

A Vision for a Modernized Electric Grid Accelerating the Development of a 21st Century Economy

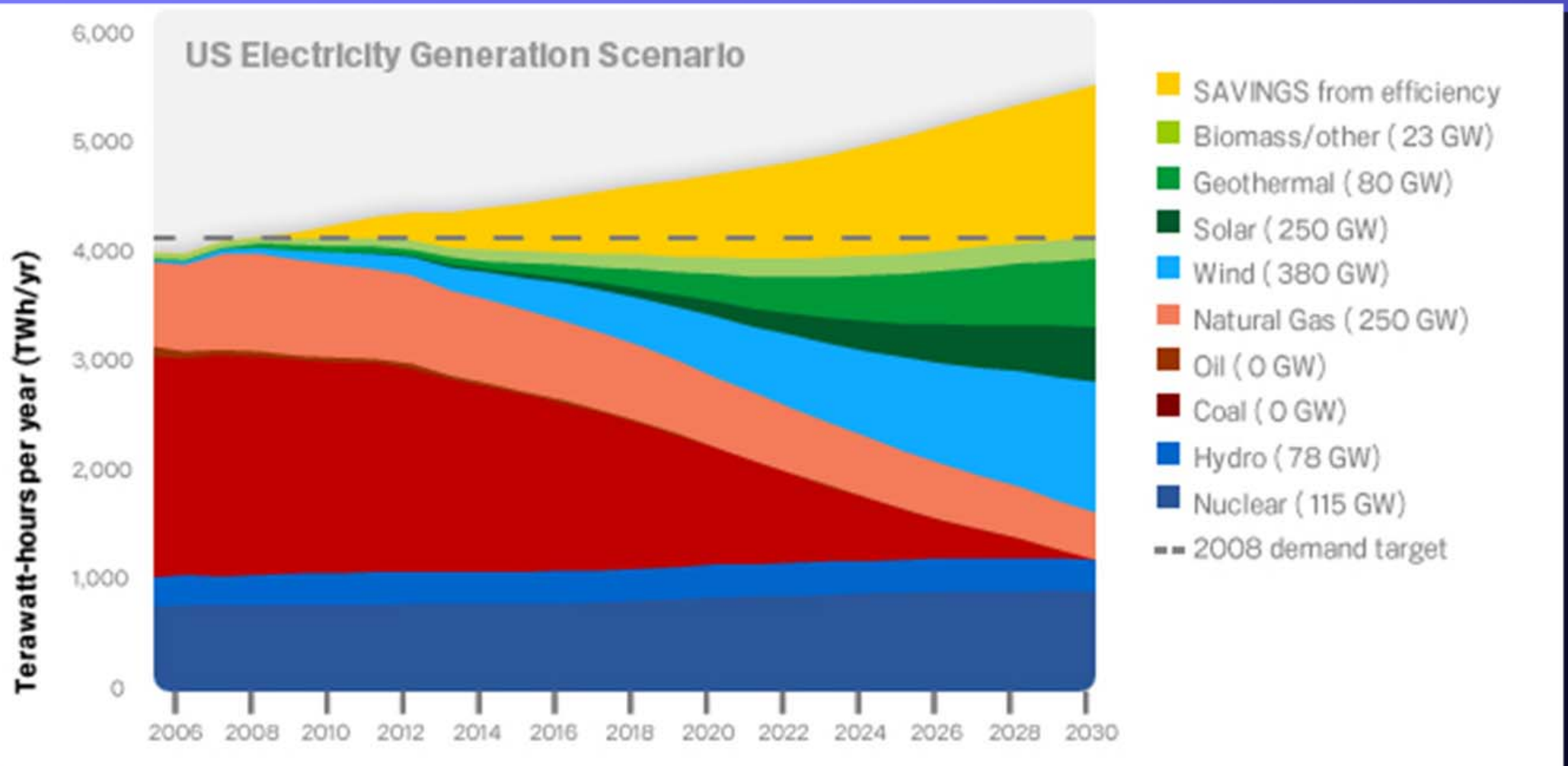


Clean Energy Infrastructure Hill Briefing

November 18, 2008

Jon Wellinohoff
Commissioner
FERC

U.S Google Energy Plan / 2030



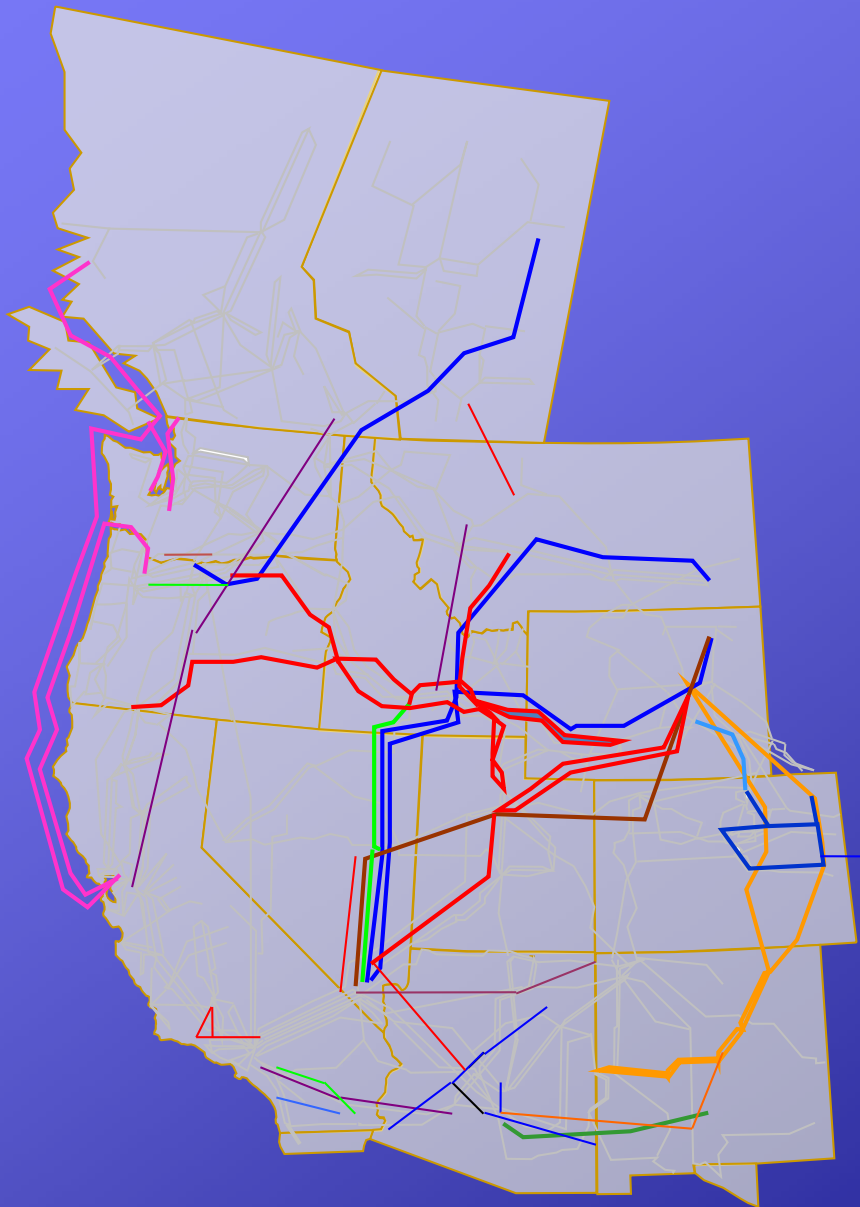
FERC Transmission Authority (Interstate)

- ★ **Planning**
- ★ **Siting**
- ★ **Interconnection**
- ★ **Reliability**
- ★ **Cost Allocation & Pricing**

FERC Transmission Planning

- ★ **Order 890 Transmission Planning (Order 888 OATT Reform)**
- ★ **Applies to All Jurisdictional Transmission Providers**
 - ★ **Open, Transparent, Coordinated, Regional**
 - ★ **Supply and Demand Treated on “Comparable Basis**

Renewable Transmission Proposals



Major Proposed Transmission Projects
(many other smaller proposed smaller projects)

- Sea Breeze Projects
- TransCanada Projects
- Gateway Projects (NTTG)
- TransWest Express
- LS Power & Great Basin Projects
- WY-CO Intertie Project
- Eastern Plains Project
- High Plains Express
- Sun-ZIA
- Mountain States Transmission Intertie
- Canada-Northern California
- West of McNary
- Southern Crossing
- Navajo Transmission Project
- Robinson Summit-Harry Allen
- Sunrise Powerlink
- Lethbridge (AB) – Great Falls
- Palo Verde – Devers
- Green Path
- Tehachapi

