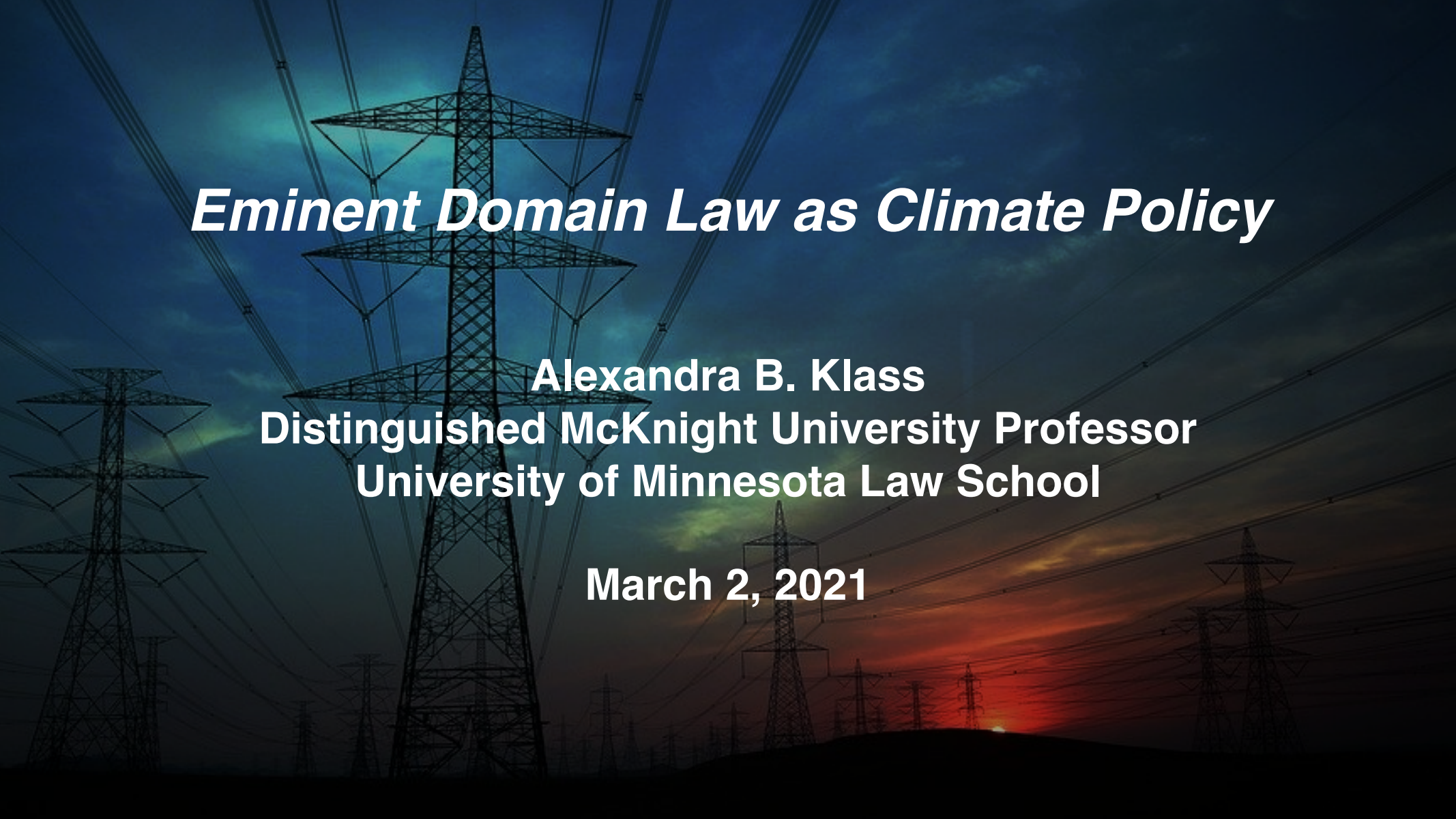


Eminent Domain Law as Climate Policy

Alexandra B. Klass
Distinguished McKnight University Professor
University of Minnesota Law School

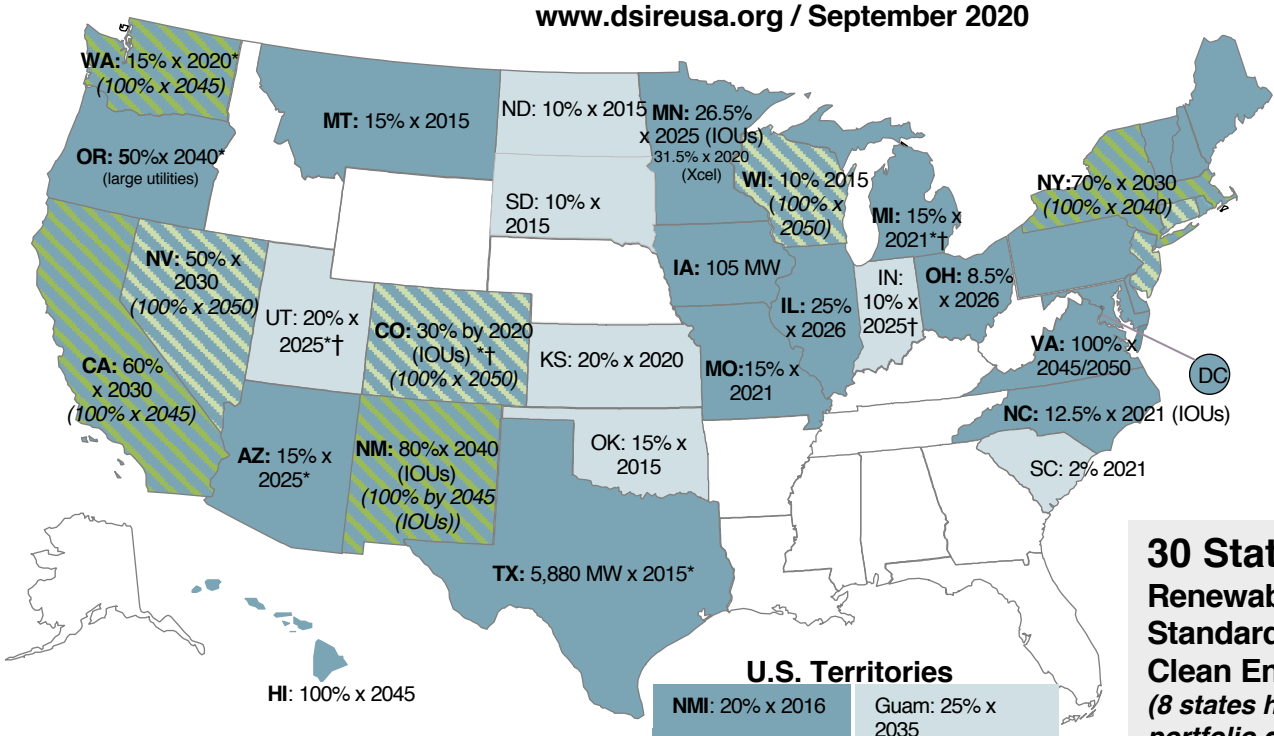
March 2, 2021

Examples of New State Clean Energy Laws (2015-present)

- CA: 60% renewable by 2030; 100% carbon free by 2045
- NY: 70% renewable by 2030; 100% carbon free by 2040
- ME: 100% renewable by 2050
- NV: 50% renewable by 2030; 100% carbon free by 2050
- NM: 80% renewable by 2040; 100% carbon free by 2045
- WA: 100% carbon free by 2045
- VA: 100% carbon free by 2045/2050 (utility specific)
- HI: 100% renewable by 2045

NOTE: Some states impose economy-wide carbon reduction mandates and thus include emissions from transportation, buildings, etc. as well as specific solar or offshore wind mandates

