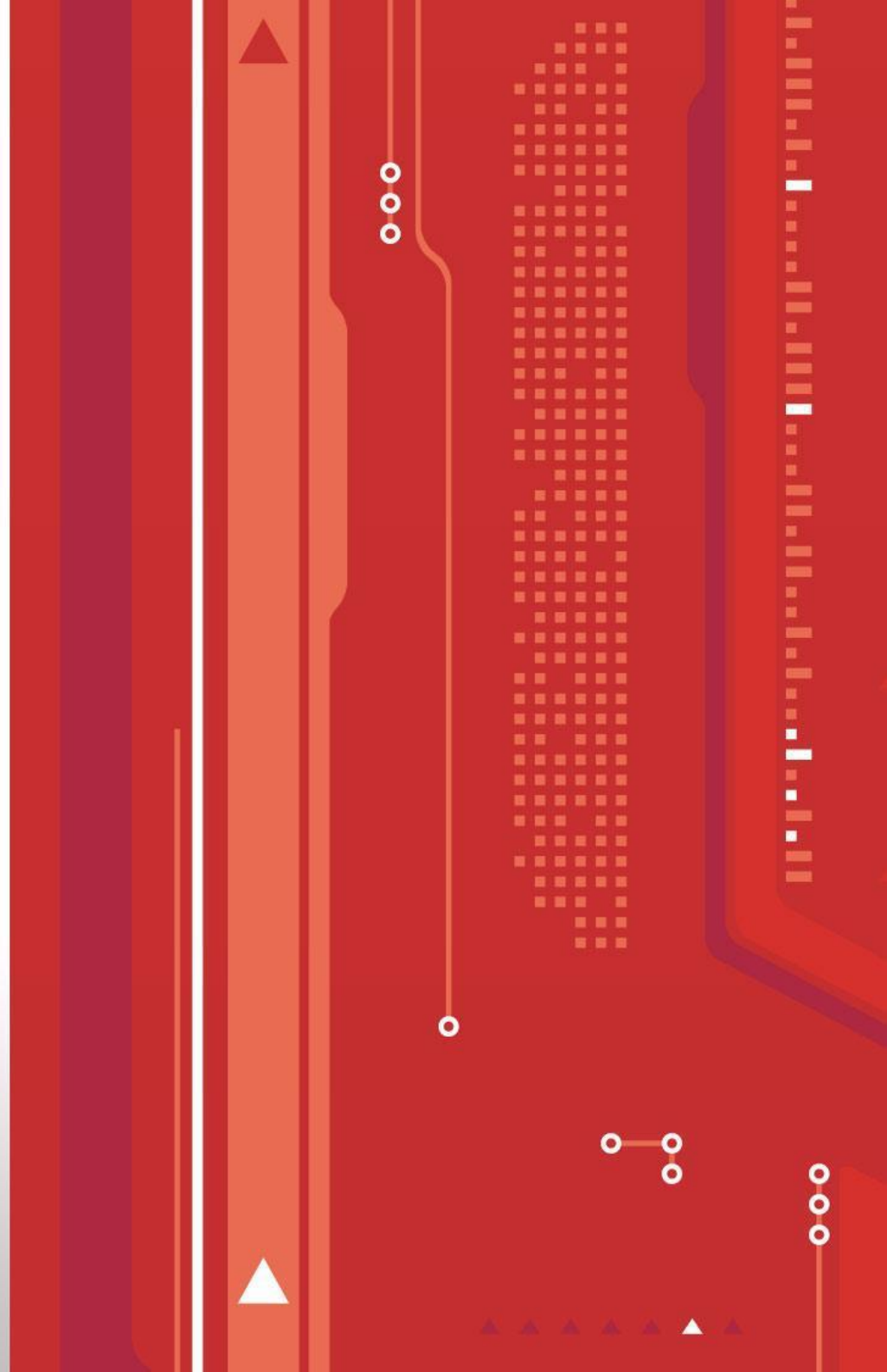


2012 ITP10 Overview

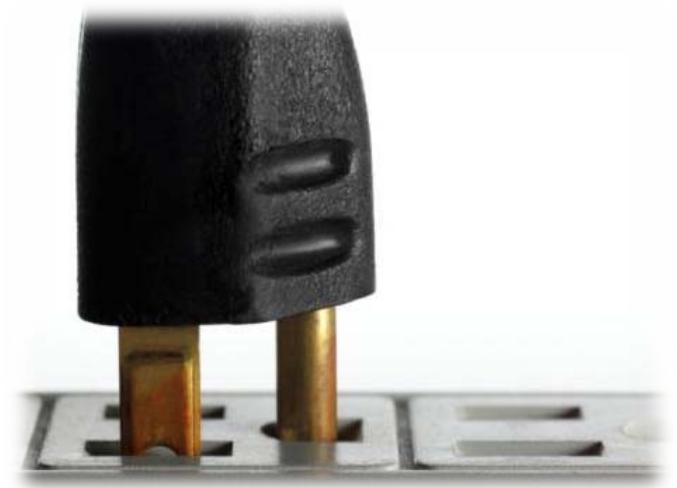
October 11, 2011

Katherine Prewitt
Director Planning



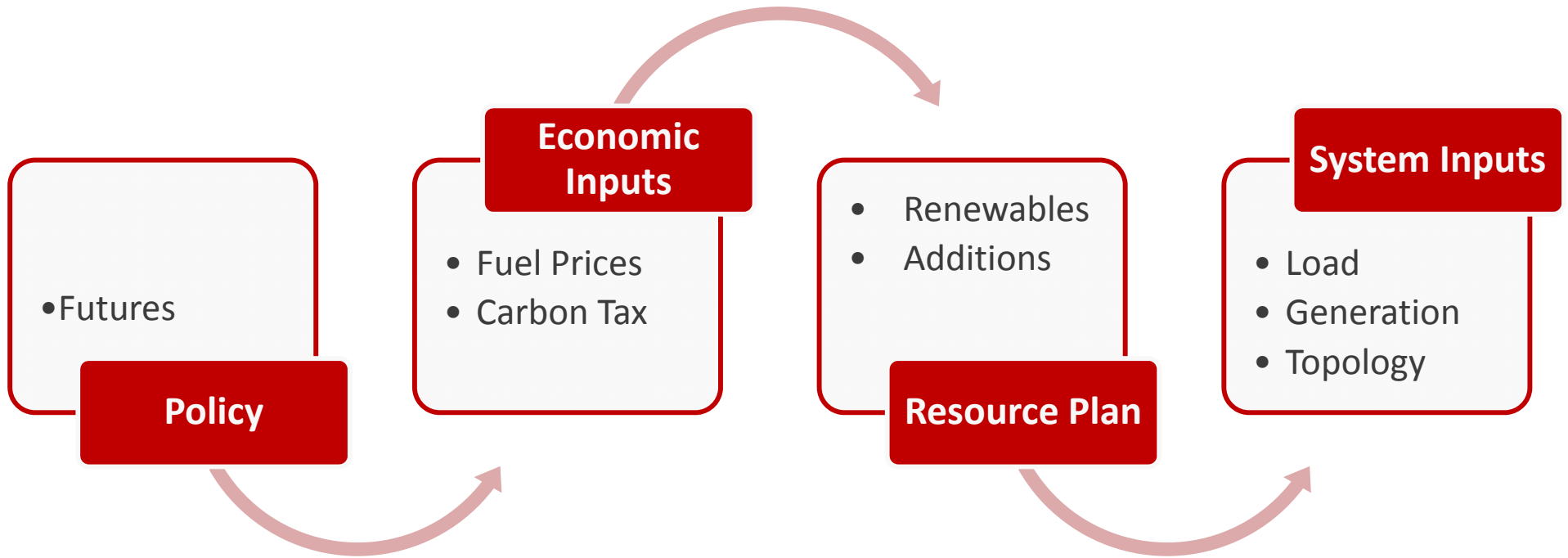
2012 ITP10 Expectations

- Value-based planning using multiple futures
- Integrates ITPNT and ITP20
- Objectives
 - Resolve criteria violation
 - Mitigate foreseen congestion
 - Improve access to markets
 - Improving Interconnections



Stakeholder Participation

- **Multiple stakeholder working group meetings**
 - TWG
 - ESWG
 - SPC
- **Guided futures, sensitivities and assumptions development**
- **Summer Summit (July)**
 - Presented futures, assumptions, and the analysis process
- **Fall Summit (Sept)**
 - Presented the process review and initial individual project results



