ORACLE

Oracle Energy and Water
Customer Edge
Conference

# Meter Operations

## Product Update and Roadmap

**Layne Nelson**
Product Management
March 2023

# Program agenda

1. San Diego Trivia
2. Our Mission / Meter Solution
3. Customer Updates
4. Release Strategy
5. Recent Releases
6. Roadmap
7. Analytics
8. Meter News
9. Open Discussion


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# San Diego Trivia

*Questions*

1. The first European to visit the region was explorer?

   Juan Rodríguez Cabrillo

2. Sailing his flagship, *San Salvador*, from Navidad, New Spain (Mexico), Cabrillo claimed the San Diego bay for the Spanish Empire in 1542, 1624, or 1724?

   1542

3. This is the largest aircraft carrier in the world that you can tour.

   The USS Midway

4. The San Diego Zoo is one of the largest zoos in the world. San Diego Safari Park has the largest crash of what animal.

   Rhinos

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# Our Mission

*To provide the best meter solutions to address the world's energy and water challenges.*

**01** Device interfaces that scale to extreme volumes

**02** Validate and cleanse data

**03** Accurate Billing & Settlement per market rules

**04** Analytics that leverage the AMI data

**05** SaaS subscriptions and project accelerators to reduce project costs

**06** In-depth training from Oracle University

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# Meter Solution


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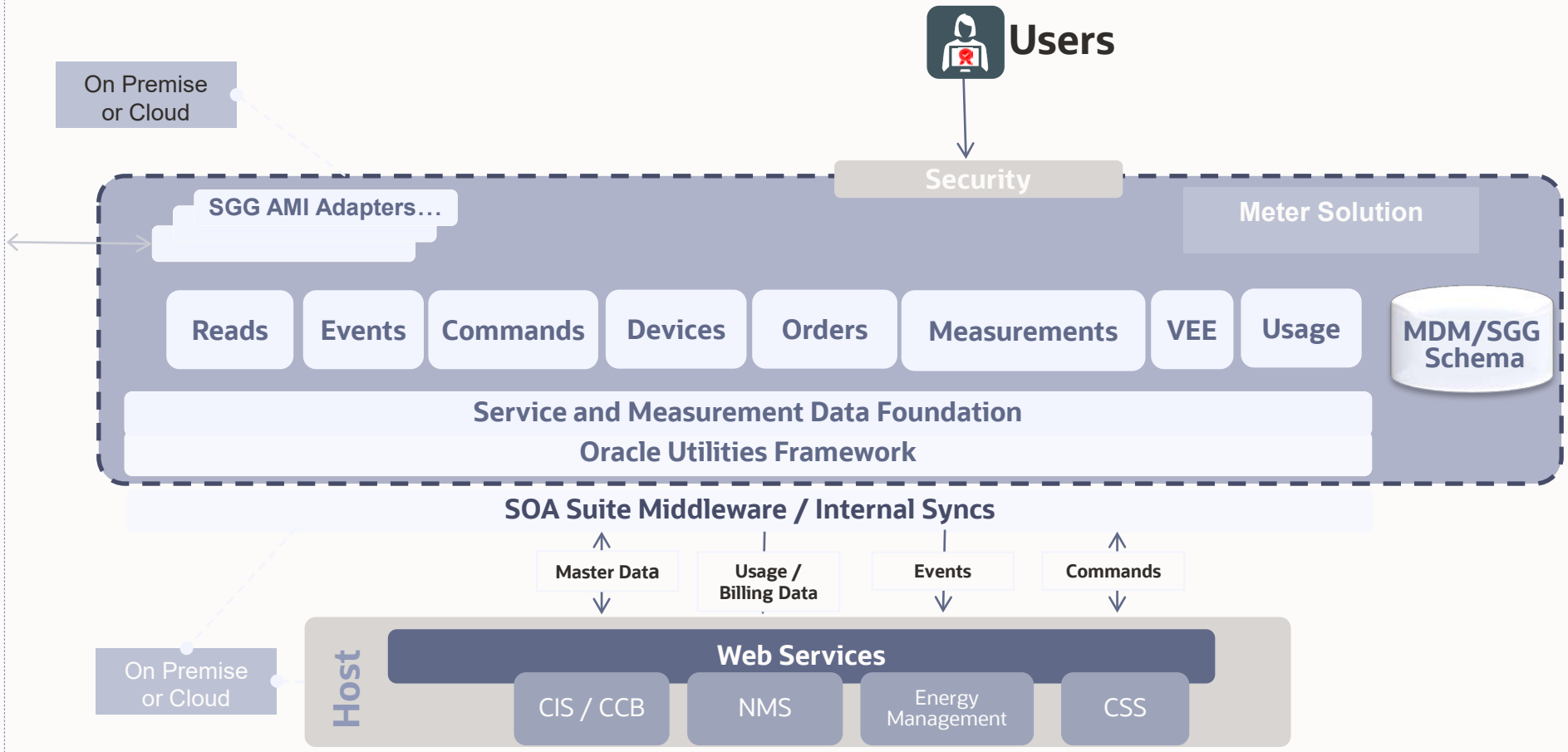
# Meter Solution Overview





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# Meter Products and Services

## On Premise

- **AMS – Advanced Meter Solution** (MDM, SGG, SOM, ODM in a single instance)
- **C2M – Customer to Meter**
- **MDM – Meter Data Management**
- **MSM – Markets Settlement Management**
- ODM – Operational Device Management
- SGG – Smart Grid Gateway
- SOM – Service Order Management

## SaaS Cloud Offering

- **CCS – Customer Cloud Service**
- **CCS with AMS – Advanced Meter Solution** (CCB, MDM, SGG, SOM, ODM in a single instance)
- **MSCS – Meter Solution Cloud Service** (MDM/SGG/SOM/ODM)
- **MSMCS – Markets Settlement Management Cloud Service**


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# Customer Updates


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# Meter solution customer highlights

*Oracle Energy and Water*

**Expansion in production**

**105M**

**meters in production**

**SaaS milestones**

**23**

**customers**

**Growing customer base**

**>90**

**live customers**

**Largest customer**

**10.5M**

**meters**


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# Release Strategy


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# Release Strategy: Software as a Service vs On-Premise

Market Settlements Management Cloud Service coming in early 2023

Deliver to SaaS first

3 releases per year

Always on current (x), (x-1) or (x-2)

SaaS

2019 2020 2021 2022 2023

A B C A B C A B C A B C A B C

19C 20B

Timing of on-premise releases is not exact

V2.5 (just released) is a "rollup" of applicable functionality from following cloud releases: 21B, 21C, and 22A.

2.3.0.2 2.4 2.5 2.5.0.1.1

V2.x (planned) is a "rollup" of applicable functionality from following cloud releases: 22B, 22C and 23A.

5 Years Premier Support, plus optional Extended Support & indefinite Sustaining Support*


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# 22B & 22C Recent Updates


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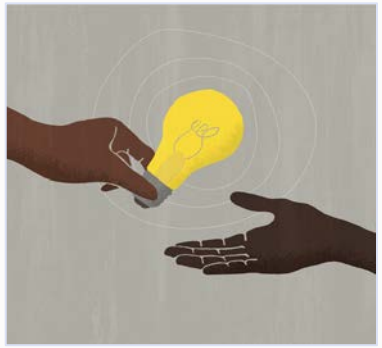
# Customer Requests

*Oracle Utilities Meter Solution Cloud Service 22B & 22C*

## Better Performance

- Initial measurement data
- Improved Measurement Extracts



## Less Custom Integration

- AMI Adapters - UOM filtering for on-demand reads
- CCB to C2M/CCS Meter Conversion Work
- Generic CIM Adapter (with Adapter Development Kit)

## Optimizing the User Experience

- Correcting Cross Installed Meters
- Dashboards by division code
- Measurement Reprocessing Improvements

## Easier Implementations

- OUAV Meter - Usage by customer classifications improvements
- New Usage Rule to Calculate Demand for Individual Service Points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# Initial Measurement Data Performance Improvements

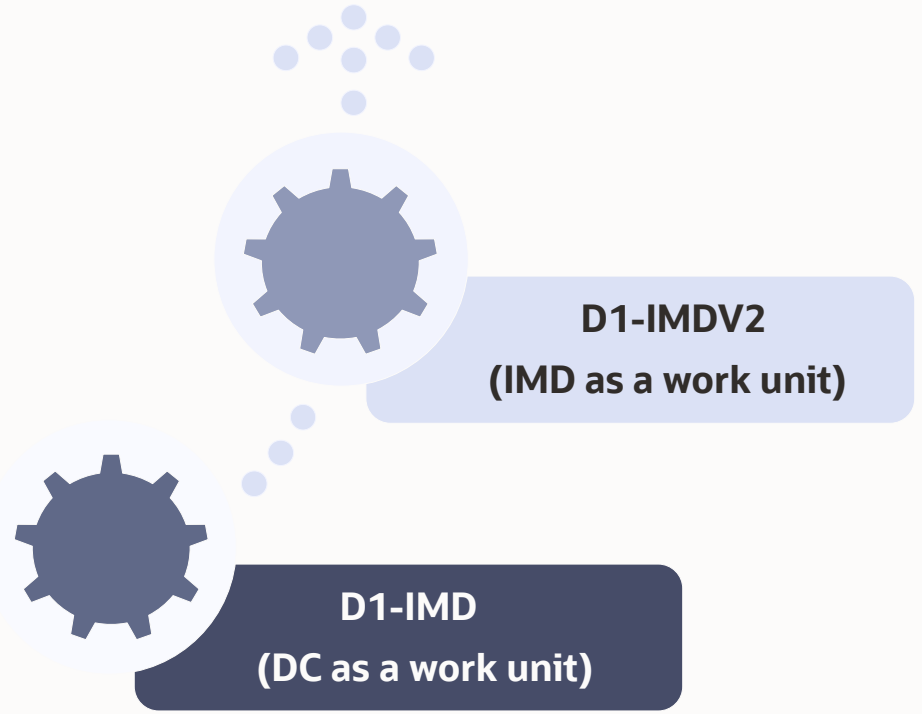
*Better Performance*

## Features

- For customers that have a large volumes of historical readings arriving with the same DC (Device Configuration). This can cause performance and high volume of exception problems.
- Adding a new batch job, D1-IMDV2, that uses IMD as a processing work unit instead of DC to solve this problem.

## Benefits

- Efficiently process a large number of IMDs for one DC without a reduction in throughput.
- Help customers with more frequent commits by -
  - Ensuring consistent records per second processing – faster processing
  - Isolating failures to a single IMD and not all IMDs for a DC - less exceptions





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# Managing Measurements Extracts

*Making Measurement Extracts Easier*

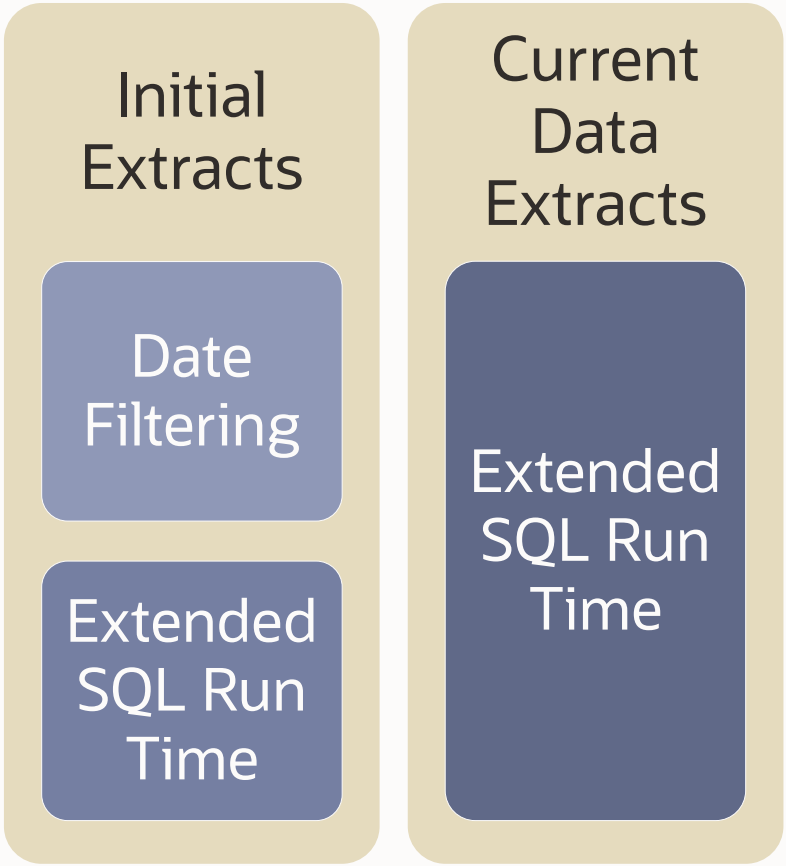
## Benefits

- Extracting billions of reads is a difficult process and time consuming.
- A new "Override SQL Timeout" parameter is used to extend the default SQL timeout for longer running queries.
- Reduces project customizations.