Renewable & Clean Energy Standards



ME: 100% x 2050
NH: 25.2% x 2025
VT: 75% x 2032
MA: 35% x 2030 + 1% each year thereafter (new resources) 6.7% x 2020 (existing resources) *(80% x 2050)*
RI: 38.5% x 2035; 100% x 2030 Goal
CT: 40% x 2030; *(100% x 2040)*
NJ: 50% x 2030; (*100% x 2050)*
PA: 18% x 2021†
DE: 25% x 2026*
MD: 50% x 2030
DC: 100% x 2032

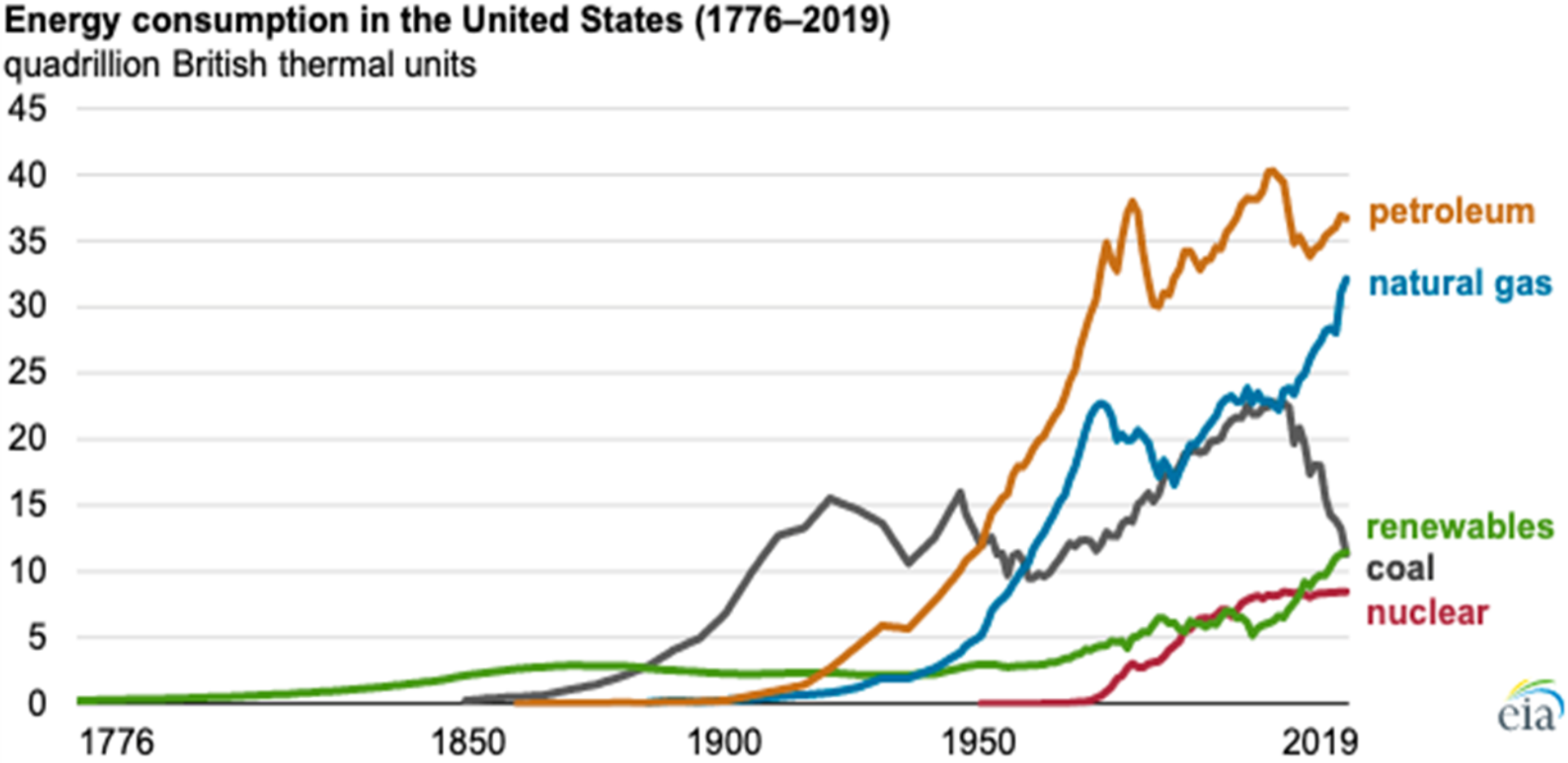
U.S. Territories

NMI: 20% x 2016
PR: 100% x 2050
Guam: 25% x 2035
USVI: 30% x 2025

30 States + DC have a Renewable Portfolio Standard, 5 states have a Clean Energy Standard
(8 states have renewable portfolio goals, 5 states have clean energy goals)

Renewable portfolio standard
Renewable portfolio goal
Clean energy standard
Clean energy goal

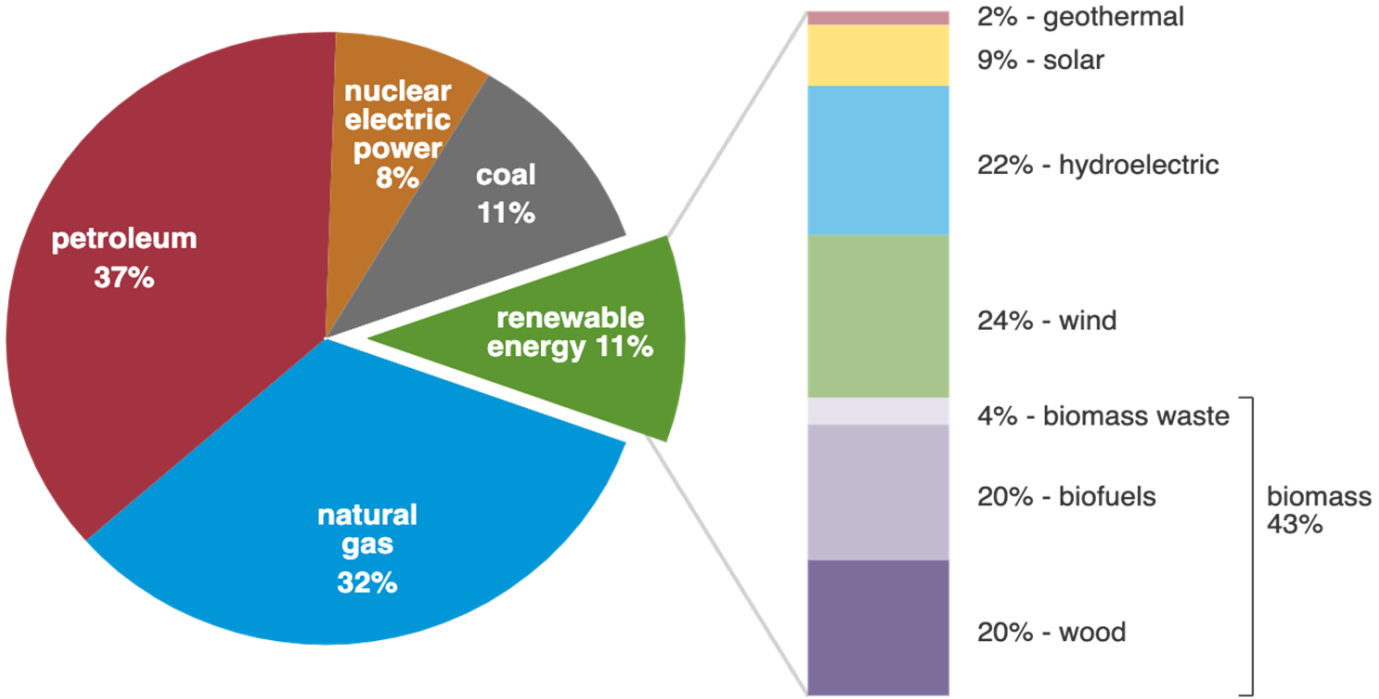
* Extra credit for solar or customer-sited renewables
† Includes non-renewable alternative resources


