2021 10-Year Assessment Preliminary Study Design

Stakeholder and Customer Webcast

PRESENTED BY

Chris Hagman, System Planning

October 29, 2020

AMERICAN TRANSMISSION COMPANY®

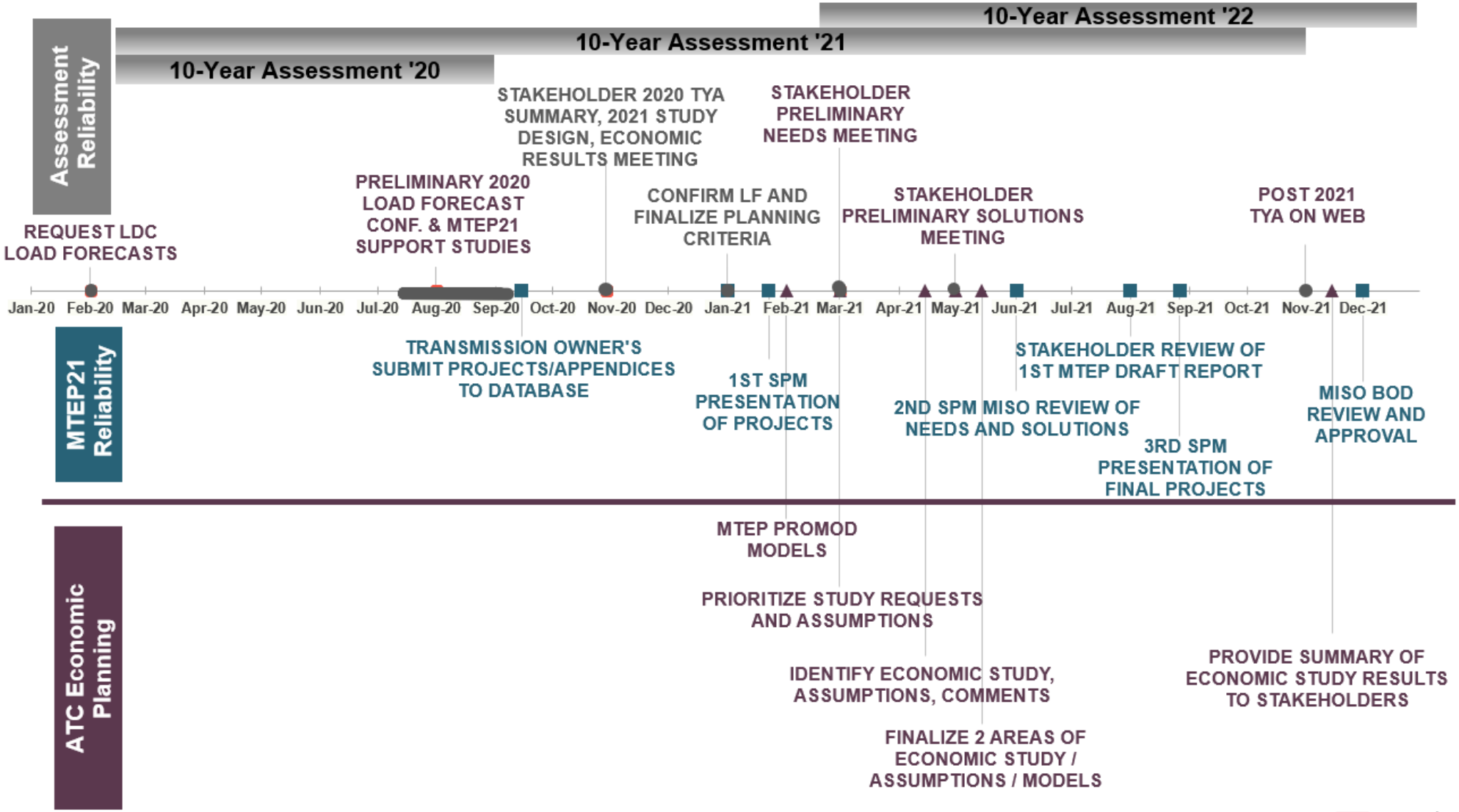
Purpose

- Summarize ATC's project development processes
- Solicit input for the 2021 Assessment Study Design
- Solicit input on any new Public Policy Requirements

