A Global View of the Power Market and Impact to U.S. Nuclear Power Industry

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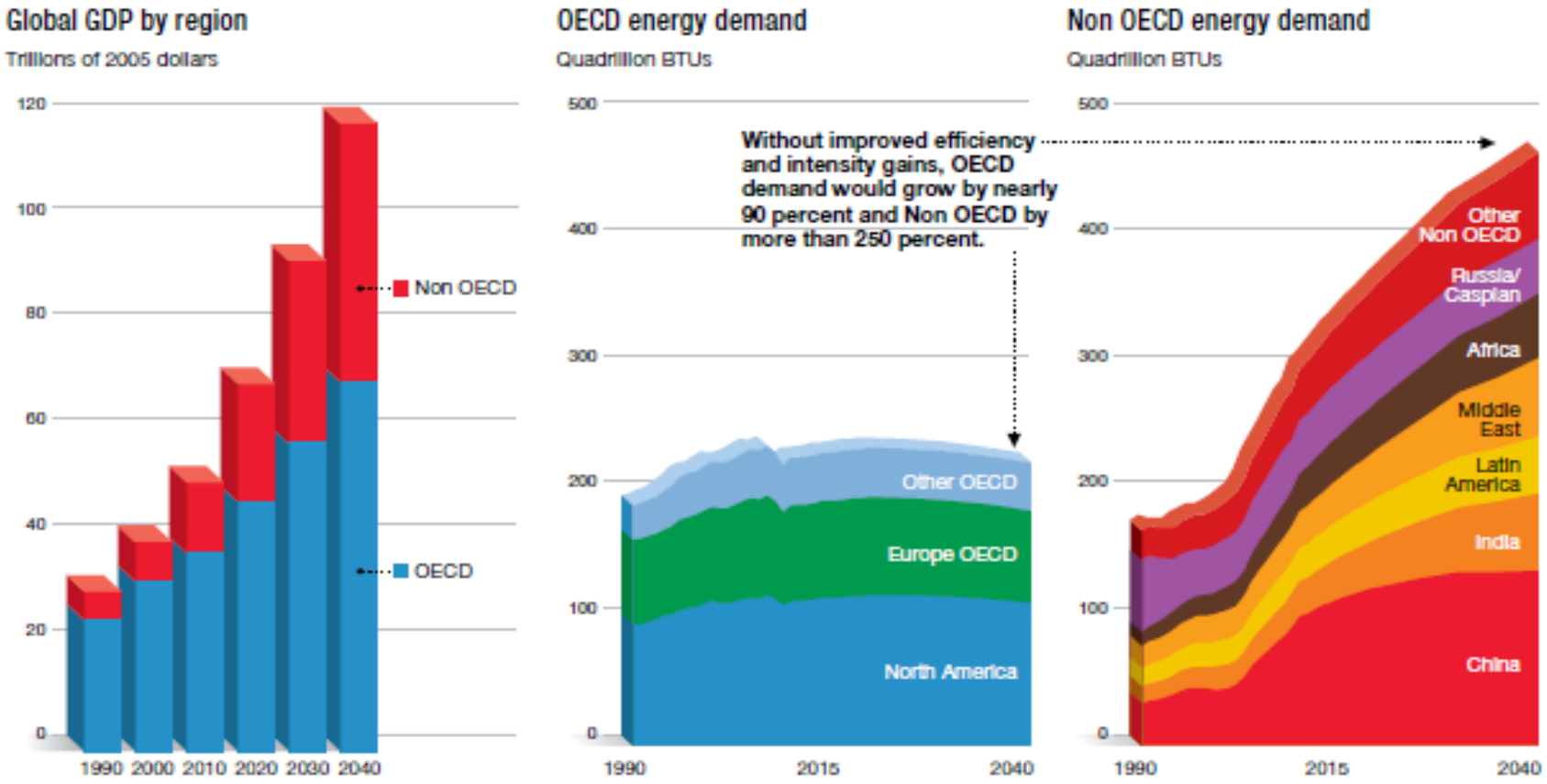
Global GDP and Energy Demand Growth by Region



