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2018 10-Year Assessment Preliminary Needs

Stakeholder and Customer Presentation – March 1, 2018
Jeremy Voigt

Purpose

- Key Study Assumptions Reminder
- Summarize Preliminary Changes to Needs
- Solicit Input on Needs
- Solicit Input on Public Policy Driven Needs
- Summarize Next Steps

Assumptions Review

- Studies
- Load Forecast
- Generation/Imports/Flows
- Asset Renewal Need Identification

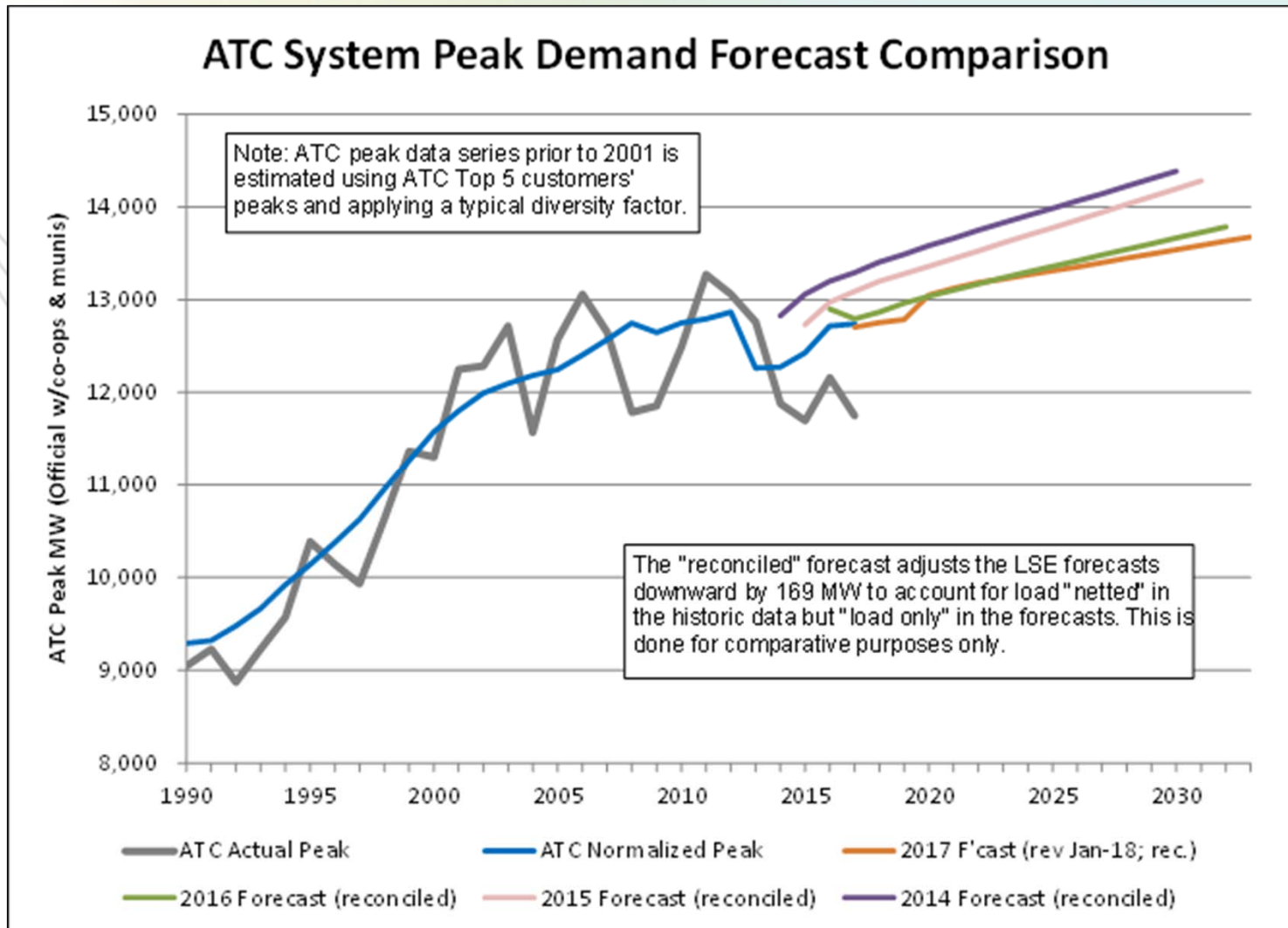
Core Assessment Studies

2017 TYA		2018 TYA	
<i>Model</i>	<i>Year(s) Studied</i>	<i>Model</i>	<i>Year(s) Studied</i>
Summer Peak	2018, 2022, 2027	Summer Peak	2019, 2023, 2028
Shoulder	2022, 2027	Shoulder	2023, 2028
40% Minimum Load	2018, 2022	40% Minimum Load	2019, 2023

Sensitivity Studies

- **Potential Next Limiter Study**
 - Not intending to propose projects in the 2018 10-Year Assessment
 - Analyze system with biases to determine what potential next limiters may be
- **Generation Location Screening**
 - Similar to [Zone 2 screening](#)
 - Propose to do Zone 4 and possibly Zone 3

Load Forecast Trends



Load Forecast Trends, Continued

Model	ATC Load (MW)		
	2016 Assessment	2017 Assessment	2018 Assessment
Year 1 Summer Peak	13,400	13,000	13,000
Year 5 Summer Peak	+300	+300	+430
Year 10 Summer Peak	+700	+600	+660
Year 5 Shoulder	9,800	9,400	9,300
Year 10 Shoulder	+300	+200	+140

Off-Peak Load Forecasts

- **Shoulder**
 - 70% of summer peak in Zones 1, 3, southern 4, and 5
 - 80% of summer peak in northern Zone 4
 - 90% of summer peak in Zone 2
- **Minimum**
 - 40% of summer peak for all Zones
 - Power factors: historical minimum for a Local Balancing Authority

