



NASEO 2018 Annual Meeting: Energy Innovations and Intersections

Where's the Demand: How Increased Electrification is Impacting the Power Sector

Michael J. Hyland, P.E.
Senior Vice President
American Public Power Association

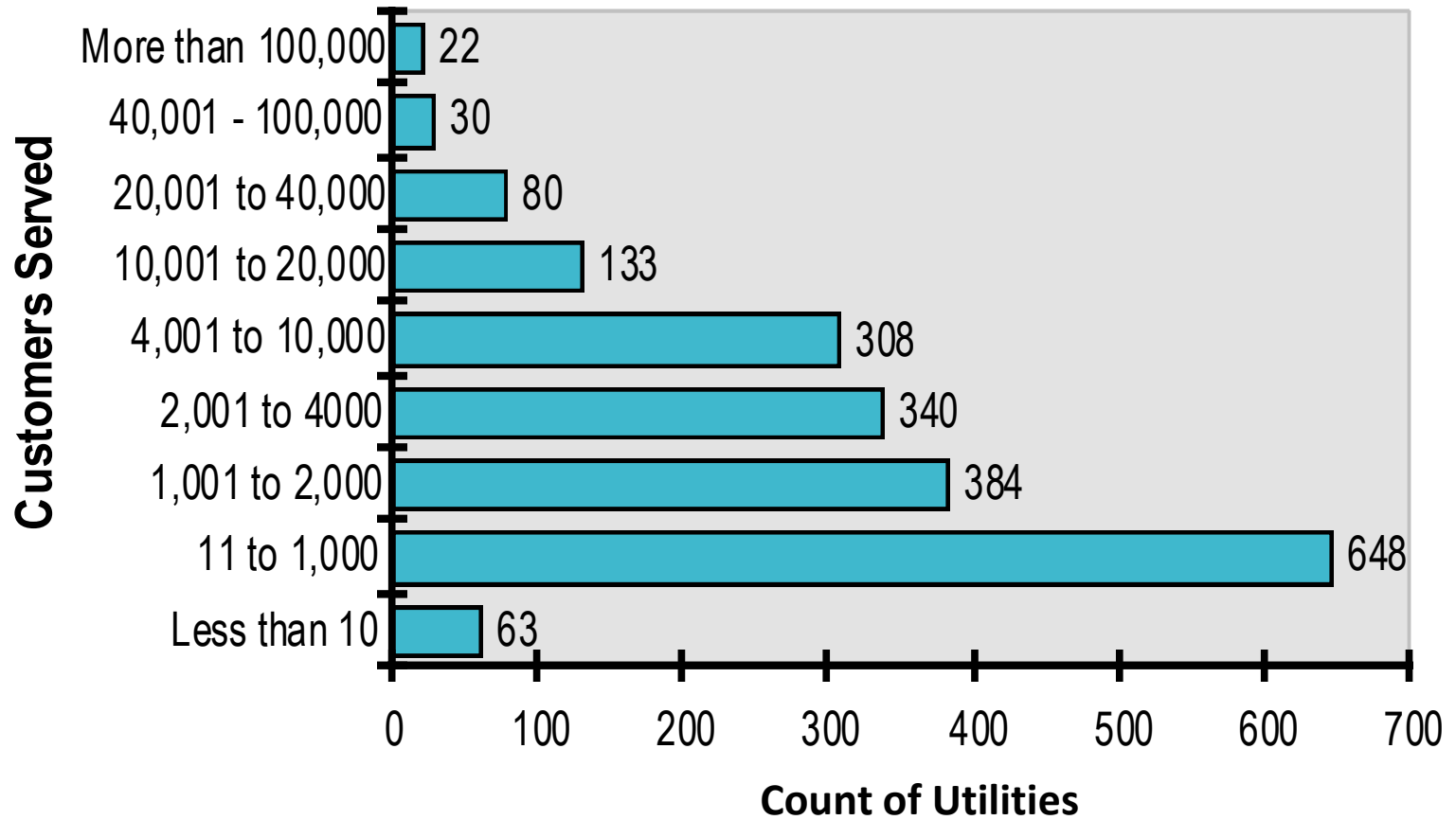
APPA Members

- 1450+ public power utilities
- Retail service in 49 states
- Very large to very small systems
- *Median* size: 1,980 meters
- 14.4% of sales to electric consumers
- Multiple utility services

