

An aerial photograph of a city skyline at sunset, with a blue network of glowing nodes and lines overlaid across the image, suggesting a digital or smart infrastructure theme.

# How AMI is Integrated into CYME

May 16<sup>th</sup>, 2024

# Speaker Introductions



**Mikaela Mohaupt**, North  
American Sales Specialist, CYME

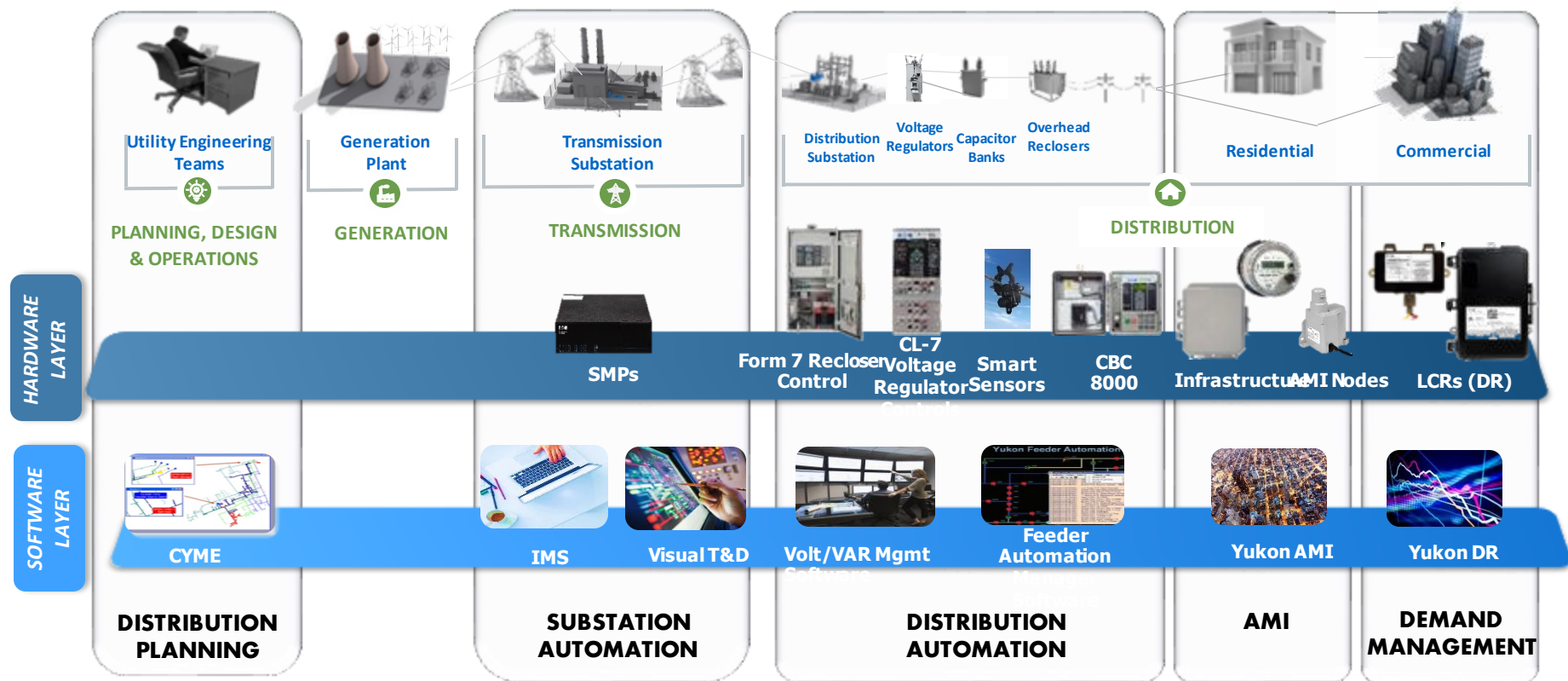


**Rena Wang**, Customer Training  
Manager



**Michael Sharp**, AMI Product  
Manager

# Brightlayer Utilities suite – End-to-End utility focus



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# AMI/Yukon Reporting Capabilities

# Device Definitions - Attributes

search 1 Sally Green ▾

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AMI ▾ Demand Response ▾ Volt/Var ▾ Assets ▾ Tools ▾ Admin ▾

◦ [Home](#) / [Support](#) / Device Definitions

☆ Device Definitions

Filters

Device Type (none) ▾	Display Group (none) ▾	Change Group (none) ▾
Attribute (none) ▾	Tag (none) ▾	

# Device Definitions - Attributes

◦ [Home](#) / [Support](#) / Device Definitions

## ★ Device Definitions

### Filters

Device Type

(none)

RFN-410fD  
RFN-420fL  
RFN-420fX  
RFN-420fD  
RFN-420fRX  
RFN-420fRD  
RFN-410cL  
RFN-420cL  
RFN-420cD  
WRL-420cL  
**WRL-420cD**  
RFN-430A3D  
RFN-430A3T  
RFN-430A3K  
RFN-430A3R  
RFN-430KV  
RFN-430SI 0

Display Group

(none)

Change Group

(none)

Tag

(none)



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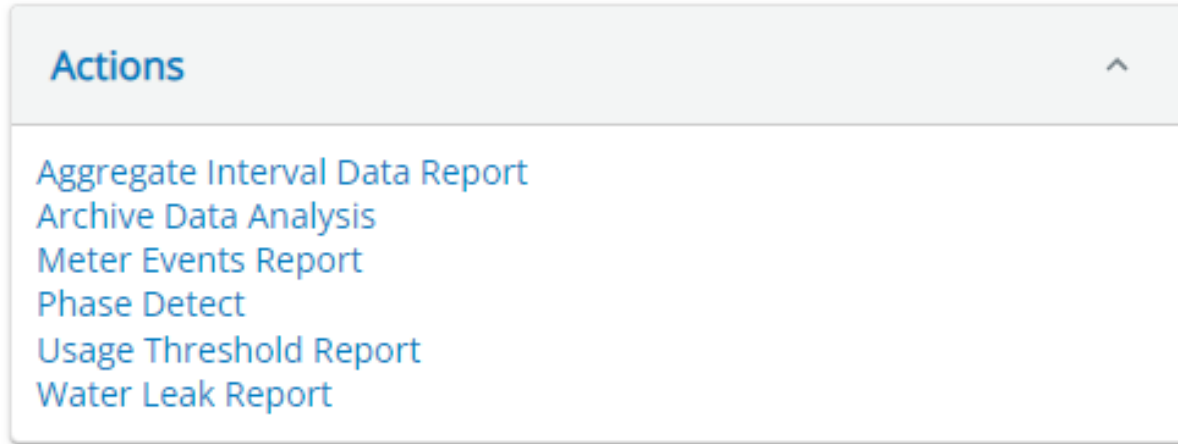
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# Example: RFN-420cD Device Attributes

