



2009 10-Year Assessment

Initial Stakeholder Meeting

October 16, 2008

Pewaukee MRA Building



CDAA

This presentation has been posted on the OASIS. It does not contain any market sensitive or critical infrastructure information.



Agenda

- Meeting Purpose
- Incorporating Futures
- Break
- Traditional Assessment Assumptions
- Lunch
- Wrap-up



Meeting Purpose

- Provide Information
- Solicit comments
- Enhance Traditional Assessment
- Enhance Compliance with FERC Order 890



FERC 890 Principles

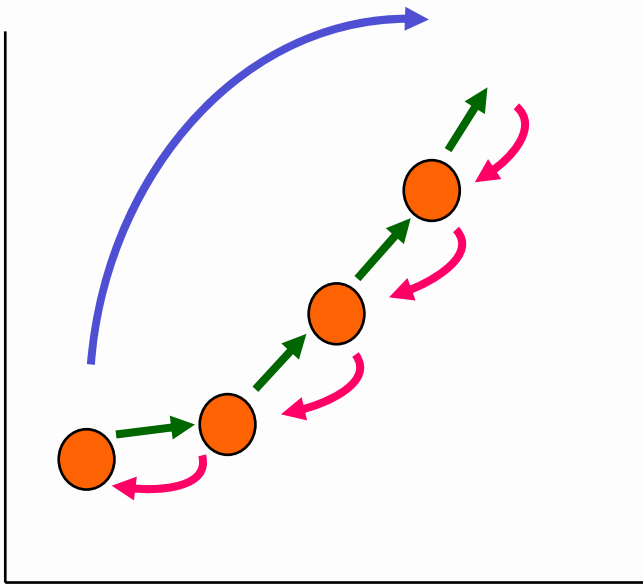
- Coordination
- Openness
- Transparency
- Information Exchange
- Comparability
- Economic Studies

Why Futures?

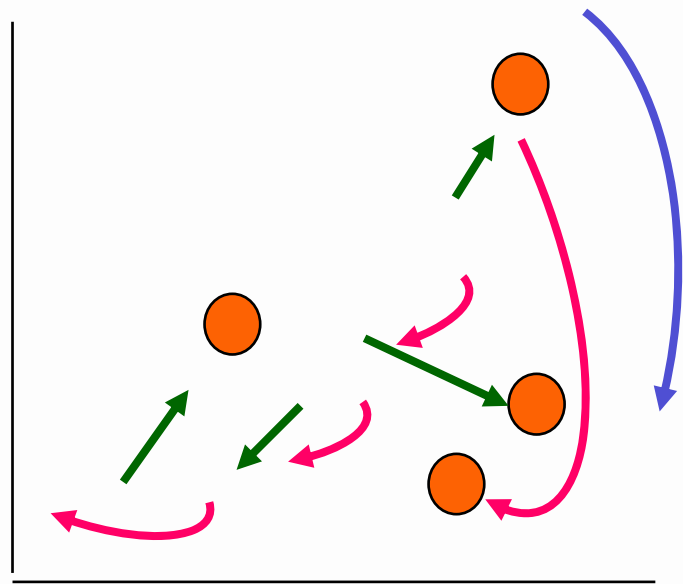
- Need/Solution Sensitivity
- Needs/Solutions Missed in Traditional Process
- Provide More Project Development Information



Traditional Planning Process



Traditional strategic planning depends on linkages between actions and outcomes



Unexpected events undermine the best strategic plan by corrupting assumed connections

How to Incorporate Futures

- Traditional Planning Process
 - ATC project planning
 - 10-Year Assessment
- Enhanced Assessment Process