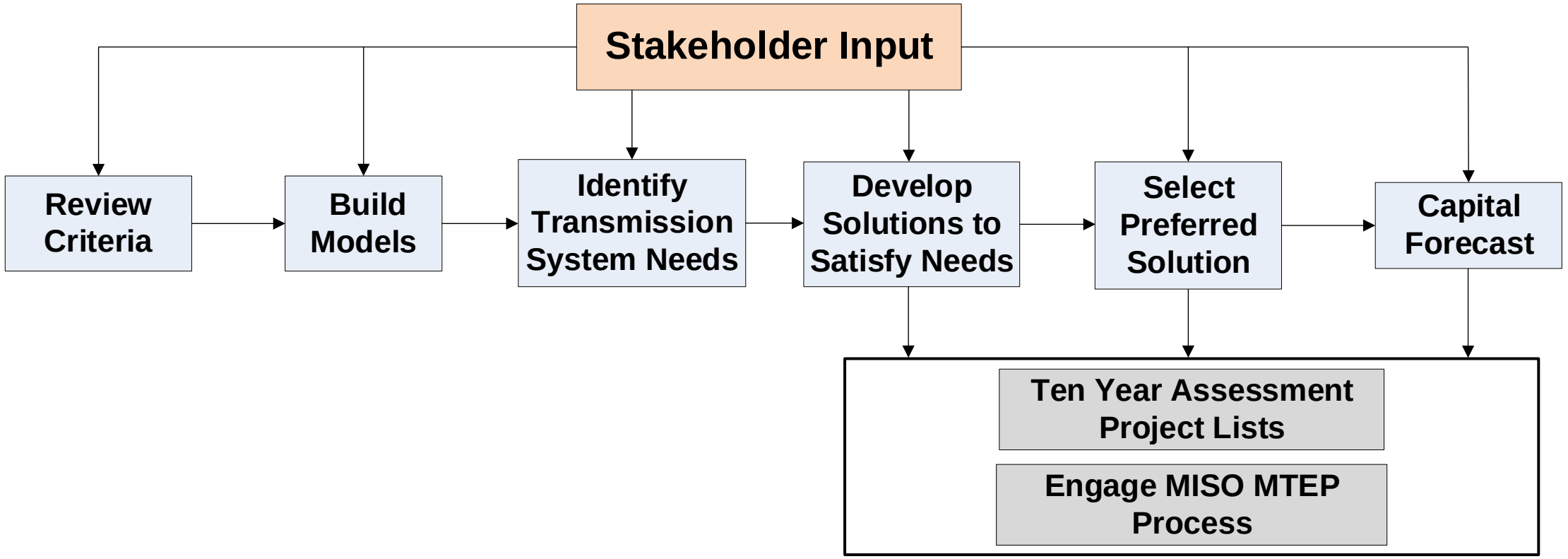
ATC's project development processes

- Local Transmission Planning
  - Asset Renewal
  - Interconnections
  - Network
    - Planning Reliability Criteria
    - Sectionalizing Guidelines
  - Economic Benefits
- Consider Other Solutions (Non-Transmission Alternatives)
- Regional Planning
- Public Policy Requirements