Type:	RFN420CD						
Change Group:	meter						
#	Points	Type	Init	Offset	Multiplier	UofM	State Group
1	Bad Upgrade Security Param	Status	63	1.0			Event Status
2	Blink Count	Analog	Init 20	1.0		Counts	
3	Blink Reported	Status	Init 103	1.0			Event Status
4	Blink Restore Count	Analog	Init 21	1.0		Counts	
5	CRC Failure Memory Corrupt	Status	96	1.0			Event Status
6	Daily Max Volts	Analog	Init 14	1.0		Volts	
7	Daily Min Volts	Analog	Init 15	1.0		Volts	
8	Delivered kVA	Analog	324	1.0		kVA	
9	Delivered kVAh	Analog	150	1.0		kVAh	
10	Delivered kVAh per Interval	Analog	507	1.0		kVA	
11	Delivered kW	Analog	Init 101	1.0		kW	
12	Delivered kW Load Profile	Analog	188	1.0		kW	
13	Delivered kWh	Analog	Init 1	1.0		kWh	
14	Delivered kWh per Interval	Analog	Init 182	1.0		kWh	
15	Demand Reads And Reset	Status	7	1.0			Event Status
16	Device Temperature	Analog	Init 239	1.8		Temp-F	
17	Disconnect Status	Status	Init 1	1.0			RFN Disconnect Status
18	Failed Upgrade Signature Verification	Status	64	1.0			Event Status
19	kVA Load Profile	Analog	360	1.0		kVA	
20	Load Side Voltage Detected While Disconnected	Status	81	1.0			TrueFalse
21	Load Side Voltage Is Missing	Status	18	1.0			Event Status
22	Loss Of All Current	Status	19	1.0			Event Status
23	Loss Of Phase A Current	Status	20	1.0			Event Status
24	Loss Of Phase C Current	Status	21	1.0			Event Status
25	Net kW Load Profile	Analog	190	1.0		kW	
26	Net kWh	Analog	4	1.0		kWh	
27	Net kWh (Rate A kWh)	Analog	33	1.0		kWh	
28	Net kWh (Rate B kWh)	Analog	34	1.0		kWh	

- Common Attributes for Reporting:
  - Voltage (OV/UV)
  - Blink Count
  - Delivered kW (for Total kW calculations)
  - Outage Count

# Yukon Reports: Dashboard - Actions Widget



*\*Phase Detect is a legacy PLC report*



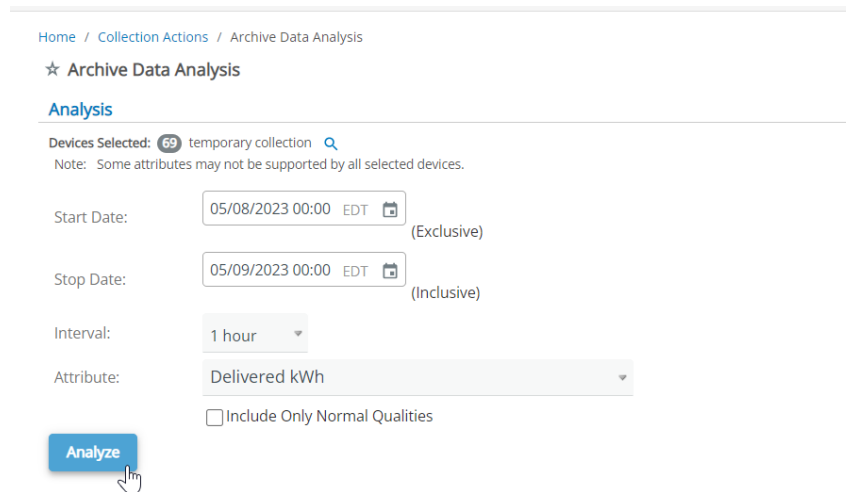
# Actions Widget – Aggregate Interval Data Report

- Report of a calculated, aggregate point of a Device Group or individual device
  - *Can be used in place of Virtual Device*
- Use Cases:
  - Total kW over a period of time
  - Load Shed comparisons
  - Time of Use

The screenshot displays the 'Aggregate Interval Data Report' interface. At the top, there is a breadcrumb trail 'Home / Aggregate Interval Data Report' and a star icon next to the title 'Aggregate Interval Data Report'. Below this, the 'Devices' section has two tabs: 'Group' (selected) and 'Selected', followed by a search path '/System/Device Types/RFN-420cD' and a magnifying glass icon. The 'Attribute' dropdown is set to 'Delivered Demand'. The 'Date Range' section shows two date pickers: '03/01/2023 00:00 EST' and '04/01/2023 00:00 EDT'. The 'Interval' dropdown is set to '1 hour'. The 'Missing Interval Data' dropdown is set to 'Skip Record' with a help icon. The 'Operation' dropdown is set to 'Add' with a help icon. At the bottom, there is a blue button labeled 'Export Now' with a download icon.

# Actions Widget – Archive Data Analysis

- Report of any archived data for individual or group of devices
  - Also found under **Collection Actions**
- Use Cases:
  - Voltage Profile
  - Usage Data



The screenshot shows a web interface for 'Archive Data Analysis'. At the top, there's a breadcrumb trail: 'Home / Collection Actions / Archive Data Analysis'. Below this is a star icon and the title 'Archive Data Analysis'. A section titled 'Analysis' contains the following fields: 'Devices Selected' with a value of '69 temporary collection' and a search icon; a note stating 'Some attributes may not be supported by all selected devices.'; 'Start Date' set to '05/08/2023 00:00 EDT' with a calendar icon and '(Exclusive)' label; 'Stop Date' set to '05/09/2023 00:00 EDT' with a calendar icon and '(Inclusive)' label; 'Interval' set to '1 hour' with a dropdown arrow; 'Attribute' set to 'Delivered kWh' with a dropdown arrow; and a checkbox for 'Include Only Normal Qualities' which is currently unchecked. At the bottom of the form is a blue 'Analyze' button with a hand cursor icon pointing to it.

