BERKSHIRE HATHAWAY ENERGY

Imperial Valley Renewable Energy Summit

Holtville, California

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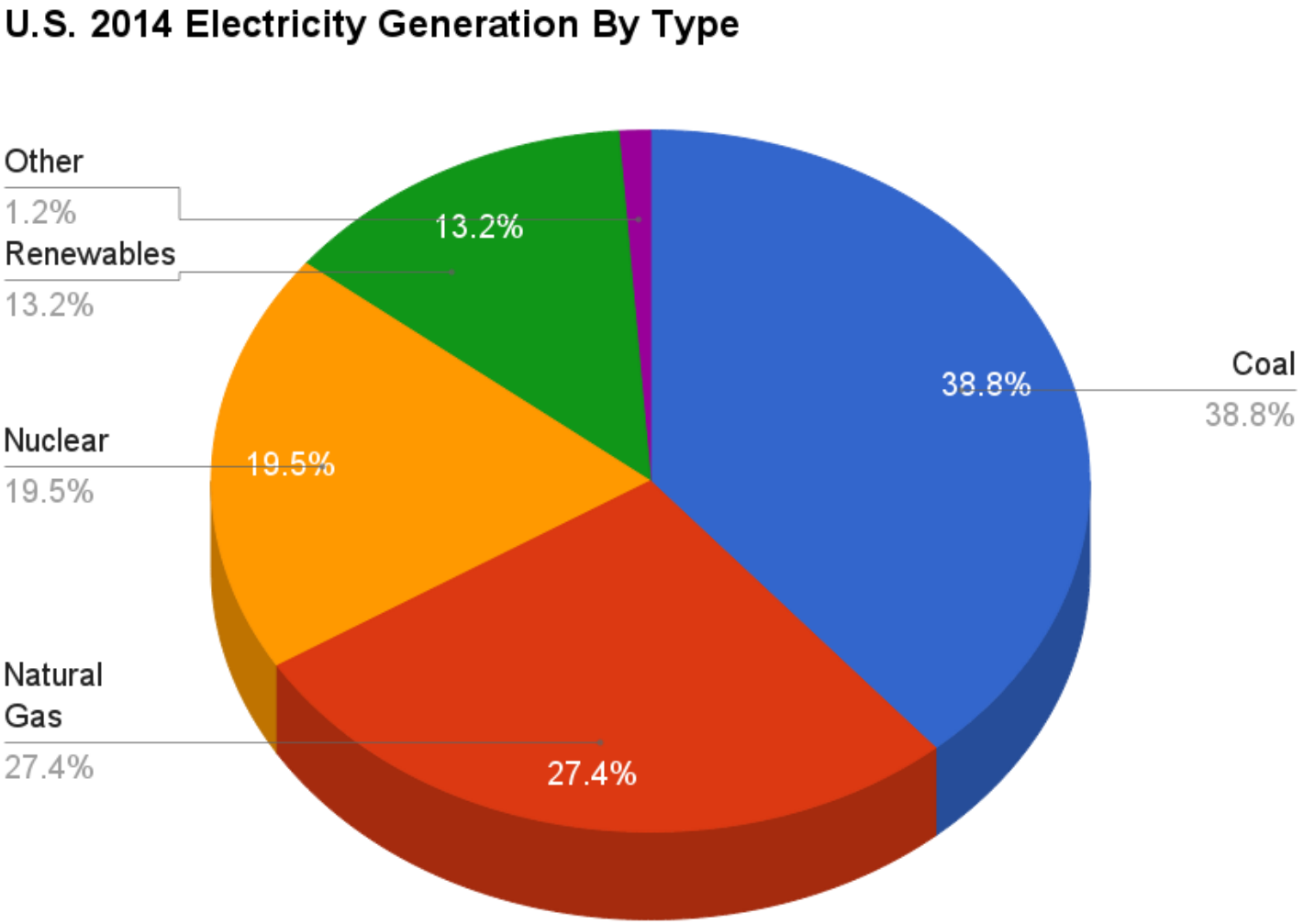
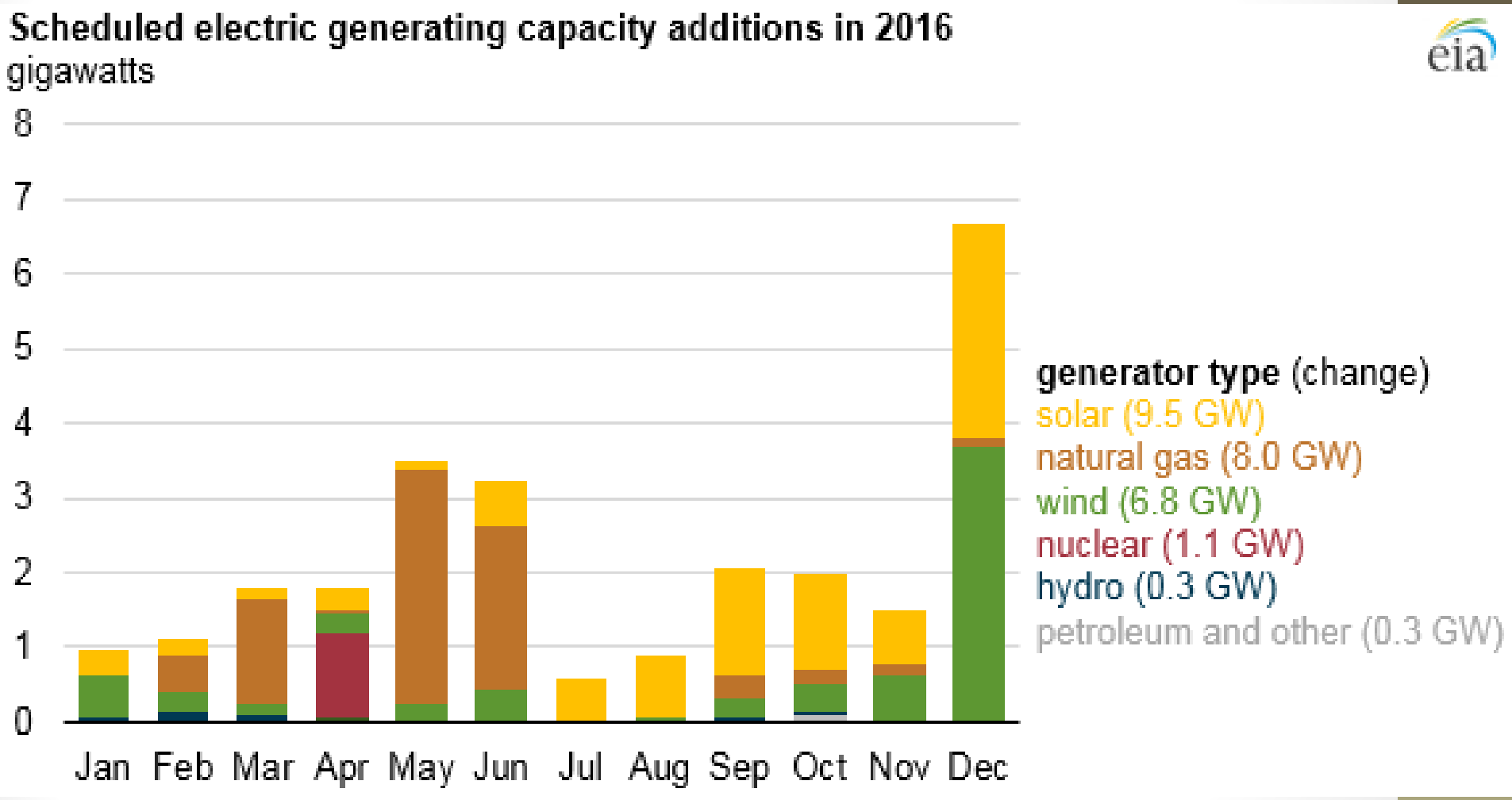
Change: Oil, Gas and Electricity

- U.S. energy revolution
  - Largest combined producer of oil and gas in the world
  - Oil imports lowest in more than 40 years
- Changes in fuel mix for electricity – 2015:
  - Wind (+ 10,000 MW), solar (+2,000 MW), gas (+4,000 MW)
  - Coal retiring ~ 13,000 MW
    - Aging fleet; average age is 44 years old
    - Stringent EPA rules
    - Top 4 coal companies: lost over 90% of their value last 5 years
    - War on coal – or negotiation of surrender terms?