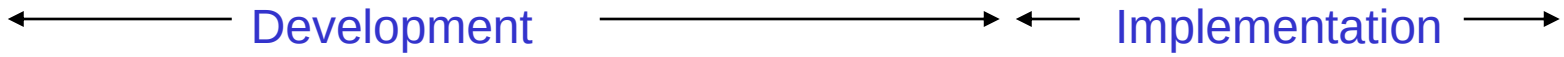
Timeline


10-Year Assessment '22
10-Year Assessment '21
10-Year Assessment '20
Assessment Reliability
STAKEHOLDER 2020 TYA SUMMARY, 2021 STUDY DESIGN, ECONOMIC RESULTS MEETING
STAKEHOLDER PRELIMINARY NEEDS MEETING
PRELIMINARY 2020 LOAD FORECAST CONF. & MTEP21 SUPPORT STUDIES
CONFIRM LF AND FINALIZE PLANNING CRITERIA
STAKEHOLDER PRELIMINARY SOLUTIONS MEETING
POST 2021 TYA ON WEB
REQUEST LDC LOAD FORECASTS
Jan-20 Feb-20 Mar-20 Apr-20 May-20 Jun-20 Jul-20 Aug-20 Sep-20 Oct-20 Nov-20 Dec-20 Jan-21 Feb-21 Mar-21 Apr-21 May-21 Jun-21 Jul-21 Aug-21 Sep-21 Oct-21 Nov-21 Dec-21
MTEP21 Reliability
TRANSMISSION OWNER'S SUBMIT PROJECTS/APPENDICES TO DATABASE
1ST SPM PRESENTATION OF PROJECTS
STAKEHOLDER REVIEW OF 1ST MTEP DRAFT REPORT
2ND SPM MISO REVIEW OF NEEDS AND SOLUTIONS
MISO BOD REVIEW AND APPROVAL
3RD SPM PRESENTATION OF FINAL PROJECTS
ATC Economic Planning
MTEP PROMOD MODELS
PRIORITIZE STUDY REQUESTS AND ASSUMPTIONS
IDENTIFY ECONOMIC STUDY, ASSUMPTIONS, COMMENTS
FINALIZE 2 AREAS OF ECONOMIC STUDY / ASSUMPTIONS / MODELS
PROVIDE SUMMARY OF ECONOMIC STUDY RESULTS TO STAKEHOLDERS

