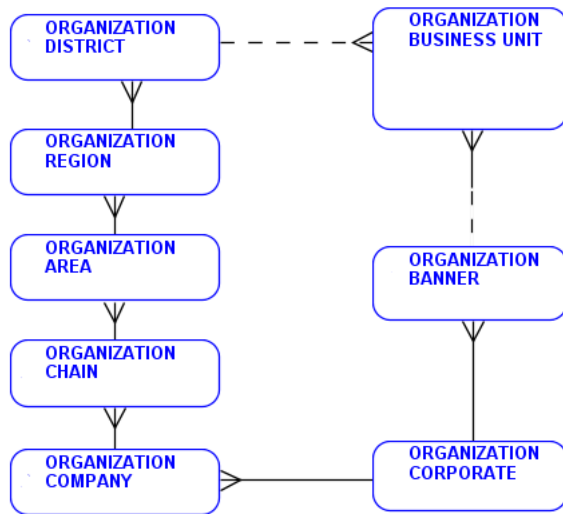
- ORGANIZATION BUSINESS ENTITY refers to any internal logical entity that is recognized as a part of the enterprise for business analysis and transactions. Classification for a business entity can include company, operation unit, store, or warehouse. This is part of "Flexible Hierarchy" of organization.

Figure 1–4 Organization Business Entity (Flexible Hierarchy)
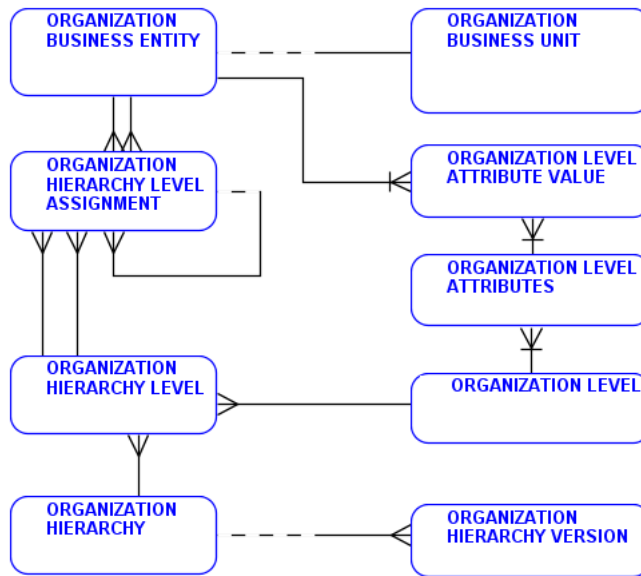
Business Interaction and Business Interaction Item: In Business Interaction Business Area

BUSINESS INTERACTION: is an arrangement, contract, communication or joint activity between one or more Party Roles, Resource Roles, or Customer Accounts. A Business Interaction may consist of one or more Business Interaction Items.

Sub-Types of `BUSINESS INTERACTION` are `APPOINTMENT,` `CUSTOMER ORDER,` `PURCHASE ORDER,` `RESOURCE ORDER,` `BASE WORK,` `SERVICE ORDER,` `PARTY INTERACTION THREAD,` and `AGREEMENT.`

BUSINESS INTERACTION may have versions.

BUSINESS INTERACTION may refer to a Product, Service, Resource, or one of their specifications.

BUSINESS INTERACTION may reference another Business Interaction and one Business Interaction Item may reference another Business Interaction Item on the same or different Business Interaction.

There are five types of BUSINESS INTERACTIONS: Requests, Responses, Notifications, Agreements, and Instructions.

BUSINESS INTERACTION ITEM: The detail items included in the business interaction. The main purpose for the Business Interaction is expressed in terms of a Product Type, Service Type or may refer to a Product, or Service.

SERVICE: Service is an internal technical presentation of available services/products to the customer.

Sub-Type of SERVICE is CUSTOMER FACING SERVICE. ELECTRICITY SERVICE is sub-type of CUSTOMER FACING SERVICE and DEMAND RESPONSE PROGRAM is sub-type of ELECTRICITY SERVICE.

PRODUCT SUBSCRIPTION: is the record of customer using a product (or product package). Customer subscription is the basis of billing. One subscription may be based on contract.

Figure 1–5   Business Interaction Item Entity
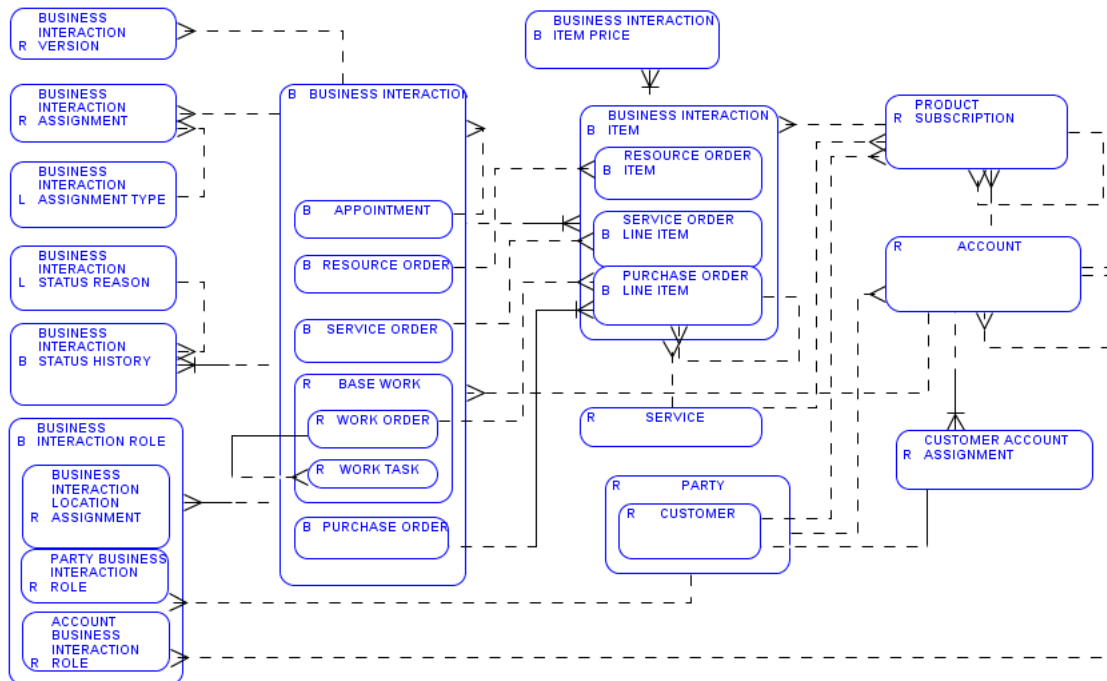
About Common Information Model (CIM) Users Group

Oracle Utilities Data Model provides a standards-based utility industry data model using the Common Information Model (CIM). CIM is an abstract information model that provides data understanding through the identification of the relationships and associations of the data within a utility enterprise. For more information on CIM, see

http://cimug.ucaiug.org/default.aspx

About Business Areas in Oracle Utilities Data Model

A **Business Area** is a broad slice through Oracle Utilities Data Model grouping where all tables that cover the associated business processes (reports, metadata, Mining, OLAP, 3NF) are all accessible through the same GUI (if OBIEE is used). A business area is a conceptual grouping used at the default report level. The reports are organized by related subject areas gathered in "business areas".

Table 1–4 lists the Oracle Utilities Data Model business areas.

Table 1–4   Business Areas

Business Area	Description
Account Management	Contains information to support utility customers with the tracking, status, and plans with matters such as service requests, service agreements, monthly billing, reported trouble, planned outages, outage history, and so on.
Asset Management	Specifies the information management for network data sets, assets, and asset catalogs.
Customer Management	Contain customer service, trouble management, and point of sale related information within the utility enterprise.
Meter Reading and Control	Covers customer service, trouble management, and point of sale related information within the utility enterprise.
Network Operation	This business area provides the information on network operation for both distribution and transmission within utility industry such as supervising main substation topology, control equipment status, handling network connectivity and loading conditions. It also makes it possible to locate and supervise the location of field crews.
Outage Management	This business area supports the utilities to identify disruptions in the system, to perform restoration switching actions and to provide customers with notification of disruptions detected.
Weather Model	This is a weather model to support utility operation.
Work Management	This package contains the core information classes that support work management and network extension planning applications.

2

Logical Data Model Foundation

The logical data model of the Oracle Utilities Data Model defines the business entities and their relationships and provides an understanding of the business and data requirements for the Oracle Utilities Data Model data warehouse.

This chapter includes the following sections:

- Major Subject Areas and Related Entities

- Logical Entities for Business Areas

- Logical Data Model Entity Dictionary

Major Subject Areas and Related Entities

The following describes the main entities related to some major or typical subject areas in Oracle Utilities Data Model:

Table 2–1   List of Subject Areas

Subject Area
Subject Area: Account
Subject Area: Account Balance
Subject Area: Account Credit Limit
Subject Area: Agreement
Subject Area: Asset
Subject Area: Asset Information Classes
Subject Area: Billing
Subject Area: Business Events
Subject Area: Business Interaction
Subject Area: Channel
Subject Area: Connectivity Model
Subject Area: Cost
Subject Area: Curve Schedule
Subject Area: Customer
Subject Area: Customer Account and Agreement
Subject Area: Demand Response Program
Subject Area: Employee

Table 2–1 (Cont.) List of Subject Areas

Subject Area

Subject Area: End Device Control

Subject Area: End Device Event

Subject Area: Financial

Subject Area: Generating Unit

Subject Area: Line Model

Subject Area: Load Model

Subject Area: Location

Subject Area: Meter Asset

Subject Area: Meter Event and Reading

Subject Area: Meter Reading

Subject Area: Meter Reading and Control Overview

Subject Area: Meter Reading Register and Channel

Subject Area: Meter Reading Type

Subject Area: Meter Reading and Events

Subject Area: Network Operation

Subject Area: Outage Management

Subject Area: Party Organization Business Unit

Subject Area: Payment

Subject Area: Premise and Node

Subject Area: Pricing Structure

Subject Area: Promotion and Campaign

Subject Area: Phase Model

Subject Area: Regulating Equipment Model

Subject Area: SCADA

Subject Area: Schedule Model

Subject Area: Substation, Feeder, and Transformer Hierarchy Model

Subject Area: Switching Equipment Model

Subject Area: Tap Changer Model

Subject Area: Transformer Model

Subject Area: Usage Point, Agreement, Account, Customer, and Premise

Subject Area: Usage Point and End Device

Subject Area: Voltage Control Model

Subject Area: Weather Model

Subject Area: Work Management

> **Note:** The entity-relationship figures of the major reference entities in those subject areas are available with the Oracle Utilities Data Model IP Patch. The IP Patch includes additional documentation. To obtain the IP Patch and for the latest information about Oracle Utilities Data Model patch sets, go to My Oracle Support at https://support.oracle.com.

Subject Area: Account

This subject area contains major classes relevant to account and their relationships. Table 2–2 lists the entities associated with the subject area Account.

Table 2–2   Entities of Subject Area: Account

Account Entity List

Account

Account Accounting Cycle History

Account Assignment

Account Assignment Reason

Account Assignment Type

Account Balance Adjustment

Account Balance Bucket

Account Balance Group

Account Balance Impact

Account Balance Type

Account Billing Cycle History

Account Billing Frequency History

Account Billing Occurrence

Account Billing Period History

Account Management History

Account Payment

Account Payment Method Status

Account Payment Method Status Reason

Account Payment Method Status Type

Account Preferred Invoice Delivery

Account Preferred Payment Method

Account Profile

Account Role Type

Account Segment

Account Segment Assignment History

Account Segmentation Model

Account Status History

Account Status Reason

Table 2–2   (Cont.) Entities of Subject Area: Account

Account Entity List

Account Status Type

Account Type

Accounting Cycle

Address Location

Bank Direct Debit Channel

Billing Cycle

Billing Frequency

Billing Occurrence Type

Billing Period

Credit Category

Currency

Customer

Customer Account Assignment

Event Invoice Delivery

Invoice

Invoice Delivery Type

Language

Organization Business Unit

Party

Party Account Assignment

Payment Method Type

Segment Criteria

Segment Type

Unit Of Measure

Subject Area: Account Balance

Table 2–3   Entities of Subject Area: Account Balance

Account Balance Entity List

Account

Account Adjustment Reason

Account Balance Adjustment

Account Balance Adjustment Type

Account Balance Bucket

Account Balance Group

Account Balance History

Account Balance Type

Subject Area: Account Credit Limit

Table 2–4   Entities of Subject Area: Account Credit Limit

Account Credit Limit Entities
Account
Account Credit Limit
Credit Category
Currency
Debt Aging Band
Payment Aging Class
Product Subscription

Subject Area: Agreement

Table 2–5   Entities of Subject Area: Agreement

Agreement Entity List
Account
Account Agreement Relationship
Agreement
Agreement Approval
Agreement Assignment
Agreement Assignment Reason
Agreement Assignment Type
Agreement Document
Agreement Item
Agreement Status
Agreement Status Type
Agreement Type
Customer
Customer Account Assignment
Customer Document
Customer Order
Document Type
Installment Agreement
Invoice
Invoice Payment Term Type
Party Agreement Relationship
Promotion

Subject Area: Asset

This subject area contains the core information that support asset management applications that deal with the physical and lifecycle aspects of various network resources.

Table 2–6   Entities of Subject Area: Asset

Asset Entity List
Activity Record
Asset
Asset Activity Record Assignment
Asset Container
Asset Function
Asset Info
Asset Location
Asset Model
Asset Model Catalog
Asset Model Catalog Item
Asset Organization Role
Asset Organization Role Assignment
Asset Owner
Asset PSR Assignment
Asset Type
Asset User
Bushing
Com Media
Com Module
Compatible Unit
Compatible Unit Procedure Assignment
Configuration Event
Customer
End Device
End Device Function
FACTS Device
Financial Info
Joint
Manufacturer
Measurement
Operation Tag
Pole
Power System Resource

Table 2–6   (Cont.) Entities of Subject Area: Asset

Asset Entity List

Procedure

Procedure Asset Assignment

Product Asset Model

Product Asset Model Function Assignment

Scheduled Event

Scheduled Event Asset Assignment

Seal

Streetlight

Structure

Structure Support

Tower

Underground Structure

Work Asset

Work Task

Work Task Asset Assignment

Subject Area: Asset Information Classes

Table 2–7   Entities of Subject Area: Asset Information Classes

Asset Information Classes Entity List

Asset Info

Busbar Section Info

Composite Switch Info

Current Transformer Info

End Device Info

Fault Indicator Info

Potential Transformer Info

Power Transformer Info

Protection Equipment Info

Shunt Compensator Info

Surge Arrester Info

Switch Info

Tap Changer Info

Transformer End Info

Transformer Tank Info

Wire Info

Wire Spacing Info

Subject Area: Billing

Table 2–8   Entities of Subject Area: Billing

Billing Entity List

Account

Account Billing Cycle History

Account Billing Frequency History

Account Billing Occurrence

Account Billing Period History

Account Payment

Account Preferred Payment Method

Account Refund

Billing Cycle

Billing Frequency

Billing Period

Currency

Employee

Employee Job Role Assignment

Event Invoice Delivery

Invoice

Invoice Adjustment

Invoice Adjustment Quota

Invoice Delivery Format

Invoice Delivery Type

Invoice Discount

Invoice Discount Reason

Invoice Discount Type

Invoice Item

Invoice Item Detail

Invoice Item Detail Type

Invoice Item Relationship

Invoice Item Type

Invoice Payment Assignment

Invoice Payment Term

Invoice Status History

Invoice Status Type

Job Role

Language

Organization Business Unit

Table 2–8   (Cont.) Entities of Subject Area: Billing

Billing Entity List

Price Event

Price Type

Tax Category

Unit Of Measure

Subject Area: Business Events

This subject area provides the common base for business events.

Table 2–9   Entities of Subject Area: Business Events

Business Events Entity List

Account Event Type

Address Location

Campaign Channel

Channel

Event

Event Account

Event Assignment

Event Assignment Reason

Event Assignment Type

Event Category

Event Class

Event Employee Payroll

Event Equipment Instance

Event Geography

Event Invoice Delivery

Event Loyalty Program

Event Party Assignment

Event Party Interaction

Event Party Profile

Event Party Role

Event Reason

Event Reason Category

Event Resolution

Event Response Reason

Event Result

Event Status

Event Status Reason

Event Status Type

Table 2–9   (Cont.) Entities of Subject Area: Business Events

Business Events Entity List
Event Type
GL Account
Invoice
Invoice Delivery Type
Loyalty Program Event Type
Organization Business Unit
Party
Party Event Type

Subject Area: Business Interaction

This subject area provides the common base for business interaction as an arrangement, contract, communication, or joint activity.

Table 2–10   Entities of Subject Area: Business Interaction

Business Interaction Entity List
Account
Account Business Interaction Role
Appointment
Appointment Type
Base Work
Business Interaction
Business Interaction Assignment
Business Interaction Assignment Type
Business Interaction Item
Business Interaction Item Price
Business Interaction Location Assignment
Business Interaction Role
Business Interaction Status History
Business Interaction Status Reason
Business Interaction Status Type
Business Interaction Type
Business Interaction Version
Customer
Customer Account Assignment
Party
Party Business Interaction Role
Product Subscription
Purchase Order

Table 2–10   (Cont.) Entities of Subject Area: Business Interaction

Business Interaction Entity List

Purchase Order Line Item

Resource Order

Resource Order Item

Service

Service Order

Service Order Line Item

Work Order

Work Task

Subject Area: Channel

This subject area identifies all the channels through which customers interact with the utility company for campaign, promotion, sales, or services purposes.

Table 2–11   Entities of Subject Area: Channel

Business Channel Entities List

Bank Direct Debit Channel

Campaign Channel

Campaign Channel Type

Channel

Channel Type

Event

Event Party Interaction

Interaction Channel

Party

Payment Channel

Sales Channel

Subject Area: Connectivity Model

This subject area provides connectivity information among power systems resources through connectivity node.

Table 2–12   Entities of Subject Area: Connectivity Model

Connectivity Model Entity List

AC Line Segment

ACDC Terminal

Base Voltage

Breaker

Clamp

Conducting Equipment

Table 2–12   (Cont.) Entities of Subject Area: Connectivity Model

Connectivity Model Entity List

Connectivity Node

Connectivity Node Container

Cut

DC Conducting Equipment

DC Line Segment

Energy Consumer

Equipment

Equipment Container

Generating Unit

Jumper

Jumper Action

Measurement

Operational Limit Set

Operational Restriction

Outage

PSR Type

Power System Resource

Power System Resource Location

Power Transformer

Power Transformer End

Protected Switch

Recloser

Regulating Cond Eq

Substation

Switch

Switch Action

Switch Phase

Switch Switching Operation Assignment

Switching Operation

Synchrocheck Relay

Terminal

Topological Node

Transformer Tank

Usage Point

Usage Point Equipment Assignment

Subject Area: Cost

This subject area contains major classes relevant to cost which might incurred from any operation or event which can be tracked at certain level.

Table 2–13   Entities of Subject Area: Cost

Cost Entity List
Account
Accounting Item Category
Cost
Cost Reason
Cost Subtype
Cost Type
GL Account
Party
Party Cost Assignment
Project
Project Element

Subject Area: Curve Schedule

A multi-purpose curve or functional relationship between an independent variable (X-axis) and dependent (Y-axis) variables.

Table 2–14   Entities of Subject Area: Generation Curve Schedule Model

Generation Curve Schedule Model Entity List
Basic Interval Schedule
Curve
Curve Data
Irregular Interval Schedule
Irregular Time Point
Regular Interval Schedule
Regular Time Point

Subject Area: Customer

This subject area contains the core information that supports customer management.

Table 2–15   Entities of Subject Area: Customer

Customer Entity List
Account
Account Payment
Address Location
Agreement
Agreement Usage Point Assignment

Table 2–15   (Cont.) Entities of Subject Area: Customer

Customer Entity List

Baring Reason

Black List History

Calendar Month

Credit Score Provider

Customer

Customer Account Assignment

Customer Group

Customer Group Assignment

Customer Individual

Customer Mining

Customer Occasion

Customer Occasion Type

Customer Organization

Customer Restricted Info

Customer Revenue Band

Customer Revenue Band Assignment

Customer SIC Assignment

Customer Score

Customer Segment

Customer Segmentation Model

Customer Source

Customer Type

Derived Value

Education

External Credit Profile

External Credit Profile Assignment

External Organization Type

Gender

Household

Initiative Result Type

Interaction Type

Invoice

Job

Language

Marital Status

Nationality

Party

Table 2–15   (Cont.) Entities of Subject Area: Customer

Customer Entity List

Party Promotion Response

Party Status Change Reason

Party Status History

Promotion

Prospect

SOC Job

SOC Job Category

SOC Job Group

Segment Criteria

Unit Of Measure

Usage Point

Value Type

Subject Area: Customer Account and Agreement

This subject area presents a simplified view on the relationship between customer, account, and agreement.

Table 2–16   Entities of Subject Area: Customer Account and Agreement

Customer Account and Agreement Entity List

Account

Account Type

Agree Item Pricing Struct Assignment

Agreement

Agreement Item

Agreement Type

Agreement Usage Point Assignment

Customer

Customer Account Assignment

Customer Type

Pricing Structure

Usage Point

Subject Area: Demand Response Program

Table 2–17   Entities of Subject Area: Demand Response Program

Demand Response Program Entity List

Agreement

Customer

Customer Mining

Table 2–17   (Cont.) Entities of Subject Area: Demand Response Program

Demand Response Program Entity List

DR Prog End Device Grp Assignment

DR Program Agreement Assignment

Demand Response Program

End Device Group

Usage Point Group

Subject Area: Employee

Table 2–18   Entities of Subject Area: Employee

Employee Entity List

Business Unit Job Role

Employee

Employee Actual Labor Hourly

Employee Cost

Employee Designation

Employee Job Role Assignment

Employee Job Role Type

Employee Language Capability

Employee Restricted Infoo

Employee Schedulee

Employee Training Record

Employee Type

Job Role

Organization Business Unit

Party

Subject Area: End Device Control

This subject area contains core information on end device control (or an end device group) to perform a specified action.

Table 2–19   Entities of Subject Area: End Device Control

End Device Control Entity List

End Device

End Device Control

End Device Control Type

End Device Ctrl Primary Device Timing

End Device Ctrl Secondary Device Timing

End Device End Device Ctrl Assignment

End Device End Device Grp Assignment

Table 2–19   (Cont.) Entities of Subject Area: End Device Control

End Device Control Entity List

End Device Group

Meter

Usage Point

Usage Point Group

Usage Point Grp End Device Ctrl Assignment

Subject Area: End Device Event

This subject area contains core information on end device event detected by a device function associated with end device.

Table 2–20   Entities of Subject Area: End Device Event

End Device Event Entities

End Device

End Device End Device Ctrl Assignment

End Device Event

End Device Event Detail

End Device Event Type

End Device Group

Meter

Meter Reading

Usage Point

Subject Area: Financial

This subject area contains the major classes on financial part of the utility business. Tariff and Pricing Structure are included and linked to Invoice and Agreement, respectively.

Table 2–21   Entities of Subject Area: Financial

Financial Entity List

Account

Agree Item Pricing Struct Assignment

Agreement

Agreement Item

Cost

GL Account

GL Journal Entry

GL Ledger

GL Ledger Account Assignment

Invoice

Table 2–21   (Cont.) Entities of Subject Area: Financial

Financial Entity List

Invoice Item

Invoice Item Detail

Invoice Item Detail Type

Pricing Structure

Pricing Structure Tariff Assignment

Tariff

Tariff Profile

Tariff Tariff Profile Assignment

Subject Area: Generating Unit

Table 2–22   Entities of Subject Area: Generating Unit

Generating Unit Entity List

Air Compressor

CAES Plant

Cogeneration Plant

Combined Cycle Plant

Curve

Gen Unit Op Cost Curve

Gen Unit Op Schedule

Generating Unit

Generating Unit Rotating Machine Assignment

Gross To Net Active Power Curve

Hydro Generating Unit

Nuclear Generating Unit

Power System Resource

Regular Interval Schedule

Rotating Machine

Steam Sendout Schedule

Synchronous Machine

Thermal Generating Unit

Wind Generating Unit

Subject Area: Line Model

This area includes major classes relevant to the transmission line model to support network operation.

Table 2–23   Entities of Subject Area: Line Model

Line Model Entities

AC Line Segment

Conducting Equipment

Conductor

Equipment

Equipment Container

Line

Per Length Impedance

Per Length Phase Impedance

Per Length Sequence Impedance

Phase Impedance Data

Power System Resource

Series Compensator

Sub Geographical Region

Subject Area: Load Model

This subject area provides modeling of the energy consumers and the system load as curves and associated curve data. Special circumstances such as seasons and day types are also included.

Table 2–24   Entities of Subject Area: Load Model

Load Model Entity List

Conducting Equipment

Conform Load

Conform Load Group

Conform Load Schedule

Day Type

Energy Area

Energy Consumer

Equipment

Equipment Container

Load Area

Load Group

Load Response Characteristic

Non Conform Load

Non Conform Load Group

Non Conform Load Schedule

Season

Season Day Type Schedule

Table 2–24   (Cont.) Entities of Subject Area: Load Model

Load Model Entity List

Station Supply

Sub Load Area

Substation

Subject Area: Location

Table 2–25   Entities of Subject Area: Location

Location Entity List

Address Location

Asset

Asset Location

Geography Building

Geography City

Geography Complex

Geography Country

Geography County

Geography Demographic Group

Geography Demography Attribute

Geography Demography Value

Geography Entity

Geography Entity Assignment

Geography Entity Hier Level Assignment

Geography Hierarchy

Geography Hierarchy Level

Geography Level

Geography Region

Geography State

Geography Street

Geography Sub Region

Geography World

Location

Measurement Location

Power System Resource

Power System Resource Location

Usage Point

Usage Point Location

Work Location

Zone

Subject Area: Meter Asset

This subject area presents meter from asset perspective.

Table 2–26   Entities of Subject Area: Meter Asset

Meter Asset Entity List

Asset

Asset Container

Asset Info

Asset Model

Asset Type

End Device

End Device Function

Manufacturer

Meter

Meter Register Assignment

Product Asset Model

Reading Channel

Reading Type

Register

Subject Area: Meter Event and Reading

This subject area contains the basic information on meter events and reading.

Table 2–27   Entities of Subject Area: Device Event and Measurement

Device Event and Measurement Entity List

Activity Record

Asset

Asset Container

Base Reading

End Device

End Device Function

Final Reading

Initial Reading

Measurement Value

Meter

Meter Reading

Meter Register Assignment

Reading Channel

Reading Type

Table 2–27   (Cont.) Entities of Subject Area: Device Event and Measurement

Device Event and Measurement Entity List

Register

Subject Area: Meter Reading

Table 2–28   Entities of Subject Area: Meter Reading

Meter Reading Entities

Agreement

Base Reading

End Device

Final Reading

Identified Object

Initial Reading

Invoice Item

Invoice Item Detail

Measurement Value

Meter

Meter Reading

Reading Quality

Reading Quality Type

Reading Reason Kind ENUM

Reading Type

Service Quantity

Usage Point

Usage Read Cycle

Subject Area: Meter Reading and Events

This subject area contains core information on end device event detected by a device function associated with end device.

Table 2–29   Entities of Subject Area: Meter Reading and Events

Meter Reading and Events Entities

Activity Record

Asset

Asset Activity Record Assignment

Asset Container

Base Reading

End Device

End Device Domain

End Device Event

Table 2–29   (Cont.) Entities of Subject Area: Meter Reading and Events

Meter Reading and Events Entities

End Device Event Detail

End Device Event Or Action

End Device Event Type

End Device Sub Domain

Final Reading

Initial Reading

Meter

Meter Reading

Reading Quality

Reading Quality Type

Reading Type

Subject Area: Meter Reading and Control Overview

Table 2–30   Entities of Subject Area: Meter Reading and Control Overview

Meter Reading and Control Overview

Agreement

Agreement Usage Point Assignment

Base Reading

Campaign

Customer Facing Service

DR Prog End Device Grp Assignment

DR Program Agreement Assignment

Demand Response Program

Electricity Service

End Device

End Device Control

End Device Control Type

End Device End Device Ctrl Assignment

End Device End Device Grp Assignment

End Device Event

End Device Event Detail

End Device Event Type

End Device Function

End Device Function Kind ENUM

End Device Group

End Device Grp End Device Ctrl Assignment

Final Reading

Table 2–30 (Cont.) Entities of Subject Area: Meter Reading and Control Overview

Meter Reading and Control Overview

Initial Reading

Measurement Value

Meter

Meter Reading

Promotion

Reading Quality+

Reading Quality Type

Reading Type

Service

Usage Point

Usage Point End Device Ctrl Assignment

Usage Point Group

Usage Point Grp End Device Ctrl Assignment

Usage Point Location

Usage Read Cycle

Subject Area: Meter Reading Register and Channel

This subject area contains the core information on meter reading, register, and reading channel.

Table 2–31   Entities of Subject Area: Meter Reading Register and Channel

Meter Reading Register and Channel Entities

Com Function

Connect Disconnect Function

End Device

End Device Function

Meter

Meter Reading

Meter Register Assignment

Reading Channel

Reading Channel Identifier

Reading Type

Register

Simple End Device Function

Subject Area: Meter Reading Type

Table 2–32   Entities of Subject Area: Meter Reading Type

Meter Reading Type Entities

Consumption Tier

Critical Peak Period

Currency

Energy Flow Direction

Interharmonics

Measurement Kind

Phase

Reading Accumulation Behavior

Reading Data Qualifier

Reading Time Attribute

Reading Time Period

Reading Type

Time Of Use

Unit Multiplier

Unit Of Measure

Utility Commodity

Subject Area: Network Operation

Table 2–33   Entities of Subject Area: Network Operation

Network Operation Entities

AC Line Segment

AC Line Segment Phase

Active Power Limit

Apparent Power Limit

Asset

Asset PSR Assignment

Clamp

Clearance Action

Clearance Document

Conducting Equipment

Conductor

Connect Disconnect Function

Current Limit

Cut

Cut Action

Table 2–33   (Cont.) Entities of Subject Area: Network Operation

Network Operation Entities

End Device Function

Equipment

Generic Action

Incident

Jumper

Jumper Action

Operating Participant

Operating Share

Operation Tag

Operational Limit

Operational Limit Set

Operational Restriction

Outage

Outage Schedule

Power System Resource

Safety Document

Switch

Switch Action

Switch Connect Disconnect Func Assignment

Switch Phase

Switch Switching Operation Assignment

Switching Activity

Switching Activity Safety Doc Assignment

Switching Operation

Switching Plan

Switching Step

Switching Step Group

Tag Action

Voltage Limit

Work Task

Work Task Asset Assignment

Subject Area: Outage Management

Table 2–34   Entities of Subject Area: Outage Management

Outage Management Entities

Conducting Equipment

Customer

Table 2–34   (Cont.) Entities of Subject Area: Outage Management

Outage Management Entities

Customer Outage Notification Assignment

End Device

Equipment

Fault

Incident

Incident Work Assignment

Meter

Outage

Outage Code

Outage Notification

Outage Plan

Outage Record

Outage Record Code Assignment

Outage Report

Outage Schedule

Outage Step

Outage Step Code Assignment

Phase Connected Fault

Planned Outage

Switch

Switch Action

Switching Plan

Trouble Ticket

Usage Point

Work Order

Subject Area: Party Organization Business Unit

Table 2–35   Entities of Subject Area: Party Organization Business Unit

Party Organization Business Unit Entities

Address Location

Call Center

Call Center Service Capability

Cost Center

Language

Market Area

Market Area Level

Organization Area

Table 2–35   (Cont.) Entities of Subject Area: Party Organization Business Unit

Party Organization Business Unit Entities

Organization Banner

Organization Business Entity

Organization Business Unit

Organization Business Unit Type

Organization Chain

Organization Company

Organization Corporate

Organization District

Organization Hierarchy

Organization Hierarchy Level

Organization Hierarchy Level Assignment

Organization Hierarchy Version

Organization Level

Organization Level Attribute Value

Organization Level Attributes

Organization Market Data

Organization Region

Organization Service Website

Organization Warehouse

Organizational Demography Value

Service Coverage Area

Service Coverage Geo Detail

Virtual Team

Subject Area: Payment

Table 2–36   Entities of Subject Area: Payment

Payment Entities

Account

Account Balance History

Account Balance Impact

Account Balance Type

Account Payment

Account Payment Balance Impact

Account Payment Method Status

Account Payment Method Status Type

Account Preferred Payment Method

Account Refund

Table 2–36   (Cont.) Entities of Subject Area: Payment

Payment Entities

Account Refund Reason

Agree Item Pricing Struct Assignment

Agreement

Agreement Item

Bank Direct Debit Channel

Currency

Customer

Customer Account Assignment

Debt Collection

Employee

Event

Invoice

Invoice Adjustment

Invoice Payment Assignment

Invoice Payment Term

Invoice Payment Term Type

Organization Business Unit

Party Account Assignment

Party Account Assignment Type

Payment Method Type

Payment Transaction Type

Pricing Structure

Subject Area: Phase Model

Table 2–37   Entities of Subject Area: Phase Model

Phase Model Entities

AC Line Segment

AC Line Segment Phase

Conducting Equipment

Conductor

Energy Consumer

Energy Consumer Phase

Measurement

Power System Resource

Regulating Cond Eq

Shunt Compensator

Shunt Compensator Phase

Table 2–37   (Cont.) Entities of Subject Area: Phase Model

Phase Model Entities

Switch

Switch Phase

Terminal

Subject Area: Premise and Node

This subject area contains the core information on service location (premise) and its relationships such as the ones with usage point and end device.

Table 2–38   Entities of Subject Area: Premise and Node

Premise and Node Entities

Address Location

Asset

Asset Container

Asset Location

Connectivity Node

Connectivity Node Container

End Device

Equipment

Equipment Container

Power System Resource

Service Location

Service Location Identifier

Usage Point

Usage Point Equipment Assignment

Usage Point Location

Subject Area: Pricing Structure

This subject area contains the core information on pricing structure such as tariff and relation to agreement class.

Table 2–39   Entities of Subject Area: Pricing Structure

Pricing Structure Entities

Agree Item Pricing Struct Assignment

Agreement

Agreement Item

Consumption Tariff Interval

Demand Tariff Interval

Pricing Structure

Pricing Structure Tariff Assignment

Table 2–39   (Cont.) Entities of Subject Area: Pricing Structure

Pricing Structure Entities

Rate

Service Category

Service Type

Tariff

Tariff Profile

Tariff Tariff Profile Assignment

Time Tariff Interval

Subject Area: Promotion and Campaign

Table 2–40   Entities of Subject Area: Promotion and Campaign

Promotion and Campaign Entities

Campaign

Campaign Channel

Campaign Channel Assignment

Campaign Channel Type

Campaign Characteristic

Campaign Characteristic Value

Campaign Management History

Campaign Message

Campaign Message Creative

Campaign Message Depiction

Campaign Relationship

Campaign Status

Campaign Term Value

Campaign Type

Contact List

Contact List Change Reason

Contact List Recurrence Type

Customer Segment

Event Party Interaction

Geography Entity

Initiative Type

Market Area

Market Segment

Market Segment Inclusion

Media Object

Media Object Assignment

Table 2–40   (Cont.) Entities of Subject Area: Promotion and Campaign

Promotion and Campaign Entities

Media Object Type

Organization Business Unit

Party

Party Contact List Participation

Party Contact List Role

Party Management Role

Party Market Segment Assignment

Party Promotion Response

Product Offering

Promotion

Promotion Cluster Usage

Promotion Contact List Utilization

Promotion Management History

Promotion Message Rendering

Promotion Product Offering Assignment

Promotion Relationship

Promotion Result Type

Promotion Sales Channel Assignment

Promotion Term Type

Promotion Term Value

Promotion Type

Proposal

Proposal Relationship

Prospect

Prospect Priority Type

Prospect Quality Score Type

Prospect Quality Score Value

Prospect Reject Reason

Publication

Sales Channel

Source System

Source System Type

Target Account

Target Agreement

Target Geography Area

Target Type

Subject Area: Regulating Equipment Model

The diagram shows all classes related to equipment regulation and reactive power compensation.

Table 2–41   Entities of Subject Area: Regulating Equipment Model

Regulating Equipment Model Entities

Control

Frequency Converter

Regulating Cond Eq

Regulating Control

Regulation Schedule

Rotating Machine

Shunt Compensator

Static Var Compensator

Synchronous Machine

Tap Changer

Tap Changer Control

Tap Schedule

Terminal

Subject Area: SCADA

This subject area contains entities to model information used by Supervisory Control and Data Acquisition (SCADA) applications.

Table 2–42   Entities of Subject Area: SCADA

SCADA Entities

Communication Link

Control

Identified Object

Measurement Value

Power System Resource

Remote Control

Remote Point

Remote Source

Remote Unit

Remote Unit Communication Link Assignment

Subject Area: Schedule Model

This area covers schedules relevant to wires model.

Table 2–43   Entities of Subject Area: Schedule Model

Schedule Model Entities
Basic Interval Schedule
Day Type
Regular Interval Schedule
Regular Time Point
Regulating Control
Regulation Schedule
Season
Season Day Type Schedule
Switch
Switch Schedule
Tap Changer
Tap Schedule

Subject Area: Substation, Feeder, and Transformer Hierarchy Model

Table 2–44   Entities of Subject Area: Substation Feeder and Transformer

Substation Feeder and Transformer Entities
Connectivity Node Container
Equipment
Equipment Container
Feeder
Feeder Substation Assignment
Power System Resource
Substation
Transformer Feeder Assignment
Transformer Tank
Usage Point
Usage Point Transformer Assignment

Subject Area: Switching Equipment Model

This area covers switching equipment inheritance structure.

Table 2–45   Entities of Subject Area: Switching Equipment Model

Switching Equipment Model Entities
Breaker
Disconnector
Fuse
Ground Disconnector

Table 2–45   (Cont.) Entities of Subject Area: Switching Equipment Model

Switching Equipment Model Entities

Ground Switch

Jumper

Load Break Switch

Protected Switch

Recloser

Sectionaliser

Switch

Subject Area: Tap Changer Model

This area covers major classes related for the transformer tap model.

Table 2–46   Entities of Subject Area: Tap Changer Model

Tap Changer Model Entities

Phase Tap Changer

Phase Tap Changer Asymmetrical

Phase Tap Changer Linear

Phase Tap Changer Non Linear

Phase Tap Changer Symmetrical

Phase Tap Changer Tabular

Phase Tap Changer Tabular Point

Power Transformer

Power Transformer End

Ratio Tap Changer

Ratio Tap Changer Tabular

Ratio Tap Changer Tabular Point

Regulating Control

Regulation Schedule

Tap Changer

Tap Schedule

Transformer End

Subject Area: Transformer Model

Table 2–47   Entities of Subject Area: Transformer Model

Transformer Model Entities

Base Voltage

Conducting Equipment

Power Transformer

Table 2–47 (Cont.) Entities of Subject Area: Transformer Model

Transformer Model Entities

Power Transformer End

Terminal

Transformer Core Admittancee

Transformer End

Transformer Mesh Impedance

Transformer Star Impedance

Transformer Tank End

Subject Area: Usage Point, Agreement, Account, Customer, and Premise

Table 2–48 Entities of Subject Area: Usage Point, Agreement, Account, Customer, and Premise

Usage Point, Agreement, Account, Customer, and Premise Entities

Account

Agreement

Agreement Usage Point Assignment

Customer

Customer Account Assignment

Service Location

Usage Point

Subject Area: Usage Point and End Device

Table 2–49 Entities of Subject Area: Usage Point and End Device

Usage Point and End Device Entities

Agreement

Asset

Asset Container

Asset Status

Asset Type

Com Function

Connect Disconnect Function

End Device

End Device Event Type

Lifecycle Date

Market Role

Meter

Meter Identifier

Meter Reading

Table 2–49   (Cont.) Entities of Subject Area: Usage Point and End Device

Usage Point and End Device Entities

Meter Status

Reading Type

Service Category

Service Supplier

Status

Usage Point

Usage Read Cycle

Subject Area: Voltage Control Model

Table 2–50   Entities of Subject Area: Voltage Control Model

Voltage Control Model Entities

Busbar Section

Connector

Power System Resource

Regulation Schedule

Season Day Type Schedule

Voltage Control Zone

Subject Area: Weather Model

Table 2–51   Entities of Subject Area: Weather Model

Weather Model Entities

Activity Record

Address Location

Asset

Asset Activity Record Assignment

Asset Container

Atmospheric Pressure

Cloud Information

End Device

Flood Information

Meter

Precipitation

Sea Condition

Spot Temperature

Usage Point

Weather Alert

Table 2–51   (Cont.) Entities of Subject Area: Weather Model

Weather Model Entities

Weather Forecast

Weather Information

Weather Location

Wind Information

Subject Area: Work Management

Table 2–52   Entities of Subject Area: Work Management

Work Management Entities

Base Work

Business Case

Crew

Crew Work Task Assignment

Incident

Incident Work Assignment

Meter Service Work

Outage Record

Project

Tool

Vehicle

Work Asset

Work Billing Info

Work Cost Detail

Work Cost Summary

Work Flow Step

Work Location

Work Order

Work Status Entry

Work Task

Work Time Schedule

Logical Entities for Business Areas

The business area lists contain a list of subject areas that the business area contains.

> **Note:** The notion of a business area is not strict. That is, some business areas are overlapping. Thus, a logical entity can belong to, or be needed in several business areas. Some logical entities are not explicitly listed because they either only represent a relationship between tables, are not critically important to any business area, or are simply lookup entities. For more information, see Section , "About Business Areas and Subject Areas in Oracle Utilities Data Model".

Table 2–53 lists the business areas in Oracle Utilities Data Model:

Table 2–53   List of Business Areas

Business Area
Business Area: Account Management
Business Area: Asset Management
Business Area: Customer Management
Business Area: Meter Reading and Control
Business Area: Network Operation
Business Area: Outage Management
Business Area: Weather Model
Business Area: Work Management

> **Note:** The subject area figures showing complete diagrams with attributes and entities are available with the Oracle Utilities Data Model IP Patch. The IP Patch includes additional documentation. To obtain the IP Patch and for the latest information about Oracle Utilities Data Model patch sets, go to My Oracle Support at https://support.oracle.com.

Business Area: Account Management

This business area contains information to support utility customers with the tracking, status, and plans with matters such as service requests, service agreements, monthly billing, reported trouble, planned outages, outage history, and so on.

Table 2–54   Business Area: Account Management

Business Area Account Management
Subject Area: Account
Subject Area: Account Balance
Subject Area: Account Credit Limit
Subject Area: Agreement
Subject Area: Billing
Subject Area: Cost
Subject Area: Location
Subject Area: Payment

Table 2–54   (Cont.) Business Area: Account Management

Business Area Account Management

Subject Area: Pricing Structure

Subject Area: Promotion and Campaign

Business Area: Asset Management

This business area is mainly on the information management for network data sets, assets, and asset catalogs.

Table 2–55   Business Area: Asset Management

Business Area Asset Management

Subject Area: Asset

Subject Area: Asset Information Classes

Subject Area: Agreement

Business Area: Customer Management

This business area includes customer service, trouble management, and point of sale related information within the utility enterprise.

Table 2–56   Business Area: Customer Management

Business Area Customer Management

Subject Area: Channel

Subject Area: Business Interaction

Subject Area: Customer

Subject Area: Customer Account and Agreement

Subject Area: Demand Response Program

Subject Area: Financial

Subject Area: Premise and Node

Subject Area: Usage Point, Agreement, Account, Customer, and Premise

Subject Area: Usage Point and End Device

Business Area: Meter Reading and Control

This business area focuses on meter reading, event, and control information within the utility enterprise.

Table 2–57   Business Area: Meter Reading and Control

Business Area Meter Reading and Control

Subject Area: Meter Event and Reading

Subject Area: Business Interaction

Subject Area: End Device Control

Subject Area: End Device Event

Subject Area: Meter Reading and Control Overview

Table 2–57   (Cont.) Business Area: Meter Reading and Control

Business Area Meter Reading and Control

Subject Area: Meter Reading and Events

Subject Area: Meter Reading

Subject Area: Meter Reading Register and Channel

Subject Area: Meter Reading Type

Business Area: Network Operation

This business area provides the information on network operation for both distribution and transmission within utility industry such as supervising main substation topology, control equipment status, handling network connectivity, and loading conditions. It also makes it possible to locate and supervise the location of field crews.

Table 2–58   Business Area: Network Operation

Business Area Network Operation

Subject Area: Business Interaction

Subject Area: Connectivity Model

Subject Area: Curve Schedule

Subject Area: Generating Unit

Subject Area: Line Model

Subject Area: Load Model

Subject Area: Network Operation

Subject Area: Phase Model

Subject Area: Regulating Equipment Model

Subject Area: SCADA

Subject Area: Schedule Model

Subject Area: Switching Equipment Model

Subject Area: Substation, Feeder, and Transformer Hierarchy Model

Subject Area: Tap Changer Model

Subject Area: Transformer Model

Subject Area: Voltage Control Model

Business Area: Outage Management

This business area supports the utilities to identify disruptions in the system, to carry out restoration switching actions and to provide customers with notification of disruptions detected.

Table 2–59   Business Area: Outage Management

Business Area Outage Management

Subject Area: Outage Management

Business Area: Weather Model

This is a weather model to support utility operation.

Table 2–60   Business Area: Weather Model

Business Area Account Management Subject Areas
Subject Area: Weather Model

Business Area: Work Management

This area contains the core information classes that support work management and network extension planning applications.

Table 2–61   Business Area: Work Management

Business Area Account Management Subject Areas
Subject Area: Work Management

Logical Data Model Entity Dictionary

Table 2–62, Table 2–63, and Table 2–64 list the logical data model entities, in alphabetical order.

Table 2–62   Utilities Data Model Entities A-H

Entity Name	Type	Description
AC Line Segment	Reference	A wire or combination of wires, with consistent electrical characteristics, building a single electrical system, used to carry alternating current between points in the power system. For symmetrical, transposed 3ph lines, it is sufficient to use attributes of the line segment, which describe impedances and admittances for the entire length of the segment. Additionally impedances can be computed by using length and associated per length impedances.
AC Line Segment Phase	Reference	Represents a single wire of an alternating current line segment.
Acceptance Test	Reference	Acceptance test for assets.
Account	Reference	The account tracks the financial interactions of a customer with the utility. It is normally generated by a contract between the utility and customer. One customer may have multiple accounts.
Account Accounting Cycle History	Base	Billing cycle status history for accounts.
Account Adjustment Reason	Lookup	The reason why the adjustment was put on the customer account.
Account Agreement Relationship	Reference	The association history from account the contract.
Account Arrears Month Drvd	Derived	Account arrears month derived.
Account Assignment	Reference	This entity keeps relationship between accounts. For example: parent account and child account.
Account Assignment Reason	Lookup	Explain why two accounts are related.
Account Assignment Type	Lookup	The type of relationship between two accounts. For example, a corporation account can have several affiliated accounts.
Account Balance Adjustment	Base	Add the adjustment to customer account Account/Receivable. The credit is positive values.
Account Balance Adjustment Type	Lookup	The categories of adjustment applied to a customer account.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Account Balance Bucket	Base	Balance of customer account which may be used in prepaid business.
Account Balance Group	Reference	The balance group concept allows one account have multiple balance groups, which applies to different groups of services. This is optional entity.
Account Balance History	Base	Balance history of account subjected to the primary currency. The balance value was classified by the balance type. The adjusted, due, received, used amounts in the same period are also captured.
Account Balance Impact	Base	The account balance change details, because of a specific event, such as an account payment.
Account Balance Month Drvd	Derived	Derived fact table on account balance by month. It aggregates over customer/account level.
Account Balance Type	Lookup	Type of account balance. For example: water, gas, kwh usage.
Account Billing Cycle History	Reference	Billing cycle status history for accounts.
Account Billing Frequency History	Reference	Billing Frequency history for accounts.
Account Billing Occurrence	Base	Each billing occurrence happened to the account. The billing occurrence might be triggered by billing cycle or some other events like account termination. In each billing occurrence, there may be multiple invoices generated.
Account Billing Period History	Reference	Billing period history for accounts.
Account Business Interaction Role	Reference	The Business Interaction Role which can be assigned by a Customer Account.
Account Credit Limit	Base	The credit limit on the customer, which is imposed on the account basis.
Account Debt	Base	Account Debt
Account Debt Day Drvd	Derived	The summarized daily debt status for each account. The account is deemed as in debt status when and only when there is a "debt collection" record to indicate the collection.
Account Event Type	Lookup	This entity keeps all categories of account event type.
Account Management History	Base	Sub type of Party Account assignment. The Account management history tracks the management relationship from employee to the accounts, including Account Creation (through sales channel), and Accounts update/termination.
Account Payment	Base	The payments table records details of each allocation of money from a receipt made by a Party to a specific account. It is the receipt of a single sum of money from a party as a credit against an outstanding balance for the provision and/or supply of products or services.
Account Payment Balance Impact	Base	The account balance impact originated from account payments.
Account Payment Day Drvd	Derived	Daily aggregation of payments made by all customers. Derive from Account Payment. The difference between this entity and payment aging drvd, is that this one aggregates based on payment transactions, while the payment aging aggregates based on invoices, which is payment due.
Account Payment Method Status	Base	Status history of each account preferred payment method. For example: ■ Active ■ Inactive ■ Invalid For Direct Debit Status, it defines current and original payment status of account, and maybe changed or terminated according to contract.
Account Payment Method Status Hist Drvd	Derived	Current status of the payment methods for each account. The information helps tracking the progress of direct debit applications and thus in processing the application as soon as possible. Derived from Account Payment Method Status. Direct debit status fact gives information about the current direct debit accounts and also the status of the new applications for the direct debit. Status can be accepted, rejected or pending.
Account Payment Method Status Reason	Lookup	This entity will be used to keep why the status is changed. For example: reject reason could be not sufficient balance.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Account Payment Method Status Type	Lookup	Lookup for types of account Payment Method Status. For example: Active, Inactive, payment rejected. Postpaid customers can pay their bills using the direct debit facility wherein they if they have their bank accounts in certain banks (listed with the company for Direct Debit), monthly bill can be directly deducted from the bank account of the customer.
Account Preferred Invoice Delivery	Reference	The preferred invoice delivery type history for account. This also include the billing address location information specific for an account.
Account Preferred Payment Method	Reference	This entity contains preferred payment methods for the accounts.
Account Profile	Reference	To record more details about the account. To be customized. This is currently a placeholder.
Account Recharge	Base	The recharge made into the customer account.
Account Refund	Base	The customer refund is the money transferred back to customer account, which is normally based on invoice adjustment made.
Account Refund Reason	Lookup	The reason why refund may occur. For example: ■ INVC_ADJ: Invoice Adjustment ■ TAX_RFND: Tax Refund
Account Role Type	Lookup	The type of ACCOUNT ROLEs. For example, primary account, secondary account, and so on. This can build a secondary classification system other than account type.
Account Segment	Reference	The segments identifying distinct groupings of accounts with similar characteristics. Those segments are typically generated from the data mining analysis.
Account Segment Assignment History	Reference	Assign account segment to each account.
Account Segmentation Model	Reference	Used to cluster the account.
Account Status History	Base	The history of account status change, including disconnect, reconnect, and so on.
Account Status Month Drvd	Derived	The status change information about all accounts at every day. Derived from Account Status History.
Account Status Reason	Lookup	The reason why the account reaches its status at the time.
Account Status Type	Lookup	This level broadly classifies the status into categories such as Connected and Disconnected customer accounts.
Account Type	Lookup	Type of account.
Accounting Cycle	Reference	Accounting cycle is internal billing cycle, which calculate the usage amount and update account balance for accounting G/L purpose.
Accounting Item Category	Lookup	A specific account code that can be associated with an incurred Cost. For example: Operations, Staffing, Supplies.
Accumulator	Base	Accumulator represents a accumulated (counted) measurement. For example, an energy value.
Accumulator Limit	Reference	Limit values for Accumulator measurements.
Accumulator Limit Set	Reference	Specifies a set of Limits that are associated with an Accumulator measurement.
Accumulator Limit Set Assignment	Reference	Accumulator limit set assignment.
Accumulator Value	Base	Accumulator Value represents an accumulated (counted) Measurement Value.
ACDC Terminal	Reference	An electrical connection point (AC or DC) to a piece of conducting equipment. Terminals are connected at physical connection points called connectivity nodes.
Active Power Limit	Reference	Limit on active power flow.
Activity Record	Base	Records activity for an entity at a point in time; activity may be for an event that has already occurred or for a planned activity.
Address Location	Reference	Keeps all addresses. It has levels as country, state, city, address and so on.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Agree Item Pricing Struct Assignment	Reference	Pricing structure assigned to an agree item.
Agreement	Reference	Legal agreement between a Service Provider and an account. (its not for changed contract only)
Agreement Approval	Base	Approval to the contract from operator's authorized employee if the contract requires higher level approval or review.
Agreement Assignment	Base	Contracts are related to each other for various reasons, like one new contract to replace existing one.
Agreement Assignment Reason	Lookup	Lookup for reasons of why two contracts are related.
Agreement Assignment Type	Lookup	Lookup for types of the assignment between two contracts.
Agreement Document	Reference	The document provided by customer when contract was signed. For example: ■ Photocopy image of customer ID ■ The contract itself ■ Any other document attached to the contract
Agreement Item	Reference	Detail items for the contract between customer and utility. Each item may use a different service or product.
Agreement Status	Base	The status history of the contract.
Agreement Status Type	Lookup	Lookup type of all possible contract status. For example: 1. Newly created for new account 2. Renewed automatically. 3. Terminated.
Agreement Type	Lookup	The type of Contracts.
Agreement Usage Point Assignment	Reference	Agreement that a usage point has.
Air Compressor	Reference	Combustion turbine air compressor which is an integral part of a compressed air energy storage (CAES) plant.
AMI Billing Ready Kind ENUM	Lookup	Lifecycle states of the metering installation at a usage point with respect to readiness for billing through advanced metering infrastructure reads.
Analog	Base	Analog represents an analog measurement.
Analog Limit	Reference	Limit values for analog measurements.
Analog Limit Set	Reference	An Analog Limit Set specifies a set of limits that are associated with an analog measurement.
Analog Limit Set Assignment	Reference	Analog limit set assignment.
Analog Value	Base	Analog value represents an analog measurement Value.
Anchor Kind ENUM	Lookup	Kind of anchor.
ANZSIC Classification	Reference	The SIC code used in Australia and New Zealand.
Apparent Power Limit	Reference	Apparent power limit.
Appointment	Base	The appointment between two parties to define a future time conducting businesses. For example the customer visit appointment, between sales representative and the customer, and support appointment between the customer and the engineer. In the appointment, the parties involved are tracked in Party Business Interaction Role'. The Business Interaction Date inherited should contain the date when the appointment was created, and appointed date is "appointment start date".
Appointment Type	Lookup	Captures the appointment types. For example: ■ Customer Sale ■ Repair

Table 2–62 (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Asset	Reference	Tangible resource of the utility, including power system equipment, various end devices, cabinets, buildings, and so on. For electrical network equipment, the role of the asset is defined through Power System Resource and its subclasses, defined mainly in the Wires model (refer to IEC61970-301 and model package IEC61970::Wires). Asset description places emphasis on the physical characteristics of the equipment fulfilling that role.
Asset Activity Record Assignment	Reference	Activity record of an asset.
Asset Appraisal History	Base	The valuation history of the asset.
Asset Condition History	Base	The condition history of an asset, as inspected by internal employee or contractors. Those are more important for vehicles or buildings.
Asset Container	Reference	Asset that is aggregation of other assets such as conductors, transformers, switchgear, land, fences, buildings, equipment, vehicles, and so on.
Asset Function	Reference	Function performed by an asset.
Asset Info	Reference	Set of attributes of an asset, representing typical data-sheet information of a physical device that can be instantiated and shared in different data exchange contexts:- as attributes of an asset instance (installed or in stock), as attributes of an asset model (product by a manufacturer), as attributes of a type asset (generic type of an asset as used in designs/extension planning).
Asset Location	Reference	Location of an asset.
Asset Model	Reference	Model of an asset, either a product of a specific manufacturer or a generic asset model or material item. Data-sheet characteristics are available through the associated Asset Info subclass and can be shared with asset or power system resource instances.
Asset Model Catalog	Reference	Catalog of available types of products and materials that are used to build or install, maintain or operate an Asset. Each catalog item is for a specific product (Asset Model) available from a specific supplier.
Asset Model Catalog Item	Reference	Provides pricing and other relevant information about a specific manufacturer's product (that is, Asset Model), and its price from a given supplier. A single Asset Model may be available from multiple suppliers. A manufacturer and supplier are both types of organization, which the association is inherited from Document.
Asset Model Usage Kind ENUM	Lookup	Usage for an asset model.
Asset Organization Role	Reference	Role an organization plays with respect to asset.
Asset Organization Role Assignment	Reference	Organization role of an asset such as owner, operator and so on.
Asset Owner	Reference	Owner of the asset.
Asset PSR Assignment	Reference	Power System Resource assigned to an asset.
Asset Status	Reference	Current status information relevant to an entity.
Asset Type	Lookup	Type of Asset.
Asset User	Reference	Organization that is a user of the asset.
Assignment	Reference	This is a super class of assignment tables.
Atmospheric Pressure	Base	Atmospheric Pressure
Bank	Reference	Keep information of banks.
Bank Direct Debit Channel	Reference	Subtype to the payment channel, which tracks various bank channels where customer can pay by direct debt method. Customers can go to the bank and pay the bill by cash in the bank. This is allowed only through specific banks.
Baring Reason	Lookup	Lookup defining reasons a customer may be banned from using a service.
Base Reading	Base	Common representation for reading values. A reading value may have multiple qualities, as produced by various systems ('ReadingQuality.source').
Base Voltage	Reference	Defines a system base voltage which is referenced.
Base Work	Reference	Common representation for work and work tasks.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Basic Interval Schedule	Reference	Schedule of values at points in time.
Billing Cycle	Reference	The Bill Cycles table documents each billing cycle. Typically it's per month (Billing cycle). Sometimes customer may be billed at different date inside the billing cycle. For example: - First day of month 10th day of month For example: - Billing cycle is a month, which is one bill (Billing Frequency) 30 Days (Billing Period)
Billing Frequency	Reference	The billing frequency specifies the number of billing periods that comprise the billing cycle.
Billing Occurrence Type	Lookup	Specifies the type of billing occurrence, which could be classified by triggering type. For example, - Triggered by customer enquiry - Triggered by automatic billing cycle
Billing Period	Lookup	The billing period specifies the unit to be used to calculate the billing cycle (such as day or month).
Black List History	Base	To keep track of black listed customers. Those records might be because of late payment, default, or fraud.
Breaker	Reference	A mechanical switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal circuit conditions. For example, those of short circuit.
Busbar Section	Reference	A Conductor, or group of Conductors, with negligible impedance, that serve to connect other conducting equipment within a single substation. Voltage measurements are typically obtained from VoltageTransformers that are connected to busbar sections. A bus bar section may have many physical terminals but for analysis is modeled with exactly one logical terminal.
Busbar Section Info	Reference	Busbar section data.
Bushing	Reference	Bushing asset.
Bushing Insulation Kind ENUM	Lookup	Insulation kind for bushings.
Business Case	Reference	Business justification for capital expenditures, usually addressing operations and maintenance costs as well.
Business Half Month	Reference	Specifies information relating to a fortnight in a Business Calendar.
Business Half Year	Reference	Specifies information relating to half year in a Business Calendar.
Business Interaction	Base	An abstracted entity to provide the common base for customer order and contract. A Business Interaction is an arrangement, contract, communication or joint activity between one or more Party Roles, ResourceRoles, or CustomerAccounts. A Business Interaction may consist of one or more Business Interaction Items. A Business Interaction Item may refer to a Product, Service, Resource, or one of their specifications. A Business Interaction is further defined by one or more Places. One Business Interaction may reference another Business Interaction and one Business Interaction Item may reference another Business Interaction Item on the same or different Business Interaction. There are five types of Business Interactions: Requests, Responses, Notifications, Agreements, and Instructions.
Business Interaction Assignment	Reference	Defines the relationship between two Business Interactions.
Business Interaction Assignment Type	Lookup	Business interaction assignment type, such as subordinate business interaction, and so on.
Business Interaction Item	Base	The detail items included in the Business Interaction. The purpose for the Business Interaction is expressed in terms of a Product Type, Service Type or may refer to a Product or Service.
Business Interaction Item Price	Base	The actual price charged to the Business Interaction Item.

Table 2–62 (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Business Interaction Location Assignment	Reference	The Business Interaction Role which can be assigned to an address. For example: ■ Billing address ■ Shipment address
Business Interaction Role	Base	The roles which can be played by Party or other Business Interaction elements like Resource, and so on.
Business Interaction Status History	Base	The status history of a Business Interaction. For example: ■ Submitted ■ Closed ■ Canceled Both current status and historical status should be captured and they can be differentiated by effective to date.
Business Interaction Status Reason	Lookup	The reason to explain why a Business Interaction has had a change in status.
Business Interaction Status Type	Lookup	Lookup for available business interaction status types and descriptions. For example: Active Closed.
Business Interaction Type	Lookup	Business interaction type, such as Customer Order, Contract, and so on.
Business Interaction Version	Reference	Specifies the ability to distinguish between different instances of Business Interaction.
Business Legal Status	Lookup	The legal status of the company. The value might be Public Company, Private.
Business Month	Reference	Specifies information relating to a month in a Business Calendar.
Business Quarter	Reference	Specifies information relating to a quarter in a Business Calendar.
Business Unit Job Role	Reference	Capture the specific job role for an organization.
Business Week	Reference	Specifies information relating to a week in a Business Calendar.
Business Year	Reference	Specifies information relating to a year in a Business Calendar.
CAES Plant	Reference	Compressed air energy storage plant.
Calendar Half Month	Reference	Captures information relating to a fortnight in a Normal Calendar.
Calendar Half Year	Reference	Captures information relating to half year in a Normal Calendar.
Calendar Month	Reference	Captures information relating to a month in a Normal Calendar.
Calendar Quarter	Reference	Captures information relating to a quarter in a Normal Calendar.
Calendar Week	Reference	Captures information relating to a week in a Normal Calendar.
Calendar Year	Reference	Specifies information relating to a year in a Normal Calendar.
Call Center	Reference	The utility may have multiple call centers in different locations, for different timezone or language purpose.
Call Center Agent	Reference	All the possible agents with whom the customer can make a contact. For example: IVR, Human Agent and so on.
Call Center Case Sub Type	Lookup	Lookup table that further characterizes the type of cases from the call center. It helps in splitting a given case type in various sub-types. For example, "outage".
Call Center Case Title	Lookup	Further classify the call center case sub type. In order to serve the customer properly call center has organized approach. Customer complaints called as cases are classified using three level classification structures. All the cases are broadly classified into Call Center Case Type.
Call Center Case Type	Lookup	Lookup for types of call center cases. For example: ■ Cmpl - Complain ■ Inqry - Inquery ■ Srv - Service Request
Call Center Service Capability	Reference	Assigns the languages, products, or geographical areas which the call center can serve to the call center.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Campaign	Reference	A campaign is a concentrated effort to enhance the image of the enterprise, in order to retain, acquire or consolidate customers.
Campaign Channel	Reference	The campaign channel is used for `Campaign`, or by which customer can know the product. A channel can be a specific news group (/media company) which issues newspaper, TV channel and so on. A piece of newspaper of a block/slot on the paper is a publication/media object. It can be categorized by `Campaign Channel Type`.
Campaign Channel Assignment	Reference	The assignment to define which campaign is launched at which `Campaign Channel`.
Campaign Channel Type	Lookup	This entity keeps the channel type, which is used to `Campaign`. For example: ■ Newspaper ■ TV ■ Magazine
Campaign Characteristic	Reference	A characteristic quality or distinctive feature of a `Campaign`. The characteristic can be take on a discrete value, such as number of press releases, can take on a range of values. For example, number of prospects reached 50,000 - 100,000), or can be derived from a formula (for example, number of brokerage house pickups = sum of all brokerage house instance characteristics).
Campaign Characteristic Value	Reference	A number or text that can be assigned to a `Campaign Characteristic`.
Campaign Document	Reference	The customer documents provided during campaign activities.
Campaign Management History	Reference	The history of campaign party role about management of a `Campaign`. The party here can be not only the sales or marketing employee at the utility, it can also be campaign partner.
Campaign Message	Reference	Holds details about the execution message used in a `Campaign`.
Campaign Message Creative	Base	Information about the creative content of the message.
Campaign Message Depiction	Reference	Details about how the execution message is depicted for a `Campaign`. This dimension table holds details about how the execution message is depicted, for a `Campaign`.
Campaign Relationship	Reference	Defines the relationship between two `Campaign`s. For example, to replace/upgrade, to enhance, and so on.
Campaign Status	Lookup	This entity keeps strategy or business objective of the `Campaign`.
Campaign Term Value	Reference	The term value for a given `Campaign`.
Campaign Type	Lookup	This entity keeps types of `Campaign`s. For example: a targeted promotion (to specific individuals, account or group of accounts), a mass market promotion (to a massive audience usually through radio, television and newspaper).
Channel	Reference	Identifies all the channels through which customers interact with the provider for sales or services purposes. Each channel by itself is also a `Party`, and Channel provide another way to group parties with same functionality to the service provider. In current model, for most of channels, the analytical hierarchy should be: `Party` (with internal levels)
Channel Type	Lookup	Channel Type is used to classify the channels according to their functionalities. For example: 1. Sales Channel 2. Payment Channel 3. Debt collection channel 4. Loyalty Program Channel (where to join/change/redeem loyalty program).
Charge Kind ENUM	Lookup	Kind of charge.
Clamp	Reference	A Clamp is a galvanic connection at a line segment where other equipment is connected. A Clamp does not cut the line segment. A Clamp is `Conducting Equipment` and has one Terminal with an associated `Connectivity Node`. Any other `Conducting Equipment` can be connected to the Clamp `Connectivity Node`.
Clearance Action	Reference	Action on cut as a switching step.
Clearance Action Kind ENUM	Lookup	Kind of action on cut or jumper.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Clearance Document	Reference	Safety document used to authorize work on conducting equipment in the field. Tagged equipment is not available for commercial service.
Cloud Information	Base	Cloud Information.
Cogeneration Plant	Reference	A set of thermal generating units for the production of electrical energy and process steam (usually from the output of the steam turbines). The steam sendout is typically used for industrial purposes or for municipal heating and cooling.
Collection Agency	Reference	Subtype of Party, who collects customer debt on behalf of the operator under some financial agreements.
Com Direction Kind ENUM	Lookup	Kind of communication direction.
Com Function	Reference	Com Function
Com Media	Reference	Communication media such as fiber optic cable, power-line, telephone, and so on.
Com Module	Reference	An asset having communications capabilities that can be paired with a meter or other end device to provide the device with communication ability, through associated communication function. An end device that has communications capabilities through embedded hardware can use that function directly (without the communication module), or combine embedded communication function with additional communication functions provided through an external communication module.
Com Technology Kind ENUM	Lookup	Kind of communication technology.
Combined Cycle Plant	Reference	A set of combustion turbines and steam turbines where the exhaust heat from the combustion turbines is recovered to make steam for the steam turbines, resulting in greater overall plant efficiency.
Command	Base	A command is a discrete control used for supervisory control.
Communication Link	Reference	The connection to remote units is through one or more communication links. Redundant links may exist. The CommunicationLink class inherit Power System Resource. The intention is to allow CommunicationLinks to have Measurements. These Measurements can be used to model link status as operational, out of service, unit failure and so on.
Compatible Unit	Reference	A pre-planned job model containing labor, material, and accounting requirements for standardized job planning.
Compatible Unit Procedure Assignment	Reference	Compatible Unit Procedure Assignment
Composite Switch Info	Reference	Properties of a composite switch.
Composite Switch Kind ENUM	Lookup	Kind of composite switch.
Conducting Eqp Protection Eqp Assignment	Reference	Protection equipment assigned to a conducting equipment.
Conducting Equipment	Reference	The parts of the AC power system that are designed to carry current or that are conductively connected through terminals.
Conductor	Reference	Combination of conducting material with consistent electrical characteristics, building a single electrical system, used to carry current between points in the power system.
Configuration Event	Base	Used to report details on creation, change or deletion of an entity or its configuration.
Conform Load	Reference	Conform load represent loads that follow a daily load change pattern where the pattern can be used to scale the load with a system load.
Conform Load Group	Reference	A group of loads conforming to an allocation pattern.
Conform Load Schedule	Reference	A curve of load versus time (X-axis) showing the active power values (Y1-axis) and reactive power (Y2-axis) for each unit of the period covered. This curve represents a typical pattern of load over the time period for a given day type and season.
Connect Disconnect Function	Reference	A function that will disconnect and reconnect the customer's load under defined conditions.
Connectivity Node	Reference	Connectivity nodes are points where terminals of AC conducting equipment are connected together with zero impedance.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Connectivity Node Container	Reference	A base class for all objects that may contain connectivity nodes or topological nodes.
Connector	Reference	A Conductor, or group of Conductors, with negligible impedance, that serve to connect other conducting equipment within a single substation and are modelled with a single logical terminal.
Consumption Tariff Interval	Reference	One of a sequence of intervals defined in terms of consumption quantity of a service such as electricity, water, gas, and so on. It is typically used in association with Tariff Profile to define the steps or blocks in a step tariff structure, where startValue simultaneously defines the entry value of this step and the closing value of the previous step. Where consumption is >= startValue it falls within this interval and where consumption is < startValue it falls within the previous interval.
Consumption Tier	Reference	Tier define by consumption amount.
Contact List	Reference	Lists of potential and existing customer for Campaigns. Contact Lists can be created from marketing activity (running certain models), or obtained from another Organization.
Contact List Change Reason	Lookup	Lookup of possible reasons for changing the Contact List. When contact list is changed, the SCD2 columns will capture the change and provide reason for change.
Contact List Recurrence Type	Lookup	A categorization of the recurrence of a Contact List. For example: - W = Once a Week - M = Once a Month - Y = Once a Year - MI = Once a month with Invoice
Contact Roles	Lookup	Describes the various roles a contact individual may play in the relationship with the operator.
Control	Base	Control is used for supervisory/device control. It represents control outputs that are used to change the state in a process. For example, close or open breaker, a set point value or a raise lower command.
Control Type	Lookup	Specifies the type of Control. For example: - BreakerOn/Off - GeneratorVoltageSetPoint - TieLineFlow The ControlType.name shall be unique among all specified types and describe the type. The ControlType.aliasName is meant to be used for localization.
Coolant Type ENUM	Lookup	Method of cooling a machine.
Corporate Standard Kind ENUM	Lookup	Kind of corporate standard.
Cost	Base	Define the cost might incurred from any operation or event which is trackable at certain level.
Cost Center	Reference	To categorize the different cost charges inside the utility for different purpose. Organization can own multiple cost center for different project/product operation.
Cost Reason	Lookup	Lookup of all possible reasons why the cost occurred. For example, natural disaster, operator error, and so on.
Cost Subtype	Lookup	Further classify cost type. For example, For "cost to customer", subtype could be acquire cost, retention cost, and so on. For "cost to employee", subtype could be salary, and so on. For "cost to channel", subtype could be damage, new equipment, repairing fee.
Cost Type	Lookup	Lookup for types of costs. For example, the cost is to the customer, channel, or to the employee.
Credit Category	Reference	Category based on customer credit.
Credit Score Provider	Reference	Credit score provider provide reference financial rating scores for each customers to the service provider. It is also called Credit rating agency.
Crew	Reference	Group of people with specific skills, tools, and vehicles.
Crew Member	Reference	Crew Member

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Crew Type	Reference	Custom description of the type of crew. This may be used to determine the type of work the crew can be assigned to. For example: ■ Repair ■ Tree trimming ■ Switching
Crew Work Task Assignment	Reference	Work task assigned to a crew.
Critical Peak Period	Reference	Critical peak period usually associated with a peak pricing.
Currency	Lookup	The currencies represented by ISO currency codes.
Currency ENUM	Lookup	Monetary currencies.
Currency Exchange Rate	Base	Exchange rate against the primary currency, as determined by exchange rate type and value date.
Currency Geography Entity Assignment	Reference	To define currency usage in different area.
Current Limit	Reference	Operational limit on current.
Current Relay	Reference	A device that checks current flow values in any direction or designated direction.
Current Transformer Info	Reference	Properties of current transformer asset.
Curve	Reference	A multi-purpose curve or functional relationship between an independent variable (X-axis) and dependent (Y-axis) variables.
Curve Data	Base	Multi-purpose data points for defining a curve. The use of this generic class is discouraged if a more specific class can be used to specify the x and y axis values along with their specific data types.
Curve Style ENUM	Lookup	Style or shape of curve.
Customer	Reference	All the customers, including individual and organization customers. A customer is generally defined as a party using one or more services from the operator.
Customer Account Assignment	Reference	To define relationship between customer and account including the history on the relationship.
Customer Document	Reference	Various customer proof document provided for customer order, contract, and so on.
Customer Facing Service	Reference	This is the base class for defining Customer Facing Services. A Customer Facing Service is an abstraction that defines the characteristics and behavior of a particular Service as seen by the Customer or other appropriate Party Role. This means that this Party Role purchases, leases, uses and/or is otherwise directly aware of this type of Service. This is in direct contrast to ElementFacingServices, which support CustomerFacingServices but are not seen or purchased directly by the Customer. Customer Facing Service is visible to the customer, therefore can be purchased to be a subscription.
Customer Group	Lookup	The lookup code for grouping the customers based on any criteria defined by the service operator.
Customer Group Assignment	Reference	A grouping of the customers based on any criteria defined by the service operator.
Customer Individual	Reference	Subtype of Customer (and Party), which contains details of individuals as opposed to organizations.
Customer Kind ENUM	Lookup	Customer kind (meant for enumerated list).
Customer Mining	Derived	The result measures from mining analysis.
Customer Occasion	Reference	It stores an event celebrated or observed by a customer. For example: ■ Birthday ■ Anniversary ■ Company establishment day, or other festivals
Customer Occasion Type	Lookup	A categorization of Customer Occasions.
Customer Order	Base	Captures information about orders placed by customers.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Customer Order Document	Reference	The document provided while submitted customer order.
Customer Order Line Item	Base	Captures information about each item in the customer order.
Customer Organization	Reference	Subtype of Customer (and Party), which contains details of organizations as opposed to individuals. An organization can also consist of one individual only (for example, "independent").
Customer Outage Notification Assignment	Reference	To define which customers an outage notification sends to.
Customer Restricted Info	Reference	It captures the restricted information for the customer or prospects - typically personal information used in segmentation. (income level, and so on).
Customer Revenue Band	Lookup	Customer classification in its income/revenue term. For example: Customer with income/revenue of $10000/Month, or 1Billion/Year (organizational). This is not to be confused with "ARPU Band", which bins the customer revenue (monthly payment as an example) to the operator.
Customer Revenue Band Assignment	Reference	To determine revenue band of customer. Customer's revenue band may drift month by month.
Customer Score	Reference	Scores or Score ranges that may be assigned to a customer based on credit, behavior, or other criteria. For example: 1,2,3,4,5 or 1~10,1 1~20. Customer score can be rated based on the Customer Behavior, Credit, or another criteria.
Customer Segment	Reference	The Segments table holds details of customer segments identified by business analysis activities, like Data Mining. A segment identifies distinct groupings of customers or accounts with similar characteristics. The segments are typically used in marketing Campaigns.
Customer Segmentation Model	Reference	The segmentation model used to profile the customers. For example, ■ KMeans by Revenue from Market Department ■ O-Clustering by IT department
Customer SIC Assignment	Reference	To keep track of how the customer is related to the SIC/NASIC, and also keep the history. One Organization may operate in multiple business area. For individual customer, this indicate the job he is taking.
Customer Source	Reference	How the customer came in touch to the sales team. For example: ■ Campaign ■ Advertisement ■ Call Center Very important for campaign planning and management.
Customer Type	Lookup	This level identifies or groups customers such as residential or corporate.
Customer Work Assignment	Reference	Customer Work Assignment
Cut	Reference	A cut separates a line segment into two parts. The cut appears as a switch inserted between these two parts and connects them together. As the cut is normally open there is no galvanic connection between the two line segment parts. But it is possible to close the cut to get galvanic connection. The cut terminals are oriented towards the line segment terminals with the same sequence number. Hence the cut terminal with sequence number equal to 1 is oriented to the line segment's terminal with sequence number equal to 1. The cut terminals also act as connection points for jumpers and other equipment. For example, a mobile generator. To enable this, connectivity nodes are placed at the cut terminals. Once the connectivity nodes are in place any conducting equipment can be connected at them.
Cut Action	Reference	Action on cut as a switching step.
Cut Jumper Action Kind ENUM	Lookup	Kind of action on cut or jumper.
Day	Reference	Calendar day in the day dimension.
Day Type	Lookup	Group of similar days. For example it could be used to represent weekdays, weekend, or holidays.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
DC Conducting Equipment	Reference	The parts of the DC power system that are designed to carry current or that are conductively connected through terminals.
DC Line Segment	Reference	A wire or combination of wires not insulated from one another, with consistent electrical characteristics, used to carry direct current between points in the DC region of the power system.
Debt Aging Band	Lookup	Ranges of time used to group debt based on the age of the debt. For example: ■ 0-90 days ■ 91-180 days Postpaid customers are billed on a monthly basis for the usage of services in the month. At the end of the billing month for the customer an invoice is sent to the customer for which customer is supposed to pay by payment due date.
Debt Collection	Base	A special type of interaction to collect defaulted payment from customer by the in-house debt collector.
Debt Collection Assignment	Base	The assignment of debt collection case to external debt collection agency. Currently the status of the collection is tracked inside the assignment. If detailed status history is required, another 2 "Status History + Status Type" entities could be created.
Debt Collection Assignment Batch	Base	Normally the collection assignment are sent to collector in a batch.
Demand Response Program	Reference	Demand response program.
Demand Tariff Interval	Reference	One of a sequence of time intervals defined in terms of real time. It is typically used in association with Tariff Profile to define the intervals in a time of use tariff structure, where startDateTime simultaneously determines the starting point of this interval and the ending point of the previous interval.
Demographic Characteristic	Reference	A feature or quality used to make recognizable or to define somebody or something, such as age, income, education, revenue, and so forth.
Demography Attribute	Reference	A sub-level group or category further qualifying a set of data (Profile Group) collected about a customer to assist in marketing efforts. For example: ■ NC - Number of Children ■ EDL - Education Level
Demography Group	Reference	The domain of classifications used to group profile information about a Party. For example: ■ CH - Credit History ■ ED- Education, EM - Employment ■ EQ- Equipment ■ HB - Hobbies ■ HH - Household ■ OR - Organization, and other relevant demog
Derived Value	Reference	This entity stores the derived value of the customer. These value could have multiple value types or value measures.
Direct Debit Status Reason	Lookup	Lookup for various reason the direct debit payment become the current status. For example: ■ Customer preferred choice which means the customer may not like credit card. ■ Customer imposed when the CSP imposes this way, after issues with the credit card or cash payment.
Disconnector	Reference	A manually operated or motor operated mechanical switching device used for changing the connections in a circuit, or for isolating a circuit or equipment from a source of power. It is required to open or close circuits when negligible current is broken or made.
Discrete	Base	Discrete represents a discrete Measurement. That is, a Measurement representing discrete values. For example, a Breaker position.
Discrete Value	Base	DiscreteValue represents a discrete Measurement Value.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Document	Reference	Parent class for different groupings of information collected and managed as a part of a business process. It will frequently contain references to other objects, such as assets, people and power system resources.
Document Status	Base	Current status information relevant to an entity.
Document Type	Lookup	All types of the documents customer may provide to service provider for identification. For example: 1. Driver License Photocopy. 2. Address certification. 3. Bank Card photocopy.
Document Type Group	Lookup	The group of document types of which customer may provide to service provider for identification. For example Mandatory Document, Legal Requirement, Income Proof Document, and so on. For example: 1. Driver License Photocopy. 2. Address certification. 3. Bank Card photocopy.
Document Type Group Assignment	Reference	Assigns different document types into different document type groups.
DR Prog End Device Grp Assignment	Reference	End device group assigned to a demand response program.
DR Program Agreement Assignment	Reference	Agreement related to a demand response program.
DR Program Load Reduction By Region Day Drvd	Derived	Derived table on demand response program resulted load reduction by region by day.
Education	Lookup	The education level of the customer.
Electricity Service	Reference	Electricity service
Employee	Reference	Employee of the utility. Sub entity of party individual.
Employee Actual Labor Hourly	Base	The actual shifts the hourly employees have worked in, including break time.
Employee Cost	Base	Subtype of cost, which occurs to employee. For example, salary and bonus for employee.
Employee Designation	Lookup	The various designations present in an organization for the employees. For example, Consultant, Engineer and so on.
Employee Job Role Assignment	Reference	Keep the relationship between employee and job role.
Employee Job Role Type	Lookup	Delegate, primary role, or secondary role.
Employee Language Capability	Reference	The languages the employee can serve, especially for call center agent and sales representatives.
Employee Restricted Info	Reference	It captures the restricted information for the employee.
Employee Schedule	Reference	This entity stores the planned schedule for an employee, which consists of the store, job role and shift the employee is planned to be working for.
Employee Training Record	Base	A record that a particular employee has been trained in performing a particular Task.
Employee Type	Lookup	This lookup describes types of Employee. Possible values can be PartTime, Contractual, Full Time and so on.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
End Device	Reference	Asset container that performs one or more end device functions. One type of end device is a meter which can perform metering, load management, connect/disconnect, accounting functions, and so on. Some end devices, such as ones monitoring and controlling air conditioner, refrigerator, pool pumps may be connected to a meter. All end devices may have communication capability defined by the associated communication function(s). An end device may be owned by a consumer, a service provider, utility or otherwise. There may be a related end device function that identifies a sensor or control point within a metering application or communications systems (for example, water, gas, electricity). Some devices may use an optical port that conforms to the ANSI C12.18 standard for communications.
End Device Capability	Reference	End Device Capability
End Device Control	Base	Instructs an end device (or an end device group) to perform a specified action.
End Device Control Type	Reference	Detailed description for a control produced by an end device. Values in attributes allow for creation of recommended codes to be used for identifying end device controls as follows: <type>.<domain>.<subDomain>.<eventOrAction>.
End Device Ctrl Primary Device Timing	Base	Timing for the control actions of end devices.
End Device Ctrl Secondary Device Timing	Base	Timing for the control actions of end devices.
End Device Domain	Lookup	End Device Domain
End Device End Device Ctrl Assignment	Reference	To define relationship between End Device and End Device Ctrl and the history of the relationship.
End Device End Device Grp Assignment	Reference	To define relationship between End Device and End Device Group and the history of the relationship.
End Device Event	Base	Event detected by a device function associated with end device.
End Device Event By Customer Day Drvd	Derived	Derived table on end device event by customer by day.
End Device Event by Customer Month Aggr	Aggregate	Aggregate fact table on end device event by customer by month.
End Device Event By Device Day Drvd	Derived	Derived table on end device event by device by day.
End Device Event By Device Month Aggr	Aggregate	Aggregate fact table on end device event by device by month.
End Device Event Detail	Reference	Name-value pair, specific to end device events.
End Device Event Or Action	Lookup	End device event or action.
End Device Event Type	Lookup	Detailed description for an event produced by an end device. Values in attributes allow for creation of recommended codes to be used for identifying end device events as follows: <type>.<domain>.<subDomain>.<eventOrAction>.
End Device Function	Reference	Function performed by an end device such as a meter, communication equipment, controllers, and so on.
End Device Function Kind ENUM	Lookup	Type of end device function.
End Device Group	Reference	Abstraction for management of group communications within a two-way Automated Meter Reading (AMR) system or the data for a group of related end devices. Commands can be issued to all of the end devices that belong to the group using a defined group address and the underlying AMR communication infrastructure.
End Device Grp End Device Ctrl Assignment	Reference	End device control capability assigned to an end device group.
End Device Info	Reference	End device data.
End Device Sub Domain	Lookup	End device sub domain.
End Device Type	Lookup	End device type.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Energy Area	Reference	The class describes an area having energy production or consumption.
Energy Consumer	Reference	Generic user of energy - a point of consumption on the power system model.
Energy Consumer Phase	Reference	A single phase of an energy consumer.
Energy Flow Direction	Lookup	Energy Flow Direction
Equipment	Reference	The parts of a power system that are physical devices, electronic or mechanical.
Equipment Container	Reference	A modeling construct to provide a root class for containing equipment.
Event	Base	This entity keeps track of all interactions with Service Provider. Event can occur related to a provider (for example, equipment down, service disruption) or a customer(for example, service order, paying bill). It will be used to track customer behavior, in order to make special campaigns or analyze cost of customers. Normally the event incurs some cost and may generate revenue for the operator.
Event Account	Base	The events occurring to account. For example: ■ Account suspension ■ Resumption ■ Account termination
Event Assignment	Base	This entity relates events to other Events. The Event Relationship reason describes why a relationship exist between two events.
Event Assignment Reason	Lookup	Lookup of all possible reasons why a relationship exists between two Events. Such as premise, result in.
Event Assignment Type	Lookup	Lookup of all types of relationship between two Events.
Event Category	Lookup	Root category of all Event Types, it's used to distinguish different events.
Event Chat	Base	The chat history between the service representative and the customer. It shares the pk from event, as event code.
Event Chat Detail	Base	The chat history details between the service representative and the customer. Each chat message is saved as one record.
Event Class	Lookup	A classification for the types of Events that can occur. For example: ■ IN: involves only utility ■ OUT: involves customer
Event Employee Payroll	Base	The payroll made to employee, except sales commission.
Event Equipment Instance	Base	A sub-type of event, it keeps all events, occurred for a specific Equipment.
Event Geography	Base	A subtype entity of Event, it keeps all events, which occurred for a specified Geographic Area which may affect the Business. For example: ■ Earth Quake ■ Power Outage ■ Strike, those event may lead to unexpected network service failure
Event Invoice Delivery	Base	The delivery of Invoice to customer. For example: 1. Printed letter 2. Email 3. Duplicate Printed Letter on request
Event Loyalty Program	Base	Events associated with each event or transaction on customer loyalty program. For example: Customer earn Loyalty points Bonus points are awarded to the customer Points are redeemed by Customer. This entity may be better named as "event account balance change".
Event Party Assignment	Base	This entity relates parties with events. A Party can have many events; and an event can involve many parties.
Event Party Interaction	Base	The Party Interactions table records all interactions or communications with the customer. The interactions include: - outages - inbound and outbound telemarketing - direct mail, SMS, email - service calls - complaints - Debt collection.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Event Party Interaction Call	Base	Sub type of Event Party Interaction, which represents all phone call interactions from the customer with details information including: holding, queuing, interaction time, run by the Automated Voice Response.
Event Party Interaction Email	Base	Sub type of Event Party Interaction, which represents the email interaction from customers.
Event Party Interaction Item	Base	When multiple threads are discussed in a single interaction event, this line item lists the involved threads and other information including accounts, subscriptions, and so on. This is also the M:M relationship between the interaction thread and the event.
Event Party Interaction Letter	Base	Sub Type of Event Party Interaction, which represents the interaction with customer through letter.
Event Party Interaction Participation	Base	Tracks multiple employees who participate in a same interaction with a customer.
Event Party Interaction Visit	Base	Subtype of Interaction event, to record all the visits to the stores (for sales or supports). Some shops equipped with Queuing machine can track customers queue Time, No Show, and so on.
Event Party Profile	Base	The Party Event table track all changes to party information. For example: ■ Address update ■ Marital status change
Event Party Role	Lookup	The code for the role that a Party has with an Event. For example: customer who reported the event, customer affected by event, party who caused the event.
Event Reason	Lookup	The reason that an event occurred and their descriptions. For example as account suspension because of arrearage.
Event Reason Category	Lookup	Provide an higher category for event reasons applied to each sub event entity.
Event Resolution	Lookup	The domain of results that may occur in the resolution of an Event.
Event Response Reason	Lookup	A reason for a particular response obtained for an event.
Event Result	Lookup	Lookup for the description of a result or any events. For example: ■ Successfully processed ■ Escalated ■ Refused by CSP Refused by customer ■ Impossible ■ Failed ■ Process error
Event Status	Base	Describes the event status such as completed, pending, in progress, suspended, canceled, abandoned.
Event Status Reason	Lookup	This entity describes the reason for the event status. For example, if the event status is rejected, the event status reason will describe the reason the event was rejected. Reasons include insufficient funds, card reported as stolen, and so on.
Event Status Type	Lookup	This entity describes the event status such as completed, pending, in progress, suspended, canceled, abandoned, and so on.
Event Type	Lookup	This entity keeps all types of events under each category: For example: 1. In Loyalty Program event 1.1 Points Accumulation. 1.2 Redemption. 2 Account Suspension (because of late payment, and so on).
Event Web Registration	Base	The event of customer registering at website to apply for service. The potential customer can register at website to apply for service. The call center then call them to confirm the order. Before the order was generated, the application form info (date, and so on) was saved in web registration with pointer to Party and Initiate.
Event Web Visit	Base	Subtype of Customer Interaction event, to track the customer visit on service provider website. This Web Visit Event contains the customer visit Session, and details of visited pages are in Interaction Navigation History.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
External Credit Profile	Reference	A source of information that helps define a credit worthiness of the customer.
External Credit Profile Assignment	Reference	To indicate which external agency/institute provided the credit profile for the given customer.
External Information Source	Reference	Represents the source from which the Demographic Information or customer information is obtained.
External Organization Type	Lookup	Type of the external organization.
FACTS Device	Reference	FACTS device asset.
FACTS Device Kind ENUM	Lookup	Type of FACTS device.
Fault	Reference	Abnormal condition causing current flow through conducting equipment, such as caused by equipment failure or short circuits from objects not typically modeled. For example, a tree falling on a line.
Fault Indicator Info	Reference	Parameters of fault indicator asset.
Fault Indicator Reset Kind ENUM	Lookup	Type of resetting the fault indicators.
Feeder	Reference	Substation feeder.
Feeder Substation Assignment	Reference	Substation a feeder is connected.
Final Reading	Base	Value measured by a meter or other asset, or calculated by a system. Each Reading is associated with a specific Reading Type.
Financial Info	Reference	Various current financial properties associated with a particular asset. Historical properties may be determined by Activity Records associated with the asset.
Fiscal Quarter	Reference	Quarter level in the fiscal calendar.
Fiscal Year	Reference	Year level in the fiscal calendar.
Flexible Characteristic	Reference	An abstracted entity to provide common structure for all type of characteristics. All various type of characteristics may be applicable to the subject, including product, service, network element, and so on. This is a flexible way to define addition attributes for those entities with complex features.
Flexible Characteristic Value	Reference	Possible values that a characteristic may take, including predefined choices, or free numeric values.
Flood Information	Base	Flood Information
Frequency Converter	Reference	A device to convert from one frequency to another (for example, frequency F1 to F2) comprises a pair of FrequencyConverter instances. One converts from F1 to DC, the other converts the DC to F2.
Fuse	Reference	An overcurrent protective device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it. A fuse is considered a switching device because it breaks current.
Gate Input Pin	Reference	Input pin for a special protection scheme gate.
Gen Unit Op Cost Curve	Reference	Relationship between unit operating cost (Y-axis) and unit output active power (X-axis). The operating cost curve for thermal units is derived from heat input and fuel costs. The operating cost curve for hydro units is derived from water flow rates and equivalent water costs.
Gen Unit Op Schedule	Reference	The generating unit's Operator-approved current operating schedule (or plan), typically produced with the aid of unit commitment type analyses. The X-axis represents absolute time. The Y1-axis represents the status (0=off-line and unavailable: 1=available: 2=must run: 3=must run at fixed power value: and so on.). The Y2-axis represents the must run fixed power value where required.
Gender	Lookup	Gender lookup table, male or female.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Generating Unit	Reference	A single or set of synchronous machines for converting mechanical power into alternating-current power. For example, individual machines within a set may be defined for scheduling purposes while a single control signal is derived for the set. In this case there would be a GeneratingUnit for each member of the set and an additional GeneratingUnit corresponding to the set.
Generating Unit Rotating Machine Assignment	Reference	Generating unit rotating machine assignment.
Generator Control Mode ENUM	Lookup	Unit control modes.
Generator Control Source ENUM	Lookup	The source of controls for a generating unit.
Generator Operating Mode ENUM	Lookup	Operating mode for secondary generator control.
Generic Action	Reference	An arbitrary switching step.
Geography Building	Reference	Building level in Geography Hierarchy. This is commonly used in urban areas where the service operator can server many customers in the same building.
Geography City	Reference	City level in Geography Hierarchy.
Geography Complex	Reference	Complex level in Geography Hierarchy. Complex include the complexes (a few building forming enclosed area) in the city, Universities, or industrial parks, and so on. Neighborhood is also named as "Community" or "complex". A complex consists of several buildings in the urban area.
Geography Country	Reference	Country level in Geography Hierarchy.
Geography County	Reference	County level in Geography Hierarchy. County may be at different levels in different countries. In this model, the county is defined as a level below the city, which is close to "District".
Geography Demographic Group	Reference	A classification for a Geo-Demographic Profile attribute. Groups include: Population Characteristics, Urban/Rural, Gender, Race, Ethnic Background, Age.
Geography Demography Attribute	Reference	A classification for a Geography Profile Group. For example: for the profile group race: Percent White, Percent Black, Percent Native American, Percent Pacific Islander/Asian, Percent Persons Of Hispani.
Geography Demography Value	Reference	This entity stores the value of the Gwo demography Profile. For example: Population the value (ex 102977) will be stored here).
Geography Entity	Reference	This describes the various physical geography entities that can be created. For example Geo Entities could be Sales Region North, State, country, city, street, building, and so on.
Geography Entity Assignment	Reference	This entity defines the Geo entity name to a Hierarchy level and also defined the parent child relationship. Thus we link a hierarchy level to a physical geography entity.
Geography Entity Hier Level Assignment	Reference	Geography Entity Hierarchy Level Assignment
Geography Hierarchy	Reference	This stores the details of a Geographical hierarchy, like you might have Geo sales hierarchy, Geo customer hierarchy, Geo purchase hierarchy and so on.
Geography Hierarchy Level	Reference	Captures the geographical hierarchy along with the levels.
Geography Hierarchy Level Assignment	Reference	Assign the geography entity to the right level in the hierarchy.
Geography Level	Reference	This entity stores all the geographical levels as required by the analytics. Level definitions could be as simple as Level 1, level 2 or could be Geo 1, Geo 2 and so on.
Geography Level Attribute	Reference	This stores the attributes at a specific geographical level.
Geography Level Attribute Value	Reference	This entity stores the various Geography Level Attributes. For example, in a Sales hierarchy you have North sales region and you want to store the population of that region. It can stored here in this entity.
Geography Region	Reference	Region level in Geography Hierarchy.
Geography State	Reference	State level in Geography Hierarchy.