# Yukon Reports: Reports

The screenshot displays the Eaton Yukon Reports web application interface. At the top, the Eaton logo is followed by the tagline "Powering Business Worldwide". A navigation bar contains several menu items: "AMI", "Demand Response", "Volt/Var", "Assets", "Tools", and "Admin". The "AMI" menu is expanded, showing a list of options: "Dashboard", "Billing", "Bulk Import", "Bulk Update", "Legacy Importer", "Point Import", and "Reports". The "Reports" option is highlighted. Below the navigation bar, the breadcrumb trail reads "Home / Admin AMI Dashb". The main content area is divided into two sections. The left section, titled "My Pages", includes a "FAVORITES" section with a link to "AMI". The right section, titled "Meter Search", features a "Quick Search:" input field and a "Meter" section.

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Home / Admin AMI Dashb

★ Dashboard: Admin

**My Pages**

**FAVORITES** RECE

AMI

**AMI** ▾

- Dashboard
- Billing
- Bulk Import
- Bulk Update
- Legacy Importer
- Point Import
- Reports**

**Demand Response** ▾

**Volt/Var** ▾

**Assets** ▾

**Tools** ▾

**Admin** ▾

**Actions** ▾

**Meter Search** ? ^

Quick Search: |

Meter

# Yukon Reports: Reports

METERING

LOAD MANAGEMENT

CAPCONTROL

ASSETS

ADMINISTRATOR

C&I

DATABASE

STATISTICAL

## Report Selection

### Reports

### Start Date

### Stop Date

### Format

Greater than 00:00, not inclusive

Less than or equal to 00:00, inclusive

☒ Meter Reads

☐ Meter Outages Log

☐ Meter Outage Counts

☐ Meter Disconnect Status

☐ Load Profile Setup Data

☐ LP Point Data Summary

☐ Scheduled Meter Reads

(MACS)

☐ Meter Usage

☐ MCT 430/470 Config To Device

☐ Disconnect Collar Data

☐ Scan Rate Setup Data

☐ Meter Reading Percentage

Report

05/15/2024



05/17/2024



☒ CSV

☐ PDF

Generate



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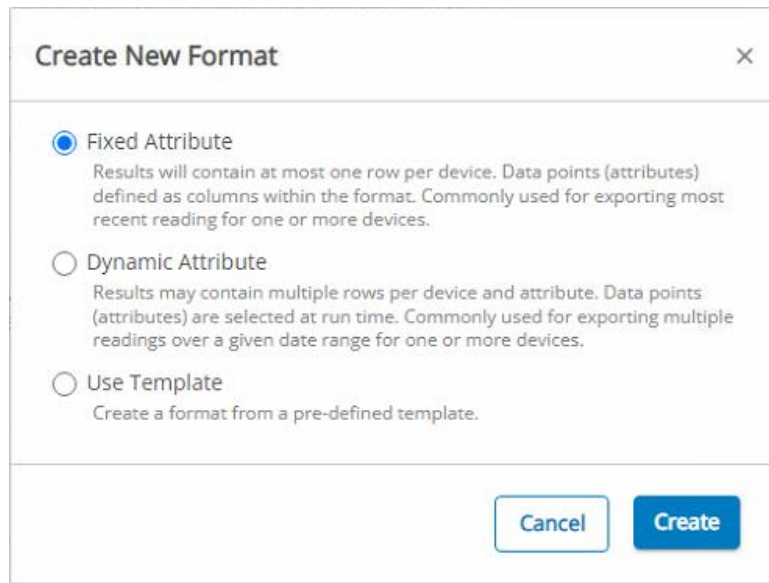
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# Yukon Reports: Data Export

- “Traditionally” used for billing files
- Allows export of any Data Attribute from Yukon
  - Configurable export format depending on third-party software



The 'Export Formats' interface shows a dropdown menu for 'Format' with the text 'Report Format Name' and a downward arrow. To the right of the dropdown are three buttons: 'Edit' (with a pencil icon), 'Copy' (with a document icon), and '+ Create'. Below the dropdown, the 'Devices' section shows '(No Devices Selected)' with a yellow warning icon.



The 'Create New Format' dialog box has a close button (X) in the top right corner. It contains three radio button options: 'Fixed Attribute' (selected), 'Dynamic Attribute', and 'Use Template'. Each option has a descriptive paragraph below it. At the bottom right, there are two buttons: 'Cancel' and 'Create'.

**Create New Format**

☒ **Fixed Attribute**  
Results will contain at most one row per device. Data points (attributes) defined as columns within the format. Commonly used for exporting most recent reading for one or more devices.

☐ **Dynamic Attribute**  
Results may contain multiple rows per device and attribute. Data points (attributes) are selected at run time. Commonly used for exporting multiple readings over a given date range for one or more devices.

☐ **Use Template**  
Create a format from a pre-defined template.

