



Docket No. 22-08-03

Compliance Filing

Ion Balan

Avangrid – The United Illuminating Company

June 26, 2023



Docket No.22-08-03, ANNUAL NON-RESIDENTIAL RENEWABLE ENERGY SOLUTIONS PROGRAM REVIEW –YEAR Compliance Order 19

Order 19 in the Final Decision

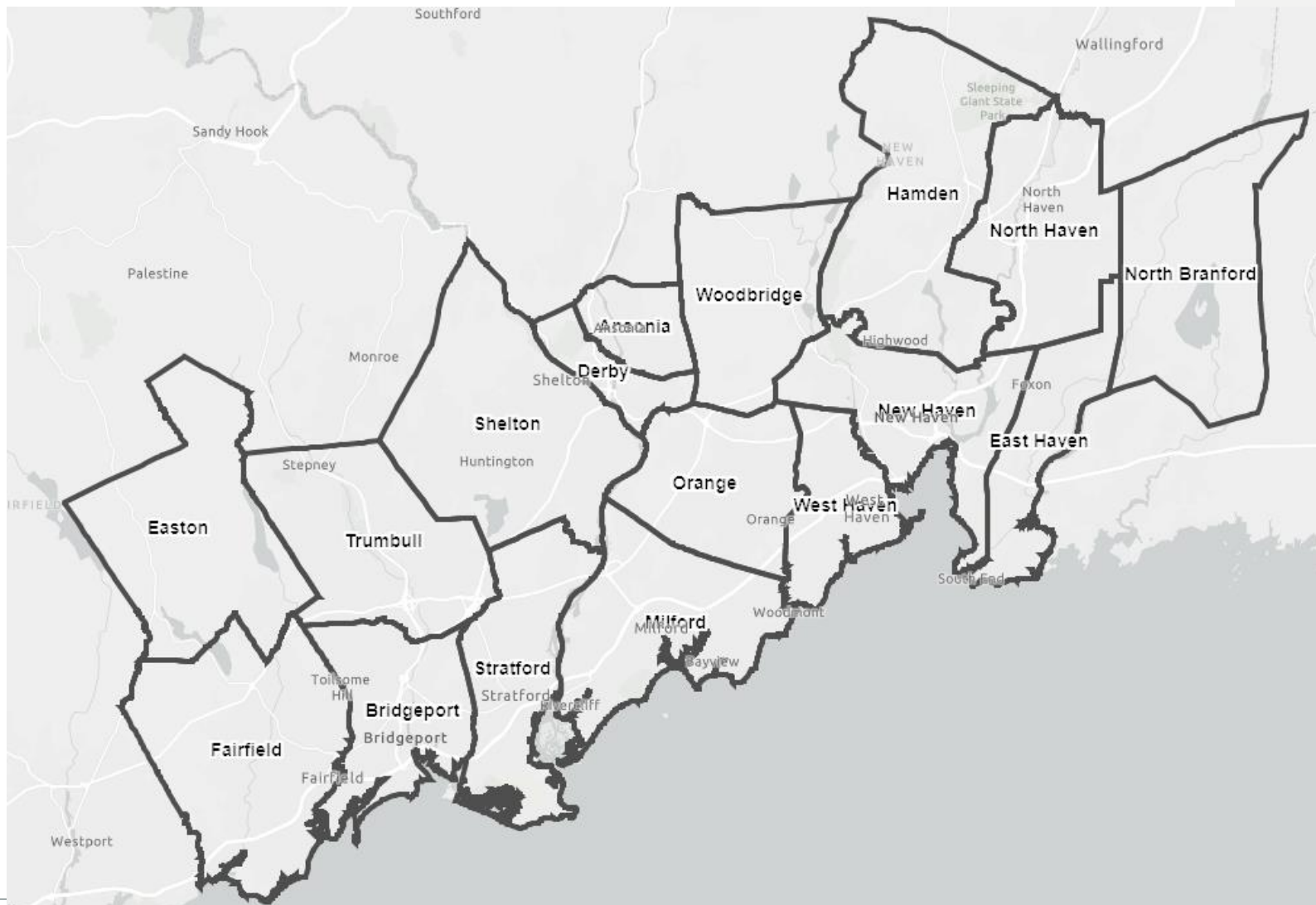
No later than July 1, 2023, the EDCs shall file in Docket No. 23-08-03 a proposal, including cost estimates, any required system upgrades, and a timeline for implementing SAVE’s proposal to update capacity maps in daily or real time, as well as a plan for utilizing real-time hosting capacity map data for other clean energy programs and distribution system planning activities.

The Authority also directs the EDCs to present their proposal and findings on the updating of capacity maps in daily Docket No. 22-08-03 Page 42 or real time to a meeting of the IX Working Group. The EDCs shall file as compliance with the Authority the date of such presentation.

