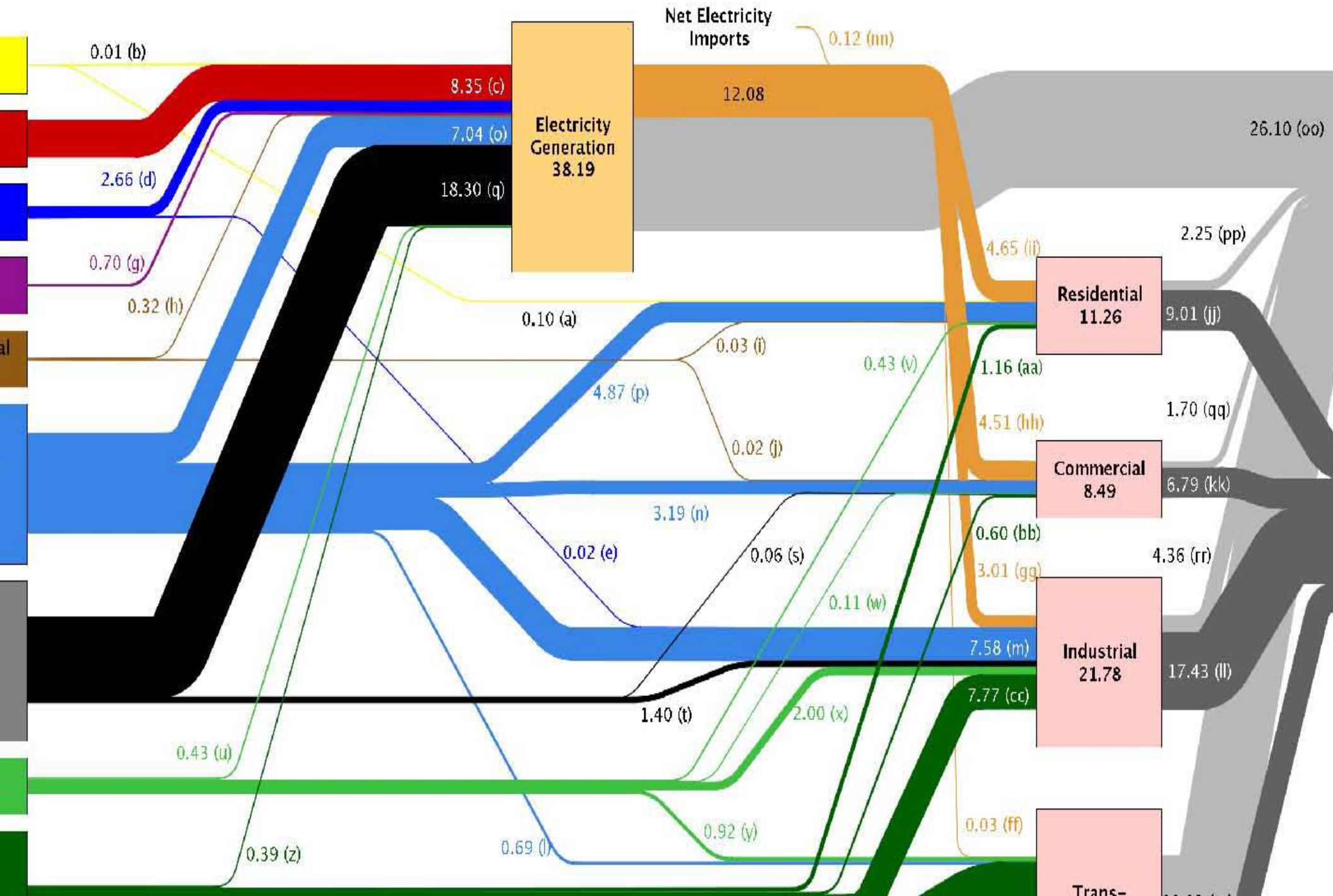


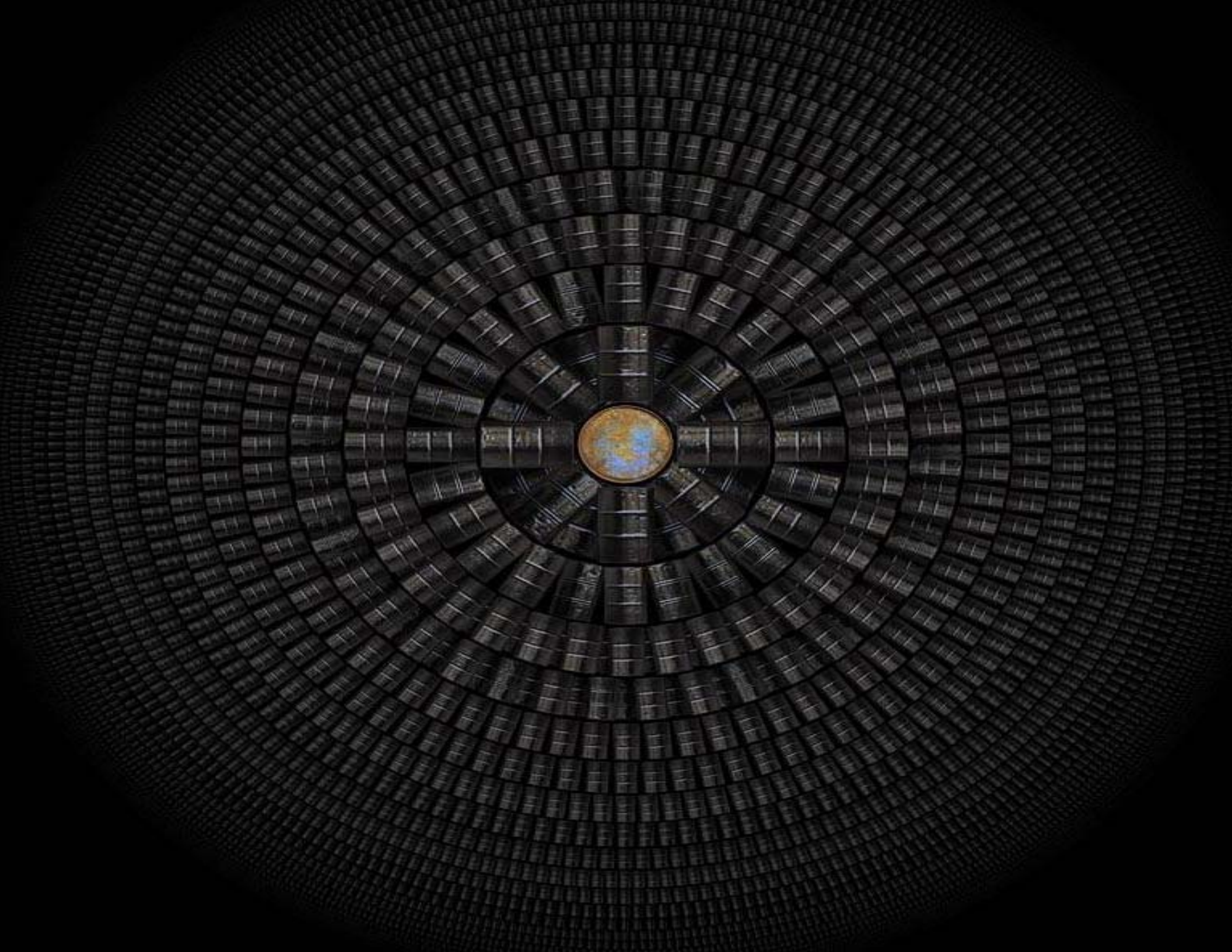
A background image showing several wind turbines in a field under a clear blue sky. The turbines are silhouetted against the sky, and the overall scene is bright and clear.