**Cancel** **Create**

# Data Export Example: Blink Count Report

	A	B	C	D	E
	Device Name	Meter	Date	Time	Blink Count
	Device Name1	Meter1	4/10/2023	19:08:57	4
	Device Name2	Meter2	4/10/2023	19:08:55	22
	Device Name3	Meter3			
	Device Name4	Meter4			
	Device Name5	Meter5			
	Device Name6	Meter6	4/10/2023	19:08:55	512
	Device Name7	Meter7	4/10/2023	14:08:55	2

# Data Export Example: Voltage Report

	A	B	C	D	E	F	G	H	I	J
1	Device Name	Meter Number	MinVolt Date	MinVolt Time	MinVolt Value	MaxVolt Date	MaxVolt Time	MaxVolt Value	Pk Dmd	
2	Device Name70	Meter Number70	3/3/2023	16:00:00	236	3/10/2023	18:00:00	246	3/22/2023	6.06
3	Device Name71	Meter Number71	3/27/2023	11:00:00	242	2/27/2023	1:00:00	248	3/8/2023	7.77
4	Device Name72	Meter Number72	3/3/2023	19:00:00	227	3/23/2023	2:00:00	242	3/6/2023	7.53
5	Device Name73	Meter Number73	3/14/2023	9:00:00	238	3/27/2023	7:00:00	245	3/1/2023	3.22
6	Device Name74	Meter Number74	3/14/2023	16:00:00	231	3/5/2023	21:00:00	245	3/12/2023	14.42
7	Device Name75	Meter Number75	3/11/2023	11:00:00	240	3/23/2023	2:00:00	245	3/21/2023	3.51
8	Device Name76	Meter Number76	2/26/2023	21:00:00	231	3/23/2023	2:00:00	244	2/27/2023	0
9	Device Name77	Meter Number77	3/12/2023	14:00:00	238	3/23/2023	2:00:00	246	3/11/2023	5.49
10	Device Name78	Meter Number78	2/28/2023	19:00:00	239	3/7/2023	8:00:00	245	2/28/2023	6.98
11	Device Name79	Meter Number79	3/25/2023	10:00:00	241	3/27/2023	1:00:00	246	3/10/2023	6.92
12	Device Name80	Meter Number80	3/27/2023	12:00:00	230	2/27/2023	1:00:00	241	3/19/2023	7.37
13	Device Name81	Meter Number81	3/6/2023	11:00:00	236	3/7/2023	8:00:00	244	3/21/2023	3.57
14	Device Name82	Meter Number82	3/20/2023	10:00:00	239	3/26/2023	1:00:00	247	3/3/2023	5.56
15	Device Name83	Meter Number83	3/4/2023	6:00:00	239	3/4/2023	3:00:00	244	3/19/2023	6.93
16	Device Name84	Meter Number84	3/3/2023	10:00:00	234	3/23/2023	2:00:00	243	3/28/2023	6.98
17	Device Name85	Meter Number85	3/27/2023	8:00:00	242	3/15/2023	15:00:00	248	3/13/2023	5.76
18	Device Name86	Meter Number86	2/27/2023	20:00:00	238	3/26/2023	0:00:00	246	3/7/2023	8.25
19	Device Name87	Meter Number87	3/12/2023	11:00:00	238	2/27/2023	15:00:00	244	3/18/2023	7.91
20	Device Name88	Meter Number88	3/13/2023	20:00:00	242	3/27/2023	15:00:00	245	3/25/2023	5.43
21	Device Name89	Meter Number89	3/27/2023	17:00:00	240	3/15/2023	17:00:00	245	3/22/2023	10.08
22	Device Name90	Meter Number90	3/14/2023	9:00:00	238	3/23/2023	2:00:00	244	3/4/2023	2.05
23	Device Name91	Meter Number91	2/27/2023	6:00:00	238	3/23/2023	23:00:00	246	3/25/2023	10.73
24	Device Name92	Meter Number92	3/20/2023	12:00:00	233	3/23/2023	2:00:00	243	2/27/2023	8.96
25	Device Name93	Meter Number93	3/27/2023	16:00:00	244	3/23/2023	1:00:00	246	3/12/2023	2.64

An aerial night view of New York City, showing the dense urban landscape with illuminated buildings and streets. A network of white lines, representing data connections, is overlaid on the city, creating a complex web of intersections. The lines are most prominent in the foreground and middle ground, connecting various points across the city. The background shows the city extending to the water, with the lights reflecting on the surface. The sky is a deep blue, indicating twilight or early night.

# Incorporating AMI Data into CYME



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# CYME – Advanced Distribution Planning Software

## Power Engineering Software

**CYME Power System Analysis**  
Transmission  
Distribution  
Industrial

**CYMCAP Cables**

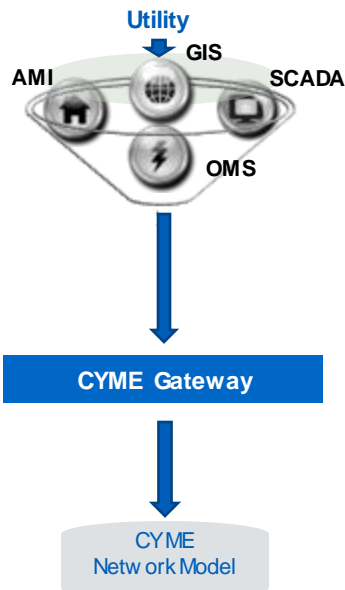
**CYMTCC Protection**

**CYMGRD Substation Grounding**

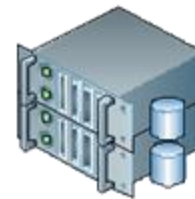
Decision Support  
for Network  
Planning Analysis



## Integration Projects and Solutions



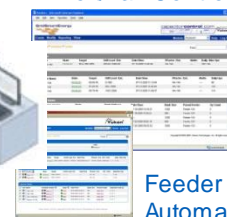
## Operations Solutions



**CYME Server**

Volt/Var Control

DMS



Feeder  
Automation

Decision Support  
for Real-Time  
Applications



State Estimator

**Best-in-Class System Analysis Tools and Services From Transmission to Distribution to Industrial**



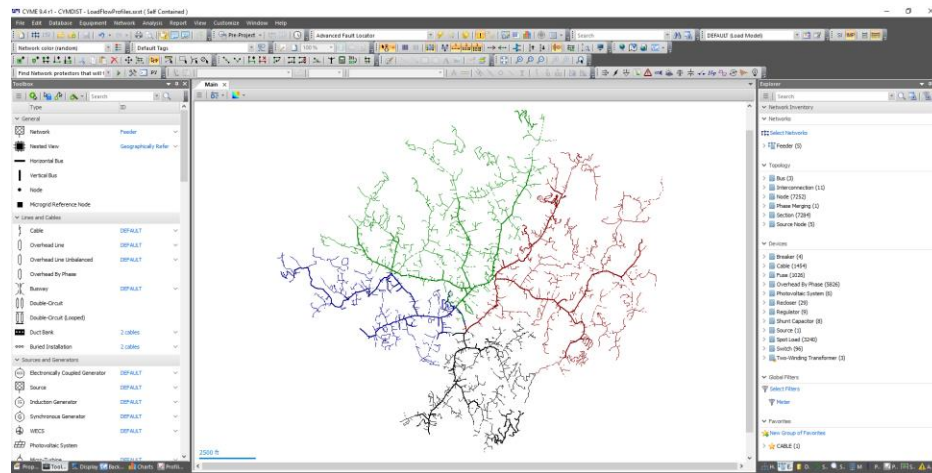
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# AMI to CYME – How?

