



# Alcoa – Demand Response Innovation

*FERC Technical Conference on Frequency Regulation Compensation*

*DeWayne Todd – Alcoa Power Generating, Inc.*



# Alcoa at a glance

- 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

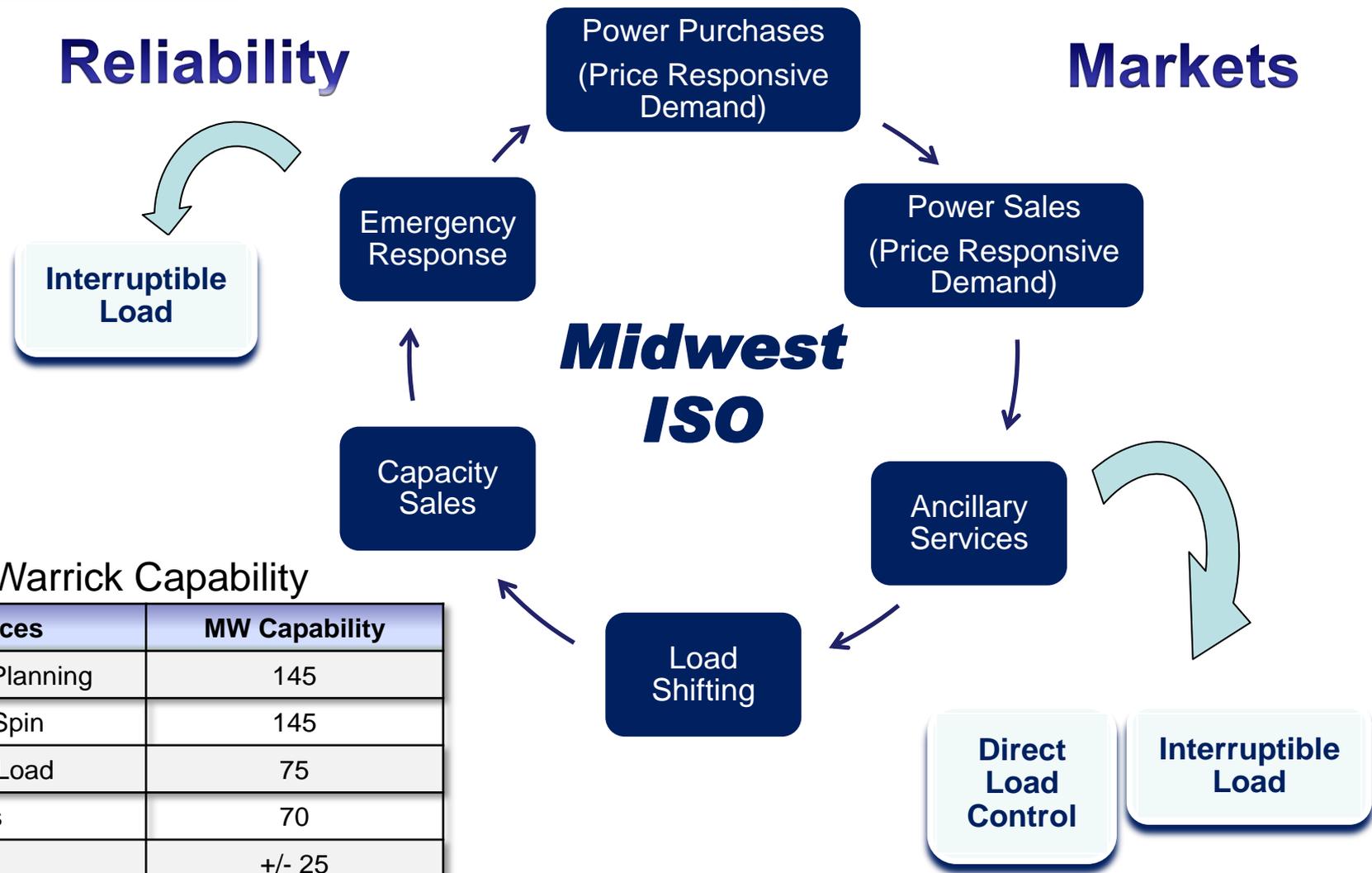


## Number of Employees (2009)

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

**59,000**

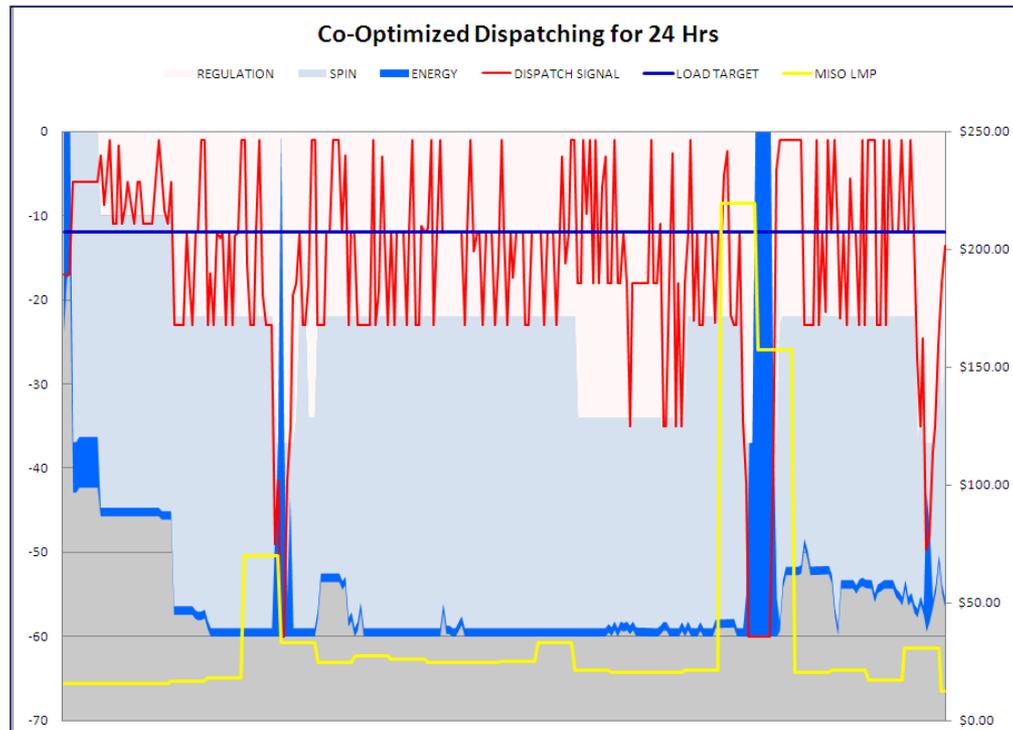
# Alcoa's DR Involvement in the Midwest ISO



Alcoa – Warrick Capability

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

- 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*