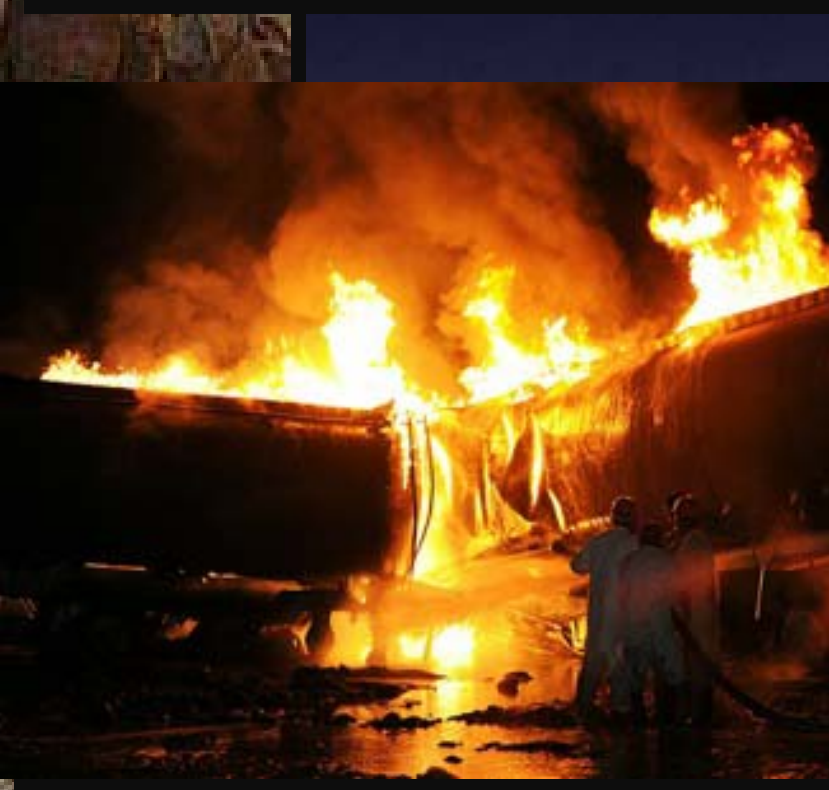
**Maine Conservation Voters  
Meeting for the “Environment”  
Portland, ME  
October 28, 2010**

