



Transforming the Grid to Revolutionize Electric Power in North America



Electricity and Economic Growth



“If the electricity infrastructure of this country is inadequate or in some way excessively costly, it will undermine economic growth, and is therefore a major issue that must be addressed.”

Alan Greenspan
Chairman of the Federal Reserve Board
January 26, 2001

Electricity Market Facts

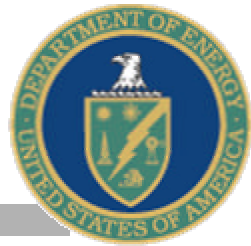


- **~\$1 trillion total asset value**
- **\$247 billion annual revenues**
- **131 million customers**
- **3200 utilities**

Without electric power the \$10.4 trillion U.S. economy would come to a halt

Transmission and distribution are essential to the electric market supply chain

Recent Major Blackouts



Texas '03

Detroit '00

Northern California '01

San Francisco '00

Delaware '99

New Orleans '99

Chicago '99

New York '99

West Coast '96

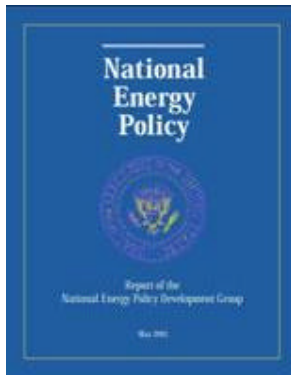
Atlanta '99

Leadership from All Levels

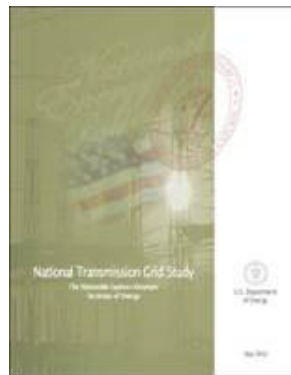


“...It is a plan to modernize our electricity delivery system. It is a plan which is needed now. It is needed for economic security. It is needed for national security...”

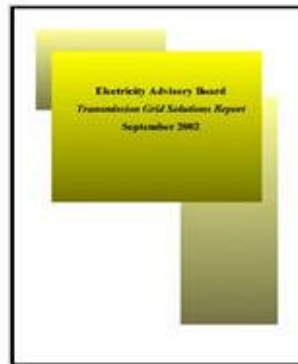
George W. Bush February 6, 2003



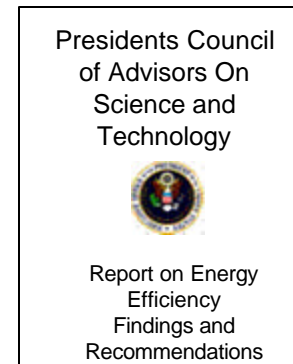
May 2001



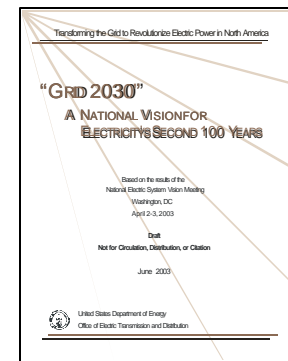
May 2002



Sept 2002



Draft
April 2003



Final Draft
July 2003

Office of of Electric T&D



Electric Systems RD&D

- **Transmission Systems**
 - Including high capacity conductors
- **Distribution and Integration**
 - Including interconnection of distributed energy
- **Electricity Storage**
- **Superconductivity**

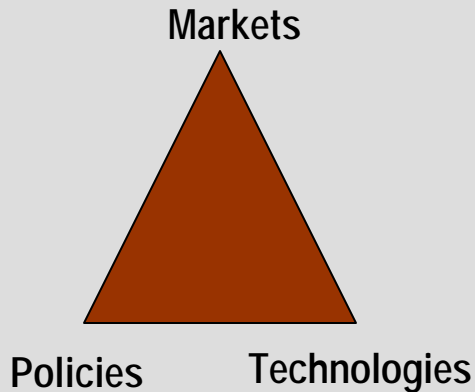
Electric Power Systems Operations and Analysis