U.S. Generation Mix for 2014



Planned Increases in Capacity for 2016



Other Changes Facing U.S. Utilities

- Rising expectations for reliability
- Integrating renewable energy into the grid
- Centralized power → customer-generated power (distributed generation)
- Changing relationship between utility and customer
- Flat load growth nationwide – due to:
  - Low economic recovery from recession
  - Distributed generation
  - Energy efficiency55555

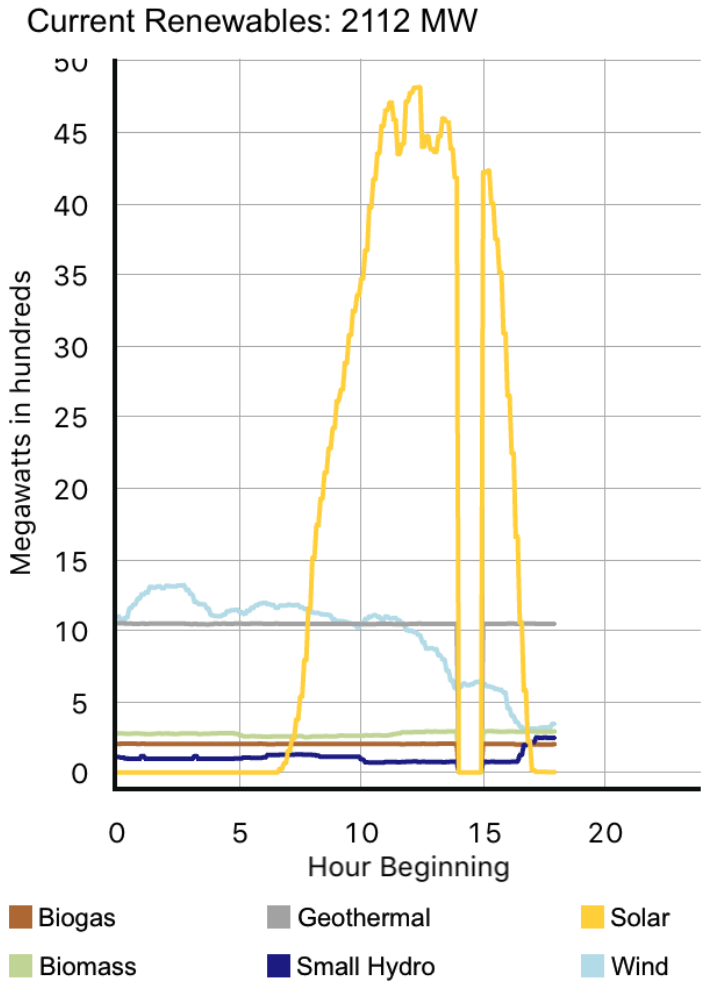
Change: More Renewable Energy – Why?

- Hedge against fossil prices
- Customers want it
- Long-term assurance of stable prices
- Economic development
- Price – near grid parity
- Proven technologies that can address state and federal environmental policies (California's SB 350, Clean Power Plan)

Wind PTC and Solar ITC Extension and Phase-out

- December 2015 spending bill extends and phases out wind production tax credit (PTC) and solar ITC
  - PTC: 2016: 100%; ‘17: 80%; ‘18: 60%; ‘19:40%
  - ITC: 2016-’19: 30%; ‘20: 26%; ‘21: 22%
  - Residential ITC: same schedule as utility-scale
- Retains “start of construction” language
- Geothermal: only PTC through 12/31/16; industry working to remedy this

CAISO Renewable Output 11/27/15



Source: C

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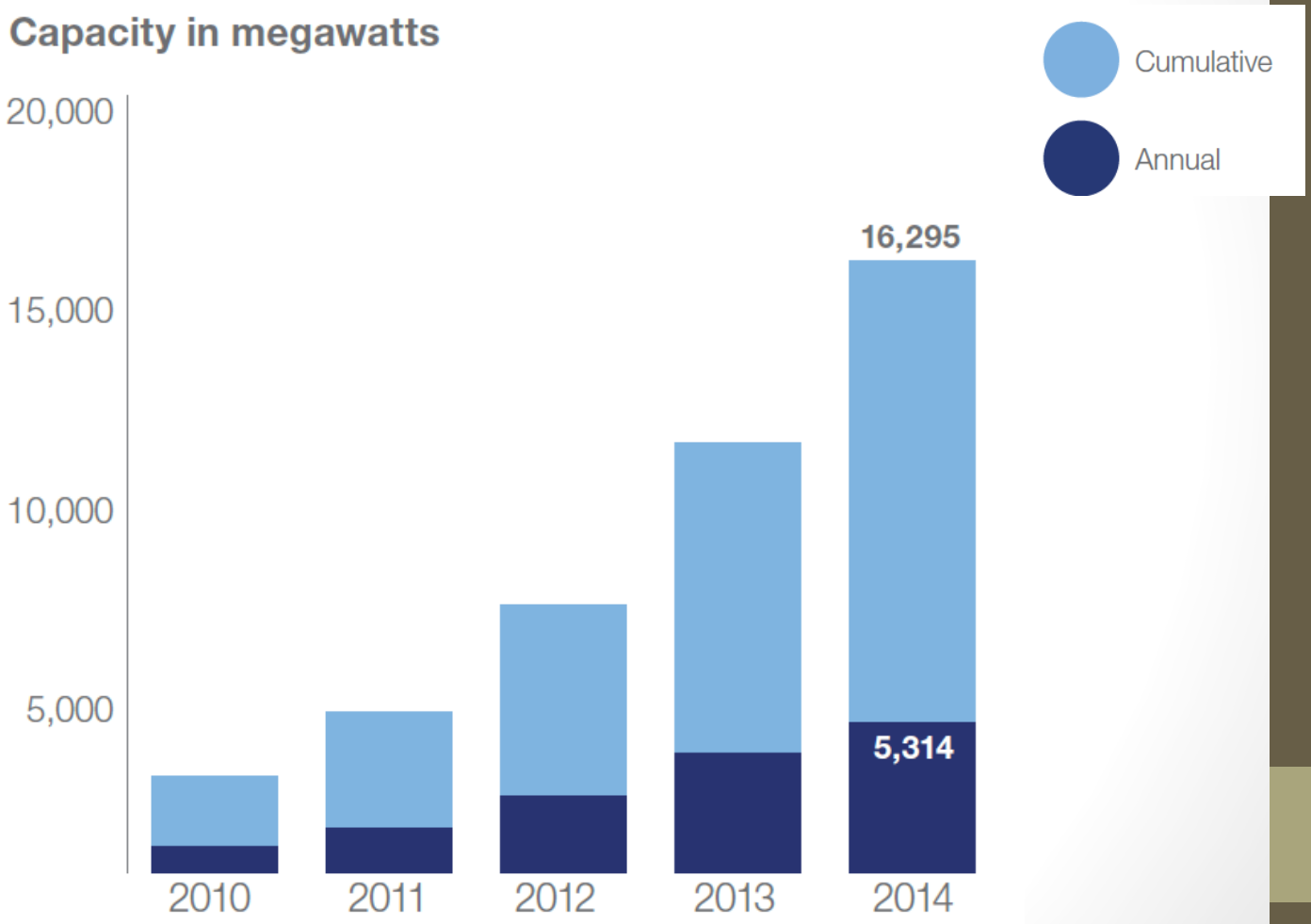
U.S. Solar Installation