ATC project identification process



ATC project status definitions



Strategic

Provisional

Proposed

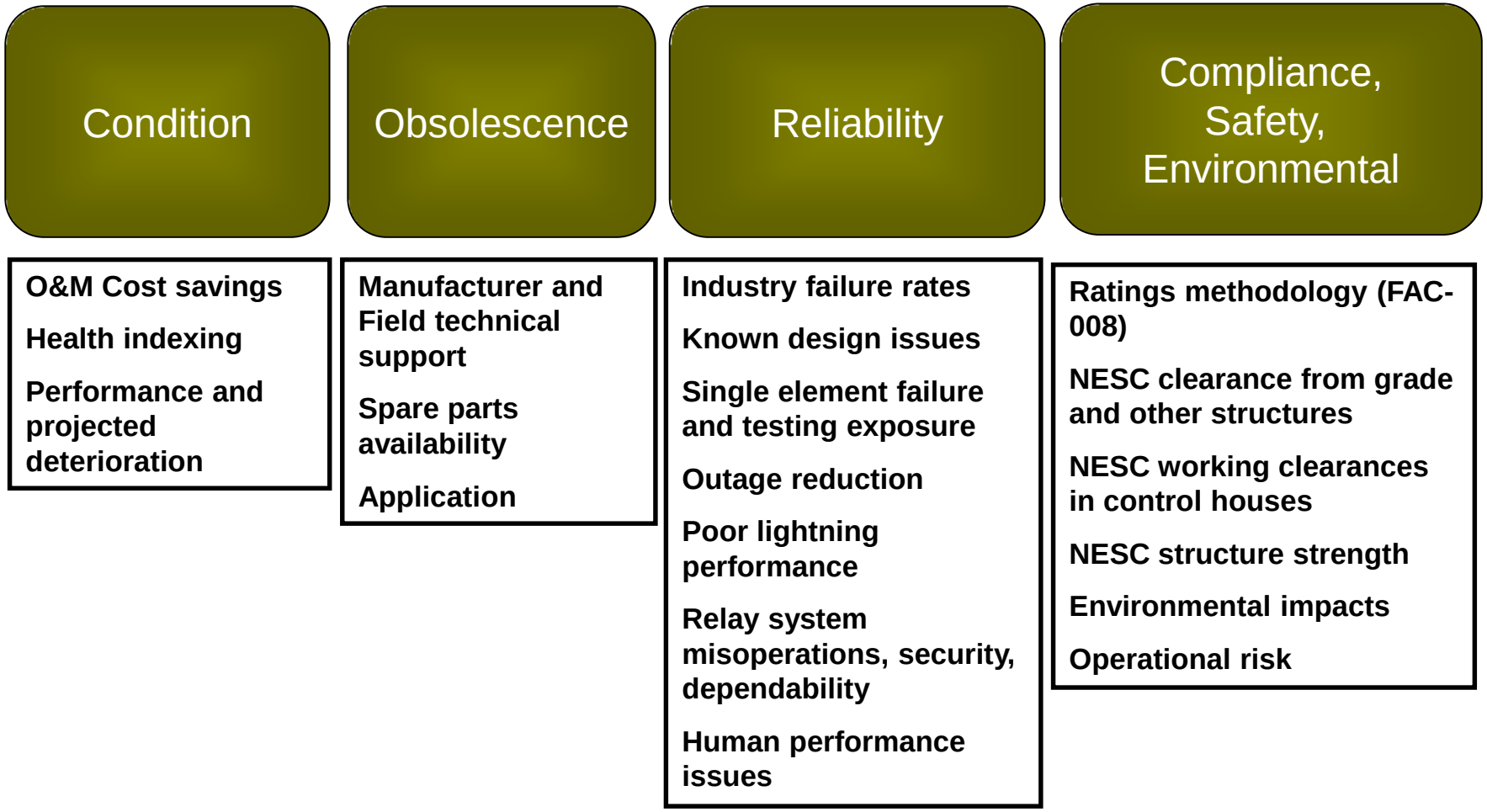
Planned

In-Service

Asset renewal program objectives

- Safety – Public and worker
- Minimize total life cycle cost
- Compliance
- Manage risk of aging infrastructure
- Reliability performance improvements
- Environmental performance improvements

Asset Renewal Program Criteria



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 performance criteria

Asset Renewal T-line Needs Example (past vs. project complete)

- Portage – Dam Heights 69kV Rebuild
  - Project Background
    - Approximately 25 of miles of rebuild
  - Past Needs
    - Condition and Performance Issues
    - Replace 1910's vintage lattice structures
    - Outages: One of the most frequently outage ATC lines
      - ✓ On average about 4 outages per year
      - ✓ Need to update to avian friendly design
      - ✓ Improved lightning performance
  - Current status
    - Project went in-service Fall of 2017
    - No outages since the new design went into service

Interconnections

- G-T
  - MISO Attachment X and Y Processes
- D-T
  - Collaborate with distribution providers through Load Interconnection Request Form (LIRF) and BVP process
- T-T
  - Collaborate with other Transmission Owners

Network planning objectives

- Compliance with North American Electric Reliability Corporation (NERC) regional and local criteria
- Best Value Planning (BVP) process
- Customer involvement
- Address Public Policy requirements
- Maintain or improve the adequacy and reliability of the electric transmission system

Planning Criteria

- NERC Standards, particularly TPL-001, version 4

- ATC Planning Criteria
  - Consists of criteria and assessment practices
  - http://www.atc10yearplan.com (About tab)
  - Current versions: Planning Criteria v20 & Planning Assessment Practices v20
  - No significant changes from previous versions

- Sectionalizing Guidelines
  - Developed with distribution providers early in ATC's history
  - http://www.atcllc.com/wp-content/uploads/2017/12/Load-Interconnection-Guide-Rev-7-121517-Pub.pdf (Sections 3.6.1-3.6.2)

2021 studies and assumptions

- Preliminary 2020 Load Forecast Confirmation and MTEP21 Support Studies
- Modeling Assumptions
  - Model Years
  - Load
  - Generation
  - No Load Loss Allowed Contingency Analysis
- Additional Studies

Preliminary load forecast and MTEP21 support studies

- Initial screening (reduced generator reactive capability)
  - Summer peak (5 and 10 year models)
  - 2020 load forecast
  - 2020 TYA outside world (2019 MMWG cases)

- To confirm 2020 Load Forecast and support MTEP21 database development
  - No load loss allowed contingencies
  - Completed August 2020