Energy consumption in the United States (1776–2019)
quadrillion British thermal units
45
40
35
30
25
20
15
10
5
0
1776
1850
1900
1950
2019
petroleum
natural gas
renewables
coal
nuclear
eia

U.S. primary energy consumption by energy source, 2019

total = 100.2 quadrillion British thermal units (Btu)

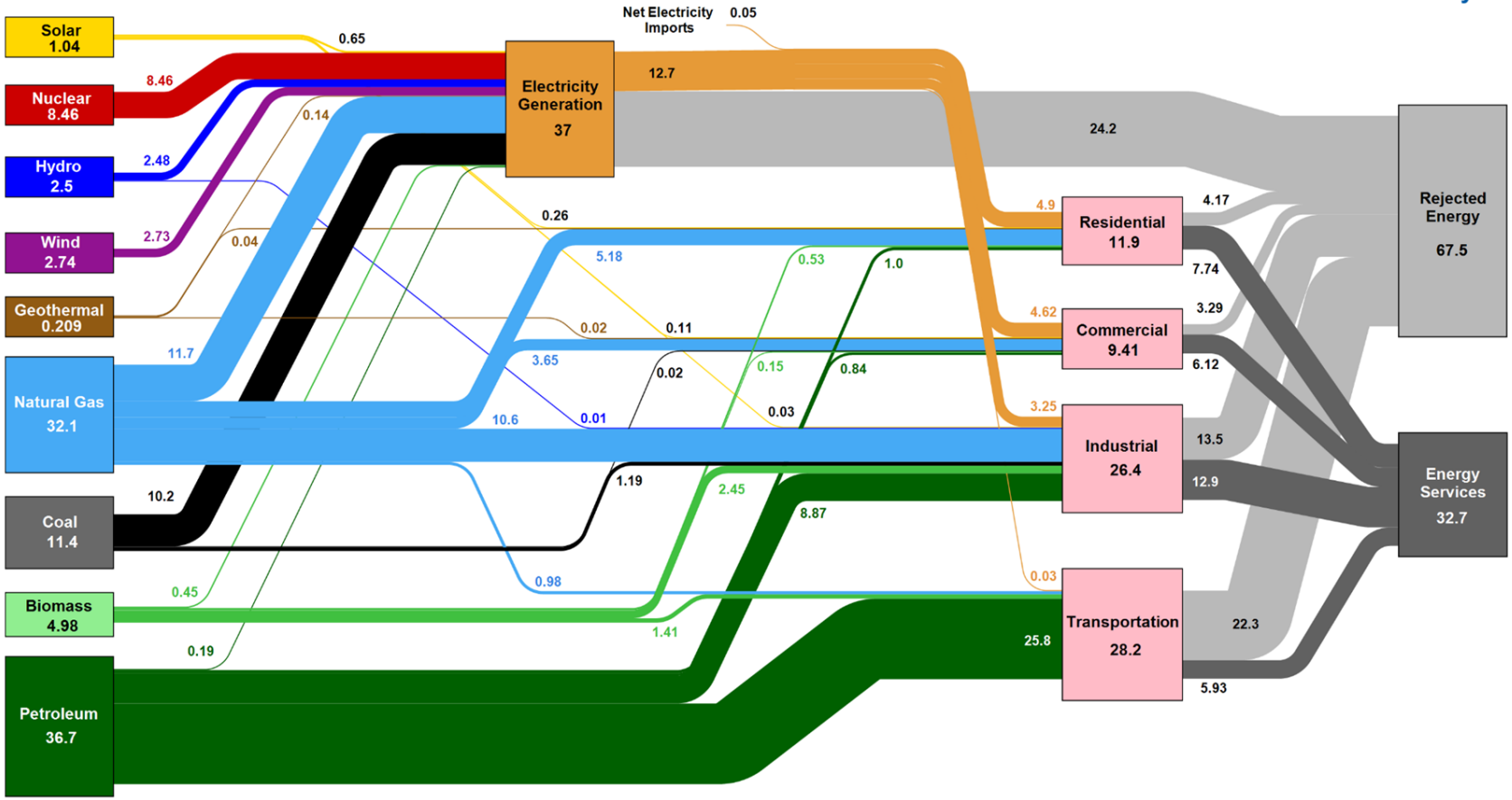
total = 11.4 quadrillion Btu



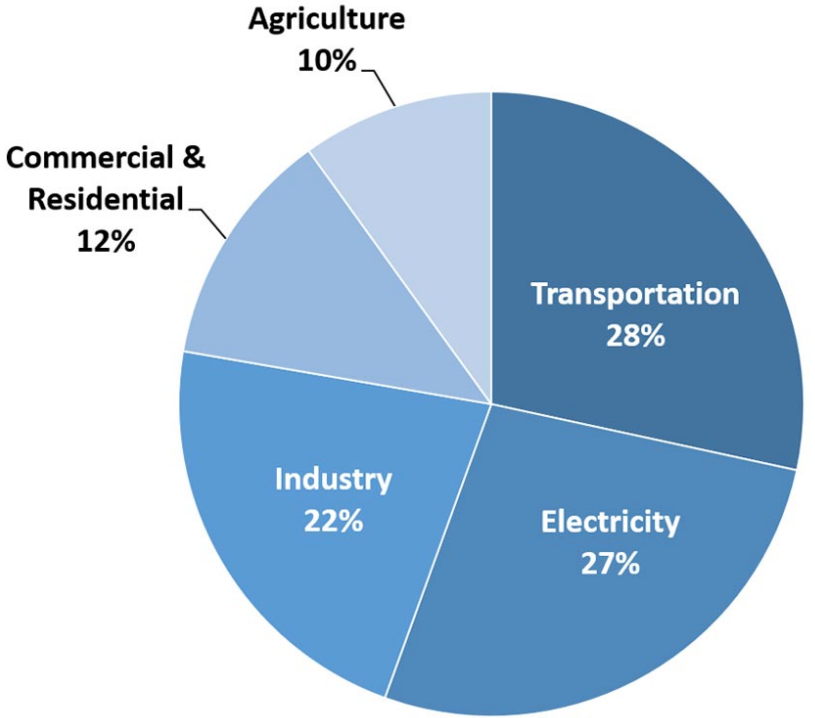
Note: Sum of components may not equal 100% because of independent rounding.
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2020, preliminary data