How do we take this info:

	A	B	C	D	E	F
1	Device Name	Meter Number	MinVolt Date	MinVolt Time	MinVolt Value	MaxVolt Date
2	Device Name70	Meter Number70	3/3/2023	16:00:00	236	3/10/2023
3	Device Name71	Meter Number71	3/27/2023	11:00:00	242	2/27/2023
4	Device Name72	Meter Number72	3/3/2023	19:00:00	227	3/23/2023
5	Device Name73	Meter Number73	3/14/2023	9:00:00	238	3/27/2023
6	Device Name74	Meter Number74	3/14/2023	16:00:00	231	3/5/2023
7	Device Name75	Meter Number75	3/11/2023	11:00:00	240	3/23/2023
8	Device Name76	Meter Number76	2/26/2023	21:00:00	231	3/23/2023
9	Device Name77	Meter Number77	3/12/2023	14:00:00	238	3/23/2023
10	Device Name78	Meter Number78	2/28/2023	19:00:00	239	3/7/2023
11	Device Name79	Meter Number79	3/25/2023	10:00:00	241	3/27/2023
12	Device Name80	Meter Number80	3/27/2023	12:00:00	230	2/27/2023
13	Device Name81	Meter Number81	3/6/2023	11:00:00	236	3/7/2023
14	Device Name82	Meter Number82	3/20/2023	10:00:00	239	3/26/2023
15	Device Name83	Meter Number83	3/4/2023	6:00:00	239	3/4/2023
16	Device Name84	Meter Number84	3/3/2023	10:00:00	234	3/23/2023
17	Device Name85	Meter Number85	3/27/2023	8:00:00	242	3/15/2023
18	Device Name86	Meter Number86	2/27/2023	20:00:00	238	3/26/2023
19	Device Name87	Meter Number87	3/12/2023	11:00:00	238	2/27/2023
20	Device Name88	Meter Number88	3/13/2023	20:00:00	242	3/27/2023
21	Device Name89	Meter Number89	3/27/2023	17:00:00	240	3/15/2023
22	Device Name90	Meter Number90	3/14/2023	9:00:00	238	3/23/2023
23	Device Name91	Meter Number91	2/27/2023	6:00:00	238	3/23/2023

Import it here:



And then what can we do with it in CYME?

# AMI to CYME – Method #1

---

- CYME Gateway
  - The Gateway product was originally created to automatically update the CYME network using GIS data.
  - Today, our engineering team can also import OMS, SCADA and AMI data into CYME with the GIS data.
  - If a customer does not have a Gateway, AMI can be included in the development of the customer's Gateway to be imported with the GIS data.
  - If a customer already has a Gateway for GIS data, but no AMI data, then AMI can be added on.
    - Smaller project than creating a new Gateway.
    - New project and terms to be adjusted with this addition.

# AMI to CYME – Method #2

- CYME is vendor agnostic and does not align to any single vendor for AMI or any other equipment data type.
- Customer can code data internally to format it into a usable format for CYME.
- The right shows a small sample from some data used for demonstrations.
- This uses Microsoft Access for databases but Oracle and SQL can be used instead.