2021 TYA model years

- 2021 (As-planned)
- 2022
- 2026
- 2031

- All models will likely be completed by the Spring of 2021

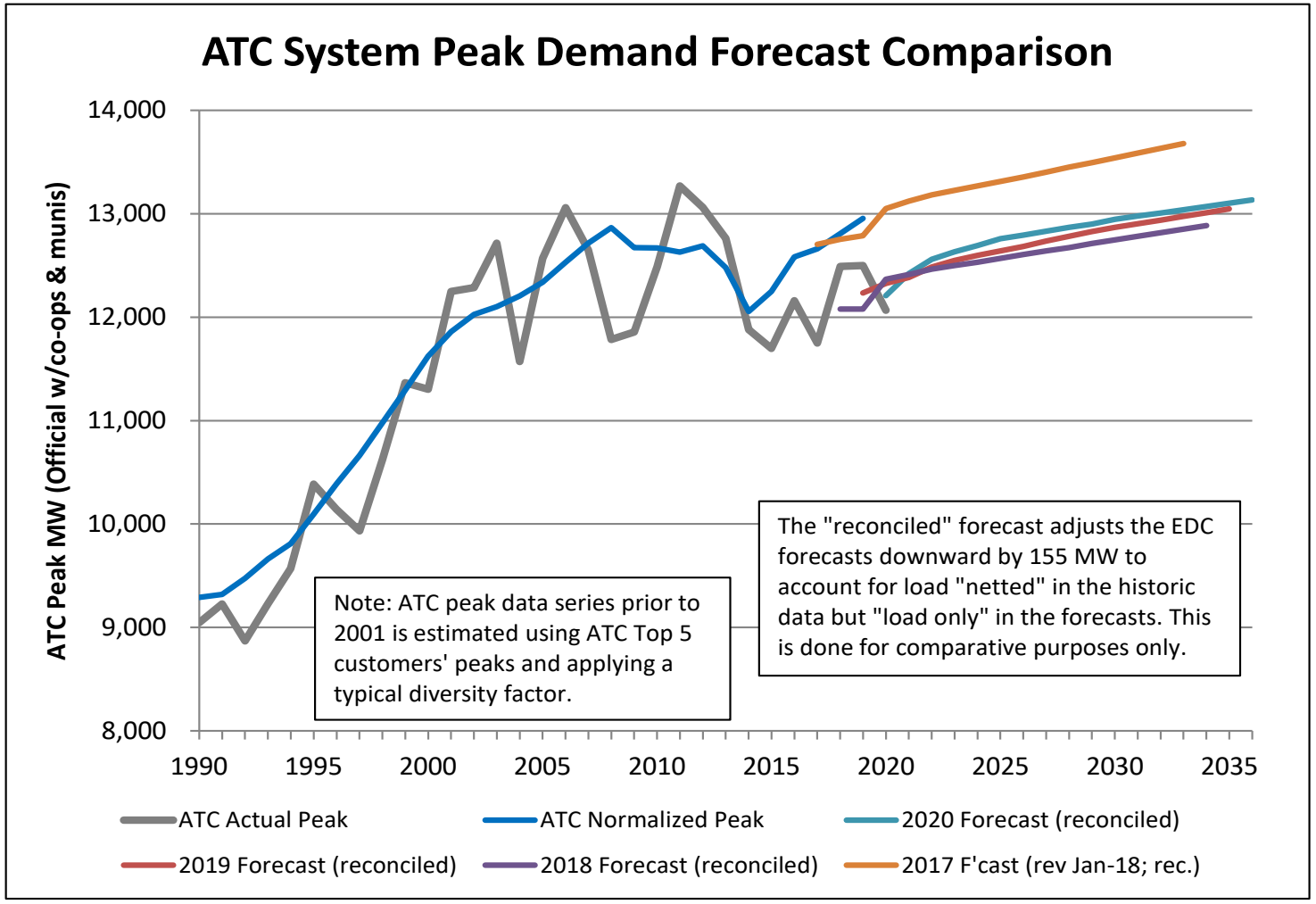
Load - Historical

- Requested September 29, 2020
  - ATC's 2020 summer peak hour
  - ATC's 2019-2020 winter peak hour
  - Light load
  - Shoulder load
- Due November 1, 2020 per D-T Interconnection Agreement (IA)
- Compile, review, and add to databases

Load – Expected forecast

- Requested LDC forecasts in February 2020
  - 11 years per D-T IA
  - Consistent with resource planning forecast
  - Expected (50/50 probability)
- Received in March and April 2020
- ATC compares forecasts to previous forecasts and historic data
  - Notable differences are confirmed with the LDCs and revised if needed
  - Finalized copy of forecast provided to LDCs in August 2020
  - Forecasts incorporated into the 2021 TYA to plan the system