Estimated U.S. Energy Consumption in 2019: 100.2 Quads

Lawrence Livermore National Laboratory



Total U.S. Greenhouse Gas Emissions by Economic Sector in 2018

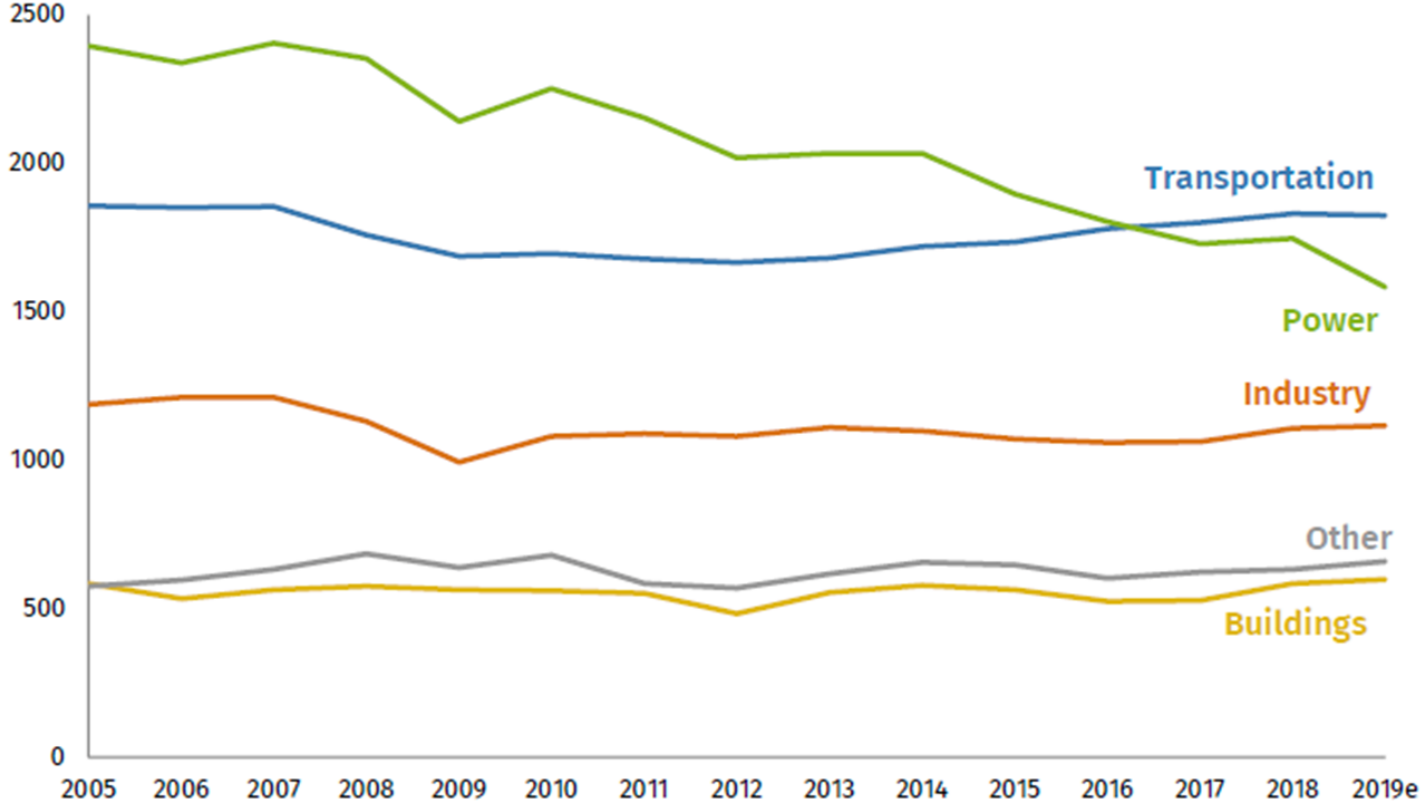


U.S. Environmental Protection Agency (2020). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018

FIGURE 2

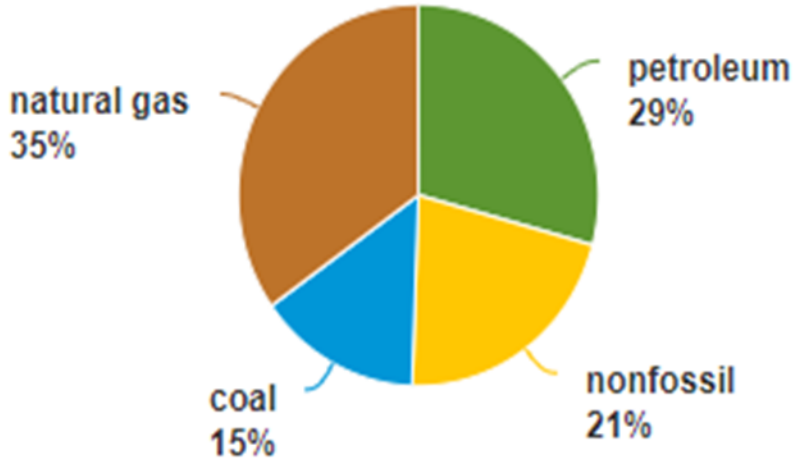
Net US GHG emissions by sector

Million metric tons CO2e, IPCC definitions, excludes international bunkers

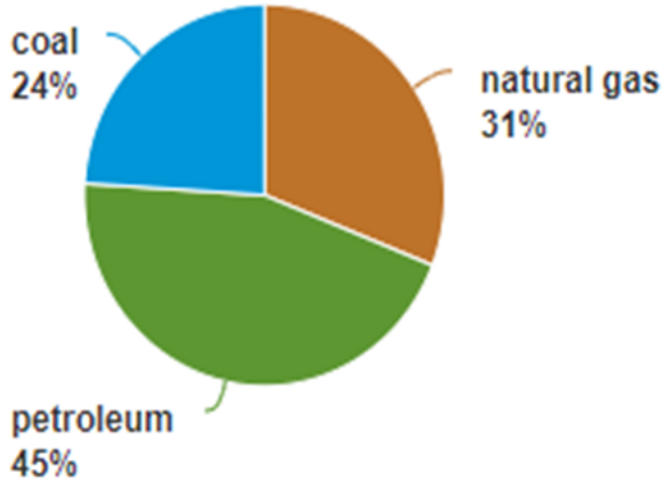


Source: Rhodium Climate Service

U.S. energy consumption by major fuel type, 2018



U.S. energy-related carbon dioxide emissions by major fuel type, 2018



Totals may not equal 100 because of independent rounding.

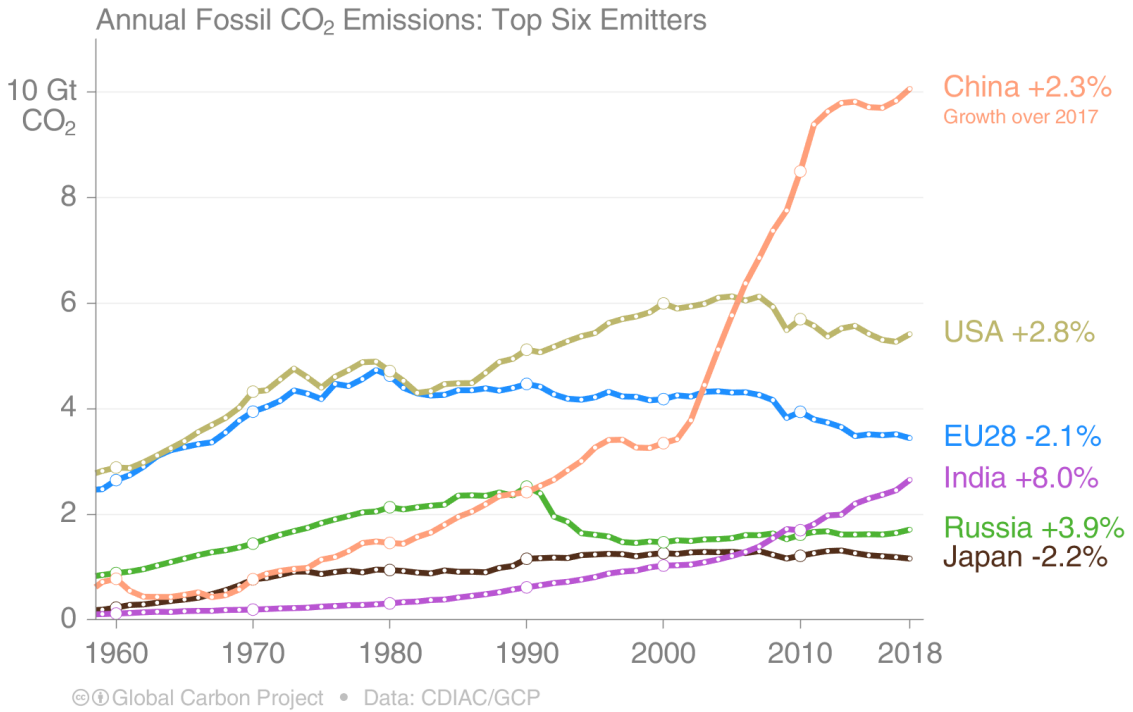
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Tables 1.3, May 2019, preliminary data

