Edison Electric INSTITUTE

Infrastructure Planning

AAPCA 2018 Fall Business Meeting

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The **Edison Electric Institute** (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States.

In addition to our U.S. members, EEI has more than 60 international electric companies, with operations in more than 90 countries, as International Members, and hundreds of industry suppliers and related organizations as Associate Members.

Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums.

For more information, visit our Web site at www.eei.org.

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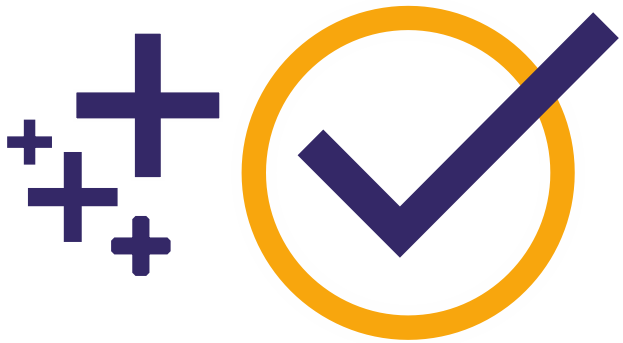
Smarter Energy Infrastructure

DRIVERS

1. Customer Wants & Needs
2. Environmental Goals
3. Growth in Distributed Energy Resources
4. New Technologies

BENEFITS



1. Enhanced Reliability
2. Increased Resiliency
3. Reduced Carbon Emissions
4. Empowered Customers
5. Flexible & Responsive Energy Grid Platform

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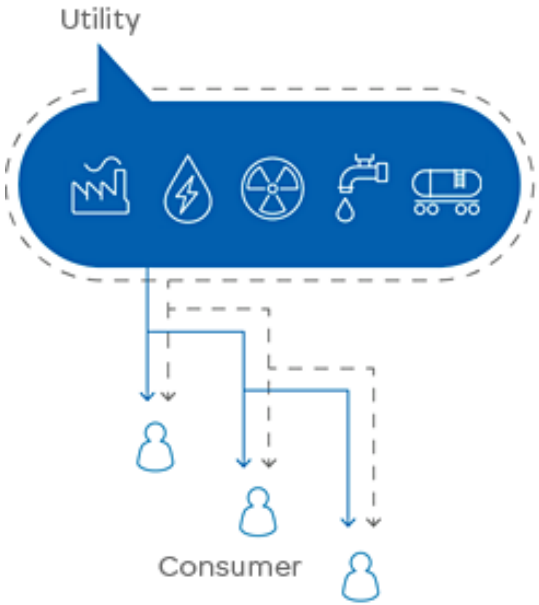
Grid Mod: Evolving Energy Grid