Load forecast trends



ATC Load Forecast Growth by Zone
2021-2031 Annual Growth Rates

	Forecast Year			
Zone	2020	2019	2018	2017 R
Zone 1	0.4%	0.4%	0.4%	0.4%
Zone 2	0.4%	0.3%	0.3%	0.4%
Zone 3a	0.6%	0.7%	0.7%	0.6%
Zone 3b	0.4%	0.4%	0.6%	0.8%
Zone 4	0.3%	0.2%	0.2%	0.3%
Zone 5*	0.5%	0.4%	0.1%	0.1%
ATC Total	0.43%	0.41%	0.29%	0.34%

*Zone 5 influenced by Mt. Pleasant growth

The last three load forecasts have been very consistent in load levels and in growth rates

These load forecasts were mostly completed pre-pandemic

Load forecast trends, (*Continued)*

Model	ATC Load (MW)		
	2019 Assessment	2020 Assessment	2021 Assessment
Year 1 Summer Peak	12,600	12,600	12,700
Year 5 Summer Peak	+100	+200	+300
Year 10 Summer Peak	+200	+400	+400
Year 5 Shoulder	9,000	9,100	9,300
Year 10 Shoulder	+100	+100	+200

Generation modeling

- Existing generator data
  - Annual updates requested from Generator Owners (GOs) in Q3
- Generation additions
  - Only add generators with signed interconnection agreements (IAs)
  - Additions modeled at MISO Facility study location
- Generation retirements
  - Generators with a completed MISO Attachment Y are modeled as retired, unless there is a System Support Resource (SSR) agreement
- Under intact system and outage conditions
  - Generators are limited to:
    - 90% of maximum reactive power output and
    - 90% of maximum reactive power consumption

Generation dispatch

- Local Balancing Area (LBA) merit order dispatch:
  - Used in Assessment's summer peak and shoulder models.
  - Provided by LBAs
- ATC-wide merit order dispatch:
  - Used in minimum load models
  - ATC-wide merit order dispatch determined using PROMOD
- Generators without scheduled transactions:
  - If they have signed IAs, generator included in the host LBA.

No load loss allowed contingency analysis

- Peak
  - 1, 5, and 10 year out models
- Shoulder (firm)
  - 5 and 10 year out models
  - 70% load except for Zone 2 (90% load) and northern Zone 4 (80% load)
  - Shoulder rating methodology
- Minimum load
  - 1 and 5 year out model
  - 40% load, may be adjusted based on analysis of historical loads

Additional network planning studies

- Load Loss Allowed
- Existing Generator Stability Reviews
- Annual Fault Study
- Sensitivity Studies