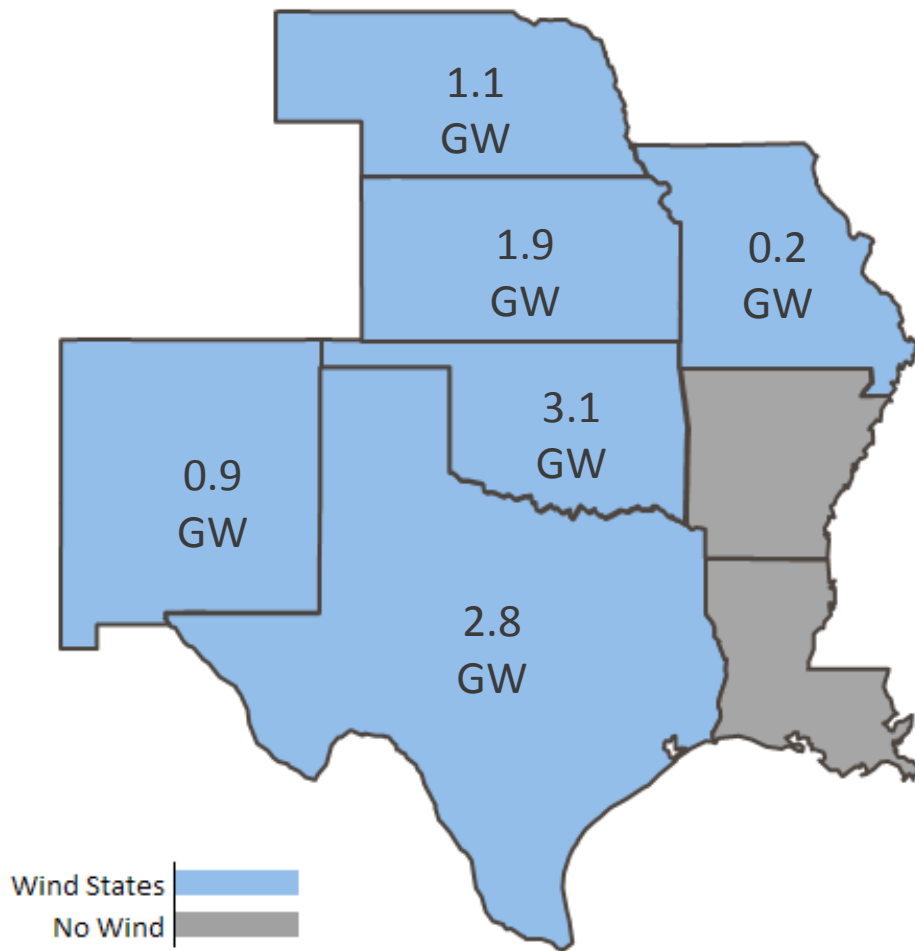
Section 2

2012 ITP10 INPUTS & ASSUMPTIONS

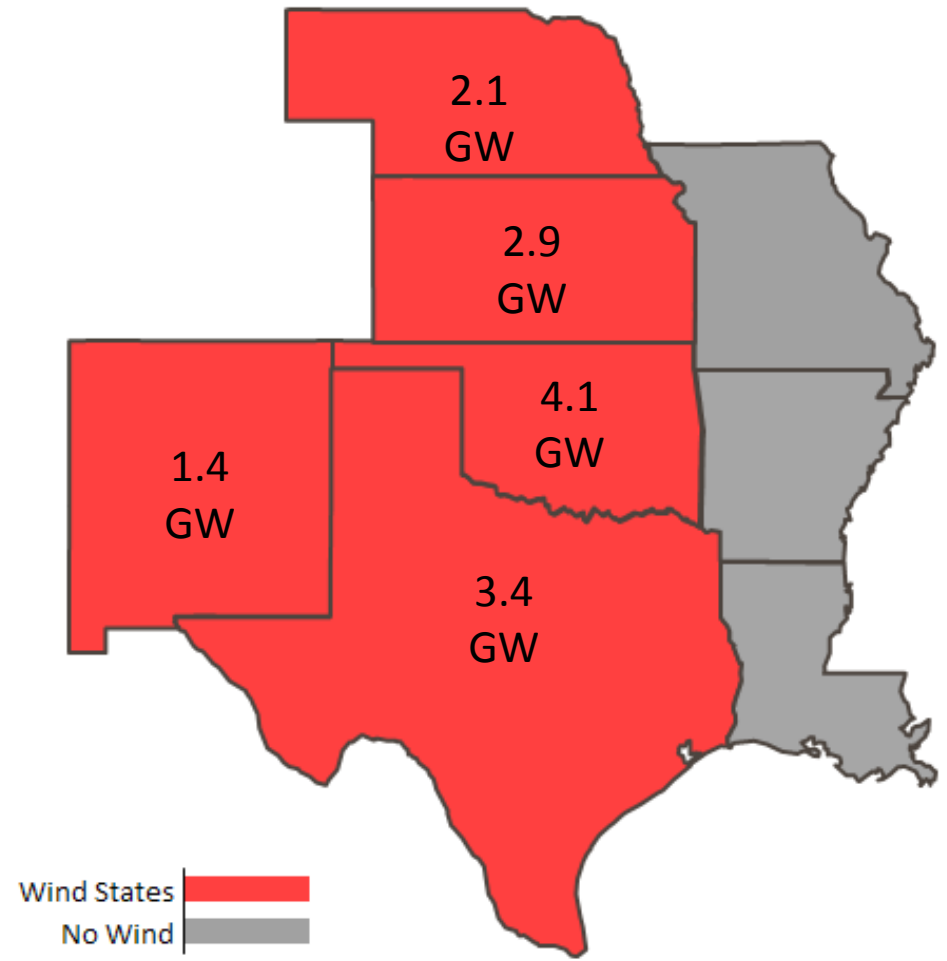
Two Futures

- **Future 1: Business as Usual**
 - 10 GW wind capacity
 - No new policy initiatives
- **Future 2: EPA Regs and National RES**
 - 14 GW wind capacity
 - Carbon tax and coal retirements
 - This is not the same as the EPA ruling that came out in July