**Jon Wellin  
Chairman  
Federal Energy Regulator  
Commission**

# Estimated U.S. Energy Use in 2009: ~94.6 Quads





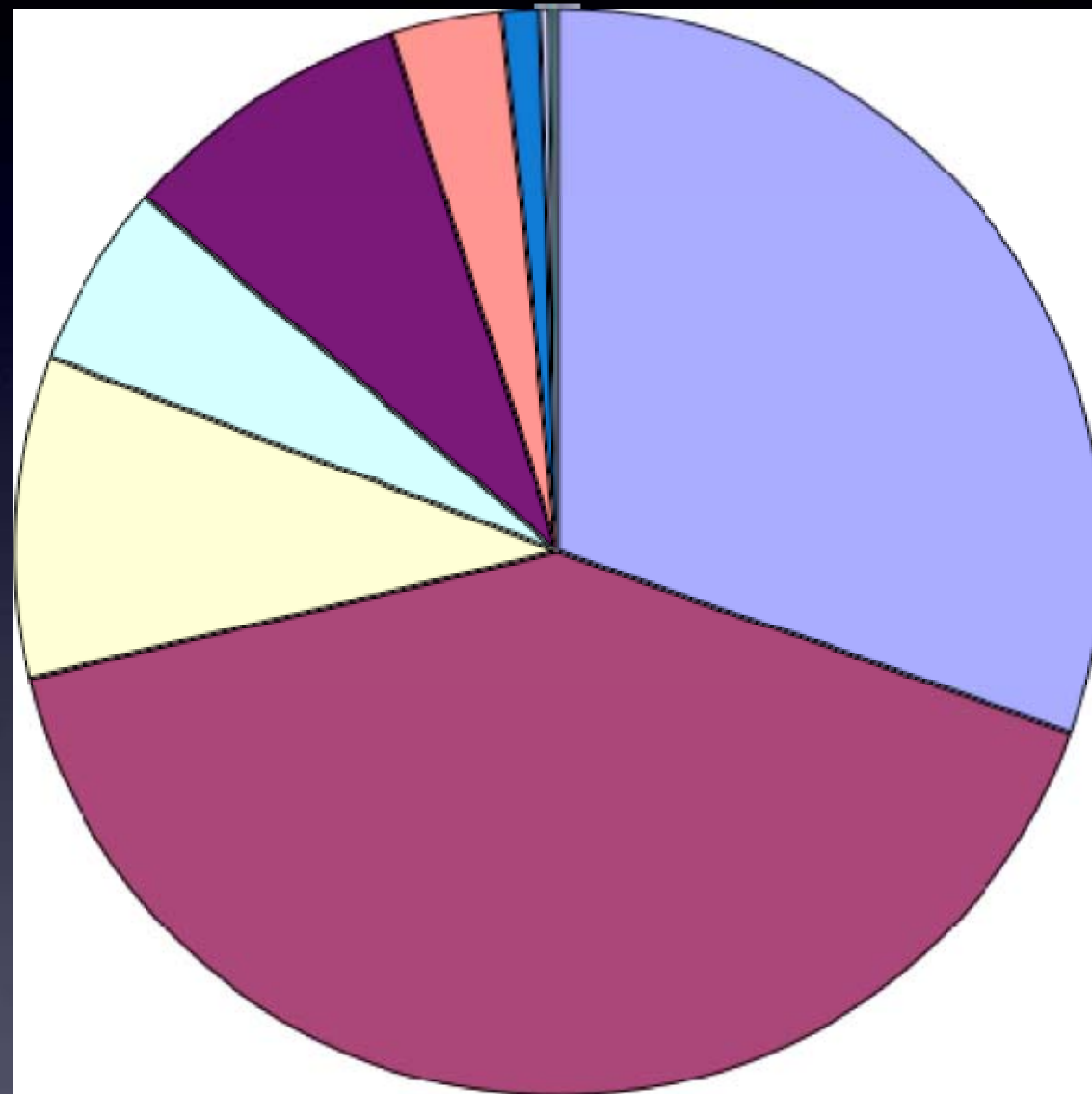




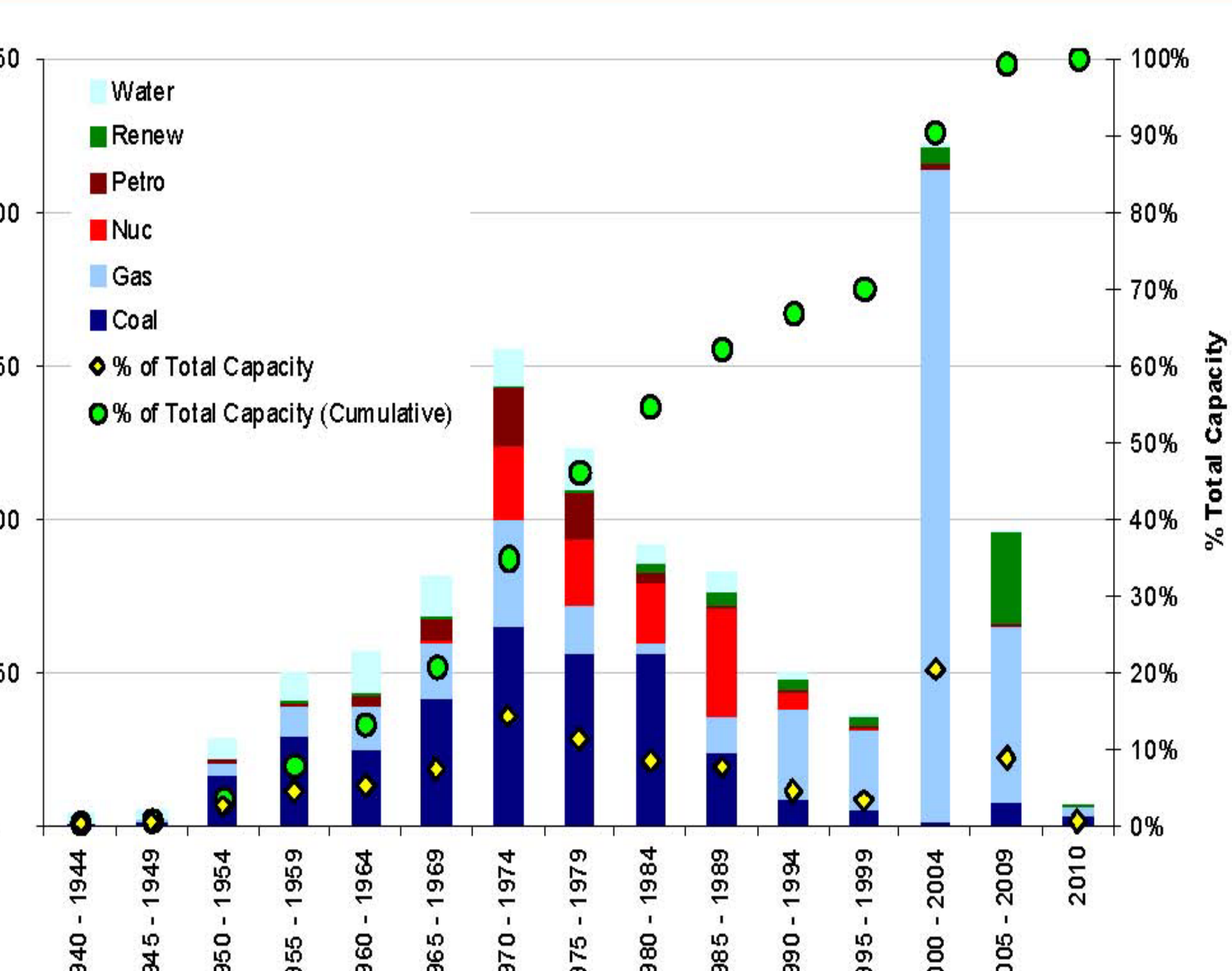




# Total Installed Generation Capacity

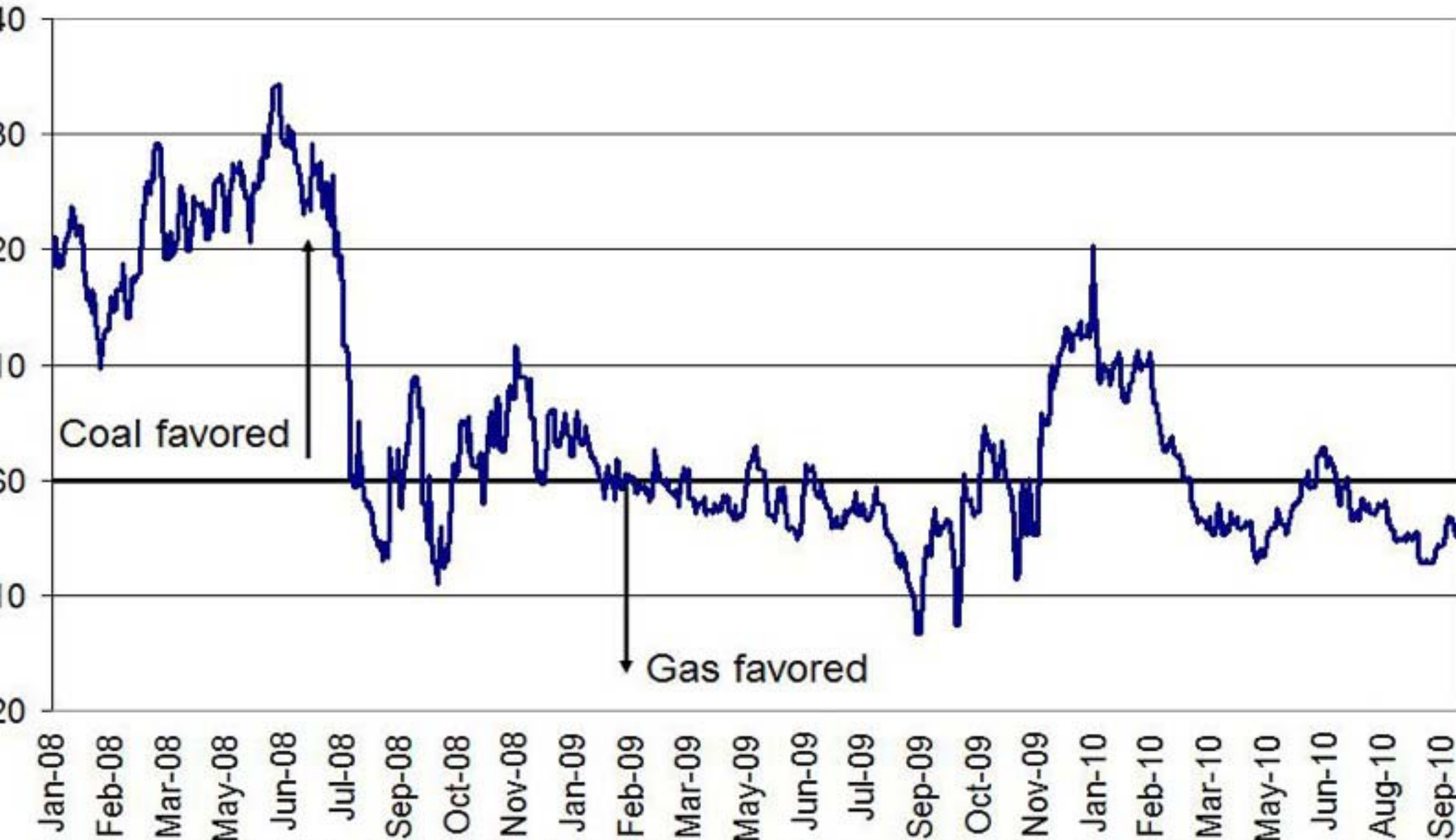




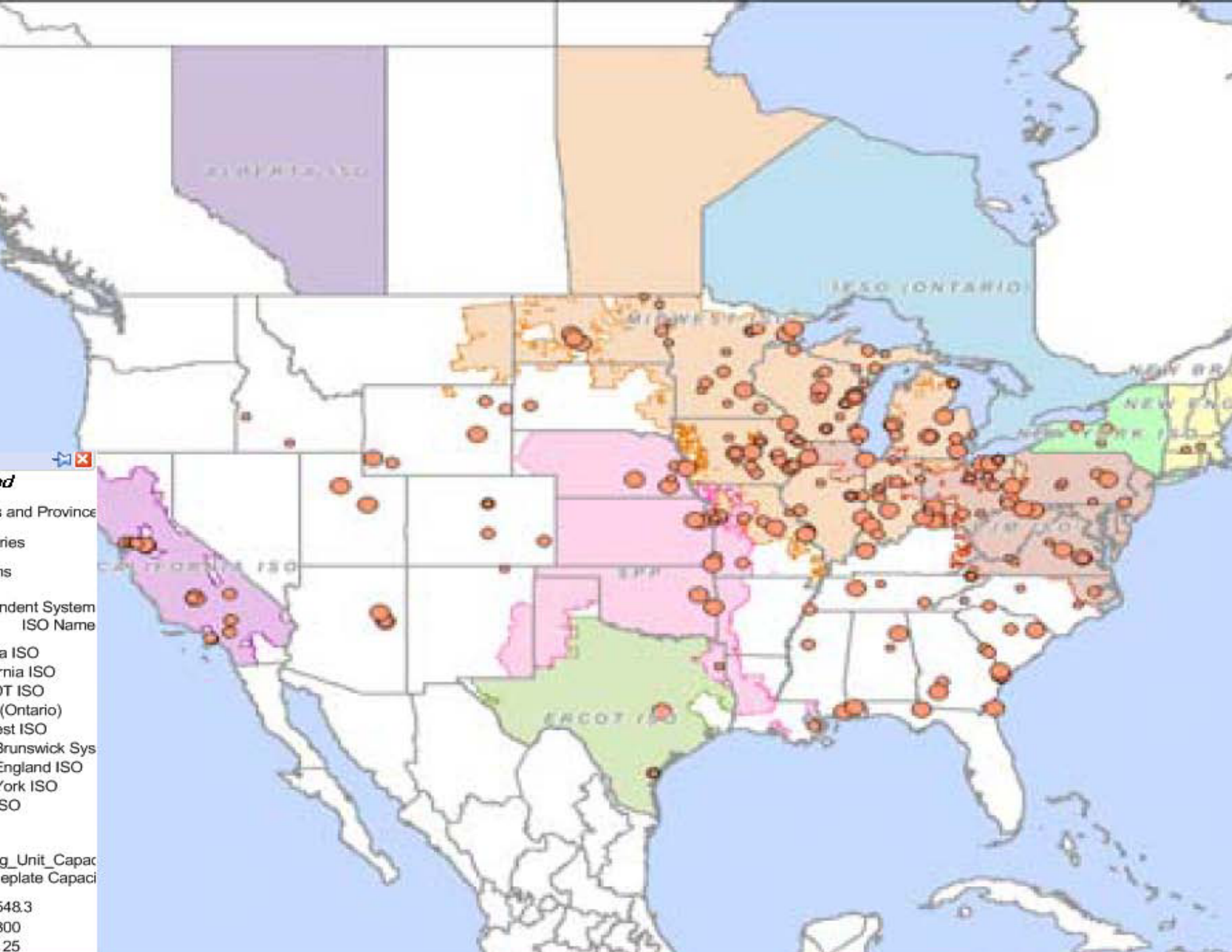


# Switching

Gas - Coal Generator Spread (\$/MWh)



