

Building a
B R I G H T E R F U T U R E

**FirstEnergy:
Potential Load Adjustments**

FirstEnergy[®]

- **Process for Load Forecast Adjustments**

- **Submitted Load Adjustments**

- ATSI

- North Star BlueScope

- Met-Ed

- Semi-Conductor Facility

- APS

- New customers/sectors without obvious economic variables

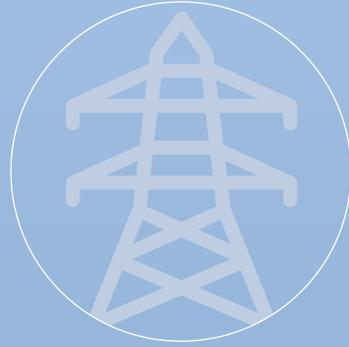
FirstEnergy's Process



Economic Development works through leads on potential new customer growth opportunities in service territory



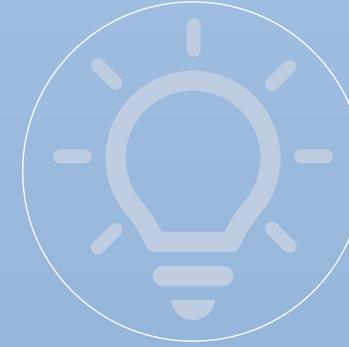
Customer Accounts team works with customers to plan for new or changing future load expectations



Planning & Protection begins detailed load study process with signed agreements. Customer provides preliminary forecast



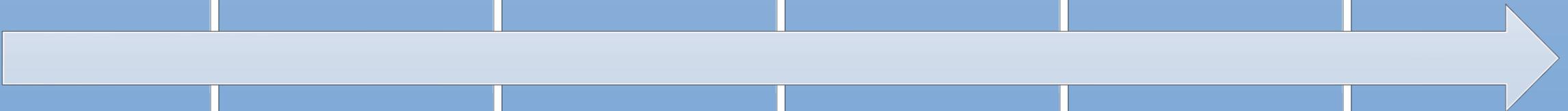
Load Forecasting group vets potential load impacts. Determines if economics or other variables may be picking up the expectations



Load impacts materialize as customer growth comes online or customer plans change from initial expectation



Load forecasting monitors impacts on actuals and determines if future forecast adjustments are still needed



■ ATSI Zone

- North Star BlueScope Steel plant expansion (Toledo Edison)
 - Intentions to grow to 300 MVA peak demand
 - Facility expansion has been completed (2022)
 - Customer meeting load expectations (2023)

■ Met-Ed Zone

- Expansion of semi-conductor plant (MetEd)
 - Load potential to grow up to 75 MW over next 5 years

■ APS Zone

- Shale
- Bitcoin Mining
- Data Centers

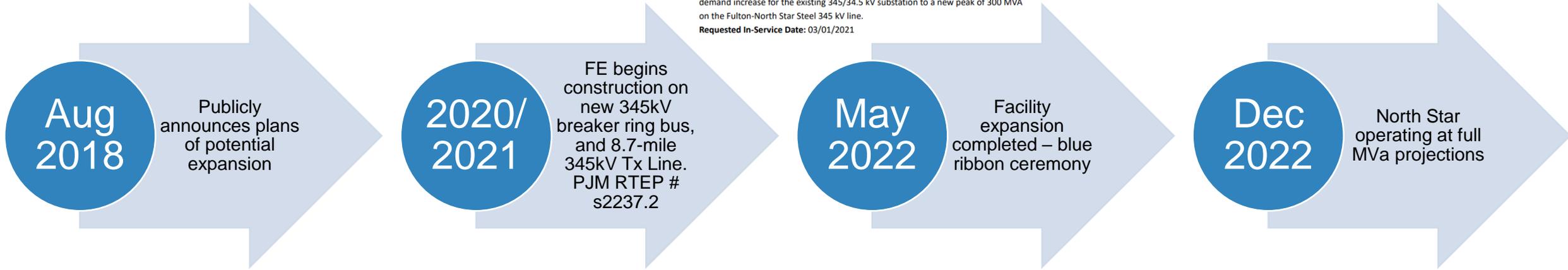
(ATSI) North Star BlueScope Timeline

| Map ID | Project | Sub ID | Description | Projected In-Service Date | Project Cost (\$M) | TO Zone | TEAC Date |
|--------|---------|--------|---|---------------------------|--------------------|---------|-----------|
| 1 | S2237 | .2 | S2237.2 is new additional scope to mitigate load-loss criteria violation identified during do-no-harm testing. Construct a new 345 kV four-breaker ring bus. De-energize approx. 1 mile of the Dowling-Fulton 345 kV line. Construct 8.7 miles of 345 kV line to connect the Dowling 345 kV line into the new 345 kV station with 954 ACSR 45/7 bundled (two conductors per phase). New 345 kV line to be built and share structures with the Delta-Wauselon 138 kV line and Delta-Fulton 138 kV line. Replace the wave trap at Dowling 345 kV line to ensure the Dowling-New 345 kV station 345 kV transmission line is the limiting element. Re-terminate the Fulton 345 kV line that serves North Star Steel Sydney into the new 345 kV station. Provide two feeds from the new 345 kV station to North Star Steel Sydney with 95. | 6/1/2024 | \$67.00 | ATSI | 11/4/2020 |