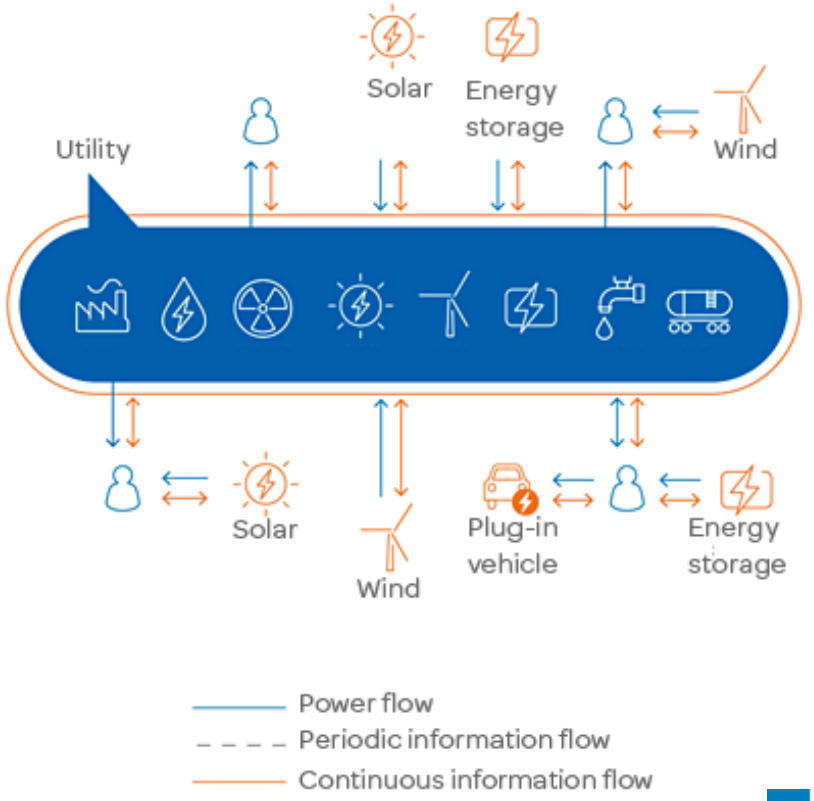
TRADITIONAL GRID

One-way power flow from generator to customer



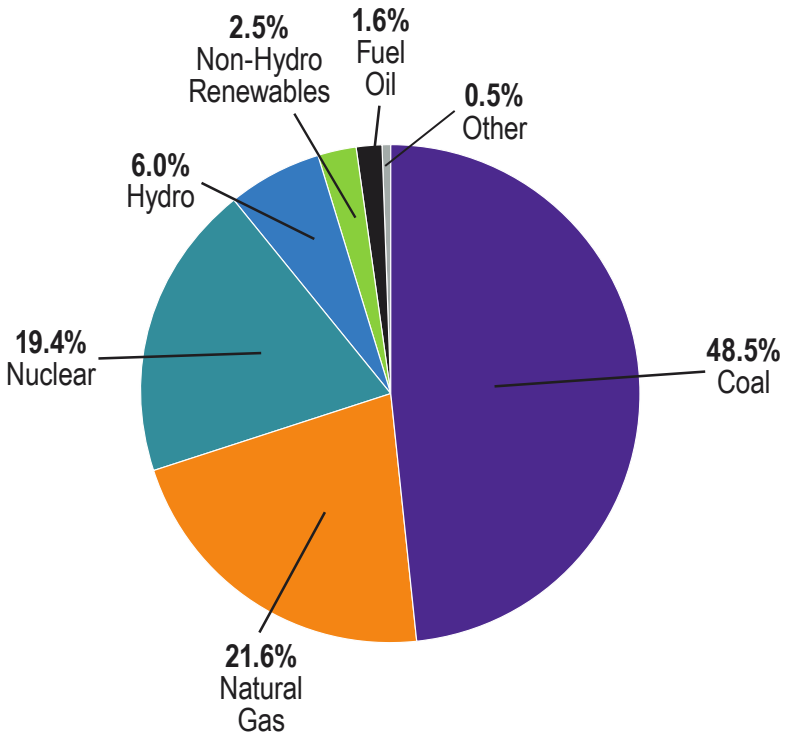
SMART GRID

Two-way power flow with multiple energy stakeholders that can produce and consume electricity