Source: Derived from Bloomberg, ESI&I. Spot Central Appalachian coal and Henry Hub gas prices, relevant annual NOx and SO2 emissions cost, \$15/ton coal transportation



✚ ✖

**Legend**

States and Province

Countries

Interconnectors

Independent System Operator (ISO) Name

- California ISO
- ERCOT ISO
- Midwest ISO (Ontario)
- ISO-NE
- ISO-NTSC
- ISO-PA
- ISO-SE
- ISO-VA

g\_Unit\_Capac

plate Capaci

548.3

300

25



Montana Thrust Belt

Williston Basin

Cody

Gemmon

Bo. Hom Basin

Greater Green River Basin

Hilliard-Baxter-Mancos

Denver Basin

Fort-City Basin

Michigan Basin

Antrim

Utica

Illinois Basin

New Albany

Devonian (Ohio)

Appalachian Basin

Mancos

Ubita

Hiobrana

Excelsior-Mulky

Cherokee Platform

Hermosa

Barbox Basin

Pierre

Anadarko Basin

Fayetteville

Devonian

Lewis

San Juan Basin

Raton Basin

Woodford

Artome Basin

Back Warrior Basin

Conasauga Valley and Ridge Basin

Palo Duro Basin

Bend

Woodford-Caney

Barnett

Harnesville

Floyd-Neal

Barnett-Woodford

Permian Basin

Ft. Worth Basin

East Texas Basin

Pearsall-Eagle Ford

Maverick Basin

Meta Basin

# Utility Today?



# Technologies that Will Impact T&D Systems Over the Next Decade





**WE HAVE  
TECHNOLOGY.  
LET'S GO.**

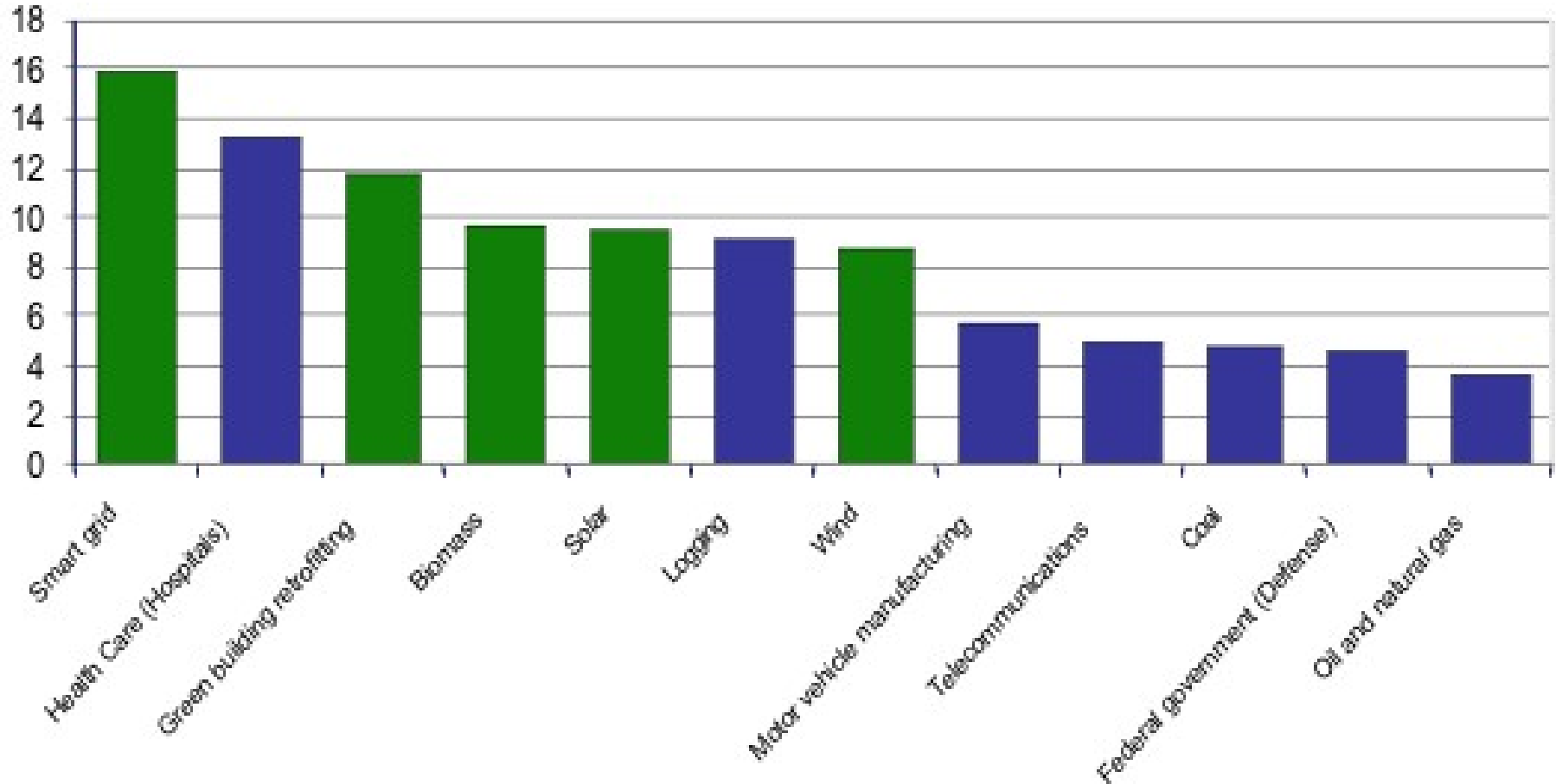
LET'S FIGURE OUT A WAY  
TO CHARGE FOR SUNSHINE!

