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2014 10-Year Assessment Preliminary Study Design

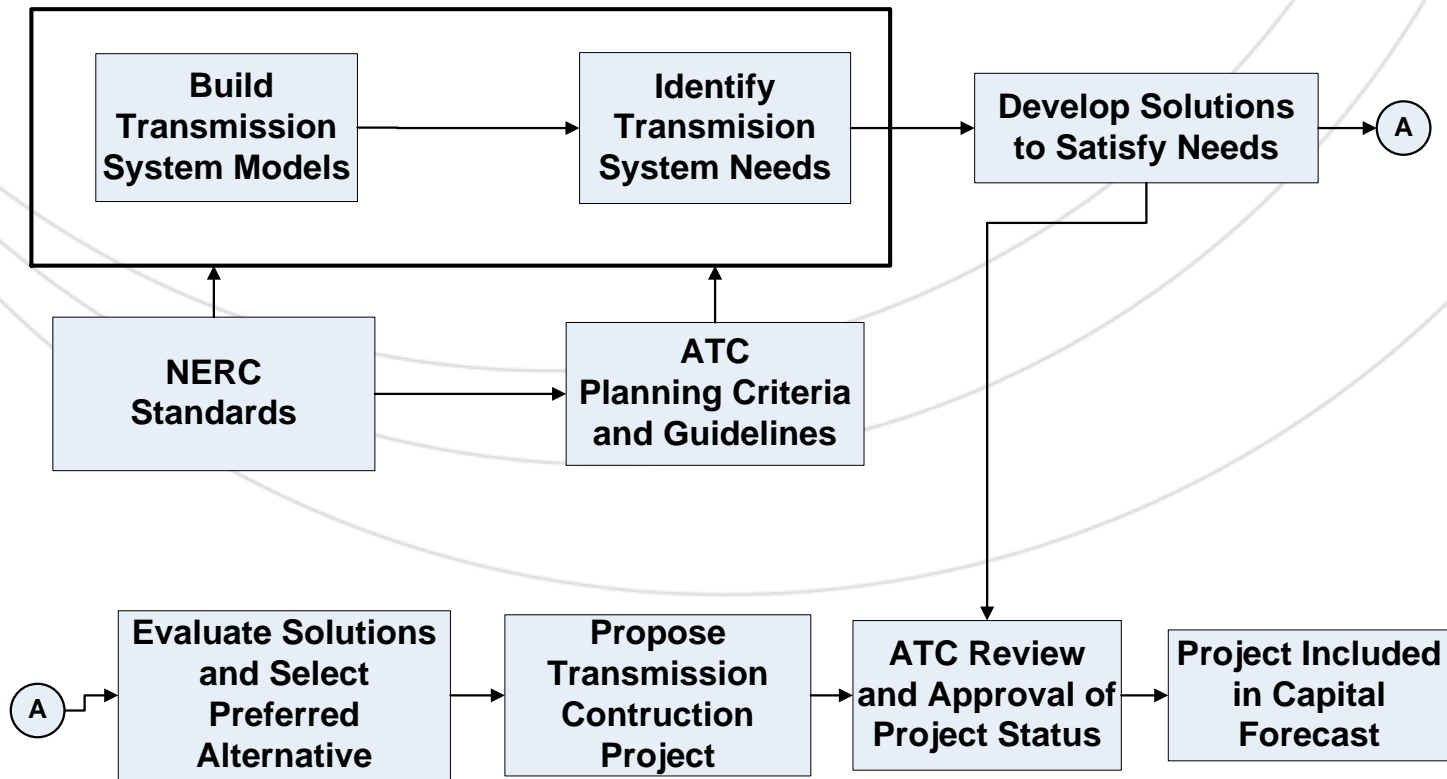
September 26, 2013

Stakeholder and Customer Webcast