CAWG Wind Survey



Future 1

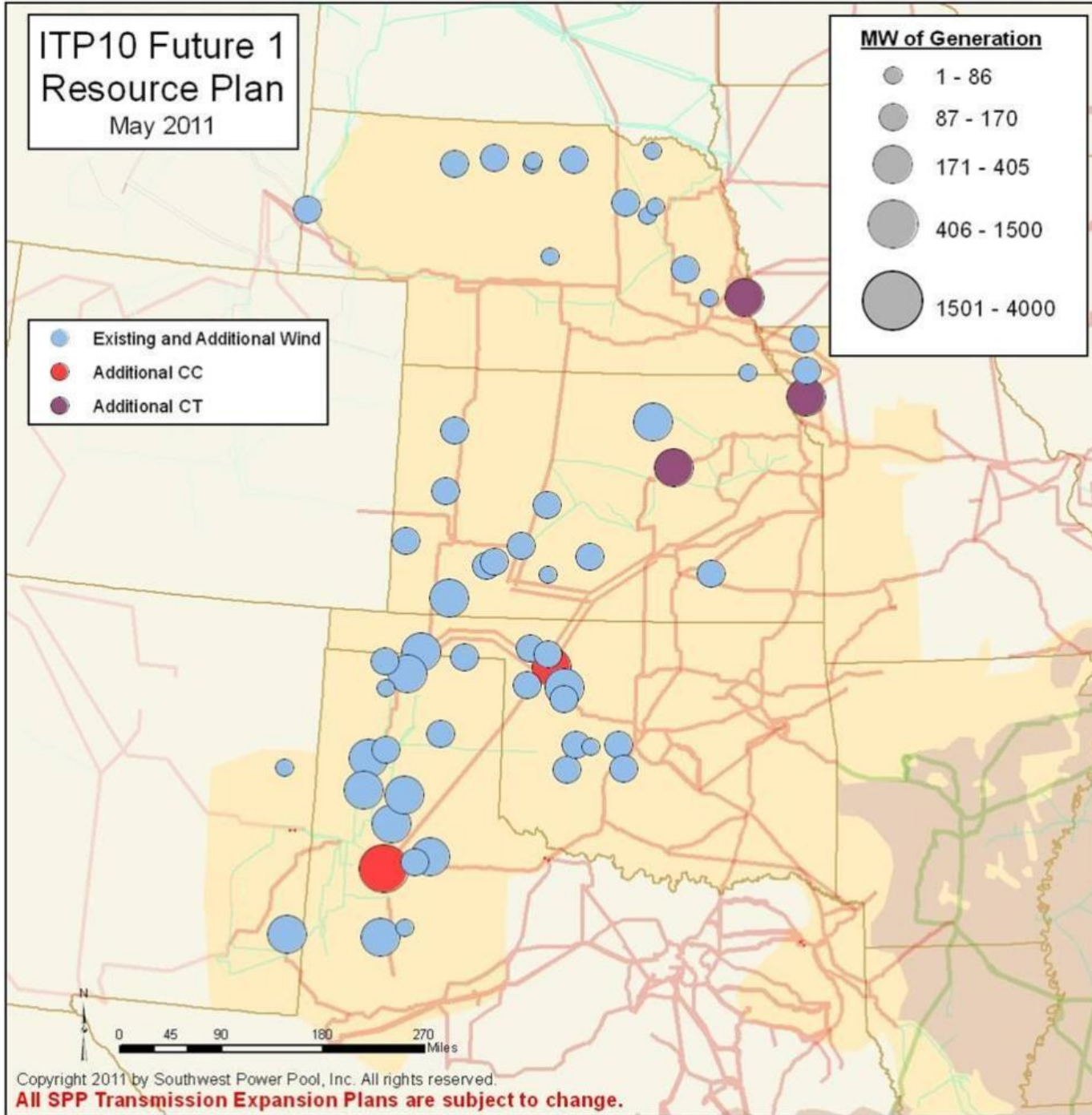
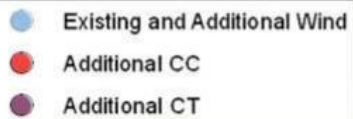
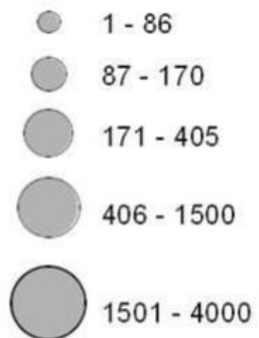


Future 2

ITP10 Future 1 Resource Plan

May 2011

MW of Generation



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All SPP Transmission Expansion Plans are subject to change.