Public Planning

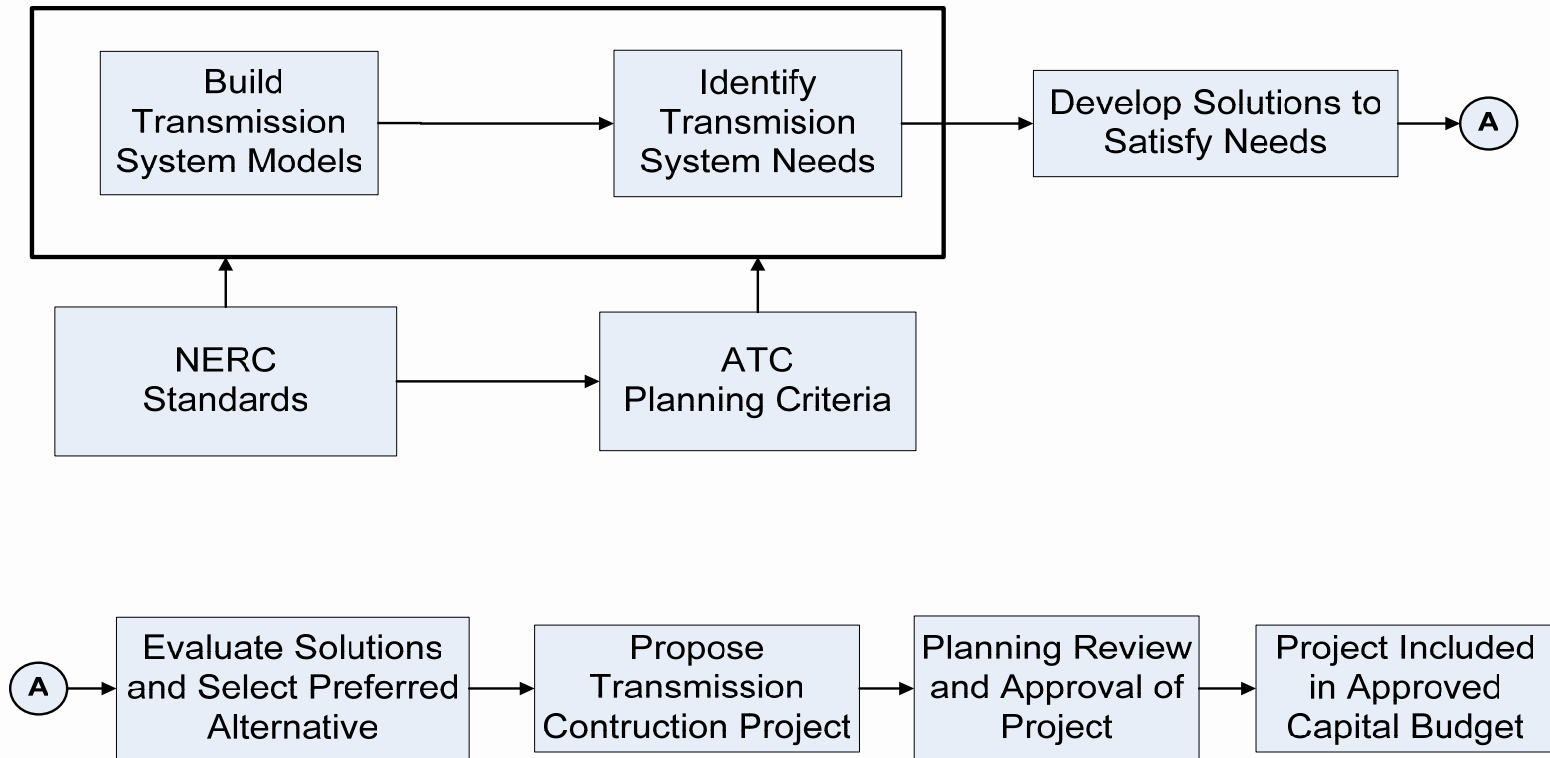
- Multi-Level Planning
- Prioritizing, Budgeting
- Project Design and Licensing
- Construction Planning



Public Planning (cont'd)