Hosting Capacity Maps Milestones and Timeline

| Year | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 1-3 years | 3-5 years |
|--|------|------|------|------|------|------|-----------|-----------|
| Completed | | | | | | | | |
| Evaluating and Selecting Application - Kevala DER Integration, EPRI Drive, CYME ICA Module | █ | | | | | | | |
| Hosting Capacity Map for Ash Creek Substation published | | █ | █ | | | | | |
| Hosting Capacity Maps for entire System published | | | | █ | █ | | | |
| Hosting Capacity Maps for entire System published -Monthly Updates | | | | | | █ | █ | █ |
| In Progresss and in Planning | | | | | | | | |
| CYME interface to PI Historian and AMI meter data | | | | | | █ | | |
| EPRI Grid Model Verification & Validation | | | | | | | █ | |
| Ibedrola Middle East ICA Collaboration | | | | | | | █ | |
| Proposed | | | | | | | | |
| CYME Automation for Hosting Capacity Maps | | | | | | | | █ |

Current Hosting Capacity Map



UI DG Circuits (3 Phase): 2662
✕

SECTION INFORMATION

| | |
|---------------------------|-----------|
| Location Hosting Capacity | 1918.4 kW |
| Circuit ID | 2662 |
| Operating Voltage | 13.8 kVLL |
| Phase | 3 |

CIRCUIT INFORMATION

| | |
|----------------------------|-----------|
| Circuit ID | 2662 |
| Operating Voltage | 13.8 kVLL |
| Phase | 3 |
| Remaining Hosting Capacity | 5.89 MW |
| Existing Generation | 0.48 MW |
| DER in Queue | 0.00 MW |