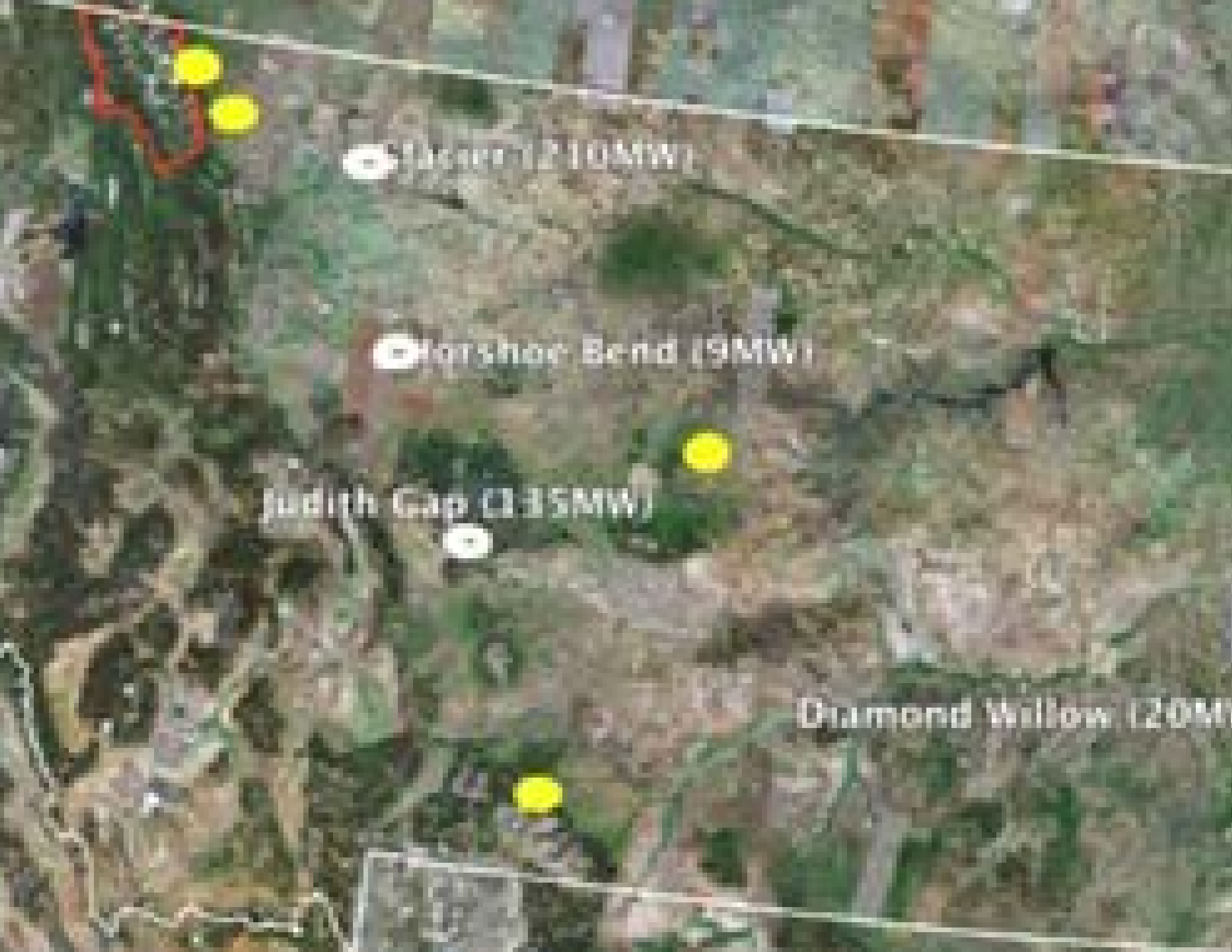




# Clean Energy Generation are Job Creation Engines

Direct and indirect jobs created per \$1M



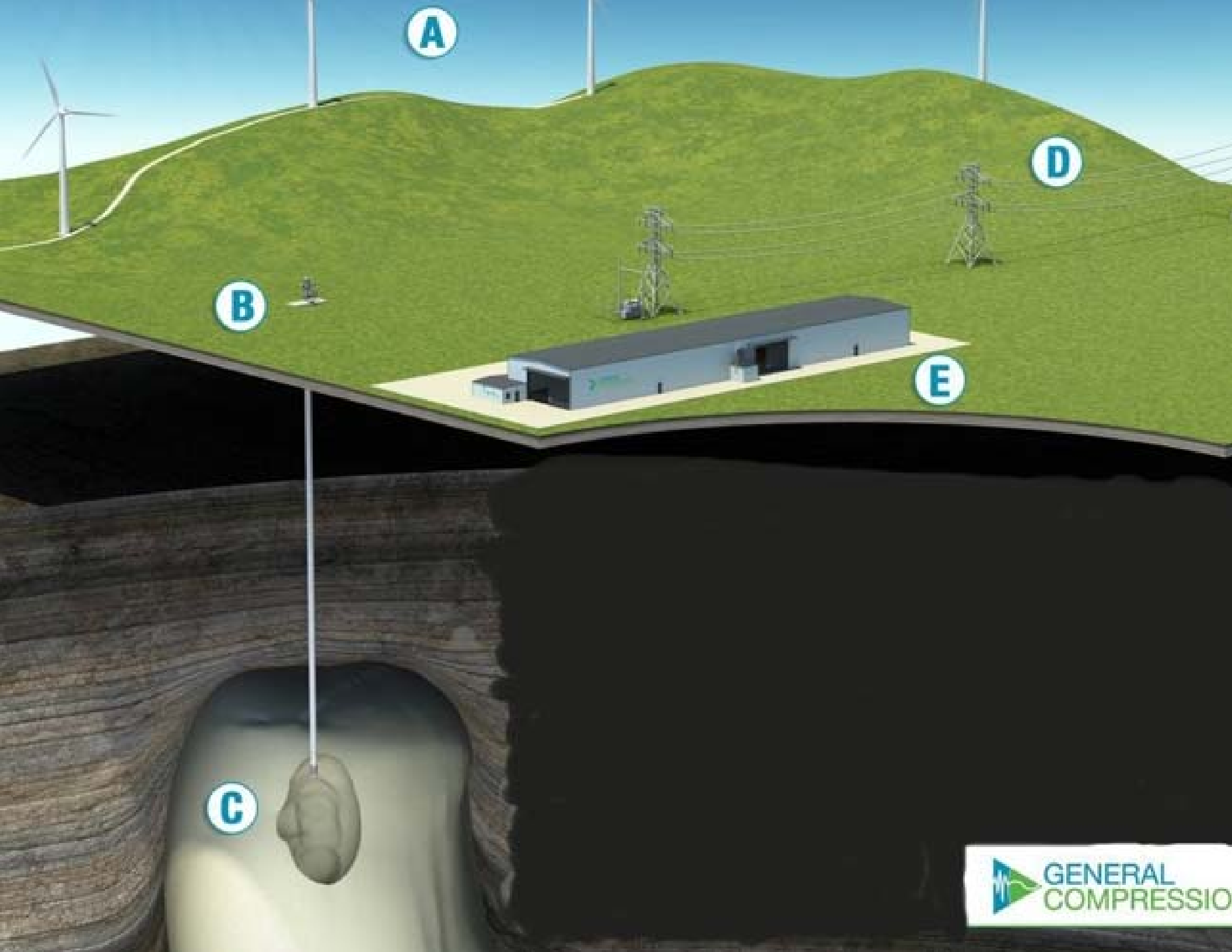


Sugar Creek (210MW)

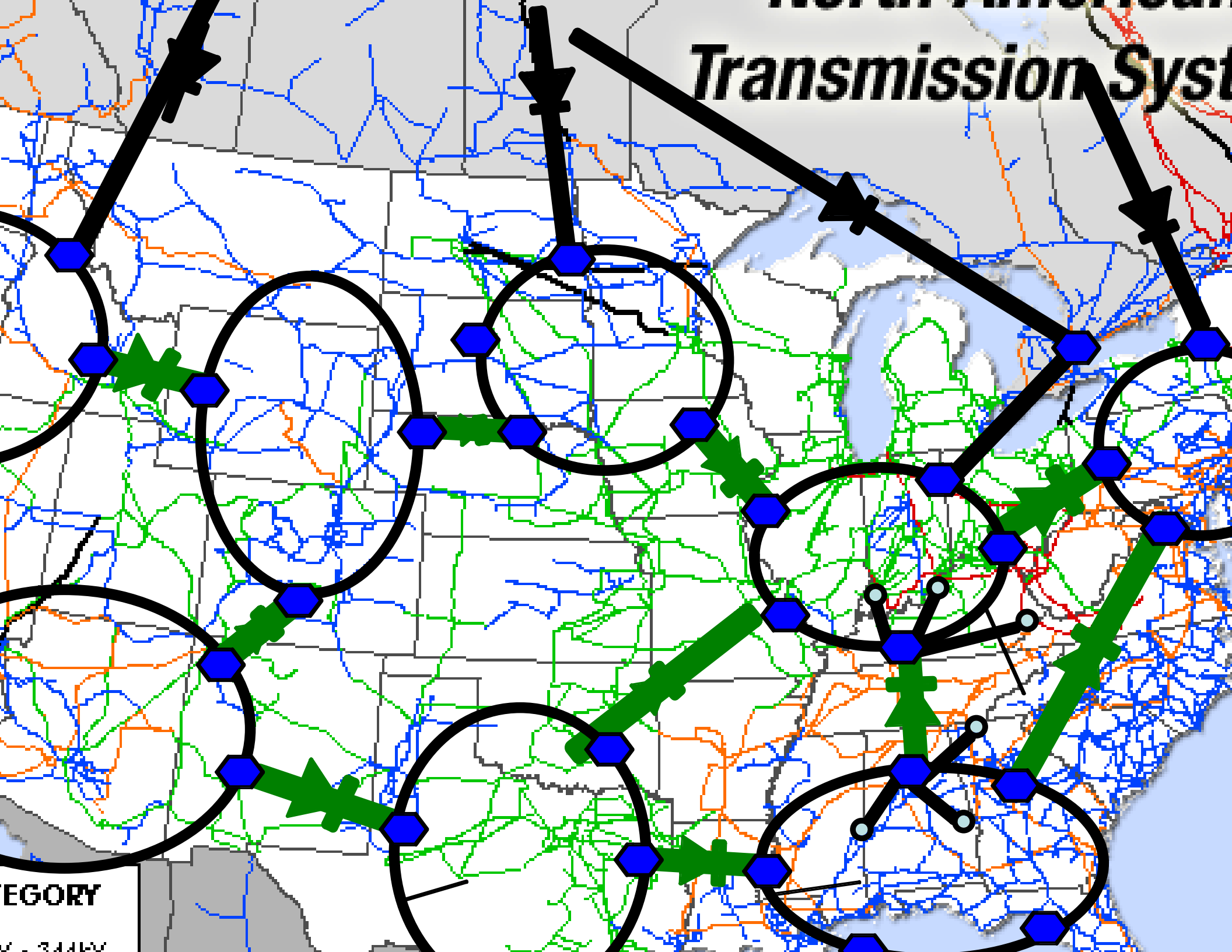
Horseshoe Bend (19MW)