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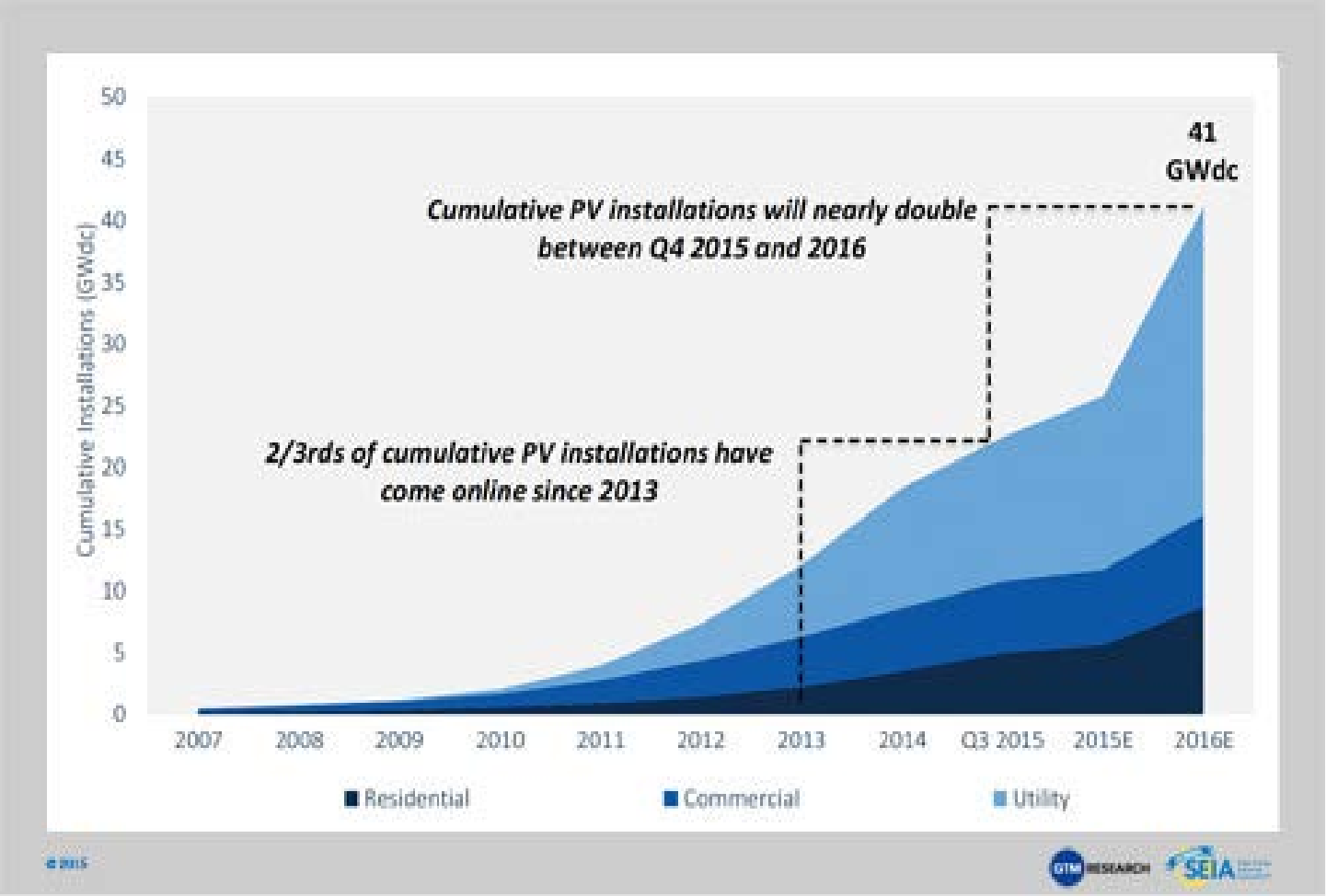
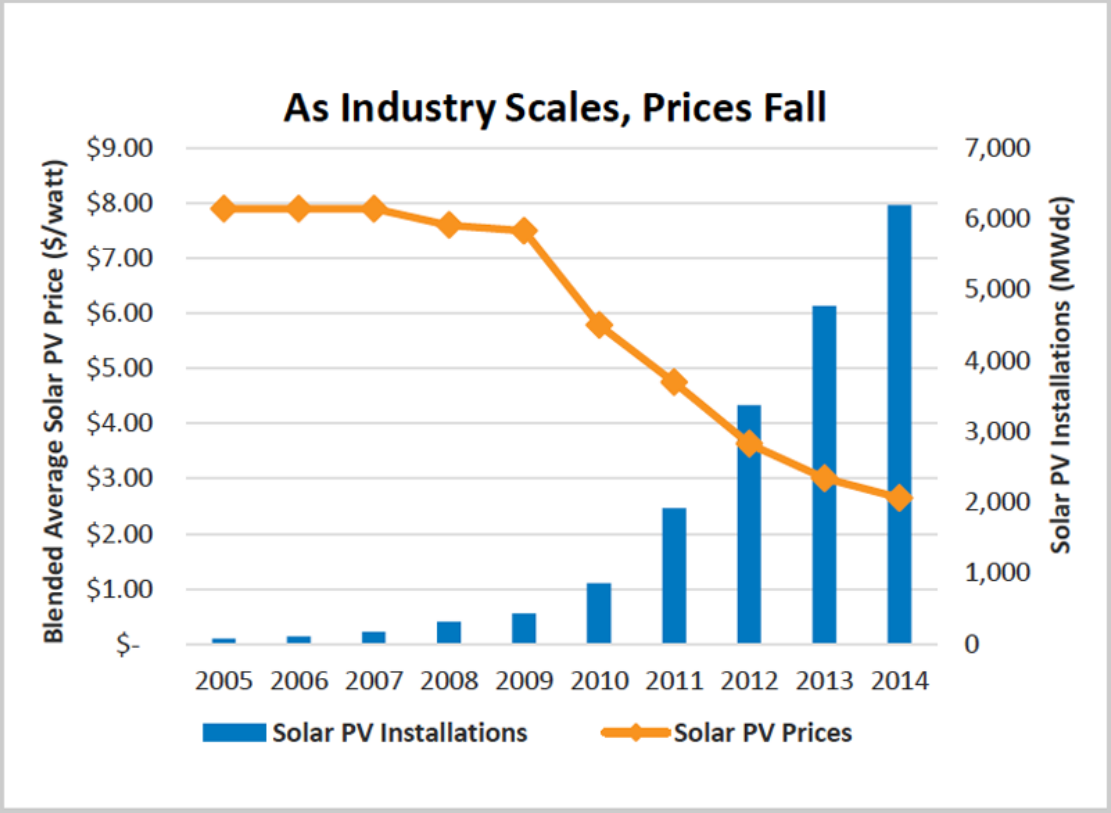
U.S. PV Installed Capacity, 2007-2016E



Declining Cost of Solar



GTM RESEARCH

40 YEARS SEIA Solar Energy Industries Association®

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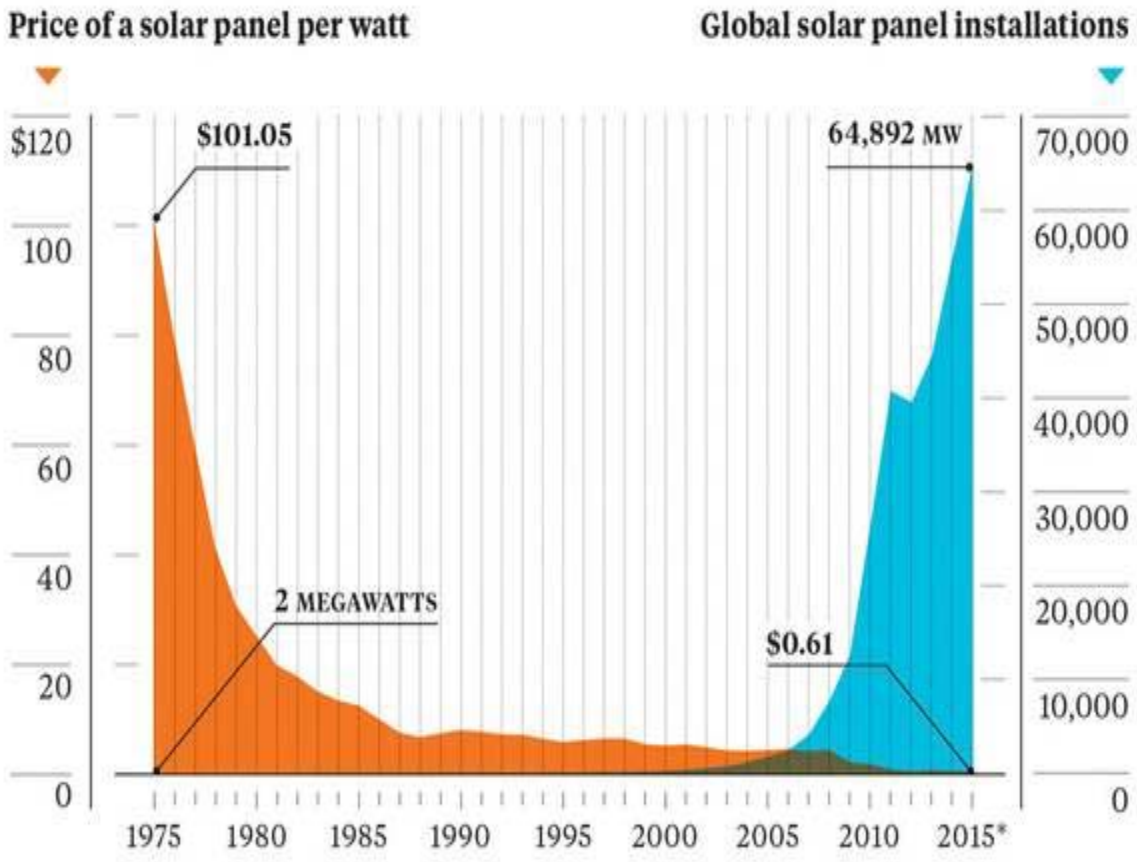
Direct Correlation