Table 2–62   (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
Geography Street	Reference	City level in Geography Hierarchy.
Geography Sub Region	Reference	Sub region level in Geography Hierarchy.
Geography World	Reference	World level in Geography Hierarchy.
GL Account	Reference	The GL accounts are defined to track financial status from a specific angle. All GL Journals are posted to various GL Accounts to reflect financial impact of each business transaction. Each account are defined by certain codes and flags, including whether the account is enabled, whether detail posting or detail budgeting is allowed, and others. Segment values are stored in the SEGMENT columns. Each Segment column links the GL Account to the corresponding GL Segment record. Moreover, the SEGMENT columns that are used are not guaranteed to be in any order. Summary accounts have SUMMARY_FLAG = 'Y' and TEMPLATE_ID not NULL. Detail accounts have SUMMARY_FLAG = 'N' and TEMPLATE_ID NULL.
GL Account Assignment	Reference	Defines the relationship between two GL Accounts to form an Account Hierarchy. It stores lists of the detail accounts associated with each summary account.
GL Account Segment	Reference	Defines different types of GL Account, including Cash, Bank, Equipment, and so on.
GL Account Type	Lookup	General Ledger Account type. For example: ■ Asset ■ Liability ■ Equity
GL Balance	Base	GL Balance stores actual, budget, and encumbrance balances for detail and summary accounts. This table stores ledger currency, foreign currency, and statistical balances for each accounting period that has ever been opened. ACTUAL_FLAG is either 'A', 'B', or 'E' for actual, budget, or encumbrance balances, respectively.
GL Cost Center Segment	Reference	Subtype of GL Segment which links GL Account to a specific Cost Center.
GL JE Line Subledger Assignment	Base	Defines the relationship between GL Journal Entry Lines and Subledger journal entry Lines. It stores individual transactions from subledgers that have been summarized into General Ledger journal entry lines.
GL Journal Entry	Base	GL Journal Entry Header stores journal entries. There is a one-to-many relationship between journal entry batches and journal entries. Each record includes the associated batch ID, the journal entry name and description, and other information about the journal entry. This table corresponds to the Journals window of the Enter Journals form. STATUS is 'U' for unposted and 'P' for posted. Other status indicate that an error condition was found. CONVERSION_FLAG equal to 'N' indicates that you manually changed a converted amount in the Journal Entry Lines zone of a foreign currency journal entry. In this case, the posting program does not re-convert your foreign amounts. This can happen only if your user profile option MULTIPLE_RATES_PER_JE is 'Yes'. BALANCING_SEGMENT_VALUE is null if there is only one balancing segment value in your journal entry. If there is more than one, BALANCING_SEGMENT_VALUE is the greatest balancing segment value in your journal entry.
GL Journal Entry Batch	Base	GL Journal Entry Batch stores journal entry batches. Each row includes the batch name, description, status, running total debits and credits, and other information. This table corresponds to the Batch window of the Enter Journals form. STATUS is 'U' for unposted, 'P' for posted, 'S' for selected, 'I' for in the process of being posted. Other values of status indicate an error condition. STATUS_VERIFIED is 'N' when you create or modify an unposted journal entry batch. The posting program changes STATUS_VERIFIED to 'I' when posting is in process and 'Y' after posting is complete.
GL Journal Entry Category	Lookup	GL_JE_CATEGORIES_TL stores journal entry categories. Each row includes the category name and description. Each journal entry in your General Ledger application is assigned a journal entry category to identify its purpose. For example, Purchase Invoices, Receiving, and so on.
GL Journal Entry Line	Base	GL Journal Entry Line stores the journal entry lines to track changes to each GL Account made by a certain GL Journal Entry. There is a one-to-many relationship between journal entries and journal entry lines. Each row in this table stores the associated journal entry header ID, the line number, the associated code combination ID, and the debits or credits associated with the journal line. STATUS is 'U' for unposted or 'P' for posted.

Table 2–62 (Cont.) Utilities Data Model Entities A-H

Entity Name	Type	Description
GL Ledger	Reference	GL Ledger stores information about the ledgers and the ledger sets defined in the Financial system. Each row includes the ledger or ledger set name, short name, description, ledger currency, calendar, period type, chart of accounts, and other information. A GL Ledger is defined by 4C, chart of accounts(COA), functional currency, accounting calendar, and Accounting method.
GL Ledger Account Assignment	Reference	Assign the GL accounts to Ledgers to form the Chart Of Account (COA).
GL Org Bsns Unit Segment	Reference	Assigns the GL Account to corresponding Organization Business Unit.
GL Period	Reference	GL Period stores information about the accounting periods you define using the Accounting Calendar form. Each row includes the start date and end date of the period, the period type, the fiscal year, the period number, and other information.
GL Product Specification Segment	Reference	Assigns the GL Account to corresponding Product.
GL Project Segment	Reference	Assigns the GL Account to corresponding Projects.
GL Segment	Reference	Each GL Account consists of a few independent segments, which are determined by Financial System setup.
GL Segment Type	Lookup	Type of GL Segment. For example, Project, Account, Project, and so on.
GL Subledger	Reference	GL Subledger is the subsidiary ledger, and stores original business transaction information that varies depending on the application. It includes at least a row for each application, who may feed financial journal entries into GL application.
GL Subledger Journal Entry	Base	GL Subledger Journal Entry stores subledger journal entries. The subledger Journal Ledger record the transaction at original level, that is, each invoice, or each Purchase Order should have one entry in subledger journal entry.
GL Subledger Journal Entry Line	Base	GL Subledger Journal Entry Line stores the subledger journal entry lines. There is a one-to-many relationship between subledger journal entry headers and subledger. The GL Subledger Journal Entry Line breaks down the subledger JE into different GL Accounts.
Gross To Net Active Power Curve	Reference	Relationship between the generating unit's gross active power output on the X-axis (measured at the terminals of the machine(s)) and the generating unit's net active power output on the Y-axis (based on utility-defined measurements at the power station). Station service loads, when modeled, should be treated as non-conforming bus loads. There may be more than one curve, depending on the auxiliary equipment that is in service.
Ground Disconnector	Reference	A manually operated or motor operated mechanical switching device used for isolating a circuit or equipment from ground.
Ground Switch	Reference	A switch used to connect to ground. These are not normally carry power, but are important for fault analysis, unbalanced analysis, or for grounding considerations.
Head End System	Reference	Headend system to collect meter data and send to utility through AMI (Advanced Metering Infrastructure).
Hour	Reference	This table contains information at the hour level.
Hour Time of Use Assignment	Reference	Assign time of use to an hour.
Household	Reference	Captures household information which the individual customer may belong to. Operator may recognize household by customer's shared address and then generate this data according to the customer's demographic value.
Hydro Energy Conversion Kind ENUM	Lookup	Specifies the capability of the hydro generating unit to convert energy as a generator or pump.
Hydro Generating Unit	Reference	A generating unit whose prime mover is a hydraulic turbine. For example: Francis, Pelton, Kaplan.

Table 2–63   Utilities Data Model Entities I-P

Entity Name	Type	Description
Identified Object	Reference	This is a root class to provide common identification for all classes needing identification and naming attributes.
Incident	Base	Description of a problem in the field that may be reported in a trouble ticket or come from another source. It may have to do with an outage.
Incident Work Assignment	Reference	To define relationship between Work and Incident including the history of the relationship.
Individual Demography Value	Reference	Individual demography value, the detailed information and its value collected about customers. For example age will have Demography group as AGE, Attribute as various bands and value as 15 years which will be stored in this entity.
Initial Reading	Base	Data captured at regular intervals of time. Interval data could be captured as incremental data, absolute data, or relative data. The source for the data is usually a tariff quantity or an engineering quantity. Data is typically captured in time-tagged, uniform, fixed-length intervals of 5 min, 10 min, 15 min, 30 min, or 60 min. Interval Data is sometimes also called "Interval Data Readings" (IDR).
Initiative Result Type	Lookup	Lookup for all possible result of initiatives.
Initiative Type	Lookup	The lookup for different types of Initiatives.
Installment Agreement	Reference	The installment payment scheme for customer bills.
Interaction Answer Choice	Base	Describes the pre-defined answers(Choices) for the Initiative Questions table. The Initiative Answers table is only used if the questions have answers in the multiple-choice format.
Interaction Channel	Reference	Keep channels which is used for interacting between provider and customer. For example, call center, online business system, counter.
Interaction Direction	Lookup	A reference table that documents whether the primary intent of an initiative is for inbound or outbound communications.
Interaction Navigation History	Base	The history of customer navigation path in each interaction call, or web visit. For example, in IVR call, customer may go through Welcome, then (1) Outages, then (1) Account balance query. Those actions are realized as three records here.
Interaction Navigation Item	Reference	Interaction Navigation Item tracks all the possible places where customer may go to in the IVR or Web service context.
Interaction Priority Type	Lookup	The different priorities which can be assigned to each party interaction.
Interaction Question Response	Base	Tracks the responses provided by the customer to the questions asked as part of the communication with the customer.
Interaction Reason	Lookup	Interaction reason table is to track why the interaction happened. For example: ■ Debt Collection ■ Service Call ■ Inbound Marketing ■ Outbound Marketing (link to promotion) customer complaints ■ Customer Invoice Inquiry
Interaction Result Type	Lookup	Type of response received from customer interaction. For example: Showed Interest without Decision, Offer accepted, Never call again, and so on.
Interaction Status	Lookup	Interaction Status is a reference table the documents the various states an interaction with a customer may be in. For example: ■ Planned ■ In-progress ■ Executed ■ Closed
Interaction Transfer History	Base	Interaction Transfer History
Interaction Transfer Reason	Lookup	The reason that an interaction is transferred from one agent to another one. For example, wrong routing, Another Business Interactions, to supervisor, and so on.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Interaction Type	Lookup	Interaction Types s a reference table that describes the different types of interaction between the company and a customer. For example: 1. eMail 2. Call Center Inbound 2.1 Call center inbound complain 2.2 Call center inbound query 3. Call Center Outbound 3.1 Call Center outbound service quality survey 4. Walk-In 5. Letter.
Interharmonics	Lookup	Interharmonics are represented as a rational number with a numerator and a denominator.
Invoice	Base	The Invoices table documents each invoice issued to each account. An invoice represents the request for payment for goods and services during a specified period.
Invoice Adjustment	Base	This is to record all adjustment made on the invoices. In current design, Adjustment ID & Invoices code serve the primary, therefore, 1 adjustment could make change to multiple invoices.
Invoice Adjustment Quota	Reference	Invoice adjustment quota are assigned to employee according to their job role and levels.
Invoice Delivery Format	Lookup	The format specification (including header, font, and so on) of each invoice delivered to the customer.
Invoice Delivery Type	Lookup	Type of delivery of Invoice to customer. For example: 1. Printed letter 2. Email 3. Duplicate Printed Letter on request.
Invoice Discount	Base	This is to track all discount applied to the invoices. It's on the invoice level. For example, if you want to reward all your customers who pay by credit card, you can create the payment discount for all invoices belonging to those customers.
Invoice Discount Reason	Lookup	The reason why the discount was put on the invoice.
Invoice Discount Type	Lookup	The categories of discounts applied to a Customer Invoices.
Invoice Item	Base	Invoice Item holds all components that appear on the invoice.
Invoice Item Detail	Base	Provide additional information for specific Invoice Item.
Invoice Item Detail Type	Lookup	Specify the type to the charge detail.
Invoice Item Relationship	Base	Defines the relationship between Invoice Items.
Invoice Item Type	Lookup	Invoice Detail Types is a reference table that describes the different types of information available in the Invoice Details table.
Invoice Payment Assignment	Base	To indicate which payment reconcile which invoice.
Invoice Payment Term	Base	Payment Terms of each invoices. For example: payment days and late payment fee, and so on. The late payment fee might be calculated according to invoice value and payment date.
Invoice Payment Term Type	Lookup	The term for payment. It maybe be by the time aspect. For example Monthly, and with how to calculate the penalty for defaults for month/year.
Invoice Status History	Base	Status history for an invoice. For example, the invoice may experience status change from open to closed, or from open to extended.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Invoice Status Type	Lookup	Type of invoice status. For example ■ Open (not paid) ■ Closed (paid) ■ Extended (due date is changed)
Invoice Tax Item	Base	The Tax item applied to the Invoice.
Invoice Type	Lookup	Type of invoice according to invoice generation process. For example: 1. Summary Invoice for hierarchical account. 2. Standard Invoice. 3. Trial Billing Invoice.
Irregular Interval Schedule	Reference	The schedule has time points where the time between them varies.
Irregular Time Point	Reference	Time points for a schedule where the time between the points varies.
IVR Menu Item	Lookup	The IVR Menu Item, which can be used to construct the whole IVR navigation system. Each IVR menu item represent a group or a specific business function.
Job	Reference	The type of occupation that customer is currently taking, which is the principal activity customer do to earn money.
Job Role	Reference	The job role.
Joint	Reference	Joint connects two or more cables. It includes the portion of cable under wipes, welds, or other seals.
Joint Configuration Kind ENUM	Lookup	Configuration type for joints.
Joint Fill Kind ENUM	Lookup	Fill type for Joint.
Journal Entry Line Invoice Item Assignment	Base	Cross-Reference from Subledger Journal Entry Line to Invoice Item.
Jumper	Reference	A short section of Conductor with negligible impedance which can be manually removed and replaced if the circuit is de-energized. Zero-impedance branches can potentially be modeled by other equipment types.
Jumper Action	Reference	Action on jumper as a switching step.
Language	Lookup	Speaking or written language.
Letter Type	Lookup	Type of Letter send to customer according to the content and purpose. For example: ■ Direct Marketing ■ Legal Letter ■ Contract Confirmation letter (Welcome)
Lifecycle Date	Reference	Dates for lifecycle events of an asset.
Limit	Reference	Specifies one limit value for a Measurement. A Measurement typically has several limits that are kept together by the LimitSet class. The actual meaning and use of a Limit instance (that is, if it is an alarm or warning limit or if it is a high or low limit) is not captured in the Limit class. However the name of a Limit instance may indicate both meaning and use.
Limit Set	Reference	Specifies a set of Limits that are associated with a Measurement. A Measurement may have several LimitSets corresponding to seasonal or other changing conditions. The condition is captured in the name and description attributes. The same LimitSet may be used for several Measurements. In particular percentage limits are used this way.
Line	Reference	Contains equipment beyond a substation belonging to a power transmission line.
Load Area	Reference	The class is the root or first level in a hierarchical structure for grouping of loads for load flow load scaling.
Load Break Switch	Reference	A mechanical switching device capable of making, carrying, and breaking currents under normal operating conditions.
Load Group	Reference	The class is the third level in a hierarchical structure for grouping of loads for load flow load scaling.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Load Response Characteristic	Reference	Models the characteristic response of the load demand due to changes in system conditions such as voltage and frequency. This is not related to demand response. If LoadResponseCharacteristic.exponentModel is True, the voltage exponents are specified and used as to calculate: Active power component = Pnominal * (Voltage/cim:BaseVoltage.nominalVoltage) ** cim:LoadResponseCharacteristic.pVoltageExponent Reactive power component = Qnominal * (Voltage/cim:BaseVoltage.nominalVoltage)** cim:LoadResponseCharacteristic.qVoltageExponent Where * means "multiply" and ** is "raised to power of".
Location	Reference	The place, scene, or point of something where someone or something has been, is, and/or will be at a given moment in time. It can be defined with one or more position points (coordinates) in a given coordinate system.
Loyalty Program	Reference	The Loyalty Programs table identifies the marketing loyalty programs that a customer may be a member of.
Loyalty Program Event Type	Lookup	The Loyalty Program Event Types table is a reference table that describes the categories of events that can be applied against a `Party` and loyalty program.
Maintainer	Reference	Organization that maintains assets.
Manufacturer	Reference	Organization that manufactures asset products.
Marital Status	Lookup	Marital Status
Market Area	Reference	Market Area denotes a geographic area for which resident demographic data is available.
Market Area Level	Reference	Level of classification inside the market areas. This classification can be based on, 1. Community: This represented as the one set of demographic attributes as described in the demography entity. 2. Geographic 3. User defined.
Market Plan Document Requirement	Reference	Defines the customer document requirements of each service or product market plan.
Market Role	Reference	Market Role
Market Segment	Reference	A market segment is identified to group certain common areas where business can be conducted. For example, a group of persons, a specific geographical area, and so on. Customer Segment and Marketing Segment: The market segments are defined according to manual marketing analysis, or external marketing source, while the Customer Segments are normally generated from Mining activities on existing customer base.
Market Segment Inclusion	Reference	The inclusion relationship between two market segments.
Measurement	Base	A Measurement represents any measured, calculated or non-measured non-calculated quantity. Any piece of equipment may contain `Measurement`s. For example, a substation may have temperature measurements and door open indications, a transformer may have oil temperature and tank pressure measurements, a bay may contain a number of power flow measurements and a `Breaker` may contain a switch status measurement. The PSR - Measurement association is intended to capture this use of `Measurement` and is included in the naming hierarchy based on `Equipment Container`. The naming hierarchy typically has `Measurement`s as leafs. For example, Substation-VoltageLevel-Bay-Switch-Measurement. Some `Measurement` represent quantities related to a particular sensor location in the network. For example, a voltage transformer (PT) at a busbar or a current transformer (CT) at the bar between a breaker and an isolator. The sensing position is not captured in the PSR - Measurement association. Instead it is captured by the Measurement - Terminal association that is used to define the sensing location in the network topology. The location is defined by the connection of the Terminal to `Conducting Equipment`. If both a Terminal and PSR are associated, and the PSR is of `Conducting Equipment`, the associated Terminal should belong to that ConductingEquipment instance. When the sensor location is needed both Measurement-PSR and Measurement-Terminal are used. The Measurement-Terminal association is never used alone.
Measurement Kind	Lookup	Kind of measurements.
Measurement Location	Reference	Location a measurement is made.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Measurement Value	Base	The current state for a measurement. A state value is an instance of a measurement from a specific source. Measurements can be associated with many state values, each representing a different source for the measurement.
Measurement Value Quality	Reference	Measurement value quality defined by its attributes.
Measurement Value Source	Reference	Measurement Value Source describes the alternative sources updating a Measurement Value. User conventions for how to use the Measurement Value Source attributes are described in the introduction to IEC 61970-301.
Media Object	Reference	This is any object the campaign message may appear on. Like a Page in the newspaper, or a time slot in the TV broadcasting.
Media Object Assignment	Reference	Build the Media Object into a hierarchy, with certain levels.
Media Object Type	Lookup	Type of the media object. For example: ■ Newspaper ■ TV ■ Journal
Meter	Reference	Physical asset that performs the metering role of the usage point. Used for measuring consumption and detection of events.
Meter Identifier	Reference	Identifiers a meter may have.
Meter Reading	Base	Set of values obtained from the meter.
Meter Reading Day Drvd	Derived	Derived fact table on daily meter reading.
Meter Reading Hour Drvd	Derived	Derived fact table on hourly meter reading.
Meter Reading Month Aggr	Aggregate	Aggregate fact table on meter reading by month.
Meter Reading TOU Month Aggr	Aggregate	Aggregate fact table on tine of use meter reading by month.
Meter Register Assignment	Reference	Meter Register Assignment.
Meter Service Work	Reference	Work involving meters.
Meter Status	Lookup	Lookup for status. For example: ■ Buy ■ Not Buy ■ Suspended ■ Active
NAICS Classification	Reference	The North American Industry Classification System (NAICS) has replaced the U.S. Standard Industrial Classification (SIC) system. This is an example for NAICS classification for banking: 52 Finance and Insurance 521 Monetary Authorities - Central Bank.
Nationality	Lookup	Nationality
Non Conform Load	Reference	Non conform load represent loads that do not follow a daily load change pattern and changes are not correlated with the daily load change pattern.
Non Conform Load Group	Reference	Loads that do not follow a daily and seasonal load variation pattern.
Non Conform Load Schedule	Reference	An active power (Y1-axis) and reactive power (Y2-axis) schedule (curves) versus time (X-axis) for non-conforming loads. For example, large industrial load or power station service (where modeled).
Nuclear Generating Unit	Reference	A nuclear generating unit.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Operating Participant	Reference	An operator of multiple power system resource objects. Multiple operating participants may operate the same power system resource object. This can be used for modeling jointly owned units where each owner operates as a contractual share.
Operating Share	Reference	Specifies the operations contract relationship between a power system resource and a contract participant.
Operation Tag	Reference	Operation Tag
Operational Limit	Reference	A value associated with a specific kind of limit.
Operational Limit Set	Reference	A set of limits associated with equipment. Sets of limits might apply to a specific temperature, or season. For example, a set of limits may contain different severities of limit levels that would apply to the same equipment. The set may contain limits of different types such as apparent power and current limits or high and low voltage limits that are logically applied together as a set.
Operational Restriction	Reference	A document that can be associated with a conducting equipment to describe any sort of restrictions compared with the original manufacturer's specification or with the usual operational practice. For example, temporary maximum loadings, maximum switching current, do not operate if bus couplers are open, and so on.
Oracle Geometry	Reference	Oracle Geometry is a super entity to all geographical entities, with SDO_GEOMETRY attribute as defined in Oracle Database 11g.
Organization Area	Reference	Areas within an organization chain.
Organization Banner	Reference	The name of company, organization, or subsidiary that is recognizable to the consumer or the name of the store as it appears on the catalog, web channel, or brick and mortar store. Holds the information about different organization banners under which product or service are sold.
Organization Business Entity	Reference	Any logical entity that is recognized as a part of the enterprise for business analysis and transactions. Classification for a business entity can include company, operation unit, store, or warehouse. Business Entity in an Organization represent any logical entity that is recognized as an enterprise for Business analysis and transactions. Possible classifications for a Business Entity can include, Company, Operation Units, Stores, Warehouse and so on.
Organization Business Unit	Reference	A business unit of the organization that delivers a limited range of specific services through any sales channel. For example: retail or distribution.
Organization Business Unit Type	Lookup	Type of `Organization Business Unit`. For example: 1. Call center 2. Branch Office. 3. Warehouse
Organization Chain	Reference	Organization hierarchy level within an organization company and is the parent of one or more organization areas.
Organization Company	Reference	Organization hierarchy level within an organization corporate and is the parent of one or more organization chains.
Organization Corporate	Reference	Highest level of organization hierarchy and is the parent of one or more organization companies.
Organization District	Reference	Organization hierarchy level within organization corporate.
Organization Hierarchy	Reference	User defined. Master list of all of the hierarchies in an organization.
Organization Hierarchy Level	Reference	The association table for the hierarchies and levels.
Organization Hierarchy Level Assignment	Reference	Assignment of Hierarchy Levels to organization hierarchy. Assignment table for Hierarchy levels to the Business Entities.
Organization Hierarchy Version	Reference	Version of organization hierarchy. The version table for the hierarchies.
Organization Level	Reference	List of all the business levels inside the organization.
Organization Level Attribute Value	Reference	Attributes of a business entity.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Organization Level Attributes	Reference	Attributes assigned to an organization level. Attributes applicable only to the corresponding level in the organization. Possible values that can be stored in this entity can be, Regional Language.
Organization Market Data	Reference	Publicly available and statistical information regarding the internal or external parties, such as DUNS number and number of employees. Market related information about an Organization. In LDM the Organization Market Data entity has the SIC code and DUNS number. Duns Numbers are specific to Organizations where as SIC codes are for Industry sectors.
Organization Region	Reference	Organization hierarchy level within an organization area and is the parent of one or more organization districts. Holds region within a company, chain area.
Organization Role	Reference	Identifies a way in which an organization may participate in the utility enterprise (for example, customer, manufacturer, and so on).
Organization Service Website	Reference	Sub-type of the organization business unit, it collects all information on (normally public) website managed by the operator. A website owned/commissioned by the organization from where product/services can be purchased and supported.
Organization Warehouse	Reference	The location at which un-deployed assets are maintained. A place in which goods or merchandise are stored; a storehouse.
Organizational Demography Value	Reference	User defined attribute definitions and corresponding values regarding demographic statistics as related to an organization business unit. This entity stores the detailed information and its value collected about organizations.
Other Individual	Reference	Individual party associated with a party organization other than those defined such as Customer or Employee. For example, the contact person of a vendor, the chairman of a dealer.
Outage	Base	Document describing details of an active or planned outage in a part of the electrical network. A non-planned outage may be created upon:-a breaker trip, a fault indicator status change, a meter event indicating customer outage, a reception of one or more customer trouble calls, or an operator command, reflecting information obtained from the field crew. Outage restoration may be performed using a switching plan which complements the outage information with detailed switching activities, including the relationship to the crew and work. A planned outage may be created upon: a request for service, maintenance or construction work in the field, or an operator-defined outage for what-if/contingency network analysis. The associated outage plan defines operational restrictions and atomic switch actions to define the changes that, after applied, would result in a total or partial equipment outage as required for network analysis.
Outage By Day Drvd	Derived	Derived fact table on outage by day.
Outage By Month Aggr	Aggregate	Aggregate fact table on outage by month.
Outage By Usage Point Drvd	Derived	Derived fact table on outage by usage point.
Outage Code	Reference	Classification of outage types. Multiple outage codes may apply to a given outage or outage step. The primary overall outage type is recorded in 'OutageRecord.outageType'. There may be more than one classification per outage step and/or per outage record. Example codes/subcodes include: weather/ice, weather/lightning, wildlife/squirrel, wildlife/bird, burned/overload, burned/weather, wire down/accident, wire down/tree, wire down/vandalism, and so on. The typical outage code is in the inherited association to Name. The code is described in the inherited "description" attribute.
Outage Notification	Reference	A document containing information to be sent to customers notifying that an outage will take place. This generates mailing lists for customers.
Outage Plan	Reference	Document containing operational restrictions and atomic switch actions to define the changes in the network that, after applied, would result in a total or partial equipment outage, as required for network analysis.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Outage Record	Base	Document describing details of an outage in part of the electrical network, typically produced by a SCADA system following a breaker trip, or within a trouble call system by grouping customer calls. It has an associated outage step for each supply point. Primary cause of the outage is captured in 'type'. In some countries all outage restoration is performed using a switching schedule which complements the outage record and records the crew and any planned work. In other systems, it may be acceptable to manage outages including new work tasks without switching schedules. The relationship between OutageRecord and ErpPerson and Crew is inherited as each is a type of Document.
Outage Record Code Assignment	Reference	Outage Record Code Assignment.
Outage Report	Reference	Document with statistics of an outage.
Outage Schedule	Reference	The period that a piece of equipment is out of service. For example: for maintenance or testing; including the equipment's active power rating while under maintenance. The X-axis represents absolute time and the Y-axis represents the equipment's available rating while out of service.
Outage Step	Reference	Holds an outage start and end time for each supply point of an outage record. The supply point for a given step is the associated Power System Resource instance.
Outage Step Code Assignment	Reference	Code assigned to an outage step.
Outage Usage Point Assignment	Reference	Usage points involved in an outage including history.
Partner Promotion Program	Reference	Assigns costs of a given promotion to a Partner or Party participating in the promotion. The service provider may partner with another Service Provider or with sales partner to do joint promotion jointly.
Party	Reference	A party is a real person, organization, branch, subsidiary, legal entity, holding company, and so on. Any real thing that you would want to put a name to is a party. The attributes of a party are universal. In other words, they are independent of your selling (or ultimately buying) relationship with the party. A party is not necessarily a customer. It can represent prospects as well as parts of an organization's hierarchy (branches, head offices, corporate conglomerates) that may not necessarily have a billing relationship with the company. Any party that has an active account can be considered a customer. Historical information concerning the party is available in the Parties History table.
Party Account Assignment	Reference	This entity keeps relationship between party and account. For example: 1. A party owns the account. It does not have to be the customer. Then this assignment tracks the owning party of the account. 2. A party is a warrantor of an account. 3. A party is responsible for payment of the account.
Party Account Assignment Type	Lookup	Lookup for type of relationship between Party and Account. Depending on type of party, the relationship can be: Customer owns the account multiple customers may share the same account.
Party Address Location Assignment	Reference	Associates one or more Addresses with a party. Captures history of the names and addresses associated with a party or customers.
Party Agreement Relationship	Reference	Assignment of a Party to a Contract. For example, 1. A contract belongs to a party, for example, Customer Own the Contract. 2. The commission of Sales agent over signed contract will also be 1 relationship here.
Party Assignment	Reference	Association of a Party with one or more other Parties. The relationships may include those among customers or between customer and the utility.
Party Assignment Reason	Lookup	Lookup for valid reasons parties may be associated with each other. For example: Cooptation (customer brings in a new customer) Financial Responsibility Hierarchical relationship in the organization contractual agreement.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Party Assignment Type	Lookup	Describe the type of the party relationship. For example: 1. father & son 2. organizational hierarchy, subsidiary. 3. Customer referral. One customer might refer another party to join certain services to gain some bonus points. 4. Warrantor to Warrantee.
Party Business Interaction Role	Reference	The `Business Interaction Role` which can be assigned by a `Party`.
Party Contact Information	Reference	Contact information for a party. For example, email, cell phone number.
Party Contact Information Type	Lookup	Keep the type of contact information. For example, ■ Email ■ Home telephone No ■ Office telephone No ■ Cell phone No ■ Pager No.
Party Contact List Participation	Lookup	Relationship between party and `Contact List`. For example, a party belongs to a contact list.
Party Contact List Role	Lookup	The role of the party in a `Contact List`.
Party Cost Assignment	Base	Assignment of cost items to a `Party`. One party may incur multiple costs. For example, for a customer acquisition the customer might be given discounts or rebates. Cost might be assigned to multiple parties. For example, for operational cost several organizations may share the same expense on a promotion or `Campaign`.
Party Demography Value	Reference	Defines individual and organization demography value for a given party demographic profile.
Party Event Type	Lookup	Lookup for valid event types that may be assigned to a party profile for the various event types that may be actioned against a party.
Party Geography Entity Assignment	Reference	Assigns a party to one or more geography entities. Depending on type of party, relationship might be: 1. Some customer belongs to some country, visited (roamed or not) other countries. 2. Organization's HQ is located at a city. 3. External operation has business at some country.
Party Interaction Thread	Base	Grouping of multiple related contact events regarding the common purpose with a party into a single thread. For example, If customer makes multiple calls to complain about same issue, those calls are grouped into single thread. The status history of a thread (service request) is in `Business Interaction Status History`. The party interaction thread status can also be tracked through each "Party interaction Event". For example: ■ Submit a request ■ Response to a request
Party Interaction Thread Subscription Assignment	Base	The relationship between a `Party Interaction Thread` and the involved subscriptions.
Party Interaction Thread Type	Lookup	The type of `Party Interaction Thread`. For example: ■ Debt Collection ■ Retention Program ■ Service Request
Party Language Capability	Reference	Keeps the language capability score for each `Party`.
Party Location Reason	Lookup	The reason why a `Party` and a `Location` are connected.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Party Location Type	Lookup	The type of relationship between the Party and the address. For example, office location, Primary Living location, Product Installation Address, and so on.
Party Management Role	Lookup	This entity keep all roles which a Party plays in a Campaign. such as management or potential customer.
Party Market Segment Assignment	Reference	Assign a Party to its belonging market segment.
Party Project Participation	Reference	Party project participation describe the roles of each Party in the project.
Party Promotion Response	Base	Response of a Party to a promotion. For example, positive responses: The customer accepted the offer. The customer modified their usage. The customer changed a specified behavior. For example moved from payment by check to an electronic payment option.
Party Role	Lookup	Lookup for Roles a Party may be assigned in an Event. For example: ■ Customer ■ Reseller ■ Manager ■ Dealer ■ Employee
Party Role Assignment	Reference	Assigns party roles that the Party acted as to the Party. Party roles are X-X relationship and it may change due to contract change and so on.
Party Role Status	Reference	Status history of the each Role that a Party has taken. Historical information tracked along the whole lifecycle of the Party in the system.
Party Status Category	Lookup	Higher level of Party Status. For example: ■ Financial Status ■ Credit Status ■ Payment Status ■ Personal Status ■ Legal Status ■ Prospect Status
Party Status Change Reason	Lookup	Lookup for valid reasons that may be assigned for a Party Status change. For example: hire, transfer, new customer.
Party Status History	Base	Keep track of current party status history, regarding to what Operator may be interested. Historical information captured for all lifetime of the customer/dealer/... This information may be calculated from internal data, like payment, or obtained from external source, like credit rating agent.
Party Status Type	Lookup	Status type of the Party. For example: 1. In category of Customer Status, Values may include Active, Inactive, Defaulted, New Customer, VIP customer, Black Listed, and so on. 2. In category of Prospect Status, Values may include New Prospect, Contacted No interests, Interested, Purchased, Rejected, and so on.
Party Type	Lookup	Lookup for party type that classifies involved parties according to their inherent characteristics and structure. For example: ■ Person ■ Organization ■ Organization Business Unit (Internal)
Payment Aging Class	Lookup	The classification of accounts according to payment delay history. For example: 0-10 days, 11-20 days, and so on. Postpaid customers are billed on a monthly basis for the usage of services in the month. At the end of the billing month for the customer an invoice is sent to the customer for which customer is supposed to pay by payment due date.
Payment Channel	Reference	Channel which customer used to pay for the services. For example, For POS, payment channel could be POS001, POS002, and so on. For cash, payment channel could be STORE001, STORE002,which means paying by cash in the one store.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Payment Method Type	Lookup	Customers can pay their bills, deposits, other charges by different modes of payment. For example: ■ Cash ■ Check ■ Credit card ■ Debit card
Payment Transaction Type	Lookup	Lookup for type codes and description of Transaction Types associated with the Account Payment The payment maybe for Periodically Invoice, Installation Fee, Pre-deposit to the account Late Pay Penalty Payment. Regular Monthly Refund / Void. The payment type like Manual Cash In, direct debit are tracked in `Payment Method Type`.
Per Length Impedance	Reference	Common type for per-length impedance electrical catalogs.
Per Length Phase Impedance	Reference	Impedance and admittance parameters per unit length for n-wire unbalanced lines, in matrix form.
Per Length Sequence Impedance	Reference	Sequence impedance and admittance parameters per unit length, for transposed lines of 1, 2, or 3 phases. For 1-phase lines, define x=x0=xself. For 2-phase lines, define x=xs-xm and x0=xs+xm.
Phase	Lookup	Phase such as ABC phase, A phase and so on.
Phase Code ENUM	Lookup	Enumeration of phase identifiers. Allows designation of phases for both transmission and distribution equipment, circuits and loads. Residential and small commercial loads are often served from single-phase, or split-phase, secondary circuits. For example of s12N, phases 1 and 2 refer to hot wires that are 180 degrees out of phase, while N refers to the neutral wire. Through single-phase transformer connections, these secondary circuits may be served from one or two of the primary phases A, B, and C. For three-phase loads, use the A, B, C phase codes instead of s12N.
Phase Connected Fault	Reference	Fault connection among `Phase`s.
Phase Connected Fault Kind ENUM	Lookup	The type of fault connection among `Phase`s.
Phase Impedance Data	Reference	Triplet of resistance, reactance, and susceptance matrix element values.
Phase Shunt Connection Kind ENUM	Lookup	The configuration of `Phase` connections for a single terminal device such as a load or capacitor.
Phase Tap Changer	Reference	A transformer phase shifting tap model that controls the phase angle difference across the power transformer and potentially the active power flow through the power transformer. This phase tap model may also impact the voltage magnitude.
Phase Tap Changer Asymmetrical	Reference	Describes the tap model for an asymmetrical phase shifting transformer in which the difference voltage vector adds to the primary side voltage. The angle between the primary side voltage and the difference voltage is named the winding connection angle. The phase shift depends on both the difference voltage magnitude and the winding connection angle.
Phase Tap Changer Linear	Reference	Describes a tap changer with a linear relation between the tap step and the phase angle difference across the transformer. This is a mathematical model that is an approximation of a real `Phase Tap Changer`.
Phase Tap Changer Non Linear	Reference	The non-linear `Phase Tap Changer` describes the non-linear behavior of a `Phase Tap Changer`. This is a base class for the symmetrical and asymmetrical `Phase Tap Changer` models. The details of these models can be found in the IEC 61970-301 document.
Phase Tap Changer Symmetrical	Reference	Describes a symmetrical phase shifting transformer tap model in which the secondary side voltage magnitude is the same as at the primary side. The difference voltage magnitude is the base in an equal-sided triangle where the sides corresponds to the primary and secondary voltages. The phase angle difference corresponds to the top angle and can be expressed as twice the arctangent of half the total difference voltage.
Phase Tap Changer Tabular	Reference	Describes a tabular curve for how the phase angle difference and impedance varies with the tap step.
Phase Tap Changer Tabular Point	Reference	Describes each tap step in the `Phase Tap Changer Tabular` curve.
Pin Voltage	Reference	Input pin that maps to a network voltage for RAS.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Planned Outage	Reference	Planned outage involves network operations which will affect the supply of power to customers. The list of `Power System Resource`s for the Planned Outage may be the same or a superset of the ones per Outage Step.
Planned Outage Kind ENUM	Lookup	Kind of planned outage.
Pole	Reference	Pole asset.
Pole Base Kind ENUM	Lookup	Kind of base for poles.
Pole Preservative Kind ENUM	Lookup	Preservative kind for poles.
Pole Treatment Kind ENUM	Lookup	Kind of treatment for poles.
Postal Service Type	Lookup	Type of postal service type available to the carrier. For example: 1. First-class 2. Registered mail 3. Regular Mail 4. Postal Card.
Postcode	Reference	Postal Code, Zip Code, or similar geographical designation.
Potential Transformer Info	Reference	Properties of potential transformer asset.
Power Cut Zone	Reference	An area or zone of the power system which is used for load shedding purposes.
Power System Resource	Reference	A power system resource can be an item of equipment such as a switch, an equipment container containing many individual items of equipment such as a substation, or an organizational entity such as sub-control area. Power system resources can have measurements associated.
Power System Resource Location	Reference	Location of a `Power System Resource`.
Power Transformer	Reference	An electrical device consisting of two or more coupled windings, with or without a magnetic core, for introducing mutual coupling between electric circuits. Transformers can be used to control voltage and phase shift (active power flow). A power transformer may be composed of separate transformer tanks that need not be identical. A power transformer can be modeled with or without tanks and is intended for use in both balanced and unbalanced representations. A power transformer typically has two terminals, but may have one (grounding), three or more terminals. The inherited association `Conducting Equipment`.`Base Voltage` should not be used. The association from Transformer End to `Base Voltage` should be used instead.
Power Transformer End	Reference	A Power Transformer End is associated with each Terminal of a `Power Transformer`. The impedance values r, r0, x, and x0 of a PowerTransformerEnd represents a star equivalent as follows 1) for a two Terminal PowerTransformer the high voltage Power Transformer End has non zero values on r, r0, x, and x0 while the low voltage PowerTransformerEnd has zero values for r, r0, x, and x0. 2) for a three Terminal PowerTransformer the three Power Transformer Ends represents a star equivalent with each leg in the star represented by r, r0, x, and x0 values. 3) for a Power Transformer with more than three Terminals the Power Transformer End impedance values cannot be used. Instead use the TransformerMeshImpedance or split the transformer into multiple Power Transformers.
Power Transformer Info	Reference	Set of power transformer data, from an equipment library.
Precipitation	Base	Precipitation such as rain and snow.
Price Event	Base	Type of event which may trigger a billing process. For example, event of customer using a product over its quota.
Price Type	Lookup	Lookup for type codes and descriptions for utility services and products.

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Pricing Structure	Reference	Grouping of pricing components and prices used in the creation of customer charges and the eligibility criteria under which these terms may be offered to a customer. The reasons for grouping include state, customer classification, site characteristics, classification (that is, fee price structure, deposit price structure, electric service price structure, and so on) and accounting requirements.
Pricing Structure Tariff Assignment	Reference	Pricing Structure Tariff Assignment
Priority	Reference	Priority definition.
Procedure	Reference	Documented procedure for various types of Work or Work Tasks. One or more procedures guide a compatible unit, a standard way of performing a unit of work. The type of procedure is defined in Procedure.type. For example, when type=Inspection, this procedure coupled with Schedule and other information provides the key items of an inspection plan. Another type of Procedure is a Diagnosis. Each specific value and setting to be used in a procedure is intended to be described in an instance of UserAttribute. A maintenance ticket, a type of Work, is generated whenever maintenance is determined to be needed as a result of an inspection or diagnosis.
Procedure Asset Assignment	Reference	Asset assigned to a procedure.
Procedure Kind ENUM	Lookup	Kind of procedure.
Product Asset Model	Reference	Asset model by a specific manufacturer.
Product Asset Model Function Assignment	Reference	Function assigned to a product asset model.
Product Offering	Reference	Defines how a utility service or product is brought to market.
Product Subscription	Reference	The record of customer using a product (or product package). Customer subscription is the basis of billing. One subscription may be based on contract.
Project	Reference	The business activities (Tasks) may be categorized into a specific Project according to their common purpose. [20110407] Current design focus more on financial side.
Project Element	Reference	The business activity which may happen to the utility. It is the super type of project and tasks.
Promotion	Reference	The promotion reflects the tactics an operator undertakes to generate increased incremental sales or usage volume for specific product within a promotional event. Promotions are frequently communicated as part of a marketing campaign to ensure that awareness is generated with the target audience.
Promotion Cluster Usage	Base	Assigns a particular customer segment (cluster) to a given promotion or list of promotions. The customer segments are generated by certain analytical application (including Oracle Mining) and this assignment tracks the usage of customer segment in the promotion.
Promotion Contact List Utilization	Base	This entity keeps relationship between a Contact List and a Campaign. Contact list can be used to do a campaign to some customers, who have the same characters.
Promotion Management History	Base	A history of campaign party role about management of a campaign episode.
Promotion Message Rendering	Reference	Details regarding each campaign message broadcast through a media object. For example, if channel is a newspaper, then media object will be the page and the picture. For a TV advertisement, how frequently it broadcast, how long time in each broadcast.
Promotion Product Offering Assignment	Reference	Associates product market plans to a promotion, typically, when a given market plan will be offered by the promotion only during a certain period.
Promotion Relationship	Reference	Defines the relationship between two promotions.
Promotion Result Type	Lookup	Lookup for the prospect reaction to a specific promotion during a sales campaign. For example: ▪ Accepted Not interested ▪ Interested but not accepted ▪ Not Interested but other product sold ▪ No response

Table 2–63   (Cont.) Utilities Data Model Entities I-P

Entity Name	Type	Description
Promotion Sales Channel Assignment	Reference	The allocation of promotion resource/actions onto each sales channel. The efficiency of promotion can be evaluated by comparing the promoted sales volume with the promotion cost.
Promotion Term Type	Lookup	Lookup for codes and descriptions of Promotion Term. For example: - Number of customers - Period Planning - Selling amount - Planning contracts number
Promotion Term Value	Lookup	Assigns promotion term type to a promotion with a value corresponding to the Term Type. For example: - Maximum Number of customers - Period Planning selling amount - Planning contracts number
Promotion Type	Lookup	Lookup for the type of promotion. Direct marketing by Phonecall, Direct marketing by mail, Media Broadcast by TV, Direct marketing by Phonecall.
Proposal	Reference	The proposals made available to prospects in the promotion. It could be a upsell offer like selling a new product, or a retention program.
Proposal Relationship	Reference	The relationship between two proposals.
Prospect	Reference	An individual, collection of individuals, company, or public institution who has not purchased services, but who may in the future. A prospect may also be a customer of one product (already purchased) that does not currently purchase another product (may purchase).
Prospect Priority Type	Lookup	The different priorities which can be assigned to the prospect and prospect interests.
Prospect Quality Score Type	Lookup	Lookup for type of quality scores which can be applied to prospects. For example: - Income - Buying Probability
Prospect Quality Score Value	Reference	The quality score value assigned to each prospect under different type of criteria.
Prospect Reject Reason	Lookup	The reason to explain why an offer or proposal is rejected by the prospect.
Protected Switch	Reference	A Protected Switch is a switching device that can be operated by Protection Equipment.
Protection Equipment	Reference	An electrical device designed to respond to input conditions in a prescribed manner and after specified conditions are met to cause contact operation or similar abrupt change in associated electric control circuits, or simply to display the detected condition. Protection equipment are associated with conducting equipment and usually operate circuit breakers.
Protection Equipment Info	Reference	Properties of protection equipment asset.
PSR Type	Lookup	Classifying instances of the same class. For example, overhead and underground AC Line Segments. This classification mechanism is intended to provide flexibility outside the scope of this standard, that is, provide customization that is non standard.
Publication	Reference	Publication to which the media object used in campaign belongs. It includes the journals, TV media, newspapers, and so on.
Publication Type	Lookup	Lookup for code and description describing the type of publication.
Purchase Order	Base	All the purchase orders that are raised on suppliers by the purchasing unit of a business organization (purchasing organization). The types of purchase orders can be many and would typically include one-time, regular, blanket, release and so on. It inherit PK from Business Interaction.
Purchase Order Line Item	Base	Holds Purchase order line Item information.

Table 2–64   Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Quality61850	Reference	Quality flags in this class are as defined in IEC 61850, except for estimatorReplaced, which has been included in this class for convenience.
Rate	Reference	A charge element associated with other entities such as tariff structures, auxiliary agreements or other charge elements. The total charge amount applicable to this instance of charge is the sum of fixed and variable portion.
Ratio Tap Changer	Reference	A tap changer that changes the voltage ratio impacting the voltage magnitude but not the phase angle across the transformer.
Ratio Tap Changer Tabular	Reference	Describes a curve for how the voltage magnitude and impedance varies with the tap step.
Ratio Tap Changer Tabular Point	Reference	Describes each tap step in the ratio tap changer tabular curve.
Rational Number	Reference	Rational number with a numerator and a denominator.
Reading Accumulation Behavior	Lookup	Meter reading accumulation behavior such as accumulative and delta.
Reading Channel	Reference	Reading Channel.
Reading Channel Identifier	Reference	ID of a reading channel.
Reading Data Qualifier	Lookup	A reading is viewed in the aggregate such as average, maximum, minimum and so on.
Reading Quality	Base	Quality of a specific reading value or interval reading value. More than one quality may be applicable to a given reading. Typically not used unless problems or unusual conditions occur (that is, quality for each reading is assumed to be good unless stated otherwise in associated reading quality type). It can also be used with the corresponding reading quality type to indicate that the validation has been performed and succeeded.
Reading Quality Type	Lookup	Detailed description for a quality of a reading value, produced by an end device or a system. Values in attributes allow for creation of recommended codes to be used for identifying reading value quality codes as follows: <systemId>.<category>.<subCategory>.
Reading Quality Type Category	Lookup	Reading quality type category.
Reading Quality Type Origin	Lookup	Provides an identification of the system which has declared the issue with the data.
Reading Quality Type Sub Category	Lookup	Reading quality type sub category.
Reading Reason Kind ENUM	Lookup	Reason for the reading being taken.
Reading Time Attribute	Lookup	Reading time attribute such as hourly read and 15 minute read.
Reading Time Period	Lookup	Reading time period such as daily and monthly.
Reading Type	Reference	Detailed description for a type of a reading value.
Recloser	Reference	Pole-mounted fault interrupter with built-in phase and ground relays, current transformer (CT), and supplemental controls.
Register	Reference	Meter register.
Regular Interval Schedule	Reference	The schedule has time points where the time between them is constant.
Regular Time Point	Reference	Time point for a schedule where the time between the consecutive points is constant.
Regulating Cond Eq	Reference	A type of conducting equipment that can regulate a quantity (that is, voltage or flow) at a specific point in the network.
Regulating Control	Reference	Specifies a set of equipment that works together to control a power system quantity such as voltage or flow.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Regulating Control Mode Kind ENUM	Lookup	The kind of regulation model. For example ■ Regulating voltage ■ Reactive power ■ Active power
Regulation Schedule	Reference	A pre-established pattern over time for a controlled variable. For example, busbar voltage.
Reliability Indices By City Month Drvd	Derived	Derived fact table on utility reliability indices by city by month.
Reliability Indices By Feeder Month Drvd	Derived	Derived fact table on utility reliability indices by feeder by month.
Remote Connect Disconnect Info	Reference	Details of remote connect and disconnect function.
Remote Control	Reference	Remote controls are outputs that are sent by the remote unit to actuators in the process.
Remote Point	Reference	For a RTU remote points correspond to telemetered values or control outputs. Other units (for example, control centers) usually also contain calculated values.
Remote Source	Reference	Remote sources are state variables that are telemetered or calculated within the remote unit.
Remote Unit	Reference	A remote unit can be a RTU, IED, substation control system, control center and so on. The communication with the remote unit can be through various standard protocols (for example, IEC 61870, IEC 61850) or non standard protocols (for example, DNP, RP570 and so on.). A remote unit contain remote data points that might be telemetered, collected or calculated. The RemoteUnit class inherit Power System Resource. The intention is to allow RemotUnits to have Measurements. These Measurements can be used to model unit status as operational, out of service, unit failure and so on.
Remote Unit Communication Link Assignment	Reference	Remote unit communication link assignment.
Remote Unit Type ENUM	Lookup	Type of remote unit.
Resource Order	Base	The service order can be translated into resource order to determine how it can be fulfilled. A type of Request that represents a Service Order's services decomposed into the elements on which the services will be provisioned.
Resource Order Item	Base	The purpose for the Resource Order expressed in terms of an equipment order.
Revenue Kind ENUM	Lookup	Accounting classification of the type of revenue collected for the customer agreement, typically used to break down accounts for revenue accounting.
Rotating Machine	Reference	A rotating machine which may be used as a generator or motor.
Safety Document	Reference	Document restricting or authorizing works on electrical equipment (for example a permit to work, sanction for test, limitation of access, or certificate of isolation), defined based upon organizational practices.
Sales Channel	Reference	Channel through which the utility uses to communicate with other parties for sales purposes. The external sales channel should roll up to an internal legal subsidiary organization business unit.
SCD2	Reference	Abstracted entity to provide SCD2 capability for all its children.
Scheduled Event	Base	Signifies an event to trigger one or more activities, such as reading a meter, recalculating a bill, requesting work, when generating units must be scheduled for maintenance, when a transformer is scheduled to be refurbished, and so on.
Scheduled Event Asset Assignment	Reference	Asset assigned to a scheduled event.
Script	Reference	A list of specific groupings of questions or statements that will be presented to individuals during a Survey.
Script Question	Reference	Initiative Questions documents the questions that will be asked of the customer as part of the initiative.
Sea Condition	Base	Sea Condition

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Seal	Reference	Physically controls access to AssetContainers.
Seal Condition Kind ENUM	Lookup	Kind of seal condition.
Seal Kind ENUM	Lookup	Kind of seal.
Season	Lookup	This dimension table holds seasons and their attributes. Seasons are arbitrary periods of time around which some retailers organize their buying and selling patterns. Each day should fall within no more than one season.
Season Day Type Schedule	Reference	A time schedule covering a 24 hour period, with curve data for a specific type of season and day.
Sectionaliser	Reference	Automatic switch that will lock open to isolate a faulted section. It may, or may not, have load breaking capability. Its primary purpose is to provide fault sectionalising at locations where the fault current is either too high, or too low, for proper coordination of fuses.
Segment Criteria	Reference	Minimum and Maximum scores for each segment associated with an account segment or customer segment.
Segment Type	Lookup	Lookup for type codes and descriptions used to define account segmentation model or customer segmentation model.
Series Compensator	Reference	A Series Compensator is a series capacitor or reactor or an AC transmission line without charging susceptance. It is a two terminal device.
Service	Reference	Service is an internal technical presentation of available services or products to the customer.
Service Category	Lookup	Category of Service, sample values: Customer facing service, Resource facing service, Composite service.
Service Coverage Area	Reference	Service coverage area defines the coverage area of a given Service Spec. The geographic area covered by service provider with certain product combination. Service areas are defined so that service providers can determine the demographic / psychographic / population data the geography served by the network.
Service Coverage Geo Detail	Reference	The detail about service territory a utility covers.
Service Location	Reference	A real estate location, commonly referred to as premise.
Service Location Identifier	Reference	ID assigned to a service location.
Service Order	Base	A type of Request that represents a Customer Order's products decomposed into the services through which the products are realized.
Service Order Line Item	Base	The purpose for the Service Order expressed in terms of a Service Specification or a Service.
Service Quantity	Reference	Set of values obtained from the meter.
Service Supplier	Reference	Organization that provides services to customers.
Service Type	Lookup	Type of Service. Sample value should be from subtype of customer facing service, resource facing service and composite service.
Set Point	Base	A Set Point is an analog control used for supervisory control.
Short Circuit Rotor Kind ENUM	Lookup	Type of rotor, used by short circuit applications.
Shunt Compensator	Reference	A shunt capacitor or reactor or switchable bank of shunt capacitors or reactors. A section of a shunt compensator is an individual capacitor or reactor. A negative value for reactivePerSection indicates that the compensator is a reactor. ShuntCompensator is a single terminal device. Ground is implied.
Shunt Compensator Info	Reference	Properties of shunt capacitor, shunt reactor or switchable bank of shunt capacitor or reactor assets.
Shunt Compensator Phase	Reference	Single phase of a multi-phase shunt compensator when its attributes might be different per phase.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
SIC Assignment	Reference	Assigns one industry to another one in Standard Industrial Classification (SIC). How 2 industries are related. For example, the Petroleum Industry and Automobile, the Mining and the Steal. This might be too difficult for Communication Service Provider to capture. <to be further considered>.
SIC Assignment Reason	Lookup	Lookup for reason code and description as to why two industries were assigned together in Standard Industrial Classification (SIC).
SIC Classification	Lookup	Standard Industrial Classification (SIC).
Simple End Device Function	Reference	Simple end device function distinguished by 'kind'. Use this class for instances that cannot be represented by another end device function specializations.
Single Phase Kind ENUM	Lookup	Enumeration of single phase identifiers. Allows designation of single phases for both transmission and distribution equipment, circuits and loads.
SOC Job	Reference	The most detailed level of job code from Standard Occupational Classification (SOC) System. For example: 15-1041 Computer Support Specialists 15-1011 Computer and Information Scientists, Research 15-1021 Computer Programmers.
SOC Job Category	Reference	The 2nd level of job code from Standard Occupational Classification (SOC) System.
SOC Job Group	Reference	The top level of job code from Standard Occupational Classification (SOC) System.
Source ENUM	Lookup	Source gives information related to the origin of a value.
Source System	Reference	System of Record from which Oracle Utilities Data Model data was loaded. For example, AMI system, CRM system, and so on.
Source System Key Mapping	Reference	Track Key of the Party (customer or employee) in the originating source system. This key can be used back to track information back to source management system. The party can consolidate different people from different source systems, like CRM, Billing, into a unique one. Therefore, the multiple keys for the same unique party is saved here.
Source System Type	Lookup	Lookup for type code and description used to describe source system. For example: Competitor Customer Listing Third-Party Purchased Mailing List Government Roll Tax List.
Spot Temperature	Base	Spot Temperature
Static Var Compensator	Reference	A facility for providing variable and controllable shunt reactive power. The SVC typically consists of a stepdown transformer, filter, thyristor-controlled reactor, and thyristor-switched capacitor arms. The SVC may operate in fixed MVar output mode or in voltage control mode. When in voltage control mode, the output of the SVC will be proportional to the deviation of voltage at the controlled bus from the voltage setpoint. The SVC characteristic slope defines the proportion. If the voltage at the controlled bus is equal to the voltage setpoint, the SVC MVar output is zero.
Station Supply	Reference	Station supply with load derived from the station output.
Status	Reference	Current status information relevant to an entity.
Steam Sendout Schedule	Reference	The cogeneration plant's steam sendout schedule in volume per time unit.
Streetlight	Reference	Streetlight asset.
Streetlight Lamp Kind ENUM	Lookup	Kind of lamp for the streetlight.
String Measurement	Base	String Measurement represents a measurement with values of type string.
String Measurement Value	Base	String Measurement Value represents a measurement value of type string.
Structure	Reference	Construction holding assets such as Conductors, transformers, switchgear, and so on. Where applicable, number of Conductors can be derived from the number of associated wire spacing instances.
Structure Material Kind ENUM	Lookup	Kind of material used for structures.
Structure Support	Reference	Support for structure assets.
Structure Support Kind ENUM	Lookup	Kind of structure support.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Sub Geographical Region	Reference	A subset of a geographical region of a power system network model.
Sub Load Area	Reference	The class is the second level in a hierarchical structure for grouping of loads for load flow load scaling.
Substation	Reference	A collection of equipment for purposes other than generation or utilization, through which electric energy in bulk is passed for switching or modifying its characteristics.
Surge Arrester Info	Reference	Properties of surge arrester.
Survey	Reference	A survey is a subtype to the `Promotion`. An initiation of a survey on a `Party` is implemented as an `Event Party Interaction`. The response from a survey is in Interaction Question Response.
SVC Control Mode ENUM	Lookup	Static VAr Compensator control mode.
Switch	Reference	A generic device designed to close, or open, or both, one or more electric circuits.
Switch Action	Reference	Action on switch as a switching step.
Switch Action Kind ENUM	Lookup	Kind of action on switch.
Switch Connect Disconnect Func Assignment	Reference	Connect disconnect func a switch has, including history.
Switch Info	Reference	Switch data.
Switch Phase	Reference	Single phase of a multi-phase switch when its attributes might be different per phase.
Switch Schedule	Reference	A schedule of switch positions.
Switch State ENUM	Lookup	Possible states for a switch.
Switch Switching Operation Assignment	Reference	Switching operation assigned to a switching.
Switching Activity	Reference	Activity within the switching plan.
Switching Activity Safety Doc Assignment	Reference	Safety document assigned to a switching activity.
Switching Operation	Reference	A Switching Operation is used to define individual switch operations for an Outage Schedule. This OutageSchedule may be associated with another item of Substation such as a Transformer, Line, or Generator; or with the Switch itself as a `Power System Resource`e. A Switch may be referenced by many Outage Schedules.
Switching Plan	Reference	Switching Plan
Switching Step	Reference	Atomic switching step; can be part of a switching step group, or of the switching plan.
Switching Step Group	Reference	A logical step, grouping atomic switching steps that are important to distinguish when they may change topology (for example, placing a jumper between two cuts).
Synchrocheck Relay	Reference	A device that operates when two AC circuits are within the desired limits of frequency, phase angle, and voltage, to permit or to cause the paralleling of these two circuits. Used to prevent the paralleling of non-synchronous topological islands.
Synchronous Machine	Reference	An electromechanical device that operates with shaft rotating synchronously with the network. It is a single machine operating either as a generator or synchronous condenser or pump.
Synchronous Machine Kind ENUM	Lookup	Synchronous machine type.
Synchronous Machine Operating Mode ENUM	Lookup	Synchronous machine operating mode.
Tag Action	Reference	Action on operation tag as a switching step.
Tag Action Kind ENUM	Lookup	Kind of action on tag.
Tap Changer	Reference	Mechanism for changing transformer winding tap positions.

Table 2–64 (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Tap Changer Control	Reference	Describes behavior specific to tap changers. For example, how the voltage at the end of a line varies with the load level and compensation of the voltage drop by tap adjustment.
Tap Changer Info	Reference	Tap changer data.
Tap Schedule	Reference	A pre-established pattern over time for a tap step.
Target Account	Reference	The customer accounts included in a specific campaign cell.
Target Agreement	Reference	The Contracts included in a specific promotion.
Target Geography Area	Reference	The geography information included in a specific campaign cell.
Target Market Segment	Reference	The market segments included in a specific campaign.
Target Type	Lookup	Indicates the type of targets in a specific Promotion: For example: ■ Customer ■ Accounts ■ Access Method ■ Geography area
Tariff	Reference	Document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided. It has a unique number within the state or province. For rate schedules it is frequently allocated by the affiliated Public utilities commission (PUC).
Tariff Profile	Reference	A schedule of charges; structure associated with Tariff that allows the definition of complex tariff structures such as step and time of use when used in conjunction with Time Tariff Interval and Charge. Inherited 'status. value' is defined for the utility's business rules. For example: active, inactive, and so on.
Tariff Tariff Profile Assignment	Reference	A profile assigned to a tariff, including history.
Task	Reference	The specific tasks inside a project.
Tax Authority	Lookup	A government authority that levies sales taxes and on whose behalf the store collects these sales taxes. For example National, State, Province, City, County, Other.
Tax Category	Lookup	The tax categories which may be applied to invoices items.
Terminal	Reference	An AC electrical connection point to a piece of conducting equipment. Terminals are connected at physical connection points called connectivity nodes.
Thermal Generating Unit	Reference	A generating unit whose prime mover could be a steam turbine, combustion turbine, or diesel engine.
Time Of Use	Lookup	Time Of Use.
Time Schedule	Reference	Description of anything that changes through time. Time schedule is used to perform a single-valued function of time. Use inherited 'type' attribute to give additional information on this schedule, such as: periodic (hourly, daily, weekly, monthly, and so on.), day of the month, by date, calendar (specific times and dates).
Time Slot	Reference	Time period.
Time Tariff Interval	Reference	One of a sequence of time intervals defined in terms of real time. It is typically used in association with Tariff Profile to define the intervals in a time of use tariff structure, where startDateTime simultaneously determines the starting point of this interval and the ending point of the previous interval.
Tool	Reference	Tool asset.
Topological Node	Reference	For a detailed substation model a topological node is a set of connectivity nodes that, in the current network state, are connected together through any type of closed switches, including jumpers. Topological nodes change as the current network state changes (that is, switches, breakers, and so on. change state). For a planning model, switch statuses are not used to form topological nodes. Instead they are manually created or deleted in a model builder tool. Topological nodes maintained this way are also called "busses".

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Tower	Reference	Tower asset. Dimensions of the Tower are specified in associated DimensionsInfo class. When used for planning purposes, a transmission tower carrying two 3-phase circuits will have 2 instances of Connection, each of which will have 3 MountingPoint instances, one for each phase all with coordinates relative to a common origin on the tower. (It may also have a 3rd Connection with a single MountingPoint for the Neutral line).
Tower Construction Kind ENUM	Lookup	Kind of tower construction.
Transformer Control Mode ENUM	Lookup	Control modes for a transformer.
Transformer Core Admittance	Reference	The transformer core admittance. Used to specify the core admittance of a transformer in a manner that can be shared among power transformers.
Transformer End	Reference	A conducting connection point of a power transformer. It corresponds to a physical transformer winding terminal. In earlier CIM versions, the Transformer Winding class served a similar purpose, but this class is more flexible because it associates to terminal but is not a specialization of `Conducting Equipment`.
Transformer End Info	Reference	Transformer End Info
Transformer Feeder Assignment	Reference	A feeder that a transformer connects including history.
Transformer Mesh Impedance	Reference	Transformer mesh impedance (Delta-model) between transformer ends. The typical case is that this class describes the impedance between two transformer ends pair-wise, that is, the cardinalities at both transformer end associations are 1. But in cases where two or more transformer ends are modeled the cardinalities are larger than 1.
Transformer Star Impedance	Reference	Transformer star impedance (Pi-model) that accurately reflects impedance for transformers with 2 or 3 windings. For transformers with four or more windings, you must use `Transformer Mesh Impedance`. For transmission networks use `Power Transformer End` impedances (r, r0, x, x0, b, b0, g and g0).
Transformer Tank	Reference	An assembly of two or more coupled windings that transform electrical power between voltage levels. These windings are bound on a common core and place in the same tank. Transformer tank can be used to model both single-phase and 3-phase transformers.
Transformer Tank End	Reference	Transformer tank end represents an individual winding for unbalanced models or for transformer tanks connected into a bank (and bank is modeled with the `Power Transformer`).
Transformer Tank Info	Reference	Set of transformer tank data, from an equipment library.
Trouble Reporting Kind ENUM	Lookup	Kind of trouble reporting.
Trouble Ticket	Reference	Trouble Ticket
Underground Structure	Reference	Underground Structure
Underground Structure Kind ENUM	Lookup	Kind of underground structure.
Unit Multiplier	Lookup	Multiplier of a unit, such as kilo.
Unit Multiplier ENUM	Lookup	The unit multipliers defined for the CIM.
Unit Of Measure	Lookup	This table stores and describes all possible measurement units valid for the data within the system. For example: valid units of measure are inch, kilowatt-hour, days, cubic centimeters.
Unit Symbol ENUM	Lookup	The units defined for usage in the CIM.
Usage Point	Reference	Logical or physical point in the network to which readings or events may be attributed. Used at the place where a physical or virtual meter may be located; however, it is not required that a meter be present.
Usage Point Connected Kind ENUM	Lookup	State of the usage point with respect to connection to the network.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Usage Point End Device Ctrl Assignment	Reference	End device ctrl assigned to usage point.
Usage Point Equipment Assignment	Reference	Equipment linked to a usage point.
Usage Point Group	Reference	Abstraction for management of group communications within a two-way AMR system or the data for a group of related usage points. Commands can be issued to all of the usage points that belong to a usage point group using a defined group address and the underlying AMR communication infrastructure.
Usage Point Group Assignment	Reference	Group a usage point assigned.
Usage Point Group DR Program Assignment	Reference	DR program a usage point group assigned.
Usage Point Grp End Device Ctrl Assignment	Reference	End device ctrl capability a usage point group has or assigned, including history.
Usage Point Location	Reference	Location of an individual usage point.
Usage Point Transformer Assignment	Reference	Transformer a usage point connected, including history.
Usage Read Cycle	Reference	Meter read cycle.
Utility Commodity	Lookup	Utility Commodity
Validity ENUM	Lookup	Validity for Measurement Value.
Value Alias Set	Reference	Describes the translation of a set of values into a name and is intended to facilitate custom translations. Each Value Alias Set has a name, description and so on. A specific Measurement may represent a discrete state like Open, Closed, Intermediate and so on. This requires a translation from the Measurement Value. value number to a string. For example, ■ 0->"Invalid" ■ 1->"Open" ■ 2->"Closed" ■ 3->"Intermediate" Each Value To Alias member in Value Alias Set. Value describe a mapping for one particular value to a name.
Value To Alias	Reference	Describes the translation of one particular value into a name. For example, 1 as "Open".
Value Type	Lookup	Value type describes the type of value. Value type could be time or money.
VEE Exception	Base	Validation, estimation, and editing (VEE) exception.
VEE Exception Type	Lookup	Validation, estimation, and editing (VEE) exception types.
VEE Group	Lookup	Validation, estimation, and editing (VEE) groups.
VEE Rule	Lookup	Validation, estimation, and editing (VEE) rules.
Vehicle	Reference	The vehicles owned and used by the operators to fulfill its business requirement.
Vendor	Reference	Any vendor utilized by the enterprise.
Vendor Item	Reference	Vendor Item
Virtual Team	Reference	The virtual team beside department hierarchy formed for specific purpose. For example: 1. Sales Team A, B, C 2. Customer Support Team A, B, C 3. Project team. 4. Strategic Account management team including sales and support.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Voltage Control Zone	Reference	An area of the power system network which is defined for secondary voltage control purposes. A voltage control zone consists of a collection of substations with a designated bus bar section whose voltage will be controlled.
Voltage Limit	Reference	Operational limit applied to voltage.
Weather Alert	Lookup	Weather Alert
Weather Forecast	Lookup	Weather Forecast
Weather Information	Lookup	Weather Information
Weather Location	Lookup	Location where weather information collected.
Web Page	Reference	A web page on service operator website. It may present a product, or take customer service request.
Wind Gen Unit Kind ENUM	Lookup	Type of fuel.
Wind Generating Unit	Reference	A wind driven generating unit.
Wind Information	Base	Information on a work.
Winding Connection ENUM	Lookup	Winding connection type.
Wire Info	Reference	Wire data that can be specified per line segment phase, or for the line segment as a whole in case its phases all have the same wire characteristics.
Wire Insulation Kind ENUM	Lookup	Kind of wire insulation.
Wire Material Kind ENUM	Lookup	Kind of wire material.
Wire Spacing Info	Reference	Wire spacing data that associates multiple wire positions with the line segment, and allows to calculate line segment impedances. Number of phases can be derived from the number of associated wire positions whose phase is not neutral.
Wire Usage Kind ENUM	Lookup	Kind of wire usage.
Work Asset	Reference	Asset used to perform work.
Work Billing Info	Reference	Billing information for work performed for the customer. The history of Work Billing Info, Invoices, and Payments is to be maintained in associated Activity Records.
Work Cost Detail	Reference	A collection of all of the individual cost items collected from multiple sources.
Work Cost Summary	Base	A roll up by cost type for the entire cost of a work order. For example, total labor.
Work Document	Reference	Shadow class for Document, to isolate subclassing from this package. If any subclass gets normative and needs inheritance, it will inherit directly from Document.
Work Flow Step	Reference	A pre-defined set of work steps for a given type of work.
Work Identified Object	Reference	Shadow class for Identified Object, to isolate subclassing from this package. If any subclass gets normative and needs inheritance, it will inherit directly from Identified Object.
Work Kind ENUM	Lookup	Kind of work.
Work Location	Reference	Information about a particular location for various forms of work.
Work Order	Reference	Document used to request, initiate, track and record work.
Work Status Entry	Reference	A type of Activity Record that records information about the status of an item, such as a Work or Work Task, at a point in time.
Work Status Kind ENUM	Lookup	Kind of status, specific to work.
Work Task	Reference	Work Task.
Work Task Asset Assignment	Reference	Asset assigned to a work task including the history.
Work Task Kind ENUM	Lookup	Work task kind.
Work Time Schedule	Reference	Time schedule of a work.

Table 2–64   (Cont.) Utilities Data Model Entities Q-Z

Entity Name	Type	Description
Work Time Schedule Kind ENUM	Lookup	Kind of work schedule.
Zone	Reference	Area divided off from other areas. It may be part of the electrical network, a land area where special restrictions apply, weather areas, and so on. For weather, it is an area where a set of relatively homogenous weather measurements apply.
Zone Kind ENUM	Lookup	Kind of zone.

3

Logical Data Model Dimensions

This chapter describes the logical dimensions and hierarchies of the data model, as shown in Table 3–1. The IETL use dimensions are shown in Table 3–2.

Table 3–1   Standard Logical Data Model Dimensions

Dimension
Account
Customer
Feeder
Geography Zone
Hour
Household
Manufacturer
Meter
Operational
Organization
Outage Record
Postcode
Product Asset Model
Region
Service Location
Substation
Time Month
Time Month Hour
Time Season Month
Time Season Month Hour
TOU
TOU Time
Transformer
Usage Point
Usage Point Location

Table 3–2   IETL Use Dimensions

Dimension
Address Location
Asset Info
Demand Response Program
Outage Report
Product Offering
Reading Type
Usage Point Group
Zone

Logical Data Model Dimensions

This sections lists the logical data model dimensions.

Account

Description: `Account`

Account Hierarchy

Standard Account Hierarchy
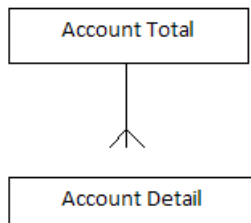
Account Levels

Table 3–3 shows Account Total: All ACCOUNT is the most aggregate level of the dimension.

Table 3–3   Account Total

Sr. Number	Attribute	Description
1.	ALL ACCOUNT CODE	Identification for the top level value.

Table 3–4 shows Account Detail: The account tracks the financial interactions of a customer with the utility. It is normally generated by a contract between the utility and customer. One customer may have multiple accounts.

Table 3–4   Account Detail

Sr. Number	Attribute	Description	Sample Value
1.	Account Code		2006012514
2.	Account Code1		
3.	Organization Business Unit Code		
4.	Account Segment Code		
5.	Account Type Code		Electricity
6.	Accounting Cycle Code		
7.	Billing Cycle Code		
8.	Billing Period Code		
9.	Currency Code		USD
10.	Credit Category Code	Code for credit category.	
11.	Party Code	A code for any person or business that is of interest to the utility.	
12.	Source System Code		
13.	Payment Method Type Code		
14.	Billing Frequency Code		
15.	Account Role Type Code		PRPD
16.	Account Status Type Code		
17.	Account Status Reason Code		
18.	Customer Visible Code	The account number visible to the customer.	
19.	Secondary Currency Code	Secondary currency for this bill info. A/R can be viewed and payments/disputes/adjustments made in the secondary currency, but all impacts are translated to the primary currency for actual A/R tracking. Only euro and EMU currencies are supported as secondary.	
20.	Billing Status Code	Used to track the billing status of a bill info. Legal values are BILL_ACTIVE - indicates that billing should be provided for the account in a standard (regular) way. This is a default value. BILL_INACTIVE.	
21.	Billing Status Reason Code	Indicates a reason for changing of BILLING_STATUS.	
22.	Create Staff	The employee who created the account.	
23.	Advertising Status	The account setting regarding advertisement, for example, allow SMS marketing, forbid SMS marketing.	
24.	Account Charge Type	The charge type of the account.	For example: Prepaid, or Postpaid.
25.	Source System Identifier	The identifier in the source system, as specified by source system key (code).	
26.	Payment Comment	The textual note attached to the payment.	
27.	Account Description		
28.	Create Date		22-JAN-08
29.	Termination Date		21-SEP-08
30.	Account Effective Date	Effective time of modification of this account on an external system. For example, if this account is created by billing system, this date may refer to when this account is activated in CRM system.	
31.	Initial Activation Date	The date when the account was activated.	
32.	Last Activate Date	The last time this account is activated.	

Table 3–4   (Cont.) Account Detail

Sr. Number	Attribute	Description	Sample Value
33.	Last Suspend Date		
34.	Last Reopen Date		
35.	Group Plan Indicator		
36.	Multiple Customer Indicator	To indicate this account is used by multiple customers.	
37.	Payment Days	The default payment due days for invoices.	
38.	Close Grace Period	Number of days (months) before the account is suspended if the balance is below zero. During this period account may be functional with limitations, like no outgoing calls.	
39.	Balance Expire Period	Number of days (months) before the account balance expires.	
40.	Close Period	Number of days (months) before the account is closed (or suspended), if the balance is below zero. Accounts in this state maybe recovered.	
41.	Close Purge Period	Number of days (months) before the account is closed and purged if the balance is below zero.	
42.	Warning Balance Level	The balance level bar for warning period. For example, if customer balance is < $5, then customer receive warning messages.	
43.	Close Balance Level	The balance level below which the customer account may be closed after a period.	
44.	Effective From Date		
45.	Effective To Date		
46.	Status Code		A
47.	Account Name		
48.	In Platform Code	Id for IN platform.	