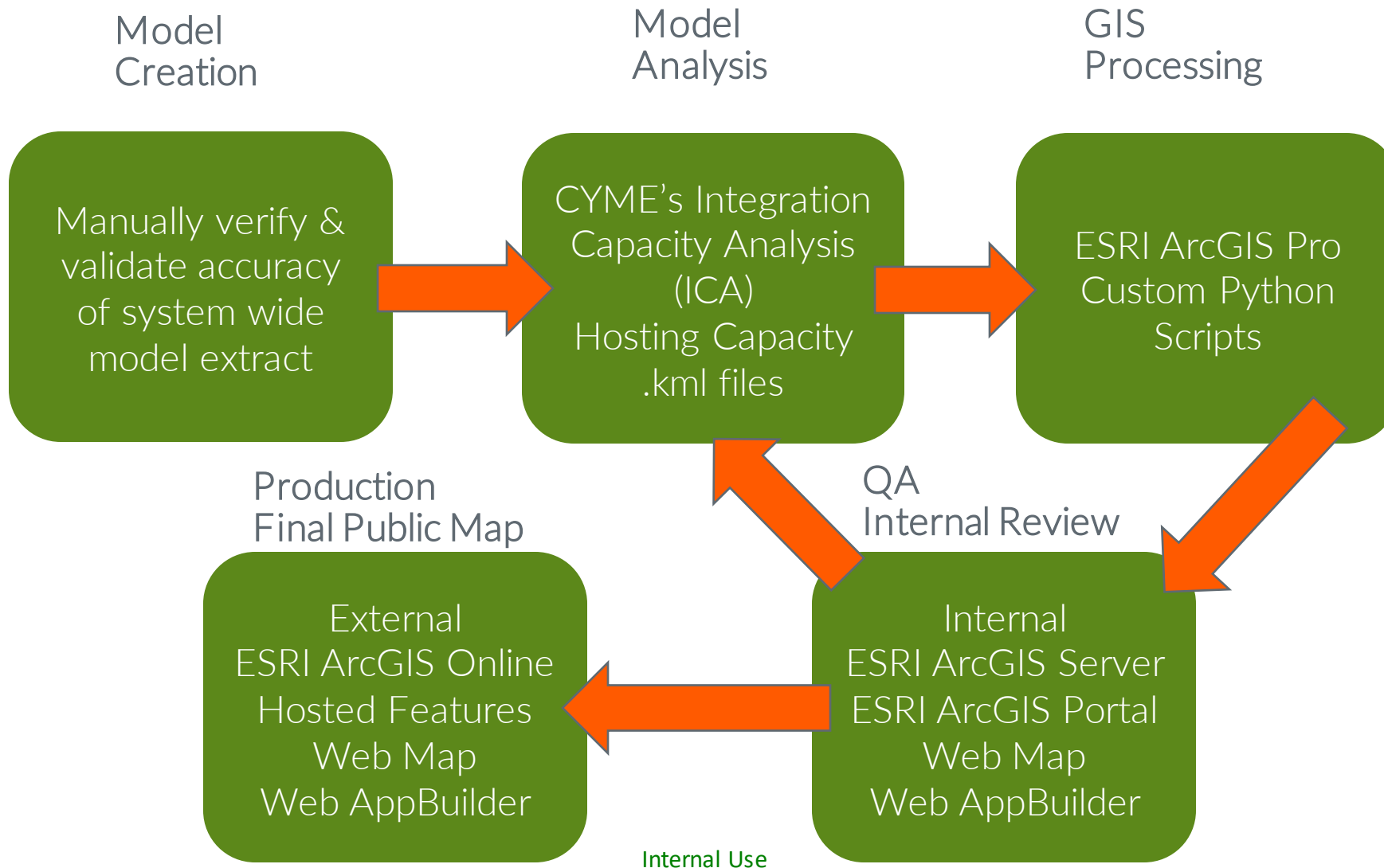
SUBSTATION INFORMATION

| | |
|----------------------------|-----------|
| Substation | ASH CREEK |
| Operating Voltage | 13.8 kVLL |
| Phase | 3 |
| Remaining Hosting Capacity | 44.03 MW |
| Existing Generation | 18.48 MW |
| DER in Queue | 1.99 MW |