- **Electricity Policy Modeling and Analysis**
 - Provide Check/Balance to the FERC
- **Electricity Restructuring**
- **Electricity Exports**
 - Including Presidential Permits
- **Power Marketing Administration Liaison**

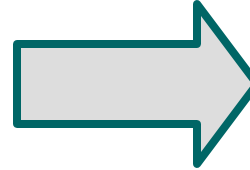
Strategy for Implementation



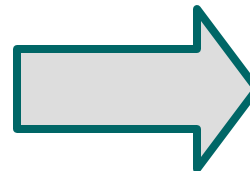
An Integrated Approach



Energy RD&D



Policy analysis,
modeling, and data
development



Coordination of
Federal, Regional,
and State Agencies



The Ultimate Goal

A competitive marketplace for expanding the use of clean, efficient, reliable, and affordable energy resources

National Electric System Vision and Roadmap Process



Participation is Paramount!

Vision

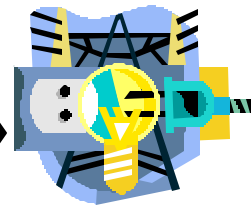
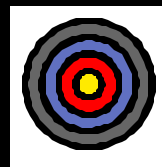
Roadmap

Implementation

Technologies
Markets
Policies

Action
Agenda

RD&D
Regulations
Market Designs

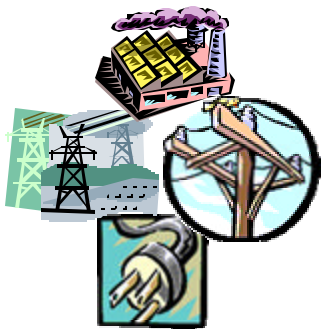


Goals

Priorities

Partnerships

*Industry
Tomorrow*



*Industry
Today*



April 2-3, 2003

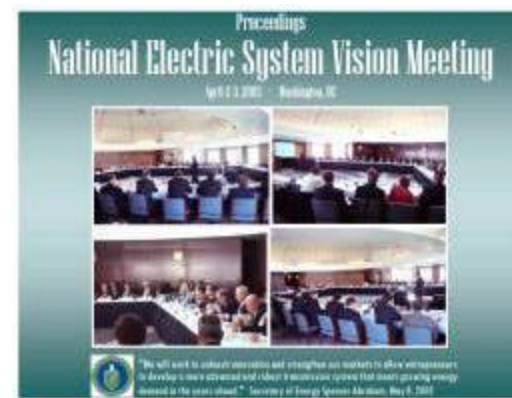
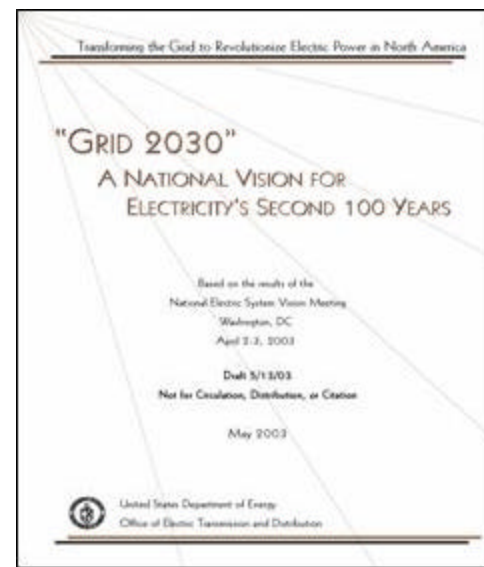
Next Step:
National Electric System Roadmap Meeting
July 8-9, 2003 (Washington, DC)



"Grid 2030" – A National Vision

Vision

"Grid 2030" energizes a competitive North American marketplace for electricity. It connects everyone to abundant, affordable, clean, efficient, and reliable electric power anytime, anywhere. It provides the best and most secure electric services available in the world.