Generation Dispatch Changes Compared to the 2017 Assessment

- **Retirements**

- Edgewater 4: 301.5 MW
- Fitchburg 1/2: 31.5 MW
- Nine Springs 1: 13.5 MW
- Pleasant Prairie: 1188 MW
- Presque Isle: 344 MW
- Pulliam 7/8: 210 MW
- Sycamore 1/2: 35.3 MW

- **Additions**

- J505: 99 MW solar farm on Mishicot – Kewaunee 138-kV line
- J703: 131.712 MW RICE units at new Huron Substation
- J704: 56.448 MW RICE units at new Silver River Substation
- J711: 135 MW wind farm at new Silver River Substation

Generation Dispatch Changes Compared to the 2017 Assessment, Continued

- **ATC Net Interchange**

Model	ATC Net Interchange		
	2017 Assessment	2018 Assessment	Difference
Year 1 Summer Peak	66	-88	-154
Year 5 Summer Peak	-93	-129	-36
Year 10 Summer Peak	-91	-363	-272
Year 5 Shoulder	-175	-259	-84
Year 10 Shoulder	-174	-258	-84

- **Modeling Marquette Network Integrated Transmission Service**
 - Previously modeled tie line at 0 MW
 - Added 66-70 MW in peak models
 - Added 55-56 MW in shoulder models

Flow Changes Compared to 2017 Assessment

- **Potential Causes**

- Interchange variation
- Variation in dispatching generation outside of ATC

Model	ATC Western Interface Flow		ATC Southern Interface Flow	
	2017 Assessment	2018 Assessment	2017 Assessment	2018 Assessment
Year 1 Summer Peak	-278	-700	158	595
Year 5 Summer Peak	-349	-399	230	252
Year 10 Summer Peak	-330	-677	211	297
Year 5 Shoulder	-654	-767	378	488
Year 10 Shoulder	-238	-406	16	131

Asset Renewal (AR) Need Identification

- Focused on Life Cycle Management of ATC's Transmission Assets
- Driven by Public and Worker Safety, Regulatory Compliance, Reliability and Operational Performance
- Objective
 - Ensure assets perform required function in sustainable manner
 - Manage life cycle costs
 - Coordination of design, commissioning, operation, maintenance and replacement strategy needed to achieve objective
 - Asset renewal is the “replacement strategy” piece of the asset life cycle
 - Ensure long term plan meets ATC and customer needs

Asset Renewal Considerations

- Is the asset still needed?
 - Assess area needs
 - Obtain cross-functional and distribution provider input
 - Consider removal of lines (full/partial retirement)
- What ratings are needed?
- Investing prudently using defensible criteria

Updates to ATC 10-Year Assessment Network and Asset Renewal Project Lists

- [Updates to ATC 10-Year Assessment Network Project List](#)
- [Updates to ATC 10-Year Assessment Asset Renewal Project Lists](#)

Preliminary Needs

- Needs identified since the 2017 TYA
 - D-T: 33
 - Other Network: 8
 - Asset Renewal Driven: 0
- Eliminated Needs
 - Contingency Driven: 5
 - Asset Renewal Driven: 1
- Continuing Needs
 - Numerous

Looking for Stakeholder Input

Projects with Eliminated Needs

System Addition	2016 TYA Network Need Year	2017 TYA Network Need Year	2018 TYA Network Need Year	Planning Zone	Need Category	MISO MTEP Status	MTEP PRJiD	MTEP Cost or Cost Range (M\$)
Lakota Rd to Winona 138-kV Conversion	2021***	2021***	>2033	2	reliability (prior + P1.2)	B	8089	100.0
Winona - Atlantic 69-kV line rebuild Winona69	2026	>2032	>2033	2	reliability (69 prior + P1.2)	--	4727	28.1
Colley Road Substation: Install 2nd 100 MVA 138/69kV transformer	>2031	>2032	>2033	3	Reliability (69P1.2, 69P2.1 ,69P1.3)	B	7585	9.9

Projects with Eliminated Needs, Continued

System Addition	2016 TYA Network Need Year	2017 TYA Network Need Year	2018 TYA Network Need Year	Planning Zone	Need Category	MISO MTEP Status	MTEP PRJiD	MTEP Cost or Cost Range (M\$)
Aviation - North Fond du Lac 138-kV rebuild G-111	>2031	>2032	>2033	4	Reliability (P3.2)	--	--	10-25
Southeastern Wisconsin Northeastern Illinois Reinforcement Project	ASAP	ASAP	>2033	5	Reliability(P7.1)	A	8065	52.0
West Wisconsin Rapids – Sigel 69kV line (Y45) Rebuild	--	2021	>2028	1	Improve condition and increase reliability performance of existing line	B	8263	18.7

Projects with Continuing Needs

- See Preliminary Network & Asset Renewal Needs Tables

Preliminary Limitations from Contingency Analysis

- See 2018 Assessment Preliminary Limitations

Public Policy Requirements – Comments?

- Any public policy driven needs that may not be covered by the Assessment process?

Assessment Status

- **Completed**
 - Requested load forecast from LDCs
 - Sent final load forecast back to LDCs
 - Process and assumptions meeting
- **Next Steps**
 - Needs comments - **due March 22**
 - Finalize needs - **end of March**
 - Preliminary solutions meeting/presentation – **May 3**
 - Finish sensitivity studies - **May**
 - Develop new or revised scope and cost estimates – **June**
 - Complete multiple outage study - **June**
 - Draft study write-up - **July**
 - ATC internal review/approval – **August**
 - 2018 Assessment publication - **September**

Questions?

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