Customer

Description: `Customer`

Customer Hierarchy

Standard Customer Hierarchy
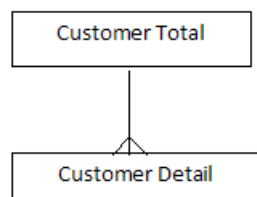
Customer Levels

Table 3–5 shows Customer Total: All CUSTOMER is the most aggregate level of the dimension.

Table 3–5   Customer Total

Sr. Number	Attribute	Description
1.	ALL CUSTOMER CODE	Identification for the top level value.

Table 3–6 shows Customer Detail: All the customers, including individual and organization customers. A customer is generally defined as a party using one or more services from the operator.

Table 3–6   Customer Detail

Sr. Number	Attribute	Description	Sample Value
1.	Customer Code		CUST-10561
2.	Customer Kind Code	Kind of customer.	
3.	Customer Score Code		
4.	Customer Segment Code		
5.	Customer Source Code		
6.	Customer Type Code		Commercial
7.	External Organization Type Code		
8.	Language Code		
9.	Prospect Code		
10.	Status Code		
11.	Planned Outage Code		
12.	Address Location Code		
13.	Job Code	Code for job of subscriber.	
14.	Household Code		
15.	Customer Revenue Band Code		
16.	Nationality Code	Code for nationality of subscriber.	
17.	Education Code	Code for educational qualification of subscriber.	
18.	Other Individual Code		
19.	SOC Job Code		
20.	Marital Status Code	Code for marital status of subscriber.	
21.	Gender Code	Code for gender.	
22.	Billing Address Location Code	The address where the billing is sent to.	
23.	Chairman Code		
24.	Party Organization Type Code		
25.	Death Certificate Code		
26.	Manager Code		
27.	Campaign Partner Code	The campaign partner code if this customer at the same time is also a campaign partner.	
28.	Sales Volume Code		
29.	Contact Code		
30.	Referral Customer Code	Some commission or loyalty program depends on this information to calculate the bonus.	
31.	Company Registry Number		
32.	Driver License Number		

Table 3–6   (Cont.) Customer Detail

Sr. Number	Attribute	Description	Sample Value
33.	DUNS Number	The data universal numbering system code, as from D&B.	
34.	Employer Tax Number	The tax number of the employer from tax authority.	
35.	Prev Employer Tax Number		
36.	Social Security Number	Social security number for individual customer.	
37.	Job Contract Type		
38.	Tax Exempt Status		
39.	Tax Number	Tax number of the party, for both individual and organizational.	
40.	Initiative Number	The initiative code as defined in initiative entity. For example, when a person register himself on the operator`s website, he becomes an initiative. Later on, once he places the order, he becomes the customer. In the customer table, imitative number track.	
41.	Primary Occasion Name	Default customer occasion type name. For example, the marriage anniversary.	
42.	Primary Status Code	Unique identifier for the primary Status.	
43.	Primary Status Name	Default Status Name.	
44.	Primary Status Reason Code	Unique identifier for the primary Status Reason.	
45.	Primary Status Reason Name	Name of the primary status reason.	
46.	Seal Image	The image files of customer signature, or stamp.	
47.	Manager Name		
48.	Contact Name		
49.	Stock Exchange Name		
50.	Name Prefix		
51.	Name Suffix		
52.	First Name		Sydney
53.	Last Name		Kerry
54.	Middle Name		
55.	Family Name In Maiden		
56.	Given Name In Maiden		
57.	Name Of Workplace		
58.	Place Of Birth		
59.	Job Position		Financial Analyst
60.	Legal Title To Housing		
61.	Ethnic Background		
62.	Number Of Children		
63.	Number Of Dependents		
64.	Dwelling Tenure		28
65.	Dwelling Size		33290
66.	Ethnicity		
67.	Form Of Employment		
68.	Dwelling Type		LEASED
69.	Dwelling Status		

Table 3–6   (Cont.) Customer Detail

Sr. Number	Attribute	Description	Sample Value
70.	Office Tel No	This is the office number, and more contact information can be found in _party contact information_.	
71.	Cell Phone No	The cell phone number, and more contact information can be found in _party contact information_.	9985010563
72.	Personal Identification Number		
73.	Source Of Income		BUSINESS INCOME
74.	Payment Account Number	Account number for payments. Deprecated: This one is only used for backward compatibility.	
75.	PUC Number	(if applicable) Public utility commission (PUC) identification number.	
76.	Special Need	True if customer organization has special service needs such as life support, hospitals, and so on.	
77.	Living At Current Address Since		
78.	End Of Job Contract		
79.	Start Of Employment		
80.	Prev Employment Start Date		
81.	Prev Employment End Date		
82.	Final Settlement Start Date	The start date of the period when this customer lives in the last known area.	
83.	Final Settlement End Date	The end date of the period when this customer lives in the last known area.	
84.	Date Of Birth	The birthday of the customer, for individual customers.	13-MAR-87
85.	Establishment Date	Time of establish for organizational customer.	
86.	Termination Date	The natural termination date of organizational and individual customer.	
87.	Validation Start Date	The business license validation period start date.	
88.	Validation End Date	The business license validation period end date.	
89.	Liquidation Start Date	The start date of liquidation process.	
90.	Liquidation End Date	The end date of liquidation process.	
91.	Contact Address Effective Date	Date on which the contact address referenced in the billing_address_id column became active. This facilitates queries such as ``find customers who changed address in the last 3 months``.	
92.	Billing Address Effective Date	Date on which the billing address referenced in the billing_address_id column became active. This facilitates queries such as ``find customers who changed address in the last 3 months``.	
93.	Payment Account Open Date	Opening date of the first account with valid payment information. Deprecated: This one is only used for backward compatibility.	
94.	Payment Account Close Date	Closing date of the first account with valid payment information. Deprecated: This one is only used for backward compatibility.	
95.	Create Date	The date when this customer record is created. This can be same as first account create date, or first contract setup date.	
96.	Economically Active Indicator		N

Table 3–6   (Cont.) Customer Detail

Sr. Number	Attribute	Description	Sample Value
97.	Public Indicator	To indicate this is public listed company (listed and traded in stock exchange market).	
98.	Domestic Indicator	To indicate this is a domestic company (compared with overseas, or those from other country).	N
99.	Campaign Partner Indicator	To indicate this is a campaign partner.	
100.	Mail Allowed Indicator	Indicates if marketing information can be sent to the customer.	Y
101.	Third Party Marketing Allowed Indicator	Specifies whether to allow third party to do marketing to the customer.	N
102.	Customer Payment Responsible Indicator	Indicate if this customer is responsible for payment of a customer organization or household.	
103.	VIP	True if this is an important customer. Importance is for matters different than those in `SpecialNeed` attribute.	
104.	Employee Count		
105.	Annual Revenue		139146011
106.	Annual Revenue Local		
107.	Annual Revenue Reporting		
108.	Annual Sales		246140617
109.	Annual Sales Local		
110.	Annual Sales Reporting		
111.	Equity Amount		659037373
112.	Equity Amount Local		
113.	Equity Amount Reporting		
114.	Effective From Date		
115.	Effective To Date		
116.	ARPU Band Code		
117.	Churn Date	In porting in/out case, customer churn can be detected in real time. In some prepaid business, operator may only know customer churn after 6 months or even longer. In the later one, the churn date will be different with customer effective to date.	
118.	Customer Importance Rank	Integer that gives the relative importance of this customer with respect to others.	
119.	Party Role Code		
120.	Number Of Lines	Number of phone lines belonging to this customer.	
121.	Primary Line Number	Default fixed line number.	
122.	Primary MSISDN Number	Default subscriber number.	
123.	Religious Affiliation Code		
124.	Demand Response Program Code		

Feeder

Description: Feeder

Feeder Hierarchy

Standard Feeder Hierarchy
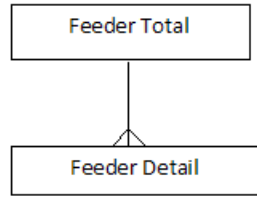
Feeder Levels

Table 3–7 shows Feeder Total: All FEEDER is the most aggregate level of the dimension.

Table 3–7   Feeder Total

Sr. Number	Attribute	Description
1.	ALL FEEDER CODE	Identification for the top level value.

Table 3–8 shows Feeder Detail: Shows Feeder Detail: Substation feeder.

Table 3–8   Feeder Detail

Sr. Number	Attribute	Description	Sample Value
1.	Feeder Code		FDR-0001
2.	Feeder Name		FDR-0001
3.	Feeder Description		FDR-0001

Geography Zone

Description: `Geography Entity`

Geography Zone Hierarchy

Standard Geography Zone Hierarchy
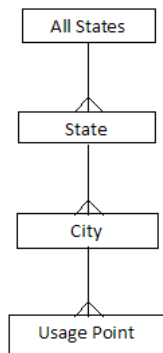
Geography Zone Levels

Table 3–9 shows Geography Zone All States: All States Geography Zone is the most aggregate level of the dimension.

Table 3–9   Geography Zone All States

Sr. Number	Attribute	Description
1.	All States	

Table 3–10 shows State: State level in Geography hierarchy.

Table 3–10   Geography Zone: State

Sr. Number	Attribute	Description	Sample Value
1.	Geography State Code		NJ
2.	Geography Country Code		
3.	Geography State Name		New Jersey
4.	Geography State Description		
5.	Effective From Date		
6.	Effective To Date		
7.	Status Code		

Table 3–11 shows City: City level in Geography hierarchy.

Table 3–11   Geography Zone: City

Sr. Number	Attribute	Description	Sample Value
1.	Geography City Code		San Francisco
2.	Geography State Code		
3.	Geography City Name		San Francisco
4.	Geography City Description		San Francisco
5.	Effective From Date		
6.	Effective To Date		
7.	Status Code		

Table 3–12 shows Usage Point: Logical or physical point in the network to which readings or events may be attributed. Used at the place where a physical or virtual meter may be located; however, it is not required that a meter be present.

Table 3–12   Geography Zone Usage Point

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Code		UP-1240
2.	Phase Code	Phases carried, if applicable.	A
3.	AMI Billing Ready Kind Code	Tracks the lifecycle of the metering installation at a usage point with respect to readiness for billing through advanced metering infrastructure reads.	2
4.	Usage Point Connected Kind Code	State of the usage point with respect to connection to the network.	connected
5.	Account Code		
6.	Usage Point Location Code		
7.	Service Category Code		
8.	Service Location Code		

Table 3–12   (Cont.) Geography Zone Usage Point

Sr. Number	Attribute	Description	Sample Value
9.	Minimal Usage Expected	If true, minimal or zero usage is expected at this usage point for situations such as premise vacancy, logical or physical disconnect. It is used for readings validation and estimation.	
10.	Is SDP	If true, this usage point is a service delivery point, that is, a usage point where the ownership of the service changes hands.	
11.	Is Virtual	If true, this usage point is virtual, that is, no physical location exists in the network where a meter could be located to collect the meter readings. For example, one may define a virtual usage point to serve as an aggregation of usage for all of a company.	
12.	Grounded	True if grounded.	
13.	Check Billing	True if as a result of an inspection or otherwise, there is a reason to suspect that a previous billing may have been performed with erroneous data. Value should be reset once this potential discrepancy has been resolved.	
14.	Service Priority	Priority of service for this usage point. Note that usage points at the same service location can have different priorities.	MEDIUM
15.	Service Delivery Remark	Remarks about this usage point, for example the reason for it being rated with a non-nominal priority.	
16.	Outage Region	Outage region in which this usage point is located.	
17.	Facility Level		XFM-A148
18.	Estimated Load KW	Estimated load.	9
19.	Rated Current	The maximum continuous current carrying capacity in amps governed by the device material and construction.	220
20.	Nominal Service Voltage	Nominal service voltage.	120
21.	Rated Power KVA	Active power that this usage point is configured to deliver.	26
22.	Rated Power	Active power that this usage point is configured to deliver.	23.76

Hour

Description: Hour

Hour Hierarchy
Standard Hour Hierarchy
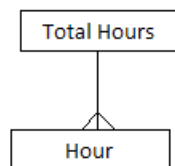
Hour Levels
Table 3–13 shows Hour Total: Total Hours.

Table 3–13   Hour Total

Sr. Number	Attribute	Description
1.	Total Hours	

Table 3–14 shows Hour: This table contains information at the hour level.

Table 3–14   Hour Detail

Sr. Number	Attribute	Description	Sample Value
1.	Hour Code		1
2.	Hour Number		1
3.	Hour Description		01:00 - 01:59 AM

Household

Description: `Household`

Household Hierarchy
Standard Household Hierarchy
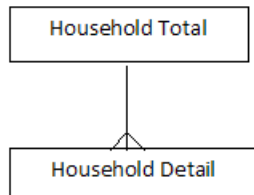
Household Levels
Table 3–15 shows Household Total: All HOUSEHOLD is the most aggregate level of the dimension.

Table 3–15   Household Total

Sr. Number	Attribute	Description
1.	ALL HOUSEHOLD CODE	Identification for the top level value.

Table 3–16 shows Household Detail: Captures household information which the individual customer may belong to. Operator may recognize household by customer's shared address and then generate this data according to the customer's demographic value.

Table 3–16   Household Detail

Sr. Number	Attribute	Description	Sample Value
1.	Household Code	Unique identifier for house hold.	HH1
2.	Dwelling Type	Type of dwelling.	
3.	Composition Group	Composition of the group.	
4.	Income Group	Income of the group.	BELOWMIDDLECLASS
5.	Dwelling Status	Status of dwelling.	
6.	Household Size	Size of a house hold.	
7.	Dwelling Size	Size of the dwelling.	
8.	Dwelling Tenure	Length of stay at present location.	
9.	Number Of Children	Number of children in house.	3

Table 3–16   (Cont.) Household Detail

Sr. Number	Attribute	Description	Sample Value
10.	Number Of Teens	Number of teens in house.	3
11.	Number Of Adults	Number of adults in house.	2
12.	Number Of Seniors	Number of seniors in house.	1
13.	Number Of Persons	Number of persons sharing the customer`s household.	9
14.	Number Of Earners	Number of wage earners in the household.	1

Manufacturer

Description: `Manufacturer`

Manufacturer Hierarchy

Standard Manufacturer Hierarchy
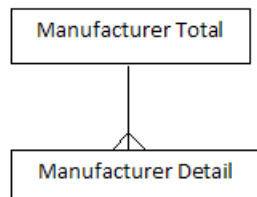
Manufacturer Levels

Table 3–17 shows Manufacturer Total: All MANUFACTURER is the most aggregate level of the dimension.

Table 3–17   Manufacturer Total

Sr. Number	Attribute	Description
1.	ALL MANUFACTURER CODE	Identification for the top level value.

Table 3–18 shows Manufacturer Detail: Organization that manufactures asset products.

Table 3–18   Manufacturer Detail

Sr. Number	Attribute	Description	Sample Value
1.	Manufacturer Code		MNFCTR1

Meter

Description: `Meter`

Meter Hierarchy

Standard Meter Hierarchy
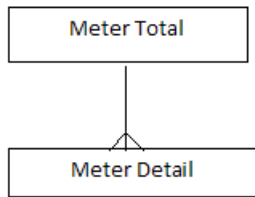
Meter Levels

Table 3–19 shows Meter Total: All METER is the most aggregate level of the dimension.

Table 3–19   *Meter Total*

Sr. Number	Attribute	Description
1.	ALL METER CODE	Identification for the top level value.

Table 3–20 shows Meter Detail: Physical asset that performs the metering role of the usage point. Used for measuring consumption and detection of events.

Table 3–20   *Meter Detail*

Sr. Number	Attribute	Description	Sample Value
1.	Meter Code		M-220-2153
2.	Form Number	Meter form designation per ANSI C12.10 or other applicable standard. An alphanumeric designation denoting the circuit arrangement for which the meter is applicable and its specific terminal arrangement.	

Operational

Description: Operational

Operational Hierarchy

Standard Operational Hierarchy
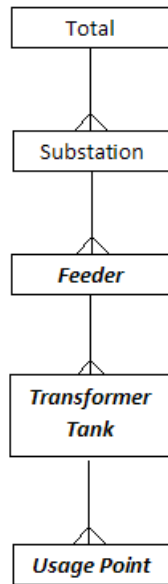
Operational Levels

Table 3–21 shows Total: aggregate level of the dimension.

Table 3–21   Operational Total

Sr. Number	Attribute	Description
1.	Total	Code for All Access Method

Table 3–22 shows Operational Substation: A collection of equipment for purposes other than generation or utilization, through which electric energy in bulk is passed for the purposes of switching or modifying its characteristics.

Table 3–22   Operational Substation

Sr. Number	Attribute	Description	Sample Value
1.	Substation Code		SUB-001

Table 3–23 shows Operational Feeder: Feeder level of the dimension. Stores the Operational Information.

Table 3–23   Operational Feeder

Sr. Number	Attribute	Description	Sample Value
1.	Feeder Code		FDR-0001
2.	Feeder Name		FDR-0001
3.	Feeder Description		FDR-0001

Table 3–23 shows Operational Transformer Tank: An assembly of two or more coupled windings that transform electrical power between voltage levels. These windings are bound on a common core and place in the same tank. Transformer tank can be used to model both single-phase and 3-phase transformers.

Table 3–24   Operational Transformer Tank

Sr. Number	Attribute	Description	Sample Value
1.	Transformer Tank Code		XFM-001
2.	Power Transformer Code		

Table 3–23 shows Operational Usage Point: Logical or physical point in the network to which readings or events may be attributed. Used at the place where a physical or virtual meter may be located; however, it is not required that a meter be present.

Table 3–25   Operational Usage Point

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Code	UP-1240	
2.	Phase Code	Phases carried, if applicable.	A
3.	AMI Billing Ready Kind Code	Tracks the lifecycle of the metering installation at a usage point with respect to readiness for billing through advanced metering infrastructure reads.	2
4.	Usage Point Connected Kind Code	State of the usage point with respect to connection to the network.	connected
5.	Account Code		
6.	Usage Point Location Code		
7.	Service Category Code		
8.	Service Location Code		
9.	Minimal Usage Expected	If true, minimal or zero usage is expected at this usage point for situations such as premise vacancy, logical or physical disconnect. It is used for readings validation and estimation.	
10.	Is SDP	If true, this usage point is a service delivery point, that is, a usage point where the ownership of the service changes hands.	
11.	Is Virtual	If true, this usage point is virtual, that is, no physical location exists in the network where a meter could be located to collect the meter readings. For example, one may define a virtual usage point to serve as an aggregation of usage for all of a company.	
12.	Grounded	True if grounded.	
13.	Check Billing	True if as a result of an inspection or otherwise, there is a reason to suspect that a previous billing may have been performed with erroneous data. Value should be reset once this potential discrepancy has been resolved.	
14.	Service Priority	Priority of service for this usage point. Note that usage points at the same service location can have different priorities.	MEDIUM
15.	Service Delivery Remark	Remarks about this usage point, for example the reason for it being rated with a non-nominal priority.	
16.	Outage Region	Outage region in which this usage point is located.	
17.	Facility Level	XFM-A148	
18.	Estimated Load KW	Estimated load.	9
19.	Rated Current	The maximum continuous current carrying capacity in amps governed by the device material and construction.	220

Table 3–25   (Cont.) Operational Usage Point

Sr. Number	Attribute	Description	Sample Value
20.	Nominal Service Voltage	Nominal service voltage.	120
21.	Rated Power KVA	Active power that this usage point is configured to deliver.	26
22.	Rated Power	Active power that this usage point is configured to deliver.	23.76

Organization

Description: Organization Business Entity

Organization Hierarchy

Standard Organization Hierarchy
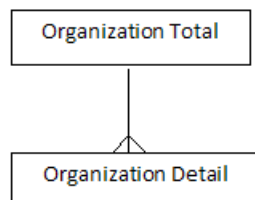
Organization Levels

Table 3–26 shows Organization Total: All Organization is the most aggregate level of the dimension.

Table 3–26   Organization Total

Sr. Number	Attribute	Description
1.	ALL ORGANIZATION CODE	Identification for the top level value.

Table 3–27 shows Organization Detail: A business unit of the organization that delivers a limited range of specific services through any sales channel. Examples could be retail or distribution.

Table 3–27   Organization Business Unit Detail

Sr. Number	Attribute	Description	Sample Value
1.	Organization Business Unit Code	Unique identifier for business unit. To identify whether the site is a store, distribution center or warehouse.	SUD1BU1
2.	Organization Business Unit Type Code		
3.	Address Location Code		
4.	Organization District Code		
5.	Organization Banner Code		
6.	Organization Business Entity Code		
7.	Organization Role Code		
8.	Channel Type Code		

Table 3–27   (Cont.) Organization Business Unit Detail

Sr. Number	Attribute	Description	Sample Value
9.	Organizational Demography Value Code		
10.	Chairman Code		
11.	Address Type Code	Unique identifier of the address type.	
12.	Postcode	Postal codes of interest to the retail organization.	
13.	Postal Plus Code	Four digit extension to the United States postal zip code.	
14.	Location Type Code	Unique identifier for location type.	
15.	Primary Trade Area Code	Primary trade area code, under which the business unit falls.	
16.	Contact Type Code	This is the general method to use to contact a site.	For example: Phone, Fax, Telex, and so on.
17.	Primary Market Area Code	Market area code under which the business unit falls.	
18.	Account Clerk Code	Person managing the accounts of the cost center. This field is client specific. The definition and use of this field is customizable for each client.	
19.	Organization Code	The unique identifier of the organization.	
20.	Primary Currency ISO Code	The unique ISO standard identifier of the currency.	
21.	Primary Business Unit Calendar Code	Default Site calendar code.	
22.	Organization Division Code		
23.	Judicial Distraint Code	Case identifier of the judicial distraint.	
24.	Contact Code	The identifier of the contact person.	
25.	Court Code	Code of the law of court.	
26.	Manager Code	Identifier of manager, as one individual party.	
27.	Company Registry Number	The registration number, according to the local authority.	
28.	DUNS Number		
29.	Manager Employee Number	Unique key denoting the employee number of the employee`s manager.	
30.	Payment Account Number		
31.	Contact Number	This is the number for the method specified to contact this site. There can be more than one number of each type for each site.	
32.	Time Zone	It denotes which time zone the site is in.	
33.	Shopping Center Type	Shopping center is group of retail and other commercial establishments that is planned, developed, owned, and managed as a single property. - Strip Center (Neighborhood, Community) - Mall (Power, Super Regional, Regional, Fashion/Sp	
34.	Short Description	The 3 character abbreviation of the store name.	Business Unit 1
35.	Long Description	The 10 character abbreviation of the store name.	Business Unit 1
36.	Secondary Description	The secondary description or name of the store or warehouse.	
37.	Address Line1	Line one of the detail postal addresses.	
38.	Address Line2	Line 2 of the detailed postal address.	

Table 3–27 (Cont.) Organization Business Unit Detail

Sr. Number	Attribute	Description	Sample Value
39.	Address Line3	Line 3 of the detailed postal address.	
40.	Address Usage	Describes how the address is used.	
41.	Primary Address Telephone	Default addresses telephone number.	
42.	Primary Email Address	Default Email Address.	
43.	Construction Status	Identifies the status of the site such as `Under Construction`, `New`, and so on.	
44.	Tax Exempt Status		
45.	Contact Name		
46.	External Name	Name/Number assigned to site for electronic communication.	For example: EDI transactions;
47.	Manager Name		
48.	Stock Exchange Name		
49.	Business Unit Concept	Possible values include, Convenience, General Merchandise, Category dominant anchors with few small tenants, Fashion, Higher-end (Upscale), Fashion oriented, Manufacturer`s Outlet, Leisure, Tourist oriented and Discount.	
50.	Total Linear Distance	The total linear selling space of the location.	
51.	Vat Region	The number of the value added tax region in which this store or warehouse is contained.	
52.	Seal Image		
53.	Liquidation Start Date		
54.	Termination Date	Termination date of the company in case of company was founded with termination date.	
55.	Liquidation End Date		
56.	Bankruptcy Start Date		
57.	Bankruptcy End Date		
58.	Final Settlement Start Date		
59.	Final Settlement End Date		
60.	Payment Account Open Date	Opening date of the account for payments.	
61.	Payment Account Close Date	Closing date of the account for payments.	
62.	Judicial Distraint Date	Date of the judicial distraint.	
63.	Validation Start Date	Date of the registration of the company` record deletion from the company register.	
64.	Validation End Date	Effective date of the deletion of the company`s record from the company register.	
65.	Vat Include Indicator	Indicates whether value added tax will be included in the retail prices for the store.	Valid values are `Y` or `N`.
66.	Domestic Indicator	Whether this organization is operated in a foreign country.	
67.	Employee Count		
68.	Equity Amount		
69.	Equity Amount Local		
70.	Equity Amount Reporting		
71.	Annual Revenue		
72.	Annual Revenue Local		

Table 3–27   (Cont.) Organization Business Unit Detail

Sr. Number	Attribute	Description	Sample Value
73.	Annual Revenue Reporting		
74.	Annual Sales		
75.	Annual Sales Local		
76.	Annual Sales Reporting		
77.	Organization Name	Name of the organization.	
78.	Party Type Code		

Outage Record

Description: `Outage Record`

Outage Record Hierarchy

Standard Outage Record Hierarchy
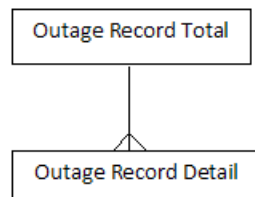
Outage Record Levels

Table 3–28 shows Outage Record Total: All Outage Record is the most aggregate level of the dimension.

Table 3–28   Outage Record Total

Sr. Number	Attribute	Description
1.	ALL OUTAGE RECORD CODE	Identification for the top level value.

Table 3–29 shows Outage Record Detail: Document describing details of an outage in part of the electrical network, typically produced by a SCADA system following a breaker trip, or within a trouble call system by grouping customer calls. It has an associated outage step for each supply point. Primary cause of the outage is captured in 'type'. In some countries all outage restoration is performed using a switching schedule which complements the outage record and records the crew and any planned work. In other systems, it may be acceptable to manage outages including new work tasks without switching schedules. Note: The relationship between Outage Record and Erp Person and Crew is inherited as each is a type of Document.

Table 3–29   Outage Record Detail

Sr. Number	Attribute	Description	Sample Value
1.	Outage Record Code		19901
2.	Outage Report Code		
3.	Damage Code	The damage code relative to the associated power system resource(s).	Examples include broken, burnout, failure, flashed (burned), manually operated, wire down, no damage - rolling blackout, none.
4.	Action Taken	Overall action taken to resolve outage (details are in work tasks).	
5.	Mode	Value of Erporganization.mode at the time of `startDateTime`.	

Postcode

Description: `Postcode`

Postcode Hierarchy

Standard Postcode Hierarchy
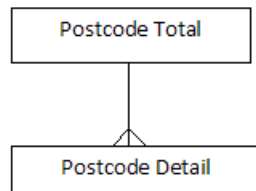
Postcode Levels

Table 3–30 shows Postcode Total: All Postcode is the most aggregate level of the dimension.

Table 3–30   Postcode Total

Sr. Number	Attribute	Description
1.	ALL POSTCODE CODE	Identification for the top level value.

Table 3–31 shows Postcode Detail: Postal Code, Zip Code, or similar geographical designation.

Table 3–31   Postcode Detail

Sr. Number	Attribute	Description	Sample Value
1.	Postcode Code		PC1
2.	Address Location Code		
3.	ISO Country Code		
4.	Postcode Value		PC1
5.	Postcode Description		
6.	Disease Hazard Indicator		

Table 3–31   (Cont.) Postcode Detail

Sr. Number	Attribute	Description	Sample Value
7.	Earthquake Hazard Indicator		
8.	Environmental Hazard Indicator		
9.	Flood Hazard Indicator		
10.	Hazardous Weather Area Indicator		
11.	Hurricane Hazard Indicator		
12.	Other Hazard Indicator		
13.	Radon Hazard Indicator		
14.	Storm Hazard Indicator		
15.	Tornado Hazard Indicator		
16.	Effective From Date		
17.	Effective To Date		
18.	Status Code		

Product Asset Model

Description: Product Asset Model

Product Asset Model Hierarchy

Standard Product Asset Model Hierarchy
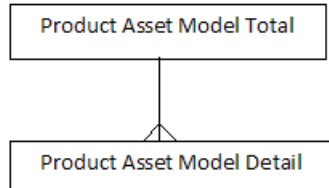
Product Asset Model Levels

Table 3–32 shows Product Asset Model Total: All Product Asset Model is the most aggregate level of the dimension.

Table 3–32   Product Asset Model Total

Sr. Number	Attribute	Description
1.	ALL PRODUCT ASSET MODEL	Identification for the top level value.

Table 3–33 shows Product Asset Model Detail: Asset model by a specific manufacturer.

Table 3–33   Product Asset Model Detail

Sr. Number	Attribute	Description	Sample Value
1.	Product Asset Model Code		PROD1
2.	Unit Symbol Code		
3.	Unit Multiplier Code		
4.	Corporate Standard Kind Code	Kind of corporate standard for this asset model.	
5.	Asset Model Usage Kind Code	Intended usage for this asset model.	

Table 3–33   (Cont.) Product Asset Model Detail

Sr. Number	Attribute	Description	Sample Value
6.	Manufacturer Code		
7.	Model Number	Version number for product model, which indicates vintage of the product.	
8.	Model Version		
9.	Weight Total Weight Value	The value to supervise.	

Region

Description: `Geography Region`

Region Hierarchy

Standard Region Hierarchy
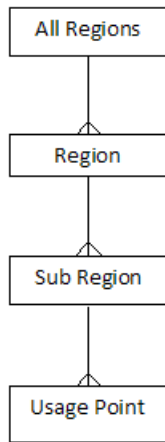
Region Levels

Table 3–34 shows Region All Regions:

Table 3–34   Region All Regions

Sr. Number	Attribute	Description
1.	All Regions	

Table 3–35 shows Region. Region level in Geography hierarchy.

Table 3–35   Region Region

Sr. Number	Attribute	Description	Sample Value
1.	Geography Region Code		1
2.	Geography World Code		
3.	Geography Region Name		RGN-1
4.	Geography Region Description		RGN-1
5.	Effective From Date		
6.	Effective To Date		
7.	Status Code		

Table 3–36 shows Region Sub Region: Sub region level in Geography hierarchy.

Table 3–36   Region Sub Region

Sr. Number	Attribute	Description	Sample Value
1.	Geography Sub Region Code		1
2.	Geography Region Code		
3.	Geography Sub Region Name		SB-RGN-1
4.	Geography Sub Region Description		SB-RGN-1
5.	Effective From Date		
6.	Effective To Date		
7.	Status Code		

Table 3–36 shows Usage Point: Logical or physical point in the network to which readings or events may be attributed. Used at the place where a physical or virtual meter may be located; however, it is not required that a meter be present.

Table 3–37   Region Usage Point

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Code		UP-1240
2.	Phase Code	Phases carried, if applicable.	A
3.	AMI Billing Ready Kind Code	Tracks the lifecycle of the metering installation at a usage point with respect to readiness for billing through advanced metering infrastructure reads.	2
4.	Usage Point Connected Kind Code	State of the usage point with respect to connection to the network.	connected
5.	Account Code		
6.	Usage Point Location Code		
7.	Service Category Code		
8.	Service Location Code		
9.	Minimal Usage Expected	If true, minimal or zero usage is expected at this usage point for situations such as premise vacancy, logical or physical disconnect. It is used for readings validation and estimation.	
10.	Is SDP	If true, this usage point is a service delivery point, that is, a usage point where the ownership of the service changes hands.	
11.	Is Virtual	If true, this usage point is virtual, that is, no physical location exists in the network where a meter could be located to collect the meter readings. For example, one may define a virtual usage point to serve as an aggregation of usage for all of a company.	
12.	Grounded	True if grounded.	
13.	Check Billing	True if as a result of an inspection or otherwise, there is a reason to suspect that a previous billing may have been performed with erroneous data. Value should be reset once this potential discrepancy has been resolved.	
14.	Service Priority	Priority of service for this usage point. Note that usage points at the same service location can have different priorities.	MEDIUM

Table 3–37   (Cont.) Region Usage Point

Sr. Number	Attribute	Description	Sample Value
15.	Service Delivery Remark	Remarks about this usage point, for example the reason for it being rated with a non-nominal priority.	
16.	Outage Region	Outage region in which this usage point is located.	
17.	Facility Level		XFM-A148
18.	Estimated Load KW	Estimated load.	9
19.	Rated Current	The maximum continuous current carrying capacity in amps governed by the device material and construction.	220
20.	Nominal Service Voltage	Nominal service voltage.	120
21.	Rated Power KVA	Active power that this usage point is configured to deliver.	26
22.	Rated Power	Active power that this usage point is configured to deliver.	23.76

Service Location

Description: Service Location

Service Location Hierarchy

Standard Service Location Hierarchy
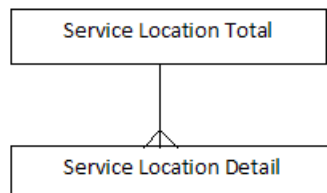
Service Location Levels

Table 3–38 shows Service Location Total: All Service Location is the most aggregate level of the dimension.

Table 3–38   Service Location Total

Sr. Number	Attribute	Description
1.	ALL SERVICE LOCATION	Identification for the top level value.

Table 3–39 shows Service Location Detail: A real estate location commonly referred to as premise.

Table 3–39   Service Location Detail

Sr. Number	Attribute	Description	Sample Value
1.	Service Location Code		SLC-2001434
2.	Access Method	Method for the service person to access this usage point location. For example, a description of where to obtain a key if the facility is unmanned and secured.	
3.	Site Access Problem	Problems previously encountered when visiting or performing work on this location.	Examples include: bad dog, violent customer, verbally abusive occupant, obstructions, safety hazards, and so on.
4.	Needs Inspection	True if inspection is needed of facilities at this service location. This could be requested by a customer, due to suspected tampering, environmental concerns (for example: a fire in the vicinity), or to correct incompatible data.	

Substation

Description: Substation

Substation Hierarchy

Standard Substation Hierarchy
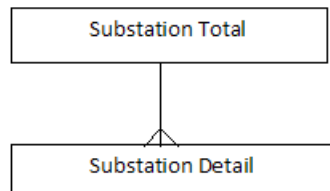
Substation Levels

Table 3–40 shows Substation Total: All Substation is the most aggregate level of the dimension.

Table 3–40   Substation Total

Sr. Number	Attribute	Description
1.	ALL SUBSTATION	Identification for the top level value.

Table 3–41 shows Substation Detail: A collection of equipment for purposes other than generation or utilization, through which electric energy in bulk is passed for the purposes of switching or modifying its characteristics.

Table 3–41   Substation Detail

Sr. Number	Attribute	Description	Sample Value
1.	Substation Code		SUB-001

Time

Description: Time

Time Hierarchy

Standard Time Hierarchy
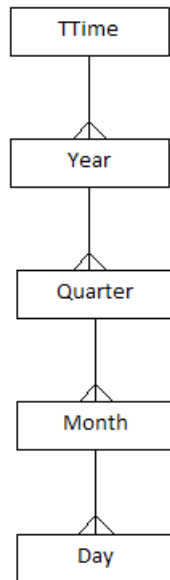
Time Levels

Table 3–42 shows Time Total: .

Table 3–42   Time TTime

Sr. Number	Attribute	Description
1.	TTime	

Table 3–43 shows Year: It captures information relating to a year in a Normal Calendar.

Table 3–43   Time Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–44 shows Quarter: Captures information relating to a quarter in a Normal Calendar.

Table 3–44   Time Quarter

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Quarter Code		20000101
2.	Calendar Half Year Start Day Code		
3.	Calendar Quarter Description		CY 2000 Q1
4.	Calendar Quarter End Date		31-MAR-00
5.	Calendar Quarter Number		1
6.	Calendar Quarter Start Date		01-JAN-00
7.	Calendar Quarter Timespan		91
8.	Calendar Year Start Day Code		

Table 3–44 shows Month: Captures information relating to a month in a Normal Calendar.

Table 3–45   Time Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar.	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Table 3–44 shows Day: Calendar day in the day dimension.

Table 3–46   Time Day

Sr. Number	Attribute	Description	Sample Value
1.	Day Code	The unique identifier for a calendar date.	
2.	Calendar Week Day Code		
3.	Calendar Week Day		SAT
4.	Calendar Week Day Description		SATURDAY
5.	Calendar Julian Day		2451825
6.	Calendar Day Timespan		1
7.	Calendar Day Of Year		281
8.	Calendar Working Day Indicator		N
9.	Calendar Holiday Indicator		Y
10.	Calendar Weekend Indicator		Y

Table 3–46   (Cont.) Time Day

Sr. Number	Attribute	Description	Sample Value
11.	Calendar Date	Represents a calendar date.	07-OCT-00
12.	Calendar Date Description	A description of the calendar date.	20001007
13.	Calendar Start Date	Start date of calendar.	07-OCT-00
14.	Calendar End Date	End date of calendar.	07-OCT-00
15.	Calendar Load Date		28-JUN-13
16.	Calendar Last Update Date		28-JUN-13
17.	Calendar Last Update By		OUDM_UPD
18.	Calendar Current Indicator		Y
19.	Calendar Week Number		40
20.	Calendar Week Description		CY 2000 W40
21.	Calendar Week Start Date		02-OCT-00
22.	Calendar Week End Date		08-OCT-00
23.	Calendar Week Timespan		7
24.	Calendar Half Month Number		19
25.	Calendar Half Month Description		Oct 2000 HM1
26.	Calendar Half Month Start Date		01-OCT-00
27.	Calendar Half Month End Date		15-OCT-00
28.	Calendar Half Month Timespan		15
29.	Calendar Month Number		10
30.	Calendar Month Description		Oct 2000
31.	Calendar Month Start Date		01-OCT-00
32.	Calendar Month End Date		31-OCT-00
33.	Calendar Month Timespan		31
34.	Calendar Quarter Code		20001001
35.	Calendar Quarter Number		4
36.	Calendar Quarter Description		CY 2000 Q4
37.	Calendar Quarter Start Date		01-OCT-00
38.	Calendar Quarter End Date		31-DEC-00
39.	Calendar Quarter Timespan		92
40.	Calendar Half Year Code		20000701
41.	Calendar Half Year Number		2
42.	Calendar Half Year Description		CY 2000 HY2
43.	Calendar Half Year Start Date		01-JUL-00
44.	Calendar Half Year End Date		31-DEC-00
45.	Calendar Half Year Timespan		184
46.	Calendar Year Code		20000101
47.	Calendar Year Number		1
48.	Calendar Year Description		CY 2000
49.	Calendar Year Start Date		01-JAN-00
50.	Calendar Year End Date		31-DEC-00
51.	Calendar Year Timespan		366
52.	Calendar Month Start Day Code		

Table 3–46   (Cont.) Time Day

Sr. Number	Attribute	Description	Sample Value
53.	Calendar Quarter Start Day Code		
54.	Calendar Year Start Day Code		
55.	Calendar Week Start Day Code		
56.	Calendar Half Month Start Day Code		
57.	Calendar Half Year Start Day Code		
58.	Business Day Code		
59.	Business Week Day Code		
60.	Business Week Day		
61.	Business Week Day Description		
62.	Business Julian Day		
63.	Business Day Timespan		
64.	Business Day Of Year		
65.	Business Working Day Indicator		
66.	Business Holiday Indicator		
67.	Business Weekend Indicator		
68.	Business Date		
69.	Business Date Description		
70.	Business Start Date		
71.	Business End Date		
72.	Business Load Date		
73.	Business Last Update Date		
74.	Business Last Update By		
75.	Business Current Indicator		
76.	Business Week Number		
77.	Business Week Description		
78.	Business Week Start Date		
79.	Business Week End Date		
80.	Business Week Timespan		
81.	Business Half Month Code		
82.	Business Half Month Number		
83.	Business Half Month Description		
84.	Business Half Month Start Date		
85.	Business Half Month End Date		
86.	Business Half Month Timespan		
87.	Business Month Code		
88.	Business Month Number		
89.	Business Month Description		
90.	Business Month Start Date		
91.	Business Month End Date		
92.	Business Month Timespan		
93.	Business Quarter Code		

Table 3–46   (Cont.) Time Day

Sr. Number	Attribute	Description	Sample Value
94.	Business Quarter Number		
95.	Business Quarter Description		
96.	Business Quarter Start Date		
97.	Business Quarter End Date		
98.	Business Quarter Timespan		
99.	Business Half Year Code		
100.	Business Half Year Number		
101.	Business Half Year Description		
102.	Business Half Year Start Date		
103.	Business Half Year End Date		
104.	Business Half Year Timespan		
105.	Business Year Code		
106.	Business Year Number		
107.	Business Year Description		
108.	Business Year Start Date		
109.	Business Year End Date		
110.	Business Year Timespan		
111.	Business Month Start Day Code		
112.	Business Quarter Start Day Code		
113.	Business Year Start Day Code		
114.	Business Week Start Day Code		
115.	Business Half Month Start Day Code		
116.	Business Half Year Start Day Code		
117.	Business Week Code		
118.	Calendar Week Code		20001002
119.	Calendar Month Code		20001001

Time Month Day Hour

Description: Calendar Year

Time Month Hour Hierarchy
Standard Time Month Hour Hierarchy
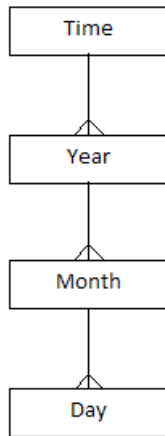
Time Month Hour Levels

Table 3–47 shows Time Month Hour Time.

Table 3–47   Time Month Hour Time

Sr. Number	Attribute	Description
1.	Time	

Table 3–48 shows Time Month Hour Year: It captures information relating to a year in a Normal Calendar.

Table 3–48   Time Month Hour Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–49 shows Time Month Hour Month: Detail level of the dimension. Stores the Time Month Hour Information.

Table 3–49   Time Month Hour Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		

Table 3–49   (Cont.) Time Month Hour Month

Sr. Number	Attribute	Description	Sample Value
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description	Jan 2000	
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar. For example: 30 days	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Table 3–50 shows Time Month Hour Day: Calendar day in the day dimension.

Table 3–50   Time Month Hour Day

Sr. Number	Attribute	Description	Sample Value
1.	Day Code	The unique identifier for a calendar date.	
2.	Calendar Week Day Code		
3.	Calendar Week Day		SAT
4.	Calendar Week Day Description		SATURDAY
5.	Calendar Julian Day		2451825
6.	Calendar Day Timespan		1
7.	Calendar Day Of Year		281
8.	Calendar Working Day Indicator		N
9.	Calendar Holiday Indicator		Y
10.	Calendar Weekend Indicator		Y
11.	Calendar Date	Represents a calendar date.	07-OCT-00
12.	Calendar Date Description	A description of the calendar date.	20001007
13.	Calendar Start Date	Start date of calendar.	07-OCT-00
14.	Calendar End Date	End date of calendar.	07-OCT-00
15.	Calendar Load Date		28-JUN-13
16.	Calendar Last Update Date		28-JUN-13
17.	Calendar Last Update By		OUDM_UPD
18.	Calendar Current Indicator		Y
19.	Calendar Week Number		40
20.	Calendar Week Description		CY 2000 W40
21.	Calendar Week Start Date		02-OCT-00
22.	Calendar Week End Date		08-OCT-00
23.	Calendar Week Timespan		7
24.	Calendar Half Month Number		19
25.	Calendar Half Month Description		Oct 2000 HM1
26.	Calendar Half Month Start Date		01-OCT-00
27.	Calendar Half Month End Date		15-OCT-00
28.	Calendar Half Month Timespan		15
29.	Calendar Month Number		10
30.	Calendar Month Description		Oct 2000

Table 3–50   (Cont.) Time Month Hour Day

Sr. Number	Attribute	Description	Sample Value
31.	Calendar Month Start Date		01-OCT-00
32.	Calendar Month End Date		31-OCT-00
33.	Calendar Month Timespan		31
34.	Calendar Quarter Code		20001001
35.	Calendar Quarter Number		4
36.	Calendar Quarter Description		CY 2000 Q4
37.	Calendar Quarter Start Date		01-OCT-00
38.	Calendar Quarter End Date		31-DEC-00
39.	Calendar Quarter Timespan		92
40.	Calendar Half Year Code		20000701
41.	Calendar Half Year Number		2
42.	Calendar Half Year Description		CY 2000 HY2
43.	Calendar Half Year Start Date		01-JUL-00
44.	Calendar Half Year End Date		31-DEC-00
45.	Calendar Half Year Timespan		184
46.	Calendar Year Code		20000101
47.	Calendar Year Number		1
48.	Calendar Year Description		CY 2000
49.	Calendar Year Start Date		01-JAN-00
50.	Calendar Year End Date		31-DEC-00
51.	Calendar Year Timespan		366
52.	Calendar Month Start Day Code		
53.	Calendar Quarter Start Day Code		
54.	Calendar Year Start Day Code		
55.	Calendar Week Start Day Code		
56.	Calendar Half Month Start Day Code		
57.	Calendar Half Year Start Day Code		
58.	Business Day Code		
59.	Business Week Day Code		
60.	Business Week Day		
61.	Business Week Day Description		
62.	Business Julian Day		
63.	Business Day Timespan		
64.	Business Day Of Year		
65.	Business Working Day Indicator		
66.	Business Holiday Indicator		
67.	Business Weekend Indicator		
68.	Business Date		
69.	Business Date Description		

Table 3–50 (Cont.) Time Month Hour Day

Sr. Number	Attribute	Description	Sample Value
70.	Business Start Date		
71.	Business End Date		
72.	Business Load Date		
73.	Business Last Update Date		
74.	Business Last Update By		
75.	Business Current Indicator		
76.	Business Week Number		
77.	Business Week Description		
78.	Business Week Start Date		
79.	Business Week End Date		
80.	Business Week Timespan		
81.	Business Half Month Code		
82.	Business Half Month Number		
83.	Business Half Month Description		
84.	Business Half Month Start Date		
85.	Business Half Month End Date		
86.	Business Half Month Timespan		
87.	Business Month Code		
88.	Business Month Number		
89.	Business Month Description		
90.	Business Month Start Date		
91.	Business Month End Date		
92.	Business Month Timespan		
93.	Business Quarter Code		
94.	Business Quarter Number		
95.	Business Quarter Description		
96.	Business Quarter Start Date		
97.	Business Quarter End Date		
98.	Business Quarter Timespan		
99.	Business Half Year Code		
100.	Business Half Year Number		
101.	Business Half Year Description		
102.	Business Half Year Start Date		
103.	Business Half Year End Date		
104.	Business Half Year Timespan		
105.	Business Year Code		
106.	Business Year Number		
107.	Business Year Description		
108.	Business Year Start Date		
109.	Business Year End Date		
110.	Business Year Timespan		
111.	Business Month Start Day Code		

Table 3–50 (Cont.) Time Month Hour Day

Sr. Number	Attribute	Description	Sample Value
112.	Business Quarter Start Day Code		
113.	Business Year Start Day Code		
114.	Business Week Start Day Code		
115.	Business Half Month Start Day Code		
116.	Business Half Year Start Day Code		
117.	Business Week Code		
118.	Calendar Week Code		20001002
119.	Calendar Month Code		20001001

Time Month

Description: `Calendar Year`

Time Month Hierarchy

Standard Time Month Hierarchy
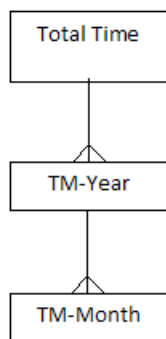
Time Month Levels

Table 3–51 shows Time Month Total Time.

Table 3–51 Time Month Total Time

Sr. Number	Attribute	Description
1.	Total Time	

Table 3–52 shows Time Month TM-Year: It captures information relating to a year in a Normal Calendar.

Table 3–52 Time Month TM Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00

Table 3–52   (Cont.) Time Month TM Year

Sr. Number	Attribute	Description	Sample Value
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–53 shows Time Month Month. Captures information relating to a month in a Normal Calendar.

Table 3–53   Time Month TM-Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar. For example: 30 days	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Time Month Hour

Description: `Calendar Year`

Time Month Hour Hierarchy
Standard Time Month Hour Hierarchy
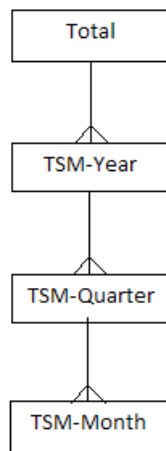
Time Month Hour Levels

Table 3–54 shows Time Month Hour Total Time Hour.

Table 3–54   Time Month Hour Total Time Hour

Sr. Number	Attribute	Description
1.	Total Time Hour	

Table 3–55 shows Time Month Hour TMH-Year: It captures information relating to a year in a Normal Calendar.

Table 3–55   Time Month Hour TMH-Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–56 shows Time Month Hour TMH-Month: Captures information relating to a month in a Normal Calendar.

Table 3–56   Time Month Hour TMH-Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar. For example: 30 days	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

TOU

Description: Time Of Use

Time Of Use Hierarchy

Standard Time Of Use Hierarchy

Time Of Use Levels

Table 3–57 shows TOU: Time of Use.

Table 3–57 Time Of Use Total Time

Sr. Number	Attribute	Description
1.	Total	

Table 3–58 shows Time Of Use.

Table 3–58 Time Of Use

Sr. Number	Attribute	Description	Sample Value
1.	Time Of Use Code		1
2.	Code		1
3.	Value		OnPeak
4.	Description		On peak time of use
5.	Comment		On peak

TOU Time

Description: TOU Time

TOU Time Hierarchy

Standard TOU Time Hierarchy
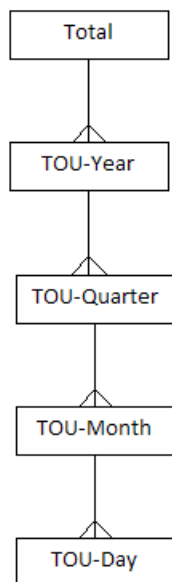
TOU Time Levels

Table 3–59 shows TOU Time Total.

Table 3–59   TOU Time Total

Sr. Number	Attribute	Description
1.	Total	

Table 3–60 shows TOU-Year: It captures information relating to a year in a Normal Calendar.

Table 3–60   TOU Time TOU-Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–61 shows TOU-Quarter: Captures information relating to a quarter in a Normal Calendar.

Table 3–61   TOU Time TOU-Quarter

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Quarter Code		20000101
2.	Calendar Half Year Start Day Code		
3.	Calendar Quarter Description		CY 2000 Q1
4.	Calendar Quarter End Date		31-MAR-00
5.	Calendar Quarter Number		1
6.	Calendar Quarter Start Date		01-JAN-00
7.	Calendar Quarter Timespan		91
8.	Calendar Year Start Day Code		20000101

Table 3–62 shows TOU-Month: Captures information relating to a month in a Normal Calendar.

Table 3–62   TOU Time TOU-Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar.	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Table 3–63 shows TOU-Day: Calendar day in the day dimension.

Table 3–63   TOU Time TOU-Day

Sr. Number	Attribute	Description	Sample Value
1.	Day Code	The unique identifier for a calendar date.	
2.	Calendar Week Day Code		
3.	Calendar Week Day		SAT
4.	Calendar Week Day Description		SATURDAY
5.	Calendar Julian Day		2451825
6.	Calendar Day Timespan		1
7.	Calendar Day Of Year		281
8.	Calendar Working Day Indicator		N
9.	Calendar Holiday Indicator		Y

Table 3–63   (Cont.) TOU Time TOU-Day

Sr. Number	Attribute	Description	Sample Value
10.	Calendar Weekend Indicator		Y
11.	Calendar Date	Represents a calendar date.	07-OCT-00
12.	Calendar Date Description	A description of the calendar date.	20001007
13.	Calendar Start Date	Start date of calendar.	07-OCT-00
14.	Calendar End Date	End date of calendar.	07-OCT-00
15.	Calendar Load Date		28-JUN-13
16.	Calendar Last Update Date		28-JUN-13
17.	Calendar Last Update By		OUDM_UPD
18.	Calendar Current Indicator		Y
19.	Calendar Week Number		40
20.	Calendar Week Description		CY 2000 W40
21.	Calendar Week Start Date		02-OCT-00
22.	Calendar Week End Date		08-OCT-00
23.	Calendar Week Timespan		7
24.	Calendar Half Month Number		19
25.	Calendar Half Month Description		Oct 2000 HM1
26.	Calendar Half Month Start Date		01-OCT-00
27.	Calendar Half Month End Date		15-OCT-00
28.	Calendar Half Month Timespan		15
29.	Calendar Month Number		10
30.	Calendar Month Description		Oct 2000
31.	Calendar Month Start Date		01-OCT-00
32.	Calendar Month End Date		31-OCT-00
33.	Calendar Month Timespan		31
34.	Calendar Quarter Code		20001001
35.	Calendar Quarter Number		4
36.	Calendar Quarter Description		CY 2000 Q4
37.	Calendar Quarter Start Date		01-OCT-00
38.	Calendar Quarter End Date		31-DEC-00
39.	Calendar Quarter Timespan		92
40.	Calendar Half Year Code		20000701
41.	Calendar Half Year Number		2
42.	Calendar Half Year Description		CY 2000 HY2
43.	Calendar Half Year Start Date		01-JUL-00
44.	Calendar Half Year End Date		31-DEC-00
45.	Calendar Half Year Timespan		184
46.	Calendar Year Code		20000101
47.	Calendar Year Number		1
48.	Calendar Year Description		CY 2000
49.	Calendar Year Start Date		01-JAN-00
50.	Calendar Year End Date		31-DEC-00
51.	Calendar Year Timespan		366

Table 3–63   (Cont.) TOU Time TOU-Day

Sr. Number	Attribute	Description	Sample Value
52.	Calendar Month Start Day Code		
53.	Calendar Quarter Start Day Code		
54.	Calendar Year Start Day Code		
55.	Calendar Week Start Day Code		
56.	Calendar Half Month Start Day Code		
57.	Calendar Half Year Start Day Code		
58.	Business Day Code		
59.	Business Week Day Code		
60.	Business Week Day		
61.	Business Week Day Description		
62.	Business Julian Day		
63.	Business Day Timespan		
64.	Business Day Of Year		
65.	Business Working Day Indicator		
66.	Business Holiday Indicator		
67.	Business Weekend Indicator		
68.	Business Date		
69.	Business Date Description		
70.	Business Start Date		
71.	Business End Date		
72.	Business Load Date		
73.	Business Last Update Date		
74.	Business Last Update By		
75.	Business Current Indicator		
76.	Business Week Number		
77.	Business Week Description		
78.	Business Week Start Date		
79.	Business Week End Date		
80.	Business Week Timespan		
81.	Business Half Month Code		
82.	Business Half Month Number		
83.	Business Half Month Description		
84.	Business Half Month Start Date		
85.	Business Half Month End Date		
86.	Business Half Month Timespan		
87.	Business Month Code		
88.	Business Month Number		
89.	Business Month Description		
90.	Business Month Start Date		

Table 3–63   (Cont.) TOU Time TOU-Day

Sr. Number	Attribute	Description	Sample Value
91.	Business Month End Date		
92.	Business Month Timespan		
93.	Business Quarter Code		
94.	Business Quarter Number		
95.	Business Quarter Description		
96.	Business Quarter Start Date		
97.	Business Quarter End Date		
98.	Business Quarter Timespan		
99.	Business Half Year Code		
100.	Business Half Year Number		
101.	Business Half Year Description		
102.	Business Half Year Start Date		
103.	Business Half Year End Date		
104.	Business Half Year Timespan		
105.	Business Year Code		
106.	Business Year Number		
107.	Business Year Description		
108.	Business Year Start Date		
109.	Business Year End Date		
110.	Business Year Timespan		
111.	Business Month Start Day Code		
112.	Business Quarter Start Day Code		
113.	Business Year Start Day Code		
114.	Business Week Start Day Code		
115.	Business Half Month Start Day Code		
116.	Business Half Year Start Day Code		
117.	Business Week Code		
118.	Calendar Week Code		20001002
119.	Calendar Month Code		20001001

Time Season Month

Description: Time Season Month

Time Season Month Hierarchy

Standard Time Season Month Hierarchy
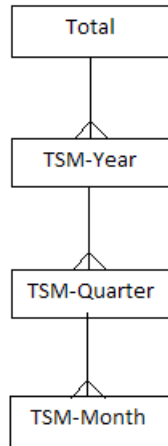
Time Season Month Levels

Table 3–64 shows Time Season Month Total.

Table 3–64   Time Season Month Total

Sr. Number	Attribute	Description
1.	Total	

Table 3–65 shows Time Season Month TSM-Year: It captures information relating to a year in a Normal Calendar.

Table 3–65   Time Season Month TSM-Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–66 shows Time Season Month TSM-Quarter: Captures information relating to a quarter in a Normal Calendar.

Table 3–66   Time Season Month TSM-Quarter

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Quarter Code		20000101
2.	Calendar Half Year Start Day Code		
3.	Calendar Quarter Description		CY 2000 Q1
4.	Calendar Quarter End Date		31-MAR-00
5.	Calendar Quarter Number		1

Table 3–66   (Cont.) Time Season Month TSM-Quarter

Sr. Number	Attribute	Description	Sample Value
6.	Calendar Quarter Start Date		01-JAN-00
7.	Calendar Quarter Timespan		91
8.	Calendar Year Start Day Code		20000101

Table 3–67 shows Time Season Month TSM-Month: Captures information relating to a month in a Normal Calendar.

Table 3–67   Time Season Month TSM-Month

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar.	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Time Season Month Hour

Description: Time Season Month Hour

Time Season Month Hour Hierarchy

Standard Time Season Month Hour Hierarchy
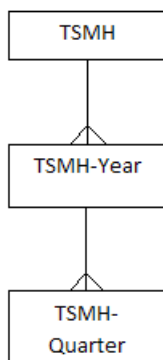
Time Season Month Hour Levels

Table 3–68 shows Time Season Month Hour TSMH.

Table 3–68   Time Season Month Hour TSMH

Sr. Number	Attribute	Description
1.	TSMH	

Table 3–69 shows Time Season Month Hour TSMH-Year: It captures information relating to a year in a Normal Calendar.

Table 3–69   Time Season Month Hour TSMH-Year

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Year Code		20000101
2.	Calendar Name		CALENDAR
3.	Calendar Year Description		CY 2000
4.	Calendar Year End Date		31-DEC-00
5.	Calendar Year Number		1
6.	Calendar Year Start Date		01-JAN-00
7.	Calendar Year Timespan		366

Table 3–70 shows Time Season Month Hour TSMH-Quarter: Captures information relating to a quarter in a Normal Calendar.

Table 3–70   Time Season Month Hour TSMH-Quarter

Sr. Number	Attribute	Description	Sample Value
1.	Calendar Quarter Code		20000101
2.	Calendar Half Year Start Day Code		
3.	Calendar Quarter Description		CY 2000 Q1
4.	Calendar Quarter End Date		31-MAR-00
5.	Calendar Quarter Number		1
6.	Calendar Quarter Start Date		01-JAN-00
7.	Calendar Quarter Timespan		91
8.	Calendar Year Start Day Code		20000101

Table 3–71 shows Time Season Month Hour TSMH-Month: Captures information relating to a month in a Normal Calendar.

Table 3–71   Time Season Month Hour TSMH-TSMH-Month
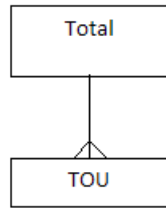
Sr. Number	Attribute	Description	Sample Value
1.	Calendar Month Code	Unique warehouse key of the month, in the calendar.	20000101
2.	Calendar Quarter Code		20000101
3.	Calendar Year Start Day Code		
4.	Calendar Half Year Start Day Code		
5.	Calendar Quarter Start Day Code		
6.	Calendar Month Number	A numeric representation of the month number in the calendar. It ranges from 1 to 12.	1
7.	Calendar Month Description		Jan 2000

Table 3–71   (Cont.) Time Season Month Hour TSMH-TSMH-Month

Sr. Number	Attribute	Description	Sample Value
8.	Calendar Month Timespan	The length, in terms of days, of this month in the calendar.	31
9.	Calendar Month Start Date		01-JAN-00
10.	Calendar Month End Date		31-JAN-00

Table 3–72 shows Time Season Month Hour TSMH-Day: Calendar day in the day dimension.

Table 3–72   Time Season Month Hour TSMH-Day

Sr. Number	Attribute	Description	Sample Value
1.	Day Code	The unique identifier for a calendar date.	
2.	Calendar Week Day Code		
3.	Calendar Week Day		SAT
4.	Calendar Week Day Description		SATURDAY
5.	Calendar Julian Day		2451825
6.	Calendar Day Timespan		1
7.	Calendar Day Of Year		281
8.	Calendar Working Day Indicator		N
9.	Calendar Holiday Indicator		Y
10.	Calendar Weekend Indicator		Y
11.	Calendar Date	Represents a calendar date.	07-OCT-00
12.	Calendar Date Description	A description of the calendar date.	20001007
13.	Calendar Start Date	Start date of calendar.	07-OCT-00
14.	Calendar End Date	End date of calendar.	07-OCT-00
15.	Calendar Load Date		28-JUN-13
16.	Calendar Last Update Date		28-JUN-13
17.	Calendar Last Update By		OUDM_UPD
18.	Calendar Current Indicator		Y
19.	Calendar Week Number		40
20.	Calendar Week Description		CY 2000 W40
21.	Calendar Week Start Date		02-OCT-00
22.	Calendar Week End Date		08-OCT-00
23.	Calendar Week Timespan		7
24.	Calendar Half Month Number		19
25.	Calendar Half Month Description		Oct 2000 HM1
26.	Calendar Half Month Start Date		01-OCT-00
27.	Calendar Half Month End Date		15-OCT-00
28.	Calendar Half Month Timespan		15
29.	Calendar Month Number		10
30.	Calendar Month Description		Oct 2000
31.	Calendar Month Start Date		01-OCT-00
32.	Calendar Month End Date		31-OCT-00
33.	Calendar Month Timespan		31

Table 3–72   (Cont.) Time Season Month Hour TSMH-Day

Sr. Number	Attribute	Description	Sample Value
34.	Calendar Quarter Code		20001001
35.	Calendar Quarter Number		4
36.	Calendar Quarter Description		CY 2000 Q4
37.	Calendar Quarter Start Date		01-OCT-00
38.	Calendar Quarter End Date		31-DEC-00
39.	Calendar Quarter Timespan		92
40.	Calendar Half Year Code		20000701
41.	Calendar Half Year Number		2
42.	Calendar Half Year Description		CY 2000 HY2
43.	Calendar Half Year Start Date		01-JUL-00
44.	Calendar Half Year End Date		31-DEC-00
45.	Calendar Half Year Timespan		184
46.	Calendar Year Code		20000101
47.	Calendar Year Number		1
48.	Calendar Year Description		CY 2000
49.	Calendar Year Start Date		01-JAN-00
50.	Calendar Year End Date		31-DEC-00
51.	Calendar Year Timespan		366
52.	Calendar Month Start Day Code		
53.	Calendar Quarter Start Day Code		
54.	Calendar Year Start Day Code		
55.	Calendar Week Start Day Code		
56.	Calendar Half Month Start Day Code		
57.	Calendar Half Year Start Day Code		
58.	Business Day Code		
59.	Business Week Day Code		
60.	Business Week Day		
61.	Business Week Day Description		
62.	Business Julian Day		
63.	Business Day Timespan		
64.	Business Day Of Year		
65.	Business Working Day Indicator		
66.	Business Holiday Indicator		
67.	Business Weekend Indicator		
68.	Business Date		
69.	Business Date Description		
70.	Business Start Date		
71.	Business End Date		
72.	Business Load Date		
73.	Business Last Update Date		
74.	Business Last Update By		

Table 3–72   (Cont.) Time Season Month Hour TSMH-Day

Sr. Number	Attribute	Description	Sample Value
75.	Business Current Indicator		
76.	Business Week Number		
77.	Business Week Description		
78.	Business Week Start Date		
79.	Business Week End Date		
80.	Business Week Timespan		
81.	Business Half Month Code		
82.	Business Half Month Number		
83.	Business Half Month Description		
84.	Business Half Month Start Date		
85.	Business Half Month End Date		
86.	Business Half Month Timespan		
87.	Business Month Code		
88.	Business Month Number		
89.	Business Month Description		
90.	Business Month Start Date		
91.	Business Month End Date		
92.	Business Month Timespan		
93.	Business Quarter Code		
94.	Business Quarter Number		
95.	Business Quarter Description		
96.	Business Quarter Start Date		
97.	Business Quarter End Date		
98.	Business Quarter Timespan		
99.	Business Half Year Code		
100.	Business Half Year Number		
101.	Business Half Year Description		
102.	Business Half Year Start Date		
103.	Business Half Year End Date		
104.	Business Half Year Timespan		
105.	Business Year Code		
106.	Business Year Number		
107.	Business Year Description		
108.	Business Year Start Date		
109.	Business Year End Date		
110.	Business Year Timespan		
111.	Business Month Start Day Code		
112.	Business Quarter Start Day Code		
113.	Business Year Start Day Code		
114.	Business Week Start Day Code		
115.	Business Half Month Start Day Code		
116.	Business Half Year Start Day Code		

Table 3–72   (Cont.) Time Season Month Hour TSMH-Day

Sr. Number	Attribute	Description	Sample Value
117.	Business Week Code		
118.	Calendar Week Code		20001002
119.	Calendar Month Code		20001001

Transformer

Description: Transformer

Transformer Hierarchy

Standard Transformer Hierarchy
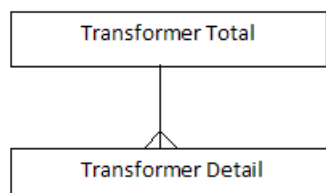
Transformer Levels

Table 3–73 shows Transformer Total: All Transformer is the most aggregate level of the dimension.

Table 3–73   Transformer Total

Sr. Number	Attribute	Description
1.	ALL TRANSFORMER	Identification for the top level value.

Table 3–74 shows Transformer Detail: An assembly of two or more coupled windings that transform electrical power between voltage levels. These windings are bound on a common core and place in the same tank. Transformer tank can be used to model both single-phase and 3-phase transformers.

Table 3–74   Transformer Detail

Sr. Number	Attribute	Description	Sample Value
1.	Transformer Tank Code		XFM-001
2.	Power Transformer Code		

Usage Point

Description: Usage Point

Usage Point Hierarchy

Standard Usage Point Hierarchy
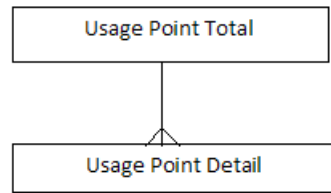
Usage Point Levels

Table 3–75 shows Usage Point Total: All Usage Point is the most aggregate level of the dimension.

Table 3–75   Usage Point Total

Sr. Number	Attribute	Description
1.	ALL USAGE POINT	Identification for the top level value.

Table 3–76 shows Usage Point Detail: Logical or physical point in the network to which readings or events may be attributed. Used at the place where a physical or virtual meter may be located; however, it is not required that a meter be present.

Table 3–76   Usage Point Detail

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Code		UP-1240
2.	Phase Code	Phases carried, if applicable.	A
3.	AMI Billing Ready Kind Code	Tracks the lifecycle of the metering installation at a usage point with respect to readiness for billing through advanced metering infrastructure reads.	2
4.	Usage Point Connected Kind Code	State of the usage point with respect to connection to the network.	connected
5.	Account Code		
6.	Usage Point Location Code		
7.	Service Category Code		
8.	Service Location Code		
9.	Minimal Usage Expected	If true, minimal or zero usage is expected at this usage point for situations such as premise vacancy, logical or physical disconnect. It is used for readings validation and estimation.	
10.	Is SDP	If true, this usage point is a service delivery point, that is, a usage point where the ownership of the service changes hands.	
11.	Is Virtual	If true, this usage point is virtual, that is, no physical location exists in the network where a meter could be located to collect the meter readings. For example, one may define a virtual usage point to serve as an aggregation of usage for all of a company.	
12.	Grounded	True if grounded.	
13.	Check Billing	True if as a result of an inspection or otherwise, there is a reason to suspect that a previous billing may have been performed with erroneous data. Value should be reset once this potential discrepancy has been resolved.	

Table 3–76   (Cont.) Usage Point Detail

Sr. Number	Attribute	Description	Sample Value
14.	Service Priority	Priority of service for this usage point. Note that usage points at the same service location can have different priorities.	MEDIUM
15.	Service Delivery Remark	Remarks about this usage point, for example the reason for it being rated with a non-nominal priority.	
16.	Outage Region	Outage region in which this usage point is located.	
17.	Facility Level		XFM-A148
18.	Estimated Load KW	Estimated load.	9
19.	Rated Current	The maximum continuous current carrying capacity in amps governed by the device material and construction.	220
20.	Nominal Service Voltage	Nominal service voltage.	120
21.	Rated Power KVA	Active power that this usage point is configured to deliver.	26
22.	Rated Power	Active power that this usage point is configured to deliver.	23.76

Usage Point Location

Description: Usage Point Location

Usage Point Location Hierarchy

Standard Usage Point Location Hierarchy
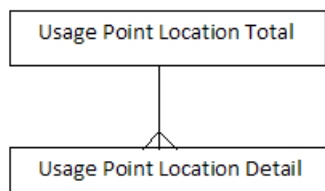
Usage Point Location Levels

Table 3–77 shows Usage Point Location Total: All Usage Point Location is the most aggregate level of the dimension.

Table 3–77   Usage Point Location Total

Sr. Number	Attribute	Description
1.	ALL USAGE POINT LOCATION	Identification for the top level value.

Table 3–78 shows Usage Point Location Detail: Location of an individual usage point.

Table 3–78   Usage Point Location Detail

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Location Code		SLC-1266
2.	Access Method	Method for the service person to access this usage point location. For example, a description of where to obtain a key if the facility is unmanned and secured.	
3.	Site Access Problem	Problems previously encountered when visiting or performing work on this location.	Examples include: bad dog, violent customer, verbally abusive occupant, obstructions, safety hazards, and so on.
4.	Remark	Remarks about this location.	

IETL Use Dimensions

Address Location

Description: Address Location

Address Location Hierarchy

Standard Address Location Hierarchy
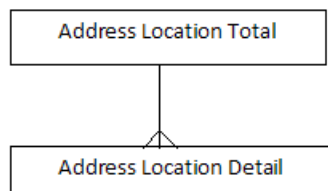
Address Location Levels

Table 3–79 shows Address Location Total: All ADDRESS LOCATION is the most aggregate level of the dimension.

Table 3–79   Address Location Total

Sr. Number	Attribute	Description
1.	ALL ADDRESS LOCATION	Identification for the top level value.

Table 3–80 Shows Address Location Detail: Keep all address. It has levels as country, state, city, address and so on.

Table 3–80   Address Location Detail

Sr. Number	Attribute	Description	Sample Value
1.	Address Location Code	Unique identifier for the address.	5170
2.	Address Location Code1		
3.	Geography Entity Code		
4.	Postcode Code		

Table 3–80   (Cont.) Address Location Detail

Sr. Number	Attribute	Description	Sample Value
5.	Tax Authority Code		
6.	Geography Location Code	Applicable unique geography ID.	
7.	Postal Plus Code	Four digit extension to the united states postal ZIP code.	
8.	Elevation UOM Code		
9.	Post Office Box	PO box if available.	
10.	Post Office Box Type		
11.	Address Name		
12.	Address Description	Address description. Textual description of the address.	
13.	Address Line1	Address line one of detailed postal address.	Room 2457
14.	Address Line2	Address lines two of detailed postal address.	YIU YAT HOUSE TIN YIU ESTATE
15.	Address Line3	Address lines three of detailed postal address.	TIN SHUI WAI NT
16.	Address Line4		
17.	Address Style	Address style to specify the format of the address.	For example, USA, australia, japan, and so on.
18.	Address Lines Phonetic	Phonetic or kana representation of the kanji address lines (used in japan, or china).	
19.	Primary Address Telephone		
20.	Geography World Code		
21.	World Name		
22.	World Description	One value ``All`` shall be populated, which will be used in analytical applications.	
23.	Geography Region Code		
24.	Region Name		HK
25.	Region Description		HK
26.	Geography Sub Region Code		
27.	Sub region Name		
28.	Sub region Description		
29.	Geography State Code		
30.	State Name		Hong Kong
31.	State Description		Hong Kong
32.	Geography Country Code		
33.	Country Name		China
34.	Country Description		China
35.	Geography County Code		
36.	County Name		
37.	County Description		
38.	Geography City Code		
39.	City Name		Hong Kong
40.	City Description		Hong Kong
41.	Geography Street Code		
42.	Street Name		TIN SHUI WAI NT

Table 3–80   (Cont.) Address Location Detail

Sr. Number	Attribute	Description	Sample Value
43.	Street Description		TIN SHUI WAI NT
44.	Geography Building Code		
45.	Building Name		YIU YAT HOUSE TIN YIU ESTATE
46.	Building Description		YIU YAT HOUSE TIN YIU ESTATE
47.	Flat Room Code		
48.	Flat Room Name		
49.	Flat Room Description		
50.	Floor Code		
51.	Floor Name		
52.	Floor Description		
53.	Elevation	Elevation of the geographic location.	
54.	Primary Email Address		
55.	Longitude	The angular distance between a point on any meridian and the prime meridian at Greenwich.	
56.	Latitude		
57.	Accuracy	Accuracy of longitude and latitude.	
58.	Source System Identifier	The identifier in the source system, as specified by source system key (code).	
59.	Address Longitude Measure	Address longitude measure is the unit of measure of longitude.	
60.	Address Latitude Measure	The unit of measure of latitude.	
61.	Effective From Date		
62.	Effective To Date		
63.	Status Code		
64.	Address Type Code		
65.	Employee Code		
66.	Source System Code		
67.	Time Zone Code		

Asset Info

Description: `Asset Info`

Asset Info Hierarchy
Standard Asset Info Hierarchy
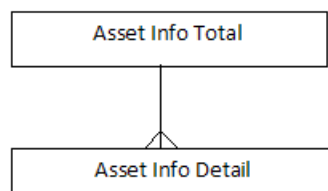
Asset Info Levels

Table 3–81 shows Asset Info Total: All ASSET INFO is the most aggregate level of the dimension.

Table 3–81   Asset InfoTotal

Sr. Number	Attribute	Description
1.	ALL ASSET INFO	Identification for the top level value.

Table 3–82 shows Asset Info Detail: Set of attributes of an asset, representing typical data-sheet information of a physical device that can be instantiated and shared in different data exchange contexts:- as attributes of an asset instance (installed or in stock), as attributes of an asset model (product by a manufacturer), as attributes of a type asset (generic type of an asset as used in designs/extension planning).

Table 3–82   Asset Info Detail

Sr. Number	Attribute	Description	Sample Value
1.	Asset Info Code		ASST_INFO1
2.	Asset Model Code		

Demand Response Program

Description: Demand Response Program

Demand Response Program Hierarchy

Standard Demand Response Program Hierarchy
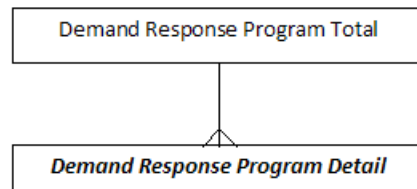
Demand Response Program Levels

Table 3–83 shows Demand Response Program Total: All DEMAND RESPONSE PROGRAM is the most aggregate level of the dimension.

Table 3–83   Demand Response Program Total

Sr. Number	Attribute	Description
1.	ALL DEMAND RESPONSE PROGRAM	Identification for the top level value.

Table 3–84 shows Demand Response Program Detail

Table 3–84   Demand Response Program Detail

Sr. Number	Attribute	Description	Sample Value
1.	Demand Response Program Code		1001
2.	Type	Utility-specific classification of this document, according to their corporate standards, practices, and existing IT systems.	SUMMER SAVING
3.	Start Date		01-JUL-07
4.	End Date		30-SEP-07

Outage Report

Description: Outage Report

Outage Report Hierarchy

Standard Outage Report Hierarchy
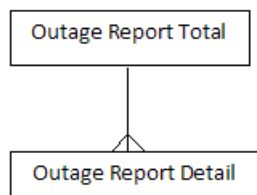
Outage Report Levels

Table 3–85 shows Outage Report Total: All OUTAGE REPORT is the most aggregate level of the dimension.

Table 3–85   Outage Report Total

Sr. Number	Attribute	Description
1.	ALL OUTAGE REPORT CODE	Identification for the top level value.

Table 3–86 shows Outage Report Detail: Location of an individual usage point.

Table 3–86   Outage Report Detail

Sr. Number	Attribute	Description	Sample Value
1.	Outage Report Code		14803
2.	Customer Count		8
3.	Outage Duration	Total outage duration.	166
4.	Average CML	Average customer minutes lost (CML) for this point of supply for this outage.	20.75
5.	Total CML	Total customer minutes lost (CML).	1328

Product Offering

Description: Product Offering

Product Offering Hierarchy

Standard Product Offering Hierarchy

Product Offering Level

Table 3–87 Product Offering Detail: Defines how a utility service/product is brought to the market.

Table 3–87   Product Offering Total

Sr. Number	Attribute	Description
1.	ALL PRODUCT OFFERING	Identification for the top level value.

Table 3–88 shows Product Offering Detail: Defines how a utility service/product is brought to the market.

Table 3–88   Product Offering Detail

Sr. Number	Attribute	Description	Sample Value
1.	Product Offering Code		PROD_OFR-1
2.	Primary Product Specification Code		
3.	Product Offering Price List Code		
4.	Product Offering Type Code		
5.	Product Offering Price Code		
6.	Product Offering Name		
7.	Product Offering Description		
8.	Remark		
9.	Service Time UOM		
10.	Premium Pay Method		
11.	New Customer Only Indicator	To indicate this market plan is applicable only to new customers and not for old customers.	
12.	Joint Program Indicator	To indicate that this product market plan is a joint program with another partner.	
13.	Loyalty Program Indicator	To indicate that this product market plan is available onto to certain loyalty program members.	
14.	Vas Indicator		
15.	Gross ARPU	The expected monthly charge to the customer.	
16.	Gross ARPU Local		
17.	Gross ARPU Reporting		
18.	Net ARPU	The revenue from the customer, excluding various cost or revenue sharing.	

Table 3–88   (Cont.) Product Offering Detail

Sr. Number	Attribute	Description	Sample Value
19.	Net ARPU Local		
20.	Net ARPU Reporting		
21.	Total Cost Upgrade		
22.	Total Cost Upgrade Local		
23.	Total Cost Upgrade Reporting		
24.	Prepay Amount	How much prepayment must be made.	
25.	Prepay Amount Local		
26.	Prepay Amount Reporting		
27.	Initial Deposit Amount		
28.	Initial Deposit Amount Local		
29.	Initial Deposit Amount Reporting		
30.	Premium Pay Amount	Customer has to pay a certain amount to get premium.	
31.	Premium Pay Amount Local		
32.	Premium Pay Amount Reporting		
33.	Discount Amount	The discount amount allowed on this product market plan.	
34.	Discount Amount Local		
35.	Discount Amount Reporting		
36.	Expected Total Cost		
37.	Expected Total Cost Local		
38.	Expected Total Cost Reporting		
39.	Expected Total Revenue		
40.	Expected Total Revenue Local		
41.	Expected Total Revenue Reporting		
42.	Early Departure Penalty	The penalty amount if the customer decides to terminate the contract before the expected date.	
43.	Early Departure Penalty Local		
44.	Early Departure Penalty Reporting		
45.	Service Time Unit Charge		
46.	Service Time Unit Charge Local		
47.	Service Time Unit Charge Reporting		
48.	Effective From Date		
49.	Effective To Date		
50.	Status Code		

Reading Type

Description: Reading Type

Reading Type Hierarchy

Standard Reading Type Hierarchy
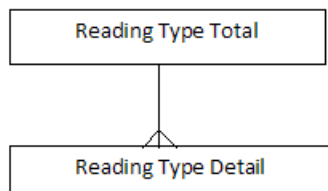
Reading Type Levels

Table 3–89 shows Reading Type Total: All READING TYPE is the most aggregate level of the dimension.

Table 3–89   Reading Type Total

Sr. Number	Attribute	Description
1.	ALL READING TYPE	Identification for the top level value.

Table 3–90 shows Reading Type Detail: Detailed description for a type of a reading value.

Table 3–90   Reading Type Detail

Sr. Number	Attribute	Description	Sample Value
1.	Reading Type Code		0.0.0.1.1.1.12.0.0.0.0.0.0.0.0.3.72.0
2.	Consumption Tier Code		
3.	Critical Peak Period Code		
4.	Currency Code		
5.	Energy Flow Direction Code		
6.	Interharmonics Code		
7.	Measurement Kind Code		
8.	Phase Code		
9.	Reading Accumulation Behavior Code		
10.	Reading Data Qualifier Code		
11.	Reading Time Attribute Code		
12.	Reading Time Period Code		
13.	Time Of Use Code		
14.	Unit Multiplier Code		
15.	Unit Of Measure Code		
16.	Utility Commodity Code		
17.	Rational Number Code		
18.	Reading Channel Code		
19.	Macro Period	Time period of interest that reflects how the reading is viewed or captured over a long period of time.	

Table 3–90   (Cont.) Reading Type Detail

Sr. Number	Attribute	Description	Sample Value
20.	Aggregate	Salient attribute of the reading data aggregated from individual endpoints. This is mainly used to define a mathematical operation carried out over `macroPeriod`, but may also be used to describe an attribute of the data when the `macroPeriod` is not defined.	
21.	Measuring Period	Time attribute inherent or fundamental to the reading value (as opposed to `macroPeriod` that supplies an adjective to describe aspects of a time period with regard to the measurement).	
22.	Accumulation	Accumulation behavior of a reading over time, usually `measuringPeriod`, to be used with individual endpoints (as opposed to `macroPeriod` and `aggregate` that are used to describe aggregations of data from individual endpoints).	
23.	Flow Direction	Flow direction for a reading where the direction of flow of the commodity is important (for electricity measurements this includes current, energy, power, and demand).	
24.	Commodity	Commodity being measured.	
25.	Measurement Kind	Identifies what is being measured, as refinement of `commodity`. When combined with `unit`, it provides detail to the unit of measure. For example, `energy` with a unit of measure of `kWh` indicates to the user that active energy is being measured.	
26.	Interharmonic	Indication of a harmonic or interharmonic basis for the measurement. Value 0 in `numerator` and `denominator` means not applicable.	
27.	Argument	Argument used to introduce numbers into the unit of measure description where they are needed (for example, 4 where the measure needs an argument such as CEMI(n=4)). Most arguments used in practice however will be integers (that is, `denominator`=1). Value 0 in `nu	
28.	Phases	Metering-specific phase code.	
29.	Multiplier	Metering-specific multiplier.	
30.	Unit	Metering-specific unit.	
31.	Currency	Metering-specific currency.	
32.	TOU	Time of use (TOU) bucket the reading value is attributed to. Value 0 means not applicable.	
33.	CPP	Critical peak period (CPP) bucket the reading value is attributed to. Value 0 means not applicable. Even though CPP is usually considered a specialized form of time of use `tou`, this attribute is defined explicitly for flexibility.	
34.	Consumption Tier	In case of common flat-rate pricing for power, in which all purchases are at a given rate, `consumptionTier`=0. Otherwise, the value indicates the consumption tier, which can be used in conjunction with TOU or CPP pricing.	

Usage Point Group

Description: Usage Point Group

Usage Point Group Hierarchy

Standard Usage Point Group Hierarchy
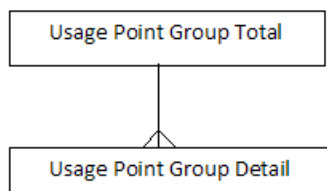
Usage Point Group Levels

Table 3–91 shows Usage Point Group Total: All USAGE POINT GROUP is the most aggregate level of the dimension.

Table 3–91   Usage Point Group Total

Sr. Number	Attribute	Description
1.	ALL USAGE POINT GROUP	Identification for the top level value.