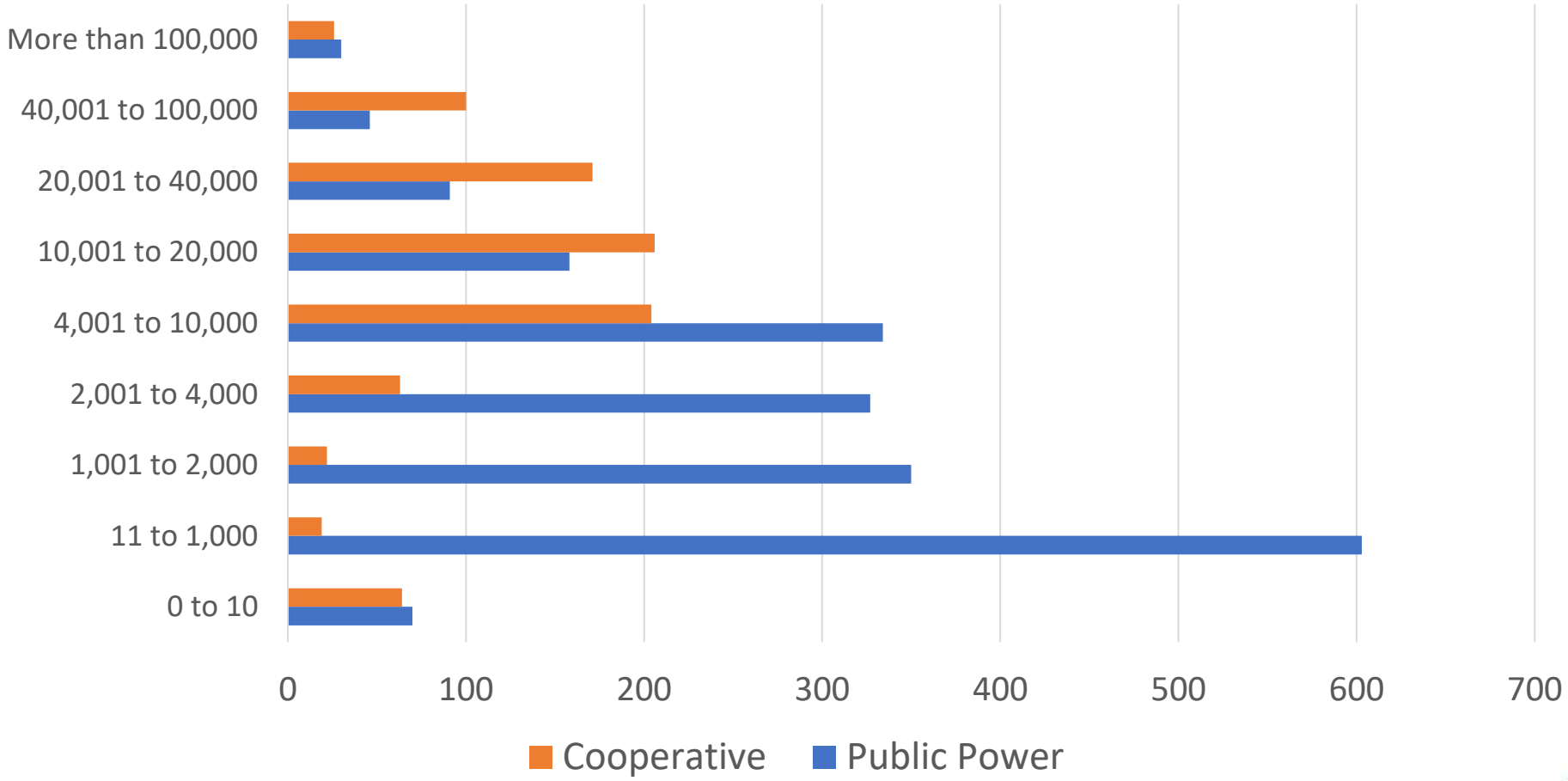


1 IN 7
electricity customers in the U.S.
are served by public power

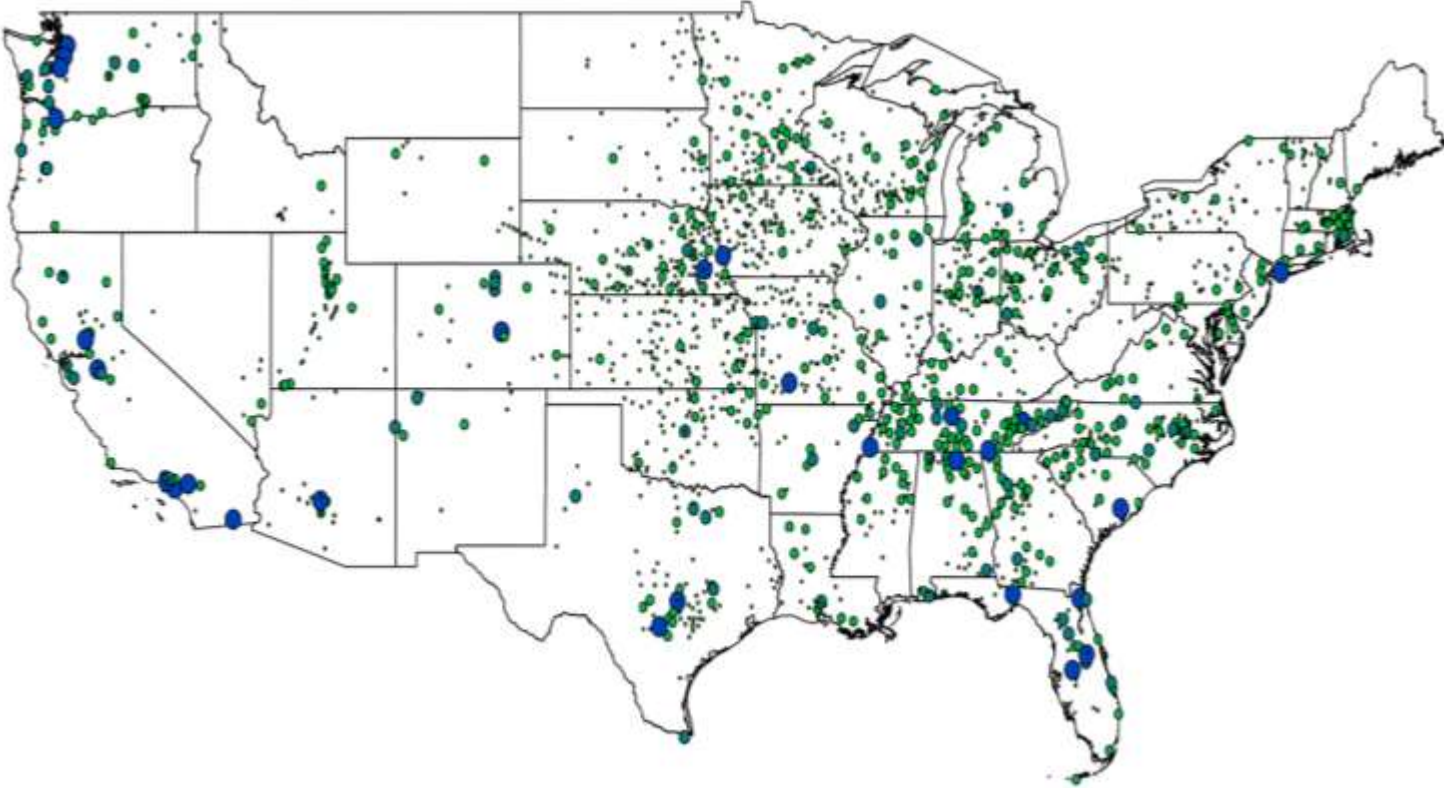
Public Power By Size



Public Power and Cooperative Utilities by Customer Class



Public Power By Location



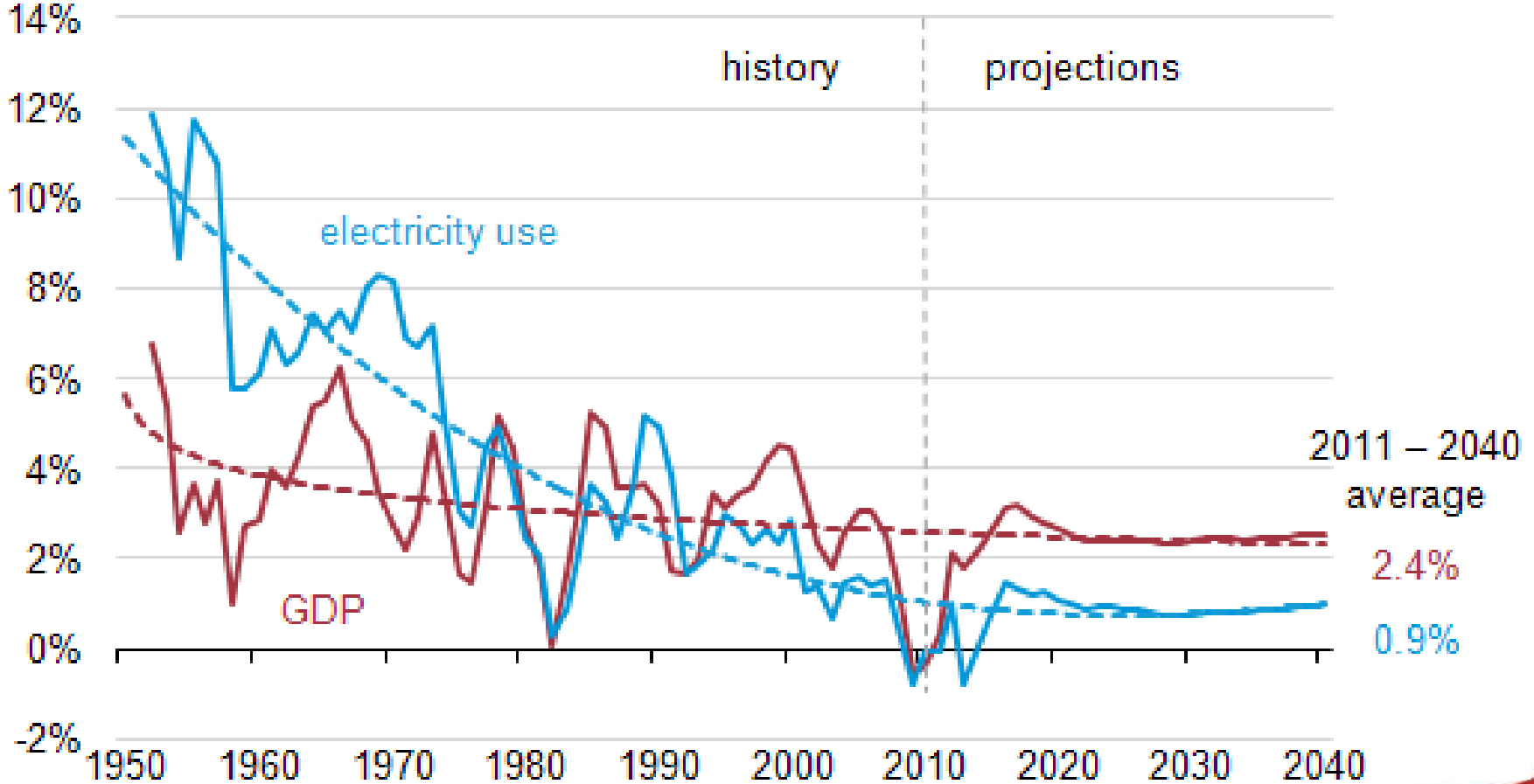
APPA's Six External Initiatives

- Communicate the value of public power