## Features

- New and updated extract batch processes
  - New *initial extracts* with time range filtering and override time out parameter
    - *Initial Measurement Data Header data (D1-SIMDI)*
    - *Measurement Extract (D1-SMDIE)*
  - Updated *current extracts* with override time out parameter
    - *Initial Measurement Data Header data (D1-SIMDC)*
    - *Measurement Extract (D1-SMDEC)*

SaaS Specialized Data Extracts





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# AMI Adapters - UOM Filtering For On-Demand Reads

*Less Manual Work*

## Features

- Provide unit of measure filtering for on-demand reads data
- Support for following adapters
  - Landis+GYR
  - Itron Advanced Metering Manager (formerly SSN)
  - Sensus (was updated in last release)
  - ADK (Adapter Development Kit)

## Benefits

- Preventing IMD (Initial Measurement Data) Seeder Errors for unwanted meter readings
- Reducing manual work


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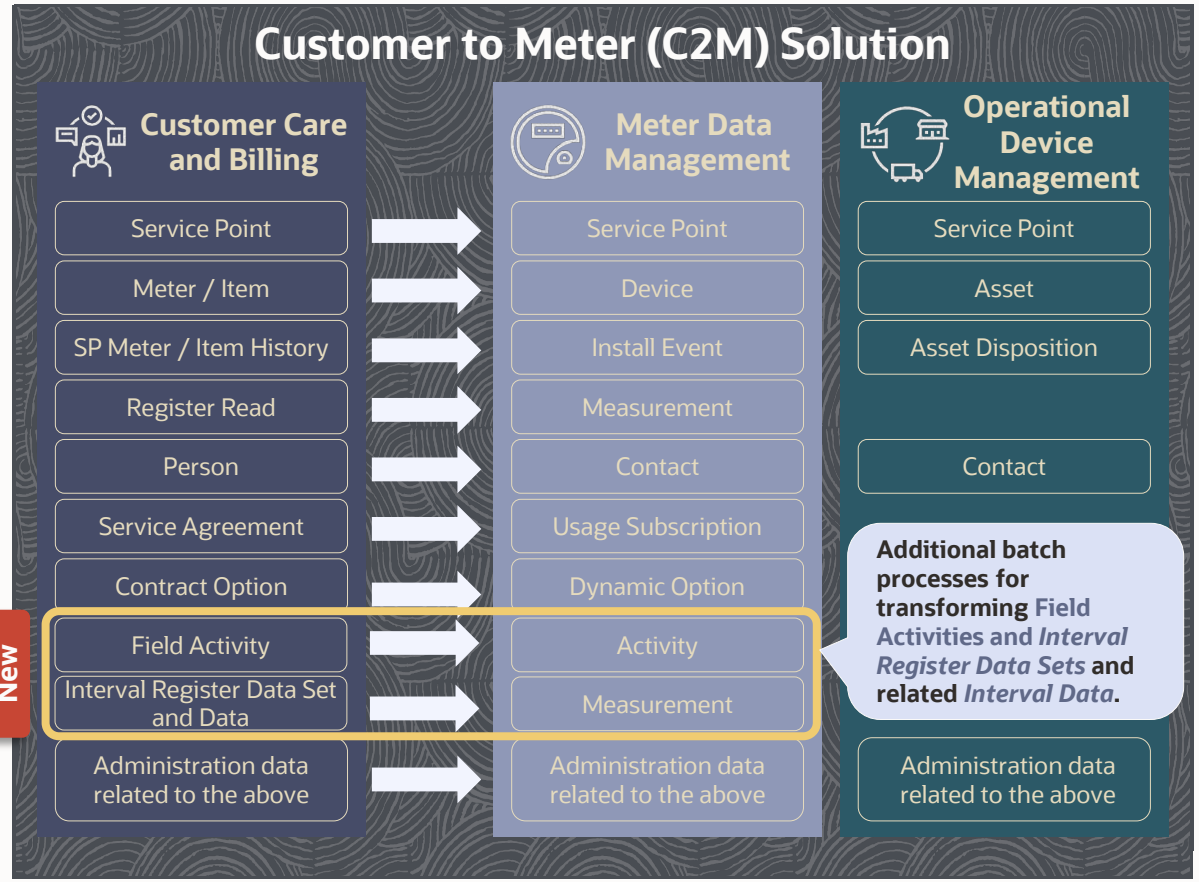
# Simplify Data Migration Process to Customer to Meter (C2M) Solution

*Makes the Transition to Customer Cloud Service Easier*

## Additional Batch Processes for Transforming CCB Data to C2M Formatted Data

- Use existing *Customer Care and Billing data* to create *Meter Data Management* and *Operational Device Management data*




Refer to the ***Initial Master Data Conversion*** and ***Transactional Data Conversion*** sections in the ***Administrative User Guide*** for further details.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# CIM (Common information Model) AMI Adapter

*Less Custom Integration*

## Features

- Generic CIM (IEC 61968-9, Edition 2.0) AMI Adapter included as part of the Adapter Development Kit
- In this release, only 'usage' and 'event' data upload will be supported.

## Benefits

- Support for customers wishing to use the CIM standard
- Reduces project time and costs

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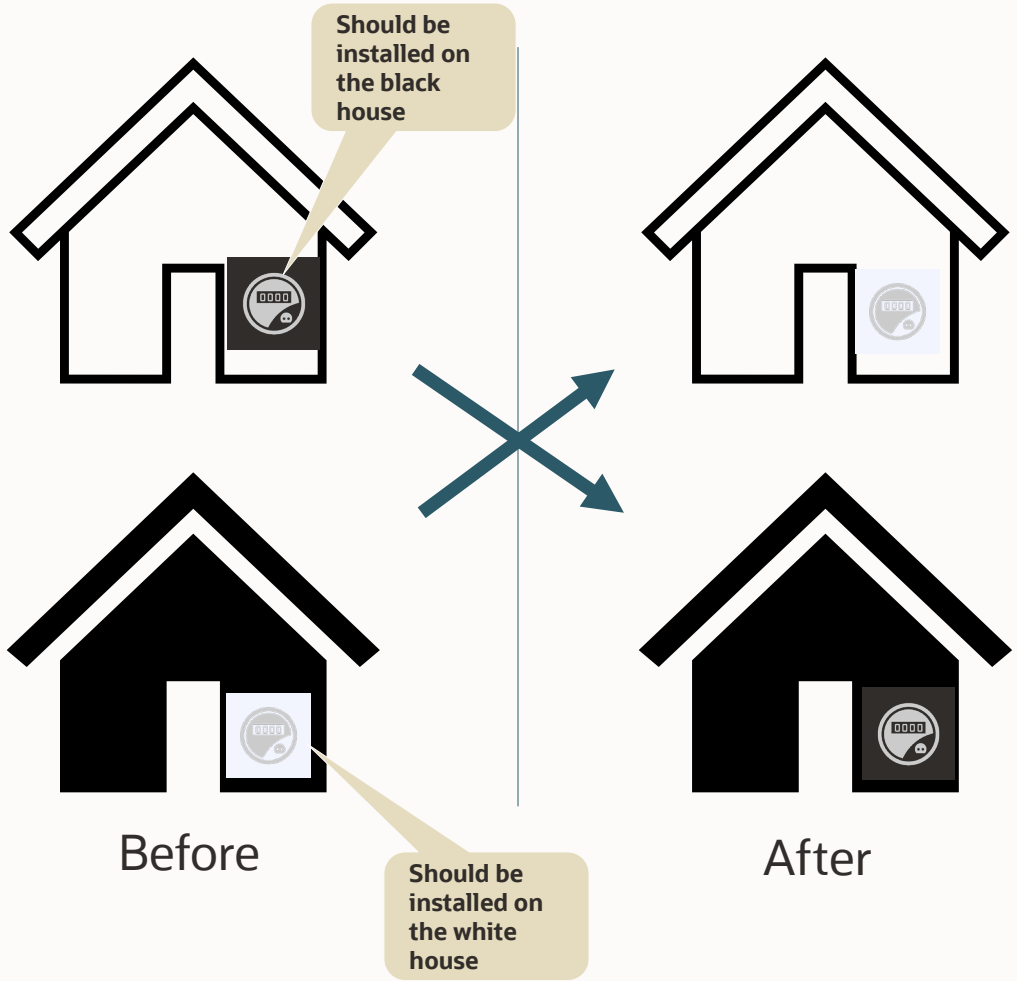
YouTube video on this enhancement. Also, on Oracle Help Center.

22B

# Correcting Cross Installed Meters in CCS/C2M

*Solving a Major Problem*




## Features

- Allow users to automatically correct cross installed meters
- Field Work Integration to determine if there are crossed meters
- The process corrects the MDM data
- Starts Off Cycle Bill Generation (OCBG) Process

## Benefits

- Dramatically reduce manual work
- Reduce manual entry errors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# Dashboards by Division Code

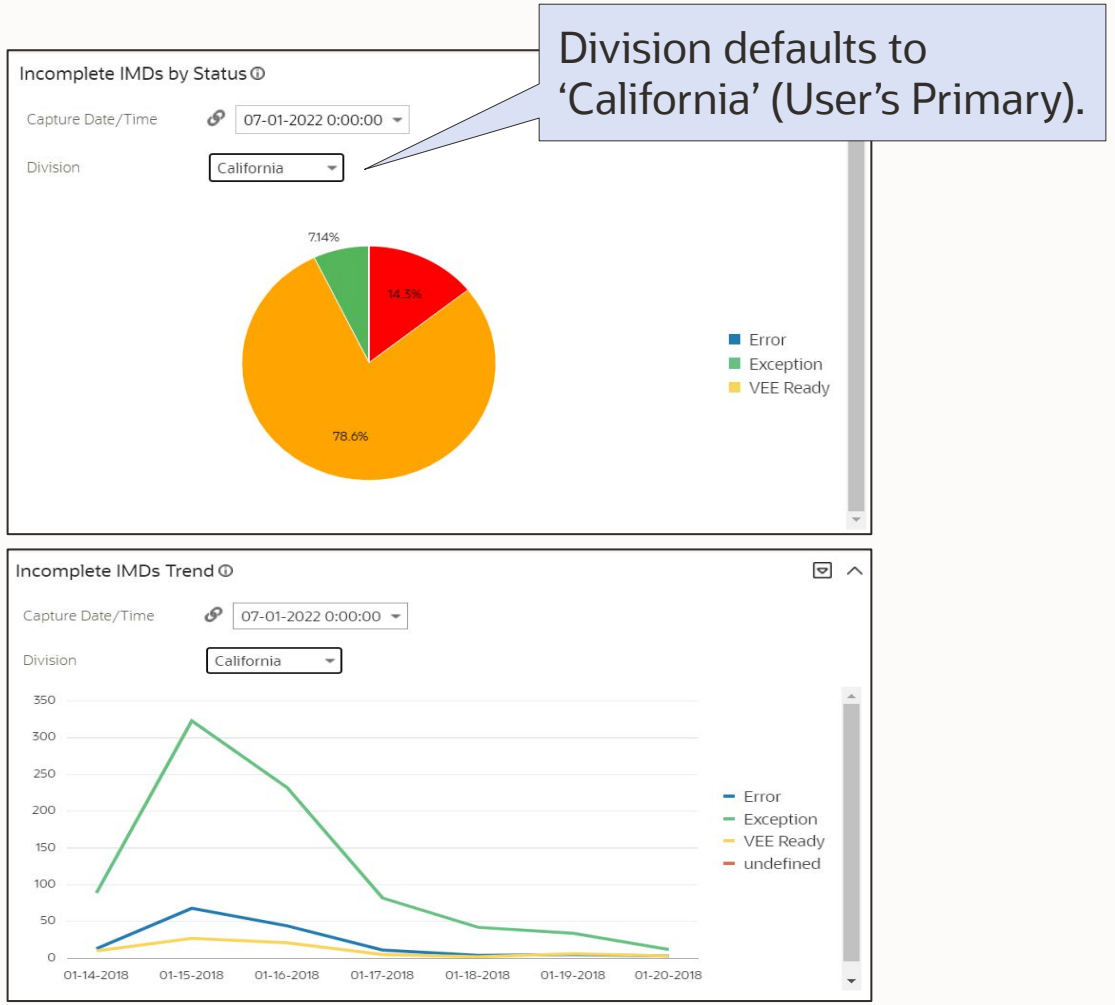
*Support for Multi-Opco Companies*

## Features

- Enhance meter operational dashboards to allow filtering by division code supporting utilities that have multiple divisions.

## Benefits

- Allow users to see data that applies to their division only.
- Supports multi-division companies.
- Reduces errors as it does not clutter the dashboard with data that is not applicable to users.





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# Measurement Reprocessing Improvements

*Improved Meter Multiplier Correction*

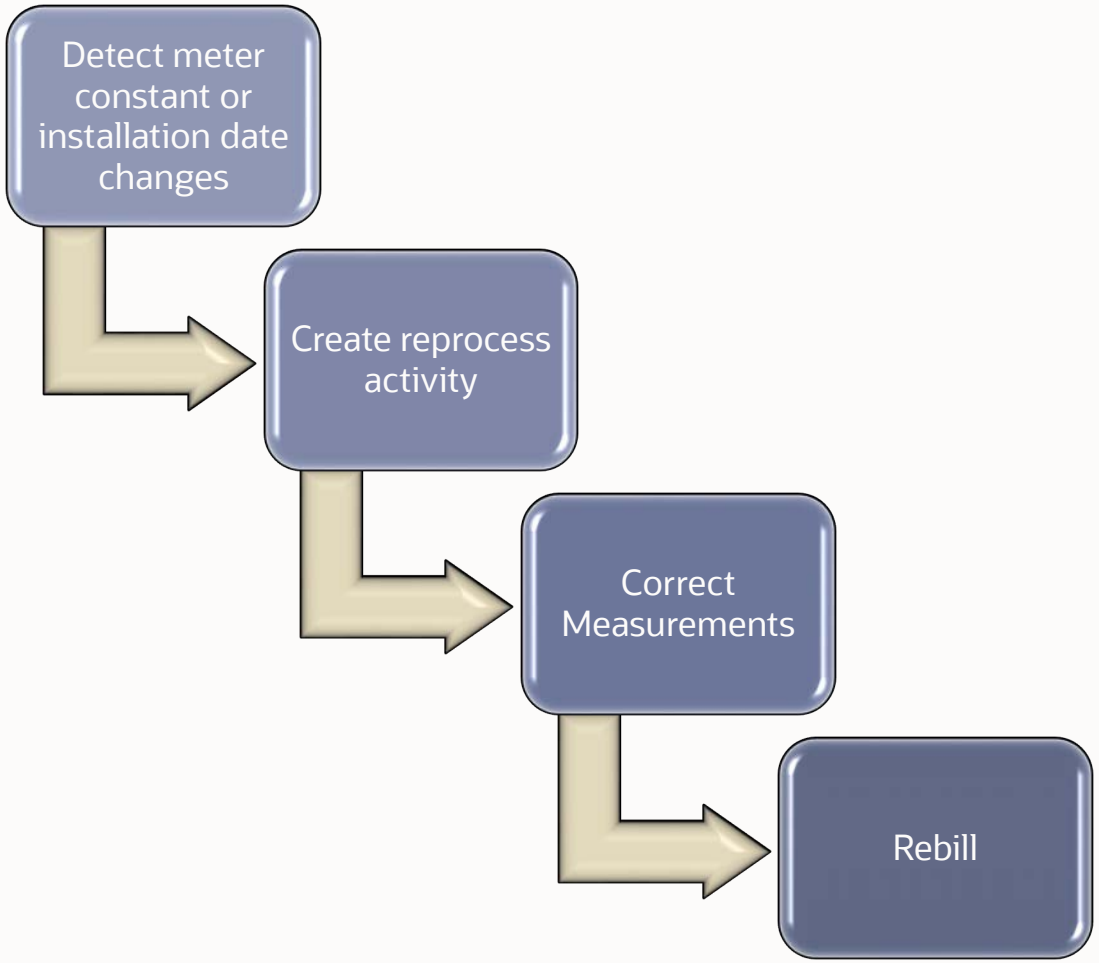
## Benefits

- Greatly reduces manual work
- Process automation also increases customer satisfaction

## Features

- Measurement reprocessing now initiated when specific changes are detected
  - When the installation and removal dates are expanded to cover a larger portion of time, we will look for existing measurements that require a change in multiplier.