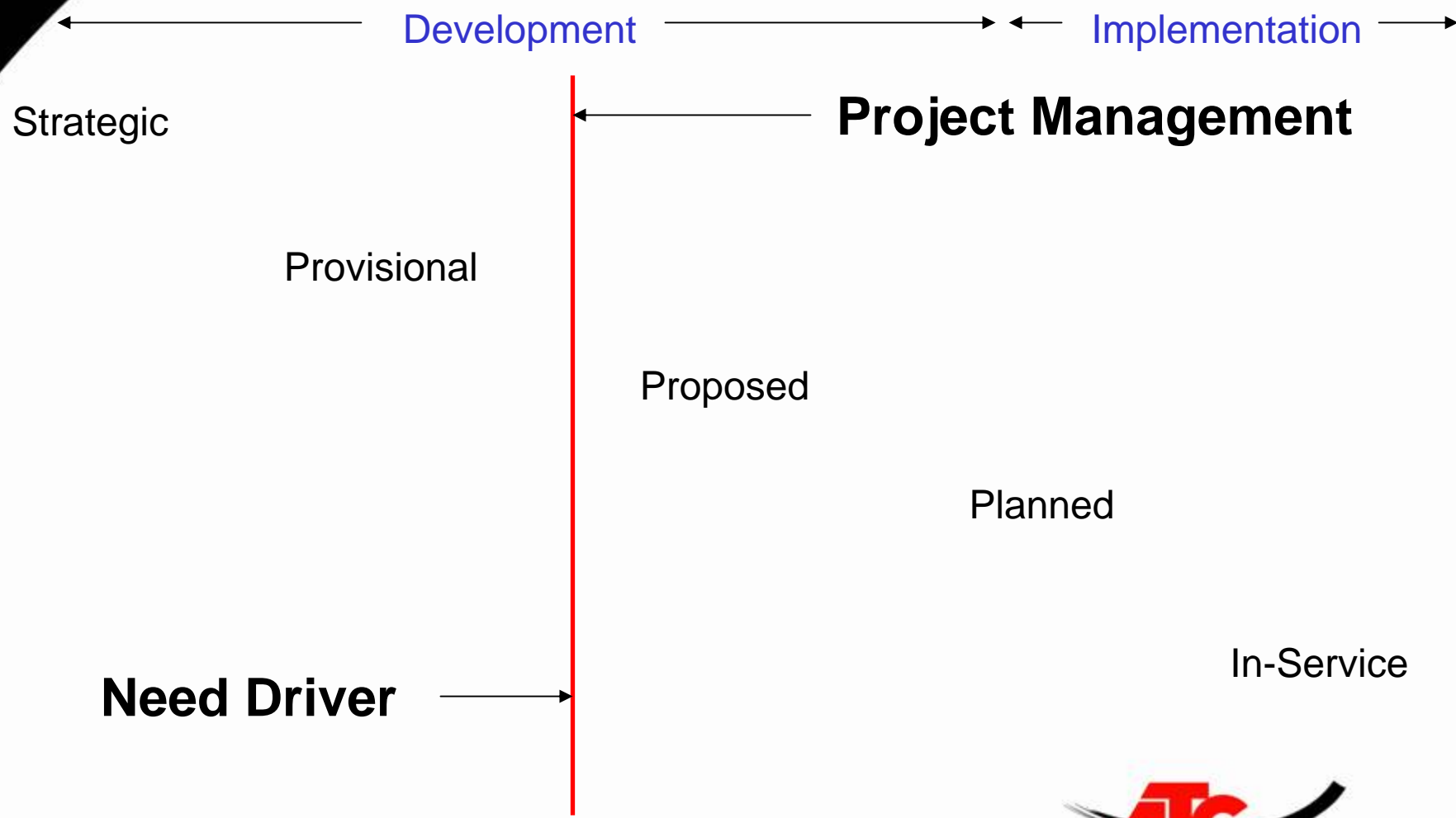
- Need Drivers
- 10-Year Assessment
- Stakeholder Input/Meetings
- Project Development
- Project Siting Activities
- Regulatory filings
- Project Construction