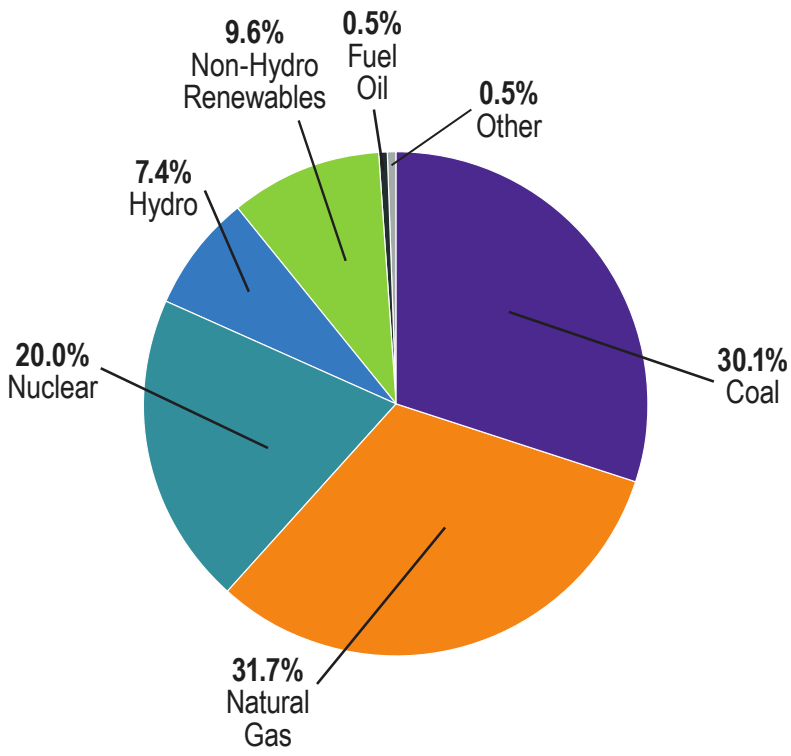


The Mix of Resources Used to Generate Electricity Is Changing Dramatically

2007 National Energy Resource Mix

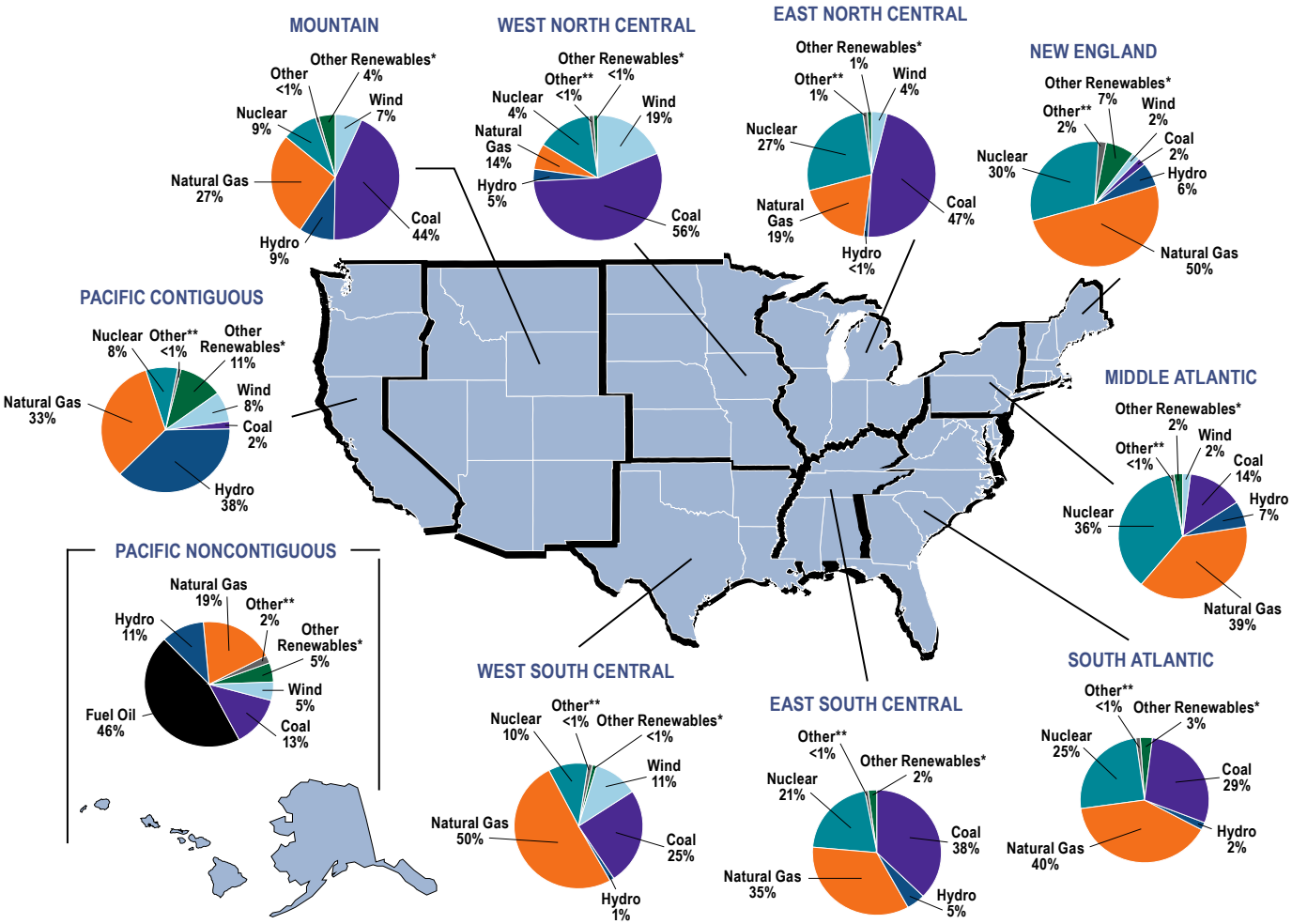


2017 National Energy Resource Mix
(preliminary)



Source: Department of Energy, Energy Information Administration.

Electric Companies Use a Diverse Mix Of Resources to Generate Electricity