Problem Statement

Existing Customer Connection – Load Increase
 An existing transmission customer (North Star BlueScope Steel) is requesting load demand increase for the existing 345/34.5 kV substation to a new peak of 300 MVA on the Fulton-North Star Steel 345 kV line.
Requested In-Service Date: 03/01/2021

The expansion has created more than 100 new jobs and will increase annual hot rolled coil production by 850,000 metric tonnes.



Delta's North Star steel plant may get \$700M upgrade

B JON CHAVEZ
 The Blade
 jchavez@theblade.com

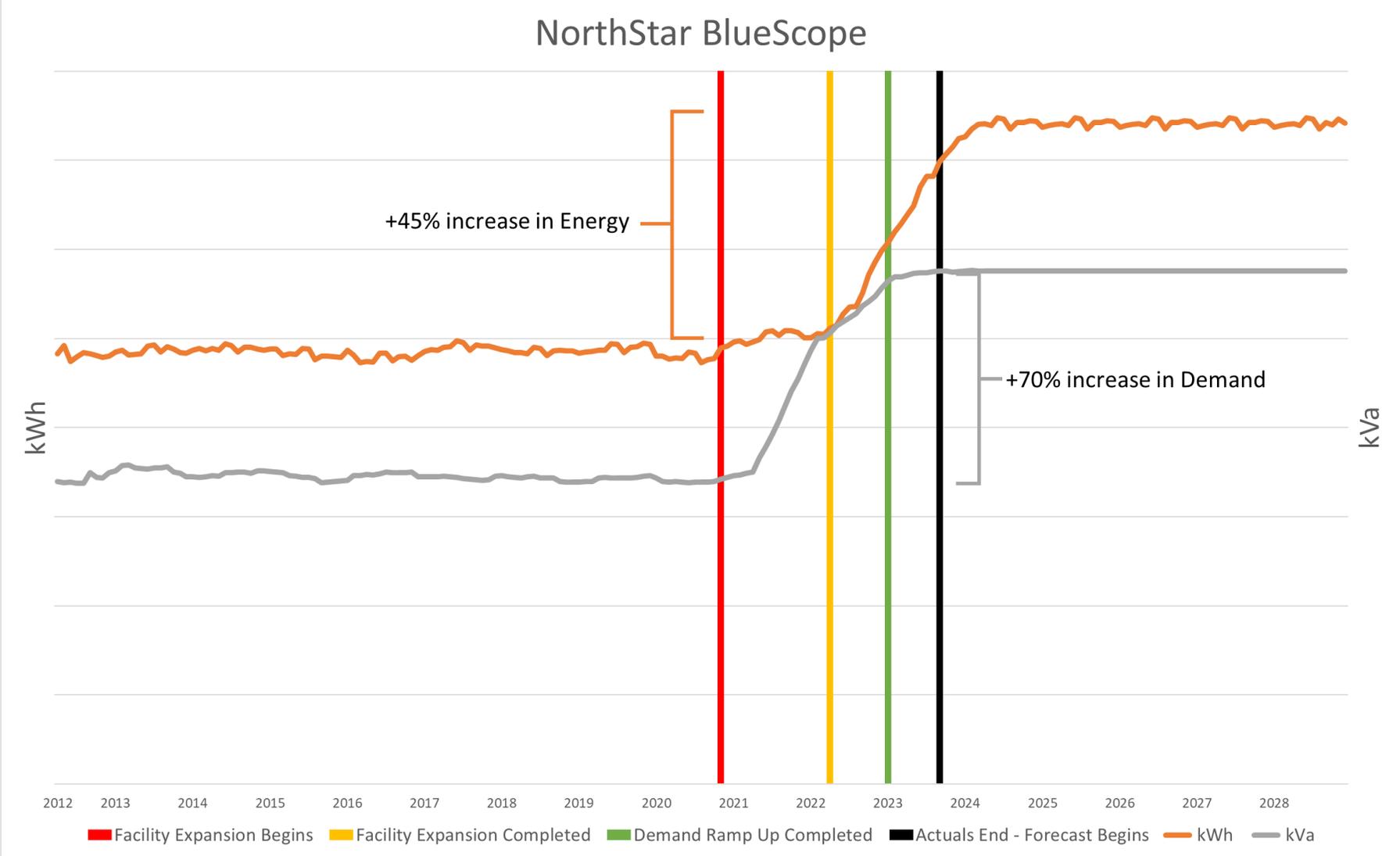
AUG 13, 2018 7:09 PM

North Star BlueScope opens expansion

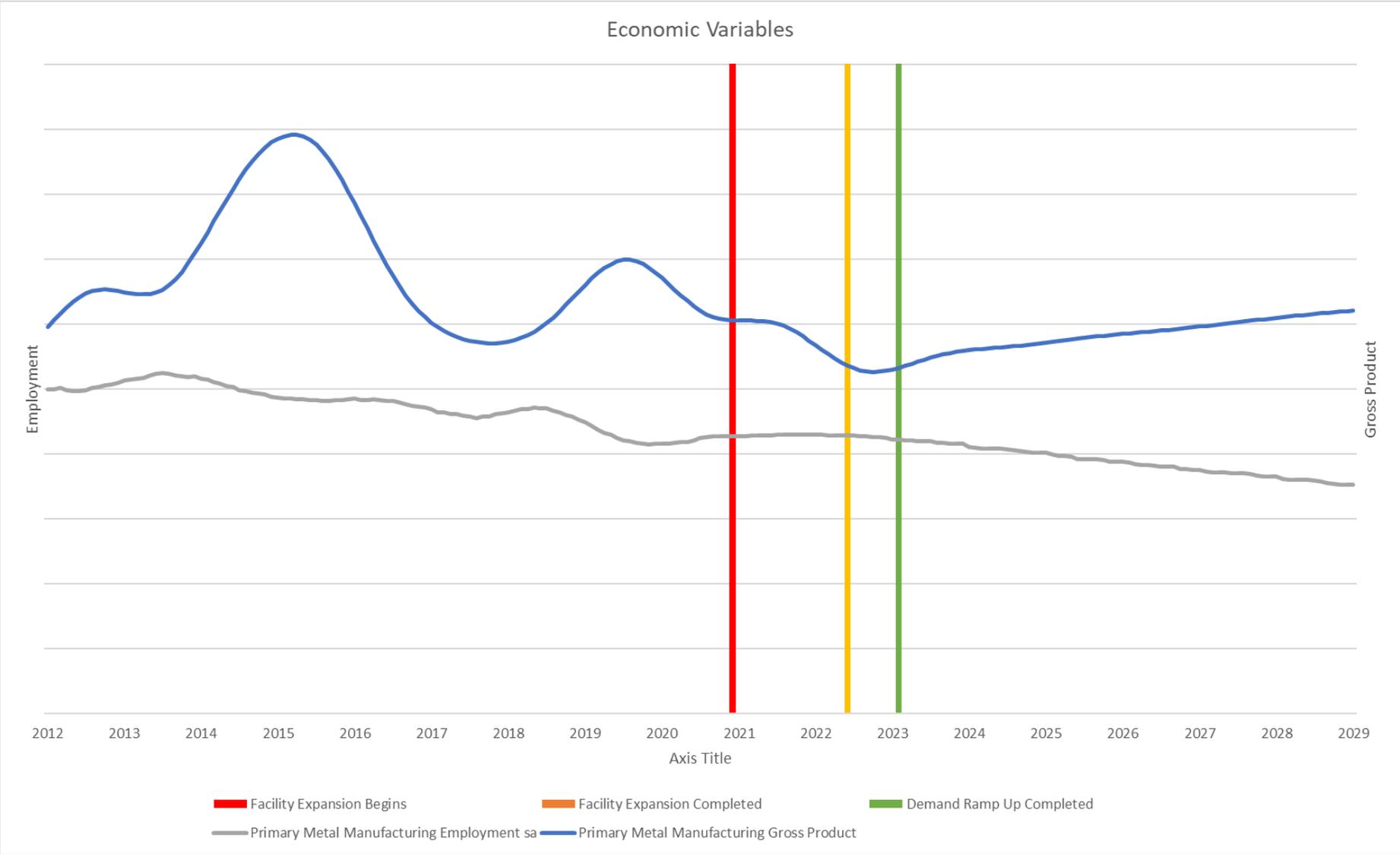
Published date: 13 May 2022

Electric arc furnace (EAF) steelmaker North Star BlueScope has opened its expansion at its Delta, Ohio, flat-rolled mill.

(ATSI) North Star BlueScope



Moody's Economic Forecast – Toledo Edison Area (Jan 2023 vintage)



- **Semiconductor company looking to increase Silicon Carbide substrate production**
 - Increase SiC substrate production by 600% over a 5-year period
- **Current distribution 34.5kV customer with project underway to move to our 115kV transmission system**
 - Project to grow to 75 MW with a 5-year ramp up period.
- **Currently under a contract demand agreement for 12.5 MW on the 34.5kV system.**
 - Customer is not currently using 12.5 MW
- **Customer expansion has been pushed back twice due to equipment delays with supply chain issues on the customer's end.**
 - Original plan was mid-2022, moved to early 2023, latest projection is end of 2023.

