

2013 10-Year Assessment Preliminary Study Design

Customer/Stakeholder Webcast
September 20, 2012

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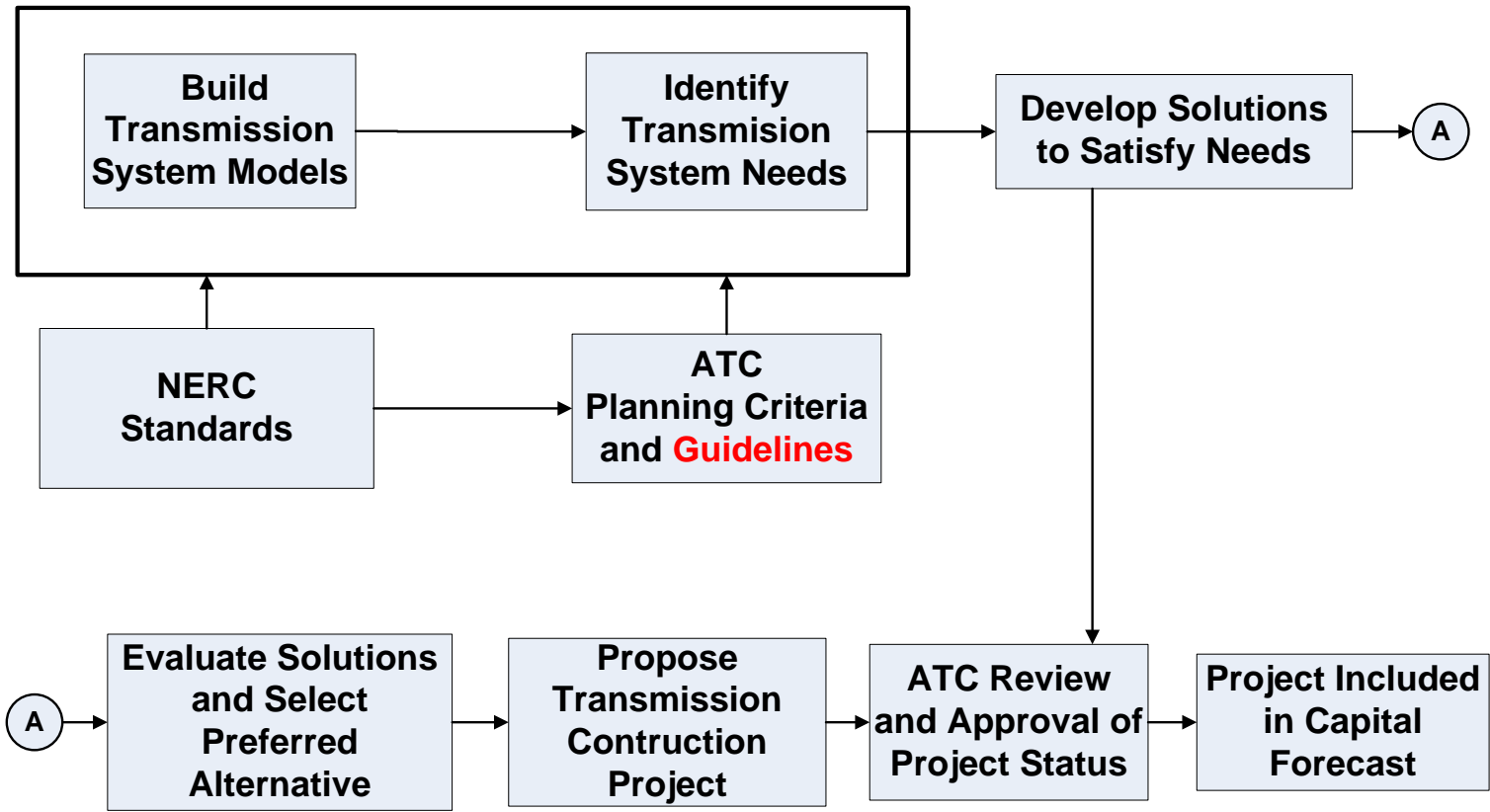