- **Address technological change**
Public Power Forward
- Address adverse impacts of federal regulation
- Improve physical preparedness/reliability, cyber & physical security,
- Focus on research and development
- Help meet utility workforce challenges

Declining Load Growth

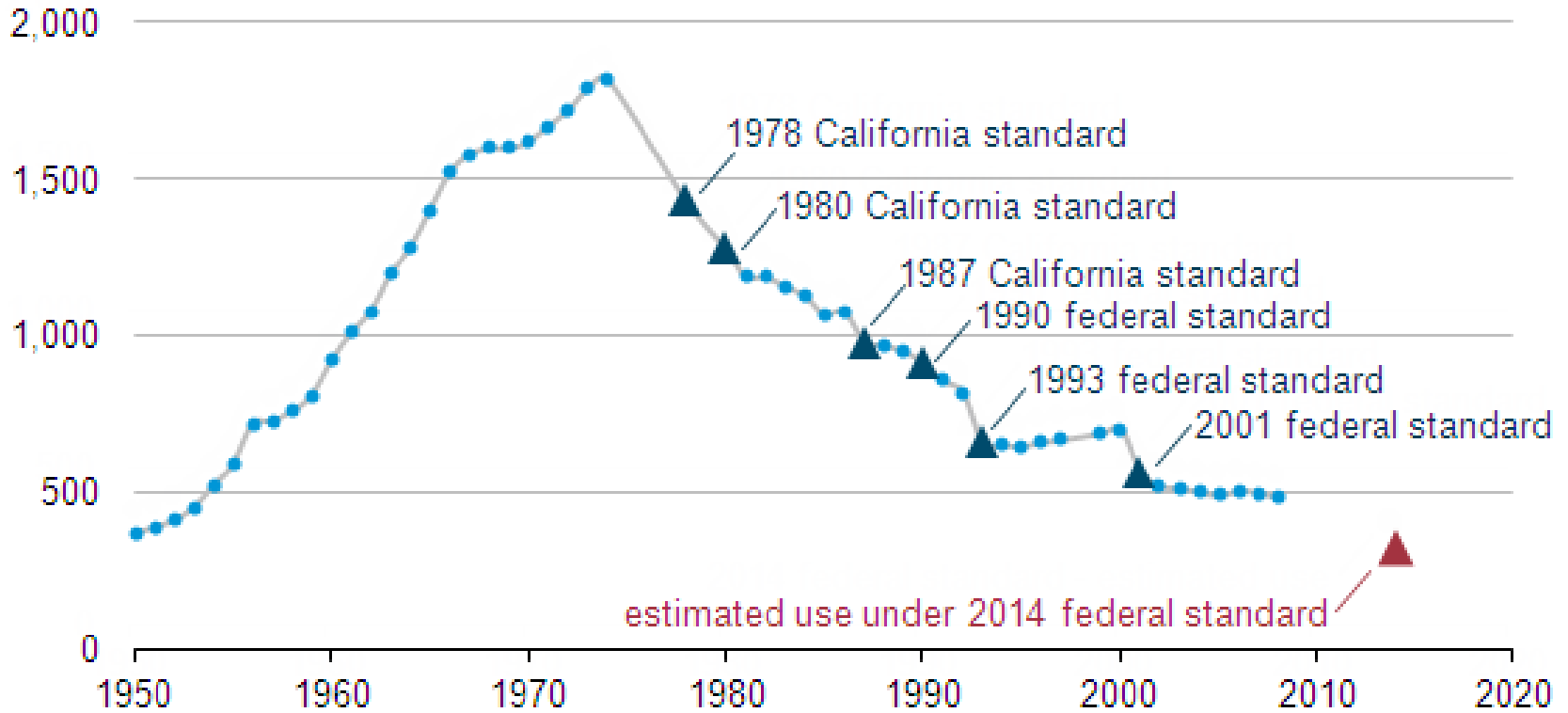
U.S. electricity use and economic growth, 1950 - 2040