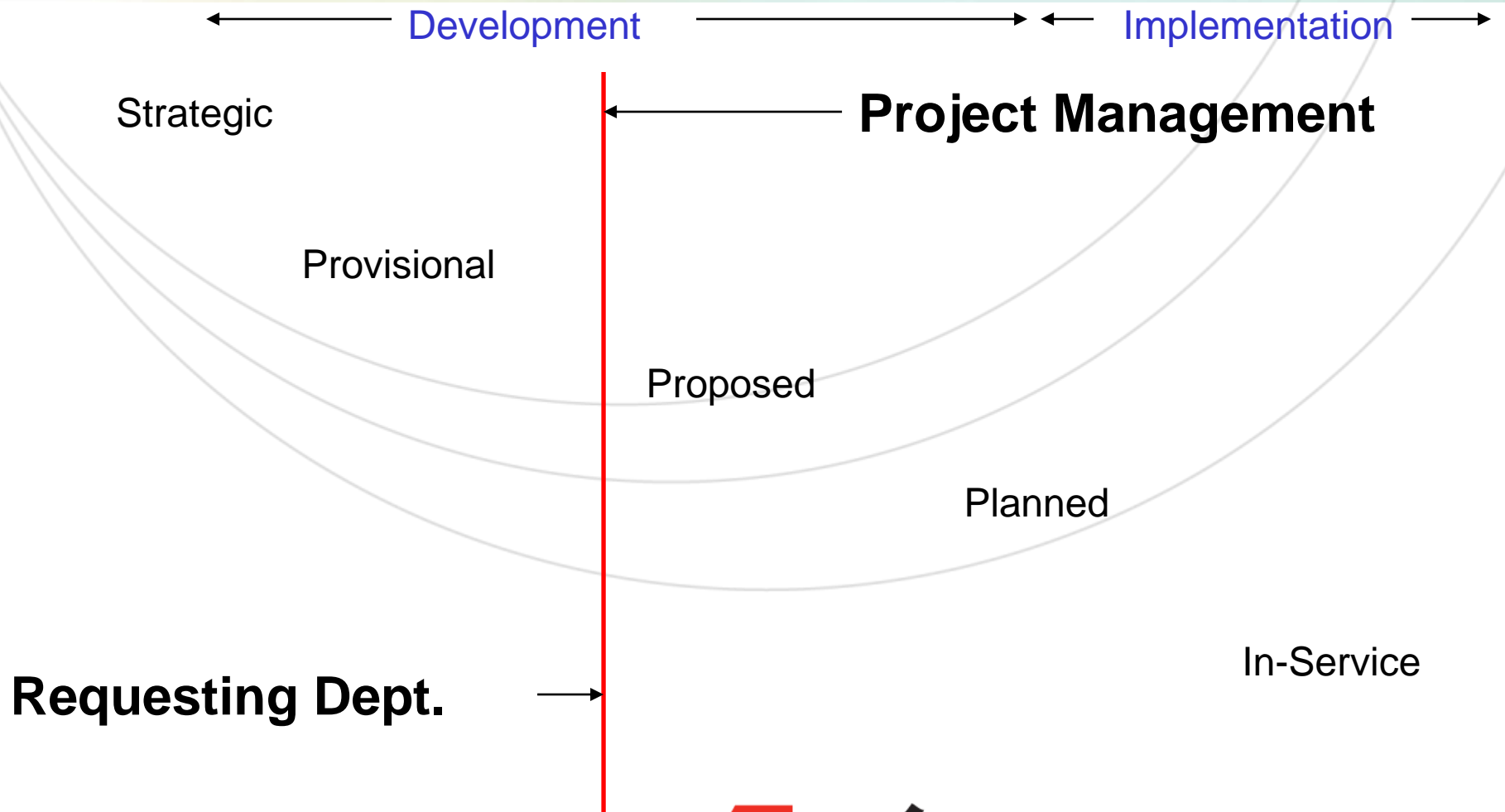
Purpose

- **Solicit pre-Study Comments**
 - 2014 Assessment Process
 - 2014 Assessment Assumptions
 - Public Policy Requirements
- **Reinforcement Guidelines Status Update**