Judith Gap (135MW)

Diamond Willow (20MW)

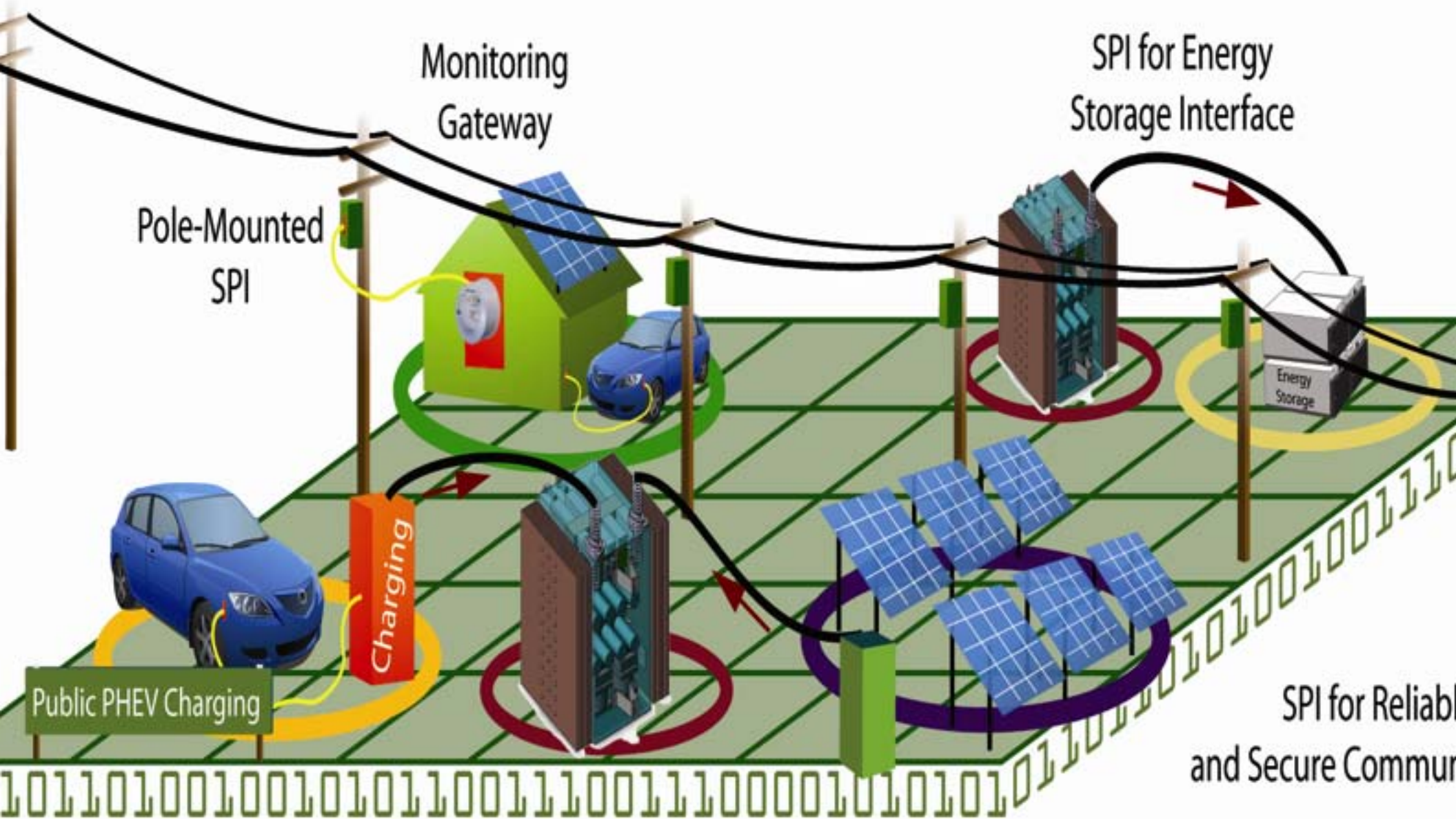


# Transmission System



CATEGORY

344W



Monitoring Gateway

SPI for Energy Storage Interface

Pole-Mounted SPI

Energy Storage

Charging

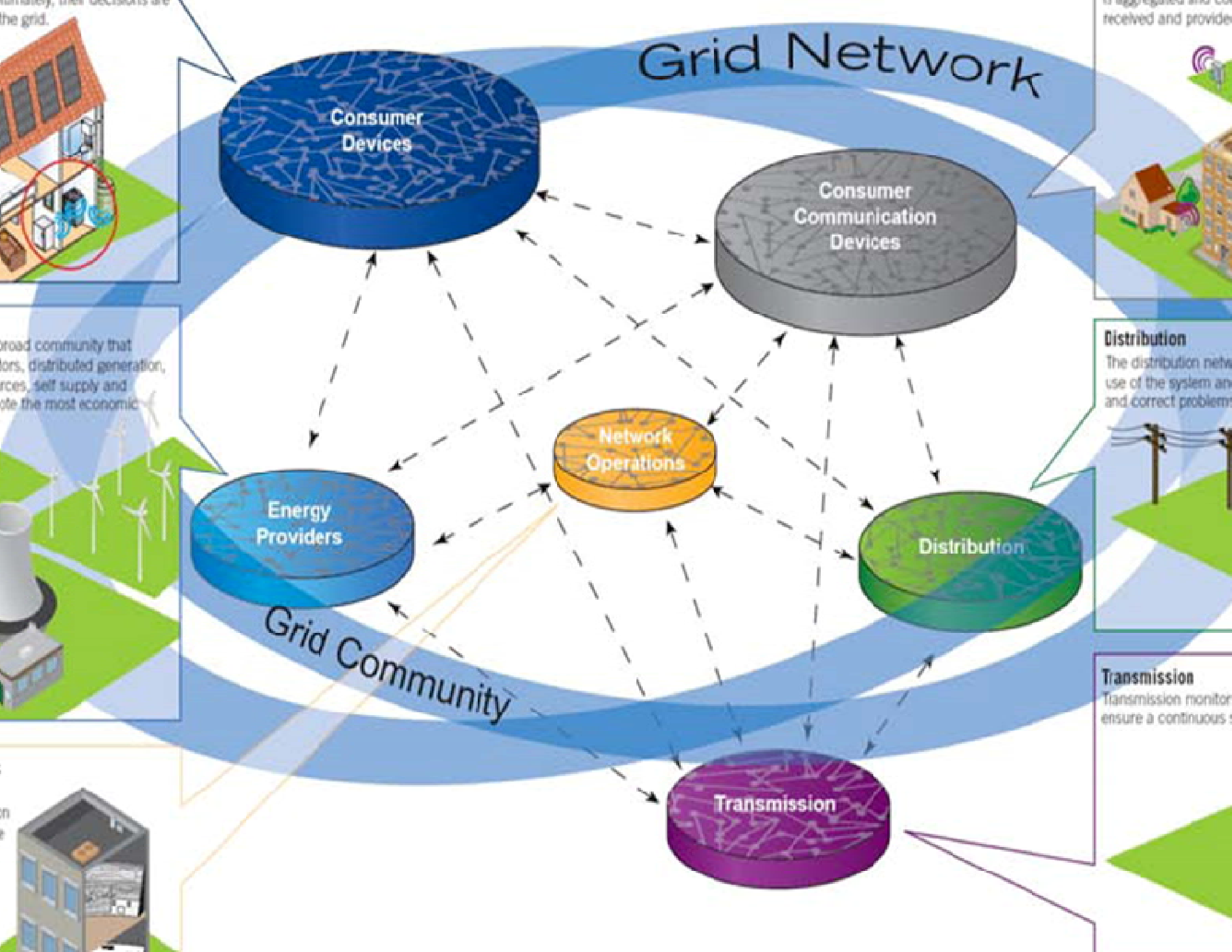
Public PHEV Charging

SPI for Reliability and Secure Communication

SPI for PHEV Smart & Fast Charging

SPI for Distribution Transformer

SPI for PV Integration



# Grid Network



**Distribution**  
The distribution network is used for the use of the system and to detect and correct problems.

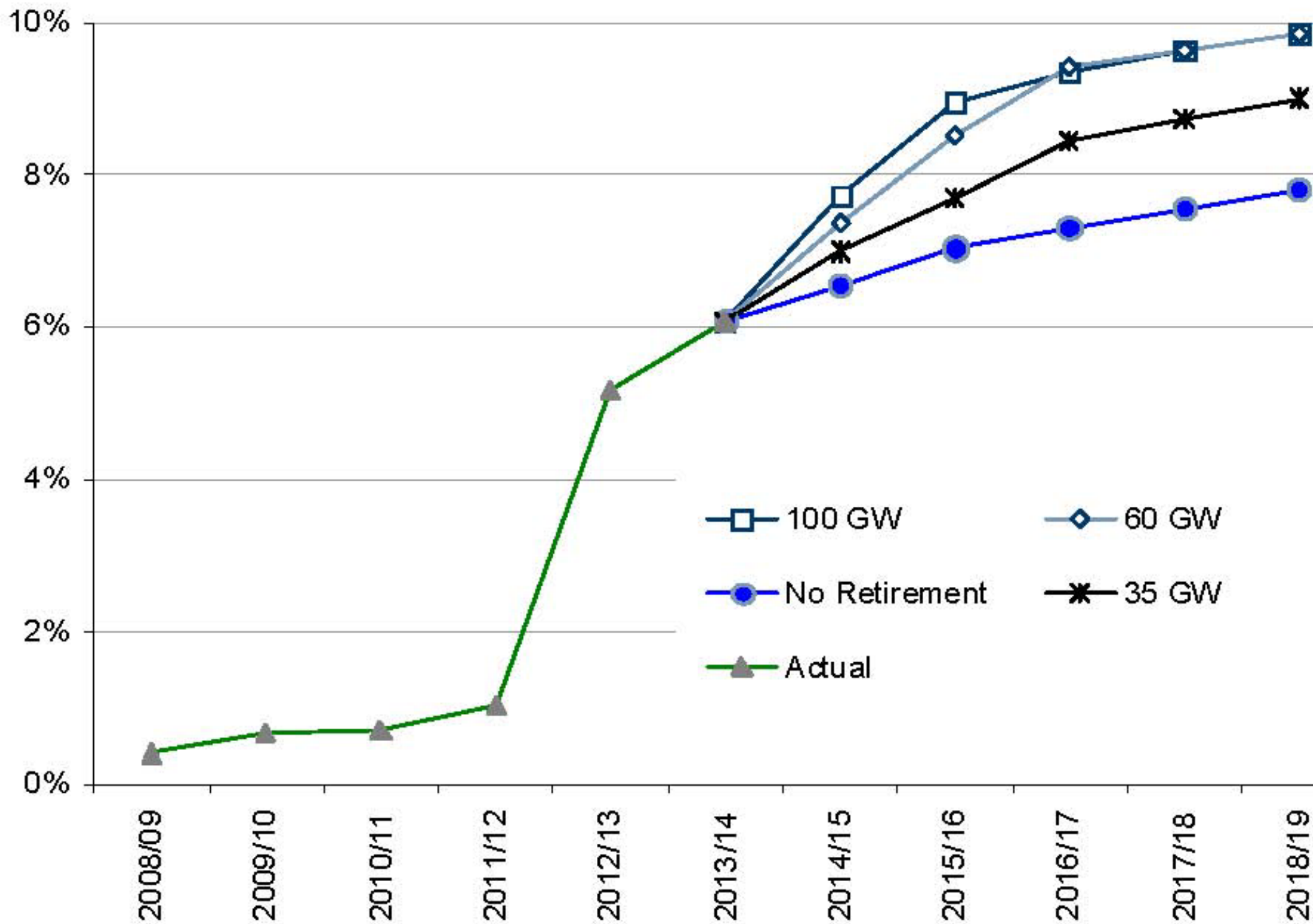