Source: ExxonMobil – The Outlook for Energy - A View to 2040

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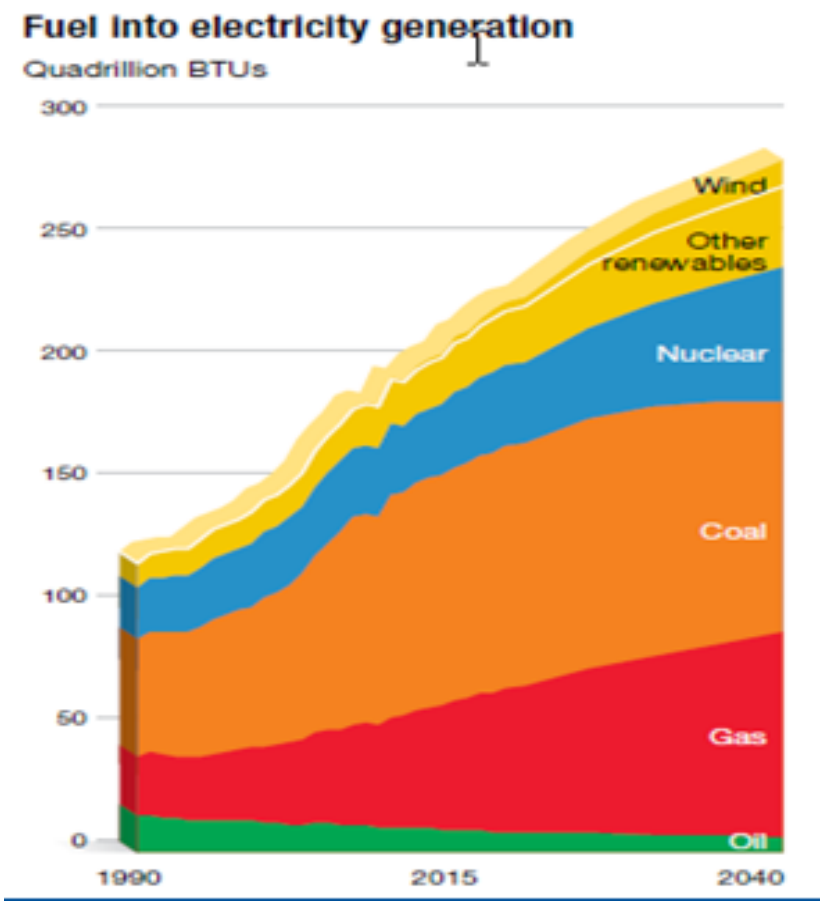
Importance of Energy and Power (Electricity) in Modern Society

- Energy use is well correlated with national economic prosperity and individual quality of life
- Global energy use will grow ~30% by 2040, but in non-OECD countries by ~60%, where most population increases will occur
- Energy to make power is the single biggest driver of demand; will account for more than 40% of global energy consumption by 2040
- Power is easily transported, can be converted into many useful forms, but is very difficult to store
- Energy demand growth will slow as economies mature, efficiency gains accelerate, and population growth moderates

Power Generation Growth by Fuel Type

- Power demand grows by 80%
- Natural gas used to generate power will grow the most (~30%), coal and oil will decline, and nuclear and renewables will gain significantly
- Nuclear predicted to grow globally ≥2.0%/year, which is lower than prior to the Great East Japan Earthquake and Tsunami