Transmission Planning Process

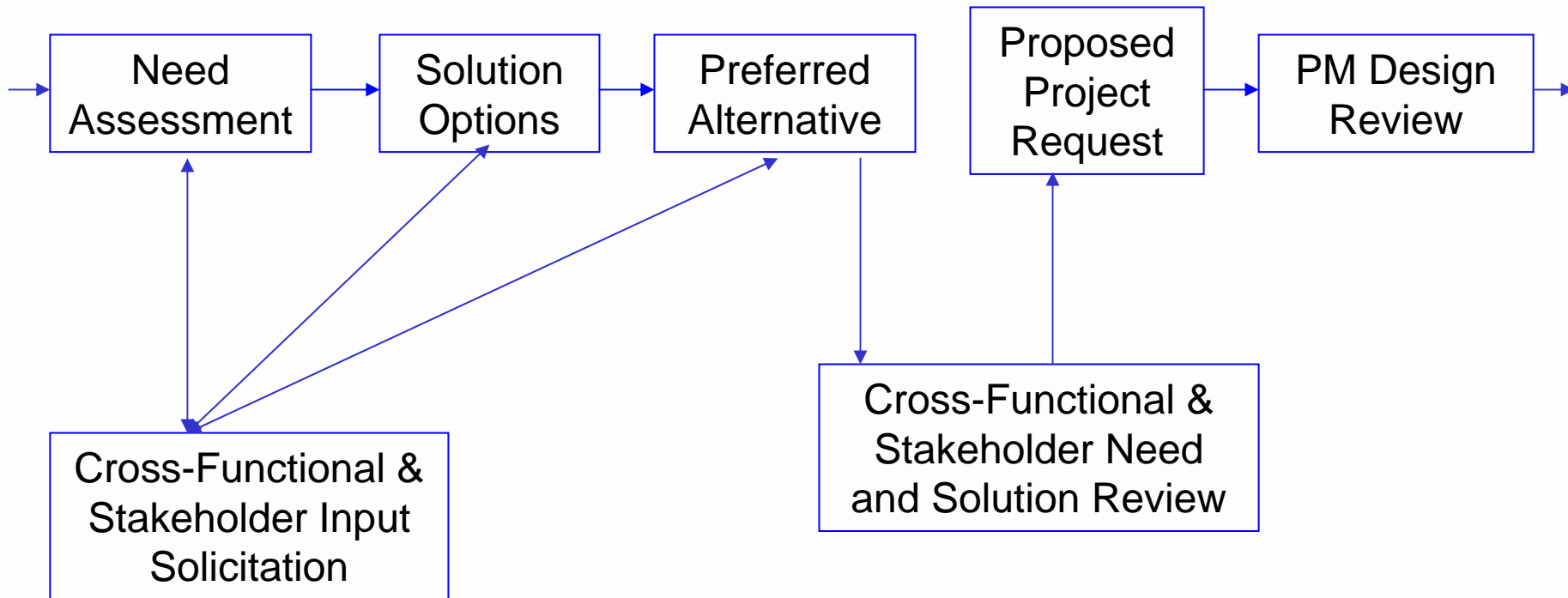




Public Planning and Asset Delivery



Desired Project Process

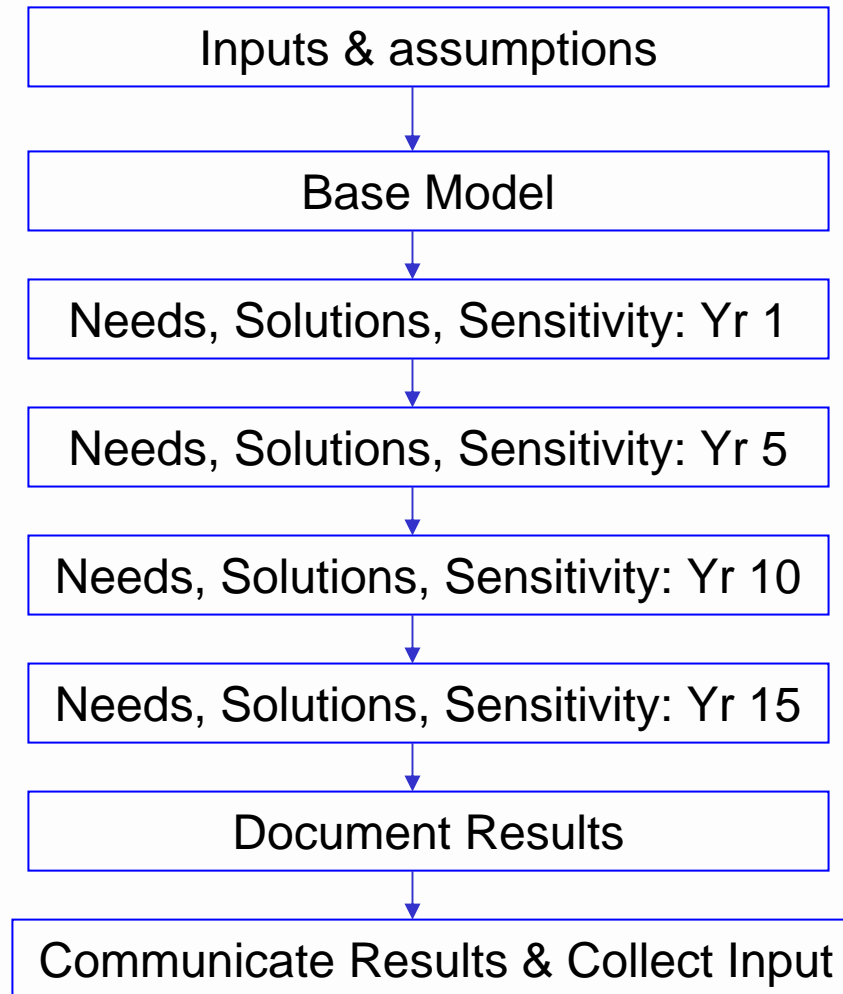




Traditional Assessment Purpose

- Assess System Performance
- Engage Stakeholders
 - Planning Process Transparency
 - Need Identification
 - Solution Development
- Vehicle for Stakeholder Dialogue