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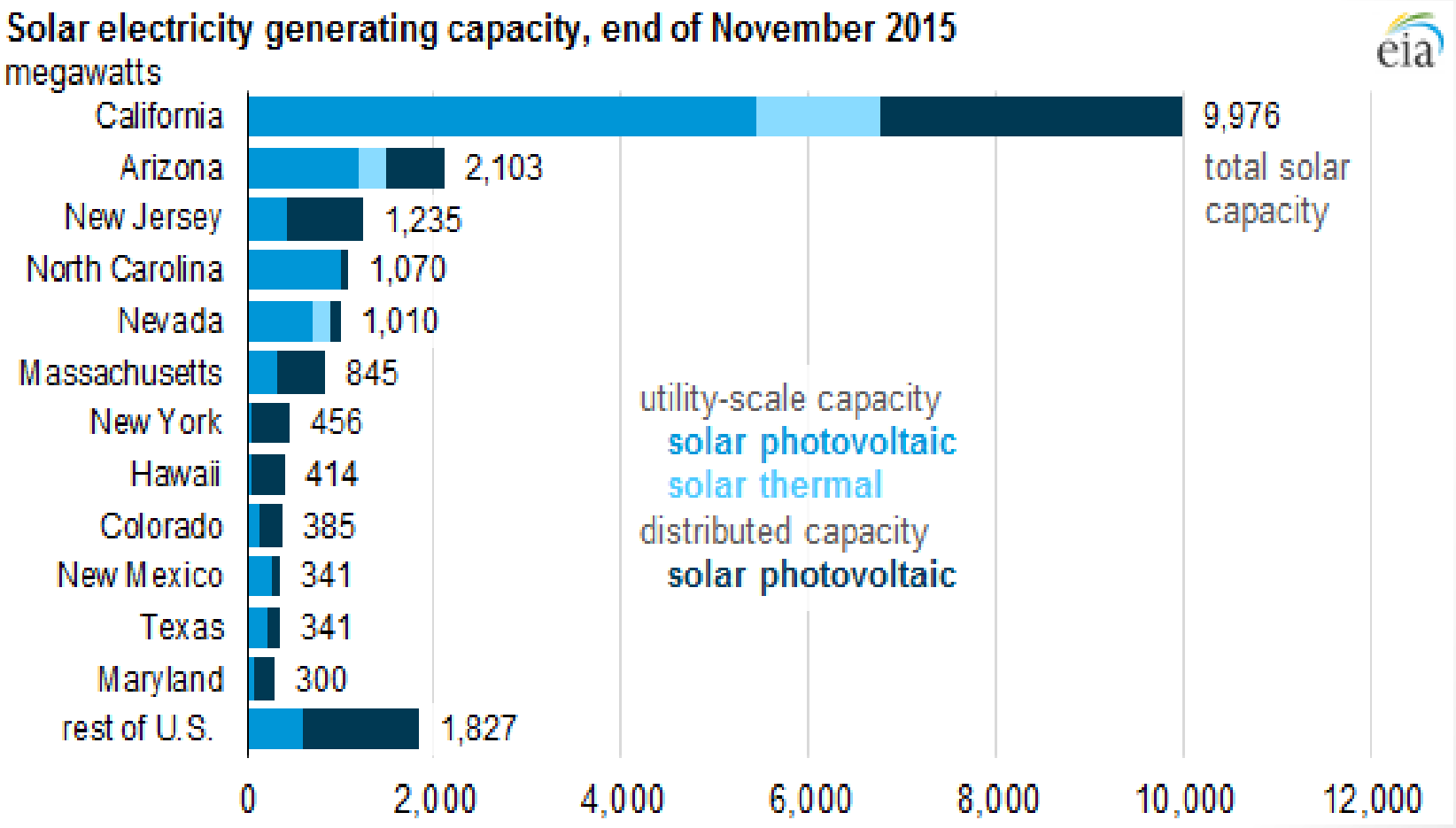
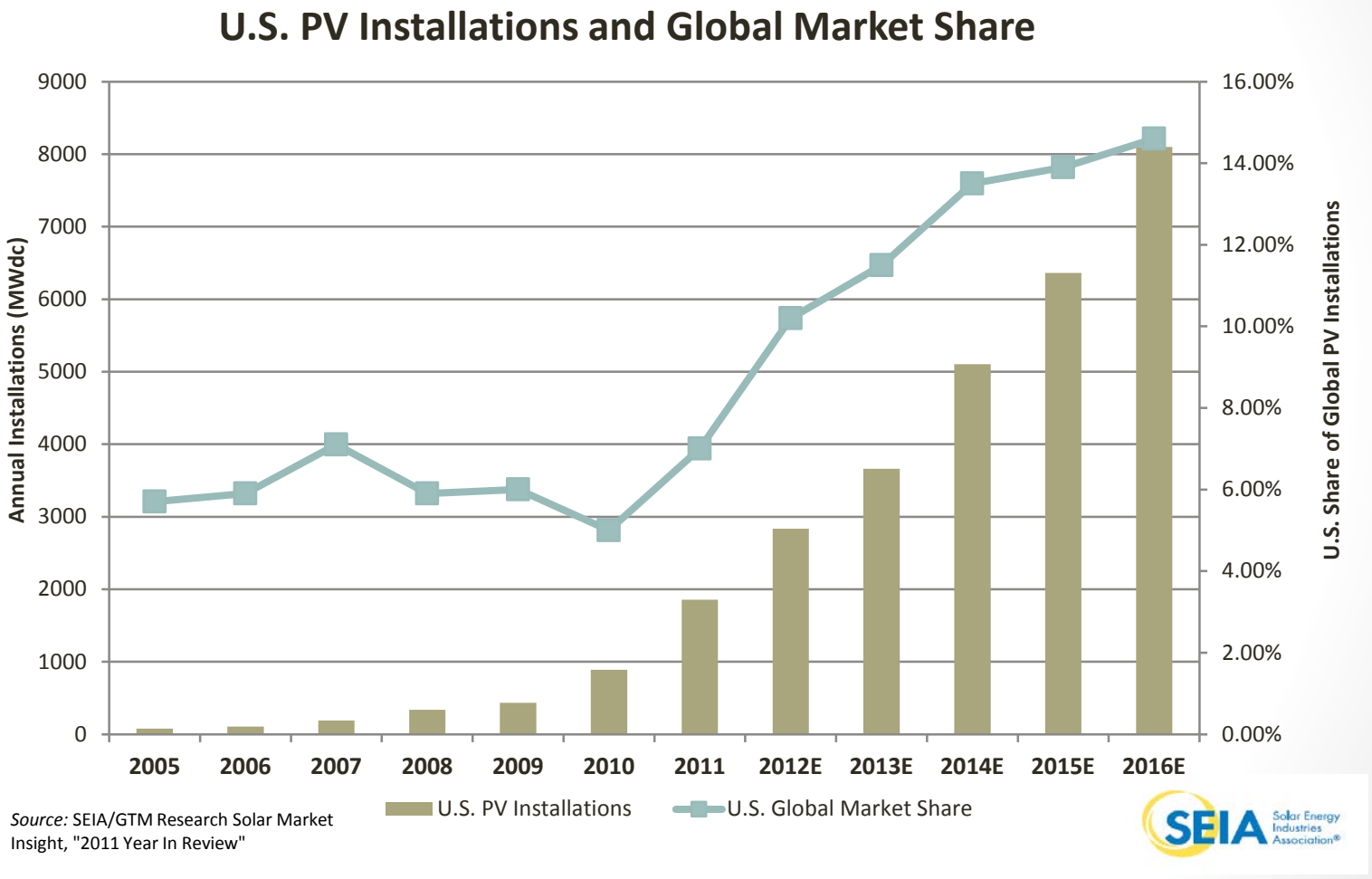
California Leads the US Solar Industry



Growing Importance of U.S. Solar Market



Source: SEIA/GTM Research Solar Market Insight, "2011 Year In Review"