Projects Flow from the TYA to MTEP

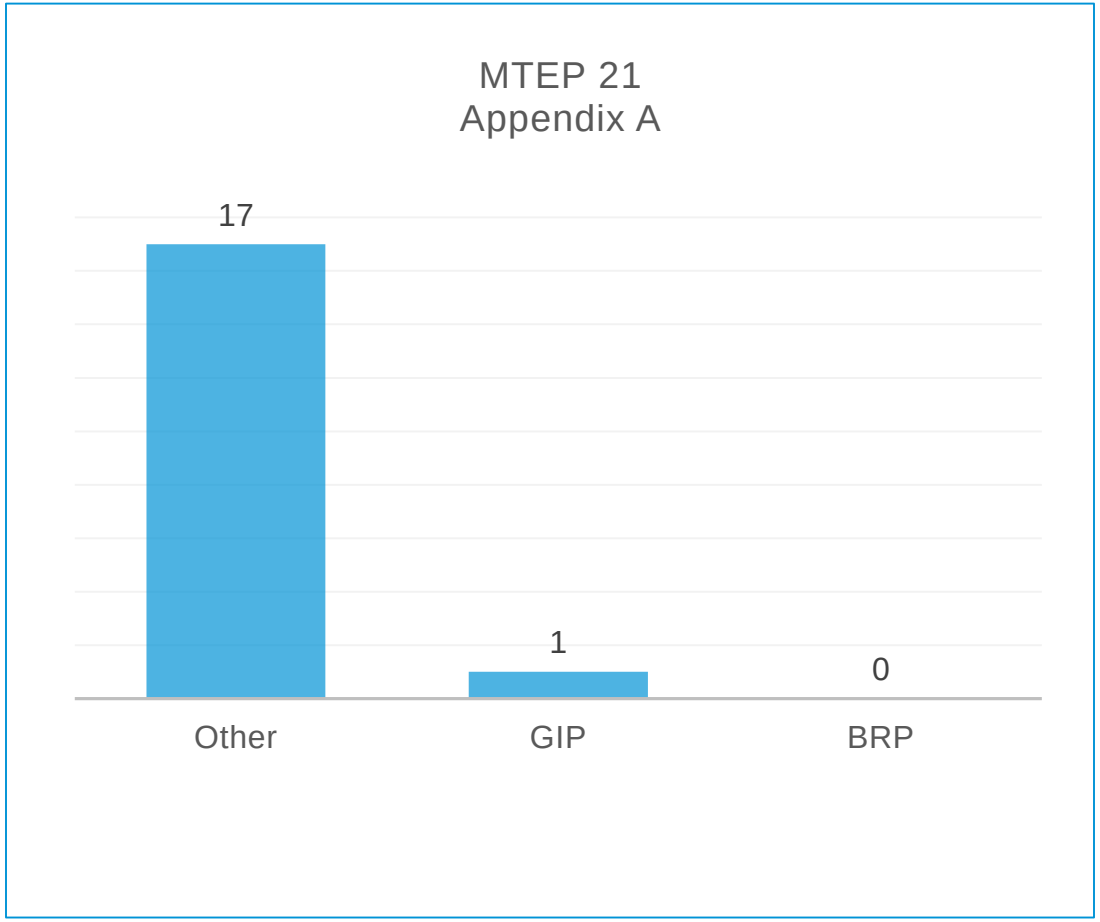
- Projects studied in TYA 2020 are included in the 2020 TYA Project List

- New TYA 2020 projects are submitted to MISO for review and approval in the subsequent MTEP cycle, i.e. in MTEP21

- MTEP21 Active Project List

MTEP21 Project Submittals

- Appendix A Projects
  - Count: 18
  - Total: $282,670,995
- New Appendix B Projects
  - Count: 6
  - Total: $147,819,095
  - +3 2024 “programs”, cost estimates being developed
- Remaining Appendix B Projects
  - Count: 15



Non-Transmission Alternatives (NTAs)

- ATC and MISO work together in the TYA and MTEP processes to provide Stakeholders an opportunity to provide NTA Feedback on Projects
- MISO will post a list of NTA eligible projects as part of their Subregional Planning Meeting (SPM) #1, in January of 2021.
  - MISO will accept stakeholder project alternatives through May 31, 2021.
  - Best candidates for NTA consideration are MTEP Appendix B and Target Appendix B projects.
  - Stakeholders should submit alternatives to MISO's MTEP SPM contact, who is Greg Plauck.

Regional planning

- MTEP
- MISO’s Coordinated Seasonal Assessments
- Reliability First’s (RF’s) Seasonal Assessments

Public policy requirements

- Follow MISO Tariff (Attachment FF) Processes
- Previously identified requirements
  - State Renewable Portfolio Standards (RPSs)
  - EPA regulations
  - State mandates and goals for energy efficiency (EE) and demand side management (DSM) programs
- Any public policy requirements not identified in ATC's or MISO's processes?

Schedule

- Expected Load Forecast – Review complete August 2020
- Preliminary MTEP21 Support Study – Done
- Post 2021 TYA Preliminary Study Design Presentation – Done
- Stakeholder Preliminary Study Design Meeting – October 29, 2020
- Stakeholder Study Design Comments Due – November 30, 2020
- Study Design Completion – December 2020
- Preliminary Needs Meeting – March 2021
- Preliminary Solutions Meeting – May 2021
- Document and Publish – October 2021

Thank you for participating

To provide solicited comments or for more information, please contact

Chris Hagman
chagman@atcllc.com

By November 30, 2020


ATC
AMERICAN TRANSMISSION COMPANY®