percent growth (3-year compound annual growth rate) and trend lines



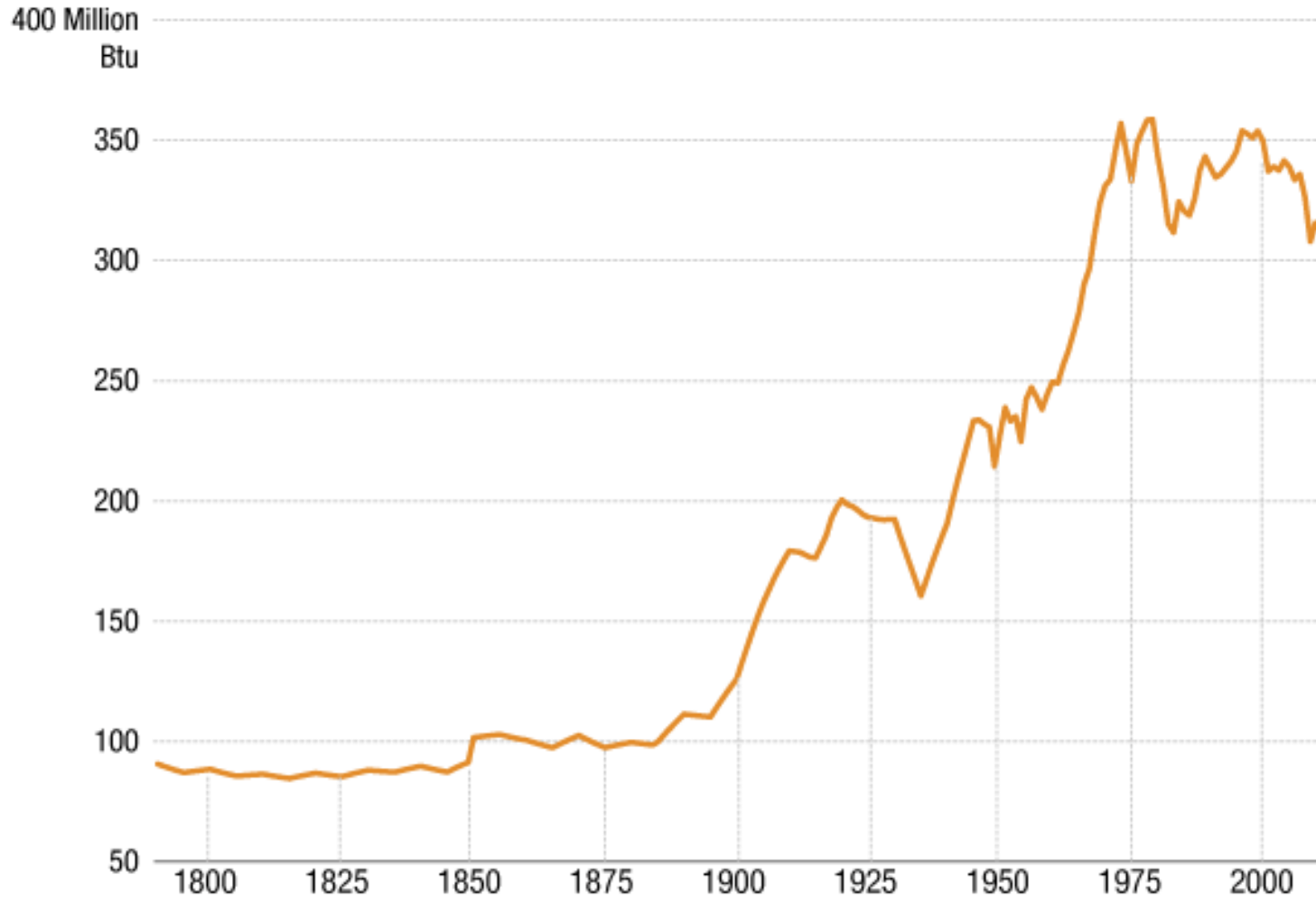
Declining Load Growth

Annual energy use of a new refrigerator, 1950 - 2008
kilowatthours per year



Declining Load Growth

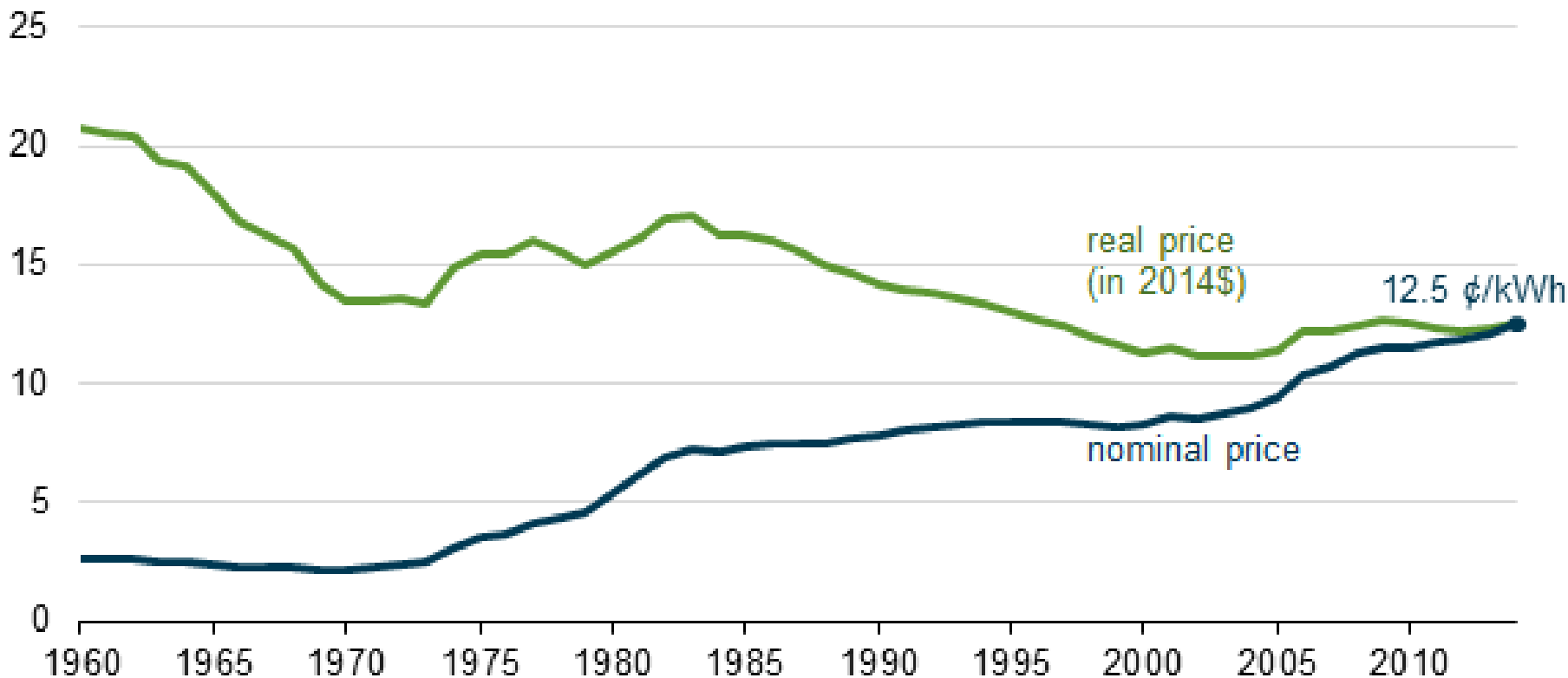
U.S. Energy Consumption, Per Capita (1790-2011)



Source: U.S. Energy Information Administration, Census Bureau
Credit: Lam Thuy Vo / NPR