Table 3–92 shows Usage Point Group Detail: Abstraction for management of group communications within a two-way AMR system or the data for a group of related usage points. Commands can be issued to all of the usage points that belong to a usage point group using a defined group address and the underlying AMR communication infrastructure.

Table 3–92   Usage Point Location Detail

Sr. Number	Attribute	Description	Sample Value
1.	Usage Point Group Code		1001

Zone

Description: Zone

Zone Hierarchy

Standard Usage Point Location Hierarchy
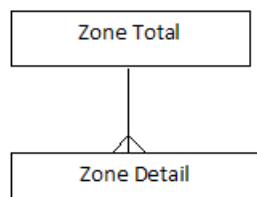
Zone Levels

Table 3–93 shows Zone Total: All Usage Point Location is the most aggregate level of the dimension.

Table 3–93   Zone Total

Sr. Number	Attribute	Description
1.	ALL ZONE	Identification for the top level value.

Table 3–94 shows Zone Detail: Location of an individual usage point.

Table 3–94   Zone Detail

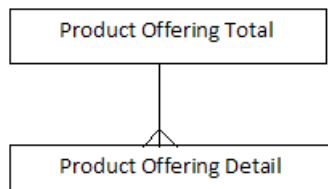| Sr. Number	Attribute	Description	Sample Value
1.	Zone Code		8838
2.	Zone Kind Code	Kind of this zone.	weatherZone

4

Oracle Utilities Data Model Physical Data Model

This chapter provides information about the physical data model of Oracle Utilities Data Model.

This chapter includes the following sections:

- Introduction to Oracle Utilities Data Model Physical Data Model
- Reference Tables
- Lookup Tables
- Base Tables
- Derived Tables
- Aggregate Tables
- Temporary and Other Tables
- Sequences in Oracle Utilities Data Model
- Compressed Tables
- Oracle Utilities Data Model OLAP Cube MV, Cube View

Introduction to Oracle Utilities Data Model Physical Data Model

The Physical Data Model of the Oracle Utilities Data Model is the physical manifestation of the logical data model into database tables and relationships (or foreign key constraints). Partitions, indexes, and Materialized Views have been added to aid performance.

The Physical data model includes the following:

- Reference Tables
- Lookup Tables
- Base Tables
- Derived Tables
- Aggregate Tables
- Sequences in Oracle Utilities Data Model

> **Important:** Do not make changes to the schemas as such changes are not supported.

Oracle Utilities Data Model provides the following types of tables:

- Reference tables contain information that is usually used as dimensions. They usually do not change often (or at all). Typically, Reference tables are PARTY, CUSTOMER, ADDRESS LOCATION, ACCOUNT, SUBSCRIPTION, and so on

- Lookup tables in the foundation layer are added to save the definition of short codes used in other tables.

- Base tables store information about any type of transactions (Invoices, Payments, Business Interactions, and so on). They are usually transformed into facts.

- Derived Tables in the analytic layer are usually transition tables to STARs. They are also leveraged for the Mining models.

- Aggregate Tables, or materialized views, are the STAR schema themselves at a higher level of aggregation. They may be related to the OLAP cubes.

- Other table types, as show in Table 4–2.

For more information on Oracle Utilities Data Model table types, see "What is Oracle Utilities Data Model" on page 1-4.

Table 4–1 shows the table name prefix conventions. When you examine the predefined physical model, keep in mind the naming conventions shown in Table 4–1 that use DW (Data Warehouse) prefixes to identify the types of tables and views.

Table 4–1   Table Name Prefix Conventions

Prefix	Description
DWA_	Aggregate table
DWB_	Base transaction table
DWD_	Derived table (Mining included)
DWL_	Lookup table
DWR_	Reference data table

Table 4–2   Other Table Name Prefix Conventions

Prefix	Description
DM$ DR$	Created when the mining models are trained. Used to store trained model and logs.
CUBE	Created when OLAP cubes are built. Used to store logs and results.

Reference Tables

Table 4–3 briefly describes the Reference tables in Oracle Utilities Data Model.

Table 4–3   Reference Tables

Table Name	More Information
DWR_AC_LN_SGMNT	AC Line Segment
DWR_AC_LN_SGMNT_PHS	AC Line Segment Phase
DWR_ACCMLTR_LMT	Accumulator Limit
DWR_ACCMLTR_LMT_SET	Accumulator Limit Set
DWR_ACCMLTR_LMT_SET_ASGN	Accumulator Limit Set Assignment

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_ACCT	Account
DWR_ACCT_AGRMNT_RLTN	Account Agreement Relationship
DWR_ACCT_ASGN	Account Assignment
DWR_ACCT_BAL_GRP	Account Balance Group
DWR_ACCT_BLLG_CYCL_HIST	Account Billing Cycle History
DWR_ACCT_BLLG_FREQNCY_HIST	Account Billing Frequency History
DWR_ACCT_BLLG_PRD_HIST	Account Billing Period History
DWR_ACCT_BSNS_INTRACN_RL	Account Business Interaction Role
DWR_ACCT_CYCL	Accounting Cycle
DWR_ACCT_PREF_INVC_DLVRY	Account Preferred Invoice Delivery
DWR_ACCT_PREF_PYMT_MTHD	Account Preferred Payment Method
DWR_ACCT_PRFL	Account Profile
DWR_ACCT_SGMNT	Account Segment
DWR_ACCT_SGMNT_ASGN_HIST	Account Segment Assignment History
DWR_ACCT_SGMNT_MDL	Account Segmentation Model
DWR_ACPT_TEST	Acceptance Test
DWR_ACTV_POWR_LMT	Active Power Limit
DWR_ADDR_LOC	Address Location
DWR_AGRMNT	Agreement
DWR_AGRMNT_DOC	Agreement Document
DWR_AGRMNT_ITEM	Agreement Item
DWR_AGRMNT_ITEM_PRCNG_STRUCT_ASGN	Agree Item Pricing Struct Assignment
DWR_AGRMNT_USG_PNT_ASGN	Agreement Usage Point Assignment
DWR_AIR_CMPRSR	Air Compressor
DWR_ANLG_LMT	Analog Limit
DWR_ANLG_LMT_SET	Analog Limit Set
DWR_ANLG_LMT_SET_ASGN	Analog Limit Set Assignment
DWR_ANZSC_CLSFCTN	ANZSIC Classification
DWR_APRNT_POWR_LMT	Apparent Power Limit
DWR_ASST	Asset
DWR_ASST_ACTVTY_REC_ASGN	Asset Activity Record Assignment
DWR_ASST_FNCTN	Asset Function
DWR_ASST_INFO	Asset Info
DWR_ASST_LOC	Asset Location
DWR_ASST_MDL	Asset Model
DWR_ASST_MDL_CTLG	Asset Model Catalog
DWR_ASST_MDL_CTLG_ITEM	Asset Model Catalog Item

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_ASST_ORG_RL	Asset Organization Role
DWR_ASST_ORG_RL_ASGN	Asset Organization Role Assignment
DWR_ASST_OWNR	Asset Owner
DWR_ASST_PSR_ASGN	Asset PSR Assignment
DWR_ASST_STAT	Asset Status
DWR_ASST_USER	Asset User
DWR_BASE_VLTG	Base Voltage
DWR_BLLG_CYCL	Billing Cycle
DWR_BLLG_FREQNCY	Billing Frequency
DWR_BNK	Bank
DWR_BNK_DRCT_DEBT_CHNL	Bank Direct Debit Channel
DWR_BRKR	Breaker
DWR_BSBR_SECTN	Busbar Section
DWR_BSBR_SECTN_INFO	Busbar Section
DWR_BSHNG	Bushing
DWR_BSNS_CASE	Business Case
DWR_BSNS_HLF_MO	Business Half Month
DWR_BSNS_HLF_YR	Business Half Year
DWR_BSNS_INTRACN_ASGN	Business Interaction Assignment
DWR_BSNS_INTRACN_LOC_ASGN	Business Interaction Location Assignment
DWR_BSNS_INTRACN_VRSN	Business Interaction Version
DWR_BSNS_MO	Business Month
DWR_BSNS_QTR	Business Quarter
DWR_BSNS_UNIT_JB_RL	Business Unit Job Role
DWR_BSNS_WK	Business Week
DWR_BSNS_YR	Business Year
DWR_CAES_PLNT	CAES Plant
DWR_CALL_CNTR	Call Center
DWR_CALL_CNTR_AGNT	Call Center Agent
DWR_CALL_CNTR_SRVC_CAPBLTY	Call Center Service Capability
DWR_CGNRTN_PLNT	Cogeneration Plant
DWR_CHNL	Channel
DWR_CLMP	Clamp
DWR_CLNDR_HLF_MO	Calendar Half Month
DWR_CLNDR_HLF_YR	Calendar Half Year
DWR_CLNDR_MO	Calendar Month
DWR_CLNDR_QTR	Calendar Quarter

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_CLNDR_WK	Calendar Week
DWR_CLNDR_YR	Calendar Year
DWR_CLRNCE_ACTN	Clearance Action
DWR_CLRNCE_DOC	Clearance Document
DWR_CMBND_CYCL_PLNT	Combined Cycle Plant
DWR_CMPGN	Campaign
DWR_CMPGN_CHNL	Campaign Channel
DWR_CMPGN_CHNL_ASGN	Campaign Channel Assignment
DWR_CMPGN_CHTRSTC	Campaign Characteristic
DWR_CMPGN_CHTRSTC_VAL	Campaign Characteristic Value
DWR_CMPGN_DOC	Campaign Document
DWR_CMPGN_MGMT_HIST	Campaign Management History
DWR_CMPGN_MSG	Campaign Message
DWR_CMPGN_MSG_DPCT	Campaign Message Depiction
DWR_CMPGN_RLTN	Campaign Relationship
DWR_CMPGN_TERM_VAL	Campaign Term Value
DWR_CMPST_SWTCH_INFO	Composite Switch Info
DWR_CMPTBL_UNIT	Compatible Unit
DWR_CMPTBL_UNIT_PROC_ASGN	Compatible Unit Procedure Assignment
DWR_CNCT_LST	Contact List
DWR_CNCTR	Connector
DWR_CNDCTR	Conductor
DWR_CNDTNG_EQP_PRTCTN_EQP_ASGN	Conducting Eqp Protection Eqp Assignment
DWR_CNFRM_LD	Conform Load
DWR_CNFRM_LD_GRP	Conform Load Group
DWR_CNFRM_LD_SCHL	Conform Load Schedule
DWR_CNSMPTN_TIER	Consumption Tier
DWR_CNSMPTN_TRF_INTRVL	Consumption Tariff Interval
DWR_COLLCTN_AGNCY	Collection Agency
DWR_COMUNICTN_FNCTN	Com Function
DWR_COMUNICTN_LNK	Communication Link
DWR_COMUNICTN_MEDIA	Com Media
DWR_COMUNICTN_MODULE	Com Module
DWR_CONCT_DSCNCT_FNCTN	Connect Disconnect Function
DWR_CONCTVT_ND	Connectivity Node
DWR_CONCTVT_ND_CONTNR	Connectivity Node Container
DWR_COST_CNTR	Cost Center

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_CRDT_CTGRY	Credit Category
DWR_CRDT_SCR_PRVDR	Credit Score Provider
DWR_CREW	Crew
DWR_CREW_MBR	Crew Member
DWR_CREW_TYP	Crew Type
DWR_CREW_WRK_TASK_ASGN	Crew Work Task Assignment
DWR_CRNCY_GEO_ENT_ASGN	Currency Geography Entity Assignment
DWR_CRTCL_PK_PRD	Critical Peak Period
DWR_CRVE	Curve
DWR_CURR_LMT	Current Limit
DWR_CURR_RLY	Current Relay
DWR_CURR_TRNSFRMR_INFO	Current Transformer Info
DWR_CUST	Customer
DWR_CUST_ACCT_ASGN	Customer Account Assignment
DWR_CUST_DOC	Customer Document
DWR_CUST_FCNG_SRVC	Customer Facing Service
DWR_CUST_GRP_ASGN	Customer Group Assignment
DWR_CUST_INDVL	Customer Individual
DWR_CUST_OCCSN	Customer Occasion
DWR_CUST_ORDR_DOC	Customer Order Document
DWR_CUST_ORG	Customer Organization
DWR_CUST_OUTG_NOTFCTN_ASGN	Customer Outage Notification Assignment
DWR_CUST_RSTRCT_INFO	Customer Restricted Info
DWR_CUST_RVN_BND_ASGN	Customer Revenue Band Assignment
DWR_CUST_SCR	Customer Score
DWR_CUST_SGMNT	Customer Segment
DWR_CUST_SGMNT_MDL	Customer Segmentation Model
DWR_CUST_SIC_ASGN	Customer SIC Assignment
DWR_CUST_SRC	Customer Source
DWR_CUST_WRK_ASGN	Customer Work Assignment
DWR_CUT	Cut
DWR_CUT_ACTN	Cut Action
DWR_DAY	Day
DWR_DC_CNDCTNG_EQPMNT	DC Conducting Equipment
DWR_DC_LN_SGMNT	DC Line Segment
DWR_DEMAND_RESPN_PROG	Demand Response Program
DWR_DEMAND_TRF_INTRVL	Demand Tariff Interval

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_DEMOG_ATRIB	Demography Attribute
DWR_DEMOG_CHTRSTC	Demographic Characteristic
DWR_DEMOG_GRP	Demography Group
DWR_DOC_TYP_GRP_ASGN	Document Type Group Assignment
DWR_DR_PROG_AGRMNT_ASGN	DR Program Agreement Assignment
DWR_DR_PROG_END_DVC_GRP_ASGN	DR Prog End Device Grp Assignment
DWR_DRVD_VAL	Derived Value
DWR_DSCNCTR	Disconnector
DWR_ELCTRCTY_SRVC	Electricity Service
DWR_EMP	Employee
DWR_EMP_JB_RL_ASGN	Employee Job Role Assignment
DWR_EMP_LANG_CAPBLTY	Employee Language Capability
DWR_EMP_RSTRCT_INFO	Employee Restricted Info
DWR_EMP_SCHL	Employee Schedule
DWR_END_DVC	End Device
DWR_END_DVC_CAPBLTY	End Device Capability
DWR_END_DVC_CNTRL_TYP	End Device Control Type
DWR_END_DVC_END_DVC_CTRL_ASGN	End Device End Device Ctrl Assignment
DWR_END_DVC_END_DVC_GRP_ASGN	End Device End Device Grp Assignment
DWR_END_DVC_EVT_DTL	End Device Event Detail
DWR_END_DVC_FNCTN	End Device Function
DWR_END_DVC_GP_END_DVC_CTL_ASN	End Device Grp End Device Ctrl Assignment
DWR_END_DVC_GRP	End Device Group
DWR_END_DVC_INFO	End Device Info
DWR_ENRGY_AREA	Energy Area
DWR_ENRGY_CONSMR	Energy Consumer
DWR_ENRGY_CONSMR_PHS	Energy Consumer Phase
DWR_EQPMNT_CONTNR	Equipment Container
DWR_EXTRNL_CRDT_PRFL	External Credit Profile
DWR_EXTRNL_CRDT_PRFL_ASGN	External Credit Profile Assignment
DWR_EXTRNL_INFO_SRC	External Information Source
DWR_FCT_DVC	FACTS Device
DWR_FEDR	Feeder
DWR_FEDR_SBSTN_ASGN	Feeder Substation Assignment
DWR_FINCL_INFO	Financial Info
DWR_FLT	Fault
DWR_FLT_IND_INFO	Fault Indicator Info

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_FREQNCY_CONVRTR	Frequency Converter
DWR_FSCL_QTR	Fiscal Quarter
DWR_FSCL_YR	Fiscal Year
DWR_FUSE	Fuse
DWR_FXBLE_CHTRSTC	Flexible Characteristic
DWR_GATE_INPUT_PIN	Gate Input Pin
DWR_GEN_UNIT_OP_COST_CRVE	Gen Unit Op Cost Curve
DWR_GEN_UNIT_OP_SCHL	Gen Unit Op Schedule
DWR_GEO_BLDG	Geography Building
DWR_GEO_CITY	Geography City
DWR_GEO_CMPLX	Geography Complex
DWR_GEO_CNTRY	Geography Country
DWR_GEO_CNTY	Geography County
DWR_GEO_DEMOG_ATRIB	Geography Demography Attribute
DWR_GEO_DEMOG_GRP	Geography Demographic Group
DWR_GEO_DEMOG_VAL	Geography Demography Value
DWR_GEO_ENT	Geography Entity
DWR_GEO_ENT_ASGN	Geography Entity Assignment
DWR_GEO_ENT_HRCHY_LVL_ASGN	Geography Entity Hier Level Assignment
DWR_GEO_HRCHY	Geography Hierarchy
DWR_GEO_HRCHY_LVL	Geography Hierarchy Level
DWR_GEO_HRCHY_LVL_ASGN	Geography Hierarchy Level Assignment
DWR_GEO_LVL	Geography Level
DWR_GEO_LVL_ATRIB	Geography Level Attribute
DWR_GEO_LVL_ATRIB_VAL	Geography Level Attribute Value
DWR_GEO_RGN	Geography Region
DWR_GEO_SB_RGN	Geography Sub Region
DWR_GEO_STATE	Geography State
DWR_GEO_STREET	Geography Street
DWR_GEO_WORLD	Geography World
DWR_GL_ACCT	GL Account
DWR_GL_ACCT_ASGN	GL Account Assignment
DWR_GL_ACCT_SGMNT	GL Account Segment
DWR_GL_COST_CNTR_SGMNT	GL Cost Center Segment
DWR_GL_LDGR	GL Ledger
DWR_GL_LDGR_ACCT_ASGN	GL Ledger Account Assignment
DWR_GL_ORG_BSNS_UNIT_SGMNT	GL Org Bsns Unit Segment

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_GL_PRD	GL Period
DWR_GL_PROD_SPECFTN_SGMNT	GL Product Specification Segment
DWR_GL_PROJ_SGMNT	GL Project Segment
DWR_GL_SBLDGR	GL Subledger
DWR_GL_SGMNT	GL Segment
DWR_GNRC_ACTN	Generic Action
DWR_GNRTNG_UNIT	Generating Unit
DWR_GNRTNG_UNIT_ROTTNG_MC_ASGN	Generating Unit Rotating Machine Assignment
DWR_GRND_DSCNCTR	Ground Disconnector
DWR_GRND_SWTCH	Ground Switch
DWR_GRS_TO_NET_ACTV_POWR_CRVE	Gross To Net Active Power Curve
DWR_HEAD_END_SYS	Head End System
DWR_HH	Household
DWR_HR	Hour
DWR_HR_TIME_OF_USE_ASGN	Hour Time of Use Assignment
DWR_HYDRO_GNRTNG_UNIT	Hydro Generating Unit
DWR_INCDNT_WRK_ASGN	Incident Work Assignment
DWR_INDVL_DEMOG_VAL	Individual Demography Value
DWR_INSTLMNT_AGRMNT	Installment Agreement
DWR_INTRACN_CHNL	Interaction Channel
DWR_INTRACN_NAVGTN_ITEM	Interaction Navigation Item
DWR_INVC_ADJ_QTA	Invoice Adjustment Quota
DWR_IRGLR_INTRVL_SCHL	Irregular Interval Schedule
DWR_IRGLR_TIME_PNT	Irregular Time Point
DWR_JB	Job
DWR_JB_RL	Job Role
DWR_JMPR	Jumper
DWR_JMPR_ACTN	Jumper Action
DWR_JNT	Joint
DWR_LD_AREA	Load Area
DWR_LD_BRK_SWTCH	Load Break Switch
DWR_LD_GRP	Load Group
DWR_LD_RESPN_CHTRSTC	Load Response Characteristic
DWR_LIFE_CYCL_DT	Lifecycle Date
DWR_LMT	Limit
DWR_LMT_SET	Limit Set
DWR_LN	Line

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_LOC	Location
DWR_LYLTY_PROG	Loyalty Program
DWR_MEDIA_OBJ	Media Object
DWR_MEDIA_OBJ_ASGN	Media Object Assignment
DWR_MKT_AREA	Market Area
DWR_MKT_AREA_LVL	Market Area Level
DWR_MKT_PLN_DOC_REQRMNT	Market Plan Document Requirement
DWR_MKT_RL	Market Role
DWR_MKT_SGMNT	Market Segment
DWR_MKT_SGMNT_INCLSN	Market Segment Inclusion
DWR_MNFCTR	Manufacturer
DWR_MNTNR	Maintainer
DWR_MSRMNT_LOC	Measurement Location
DWR_MSRMNT_VAL_QLTY	Measurement Value Quality
DWR_MSRMNT_VAL_SRC	Measurement Value Source
DWR_MTR	Meter
DWR_MTR_IDNT	Meter Identifier
DWR_MTR_RGSTER_ASGN	Meter Register Assignment
DWR_MTR_SRVC_WRK	Meter Service Work
DWR_NAICS_CLSFCTN	NAICS Classification
DWR_NON_CNFRM_LD	Non Conform Load
DWR_NON_CNFRM_LD_GRP	Non Conform Load Group
DWR_NON_CNFRM_LD_SCHL	Non Conform Load Schedule
DWR_NUCLR_GNRTNG_UNIT	Nuclear Generating Unit
DWR_OPERTNG_PRTCPNT	Operating Participant
DWR_OPERTNG_SHR	Operating Share
DWR_OPRN_TAG	Operation Tag
DWR_OPRTNL_LMT	Operational Limit
DWR_OPRTNL_LMT_SET	Operational Limit Set
DWR_OPRTNL_RSTRCT	Operational Restriction
DWR_ORCL_GMTRY	Oracle Geometry
DWR_ORG_AREA	Organization Area
DWR_ORG_BNR	Organization Banner
DWR_ORG_BSNS_ENT	Organization Business Entity
DWR_ORG_BSNS_UNIT	Organization Business Unit
DWR_ORG_CHAIN	Organization Chain
DWR_ORG_CMPNY	Organization Company

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_ORG_CRPRT	Organization Corporate
DWR_ORG_DEMOG_VAL	Organizational Demography Value
DWR_ORG_DSTRCT	Organization District
DWR_ORG_HRCHY	Organization Hierarchy
DWR_ORG_HRCHY_LVL	Organization Hierarchy Level
DWR_ORG_HRCHY_LVL_ASGN	Organization Hierarchy Level Assignment
DWR_ORG_HRCHY_VRSN	Organization Hierarchy Version
DWR_ORG_LVL	Organization Level
DWR_ORG_LVL_ATRIB_VAL	Organization Level Attribute Value
DWR_ORG_LVL_ATTR	Organization Level Attributes
DWR_ORG_MKT_DATA	Organization Market Data
DWR_ORG_RGN	Organization Region
DWR_ORG_RL	Organization Role
DWR_ORG_SRVC_WBSITE	Organization Service Website
DWR_ORG_WRHS	Organization Warehouse
DWR_OTHR_INDVL	Other Individual
DWR_OUTG_CD	Outage Code
DWR_OUTG_NOTFCTN	Outage Notification
DWR_OUTG_PLN	Outage Plan
DWR_OUTG_REC_CD_ASGN	Outage Record Code Assignment
DWR_OUTG_RPT	Outage Report
DWR_OUTG_SCHL	Outage Schedule
DWR_OUTG_STEP	Outage Step
DWR_OUTG_STEP_CD_ASGN	Outage Step Code Assignment
DWR_OUTG_USG_PNT_ASGN	Outage Usage Point Assignment
DWR_PBLCTN	Publication
DWR_PER_LGTH_IMPNDNC	Per Length Impedance
DWR_PER_LGTH_PHS_IMPNDNC	Per Length Phase Impedance
DWR_PER_LGTH_SEQ_IMPNDNC	Per Length Sequence Impedance
DWR_PHS_CNCTD_FLT	Phase Connected Fault
DWR_PHS_IMPNDNC_DATA	Phase Impedance Data
DWR_PHS_TAP_CHNG	Phase Tap Changer
DWR_PHS_TAP_CHNG_ASYMTRCL	Phase Tap Changer Asymmetrical
DWR_PHS_TAP_CHNG_LNR	Phase Tap Changer Linear
DWR_PHS_TAP_CHNG_NON_LNR	Phase Tap Changer Non Linear
DWR_PHS_TAP_CHNG_SYMTRCL	Phase Tap Changer Symmetrical
DWR_PHS_TAP_CHNG_TBLR	Phase Tap Changer Tabular

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_PHS_TAP_CHNG_TBLR_PNT	Phase Tap Changer Tabular Point
DWR_PIN_VLTG	Pin Voltage
DWR_PLND_OUTG	Planned Outage
DWR_POLE	Pole
DWR_POSTCD	Postcode
DWR_POWR_CUT_ZN	Power Cut Zone
DWR_POWR_SYS_RESRE_LOC	Power System Resource Location
DWR_POWR_TRNSFRMR	Power Transformer
DWR_POWR_TRNSFRMR_END	Power Transformer End
DWR_POWR_TRNSFRMR_INFO	Power Transformer Info
DWR_PRCNG_STRCTR_TRF_ASGN	Pricing Structure Tariff Assignment
DWR_PRCNG_STRUCTR	Pricing Structure
DWR_PRIORITY	Priority
DWR_PRMTN	Promotion
DWR_PRMTN_MSG_RNDRNG	Promotion Message Rendering
DWR_PRMTN_PROD_OFRNG_ASGN	Promotion Product Offering Assignment
DWR_PRMTN_RLTN	Promotion Relationship
DWR_PRMTN_SL_CHNL_ASGN	Promotion Sales Channel Assignment
DWR_PROC	Procedure
DWR_PROC_ASST_ASGN	Procedure Asset Assignment
DWR_PROD_ASST_MDL	Product Asset Model
DWR_PROD_ASST_MDL_FNCTN_ASGN	Product Asset Model Function Assignment
DWR_PROD_OFRNG	Product Offering
DWR_PROD_SBRP	Product Subscription
DWR_PROJ	Project
DWR_PROJ_ELMNT	Project Element
DWR_PROTCTN_EQPMNT	Protection Equipment
DWR_PROTCTN_EQPMNT_INFO	Protection Equipment Info
DWR_PRPSL	Proposal
DWR_PRPSL_RLTN	Proposal Relationship
DWR_PRSPCT	Prospect
DWR_PRSPCT_QLTY_SCR_VAL	Prospect Quality Score Value
DWR_PRTCTD_SWTCH	Protected Switch
DWR_PRTNR_PRMTN_PROG	Partner Promotion Program
DWR_PRTY	Party
DWR_PRTY_ACCT_ASGN	Party Account Assignment
DWR_PRTY_ADDR_LOC_ASGN	Party Address Location Assignment

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_PRTY_AGRMNT_RLTN	Party Agreement Relationship
DWR_PRTY_ASGN	Party Assignment
DWR_PRTY_BSNS_INTRACN_RL	Party Business Interaction Role
DWR_PRTY_CNCT_INFO	Party Contact Information
DWR_PRTY_GEO_ENT_ASGN	Party Geography Entity Assignment
DWR_PRTY_MKT_SGMNT_ASGN	Party Market Segment Assignment
DWR_PRTY_PROJ_PRTCPTN	Party Project Participation
DWR_PRTY_RL_ASGN	Party Role Assignment
DWR_PRTY_RL_STAT	Party Role Status
DWR_PTNTL_TRNSFRMR_INFO	Potential Transformer Info
DWR_PYMT_CHNL	Payment Channel
DWR_RATE	Rate
DWR_RATIO_TAP_CHNG	Ratio Tap Changer
DWR_RATIO_TAP_CHNG_TBLR	Ratio Tap Changer Tabular
DWR_RATIO_TAP_CHNG_TBLR_PNT	Ratio Tap Changer Tabular Point
DWR_RCLSR	Recloser
DWR_RDNG_CHNL	Reading Channel
DWR_RDNG_CHNL_IDNT	Reading Channel Identifier
DWR_RDNG_TYP	Reading Type
DWR_REGULTN_SCHL	Regulation Schedule
DWR_RGLR_INTRVL_SCHL	Regular Interval Schedule
DWR_RGLR_TIME_PNT	Regular Time Point
DWR_RGLTNG_CNTRL	Regulating Control
DWR_RGLTNG_COND_EQ	Regulating Cond Eq
DWR_RGSTER	Register
DWR_RMT_CNTRL	Remote Control
DWR_RMT_CONCT_DSCNCT_INFO	Remote Connect Disconnect Info
DWR_RMT_PNT	Remote Point
DWR_RMT_SRC	Remote Source
DWR_RMT_UNIT	Remote Unit
DWR_RMT_UNIT_COMUNCTN_LNK_ASGN	Remote Unit Communication Link Assignment
DWR_ROTTNG_MC	Rotating Machine
DWR_RTNL_NBR	Rational Number
DWR_SB_GEOCL_RGN	Sub Geographical Region
DWR_SB_LD_AREA	Sub Load Area
DWR_SBSTN	Substation
DWR_SCHL_EVT_ASST_ASGN	Scheduled Event Asset Assignment

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_SCRPT	Script
DWR_SCRPT_QUES	Script Question
DWR_SEAL	Seal
DWR_SEASON_DAY_TYP_SCHL	Season Day Type Schedule
DWR_SECTNR	Sectionaliser
DWR_SERIES_CMPNSTR	Series Compensator
DWR_SFTY_DOC	Safety Document
DWR_SGMNT_CRTRA	Segment Criteria
DWR_SHNT_CMPNSTR	Shunt Compensator
DWR_SHNT_CMPNSTR_INFO	Shunt Compensator Info
DWR_SHNT_CMPNSTR_PHS	Shunt Compensator Phase
DWR_SIC_ASGN	SIC Assignment
DWR_SL_CHNL	Sales Channel
DWR_SMPL_END_DVC_FNCTN	Simple End Device Function
DWR_SOC_JB	SOC Job
DWR_SOC_JB_CTGRY	SOC Job Category
DWR_SOC_JB_GRP	SOC Job Group
DWR_SRC_SYS	Source System
DWR_SRC_SYS_KEY_MAP	Source System Key Mapping
DWR_SRG_ARSTR_INFO	Surge Arrester Info
DWR_SRVC	Service
DWR_SRVC_COVRG_AREA	Service Coverage Area
DWR_SRVC_COVRG_GEO_DTL	Service Coverage Geo Detail
DWR_SRVC_LOC	Service Location
DWR_SRVC_LOC_IDNT	Service Location Identifier
DWR_SRVC_QTY	Service Quantity
DWR_SRVC_SPPLR	Service Supplier
DWR_STAT	Status
DWR_STATIC_VAR_CMPNSTR	Static Var Compensator
DWR_STEAM_SNDOUT_SCHL	Steam Sendout Schedule
DWR_STN_SPPLY	Station Supply
DWR_STRCTR	Structure
DWR_STRCTR_SPPRT	Structure Support
DWR_STREETLGHT	Streetlight
DWR_SURVEY	Survey
DWR_SWTCH	Switch
DWR_SWTCH_ACTN	Switch Action

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_SWTCH_ACTVTY_SFTY_DOC_ASGN	Switching Activity Safety Doc Assignment
DWR_SWTCH_CNCT_DSCNCT_FNC_ASGN	Switch Connect Disconnect Func Assignment
DWR_SWTCH_INFO	Switch Info
DWR_SWTCH_PHS	Switch Phase
DWR_SWTCH_SCHL	Switch Schedule
DWR_SWTCH_SWTCHNG_OPRN_ASGN	Switch Switching Operation Assignment
DWR_SWTCHNG_ACTVTY	Switching Activity
DWR_SWTCHNG_OPRN	Switching Operation
DWR_SWTCHNG_PLN	Switching Plan
DWR_SWTCHNG_STEP	Switching Step
DWR_SWTCHNG_STEP_GRP	Switching Step Group
DWR_SYNCHRCHCK_RLY	Synchrocheck Relay
DWR_SYNCHRNS_MC	Synchronous Machine
DWR_TAG_ACTN	Tag Action
DWR_TAP_CHNG	Tap Changer
DWR_TAP_CHNG_CNTRL	Tap Changer Control
DWR_TAP_CHNG_INFO	Tap Changer Info
DWR_TAP_SCHL	Tap Schedule
DWR_TASK	Task
DWR_THRML_GNRTNG_UNIT	Thermal Generating Unit
DWR_TIME_SCHL	Time Schedule
DWR_TIME_SLT	Time Slot
DWR_TIME_TRF_INTRVL	Time Tariff Interval
DWR_TOOL	Tool
DWR_TPLGCL_ND	Topological Node
DWR_TRBL_TCKT	Trouble Ticket
DWR_TRF	Tariff
DWR_TRF_PRFL	Tariff Profile
DWR_TRF_TRF_PRFL_ASGN	Tariff Tariff Profile Assignment
DWR_TRGT_ACCT	Target Account
DWR_TRGT_AGRMNT	Target Agreement
DWR_TRGT_GEO_AREA	Target Geography Area
DWR_TRGT_MKT_SGMNT	Target Market Segment
DWR_TRML	Terminal
DWR_TRNSFRMR_CORE_ADMTTNC	Transformer Core Admittance
DWR_TRNSFRMR_END	Transformer End
DWR_TRNSFRMR_END_INFO	Transformer End Info

Table 4–3   (Cont.) Reference Tables

Table Name	More Information
DWR_TRNSFRMR_FEDR_ASGN	Transformer Feeder Assignment
DWR_TRNSFRMR_MESH_IMPNDNC	Transformer Mesh Impedance
DWR_TRNSFRMR_STAR_IMPNDNC	Transformer Star Impedance
DWR_TRNSFRMR_TANK	Transformer Tank
DWR_TRNSFRMR_TANK_END	Transformer Tank End
DWR_TRNSFRMR_TANK_INFO	Transformer Tank Info
DWR_TWR	Tower
DWR_UNDRGRND_STRCTR	Underground Structure
DWR_USG_PNT	Usage Point
DWR_USG_PNT_END_DVC_CTRL_ASGN	Usage Point End Device Ctrl Assignment
DWR_USG_PNT_EQPMNT_ASGN	Usage Point Equipment Assignment
DWR_USG_PNT_GRP	Usage Point Group
DWR_USG_PNT_GRP_ASGN	Usage Point Group Assignment
DWR_USG_PNT_GRP_DR_PROG_ASGN	Usage Point Group DR Program Assignment
DWR_USG_PNT_LOC	Usage Point Location
DWR_USG_PNT_TRNSFRMR_ASGN	Usage Point Transformer Assignment
DWR_USG_PT_GP_END_DVC_CTL_ASGN	Usage Point Transformer Assignment
DWR_USG_READ_CYCL	Usage Read Cycle
DWR_VAL_ALS_SET	Value Alias Set
DWR_VAL_TO_ALS	Value To Alias
DWR_VHCL	Vehicle
DWR_VLTG_CNTRL_ZN	Voltage Control Zone
DWR_VLTG_LMT	Voltage Limit
DWR_VNDR	Vendor
DWR_VNDR_ITEM	Vendor Item
DWR_VRTL_TEAM	Virtual Team
DWR_WEB_PG	Web Page
DWR_WND_GNRTNG_UNIT	Wind Generating Unit
DWR_WR_INFO	Wire Info
DWR_WR_SPCNG_INFO	Wire Spacing Info
DWR_WRK_ASST	Work Asset
DWR_WRK_BLLG_INFO	Work Billing Info
DWR_WRK_COST_DTL	Work Cost Detail
DWR_WRK_FLOW_STEP	Work Flow Step
DWR_WRK_LOC	Work Location
DWR_WRK_ORDR	Work Order
DWR_WRK_STAT_ENTRY	Work Status Entry

Table 4–3 (Cont.) Reference Tables

Table Name	More Information
DWR_WRK_TASK	Work Task
DWR_WRK_TASK_AS_SET_ASGN	Work Task Asset Assignment
DWR_WRK_TIME_SCHL	Work Time Schedule
DWR_ZN	Zone

Lookup Tables

Table 4–4 briefly describes the Lookup tables in Oracle Utilities Data Model.

Table 4–4 Lookup Tables

Table Name	More Information
DWL_ACCT_ADJ_RSN	Account Adjustment Reason
DWL_ACCT_ASGN_RSN	Account Assignment Reason
DWL_ACCT_ASGN_TYP	Account Assignment Type
DWL_ACCT_BAL_ADJ_TYP	Account Balance Adjustment Type
DWL_ACCT_BAL_TYP	Account Balance Type
DWL_ACCT_EVT_TYP	Account Event Type
DWL_ACCT_ITEM_CTGRY	Accounting Item Category
DWL_ACCT_PYMT_MTHD_STAT_RSN	Account Payment Method Status Reason
DWL_ACCT_PYMT_MTHD_STAT_TYP	Account Payment Method Status Type
DWL_ACCT_RFND_RSN	Account Refund Reason
DWL_ACCT_RL_TYP	Account Role Type
DWL_ACCT_STAT_RSN	Account Status Reason
DWL_ACCT_STAT_TYP	Account Status Type
DWL_ACCT_TYP	Account Type
DWL_AGRMNT_ASGN_RSN	Agreement Assignment Reason
DWL_AGRMNT_ASGN_TYP	Agreement Assignment Type
DWL_AGRMNT_STAT_TYP	Agreement Status Type
DWL_AGRMNT_TYP	Agreement Type
DWL_AMI_BLLG_RDY_KIND_ENUM	AMI Billing Ready Kind ENUM
DWL_ANCHOR_KIND_ENUM	Anchor Kind ENUM
DWL_APNMNT_TYP	Appointment Type
DWL_ASST_MDL_USG_KIND_ENUM	Asset Model Usage Kind ENUM
DWL_ASST_TYP	Asset Type
DWL_BARNG_RSN	Baring Reason
DWL_BLLG_OCCRNCE_TYP	Billing Occurrence Type
DWL_BLLG_PRD	Billing Period
DWL_BSHNG_INSLTN_KIND_ENUM	Bushing Insulation Kind ENUM
DWL_BSNS_INTRACN_ASGN_TYP	Business Interaction Assignment Type

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_BSNS_INTRACN_STAT_RSN	Business Interaction Status Reason
DWL_BSNS_INTRACN_STAT_TYP	Business Interaction Status Type
DWL_BSNS_INTRACN_TYP	Business Interaction Type
DWL_BSNS_LEGAL_STAT	Business Legal Status
DWL_CALL_CNTR_CASE_SB_TYP	Call Center Case Sub Type
DWL_CALL_CNTR_CASE_TTL	Call Center Case Title
DWL_CALL_CNTR_CASE_TYP	Call Center Case Type
DWL_CHNL_TYP	Channel Type
DWL_CHRG_KIND_ENUM	Charge Kind ENUM
DWL_CLRNCE_ACTN_KIND_ENUM	Clearance Action Kind ENUM
DWL_CMPGN_CHNL_TYP	Campaign Channel Type
DWL_CMPGN_STAT	Campaign Status
DWL_CMPGN_TYP	Campaign Type
DWL_CMPST_SWTCH_KIND_ENUM	Composite Switch Kind ENUM
DWL_CNCT_LST_CHNG_RSN	Contact List Change Reason
DWL_CNCT_LST_RCRNC_TYP	Contact List Recurrence Type
DWL_CNCT_RLS	Contact Roles
DWL_CNTRL_TYP	Control Type
DWL_COLNT_TYP_ENUM	Coolant Type ENUM
DWL_COMUNICTN_DRCTN_KIND_ENUM	Com Direction Kind ENUM
DWL_COMUNICTN_TCHNLGY_KIND_ENUM	Com Technology Kind ENUM
DWL_COST_RSN	Cost Reason
DWL_COST_SB_TYP	Cost Subtype
DWL_COST_TYP	Cost Type
DWL_CRNCY	Currency
DWL_CRNCY_ENUM	Currency ENUM
DWL_CRPRT_STNDRD_KIND_ENUM	Corporate Standard Kind ENUM
DWL_CRVE_STYLE_ENUM	Curve Style ENUM
DWL_CUST_GRP	Customer Group
DWL_CUST_KIND_ENUM	Customer Kind ENUM
DWL_CUST_OCCSN_TYP	Customer Occasion Type
DWL_CUST_RVN_BND	Customer Revenue Band
DWL_CUST_TYP	Customer Type
DWL_CUT_JMPR_ACTN_KIND_ENUM	Cut Jumper Action Kind ENUM
DWL_DAY_TYP	Day Type
DWL_DEBT_AGNG_BND	Debt Aging Band

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_DOC_TYP	Document Type
DWL_DOC_TYP_GRP	Document Type Group
DWL_DRCT_DEBT_STAT_RSN	Direct Debit Status Reason
DWL_EDU	Education
DWL_EMP_DESIG	Employee Designation
DWL_EMP_JB_RL_TYP	Employee Job Role Type
DWL_EMP_TYP	Employee Type
DWL_END_DVC_DOMAIN	End Device Domain
DWL_END_DVC_EVT_OR_ACTN	End Device Event Or Action
DWL_END_DVC_EVT_TYP	End Device Event Type
DWL_END_DVC_FNCTN_KIND_ENUM	End Device Function Kind ENUM
DWL_END_DVC_SB_DOMAIN	End Device Sub Domain
DWL_END_DVC_TYP	End Device Type
DWL_ENRGY_FLOW_DRCTN	Energy Flow Direction
DWL_EVT_ASGN_RSN	Event Assignment Reason
DWL_EVT_ASGN_TYP	Event Assignment Type
DWL_EVT_CLASS	Event Class
DWL_EVT_CTGRY	Event Category
DWL_EVT_PRTY_RL	Event Party Role
DWL_EVT_RESPN_RSN	Event Response Reason
DWL_EVT_RSLT	Event Result
DWL_EVT_RSLTN	Event Resolution
DWL_EVT_RSN	Event Reason
DWL_EVT_RSN_CTGRY	Event Reason Category
DWL_EVT_STAT_RSN	Event Status Reason
DWL_EVT_STAT_TYP	Event Status Type
DWL_EVT_TYP	Event Type
DWL_EXTRNL_ORG_TYP	External Organization Type
DWL_FCT_DVC_KIND_ENUM	FACTS Device Kind ENUM
DWL_FLT_IND_RESET_KIND_ENUM	Fault Indicator Reset Kind ENUM
DWL_GL_ACCT_TYP	GL Account Type
DWL_GL_JE_CTGRY	GL Journal Entry Category
DWL_GL_SGMNT_TYP	GL Segment Type
DWL_GNDR	Gender
DWL_GNRTR_CNTRL_MD_ENUM	Generator Control Mode ENUM
DWL_GNRTR_CNTRL_SRC_ENUM	Generator Control Source ENUM
DWL_GNRTR_OPERTNG_MD_ENUM	Generator Operating Mode ENUM

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_HYDR_ENRG_CNVRSN_KIND_ENUM	Hydro Energy Conversion Kind ENUM
DWL_INTRACN_DRCTN	Interaction Direction
DWL_INTRACN_PRIORITY_TYP	Interaction Priority Type
DWL_INTRACN_RSLT_TYP	Interaction Result Type
DWL_INTRACN_RSN	Interaction Reason
DWL_INTRACN_STAT	Interaction Status
DWL_INTRACN_TRNSFR_RSN	Interaction Transfer Reason
DWL_INTRACN_TYP	Interaction Type
DWL_INTRHRMNCS	Interharmonics
DWL_INTTV_RSLT_TYP	Initiative Result Type
DWL_INTTV_TYP	Initiative Type
DWL_INVC_DISC_RSN	Invoice Discount Reason
DWL_INVC_DISC_TYP	Invoice Discount Type
DWL_INVC_DLVRY_FRMT	Invoice Delivery Format
DWL_INVC_DLVRY_TYP	Invoice Delivery Type
DWL_INVC_ITEM_DTL_TYP	Invoice Item Detail Type
DWL_INVC_ITEM_TYP	Invoice Item Type
DWL_INVC_PYMT_TERM_TYP	Invoice Payment Term Type
DWL_INVC_STAT_TYP	Invoice Status Type
DWL_INVC_TYP	Invoice Type
DWL_IVR_MENU_ITEM	IVR Menu Item
DWL_JNT_CNFGRTN_KIND_ENUM	Joint Configuration Kind ENUM
DWL_JNT_FILL_KIND_ENUM	Joint Fill Kind ENUM
DWL_LANG	Language
DWL_LTTR_TYP	Letter Type
DWL_LYLTY_PROG_EVT_TYP	Loyalty Program Event Type
DWL_MEDIA_OBJ_TYP	Media Object Type
DWL_MRTL_STAT	Marital Status
DWL_MSRMNT_KIND	Measurement Kind
DWL_MTR_STAT	Meter Status
DWL_NTNLTY	Nationality
DWL_ORG_BSNS_UNIT_TYP	Organization Business Unit Type
DWL_PBLCTN_TYP	Publication Type
DWL_PHS	Phase
DWL_PHS_CD_ENUM	Phase Code ENUM
DWL_PHS_CNCTD_FLT_KIND_ENUM	Phase Connected Fault Kind ENUM
DWL_PHS_SHNT_CNCTN_KIND_ENUM	Phase Shunt Connection Kind ENUM

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_PLND_OUTG_KIND_ENUM	Planned Outage Kind ENUM
DWL_POLE_BASE_KIND_ENUM	Pole Base Kind ENUM
DWL_POLE_PRSRVTV_KIND_ENUM	Pole Preservative Kind ENUM
DWL_POLE_TRTMNT_KIND_ENUM	Pole Treatment Kind ENUM
DWL_POSTL_SRVC_TYP	Postal Service Type
DWL_PRICE_TYP	Price Type
DWL_PRMTN_RSLT_TYP	Promotion Result Type
DWL_PRMTN_TERM_TYP	Promotion Term Type
DWL_PRMTN_TERM_VAL	Promotion Term Value
DWL_PRMTN_TYP	Promotion Type
DWL_PROC_KIND_ENUM	Procedure Kind ENUM
DWL_PRSPCT_PRIORITY_TYP	Prospect Priority Type
DWL_PRSPCT_QLTY_SCR_TYP	Prospect Quality Score Type
DWL_PRSPCT_REJECT_RSN	Prospect Reject Reason
DWL_PRTY_ACCT_ASGN_TYP	Party Account Assignment Type
DWL_PRTY_ASGN_RSN	Party Assignment Reason
DWL_PRTY_ASGN_TYP	Party Assignment Type
DWL_PRTY_CNCT_INFO_TYP	Party Contact Information Type
DWL_PRTY_CNCT_LST_PRTCPTN	Party Contact List Participation
DWL_PRTY_CNCT_LST_RL	Party Contact List Role
DWL_PRTY_EVT_TYP	Party Event Type
DWL_PRTY_INTRACN_THRD_TYP	Party Interaction Thread Type
DWL_PRTY_LOC_RSN	Party Location Reason
DWL_PRTY_LOC_TYP	Party Location Type
DWL_PRTY_MGMT_RL	Party Management Role
DWL_PRTY_RL	Party Role
DWL_PRTY_STAT_CHNG_RSN	Party Status Change Reason
DWL_PRTY_STAT_CTGRY	Party Status Category
DWL_PRTY_STAT_TYP	Party Status Type
DWL_PRTY_TYP	Party Type
DWL_PSR_TYP	PSR Type
DWL_PYMT_AGNG_CLASS	Payment Aging Class
DWL_PYMT_MTHD_TYP	Payment Method Type
DWL_PYMT_TRX_TYP	Payment Transaction Type
DWL_RDNG_ACMLTN_BHVR	Reading Accumulation Behavior
DWL_RDNG_DATA_QLFR	Reading Data Qualifier
DWL_RDNG_QLTY_TYP	Reading Quality Type

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_RDNG_QLTY_TYP_CTGRY	Reading Quality Type Category
DWL_RDNG_QLTY_TYP_ORIGIN	Reading Quality Type Origin
DWL_RDNG_QLTY_TYP_SB_CTGRY	Reading Quality Type Sub Category
DWL_RDNG_RSN_KIND_ENUM	Reading Reason Kind ENUM
DWL_RDNG_TIME_ATRIB	Reading Time Attribute
DWL_RDNG_TIME_PRD	Reading Time Period
DWL_RGLTNG_CNTRL_MD_KIND_ENUM	Regulating Control Mode Kind ENUM
DWL_RMT_UNIT_TYP_ENUM	Remote Unit Type ENUM
DWL_RVN_KIND_ENUM	Revenue Kind ENUM
DWL_SEAL_CNDTN_KIND_ENUM	Seal Condition Kind ENUM
DWL_SEAL_KIND_ENUM	Seal Kind ENUM
DWL_SEASON	Season
DWL_SGMNT_TYP	Segment Type
DWL_SHORT_CRCUT_RTR_KIND_ENUM	Short Circuit Rotor Kind ENUM
DWL_SIC_ASGN_RSN	SIC Assignment Reason
DWL_SIC_CLSFCTN	SIC Classification
DWL_SNCHRNS_MC_OPERTNG_MD_ENUM	Synchronous Machine Operating Mode ENUM
DWL_SNGL_PHS_KIND_ENUM	Single Phase Kind ENUM
DWL_SRC_ENUM	Source ENUM
DWL_SRC_SYS_TYP	Source System Type
DWL_SRVC_CTGRY	Service Category
DWL_SRVC_TYP	Service Type
DWL_STRCTR_MTRL_KIND_ENUM	Structure Material Kind ENUM
DWL_STRCTR_SPPRT_KIND_ENUM	Structure Support Kind ENUM
DWL_STREETLGHT_LAMP_KIND_ENUM	Streetlight Lamp Kind ENUM
DWL_SVC_CNTRL_MD_ENUM	SVC Control Mode ENUM
DWL_SWTCH_ACTN_KIND_ENUM	Switch Action Kind ENUM
DWL_SWTCH_STATE_ENUM	Switch State ENUM
DWL_SYNCHRNS_MC_KIND_ENUM	Synchronous Machine Kind ENUM
DWL_TAG_ACTN_KIND_ENUM	Tag Action Kind ENUM
DWL_TAX_AUTH	Tax Authority
DWL_TAX_CTGRY	Tax Category
DWL_TIME_OF_USE	Time Of Use
DWL_TRBL_RPT_KIND_ENUM	Trouble Reporting Kind ENUM
DWL_TRGT_TYP	Target Type
DWL_TRNSFRMR_CNTRL_MD_ENUM	Transformer Control Mode ENUM

Table 4–4   (Cont.) Lookup Tables

Table Name	More Information
DWL_TWR_CONSTRCTN_KIND_ENUM	Tower Construction Kind ENUM
DWL_UNDRGRND_STRCTR_KIND_ENUM	Underground Structure Kind ENUM
DWL_UNIT_MLTPLR	Unit Multiplier
DWL_UNIT_MLTPLR_ENUM	Unit Multiplier ENUM
DWL_UNIT_SYMBL_ENUM	Unit Symbol ENUM
DWL_UOM	Unit Of Measure
DWL_USG_PNT_CNCTD_KIND_ENUM	Usage Point Connected Kind ENUM
DWL_UTLTY_CMDTY	Utility Commodity
DWL_VAL_TYP	Value Type
DWL_VEE_EXPTN_TYP	VEE Exception Type
DWL_VEE_GRP	VEE Group
DWL_VEE_RULE	VEE Rule
DWL_VLDTY_ENUM	Validity ENUM
DWL_WEATHR_ALRT	Weather Alert
DWL_WEATHR_FRCST	Weather Forecast
DWL_WEATHR_INFO	Weather Information
DWL_WEATHR_LOC	Weather Location
DWL_WND_GEN_UNIT_KIND_ENUM	Wind Gen Unit Kind ENUM
DWL_WNDNG_CNCTN_ENUM	Winding Connection ENUM
DWL_WR_INSLTN_KIND_ENUM	Wire Insulation Kind ENUM
DWL_WR_MTRL_KIND_ENUM	Wire Material Kind ENUM
DWL_WR_USG_KIND_ENUM	Wire Usage Kind ENUM
DWL_WRK_KIND_ENUM	Work Kind ENUM
DWL_WRK_STAT_KIND_ENUM	Work Status Kind ENUM
DWL_WRK_TASK_KIND_ENUM	Work Task Kind ENUM
DWL_WRK_TIME_SCHL_KIND_ENUM	Work Time Schedule Kind ENUM
DWL_ZN_KIND_ENUM	Zone Kind ENUM

Base Tables

Table 4–5 briefly describes the Base tables in Oracle Utilities Data Model.

Table 4–5   Base Tables

Table Name	More Information
DWB_ACCMLTR	Accumulator
DWB_ACCMLTR_VAL	Accumulator Value
DWB_ACCT_ACCT_CYCL_HIST	Account Accounting Cycle History
DWB_ACCT_BAL_ADJ	Account Balance Adjustment
DWB_ACCT_BAL_BKT	Account Balance Bucket

Table 4–5   (Cont.) Base Tables

Table Name	More Information
DWB_ACCT_BAL_HIST	Account Balance History
DWB_ACCT_BAL_IMPT	Account Balance Impact
DWB_ACCT_BLLG_OCCRNCE	Account Billing Occurrence
DWB_ACCT_CRDT_LMT	Account Credit Limit
DWB_ACCT_DEBT	Account Debt
DWB_ACCT_MGMT_HIST	Account Management History
DWB_ACCT_PYMT	Account Payment
DWB_ACCT_PYMT_BAL_IMPT	Account Payment Balance Impact
DWB_ACCT_PYMT_MTHD_STAT	Account Payment Method Status
DWB_ACCT_RCHRG	Account Recharge
DWB_ACCT_RFND	Account Refund
DWB_ACCT_STAT_HIST	Account Status History
DWB_ACTVTY_REC	Activity Record
DWB_AGRMNT_APRVL	Agreement Approval
DWB_AGRMNT_ASGN	Agreement Assignment
DWB_AGRMNT_STAT	Agreement Status
DWB_ANLG	Analog
DWB_ANLG_VAL	Analog Value
DWB_APNMNT	Appointment
DWB_ASST_APPRSL_HIST	Asset Appraisal History
DWB_ASST_CNDTN_HIST	Asset Condition History
DWB_ATMSPHRC_PRSSR	Atmospheric Pressure
DWB_BLK_LST_HIST	Black List History
DWB_BSNS_INTRACN	Business Interaction
DWB_BSNS_INTRACN_ITEM	Business Interaction Item
DWB_BSNS_INTRACN_ITEM_PRICE	Business Interaction Item Price
DWB_BSNS_INTRACN_RL	Business Interaction Role
DWB_BSNS_INTRACN_STAT_HIST	Business Interaction Status History
DWB_CLOUD_INFO	Cloud Information
DWB_CMND	Command
DWB_CMPGN_MSG_CRTVE	Campaign Message Creative
DWB_CNFGRTN_EVT	Configuration Event
DWB_CNTRL	Control
DWB_COST	Cost
DWB_CRNCY_EXCHNG_RATE	Currency Exchange Rate
DWB_CRVE_DATA	Curve Data
DWB_CUST_ORDR	Customer Order

Table 4–5   (Cont.) Base Tables

Table Name	More Information
DWB_CUST_ORDR_LI	Customer Order Line Item
DWB_DEBT_COLLCTN	Debt Collection
DWB_DEBT_COLLCTN_ASGN	Debt Collection Assignment
DWB_DEBT_COLLCTN_ASGN_BTCH	Debt Collection Assignment Batch
DWB_DOC_STAT	Document Status
DWB_DSCRT	Discrete
DWB_DSCRT_VAL	Discrete Value
DWB_EMP_ACT_LBR_HRLY	Employee Actual Labor Hourly
DWB_EMP_COST	Employee Cost
DWB_EMP_TRNG_REC	Employee Training Record
DWB_END_DVC_CNTRL	End Device Control
DWB_END_DVC_CNTRL_PRMRY_DVC_TMNG	End Device Ctrl Primary Device Timing
DWB_END_DVC_CNTRL_SCNDRY_DVC_TMNG	End Device Ctrl Secondary Device Timing
DWB_END_DVC_EVT	End Device Event
DWB_EVT	Event
DWB_EVT_ACCT	Event Account
DWB_EVT_ASGN	Event Assignment
DWB_EVT_CHAT	Event Chat
DWB_EVT_CHAT_DTL	Event Chat Detail
DWB_EVT_EMP_PYRL	Event Employee Payroll
DWB_EVT_EQPMNT_INSTNC	Event Equipment Instance
DWB_EVT_GEO	Event Geography
DWB_EVT_INVC_DLVRY	Event Invoice Delivery
DWB_EVT_LYLTY_PROG	Event Loyalty Program
DWB_EVT_PRTY_ASGN	Event Party Assignment
DWB_EVT_PRTY_INTRACN	Event Party Interaction
DWB_EVT_PRTY_INTRACN_CALL	Event Party Interaction Call
DWB_EVT_PRTY_INTRACN_EML	Event Party Interaction Email
DWB_EVT_PRTY_INTRACN_ITEM	Event Party Interaction Item
DWB_EVT_PRTY_INTRACN_LTTR	Event Party Interaction Letter
DWB_EVT_PRTY_INTRACN_PRTCPTN	Event Party Interaction Participation
DWB_EVT_PRTY_INTRACN_VST	Event Party Interaction Visit
DWB_EVT_PRTY_PRFL	Event Party Profile
DWB_EVT_STAT	Event Status
DWB_EVT_WEB_RGSTRTN	Event Web Registration
DWB_EVT_WEB_VST	Event Web Visit

Table 4–5   (Cont.) Base Tables

Table Name	More Information
DWB_FLOD_INFO	Flood Information
DWB_FNL_RDNG	Final Reading
DWB_GL_BAL	GL Balance
DWB_GL_JE	GL Journal Entry
DWB_GL_JE_BTCH	GL Journal Entry Batch
DWB_GL_JE_LN	GL Journal Entry Line
DWB_GL_JE_LN_SBLDGR_ASGN	GL JE Line Subledger Assignment
DWB_GL_SBLDGR_JE	GL Subledger Journal Entry
DWB_GL_SBLDGR_JE_LN	GL Subledger Journal Entry Line
DWB_INCDNT	Incident
DWB_INITIAL_RDNG	Initial Reading
DWB_INTRACN_ANSWR_CHOICE	Interaction Answer Choice
DWB_INTRACN_NAVGTN_HIST	Interaction Navigation History
DWB_INTRACN_QUES_RESPN	Interaction Question Response
DWB_INTRACN_TRNSFR_HIST	Interaction Transfer History
DWB_INVC	Invoice
DWB_INVC_ADJ	Invoice Adjustment
DWB_INVC_DISC	Invoice Discount
DWB_INVC_ITEM	Invoice Item
DWB_INVC_ITEM_DTL	Invoice Item Detail
DWB_INVC_ITEM_RLTN	Invoice Item Relationship
DWB_INVC_PYMT_ASGN	Invoice Payment Assignment
DWB_INVC_PYMT_TERM	Invoice Payment Term
DWB_INVC_STAT_HIST	Invoice Status History
DWB_INVC_TAX_ITEM	Invoice Tax Item
DWB_JE_LN_INVC_ITEM_ASGN	Journal Entry Line Invoice Item Assignment
DWB_MSRMNT	Measurement
DWB_MSRMNT_VAL	Measurement Value
DWB_MTR_RDNG	Meter Reading
DWB_OUTG	Outage
DWB_OUTG_REC	Outage Record
DWB_PCHSE_ORDR	Purchase Order
DWB_PCHSE_ORDR_LI	Purchase Order Line Item
DWB_PPTN	Precipitation
DWB_PRICE_EVT	Price Event
DWB_PRMTN_CLSTR_USG	Promotion Cluster Usage
DWB_PRMTN_CNCT_LST_UTLZTN	Promotion Contact List Utilization

Table 4–5 (Cont.) Base Tables

Table Name	More Information
DWB_PRMTN_MGMT_HIST	Promotion Management History
DWB_PRTY_COST_ASGN	Party Cost Assignment
DWB_PRTY_INTRACN_THRD	Party Interaction Thread
DWB_PRTY_INTRCN_THRD_SBRP_ASGN	Party Interaction Thread Subscription Assignment
DWB_PRTY_PRMTN_RESPN	Party Promotion Response
DWB_PRTY_STAT_HIST	Party Status History
DWB_RDNG_QLTY	Reading Quality
DWB_RESRE_ORDR	Resource Order
DWB_RESRE_ORDR_ITEM	Resource Order Item
DWB_SCHL_EVT	Scheduled Event
DWB_SEA_CNDTN	Sea Condition
DWB_SET_PNT	Set Point
DWB_SPOT_TEMP	Spot Temperature
DWB_SRVC_ORDR	Service Order
DWB_SRVC_ORDR_LI	Service Order Line Item
DWB_STRNG_MSRMNT	String Measurement
DWB_STRNG_MSRMNT_VAL	String Measurement Value
DWB_VEE_EXPTN	VEE Exception
DWB_WND_INFO	Wind Information
DWB_WRK_COST_SUMM	Work Cost Summary
Not physicalized	Base Reading

Derived Tables

Table 4–6 Oracle Utilities Data Model Derived Tables

Table Name	More Information
DWD_ACCT_ARRER_MO	Account Arrears Month Drvd
DWD_ACCT_BAL_MO	Account Balance Month Drvd
DWD_ACCT_DEBT_DAY	Account Debt Day Drvd
DWD_ACCT_PYMT_DAY	Account Payment Day Drvd
DWD_ACCT_PYMT_MTHD_STAT_HIST	Account Payment Method Status Hist Drvd
DWD_ACCT_STAT_MO	Account Status Month Drvd
DWD_CUST_MNNG	Customer Mining
DWD_DR_PROG_LD_RDCTN_RGN_DAY	DR Program Load Reduction By Region Day Drvd
DWD_END_DVC_EVT_CUST_DAY	End Device Event By Customer Day Drvd
DWD_END_DVC_EVT_DVC_DAY	End Device Event By Device Day Drvd
DWD_MTR_RDNG_DAY	Meter Reading Day Drvd

Table 4–6   (Cont.) Oracle Utilities Data Model Derived Tables

Table Name	More Information
DWD_MTR_RDNG_HR	Meter Reading Hour Drvd
DWD_OUTG_DAY	Outage By Day Drvd
DWD_OUTG_USG_PNT	Outage By Usage Point Drvd
DWD_RLBLTY_IND_CITY_MO	Reliability Indices By City Month Drvd
DWD_RLBLTY_IND_FEDR_MO	Reliability Indices By Feeder Month Drvd

Aggregate Tables

Table 4–7 briefly describes the Aggregate tables in Oracle Utilities Data Model.

Table 4–7   Aggregate Tables

Table Name	More Information
DWA_END_DVC_EVT_CUST_MO	End Device Event by Customer Month Aggr
DWA_END_DVC_EVT_DVC_MO	End Device Event By Device Month Aggr
DWA_MTR_RDNG_MO	Meter Reading Month Aggr
DWA_MTR_RDNG_TOU_MO	Meter Reading TOU Month Aggr
DWA_OUTG_MO	Outage By Month Aggr

Temporary and Other Tables

Table 4–8 and Table 4–9 briefly describes the temporary and control tables in Oracle Utilities Data Model.

Table 4–8   Temporary Oracle Utilities Data Model Tables

Table Name	Description
DWA_CUST_GROSS_ORDRS_QTR	This entity gives order measures, number of orders and total order amount, in same quarters of consecutive years.
DWA_CUST_NET_ORDRS_QTR	This entity gives order measures, number of orders and total order amount, in consecutive quarters.
DWA_CUST_ORDR_MO	This entity summarizes orders placed by customers at month level aggregation. Using this entity, order measures, number of orders and total order amount, across order status, order type, product, product type dimensions can be computed.
TMP_DWD_CUST_RFMP_SCR_1	
TMP_DWD_CUST_RFMP_SCR_2	

Table 4–9   Control Tables

Table Name	Description
DWC_ETL_PARAMETER	Store ETL parameters such as etl start date and etl end date. For more information, see "Intra-ETL Load Parameters Control Table" on page A-1.
DWC_INTRA_ETL_ACTIVITY	Reports errors at the individual program level. For more information, see "Intra-ETL Monitoring Process Control Tables" on page A-3.

Table 4–9   (Cont.) Control Tables

Table Name	Description
DWC_INTRA_ETL_PROCESS	Reports errors at the whole batch load level. For more information, see "Intra-ETL Monitoring Process Control Tables" on page A-3.
DWC_MESSAGE	"Intra-ETL Monitoring Process Control Tables" on page A-3
DWC_OLAP_ETL_PARAMETER	Reports OLAP ETL parameter. For more information, see "Intra-ETL OLAP Mapping Control Table" on page A-2.

Sequences in Oracle Utilities Data Model

Table 4–10 lists the sequence names in Oracle Utilities Data Model.

Table 4–10   Sequence Name for Oracle Utilities Data Model

Table Name	Sequence Name
DWC_INTRA_ETL_ACTIVITY	INTRA_ETL_ACTIVITY_SEQ
DWC_INTRA_ETL_PROCESS	INTRA_ETL_PROCESS_SEQ
DWR_CUST_SGMNT	CUST_SGMNT_SEQ

Compressed Tables

Table 4–11 lists the Compressed Tables in Oracle Utilities Data Model. Oracle Utilities Data Model uses Database Compression on these tables to save space and load times.

Table 4–11   Compressed Tables

Table Name
DWA_END_DVC_EVT_CUST_MO
DWA_END_DVC_EVT_DVC_MO
DWA_MTR_RDNG_MO
DWA_MTR_RDNG_MO_ACCT
DWA_MTR_RDNG_MO_CUST
DWA_MTR_RDNG_MO_UP
DWA_MTR_RDNG_TOU_MO
DWA_OUTG_MO
DWB_ACCT_BAL_ADJ
DWB_ACCT_BAL_HIST
DWB_ACCT_BLLG_OCCRNCE
DWB_ACCT_CRDT_LMT
DWB_ACCT_PYMT
DWB_ACCT_PYMT_BAL_IMPT
DWB_ACCT_PYMT_MTHD_STAT
DWB_ACCT_RFND
DWB_ACCT_STAT_HIST
DWB_AGRMNT_APRVL

Table 4–11   (Cont.) Compressed Tables

Table Name
DWB_AGRMNT_STAT
DWB_BLK_LST_HIST
DWB_BSNS_INTRACN
DWB_CMPGN_MSG_CRTVE
DWB_COST
DWB_CRNCY_EXCHNG_RATE
DWB_CUST_ORDR
DWB_CUST_ORDR_LI
DWB_DEBT_COLLCTN
DWB_DEBT_COLLCTN_ASGN
DWB_DEBT_COLLCTN_ASGN_BTCH
DWB_EMP_ACT_LBR_HRLY
DWB_EMP_COST
DWB_EMP_TRNG_REC
DWB_END_DVC_EVT
DWB_EVT
DWB_EVT_ACCT
DWB_EVT_ASGN
DWB_EVT_EMP_PYRL
DWB_EVT_EQPMNT_INSTNC
DWB_EVT_GEO
DWB_EVT_INVC_DLVRY
DWB_EVT_LYLTY_PROG
DWB_EVT_PRTY_ASGN
DWB_EVT_PRTY_INTRACN
DWB_EVT_PRTY_INTRACN_CALL
DWB_EVT_PRTY_INTRACN_EML
DWB_EVT_PRTY_INTRACN_LTTR
DWB_EVT_PRTY_INTRACN_VST
DWB_EVT_PRTY_PRFL
DWB_EVT_STAT
DWB_EVT_WEB_RGSTRTN
DWB_EVT_WEB_VST
DWB_FNL_RDNG
DWB_INCDNT
DWB_INITIAL_RDNG
DWB_INTRACN_QUES_RESPN

Table 4–11   (Cont.) Compressed Tables

Table Name
DWB_INVC
DWB_INVC_ADJ
DWB_INVC_DISC
DWB_INVC_ITEM
DWB_INVC_ITEM_DTL
DWB_INVC_PYMT_ASGN
DWB_INVC_STAT_HIST
DWB_MTR_RDNG
DWB_OUTG
DWB_OUTG_REC
DWB_PRICE_EVT
DWB_PRMTN_CLSTR_USG
DWB_PRMTN_CNCT_LST_UTLZTN
DWB_PRMTN_MGMT_HIST
DWB_PRTY_COST_ASGN
DWB_PRTY_INTRACN_THRD
DWB_PRTY_PRMTN_RESPN
DWB_PRTY_STAT_HIST
DWB_RESRE_ORDR
DWB_SRVC_ORDR
DWD_ACCT_ARRER_MO
DWD_ACCT_BAL_MO
DWD_ACCT_DEBT_DAY
DWD_ACCT_PYMT_DAY
DWD_ACCT_PYMT_MTHD_STAT_HIST
DWD_ACCT_STAT_MO
DWD_CUST_DR_PROG_PROFILE
DWD_DR_PROG_LD_RDCTN_RGN_DAY
DWD_END_DVC_EVT_CUST_DAY
DWD_END_DVC_EVT_DVC_DAY
DWD_MTR_RDNG_DAY
DWD_MTR_RDNG_HR
DWD_OUTG_DAY
DWD_OUTG_USG_PNT
DWD_RLBLTY_IND_CITY_MO
DWD_RLBLTY_IND_FEDR_MO
DWR_SRVC_QTY

Oracle Utilities Data Model OLAP Cube MV, Cube View

This section includes information on the following:

- Oracle OLAP Cube Views: Oracle OLAP cube views provide organizations with the ability to both improve the performance and analytic content of SQL-based business intelligence applications. OLAP cube views are relational views of OLAP cubes, dimensions, and hierarchies that reveal the full content of cubes and dimensions.

- Cube MV (Materialized Cube Views): Cube-organized materialized views, introduced, in Oracle Database 11*g*, play the same role as table-based materialized views. That is, a summary management solution that is transparent to the querying application. Like table-based materialized views, the application queries the detail tables and the database automatically rewrites the query to access summary data in the materialized view. In the case of cube-organized materialized views, the data is managed in the cube rather than a table.

Table 4–12 shows the cube materialized views in `oudm_sys` schema.

Table 4–12   OLAP Cube Materialized Views in oudm_sys Schema

Cube Materialized View Name	OLAP Object Name	OLAP Object Type	More Information
CB$ACM	ACM	Cube	

Table 4–13 shows the OLAP cube views in `oudm_sys` schema.

Table 4–13   OLAP Cube Views in oudm_sys schema

Cube View Name	OLAP Object Name	OLAP Object Type	More Information
ORG_VIEW	ORG	Dimension	
PMTYP_HPMTYP_VIEW	PMTYP_HPMTYP	Hierarchy	

5

Oracle Utilities Data Model Logical to Physical Mapping

This chapter provides a table listing the Oracle Utilities Data Model entities in the logical data model, and the physical database tables or views to which the logical entities have been implemented or "physicalized".

This chapter includes the following section:

- Overview of Mapping and Inheritance in Oracle Utilities Data Model
- Logical to Physical Mappings for Oracle Utilities Data Model

Overview of Mapping and Inheritance in Oracle Utilities Data Model

The physical manifestation of the logical data model into database tables and relationships is not necessarily a pure 1:1 mapping from logical entities to physical tables. Physically, Oracle Utilities Data Model is setup for best performance, and minimal data disk storage, leveraging the database options and consulting best practices wherever possible. The foundation layer follows the Third normal Form rule ("the key, only the key and nothing but the key") while the analytics layer is setup for optimal reporting performance. Partitions, Indexes, primary and foreign keys, constraints, and Materialized Views are used to map the logical model in the best possible way by default.

The complete Oracle Utilities Data Model model is installed into the database schema:

- `OUDM_SYS`: Schema includes the Oracle Utilities Data Model tables from the foundation and analytics layers, including the OLAP cubes. This also includes the mining model and related objects like source tables, model building database packages, target tables and the specific views.

Inheritance with Subtypes and SuperEntities

Some logical entities are sub-types of super-entities. Physically, there are different ways to realize this. The decision on how to materialize the logical entity is based on consulting experience.

Logical to Physical Mappings for Oracle Utilities Data Model

Table 5–1 and Table 5–2 list the Oracle Utilities Data Model entities in the logical data model, and the physical database tables or views to which the logical entities have been implemented or "physicalized".