Reprocessing Process





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# Usage by Customer Classifications Improvements

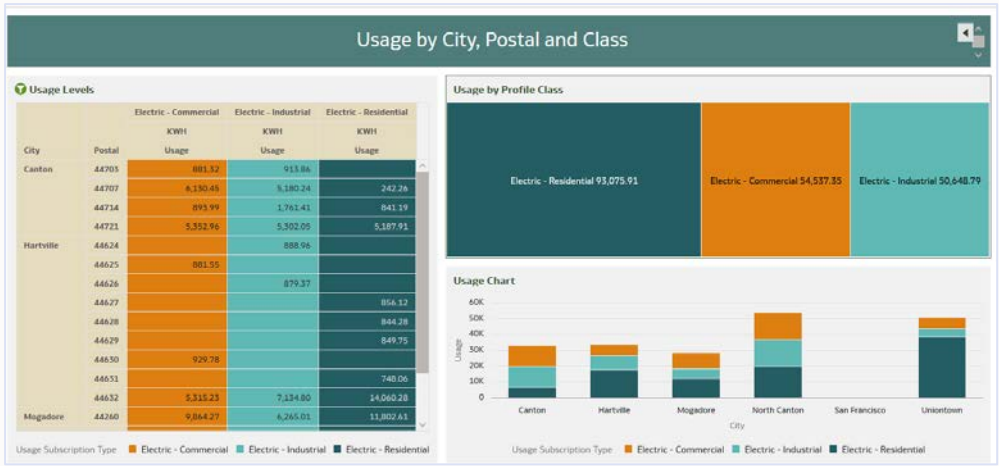
*Making OUAV (Oracle Utilities Analytics & Visualizations) Easier*

## Features

- These visuals will now use the Usage Subscription (US) Type to define a customer profile class.
- The US Type is a natural profile descriptor and will work out of the box with no customizations.

## Benefits

- There is no customization required for this enhancements.
- Ease to implement



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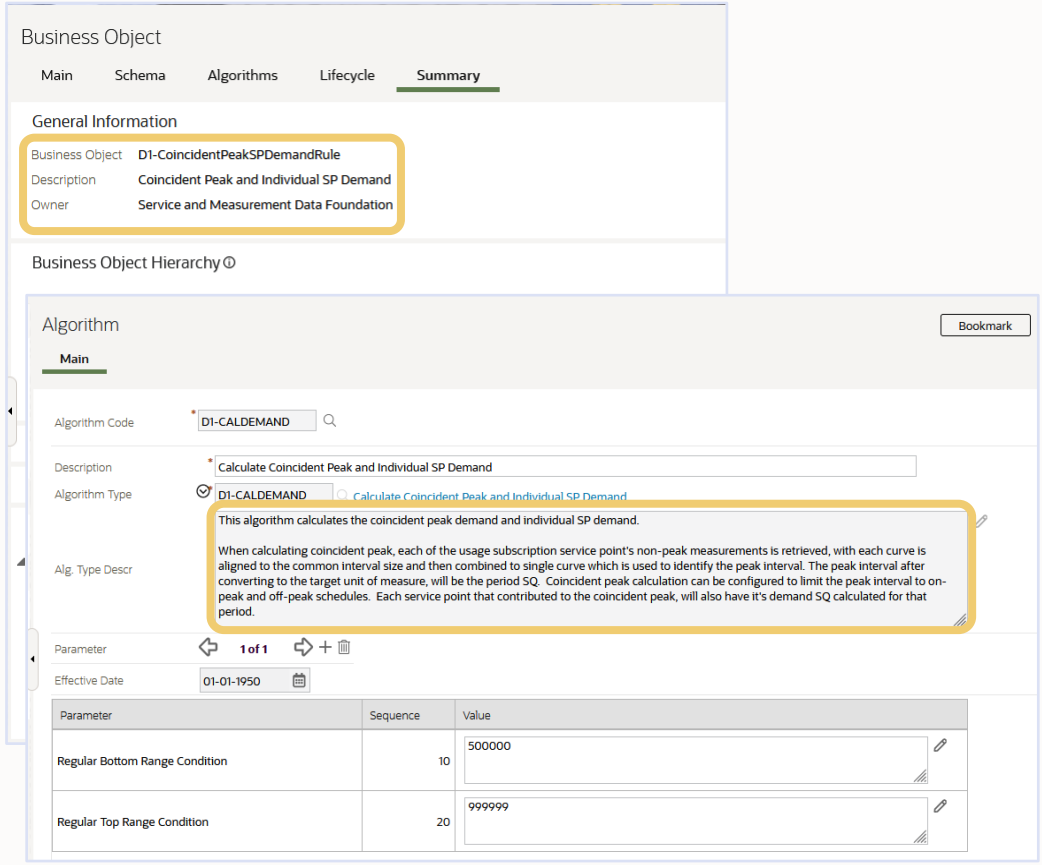
YouTube video on this enhancement. Also, on Oracle Help Center. 22C

# Service Point Level Demand Usage Rule

*Make Complex Billing Easier*




Refer to the ***Usage Calculation Rules*** section of the **Administrative User Guide** for further information.

## Features

- Allows users to calculate demand at the service point (SP) level not only at the usage subscription level.
- Calculates demand (based on Interval Data) for:
  - Individual Service Points
  - Coincident Peaks
  - TOU (time of use) Coincident Peaks

## Benefits

- Stores service point peak demand values to be used in bill presentment
- Reduce implementation costs

Plan to attend the Complex Billing session at 1 today.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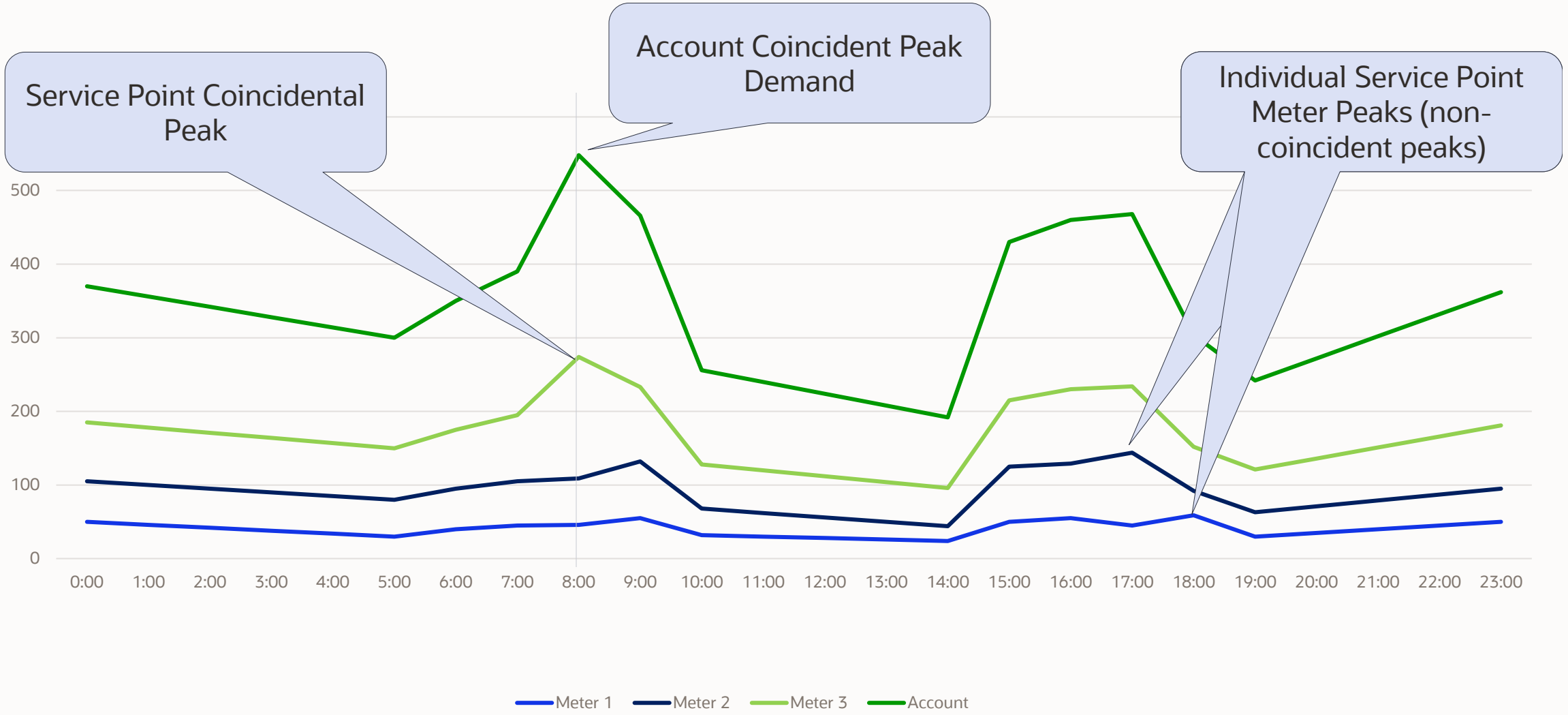
# Service Point Level Demand Usage Rule

*Coincident Peak Demand*





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# Implementation Advice

## Demand Calculation Rule

Please go to Oracle Help Center to see a demonstration video on this enhancement.

Oracle Utilities Meter Solution Cloud Service - Videos

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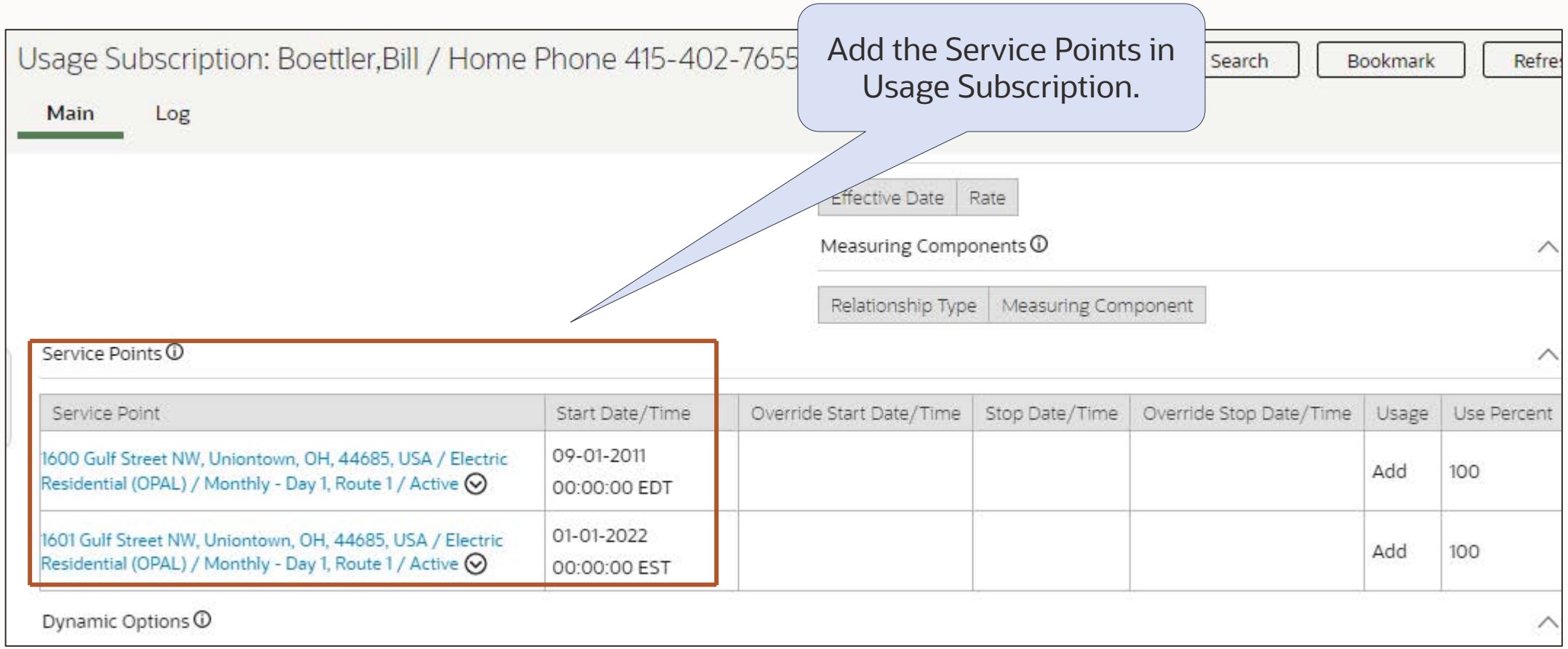
# Summary of Implementation Steps

*Usage Subscription Configuration – Add the Service Points*





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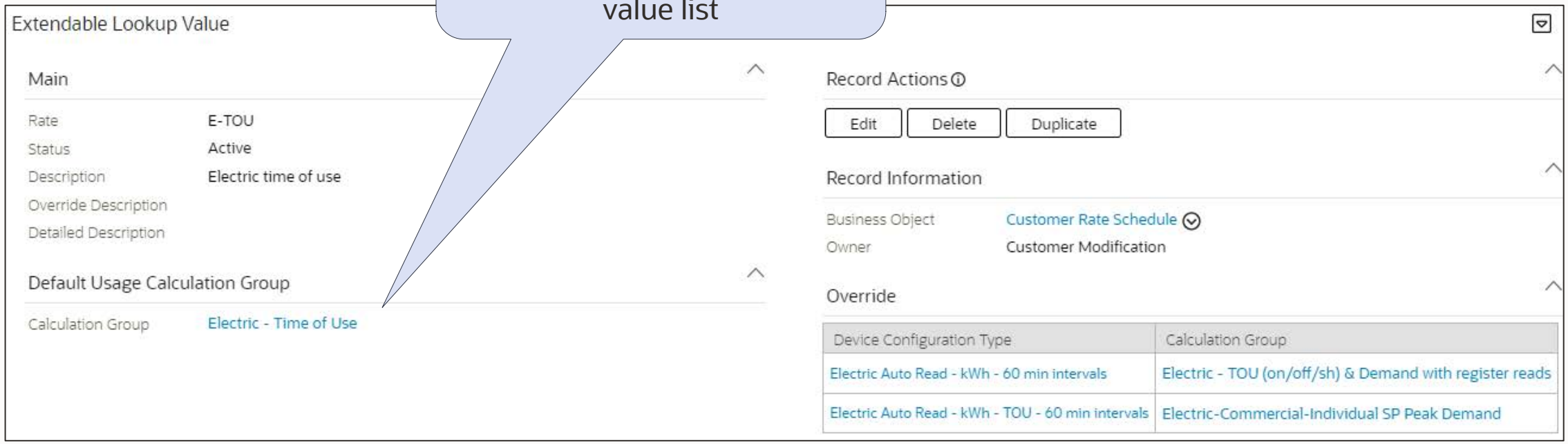
# Summary of Implementation Steps

*Extendable Lookup Configuration – Link Up the Usage Calculation Group*

Link Up the Usage Calculation Group in 'Customer Rate Schedule' extendable lookup value list