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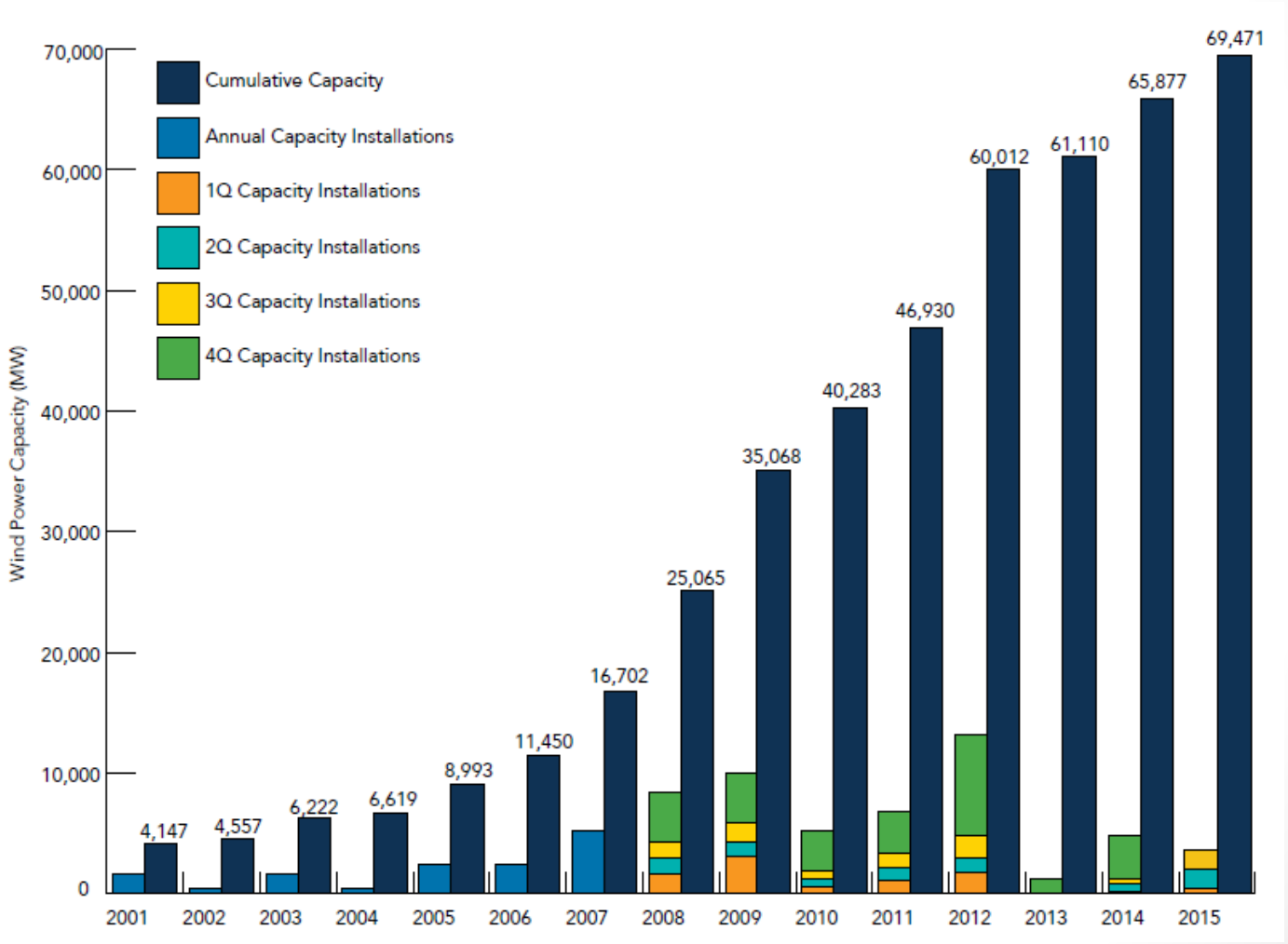
Installed U.S. Wind Energy Capacity



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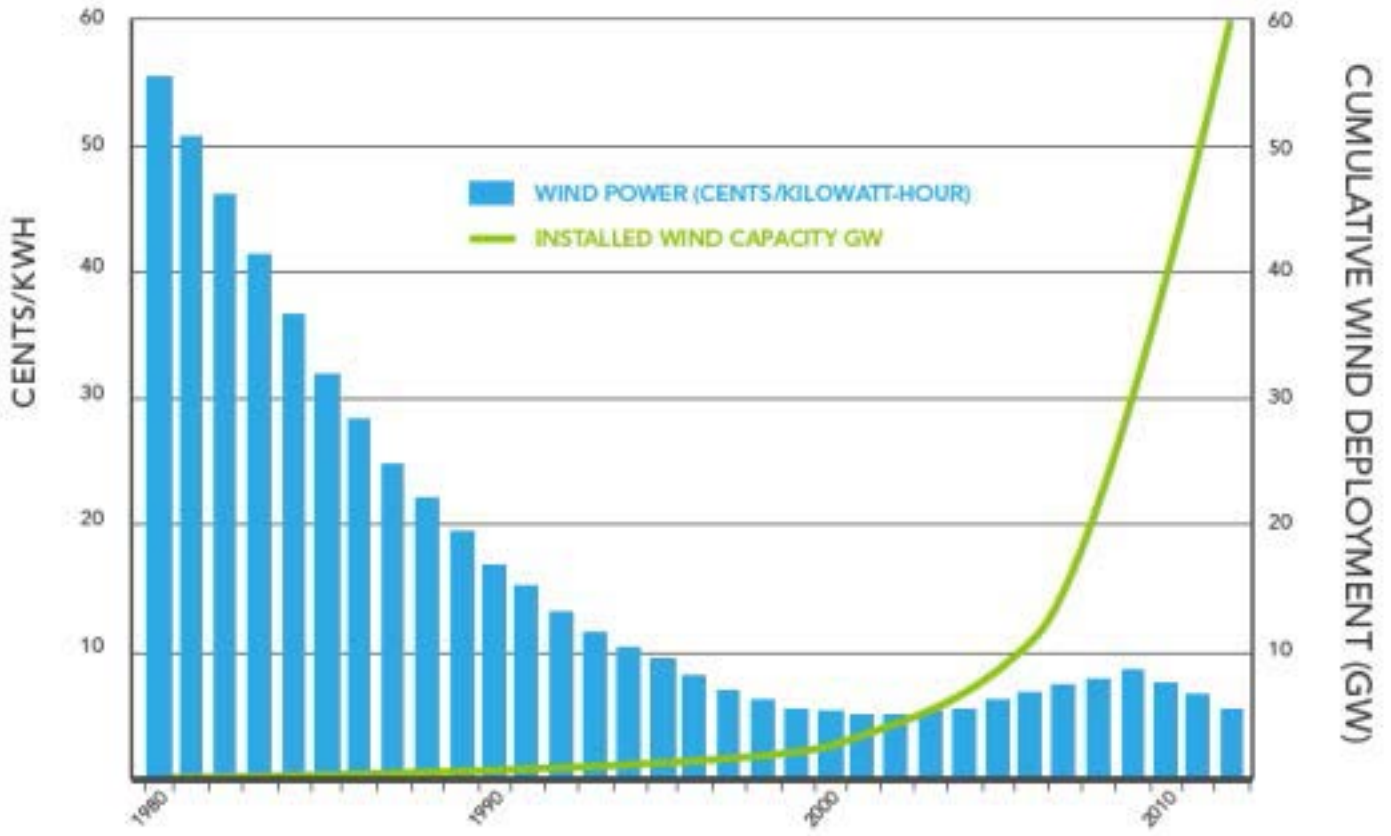
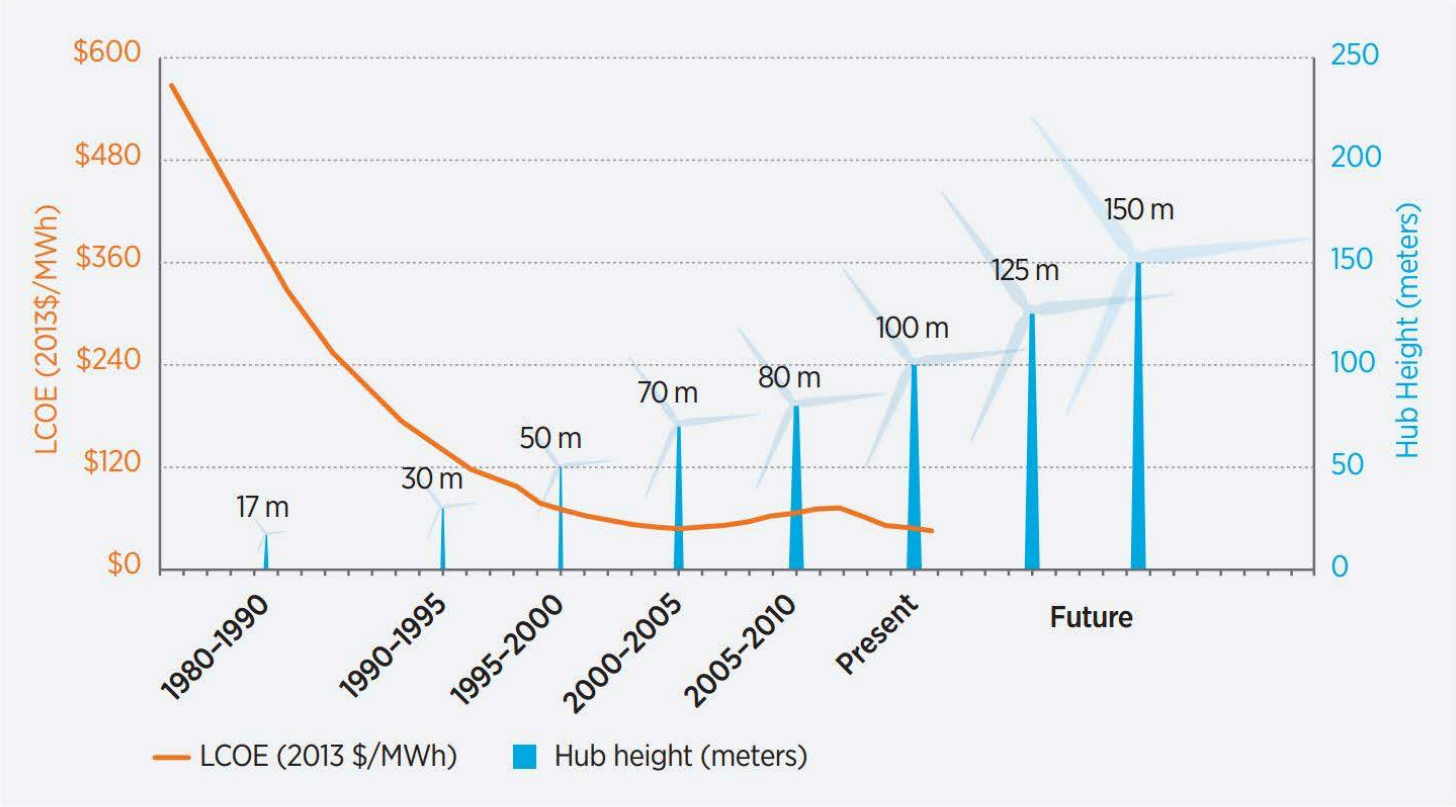
Declining Cost of Wind – 90% Since 1980s