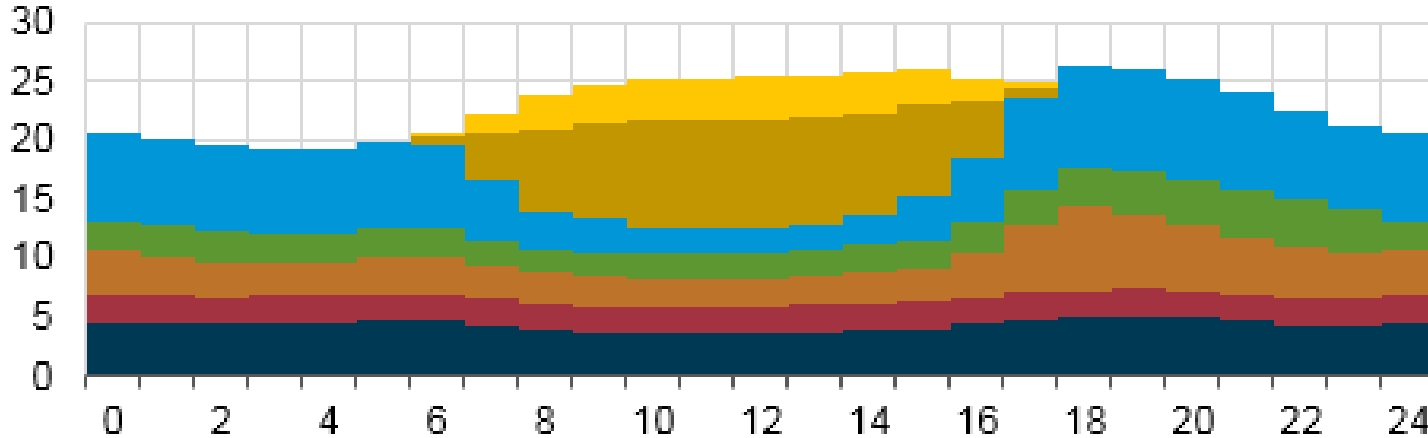
Real Electricity Price Trend

U.S. residential retail electricity price (1960-2014)
cents per kilowatthour



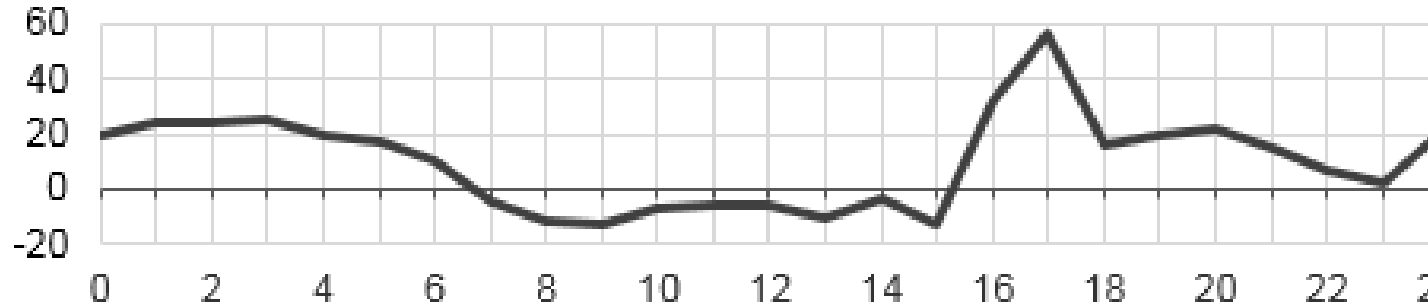
More Expensive Margin

California Independent System Operator net generation, March 11, 2017
gigawatthours



distributed solar
utility-scale solar
imports
other renewables
thermal
nuclear
hydroelectric