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 12.1, May 2019, preliminary data

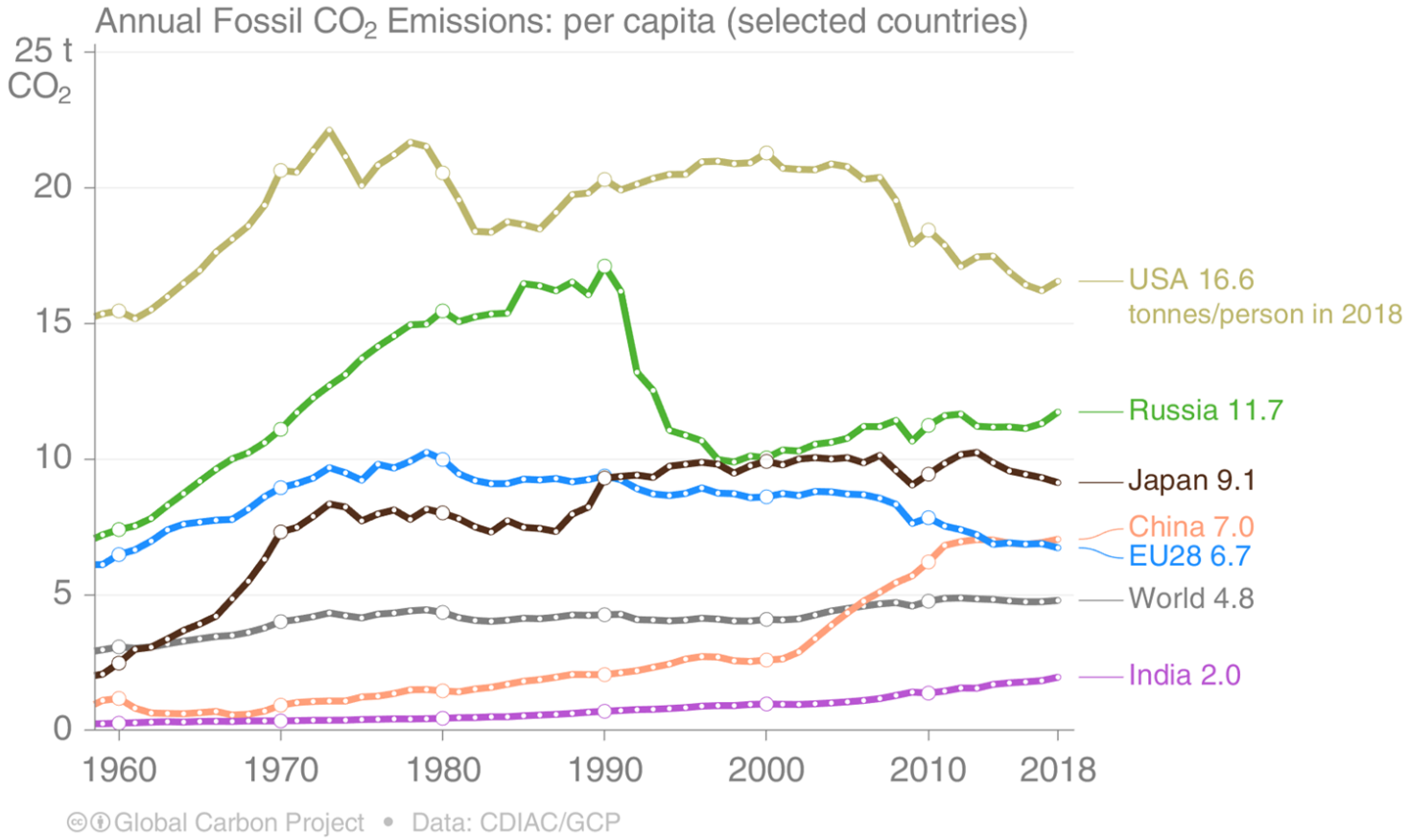
The World's Largest Greenhouse Gas Emitters

The top six emitters = 67% of global emissions

China 28%, United States 15%, EU28 9%, India 7%, Russia 5%, and Japan 3%



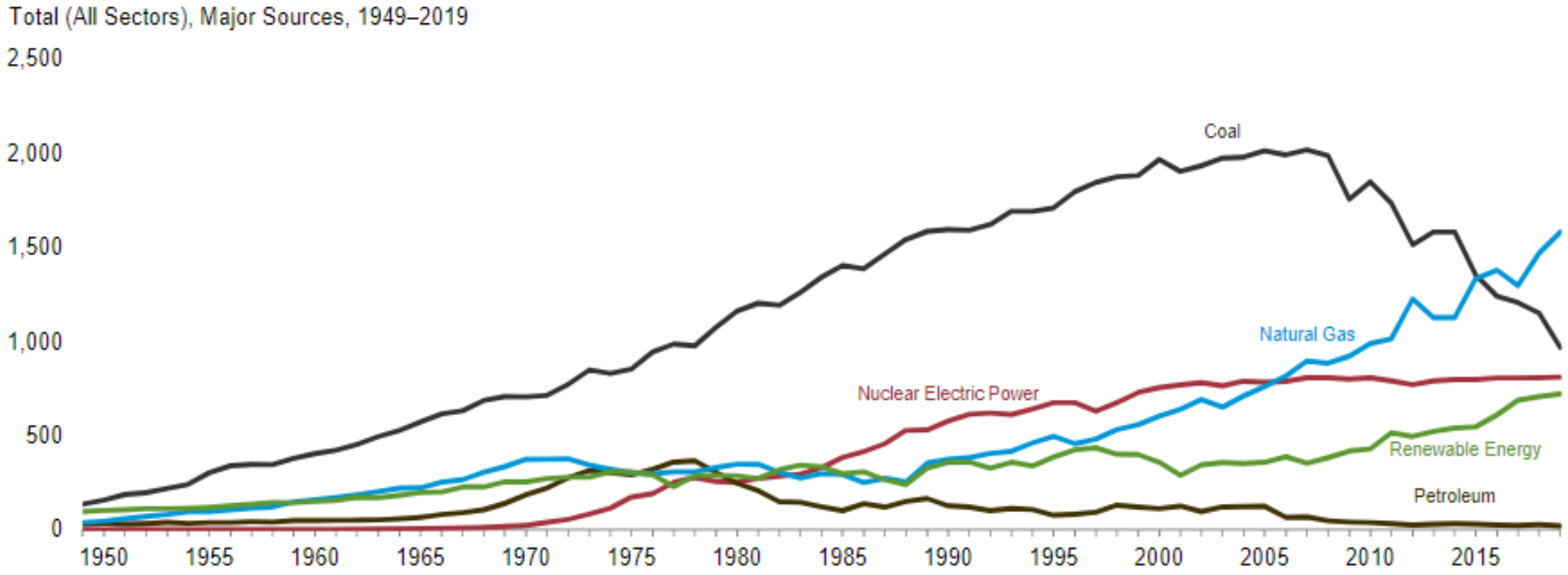
Global Greenhouse Gas Emissions per Capita