Table 5–1   Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
AC Line Segment	DWR_AC_LN_SGMNT
AC Line Segment Phase	DWR_AC_LN_SGMNT_PHS
Acceptance Test	DWR_ACPT_TEST
Account	DWR_ACCT
Account Accounting Cycle History	DWB_ACCT_ACCT_CYCL_HIST
Account Adjustment Reason	DWL_ACCT_ADJ_RSN
Account Agreement Relationship	DWR_ACCT_AGRMNT_RLTN
Account Arrears Month Drvd	DWD_ACCT_ARRER_MO
Account Assignment	DWR_ACCT_ASGN
Account Assignment Reason	DWL_ACCT_ASGN_RSN
Account Assignment Type	DWL_ACCT_ASGN_TYP
Account Balance Adjustment	DWB_ACCT_BAL_ADJ
Account Balance Adjustment Type	DWL_ACCT_BAL_ADJ_TYP
Account Balance Bucket	DWB_ACCT_BAL_BKT
Account Balance Group	DWR_ACCT_BAL_GRP
Account Balance History	DWB_ACCT_BAL_HIST
Account Balance Impact	DWB_ACCT_BAL_IMPT
Account Balance Month Drvd	DWD_ACCT_BAL_MO
Account Balance Type	DWL_ACCT_BAL_TYP
Account Billing Cycle History	DWR_ACCT_BLLG_CYCL_HIST
Account Billing Frequency History	DWR_ACCT_BLLG_FREQNCY_HIST
Account Billing Occurrence	DWB_ACCT_BLLG_OCCRNCE
Account Billing Period History	DWR_ACCT_BLLG_PRD_HIST
Account Business Interaction Role	DWR_ACCT_BSNS_INTRACN_RL
Account Credit Limit	DWB_ACCT_CRDT_LMT
Account Debt	DWB_ACCT_DEBT
Account Debt Day Drvd	DWD_ACCT_DEBT_DAY
Account Event Type	DWL_ACCT_EVT_TYP
Account Management History	DWB_ACCT_MGMT_HIST
Account Payment	DWB_ACCT_PYMT
Account Payment Balance Impact	DWB_ACCT_PYMT_BAL_IMPT
Account Payment Day Drvd	DWD_ACCT_PYMT_DAY
Account Payment Method Status	DWB_ACCT_PYMT_MTHD_STAT
Account Payment Method Status Hist Drvd	DWD_ACCT_PYMT_MTHD_STAT_HIST
Account Payment Method Status Reason	DWL_ACCT_PYMT_MTHD_STAT_RSN
Account Payment Method Status Type	DWL_ACCT_PYMT_MTHD_STAT_TYP
Account Preferred Invoice Delivery	DWR_ACCT_PREF_INVC_DLVRY

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Account Preferred Payment Method	DWR_ACCT_PREF_PYMT_MTHD
Account Profile	DWR_ACCT_PRFL
Account Recharge	DWB_ACCT_RCHRG
Account Refund	DWB_ACCT_RFND
Account Refund Reason	DWL_ACCT_RFND_RSN
Account Role Type	DWL_ACCT_RL_TYP
Account Segment	DWR_ACCT_SGMNT
Account Segment Assignment History	DWR_ACCT_SGMNT_ASGN_HIST
Account Segmentation Model	DWR_ACCT_SGMNT_MDL
Account Status History	DWB_ACCT_STAT_HIST
Account Status Month Drvd	DWD_ACCT_STAT_MO
Account Status Reason	DWL_ACCT_STAT_RSN
Account Status Type	DWL_ACCT_STAT_TYP
Account Type	DWL_ACCT_TYP
Accounting Cycle	DWR_ACCT_CYCL
Accounting Item Category	DWL_ACCT_ITEM_CTGRY
Accumulator	DWB_ACCMLTR
Accumulator Limit	DWR_ACCMLTR_LMT
Accumulator Limit Set	DWR_ACCMLTR_LMT_SET
Accumulator Limit Set Assignment	DWR_ACCMLTR_LMT_SET_ASGN
Accumulator Value	DWB_ACCMLTR_VAL
ACDC Terminal	Not physicalized
Active Power Limit	DWR_ACTV_POWR_LMT
Activity Record	DWB_ACTVTY_REC
Address Location	DWR_ADDR_LOC
Agree Item Pricing Struct Assignment	DWR_AGRMNT_ITEM_PRCNG_STRUCT_ASGN
Agreement	DWR_AGRMNT
Agreement Approval	DWB_AGRMNT_APRVL
Agreement Assignment	DWB_AGRMNT_ASGN
Agreement Assignment Reason	DWL_AGRMNT_ASGN_RSN
Agreement Assignment Type	DWL_AGRMNT_ASGN_TYP
Agreement Document	DWR_AGRMNT_DOC
Agreement Item	DWR_AGRMNT_ITEM
Agreement Status	DWB_AGRMNT_STAT
Agreement Status Type	DWL_AGRMNT_STAT_TYP
Agreement Type	DWL_AGRMNT_TYP
Agreement Usage Point Assignment	DWR_AGRMNT_USG_PNT_ASGN

Table 5–1 (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Air Compressor	DWR_AIR_CMPRSR
AMI Billing Ready Kind ENUM	DWL_AMI_BLLG_RDY_KIND_ENUM
Analog	DWB_ANLG
Analog Limit	DWR_ANLG_LMT
Analog Limit Set	DWR_ANLG_LMT_SET
Analog Limit Set Assignment	DWR_ANLG_LMT_SET_ASGN
Analog Value	DWB_ANLG_VAL
Anchor Kind ENUM	DWL_ANCHOR_KIND_ENUM
ANZSIC Classification	DWR_ANZSC_CLSFCTN
Apparent Power Limit	DWR_APRNT_POWR_LMT
Appointment	DWB_APNMNT
Appointment Type	DWL_APNMNT_TYP
Asset	DWR_ASST
Asset Activity Record Assignment	DWR_ASST_ACTVTY_REC_ASGN
Asset Appraisal History	DWB_ASST_APPRSL_HIST
Asset Condition History	DWB_ASST_CNDTN_HIST
Asset Container	Not physicalized
Asset Function	DWR_ASST_FNCTN
Asset Info	DWR_ASST_INFO
Asset Location	DWR_ASST_LOC
Asset Model	DWR_ASST_MDL
Asset Model Catalog	DWR_ASST_MDL_CTLG
Asset Model Catalog Item	DWR_ASST_MDL_CTLG_ITEM
Asset Model Usage Kind ENUM	DWL_ASST_MDL_USG_KIND_ENUM
Asset Organization Role	DWR_ASST_ORG_RL
Asset Organization Role Assignment	DWR_ASST_ORG_RL_ASGN
Asset Owner	DWR_ASST_OWNR
Asset PSR Assignment	DWR_ASST_PSR_ASGN
Asset Status	DWR_ASST_STAT
Asset Type	DWL_ASST_TYP
Asset User	DWR_ASST_USER
Assignment	Not physicalized
Atmospheric Pressure	DWB_ATMSPHRC_PRSSR
Bank	DWR_BNK
Bank Direct Debit Channel	DWR_BNK_DRCT_DEBT_CHNL
Baring Reason	DWL_BARNG_RSN
Base Reading	Not physicalized

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Base Voltage	DWR_BASE_VLTG
Base Work	Not physicalized
Basic Interval Schedule	Not physicalized
Billing Cycle	DWR_BLLG_CYCL
Billing Frequency	DWR_BLLG_FREQNCY
Billing Occurrence Type	DWL_BLLG_OCCRNCE_TYP
Billing Period	DWL_BLLG_PRD
Black List History	DWB_BLK_LST_HIST
Breaker	DWR_BRKR
Busbar Section	DWR_BSBR_SECTN
Busbar Section	DWR_BSBR_SECTN_INFO
Bushing	DWR_BSHNG
Bushing Insulation Kind ENUM	DWL_BSHNG_INSLTN_KIND_ENUM
Business Case	DWR_BSNS_CASE
Business Half Month	DWR_BSNS_HLF_MO
Business Half Year	DWR_BSNS_HLF_YR
Business Interaction	DWB_BSNS_INTRACN
Business Interaction Assignment	DWR_BSNS_INTRACN_ASGN
Business Interaction Assignment Type	DWL_BSNS_INTRACN_ASGN_TYP
Business Interaction Item	DWB_BSNS_INTRACN_ITEM
Business Interaction Item Price	DWB_BSNS_INTRACN_ITEM_PRICE
Business Interaction Location Assignment	DWR_BSNS_INTRACN_LOC_ASGN
Business Interaction Role	DWB_BSNS_INTRACN_RL
Business Interaction Status History	DWB_BSNS_INTRACN_STAT_HIST
Business Interaction Status Reason	DWL_BSNS_INTRACN_STAT_RSN
Business Interaction Status Type	DWL_BSNS_INTRACN_STAT_TYP
Business Interaction Type	DWL_BSNS_INTRACN_TYP
Business Interaction Version	DWR_BSNS_INTRACN_VRSN
Business Legal Status	DWL_BSNS_LEGAL_STAT
Business Month	DWR_BSNS_MO
Business Quarter	DWR_BSNS_QTR
Business Unit Job Role	DWR_BSNS_UNIT_JB_RL
Business Week	DWR_BSNS_WK
Business Year	DWR_BSNS_YR
CAES Plant	DWR_CAES_PLNT
Calendar Half Month	DWR_CLNDR_HLF_MO
Calendar Half Year	DWR_CLNDR_HLF_YR

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Calendar Month	DWR_CLNDR_MO
Calendar Quarter	DWR_CLNDR_QTR
Calendar Week	DWR_CLNDR_WK
Calendar Year	DWR_CLNDR_YR
Call Center	DWR_CALL_CNTR
Call Center Agent	DWR_CALL_CNTR_AGNT
Call Center Case Sub Type	DWL_CALL_CNTR_CASE_SB_TYP
Call Center Case Title	DWL_CALL_CNTR_CASE_TTL
Call Center Service Capability	DWR_CALL_CNTR_SRVC_CAPBLTY
Campaign	DWR_CMPGN
Campaign Channel	DWR_CMPGN_CHNL
Campaign Channel Assignment	DWR_CMPGN_CHNL_ASGN
Campaign Channel Type	DWL_CMPGN_CHNL_TYP
Campaign Characteristic	DWR_CMPGN_CHTRSTC
Campaign Characteristic Value	DWR_CMPGN_CHTRSTC_VAL
Campaign Document	DWR_CMPGN_DOC
Campaign Management History	DWR_CMPGN_MGMT_HIST
Campaign Message	DWR_CMPGN_MSG
Campaign Message Creative	DWB_CMPGN_MSG_CRTVE
Campaign Message Depiction	DWR_CMPGN_MSG_DPCT
Campaign Relationship	DWR_CMPGN_RLTN
Campaign Status	DWL_CMPGN_STAT
Campaign Term Value	DWR_CMPGN_TERM_VAL
Campaign Type	DWL_CMPGN_TYP
Channel	DWR_CHNL
Channel Type	DWL_CHNL_TYP
Charge Kind ENUM	DWL_CHRG_KIND_ENUM
Clamp	DWR_CLMP
Clearance Action	DWR_CLRNCE_ACTN
Clearance Action Kind ENUM	DWL_CLRNCE_ACTN_KIND_ENUM
Clearance Document	DWR_CLRNCE_DOC
Cloud Information	DWB_CLOUD_INFO
Cogeneration Plant	DWR_CGNRTN_PLNT
Collection Agency	DWR_COLLCTN_AGNCY
Com Direction Kind ENUM	DWL_COMUNICTN_DRCTN_KIND_ENUM
Com Function	DWR_COMUNICTN_FNCTN
Com Media	DWR_COMUNICTN_MEDIA

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Com Module	DWR_COMUNICTN_MODULE
Com Technology Kind ENUM	DWL_COMUNICTN_TCHNLGY_KIND_ENUM
Combined Cycle Plant	DWR_CMBND_CYCL_PLNT
Command	DWB_CMND
Communication Link	DWR_COMUNICTN_LNK
Compatible Unit	DWR_CMPTBL_UNIT
Compatible Unit Procedure Assignment	DWR_CMPTBL_UNIT_PROC_ASGN
Composite Switch Info	DWR_CMPST_SWTCH_INFO
Composite Switch Kind ENUM	DWL_CMPST_SWTCH_KIND_ENUM
Conducting Eqp Protection Eqp Assignment	DWR_CNDTNG_EQP_PRTCTN_EQP_ASGN
Conducting Equipment	Not physicalized
Conductor	DWR_CNDCTR
Configuration Event	DWB_CNFGRTN_EVT
Conform Load	DWR_CNFRM_LD
Conform Load Group	DWR_CNFRM_LD_GRP
Conform Load Schedule	DWR_CNFRM_LD_SCHL
Connect Disconnect Function	DWR_CONCT_DSCNCT_FNCTN
Connectivity Node	DWR_CONCTVT_ND
Connectivity Node Container	DWR_CONCTVT_ND_CONTNR
Connector	DWR_CNCTR
Consumption Tariff Interval	DWR_CNSMPTN_TRF_INTRVL
Consumption Tier	DWR_CNSMPTN_TIER
Contact List	DWR_CNCT_LST
Contact List Change Reason	DWL_CNCT_LST_CHNG_RSN
Contact List Recurrence Type	DWL_CNCT_LST_RCRNC_TYP
Contact Roles	DWL_CNCT_RLS
Control	DWB_CNTRL
Control Type	DWL_CNTRL_TYP
Coolant Type ENUM	DWL_COLNT_TYP_ENUM
Corporate Standard Kind ENUM	DWL_CRPRT_STNDRD_KIND_ENUM
Cost	DWB_COST
Cost Center	DWR_COST_CNTR
Cost Reason	DWL_COST_RSN
Cost Subtype	DWL_COST_SB_TYP
Cost Type	DWL_COST_TYP
Credit Category	DWR_CRDT_CTGRY
Credit Score Provider	DWR_CRDT_SCR_PRVDR

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Crew	DWR_CREW
Crew Member	DWR_CREW_MBR
Crew Type	DWR_CREW_TYP
Crew Work Task Assignment	DWR_CREW_WRK_TASK_ASGN
Critical Peak Period	DWR_CRTCL_PK_PRD
Currency	DWL_CRNCY
Currency ENUM	DWL_CRNCY_ENUM
Currency Exchange Rate	DWB_CRNCY_EXCHNG_RATE
Currency Geography Entity Assignment	DWR_CRNCY_GEO_ENT_ASGN
Current Limit	DWR_CURR_LMT
Current Relay	DWR_CURR_RLY
Current Transformer Info	DWR_CURR_TRNSFRMR_INFO
Curve	DWR_CRVE
Curve Data	DWB_CRVE_DATA
Curve Style ENUM	DWL_CRVE_STYLE_ENUM
Customer	DWR_CUST
Customer Account Assignment	DWR_CUST_ACCT_ASGN
Customer Document	DWR_CUST_DOC
Customer Facing Service	DWR_CUST_FCNG_SRVC
Customer Group	DWL_CUST_GRP
Customer Group Assignment	DWR_CUST_GRP_ASGN
Customer Individual	DWR_CUST_INDVL
Customer Kind ENUM	DWL_CUST_KIND_ENUM
Customer Mining	DWD_CUST_MNNG
Customer Occasion	DWR_CUST_OCCSN
Customer Occasion Type	DWL_CUST_OCCSN_TYP
Customer Order	DWB_CUST_ORDR
Customer Order Document	DWR_CUST_ORDR_DOC
Customer Order Line Item	DWB_CUST_ORDR_LI
Customer Organization	DWR_CUST_ORG
Customer Outage Notification Assignment	DWR_CUST_OUTG_NOTFCTN_ASGN
Customer Restricted Info	DWR_CUST_RSTRCT_INFO
Customer Revenue Band	DWL_CUST_RVN_BND
Customer Revenue Band Assignment	DWR_CUST_RVN_BND_ASGN
Customer Score	DWR_CUST_SCR
Customer Segment	DWR_CUST_SGMNT
Customer Segmentation Model	DWR_CUST_SGMNT_MDL

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Customer SIC Assignment	DWR_CUST_SIC_ASGN
Customer Source	DWR_CUST_SRC
Customer Type	DWL_CUST_TYP
Customer Work Assignment	DWR_CUST_WRK_ASGN
Cut	DWR_CUT
Cut Action	DWR_CUT_ACTN
Cut Jumper Action Kind ENUM	DWL_CUT_JMPR_ACTN_KIND_ENUM
Day	DWR_DAY
Day Type	DWL_DAY_TYP
DC Conducting Equipment	DWR_DC_CNDCTNG_EQPMNT
DC Line Segment	DWR_DC_LN_SGMNT
Debt Aging Band	DWL_DEBT_AGNG_BND
Debt Collection	DWB_DEBT_COLLCTN
Debt Collection Assignment	DWB_DEBT_COLLCTN_ASGN
Debt Collection Assignment Batch	DWB_DEBT_COLLCTN_ASGN_BTCH
Demand Response Program	DWR_DEMAND_RESPN_PROG
Demand Tariff Interval	DWR_DEMAND_TRF_INTRVL
Demographic Characteristic	DWR_DEMOG_CHTRSTC
Demography Attribute	DWR_DEMOG_ATRIB
Demography Group	DWR_DEMOG_GRP
Derived Value	DWR_DRVD_VAL
Direct Debit Status Reason	DWL_DRCT_DEBT_STAT_RSN
Disconnector	DWR_DSCNCTR
Discrete	DWB_DSCRT
Discrete Value	DWB_DSCRT_VAL
Document	Not physicalized
Document Status	DWB_DOC_STAT
Document Type	DWL_DOC_TYP
Document Type Group	DWL_DOC_TYP_GRP
Document Type Group Assignment	DWR_DOC_TYP_GRP_ASGN
DR Prog End Device Grp Assignment	DWR_DR_PROG_END_DVC_GRP_ASGN
DR Program Agreement Assignment	DWR_DR_PROG_AGRMNT_ASGN
DR Program Load Reduction By Region Day Drvd	DWD_DR_PROG_LD_RDCTN_RGN_DAY
Call Center Case Type	DWL_CALL_CNTR_CASE_TYP
Education	DWL_EDU
Electricity Service	DWR_ELCTRCTY_SRVC
Employee	DWR_EMP

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Employee Actual Labor Hourly	DWB_EMP_ACT_LBR_HRLY
Employee Cost	DWB_EMP_COST
Employee Designation	DWL_EMP_DESIG
Employee Job Role Assignment	DWR_EMP_JB_RL_ASGN
Employee Job Role Type	DWL_EMP_JB_RL_TYP
Employee Language Capability	DWR_EMP_LANG_CAPBLTY
Employee Restricted Info	DWR_EMP_RSTRCT_INFO
Employee Schedule	DWR_EMP_SCHL
Employee Training Record	DWB_EMP_TRNG_REC
Employee Type	DWL_EMP_TYP
End Device	DWR_END_DVC
End Device Capability	DWR_END_DVC_CAPBLTY
End Device Control	DWB_END_DVC_CNTRL
End Device Control Type	DWR_END_DVC_CNTRL_TYP
End Device Ctrl Primary Device Timing	DWB_END_DVC_CNTRL_PRMRY_DVC_TMNG
End Device Ctrl Secondary Device Timing	DWB_END_DVC_CNTRL_SCNDRY_DVC_TMNG
End Device Domain	DWL_END_DVC_DOMAIN
End Device End Device Ctrl Assignment	DWR_END_DVC_END_DVC_CTRL_ASGN
End Device End Device Grp Assignment	DWR_END_DVC_END_DVC_GRP_ASGN
End Device Event	DWB_END_DVC_EVT
End Device Event By Customer Day Drvd	DWD_END_DVC_EVT_CUST_DAY
End Device Event by Customer Month Aggr	DWA_END_DVC_EVT_CUST_MO
End Device Event By Device Day Drvd	DWD_END_DVC_EVT_DVC_DAY
End Device Event By Device Month Aggr	DWA_END_DVC_EVT_DVC_MO
End Device Event Detail	DWR_END_DVC_EVT_DTL
End Device Event Or Action	DWL_END_DVC_EVT_OR_ACTN
End Device Event Type	DWL_END_DVC_EVT_TYP
End Device Function	DWR_END_DVC_FNCTN
End Device Function Kind ENUM	DWL_END_DVC_FNCTN_KIND_ENUM
End Device Group	DWR_END_DVC_GRP
End Device Grp End Device Ctrl Assignment	DWR_END_DVC_GP_END_DVC_CTL_ASN
End Device Info	DWR_END_DVC_INFO
End Device Sub Domain	DWL_END_DVC_SB_DOMAIN
End Device Type	DWL_END_DVC_TYP
Energy Area	DWR_ENRGY_AREA
Energy Consumer	DWR_ENRGY_CONSMR
Energy Consumer Phase	DWR_ENRGY_CONSMR_PHS

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Energy Flow Direction	DWL_ENRGY_FLOW_DRCTN
Equipment	Not physicalized
Equipment Container	DWR_EQPMNT_CONTNR
Event	DWB_EVT
Event Account	DWB_EVT_ACCT
Event Assignment	DWB_EVT_ASGN
Event Assignment Reason	DWL_EVT_ASGN_RSN
Event Assignment Type	DWL_EVT_ASGN_TYP
Event Category	DWL_EVT_CTGRY
Event Chat	DWB_EVT_CHAT
Event Chat Detail	DWB_EVT_CHAT_DTL
Event Class	DWL_EVT_CLASS
Event Employee Payroll	DWB_EVT_EMP_PYRL
Event Equipment Instance	DWB_EVT_EQPMNT_INSTNC
Event Geography	DWB_EVT_GEO
Event Invoice Delivery	DWB_EVT_INVC_DLVRY
Event Loyalty Program	DWB_EVT_LYLTY_PROG
Event Party Assignment	DWB_EVT_PRTY_ASGN
Event Party Interaction	DWB_EVT_PRTY_INTRACN
Event Party Interaction Call	DWB_EVT_PRTY_INTRACN_CALL
Event Party Interaction Email	DWB_EVT_PRTY_INTRACN_EML
Event Party Interaction Item	DWB_EVT_PRTY_INTRACN_ITEM
Event Party Interaction Letter	DWB_EVT_PRTY_INTRACN_LTTR
Event Party Interaction Participation	DWB_EVT_PRTY_INTRACN_PRTCPTN
Event Party Interaction Visit	DWB_EVT_PRTY_INTRACN_VST
Event Party Profile	DWB_EVT_PRTY_PRFL
Event Party Role	DWL_EVT_PRTY_RL
Event Reason	DWL_EVT_RSN
Event Reason Category	DWL_EVT_RSN_CTGRY
Event Resolution	DWL_EVT_RSLTN
Event Response Reason	DWL_EVT_RESPN_RSN
Event Result	DWL_EVT_RSLT
Event Status	DWB_EVT_STAT
Event Status Reason	DWL_EVT_STAT_RSN
Event Status Type	DWL_EVT_STAT_TYP
Event Type	DWL_EVT_TYP
Event Web Registration	DWB_EVT_WEB_RGSTRTN

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Event Web Visit	DWB_EVT_WEB_VST
External Credit Profile	DWR_EXTRNL_CRDT_PRFL
External Credit Profile Assignment	DWR_EXTRNL_CRDT_PRFL_ASGN
External Information Source	DWR_EXTRNL_INFO_SRC
External Organization Type	DWL_EXTRNL_ORG_TYP
FACTS Device	DWR_FCT_DVC
FACTS Device Kind ENUM	DWL_FCT_DVC_KIND_ENUM
Fault	DWR_FLT
Fault Indicator Info	DWR_FLT_IND_INFO
Fault Indicator Reset Kind ENUM	DWL_FLT_IND_RESET_KIND_ENUM
Feeder	DWR_FEDR
Feeder Substation Assignment	DWR_FEDR_SBSTN_ASGN
Final Reading	DWB_FNL_RDNG
Financial Info	DWR_FINCL_INFO
Fiscal Quarter	DWR_FSCL_QTR
Fiscal Year	DWR_FSCL_YR
Flexible Characteristic	DWR_FXBLE_CHTRSTC
Flexible Characteristic Value	Not physicalized
Flood Information	DWB_FLOD_INFO
Frequency Converter	DWR_FREQNCY_CONVRTR
Fuse	DWR_FUSE
Gate Input Pin	DWR_GATE_INPUT_PIN
Gen Unit Op Cost Curve	DWR_GEN_UNIT_OP_COST_CRVE
Gen Unit Op Schedule	DWR_GEN_UNIT_OP_SCHL
Gender	DWL_GNDR
Generating Unit	DWR_GNRTNG_UNIT
Generating Unit Rotating Machine Assignment	DWR_GNRTNG_UNIT_ROTTNG_MC_ASGN
Generator Control Mode ENUM	DWL_GNRTR_CNTRL_MD_ENUM
Generator Control Source ENUM	DWL_GNRTR_CNTRL_SRC_ENUM
Generator Operating Mode ENUM	DWL_GNRTR_OPERTNG_MD_ENUM
Generic Action	DWR_GNRC_ACTN
Geography Building	DWR_GEO_BLDG
Geography City	DWR_GEO_CITY
Geography Complex	DWR_GEO_CMPLX
Geography Country	DWR_GEO_CNTRY
Geography County	DWR_GEO_CNTY
Geography Demographic Group	DWR_GEO_DEMOG_GRP

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Geography Demography Attribute	DWR_GEO_DEMOG_ATRIB
Geography Demography Value	DWR_GEO_DEMOG_VAL
Geography Entity	DWR_GEO_ENT
Geography Entity Assignment	DWR_GEO_ENT_ASGN
Geography Entity Hier Level Assignment	DWR_GEO_ENT_HRCHY_LVL_ASGN
Geography Hierarchy	DWR_GEO_HRCHY
Geography Hierarchy Level	DWR_GEO_HRCHY_LVL
Geography Hierarchy Level Assignment	DWR_GEO_HRCHY_LVL_ASGN
Geography Level	DWR_GEO_LVL
Geography Level Attribute	DWR_GEO_LVL_ATRIB
Geography Level Attribute Value	DWR_GEO_LVL_ATRIB_VAL
Geography Region	DWR_GEO_RGN
Geography State	DWR_GEO_STATE
Geography Street	DWR_GEO_STREET
Geography Sub Region	DWR_GEO_SB_RGN
Geography World	DWR_GEO_WORLD
GL Account	DWR_GL_ACCT
GL Account Assignment	DWR_GL_ACCT_ASGN
GL Account Segment	DWR_GL_ACCT_SGMNT
GL Account Type	DWL_GL_ACCT_TYP
GL Balance	DWB_GL_BAL
GL Cost Center Segment	DWR_GL_COST_CNTR_SGMNT
GL JE Line Subledger Assignment	DWB_GL_JE_LN_SBLDGR_ASGN
GL Journal Entry	DWB_GL_JE
GL Journal Entry Batch	DWB_GL_JE_BTCH
GL Journal Entry Category	DWL_GL_JE_CTGRY
GL Journal Entry Line	DWB_GL_JE_LN
GL Ledger	DWR_GL_LDGR
GL Ledger Account Assignment	DWR_GL_LDGR_ACCT_ASGN
GL Org Bsns Unit Segment	DWR_GL_ORG_BSNS_UNIT_SGMNT
GL Period	DWR_GL_PRD
GL Product Specification Segment	DWR_GL_PROD_SPECFTN_SGMNT
GL Project Segment	DWR_GL_PROJ_SGMNT
GL Segment	DWR_GL_SGMNT
GL Segment Type	DWL_GL_SGMNT_TYP
GL Subledger	DWR_GL_SBLDGR
GL Subledger Journal Entry	DWB_GL_SBLDGR_JE

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
GL Subledger Journal Entry Line	DWB_GL_SBLDGR_JE_LN
Gross To Net Active Power Curve	DWR_GRS_TO_NET_ACTV_POWR_CRVE
Ground Disconnector	DWR_GRND_DSCNCTR
Ground Switch	DWR_GRND_SWTCH
Head End System	DWR_HEAD_END_SYS
Hour	DWR_HR
Hour Time of Use Assignment	DWR_HR_TIME_OF_USE_ASGN
Household	DWR_HH
Hydro Energy Conversion Kind ENUM	DWL_HYDR_ENRG_CNVRSN_KIND_ENUM
Hydro Generating Unit	DWR_HYDRO_GNRTNG_UNIT
Identified Object	Not physicalized
Incident	DWB_INCDNT
Incident Work Assignment	DWR_INCDNT_WRK_ASGN
Individual Demography Value	DWR_INDVL_DEMOG_VAL
Initial Reading	DWB_INITIAL_RDNG
Initiative Result Type	DWL_INTTV_RSLT_TYP
Initiative Type	DWL_INTTV_TYP
Installment Agreement	DWR_INSTLMNT_AGRMNT
Interaction Answer Choice	DWB_INTRACN_ANSWR_CHOICE
Interaction Channel	DWR_INTRACN_CHNL
Interaction Direction	DWL_INTRACN_DRCTN
Interaction Navigation History	DWB_INTRACN_NAVGTN_HIST
Interaction Navigation Item	DWR_INTRACN_NAVGTN_ITEM
Interaction Priority Type	DWL_INTRACN_PRIORITY_TYP
Interaction Question Response	DWB_INTRACN_QUES_RESPN
Interaction Reason	DWL_INTRACN_RSN
Interaction Result Type	DWL_INTRACN_RSLT_TYP
Interaction Status	DWL_INTRACN_STAT
Interaction Transfer History	DWB_INTRACN_TRNSFR_HIST
Interaction Transfer Reason	DWL_INTRACN_TRNSFR_RSN
Interaction Type	DWL_INTRACN_TYP
Interharmonics	DWL_INTRHRMNCS
Invoice	DWB_INVC
Invoice Adjustment	DWB_INVC_ADJ
Invoice Adjustment Quota	DWR_INVC_ADJ_QTA
Invoice Delivery Format	DWL_INVC_DLVRY_FRMT
Invoice Delivery Type	DWL_INVC_DLVRY_TYP

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Invoice Discount	DWB_INVC_DISC
Invoice Discount Reason	DWL_INVC_DISC_RSN
Invoice Discount Type	DWL_INVC_DISC_TYP
Invoice Item	DWB_INVC_ITEM
Invoice Item Detail	DWB_INVC_ITEM_DTL
Invoice Item Detail Type	DWL_INVC_ITEM_DTL_TYP
Invoice Item Relationship	DWB_INVC_ITEM_RLTN
Invoice Item Type	DWL_INVC_ITEM_TYP
Invoice Payment Assignment	DWB_INVC_PYMT_ASGN
Invoice Payment Term	DWB_INVC_PYMT_TERM
Invoice Payment Term Type	DWL_INVC_PYMT_TERM_TYP
Invoice Status History	DWB_INVC_STAT_HIST
Invoice Status Type	DWL_INVC_STAT_TYP
Invoice Tax Item	DWB_INVC_TAX_ITEM
Invoice Type	DWL_INVC_TYP
Irregular Interval Schedule	DWR_IRGLR_INTRVL_SCHL
Irregular Time Point	DWR_IRGLR_TIME_PNT
IVR Menu Item	DWL_IVR_MENU_ITEM
Job	DWR_JB
Job Role	DWR_JB_RL
Joint	DWR_JNT
Joint Configuration Kind ENUM	DWL_JNT_CNFGRTN_KIND_ENUM
Joint Fill Kind ENUM	DWL_JNT_FILL_KIND_ENUM
Journal Entry Line Invoice Item Assignment	DWB_JE_LN_INVC_ITEM_ASGN
Jumper	DWR_JMPR
Jumper Action	DWR_JMPR_ACTN
Language	DWL_LANG
Letter Type	DWL_LTTR_TYP
Lifecycle Date	DWR_LIFE_CYCL_DT
Limit	DWR_LMT
Limit Set	DWR_LMT_SET
Line	DWR_LN
Load Area	DWR_LD_AREA
Load Break Switch	DWR_LD_BRK_SWTCH
Load Group	DWR_LD_GRP
Load Response Characteristic	DWR_LD_RESPN_CHTRSTC
Location	DWR_LOC

Table 5–1   (Cont.) Entity Mapping Table: Logical to Physical Mapping A to M

Entity	Table or View
Loyalty Program	DWR_LYLTY_PROG
Loyalty Program Event Type	DWL_LYLTY_PROG_EVT_TYP
Maintainer	DWR_MNTNR
Manufacturer	DWR_MNFCTR
Marital Status	DWL_MRTL_STAT
Market Area	DWR_MKT_AREA
Market Area Level	DWR_MKT_AREA_LVL
Market Plan Document Requirement	DWR_MKT_PLN_DOC_REQRMNT
Market Role	DWR_MKT_RL
Market Segment	DWR_MKT_SGMNT
Market Segment Inclusion	DWR_MKT_SGMNT_INCLSN
Measurement	DWB_MSRMNT
Measurement Kind	DWL_MSRMNT_KIND
Measurement Location	DWR_MSRMNT_LOC
Measurement Value	DWB_MSRMNT_VAL
Measurement Value Quality	DWR_MSRMNT_VAL_QLTY
Measurement Value Source	DWR_MSRMNT_VAL_SRC
Media Object	DWR_MEDIA_OBJ
Media Object Assignment	DWR_MEDIA_OBJ_ASGN
Media Object Type	DWL_MEDIA_OBJ_TYP
Meter	DWR_MTR
Meter Identifier	DWR_MTR_IDNT
Meter Reading	DWB_MTR_RDNG
Meter Reading Day Drvd	DWD_MTR_RDNG_DAY
Meter Reading Hour Drvd	DWD_MTR_RDNG_HR
Meter Reading Month Aggr	DWA_MTR_RDNG_MO
Meter Reading TOU Month Aggr	DWA_MTR_RDNG_TOU_MO
Meter Register Assignment	DWR_MTR_RGSTER_ASGN
Meter Service Work	DWR_MTR_SRVC_WRK
Meter Status	DWL_MTR_STAT

Table 5–2   Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
NAICS Classification	DWR_NAICS_CLSFCTN
Nationality	DWL_NTNLTY
Non Conform Load	DWR_NON_CNFRM_LD

Table 5–2 (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Non Conform Load Group	DWR_NON_CNFRM_LD_GRP
Non Conform Load Schedule	DWR_NON_CNFRM_LD_SCHL
Nuclear Generating Unit	DWR_NUCLR_GNRTNG_UNIT
Operating Participant	DWR_OPERTNG_PRTCPNT
Operating Share	DWR_OPERTNG_SHR
Operation Tag	DWR_OPRN_TAG
Operational Limt	DWR_OPRTNL_LMT
Operational Limit Set	DWR_OPRTNL_LMT_SET
Operational Restriction	DWR_OPRTNL_RSTRCT
Oracle Geometry	DWR_ORCL_GMTRY
Organization Area	DWR_ORG_AREA
Organization Banner	DWR_ORG_BNR
Organization Business Entity	DWR_ORG_BSNS_ENT
Organization Business Unit	DWR_ORG_BSNS_UNIT
Organization Business Unit Type	DWL_ORG_BSNS_UNIT_TYP
Organization Chain	DWR_ORG_CHAIN
Organization Company	DWR_ORG_CMPNY
Organization Corporate	DWR_ORG_CRPRT
Organization District	DWR_ORG_DSTRCT
Organization Hierarchy	DWR_ORG_HRCHY
Organization Hierarchy Level	DWR_ORG_HRCHY_LVL
Organization Hierarchy Level Assignment	DWR_ORG_HRCHY_LVL_ASGN
Organization Hierarchy Version	DWR_ORG_HRCHY_VRSN
Organization Level	DWR_ORG_LVL
Organization Level Attribute Value	DWR_ORG_LVL_ATRIB_VAL
Organization Level Attributes	DWR_ORG_LVL_ATTR
Organization Market Data	DWR_ORG_MKT_DATA
Organization Region	DWR_ORG_RGN
Organization Role	DWR_ORG_RL
Organization Service Website	DWR_ORG_SRVC_WBSITE
Organization Warehouse	DWR_ORG_WRHS
Organizational Demography Value	DWR_ORG_DEMOG_VAL
Other Individual	DWR_OTHR_INDVL
Outage	DWB_OUTG
Outage By Day Drvd	DWD_OUTG_DAY
Outage By Month Aggr	DWA_OUTG_MO
Outage By Usage Point Drvd	DWD_OUTG_USG_PNT

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Outage Code	DWR_OUTG_CD
Outage Notification	DWR_OUTG_NOTFCTN
Outage Plan	DWR_OUTG_PLN
Outage Record	DWB_OUTG_REC
Outage Record Code Assignment	DWR_OUTG_REC_CD_ASGN
Outage Report	DWR_OUTG_RPT
Outage Schedule	DWR_OUTG_SCHL
Outage Step	DWR_OUTG_STEP
Outage Step Code Assignment	DWR_OUTG_STEP_CD_ASGN
Outage Usage Point Assignment	DWR_OUTG_USG_PNT_ASGN
Partner Promotion Program	DWR_PRTNR_PRMTN_PROG
Party	DWR_PRTY
Party Account Assignment	DWR_PRTY_ACCT_ASGN
Party Account Assignment Type	DWL_PRTY_ACCT_ASGN_TYP
Party Address Location Assignment	DWR_PRTY_ADDR_LOC_ASGN
Party Agreement Relationship	DWR_PRTY_AGRMNT_RLTN
Party Assignment	DWR_PRTY_ASGN
Party Assignment Reason	DWL_PRTY_ASGN_RSN
Party Assignment Type	DWL_PRTY_ASGN_TYP
Party Business Interaction Role	DWR_PRTY_BSNS_INTRACN_RL
Party Contact Information	DWR_PRTY_CNCT_INFO
Party Contact Information Type	DWL_PRTY_CNCT_INFO_TYP
Party Contact List Participation	DWL_PRTY_CNCT_LST_PRTCPTN
Party Contact List Role	DWL_PRTY_CNCT_LST_RL
Party Cost Assignment	DWB_PRTY_COST_ASGN
Party Demography Value	Not physicalized
Party Event Type	DWL_PRTY_EVT_TYP
Party Geography Entity Assignment	DWR_PRTY_GEO_ENT_ASGN
Party Interaction Thread	DWB_PRTY_INTRACN_THRD
Party Interaction Thread Subscription Assignment	DWB_PRTY_INTRCN_THRD_SBRP_ASGN
Party Interaction Thread Type	DWL_PRTY_INTRACN_THRD_TYP
Party Language Capability	Not physicalized
Party Location Reason	DWL_PRTY_LOC_RSN
Party Location Type	DWL_PRTY_LOC_TYP
Party Management Role	DWL_PRTY_MGMT_RL
Party Market Segment Assignment	DWR_PRTY_MKT_SGMNT_ASGN
Party Project Participation	DWR_PRTY_PROJ_PRTCPTN

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Party Promotion Response	DWB_PRTY_PRMTN_RESPN
Party Role	DWL_PRTY_RL
Party Role Assignment	DWR_PRTY_RL_ASGN
Party Role Status	DWR_PRTY_RL_STAT
Party Status Category	DWL_PRTY_STAT_CTGRY
Party Status Change Reason	DWL_PRTY_STAT_CHNG_RSN
Party Status History	DWB_PRTY_STAT_HIST
Party Status Type	DWL_PRTY_STAT_TYP
Party Type	DWL_PRTY_TYP
Payment Aging Class	DWL_PYMT_AGNG_CLASS
Payment Channel	DWR_PYMT_CHNL
Payment Method Type	DWL_PYMT_MTHD_TYP
Payment Transaction Type	DWL_PYMT_TRX_TYP
Per Length Impedance	DWR_PER_LGTH_IMPNDNC
Per Length Phase Impedance	DWR_PER_LGTH_PHS_IMPNDNC
Per Length Sequence Impedance	DWR_PER_LGTH_SEQ_IMPNDNC
Phase	DWL_PHS
Phase Code ENUM	DWL_PHS_CD_ENUM
Phase Connected Fault	DWR_PHS_CNCTD_FLT
Phase Connected Fault Kind ENUM	DWL_PHS_CNCTD_FLT_KIND_ENUM
Phase Impedance Data	DWR_PHS_IMPNDNC_DATA
Phase Shunt Connection Kind ENUM	DWL_PHS_SHNT_CNCTN_KIND_ENUM
Phase Tap Changer	DWR_PHS_TAP_CHNG
Phase Tap Changer Asymmetrical	DWR_PHS_TAP_CHNG_ASYMTRCL
Phase Tap Changer Linear	DWR_PHS_TAP_CHNG_LNR
Phase Tap Changer Non Linear	DWR_PHS_TAP_CHNG_NON_LNR
Phase Tap Changer Symmetrical	DWR_PHS_TAP_CHNG_SYMTRCL
Phase Tap Changer Tabular	DWR_PHS_TAP_CHNG_TBLR
Phase Tap Changer Tabular Point	DWR_PHS_TAP_CHNG_TBLR_PNT
Pin Voltage	DWR_PIN_VLTG
Planned Outage	DWR_PLND_OUTG
Planned Outage Kind ENUM	DWL_PLND_OUTG_KIND_ENUM
Pole	DWR_POLE
Pole Base Kind ENUM	DWL_POLE_BASE_KIND_ENUM
Pole Preservative Kind ENUM	DWL_POLE_PRSRVTV_KIND_ENUM
Pole Treatment Kind ENUM	DWL_POLE_TRTMNT_KIND_ENUM
Postal Service Type	DWL_POSTL_SRVC_TYP

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Postcode	DWR_POSTCD
Potential Transformer Info	DWR_PTNTL_TRNSFRMR_INFO
Power Cut Zone	DWR_POWR_CUT_ZN
Power System Resource	Not physicalized
Power System Resource Location	DWR_POWR_SYS_RESRE_LOC
Power Transformer	DWR_POWR_TRNSFRMR
Power Transformer End	DWR_POWR_TRNSFRMR_END
Power Transformer Info	DWR_POWR_TRNSFRMR_INFO
Precipitation	DWB_PPTN
Price Event	DWB_PRICE_EVT
Price Type	DWL_PRICE_TYP
Pricing Structure	DWR_PRCNG_STRUCTR
Pricing Structure Tariff Assignment	DWR_PRCNG_STRCTR_TRF_ASGN
Priority	DWR_PRIORITY
Procedure	DWR_PROC
Procedure Asset Assignment	DWR_PROC_ASST_ASGN
Procedure Kind ENUM	DWL_PROC_KIND_ENUM
Product Asset Model	DWR_PROD_ASST_MDL
Product Asset Model Function Assignment	DWR_PROD_ASST_MDL_FNCTN_ASGN
Product Offering	DWR_PROD_OFRNG
Product Subscription	DWR_PROD_SBRP
Project	DWR_PROJ
Project Element	DWR_PROJ_ELMNT
Promotion	DWR_PRMTN
Promotion Cluster Usage	DWB_PRMTN_CLSTR_USG
Promotion Contact List Utilization	DWB_PRMTN_CNCT_LST_UTLZTN
Promotion Management History	DWB_PRMTN_MGMT_HIST
Promotion Message Rendering	DWR_PRMTN_MSG_RNDRNG
Promotion Product Offering Assignment	DWR_PRMTN_PROD_OFRNG_ASGN
Promotion Relationship	DWR_PRMTN_RLTN
Promotion Result Type	DWL_PRMTN_RSLT_TYP
Promotion Sales Channel Assignment	DWR_PRMTN_SL_CHNL_ASGN
Promotion Term Type	DWL_PRMTN_TERM_TYP
Promotion Term Value	DWL_PRMTN_TERM_VAL
Promotion Type	DWL_PRMTN_TYP
Proposal	DWR_PRPSL
Proposal Relationship	DWR_PRPSL_RLTN

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Prospect	DWR_PRSPCT
Prospect Priority Type	DWL_PRSPCT_PRIORITY_TYP
Prospect Quality Score Type	DWL_PRSPCT_QLTY_SCR_TYP
Prospect Quality Score Value	DWR_PRSPCT_QLTY_SCR_VAL
Prospect Reject Reason	DWL_PRSPCT_REJECT_RSN
Protected Switch	DWR_PRTCTD_SWTCH
Protection Equipment	DWR_PROTCTN_EQPMNT
Protection Equipment Info	DWR_PROTCTN_EQPMNT_INFO
PSR Type	DWL_PSR_TYP
Publication	DWR_PBLCTN
Publication Type	DWL_PBLCTN_TYP
Purchase Order	DWB_PCHSE_ORDR
Purchase Order Line Item	DWB_PCHSE_ORDR_LI
Quality61850	Not physicalized
Rate	DWR_RATE
Ratio Tap Changer	DWR_RATIO_TAP_CHNG
Ratio Tap Changer Tabular	DWR_RATIO_TAP_CHNG_TBLR
Ratio Tap Changer Tabular Point	DWR_RATIO_TAP_CHNG_TBLR_PNT
Rational Number	DWR_RTNL_NBR
Reading Accumulation Behavior	DWL_RDNG_ACMLTN_BHVR
Reading Channel	DWR_RDNG_CHNL
Reading Channel Identifier	DWR_RDNG_CHNL_IDNT
Reading Data Qualifier	DWL_RDNG_DATA_QLFR
Reading Quality	DWB_RDNG_QLTY
Reading Quality Type	DWL_RDNG_QLTY_TYP
Reading Quality Type Category	DWL_RDNG_QLTY_TYP_CTGRY
Reading Quality Type Origin	DWL_RDNG_QLTY_TYP_ORIGIN
Reading Quality Type Sub Category	DWL_RDNG_QLTY_TYP_SB_CTGRY
Reading Reason Kind ENUM	DWL_RDNG_RSN_KIND_ENUM
Reading Time Attribute	DWL_RDNG_TIME_ATRIB
Reading Time Period	DWL_RDNG_TIME_PRD
Reading Type	DWR_RDNG_TYP
Recloser	DWR_RCLSR
Register	DWR_RGSTER
Regular Interval Schedule	DWR_RGLR_INTRVL_SCHL
Regular Time Point	DWR_RGLR_TIME_PNT
Regulating Cond Eq	DWR_RGLTNG_COND_EQ

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Regulating Control	DWR_RGLTNG_CNTRL
Regulating Control Mode Kind ENUM	DWL_RGLTNG_CNTRL_MD_KIND_ENUM
Regulation Schedule	DWR_REGULTN_SCHL
Reliability Indices By City Month Drvd	DWD_RLBLTY_IND_CITY_MO
Reliability Indices By Feeder Month Drvd	DWD_RLBLTY_IND_FEDR_MO
Remote Connect Disconnect Info	DWR_RMT_CONCT_DSCNCT_INFO
Remote Control	DWR_RMT_CNTRL
Remote Point	DWR_RMT_PNT
Remote Source	DWR_RMT_SRC
Remote Unit	DWR_RMT_UNIT
Remote Unit Communication Link Assignment	DWR_RMT_UNIT_COMUNCTN_LNK_ASGN
Remote Unit Type ENUM	DWL_RMT_UNIT_TYP_ENUM
Resource Order	DWB_RESRE_ORDR
Resource Order Item	DWB_RESRE_ORDR_ITEM
Revenue Kind ENUM	DWL_RVN_KIND_ENUM
Rotating Machine	DWR_ROTTNG_MC
Safety Document	DWR_SFTY_DOC
Sales Channel	DWR_SL_CHNL
SCD2	Not physicalized
Scheduled Event	DWB_SCHL_EVT
Scheduled Event Asset Assignment	DWR_SCHL_EVT_ASST_ASGN
Script	DWR_SCRPT
Script Question	DWR_SCRPT_QUES
Sea Condition	DWB_SEA_CNDTN
Seal	DWR_SEAL
Seal Condition Kind ENUM	DWL_SEAL_CNDTN_KIND_ENUM
Seal Kind ENUM	DWL_SEAL_KIND_ENUM
Season	DWL_SEASON
Season Day Type Schedule	DWR_SEASON_DAY_TYP_SCHL
Sectionaliser	DWR_SECTNR
Segment Criteria	DWR_SGMNT_CRTRA
Segment Type	DWL_SGMNT_TYP
Series Compensator	DWR_SERIES_CMPNSTR
Service	DWR_SRVC
Service Category	DWL_SRVC_CTGRY
Service Coverage Area	DWR_SRVC_COVRG_AREA
Service Coverage Geo Detail	DWR_SRVC_COVRG_GEO_DTL

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Service Location	DWR_SRVC_LOC
Service Location Identifier	DWR_SRVC_LOC_IDNT
Service Order	DWB_SRVC_ORDR
Service Order Line Item	DWB_SRVC_ORDR_LI
Service Quantity	DWR_SRVC_QTY
Service Supplier	DWR_SRVC_SPPLR
Service Type	DWL_SRVC_TYP
Set Point	DWB_SET_PNT
Short Circuit Rotor Kind ENUM	DWL_SHORT_CRCUT_RTR_KIND_ENUM
Shunt Compensator	DWR_SHNT_CMPNSTR
Shunt Compensator Info	DWR_SHNT_CMPNSTR_INFO
Shunt Compensator Phase	DWR_SHNT_CMPNSTR_PHS
SIC Assignment	DWR_SIC_ASGN
SIC Assignment Reason	DWL_SIC_ASGN_RSN
SIC Classification	DWL_SIC_CLSFCTN
Simple End Device Function	DWR_SMPL_END_DVC_FNCTN
Single Phase Kind ENUM	DWL_SNGL_PHS_KIND_ENUM
SOC Job	DWR_SOC_JB
SOC Job Category	DWR_SOC_JB_CTGRY
SOC Job Group	DWR_SOC_JB_GRP
Source ENUM	DWL_SRC_ENUM
Source System	DWR_SRC_SYS
Source System Key Mapping	DWR_SRC_SYS_KEY_MAP
Source System Type	DWL_SRC_SYS_TYP
Spot Temperature	DWB_SPOT_TEMP
Static Var Compensator	DWR_STATIC_VAR_CMPNSTR
Station Supply	DWR_STN_SPPLY
Status	DWR_STAT
Steam Sendout Schedule	DWR_STEAM_SNDOUT_SCHL
Streetlight	DWR_STREETLGHT
Streetlight Lamp Kind ENUM	DWL_STREETLGHT_LAMP_KIND_ENUM
String Measurement	DWB_STRNG_MSRMNT
String Measurement Value	DWB_STRNG_MSRMNT_VAL
Structure	DWR_STRCTR
Structure Material Kind ENUM	DWL_STRCTR_MTRL_KIND_ENUM
Structure Support	DWR_STRCTR_SPPRT
Structure Support Kind ENUM	DWL_STRCTR_SPPRT_KIND_ENUM

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Sub Geographical Region	DWR_SB_GEOCL_RGN
Sub Load Area	DWR_SB_LD_AREA
Substation	DWR_SBSTN
Surge Arrester Info	DWR_SRG_ARSTR_INFO
Survey	DWR_SURVEY
SVC Control Mode ENUM	DWL_SVC_CNTRL_MD_ENUM
Switch	DWR_SWTCH
Switch Action	DWR_SWTCH_ACTN
Switch Action Kind ENUM	DWL_SWTCH_ACTN_KIND_ENUM
Switch Connect Disconnect Func Assignment	DWR_SWTCH_CNCT_DSCNCT_FNC_ASGN
Switch Info	DWR_SWTCH_INFO
Switch Phase	DWR_SWTCH_PHS
Switch Schedule	DWR_SWTCH_SCHL
Switch State ENUM	DWL_SWTCH_STATE_ENUM
Switch Switching Operation Assignment	DWR_SWTCH_SWTCHNG_OPRN_ASGN
Switching Activity	DWR_SWTCHNG_ACTVTY
Switching Activity Safety Doc Assignment	DWR_SWTCH_ACTVTY_SFTY_DOC_ASGN
Switching Operation	DWR_SWTCHNG_OPRN
Switching Plan	DWR_SWTCHNG_PLN
Switching Step	DWR_SWTCHNG_STEP
Switching Step Group	DWR_SWTCHNG_STEP_GRP
Synchrocheck Relay	DWR_SYNCHRCHCK_RLY
Synchronous Machine	DWR_SYNCHRNS_MC
Synchronous Machine Kind ENUM	DWL_SYNCHRNS_MC_KIND_ENUM
Synchronous Machine Operating Mode ENUM	DWL_SNCHRNS_MC_OPERTNG_MD_ENUM
Tag Action	DWR_TAG_ACTN
Tag Action Kind ENUM	DWL_TAG_ACTN_KIND_ENUM
Tap Changer	DWR_TAP_CHNG
Tap Changer Control	DWR_TAP_CHNG_CNTRL
Tap Changer Info	DWR_TAP_CHNG_INFO
Tap Schedule	DWR_TAP_SCHL
Target Account	DWR_TRGT_ACCT
Target Agreement	DWR_TRGT_AGRMNT
Target Geography Area	DWR_TRGT_GEO_AREA
Target Market Segment	DWR_TRGT_MKT_SGMNT
Target Type	DWL_TRGT_TYP
Tariff	DWR_TRF

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Tariff Profile	DWR_TRF_PRFL
Tariff Tariff Profile Assignment	DWR_TRF_TRF_PRFL_ASGN
Task	DWR_TASK
Tax Authority	DWL_TAX_AUTH
Tax Category	DWL_TAX_CTGRY
Terminal	DWR_TRML
Thermal Generating Unit	DWR_THRML_GNRTNG_UNIT
Time Of Use	DWL_TIME_OF_USE
Time Schedule	DWR_TIME_SCHL
Time Slot	DWR_TIME_SLT
Time Tariff Interval	DWR_TIME_TRF_INTRVL
Tool	DWR_TOOL
Topological Node	DWR_TPLGCL_ND
Tower	DWR_TWR
Tower Construction Kind ENUM	DWL_TWR_CONSTRCTN_KIND_ENUM
Transformer Control Mode ENUM	DWL_TRNSFRMR_CNTRL_MD_ENUM
Transformer Core Admittance	DWR_TRNSFRMR_CORE_ADMTTNC
Transformer End	DWR_TRNSFRMR_END
Transformer End Info	DWR_TRNSFRMR_END_INFO
Transformer Feeder Assignment	DWR_TRNSFRMR_FEDR_ASGN
Transformer Mesh Impedance	DWR_TRNSFRMR_MESH_IMPNDNC
Transformer Star Impedance	DWR_TRNSFRMR_STAR_IMPNDNC
Transformer Tank	DWR_TRNSFRMR_TANK
Transformer Tank End	DWR_TRNSFRMR_TANK_END
Transformer Tank Info	DWR_TRNSFRMR_TANK_INFO
Trouble Reporting Kind ENUM	DWL_TRBL_RPT_KIND_ENUM
Trouble Ticket	DWR_TRBL_TCKT
Underground Structure	DWR_UNDRGRND_STRCTR
Underground Structure Kind ENUM	DWL_UNDRGRND_STRCTR_KIND_ENUM
Unit Multiplier	DWL_UNIT_MLTPLR
Unit Multiplier ENUM	DWL_UNIT_MLTPLR_ENUM
Unit Of Measure	DWL_UOM
Unit Symbol ENUM	DWL_UNIT_SYMBL_ENUM
Usage Point	DWR_USG_PNT
Usage Point Connected Kind ENUM	DWL_USG_PNT_CNCTD_KIND_ENUM
Usage Point End Device Ctrl Assignment	DWR_USG_PNT_END_DVC_CTRL_ASGN
Usage Point Equipment Assignment	DWR_USG_PNT_EQPMNT_ASGN

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Usage Point Group	DWR_USG_PNT_GRP
Usage Point Group Assignment	DWR_USG_PNT_GRP_ASGN
Usage Point Group DR Program Assignment	DWR_USG_PNT_GRP_DR_PROG_ASGN
Usage Point Location	DWR_USG_PNT_LOC
Usage Point Transformer Assignment	DWR_USG_PNT_TRNSFRMR_ASGN
Usage Point Transformer Assignment	DWR_USG_PT_GP_END_DVC_CTL_ASGN
Usage Read Cycle	DWR_USG_READ_CYCL
Utility Commodity	DWL_UTLTY_CMDTY
Validity ENUM	DWL_VLDTY_ENUM
Value Alias Set	DWR_VAL_ALS_SET
Value To Alias	DWR_VAL_TO_ALS
Value Type	DWL_VAL_TYP
VEE Exception	DWB_VEE_EXPTN
VEE Exception Type	DWL_VEE_EXPTN_TYP
VEE Group	DWL_VEE_GRP
VEE Rule	DWL_VEE_RULE
Vehicle	DWR_VHCL
Vendor	DWR_VNDR
Vendor Item	DWR_VNDR_ITEM
Virtual Team	DWR_VRTL_TEAM
Voltage Control Zone	DWR_VLTG_CNTRL_ZN
Voltage Limit	DWR_VLTG_LMT
Weather Alert	DWL_WEATHR_ALRT
Weather Forecast	DWL_WEATHR_FRCST
Weather Information	DWL_WEATHR_INFO
Weather Location	DWL_WEATHR_LOC
Web Page	DWR_WEB_PG
Wind Gen Unit Kind ENUM	DWL_WND_GEN_UNIT_KIND_ENUM
Wind Generating Unit	DWR_WND_GNRTNG_UNIT
Wind Information	DWB_WND_INFO
Winding Connection ENUM	DWL_WNDNG_CNCTN_ENUM
Wire Info	DWR_WR_INFO
Wire Insulation Kind ENUM	DWL_WR_INSLTN_KIND_ENUM
Wire Material Kind ENUM	DWL_WR_MTRL_KIND_ENUM
Wire Spacing Info	DWR_WR_SPCNG_INFO
Wire Usage Kind ENUM	DWL_WR_USG_KIND_ENUM
Work Asset	DWR_WRK_ASST

Table 5–2   (Cont.) Entity Mapping Table: Logical to Physical Mapping: N to Z

Entity	Table or View
Work Billing Info	DWR_WRK_BLLG_INFO
Work Cost Detail	DWR_WRK_COST_DTL
Work Cost Summary	DWB_WRK_COST_SUMM
Work Document	Not physicalized
Work Flow Step	DWR_WRK_FLOW_STEP
Work Identified Object	Not physicalized
Work Kind ENUM	DWL_WRK_KIND_ENUM
Work Location	DWR_WRK_LOC
Work Order	DWR_WRK_ORDR
Work Status Entry	DWR_WRK_STAT_ENTRY
Work Status Kind ENUM	DWL_WRK_STAT_KIND_ENUM
Work Task	DWR_WRK_TASK
Work Task Asset Assignment	DWR_WRK_TASK_AS_SET_ASGN
Work Task Kind ENUM	DWL_WRK_TASK_KIND_ENUM
Work Time Schedule	DWR_WRK_TIME_SCHL
Work Time Schedule Kind ENUM	DWL_WRK_TIME_SCHL_KIND_ENUM
Zone	DWR_ZN
Zone Kind ENUM	DWL_ZN_KIND_ENUM

6

Oracle Utilities Data Model Partitioning

This chapter provides the partitioning strategy for the Oracle Utilities Data Model physical base, derived, and aggregate tables.

This chapter includes the following section:

- About Oracle Utilities Data Model Partitioning, Compression, and Parallelism
- Partitioning Strategy for Oracle Utilities Data Model

About Oracle Utilities Data Model Partitioning, Compression, and Parallelism

All base, derived, and aggregate tables are partitioned, with the (standard) compression and parallel option activated by default. These tables are partitioned due to their nature (size) for performance and scalability and to improve performance. The default partition method used is INTERVAL partitioning, which creates automatically equi-sized partitions as data arrives. For partitioning, usually, a column of data type DATE is used (DAY or MONTH level).

If Exadata is used with the Hybrid Columnar Compression option, the option is leveraged for use with Oracle Utilities Data Model.

For more information, see *Oracle Communications Data Model Implementation and Operations Guide*.

Partitioning Strategy for Oracle Utilities Data Model

Table 6–1 shows the partitioning strategy for the Oracle Utilities Data Model physical base, derived, and aggregate tables..

> **Note:** The partitioning type for all tables shown in Table 6–1 is RANGE

Table 6–1   Physical Data Model Partitioning

Physical Table Name	Sub partitioning Type	Partitioning Key Column	Sub partitioning Key Column	Partition Level	Default Tablespace
DWA_END_DVC_EVT_CUST_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_END_DVC_EVT_DVC_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_MTR_RDNG_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_MTR_RDNG_MO_ACCT	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_MTR_RDNG_MO_CUST	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_MTR_RDNG_MO_UP	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_MTR_RDNG_TOU_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWA_OUTG_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_AGGREGATE_ TBS
DWB_ACCT_BAL_ADJ	HASH	ADJ_DT	ACCT_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_BAL_HIST	HASH	BAL_DT	ACCT_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_BLLG_OCCRNCE	NONE	BLLG_DT	N/A	QUARTER	OUDM_BASE_TBS
DWB_ACCT_CRDT_LMT	NONE	CRDT_RTNG_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_ACCT_PYMT	HASH	PYMT_DT	ACCT_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_PYMT_BAL_IMPT	HASH	IMPT_DT	ACCT_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_PYMT_MTHD_STAT	HASH	EFF_FROM_DT	ACCT_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_RFND	HASH	PYMT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_ACCT_STAT_HIST	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_AGRMNT_APRVL	HASH	AGRMNT_APRVL_ DT	AGRMNT_ KEY	MONTH	OUDM_BASE_TBS
DWB_AGRMNT_STAT	NONE	EFF_TO_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_BLK_LST_HIST	HASH	EFF_FROM_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_BSNS_INTRACN	NONE	INTRACN_DT	N/A	QUARTER	OUDM_BASE_TBS
DWB_CMPGN_MSG_CRTVE	NONE	CRTN_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_COST	NONE	INCURR_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_CRNCY_EXCHNG_RATE	NONE	EXCHNG_RATE_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_CUST_ORDR	HASH	ORDR_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_CUST_ORDR_LI	NONE	ORDR_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_DEBT_COLLCTN	NONE	INTRACN_THRD_ STRT_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_DEBT_COLLCTN_ASGN	NONE	ASGN_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_DEBT_COLLCTN_ASGN_ BTCH	NONE	ASGN_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_EMP_ACT_LBR_HRLY	NONE	EMP_KEY	N/A	HUNDRED EMPLOYEES	OUDM_BASE_TBS
DWB_EMP_COST	NONE	INCURR_DT	N/A	MONTH	OUDM_BASE_TBS

Table 6–1   (Cont.) Physical Data Model Partitioning

Physical Table Name	Sub partitioning Type	Partitioning Key Column	Sub partitioning Key Column	Partition Level	Default Tablespace
DWB_EMP_TRNG_REC	NONE	TRNG_STRT_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_END_DVC_EVT	NONE	CRTD_DT_TIME	N/A	MONTH	OUDM_BASE_TBS
DWB_EVT	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_ACCT	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_ASGN	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_EVT_EMP_PYRL	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_EQPMNT_INSTNC	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_GEO	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_INVC_DLVRY	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_LYLTY_PROG	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_ASGN	NONE	EFF_DT	N/A	DAY	OUDM_BASE_TBS
DWB_EVT_PRTY_INTRACN	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_INTRACN_CALL	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_INTRACN_EML	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_INTRACN_LTTR	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_INTRACN_VST	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_PRTY_PRFL	HASH	STRT_DT	ORG_BSNS_ UNIT_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_STAT	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_EVT_WEB_RGSTRTN	HASH	STRT_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_EVT_WEB_VST	NONE	STRT_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_FNL_RDNG	HASH	TIME_STMP	FNL_ RDNG_KEY	WEEK	OUDM_BASE_TBS
DWB_INCDNT	NONE	CRTD_DT_TIME	N/A	MONTH	OUDM_BASE_TBS
DWB_INITIAL_RDNG	HASH	TIME_STMP	INITIAL_ RDNG_KEY	WEEK	OUDM_BASE_TBS
DWB_INTRACN_QUES_RESPN	NONE	RESPN_DT	N/A	QUARTER	OUDM_BASE_TBS
DWB_INVC	HASH	BLLG_DT	CUST_KEY	MONTH	OUDM_BASE_TBS
DWB_INVC_ADJ	NONE	STRT_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_INVC_DISC	NONE	BLLG_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_INVC_ITEM	NONE	BLLG_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_INVC_ITEM_DTL	NONE	BLLG_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_INVC_PYMT_ASGN	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_INVC_STAT_HIST	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_MTR_RDNG	HASH	STRT_DT	MTR_ RDNG_KEY	MONTH	OUDM_BASE_TBS
DWB_OUTG	NONE	DT_TIME	N/A	MONTH	OUDM_BASE_TBS
DWB_OUTG_REC	NONE	DT_TIME	N/A	MONTH	OUDM_BASE_TBS
DWB_PRICE_EVT	NONE	STRT_DT	N/A	DAY	OUDM_BASE_TBS

Table 6–1 (Cont.) Physical Data Model Partitioning

Physical Table Name	Sub partitioning Type	Partitioning Key Column	Sub partitioning Key Column	Partition Level	Default Tablespace
DWB_PRMTN_CLSTR_USG	NONE	USG_DT	N/A	HALF YEAR	OUDM_BASE_TBS
DWB_PRMTN_CNCT_LST_ UTLZTN	NONE	USG_DT	N/A	HALF YEAR	OUDM_BASE_TBS
DWB_PRMTN_MGMT_HIST	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_PRTY_COST_ASGN	NONE	ASGN_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_PRTY_INTRACN_THRD	NONE	INTRACN_THRD_ STRT_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_PRTY_PRMTN_RESPN	HASH	RESPN_DT	PRTY_KEY	MONTH	OUDM_BASE_TBS
DWB_PRTY_STAT_HIST	NONE	EFF_FROM_DT	N/A	MONTH	OUDM_BASE_TBS
DWB_RESRE_ORDR	NONE	CRTD_DT_TIME	N/A	QUARTER	OUDM_BASE_TBS
DWB_SRVC_ORDR	NONE	CRTD_DT_TIME	N/A	QUARTER	OUDM_BASE_TBS
DWD_ACCT_ARRER_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_ACCT_BAL_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_ACCT_DEBT_DAY	HASH	DAY_KEY	CUST_KEY	MONTH	OUDM_DERIVED_TBS
DWD_ACCT_PYMT_DAY	HASH	DAY_KEY	CUST_KEY	MONTH	OUDM_DERIVED_TBS
DWD_ACCT_PYMT_MTHD_STAT_ HIST	HASH	CLNDR_MO_KEY	CUST_KEY	MONTH	OUDM_DERIVED_TBS
DWD_ACCT_STAT_MO	NONE	CLNDR_MO_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_CUST_DR_PROG_PROFILE	HASH	DEMAND_RESPN_ PROG_KEY	CUST_KEY	ONE DEMAND RESPONSE PROGRAM	OUDM_DERIVED_TBS
DWD_DR_PROG_LD_RDCTN_ RGN_DAY	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_END_DVC_EVT_CUST_DAY	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_END_DVC_EVT_DVC_DAY	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_MTR_RDNG_DAY	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_MTR_RDNG_HR	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_OUTG_DAY	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_OUTG_USG_PNT	NONE	DAY_KEY	N/A	MONTH	OUDM_DERIVED_TBS
DWD_RLBLTY_IND_CITY_MO	NONE	CLNDR_MO_KEY	N/A	YEAR	OUDM_DERIVED_TBS
DWD_RLBLTY_IND_FEDR_MO	NONE	CLNDR_MO_KEY	N/A	YEAR	OUDM_DERIVED_TBS
DWR_SRVC_QTY	HASH	TMSTMP	SRVC_QTY_ KEY	MONTH	OUDM_REFERENCE_ TBS

Part II

Intra-ETL, OLAP, Data Mining, and Utility Scripts

This part provides information on Oracle Utilities Data Model Intra-ETL Mapping, OLAP, Data Mining, and Utility Scripts.

Part II contains the following chapters:

7

Oracle Utilities Data Model Intra-ETL

This chapter includes the following sections:

- About Oracle Utilities Data Model Intra-ETL
- Intra-ETL PL/SQL Packages Business Rules and Source Tables

About Oracle Utilities Data Model Intra-ETL

In Oracle Utilities Data Model, reference and lookup tables store master, reference, and dimensional data; and the base, derived, and aggregate tables store transaction and fact data at different granularities. The base tables store the transaction data at the lowest level of granularity, while the derived and aggregate tables store consolidated and summary transaction data.

Two types of Extract, Transform, and Load (ETL) operations populate the tables with data. The source-ETL operations populate the reference, lookup, and base tables with data from the source On-Line Transaction Processing (OTLP) applications. Additional Intra-ETL operations populate the derived and aggregate tables with the data in the base, reference, and lookup tables. While the source ETL operations are not a part of Oracle Utilities Data Model, the Intra-ETL operations are.

There are two categories of Intra-ETL operations (scripts):

- Derived Population: A database package containing scripts that populate the derived tables based on the content of the base, reference, and lookup tables.

- Aggregate Population: A database package containing scripts to refresh the Oracle Utilities Data Model aggregate tables, mostly Materialized Views, based on the content of the derived tables and some reference tables.

Derived tables are implemented using Oracle tables. Some of the Aggregate tables Oracle tables and others are implemented using Materialized Views.

> **Note:** Changes to intra-ETL cannot be supported. But it is expected that if the business needs require a change in the business logic of the intra-ETLs some customer adaptations could be necessary even if they are not be supported.

Intra-ETL PL/SQL Packages Business Rules and Source Tables

Shows the PL/SQL mapping packages to populate the derived tables. The naming convention by default is the physical name of the target table plus the prefix, `"PKG_"`.

Table 7–1   PL/SQL Mapping Packages

Package Name
PKG_DWD_ACCT_ARRER_MO Package
PKG_DWD_ACCT_BAL_MO Package
PKG_DWD_ACCT_DEBT_DAY
PKG_DWD_ACCT_PMT_MTD_STAT_HST
PKG_DWD_ACCT_PYMT_DAY
PKG_DR_PROG_LD_RDCTN_RGN_DAY
PKG_DWD_END_DVC_EVT_CUST_DAY
PKG_DWD_END_DVC_EVT_DVC_DAY
PKG_DWD_MTR_RDNG_DAY
PKG_DWD_MTR_RDNG_HR
PKG_DWD_OUTG_DAY
PKG_DWD_OUTG_USG_PNT
PKG_DWD_RLBLTY_IND_CITY_MO
PKG_DWD_RLBLTY_IND_FEDR_MO

PKG_DWD_ACCT_ARRER_MO Package

Populate target table `DWD_ACCT_ARRER_MO`. For more information, see `Account Arrears Month Drvd`.

Table 7–2   DWD_ACCT_ARRER_MO Package Source Tables

Source Table Name
DWB_INVC
DWB_INVC_PYMT_ASGN
DWR_ACCT_AGRMNT_RLTN
DWR_CLNDR_MO
DWR_CUST
DWR_CUST_ACCT_ASGN
DWR_SRVC_LOC
DWR_USG_PNT

Table 7–3   DWD_ACCT_ARRER_MO Package Business Rules

Column	Description
CURR_BAL_AMT	Account Balance Before Payment
PAYOFF_BAL_AMT	Principal plus interest.
AMT_0_TO_30_DAYS	Amount 0 to 30 Days
AMT_31_TO_60_DAYS	Amount 31 to 60 Days
AMT_61_TO_90_DAYS	Amount 61 to 90 Days
AMT_91_TO_120_DAYS	Amount 91 to 120 Days

Table 7–3   (Cont.) DWD_ACCT_ARRER_MO Package Business Rules

Column	Description
AMT_121_TO_150_DAYS	Amount 121 to 150 Days
AMT_151_TO_180_DAYS	Amount 151 to 180 Days
AMT_181_PLUS_DAYS	Amount 181 Plus Days

PKG_DWD_ACCT_BAL_MO Package

Populate target table `DWD_ACCT_BAL_MO`. For more information, see Account Balance Month Drvd.

Table 7–4   DWD_ACCT_BAL_MO Package Source Tables

Source Table Name
DWB_ACCT_BAL_HIST
DWB_ACCT_BAL_IMPT
DWR_CUST_ACCT_ASGN
DWR_ACCT
DWR_PROD_OFRNG

Table 7–5   DWD_ACCT_BAL_MO Lookup Values

Table	Column	Operator	Value
DWB_ACCT_BAL_IMPT	ACCT_BAL_TYP_CD	LIKE	%LYTY%'
DWB_ACCT_BAL_IMPT	ACCT_BAL_TYP_CD	LIKE	%LYTY BONUS%

Loyalty balance should normally be stored in the specific subject area, to allow the `LOYALTY` derived to work. Nothing prevents storing loyalty account balance type in `ACCOUNT BALANCE` when the Loyalty Account and the Account are the same. But it will not be taken into account by the other derived.

PKG_DWD_ACCT_DEBT_DAY

Populate target table `DWD_ACCT_DEBT_DAY`. For more information, see Account Debt Day Drvd.

Table 7–6   DWD_ACCT_DEBT_DAY Package Source Tables

Source Table Name
DWB_ACCT_DEBT
DWB_COST
DWB_EVT_PRTY_INTRACN
DWB_INVC
DWB_INVC_PYMT_ASGN
DWB_INVC_ADJ
DWB_ACCT_PYMT
DWB_ACCT_BAL_HIST
DWB_ACCT_BAL_IMPT
DWR_ACCT
DWR_ADDR_LOC

Table 7–6 (Cont.) DWD_ACCT_DEBT_DAY Package Source Tables

Source Table Name
DWR_CUST
DWR_CUST_ACCT_ASGN
DWB_INVC_PYMT_ASGN
DWB_ACCT_DEBT
DWB_EVT_PRTY_INTRACN
DWB_COST

Table 7–7 DWD_ACCT_DEBT_DAY Package Business Rules

Column	Description	Calculation
MIN_INVC_DEBT_ AGE	Minimum invoice aging debt (Date - lowest DUE_ DATE) in days.	
DEBT_CNT		
RCV_AMT		Σ(Recovered Amount) Grouped By Account / Customer / Organization Business Unit / Collection Agency (via Account Payment) / Debt Aging Band (via Account Credit Limit) for a day derived from Balance Date
ADJ_AMT		Σ(Adjustment Amount) Grouped By Account / Customer / Organization Business Unit / Collection Agency (via Account Payment) / Debt Aging Band (via Account Credit Limit) for a day derived from Balance Date
DEBT_AMT		
PNLTY_AMT		
WRTOFF_AMT		Σ(Writeoff Amount) Grouped By Account / Customer / Organization Business Unit / Collection Agency (via Account Payment) / Debt Aging Band (via Account Credit Limit) for a day derived from Balance Date
AVG_DEBT_AGE		
AVG_INVC_DEBT_ AGE	Average of invoice aging (date minus due date). If only one invoice, this should be equal to debt age.	
CLCTR_CMISN_ AMT	Amount paid to the collection agency or to the employee in charge of collection.	
CURR_INVC_AMT	Latest available invoice amount.	
CUST3MO_CNT		
CUST_CNT_3MO		
DEBT_AGE	Age of debt of this account in days.	

Table 7–7   (Cont.) DWD_ACCT_DEBT_DAY Package Business Rules

Column	Description	Calculation
INVC_IN_DEBT_ CNT	Number of invoices in debt (not yet paid and date>DUE_DATE, independently of extended due date).	
NB_AGNT_CMNTS	Count the total number of comments agents wrote in the CRM system.	
NB_OF_AGRMNT_ FAILED	Number of agreed payment extension that was not fulfilled by customer in (extended) due date.	
NB_OF_AGRMNT_ SUCCESS	Number of agreed payment extension that was fulfilled by customer in (extended) due date.	
NB_OF_CNTCT	Total number of (successful) contacts (any direction, any mean) with the customer.	
NB_OF_EMP_ INVLVD	Total number of employee from the CSP that have been directly involved with this debt. It helps estimating the cost and also the efficiency of debt tracking.	
NEW_CUST_CNT	Similar to 3 Month old customer count but for 1 month old customer.	
OUTSTNDNG_ DRTN	Total unpaid invoice aging in days (over all unpaid invoices to date).	
PNDNG_ COLLCTN_CNT	Total number of invoices within a collection process.	
PRMS_PYMT_CNT	Number of times the customer promised to pay (or an agreement has been put in place). This is a custom field. It is not filled by default in Oracle Utilities Data Model.	
PYMT_COLCTD_ CNT		
TOT_BILLUNIT_ CNT	This is at the moment one to one with the number of invoices. Ignore this field.	
TOT_CNTCT_DRTN	Total duration of the contacts (any direction, any mean) with the customer. Letter and emails cannot be considered as having a contact duration.	
TOT_DEBT_AGE	Sum of all unpaid invoices (date minus due date). If only one invoice, this should be equal to debt age.	
TOT_LENGTH_ AGNT_CMNTS		
TOT_WORK_DRTN		
WVNG_CNT		
MAX_INVC_AMT_ IN_DEBT	For a given invoice, maximum due amount available.	
MAX_INVC_DEBT_ AGE	Maximum invoice aging debt (Date - lowest DUE_ DATE) in days.	
MIN_INVC_AMT_ IN_DEBT	For a given invoice, minimum due amount available.	
TOT_DSPT_AMT	Original amount deposit available (if any).	
TOT_FRAUD_COST	Sum of all cost due to fraud (specific debt case).	
TOT_LEGAL_PRCS_ COST		

Table 7–7 (Cont.) DWD_ACCT_DEBT_DAY Package Business Rules

Column	Description	Calculation
TOT_PYMT_COLCTD_AMT		
TOT_TRNSFRD_AMT	Amount transferred to this account by another (as payment) since the beginning of the debt.	
TOT_WVNG_AMT	Total amount waived to the customer (not written-off).	

Table 7–8 DWD_ACCT_DEBT_DAY Lookup Values

Table	Column	Operator	Value
DWB_INVC_ADJ	INVC_ADJ_RSN_CD	=	'3000'
DWB_INVC	FULL_PAY_RCVD_IND	=	Y'
DWB_INVC	FULL_PAY_RCVD_IND	<>	Y'
DWB_INVC	INVC_STAT_CD	NOT LIKE	5%'
DWB_ACCT_PYMT	PYMT_RSLT_CD	=	SUCCESS'
DWB_ACCT_PYMT	PYMT_MTHD_TYP_CD	=	'2'
DWB_COST	COST_SUBTYP_CD	=	3800'
DWB_ACCT_DEBT	LEGAL_IND	IS	NULL
DWB_EVT_PRTY_INTRACN	INTRACN_RSN_CD	LIKE	LIKE '6%'
DWB_EVT_PRTY_INTRACN	INTRACN_EVT_RMRK	IS	NOT NULL

PKG_DWD_ACCT_PMT_MTD_STAT_HST

Populate target table `DWD_ACCT_PYMT_MTHD_STAT_HIST`. For more information, see Account Payment Method Status Hist Drvd.

Table 7–9 DWD_ACCT_PMT_MTD_STAT_HST Package Source Tables

Source Table Name
DWB_ACCT_CRDT_LMT
DWB_ACCT_PYMT_MTHD_STAT
DWR_ACCT
DWR_ACCT_PREF_PYMT_MTHD
DWR_CLNDR_MO
DWR_CUST
DWR_CUST_ACCT_ASGN

PKG_DWD_ACCT_PYMT_DAY

Populate target table `DWD_ACCT_PYMT_DAY`. For more information, see Account Payment Day Drvd.

Table 7–10   DWD_ACCT_PMT_DAY Package Source Tables

Source Table Name
DWB_ACCT_PYMT
DWB_INVC
DWB_INVC_PYMT_ASGN
DWR_ACCT

Table 7–11   DWD_ACCT_PMT_DAY Business Rules

Column	Description	Calculation
PYMT_CNT	Count of payment transactions.	
PYMT_AMT	Total payment amount.	Σ(Payment Amount)
		Grouped By
		Customer / Account / Payment Method Type / Employee / Collection Agency / Bank Direct Debit Channel (via Account Preferred Payment Method)
		for a day derived from Payment Date
TOT_RFND_CNT	Count of refund transactions	
TOT_RFND_AMT	Total amount of money refunded to this account on this day.	
PYMT_SUCC_CNT	Count of payment transactions that succeeded.	
TOT_SUCC_PYMT_CNT		
TOT_TRNSFR_CNT	Count of transfer transactions.	
TOT_TRNSFR_AMT	Amount of money transferred to this account.	
MAX_NB_DAYS_TO_DUE_DT	The furthest due date associated with all payments of this type for this account. It is in the past in most cases.	

PKG_DWD_ACCT_STAT_MO

Populate target table `DWD_ACCT_STAT_MO`. For more information, see Account Status Month Drvd.

Table 7–12   DWD_ACCT_STAT_MO Package Source Tables

Source Table Name
DWB_ACCT_PYMT
DWB_INVC
DWB_INVC_PYMT_ASGN
DWR_ACCT

Table 7–13   PKG_DWD_ACCT_STAT_MO Business Rules

Column	Description	Calculation
ACTVTNS_CNT	1 if it is a new activation account.	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
DISCNCTNS_CNT	1 if it is a disconnected account.	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
INVL_DEACTV_CNT	Number of involuntary deactivation of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
INVL_SUSPND_CNT	Number of involuntary suspensions of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
REACTV_FROM_INVL_SUSPND_CNT	Number of reactivations from involuntary suspensions of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
DEACTV_CNT	Number of total deactivations of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
RECNCT_CNT	Number of Reconnects	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
SSPNSN_CNT	Number of Suspensions	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
SUSPND_CNT	Number of total suspensions of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
REACTV_FROM_SUSPND_CNT	Number of total reactivations from suspensions of service	Number of instance with Status Code = corresponding status such as activation Grouped By Account / Organization Business Unit / Service Location (via Usage Point) / Customer Segment (via Customer) / Loyalty Program for a day derived from Effective From/To Date
TOT_RFND	Cash Refund Amount	

PKG_DR_PROG_LD_RDCTN_RGN_DAY

Populate target table `DWD_DR_PROG_LD_RDCTN_RGN_DAY`. For more information, see DR Program Load Reduction By Region Day Drvd.

Table 7–14   PKG_DR_PROG_LD_RDCTN_RGN_DAY Package Source Tables

Source Table Name
DWD_MTR_RDNG_DAY
DWR_DAY
DWR_DEMAND_RESPN_PROG
DWR_USG_PNT_GRP
DWR_USG_PNT_GRP_ASGN
DWR_USG_PNT_GRP_DR_PROG_ASGN
DWV_REGIONAL_ZONES_DIM

Table 7–15   PKG_DR_PROG_LD_RDCTN_RGN_DAY Business Rules

Column	Description	Calculation
AVG_RDCTN_AMT	Derived table on demand response program resulted load reduction by region by day.	"Meter Reading Day Drvd (via common dimension Usage Point) / Total kWh - baseline kWh" Grouped By Demand Response Program / Geography Region / Geography Sub Region (through Usage Point Location) / Day

PKG_DWD_END_DVC_EVT_CUST_DAY

Populate target table `DWD_END_DVC_EVT_CUST_DAY`. For more information, see End Device Event By Customer Day Drvd.

Table 7–16   PKG_DWD_END_DVC_EVT_CUST_DAY Package Source Tables

Source Table Name
DWB_END_DVC_EVT
DWR_ACCT
DWR_CLNDR_MO
DWR_CUST
DWR_CUST_ACCT_ASGN
DWR_DAY
DWR_USG_PNT

Table 7–17   PKG_DWD_END_DVC_EVT_CUST_DAY Package Business Rules

Column	Calculations
RVS_MTR_CNT	# of instances Where EndDeviceEventType is type of reversedMeter Grouped By Day / Calendar Month / Customer / Usage Point
MTR_TMPR_EVT_CNT	# of instances Where EndDeviceEventType is type of meterTamper (for example = 3.12.43.257 for <ElectricMeter>.<Security>.<Event>.<TamperDetected>) Grouped By Day / Calendar Month / Customer / Usage Point
STPD_MTR_CNT	# of instances Where EndDeviceEventType is type of stoppedMeter Grouped By Day / Calendar Month / Customer / Usage Point

PKG_DWD_END_DVC_EVT_DVC_DAY

Populate target table `DWD_END_DVC_EVT_DVC_DAY`. For more information, see End Device Event By Device Day Drvd.

Table 7–18   PKG_DWD_END_DVC_EVT_DVC_DAY Package Source Tables

Source Table Name
DWB_END_DVC_EVT
DWR_CLNDR_MO
DWR_CUST_ACCT_ASGN
DWR_DAY
DWR_MNFCTR
DWR_MTR
DWR_PROD_ASST_MDL
DWR_USG_PNT

Table 7–19   PKG_DWD_END_DVC_EVT_DVC_DAY Business Rules

Column	Description	Calculation
RVS_MTR_CNT	Reversed Meter Count	# of instances Where EndDeviceEventType is type of reversedMeter Grouped By Day / Calendar Month / Meter / Product Asset Model / Manufacturer
MTR_TMPR_EVT_CNT	Meter Tamper Event Count	# of instances Where EndDeviceEventType is type of meterTamper (e.g. = 3.12.43.257 for <ElectricMeter>.<Security>.<Event>.<TamperDetected>) Grouped By Day / Calendar Month / Meter / Product Asset Model / Manufacturer
STPD_MTR_CNT	Stopped Meter Count	# of instances Where EndDeviceEventType is type of stoppedMeter Grouped By Day / Calendar Month / Meter / Product Asset Model / Manufacturer

Table 7–20   DWD_END_DVC_EVT_DVC_DAY Lookup Values

Table	Column	Operator	Value
DWB_END_DVC_EVT	TYP	=	Tamper Event'
DWB_END_DVC_EVT	TYP	=	Reversed Meter Event'
DWB_END_DVC_EVT	TYP	=	'Stopped Meter Event'

PKG_DWD_MTR_RDNG_DAY

Populate target table `DWD_MTR_RDNG_DAY`. For more information, see Meter Reading Day Drvd.

Table 7–21   PKG_DWD_MTR_RDNG_DAY Package Source Tables

Source Table Name
DWB_FNL_RDNG
DWB_MTR_RDNG
DWR_ACCT
DWR_CLNDR_MO
DWR_CUST

Table 7–21 (Cont.) PKG_DWD_MTR_RDNG_DAY Package Source Tables

Source Table Name
DWR_CUST_ACCT_ASGN
DWR_DAY
DWR_MTR
DWR_RDNG_TYP
DWR_SRVC_LOC
DWR_USG_PNT
DWV_OPERATIONAL_DIM

Table 7–22   PKG_DWD_MTR_RDNG_DAY Business Rules

Column	Description	Calculation
TOT_KWH	Total kWh	Value Where ReadingType is type of daily kWh (for example = 0.0.0.1.1.1.12.0.0.0.0.0.0.0.0.3.72.0 for bulkQuantity forward electricitySecondaryMetered energy (kWh) Grouped by Meter / Usage Point / Customer / Account / Service Location / Day
MAX_KW	Max kW	Value Where ReadingType is type of daily kW (for example = 0.8.4.6.1.1.8.0.0.0.0.0.0.0.0.3.38.0 for maximum sixtyMinute indicating forward electricitySecondaryMetered demand (kW) Grouped by Meter / Usage Point / Customer / Account / Service Location / Day

Table 7–23   PKG_DWD_MTR_RDNG_DAY Lookup Values

Table	Column	Operator	Value
DWR_RDNG_TYP	RDNG_TYP_CD	=	0.8.4.6.1.1.8.0.0.0.0.0.0.0.0.3.38.0'
DWR_RDNG_TYP	RDNG_TYP_CD	=	'0.0.0.1.1.1.12.0.0.0.0.0.0.0.0.3.72.0'

PKG_DWD_MTR_RDNG_HR

Populate target table `DWD_MTR_RDNG_HR`. For more information, see Meter Reading Hour Drvd.

Table 7–24   PKG_DWD_MTR_RDNG_HR Package Source Tables

Source Table Name
DWB_FNL_RDNG
DWB_MTR_RDNG
DWL_TIME_OF_USE
DWR_ACCT
DWR_CLNDR_MO
DWR_CUST
DWR_CUST_ACCT_ASGN
DWR_DAY
DWR_HR
DWR_HR_TIME_OF_USE_ASGN
DWR_MTR
DWR_RDNG_TYP

Table 7–24   (Cont.) PKG_DWD_MTR_RDNG_HR Package Source Tables

Source Table Name
DWR_SRVC_LOC
DWR_USG_PNT
DWV_OPERATIONAL_DIM

Table 7–25   DWD_MTR_RDNG_HR Business Rules

Column	Description	Calculation
TOT_KWH	Total kWh	Value Where ReadingType is type of interval kWh (e.g. = 0.0.7.4.1.1.12.0.0.0.0.0.0.0.3.72.0 for sixtyMinute deltaData forward electricitySecondaryMetered energy (kWh) Grouped By Hour of a Day in a particular Month (and Usage Point / Meter / Customer / Account / Time Of Use)
MAX_KW	Max kW	Value Where ReadingType is type of interval kW (for example = 0.8.7.6.1.1.8.0.0.0.0.0.0.0.0.3.38.0 for maximum sixtyMinute indicating forward electricitySecondaryMetered demand (kW) Grouped By Hour of a Day in a particular Month (and Usage Point /Meter / Customer / Account / Time Of Use)

Table 7–26   DWD_MTR_RDNG_HR Lookup Values

Table	Columns	Operator	Value
DWR_RDNG_TYP	RDNG_TYP_CD	=	0.8.4.6.1.1.8.0.0.0.0.0.0.0.0.3.38.0'
DWR_RDNG_TYP	RDNG_TYP_CD	=	'0.0.0.1.1.1.12.0.0.0.0.0.0.0.0.3.72.0'

PKG_DWD_OUTG_DAY

Populate target table `DWD_OUTG_DAY`. For more information, see `Outage By Day Drvd`.

Table 7–27   PKG_DWD_OUTG_DAY Package Source Tables

Source Table Name
DWB_OUTG_REC
DWR_ADDR_LOC
DWR_DAY
DWR_ORG_BSNS_UNIT
DWR_OUT_USG_PNT_ASGN
DWR_OUTG_RPT
DWV_REGIONAL_ZONES_DIM

Table 7–28   PKG_DWD_OUTG_DAY Package Business Rules

Column	Description	Calculation
OUTG_DRTN	Outage Duration	Outage Report.Outage Duration Grouped By Outage Report (via Outage Record) / Organization Business Unit (via UsagePoint, Geo Region and Sub Region) / Day

Table 7–28   (Cont.) PKG_DWD_OUTG_DAY Package Business Rules

Column	Description	Calculation
CUST_MNTS_LOST	Customer Minutes Lost	Outage Report.Total Cml Grouped By Outage Report (via Outage Record) (via UsagePoint, Geo Region and Sub Region) / Organization Business Unit / Day
OUTG_CNT	Outage Count	# of outage instance
CUST_OUT_CNT	Customer Out Count	Outage Report.Customer Count Grouped By Outage Report (via Outage Record) / Organization Business Unit (via UsagePoint, Geo Region and Sub Region) / Day

PKG_DWD_OUTG_USG_PNT

Populate target table DWD_OUTG_USG_PNT. For more information, see Outage By Usage Point Drvd.

Table 7–29   PKG_DWD_OUTG_USG_PNT Package Source Tables

Source Table Name
DWB_OUTG_REC
DWR_ACCT
DWR_CUST
DWR_CUST_ACCT_ASGN
DWR_DAY
DWR_MTR
DWR_OPERATIONAL_DIM
DWR_ORG_BSNS_UNIT
DWR_OUTG_RPT
DWR_OUTG_USG_PNT_ASGN
DWR_USG_PNT
DWR_ZN
DWV_GEOGRAPHY_ZONES_DIM

Table 7–30   DWD_END_DVC_EVT_DVC_DAY Business Rules

Column	Description	Calculation
OUTG_DRTN	Outage Duration	Outage Report.Outage Duration Grouped By Outage Report (via Outage Record) / Organization Business Unit / Day
OUTG_CNT	Outage Count	# of outage instance
CUST_OUT_CNT	Customer Out Count	Outage Report.Customer Count Grouped By Outage Report (via Outage Record) / Organization Business Unit / Day

PKG_DWD_RLBLTY_IND_CITY_MO

Populate target table DWD_RLBLTY_IND_CITY_MO. For more information, see Reliability Indices By City Month Drvd.

Table 7–31   PKG_DWD_RLBLTY_IND_CITY_MO Package Source Tables

Source Table Name
DWB_GEOGRAPHY_ZONES_DIM
DWB_OUTG_REC
DWD_OUTG_USG_PNT
DWR_CLNDR_MO
DWR_CLNDR_YR
DWR_DAY
DWR_USG_PNT
DWV_REGIONAL_ZONES_DIM

Table 7–32   DWD_RLBLTY_IND_CITY_MO Business Rules

Column	Description	Calculation
NBR_CUST_IMPT	Number Customer Impacted	sum(oup.outg_cnt) group by geo_city_key, substr(day_key,1,6);
NBR_CUST_SRV	Number Customer Served	count(usg_pnt_key) group by geo_city_key;
NBR_EVT	Number Events	count(oup.outg_rec_key) group by geo_city_key, substr(day_key,1,6);
NBR_TRBL_CALLS	Number Trouble Calls	
SAIDI	System Average Interruption Duration Index (SAIDI)	SAIDI = Σ(ri * Ni) / Ns Where, ri = Restoration time, minutes Ni = Total number of customer interrupted Ns = Total number of customer served
CAIDI	Customer Average Interruption Duration Index (CAIDI)	CAIDI = Σ(ri * Ni) / Σ(Ni) Where, ri = Restoration time, minutes Ni = Total number of customer interrupted Note: CAIDI = SAIDI / SAIFI
SAIFI	System Average Interruption Frequency Index (SAIFI)	SAIFI = Σ(Ni) / Ns Where, Ni = Total number of customer interrupted Ns = Total number of customer served
CAIFI	Customer Average Interruption Frequency Index (CAIFI)	CAIFI = Σ(No) / Ni Where, No = Number of interruptions Ni = Total number of customer interrupted
MAIFI	Momentary Average Interruption Frequency Index (MAIFI)	MAIFI = Σ(IDi*Ni) / Ns Where, IDi = Number if interrupting device operations Ni = Total number of customer interrupted Ns = Total number of customer served
ASAI	Average Service Availability Index (ASAI)	ASAI = [1 - (Σ(ri * Ni) / (NT * T))] * 100 Where, T = Time period under study, hours. ri = Restoration time, hours Ni = Total number of customers interrupted NT = Total number of customers served The ASAIusually calculated on either a monthly basis (730 hours) or a yearly basis (8,760 hours) For yearly value, = [1-(Σ(SAIDImonth)/8760)]*100
CMI	Customer Minutes of Interruption (CMI)	

PKG_DWD_RLBLTY_IND_FEDR_MO

Populate target table `DWD_RLBLTY_IND_FEDR_MO`. For more information, see
Reliability Indices By Feeder Month Drvd

Table 7–33   PKG_DWD_RLBLTY_IND_FEDR_MO Package Source Tables

Source Table Name
DWB_OUTG_REC
DWD_OUTG_USG_PNT
DWR_CLNDR_MO
DWR_CLNDR_YR
DWR_DAY
DWR_USG_PNT
DWV_OPERATIONAL_DIM

Table 7–34   DWD_RLBLTY_IND_CITY_MO Business Rules

Column	Description	Calculation
NBR_CUST_IMPT	Number Customer Impacted	sum(oup.outg_cnt) group by fedr_key, substr(day_key,1,6)
NBR_CUST_SRV	Number Customer Served	count(usg_pnt_key) group by fedr_key
NBR_EVT	Number Events	count(oup.outg_rec_key) group by fedr_key, substr(day_key,1,6)
NBR_TRBL_CALLS	Number Trouble Calls	
SAIDI	System Average Interruption Duration Index (SAIDI)	SAIDI = $\Sigma(r_i * N_i)$ / Ns Where, r_i = Restoration time, minutes N_i = Total number of customer interrupted Ns = Total number of customer served
CAIDI	Customer Average Interruption Duration Index (CAIDI)	CAIDI = $\Sigma(r_i * N_i)$ / $\Sigma(N_i)$ Where, r_i = Restoration time, minutes N_i = Total number of customer interrupted Note: CAIDI = SAIDI / SAIFI
SAIFI	System Average Interruption Frequency Index (SAIFI)	SAIFI = $\Sigma(N_i)$ / Ns Where, N_i = Total number of customer interrupted Ns = Total number of customer served
CAIFI	Customer Average Interruption Frequency Index (CAIFI)	CAIFI = $\Sigma(N_o)$ / N_i Where, N_o = Number of interruptions N_i = Total number of customer interrupted
MAIFI	Momentary Average Interruption Frequency Index (MAIFI)	MAIFI = $\Sigma(ID_i*N_i)$ / Ns Where, ID_i = Number if interrupting device operations N_i = Total number of customer interrupted Ns = Total number of customer served
ASAI	Average Service Availability Index (ASAI)	ASAI = [1 - ($\Sigma(r_i * N_i)$ / (NT * T))] * 100 Where, T = Time period under study, hours. r_i = Restoration time, hours N_i = Total number of customers interrupted NT = Total number of customers served The ASAIusually calculated on either a monthly basis (730 hours) or a yearly basis (8,760 hours) For yearly value, = [1-(Σ(SAIDImonth)/8760)]*100
CMI	Customer Minutes of Interruption (CMI)	

8

Oracle Utilities Data Model OLAP Model Dimensions

This chapter describes the Data Flow from the fact tables and dimension tables of Oracle Utilities Data Model foundation layer to the target materialize views and cubes of the Analytical Layer to support Oracle Utilities Data Model OLAP.