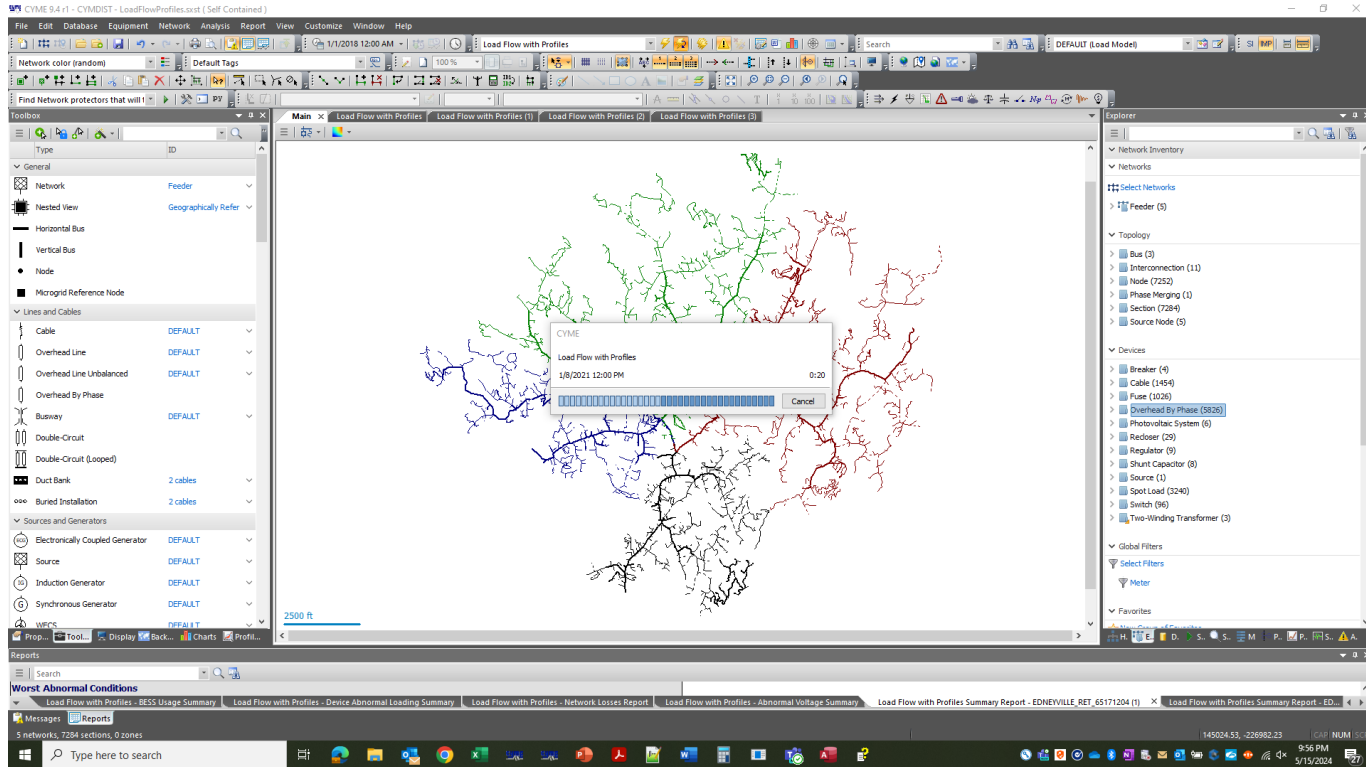
Tables	ID	ProfileYear	YearInterval	Daytype	Unit	Phase	
CUSTOMERTYPE_E_10MIN...	10196-1	2025	120	null	5	3	41.770000;53.210000;49.320000;49.670000;50.510000
CUSTOMERTYPE_E_15MIN...	10196-1	2025	121	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CUSTOMERTYPE_E_15MIN...	10196-1	2025	121	null	5	3	41.340000;53.410000;49.310000;47.430000;48.140000
CUSTOMERTYPE_E_15MIN...	10196-1	2025	122	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CUSTOMERTYPE_E_15MIN...	10196-1	2025	122	null	5	3	43.060000;52.350000;49.310000;48.920000;49.140000
CUSTOMERTYPE_E_30MIN...	10196-1	2025	123	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CUSTOMERTYPE_E_30MIN...	10196-1	2025	123	null	5	3	41.340000;51.810000;48.290000;48.420000;48.140000
CUSTOMERTYPE_E_5MINU...	10196-1	2025	124	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CYMDBPARAMETERS	10196-1	2025	124	null	5	3	41.770000;52.880000;49.820000;48.420000;49.140000
CYMLPNETWORK	10196-1	2025	125	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CYMSCHEMATABLE	10196-1	2025	125	null	5	3	42.200000;50.740000;48.800000;48.420000;50.150000
CYMSCHEMAVERSION	10196-1	2025	126	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
CYMPERATURENETWO...	10196-1	2025	126	null	5	3	40.910000;51.810000;49.820000;48.920000;47.640000
GENERATOR_E_10MINUTES	10196-1	2025	127	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
GENERATOR_E_15MINUTES	10196-1	2025	127	null	5	3	40.910000;51.810000;49.310000;46.940000;48.640000
GENERATOR_E_15MINUTES	10196-1	2025	128	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
GENERATOR_E_15MINUTES	10196-1	2025	128	null	5	3	42.630000;52.350000;49.820000;47.930000;48.640000
GENERATOR_E_15MINUTES	10196-1	2025	129	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
GENERATOR_E_15MINUTES	10196-1	2025	129	null	5	3	42.200000;52.880000;48.290000;47.930000;49.140000
GENERATOR_E_15MINUTES	10196-1	2025	130	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
GENERATOR_E_15MINUTES	10196-1	2025	130	null	5	3	42.630000;50.740000;49.820000;47.430000;50.150000
LOAD_E_10MINUTES	10196-1	2025	131	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
LOAD_E_15MINUTES	10196-1	2025	131	null	5	3	43.060000;52.880000;50.840000;47.430000;50.150000
LOAD_E_15MINUTES	10196-1	2025	132	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
LOAD_E_15MINUTES	10196-1	2025	132	null	5	3	41.340000;53.410000;49.310000;49.410000;49.640000
LOAD_E_15MINUTES	10196-1	2025	133	null	4	3	95.000000;95.000000;95.000000;95.000000;95.000000
LOAD_E_15MINUTES	10196-1	2025	133	null	5	3	42.200000;51.810000;50.330000;48.920000;49.140000

# AMI to CYME – Method #3

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- Dynamic Data Pull Plugin
  - Updates network with time-based dynamic data
  - Creates a link between CYME and external systems where dynamic data reside, such as data historian, AMI/MDMS and forecasting tool.
  - Allows pulling data to CYME from a click of a button.
  - What type of data is concerned?
    - Power, current and/or voltage (meter)
    - Load and/or generation
    - Device statuses