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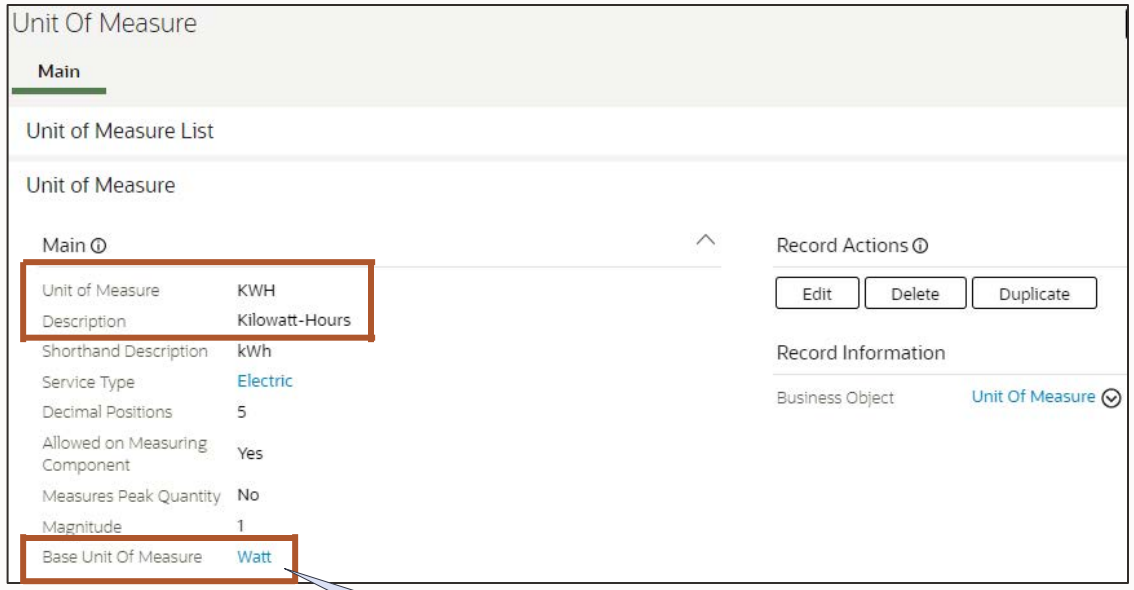
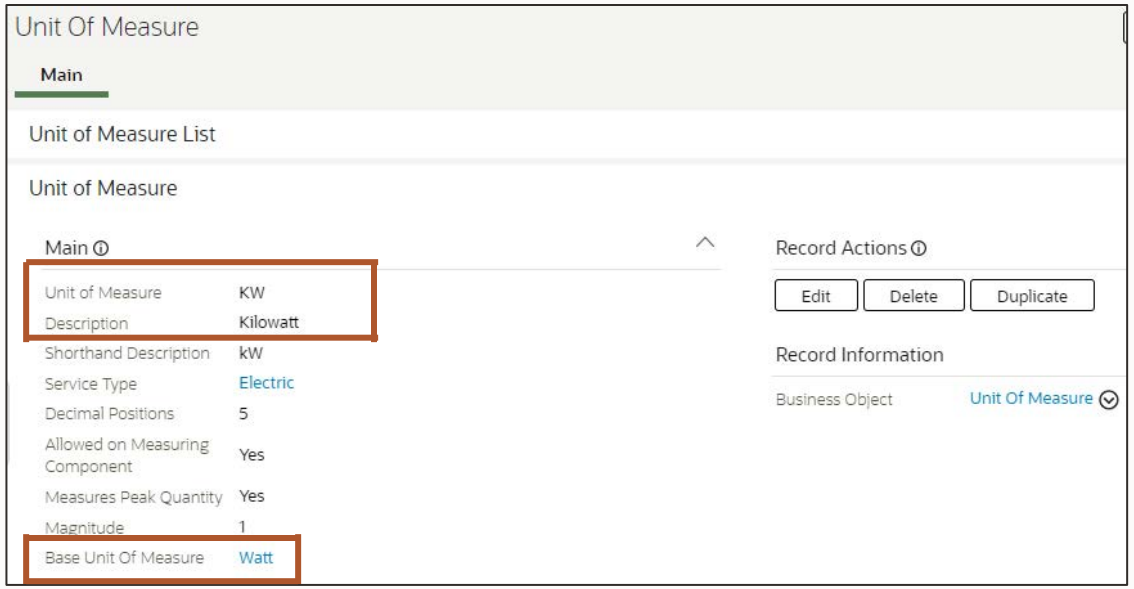
# Summary of Implementation Steps

*Source UOM & Target UOM Configuration*




Be sure to configure the “Base Unit of Measure” field for both UOMs. The value must be same as demand unit (for example, Watt) for both (source & target) UOMs.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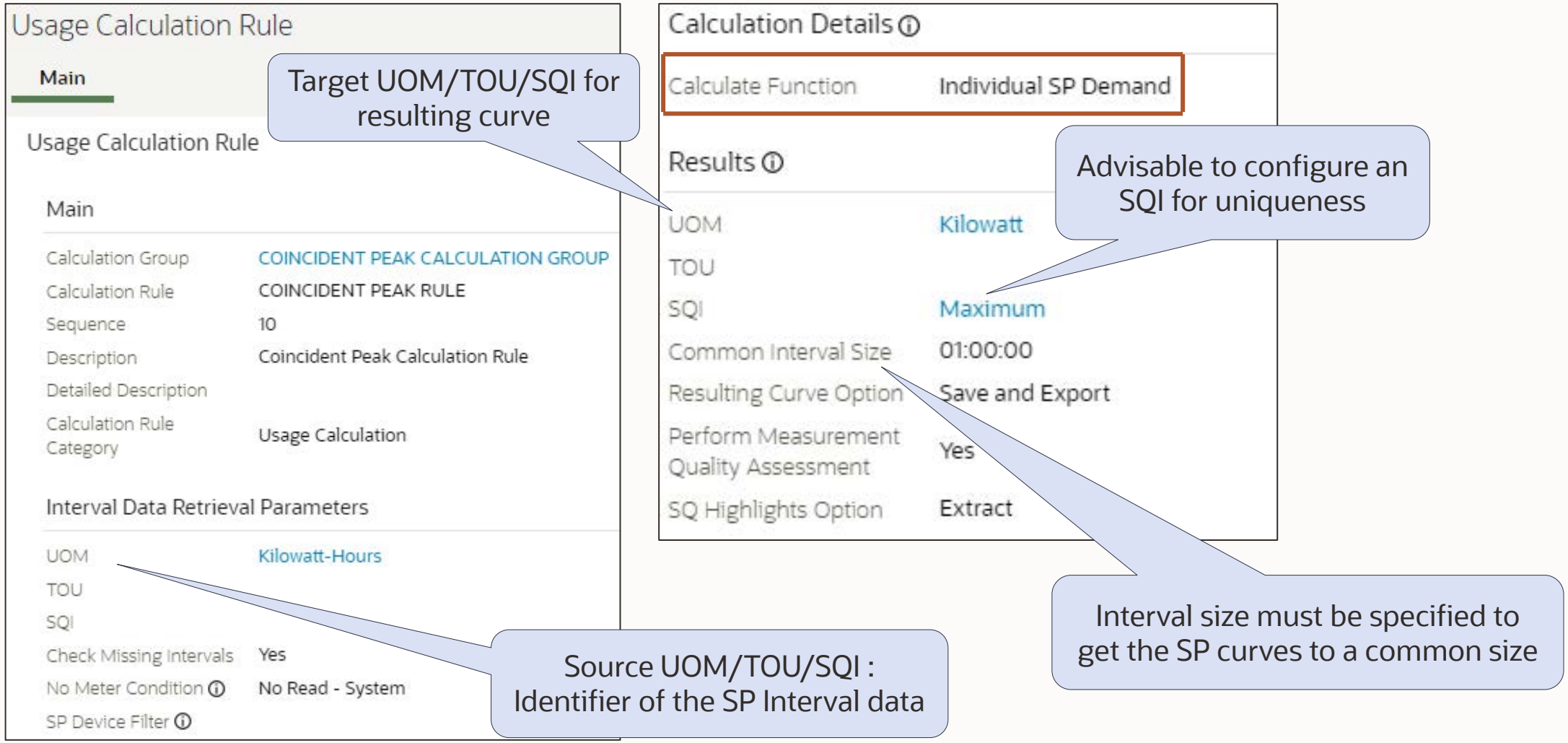
# New Usage Rule to Calculate Demand

*Individual SP Demand Configuration*





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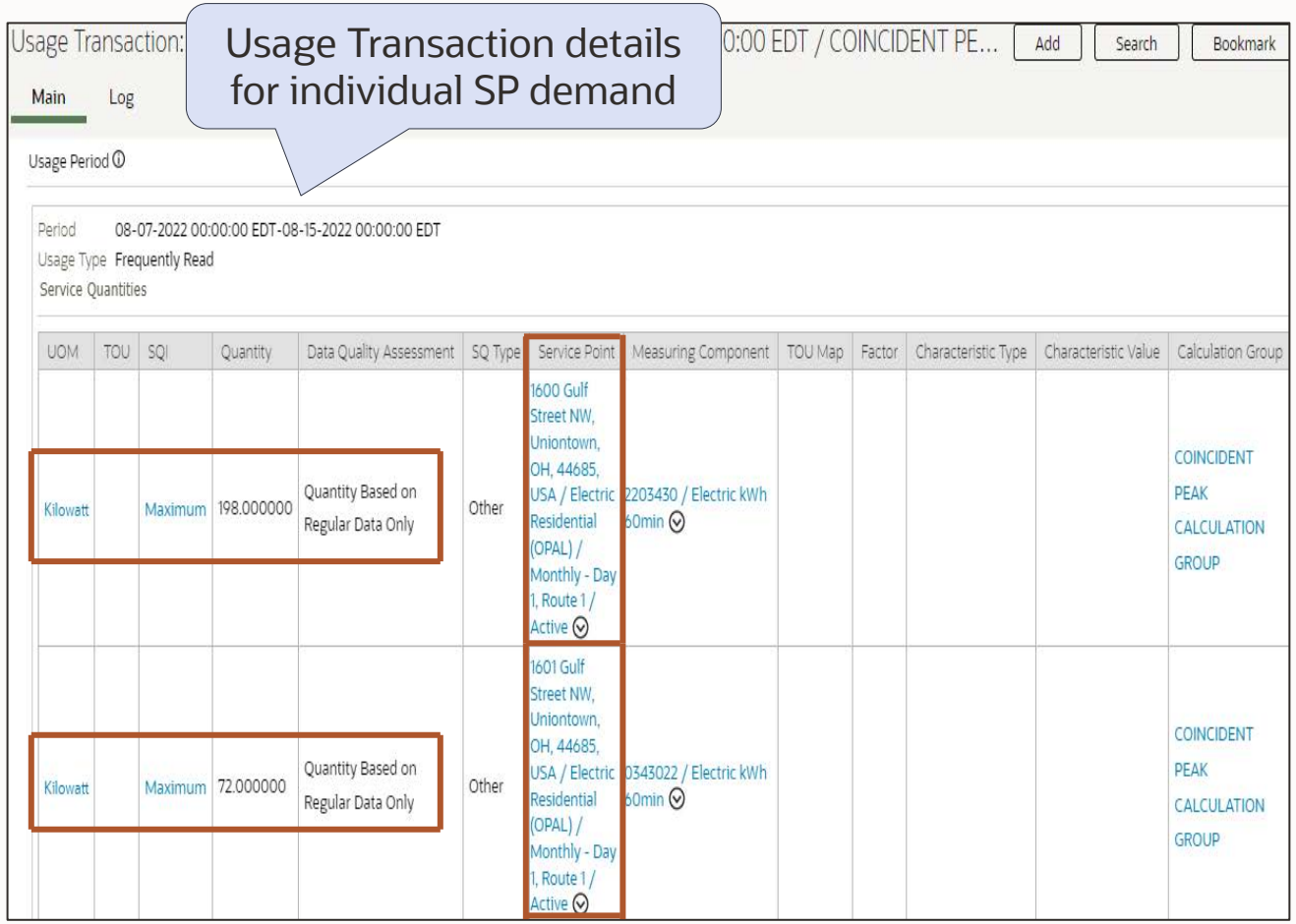
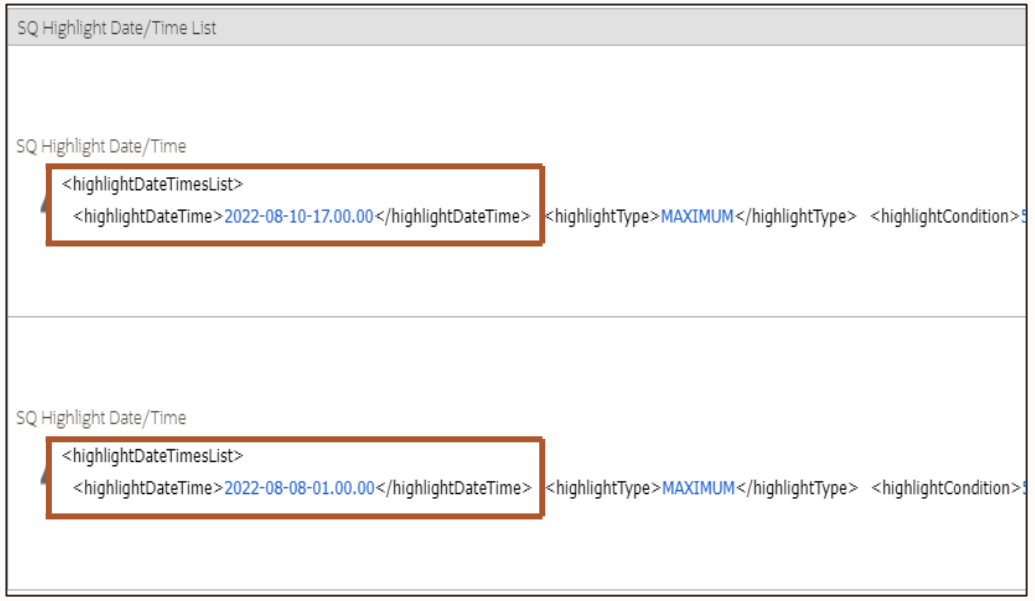
# New Usage Rule to Calculate Demand