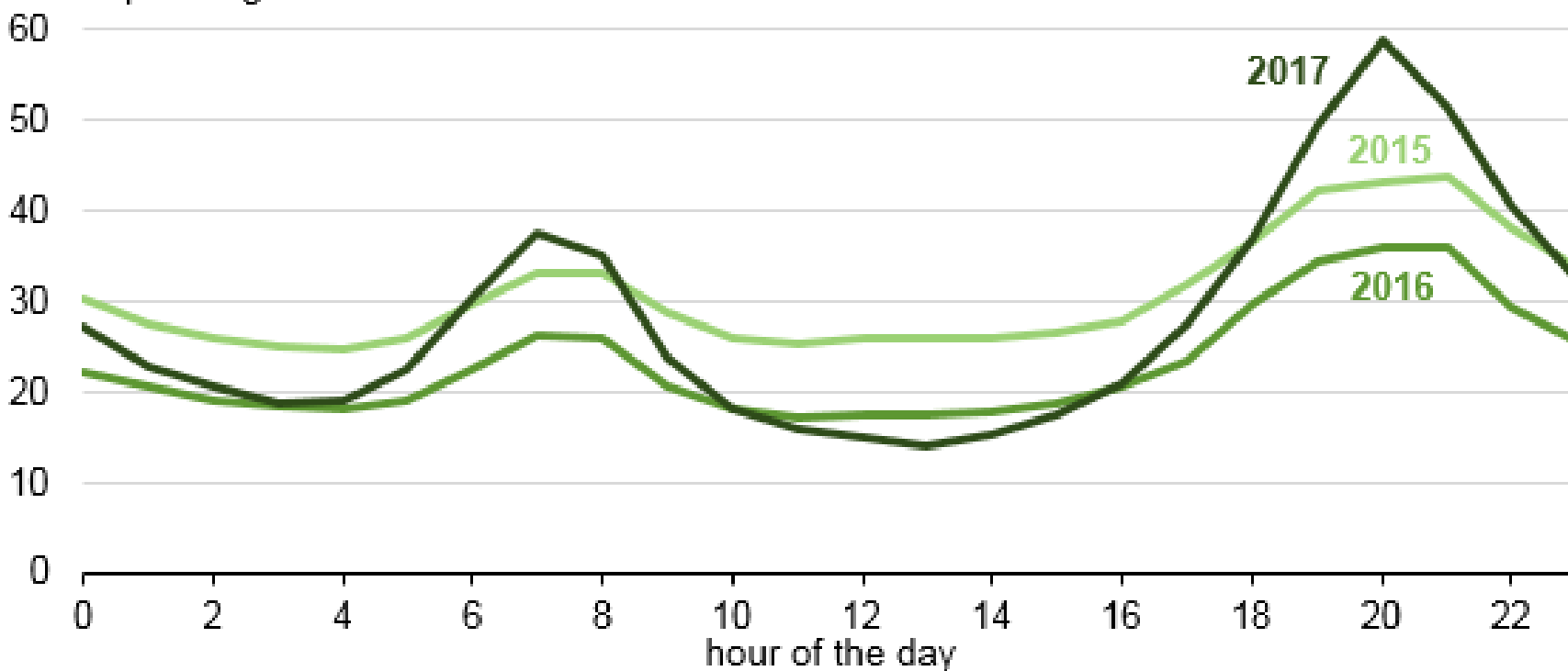
dollars per megawatthour



real-time
average
hourly
price

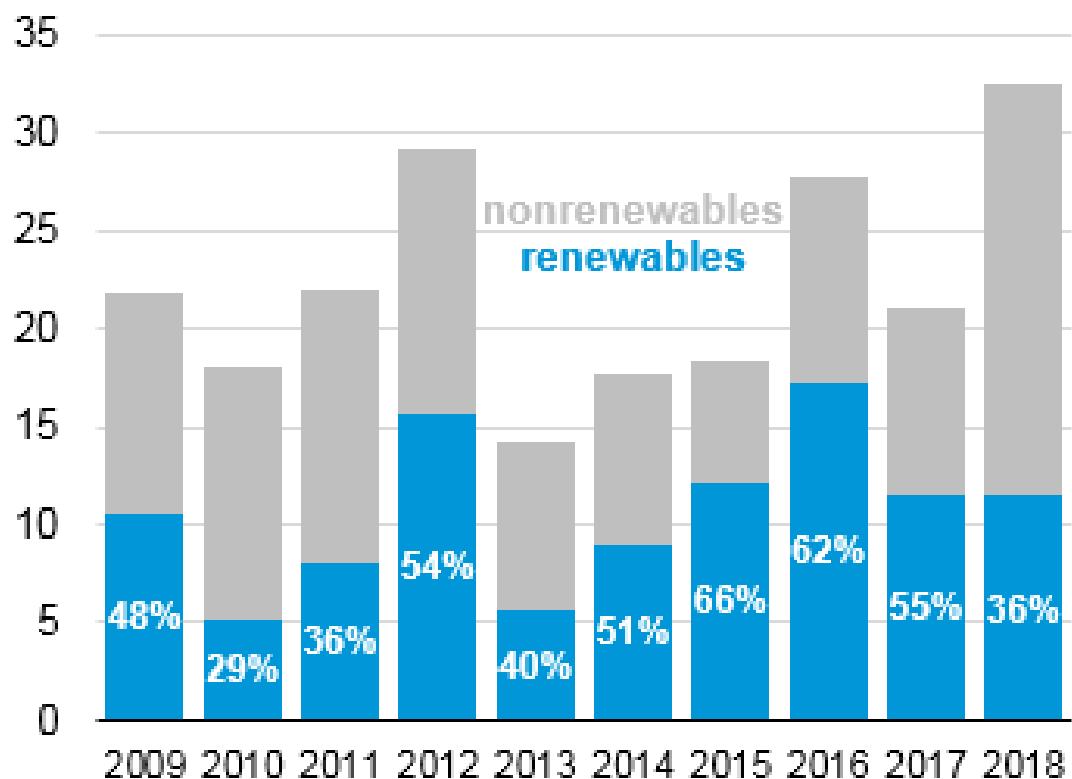
More Expensive Margin

California Independent System Operator average hourly day-ahead energy market prices
January through June average
dollars per megawatt-hour