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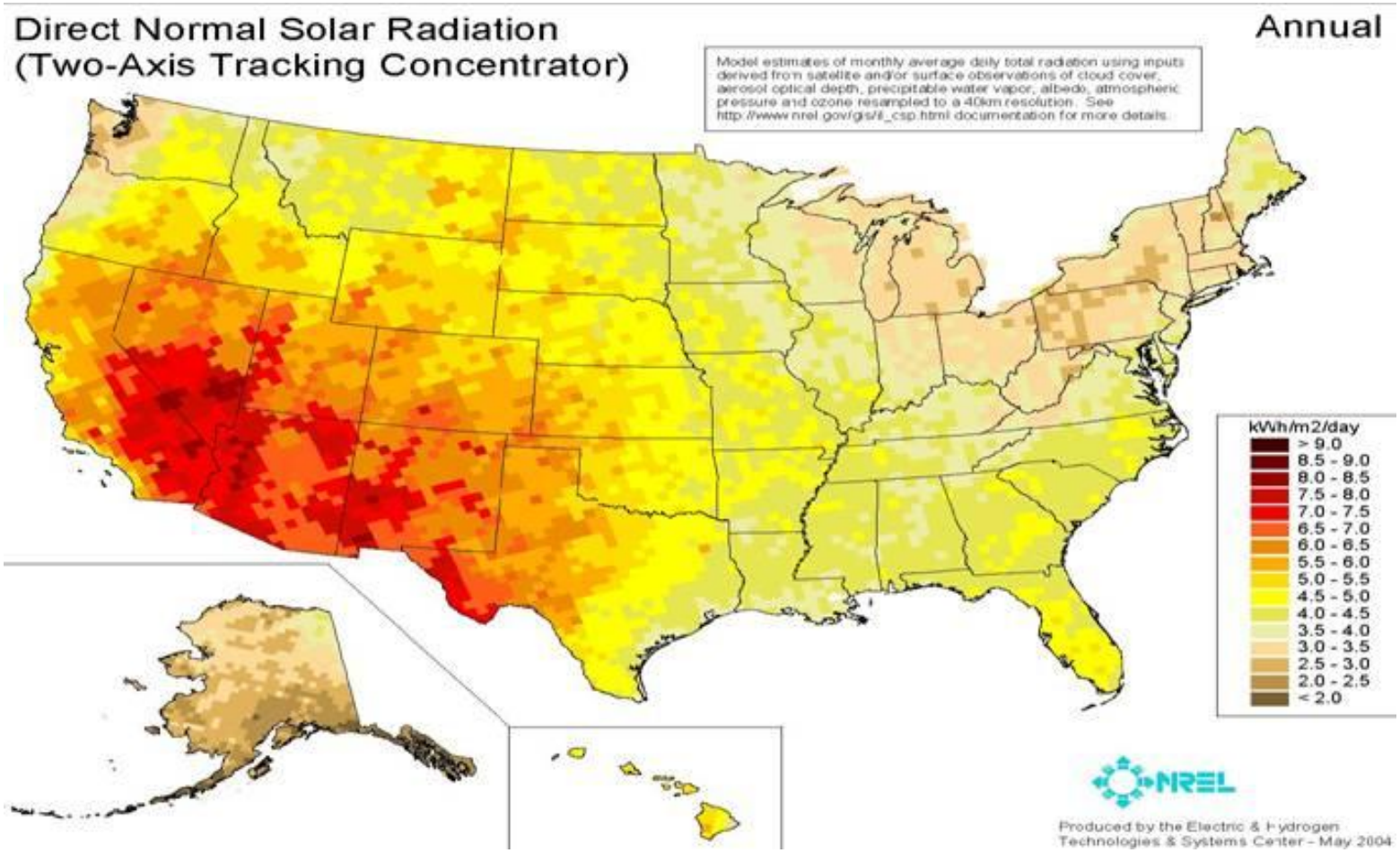
Solar Potential – A U.S. Example