## Usage Transaction for Individual SP Demand





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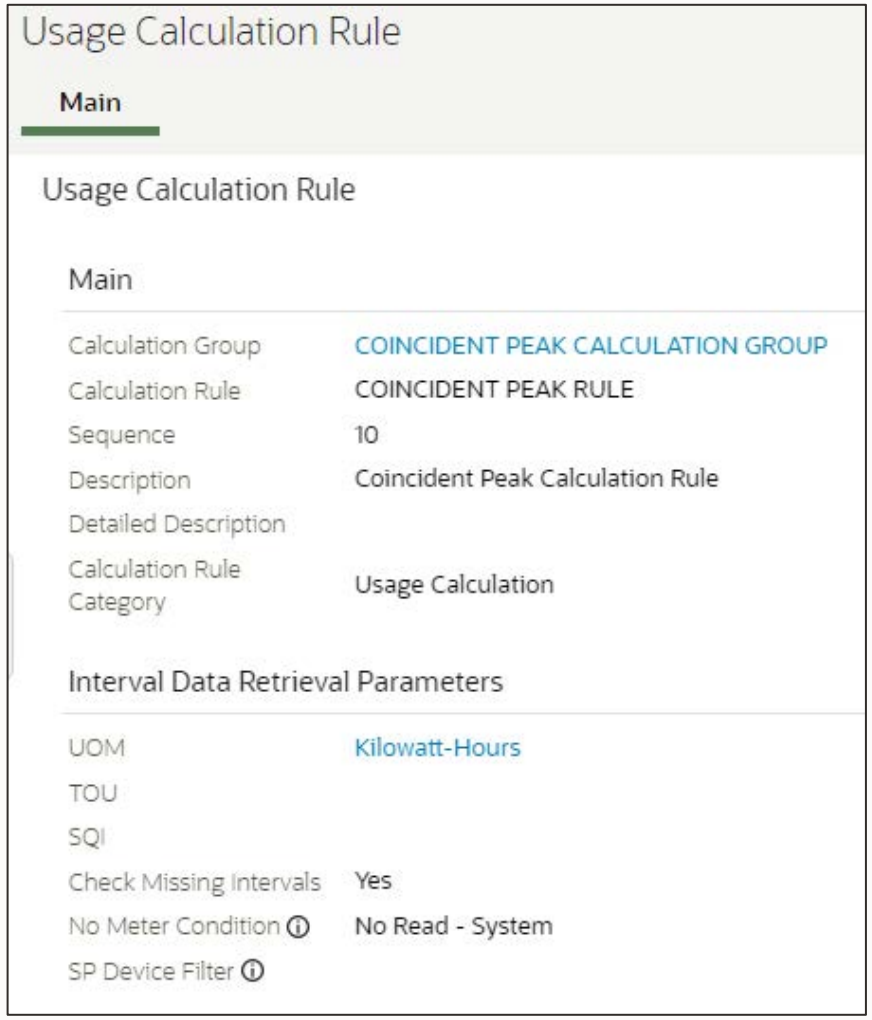
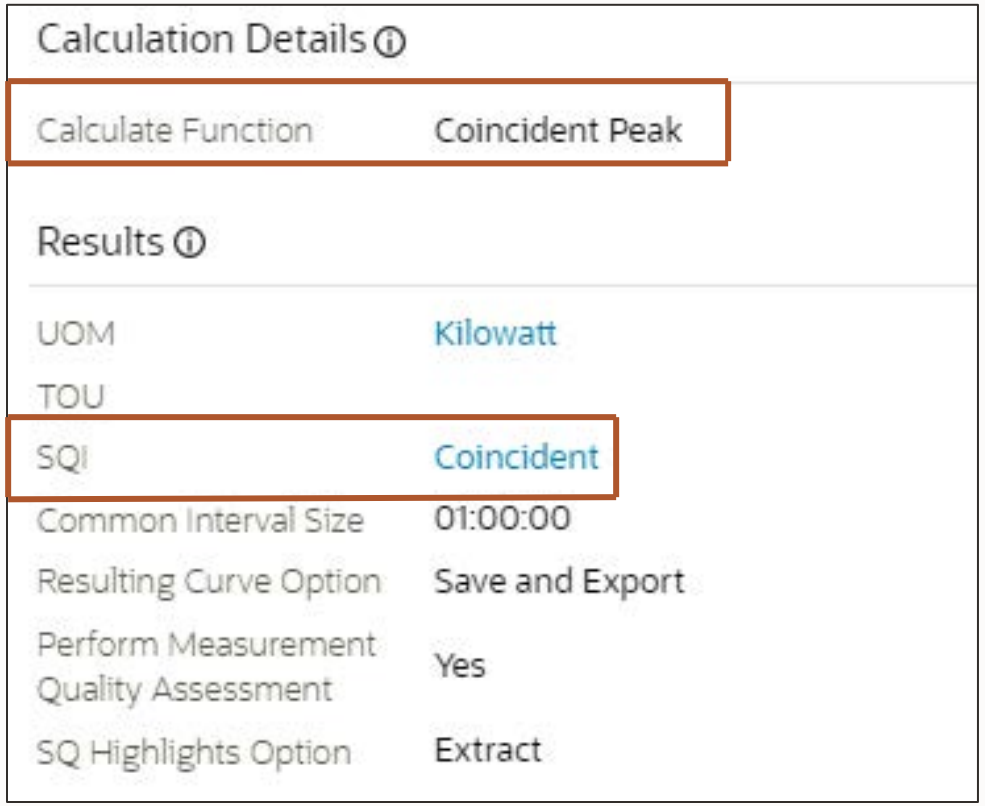
# New Usage Rule to Calculate Demand

*Coincident Peak Configuration*





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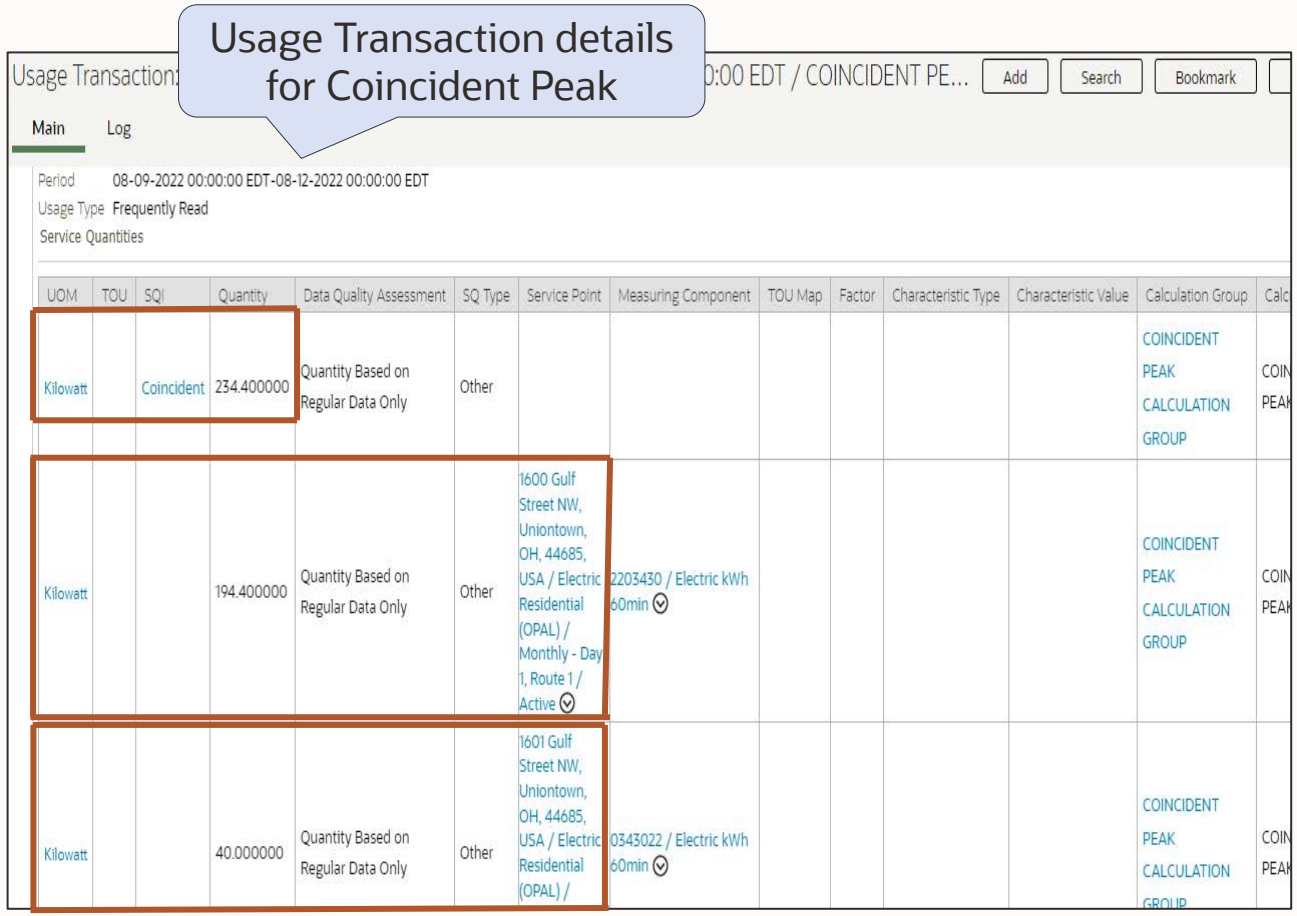
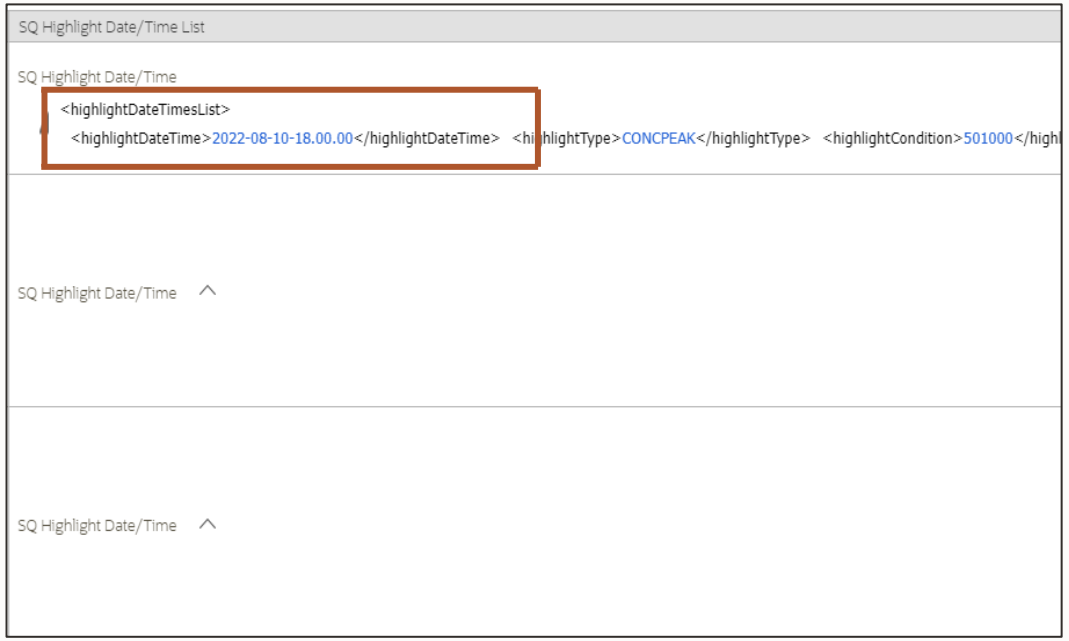
# New Usage Rule to Calculate Demand

*Usage Transaction for Coincident Peak*





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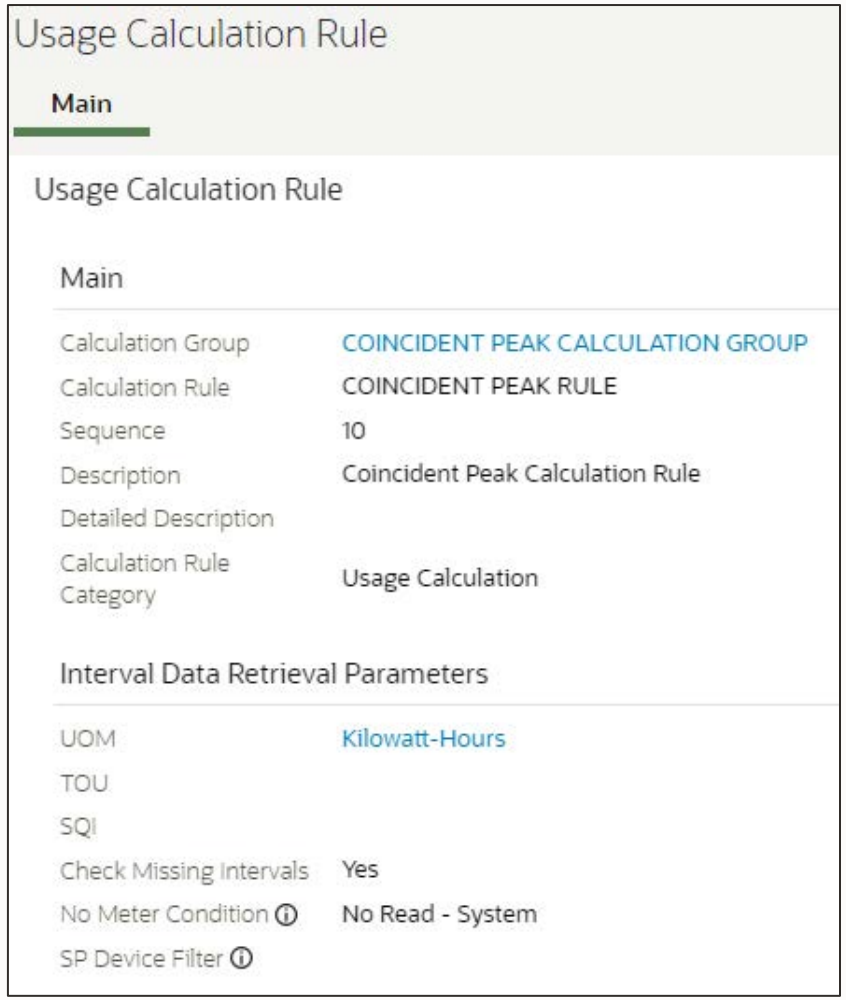
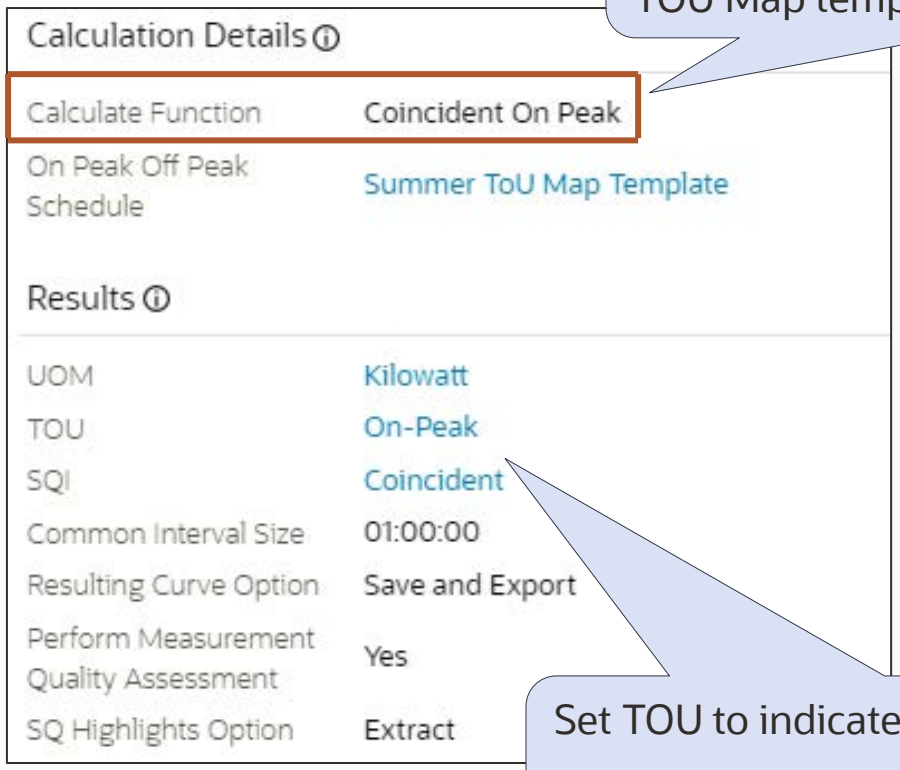
# New Usage Rule to Calculate Demand

