

Geothermal Energy and Transmission: Opportunities and Barriers



**Geothermal Energy 2008
Conference and Expo
GRC Annual Meeting
and
GEA Tradeshow
October 7, 2008**

**Jon Wellingshoff
Commissioner
FERC**

The Washington Post

Saturday, October 4, 2008

THE WASHINGTON PO

Filipinos Draw Power From Buried Heat

By Blaine Harden
Washington Post Foreign Service
Saturday, October 4, 2008

ORMOC, Philippines -- [Ferdinand Marcos](#), the despot who ruled here for 21 years, is remembered mainly for the staggering quantity of his wife's shoes. But there is another Marcos legacy, and it is drawing new attention at a time of high oil prices, global warming and urgent questions about the role of government in alternative energy development.

Reacting to the early 1970s oil shock, Marcos created a major government program to find, develop and generate electricity from hot rocks deep in the ground. Since then, the Philippine government has championed this form of energy.

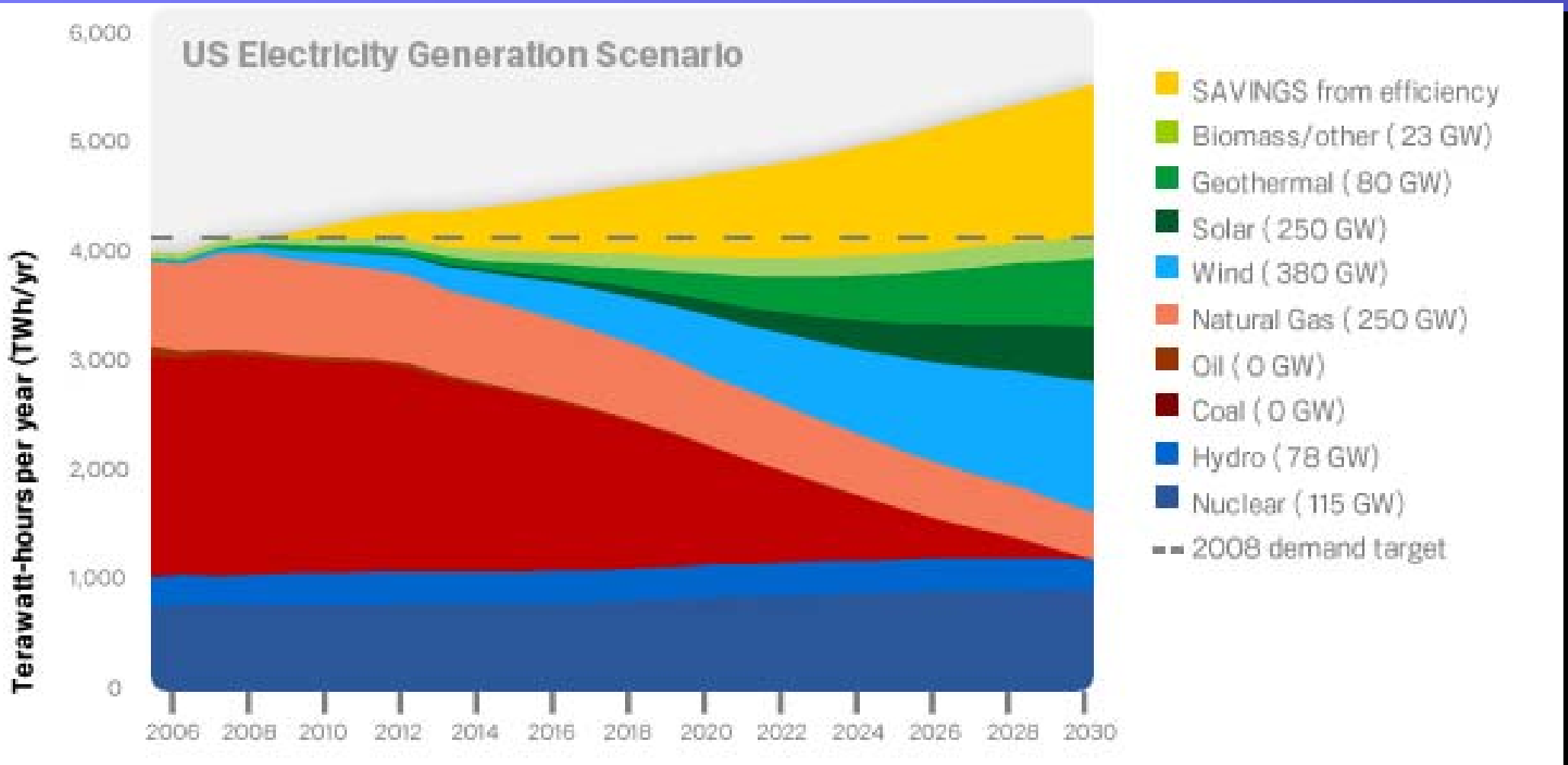


The main geothermal plant on Leyte Island in the Philippines. Geothermal now produces about 28 percent of the electricity generated in the country.