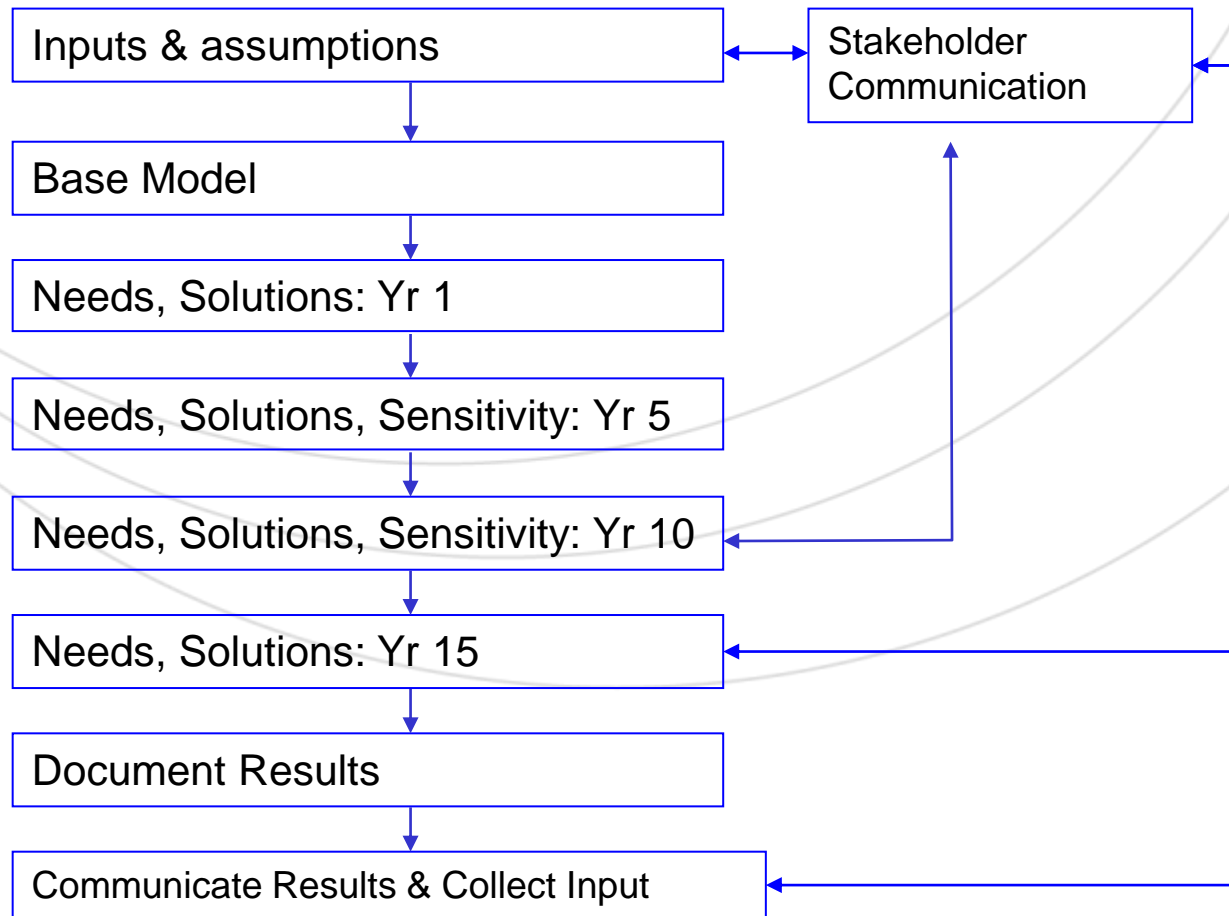
Transmission Planning Process



Project Status



Assessment Process



Planning Criteria & Methodology

- NERC Standards
- ATC Planning Criteria
<http://www.atc10yearplan.com>
- Solicit Improvement Ideas
- Enhancing to follow changing standards
- Reinforcement guidelines update – will not drive 2014 Assessment projects

Public Policy Requirements

- **Previously Identified Requirements (included in MTEP)**
 - State Renewable Portfolio Standard (RPS) Mandates
 - Anticipated Generation Retirements to meet EPA Regulations
 - State Mandates and Goals for Energy Efficiency (EE) and Demand Side Management (DSM) Programs
- **For Economic Benefits analysis, ATC also models Distributed Resources to represent Demand Response and Distributed Generation Technologies**
- **For 2014 Assessment**
 - Expected Load Forecasts
 - Appropriate Generation Queue
 - Appropriate Retirements
 - Sensitivities
 - Load
 - Bias flows
- **Other requirements in place?**