## Coincident On-Peak Configuration




TOU (ON/OFF) schedule is required

TOU Map template schedule will be used

Set TOU to indicate 'ON' Schedule

Set SQI to indicate Coincident Peak Demand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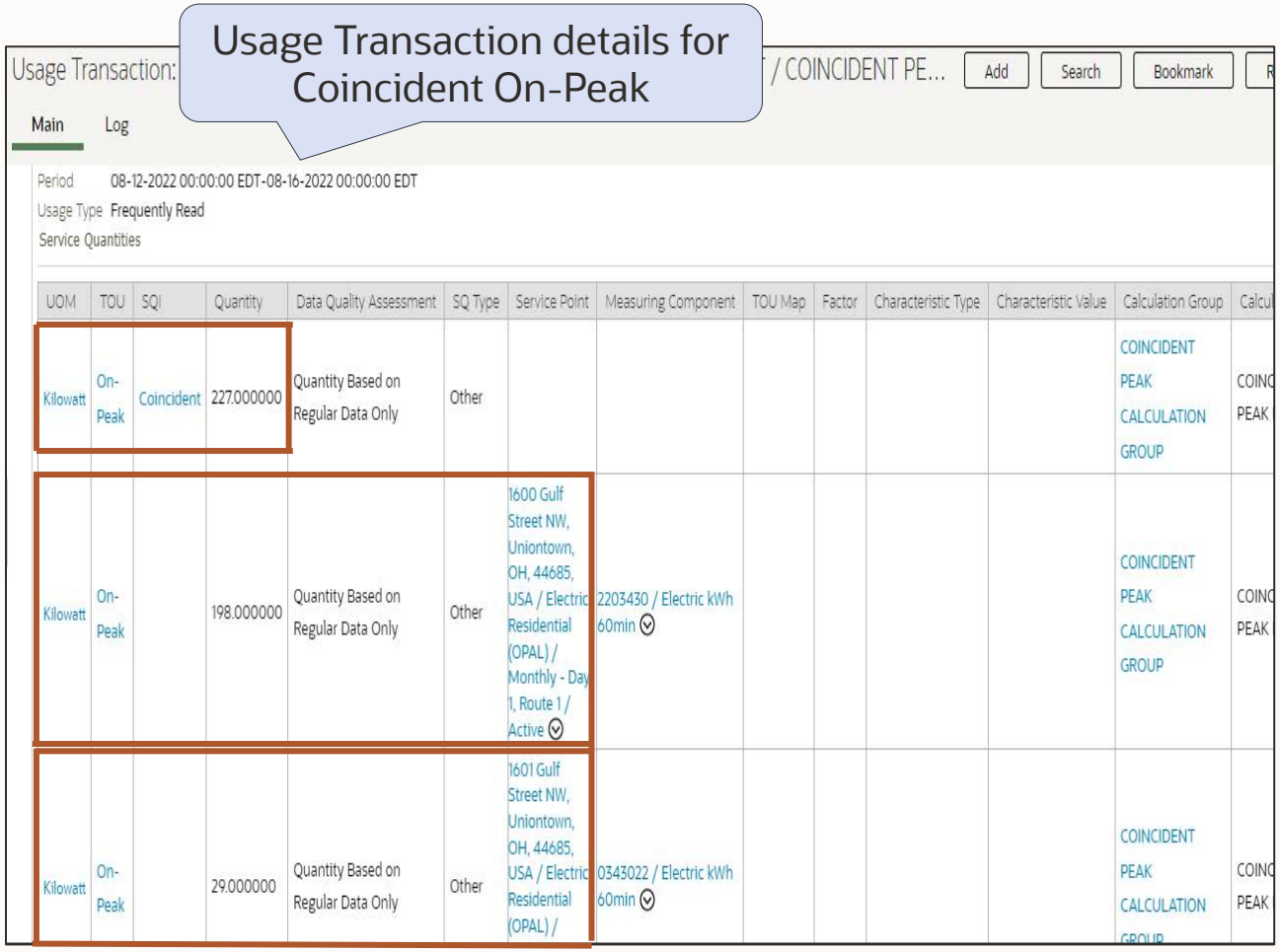
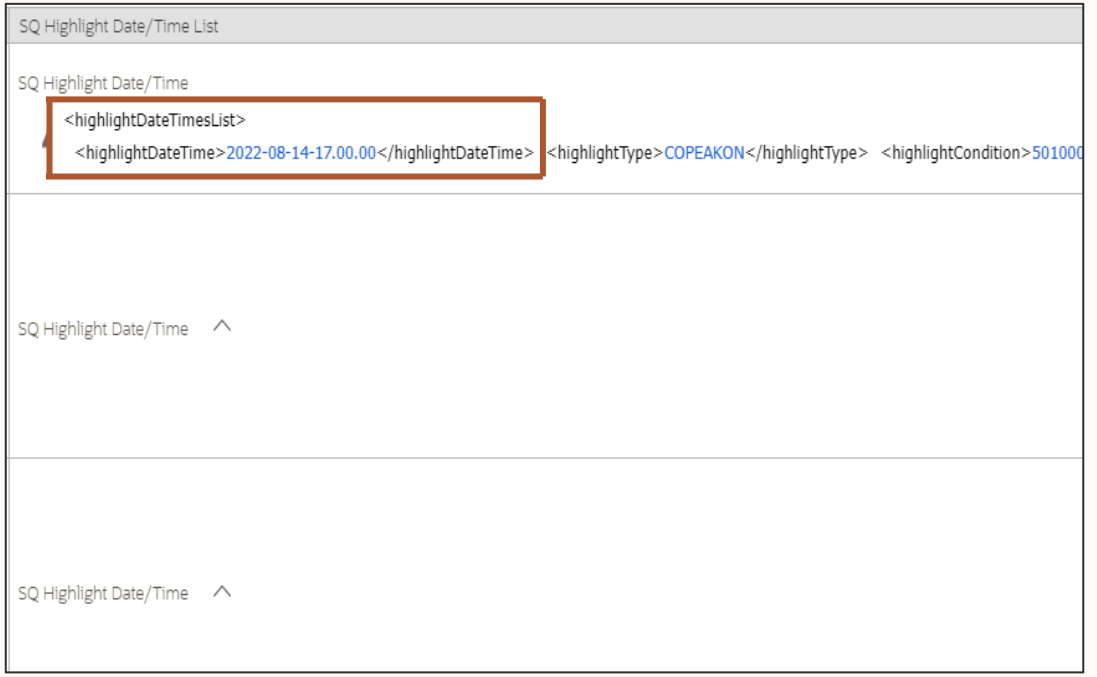
# New Usage Rule to Calculate Demand

*Usage Transaction for Coincident On-Peak*





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# Roadmap


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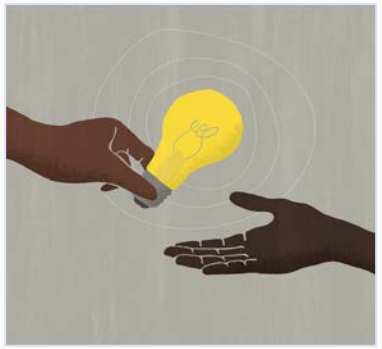
# Roadmap Themes

## Operational Efficiencies

- Usage Rule to Calculate Rolling Demand

## Better Performance

- Meter Health Checks



## Less Custom Integration

- Generic CIM Adapter for Commands
- DataConnect Enhancements

## Improved Core Capabilities

- Remove unwanted IMDs
- Research on the Next Generation MDM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# Usage Rule to Calculate Rolling Demand

*Easier Complex Billing*

15-minute kWh interval data converted to rolling 30-minute kW example

| Time | 0:15 | 0:30 | 0:45 | 1:00 | 1:15 | 1:30 | 1:45 | 2:00 |
|---|---|---|---|---|---|---|---|---|
| 15 min kWh value | 5 | 6 | 7 | 3 | 5 | 1 | 3 | 8 |
| Rolling 30 kWh | 0* | 11 | 13 | 10 | 8 | 6 | 4 | 11 |
| kW | 0 | 22 | 26 | 20 | 16 | 12 | 8 | 22 |

## Features

- Support meters that record intervals at one interval length and tariffs that require demand be calculated at a higher interval length.
- Adding a new usage rule, for deriving rolling demand values.

## Benefits

- Support utilities to bill their customers with rolling demand in a standardized way.
- Provide customer's bill demand across various interval lengths.


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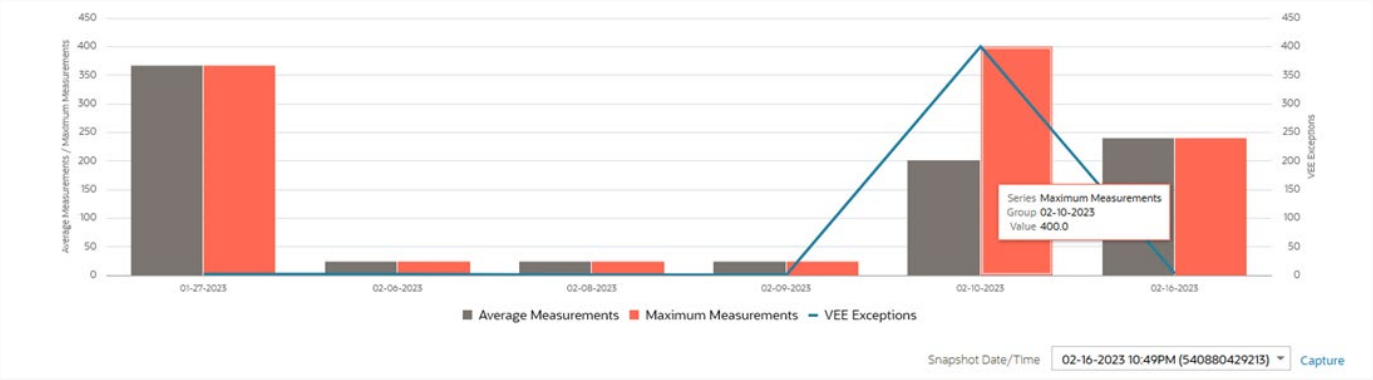
# Meter Health Checks

*Self Service Tools to Identify Issues*




IMD Quality Detail

Reset

**No Filters Defined**

| | Date Time | Business Object | Interval /Scalar | Exception Type | Description | VEE Exceptions | Average Measurements | Maximum Measurements | Total Measurements |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2022-11-18 | D1-ManualIMDScalar | D1SC | ZZDCH-INSUFF | Insufficient Input Data | 8 | 111 | 265 | 961 |
| 2 | 2023-01-24 | D1-ManualIMDScalar | D1SC | ZZDCH-INSUFF | Insufficient Input Data | 7 | 60 | 335 | 701 |
| 3 | 2023-01-27 | D1-ManualIMDScalar | D1SC | ZZDCH-INSUFF | Insufficient Input Data | 2 | 367 | 367 | 367 |
| 4 | 2023-02-06 | D1-ManualIMDScalar | D1SC | ZZDCH-INSUFF | Insufficient Input Data | 2 | 24 | 24 | 48 |
| 5 | 2023-02-08 | D1-ManualIMDInterval | D1IN | TEST | Test | 1 | 24 | 24 | 24 |
| 6 | 2023-02-09 | D1-ManualIMDInterval | D1IN | TEST | Test | 1 | 24 | 24 | 24 |
| 7 | 2023-02-10 | D1-EstimationIMDScalar | D1SC | RT_VEE_PROCS | Insuf Data Exception for Vee group Factor | 400 | 201 | 400 | 80200 |

Very large number of exceptions

## Features

- Allow users to access different dimensions of Meter Data.
- Allow users to check the health of their system such as, Count of –
  - IMDs in Pending, Error etc.
  - IMDs with VEE Exceptions
- Export/print results to Excel and printing formatted results

## Benefits

- Provide customers self-service tools.
- Allow customers to begin verifying the health of their system.
- Support data trends analysis.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# CIM AMI Adapter

*Less Custom Integration*

## Features

- Expand the use of CIM. Add a generic CIM (IEC 61968-9, Edition 2.0) AMI Adapter as part of the Adapter Development Kit.
- Add On-demand read command

## Benefits

- Support for customers wishing to use the CIM standard
- Reduces project time and costs
- Provides a framework for other commands

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# DataConnect Enhancements

*Extract Additional Energy Management Data*

## Features

- Support enhanced Opower extracts via DataConnect.
- Allow users to extract additional information with the "Interval AMI" extract
  - Service Quantity Identifier
  - Time Of Use
  - Service Type
  - Device Id (meter number)

## Benefits

- Interval data extract into Opower or other Energy Management System
- Customer satisfaction


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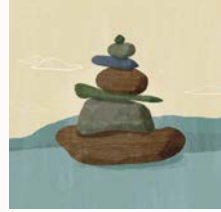

# Remove Unwanted IMDs

*Improved Self Service Tools*

## Features

- Sometimes meter reads are added accidently
- This feature allows users to identify and remove unwanted IMDs that have not been finalized
- Filter Options include - Date range, BO, BO Status, Device configuration

## Benefits

- Provides quicker cleanup
- Reduces manual work


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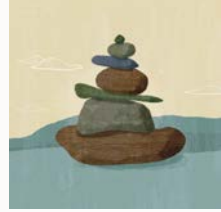
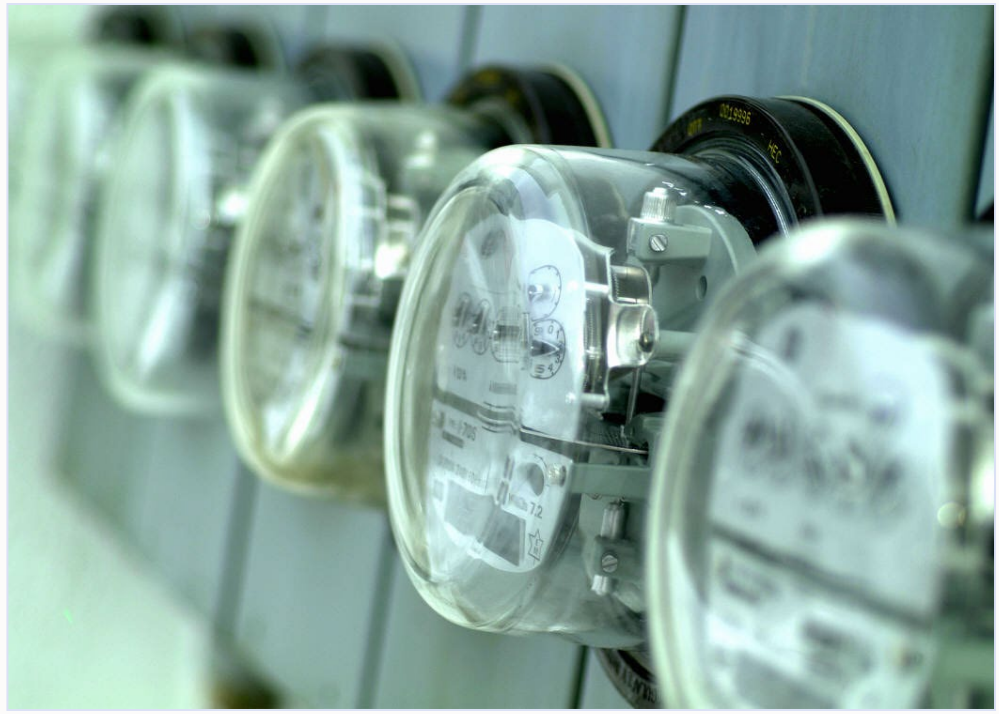


# Perform Research on the *Next Generation MDM*

***Evaluate tools and methods to help make MDM faster, cheaper and better (pardon the cliche)***



**Research areas may include:**

- **Faster**
  - Analyze meter data using advanced tools to optimize performance
  - Make data available sooner
- **Cheaper**
  - Evaluate storage options for non-billing measurements
  - Reduce customer exceptions and work
- **Same Accuracy or Better**
  - Evaluate read validation accuracy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# Analytics


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Our mission is to help people see data in new ways, discover insights, unlock endless possibilities.

