



Alcoa – Demand Response Innovation

FERC Technical Conference on Frequency Regulation Compensation

DeWayne Todd – Alcoa Power Generating, Inc.

- Founded in 1888
- 200+ locations
- 31 countries
- \$18.4 billion revenue in 2009
- 59,000 employees
- 10 times safer workplace than US average
- Award-winning sustainability leadership
- 120 years of patents, including the original aluminum process



Number of Employees (2009)

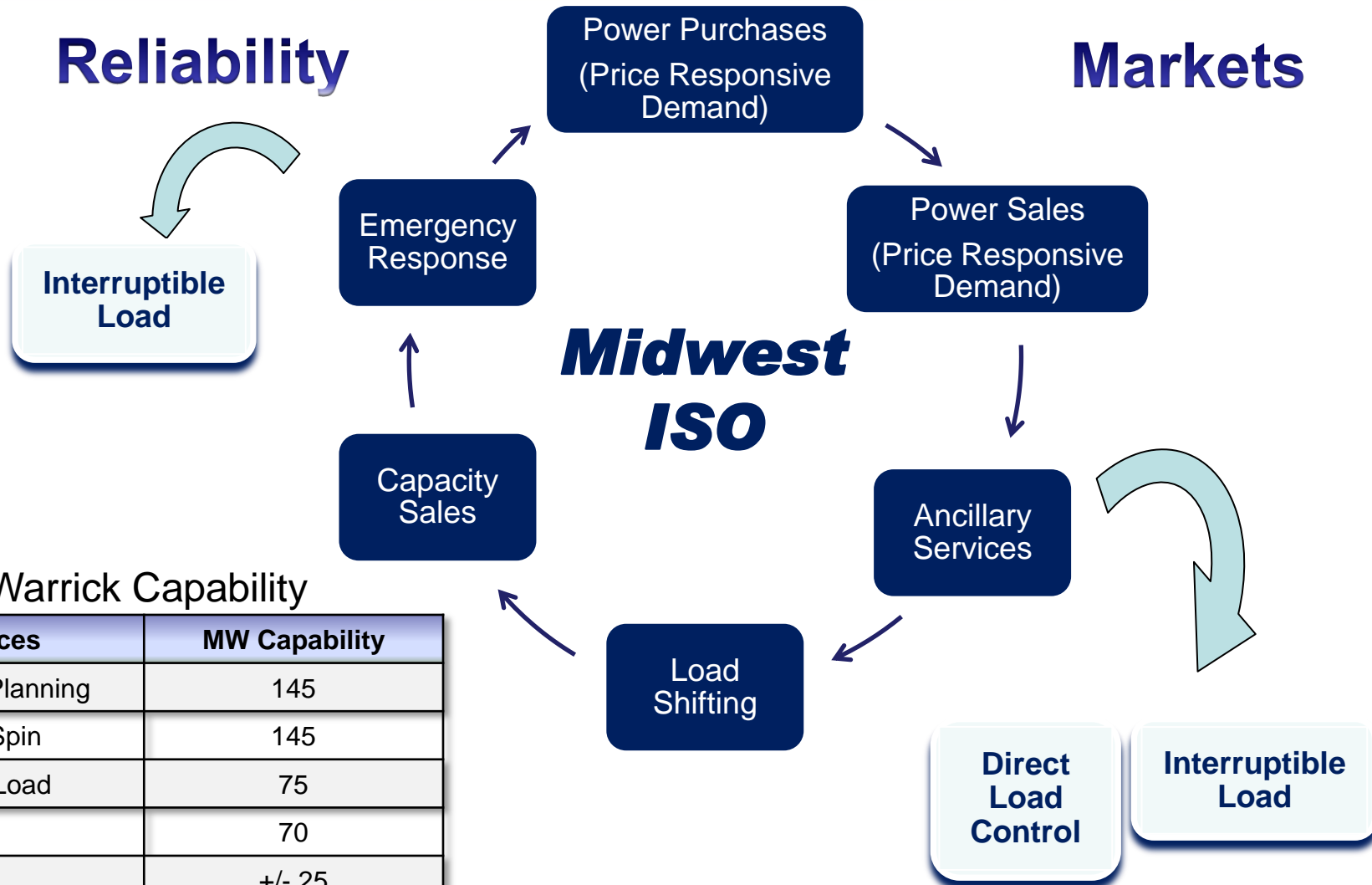
U.S.	23,000
Other Americas	19,000
Europe	10,000
Pacific	7,000