# Live Demonstration of CYME

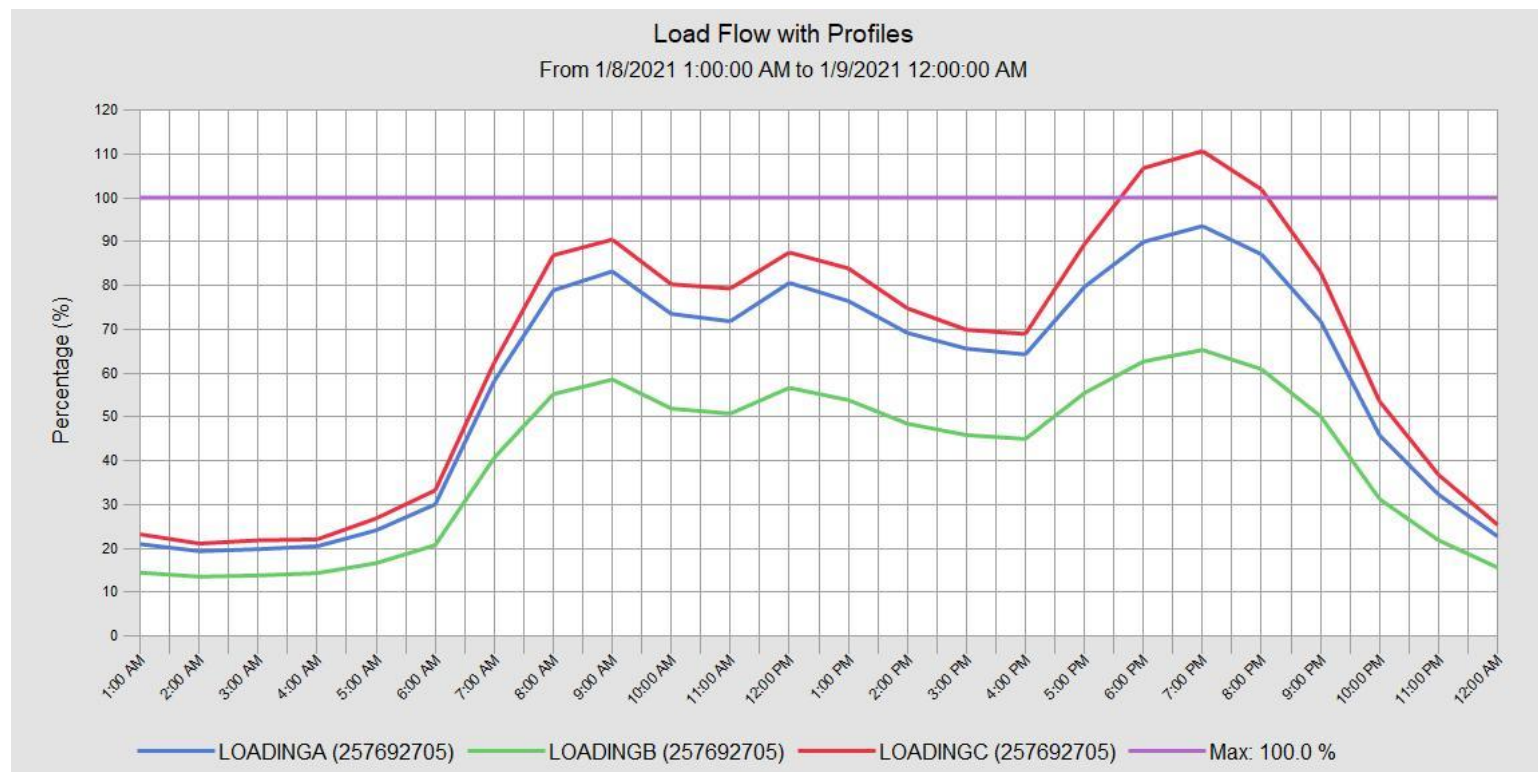


# Load Flow with Profile - Results

Reports										
	Search									
	Device Number	Device type	Phase	Nominal Capacity	Network Id	Overload count	Total overload time (hours)	Longest overload time (hours)	Worst loading (%)	Date and time of first overload
16	700316948	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	105.13	1/8/2021 6:00 PM
17	257688974	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	105.13	1/8/2021 6:00 PM
18	257688984	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	105.13	1/8/2021 6:00 PM
19	257688989	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	105.13	1/8/2021 6:00 PM
20	257688994	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	105.13	1/8/2021 6:00 PM
21	EDNEYVILLE_RET_6517120X	Source	ABC	30100.0 kVA	EDNEYVILLE_RET_6517120X	1	2.00	2.00	106.05	1/8/2021 6:00 PM
22	257695451	Overhead By Phase	A	129.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	106.26	1/8/2021 6:00 PM
23	257695901	Overhead By Phase	C	129.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	106.53	1/8/2021 6:00 PM
24	259513559	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	3	5.00	2.00	106.94	1/8/2021 11:00 AM
25	INNOVATIVE.SOLAR. 16	Two-Winding Transformer	ABC	2000.0 kVA	EDNEYVILLE_RET_65171204	3	24.00	24.00	107.41	1/8/2021 1:00 AM
26	257691958	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	3	5.00	2.00	108.75	1/8/2021 11:00 AM
27	257695386	Overhead By Phase	C	129.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	108.99	1/8/2021 6:00 PM
28	259512137	Overhead By Phase	C	129.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	108.99	1/8/2021 6:00 PM
29	257695441	Overhead By Phase	A	129.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	109.84	1/8/2021 6:00 PM
30	259513184	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	3	7.00	5.00	110.23	1/8/2021 11:00 AM
31	257691913	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	3	7.00	5.00	110.23	1/8/2021 11:00 AM
32	257692705	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	110.67	1/8/2021 6:00 PM
33	257692715	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	110.67	1/8/2021 6:00 PM
34	257692725	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	110.67	1/8/2021 6:00 PM
35	257695421	Overhead By Phase	A	129.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	111.76	1/8/2021 6:00 PM
36	257692545	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	112.34	1/8/2021 6:00 PM
37	259573430	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	112.34	1/8/2021 6:00 PM
38	257692700	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	112.34	1/8/2021 6:00 PM
39	257689362	Overhead By Phase	ABC	480.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	113.15	1/8/2021 6:00 PM
40	257689372	Overhead By Phase	ABC	480.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	113.15	1/8/2021 6:00 PM
41	257689377	Overhead By Phase	ABC	480.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	113.15	1/8/2021 6:00 PM
42	259225518	Overhead By Phase	ABC	480.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	113.15	1/8/2021 6:00 PM
43	257689355	Overhead By Phase	ABC	480.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	115.55	1/8/2021 6:00 PM
Load Flow with Profiles - BESS Usage Summary				Load Flow with Profiles - Device Abnormal Loading Summary		Load Flow with Profiles - Network Losses Report		Load Flow with Profiles - Abnormal Voltage Summary		



# Load Flow with Profile - Results





# Load Relief DER Optimization - Results

BESS Sizing Requirements	
Rated Storage Energy	500.0 kWh
Max Discharging Power	300.0 kW
Max Charging Power	300.0 kW

BESS Locations Ranking												
Node ID	Score	At Peak Power (Discharging)					At Minimum Power (Charging)					
		Base Case Overload Count	Base Case Over-Voltage Count	New Over-Voltage Count	Base Case Under-Voltage Count	New Under-Voltage Count	Base Case Overload Count	Base Case Over-Voltage Count	New Over-Voltage Count	Base Case Under-Voltage Count	New Under-Voltage Count	
Base Case (without new DER)	0.0	133	188		662		3	679		0		
257692891	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257693122	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257693077	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257692915	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257692707	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257692898	100.0	133	188	0	656	0	3	679	0	0	0	Apply
257692857	100.0	133	188	0	656	0	3	679	0	0	0	Apply



