

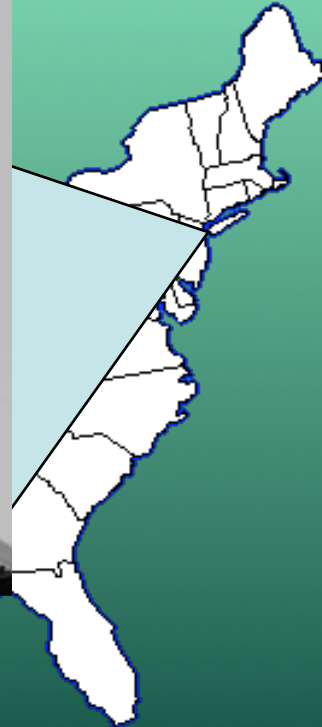
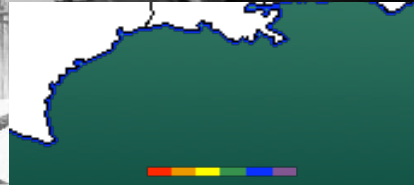
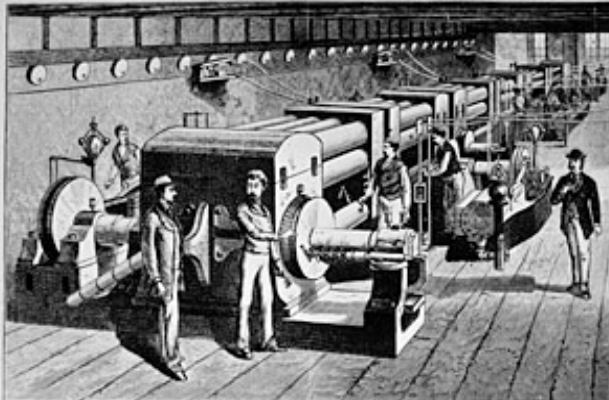
How to Improve the Efficiency of the World's Biggest Machine While Solving a Few Other Problems Along the Way

4th Annual Great Energy Efficiency Day

Alliance to Save Energy

*Jon Wellinghoff, Commissioner
Federal Energy Regulatory Commission
February 14, 2007*

Point of Departure: Edison's Pearl St. Station and the Neighborhood Grid



A Little Over a Century Later ...

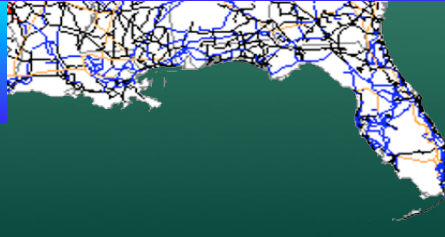
“Most Complex Machine in the World”



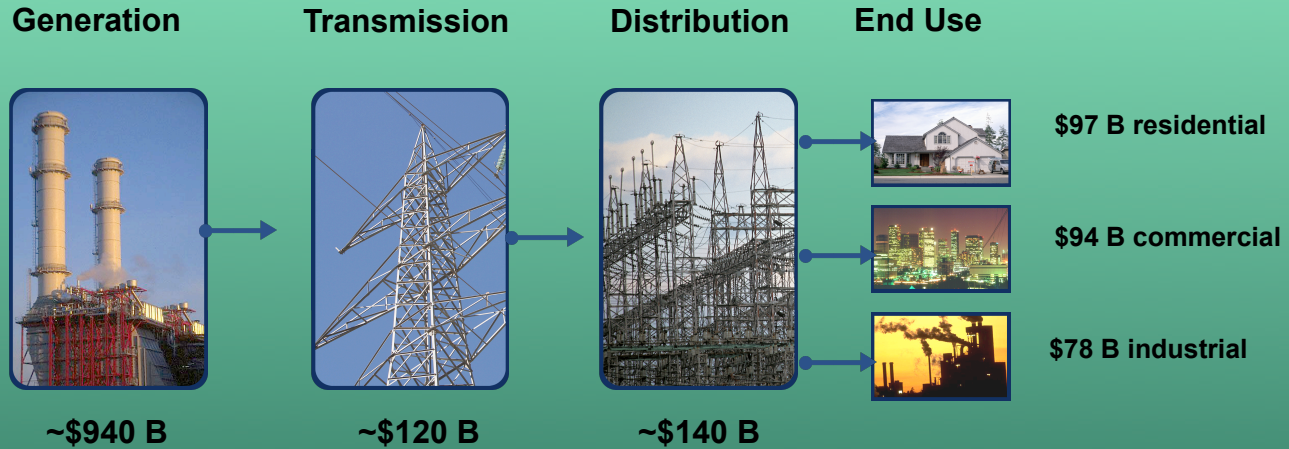
**Over 978,020 Megawatts of
Generating Capacity**



**Over 160,000 Miles of
Transmission Lines**



Electric Grid: Billions in Investment & in Costs



(replacement costs)

Multiple Issues Seeking Solutions

Managing hydro system constrained by fish, water, treaties & future markets

Integrating 30 GW of wind in the West by 2020

Global warming & increasing reliance on coal

Demand response produced more than \$230 million in savings, that reduced prices by \$300 per megawatt-hour.

PJM Interconnection reported that demand response saved \$650 million

Wholesale Markets Need Improvement and More Elasticity to Keep Consumer Prices Reasonable

Rising prices & high congestion costs in East & Midwest. Congestion=23% of Wholesale Cost in NY-ISO.

Integrating new technology that could help: demand response, distributed generation, distribution automation, AMR & phasor data ...