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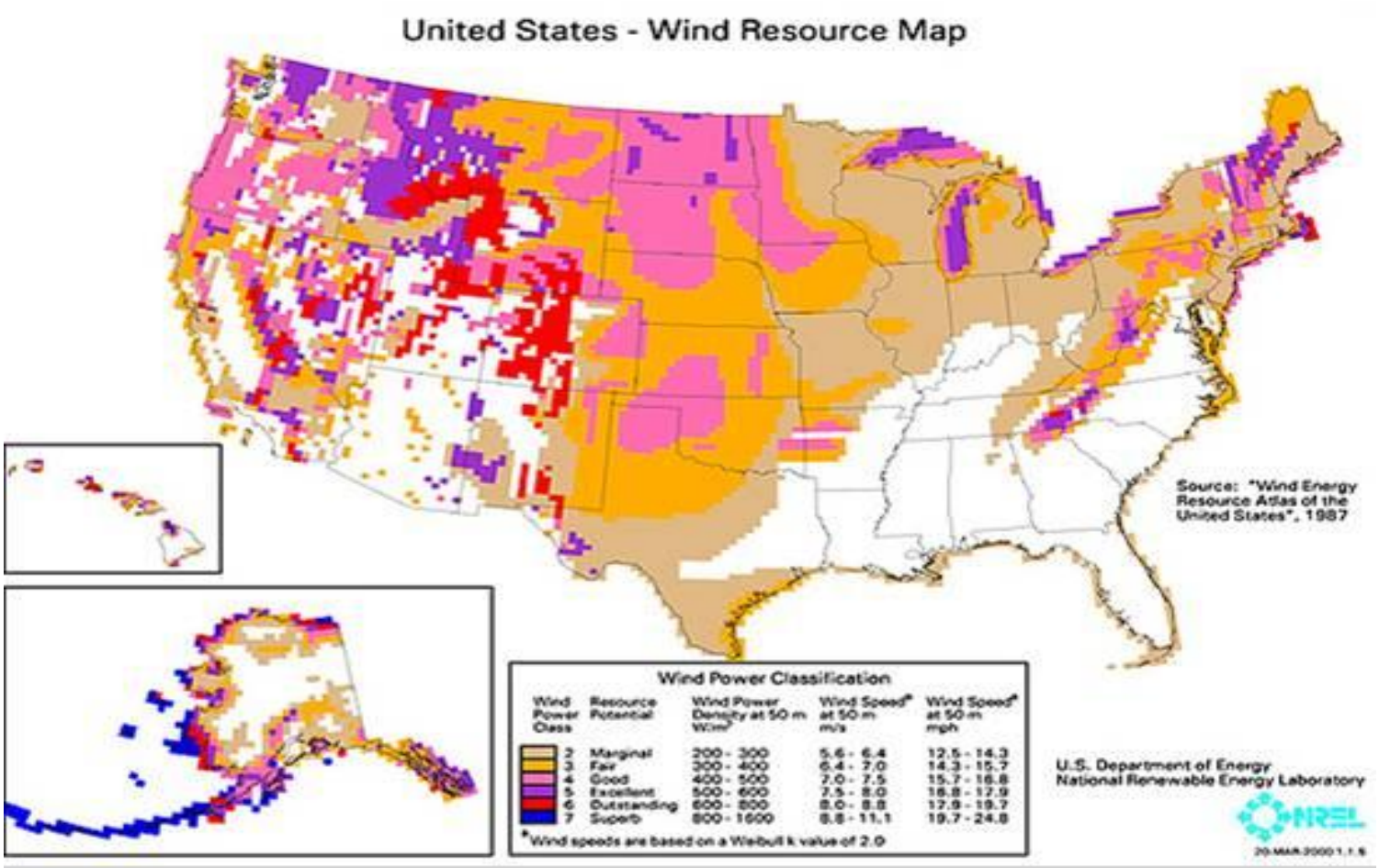
Wind Potential – A U.S. Example



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Equivalent Wind Power to New V.C. Summer Nuclear Plants

Equivalent Wind

Turbines 3 deep (3/4 mi) along the entire South Carolina coastline!

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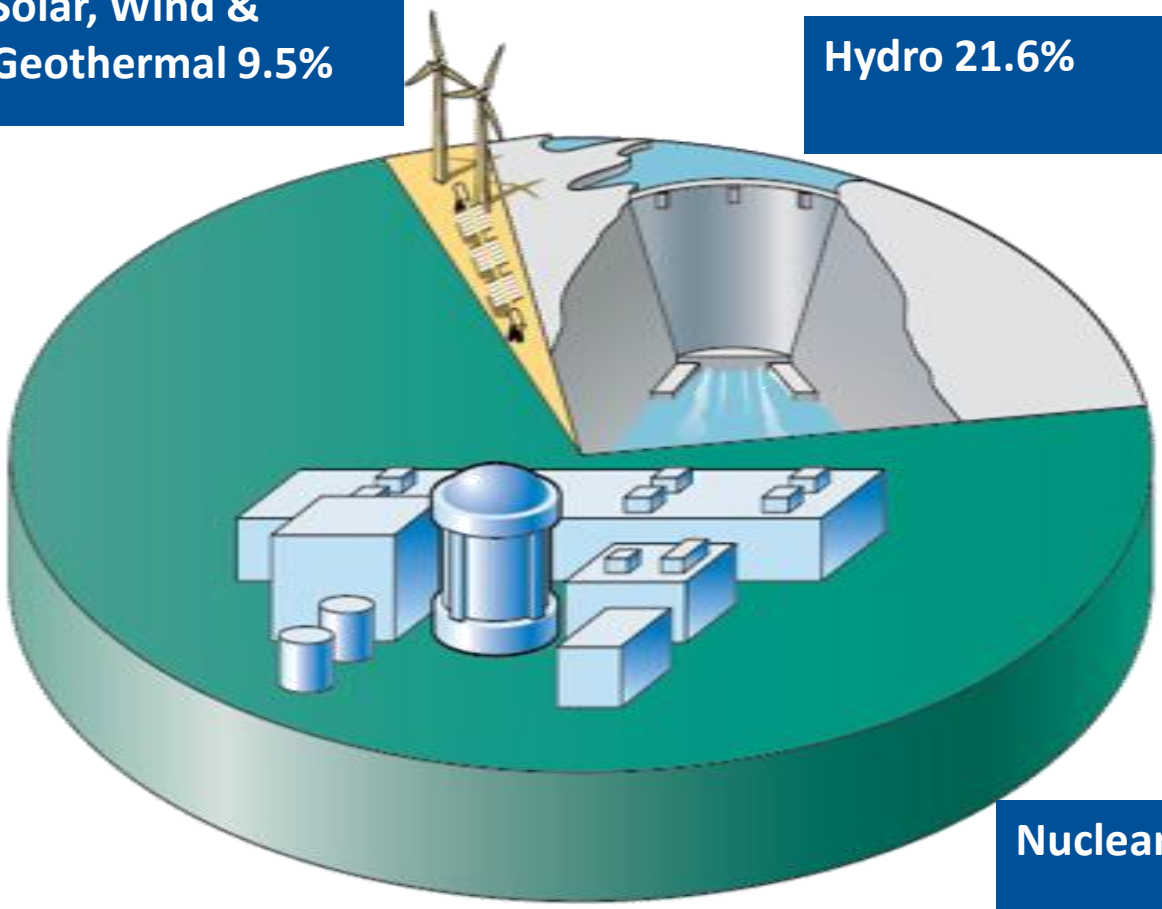
U.S. Electricity Sources Today Which Do Not Emit Greenhouse Gases