*Includes generation by agricultural waste, landfill gas recovery, municipal solid waste, wood, geothermal, non-wood waste, and solar.

**Includes generation by tires, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.

Sum of components may not add to 100% due to independent rounding.

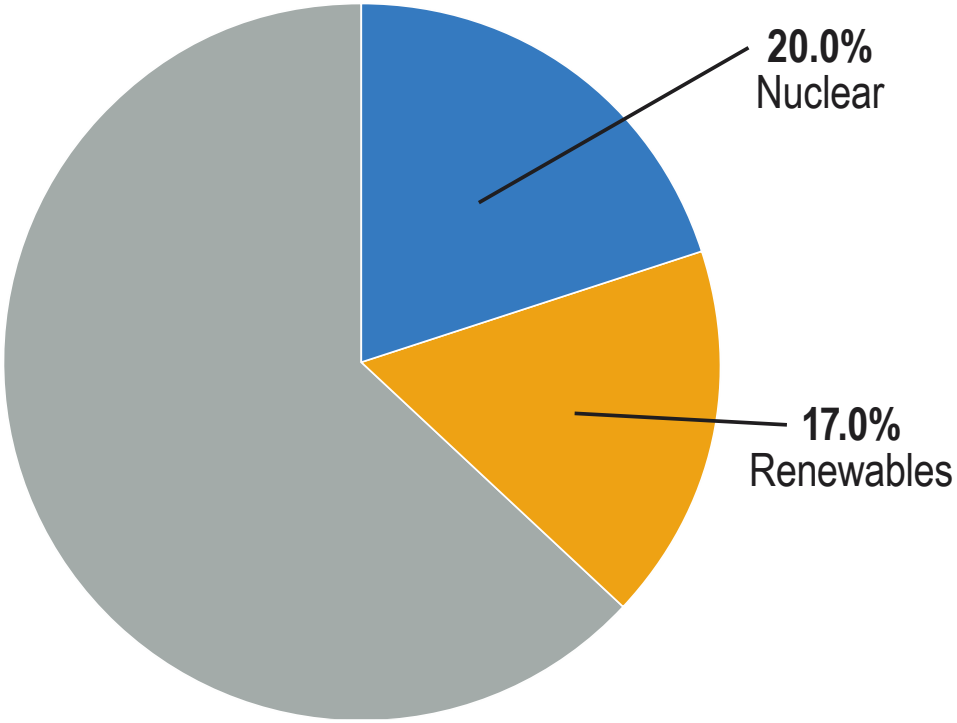
Source: U.S. Department of Energy, Energy Information Administration, Power Plant Operations Report (EIA-923); 2016 final generation data.