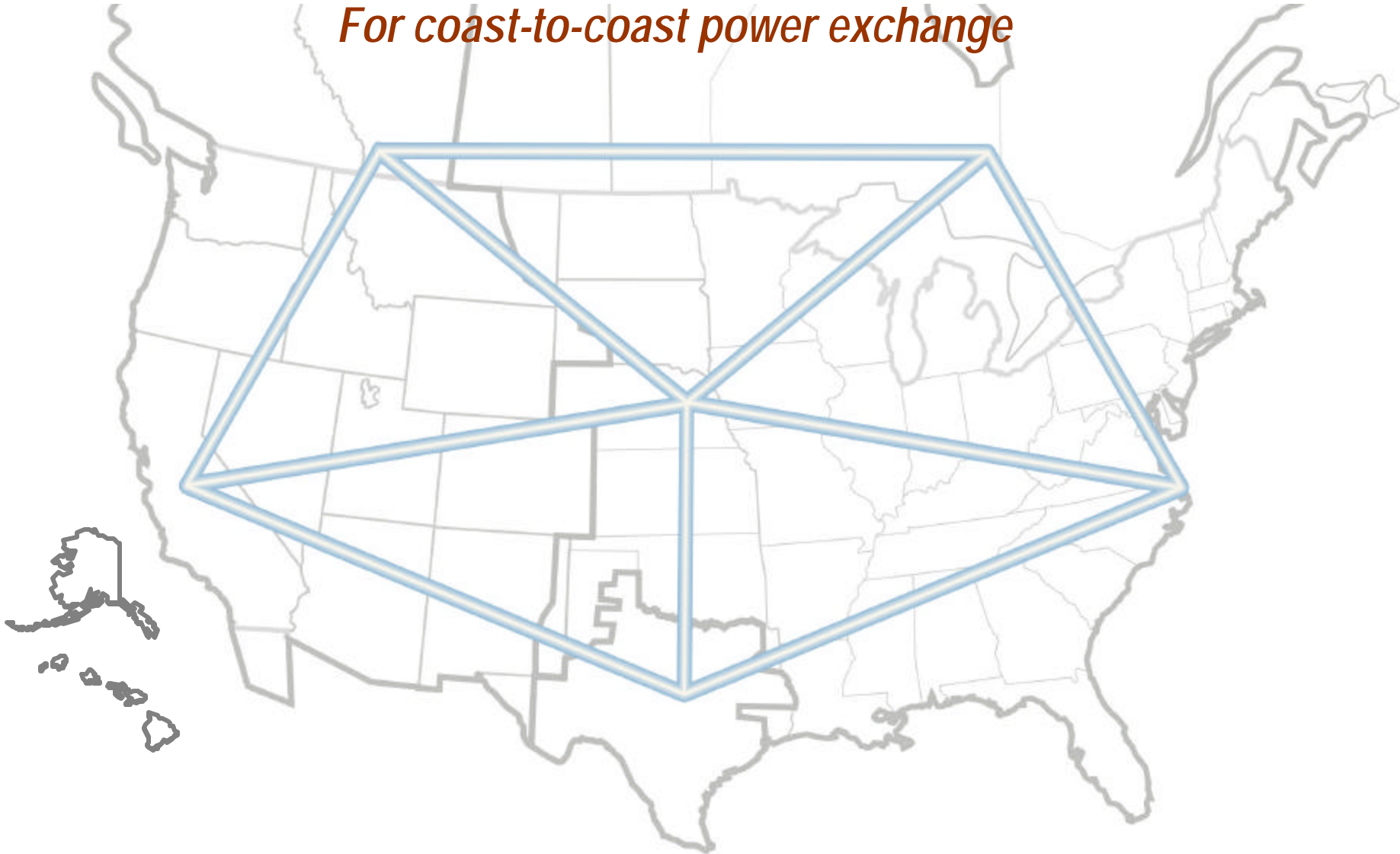


Draft proceedings and vision documents can be downloaded from
www.energetics.com/electric.html