Traditional Assessment

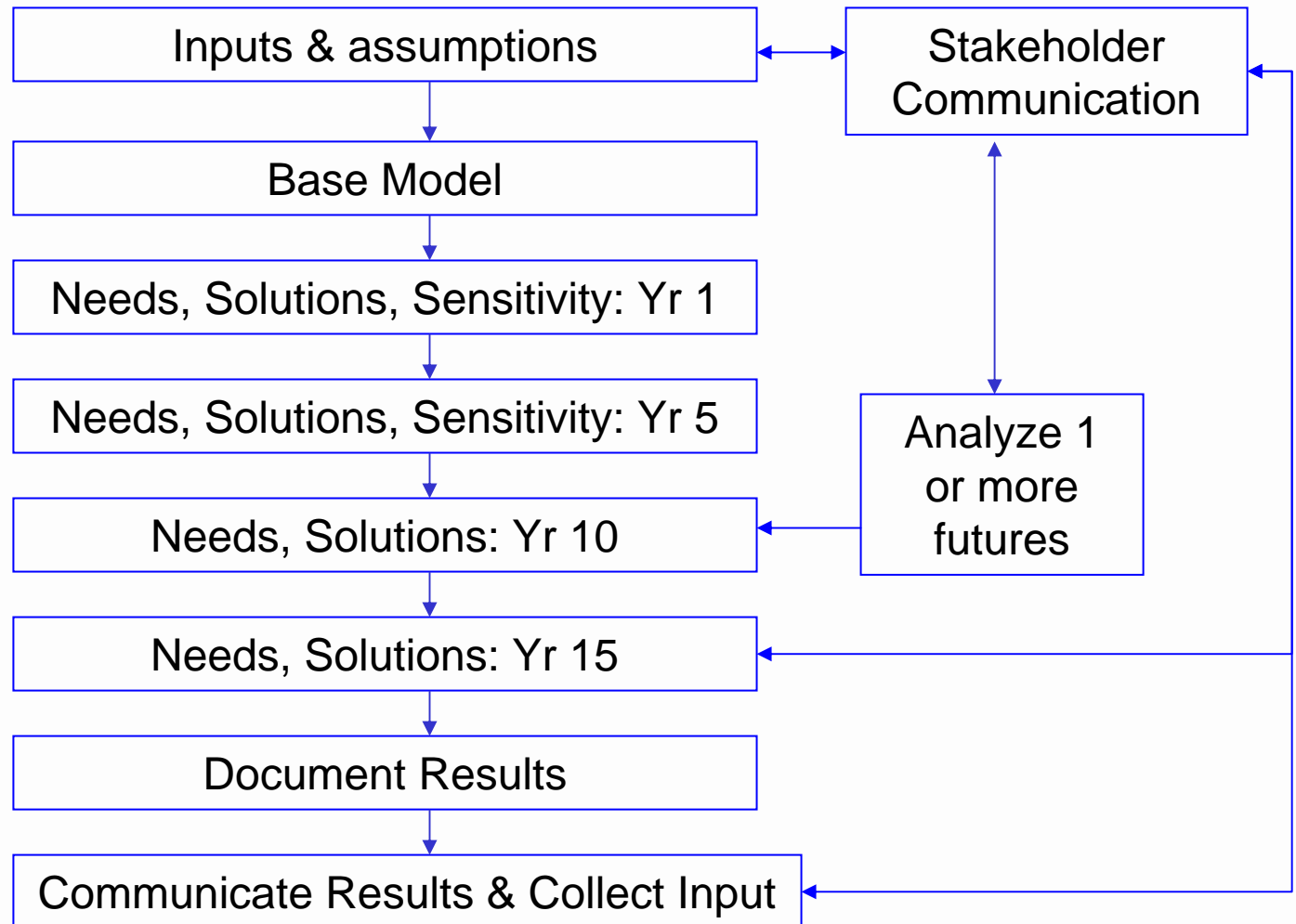




Enhanced Assessment

- More Stakeholder Communication
- One or more futures
- One of the four study years
- May replace some sensitivities

Enhanced Assessment





Futures Descriptions

Robust Economy

Peak Growth Inside ATC	3% (Upper)
Energy Growth Inside ATC	3% (Upper)
Peak Growth Outside ATC	3% (Upper)
Energy Growth Outside ATC	3% (Upper)
Generation Inside ATC	Upper (see notes)
Generation Outside ATC	MISO's Reference
RPS % Inside ATC	Mid (8% in 2013)
Renewable Source for ATC	Mid
General Environ Regs	Low
Natural Gas Prices	Mid-Upper (+25%)
Coal Prices	Upper (20%)

- ATC energy and peak demand grow at a fast rate
- More generation than in MISO futures
- Added Nelson Dewey, a new 280 MW coal-fired generator under PSC review
- There are no generation retirements within the ATC footprint, other than those that have been announced
- The percent of energy in ATC from renewables in 2018 and 2024 is 15%
- higher demand and costs for natural gas.