Additional Sites

- 25 Wind
- 7 Combined Cycle
- 5 Combustion Turbine

Additional Capacity

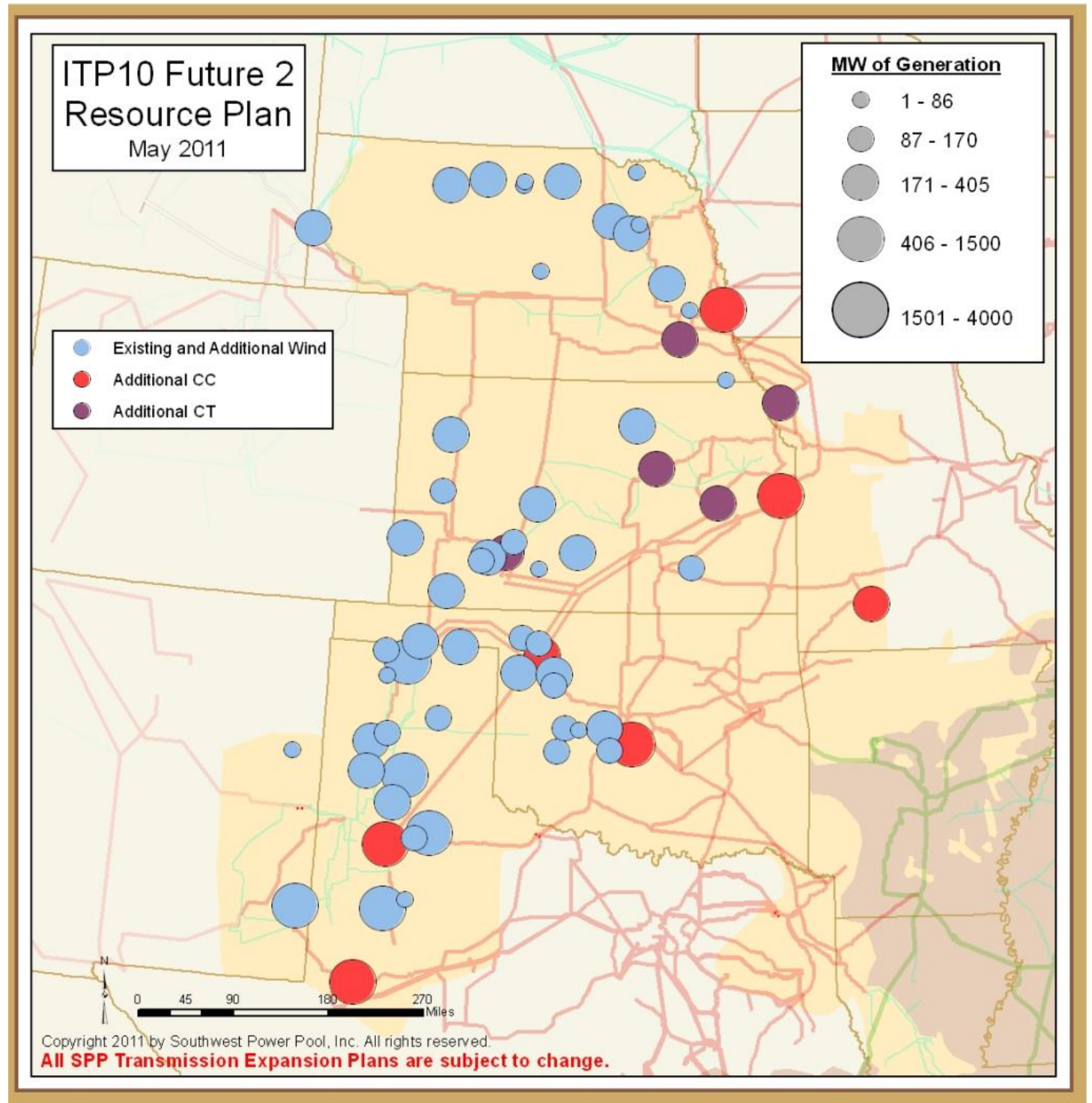
4,270 MW Natural Gas

Total Wind Capacity

14,048 MW

Total Conventional Capacity

61,694 MW



Retirement Locations

37 unit retirements

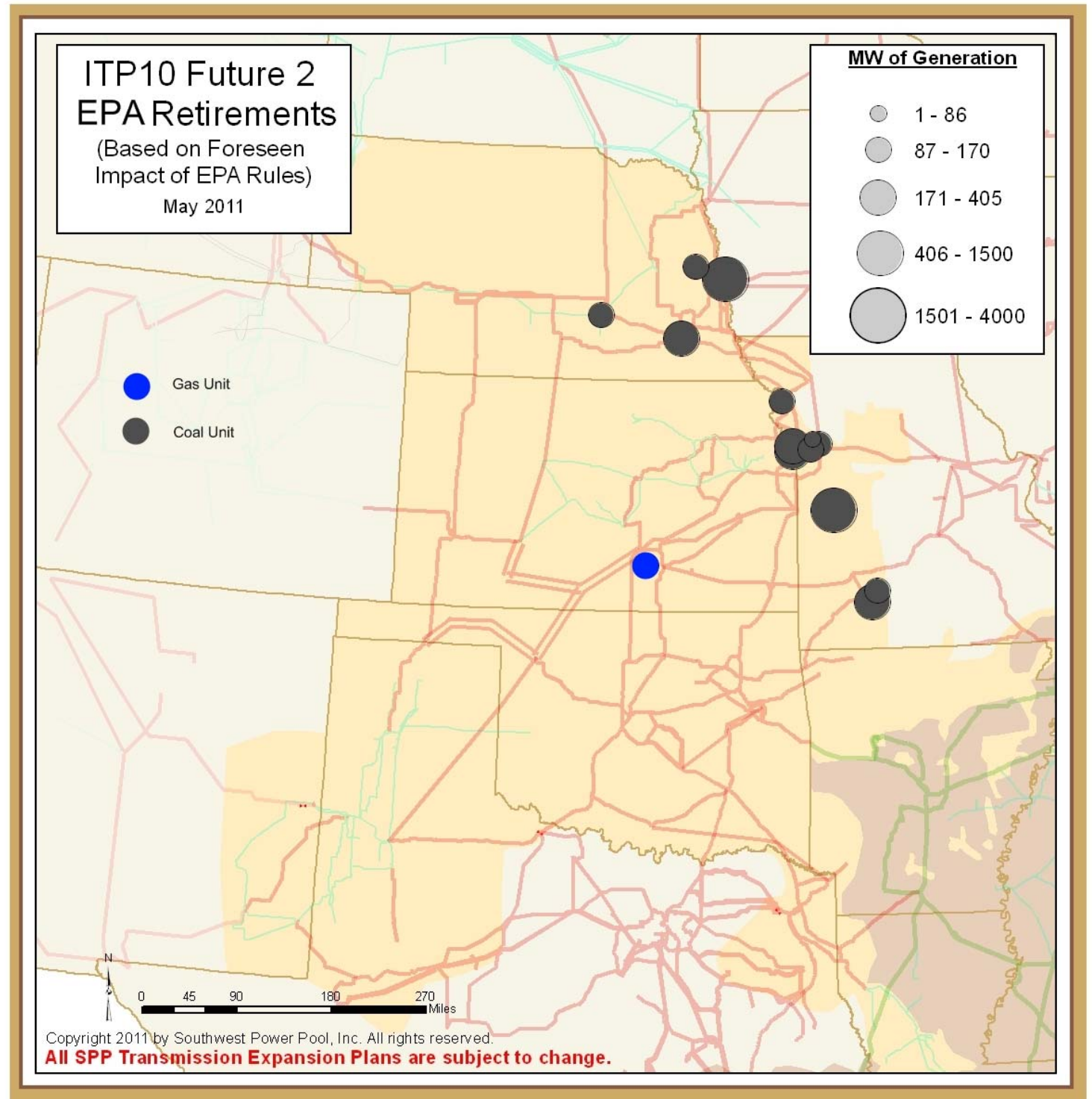
15 locations

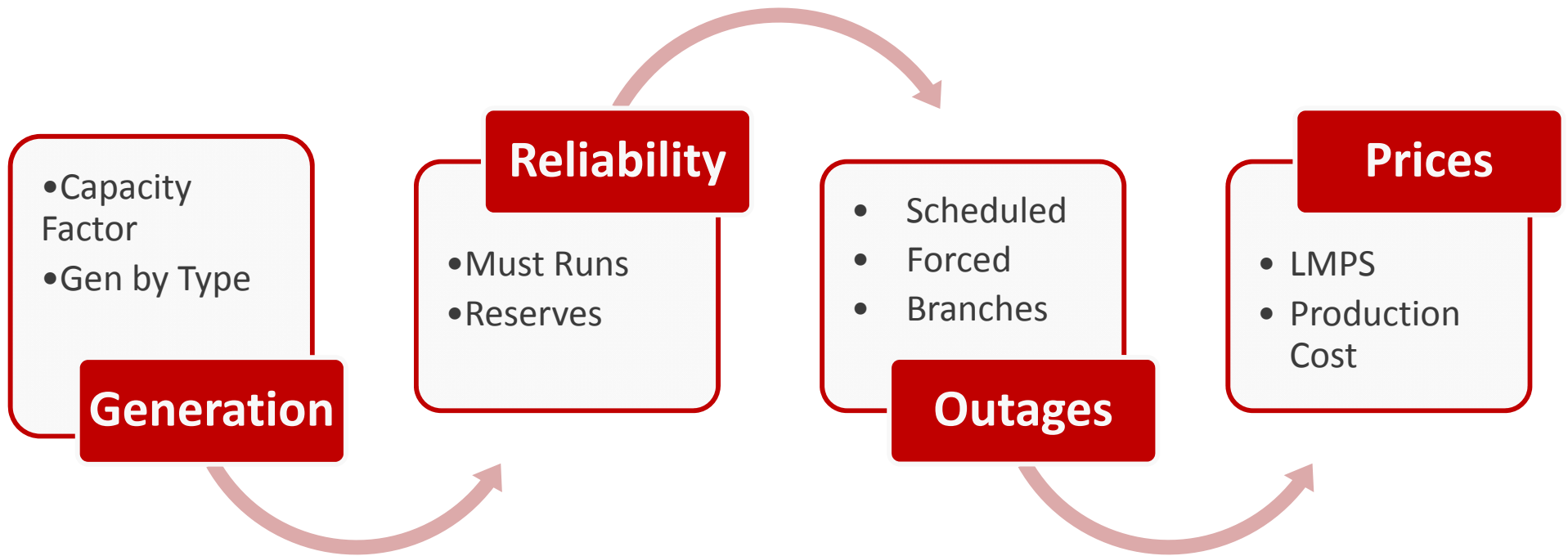