This chapter includes the following sections:

- Introduction to OLAP Architecture
- Oracle Utilities Data Model OLAP Dimensions

For more information, see Chapter 9, "Oracle Utilities Data Model OLAP Model Cubes".

Introduction to OLAP Architecture

Oracle Data Warehouse for utilities (Oracle Utilities Data Model Relational) contains the lowest level Meter Reading details measuring consumption and detection of events, low level combination of base tables and the summary, average, and so on, of Base and Derived data. Oracle Utilities Data Model was developed in a relational database.

General Process to Populate the OLAP Module in Oracle utilities Data Model

Oracle Utilities Data Model `oudm_sys` schema does the following:

- Directly maps the leaf level data from the relational table/mv into the OLAP cube.
- Cube organized materialized views represent the cube to SQL-based applications as materialized views that you can use for both refresh and query rewrite. With Query Re-write enabled, Oracle will automatically re-write SQL queries targeted against relational tables. to use the Cube-Organized Materialized View. To use this feature the OLAP cubes and relational components are in a single schema (`oudm_sys`).
- All cubes are available for the end user SQL based Query Tool access through CUBE_TABLE based SQL Views, which are created and maintained automatically during the cube build/update process.
- Cubes are built from level 0 DWA materialized views or DWR tables (which, when a date is present, usually means at the month level).

Using SQL to access the cubes and dimensions is a significant feature of Oracle OLAP because it enables reporting tools that only generate SQL to use all of the powerful features of the analytic workspace. In Oracle Database 11g this is achieved by the use

of the CUBE_TABLE function that extracts multidimensional data from a cube in an analytic workspace and presents it to the relational SQL engine in the form of a two dimensional table, such as, a set of rows and columns. It provides a mapping between the cube in the analytic workspace and the rows and columns that the SQL sees.

Query Rewrite to Cube Organized Materialized Views

Oracle Utilities Data Model uses SQL to query the relational base tables and the optimizer transparently translates the SQL to access either the table materialized views or the cube materialized views (and hence the analytic workspace cubes and dimensions) depending upon which provides the better performance. This allows all of the benefits of the analytic workspace to be easily available to any product using regular SQL.

Oracle Utilities Data Model OLAP Dimensions

The dimensions section describes the detail information for all the dimensions. Each dimension includes the following information:

- Levels
- Hierarchies
- Attributes and Attribute mappings

Table 8–1 lists the dimensions.

Table 8–1   Dimensions

Dimensions
Account: ACCT
Customer: CUST
Geography Usage Point: GEOUP
Manufacturer: MNFCTR
Meter:MTR
Operational Usage Point: OPTUP
Regional Usage Point: RGUP
Time: TIME
Usage Point: UP

Account: ACCT

This dimension keeps all the account information.

Table 8–2   Account (ACCT) Levels and Hierarchies

Level	Description	Account Hierarchy (HACCT)
TACCT	Total Account	TACCT
ACCT	Account	ACCT

Attribute Name: Long Description(LONG_DESCRIPTION)

Table 8–3   Account Long Description Attribute Mapping

Level	Mapping (Physical Column)
TACCT	'Total Account'
ACCT	DWR_ACCT.ACCT_DSCR

Attribute Name: Short Description(SHORT_DESCRIPTION)

Table 8–4   Account Short Description Attribute Mapping

Level	Mapping (Physical Column)
TACCT	'Total Account'
ACCT	DWR_ACCT.ACCT_CD

Customer: CUST

This dimension keeps all the information of individual customers.

Table 8–5   Customer (CUST) Levels and Hierarchies

Level	Description	Customer Hierarchy (HCUST)
CUST	Customer	CUST
TCUST	Total customer	TCUST
CUSTYP	Customer Type	CUSTYP
ICUST	Individual Customer	ICUST

Attribute Name: Long Description(LONG_DESCRIPTION)

Table 8–6   Customer Long Description Attribute Mapping

Level	Mapping (Physical Column)
CUST	DWR_CUST.LAST_NAME
TCUST	"Total Customer"
CUSTYP	DWL_CUST_TYP.CUST_TYP_NAME
ICUST	DWR_CUST.NAME

Attribute Name: Short Description(SHORT_DESCRIPTION)

Table 8–7   Customer Short Description Attribute Mapping

Level	Mapping (Physical Column)
CUST	DWR_CUST.CUST_CD
TCUST	"Total Customer"
CUSTYP	DWL_CUST_TYP.CUST_TYP_CD
ICUST	DWR_CUST.CUST_CD

Geography Usage Point: GEOUP

This dimension keeps all the usage point information at lower levels with geography information at higher levels, such as city, state, and so on.

Table 8–8   Geography Usage Point (GEOUP) Levels and Attributes

Level	Description	Geography Usage Point Hierarchy (HGEOUP)
TGEOUP	Total Geographical Usage Point	TGEOUP
STATE	STATE	STATE
CITY	CITY	CITY
GUP	GEOGRAPHY USAGE POINT	GUP

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–9   Geography Usage Point Long Description Attribute Mapping

Level	Mapping (Physical Column)
TGEOUP	'Total Geography UsagePoint'
STATE	DWV_GEOGRAPHY_ZONES_DIM.GEO_STATE_NAME
CITY	DWV_GEOGRAPHY_ZONES_DIM.GEO_CITY_NAME
GUP	DWV_GEOGRAPHY_ZONES_DIM.USG_PNT_CD

Attribute Name: Short Description(SHORT_DESCRIPTION)

Table 8–10   Geography Usage Point Short Description Attribute Mapping

Level	Mapping (Physical Column)
TGEOUP	'Total Geography UsagePoint'
STATE	DWV_GEOGRAPHY_ZONES_DIM.GEO_STATE_CD
CITY	DWV_GEOGRAPHY_ZONES_DIM.GEO_CITY_CD
GUP	DWV_GEOGRAPHY_ZONES_DIM.USG_PNT_CD

Manufacturer: MNFCTR

This dimension keeps the information of product asset model at lower level and manufacturer information at higher level.

Table 8–11   Manufacturer (MNFCTR) Levels and Hierarchies

Level	Description	Manufacturer Hierarchy (HMNFCTR)
TMNFCTR	Total Manufacturers	'TMNFCTR
MNFCTR	Manufacturer	MNFCTR
PRASTMDL	Product Asset Model	PRASTMDL

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–12   Manufacturer Long Description Attribute Mapping

Level	Mapping (Physical Column)
TMNFCTR	'Total Manufacturer'
MNFCTR	DWR_MNFCTR.NAME
PRASTMDL	DWR_PROD_ASST_MDL.ASST_MDL_USG_KIND_CD

Attribute Name: Short Description (SHORT_DESCRIPTION)

Table 8–13   Manufacturer Short Description Attribute Mapping

Level	Mapping (Physical Column)
TMNFCTR	'Total Manufacturer'
MNFCTR	DWR_MNFCTR.MNFCTR_CD
PRASTMDL	DWR_PROD_ASST_MDL.ALS_NAME

Meter:MTR

This dimension keeps all the meter related information.

Table 8–14   Meter (MTR) levels and Hierarchies

Level	Description	Meter Hierarchy (HMTR)
TMTR	Total Meters	TMTR
MTR	Meter	MTR

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–15   Meter Long Description Attribute Mapping

Level	Mapping (Physical Column)
TMTR	'Total Meter'
MTR	DWR_MTR.NAME

Attribute Name: Short Description (SHORT_DESCRIPTION)

Table 8–16   Meter Short Description Attribute Mapping

Level	Mapping (Physical Column)
TMTR	'Total Meter'
MTR	DWR_MTR.MTR_CD

Operational Usage Point: OPTUP

This dimension keeps information of usage point at lower level and electricity power operational information at higher levels. For example, transformer, feeder, and substation.

Table 8–17   Operational Usage Point (OPTUP) Levels and Hierarchies

Level	Description	Operational Usage Point Hierarchy (HOPTUP)
TOPTUP	Total Operational Usage Point	TOPTUP
SBSTN	Substation	SBSTN
FDR	Feeder	FDR
TRTK	Transformer Tank	TRTK
OPTUP	Operation Usage Point	OPTUP

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–18   Operational Usage Point Long Description Attribute Mapping

Level	Mapping (Physical Column)
TOPTUP	'Total Operational UsagePoint'
SBSTN	DWV_OPERATIONAL_DIM.SBSTN_NAME
FDR	DWV_OPERATIONAL_DIM.FEDR_NAME
TRTK	DWV_OPERATIONAL_DIM.TRNSFRMR_TANK_CD
OPTUP	DWV_OPERATIONAL_DIM.USG_PNT_CD

Attribute Name: Short Description (SHORT_DESCRIPTION)

Table 8–19   Operational Usage Point Short Description Attribute Mapping

Level	Mapping (Physical Column)
TOPTUP	'Total Operational UsagePoint'
SBSTN	DWV_OPERATIONAL_DIM.SBSTN_CD
FDR	DWV_OPERATIONAL_DIM.FEDR_CD
TRTK	DWV_OPERATIONAL_DIM.TRNSFRMR_TANK_CD
OPTUP	DWV_OPERATIONAL_DIM.USG_PNT_CD

Regional Usage Point: RGUP

This dimension keeps information of usage point at lower level and regional information at higher levels. For example, sub-region and region.

Table 8–20   Regional Usage Point (RGUP) Levels and Hierarchies

Level	Description	Regional Usage Point Hierarchy (HRGUP)
TRGUP	Total Regional Usage Point	TRGUP
RG	Region	RG
SUBRG	Sub Region	SUBRG
RGUP	Regional Usage Point	RGUP

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–21   Regional Usage Point Long Description Attribute Mapping

Level	Mapping (Physical Column)
TRGUP	'Total Regional UsagePoint'
RG	DWV_REGIONAL_ZONES_DIM.GEO_RGN_DSCR
SUBRG	DWV_REGIONAL_ZONES_DIM.GEO_SB_RGN_DSCR
RGUP	DWV_REGIONAL_ZONES_DIM.USG_PNT_LOC_KEY

Attribute Name: Short Description (SHORT_DESCRIPTION)

Table 8–22   Regional Usage Point Short Description Attribute Mapping

Level	Mapping (Physical Column)
TRGUP	'Total Regional UsagePoint'

Table 8–22   (Cont.) Regional Usage Point Short Description Attribute Mapping

Level	Mapping (Physical Column)
RG	DWV_REGIONAL_ZONES_DIM.GEO_RGN_DSCR
SUBRG	DWV_REGIONAL_ZONES_DIM.GEO_SB_RGN_DSCR
RGUP	DWV_REGIONAL_ZONES_DIM.USG_PNT_LOC_KEY

Time: TIME

This dimension keeps all the information of time.

Table 8–23   Time (TIME) Levels and Hierarchies

Level	Description	Time Business Hierarchy (HTBSNS)
TTIME	Total Time	TTIME
BSNS_YR	Business Year	BSNS_YR
BSNS_HLF_YR	Business Half Year	BSNS_HLF_YR
BSNS_QTR	Business Quarter	BSNS_QTR
BSNS_MO	Business Month	BSNS_MO
CLNDR_YR	Calendar Year	CLNDR_YR
CLNDR_HLF_YR	Calendar Half Year	CLNDR_HLF_YR
CLNDR_QTR	Calendar Quarter	CLNDR_QTR
CLNDR_MO	Calendar Month	CLNDR_MO

Attribute Name: Long Description (LONG_DESCRIPTION)

Table 8–24   Time Long Description Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_DSCR
BSNS_YR	DWR_BSNS_YR.BSNS_YR_DSCR
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_DSCR
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_DSCR
BSNS_MO	DWR_BSNS_MO.BSNS_MO_DSCR
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_DSCR
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_DSCR
CLNDR_QTR	DWR_CLNDR_QTR.CLNDR_QTR_DSCR
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_DSCR

Attribute Name: Short Description(SHORT_DESCRIPTION)

Table 8–25   Time Short Description Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_CD
BSNS_YR	DWR_BSNS_YR.BSNS_YR_CD
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_CD

Table 8–25   (Cont.) Time Short Description Attribute Mapping

Level	Mapping (Physical Column)
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_CD
BSNS_MO	DWR_BSNS_MO.BSNS_MO_CD
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_KEY
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_KEY
CLNDR_QTR	DWR_CLNDR_QTR.CLNDR_QTR_KEY
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_KEY

Attribute Name: Time Number (TIME_NBR)

Table 8–26   Time Time Number Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_NBR
BSNS_YR	DWR_BSNS_YR.BSNS_YR_NBR
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_NBR
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_NBR
BSNS_MO	DWR_BSNS_MO.BSNS_MO_NBR
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_NBR
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_NBR
CLNDR_QTR	DWR_CLNDR_QTR.CLNDR_QTR_NBR
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_NBR

Attribute Name: Time Span (TIME_SPAN)

Table 8–27   Time Time Span Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_TIMESPN
BSNS_YR	DWR_BSNS_YR.BSNS_YR_TIMESPN
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_TIMESPN
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_TIMESPN
BSNS_MO	DWR_BSNS_MO.BSNS_MO_TIMESPN
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_TIMESPN
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_TIMESPN
CLNDR_QTR	DWR_CLNDR_QTR.CLNDR_QTR_TIMESPN
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_TIMESPN

Attribute Name: Start Date(START_DATE)

Table 8–28   Time Start Date Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_STRT_DT

Table 8–28   (Cont.) Time Start Date Attribute Mapping

Level	Mapping (Physical Column)
BSNS_YR	DWR_BSNS_YR.BSNS_YR_STRT_DT
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_STRT_DT
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_ STRT_DT
BSNS_MO	DWR_BSNS_MO.BSNS_MO_STRT_DT
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_STRT_DT
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_STRT_DT
CLNDR_QTR	DWR_CLNDR_QTR.CLNDR_QTR_STRT_DT
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_STRT_DT

Attribute Name: End Date (END_DATE)

Table 8–29   Time End Date Attribute Mapping

Level	Mapping (Physical Column)
TTIME	DWR_TIME_TOT.TOT_END_DT
BSNS_YR	DWR_BSNS_YR.BSNS_YR_END_DT
BSNS_HLF_YR	DWR_BSNS_HLF_YR.BSNS_HLF_YR_END_DT
BSNS_QTR	DWR_BSNS_QTR.BSNS_QTR_END_DT
BSNS_MO	DWR_BSNS_MO.BSNS_MO_END_DT
CLNDR_YR	DWR_CLNDR_YR.CLNDR_YR_END_DT
CLNDR_HLF_YR	DWR_CLNDR_HLF_YR.CLNDR_HLF_YR_END_DT
CLNDR_QTR	
CLNDR_MO	DWR_CLNDR_MO.CLNDR_MO_END_DT

Usage Point: UP

Table 8–30   Usage Point (USGPNT) Levels and Hierarchies

Level	Description	Usage Point Hierarchy (HUSGPNT)
TUSGPT	Total Usage Point	TUSGPT
USGPT	Usage Point	USGPT

Attribute Name: Long Description(LONG_DESCRIPTION)

Table 8–31   Usage Point Long Description Attribute Mapping

Level	Mapping (Physical Column)
TUSGPT	'Total UsagePoint'
USGPT	DWR_USG_PNT.USG_PNT_CD

Attribute Name: Short Description(SHORT_DESCRIPTION)

Table 8–32   Usage Point Short Description Attribute Mapping

Level	Mapping (Physical Column)
TUSGPT	'Total UsagePoint'
USGPT	DWR_USG_PNT.USG_PNT_CD

9

Oracle Utilities Data Model OLAP Model Cubes

This chapter of Oracle Utilities Data Model Reference describes the Data Flow between fact tables and dimension tables of Oracle Utilities Data Model relational part to target materialize views and cubes to support the module Oracle Utilities Data Model OLAP.

This chapter includes the following section:

- Oracle Utilities Data Model OLAP Cubes

For more information, see Chapter 8, "Oracle Utilities Data Model OLAP Model Dimensions".

> **Note:** All materialized views underlying the OLAP cubes are disabled by default. To enable the cube materialized views, you must follow the steps outlined in *Oracle Utilities Data Model Implementation and Operations Guide*.

Oracle Utilities Data Model OLAP Cubes

For each cube, each section includes the following cube information:

- Description
- Dimensions (leaf load level and load sequence)
- Base Measures with Physical Mapping and Description
- Derived Measure with the Logical Name and the Calculations

Table 9–1 lists the Oracle Utilities Data Model OLAP cubes.

Table 9–1   OLAP Cubes

Cubes
Meter Reading Account Cube: ACCTMTRR
End Device Event Customer Cube: CUST_ENDVC
End Device Event by Device Cube: DVC_ENDVC
Meter Reading Geo Usage Point Cube: GUSPMTRR
Meter Reading Operational Usage Point Cube: OUSPMTRR
Meter Reading Regional Usage Point Cube: RUSPMTRR
Meter Reading Customer Cube: CUSTMTRR

> **Note:** Oracle Utilities Data Model includes base measures with
> format such as, *XXXX*1. These base measures are intended for internal;
> Oracle Utilities Data Model uses these base measures to calculate `EOP_`
> *XXXX* (end of period value). Do not use these measures for reporting.

Meter Reading Account Cube: ACCTMTRR

This cube provides information on the aggregate meter readings of different accounts
by month. It is based on dimensions like time, meter, and account.

Physical Name: ACCTMTRR

Dimensions and Load Level

The fact data of Meter Reading Account Cube will be loaded from the relational
schema at these dimension levels (leaf level).

Table 9–2   Meter Reading Account Cube Dimensions and Load Level

Dimension Name	Load Level
Account	Account
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The Meter Reading Account Cube is aggregated by the order and operators on
dimensions shown in Table 9–3.

Table 9–3   Meter Reading Account Cube Aggregation and Order

Dimension Name	Operator	Order
Time	Sum	1
Account	Sum	2
Meter	Sum	3

Table 9–4   Meter Reading Account Cube Descriptions and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW	Max KW	Measure	DWA_MTR_RDNG_MO_ACCT.MAX_KW
TMXKW	Total Max KW	Measure	DWA_MTR_RDNG_MO_ACCT.TOT_KWH
MXKW_LP	Max KW Last Period	Calculated Measure	LAG(MTRRACCT.MXKW, 1) OVER (HIERARCHY "TIME".HTCLNDR)
MXKW_LY	Max KW Last Year	Calculated Measure	LAG(MTRRACCT.MXKW, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD	Max KW YTD	Calculated Measure	SUM(MTRRACCT.MXKW) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)

Table 9–4   (Cont.) Meter Reading Account Cube Descriptions and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW_YTD_LY	MAX KW YTD Last Year	Calculated Measure	LAG(MTRRACCT.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD_ PCT_LY	MXKW YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_ PERCENT(MTRRACCT.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_LP	Total KWH Last Period	Calculated Measure	LAG(MTRRACCT.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR)
TKWH_LY	Total KWH Last Year	Calculated Measure	LAG(MTRRACCT.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD	Total KWH YTD	Calculated Measure	SUM(MTRRACCT.TKWH) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
TKWH_YTD_LY	Total KWH YTD Last Year	Calculated Measure	LAG(MTRRACCT.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD_ PCT_LY	Total KWH YTD Percent Change Last Year	Calculated Measure	LAG(MTRRACCT.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

End Device Event Customer Cube: CUST_ENDVC

This cube stores the aggregates on the end device events by customer by month. It is based on time, customer, and operational usage point dimensions.

Physical Name: CUST_ENDVC

Dimensions and Load Level

The fact data of End Device Event Customer Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–5   End Device Event Customer Cube Dimensions and Load Level

Dimension Name	Load Level
Time	Business Month
Customer	Customer Code
Operational Usage Point	Sub Station

Aggregation Order/Operator

The End Device Event Customer Cube is aggregated by the order and operators on dimensions shown in Table 9–6.

Table 9–6   End Device Event Customer Cube Aggregation and Order

Dimension Name	Operator	Order
Operational Usage Point	Sum	1
Customer	Sum	2
Time	Sum	3

Table 9–7   End Device Event Customer Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
RVS_MTR_CNT	Reversed Meter Count	Measure	DWA_END_DVC_EVT_CUST_ MO.USG_PNT_KEY
STPD_MTR_CNT	Stopped Meter Event Count	Measure	DWA_END_DVC_EVT_CUST_ MO.RVS_MTR_CNT
TMPR_MTR_CNT	Tamper Meter Count	Measure	DWA_END_DVC_EVT_CUST_ MO.STPD_MTR_CNT
RVS_MTR_CNT_LP	RVS MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.RVS_MTR_CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)
RVS_MTR_CNT_LY	RVS MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.RVS_MTR_CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
STPD_MTR_CNT_LP	Stopped MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.STPD_MTR_ CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)
STPD_MTR_CNT_LY	Stopped MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.STPD_MTR_ CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TMPR_MTR_CNT_LP	TMPR MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.TMPR_MTR_ CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TMPR_MTR_CNT_LY	TMPR MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.TMPR_MTR_ CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

End Device Event by Device Cube: DVC_ENDVC

This cube stores the aggregates on the end device events by different devices by month. It is based on time, meter, and manufacturer dimensions.

Physical Name: DVC_ENDVC

Dimensions and Load Level

The fact data of End device Event by Device Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–8   End Device Event by Device Cube Dimensions and Load Level

Dimension Name	Load Level
Manufacturer Product	Asset Model
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The End Device Event by Cube is aggregated by the order and operators on dimensions shown in Table 9–9.

Table 9–9   End Device Event by Device Cube Aggregation and Order

Dimension Name	Operator	Order
Manufacturer	Sum	1
Meter	Sum	2
Time	Sum	3

Table 9–10   End Device Event by Device Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
RVS_MTR_CNT	Reversed Meter Count	Measure	DWA_END_DVC_EVT_CUST_MO.USG_PNT_KEY
STPD_MTR_CNT	Stopped Meter Event Count	Measure	DWA_END_DVC_EVT_CUST_MO.RVS_MTR_CNT
TMPR_MTR_CNT	Tamper Meter Count	Measure	DWA_END_DVC_EVT_CUST_MO.STPD_MTR_CNT
RVS_MTR_CNT_LP	RVS MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.RVS_MTR_CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)
RVS_MTR_CNT_LY	RVS MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.RVS_MTR_CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
STPD_MTR_CNT_LP	Stopped MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.STPD_MTR_CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)

Table 9–10   (Cont.) End Device Event by Device Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
STPD_MTR_CNT_LY	Stopped MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.STPD_MTR_CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TMPR_MTR_CNT_LP	TMPR MTR CNT Last Period	Calculated Measure	LAG(ENDVC_CUST.TMPR_MTR_CNT, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TMPR_MTR_CNT_LY	TMPR MTR CNT Last Year	Calculated Measure	LAG(ENDVC_CUST.TMPR_MTR_CNT, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Meter Reading Geo Usage Point Cube: GUSPMTRR

This cube provides information on the aggregate meter reading by different geographies by month. It is based on the following dimensions like time, meter, and geography usage point.

Physical Name: GUSPMTRR

Dimensions and Load Level

The fact data of Meter Reading Geo Usage Point Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–11   Meter Reading Geo Usage Point Cube Dimensions and Load Level

Dimension Name	Load Level
Geography Usage Point	Geography Usage Point
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The Meter Reading Geo Usage Point Cube is aggregated by the order and operators on dimensions shown in Table 9–12.

Table 9–12   Meter Reading Geo Usage Point Cube Aggregation and Order

Dimension Name	Operator	Order
Time	Sum	1
Meter	Sum	2
Geography Usage Point	Sum	3

Table 9–13   Meter Reading Geo Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW	Max KW	Measure	DWA_MTR_RDNG_MO_ UP.MAX_KW
TMXKW	Total KW Hour	Measure	DWA_MTR_RDNG_MO_UP.TOT_ KWH
MXKW_LP	Max KW Last Period	Calculated Measure	LAG(MTRRGUSP.MXKW, 1) OVER (HIERARCHY "TIME".HTCLNDR)
MXKW_LY	Max KW Last Year	Calculated Measure	LAG(MTRRGUSP.MXKW, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD	Max KW YTD	Calculated Measure	SUM(MTRRGUSP.MXKW) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
MXKW_YTD_LY	MAX KW YTD Last Year	Calculated Measure	LAG(MTRRGUSP.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD_PCT_LY	MXKW YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_ PERCENT(MTRRGUSP.MXKW_ YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_LP	Total KWH Last Period	Calculated Measure	LAG(MTRRGUSP.TKWH, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TKWH_LY	Total KWH Last Year	Calculated Measure	LAG(MTRRGUSP.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Table 9–13 (Cont.) Meter Reading Geo Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
TKWH_YTD	Total KWH YTD	Calculated Measure	SUM(MTRRGUSP.TKWH) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
TKWH_YTD_LY	Total KWH YTD Last Year	Calculated Measure	LAG(MTRRGUSP.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD_PCT_LY	Total KWH YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_ PERCENT(MTRRGUSP.TKWH_ YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Meter Reading Operational Usage Point Cube: OUSPMTRR

This cube provides information on the aggregate meter reading by operational usage points by month. It is based on time, meter, and operational usage point dimensions.

Physical Name: OUSPMTRR

Dimensions and Load Level

The fact data of Meter Reading Operational Usage Point Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–14 Meter Reading Operational Usage Point Cube Dimensions and Load Level

Dimension Name	Load Level
Usage	Point
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The Meter Reading Operational Usage Point Cube is aggregated by the order and operators on dimensions shown in Table 9–15.

Table 9–15 Meter Reading Operational Usage Point Cube Aggregation and Order

Dimension Name	Operator	Order
Time	Sum	1
Account	Sum	2
Operational Usage	Point	3

Table 9–16   Meter Reading Operational Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW	Max KW	Measure	DWA_MTR_RDNG_MO_UP.MAX_KW
TMXKW	Total KW Hour	Measure	DWA_MTR_RDNG_MO_UP.TOT_KWH
MXKW_LP	Max KW Last Period	Calculated Measure	LAG(MTRROUSP.MXKW, 1) OVER (HIERARCHY "TIME".HTCLNDR)
MXKW_LY	Max KW Last Year	Calculated Measure	LAG(MTRROUSP.MXKW, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD	Max KW YTD	Calculated Measure	SUM(MTRROUSP.MXKW) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
MXKW_YTD_LY	MAX KW YTD Last Year	Calculated Measure	LAG(MTRROUSP.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD_PCT_LY	MXKW YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRROUSP.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_LP	Total KWH Last Period	Calculated Measure	LAG(MTRROUSP.TKWH, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TKWH_LY	Total KWH Last Year	Calculated Measure	LAG(MTRROUSP.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD	Total KWH YTD	Calculated Measure	SUM(MTRROUSP.TKWH) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
TKWH_YTD_LY	Total KWH YTD Last Year	Calculated Measure	LAG(MTRROUSP.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD_PCT_LY	Total KWH YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRROUSP.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Meter Reading Regional Usage Point Cube: RUSPMTRR

This cube stores the aggregate meter reading by different regions by month. This cube is based on dimensions, time, region, and meter.

Physical Name: RUSPMTRR

Dimensions and Load Level

The fact data of Meter Reading Regional Usage Point Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–17   Meter Reading Regional Usage Point Cube Dimensions and Load Level

Dimension Name	Load Level
Regional Usage Point	Regional Usage
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The Meter Reading Regional Usage Point Cube is aggregated by the order and operators on dimensions shown in Table 9–18.

Table 9–18   Meter Reading Regional Usage Point Cube Aggregation and Order

Dimension Name	Operator	Order
Time	Sum	1
Meter	Sum	2
Regional Usage Point	Sum	3

Table 9–19   Meter Reading Regional Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW	Max KW	Measure	DWA_MTR_RDNG_MO_UP.MAX_KW
TMXKW	Total KW Hour	Measure	DWA_MTR_RDNG_MO_UP.TOT_KWH
MXKW_LP	Max KW Last Period	Calculated Measure	LAG(MTRRRUSP.MXKW, 1) OVER (HIERARCHY "TIME".HTCLNDR)
MXKW_LY	Max KW Last Year	Calculated Measure	LAG(MTRRRUSP.MXKW, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD	Max KW YTD	Calculated Measure	SUM(MTRROUSP.MXKW) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
MXKW_YTD_LY	MAX KW YTD Last Year	Calculated Measure	LAG(MTRROUSP.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Table 9–19   (Cont.) Meter Reading Regional Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW_YTD_PCT_LY	MXKW YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRRRUSP.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_LP	Total KWH Last Period	Calculated Measure	LAG(MTRROUSP.TKWH, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TKWH_LY	Total KWH Last Year	Calculated Measure	LAG(MTRRRUSP.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD	Total KWH YTD	Calculated Measure	SUM(MTRRRUSP.TKWH) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
TKWH_YTD_LY	Total KWH YTD Last Year	Calculated Measure	LAG(MTRRRUSP.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD_PCT_LY	Total KWH YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRRRUSP.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

Meter Reading Customer Cube: CUSTMTRR

This cube stores the aggregate meter reading by different regions by month. This cube is based on dimensions, time, region, and meter.

Physical Name: CUSTMTRR

Dimensions and Load Level

The fact data of Meter Reading Customer Cube will be loaded from the relational schema at these dimension levels (leaf level).

Table 9–20   Meter Reading Customer Cube Dimensions and Load Level

Dimension Name	Load Level
Customer	Customer
Meter	Meter
Time	Calendar Month

Aggregation Order/Operator

The Meter Reading Customer Cube is aggregated by the order and operators on dimensions shown in Table 9–21.

Table 9–21   Meter Reading Customer Cube Aggregation and Order

Dimension Name	Operator	Order
Time	Sum	1
Customer	Sum	2
Meter	Sum	3

Table 9–22   Meter Reading Regional Usage Point Cube Description and Physical Columns

Physical Name	Description	Measure Type	Physical Column
MXKW	Max KW	Measure	DWA_MTR_RDNG_MO_CUST.TOT_KWH
TMKW	Total kilo watt hour	Measure	DWA_MTR_RDNG_MO_CUST.MAX_KW
MXKW_LP	Max KW Last Period	Calculated Measure	LAG(MTRRCUST.MXKW, 1) OVER (HIERARCHY "TIME".HTCLNDR)
MXKW_LY	Max KW Last Year	Calculated Measure	LAG(MTRRCUST.MXKW, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD	Max KW YTD	Calculated Measure	SUM(MTRRCUST.MXKW) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
MXKW_YTD_LY	MAX KW YTD Last Year	Calculated Measure	LAG(MTRRCUST.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
MXKW_YTD_PCT_LY	MXKW YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRRCUST.MXKW_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_LP	Total KWH Last Period	Calculated Measure	LAG(MTRRCUST.TKWH, 1) OVER (HIERARCHY "TIME".HTCLNDR)
TKWH_LY	Total KWH Last Year	Calculated Measure	LAG(MTRRCUST.TKWH, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD	Total KWH YTD	Calculated Measure	SUM(MTRRCUST.TKWH) OVER HIERARCHY ("TIME".HTCLNDR BETWEEN UNBOUNDED PRECEDING AND CURRENT MEMBER WITHIN ANCESTOR AT LEVEL "TIME".CLNDR_YR)
TKWH_YTD_LY	Total KWH YTD Last Year	Calculated Measure	LAG(MTRRCUST.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)
TKWH_YTD_PCT_LY	Total KWH YTD Percent Change Last Year	Calculated Measure	LAG_VARIANCE_PERCENT(MTRRCUST.TKWH_YTD, 1) OVER HIERARCHY ("TIME".HTCLNDR BY ANCESTOR AT LEVEL "TIME".HTCLNDR.CLNDR_YR POSITION FROM BEGINNING)

10

Oracle Utilities Data Model Data Mining Model

This chapter provides reference information about the data mining models provided with Oracle Utilities Data Model.

This chapter includes the following sections:

- About Data Mining in Oracle Utilities Data Model
- Oracle Utilities Data Model Mining Result Tables
- Model 1: Customer Savings and Customer Profile by DR Program
- Oracle Utilities Data Model Mining Setting Tables

About Data Mining in Oracle Utilities Data Model

Oracle Utilities Data Model data mining includes data mining intra-ETL package, data mining core package, source data views, apply data views, target tables, support tables, and setting tables. The source views are defined on source derived tables. These source views are used to train the models. The target tables contain the mining model rules and mining prediction results. Data mining core package builds mining models using data in source views as training data, and applies mining models on the data in apply views. Mining target tables are populated with mining model rules and prediction results. The data in the target tables can be presented in reports.

As shown in Table 10–1, the Oracle Utilities Data Model mining models use the specified algorithms for the specific mining problem.

Table 10–1   Oracle Utilities Data Model Algorithm Used

Model	Algorithms Used by Data Mining Model
Model 1: Customer Savings and Customer Profile by DR Program	Decision Tree (DT), Support Vector Machine (SVM)

Understanding the Mining Architecture

Figure 10–1 shows the architecture of data mining in Oracle Utilities Data Model. Oracle Utilities Data Model schema, *oudm_sys*, includes the following:

- Mining Model Source Views: Views defined on source derived table, `DWD_CUST_DR_PROG_PROFILE`. These views are used to train mining models.

- Mining Model Apply Views: Views defined on source derived tables, `DWD_CUST_DR_PROG_PROFILE`. These views are used to apply trained mining models.

- Mining Model Support Tables: Mining algorithm settings for different algorithms used in Oracle Utilities Data Model are stored in the support tables. These support

tables start with "DM". Building a mining model creates few tables and views which start with "DM$".

> **Note:** Do not delete tables and views that start with "DM" and "DM$". Deleting "DM$" tables and views would also delete the trained mining model.

- Mining Model Target Tables: Mining model target tables used for storing mining model rules and prediction results. Mining model rules are generated from the trained model and predictions results are produced when a trained model is applied on apply data.

- Mining Model Core Package: This is the core package for Oracle Utilities Data Model data mining. Each mining model has separate procedure in this package. Each procedure builds, tests, and applied mining model. It uses source views as training data, and applies trained model on apply views.

Figure 10–1   Oracle utilities Data Model Mining Packages Tables and Views
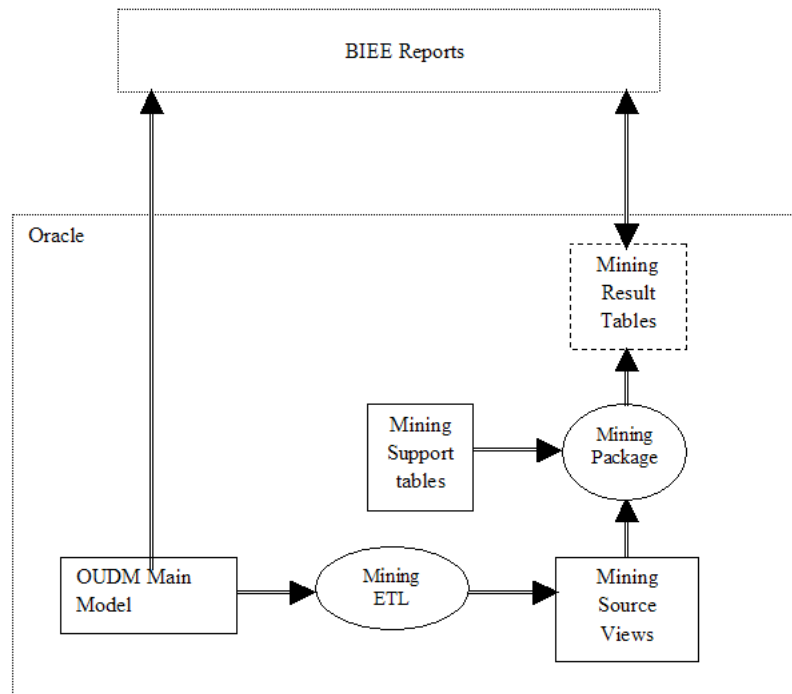
Oracle Utilities Data Model Mining Result Tables

Table 10–2 shows the DWR_CUST_SGMNT table.

Table 10–2   DWR_CUST_SGMNT Data Mining Model Details Table

Name	Data Type	Description
DEMAND_RESPN_PROG_KEY	NUMBER(30)	Surrogate key of demand response program
CUST_SGMNT_KEY	NUMBER (30,0)	Surrogate key for customer segment
CUST_SGMNT_CD	VARCHAR2 (120)	Natural key for customer segment
CUST_SGMNT_MDL_KEY	NUMBER (30,0)	Customer segment model key
PRNT_CUST_SGMNT_KEY	NUMBER (30,0)	Parent segment key
CUST_SGMNT_NAME	VARCHAR2 (400)	Customer segment name
SGMNT_CRTRA_KEY	NUMBER (30,0)	Segment criteria key
CUST_SGMNT_DSCR	VARCHAR2 (1000)	Customer segment description
IS_LEAF_IND	CHAR (1)	Indicates whether the node is a leaf indicator. The prediction of lead node is the final prediction
TREE_LVL	NUMBER (4,0)	Tree level
SGMNT_DISPRSN	VARCHAR2 (500)	Segment dispersion, which is also known as intra cluster distance
SPPRTG_REC_CNT	NUMBER (16,0)	Supporting record count - number of customers in the segment
STAT_CD	VARCHAR2 (120)	Status code of the record
EFF_FROM_DT	DATE	Effective from date
EFF_TO_DT	DATE	Effective to date

Table 10–2 shows the `DWR_CUST_SGMNT_DTL` table.

Table 10–3   DWR_CUST_SGMNT_DTL Data Mining Model Details Table

Name	Data Type	Description
DEMAND_RESPN_PROG_KEY	NUMBER(30)	Surrogate key of demand response program
SGMNT_ID	NUMBER	Customer segment Identifier
ATTRIBUTE_NAME	VARCHAR2(4000)	Name of customer attribute
MEAN	NUMBER	Mean of the customer attribute if the attribute is numeric
MODE_VALUE	VARCHAR2(4000)	Model of the customer attribute if the attribute is categorical

Model 1: Customer Savings and Customer Profile by DR Program

Customers can reduce their usage by participating in a Demand Response (DR) program. The utility company needs to let customers know the savings the customer can obtain by participating in the demand response program. For this purpose, there is the need to segment whole customer population in two steps.

- **STEP1: Segmentation Using Oracle Data Mining Clustering Algorithm** based on customers' demographic attributes. This will be done using Oracle Data Mining clustering algorithm (K-means or Hierarchical clustering)

- **STEP2 Segmentation and Customer Saving Calculation** For each STEP1 segment, segment based on customers' participation in DR programs:

- Customers participating in DR programs.

- Customers not participating in DR programs.

For each segment in STEP1, determine the average actual usage of customers not participating in DR program during the time of DR program instance; let us call it *Average actual usage of non participants*. In the same segment, for each participant customer determine delta **(Average actual usage of non participants - customer actual usage)** as a percentage of **Average actual usage of non participants** during the time of DR program instance.

%saving = 100*(Average actual usage of non participants - customer actual usage)/Average actual usage of non participants

"*%saving*" measure gives the energy saved by customer during the time of DR program instance due to participation.

STEP1: Segmentation Using Oracle Data Mining Clustering Algorithm

In this segmentation, the complete customer population is segmented into a predefined number of segments using customers' demographic attributes. By default, Oracle Data Mining chooses K-Means algorithm as the clustering function and 10 as number of segments. The default settings can be overridden using a setting a table.

Table 10–4 shows the structure of source table, which is used as training data.

Table 10–4   DWD_CUST_DR_PROG_PROFILE

Attribute Name	Description	Column Name	Source Table	Mapping
Customer Key	Customer Identifier	CUST_KEY	DWR_CUST	CUST_KEY
Demand Response Program Key	DR program Identifier	DEMAND_RESPN_PROG_KEY		
DEMOGRAPHIC ATTRIBUTES				
Customer Kind	Kind of Customer	CUST_KIND_CD	DWR_CUST	CUST_KIND_CD
Customer Type	Type of customer. For example: Industrial, Commercial, Residential	CUST_TYP_CD	DWR_CUST	CUST_TYP_CD
Dwelling Type	Facility Type	DWLNG_TYP	DWR_CUST	DWLNG_TYP
Dwelling Status	Facility Status	DWLNG_STAT	DWR_CUST	DWLNG_STAT
Dwelling Size	Facility Size	DWLNG_SZ	DWR_CUST	DWLNG_SZ
Dwelling Tenure	Facility Tenure	DWLNG_TENR	DWR_CUST	DWLNG_TENR
Income Group	Income Group	INCM_GRP	DWR_HH	INCM_GRP
Number of Children	Number of children in the household	NBR_OF_CHLDRN	DWR_HH	NBR_OF_CHLDRN
Number of Teens	Number of teens in the household	NBR_OF_TEENS	DWR_HH	NBR_OF_TEENS
Number of Adults	Number of adults in the household	NBR_OF_ADLTS	DWR_HH	NBR_OF_ADLTS
Number of Seniors	Number of seniors in the household	NBR_OF_SNRS	DWR_HH	NBR_OF_SNRS
Number of Persons	Number of persons in the household	NBR_OF_PRSN	DWR_HH	NBR_OF_PRSN
Number of Earners	Number of earners in the household	NBR_OF_ERNR	DWR_HH	NBR_OF_ERNR

Table 10–4   (Cont.) DWD_CUST_DR_PROG_PROFILE

Attribute Name	Description	Column Name	Source Table	Mapping
Business Legal Status	The legal status of the company. For example: Public, Private, and so on.	BSNS_LEGAL_STAT_CD	DWR_CUST	BSNS_LEGAL_STAT_CD
Customer Revenue Band	Customer Revenue Band	CUST_RVN_BND_CD	DWR_CUST	CUST_RVN_BND_CD (Derive it from payment and cost)
Nationality	Nationality	NTNLTY_CD	DWR_CUST	NTNLTY_CD
Education	Education Qualification	EDU_CD	DWR_CUST	EDU_CD
Marital Status	Marital Status	MRTL_STAT_CD	DWR_CUST	MRTL_STAT_CD
Gender	Gender	GNDR_CD	DWR_CUST	GNDR_CD
Job Position	Job Position	JB_POSN	DWR_CUST	JB_POSN
Annual Revenue	Annual Revenue	ANNUAL_RVN	DWR_CUST	ANNUAL_RVN (o for residential customers)
Annual Sales	Annual Sales	ANNUAL_SL	DWR_CUST	ANNUAL_SL (o for residential customers)
Equity Amount	Equity Amount	EQTY_AMT	DWR_CUST	EQTY_AMT (o for residential customers)
City	City	CITY	DWR_CUST	CITY
State	State	STATE	DWR_CUST	STATE
Country	Country	COUNTRY	DWR_CUST	COUNTRY
Ethnic Background	Ethnic Background	ETHNIC_BCKGRND	DWR_CUST	ETHNIC_BCKGRND
Source of Income	Source of Income	SRC_OF_INCM	DWR_CUST	SRC_OF_INCM
Special Need	Special Need	SPL_NEED	DWR_CUST	SPL_NEED
Economically Active Indicator	Economically Active Indicator	ECNMCLY_ACTV_IND	DWR_CUST	ECNMCLY_ACTV_IND
Domestic Indicator	Domestic company Indicator	DMSTC_IND	DWR_CUST	DMSTC_IND
Mail Allowed Indicator	Mail Allowed Indicator	MAIL_ALWD_IND	DWR_CUST	MAIL_ALWD_IND
Third Party Marketing Allowed Indicator	Third Party Marketing Allowed Indicator	THIRD_PRTY_MKTG_ALWD_IND	DWR_CUST	THIRD_PRTY_MKTG_ALWD_IND
Customer Payment Responsible Indicator	Customer Payment Responsible Indicator	CUST_PYMT_RESPBL_IND	DWR_CUST	CUST_PYMT_RESPBL_IND
VIP	VIP Flag	VIP	DWR_CUST	VIP
TARGET/OUTPUT ATTRIBUTES				
Customer Segment Code	Customer Segment Code	CUST_SGMNT_CD		
TECHNICAL QUALITY				
Creation Date	Date when this record is created	CREATED_DT	SYSDATE	
Created By	User who created this record	CREATED_BY	USER	
Updated Date	Date when this record updated	UPDATE_DT	SYSDATE	
Updated By	User who updated this record	UPDATE_BY	USER	
Effective from Date	Date from when this record is effective	EFF_FROM_DT	SYSDATE	

Table 10–4   (Cont.) DWD_CUST_DR_PROG_PROFILE

Attribute Name	Description	Column Name	Source Table	Mapping
Effective to Date	Date until when the record is effective	EFF_TO_DT	NULL	
Current Indicator	Whether this record is current or not. 'Y' - Yes, 'N' - No	CURR_IND	'Y'	
Status Code	Status of this record. 'A' - Active, 'I' - Inactive	STAT_CD	'A'	

Algorithms Used

Following algorithm is used to segment customers:

- K-Means

Algorithm Setting Table

`DM_STNG_CUST_PROFILE` is the setting table used for STEP1 segmentation using Oracle Data Mining segmentation algorithm. Following table shows the different settings used:

Table 10–5 shows setting values for STEP1 segmentation.

Table 10–5   Setting Values for STEP1 Segmentation

SETTING_NAME	SETTING_VALUE
DBMS_DATA_MINING.ALGO_NAME	ALGO_KMEANS
DBMS_DATA_MINING.KMNS_DISTANCE	KMNS_EUCLIDEAN
DBMS_DATA_MINING.KMNS_ITERATIONS	4
DBMS_DATA_MINING.CLUS_NUM_CLUSTERS	5

STEP2 Segmentation and Customer Saving Calculation

As mentioned earlier, each STEP1 segment can have both DR program participant customers and non-participant customers. Each STEP1 segment is further segmented into two segments using customer participation indicator; that is, one sub-segment for participant customers and the other sub-segment for non-participant customers.

For each STEP1 segment:

- Calculate the average of actual usage of non-participant customers during the DR program, let us call it **Average actual usage of non participants**

- For each participant customer, compute **%saving** as follows:

%saving =

$$\frac{100 * (Average\ actual\ usage\ of\ non\ participants - customer\ actual\ usage)}{Average\ actual\ usage\ of\ non\ participants}$$

For each participant customer, `PERCNT_CUST_SAVNG` column in mining target table `DWD_CUST_DR_PROG_PROFILE` is updated with the calculated **%saving**.

Oracle Utilities Data Model Mining Setting Tables

Use the algorithm settings tables to override default values of different settings of mining algorithms.

The following two setting tables have the same structure:

- `DM_STNG_USER_ALL`

- `DM_STNG_PROFILE_KMEANS`

Table 10–6 shows the structure of the two setting tables.

Table 10–6   Data Mining Setting Table

Name	Data Type	Description
SETTING_NAME	VARCHAR2(500)	Setting Name
SETTING_VALUE	VARCHAR2(500)	Setting Value

11

Oracle Utilities Data Model Utility Scripts

This chapter describes the Oracle Utilities Data Model utility scripts.

This chapter includes the following sections:

- Calendar Population

Calendar Population

The Calendar population scripts consist of two one-time installation packages.

Calendar Population Scripts

The Calendar population scripts include the following packages:

- `calendar_population_header.sql`
- `calendar_population_body.sql`

Running these packages does the following:

1. Prepares necessary changes for the OUDM_SYS schema.

2. Creates the Calendar_Population package that contains the following procedures:

   - RUN(*in_setup_start_date*, *in_setup_no_years*) is the main procedure to populate everything about calendar.

   - RBIW_Populate_Time_Hier_Clndr(*in_setup_start_date*, *in_setup_no_years*) sets up the data in base table for the Calendar hierarchy as specified in setup or install section.

   - RBIW_Time_hier_Star sets up the Time hierarchy reporting layer tables.

How to Populate Calendar Data

To populate calendar data:

1. Log in to OUDM_SYS user.

2. Execute the following SQL statement:

   ```
   exec Calendar_Population.run(date,num_years);
   ```

   where, *date* is the start date with which you want to populate calendar data. It is of type CHAR and should be input in the format 'YYYY-MM-DD' (for example,'2005-05-18'). *num_years* is the number of years to populate calendar data, which should be INTEGER.

Part III

Sample Reports

This part includes information on Oracle Utilities Data Model sample reports and setting up users and roles.

Part III contains the following chapters:

- Chapter 12, "Oracle Utilities Data Model Sample Reports"
- Chapter 13, "Oracle Utilities Data Model Users and Application Roles"

12

Oracle Utilities Data Model Sample Reports

This chapter provides Oracle Utilities Data Model sample reports.

> **Note:** Some of the reports shown may appear incomplete. The sample reports shown use manually generated data, and for data privacy and regulatory reasons, it shows only made up customers (with real data). Hence, if you notice data inconsistency between the reports, this is not due to Oracle Utilities Data Model, but due to the sample data.
>
> The reports shown in this chapter appear as shown when you install Oracle Utilities Data Model with the sample data.

This chapter includes the following sections:

- Credit and Collection Sample Reports
- Demand Response (DR) Sample Reports
- Meter Data Analysis Sample Reports
- Outage Analysis Sample Reports
- Revenue Protection Sample Reports
- Transformer Load Analysis Sample Reports

Credit and Collection Sample Reports

The credit and collection sample reports include the following reports: Top N Arrear Accounts.

Top N Arrear Accounts

This area includes the report: Top N Arrear Accounts.

Top N Arrear Accounts

This report, as shown in Figure 12–1 provides the total arrear amounts by month and the top 100 accounts with the highest 31+ days arrears amount in the selected month.

Report dimensions are:

- Calendar Month
- Customer

Figure 12–1   Credit and Collection: Top N Arrear Accounts Sample Report
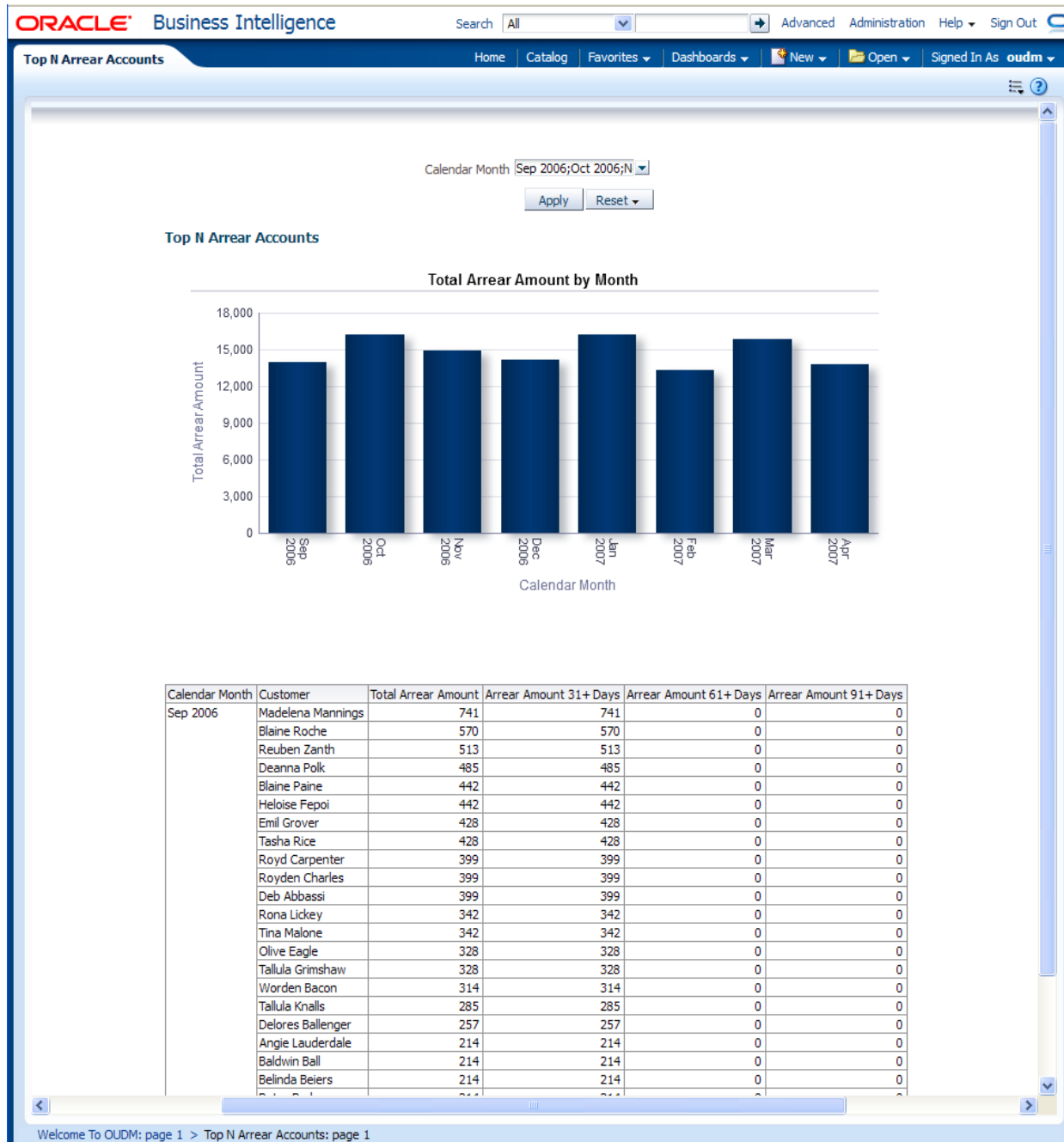
Demand Response (DR) Sample Reports

The demand response (DR) sample reports include the following areas:

- Customer Savings by Demand Response (DR) Program

Customer Savings by Demand Response (DR) Program

This area includes the report: Available Load Reduction by Program.

Available Load Reduction by Program

This report, as shown in Figure 12–2 provides the available load reduction for a given time by program.

Report dimensions are:

- Day

- Demand Response Program

Figure 12–2   Demand Response: Available Load Reduction by Program Sample Report
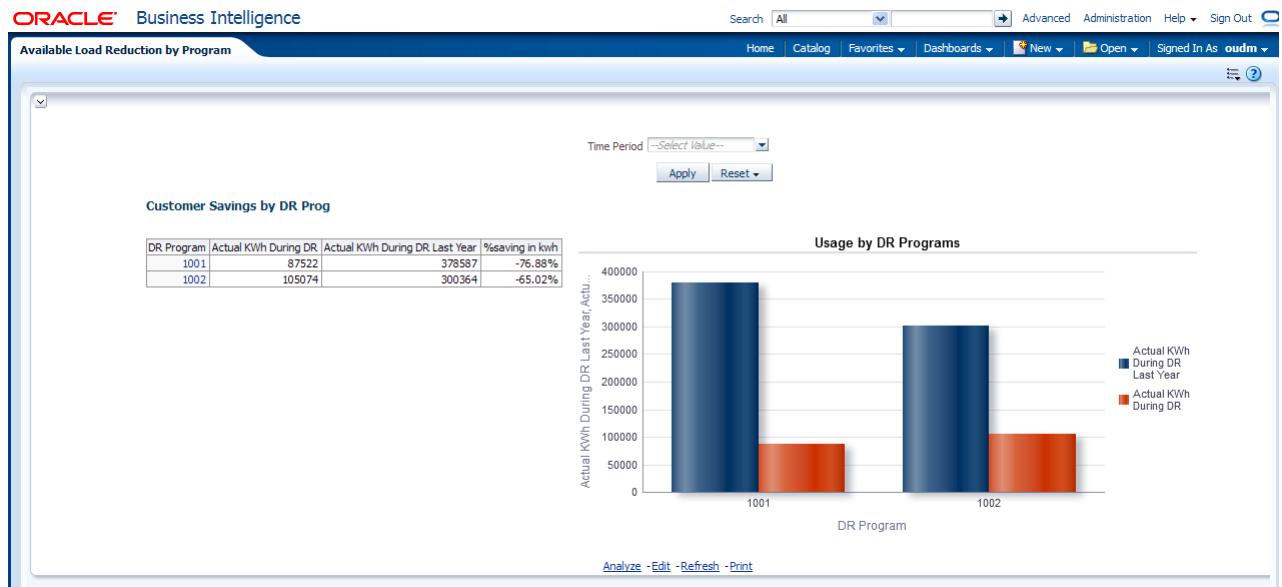
Meter Data Analysis Sample Reports

The meter data analysis sample reports include the following areas:

- Top N Customer by Usage

- Monthly Usage Season Profile

- Daily Usage Season Profile

- Monthly Total Usage

- Low Usage by Usage Point

- Time of Use Usage Profile

- TOU Usage Trend

- Top N Customer with Usage Change

- Customer Count by Usage Grouping

Top N Customer by Usage

This area includes the report Top N Customers by Usage.

Top N Customers by Usage

This report, as shown in Figure 12–3 provides the top 50 customers based on total usage in a given time period.

Report dimensions are:

- Calendar Month
- Customer

Figure 12–3   Meter Data Analysis: Top N Customers by Usage Sample Report
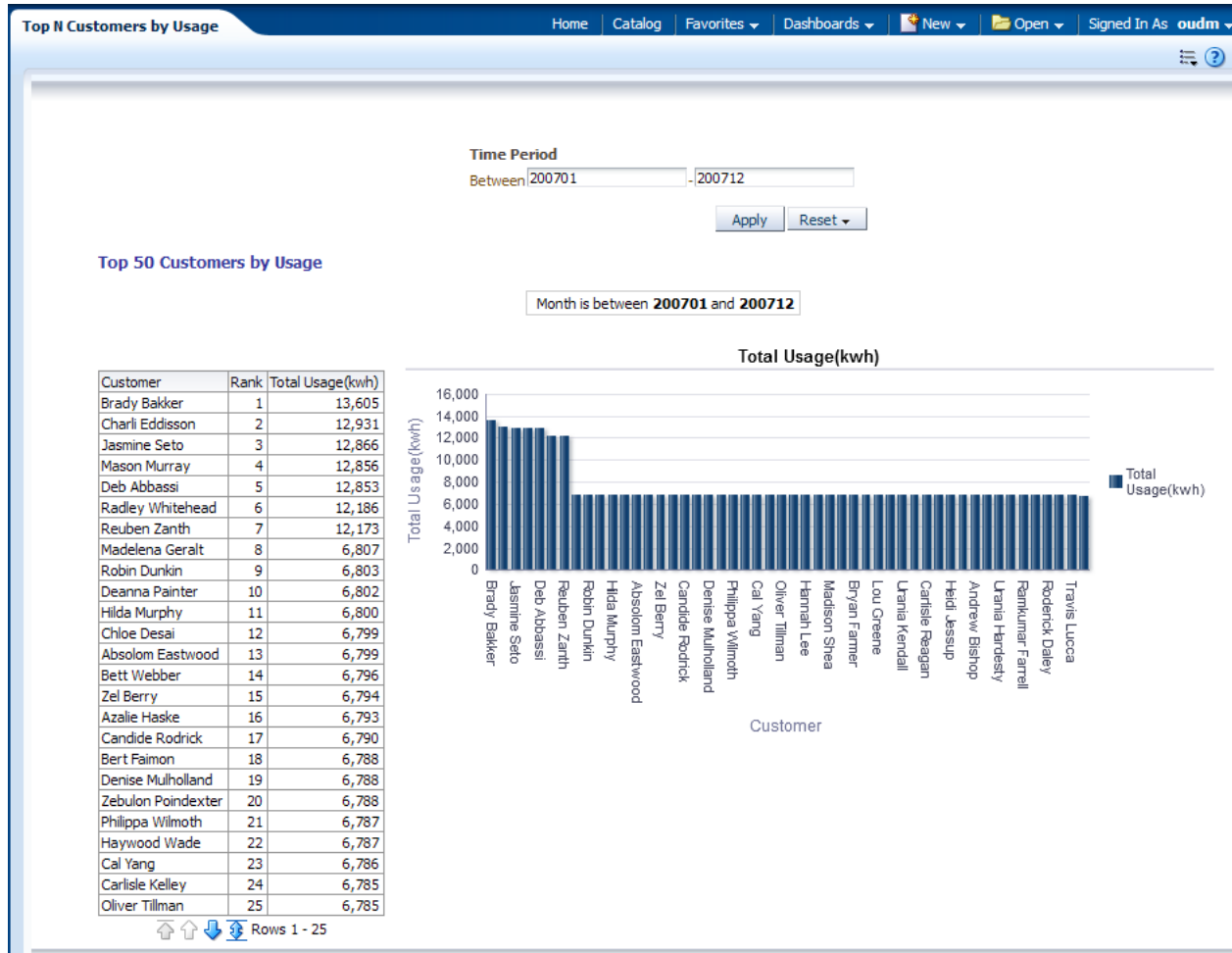
Monthly Usage Season Profile

This area includes the reports: Monthly Usage Season Profile by Geographical Zones Report and Monthly Usage Season Profile by Operational Zones Report.

Monthly Usage Season Profile by Geographical Zones Report

This report as shown in Figure 12–4 shows the average difference between summer and winter monthly usage during the selected year.

Report dimensions are:

- Calendar Month
- Geographical Zones
  - Usage Point
  - City

– State

Figure 12–4   Meter Data Analysis: Monthly Usage Season Profile by Geography Report
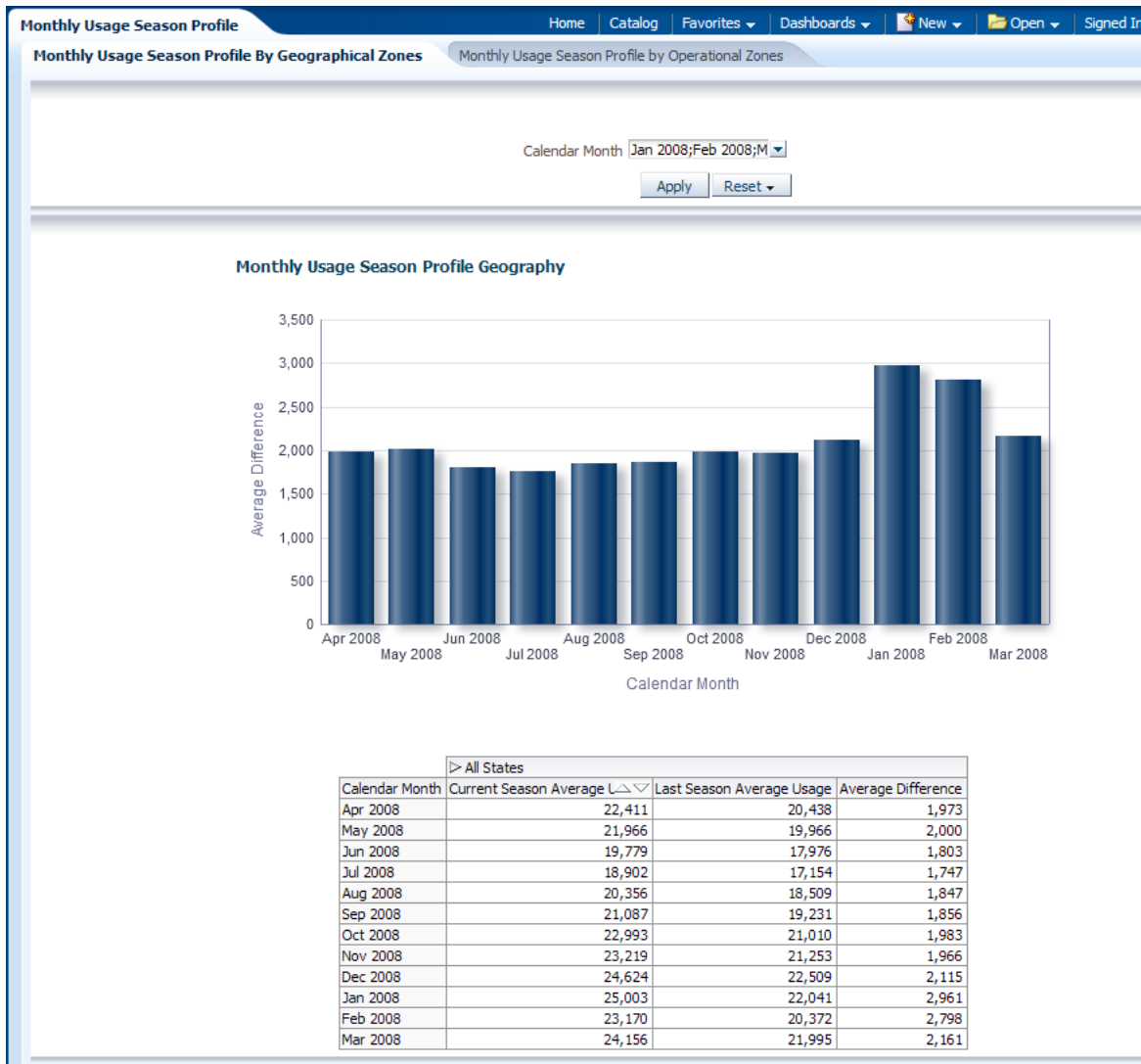
Monthly Usage Season Profile by Operational Zones Report

This report as shown in Figure 12–5 shows the average difference between summer and winter monthly usage during the selected year.

Report dimensions are:

- Calendar Month
- Operational
  - Usage Point
  - Transformer
  - Feeder
  - Substation

Figure 12–5   Meter Data Analysis: Monthly Usage Season Profile by Operational Zones Report

Daily Usage Season Profile

This area includes the reports: Daily Usage Season Profile by Operational Zones and Daily Usage Season Profile by Geographical Zones.

Daily Usage Season Profile by Operational Zones

This report, as shown in Figure 12–6 provides the average difference between summer and winter daily usage during the selected year.

Report dimensions are:

- Calendar

- Day

- Operational

  - Usage Point

  - Transformer

- – Feeder
- – Substation

Figure 12–6   Meter Data Analysis: Daily Usage Season Profile by Operational Zones
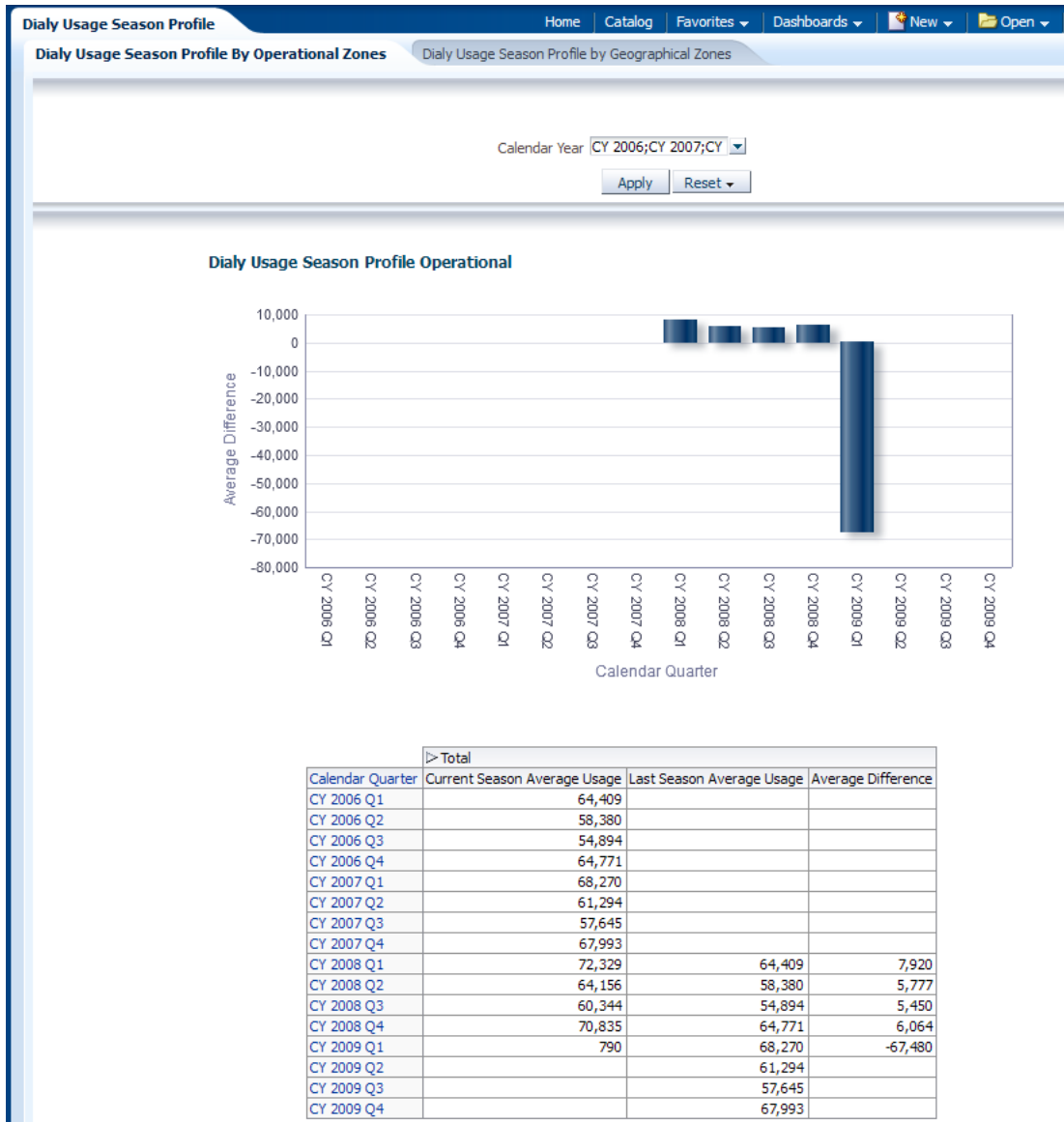
Daily Usage Season Profile by Geographical Zones

This as shown in Figure 12–7 provides the average difference between summer and winter daily usage during the selected year.

Report dimensions are:

- Calendar Month
- Day
- Geographical Zones
  - – Usage Point
  - – City

– State

Figure 12–7 Meter Data Analysis: Daily Usage Season Profile by Geographical Zones Report
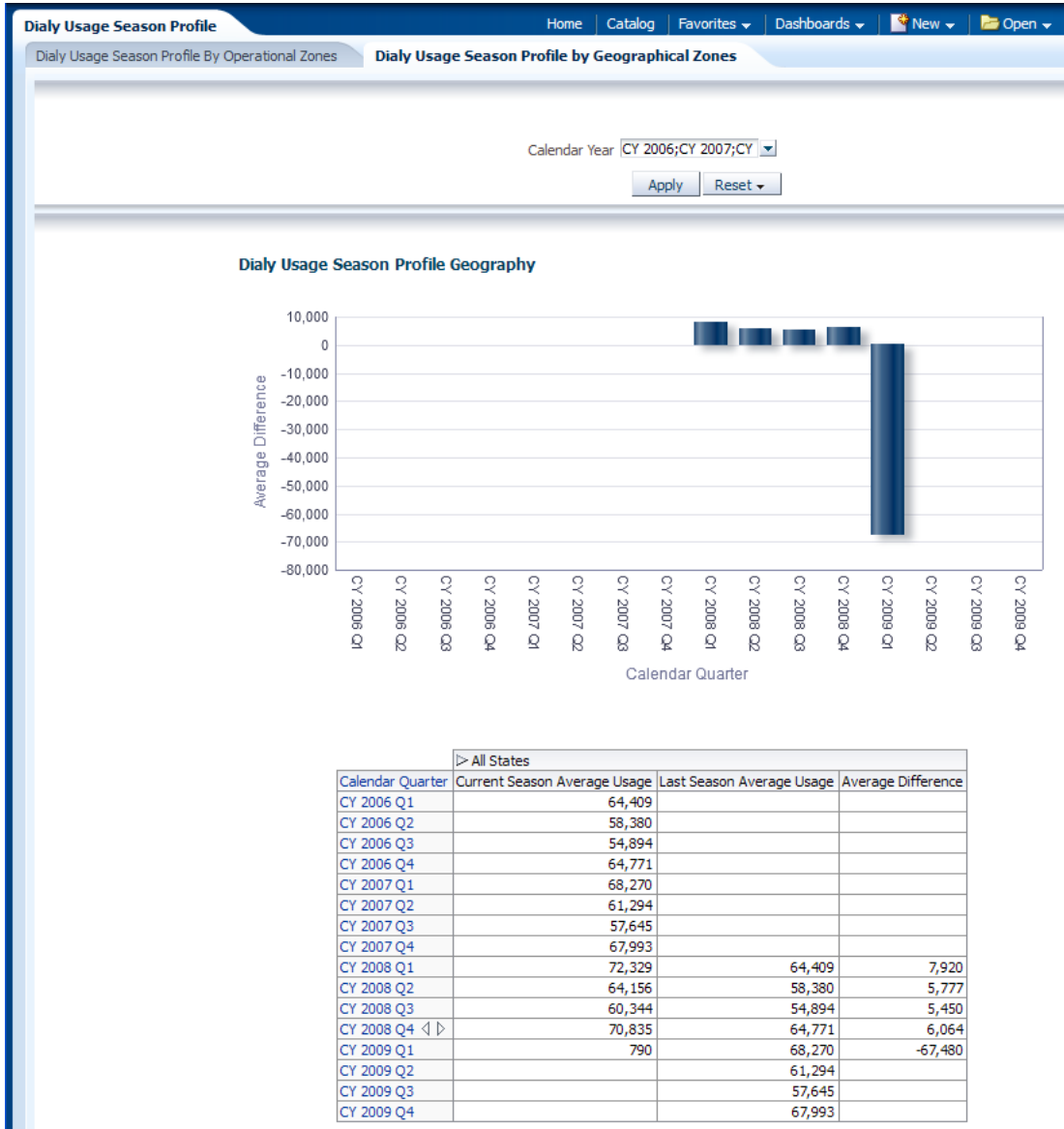
Monthly Total Usage

This area includes the reports: Operational Monthly Usage, Utility Monthly Usage, and Geographical Monthly Usage.

Operational Monthly Usage

This report, as shown in Figure 12–8 provides monthly total usage.

Report dimensions are:

- Calendar Month
- Operational
  - Usage Point

- Transformer

- Feeder

- Substation

Figure 12–8   Meter Data Analysis: Monthly Total Usage Operational Monthly Usage Report
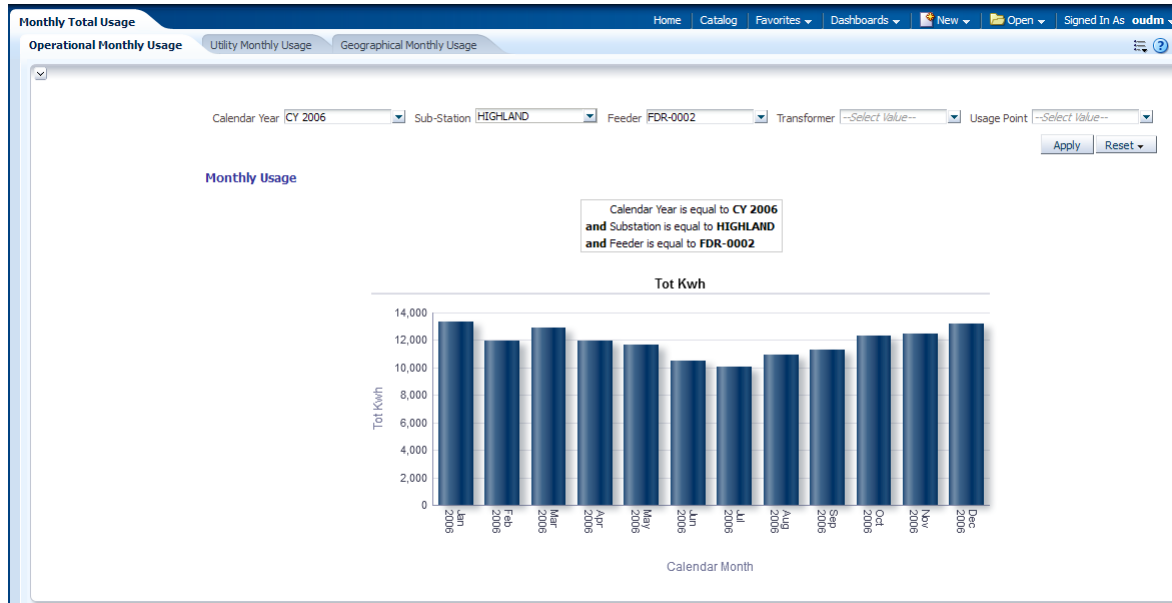
Utility Monthly Usage

This as shown in Figure 12–9 provides monthly total usage.

Report dimensions are:

- Calendar Month

- Regional Zones

  - Usage Point

  - Region

  - Subregion

Figure 12–9   Meter Data Analysis Monthly Total Usage: Utility Monthly Usage
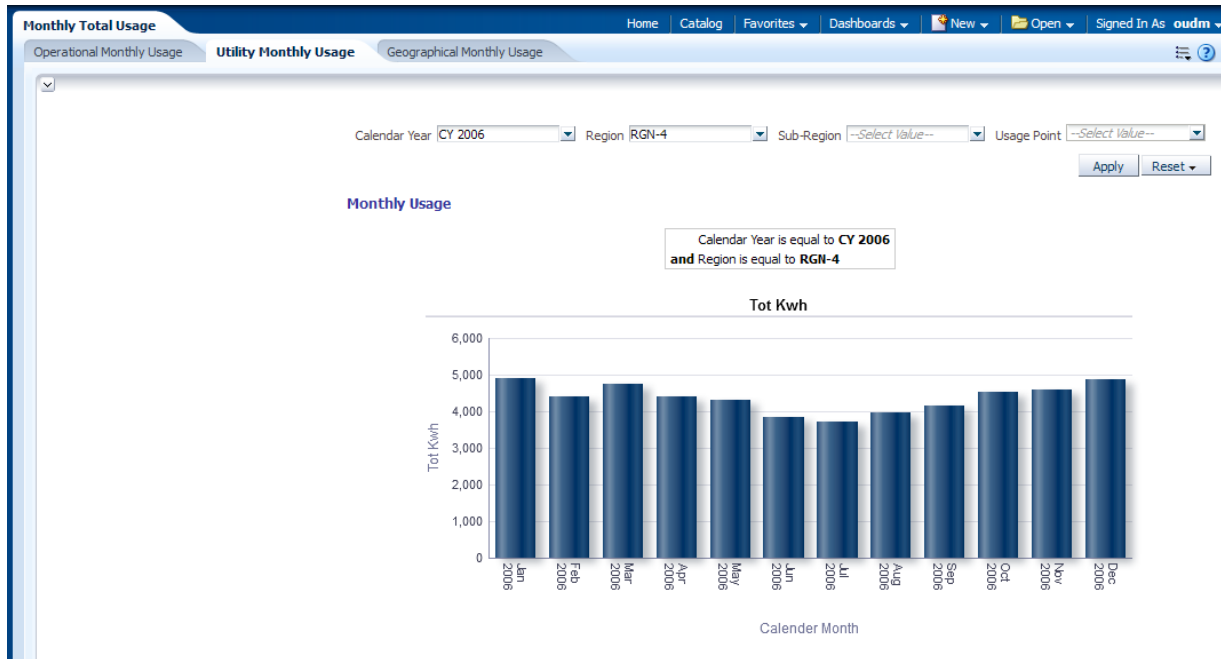

Geographical Monthly Usage

This as shown in Figure 12–10 provides geographical monthly usage.

Report dimensions are:

- Calendar Month
- Geographical Zones
    - Usage Point
    - City
    - State

Figure 12–10   Meter Data Analysis: Daily Usage Season Profile by Geographical Zones Report
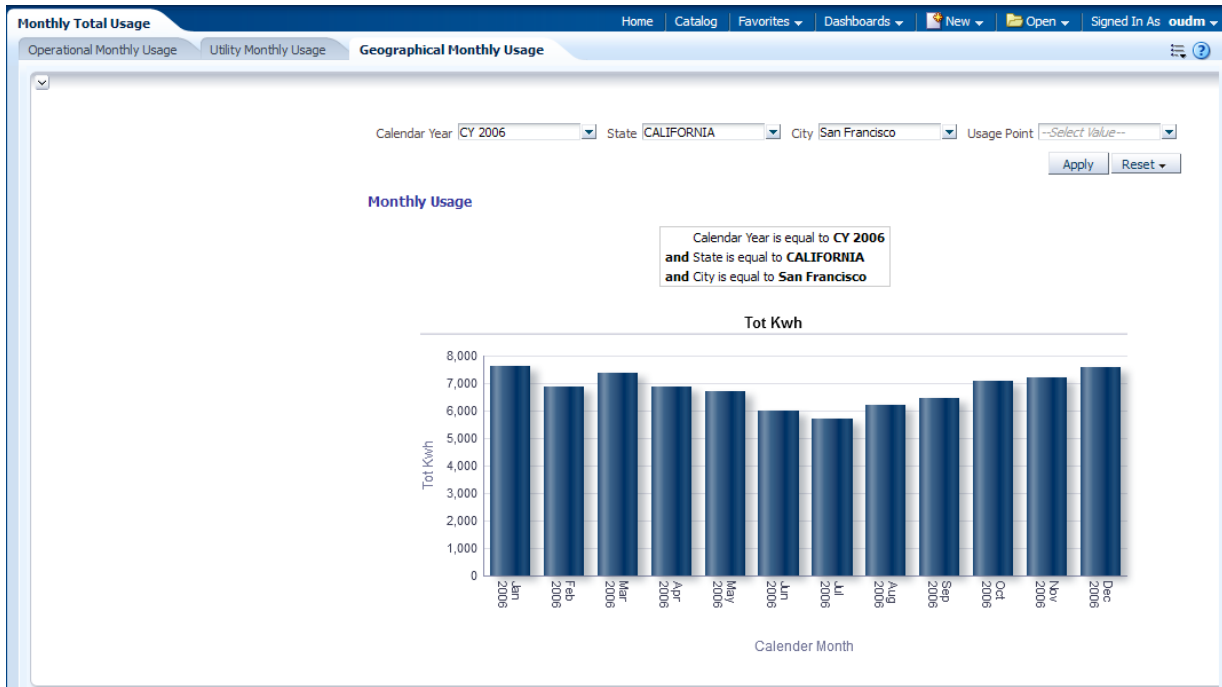
Low Usage by Usage Point

This area includes the report Low Usage by Usage Point.

Low Usage by Usage Point

This report, as shown in Figure 12–11 identifies service points with lowest consumption for the selected month.

Report dimensions are:

- Calendar Month
- Usage Point

Figure 12–11 Meter Data Analysis: Low Usage by Usage Point
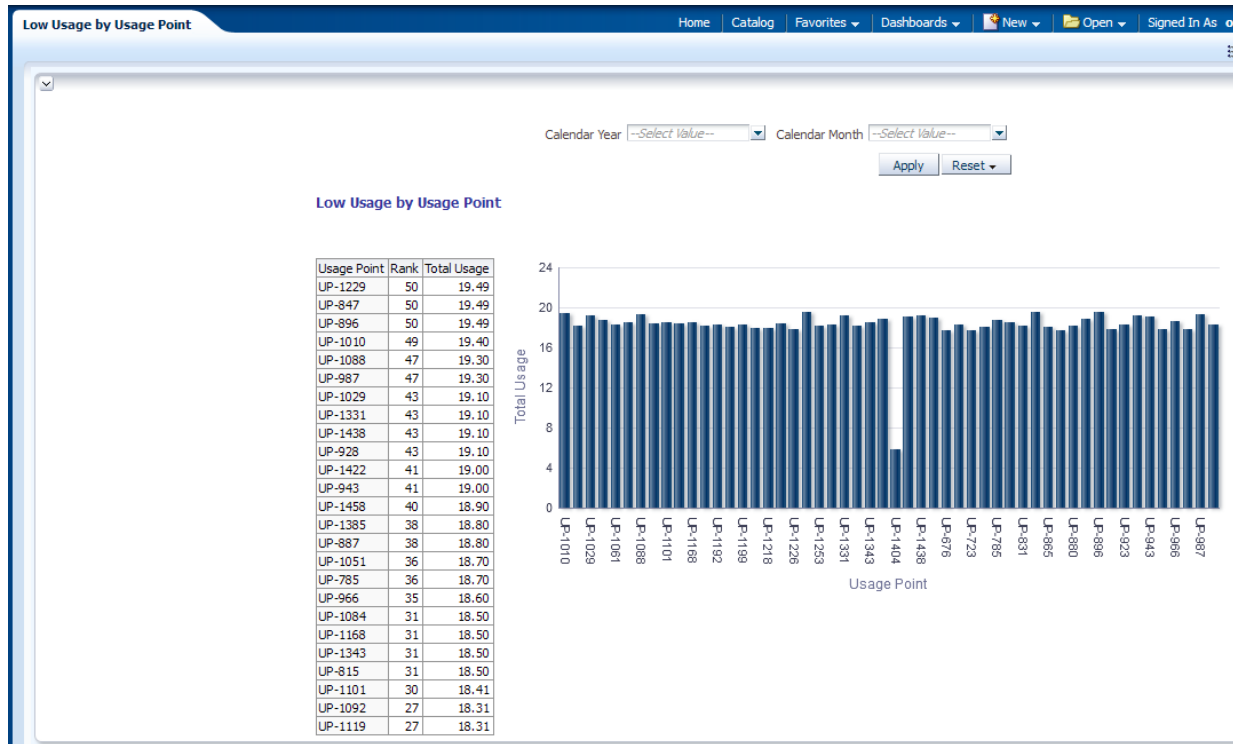
Time of Use Usage Profile

This area includes the report Time of Use Usage Profile.