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# The Growth of Analytics and technology to support it

*Oracle Energy and Water*

**Data Tsunami**

**90%**

**Of Data is Unstructured**

**Cloud Infrastructure**

**75%**

**Will use this to advance AI initiatives**

**Disparate Sources**

**3**

**Sources required to uncover insights**

**OCI Capabilities**

**10B**

**Queries per hour**


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# Enterprise Analytics built on OCI Technology

## Cloud Analytics for On-Prem Customers

- **Ready to Go**
  Data warehouse kept in sync with your operational data store using change data capture technologies

- **Ready to Work**
  Hundreds of pre-built visualizations, dashboards and subject areas focused on key areas of your business

- **Ready to Build**
  Self-service, customizable, and Extendable.

# Customer Subject Areas

## Customer-Related Subject Areas and Sample Data Visualization Projects

**24 Subject Areas**
**100+ Metrics/Calculations**
**20 Dashboards having 240+ Visualization**

### Customer Interactions

- Customer Contacts
- Case and Case Logs
- SA Arrears

### Financials & Billing

- Billed Usage & Billing Overview
- Financial Transactions
- FT GL Details

### Financial Controls

- Tender Controls
- Deposit Controls
- Overdue Debt in Collection Processes
- Overdue Debt in Severance Processes

### Payments and Adjustments

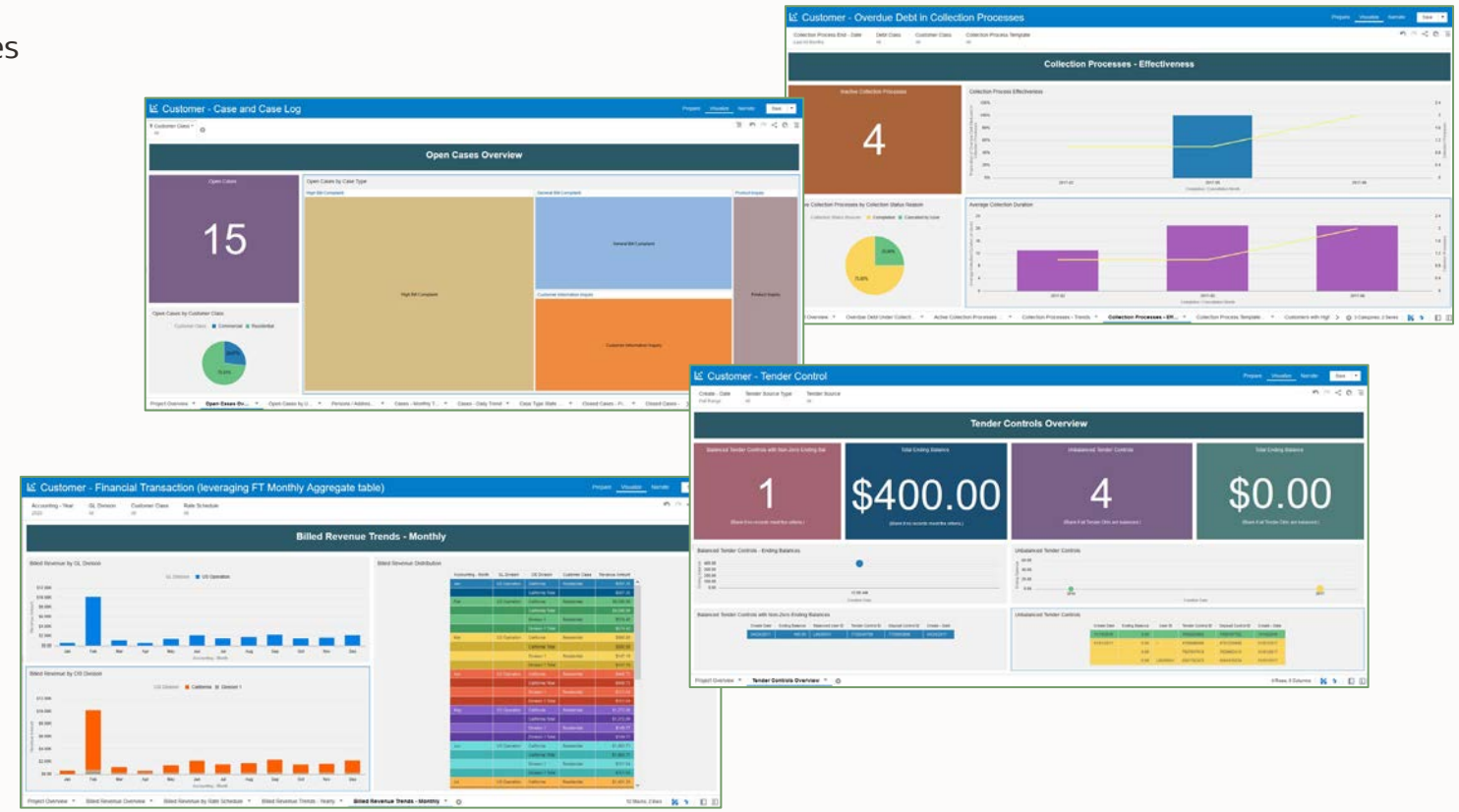
- Payment
- Tenders
- Adjustments

### Credit & Collections

- Write Off Processing

### Exceptions

- To Do Entries





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# Meter Subject Areas

## Meter-Related Subject Areas and Sample Data Visualization Projects

**16 Subject Areas**
**100+ Metrics/Calculations**
**16 Dashboards having 240+ Visualization**

### Device Commands

- AMI Bandwidth Issues
- Average Completion Time by Head End
- Identification of pending commands and possible network issues.

### Service Orders

- Open orders by type
- Average time to complete order.
- Identification of problem orders
- Discover areas with open orders.

### Master Data Counts

- Disconnected meter stats
- Service points connection status
- Connected devices.

### Field Works

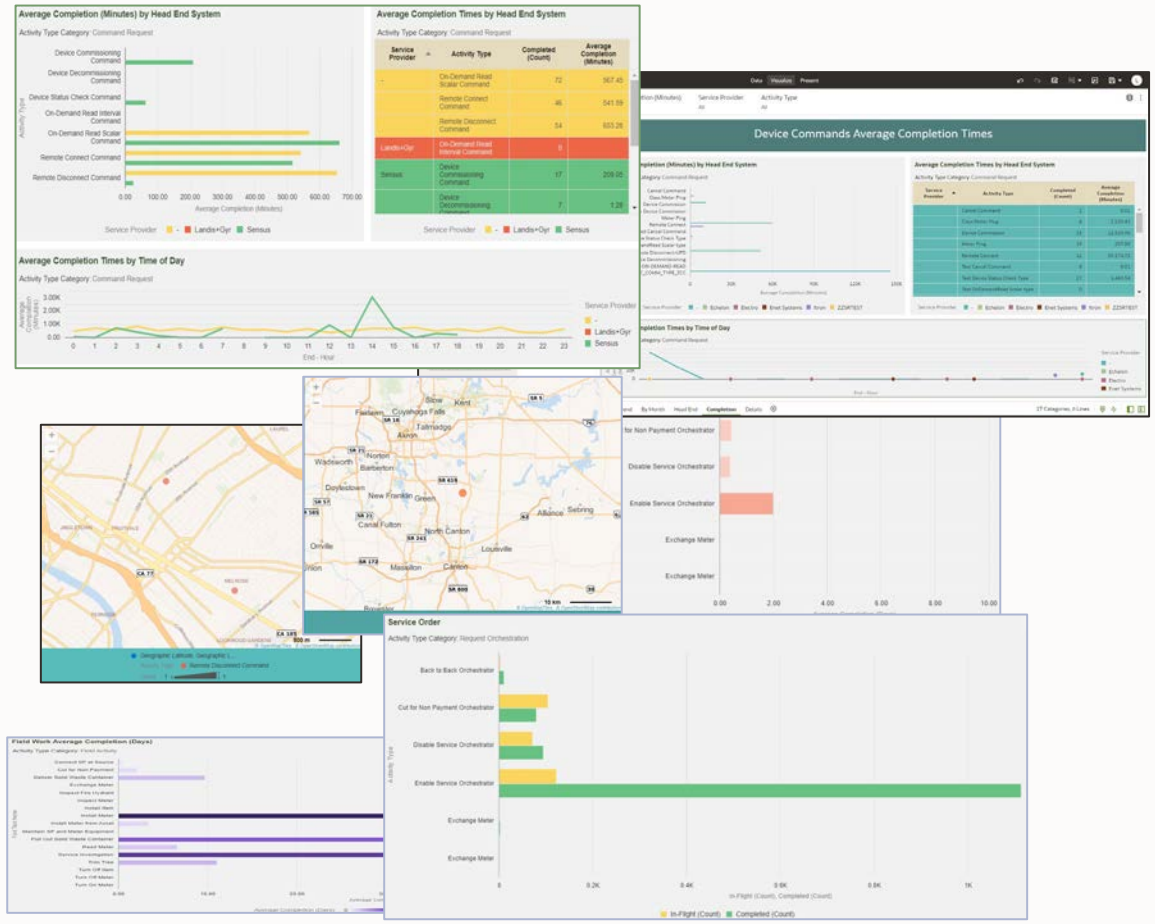
- Install meter open orders.
- Completion time to install a meter.
- AMI roll out progress
- In flight field work

### Losses

- Downstream usage analysis
- Facilities with possible losses
- Identification of meter location wrongly assigned.

### Consumption

- Usage consumption by subscription type.
- Consumption analysis assisting
  - Regulatory Reporting
  - Revenue Analysis
  - Rate Design





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# Analytics Opportunities

## Unified Data

Innovation requires enabling cross-product analytics across the enterprise

## Easy Analytics

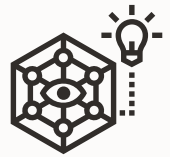
Easy to integrate

Easy to extend

Easy to raise insights

## One Oracle

Oracle should enable endless possibilities for uncovering insights in our customers' data



## Data Democratization

Customers should be able to unlock insights in their data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# Cloud Analytics

## *Features and Benefits*

| Features | Benefit |
| --- | --- |
| Cloud based analytics platform | Focus on business not IT systems |
| Productized ingest mechanism | Decrease time to value and costs |
| Interoperability | Unlock data, multi-cloud support |
| Open source big data support | Maximize performance, flexibility |
| Base product catalog, governance | Prevent data swamp, enable auditing |


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# Beyond Customer Analytics
## *Enterprise Analytics Roadmap*

### Imminent

Foundational

**Customer** and Meter Insights

Interval data

Performance and reliability enhancements

### Next Up

DERMS Forecasting Capabilities, Platform

**Grid** Insights

DERMS behind the meter forecasting

Initial OCI integration to improve data management and ad-hoc queries and visualization

### Future

Self-Service and Asset Analytics

Operational Technology Outage analytics, insights

**Asset** Technology analytics and insights

**Self-Service** insights

**Third-party** data support

Advanced self-service capabilities and OCI integration

Cloud to Cloud


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Energy companies have troves of data…

…living in data silos

Our plan is to break down those silos

# Metering News


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# Meter News

*Important Implementation Information*

- Release and Training Updates
- MSM Cube Viewer has been deprecated
- Which Measurement Extract Tool should I use? Getting AMI Data out of MDM
- MDM Best Practices have been updated.  See the Help Center.
- Oracle Help Center  has new Meter Implementation videos

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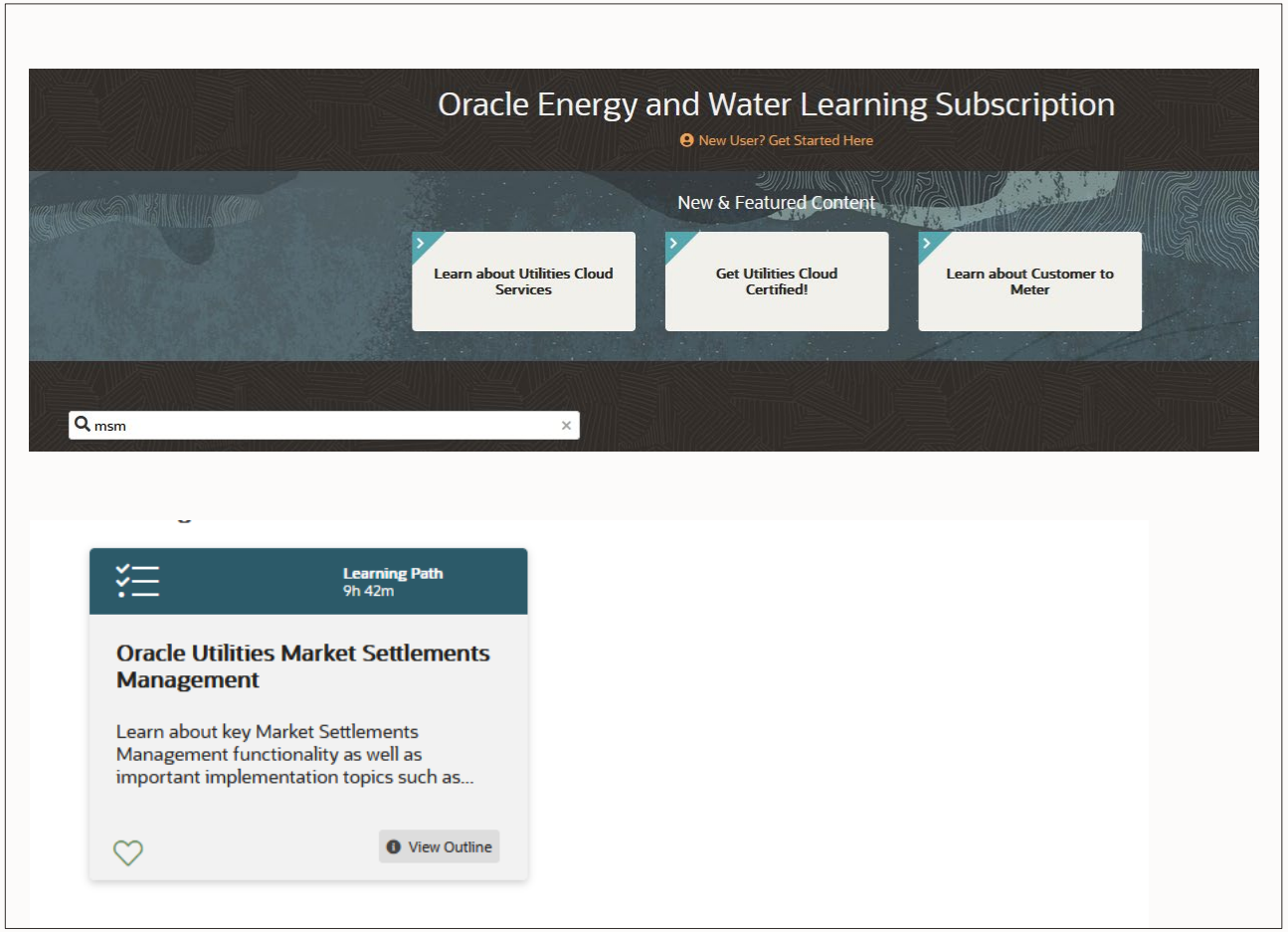
# News