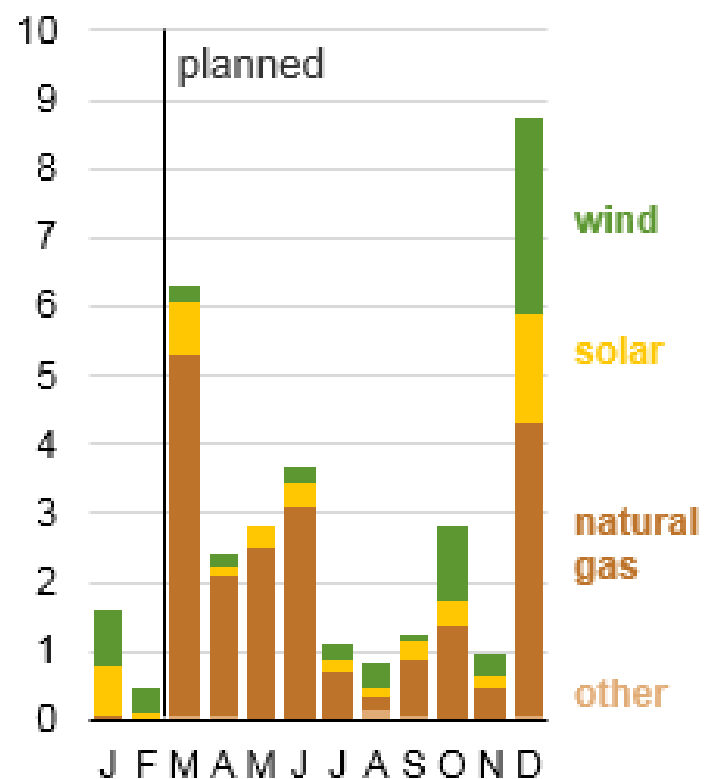


Adding Low and no-emission Resources

Utility-scale capacity additions, 2009-2018
gigawatts

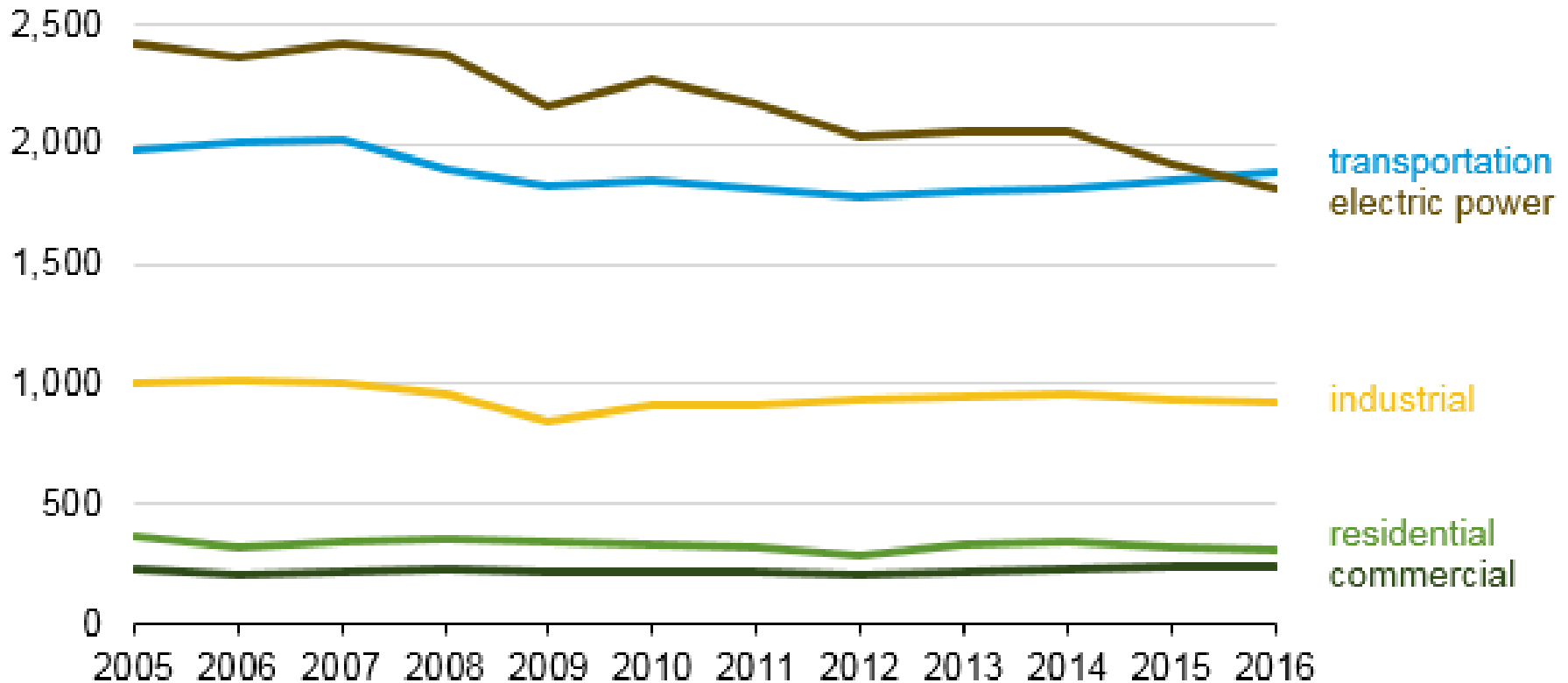


2018 monthly additions
gigawatts



Environmental Improvement

U.S. carbon dioxide emissions by sector (2005-16)
million metric tons

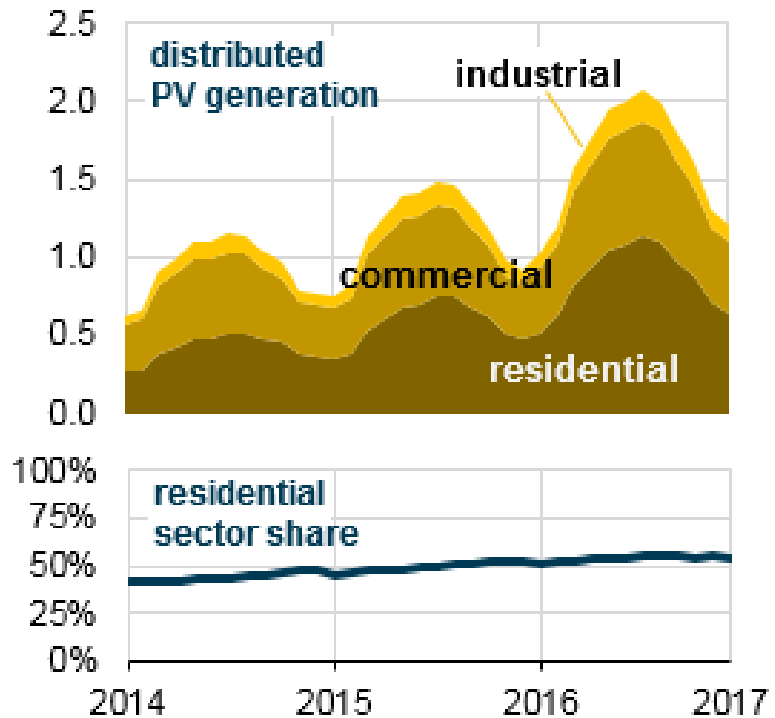
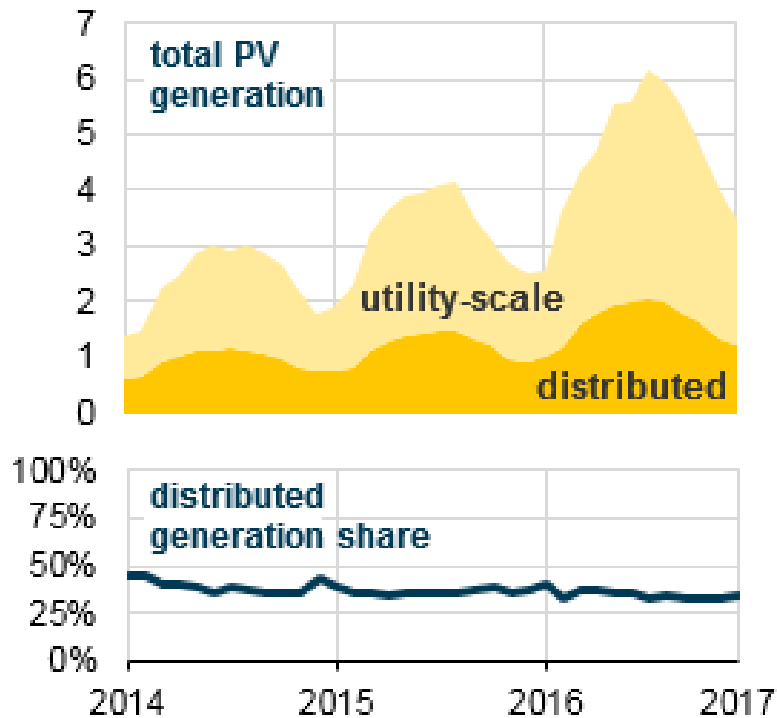


Rooftop PV

U.S. electricity generation from solar photovoltaic systems (Jan 2014-Dec 2016)

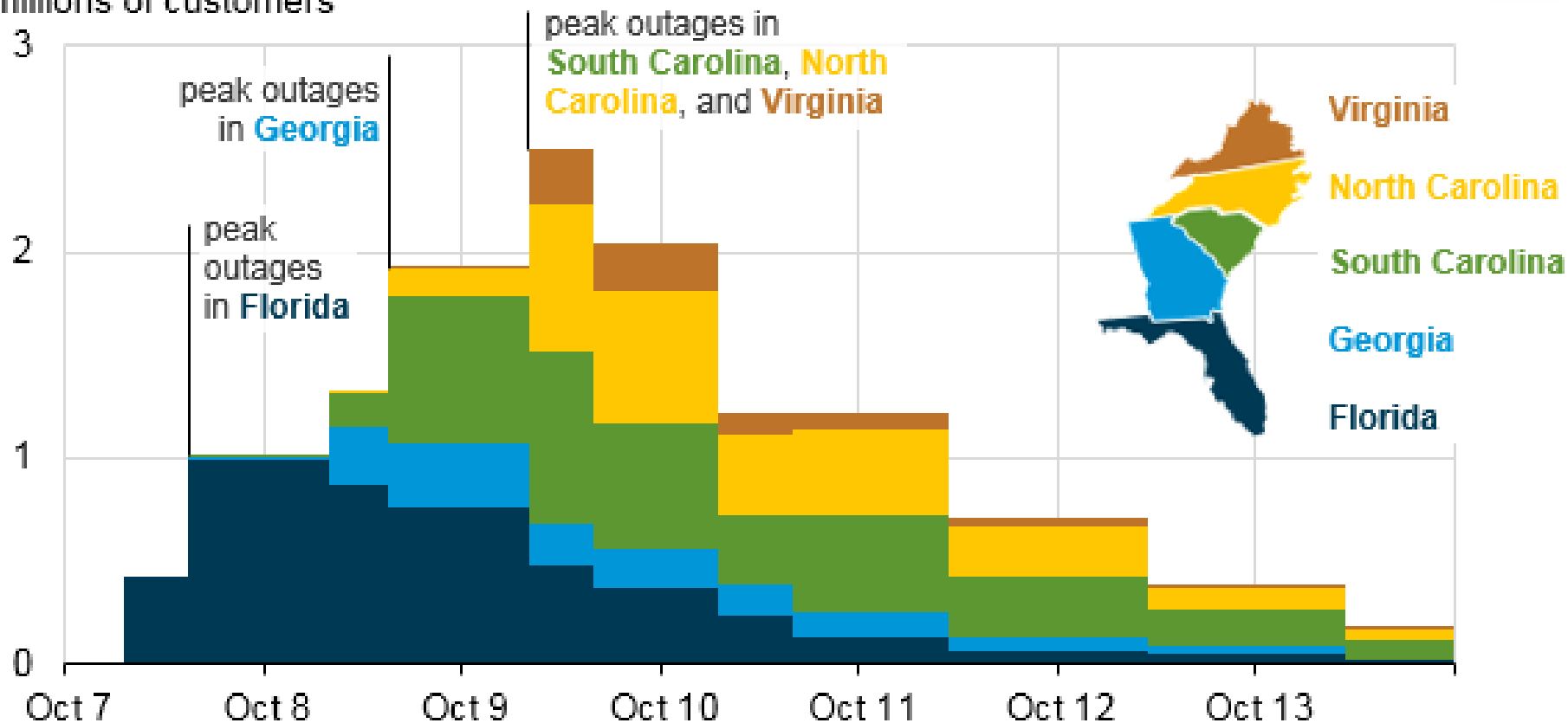
billion kilowatthours

billion kilowatthours




Increased Significant Events

Estimated electricity outages caused by Hurricane Matthew (Oct 7 - Oct 13, 2016)
millions of customers



What does electrification mean to APPA

- Customer Choice/Community Choice
 - Gas vs electric
 - Multiple Departments
 - Environmental benefits
 - Load Growth(?) / Load Replacement
 - Innovative Grid Design needed
 - Rates
 - Communications
 - Cyber Secure Technologies.
- 

Austin Energy Earns Top 10 Solar Utility Award

May 3, 2018

Austin Energy was named one of a select group of utilities that connected the most solar to the grid in 2017, earning it a spot on the annual Top 10 utility industry lists compiled by the Smart Electric Power Alliance (SEPA).