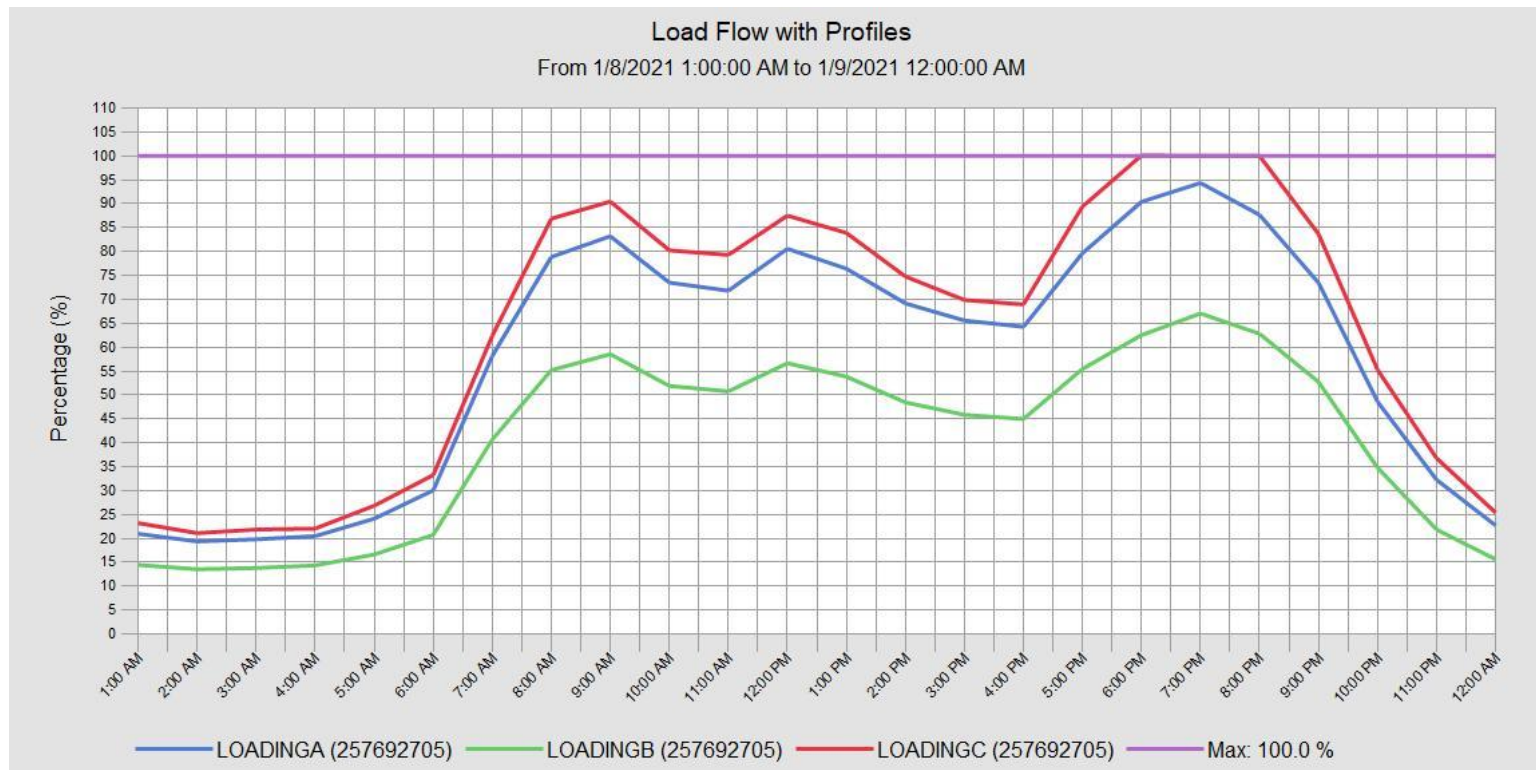
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# Load Flow w/ Profiles Results After LRO

Reports										
<div> <div>≡</div> <div>Search</div> <div> </div> </div>										
	Device Number	Device type	Phase	Nominal Capacity	Network Id	Overload count	Total overload time (hours)	Longest overload time (hours)	Worst loading (%)	Date and time of first overload
1	257692705	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	100.11	1/8/2021 6:00 PM
2	257692715	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	100.11	1/8/2021 6:00 PM
3	257692725	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	100.11	1/8/2021 6:00 PM
4	257695456	Overhead By Phase	A	129.0 A	EDNEYVILLE_RET_65171204	1	1.00	1.00	100.86	1/8/2021 6:00 PM
5	257691963	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	1	1.00	1.00	101.37	1/8/2021 6:00 PM
6	700805362	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	1.00	1.00	101.42	1/8/2021 6:00 PM
7	700805363	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	1.00	1.00	101.42	1/8/2021 6:00 PM
8	705479522	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	1.00	1.00	101.42	1/8/2021 6:00 PM
9	257692545	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	2	3.00	3.00	101.85	1/8/2021 6:00 PM
10	259573430	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	2	3.00	3.00	101.85	1/8/2021 6:00 PM
11	257692700	Overhead By Phase	ABC	170.0 A	EDNEYVILLE_RET_65171204	1	3.00	3.00	101.85	1/8/2021 6:00 PM
12	259513564	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	102.66	1/8/2021 6:00 PM
13	EDNEYVILLE_RET_6517120X	Source	ABC	30100.0 kVA	EDNEYVILLE_RET_6517120X	1	3.00	3.00	103.95	1/8/2021 6:00 PM
14	700316925	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
15	700316921	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
16	700316927	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
17	700316948	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
18	257688974	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
19	257688984	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
20	257688989	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
21	257688994	Overhead By Phase	ABC	224.0 A	EDNEYVILLE_RET_65171204	1	2.00	2.00	104.85	1/8/2021 6:00 PM
22	259513559	Overhead By Phase	C	170.0 A	EDNEYVILLE_RET_65171204	2	3.00	3.00	105.24	1/8/2021 11:00 AM

# Load Flow w/ Profiles Results After LRO





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