*Release and Training Updates*

## Releases

- Meter Solution Cloud Service (MSCS) 23A and Meter Data Management (MDM) 2.5.0.1.1 are coming out soon
- Market Settlements Management Cloud Service (MSMCS) is being released. There is Market Settlements Management training available on Oracle University.
- Customer Cloud Service and Meter Solution Cloud Service training is being refreshed





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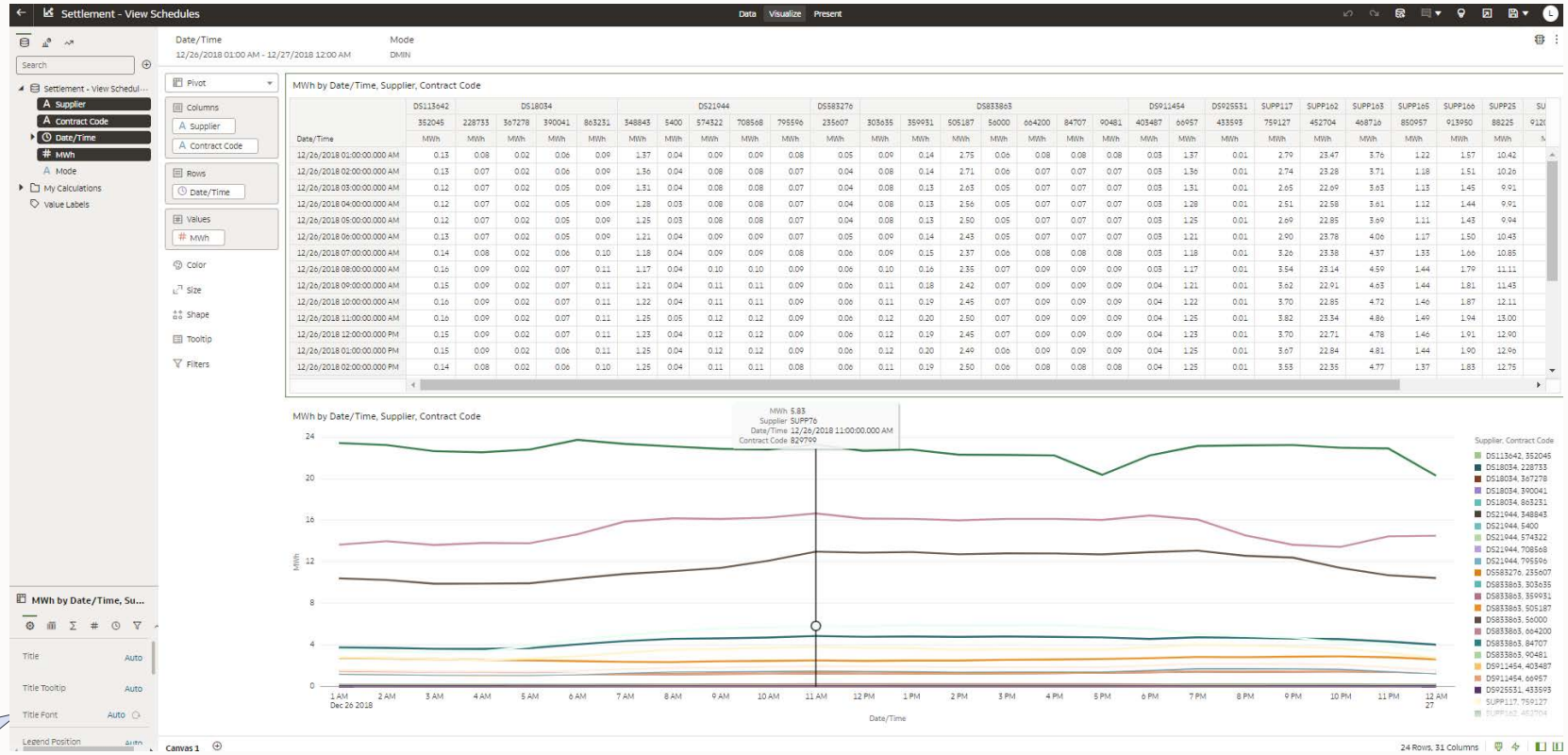
# News

## *MSM Cube Viewer Has been Deprecated*

- We no longer recommend projects use the Cube Viewer.
- OAS (Oracle Analytics Server) / OUAV (Oracle Utilities Analytics Visualizations) are much better visualization tools
- We will be providing sample configurations of settlement data using OUAV as an accelerator.




Sample OUAV UI of supplier load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# Meter News

*Which Measurement Extract Tool do I use?*

Projects should not use Usage Transactions to export all measurements.

| Export Tool | Purpose | Advantages | Limitations | Export Format |
|---|---|---|---|---|
| DataConnect | Made for energy management systems | Includes master and consumption data. Made for Opower. Exports interval by interval. Supports historical correction of measurements. | Does not support usage extracts for monthly scalars. | Usage File (CSV, Tab Delimited) |
| Configurable Consumption Extracts | Made to extract daily measurement data | Fast final measurement extract. Perfect for deregulated market participants who need to export daily measurements. Users can configure which usage subscriptions to export and which identifiers to include. | Does not include master data extracts. Provides a standard output format that must be transformed into the final format by another system. | File (JSON) |
| SaaS Generalized Data Export | Export data from SaaS | Based on FW tools. Can be used for almost all tables and supports change data capture. | Not configurable. Regarding usage, only applicable for Usage Transactions. | File (JSON) |
| SaaS Specialized Measurement Exports | Exports all measurements | Based on FW tools. Create a highly performant extract for the MDM measurement table. Exports all measurements and IMD Headers (no pre/post values). | Not configurable. | File (CSV) |
| Plug in Batch | Custom Exports | Allows users to export data. See the framework documentation for details. | | |


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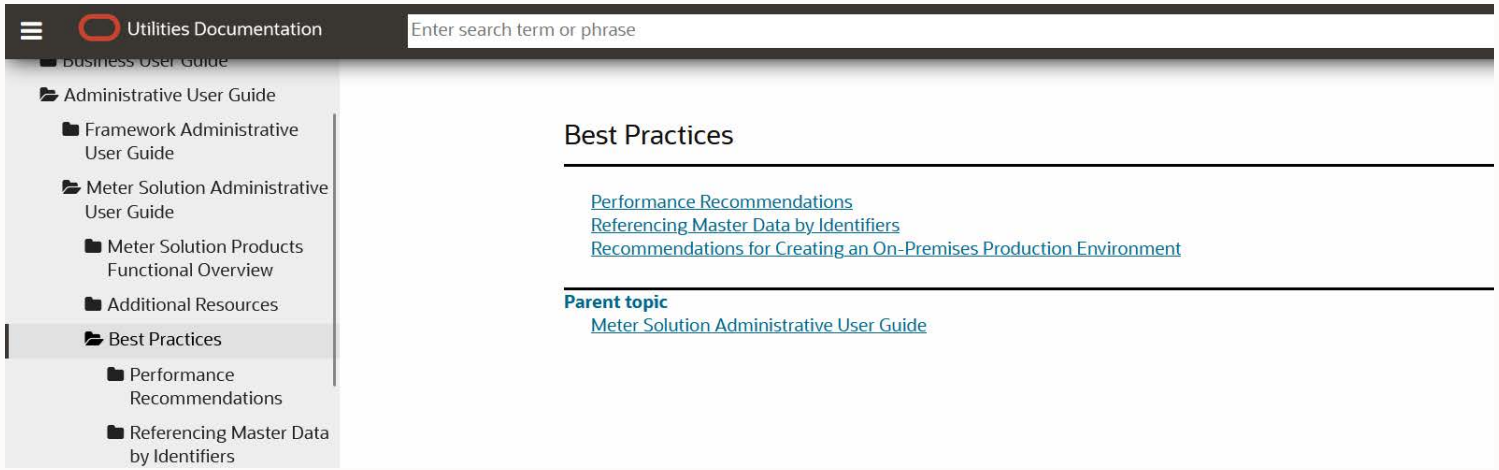
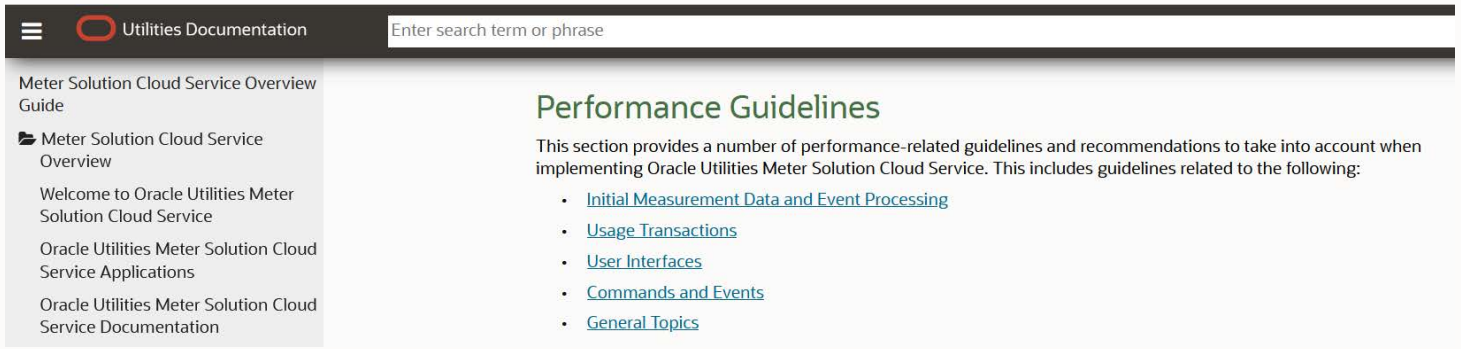
# News

## *Best Practices*

- MDM Best Practices have been updated. See the Help Center.
  - Admin Guide, Chapter 4 Best Practices
  - Meter Solution Cloud Service Overview Guide, Performance Guidelines





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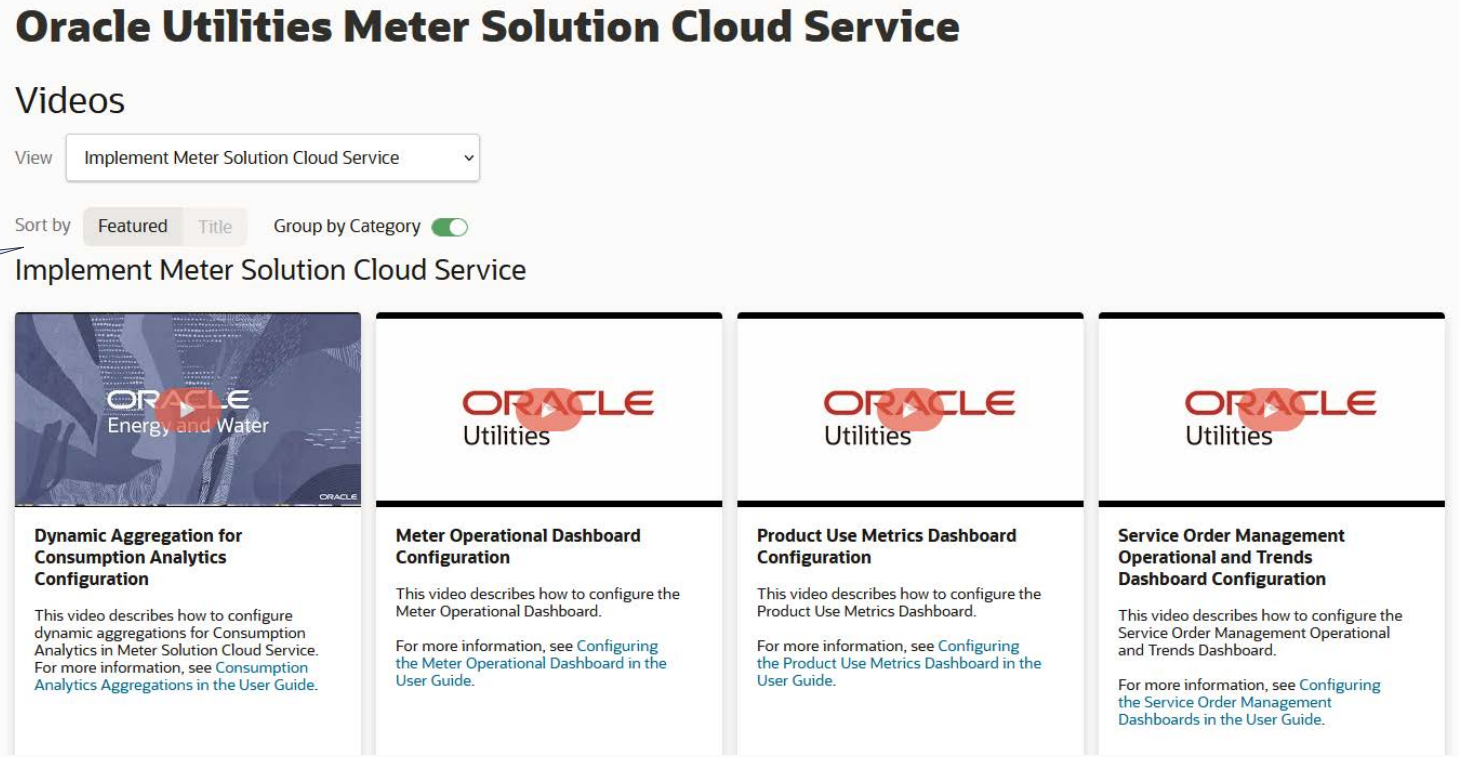
# News

*New how to videos to make your life easier*

- Oracle Help Center has new Meter Implementation videos

New Implementation video in addition to release readiness videos





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# Calls to Action


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# Calls to Action

## Visit Oracle Help Center

- What's New
- Release notes
- New Feature Summary
- Maintenance Pack
- Documentation
- Many Videos

Help Center: https://docs.oracle.com/en/industries/utilities/meter-solution-cloud-service/videos.html


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# Open Discussion


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# Thank you

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