Photo Credit: Courtesy Of Pnoc Energy Development Corp. Photo

Geothermal Resource Development

Google Energy Plan



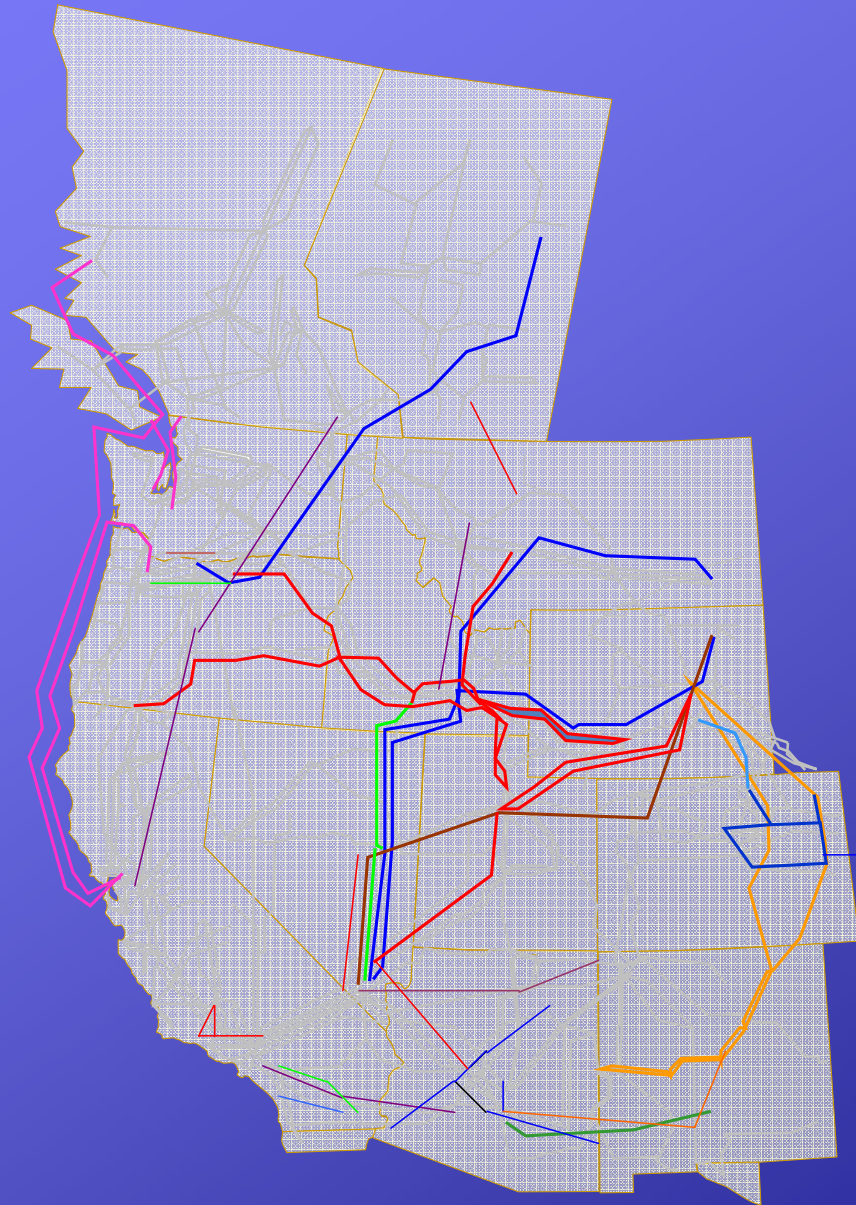
FERC Transmission Authority (Interstate)