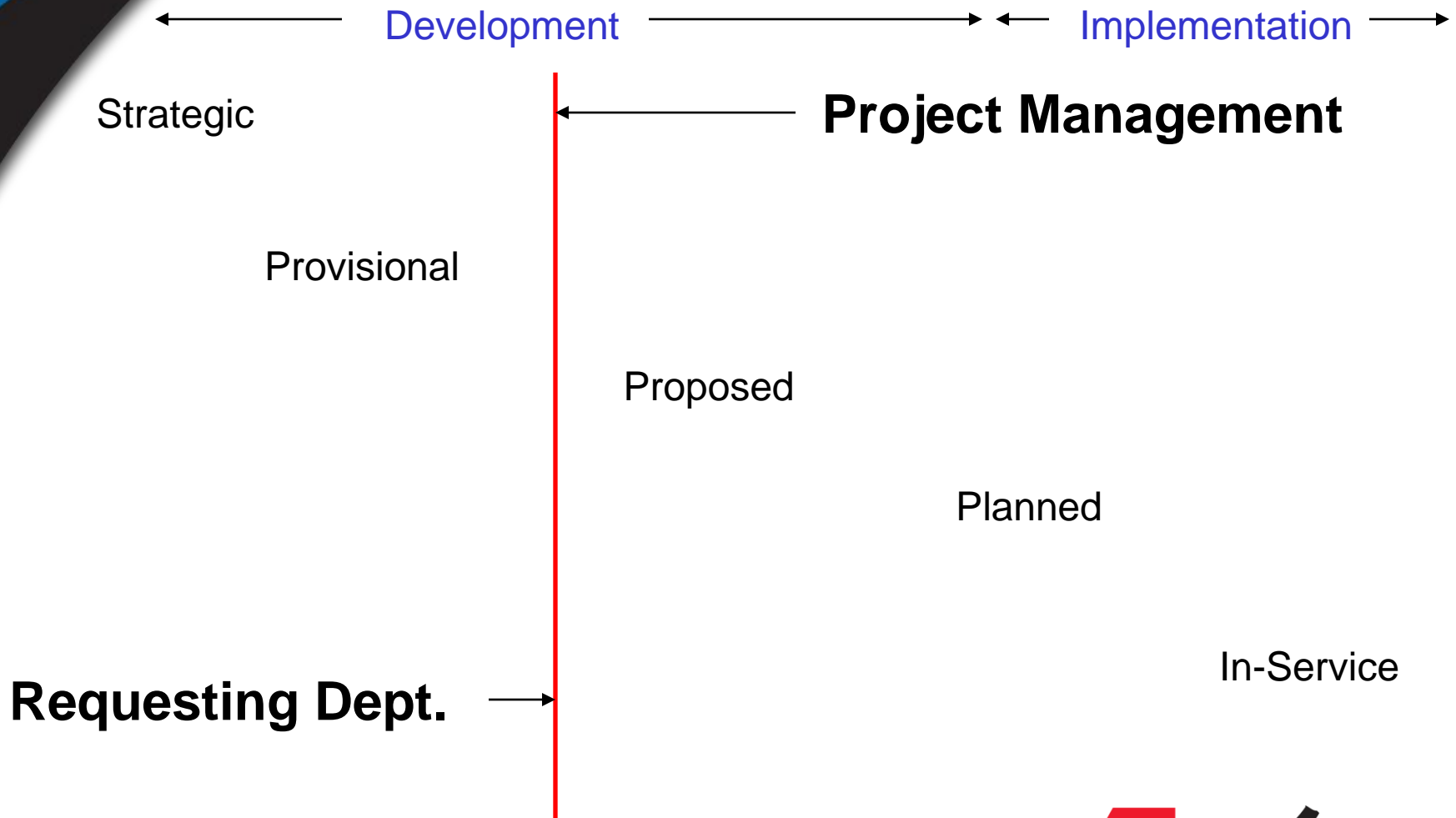
Purpose

- Solicit pre-Study Comments
 - 2013 Assessment Process – some changes
 - Planning Criteria/Guidelines
 - 2013 Assessment Assumptions
- FERC Orders 890 and 1000 Compliance