**Transmission**  
Transmission monitoring is used to ensure a continuous supply of power.

Smart community that  
incorporates distributed generation,  
renewable resources, self supply and  
storage to provide the most economic  
and efficient use of the system.

Smart meters, their decisions are  
communicated to the grid.

Smart buildings  
can interact with the grid to  
optimize energy use.

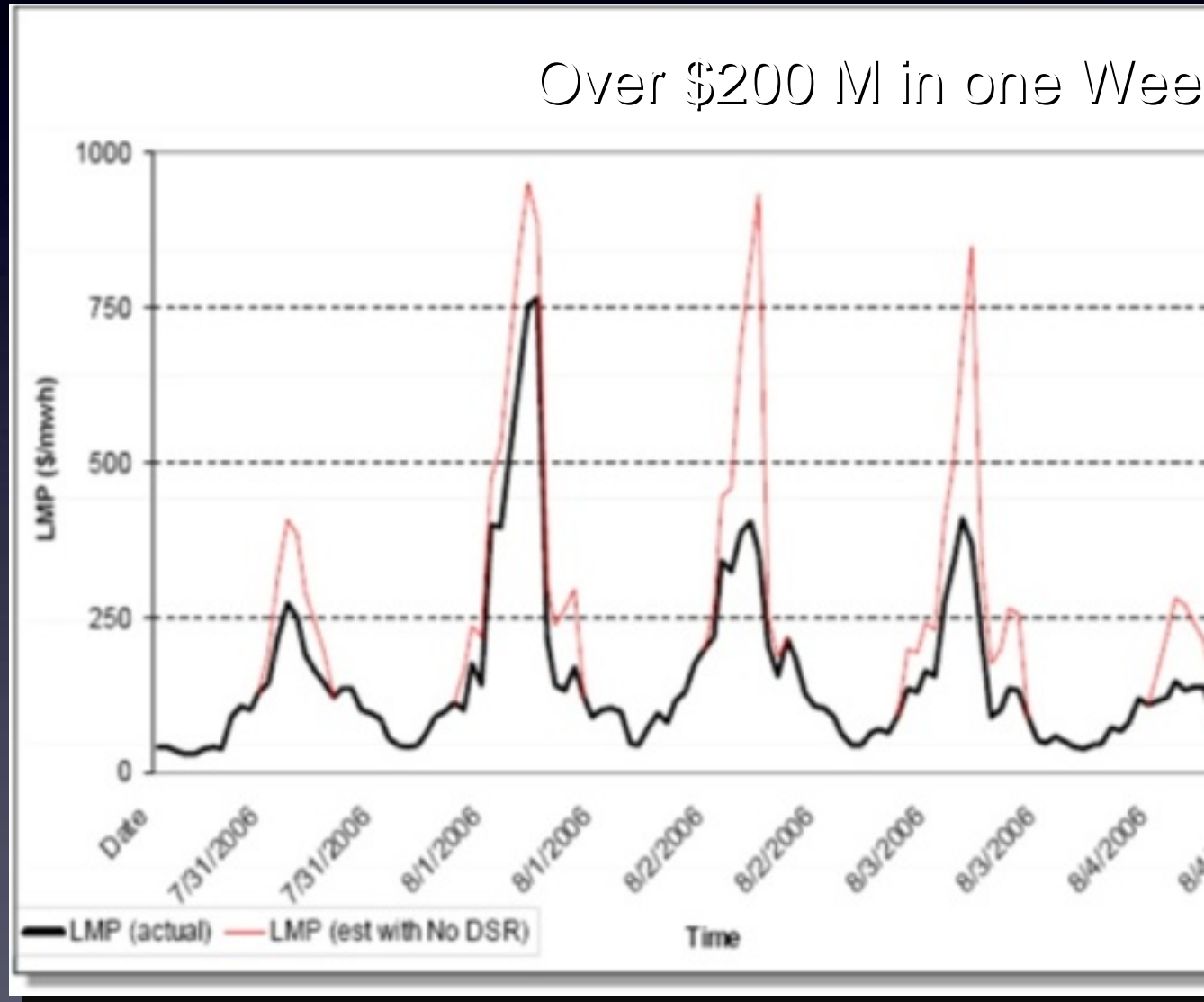
# Demand Response % UCAP



# Grid Benefits of Demand Response

- **PJM Study Shows that a 3% Reduction in demand of Top 20 Five-hour Blocks in 5 Mid-Atlantic States Could Save \$280 Million per Year**