High Retirements

Peak Growth Inside ATC	1.5% (Mid)
Energy Growth Inside ATC	1.5% (Mid)
Peak Growth Outside ATC	1.5% (Mid)
Energy Growth Outside ATC	1.5% (Mid)
Generation Inside ATC	Lower (see notes)
Generation Outside ATC	MISO's Environmental
RPS % Inside ATC	Mid (8% in 2013)
Renewable Source for ATC	Mid
General Environ Regs	Mid
Natural Gas Prices	Mid-Low (-20%)
Coal Prices	Mid

- ATC energy and peak demand grow at a rate similar to that over the past five years.
- Smaller, aging coal-fired units within the ATC footprint retired for economic reasons
- Add Nelson Dewey, a new 280 MW coal-fired generator under PSC review
- energy in ATC from renewables in 2018 and 2024 is 15%
- Additional wind power could help replace the loss generation due to the retirements
- natural gas costs reduced from historically high levels.

High Environmental

Peak Growth Inside ATC	Lower-Mid
Energy Growth Inside ATC	Lower-Mid
Peak Growth Outside ATC	Lower-Mid
Energy Growth Outside ATC	Lower-Mid
Generation Inside ATC	Lower
Generation Outside ATC	MISO's Environmental
RPS % Inside ATC	10% and 20%
Renewable Source for ATC	Mid
General Environ Regs	Upper
Natural Gas Prices	Upper (50%)
Coal Prices	Lower (-10%)

- ATC load growth and energy growth below 5-year average
- smaller, aging and less efficient coal-fired units retired within the ATC footprint
- energy in ATC from renewables is higher than required by current Wisconsin RPS standards
Additional wind power could help replace retired coal fired units
- greater use of natural gas, increasing pressure on cost
- less use of coal, decreasing pressure cost

Slow Growth

Peak Growth Inside ATC	Lower (0.5%)
Energy Growth Inside ATC	Lower (0.5%)
Peak Growth Outside ATC	Lower (0.5%)
Energy Growth Outside ATC	Lower (0.5%)
Generation Inside ATC	Mid
Generation Outside ATC	MISO's Reference
RPS % Inside ATC	Lower
Renewable Source for ATC	Lower
General Environ Regs	Low
Natural Gas Prices	Lower (-40%)
Coal Prices	Mid

- ATC energy and peak demand grow at a slow rate
- Smaller, aging coal-fired units within the ATC footprint retired for economic reasons
- Added Nelson Dewey, a new 280 MW coal-fired generator under PSC review
- New plant capacities are scaled down on new units
- percent of energy in ATC from renewables meets the current Wisconsin RPS standards
- lower demand and costs for natural gas
- coal to maintain "mid" level cost projections



DOE 20% Wind

Peak Growth Inside ATC	Mid-Upper 2%
Energy Growth Inside ATC	Mid-Upper 2%
Peak Growth Outside ATC	Mid-Upper 2%
Energy Growth Outside ATC	Mid-Upper 2%
Generation Inside ATC	Lower
Generation Outside ATC	MISO's 20% Wind
RPS % Inside ATC	Upper
Renewable Source for ATC	Mid
General Environ Regs	Mid
Natural Gas Prices	Mid
Coal Prices	Lower (-10%)

- ATC energy and peak demand grow at a somewhat faster rate
- smaller, aging coal-fired units within the ATC footprint retired for economic reasons
- Substantial wind power could help replace the retired smaller and aging coal-fired units.
- percent of energy in ATC from renewables is higher than required by current Wisconsin RPS standards
- percent of energy outside ATC from renewables is 20%.
- natural gas “mid” level costs
- reduced demand for and cost of coal.