National Electric Backbone



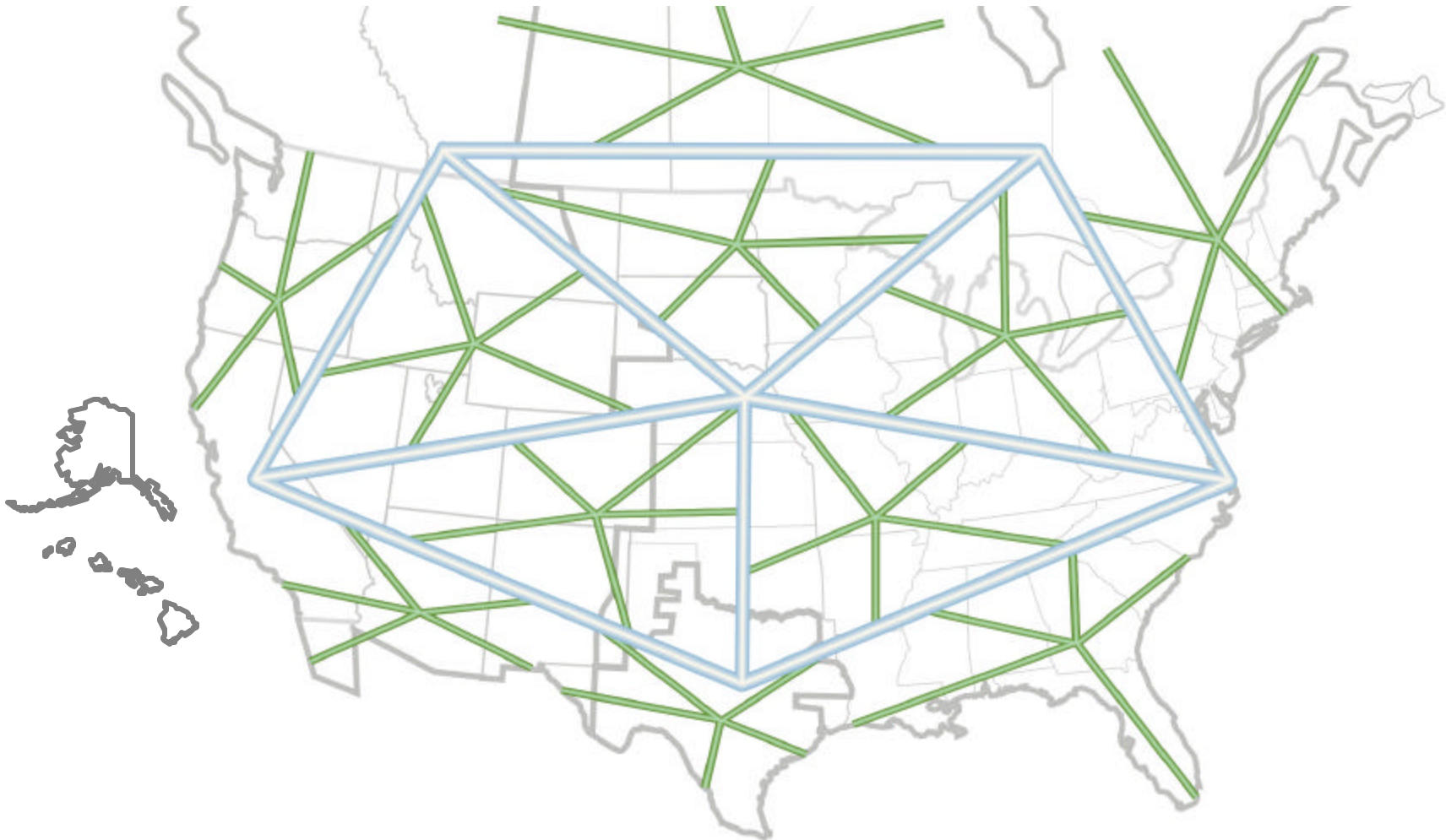
For coast-to-coast power exchange