Capacity Retired

Coal: 2,316 MW

Gas: 256 MW

***portions of the North
Omaha retirement are
peaking gas**



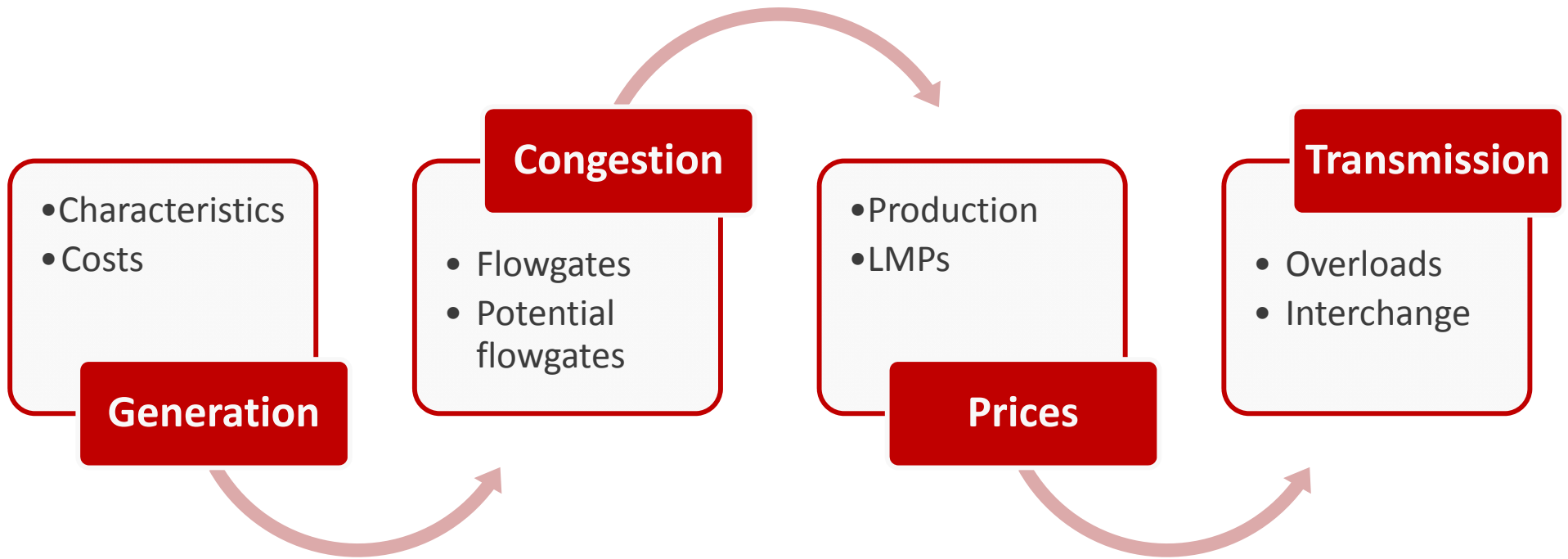


Section 3

2012 ITP10 BENCHMARKS

Model Benchmarking

- LMPs
- Unit Capacity Factors
- Generation Mix
- Maintenance
- Regional Market Prices



Section 4

2012 ITP10 ANALYSES

Project Development

- **Transmission Planning Analysis**
 - Identify SPP and Tier 1 constraints
 - Relieve potential congestion
 - Mitigate criteria violations
 - Meet policy driven assumptions
- **Portfolio optimization**
 - Optimization of upgrades for desired regional benefits
 - ITP10 metrics help identify projects that work across both futures