Fuel & Investment Limitations

Peak Growth Inside ATC	Lower-Mid-1.3%
Energy Growth Inside ATC	Lower-Mid-1.3%
Peak Growth Outside ATC	Lower-Mid-1.3%
Energy Growth Outside ATC	Lower-Mid-1.3%
Generation Inside ATC	Mid
Generation Outside ATC	MISO's Investment Limitation
RPS % Inside ATC	Mid (8% in 2013)
Renewable Source for ATC	Mid
General Environ Regs	Mid
Natural Gas Prices	Mid-Upper (+25%)
Coal Prices	Mid

- more conservation with somewhat lower demand and energy growth rates.
- Smaller, aging coal-fired units within the ATC footprint retired for economic reasons
- Added Nelson Dewey, a new 280 MW coal-fired generator under PSC review
- percent energy in ATC from renewables is higher than required by current Wisconsin RPS standards
- natural gas somewhat higher cost

Traditional Assessment

Peak Growth Inside ATC	1.7% (mid)
Energy Growth Inside ATC	N/A
Peak Growth Outside ATC	NERC Models
Energy Growth Outside ATC	N/A
Generation Inside ATC	Mid
Generation Outside ATC	NERC Models
RPS % Inside ATC	Mid
Renewable Source for ATC	Mid
General Environ Regs	Mid
Natural Gas Prices	Mid
Coal Prices	Mid

- ATC footprint peak demand grows at recent projected rates
- Some smaller, aging coal-fired units within the ATC footprint retired for economic reasons
- Added Nelson Dewey, a new 280 MW coal-fired generator under PSC review
- percent energy in ATC from renewables is higher than required by current Wisconsin Renewable Portfolio Standard (RPS) standards



Futures Comparison

(See Separate Spreadsheet)



Using Futures

- 2009 Assessment, small trial
- Model one or more futures in 2019
- Identify changes in needs and potential projects
- Replace some traditional sensitivity studies
- Consider results in project development



Voting for Futures

- In person: fill out ATC Futures sheet, please add your name so we can track votes
- E-mail: send selections to dsmith@atcllc.com
- Paper mail: mail ATC Futures sheet to
David Smith
American Transmission Company
P.O. box 6113
De Pere, WI 54115-6113
- Votes due by October 23, 2008



Traditional Assumptions

- Planning Criteria
- Model Years
- Load Model
- Generation Model
- Needs Assessment
- Solution Development
- All Projects Screening