Regional Interconnections



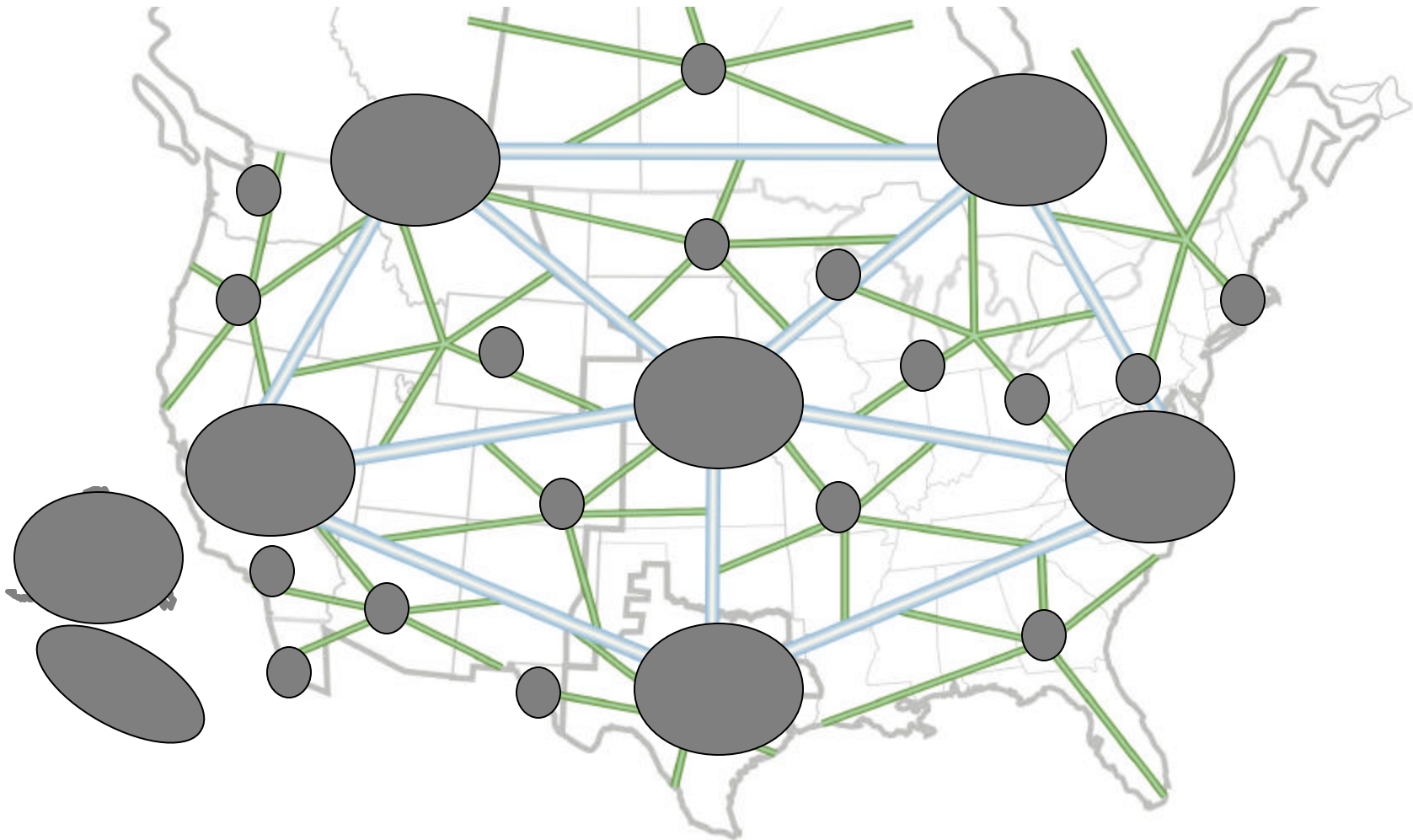
Backbone plus interconnected regional networks