Ventyx; Energy Information Administration, U.S. Department of Energy, Updated 5/11

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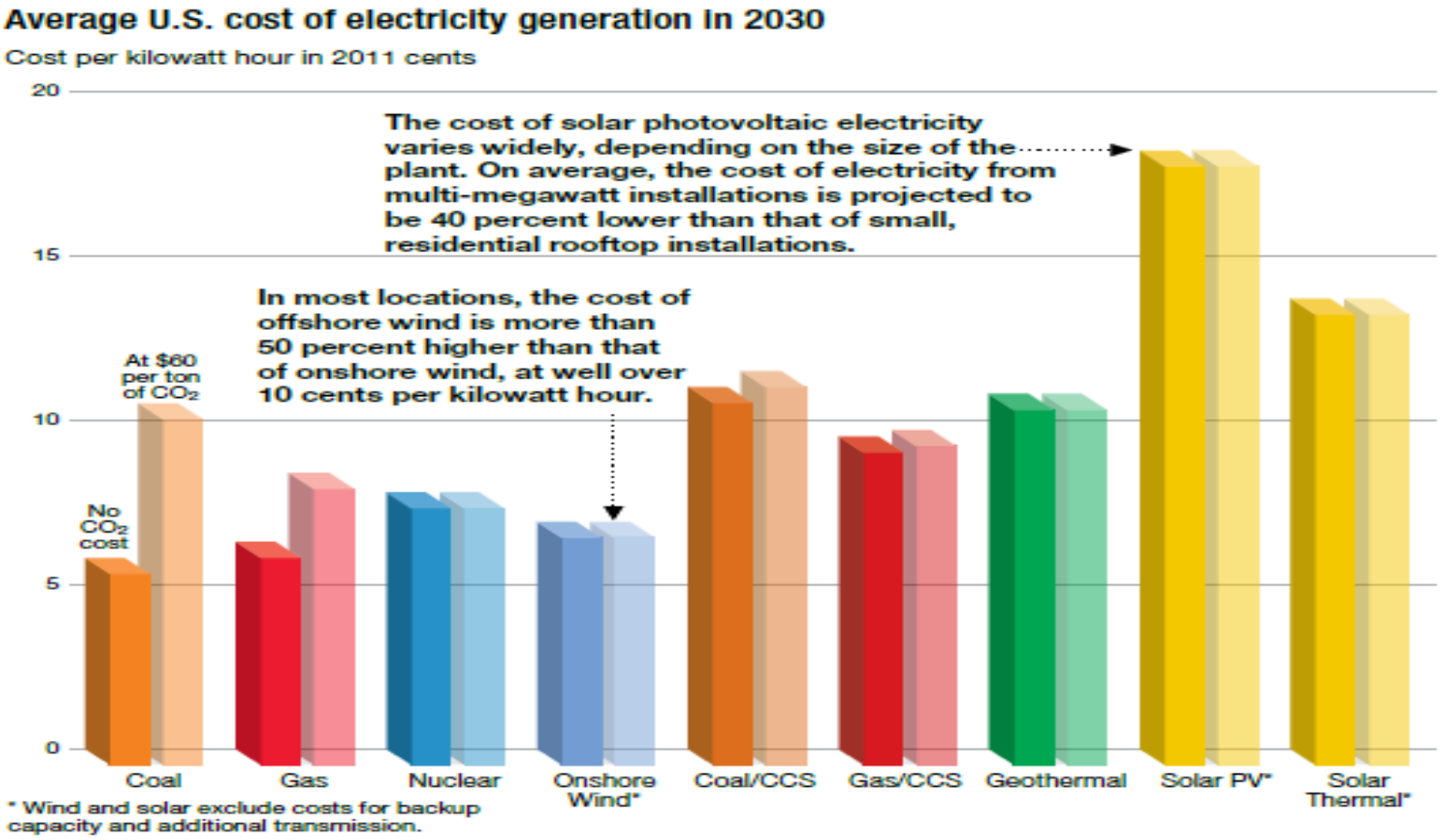
U.S. Capacity Factors by Fuel Type