U.S. Electricity Generation by Fuel

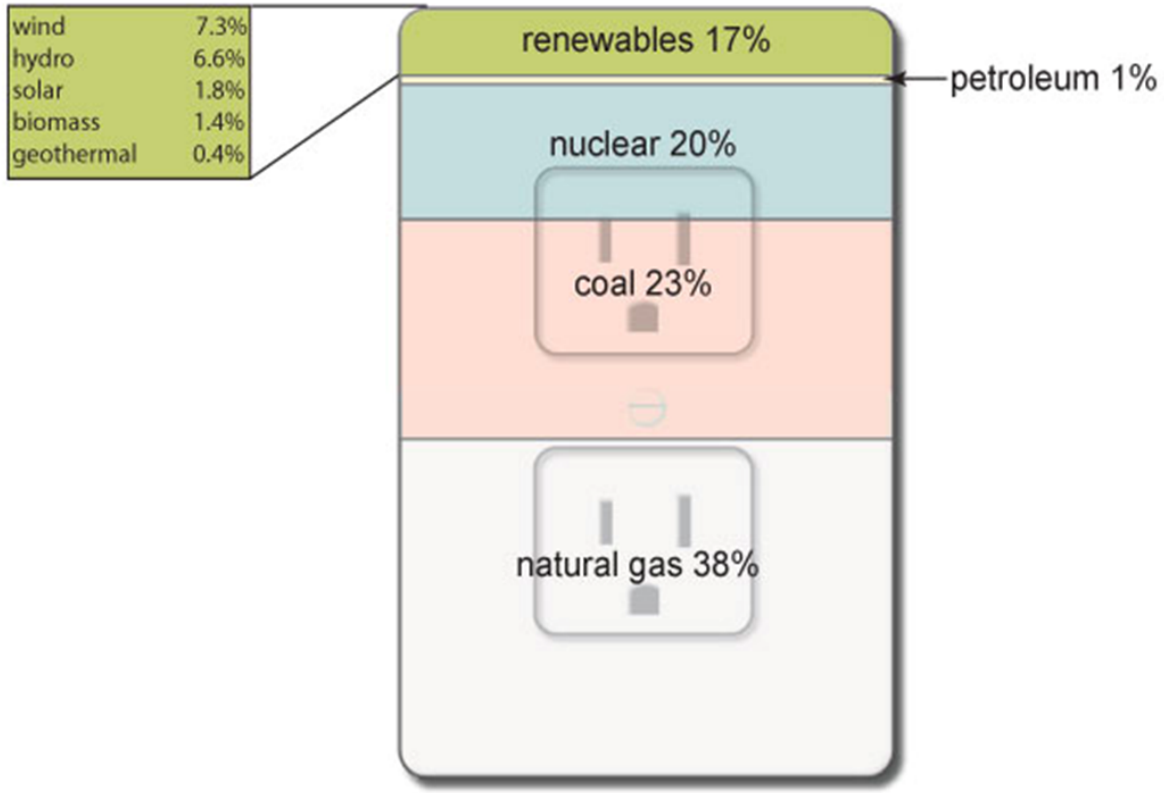
Figure 7.2 Electricity Net Generation

(Billion Kilowatthours)



Sources of U.S. electricity generation, 2019

Total = 4.12 trillion kilowatthours

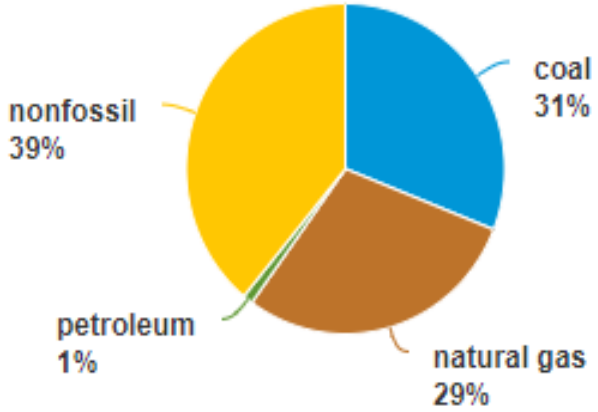


Note: Electricity generation from utility-scale facilities. Sum of percentages may not equal 100% because of independent rounding.

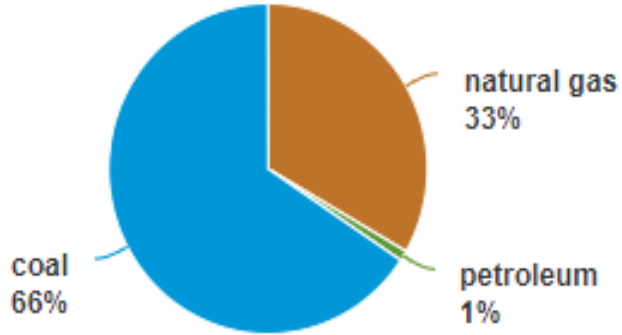
Source: U.S. Energy Information Administration, *Electric Power Monthly*, February 2020, preliminary data

eia

Major fuel/energy sources for U.S. electric power sector, 2018



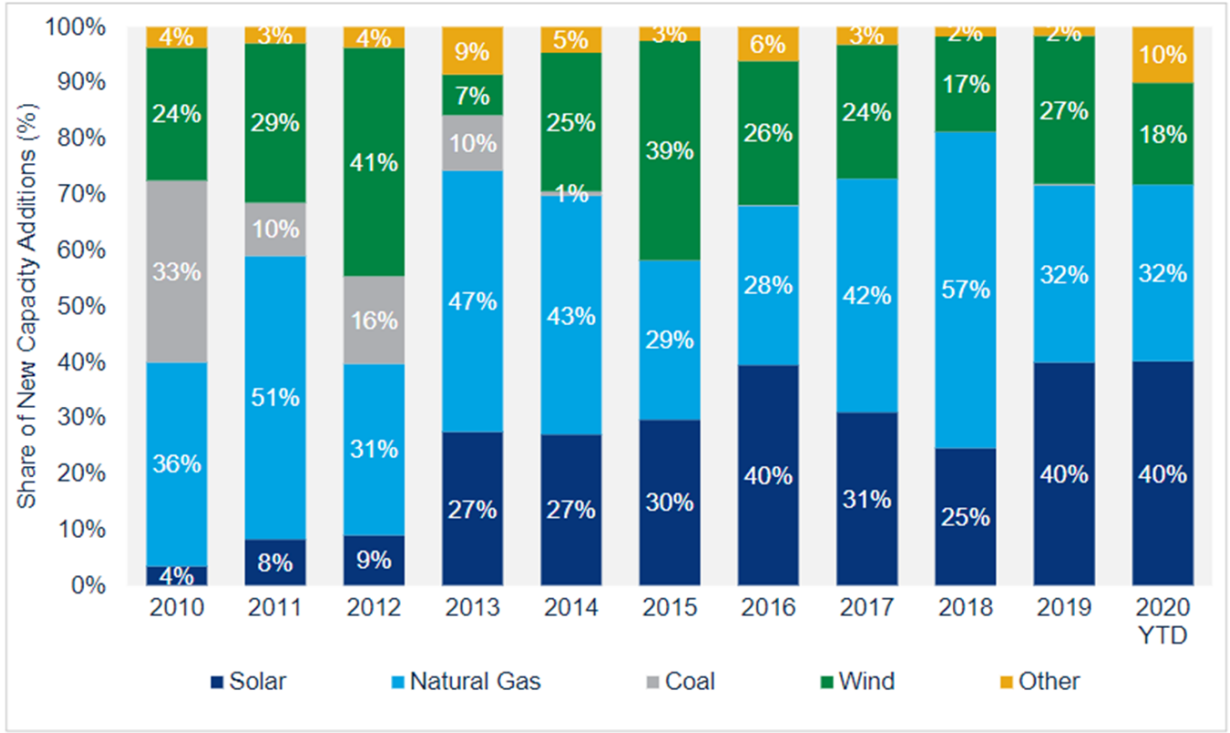
Carbon dioxide emissions by end-use sector, 2018



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 2.6, May 2019, preliminary data
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 12.6, May 2019, preliminary data