Local Grid

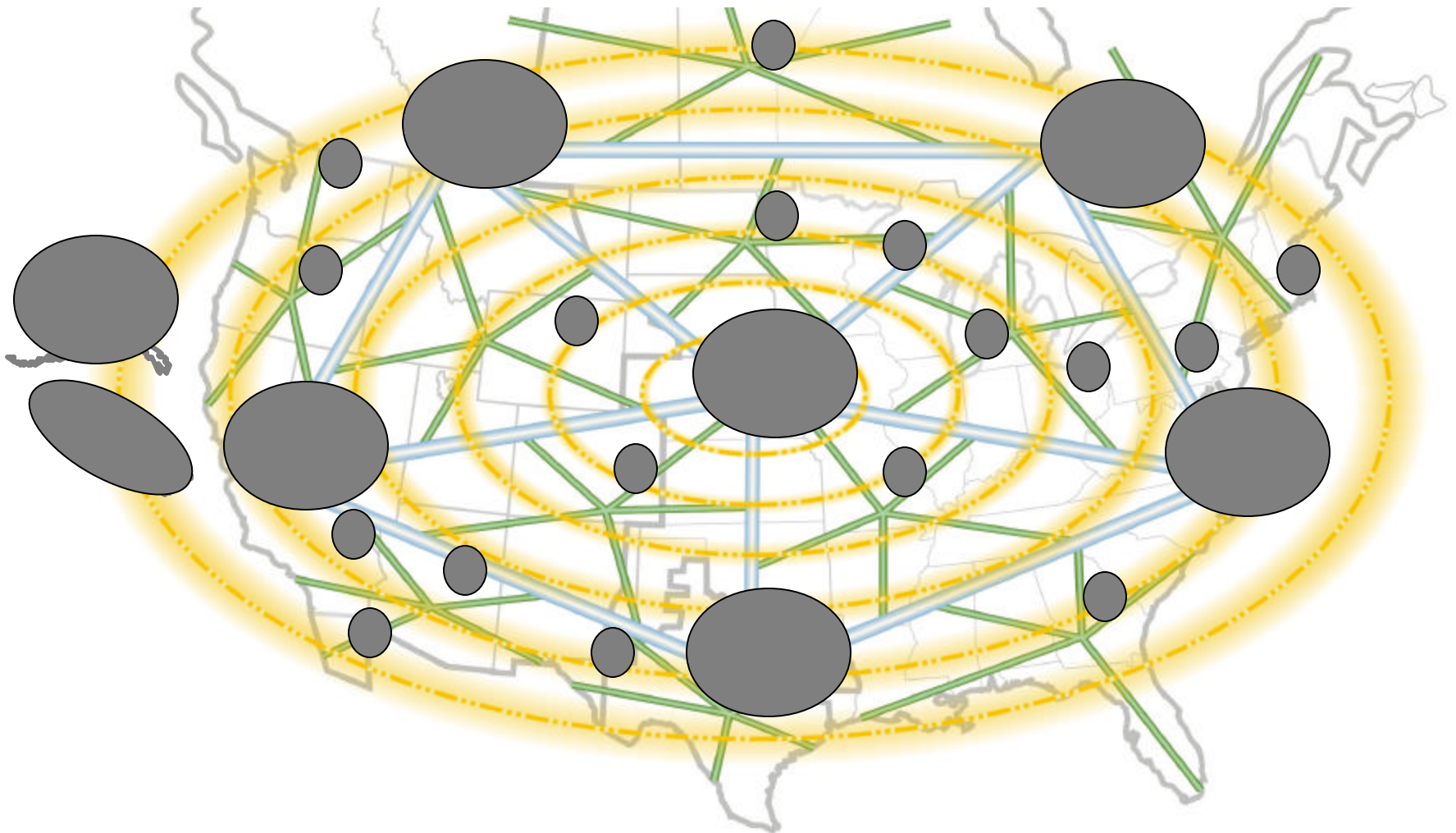
Backbone, interconnected regions, plus local and micro/mini-grids



Resulting in a National Grid



Plus integrated communications and controls architecture



Conclusion



“We will work to unleash innovation and strengthen our markets to allow entrepreneurs to develop a more advanced and robust transmission system that meets growing energy demand in the years ahead.”

Secretary of Energy Spencer Abraham, May 8, 2002