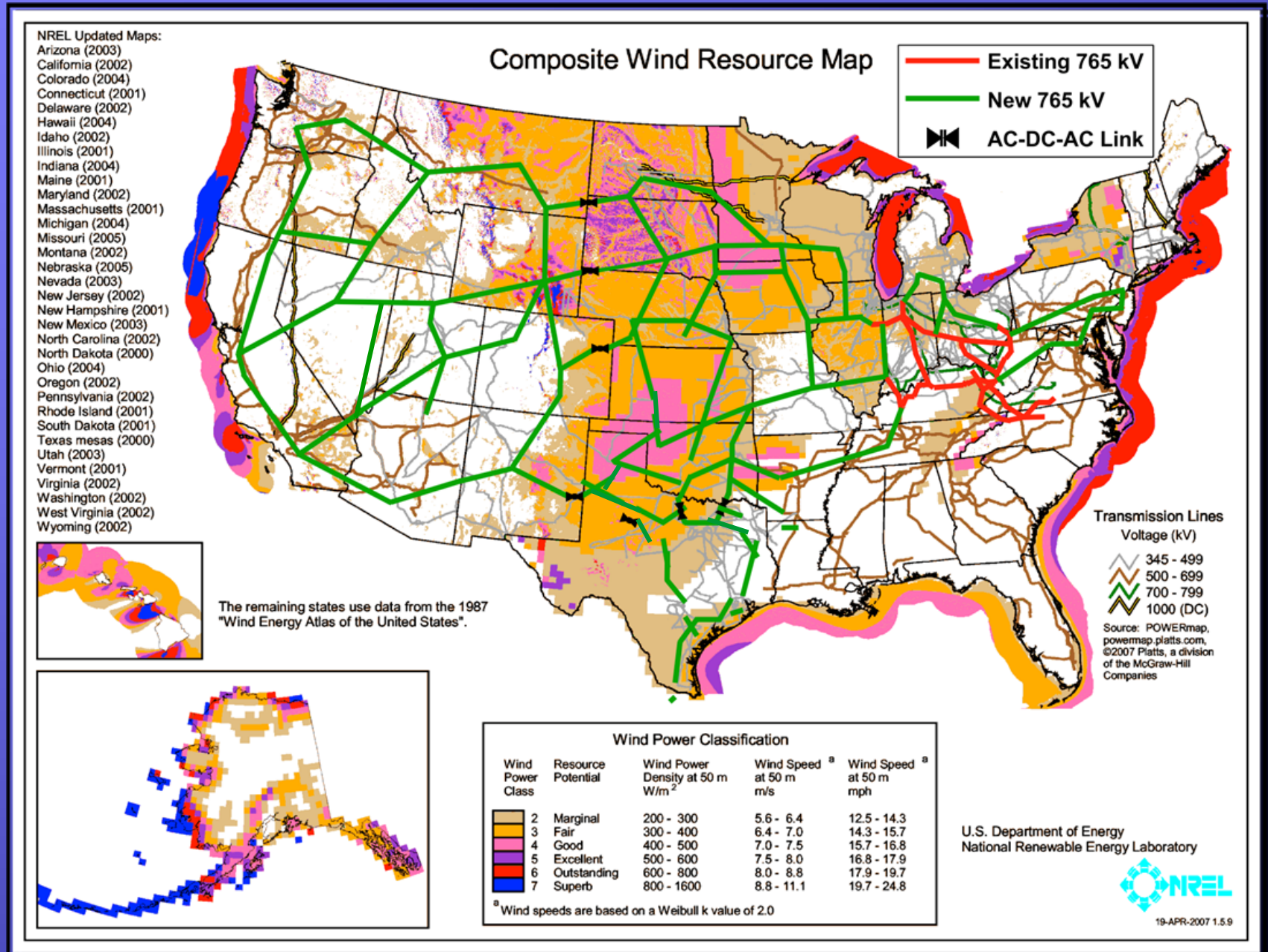
Transmission Siting

- ★ **NIETC Authority (2005 EPACT)**
 - ★ **DOE Corridor Designations**
 - ★ **FERC Backstop Siting Authority**
- ★ **FPC Hydro Authority**
 - ★ **Section 21**
- ★ **Natural Gas Act Authority**
 - ★ **Section 7(c)**

Transmission Siting- Existing HV Lines



Transmission Siting- National Renewable HV Backbone Transmission Line



Transmission Interconnection

★ Traditional Interconnection Rules

- ★ First Come First Served

- ★ Individual Interconnect Studies

★ Queue Reform

- ★ ISO/RTO Que Reform Filing

 - ★ First Ready First Served

 - ★ Clustering Studies

Transmission Reliability

- ★ **EPAct Section 215**
 - ★ **Bulk Power System**
 - ★ **Enforceable Rules**
 - ★ **NRO/NERC**
 - ★ **Regional Entities**

Transmission Cost Allocation & Pricing

- ★ **Beneficiary Pays**
- ★ **Location Constrained Resources**
 - ★ **Tehachapi Decision**
- ★ **Pipeline Analogy**
 - ★ **Open Season/Anchor Shipper**