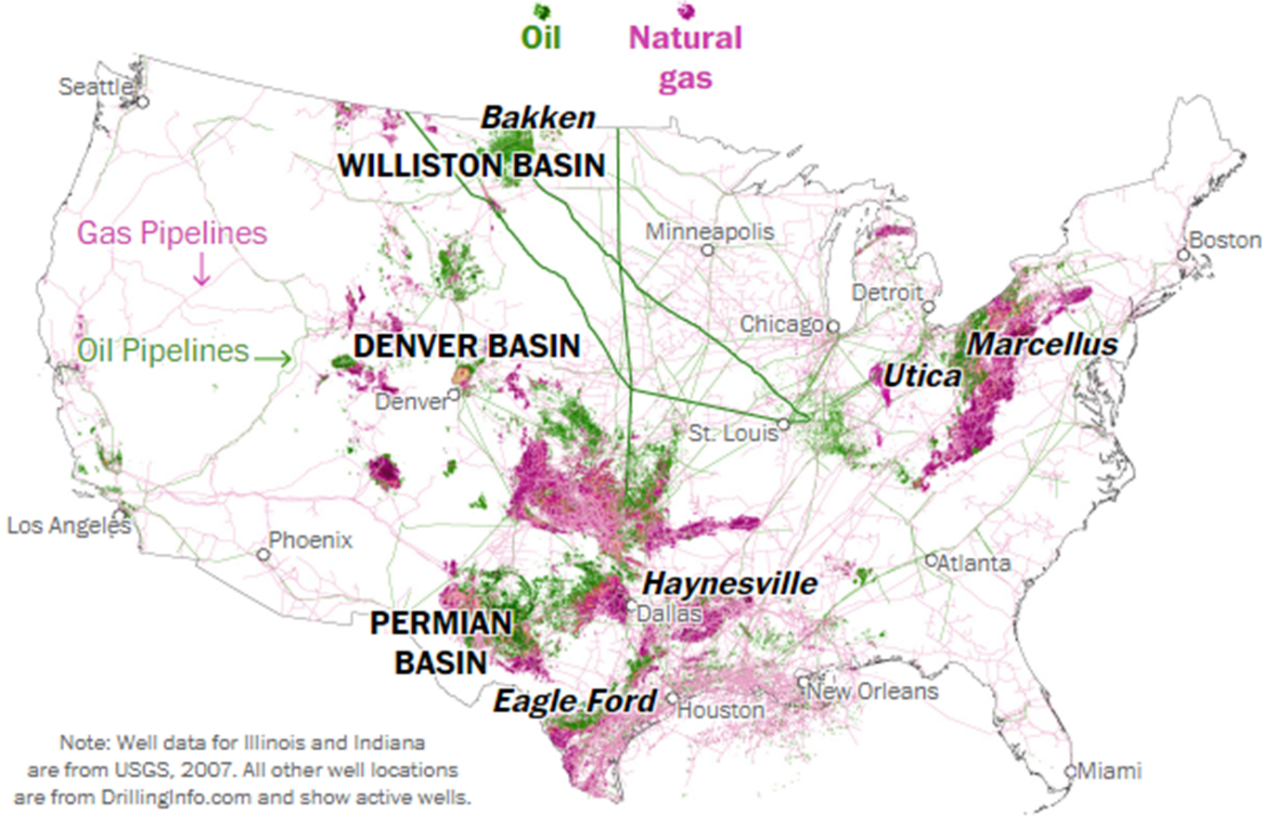
New Additions to the U.S. Electricity Generation

New U.S. electricity-generating capacity additions, 2010-2020 YTD)