January 2018

>1/3

of U.S. Power Generation Comes From Zero-Emissions Sources

(Nuclear and Renewables)

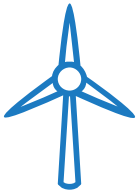


Source: U.S. Department of Energy, Energy Information Administration.

Chart percentages are based on net generation data, 2017 (preliminary).

ELECTRIC COMPANIES ARE

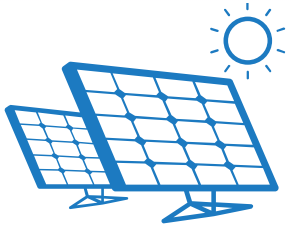
Leading on Clean Energy



Providing

virtually all

GEOTHERMAL, HYDROPOWER, AND WIND ENERGY



Providing

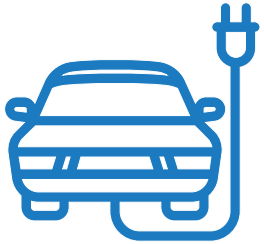
69%

SOLAR ENERGY

Increasing Investments

$100 Billion+

PER YEAR IN SMARTER ENERGY INFRASTRUCTURE



Expanding Access to EVs

20,000+

CHARGING STATIONS NATIONWIDE

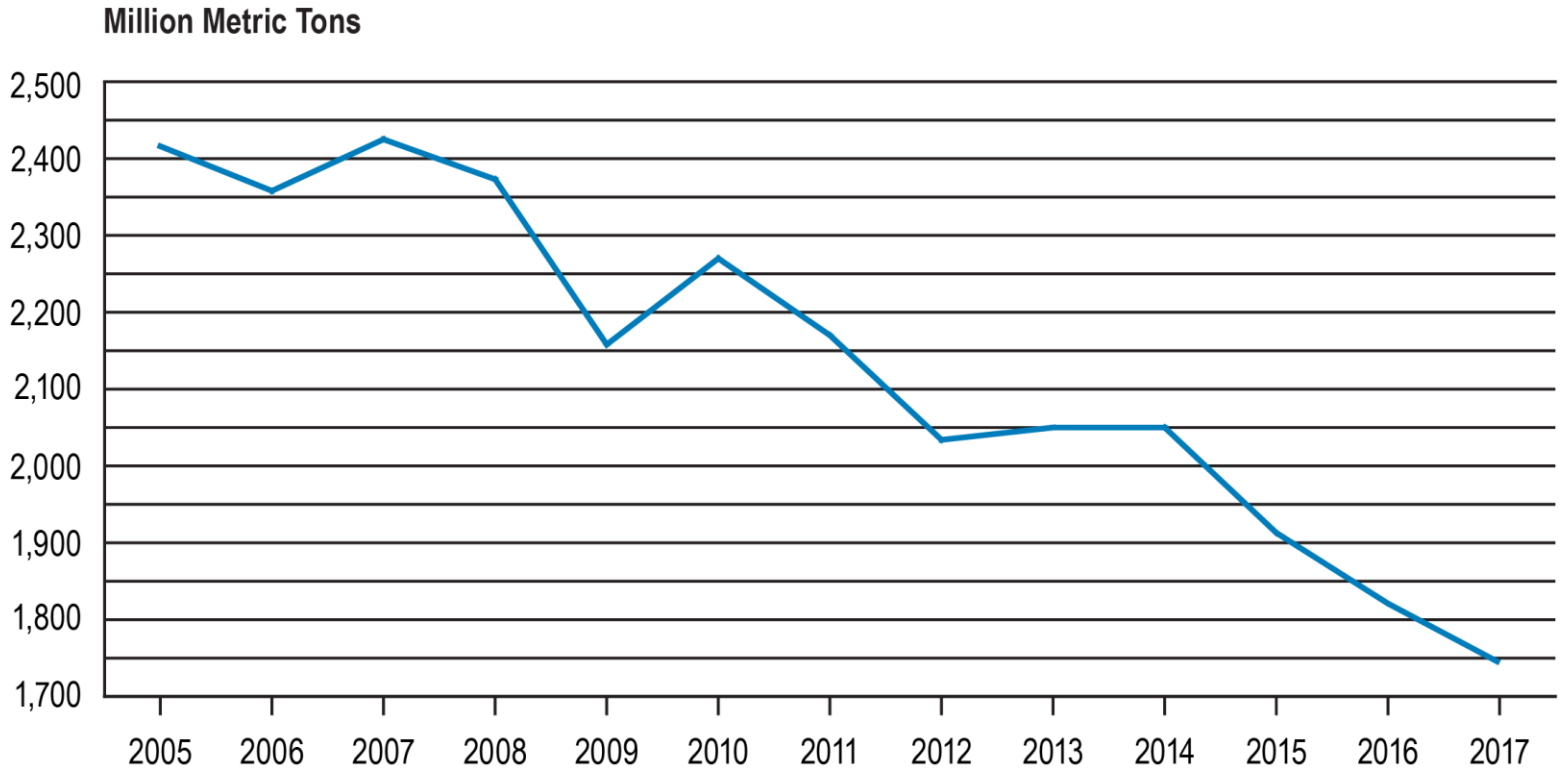
Using Energy Storage

90%+

NATIONWIDE

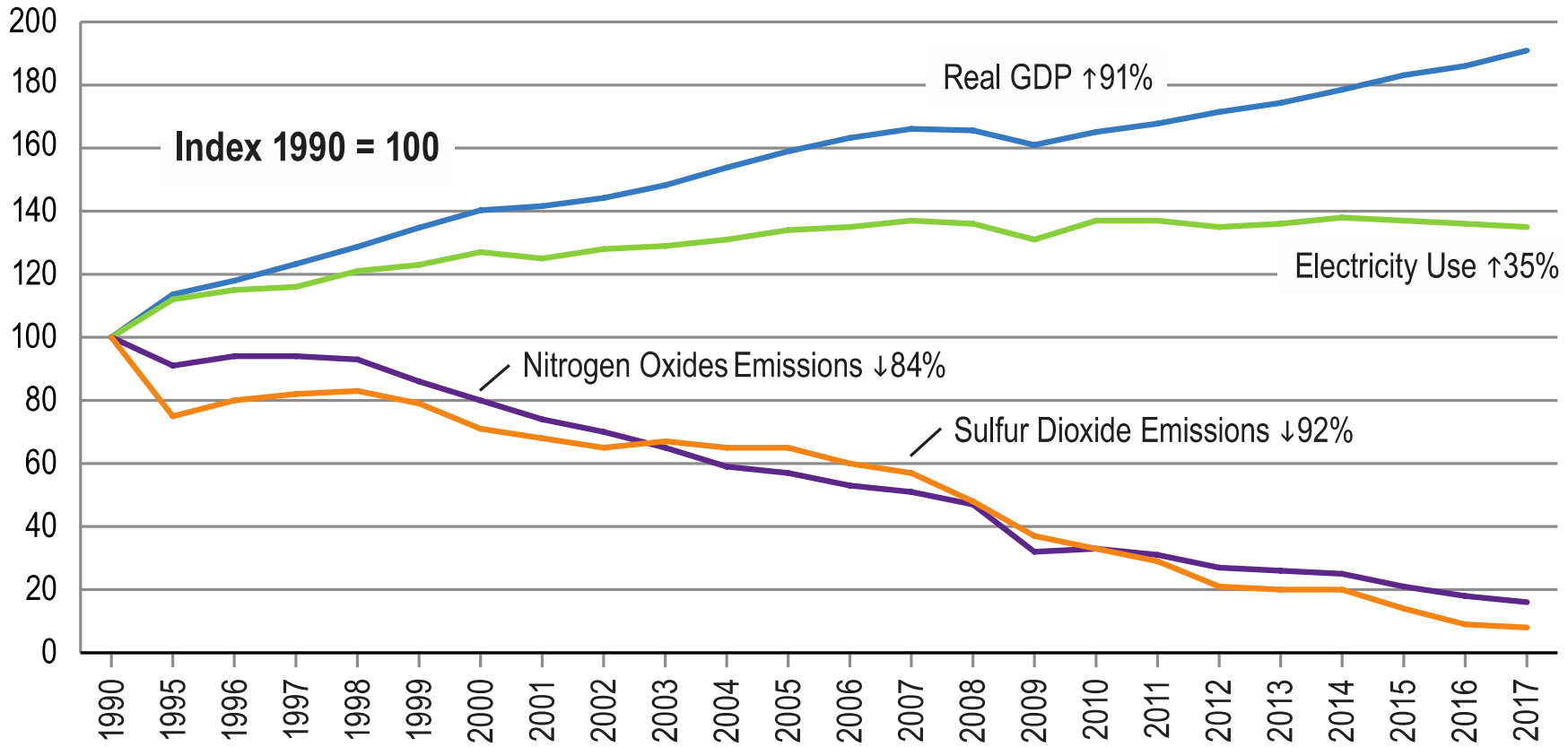
U.S. Power Sector Carbon Dioxide Emissions Declining (2005–2017)