2010

Fuel Type	Average Capacity Factors (%)
Nuclear	91.2
Biomass	85.5
Geothermal	71.6
Coal (Steam Turbine)	65.4
Gas (Combined Cycle)	45.8
Hydro	29.4
Wind	29.1
Solar	17.7
Gas (Steam Turbine)	12.9
Oil (Steam Turbine)	8.9

U.S. Power Generation Cost in 2030
(with and without CO_2 cost penalty)



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Current State of U.S. Nuclear Power Industry

- America's nuclear power plants continue to perform extremely well—with an average capacity factor of just over 90 percent for the first half of the year— $8.5 billion invested in plants last year to sustain those high levels of safety and reliability.
- Signs of political interest and willingness to address used fuel issues,or the fact that legislation to restructure the American program has been introduced in the U.S. Senate
- Recent decision by a federal court ordering the U.S. Nuclear Regulatory Commission to resume its consideration of the license application for the Yucca Mountain disposal facility
- American industry's response to the lessons learned from the Fukushima accident, are well along with the FLEX initiative—adding more portable, backup safety equipment at each plant so that we can respond to extreme natural events, regardless of the cause. Two regional response centers being developed—one in Memphis and one in Phoenix—that will serve as dispatch points for additional equipment and resources

Current State of U.S. Nuclear Power Industry

- The U.S. electric sector is experiencing a period virtually no growth in electricity demand for the last several years (thanks to the anemic performance of America's economy), low natural gas prices and "soft" power markets. Demand for electricity in the United States has not yet returned to the level seen in 2007, before the financial crisis.
- In 2012, U.S. natural gas prices slipped briefly below $2 per million Btu (MMBtu) and, since gas-fired generation sets the price in many power markets, electric power prices dropped substantially as well. Wholesale spot prices across most regional power markets last year were at 10-year lows.
- Since 1995, approximately 75 percent of all capacity built in America was gas-fired—almost 350,000 megawatts.
- The combination of no growth in electricity demand, excess generating capacity, low natural gas prices and low power prices challenges the economic viability of many power plants, including certain nuclear power plants.

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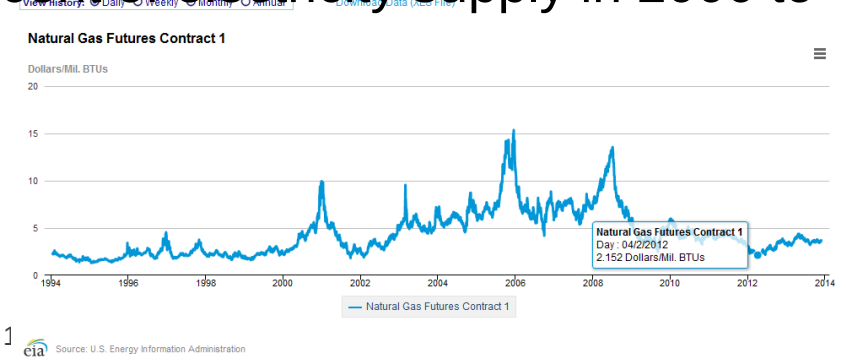
So far this year, four nuclear reactors have shut down permanently in the United States

- The common thread at Crystal River 3 and San Onofre 2 and 3 was steam generator replacement.
  - but approximately 110 nuclear reactors around the world have successfully replaced their steam generators,
- Kewaunee and Vermont Yankee are the only ones that were the victims of economic pressure.
  - Kewaunee had an average capacity factor of 94.3 percent for 2010-2012; Vermont Yankee was 90 percent.
- Presence of markets which do not value baseload capacity that can be dispatched when needed, which do not provide value for fuel and technology diversity, and which do not recognize the clean air compliance value of a nuclear power plant.