[Zoom to](#)
⋮

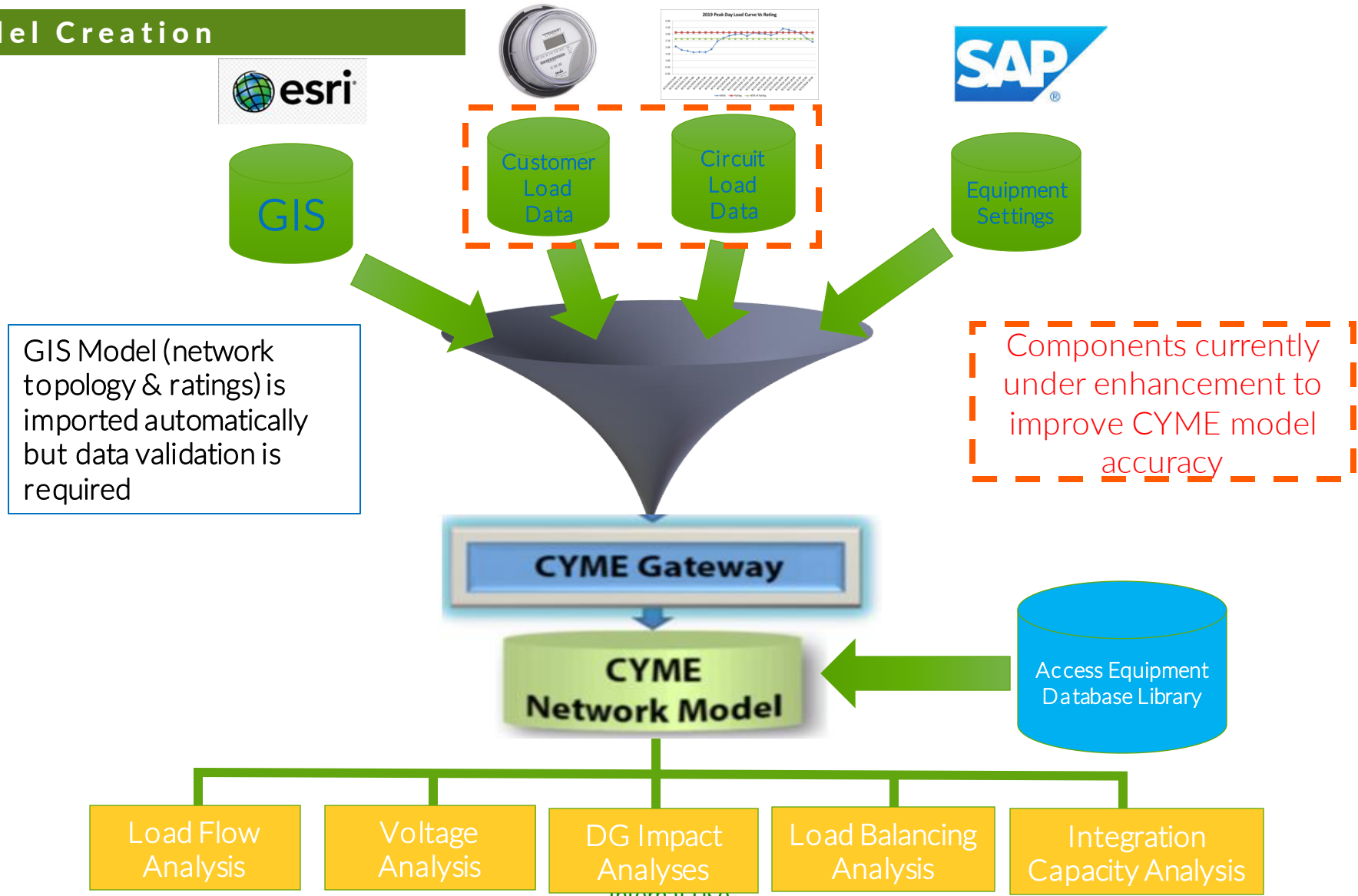
Current Process Overview

Stages



First Stage Process Overview

System Model Creation



Hosting Capacity Maps

- Limitations
 - Manual verification & validation of data
 - DGs in queue or interconnected on secondary not included in the model
 - Minimum Daytime Load approximated as a % of peak load
 - Circuits from the same substation modeled independent of each other
 - Time consuming and resources intensive
- Expectations from Automation
 - Improved Hosting Capacity Features
 - Improved Customer Experience – Maps will look different
 - Automations of interconnecting steps
 - Interface with PowerClerk
 - Free up valuable resources
 - Improved speed and accuracy
 - Streamline CYME ICA Analysis – less manual intervention

CYME Automation Daily Update - Cost Estimate

| | | | |
|---|--|--|-----------|
| Project Start (Subject to PURA approval, Current Projects Status and vendor engagement) | | | |
| Project In Service (Subject to Start Date) | | 1 to 2 years | |
| | Description | Scope | |
| | Software update one time charge | Automated CYME ICA calculation using CYME server | |
| | | Automated generation of results in an Oracle database to be used by UI to review or publish results | |
| | | CYME ICA Web Control Dashboard | |
| | Hardware/Software update one time charge | Multiple sets of CYME server license | |
| | | Multiple CYME Agents for Server licenses | |
| | | Multiple CYME Distribution Analysis for Server license | |
| | | Multiple CYME Integration Capacity Analysis for Server licenses | |
| | Implementation Internal Technical and IT Costs | Dedicated team of engineers to support the implementation for six weeks period or 1440 hours: Planning, GIS, IT and ,SAP engineers. | |
| | Application Annual Maintenance Fee | | Recurring |
| | Additional Applications Installation | Interface between PowerClerk and GIS | |
| | | Interface between Oracle Database resulting from CYME ICA run and website for map publishing | |
| | Internal support Costs | Dedicated team to resolve technical issues, Check accuracy of results, Validate data and resolve customers complains/notifications. Six FTE. | Recurring |
| | TOTAL ESTIMATE | \$1,500,000 | \$980,000 |

- Real time updates of the maps is possible, however...
 - Heavy computational requirements
 - New CYME agents running calculation in parallel are needed
 - Requires additional licenses
 - Eaton ADPS (Advanced Distribution Planning System) solution is scalable
 - Strain in resources – requires dedicated team for daily support
 - The daily number of DER Applications do not justify a daily update of the maps
 - Industry experience – Pacific Gas and Electric Company (monthly and only for 15% of the system)
- UI is proposing an incremental approach, taking advantage of “scalable” design and implementing an “exception” program
 - Exception program – based on system changes
 - DER tables updates bi-monthly

UI Proposed CYME Automation Update - Cost Estimate

| | | |
|---|--|-----------|
| Project Start (Subject to PURA approval, Current Projects Status and vendor engagement) | | |
| Project In Service (Subject to Start Date) 1 to 2 years | | |
| Description | Scope | |
| Software update one time charge | Automated CYME ICA calculation using CYME server | |
| | Automated generation of results in an Oracle database to be used by UI to review or publish results | |
| | CYME ICA Web Control Dashboard | |
| Hardware/Software update one time charge | 1 Set of CYME server license | |
| | 5 CYME Agents for Server licenses | |
| | 5 CYME Distribution Analysis for Server license | |
| | 5 CYME Integration Capacity Analysis for Server licenses | |
| Implementation Internal Technical and IT Costs | Dedicated team of engineers to support the implementation for six weeks period or 1440 hours: Planning, GIS, IT and ,SAP engineers. | |
| Application Annual Maintenance Fee | | Recurring |
| Additional Applications Installation | Interface between PowerClerk and GIS | |
| | Interface between Oracle Database resulting from CYME ICA run and website for map publishing | |
| Internal support Costs | Dedicated team to resolve technical issues, Check accuracy of results, Validate data and resolve customers complains/notifications. Six individuals for six weeks period or 1440 hours. Assumes 4 runs per year. | Recurring |
| TOTAL ESTIMATE | \$660,000 | \$150,000 |

- Automation of Interconnection Screens
- Simplify Interconnection process
- Automatically identify projects that require additional interconnection studies
- More efficient Impact Study process - gather and automate data required to perform an Impact Study

- New Load Addition Studies Automation – any new load addition modeled as EV

Questions?