- More than 1/3 of U.S. power generation comes from zero-emissions sources
- By the end of 2017, industry CO_2 emissions were 28 percent below 2005 levels
- Trajectory is expected to continue based on current trends



Source: Developed from U.S. Energy Information Administration, *Monthly Energy Review*, October 2018.

Power Plant Emissions Drop Significantly Since 1990



1990 represents the base year. Graph depicts increases or decreases from the base year.

Sources: U.S. Department of Energy, Energy Information Administration (EIA), U.S. Environmental Protection Agency (EPA), and U.S. Bureau of Economic Analysis.

Energy Infrastructure Issues

- One of the most significant obstacles to facilitating energy infrastructure investment continues to be obtaining permits from federal agencies.
- This applies to permits for the renewal and O&M of existing infrastructure as well.
- The current permitting process involves multiple federal and state agencies engaging in uncoordinated and sequential project reviews.
- Lack of interagency cooperation, the absence of deadlines, scarce federal resources, and extensive permit and environmental requirements have resulted in lengthy timeframes and costly processes for project proponents.
- For example, the average timeframe for permitting and siting an interstate transmission line is on the order of 7 to 10 years.

Energy Infrastructure Efforts

- Electric industry extensively involved in efforts to develop new national policies to enhance energy infrastructure and modernize grid
  - T&D lines, pipelines, renewables and energy storage
  - Operations & maintenance/vegetation management
  - Grid hardening is now a safety and reliability issue—primarily arising from increasing natural disasters (ex. wildfire and hurricane risk)

- EEI pursuing both legislative and regulatory pathways

- Executive Order 13807: *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects*
  - Created *One Federal Decision*
  - Department of Interior Secretarial Order No. 3355 on streamlining NEPA reviews

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Energy Infrastructure Priorities

- Federal Siting and Permitting Reform Remains Key Priority
  - Focusing on Regulatory Pathways to:
    - Streamline and expedite the federal environmental review and permitting processes
    - Improve underlying implementing federal regulations for key statutes (e.g., NEPA, ESA, MBTA, BGEPA, CWA, CAA)
    - Create NEPA categorical exclusions for linear energy projects, vegetation management (ex. for wildfire prevention)
    - Enhance cooperation and coordination within government at all levels
      - Intra-agency/Inter-agency/Federal – state