Section 5

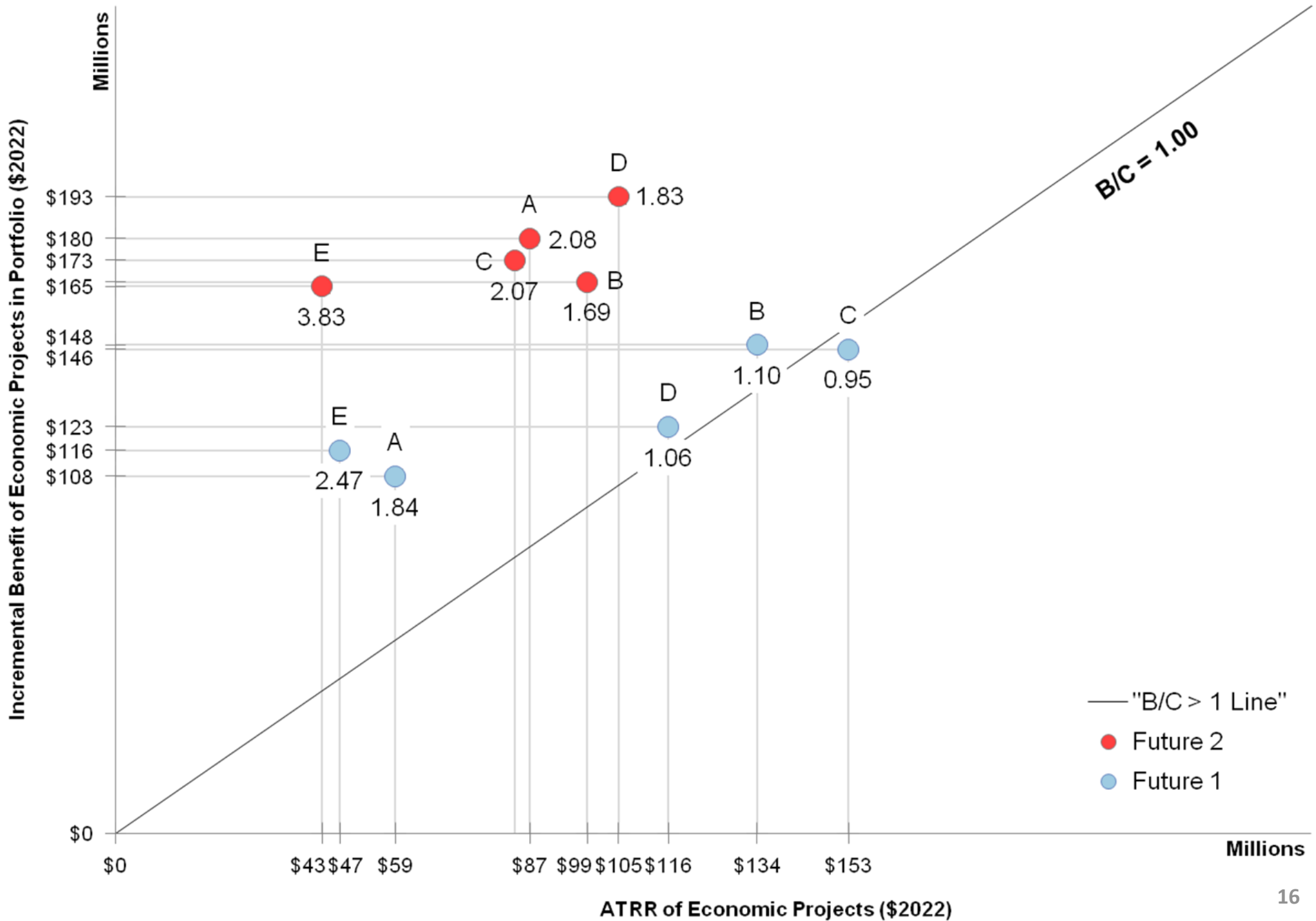
ANALYSIS RESULTS

Three Approaches to Valuing Reliability

1. Economics Benefit Incremental to Reliability
2. Reliability as $B/C = 1.0$ with measurement
3. Reliability as $B/C = 1.0$ without measurement

1 ... 2 ... 3

Approach #1: Economic Incremental to Reliability



Benefit / Cost Summary

- **Three options**
 1. **Economics Benefit Incremental to Reliability**
 2. **Reliability as B/C = 1.0 with measurement**
 3. **Reliability as B/C = 1.0 without measurement**

	Future 1					Future 2				
Category	A	B	C	D	E	A	B	C	D	E
Approach #1	1.84	1.10	0.95	1.06	2.47	2.08	1.69	2.07	1.83	3.83
Approach #2	1.51	1.32	1.26	1.34	1.58	1.26	1.17	1.24	1.24	1.37
Approach #3	1.14	1.37	1.31	1.37	1.61	1.23	1.17	1.23	1.21	1.34

Section 6

2012 ITP10 NEXT STEPS

Portfolio Refinement

- **8 Portfolios presented at Pre-MOPC**
- **Incorporate stakeholder feedback**
- **Reliability check**
- **Final Steady-State Reliability Assessment**
 - **Reliability evaluation on draft ITP10 portfolio**
 - **Change in economic dispatch due to all the economic constraints that have been relieved**
- **Perform sensitivities**

Stability Assessment

- **Voltage and Transient Stability**
- **Stability analysis helps determine reasonability of wind dispatch**
- **Portfolio may be modified to address stability findings**

2012 ITP10 Sensitivities

- **Four sensitivities upon both Future 1 and Future 2**
 - High natural gas (\$7.87/MMBtu) & demand forecasts (+7.08%)
 - High natural gas (\$7.87/MMBtu)
 - Low natural gas (\$4.47/MMBtu)
 - Low natural gas (\$4.47/MMBtu) & demand forecasts (-7.08%)
- **Two additional sensitivities for only Future 2**
 - High carbon tax of \$54 per ton
 - Low carbon tax \$14 per ton

MOPC Feedback

- **Valuing Reliability**
 - Should the economic benefit of reliability projects be captured?
 - Since these projects are required (regardless of benefit) should their cost be included in the B/C calculation?
 - Should reliability projects be considered an automatic 1.0 B/C?
- Which of the three approaches should be pursued?