Model Years

- 2014 (As-Planned)
- 2015
- 2019
- 2024
- 2029

Load - Historical

- Request by October 1
 - summer peak
 - winter peak
 - light load
 - shoulder load
- Due by November 1
- Add to Databases

Load – Expected Forecast

- Requested LDC forecasts Feb 2013
 - 11 years
 - Consistent with Resource Planning forecast
- Received in April 2013
- ATC Compiles
 - Comparisons to previous forecasts
 - Differences confirmed with LDCs
 - Finalized copy to LDCs – August/September 2013

Generation Modeling

- **Generation Additions**
 - Only add generators with signed Interconnection Agreements
 - Additions modeled at MISO Facility study location
 - MISO queue Suspended Generators with signed IAs
 - included in after 18 months
- **Generation Retirements**
 - generators with a completed MISO Attachment Y are modeled as retired
- **Model Change Cut-off Date**

Generation Dispatch

- **Balancing Authority Merit Order Dispatch:**
 - Used for Assessment Summer Peak models. Balancing Authority Dispatch from merit order provided by BA
- **ATC-Wide Merit Order Dispatch:**
 - Shoulder and Minimum Load models
 - ATC-Wide Merit Order Dispatch determined with PROMOD
- **General Dispatch Notes:**
 - signed IA
 - but, no scheduled transactions
 - then generation included in the host Balancing Authority.

Reactive Power Resources

- **Intact System**

- 90% maximum generator reactive power output and minimum generator reactive power consumption capability
- Meet voltage criteria

- **Outage Conditions**

- 95% maximum generator reactive power output and minimum generator reactive power consumption capability
- Meet voltage criteria for outages

2014 General Assessment Studies

- 1st contingency Needs – 4 years
- Multiple Outage Screening
- Generation - Transmission studies
- Distribution - Transmission studies
- Economic benefits studies
- Regional Reliability
- Public Policy Benefits

Specific Assessment Studies

- **Expected (reduced generator reactive capability)**
 - Summer Peak (1, 5, 10, and 15 year out models)
 - Shoulder
 - 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 models
 - 40% load (to be confirmed)
- **Sensitivities**
 - Load Forecast - Higher Growth
 - at least 90/10 vs. 50/50
 - 10 year out model
 - Generation Dispatch
 - 5 and 10 year out models
 - West-to-East bias – 70% load (load and bias to be confirmed)
 - East-to-West bias – 90% load (load and bias to be confirmed)

Reinforcement Guidelines – Next Steps

- **Phase 1 (2013 Assessment): within Emergency Limits**
 - Needs compiled by end Q4 2012 **DONE**
 - Preliminary solutions developed for those needs > 300 MW potential load loss by end of Q1 2013 **DONE**
 - Cost Impact of potential solutions > 300 MW by Q2 2013 **DONE**
- **Phase 2 (2014 Assessment) within Normal Limits**
 - Incorporate single initiating events analysis
 - Assess additional Needs to stay within normal limits, Q4 2013
 - Preliminary solutions developed for needs exceeding 300 MW potential load loss end Q1 2014
 - No projects for 2014 Assessment
- **Phase 3 (2015 Assessment) Planning Criteria**
 - Assess need for Reinforcement Criteria or Guidelines and discuss with Stakeholders, Q3 2014
 - Implement appropriate actions

Schedule

- Expected Load Forecast – 2nd & 3rd Qtr 2013
- **Stakeholder Study Design Meeting – September 26, 2013**
- **Stakeholder Comments – October 11, 2013**
- Initial Study Design - 4th Qtr 2013
- Criteria and Methodology Update – 4th Qtr 2013
- Model Development – 4th Qtr 2013
- **Preliminary Needs – 1st Qtr 2014**
- **Preliminary Solutions – 2nd Qtr 2014**
- **Document and Publish – 3rd Qtr 2014**

ATC intends to share preliminary needs and solutions with Stakeholders in the quarters noted above

Thank you for Participating

**To provide solicited comments or
for more information, please
contact**

David Smith

Phone: 920-338-6537

Email: dsmith@atcllc.com

By October 11, 2013