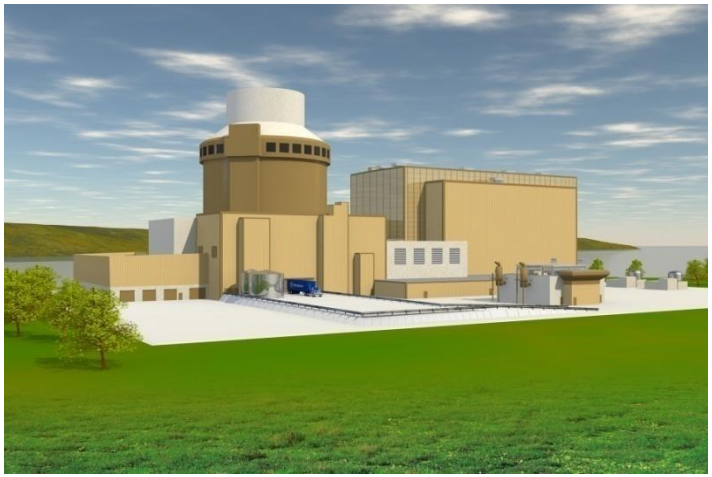
Reasons to be Cautious about Over-Dependence on Natural Gas.

- Last year's low natural gas prices (in the range of $2-3 per million Btu) were not sustainable. So far this year, the average price of natural gas delivered to electric generators is 44-percent higher than the first six months of 2012.
- Gas prices in the Northeast region soared above $30 per MMBtu in January and February. Electricity prices reached $250 to $260 per megawatt-hour. This is a market that typically clears in the mid-$40-per-megawatt-hour range.
- In 2000, Florida relied on natural gas for about 18 percent of its electricity supply. Today it is 70 percent and likely to increase further with the Crystal River reactor shut down. In New York, gas-fired generation increased from 29 percent of electricity supply in 2000 to 44 percent in 2012.



Why Nuclear Power?

- Meets policy goals to reduce greenhouse gas emissions and is insensitive to future carbon taxes
- Highest reliability power source
- Low-cost electricity generation now and in the future (low production costs)
- Stable uranium fuel price with small fraction of total production cost
- Provides high degree of energy security
- Provide large numbers of high-paying jobs and anchor the local tax base.



AP1000® Construction Project Status

Eight AP1000 units currently under construction:

- Four in the U.S.: first new plant contracts in U.S. in 30 years – eight additional units are planned
- Four in China, with dozens more planned in next 10 years

Sanmen China Site

V.C. Summer 2 & 3 Containment Vessel Bottom Head

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Continued Strong Worldwide Interest in Nuclear Energy

Americas
- Argentina
- Brazil
- Canada
- Chile
- United States

Asia
- China
- India
- Indonesia
- South Korea
- Taiwan
- Vietnam

Europe
- Bulgaria
- Czech Republic
- France
- Hungary
- Lithuania
- Netherlands
- Poland
- Romania
- Slovakia
- Slovenia
- Spain
- Turkey
- United Kingdom
- Finland
- Sweden

Oceania
- Australia
- New Zealand

Africa
- South Africa
- Egypt
- Morocco
- Nigeria
- Saudia Arabia
- UAE

Other
- Belarus
- Russia
- Ukraine

Summary

- Energy demand will continue to grow significantly as underdeveloped (non-OECD) countries prosper
- Power demand will grow faster than overall energy demand because it drives economies and quality of life
- National energy policies and cost of carbon will be important drivers away from fossil fuels to alternatives
- Nuclear power will continue to grow worldwide, but at a slower pace than predicted before the Fukushima accidents
- AP1000 technology: passive safety systems that have greater resilience to the unexpected and modular construction which enables more certainty of costs and schedule


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