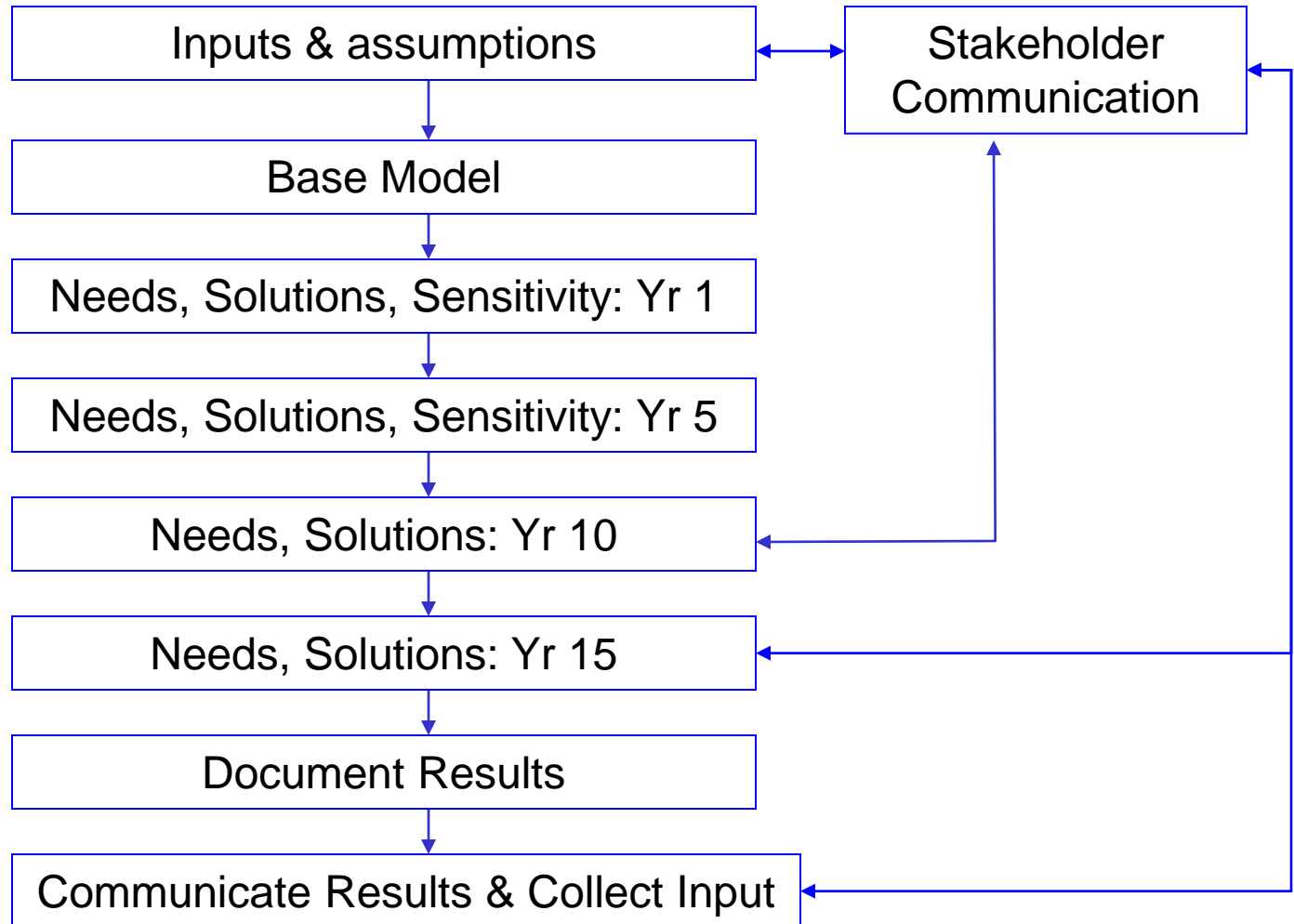
Transmission Planning Process



Project Status



Assessment Process



Needs Analysis
– will include much more emphasis on multiple contingencies through year 10



Planning Criteria & Methodology

- NERC Standards
- ATC Planning Criteria
<http://www.atc10yearplan.com>
Planning Factors
- Solicit Improvement Ideas
- Enhancing to follow changing standards
- **Reinforcement guidelines**