59,000

Alcoa's DR Involvement in the Midwest ISO

Reliability

Markets

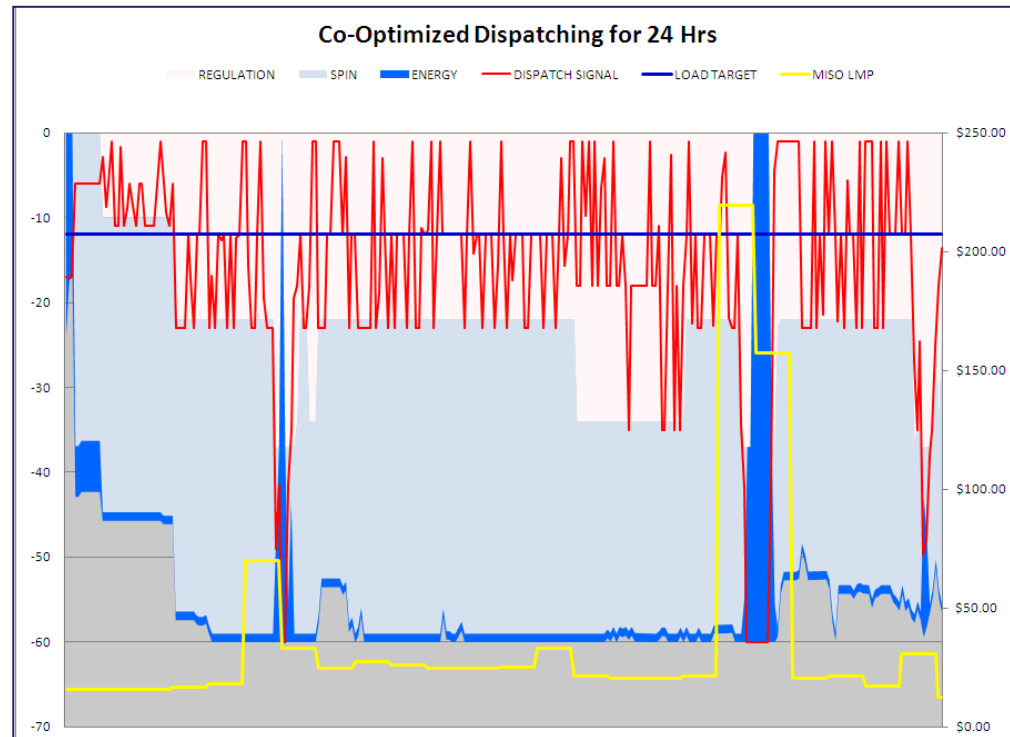


Alcoa – Warrick Capability

Services	MW Capability
Reserves – Planning	145
Reserves - Spin	145
Interruptible Load	75
Load Shaves	70
Regulation	+/- 25
Load Shifting	15

Alcoa – Demand Response Providing Regulation

- Alcoa has provided Ancillary Services from its Indiana Production Facility for up to 145 MW's variability
- Alcoa has successfully provided up to 70 MW's (range) of Regulation for 1 ½ years.



- Alcoa's Demand Resource has a 99.91% Availability (average for 1 ½ years).
 - Far Superior to Benchmark Thermal Generators
- Alcoa's Demand Resource has an Accuracy of Response of over 99.02% Based Upon Settlement Penalties.
- Capital Investment for 70 MW's of Demand Response Capability (including Regulation) was approx. \$750 k
 - Alternative Resources can be Economically Viable

- Alcoa's Existing Resource (in the Midwest ISO) Could Respond Three Times Faster with No Capital Costs
 - No Incentive Exists

- Modeling in the Midwest ISO Limits Optimization of Resources
 - Regulation Up and Down are Required to be Equal
 - Currently, Alcoa provides 20 MW's of Regulating Range, when it could provide 70 MW's if Reg up and Reg down were Two Products

- Alternative Suppliers of Regulation should be compensated to the extent that they impact the system.
 - Quicker, more Accurate, more Reliable
 - Demand Response reduces GHG
 - Thermal Unit providing 1.5% Regulation creates an increase of .56% of CO2 due to Heat Rate Impact.



Thank you!

Alcoa can't wait for tomorrow