**The Brattle Group Estimates that a 5% Reduction in Grid Peak Load Can Result in \$3 Billion Savings Annually, for PV Over 20 Years of \$21 Billion**





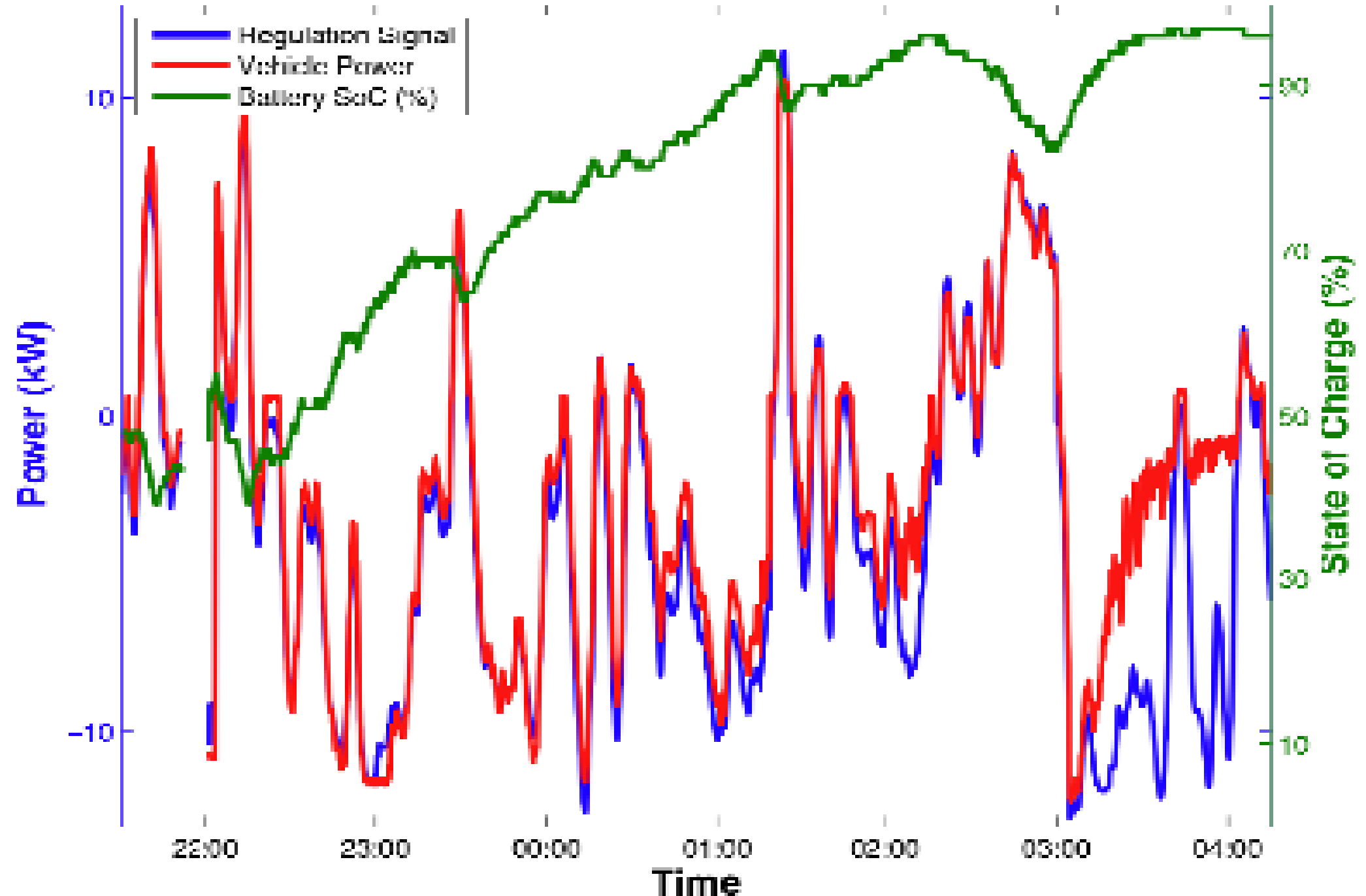
# Electric Transportation - Key to the Nation's Freedom from Oil





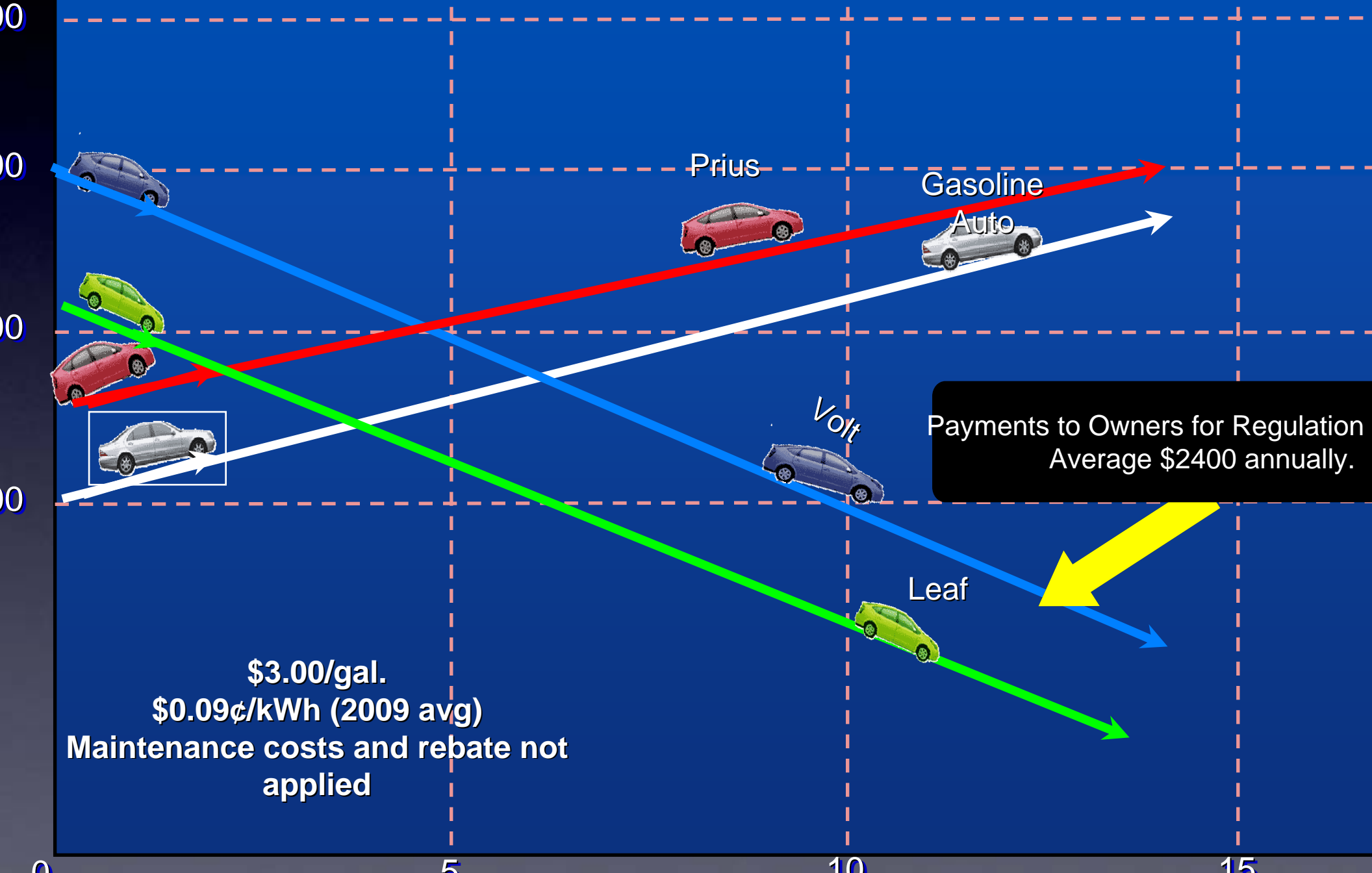
# Regulation Services While Charging

## Regulation Supply (incidental charging)



# Cashback Car

LI-ION BATTERIES



Payments to Owners for Regulation  
Average \$2400 annually.

\$3.00/gal.  
\$0.09¢/kWh (2009 avg)  
Maintenance costs and rebate not  
applied



**Thank  
you!**