Declining Cost of Wind Power

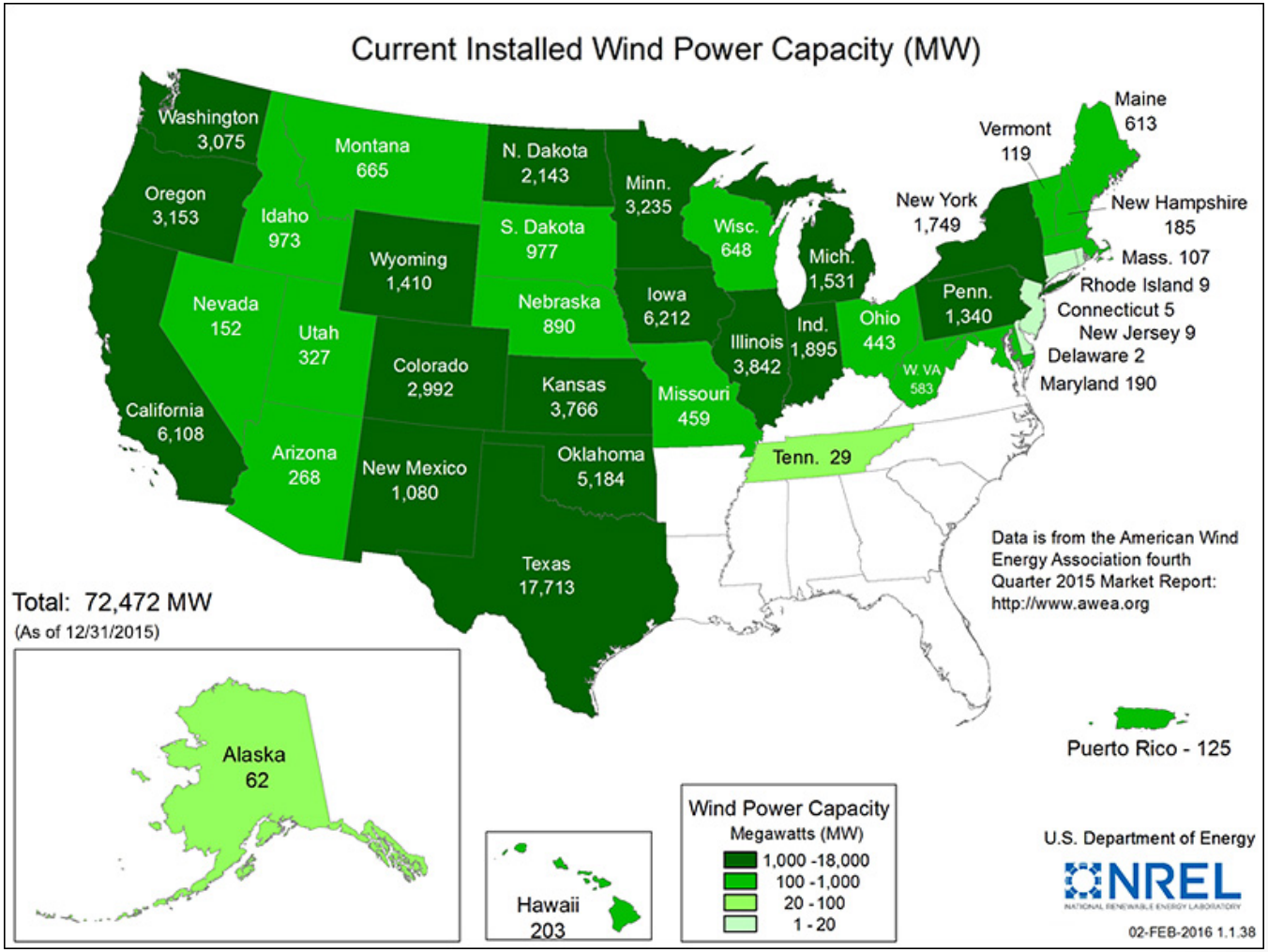
Scale-up of wind technology has supported cost reductions.



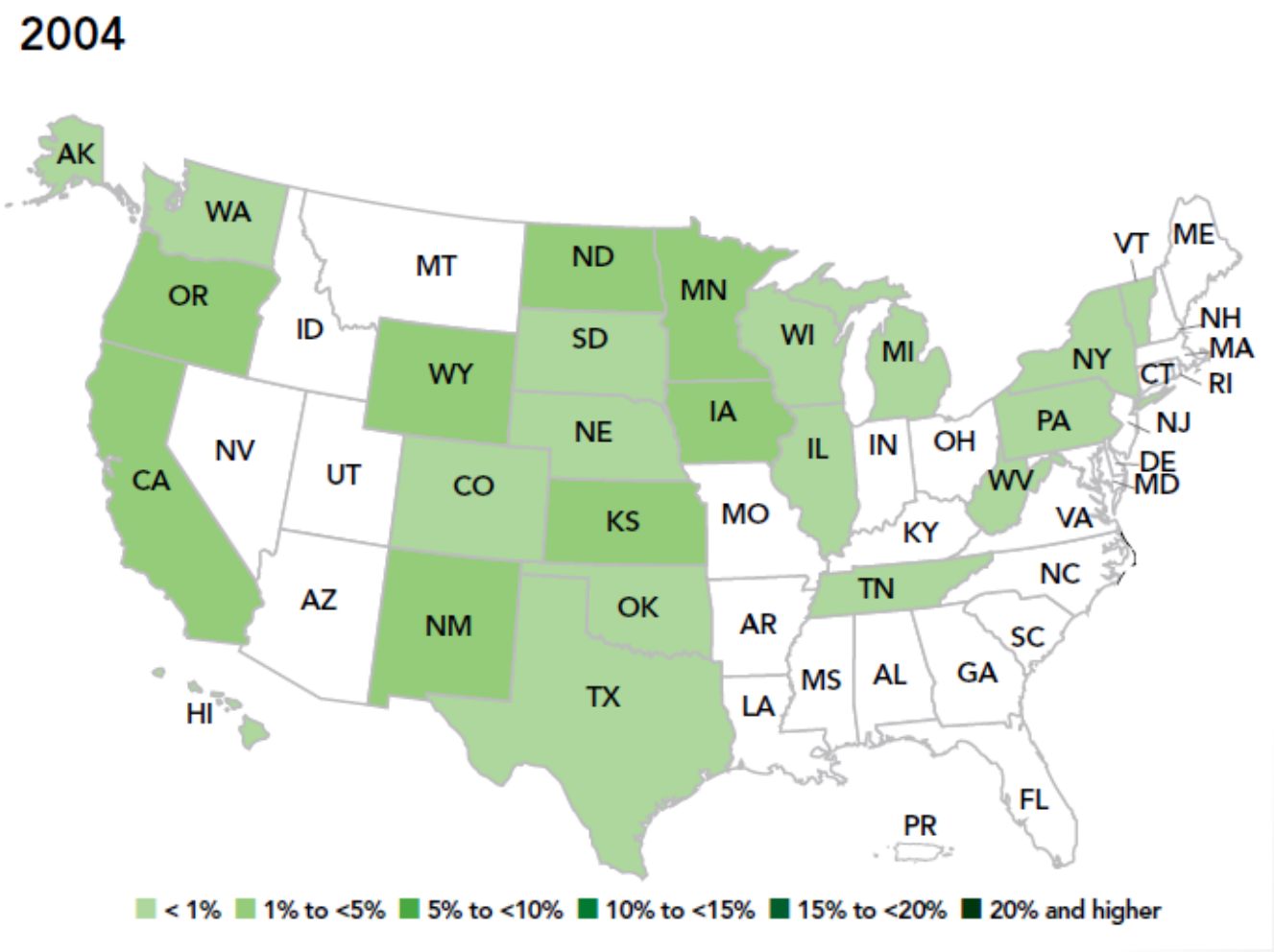
Note: LCOE is estimated in good to excellent wind resource sites (typically those with average wind speeds of 7.5 m/s or higher), excluding the federal production tax credit. Hub heights reflect typical turbine model size for the time period.