Planning Criteria

- NERC Standards
- ATC Planning Criteria

<http://www.atc10yearplan.com>

Planning Factors



Model Years

- 2009 S Peak (As-built)
- 2010
- 2014
- 2019
- 2024



Load Forecast

Connie Lunde



Load - Historical

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

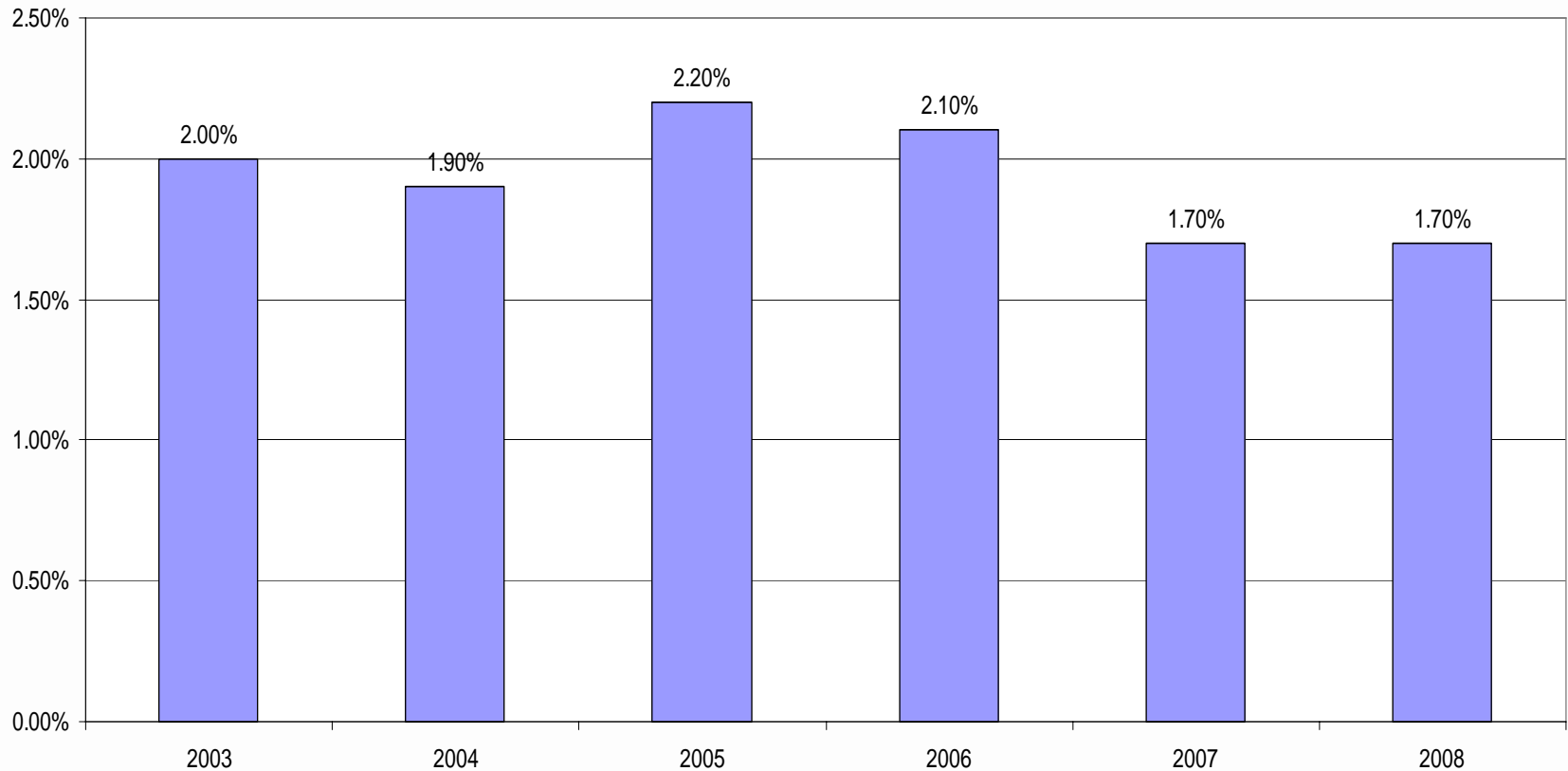


Load - Forecasted

- Requested LDC forecasts 2-5-2008
 - 11 years
 - option to provide 15 years
 - ATC will collaborate to create 15-years
 - Consistent with Resource Planning forecast
 - required by NERC Standards
 - Load that can be interrupted
- All received by June 2008
- ATC Compiles
 - Comparisons to previous forecasts
 - Differences confirmed with LDCs
 - Finalized copy to LDCs - October 2008

Load - Forecasted

ATC 10-Year Assessment
Forecasted Load Growth Rates
Compounded Annually





Generation Assumptions

Bob Morton



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

Balancing Authority Merit Order Dispatch:

- Used for all Assessment models except the Shoulder Peak
- Balancing Authority Dispatch from merit order provided by Balancing

ATC-Wide Merit Order Dispatch:

- Shoulder Peak models
- ATC-Wide Merit Order Dispatch determined with ProMOD

General Dispatch Notes:

- signed IA
- no scheduled transactions
- 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
- Meet voltage criteria for outages



Preliminary Needs and Solutions

Chengyue Guo

Preliminary Needs Assessment

- N-0 and N-1 Analysis
 - Contingencies
 - Monitored facilities
 - PSSE V30
- Multiple Outage Analysis
 - All project models
 - Contingencies
 - POM-OPM V4



Preliminary Needs Assessment

- Generation -Transmission studies
- Distribution -Transmission studies
- Economic benefits studies

Preliminary Solution Development

- Known Constraints
 - Re-verify existing projects
 - Update the scope and/or ISD as needed
- New Constraints
 - Verify the violations and evaluate potential options
 - Internal ATC team discussion as time permits
 - Select the preliminary preferred option
 - Obtain cost estimate
 - Create provisional project
- All project model Screening



We're Almost Done!

David Smith



Sensitivities

- Load Forecast
 - 5% above expected
 - 5th and 10th years
- Generation Dispatch
 - West-to-east – 70% load
 - East-to-west – 90% load
- Futures (2019)



Schedule

- Study Plan **w/Futures** – Drafted
- Expected Load Forecast – Done
- **Stakeholder Meeting – October 16th**
- Model Development – In Progress
- Preliminary Solutions – March 10, 2009
- **Preliminary Results & futures – 1st Qtr 2009**
- Final Solutions – 2nd Qtr 2009
- **Document and Publish – 3rd Qtr 2009**



Follow-up

- Action Items
- Next Meeting/Communication
- Ideas on future assessments



For more information

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

Presentation, Futures Spreadsheet, and Futures
Voting Sheet are available on the OASIS



Thanks for Participating!