Time of Use Usage Profile

This report, as shown in Figure 12–12 provides Time of Use (TOU) mapped measurement quantities over a given period at interval detail level (Hour).

Report dimensions are:

- Calendar Month

- Day

- Hour

- Operational

    - Usage Point

    - Transformer

    - Feeder

    - Substation

- Time of Use

Figure 12–12   Meter Data Analysis: Time of Use Usage Profile
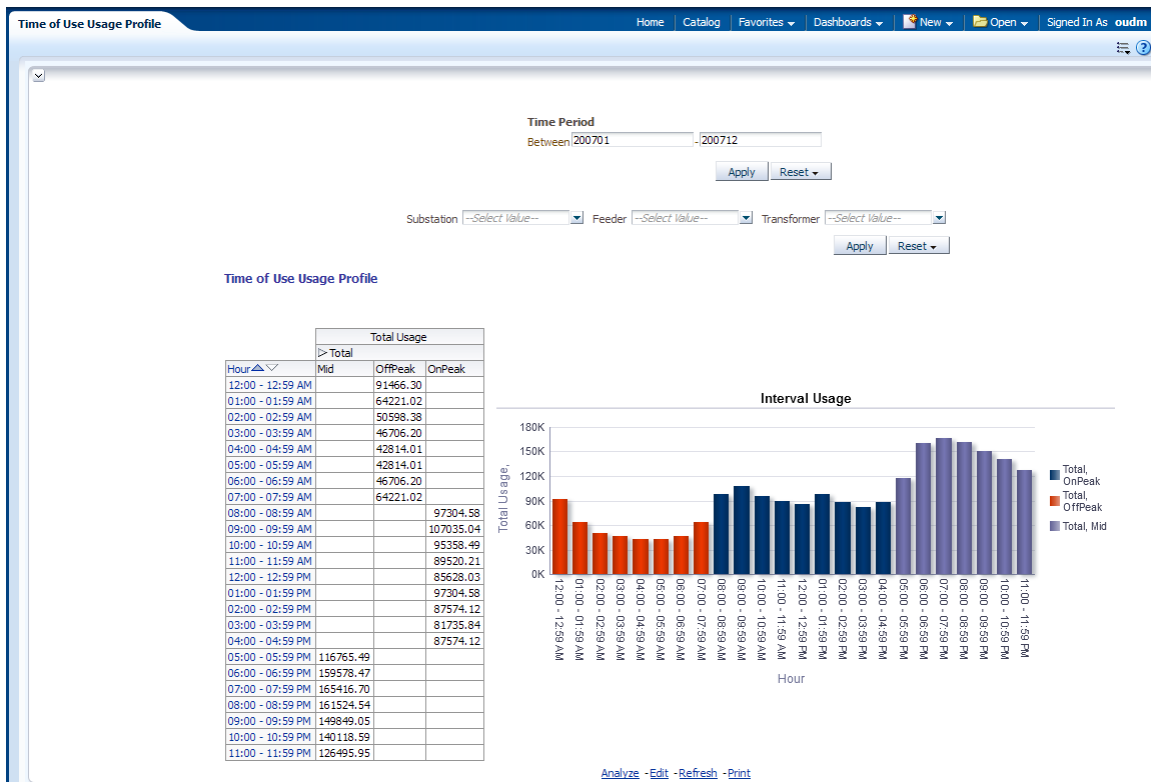
TOU Usage Trend

This area includes the report Time of Use Usage Trend.

Time of Use Usage Trend

This report, as shown in Figure 12–13 month usage trend by TOU period.

Report dimensions are:

- Calendar Month
- Operational
  - Usage Point
  - Transformer
  - Feeder
  - Substation
- Time of Use

Figure 12–13   Meter Data Analysis: Time of Use Usage Trend
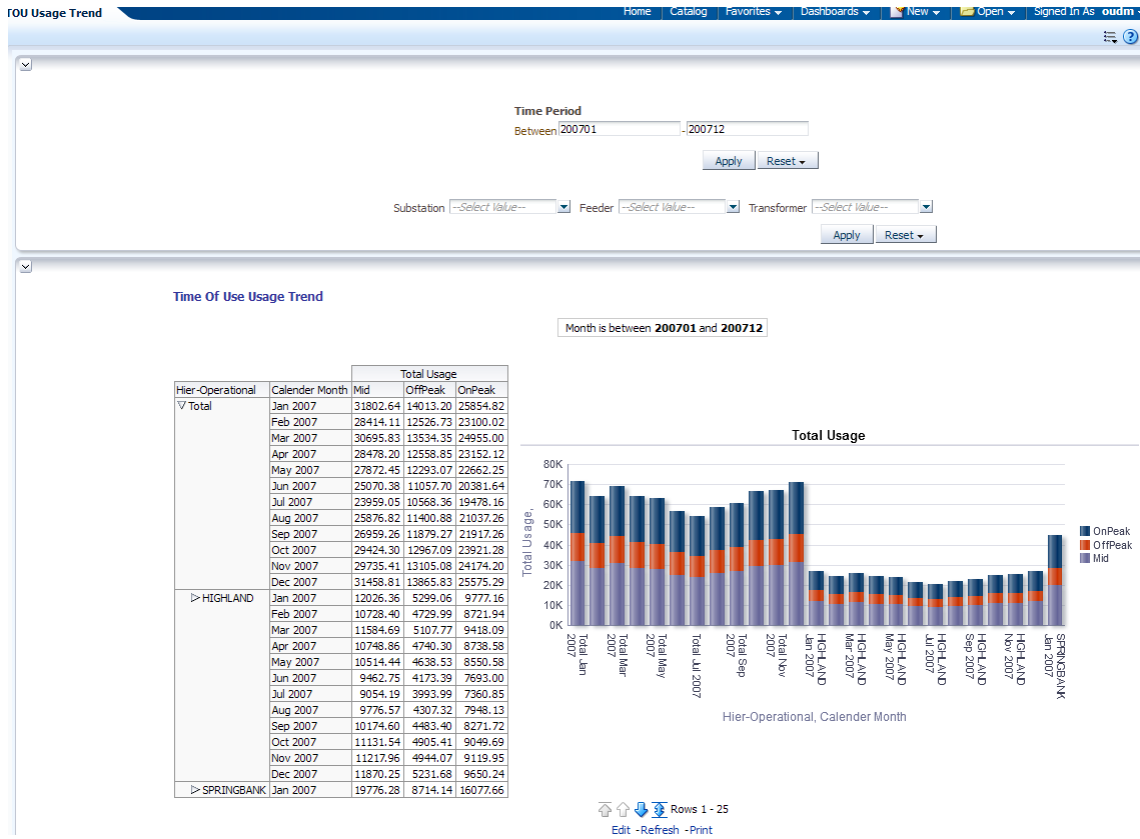
Top N Customer with Usage Change

This area includes the report Top N Customer with Usage Change.

Top N Customer with Usage Change

This report, as shown in Figure 12–14 provides the list of top N customers whose year over year, monthly usage has undergone more than 7% change in at least 5 of the 12 months.

Report dimensions are:

- Calendar Month
- Customer

Figure 12–14   Meter Data Analysis: Top N Customer with Usage Change
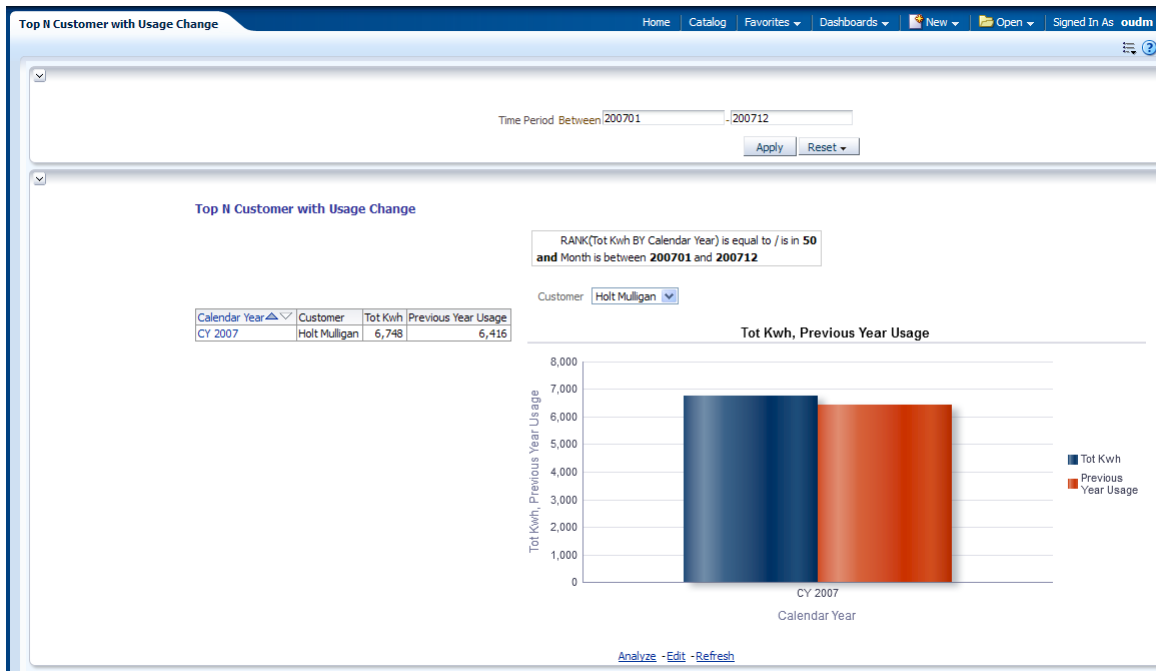
Customer Count by Usage Grouping

This area includes the report Customer Count by Usage Grouping.

Customer Count by Usage Grouping

This report, as shown in Figure 12–15 provides the number of customers in a zip code with a specified average monthly usage aggregated usage over three years for the selected time period.

Report dimensions are:

- Calendar Month
- Customer
- Service Location

Figure 12–15   Meter Data Analysis: Customer Count by Usage Grouping
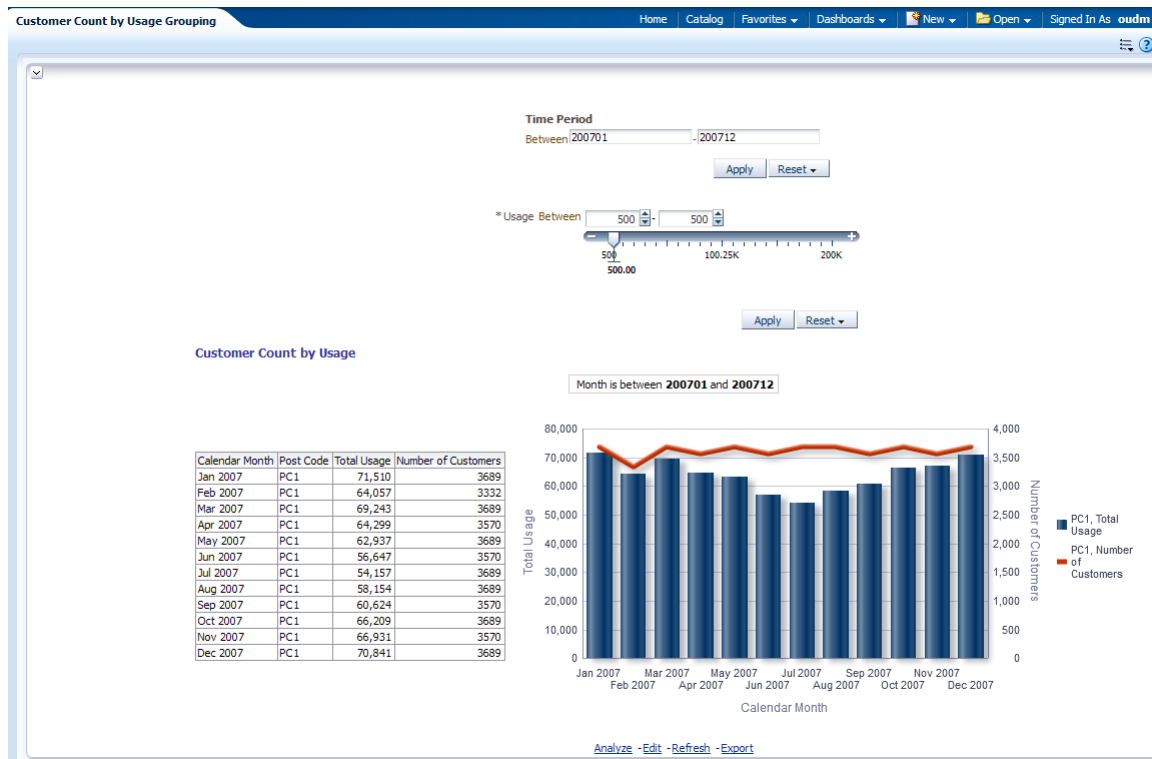
Outage Analysis Sample Reports

The outage analysis area sample reports include the following:

- Reliability by City

- Worst Performing Feeder

- Top N Customers by Customer Minutes Interrupted (CMI)

- Top N Customers by Number of Outages

- Top N Feeders by Outage Count

- Top N Feeders by Total Minutes Lost

- Top N Feeders by Reliability Indices

- Top N City by Outage Count

- Top N City by Total Minutes Lost

- Top N City by Reliability Indices

- Top N Region by Outage Count

- Top N Region by Total Minutes Lost

- Top N Region by Reliability Indices

Table 12–1   Reliability Selections for Reports

Reliability Metric Name	Description
ASAI	Ratio of the total number of customer hours that service was available during a given time period to the total customer.
CAIDI	Customer average interruption duration in a given period (selected customer).
CAIFI	Customer average interruption frequency in a given period (selected customers).
CIII	Average number of customers interrupted during an outage.
CMI	Customer Minutes Interrupted.
MAIFI	Average number of momentary interruptions that a customer experiences in a given period.
SAIDI	System average interruption duration in a given period (on total customers).
SAIFI	System average interruption frequency in a given period (on total customers).

Reliability by City

This area includes the report Reliability by City.

Reliability by City

This report, as shown in Figure 12–16 provides reliability by city. For more details, see Table 12–1.

Report dimensions are:

- Calendar Month

- City

Figure 12–16   Outage Analysis: Reliability by City Report
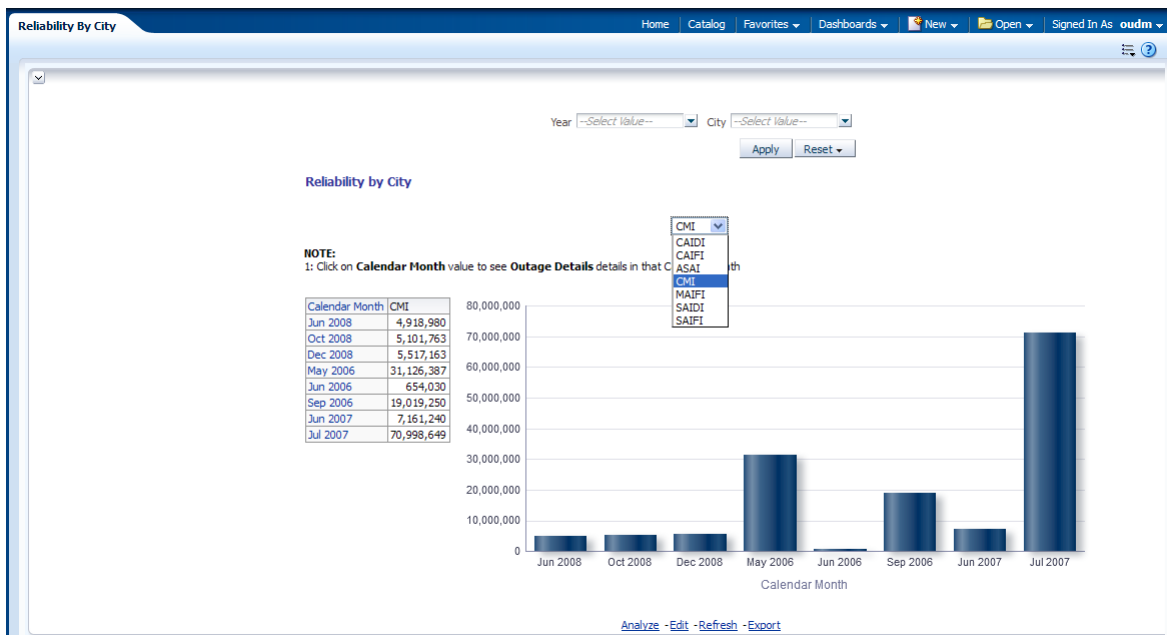
Worst Performing Feeder

This area includes the report Worst Performing Feeder.

Worst Performing Feeder

This report, as shown in Figure 12–17 provides feeder CMI for selected period.

Report dimensions are:

- Calendar Month
- Feeder

Figure 12–17   Outage Analysis: Worst Performing Feeder
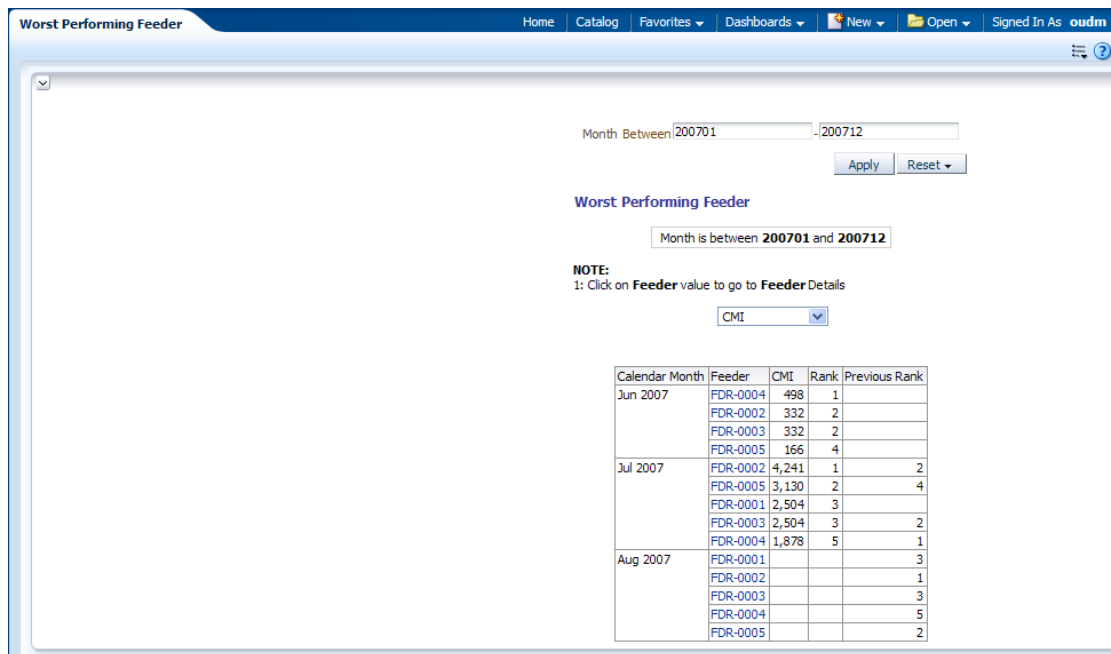
Top N Customers by Customer Minutes Interrupted (CMI)

This area includes the reports: Top N Usage Points by CMI.

Top N Usage Points by CMI

This report, as shown in Figure 12–18 provides feeder CMI for selected period.

Report dimensions are:

- Calendar Month
- Customer

Figure 12–18   Outage Analysis: Top N Usage Points by CMI
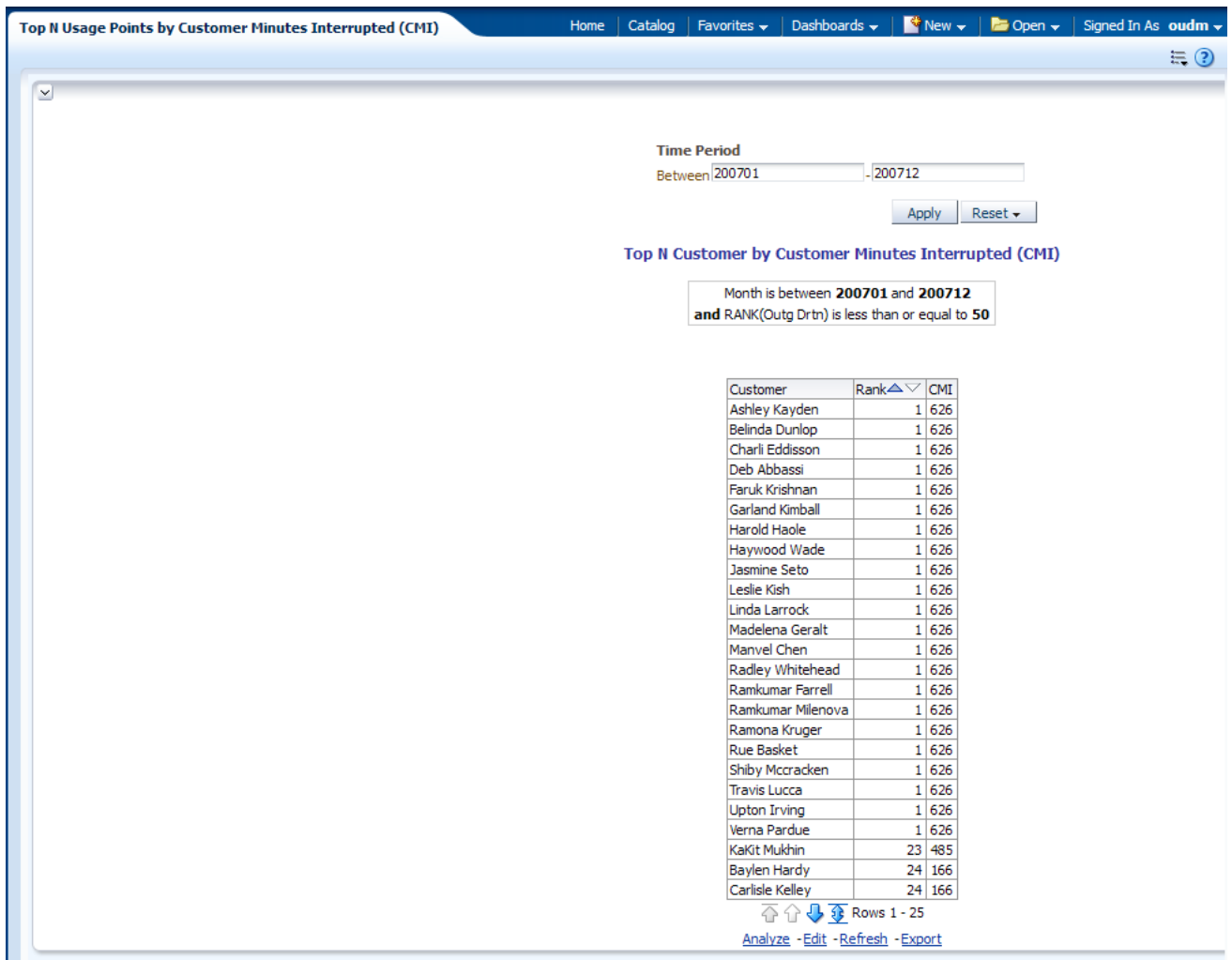
Top N Customers by Number of Outages

This area includes the reports: Top N Customers by Number of Outages.

Top N Customers by Number of Outages

This report, as shown in Figure 12–19 provides the top 50 customers based on number of outages in a given period.

Report dimensions are:

- Calendar Month

- Customer

Figure 12–19   Outage Analysis: Top N Customers by Number of Outages
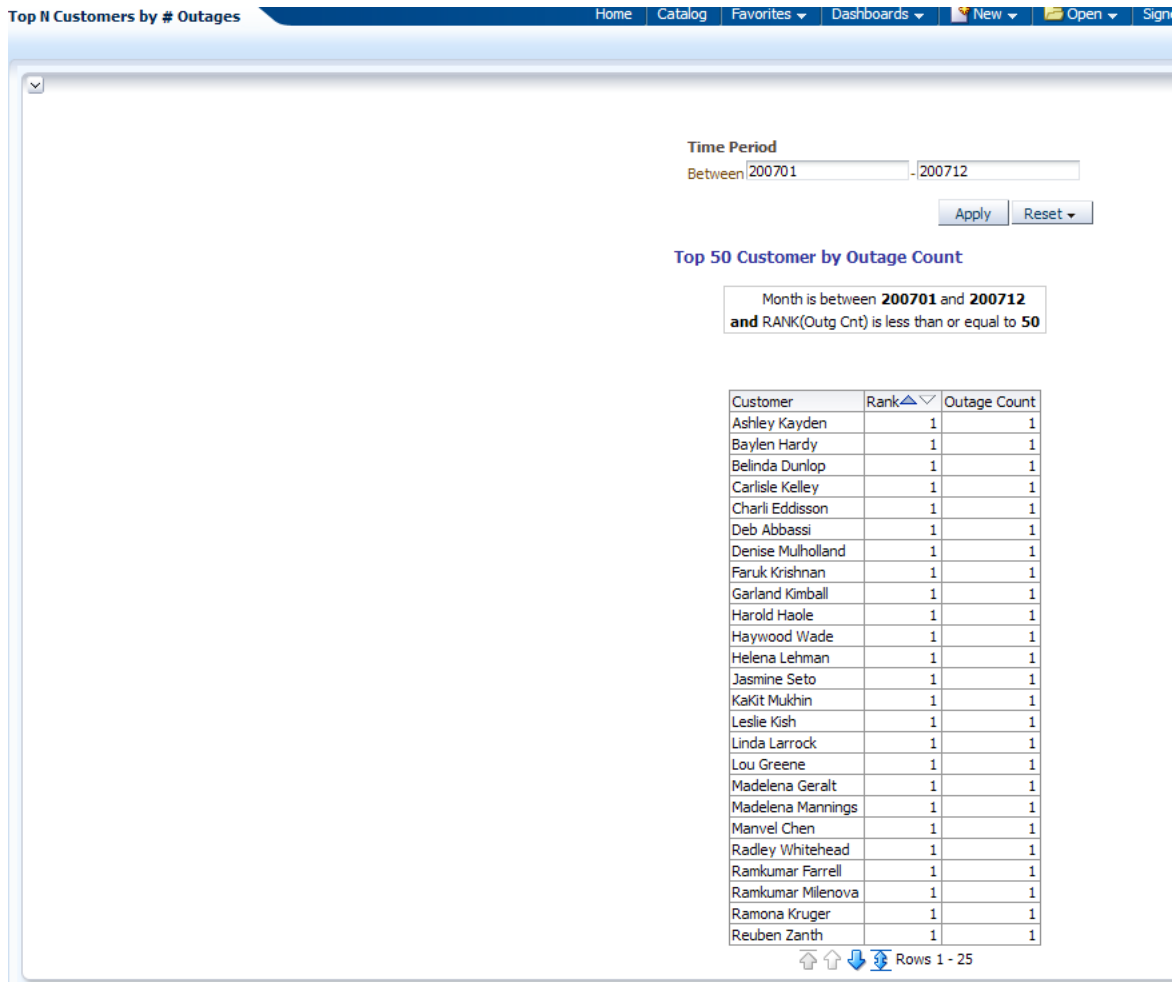
Top N Feeders by Outage Count

This area includes the reports: Top N Feeders by Outage Count.

Top N Feeders by Outage Count

This report, as shown in Figure 12–20 provides top 10 feeder that experienced the greatest number outages.

Report dimensions are:

- Calendar Month

- Feeder

Figure 12–20   Outage Analysis: Top N Feeders by Outage Count
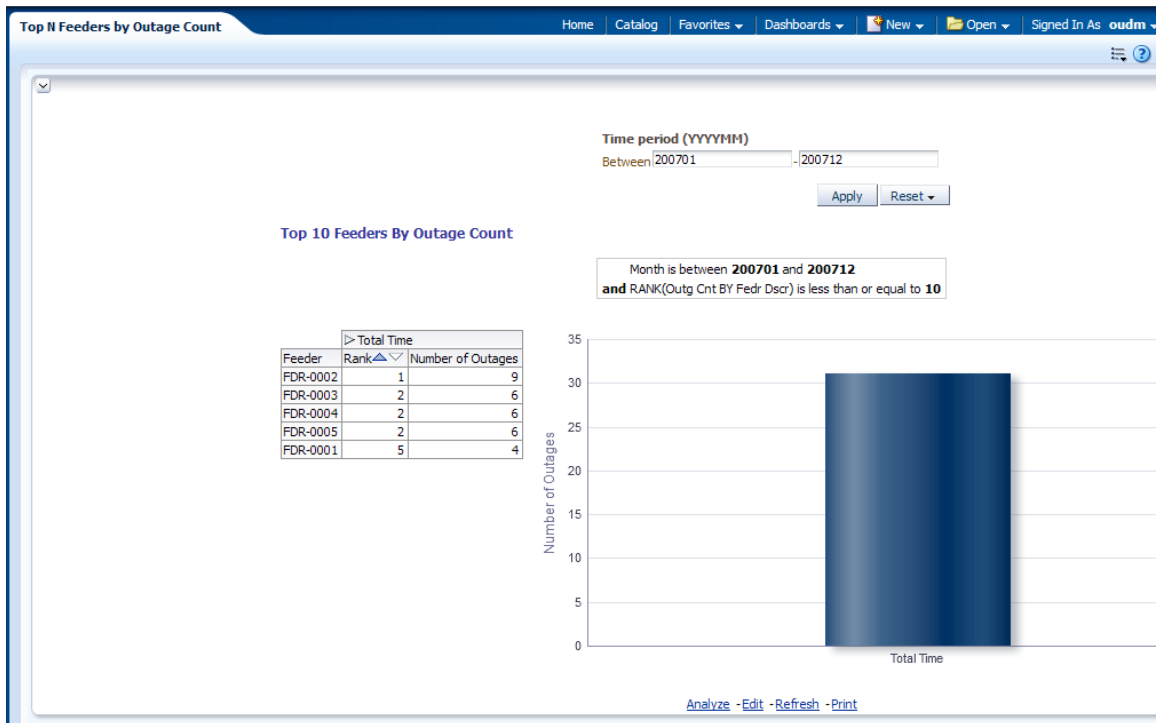
Top N Feeders by Total Minutes Lost

This area includes the report Top N Feeders by Total Minutes Lost.

Top N Feeders by Total Minutes Lost

This report, as shown in Figure 12–21 provides the top 100 feeders that experienced the longest outage duration.

Report dimensions are:

- Calendar Year

- Feeder

Figure 12–21   Outage Analysis: Top N Feeders by Total Minutes Lost
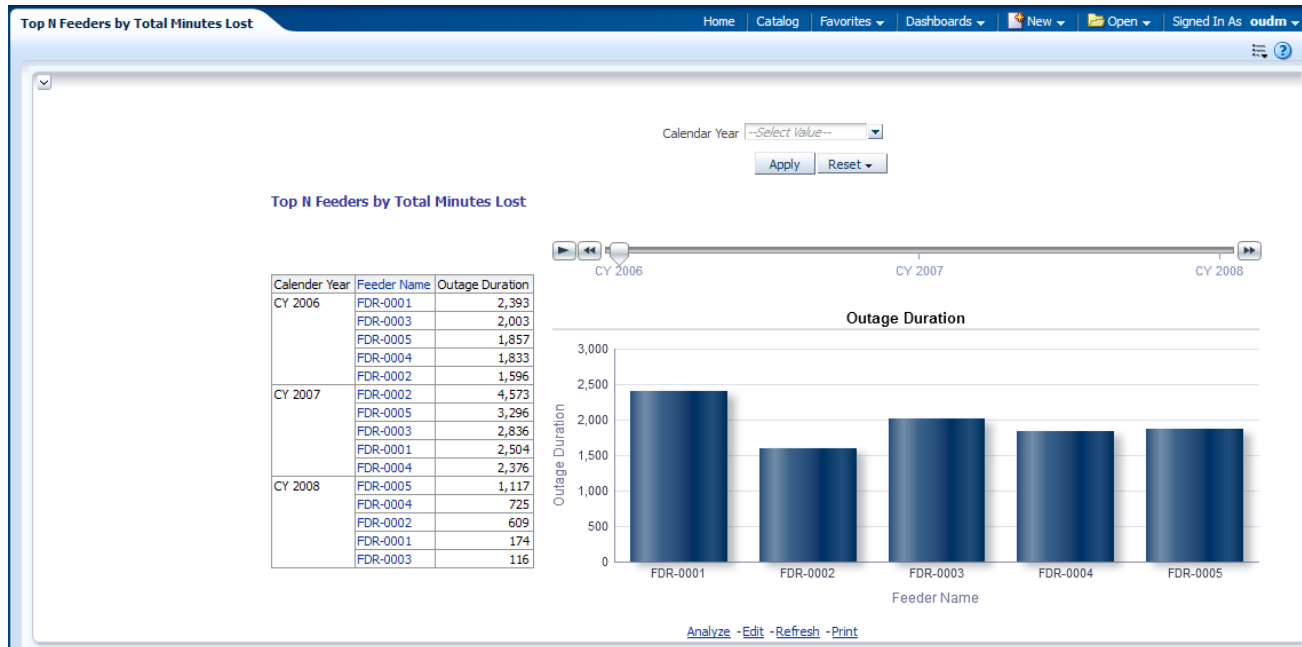
Top N Feeders by Reliability Indices

This area includes the report Top N Feeders by Reliability Indices.

Top N Feeders by Reliability Indices

This report, as shown in Figure 12–22 provides reliability by feeder. For more details, see Table 12–1.

Report dimensions are:

- Calendar Month
- Feeder

Figure 12–22   Outage Analysis: Top N Feeders by Reliability Indices
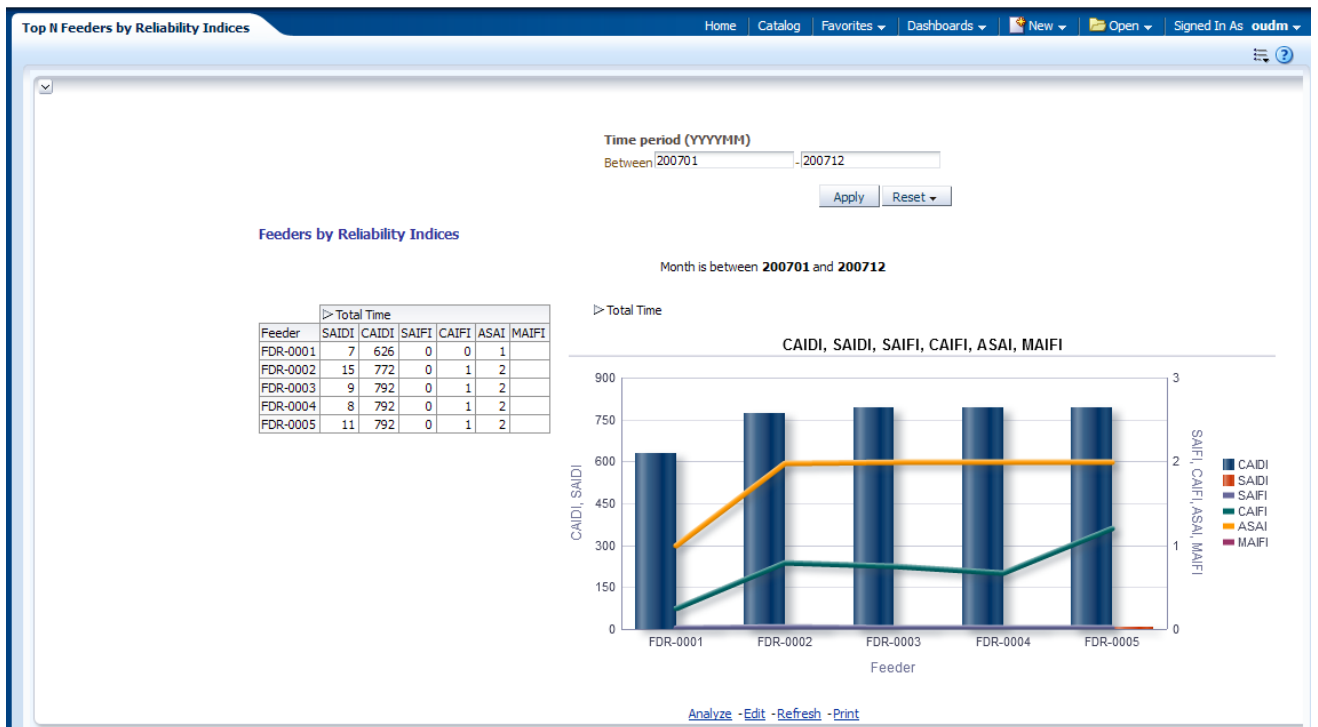
Top N City by Outage Count

This area includes the report Top N City by Outage Count.

Top N City by Outage Count

This report, as shown in Figure 12–23 provides the top N feeders that experienced the greatest number outages by city.

Report dimensions are:

- Calendar Year
- City

Figure 12–23   Outage Analysis: Top N City by Outage Count
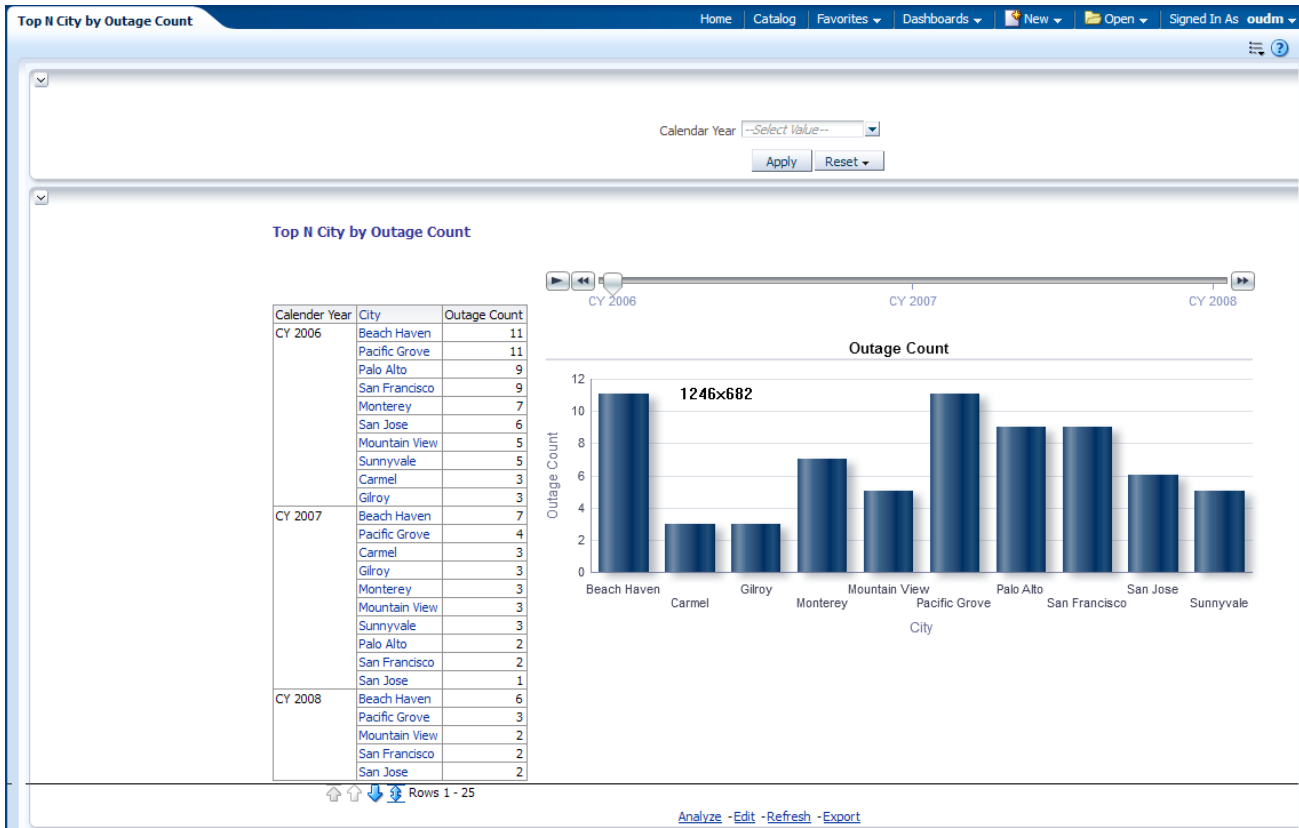
Top N City by Total Minutes Lost

This area includes the report Top N City by Total Minutes Lost.

Top N City by Total Minutes Lost

This report, as shown in Figure 12–24 provides the top 10 cities that experienced the longest outage duration.

Report dimensions are:

■   Calendar Month

■   City

Figure 12–24   Outage Analysis: Top N City by Total Minutes Lost
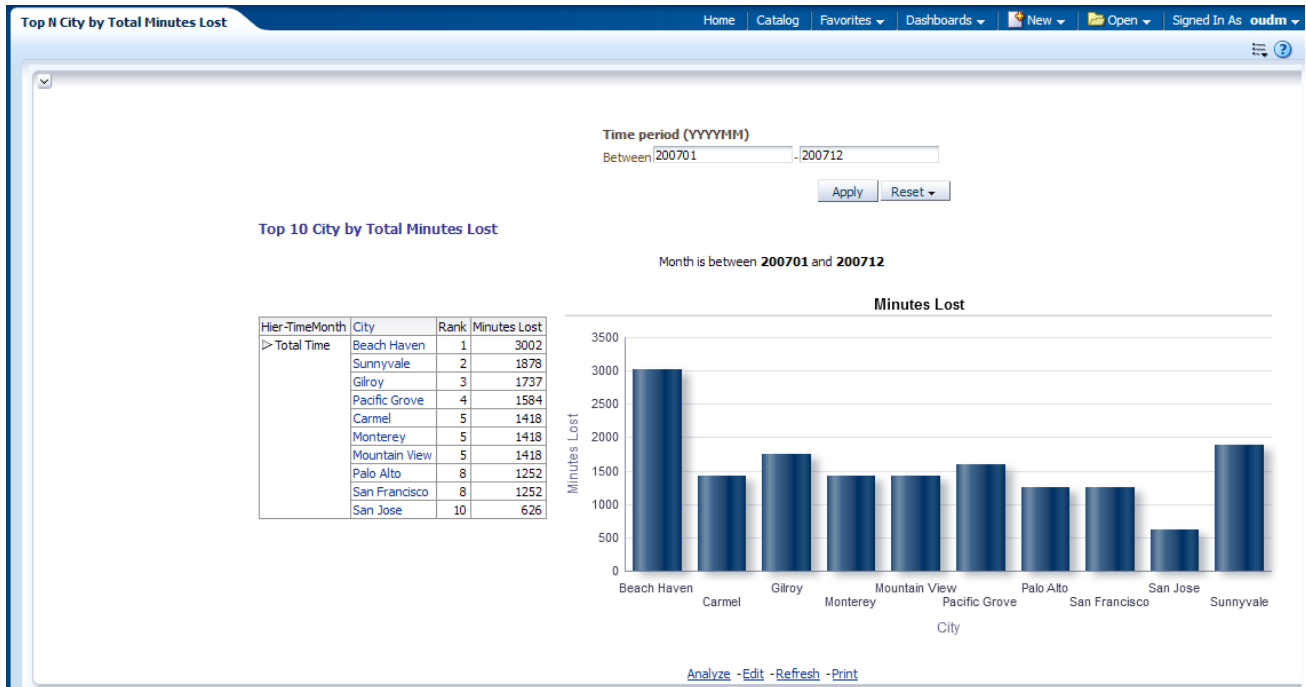
Top N City by Reliability Indices

This area includes the report Top N City by Reliability Indices.

Top N City by Reliability Indices

This report, as shown in Figure 12–25 provides reliability by city. For more details, see Table 12–1.

Report dimensions are:

- Calendar Month
- City

Figure 12–25   Outage Analysis: Top N City by Reliability Indices

Top N Region by Outage Count

This area includes the report Top N Region by Outage Count.

Top N Region by Outage Count

This report, as shown in Figure 12–26 provides the top N feeder that experienced the greatest number outages by region.

Report dimensions are:

- Calendar Month

- Regional Zones

  - Usage Point

  - Region

  - Subregion

Figure 12–26   Outage Analysis: Top N Region by Outage Count
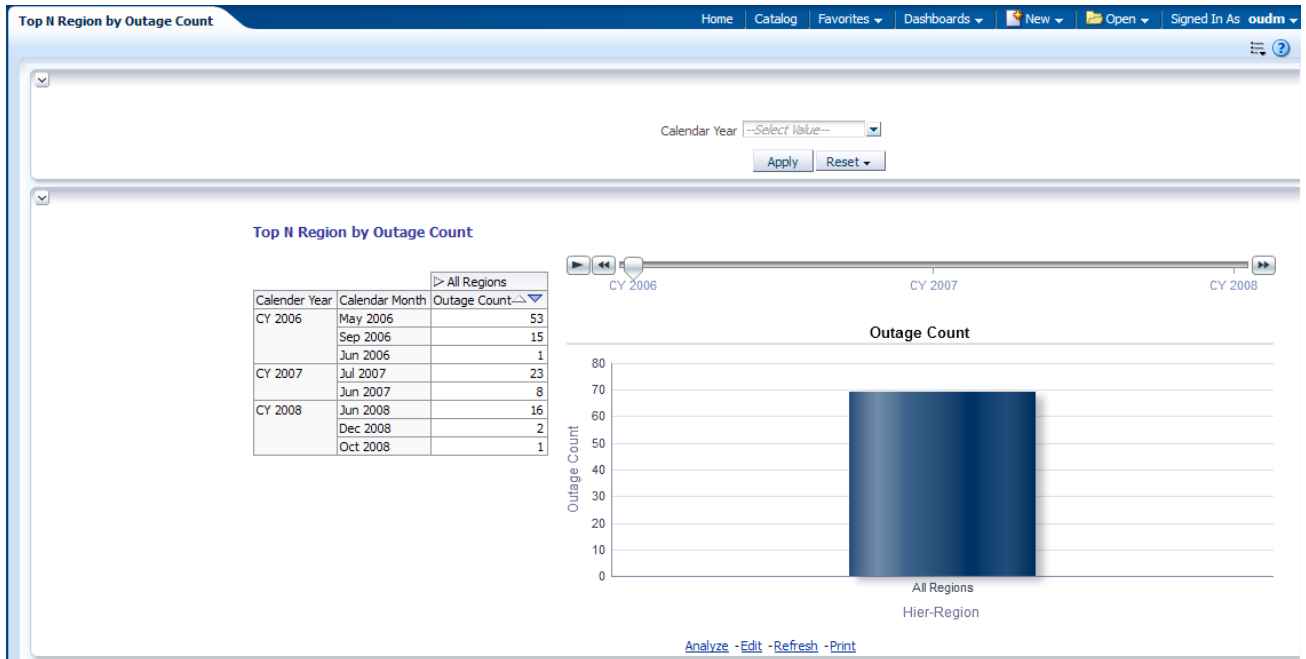
Top N Region by Total Minutes Lost

This area includes the report Top N Region by Total Minutes Lost.

Top N Region by Total Minutes Lost

This report, as shown in Figure 12–27 provides the region that experienced the longest outage duration.

Report dimensions are:

- Calendar Year
- Regional Zones
    - Usage Point
    - Subregion
    - Region

Figure 12–27   Outage Analysis: Top N Region by Total Minutes Lost
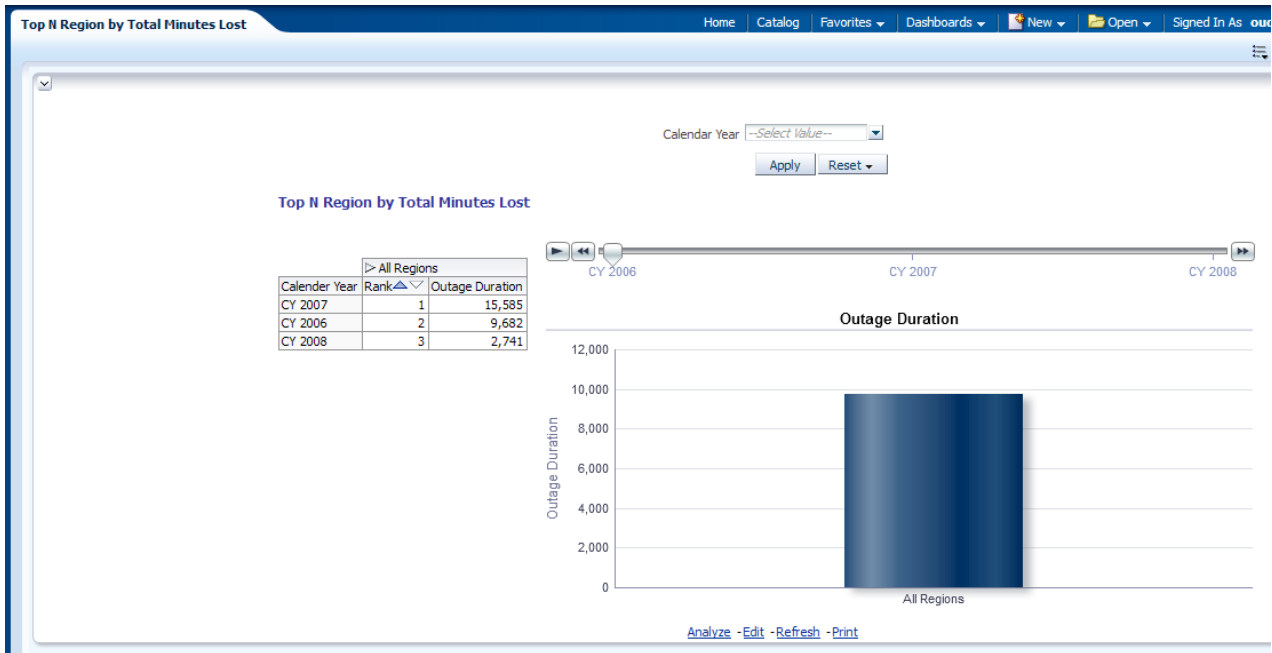
Top N Region by Reliability Indices

This area includes the report Top N Region by Reliability Indices.

Top N Region by Reliability Indices

This report, as shown in Figure 12–28 provides reliability by region. For more details, see Table 12–1.

Report dimensions are:

- Calendar Month
- Regional Zones
  - Usage Point
  - Region
  - Subregion

Figure 12–28   Outage Analysis: Top N Region by Reliability Indices
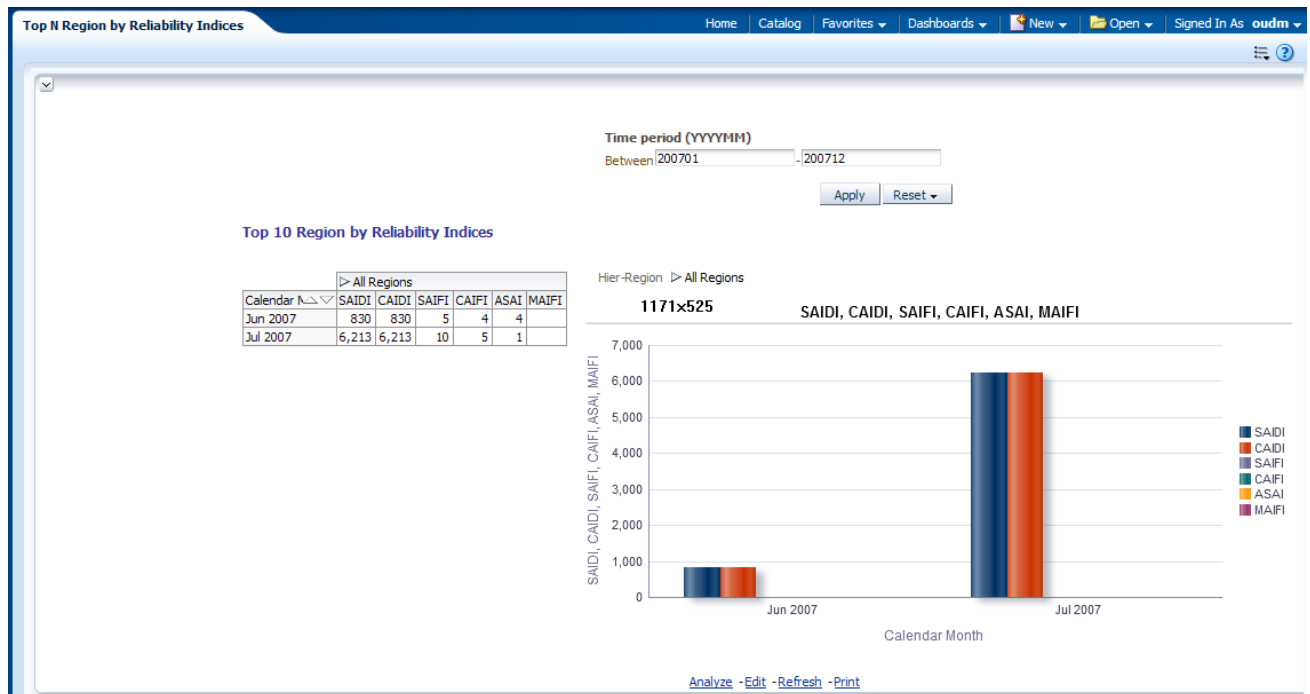
Revenue Protection Sample Reports

The revenue sample reports show the following areas:

- Meter Tamper Event
- Meter Stopped Event
- Meter Reversed Event
- Missing Meter Read
- Event Analysis

Meter Tamper Event

This area includes the reports: Meter Tamper Event: Region, Meter Tamper Event: Geography and Meter Tamper Event: Operational.

Meter Tamper Event: Region

This report, as shown in Figure 12–29 provides the number of meter tamper events based on region in a given period.

Report dimensions are:

- Calendar Month
- Regional Zones
    - Usage Point
    - Region
    - Subregion

Figure 12–29 Revenue Protection: Meter Tamper Event Region
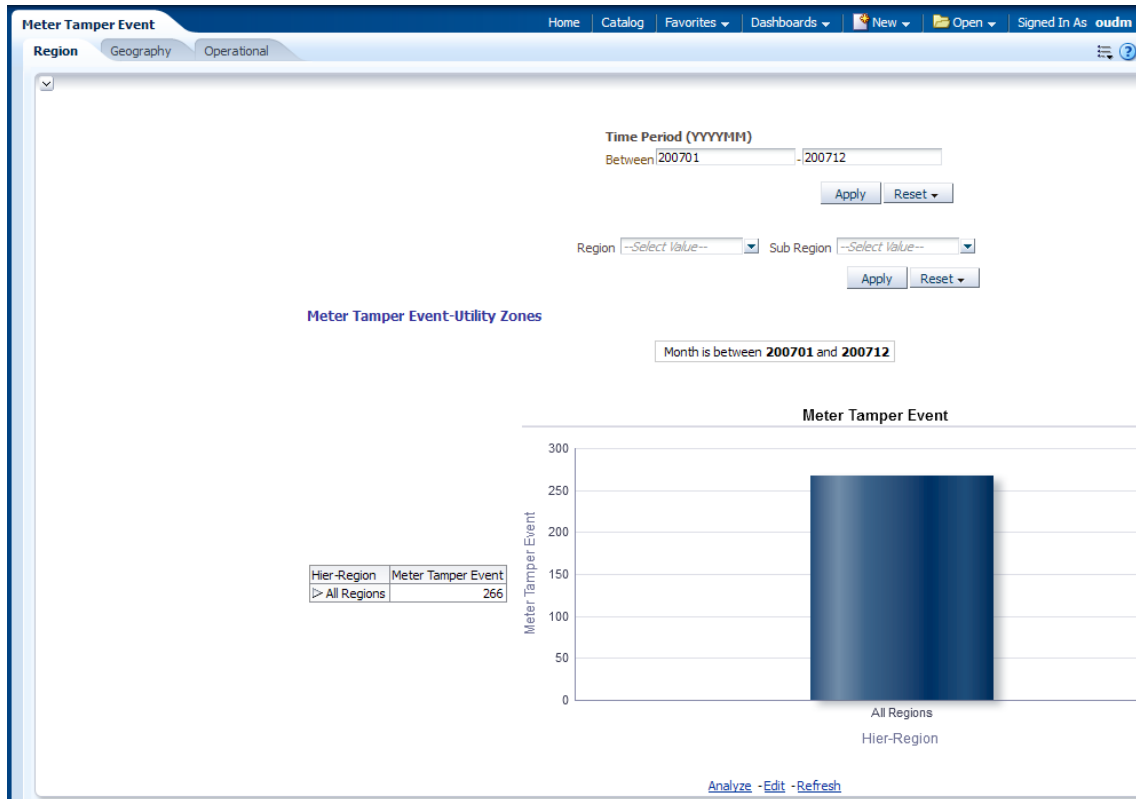
Meter Tamper Event: Geography

This report, as shown in Figure 12–30 provides the number of meter tamper events based on geography in a given period.

Report dimensions are:

- Calendar Month
- Geographical Zones
  - Usage Point
  - City
  - State

Figure 12–30 Revenue Protection: Meter Tamper Event Geography
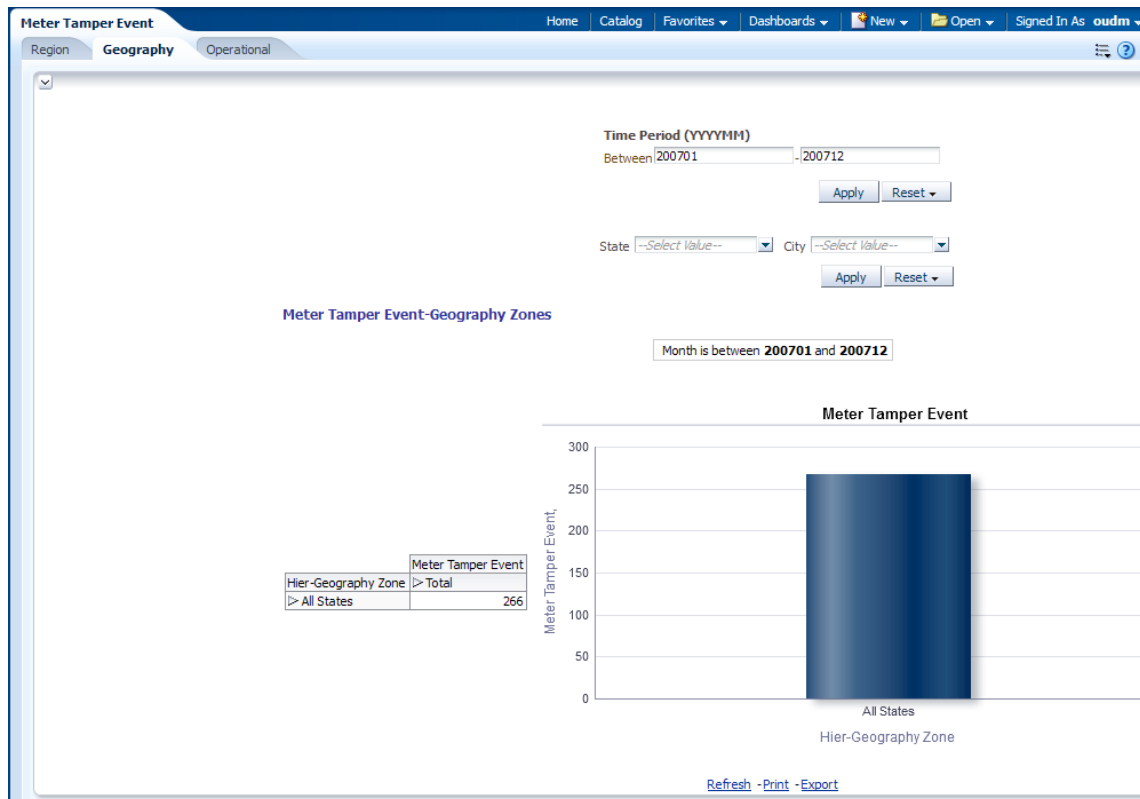
Meter Tamper Event: Operational

This report, as shown in Figure 12–31 provides the number of meter tamper events based on operation in a given period.

Report dimensions are:

- Calendar Month
- Operational
  - Usage Point
  - Transformer
  - Feeder
  - Substation

Figure 12–31   Revenue Protection: Meter Tamper Event Operational
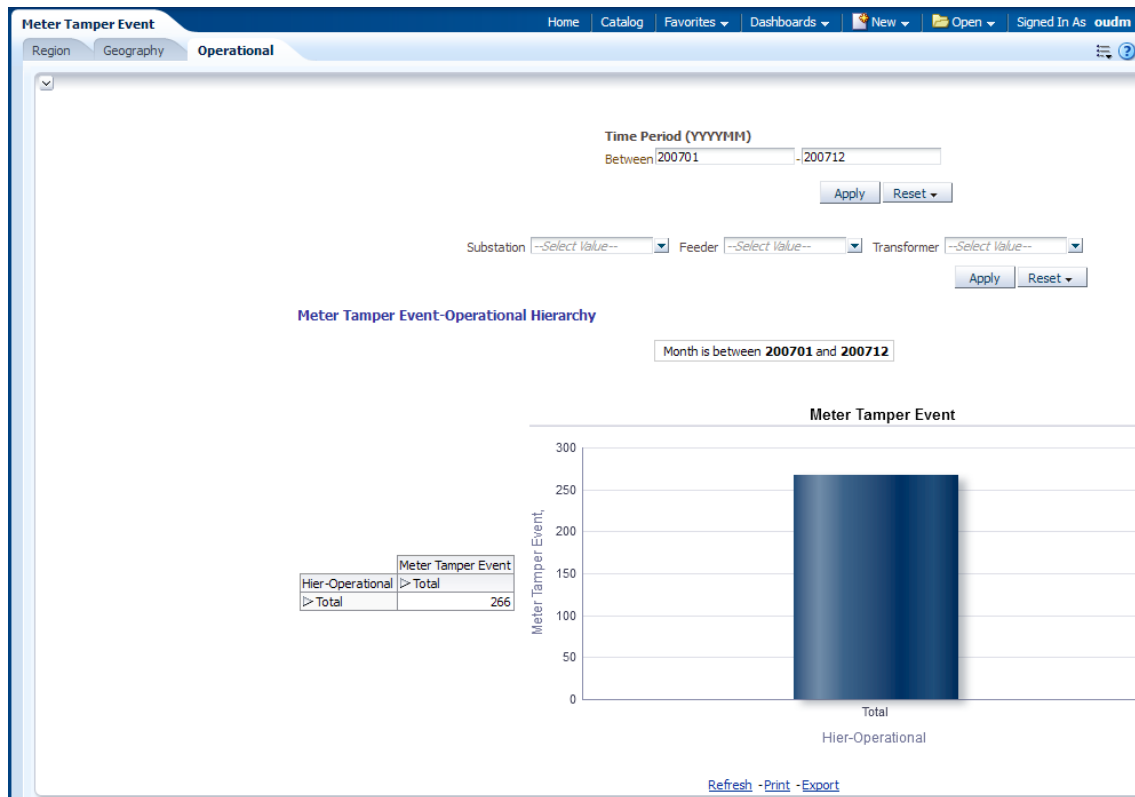
Meter Stopped Event

This area includes the reports: Meter Stopped Event: Region, Meter Stopped Event: Geography and Meter Stopped Event: Operational.

Meter Stopped Event: Region

This report, as shown in Figure 12–32 identifies devices that were sending measurements and then stopped for some reason. View details by region.

Report dimensions are:

- Calendar Month
- Regional Zones
  - Usage Point
  - Region
  - Subregion

Figure 12–32   Revenue Protection: Meter Stopped Event Region
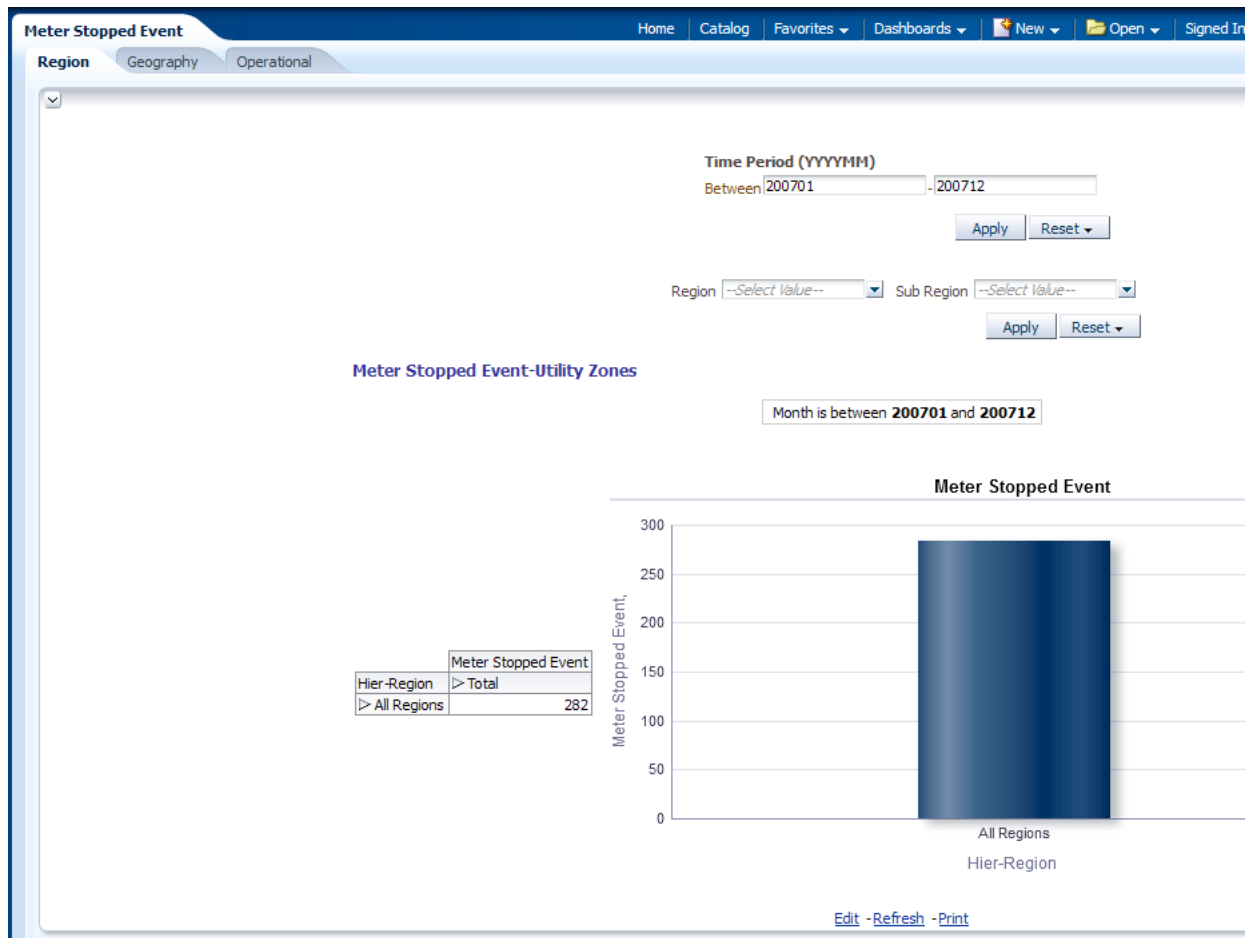
Meter Stopped Event: Geography

This report, as shown in Figure 12–33 identifies devices that were sending measurements and then stopped for some reason. View details by geography.

Report dimensions are:

- Calendar Month
- Geographical Zones
    - Usage Point
    - City
    - State

Figure 12–33   Revenue Protection: Meter Stopped Event Geography
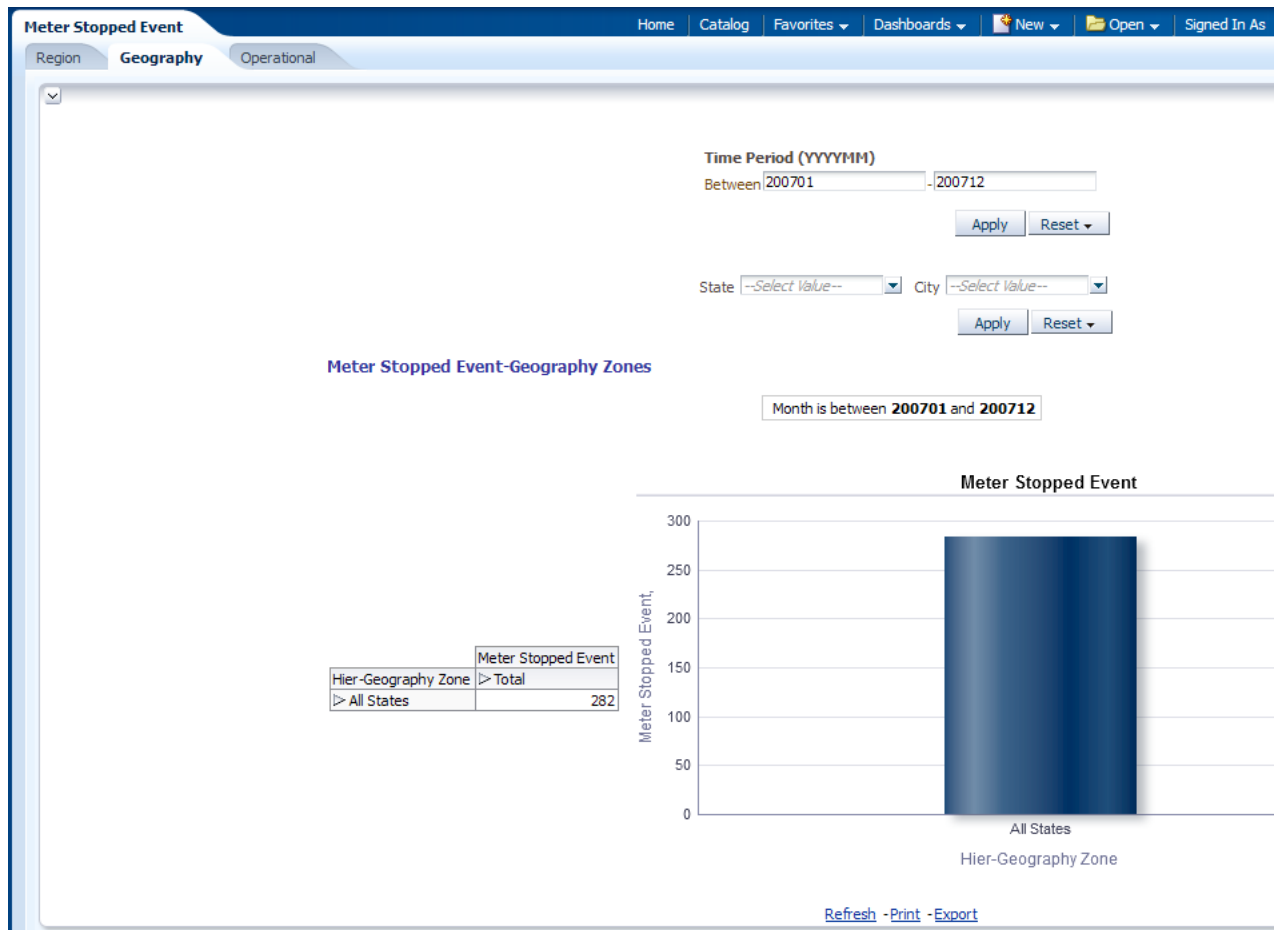
Meter Stopped Event: Operational

This report, as shown in Figure 12–34 identifies devices that were sending measurements and then stopped for some reason. View details by substation and operational zone.

Report dimensions are:

- Calendar Month
- Operational
  - Usage Point
  - Transformer
  - Feeder
  - Substation

Figure 12–34   Revenue Protection: Meter Stopped Event Operational
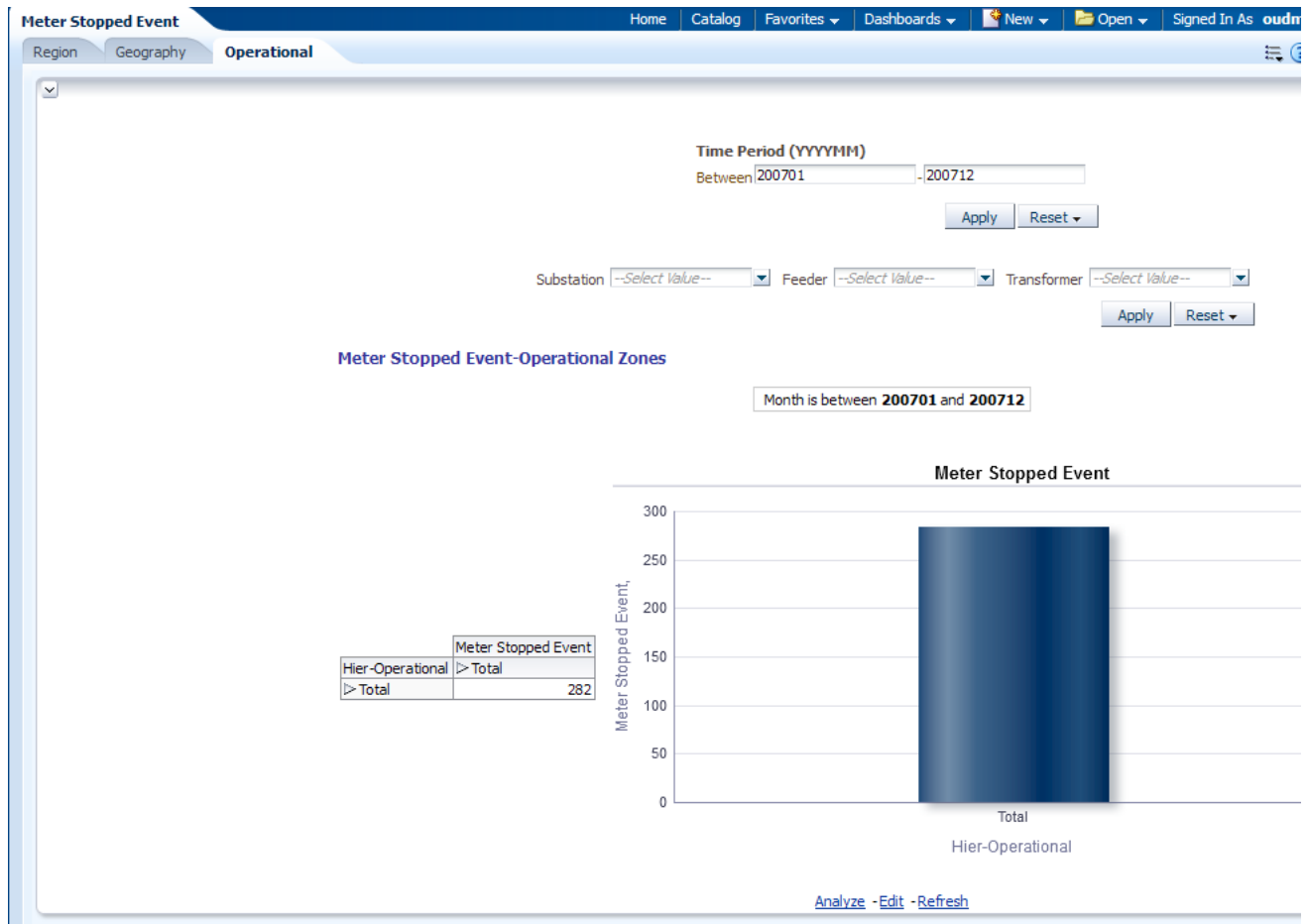
Meter Reversed Event

This area includes the reports: Meter Reversed Event: Region, Meter Reversed Event: Geography and Meter Reversed Event: Operational.

Meter Reversed Event: Region

This report, as shown in Figure 12–35 identifies reversed meters for a region in a given period.

Report dimensions are:

- Calendar Month
- Regional Zones
  - Usage Point
  - Region
  - Subregion

Figure 12–35   Revenue Protection: Meter Reversed Event Region
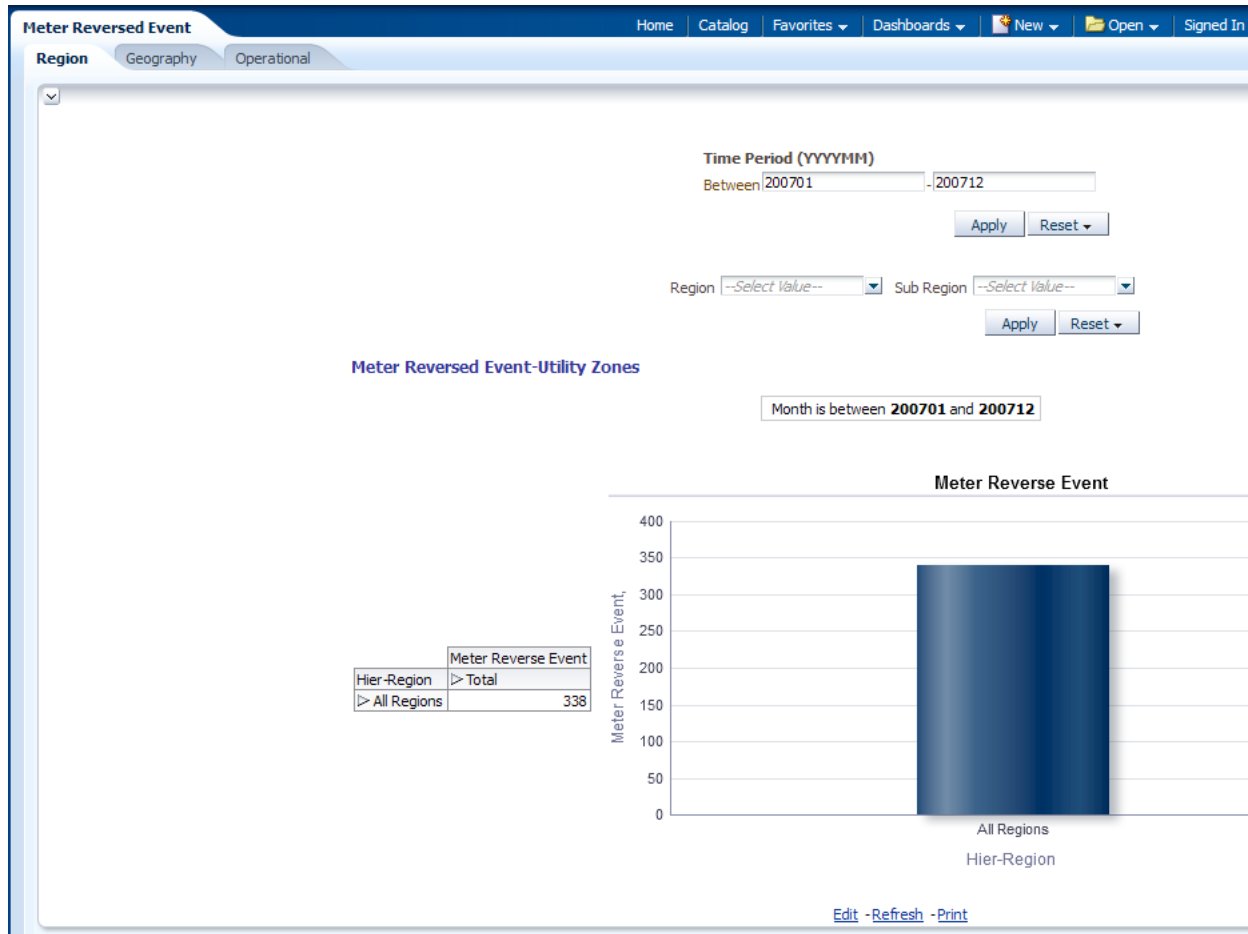
Meter Reversed Event: Geography

This report, as shown in Figure 12–36 identifies reversed meters for a geography in a given period.

Report dimensions are:

- Calendar Month
- Geographical Zones:
  - Usage Point
  - City
  - State

Figure 12–36   Revenue Protection: Meter Reversed Event Geography
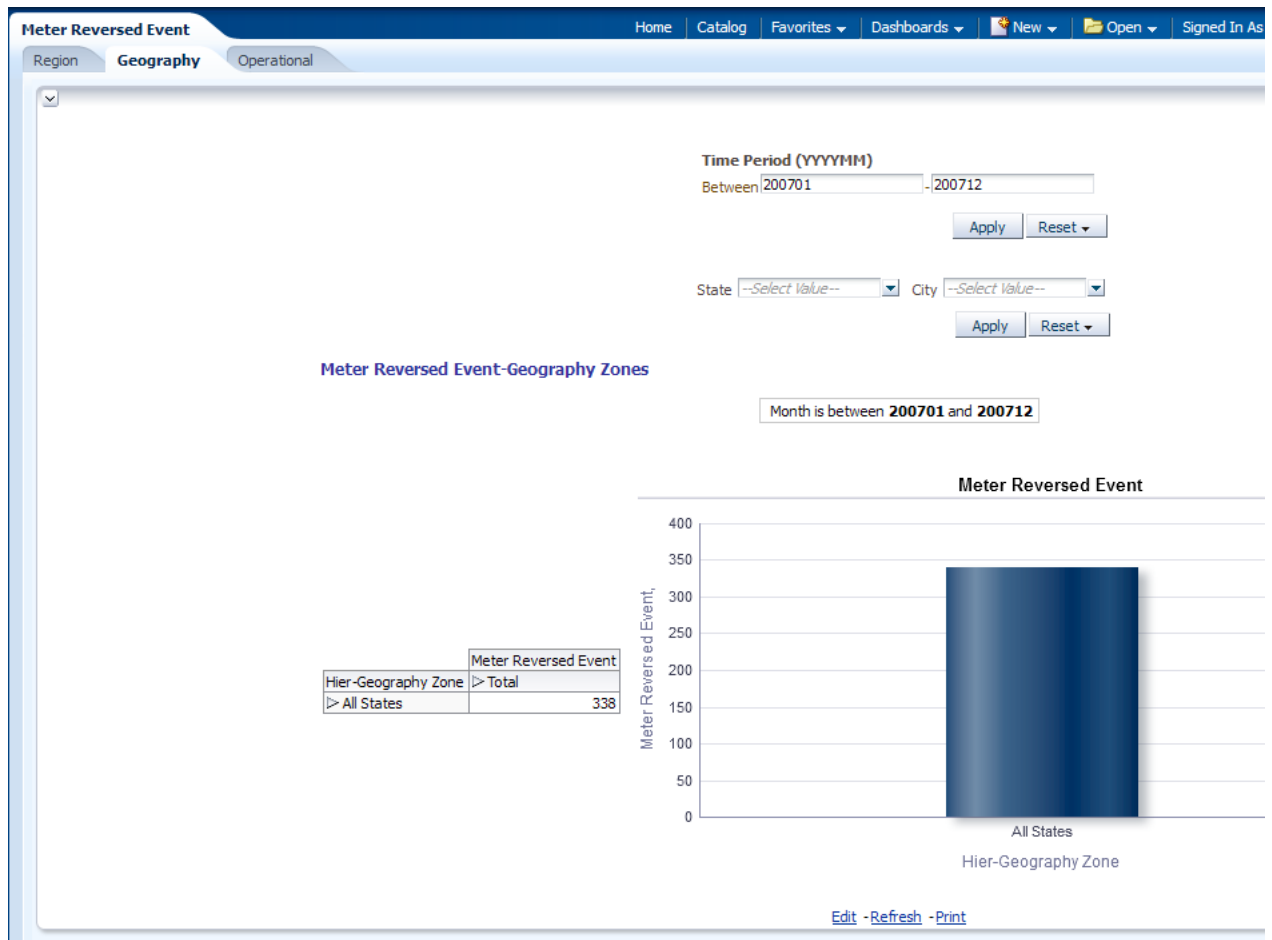
Meter Reversed Event: Operational

This report, as shown in Figure 12–37 identifies reversed meters for a substation in a given period.