■ Adjustments would add ~900 MW (10%) to APS zone by 2028

■ Shale

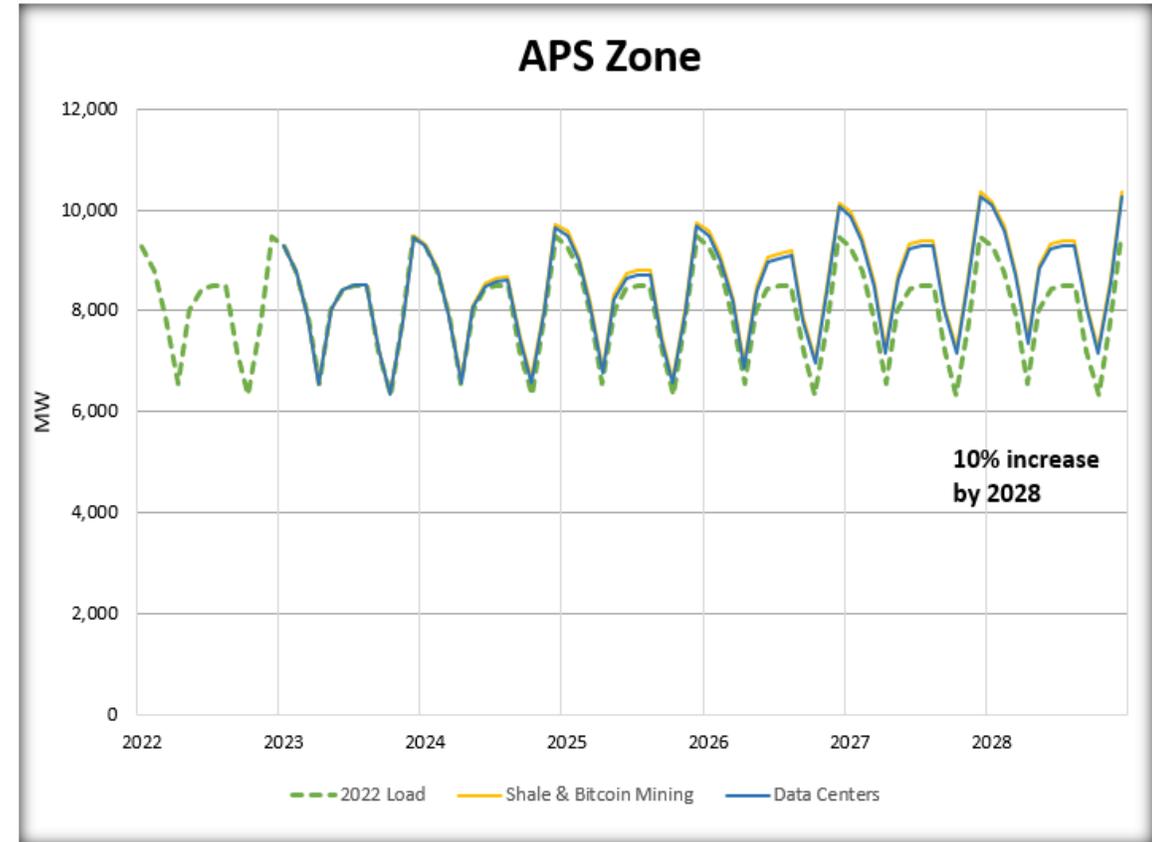
- Current Shale load: ~500 MW at 12 sites in APS zone
- 2 new sites: combined load ramping up +40 MW 2024-2026
- Significant growth over the past 10 years
 - Continuing growth, but at much lower level

■ Bitcoin Mining

- Current Bitcoin Mining load: ~50 MW at 4 sites in APS zone
 - 10 MW in 2021; 15 MW in 2022
- 2 newest sites: combined load ramping up +10 MW by mid-2024
- Lack of economic variable to aid in forecasting

■ Data Centers – All customers at the Quantum Frederick site

- 5 new customer sites: combined load ramping up +800 MW by mid-2027
- Expected growth upwards of +3,000 MW by 2033
- Significant investment has been and continues to be made for necessary transmission upgrades to handle this load growth



- **Submitted load projections are generally metered demand**
- **Granularity of available data**
 - History can be provided at an hourly level for these customers
 - Shorter-term projections (<5 years) can be provided at a monthly level
 - Longer-term projections (>5 years) can only be provided at a season level
- **Available forecast horizon**
 - Project dependent

Thank You

Q&A