Transmission Financing & Credit Support

Utilities Seek \$122 Billion in Nuclear Loan Support

By Daniel Whitten

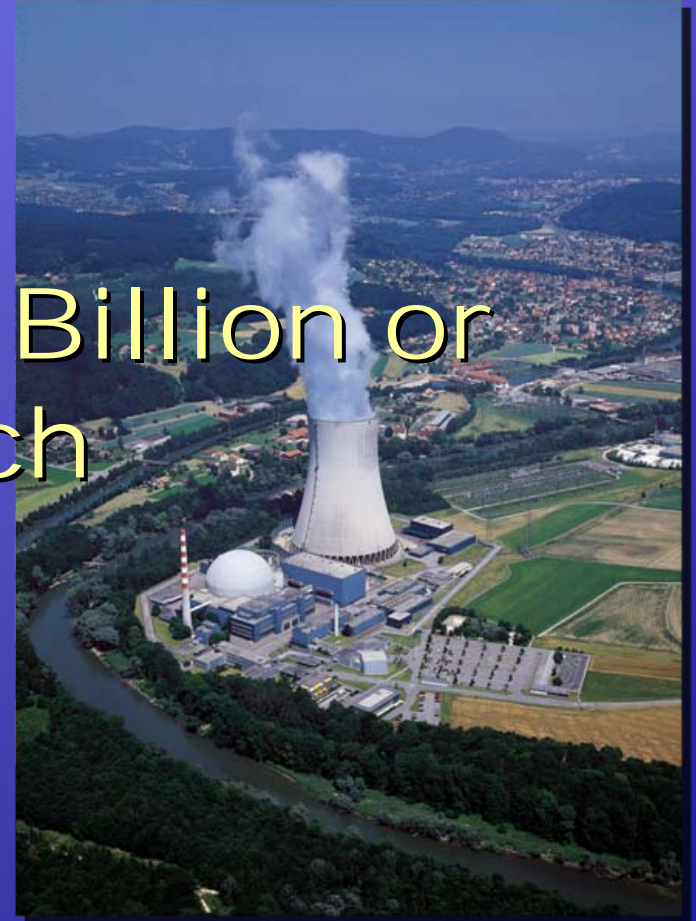
Oct. 2 (Bloomberg) -- [Southern Co.](#), [PPL Corp.](#) and [Duke Energy Corp.](#) are among 17 utilities seeking \$122 billion in loan guarantees from a U.S. Energy Department program that makes available \$18.5 billion to build nuclear plants.

Power companies that want to build 21 reactors submitted applications for the guarantees, the department said in an e-mail today. Spokeswoman Bethany Shively said the department isn't naming the utilities.

The industry has complained that the \$18.5 billion isn't enough to jumpstart a so-called nuclear renaissance, saying that amount could help support three reactors at the most. The program, mandated under a 2005 law, has been mired in funding disputes and delays. It's intended to offer financing support for clean-energy projects that otherwise might not be built.

“It appears to be oversubscribed,” said [Richard Myers](#), vice president of policy development at the Nuclear Energy Institute, the industry's Washington-based trade group. “Clearly \$18.5 billion is not adequate to provide the financing support necessary.”

17 Utilities Seek \$121 Billion or
\$7.1 Billion Each



Conclusions

FERC Has:

- ★ **Authority Over**
- ★ **Interconnection**
- ★ **Cost Allocation & Pricing**
- ★ **Reliability**
- **Limited Siting Authority**
- **Regional Only Planning Authority**
- **No Authority to Order Construction**
- **Multiple Proposals for Renewables**
- **No National Transmission Plan to Coordinate Many Renewable Proposals**

**“Politics is More Difficult than
Physics”**

-Albert Einstein

Physicist (1879-1955)

Central Resources

- ★ **Wind (20% + escalating to ?)**
- ★ **Geothermal**
- ★ **Concentrating Solar Power (CSP) & Central Solar PV**
- ★ **Hydro & Hydrokinetic**
- ★ **Biomass**

Distributed Resources

- ★ Solar PV

- ★ Fuel Cells

- ★ CHP & PHC

- ★ Dispatchable Resources

 - ★ Demand Response

 - ★ PHEVs

 - ★ Storage (Flywheels, Batteries, Hydrogen, Compressed Air)

HV Backbone “Green Grid” System Must Consider:

- ★ **Reliability (Physics)**
- ★ **Markets (Politics & Physics - Which Some Call Economics)**
- ★ **Ownership, Operation, & Independent Owners**
- ★ **Financing, Cost Allocation & Cost Recovery (Politics)**
- ★ **Total System Efficiency (Physics)**

Reliability (Physics)

- ★ **Grid Intelligence**
- ★ **Dynamic Scheduling/Loading/Operation**
- ★ **Resources Connected/Displaced**
- ★ **Mix of Central & Distributed Resources**
- ★ **Operation Optimization & Load Balancing**
- ★ **Interconnection & Operation Rules for Resources & Transmisison**

Market (Politics & Physics- Which Some Call Economics)

- ★ Deliverability & Congestion
- ★ LMPs & Price Effects
- ★ Market Operation & Integration

Ownership, Operation & Governance (Politics)

- ★ **ISO/RTO Operation & Independent Owners**
- ★ **Co-Ownership & Operation by Multiple Parties**
- ★ **Government Ownership & Operation**

*Thank
You*