- ★ **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

Renewable Transmission Proposals



Renewable Transmission Proposals



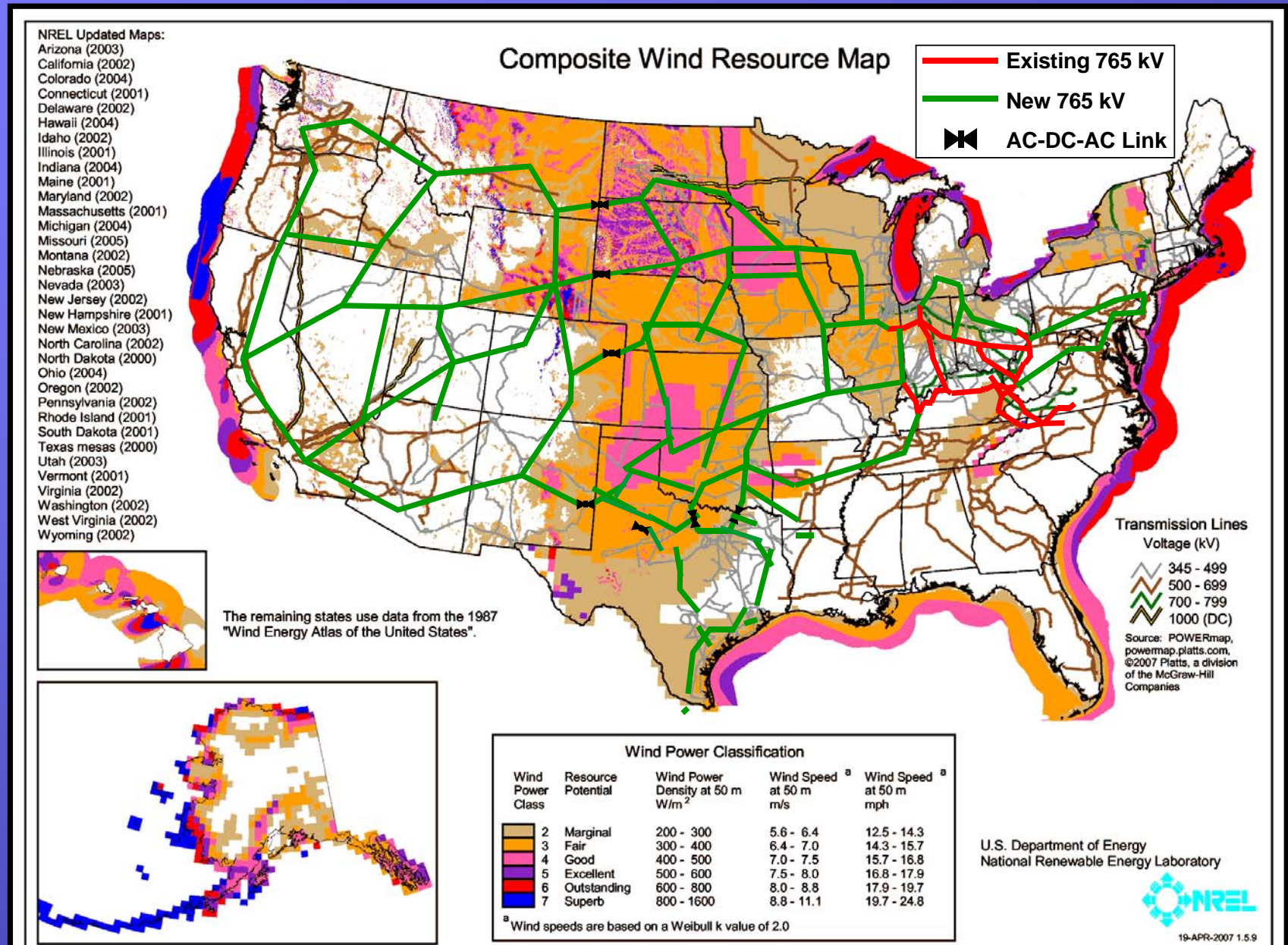
Transmission Siting

- ★ **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

★ Que 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

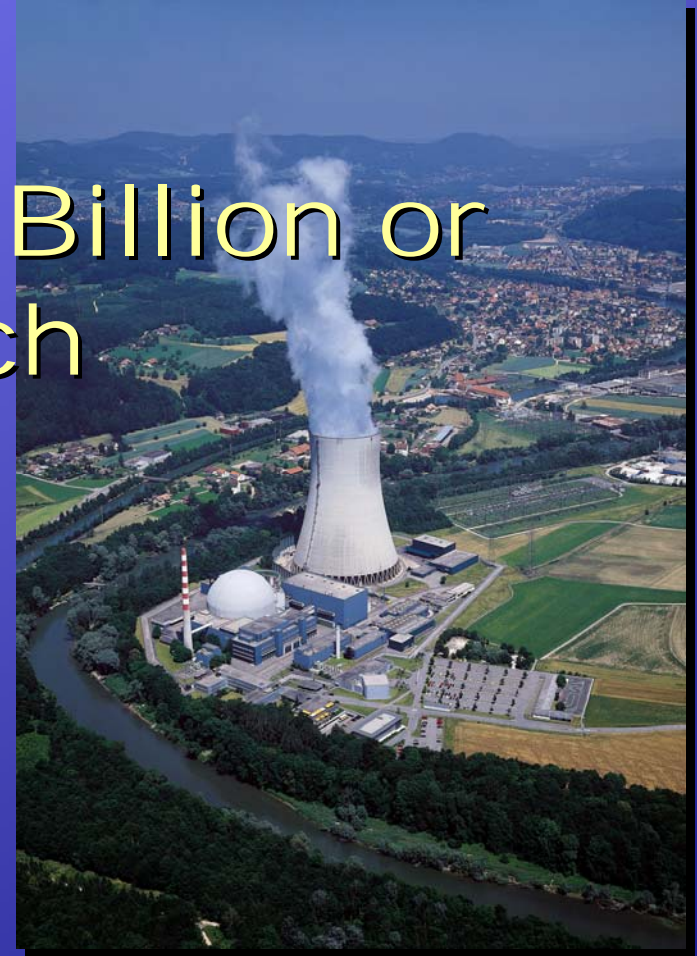
Oct. 2 (Bloomberg) -- [Southern Co.](#), [PPL Corp.](#) and [Duke Energy Corp.](#) are among 17 utilities seeking \$122 billion in loan guarantees from a U.S. Energy Department program that makes available \$18.5 billion to build nuclear plants.

Power companies that want to build 20 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

*Thank
You*