Report dimensions are:

- Calendar Month
- Operational
    - Usage Point
    - Transformer
    - Feeder
    - Substation

Figure 12–37   Revenue Protection: Meter Reversed Event Operational
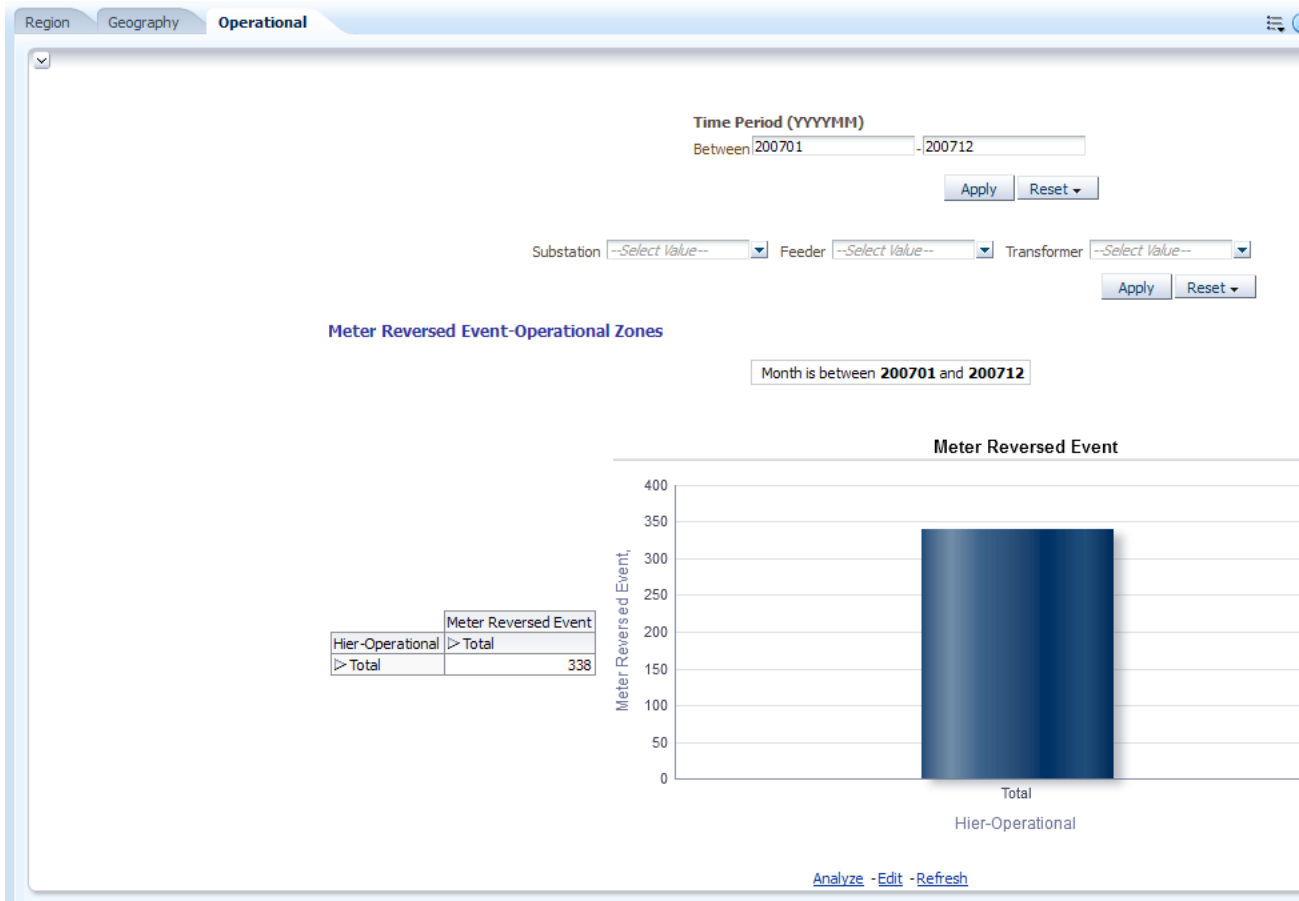
Missing Meter Read

This area includes the report Missing Meter Read.

Missing Meter Read

This report, as shown in Figure 12–38 identifies meters with no interval reads in the specified time period.

Report dimensions are:

- Day
- Meter

Figure 12–38   Revenue Protection: Missing Meter Read

Event Analysis

This area includes the report Event Analysis.

Event Analysis

This report, as shown in Figure 12–39 provides information on meter events.

Report dimensions are:

- Calendar Month
- Meter
- Product Asset Model
- Regional Zones
  - Usage Point
  - Region
  - Subregion

Figure 12–39   Revenue Protection: Event Analysis
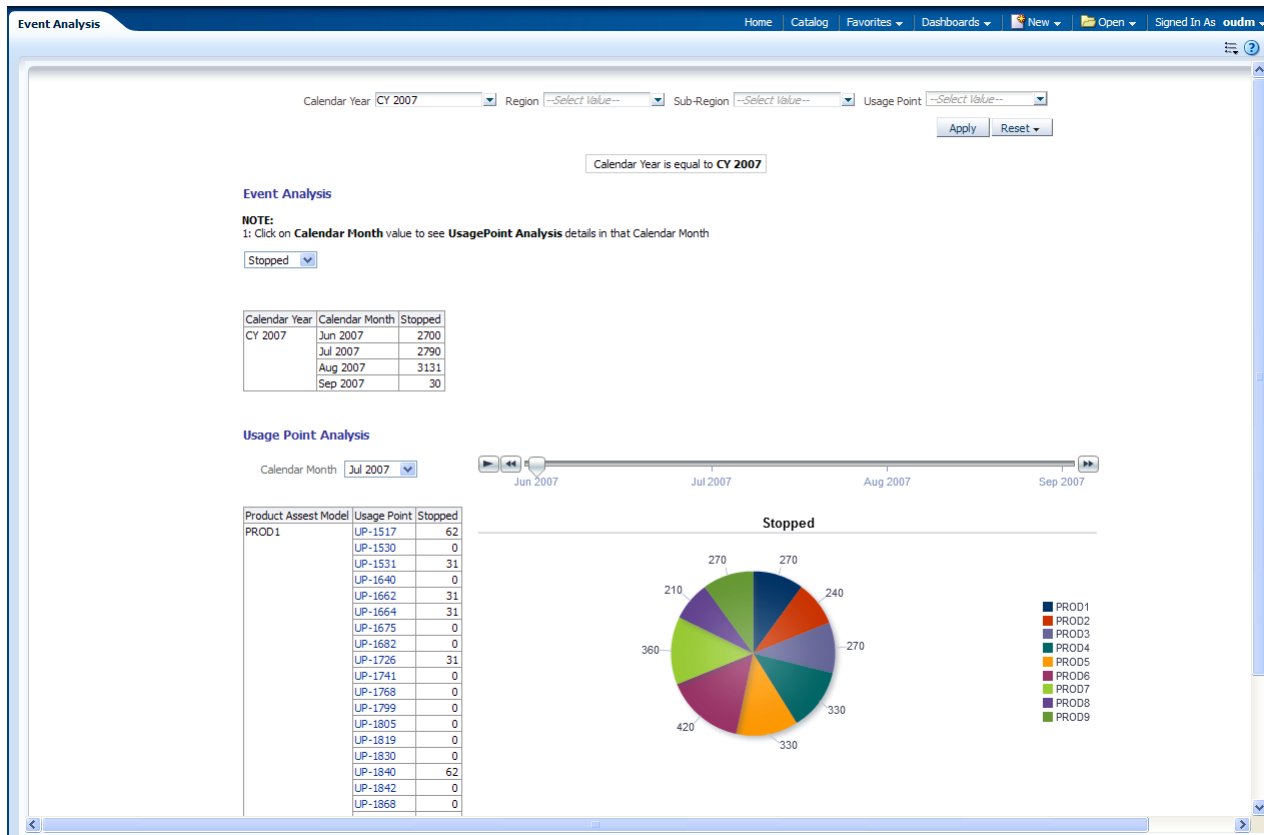
Transformer Load Analysis Sample Reports

The partner management sample reports include the following areas:

■   Transformer Daily Load Profile

Transformer Daily Load Profile

This area includes the reports: Transformer Daily Load Profile by Utility and Transformer Daily Load Profile by Geography.

Transformer Daily Load Profile by Utility

This report, as shown in Figure 12–40, Figure 12–41, and Figure 12–42 provides the daily average loading status for a selected operational area over a given time period.

Report dimensions are:

■   Calendar Month

■   Day

■   Hour

■   Operational

   –   Usage Point

   –   Transformer

   –   Feeder

–   Substation

Figure 12–40   Transformer Daily Load Profile by Utility (Top)
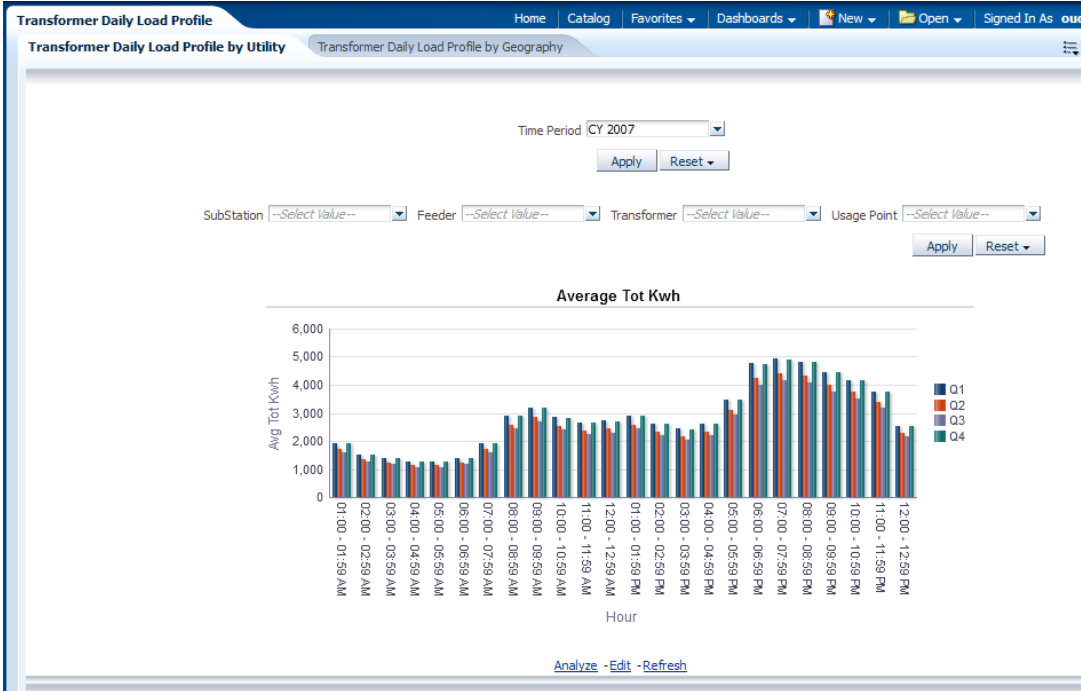
Figure 12–41   Transformer Daily Load Profile by Utility (Q1 and Q3)
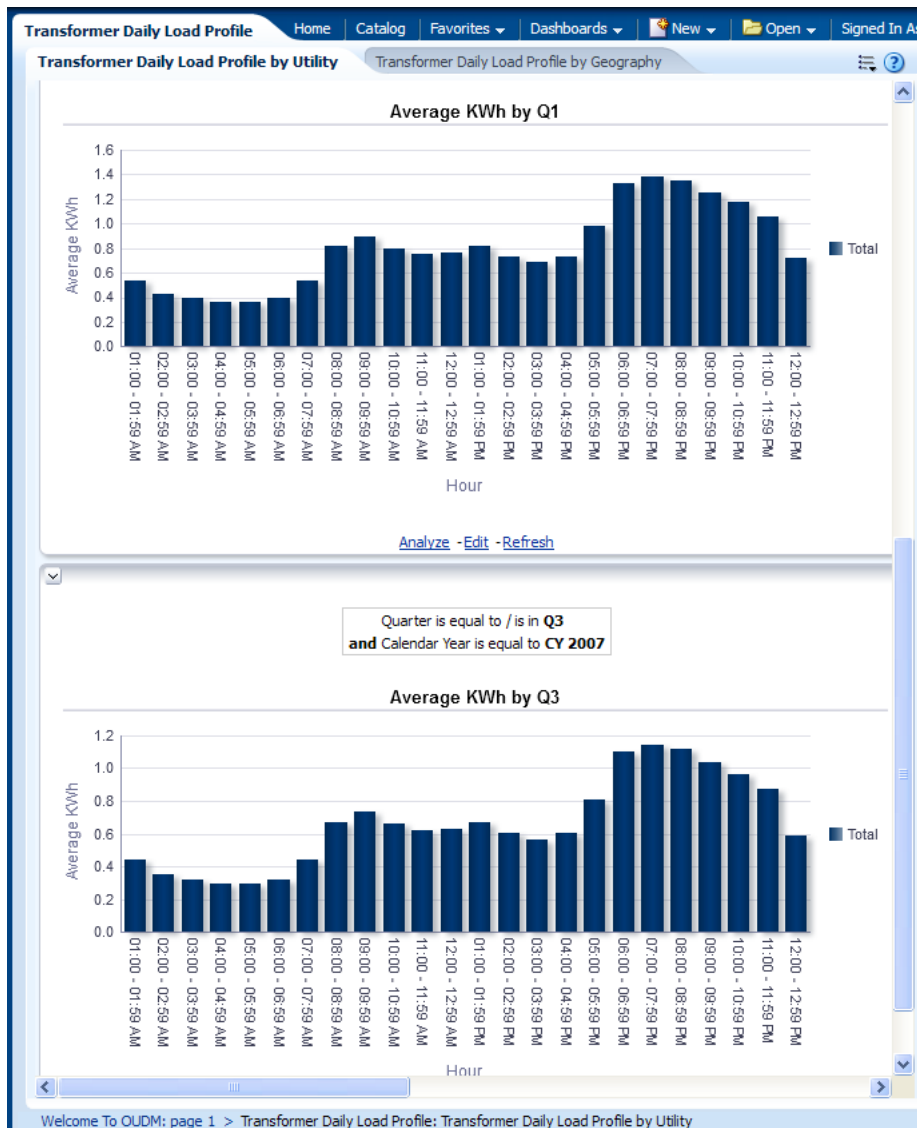
Figure 12–42 Transformer Daily Load Profile by Utility (Q2 and Q4)
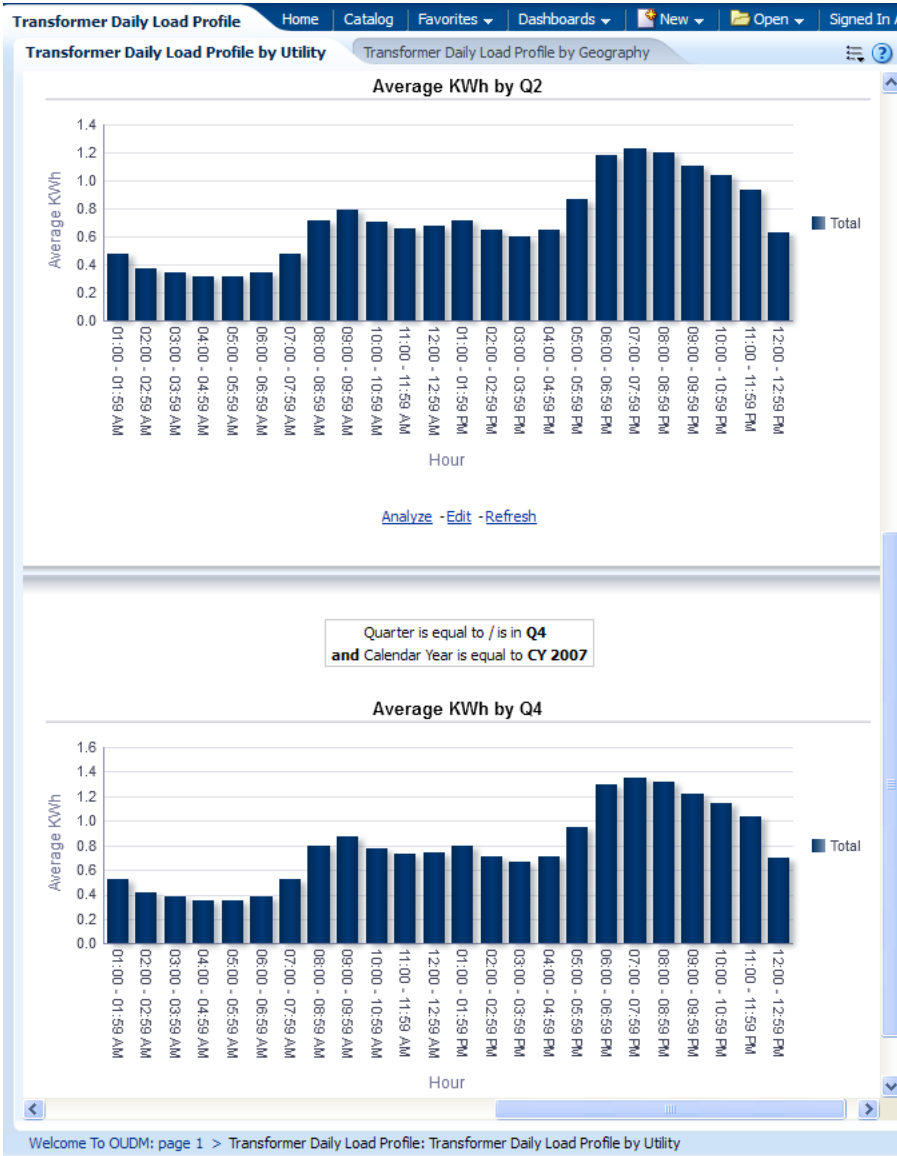
Transformer Daily Load Profile by Geography

This report, as shown in Figure 12–43 provides the daily average loading status for a selected geography over a given time period.

Report dimensions are:

- Calendar Month
- Day
- Hour
- Geographical Zones
  - Usage Point
  - City
  - State

Figure 12–43   Transformer Daily Load Profile by Geography (Top)
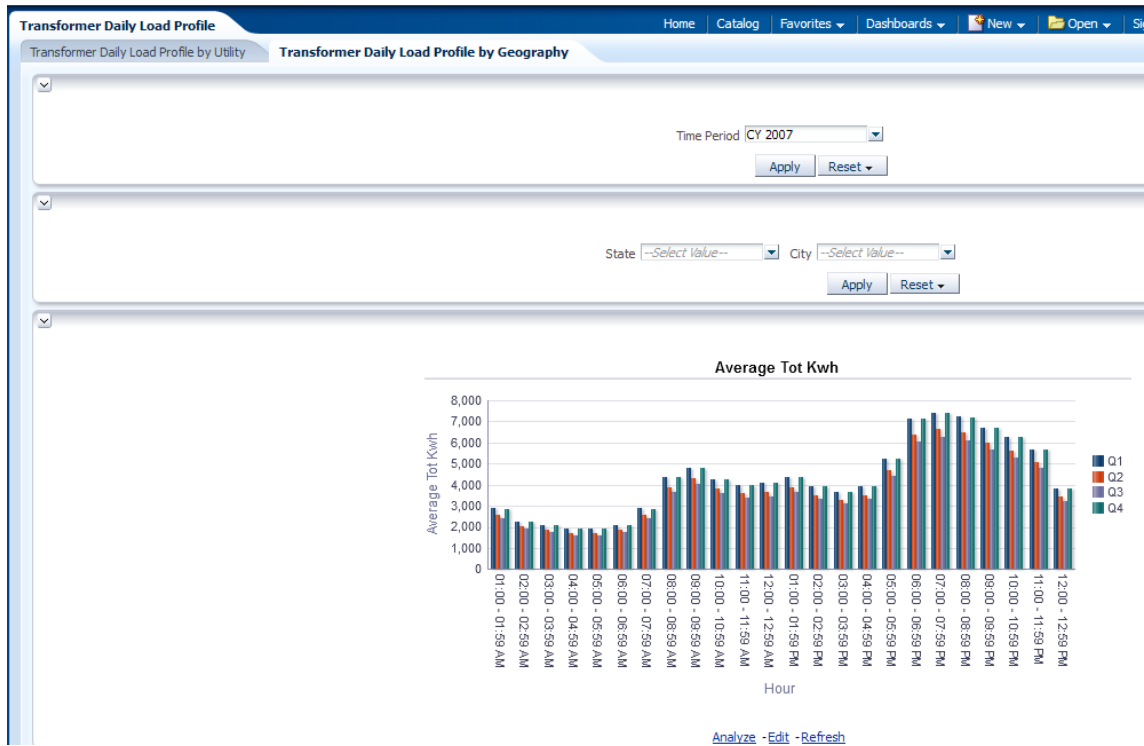
Figure 12–44 Transformer Daily Load Profile by Geography (Q1 and Q3)

Figure 12–45   Transformer Daily Load Profile by Geography (Q2 and Q4)

13
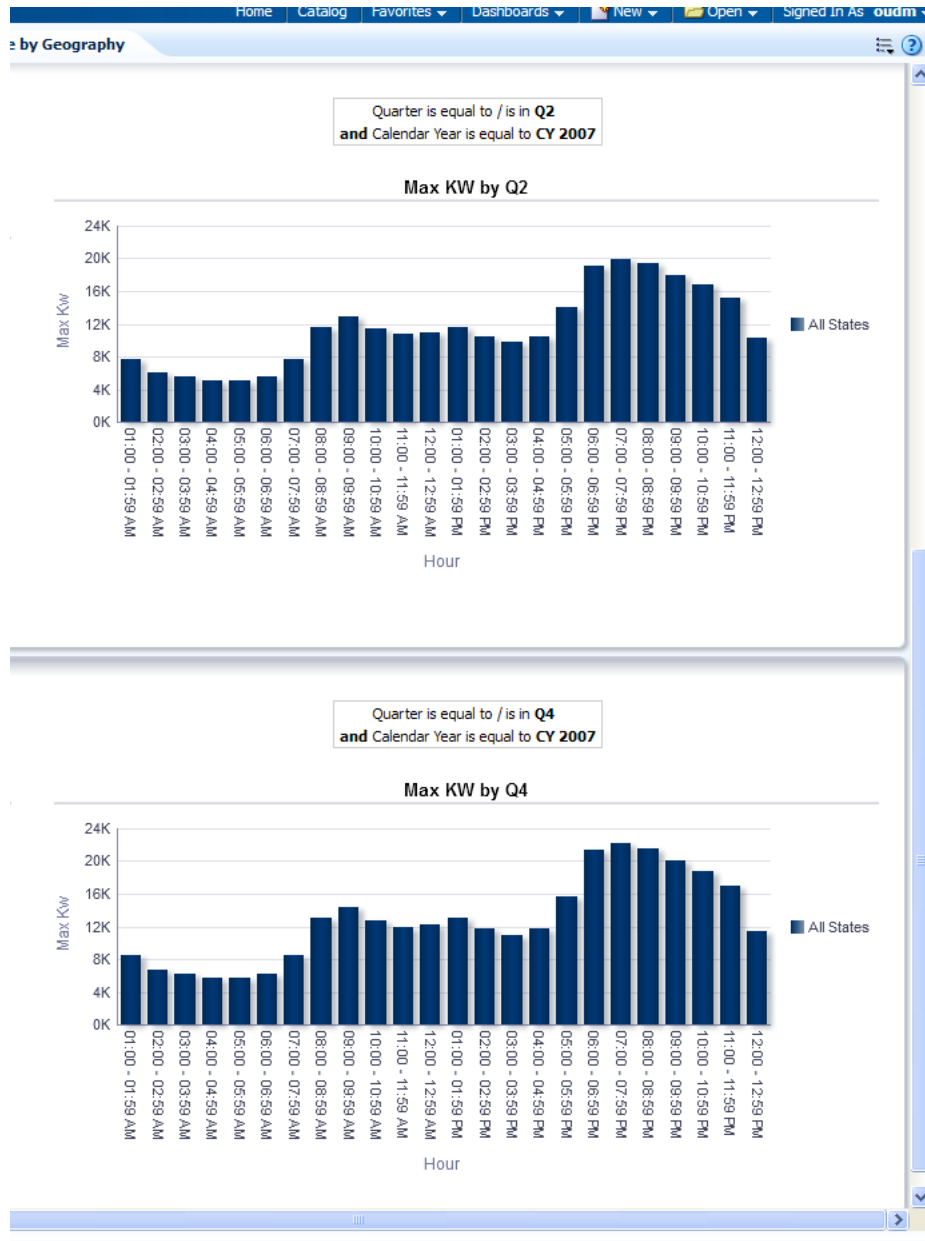
Oracle Utilities Data Model Users and Application Roles

This chapter provides the creation steps for Oracle Utilities Data Model Users and Application Roles.

This chapter includes the following sections:

- Steps to Create Oracle Utilities Data Model Application Roles
- Steps to Create Oracle Utilities Data Model Users

Steps to Create Oracle Utilities Data Model Application Roles

To create the Oracle Utilities Data Model Application Roles, perform the following steps:

1. Start the Oracle BI Administration Tool. Start RPD in the offline mode. Select the Manage menu and click **Identity**.

Figure 13–1 Oracle BI Administration Tool Manage Menu
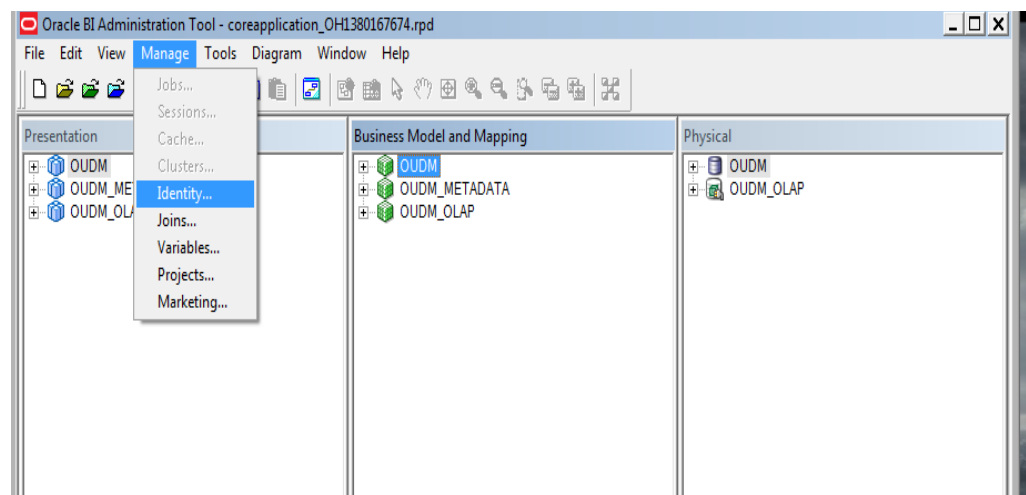
2. In the Identity Manager screen, select Action, then select New, and click **Application Role**.

Figure 13–2   Oracle BI Administration Tool Identity Manager Page
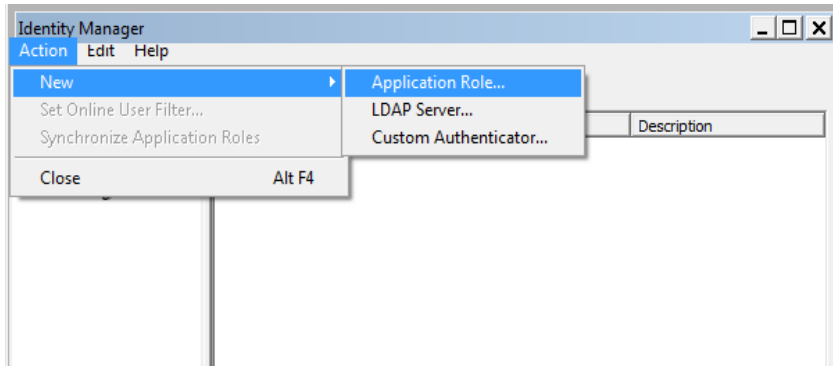
3. Enter *Oudm_Role* in the Name field and click **Permissions**.

Figure 13–3   Oracle BI Administration Tool Application Role - Oudm_Role Page
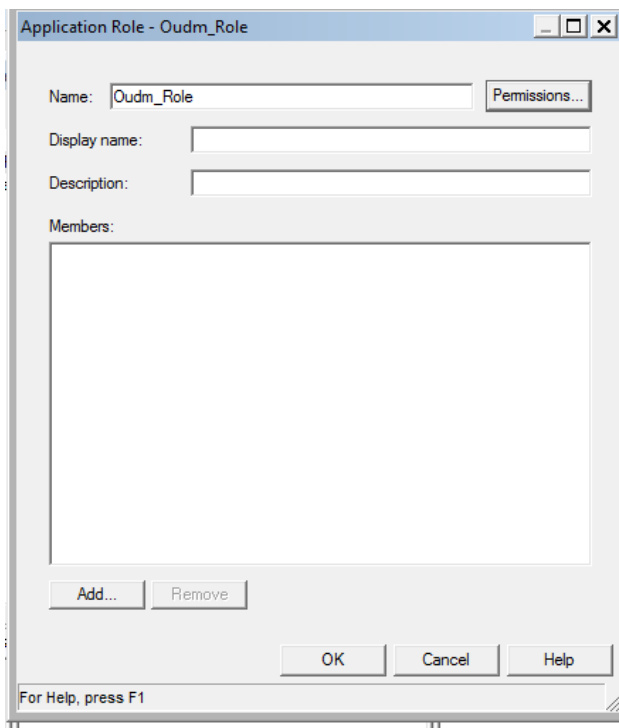
4. In the Object Permissions option, provide the appropriate permissions for the Application Role.

Figure 13–4   User/Application Role Permissions - Application Role Page
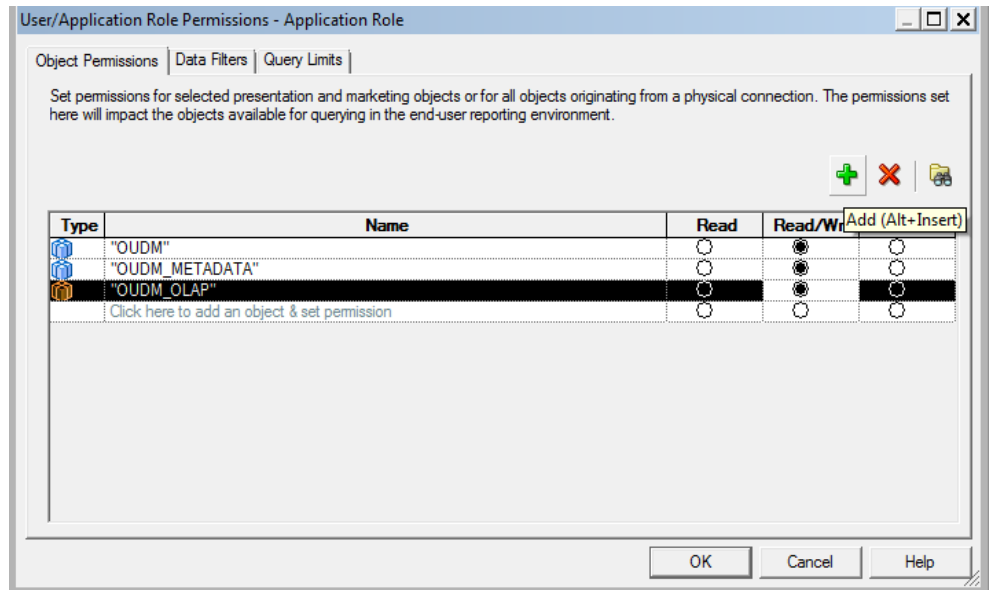
5. Click **Add** and select the appropriate users. Click **OK**, and then click **Close**.

Figure 13–5   Oracle BI Administration Tool Users and Application Roles List
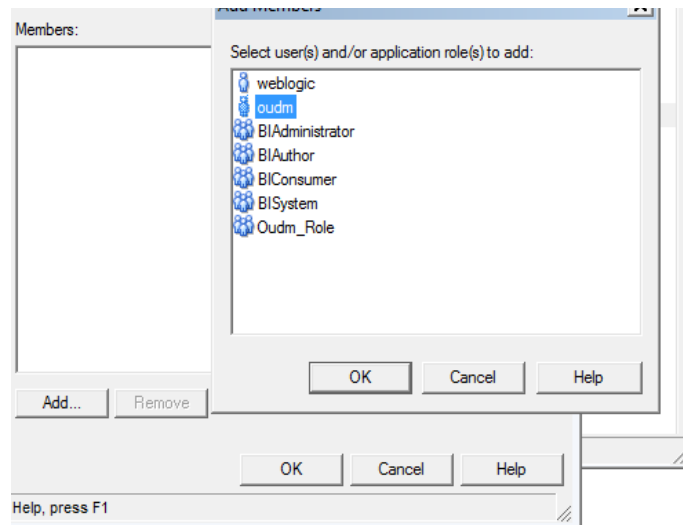
Steps to Create Oracle Utilities Data Model Users

To create the Oracle Utilities Data Model Users, perform the following steps:

1. Login to Oracle Weblogic Server Administration Console. Select Security Realms option in the Domain Structure and click **my realm**.

Figure 13–6   Weblogic Server Administration Console for Data Model Users
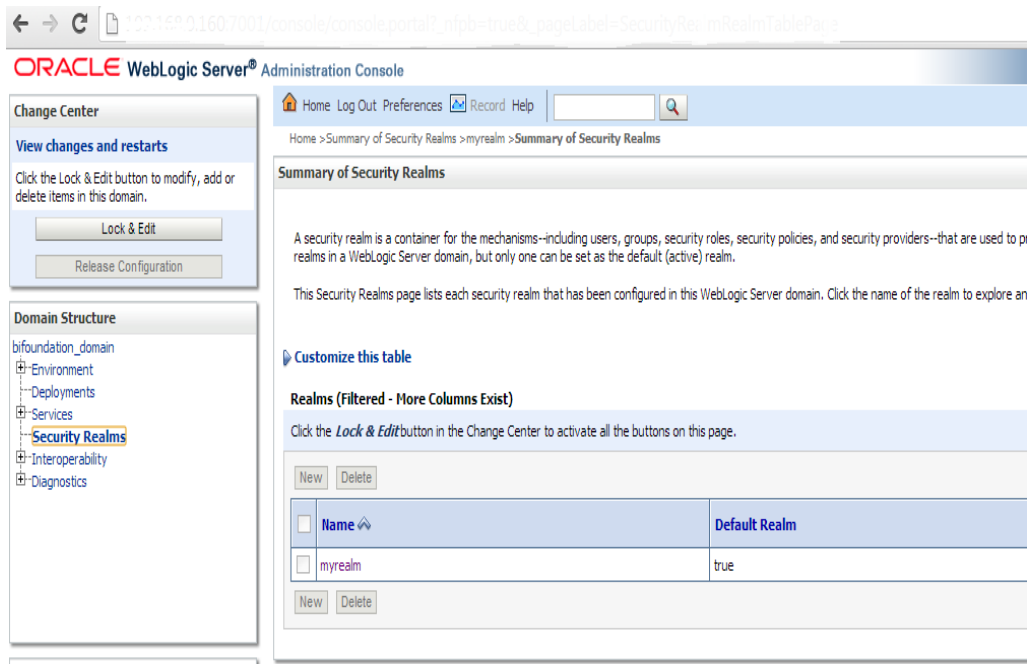
2. Click **Users and Groups**.

Figure 13–7   Weblogic Server Administration Console for Data Model Users
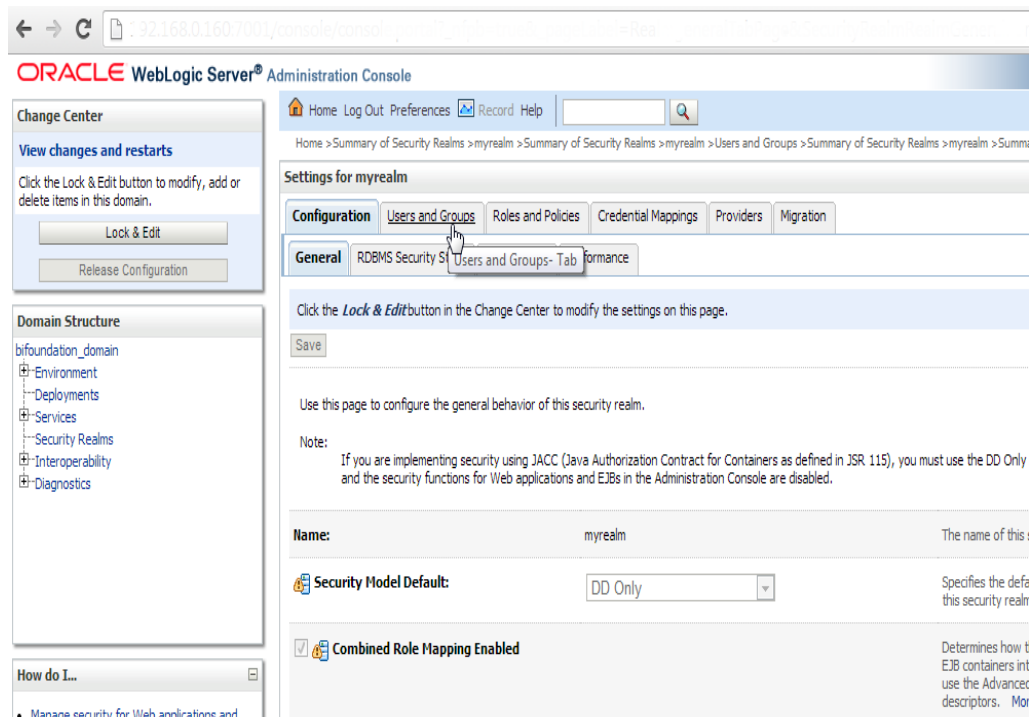
Click **New**.

Figure 13–8   Weblogic Server Administration Console for Data Model Users

3. Enter the appropriate details in the User Properties section, as described in Table 13–1.

Figure 13–9   Weblogic Server Administration Console for Data Model Users
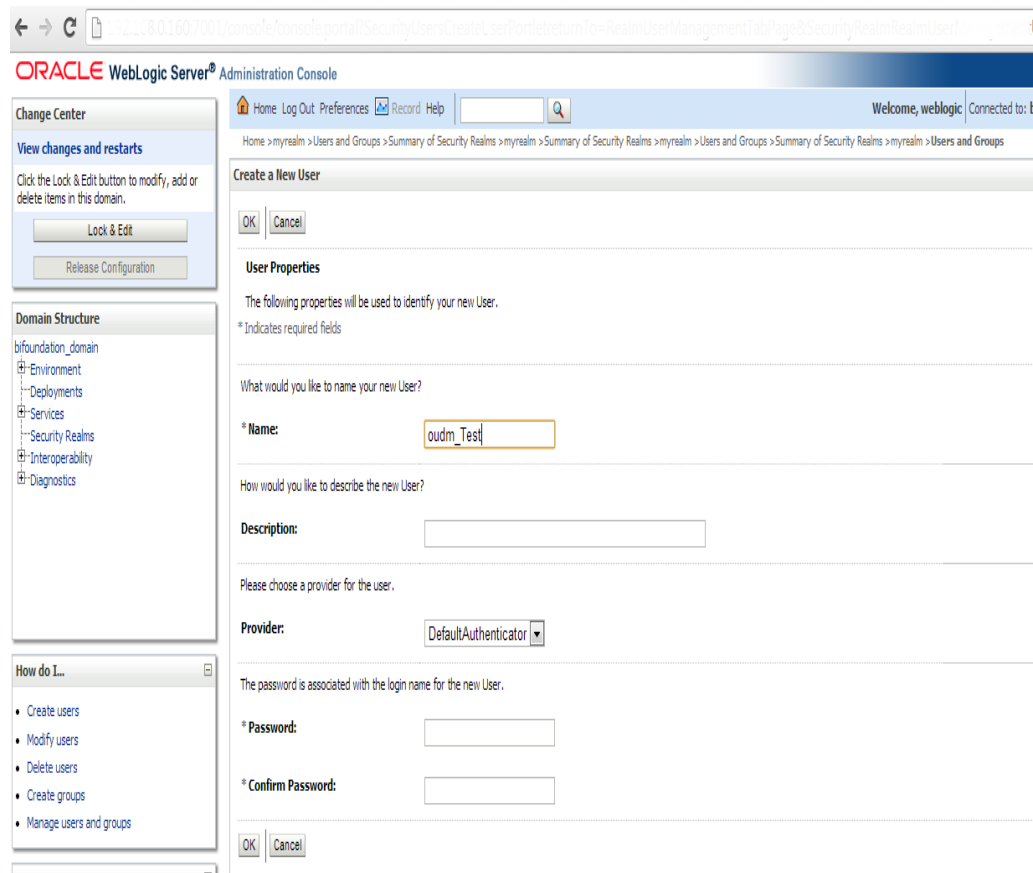
Table 13–1   Fields in Console Page to Create Data Model Users

Field	Description
Name	Enter the *User Name*. For example, *oudm_Test*
Description	Retain the blank field
Provider	Retain the default option
Password	Specify a *password*
Confirm Password	Specify the same *password*

Click OK.

4.   Double-click **oudm** in the Users tab.

Figure 13–10   Weblogic Server Administration Console Users Tab

Click **Groups** and then click **Save**.

Figure 13–11   Weblogic Server Administration Console Groups Tab

5. Login to Enterprise Manager 11*g* and perform the following steps:

    a. Expand the Business Intelligence tab and click **coreapplication**.

    b. Select the Security tab and click **Configure and Manage Application Roles**.

Figure 13–12   Enterprise Manager 11g Configure and Manage Application Roles Link
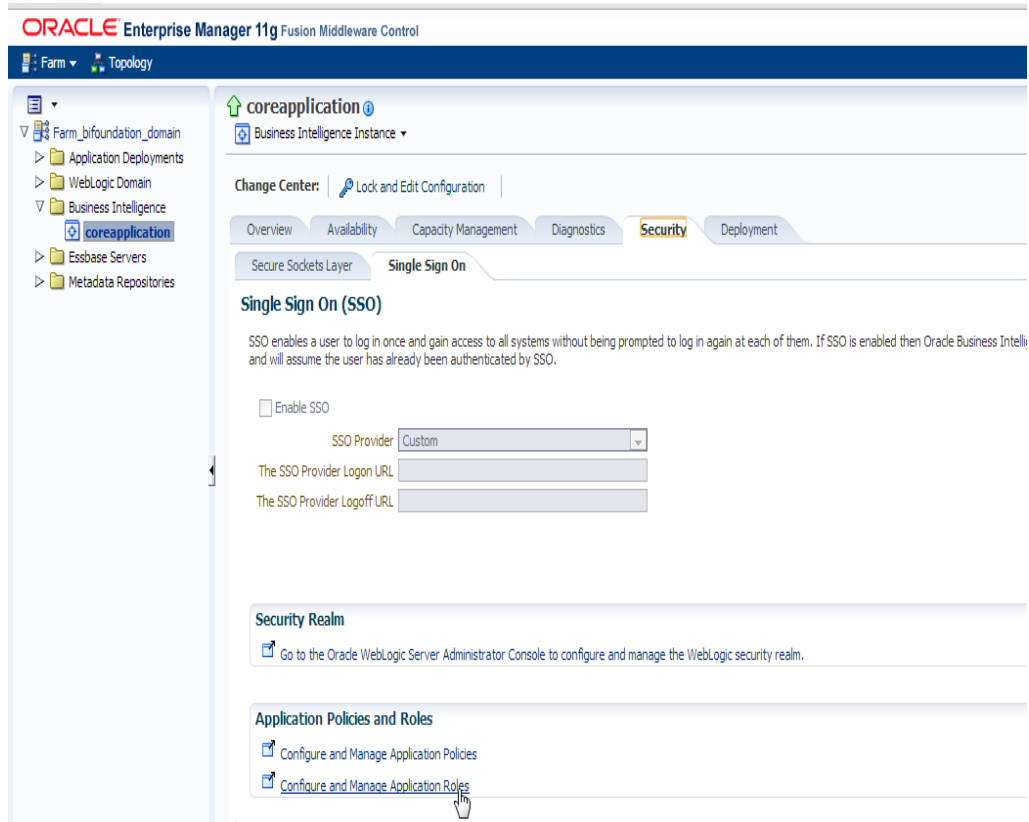
    c. Click **Create...** to create application role.

Figure 13–13   Enterprise Manager 11g Create Application Role
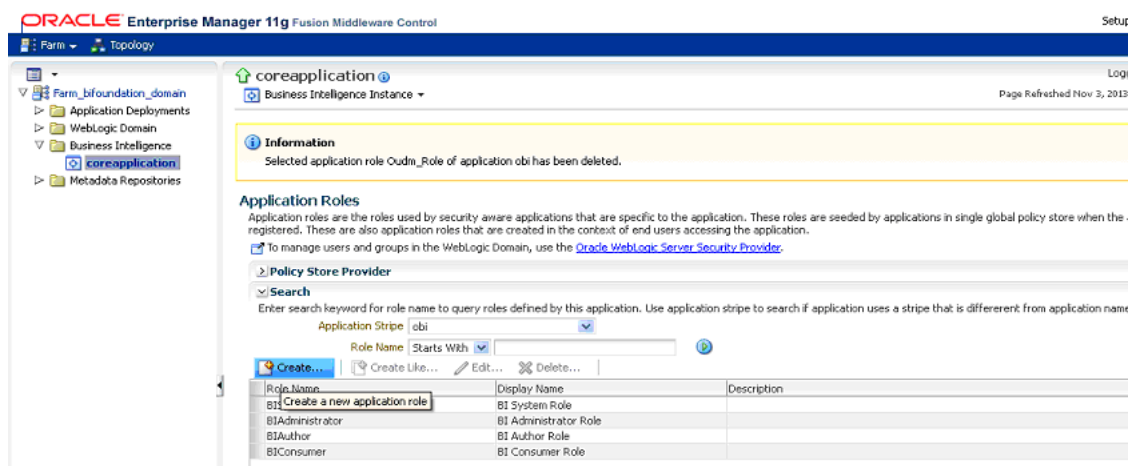
    d. Enter "Oudm_Role" for application role name and display name fields.

Figure 13–14   Enterprise Manager 11g Coreapplication Create Oudm_Role
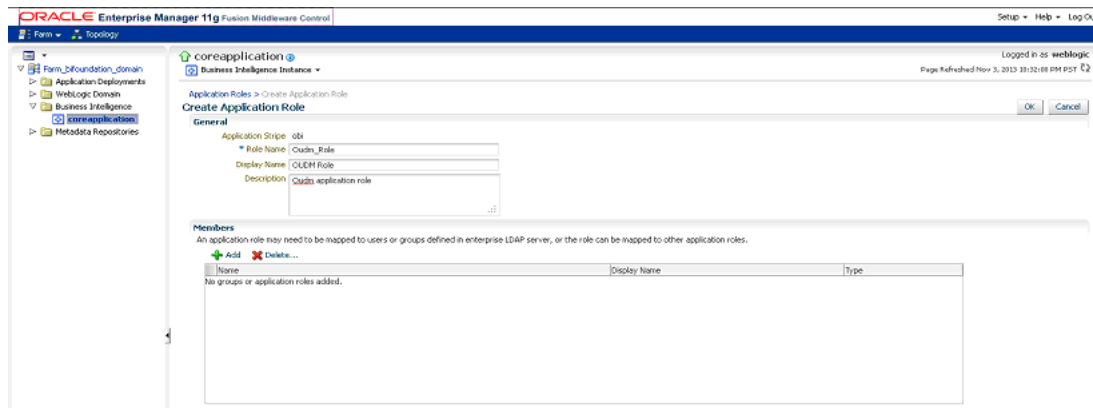
e.   Click **Add** in the Members section to add new users to the application role.

Figure 13–15   Enterprise Manager 11g Coreapplication Section
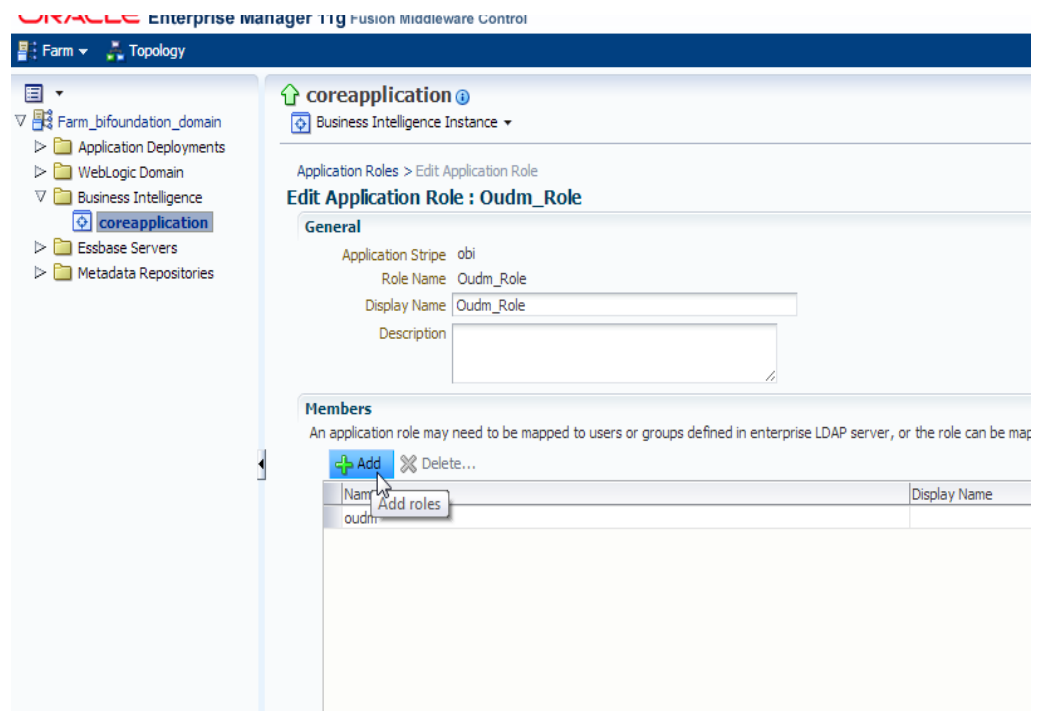
f.   Click **OK**.

6.   Refresh the User Globally Unique Identifiers (GUIDs) and restart the services.

Refresh the GUID

If you change the directory server used as the identity store for the authentication provider, then you must refresh the user GUIDs. If you do not refresh the GUIDs, and the same user name exists in both the original and new directory servers, then the original user GUID shows a conflict with the user GUID contained in new directory server, resulting in authentication errors.

For more information on these steps, see *Oracle Fusion Middleware Security Guide for Oracle Business Intelligence Enterprise Edition*.

To refresh the User GUIDs, perform the following steps:

> **Note:** You must manually edit the configuration files in Oracle BI Server and Oracle BI Presentation Server and refresh the GUIDs after the restart. Edit these files to remove the changes after the refresh is complete.

1. Update the `FMW_UPDATE_ROLE_AND_USER_REF_GUIDS` parameter in `NQSConfig.INI`: at the following path:

   ```
   \MiddlewareHome\instances\instance2\config\OracleBIServerComponent\core
   application_obis1 \NQSConfig.INI
   ```

   Open and locate the `FMW_UPDATE_ROLE_AND_USER_REF_GUIDS` parameter and set it to `YES`, as shown:

   ```
   FMW_UPDATE_ROLE_AND_USER_REF_GUIDS = YES;
   ```

   Save the file.

2. Update the `ps:Catalog` element in `instanceconfig.xml`: at the following path:
   ```
   \MiddlewareHome\instances\instance2\config\OracleBIPresentationServices
   Component\coreapplication_obips1\Instanceconfig.xml
   ```

   Locate the `ps:Catalog` element and update it, as shown:

   ```
   <ps:UpgradeAndExit>false</ps:UpgradeAndExit>
   ```

   Paste the command, as shown:

   ```
   < UpdateAccountGUIDs>UpdateAndExit</ UpdateAccountGUIDs>
   ```

   Save the file.

3. In Enterprise Manager 11*g*, restart BI server.

4. Update the `FMW_UPDATE_ROLE_AND_USER_REF_GUIDS` parameter in `NQSConfig.INI`: at the following path:

   ```
   \MiddlewareHome\instances\instance2\config\OracleBIServerComponent\core
   application_obis1 \NQSConfig.INI
   ```

   Open and locate the `FMW_UPDATE_ROLE_AND_USER_REF_GUIDS` parameter and set it to `NO`, as shown:

   ```
   FMW_UPDATE_ROLE_AND_USER_REF_GUIDS = NO;
   ```

   Save the file.

5. Update the `ps:Catalog` element in `instanceconfig.xml`: at the following path:

   ```
   \MiddlewareHome\instances\instance2\config\OracleBIPresentationServices
   Component\coreapplication_obips1\Instanceconfig.xml
   ```

   Locate the `ps:Catalog` element and update, as shown:

   ```
   <ps:UpgradeAndExit>false</ps:UpgradeAndExit>
   ```

   Remove the following command:

   ```
   <ps: UpdateAccountGUIDs>UpdateAndExit<ps: UpdateAccountGUIDs>
   ```

   Save the file.

6. In Enterprise Manager 11*g*, restart BI server.

Figure 13–16   Enterprise Manager 11g Coreapplication Overview Tab
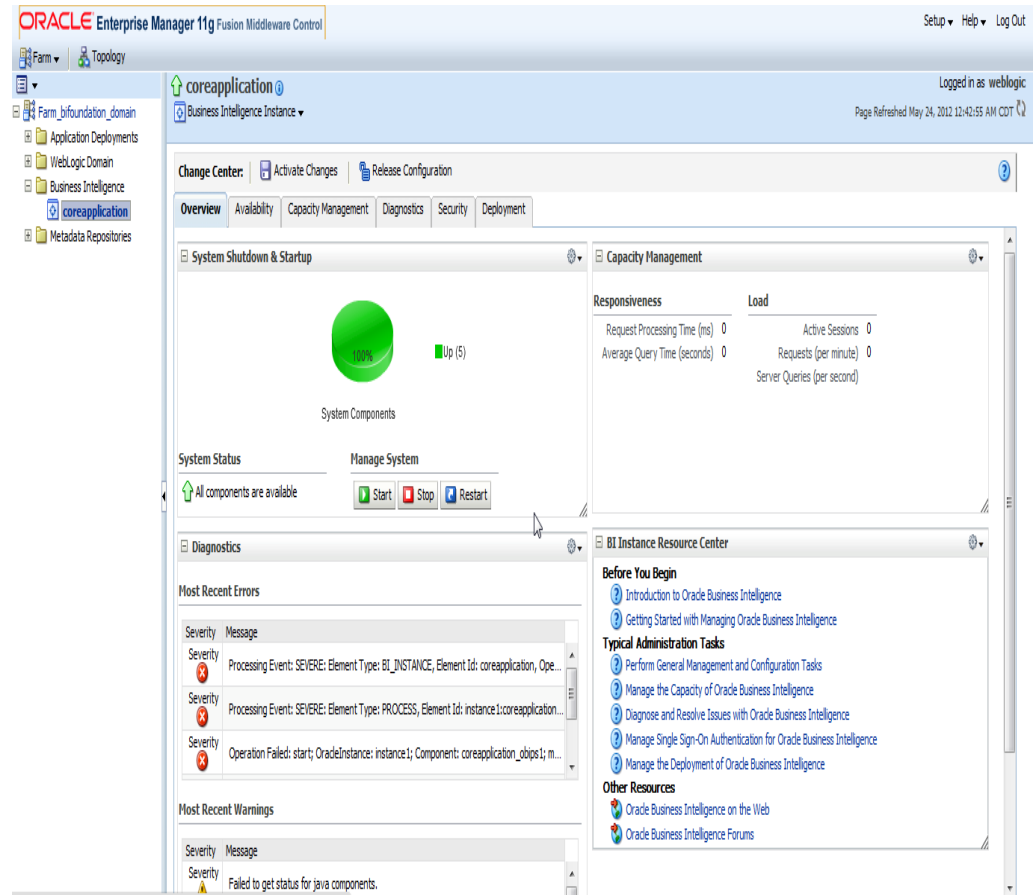
> **Note:**   Ensure that Oracle Web Logic Server and the system
> components are running. If they are not running, restart the server
> and the components.

Metadata Collection and Reports

This chapter includes the following sections:

- Overview of Managing Metadata for Oracle Utilities Data Model
- Browsing Metadata Reports and Dashboard
- Collecting and Populating Metadata

14.1 Overview of Managing Metadata for Oracle Utilities Data Model

Metadata is any data about data and, as such, is an important aspect of the data warehouse environment. Metadata allows the end user and the business analyst to navigate through the possibilities at a higher business object level.

Metadata management is a comprehensive, ongoing process of overseeing and actively managing metadata in a central environment which helps an enterprise to identify how data is constructed, what data exists, and what the data means. It is particularly helpful to have good metadata management when customizing Oracle Utilities Data Model so that you can do impact analysis to ensure that changes do not adversely impact data integrity anywhere in your data warehouse.

- Metadata Categories and Standards
- Working with a Metadata Repository

14.1.1 Metadata Categories and Standards

Metadata is organized into three major categories:

- **Business metadata** describes the meaning of data in a business sense. The business interpretation of data elements in the data warehouse is based on the actual table and column names in the database. Business metadata gathers this mapping information, business definitions, and rules information.

- **Technical metadata** represents the technical aspects of data, including attributes such as data types, lengths, lineage, results from data profiling, and so on.

- **Process execution metadata** presents statistics on the results of running the ETL process itself, including measures such as rows loaded successfully, rows rejected, amount of time to load, and so on.

Since metadata is so important in information management, many organizations attempt to standardize metadata at various levels, such as:

- Metadata Encoding and Transmission Standard (METS). A standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library.

- American National Standards Institute (ANSI). The organization that coordinates the U.S. voluntary standardization and conformity-assessment systems.

- International Organization for Standardization (ISO). The body that establishes, develops, and promotes standards for international exchange.

- Common Warehouse Metamodel (CWM). A specification, released and owned by the Object Management Group, for modeling metadata for relational, non-relational, multi-dimensional, and most other objects found in a data warehousing environment.

When you implement your metadata management solution, reference your data warehouse infrastructure environment and make the decision which standard to follow.

14.1.2 Working with a Metadata Repository

You manage metadata using a Metadata Repository. At the highest level, a Metadata Repository includes three layers of information. The layers are defined in the following order:

1. Physical layer: this metadata layer identifies the source data.

2. Business Model and Mapping layer: this metadata layer organizes the physical layer into logical categories and records the appropriate metadata for access to the source data.

3. Presentation layer: this metadata layer exposes the business model entities for end-user access.

The first step in creating a Metadata Repository is to scope your metadata management needs by:

- Identifying the metadata consumers. Typically, there are business consumers and technical consumers.

- Determine the business and technical metadata requirements.

- Aligning metadata requirements to specific data elements and logical data flows.

Then:

- Decide how important each part is.

- Assign responsibility to someone for each piece.

- Decide what constitutes a consistent and working set of metadata

- Where to store, backup, and recover the metadata.

- Ensure that each piece of metadata is available only to those people who need it.

- Quality-assure the metadata and ensure that it is complete and up to date.

- Identify the Metadata Repository to use and how to control that repository from one place

After creating the metadata definitions, review your data architecture to ensure you can acquire, integrate, and maintain the metadata.

As the data keeps on changing in your data warehouse day by day, update the Metadata Repository. When you want to change business rules, definitions, formulas or process (especially when customizing the Oracle Utilities Data Model), your first step is to survey the metadata and do an impact analysis to list all of the attributes in the data warehouse environment that would be affected by a proposed change.

14.2 Browsing Metadata Reports and Dashboard

To customize the Oracle Utilities Data Model model, you must understand the dependencies among Oracle Utilities Data Model components, especially how the report KPIs are mapped to the physical tables and columns. Oracle Utilities Data Model provides a tool, the OCDM Metadata browser that helps you discover these dependencies. When you install Oracle Utilities Data Model with its sample reports, the metadata browser is delivered as a sample Dashboard in the webcat.

> **See:** *Oracle Utilities Data Model Installation Guide* for more information on installing the sample reports and deploying the Oracle Utilities Data Model RPD and webcat on the Business Intelligence Suite Enterprise Edition instance.

There are four tabs (reports) in the Oracle Utilities Data Model Metadata browser. To browse the metadata repository:

1. In the browser, open the login page at `http://servername:9704/analytics` where *servername* is the server on which the webcat is installed.

2. Login with username of `ocdm`, and provide the password.

3. Select the Metadata Browser dashboard.

4. Use the tabs in the Metadata browser to explore the metadata.

   - **Measure-Entity tab**

     On the Measure-Entity tab you can see the business areas (relational, OLAP, mining), the measures description, corresponding formula, responsible entities, and attributes for the measure.

   - **Entity-Measure tab**

     Using the Entity-Measure tab, you can discover the mappings between entities, attributes, supported measures, and calculations of the measures. You can discover information about particular entities and attributes.

   - **Program-Table tab**

     Using the Program-Table tab you can browse for information on the intra-ETL mappings and report information. Take the following steps:

   - **Table-Program tab**

     By default when you go to the Table-Program tab you see all of the tables used for all the reports.

     To discover what reports use a particular table, you must move a particular table from the right pane to the left (Selected) pane.

14.2.1 Using the Measure-Entity Tab Business Areas and Measures Attributes and Entities

The **Measure-Entity** tab provides information on the measure descriptions, computational formulas with physical columns, physical tables, and corresponding entities by Business Area.

To browse the **Measure-Entity** data, select the business area and measure description that you are interested in.

14.2.2 Using the Entity-Measure Tab Entity to Attribute Measures

The **Entity-Measure** tab displays the measures supported by the entities and how they are calculated. You can discover information about particular entities and attributes.

To view the **Entity-Measure** tab perform the following steps to learn more about an entity:

1. Select the entity.

2. Click **GO**.

14.2.3 Using the Program-Table Tab

The **Program-Table** tab displays the input and output tables used in the selected programs.

To use the Program-Table tab, perform the following steps to learn more about intra-ETL mappings:

1. Select the program type (that is, intra-ETL or report) and program name for showing particular report or intra-ETL information.

2. Select **GO**.

14.2.4 Using the Table-Program Tab

The **Table-Program** tab lists the Programs used by a given table and whether that table is an input or output, or both, of that program. To discover what reports use a particular table, move a particular table from the right pane to the left (Selected) pane.

To see the reports that use a particular table, perform the following steps:

1. In the right pane of the **Table-Program** tab, select the table.

2. Move the table to the Selected list on the left by clicking on **<** (left arrow), and click **OK**.

3. Select **GO**.

   The reports for the selected table are displayed.

14.3 Collecting and Populating Metadata

The Oracle Utilities Data Model metadata browser generation packages generate and update the Oracle Utilities Data Model metadata. The metadata generation package contains four main tables and several staging tables and views. The metadata generation tables are:

- MD_ENTY

- MD_PRG

- MD_KPI

- MD_REF_ENTY_KPI

Use the following steps to collect and populate the metadata.

1. Collect LDM Metadata:

   Extract the Logical Data Model repository metadata from Oracle SQL Developer Data Modeler (OSDM) into a database schema. Use manual steps to generate

Logical Data Model repository tables in the database with Oracle SQL Developer Data Modeler.

a. Start Oracle SQL Developer Data Modeler

b. Open Logical Data Model

c. Select **File**.

d. Select **Export**.

e. Select **To Reporting Schema**.

2. Collect Sample Dashboard Metadata:

Extract the BIEE dashboard metadata from webcat to csv file.

Using OBIEE catalog manager open the SQL Developer sample report webcat:

Tools -> create Report -> Select type to report on -> select dashboard

Select columns one by one as shown in the `md_dashboard.ldr` specified in the meta_data folder, then save as a csv format file, `md_dashboard.csv`.

Put this file in the meta_data folder.

Column Sequence:

a. Name

b. Description

c. Path

d. Folder

e. Analysis Path

f. Analysis Name

g. Analysis Description

h. Dashboard Page Description

i. Dashboard Page Name

j. Dashboard Page Path

k. Owner

3. Collect Sample Report Metadata:

Extract BIEE report metadata from webcat to csv file. Use OBIEE catalog manager to open Oracle Utilities Data Model sample report webcat.

- Tools -> create Report -> Select type to report on -> select Analysis -> select columns one by one as shown in the `md_dashboard.ldr` specified in the meta_ data folder.

- Save the file as csv format, `md_dashboard.csv`. Put the file under meta_data folder

Column Sequence:

a. NAME

b. DESCRIPTION

c. TABLE_NAME

d. COLUMN_NAME

       e. FOLDER

       f. PATH

       g. SUBJECT_AREA

       h. FORMULA

4. Collect Sample RPD Metadata:

Extract BIEE RPD metadata from RPD to csv file. Use Administrator Tool to open Oracle Utilities Data Model sample report RPD:

- Tools -> Utilities -> Repository Documentation -> Execute -> select location -> set xls file name as `md_rpd`.

- Save as csv format `md_rpd.csv` and put under meta_data folder.

5. Load Naming Convention Information:

Load Oracle Utilities Data Model Physical Data Model naming convention information from csv into a staging table. Use `sqlloader` to load data from `name_conversion.csv` into MD_NAME_CONVERSION table. The `sqlloader` format file: `Name_conversion.ldr`

```
Name_conversion.ldr:
OPTIONS (SKIP=1)
LOAD DATA
INFILE     'name_conversion.csv'
BADFILE    'name_conversion.csv.bad'
DISCARDFILE 'name_conversion.csv.dsc'
truncate
INTO TABLE MD_NAME_CONVERSION
FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
TRAILING NULLCOLS
(
ABBREVIATION    ,
FULL_NAME
)
```

6. Load Sample Dashboard Metadata:

Load sample dashboard metadata from csv into a staging table. Use `sqlloader` to load data from `md_dashboard.csv` into MD_DASHBOARD table. The `sqlloader` format file: `md_dashboard.ldr`.

```
Md_dashboard.ldr:

OPTIONS (SKIP=1)
LOAD DATA
INFILE     'md_dashboard.csv'
BADFILE    'md_dashboard.csv.bad'
DISCARDFILE 'md_dashboard.csv.dsc'
truncate
INTO TABLE MD_DASHBOARD
FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
TRAILING NULLCOLS
(
NAME char(2000),
DESCRIPTION char(2000),
PATH char(2000),
FOLDER char(2000),
ANALYSIS_PATH char(2000),
ANALYSIS_NAME char(2000),
```

```
ANALYSIS_DESCRIPTION char(2000),
DASHBOARD_PAGE_DESCRIPTION char(2000),
DASHBOARD_PAGE_NAME char(2000),
DASHBOARD_PAGE_PATH char(2000),
OWNER char(2000)
)
```

7. Load Sample Report Metadata

   Load sample report metadata from csv into a staging table. Use `sqlloader` to load data from `md_report.csv` into MD_REPORT table. The `sqlloader` format file: `md_report.ldr`.

   Md_dashboard.ldr:

   ```
   OPTIONS (SKIP=1)
   LOAD DATA
   INFILE     'md_dashboard.csv'
   BADFILE    'md_dashboard.csv.bad'
   DISCARDFILE 'md_dashboard.csv.dsc'
   truncate
   INTO TABLE MD_DASHBOARD
   FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
   TRAILING NULLCOLS
   (
   NAME char(2000),
   DESCRIPTION char(2000),
   PATH char(2000),
   FOLDER char(2000),
   ANALYSIS_PATH char(2000),
   ANALYSIS_NAME char(2000),
   ANALYSIS_DESCRIPTION char(2000),
   DASHBOARD_PAGE_DESCRIPTION char(2000),
   DASHBOARD_PAGE_NAME char(2000),
   DASHBOARD_PAGE_PATH char(2000),
   OWNER char(2000)
   )
   ```

8. Load Sample RPD Metadata:

   Load sample RPD metadata from csv into a staging table.

   > **Note:** If the OLAP part of the RPD is populated by the BIEE native OLAP import. Then the metadata of this part will not be shown in `md_rpd.csv`. You need to manually populate this part of metadata from the RPD.

   Use `sqlloader` to load data from `md_rpd.csv` into MD_RPD table. The `sqlloader` format file: `md_rpd.ldr`.

   Md_rpd.ldr:

   ```
   OPTIONS (SKIP=0)
   LOAD DATA
   INFILE     'md_rpd.csv'
   BADFILE    'md_rpd.csv.bad'
   DISCARDFILE 'md_rpd.csv.dsc'
   truncate
   INTO TABLE MD_RPD
   ```

```
FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
TRAILING NULLCOLS
(
 SUBJECT_AREA
,PRESENTATION_TABLE
,PRESENTATION_COLUMN char(500)
,DESC_PRESENTATION_COLUMN
,BUSINESS_MODEL
,DERIVED_LOGICAL_TABLE
,DERIVED_LOGICAL_COLUMN
,DESC_DERIVED_LOGICAL_COLUMN
,EXPRESSION char(1000)
,LOGICAL_TABLE
,LOGICAL_COLUMN
,DESC_LOGICAL_COLUMN
,LOGICAL_TABLE_SOURCE
,EXPRESSION_1 char(1000)
,INITIALIZATION_BLOCK
,VARIABLE
,DATABASE
,PHYSICAL_CATALOG
,PHYSICAL_SCHEMA
,PHYSICAL_TABLE
,ALIAS
,PHYSICAL_COLUMN
,DESC_PHYSICAL_COLUMN
)
```

9. Load LDM/PDM Metadata (Table MD_ENTY):

   Load LDM/PDM mapping and related information into table MD_ENTY. For information on this step, see "Load LDM/PDM Metadata (Table MD_ENTY)".

10. Load Program (Intra-ETL) Metadata (Table MD_PRG):

    Load Intra-ETL program input/output and related information into table MD_PRG.

    For information on this step, see "Load Program (Intra-ETL) Metadata (Table MD_PRG)"

11. Load Reports and KPI Metadata (Table - MD_KPI and MD_REF_ENTY_KPI)

    Load sample report metadata into MD_KPI and load report/PDM/LDM mapping related information into table MD_REF_ENTY_KPI.

    For information on this step see "Load Reports and KPI Metadata (Table MD_KPI and MD_REF_ENTY_KPI):".

14.3.1 Load LDM/PDM Metadata (Table MD_ENTY)

If you want to get the mapping between a business area and an entity, you have to manually populate this information. You can only get this information from the metadata report for those entities which are used in the report, for those entities which are not used in report, you have to manually map them to the correct business area.

Source Tables Required

Source Table Name	Description
DMRS_ATTRIBUTES	Containing attributes of the particular entity

Source Table Name	Description
DMRS_ENTITIES	Containing entity name with unique id
MD_NAME_CONVERSION	Containing full name and abbreviation of the distinct word used in the LDM

Staging Tables/Views

Staging Table/View Name	Description
MD_OIDM_ATTR_COL_NAME_MAP	Used to store abbreviate the column names based on the standard abbreviation used in the project.
MD_DM_ALL_ENT_ATTR	Used to generate and keep the entity description.

Loading MD_ENTY (MD_ENTY_POP.SQL)

14.3.1.1 GIVE_ABBRV

Type: Function

This database function GIVE_ABBRV provides the abbreviation for a named token from the table MD_NAME_CONVERSION.

Source Table

MD_NAME_CONVERSION

Columns: ABBREVIATION

Target

Table: MD_OIDM_ATTR_COL_NAME_MAP

Columns: column_name_abbr

14.3.1.2 MD_DM_ALL_ENT_ATTR

Type: View

This database view provides the description of each entity.

Source Table	Target View
DMRS_ENTITIES	MD_DM_ALL_ENT_ATTR

14.3.1.3 PL/SQL Program to Update Column Name

Type: PL/SQL Program

This program updates the column name based on the result of function GIVE_ABBRV.

Source Tables	Target Table
MD_OIDM_ATTR_COL_NAME_MAP	MD_OIDM_ATTR_COL_NAME_MAP
DMRS_ATTRIBUTES	Column: column_name_abbr

14.3.1.4 PL/SQL program to insert initial data into MD_OIDM_ATTR_COL_NAM

Type: PL/SQL Program

Provides initial loading for table MD_OIDM_ATTR_COL_NAME_MAP

Source Tables	Target Table
MD_DM_ALL_ENT_ATTR	MD_OIDM_ATTR_COL_NAME_MAP
DMRS_ENTITIES	

14.3.1.5 PL/SQL program to load data into MD_ENTY

Type: PL/SQL Program

Loads data into MD_ENTY from all the staging tables.

Source Table	Target Table
MD_OIDM_ATTR_COL_NAME_MAP	MD_ENTY

14.3.2 Load Program (Intra-ETL) Metadata (Table MD_PRG)

Source Tables Required

Source Table Name	Description
USER_DEPENDENCIES	This database view describes dependencies between procedures, packages, functions, package bodies, and triggers owned by the current user, including dependencies on views created without any database links.
MD_RPD_RPT	This table contains the sample report related information.

Staging Tables/Views

Staging Table/View Name	Description
MD_INTRA_ETL	Used to generate and keep the relational/OLAP ETL program metadata information.
MD_MINING	Used to generate and keep the data mining ETL program metadata information.

Loading MD_PRG (MD_PRG_POP.SQL, MD_MIN_PRG_POP.SQL)

Program: MD_INTRA_ETL

Type: View

This view extracts information for relational and OLAP Intra-ETL packages. The structure is the same as MD_PRG.

Source View	Target View
USER_DEPENDENCIES	MD_INTRA_ETL

Program: MD_MINING

Type: View

This view extracts information for the data mining Intra-ETL packages. The structure of the view same as MD_PRG.

Source View	Target View
USER_DEPENDENCIES	MD_MINING

Program: PL/SQL program to load ETL mapping data into MD_PRG.

Type: PL/SQL Program

Load ETL program data into MD_PRG from all the staging views

Source Views	Target Table
MD_INTRA_ETL	MD_PRG
MD_MINING	

Program: PL/SQL program insert report data into MD_PRG

Type: PL/SQL Program

Load report data into MD_PRG from report staging table.

Source Table	Target Table
MD_RPD_RPT	MD_PRG

14.3.3 Load Reports and KPI Metadata (Table MD_KPI and MD_REF_ENTY_KPI):

Source Tables Required

Source Table Name	Description
MD_RPD	This tables stores all the RPD metadata information, it is directly loaded from md_rpd.csv
MD_REPORT	This tables stores all the report (analysis) metadata information, it is directly loaded from md_report.csv
MD_DASHBOARD	This tables stores all the sample report dashboard metadata information, it's directly loaded from md_dashboard.csv

Staging Tables/Views

Staging Table/View Name	Description
MD_RPD_CALC_PHY	Stores the missing physical tables and columns for derived measures. Wrote a query to find out missing Physical tables and columns for derived measures.
MD_REPORT1	MD_REPORT1 has the same structure of MD_RPT, it is used to store comma separated tables and columns to the new row, by that it can directly join with physical tables and columns from MD_RPD_CALC_PHY.
MD_RPT_DASH	Contains all mappings information between RPD and reports.
MD_RPD_RPT_DASH	Stores all the mappings information of Report, RPD and Dashboard.

Loading MD_KPI and MD_REF_ENTY_KPI (SAMPLE_REP_POP.SQL)

Program: PL/SQL program Insert non calculated columns Data Into MD_RPD_
CALC_PHY

Type: PL/SQL Program

This program extracts those base KPIs or non calculated column information and
inserts into MD_RPD_CALC_PHY.

Source Table	Target Table
MD_RPD	MD_RPD_CALC_PHY

Program: PROCEDURE Proc_DelmValuePopulate2

Type: Procedure

This procedure loads comma separated data to new row of the MD_REPORT1 table.

Source Table	Target Table
MD_REPORT	MD_REPORT1

Program: PL/SQL program to create and perform initial load of data into MD_RPD_
RPT

Type: PL/SQL Program

This program creates and performs initial load of data for the table MD_RPD_RPT.

Source Tables	Target Table
MD_RPD_CALC_PHY	MD_RPD_RPT
MD_REPORT1	

Program: PL/SQL program to create and initial load data into MD_RPD_RPT_DASH.

Type: PL/SQL Program

This program creates and performs initial load of data for table MD_RPD_RPT_DASH.

Source Tables	Target Table
MD_RPD_CALC_PHY	MD_RPD_RPT_DASH
MD_RPT_DASH	
MD_RPD_RPT_DASH	

Program: PL/SQL program to create and initial load data into MD_RPD_RPT.

Type: PL/SQL Program

This program creates performs initial load of data for table MD_RPD_RPT.

Source Tables	Target Table
MD_RPD_CALC_PHY	MD_RPD_RPT
MD_REPORT1	

Program: MD_DRVD_KP

Type: View

This view extracts and keeps the information for all the calculated KPIs.

Source Table	Target Table
MD_RPD_RPT_DASH	MD_DRVD_KPI

Program: PL/SQL program to create and performs initial load of data into MD_KPI.

Type: PL/SQL Program

This program creates and performs initial load of data for table MD_KPI.

Source Table	Target Table
MD_RPD_RPT_DASH	MD_KPI

Program: PL/SQL program to create and initial load data into MD_REF_ENTY_KPI.

Type: PL/SQL Program

This program creates and performs the initial load of data for table MD_REF_ENTY_KPI.

Source Table	Target Table
MD_RPD_RPT_DASHI	MD_REF_ENTY_KPI

Part IV

Appendices

Part III contains the following Appendixes:

- Appendix A, "Control Tables"

A

Control Tables

Some tables are defined in the `oudm_sys` schema and use a `DWC_` prefix, but are not part of Oracle Utilities Data Model. You use the DWC_ control tables when processing the model. For example when loading data or when monitoring errors.

This appendix includes the following sections:

- Intra-ETL Load Parameters Control Table
- Intra-ETL OLAP Mapping Control Table
- Intra-ETL Monitoring Process Control Tables

Intra-ETL Load Parameters Control Table

Use the `oudm_execute_wf.sh` program to manually execute the Intra-ETL. Before you run the Intra-ETL, for an incremental load, you must update the Oracle Utilities Data Model Relational ETL parameters in `DWC_ETL_PARAMETER` table so that this information can be used when loading the relational data. This program prompts for several environment parameter values. And reads ETL parameters from `DWC_ETL_PARAMETER` table, as shown in Table A–1, and `DWC_OLAP_ETL_PARAMETER` table, as shown in Table A–2.

The PKG_DWD_*_MAP loads data from Oracle Utilities Data Model base tables into the Oracle Utilities Data Model derived tables. These packages read relational ETL parameters from the `DWC_ETL_PARAMETER` table.

You update the parameters in `DWC_ETL_PARAMETER` control table in the `oudm_sys` schema so that this information can be used when loading the derived and aggregate tables and views.

Table A–1 describes the valid values for the `DWC_ETL_PARAMETER` table.

Table A–1   DWC_ETL_PARAMETER Table

Column	Description
Process_name	OUDM-INTRA-ETL
from_date_etl	The start date of ETL period.
to_date_etl	The end date of ETL period.
load_dt	The date when this record are populated.
last_updt_dt	The date when this record are last updated
last_updt_by	The user who last updated this record

Intra-ETL OLAP Mapping Control Table

The OLAP MAP mapping that loads OLAP cube data invokes the analytic workspace build function from the `PKG_OUDM_OLAP_ETL_AW_LOAD` package. This package loads data from Oracle Utilities Data Model aggregate materialized views into the Oracle Utilities Data Model analytical workspace and calculates the forecast data. The `PKG_OUDM_OLAP_ETL_AW_LOAD` reads OLAP ETL parameters from the `DWC_OLAP_ETL_PARAMETER` table.

You update the Oracle Utilities Data Model OLAP ETL parameters in `DWC_OLAP_ETL_PARAMETER` control table in the oudm_sys schema so that this information can be used when loading the OLAP cube data.

Table A–2 describes the valid values for the `DWC_OLAP_ETL_PARAMETER` table. For more information on the values to specify when performing an initial load of OLAP cube data or when refreshing the OLAP cubes after an initial load, see *Oracle Utilities Data Model Implementation and Operations Guide*.

Table A–2   ETL Parameters in the DWC_OLAP_ETL_PARAMETER Table

Column Name	Description
PROCESS_NAME	OUDM_OLAP_ETL
BUILD_METHOD	Cube build/refresh method specified by one of the following values: ■ `C` specifies a complete refresh which clears all dimension values before loading. ■ `?` specifies a fast refresh if possible; otherwise, a complete refresh. (Default) ■ `P` specifies recomputation of rows in a cube materialized view that are affected by changed partitions in the detail tables. ■ `S` specifies a fast solve of a compressed cube. A fast solve reloads all the detail data and re-aggregates only the changed values.
CUBENAME	Specifies the cubes you want to build: `ALL` builds all of the cubes in the Oracle Utilities Data Model analytic workspace. *cubename*[[| *cubename*]...] specifies one or more cubes, as specified with *cubename*, to build.
MAXJOBQUEUES	A decimal value that specifies the number of parallel processes to allocate to this job. (Default value is 4.) The number of parallel processes actually allocated by a build is controlled by the smallest of these factors: ■ Number of cubes in the build and the number of partitions in each cube. ■ Setting of the MAXJOBQUEUES argument. ■ Setting of the JOB_QUEUE_PROCESSES database initialization parameter.
CALC_FCST	Whether or not to calculate forecast cubes: ■ `Y` specifies calculate forecast cubes. ■ `N` specifies do not calculate forecast cubes.
NO_FCST_YRS	A decimal value that specifies how many years forecast data you want to calculate. (This parameter takes effect only if you set CALC_FCST to 'Y')
FCST_MTHD	`AUTO` which invokes the Geneva forecasting expert system which tests all of possible forecasting methods and options for these methods and chooses and uses the method that best fits the data.
FCST_ST_YR	A value specified as *yyyy* which is the "start business year" of a historical period. Forecast program will calculate the forecast data based on the historical data in this period.

Table A–2   (Cont.) ETL Parameters in the DWC_OLAP_ETL_PARAMETER Table

Column Name	Description
FCST_END_YR	A value specified as *yyyy* which is the "end business year" of a historical period. Forecast program will calculate the forecast data based on the historical data in this period.
OTHER1	Reserved for future use. (Default value is NULL.)
OTHER2	Reserved for future use. (Default value is NULL.)

Intra-ETL Monitoring Process Control Tables

The two control table in the `oudm_sys` schema, `DWC_INTRA_ETL_PROCESS` and `DWC_INTRA_ETL_ACTIVITY`, monitor the execution of the Intra-ETL process.

Table A–3 contains column name information for `DWC_INTRA_ETL_PROCESS`. Table A–4 contains column name information for `DWC_INTRA_ETL_ACTIVITY`.

Table A–3   DWC_INTRA_ETL_PROCESS Columns

Columns Name	Data Type	Not Null	Remarks
PROCESS_KEY	NUMBER(30)	Yes	Primary Key, System Generated Unique Identifier
PROCESS_START_TIME	DATE	Yes	ETL Process Start Date and Time
PROCESS_END_TIME	DATE	ETL Process End Date and Time	
PROCESS_STATUS	VARCHAR2(30)	Yes	Current status of the process
FROM_DATE_ETL	DATE	Start Date (ETL) - From Date of the ETL date range	
TO_DATE_ETL	DATE	End Date (ETL) - To Date of the ETL date range	
LOAD_DT	DATE	Record Load Date - Audit Field	
LAST_UPDT_DT	NUMBER(30)	Last Update Date and Time - Audit Field	
LAST_ UPDT_BY	VARCHAR(30)	Last Update By - Audit Field	

Table A–4   DWC_INTRA_ETL_ACTIVITY Columns

Columns Name	Data Type	Not Null	Remarks
ACTIVITY_KEY	NUMBER(30)	Yes	Primary Key, System Generated Unique Identifier
PROCESS_KEY	NUMBER(30)	Yes	Process Key. FK to DWC_INTRA_ETL_ PROCESS table
ACTIVITY_NAME	VARCHAR2(50)	Yes	Activity Name or Intra ETL Program Name

Table A–4   (Cont.) DWC_INTRA_ETL_ACTIVITY Columns

Columns Name	Data Type	Not Null	Remarks
ACTIVITY_DESC	VARCHAR2(500)	Activity description	
ACTIVITY_START_ TIME	DATE	Yes	Intra ETL Program Start Date and Time
ACTIVITY_END_TIME	DATE	Intra ETL Program End Date and Time	
ACTIVITY_STATUS	VARCHAR2(30)	Yes	Current status of the process
ERROR_DTL	VARCHAR2(2000)	Error details if any	
LOAD_DT	DATE	Record Load Date - Audit Field	
LAST_UPDT_DT	NUMBER(30)	Last Update Date and Time - Audit Field	
LAST_ PDT_BY	VARCHAR(30)	Last Update By - Audit Field	

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