Figure ES.2-5. Wind technology scale-up trends and the levelized cost of electricity

US Wind Power Capacity– State Comparison



Wind as Share of Electricity State-by-State



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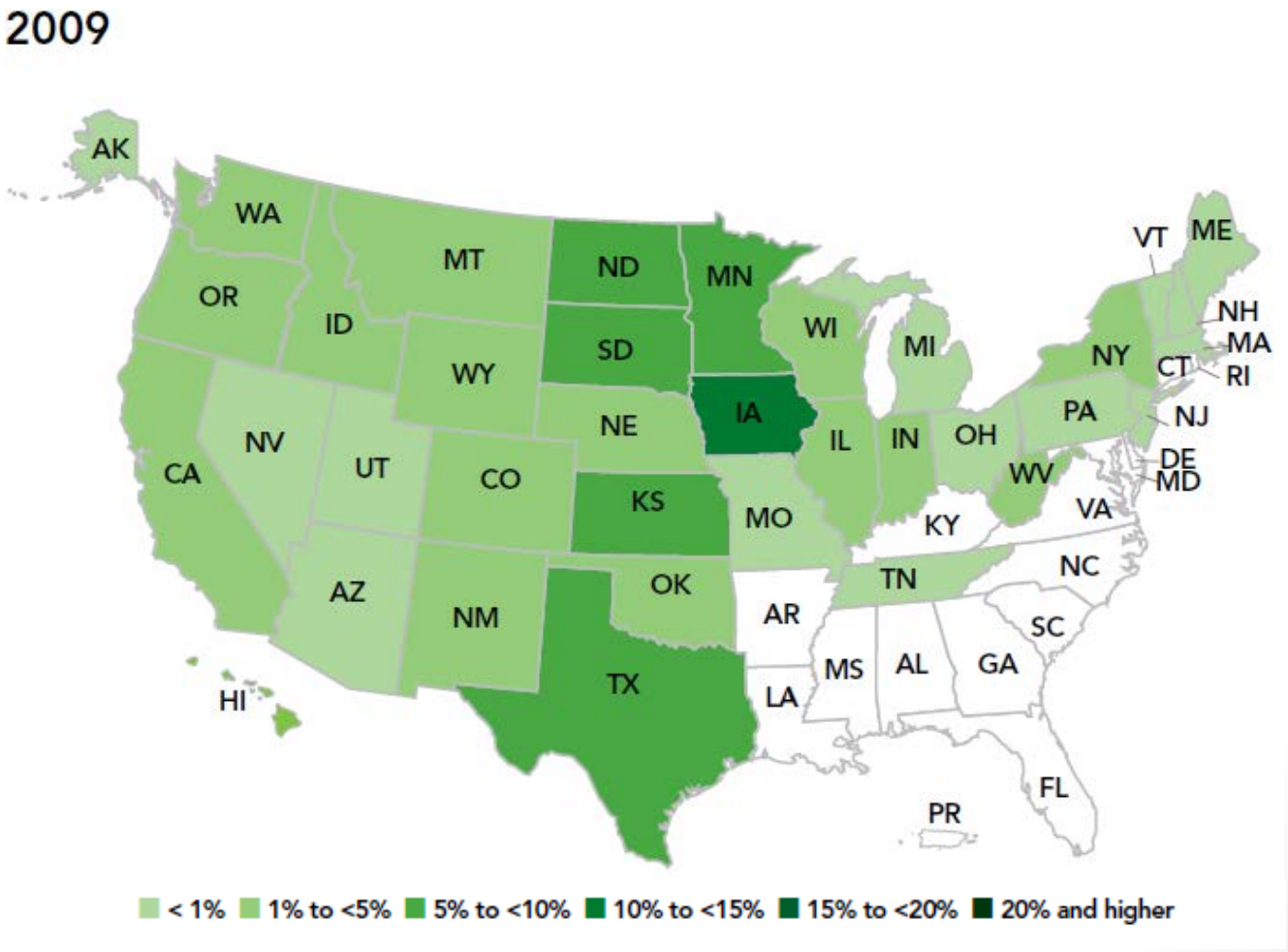