In survey results released April 25, Austin Energy ranked No. 4 on the Utility Solar list, with 285.9 megawatts (MW) installed in 2017. The 11th annual survey collected figures from over 400 utilities across the country on solar, energy storage and demand response connected to the grid in 2017 and since 2007 for solar.

"The Austin City Council has consistently directed Austin Energy to be a leader among cities in the pursuit of solar energy," said Jackie Sargent, Austin Energy General Manager. "We appreciate SEPA's recognition, which places Austin Energy among the nation's top utilities for solar deployment."

Austin Energy boasts both utility scale solar and rooftop solar. In 2017, the municipally-owned utility saw a 2.5 fold increase in utility scale solar, with a total of 464 MW operational. Another 320 MW are under contract and expected to be energized by 2020, bringing Austin Energy to over 50 percent renewable once online. In addition, Austin Energy's rooftop solar grew by 22 percent in 2017. More than 7,500 Austin Energy customers have installed solar at their home or business.

About Austin Energy's inclusion to their Top Ten list, SEPA cited the utility's "strong model for innovation and leadership."

About SEPA

The Smart Electric Power Alliance (SEPA) is an educational nonprofit working to facilitate the utility industry's transition to a clean energy future through education, research, standards and collaboration. SEPA offers a range of research initiatives and resources, as well as conferences, educational events and professional networking opportunities. SEPA is founder and co-sponsor of Solar Power International and winner of the Keystone Policy Center's 2016 Leadership in Energy Award. The full Top 10 listings are available online at www.sepapower.org.

About Austin Energy

Austin Energy, the City of Austin's electric utility, serves more than 475,000 customer accounts and more than one million residents in Greater Austin. The utility's mission — to safely deliver clean, affordable, reliable energy and excellent customer service — has guided Austin Energy in powering the community and supporting the region's growth since 1895. As a publicly owned utility, Austin Energy contributes more than \$109 million annually to support important City services such as streetlights, parks, libraries and public safety. For more information about Austin Energy, visit www.austinenergy.com.



Columbia Water & Light

April 26 at 1:00pm · 🌐



Last Friday, our Home Performance experts Terry Freeman and Brandon Renaud went to Washington D.C. to receive the 2018 Energy Star Partner of the Year award. Terry is the original designer and boots on the ground of our Home Performance with Energy Star program, designing the rebate structure, getting contractors to sign on, and carrying through program implementation. Just over eight years ago the City gained Brandon, who has expanded the program to include Enhanced Home Per... See More



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👍❤️ 17

N.Y. POWER AUTHORITY TO HELP MUNICIPALITIES SPEED UP INSTALLATION OF EV CHARGING STATIONS

For Immediate Release: 01/18/17

Contact:

Lynne Smith | Lynne.Smith@nypa.gov | (914) 681-6916

WHITE PLAINS—The New York Power Authority today announced it will help municipalities secure state-funded rebates to install charging stations in an effort to support Governor Andrew M. Cuomo’s push to expand the use of electric vehicles.

In his State of the State address, Governor Cuomo said NYPA and the New York State Energy Research and Development Authority will commit to building 500 new workplace charging stations by 2018.

As part of the governor’s Charge NY program, NYPA will invite municipalities to tap into a master contract that offers better pricing for the supply, installation and maintenance of charging stations. Local governments can also obtain state-funded rebates from the Department of Environmental Conservation that will cover up to 80 percent of the installed costs.



Powerlines Blog

Seattle City Light

Seattle City Light Among Seven Recipients Presented with First Climate Adaption Leadership Award for Natural Resources

June 7, 2016 by [thomses](#) — [Leave a Comment](#)

Seattle City Light won the inaugural Climate Adaptation Leadership Award for Natural Resources in the state/local category, the US Department of the Interior announced today.

City Light is being recognized for demonstrating exemplary leadership in reducing climate-related threats and adapting the management of hydropower resources to help ensure that the recovery and protection of fish and wildlife can be achieved in the face of climate change. The Award is sponsored by a group of federal agencies: the Department of the Interior (DOI), US Fish and Wildlife Service (USFWS), National Resource Conservation Service (NRCS), National Oceanic and Atmospheric Administration (NOAA), U.S. Forest Service (USFS), and the Association of Fish and Wildlife Agencies (AFWA). The Climate Leadership Award was established as part of the Obama Administration's Priority Agenda for Enhancing the Climate Resilience of America's Natural Resources.

City Light was one of seven recipients of the new award, which recognizes the outstanding leadership by federal, local and state agencies; NGOs and individuals who develop innovative approaches to prevent changes that are affecting valuable wildlife and natural resources.

Austin Energy named 2017 Utility of the Year from SmartCitiesDIVE

December 4, 2017

Earlier today, Austin Energy was named **Utility of the Year** by SmartCitiesDIVE. The SmartCitiesDIVE awards recognize the industry's top disruptors and innovators. These cities, companies and trends are transforming urban landscapes and shaping the future.

"This is a significant recognition for Austin Energy that was made possible by our talented, creative and dedicated employees," said Jackie Sargent, Austin Energy General Manager. "Everything we do at Austin Energy is customer driven and community focused. We are always looking for innovative solutions that deliver better service and make Austin a more livable city."

SmartCitiesDIVE recognized the significant development in Austin in mobility, tech and integrated government and signaled out Austin Energy for its innovation, saying that the community-owned utility "has elevated the city to an exemplary status of how metropolitan areas around the nation can execute smart advancements while maintaining a broad understanding of citizen needs."

The utility's robust goal to meet 65 percent renewable energy by 2027, the release of a new two-way outage map and alert system, the launch of an Electric Drive (an electric vehicle charging hub), and increased access to solar were main factors elevating Austin Energy to the top of the pack, according to SmartCitiesDIVE. See other **SmartCitiesDIVE award winners**.

About Austin Energy

Austin Energy, the City of Austin's electric utility, serves more than 475,000 customer accounts and more than 1 million residents in Greater Austin. The utility's mission — to safely deliver clean, affordable and reliable energy along with excellent customer service — has guided Austin Energy in powering the community and supporting the region's growth since 1895. As a publicly owned utility, Austin Energy contributes more than \$108 million annually to support important City services such as streetlights, parks, libraries and public safety. For more information about Austin Energy, visit austinenergy.com.

Other Notables:

NYPA – BESS – Battery Energy Storage System 1990's.

MRES – Minn/Iowa – Electric Zamboni's for Hockey rinks.

LA – 300 Electric Police Cruisers

Electric Golf Carts at golf courses

Electric Fork lifts at ports.

APPA's Public Power Forward Strategic Initiative

- **Public Power Forward Summit**
 - **November – Austin, TX**
- **Reports**
 - **EV's**
 - **DER's**
 - **Value of Solar**
 - **Energy Storage**

APPA's Demonstration of Energy & Efficiency Developments (DEED)

- Created in 1980
- 950 Utilities
- Improves operations & services by supporting & demonstrating its members' innovative activities through research, funding, & education.
- Electrification projects





*National Association of
State Energy Officials*

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PUBLIC
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ASSOCIATION**

Powering Strong Communities