Reinforcement Guidelines

- Traditional reinforcements based mostly on single contingency need drivers and generator instability
- NERC standards also require consideration of
 - Multiple system conditions and load levels
 - For select multiple contingencies
 - No instability
 - No cascading
 - No unreasonable load shed (ATC interpretation)
- FERC has supported providing the ability to do maintenance at appropriate load levels under NERC Standards contingencies
- ATC wants to be open with stakeholders about guidelines we use to determine when a reinforcement is appropriate versus other mitigation.
- 2013 - Screening for impacts and potential projects, not committed

Reinforcement Guidelines

- NERC Standards based
- Category B
 - Peak → reinforcement (traditional)
 - Select Sensitivities → potential project, if no economic mitigation
 - Prior maintenance → potential project, if no maintenance window
- Category C Improvement Ideas (see next slide)
 - Prior maintenance outages: find impacts and potential projects if maintenance windows don't exist



Reinforcement Guidelines Category C

- Assess Maintenance windows
- Some parameters need to be defined
 - Instability
 - Cascading
 - Unreasonable planned load shed in studies



Reinforcement Guidelines Category C

- **Instability** - generator instability or voltage collapse
 - Bulk Electric System (BES) contingencies: **find impacts, potential projects**
 - Non-BES contingencies: > 100 MW lost or shed, **find impacts, potential projects**

Reinforcement Guidelines – Cat C

- **Cascading**

- ATC’s interpretation of NERC cascading
- More than 3 BES lines trip beyond the initial contingency
- C3 shed: > 100MW to get below emergency prior to 2nd, **find impacts, potential projects**
- C3 or non-C3 shed: > 300MW to get below normal, **find impacts, potential projects**
- Tripping thresholds (planning assumptions)
 - Lines: Loaded above Thermal Transient Limit (TTL, ATC conductor screening levels)
 - 345/230 kV: 110% of SE
 - 161/138/115 KV: 105% of SE
 - 69 kV: 100% of SE
 - Transformers: loading > 30 minute emergency rating
 - Load: voltage < 80%
 - Generation: voltage < 90%



Reinforcement Guidelines – Cat C

- **Unreasonable planned load shed** in studies
 - No instability or cascading, BES and non-BES
 - C3 shed > 100MW to get below emergency prior to 2nd, **find impacts, potential projects**
 - C3 or non-C3 shed > 300MW to get below normal, **find impacts, potential projects**

Model Years

- 2013 (As-Planned)
- 2014
- 2018
- 2023
- 2028

Load - Historical

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

Load – Expected Forecast

- Requested LDC forecasts Feb 2012
 - 11 years
 - Consistent with Resource Planning forecast
- Received in April 2012
- ATC Compiles
 - Comparisons to previous forecasts
 - Differences confirmed with LDCs
 - Finalized copy to LDCs – August 2012



Generation Model

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

Local Balancing Authority Merit Order Dispatch:

- Used for Assessment Summer Peak models. LBA Dispatch from merit order provided by LBA

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% max VAr capability
- Meet intact voltage criteria.

Outage Conditions

- 95% max VAr capability (min as well)
- Meet voltage criteria for outages

Sensitivities

- Load Forecast
 - 5th and 10th years
- Generation Dispatch
 - West-to-East – 70% load
 - East-to-West – 90% load
- Reduced Generation Capacity (or supplement MISO studies)
- Minimum Load
- Not all drive reinforcements




2013 Assessment Studies

- 1st contingency Needs – 4 years
- More focus on multiple outage screening
- Generation -Transmission studies
- Distribution -Transmission studies
- Economic benefits studies
- Regional Reliability
- Public Policy Benefits

Schedule

- Expected Load Forecast – 2nd & 3rd Qtr 2012
- **Stakeholder Study Meeting** – 3rd Qtr 2012
- **Stakeholder Comments** – 3rd Qtr 2012
- Initial Study Design - 3rd Qtr 2012
- Criteria and Methodology Update – 3rd Qtr 2012
- Model Development – 3rd Qtr 2012
- **Preliminary Needs** – 1st Qtr 2013
- **Preliminary Solutions** – 2nd Qtr 2013
- **Document and Publish** – 3rd Qtr 2013

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



To Provide Solicited Comments or for More Information

Contact David Smith at dsmith@atcllc.com
Or call at 920-338-6537

By September 30, 2012



Thanks for Participating!