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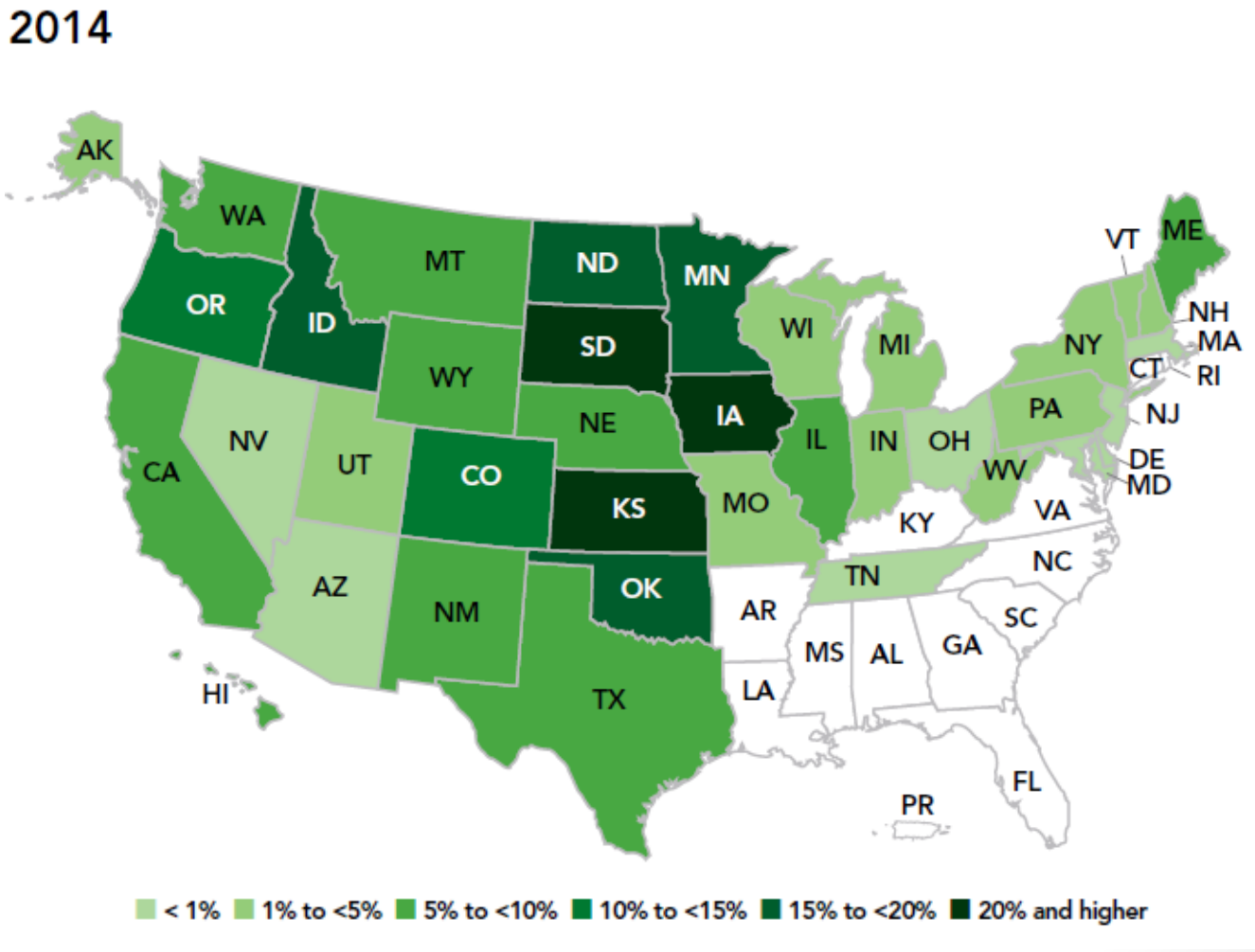
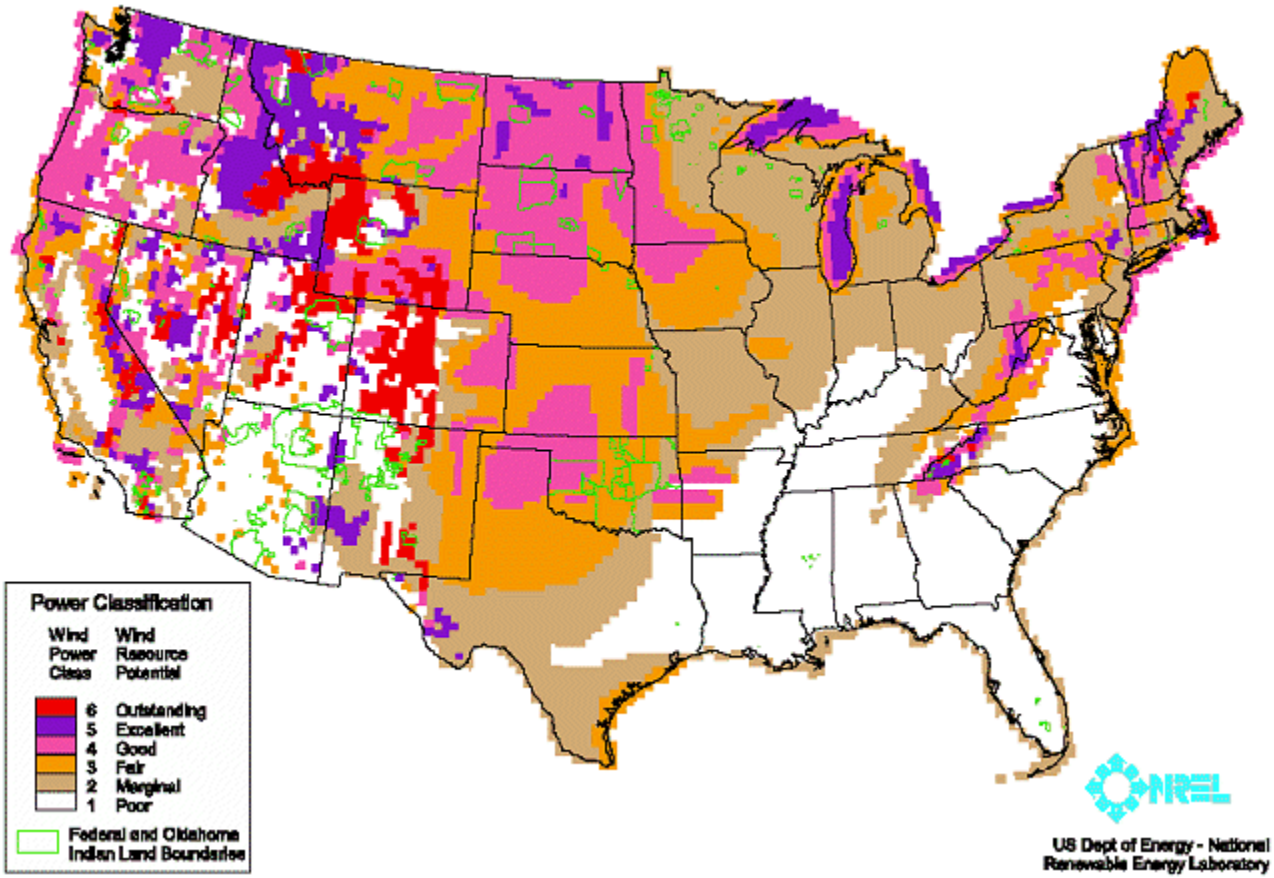


US Wind Power Potential

Figure 13. Wind Resource Potential



Tax Revenues from Renewable Energy

- Geothermal industry is the largest source of local tax revenue for Imperial County: $9 million annually in property tax revenue, nearly 20% of the total for Imperial County

	Est. Annual Property Taxes
• Geothermal:	$8.95 m
• Wind:	$3.35 m
• Solar:	$1.02 m

Site Aerial View

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Site Aerial View Regions 1 and 2

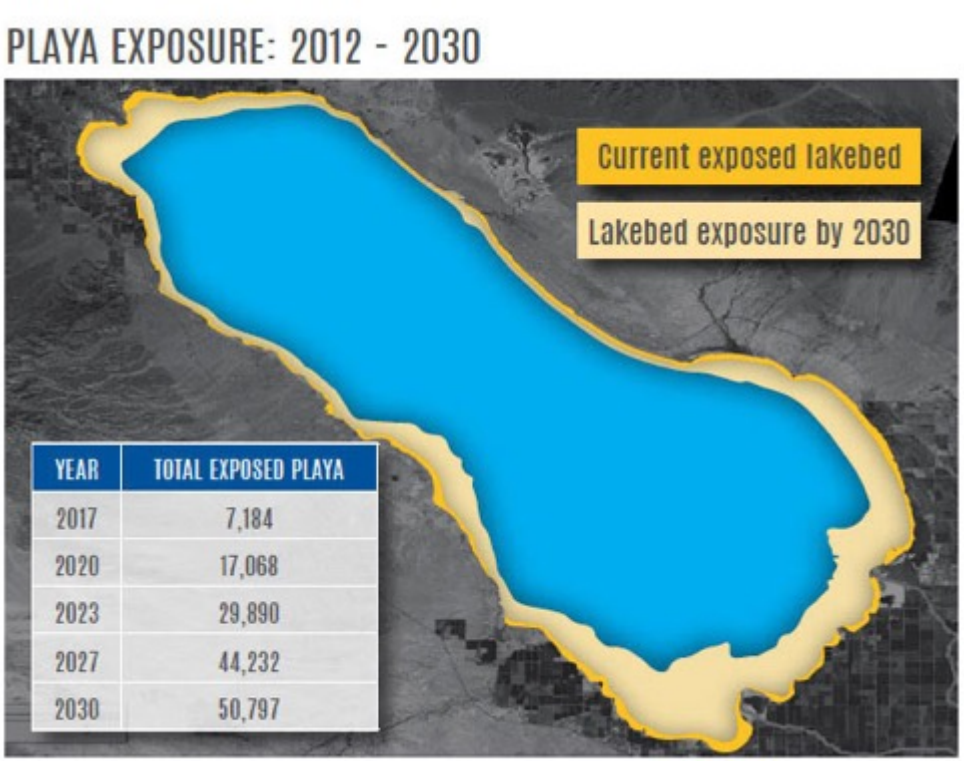
Vonderahe-1 Production Well

Salton Sea – Environmental Crisis

- **First Problem**: Inflow reductions and high toxicity levels from farm runoff has left the Salton Sea increasingly contaminated, causing massive fish die-offs, algae blooms and obnoxious odors.

Salton Sea – Environmental Crisis

- **Second Problem**: Sea level is rapidly receding due to reduced inflows from QSA transfer agreement
- Will cause the exposure of 50,000 acres of lakebed made up of silt and fine-grain soli particles containing Chromium, zinc, lead and pesticides, including DDT.
- Poses urgent threat to air quality throughout southern California



Salton Sea – Environmental Crisis

Current Solutions –

Sea to Sea :

- **Vision**: restore pre-existing water levels - 100% of lake bed covered
- **How**: Transfer water from Sea of Cortez into the Salton Sea via a sea-level canal
- Utilize desalination plants fueled by geothermal steam to balance the lake's salinity

Top Trends Transforming Electricity Sector

- Coal power in decline
- Natural gas growing fast
- Renewables reaching grid parity
- Utilities face growing load defection
- Utilities getting in on solar (utility-scale and rooftop)
- Continuing debates over rate design reforms
- Utilities modernizing the grid
- Utilities buying into storage
- Utilities becoming more customer-centric
- Utility business models are changing

Top Trends Transforming Electricity Sector

- How quickly will all these changes occur?
- Energy resources require extended periods of development
  - Sheer scale
  - Amount of capital invested (and needed for change)
  - Long-lasting infrastructure
- Biggest changes today:
  - Renewables – solar energy (Einstein 1905)
  - Conventional: shale gas/shale oil (conviction of George Mitchell in 1980s)