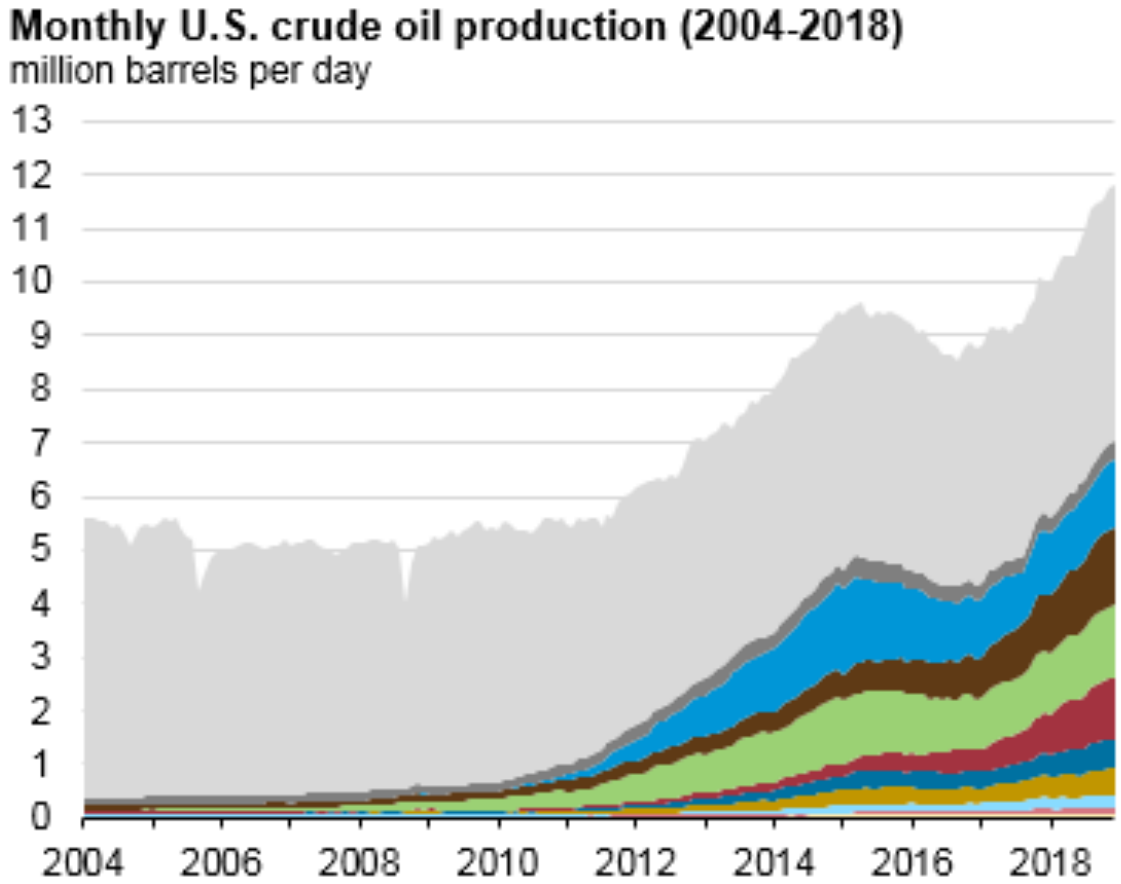


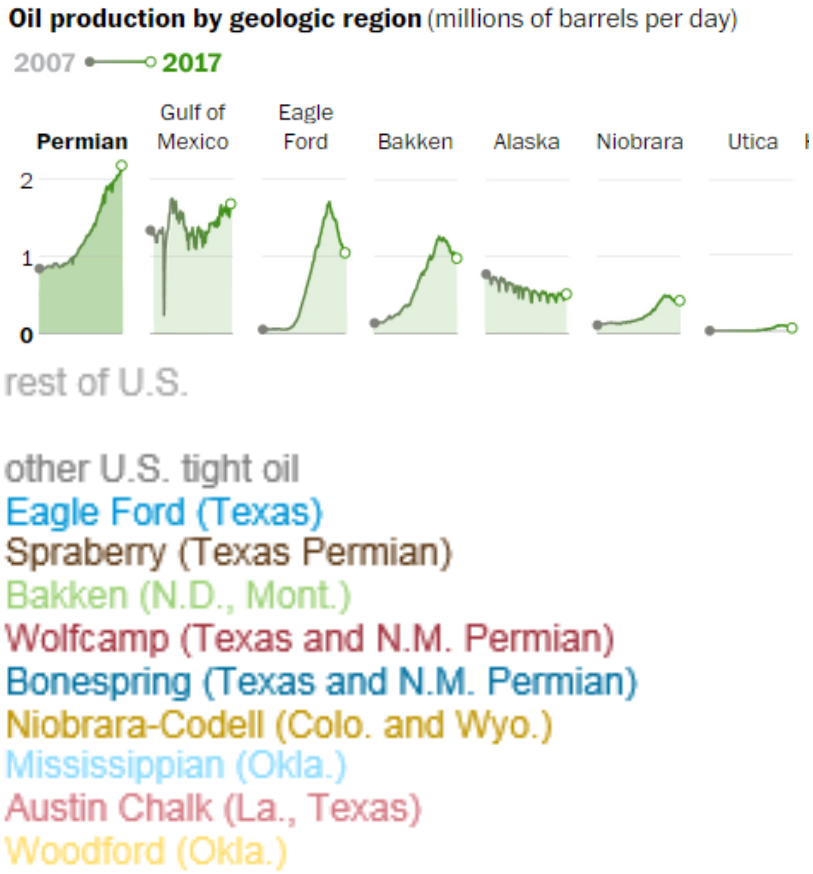
Source: Wood Mackenzie, Federal Energy Regulatory Commission (for category "All other technologies")

Fracking -- Oil and Gas Wells and Pipelines



Crude Oil Production by Region



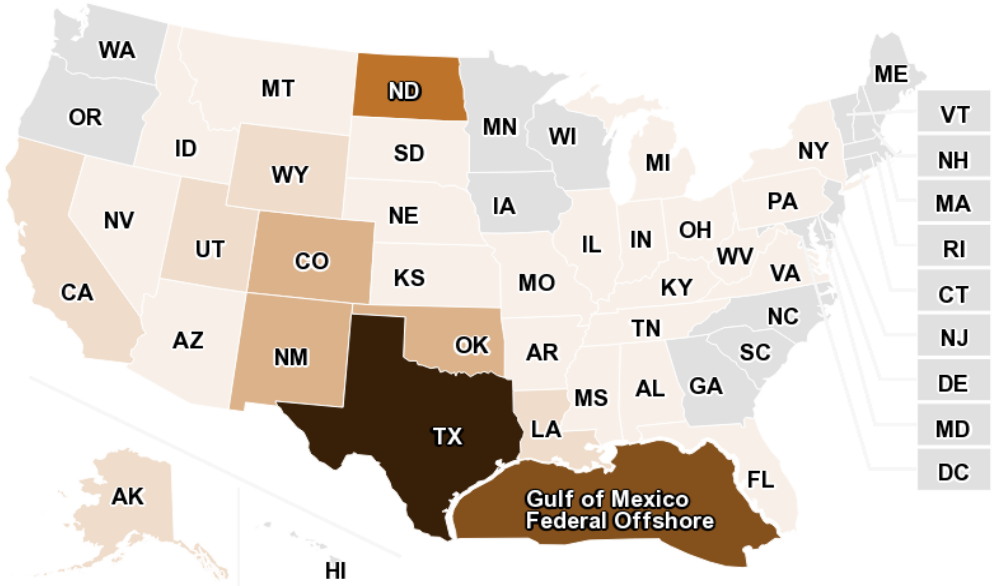


U.S. crude oil production by state in 2019

1,000 barrels per day

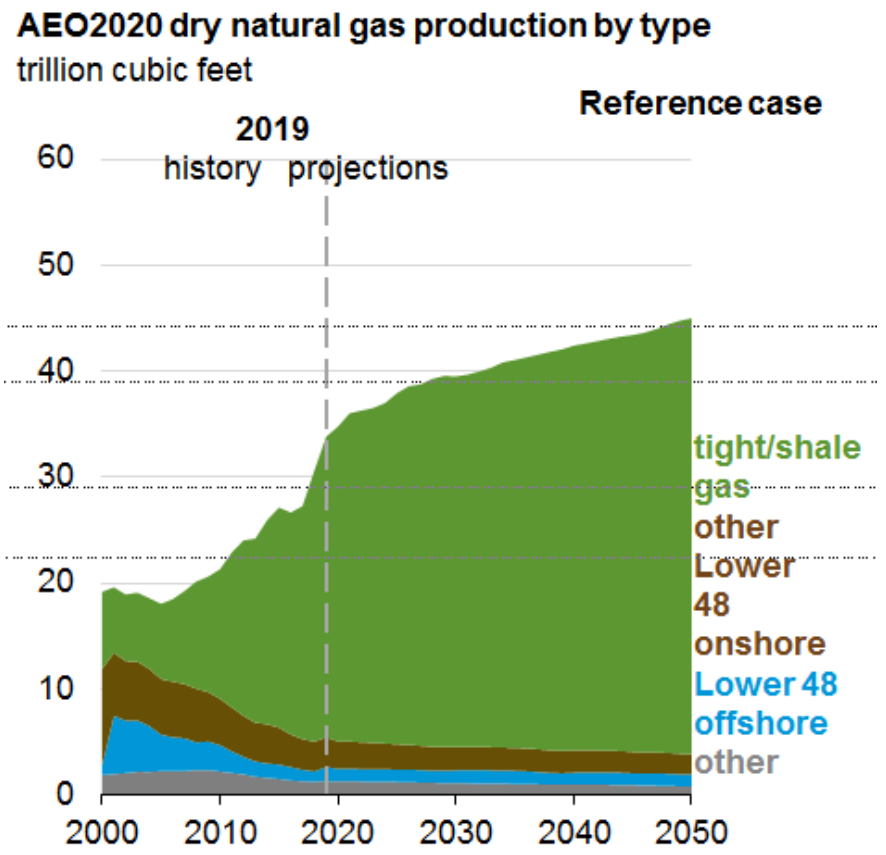
Top 5 States

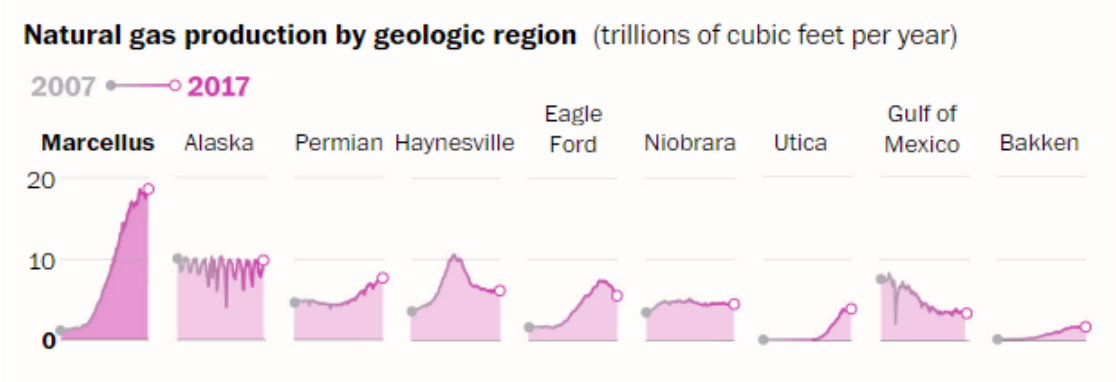
TX: 41.4%
ND: 11.6%
NM: 7.4%
OK: 4.7%
CO: 4.2%



Note: Crude oil incudes lease condensate.
Source: U.S. Energy Information Administration, *Petroleum Supply Monthly*, February 2020, preliminary data

Natural Gas Production by Type and Region





EIA, *Natural Gas Explained* (last updated Dec. 14, 2020)

U.S. dry natural gas production by state in 2019

billion cubic feet

Top 5 States

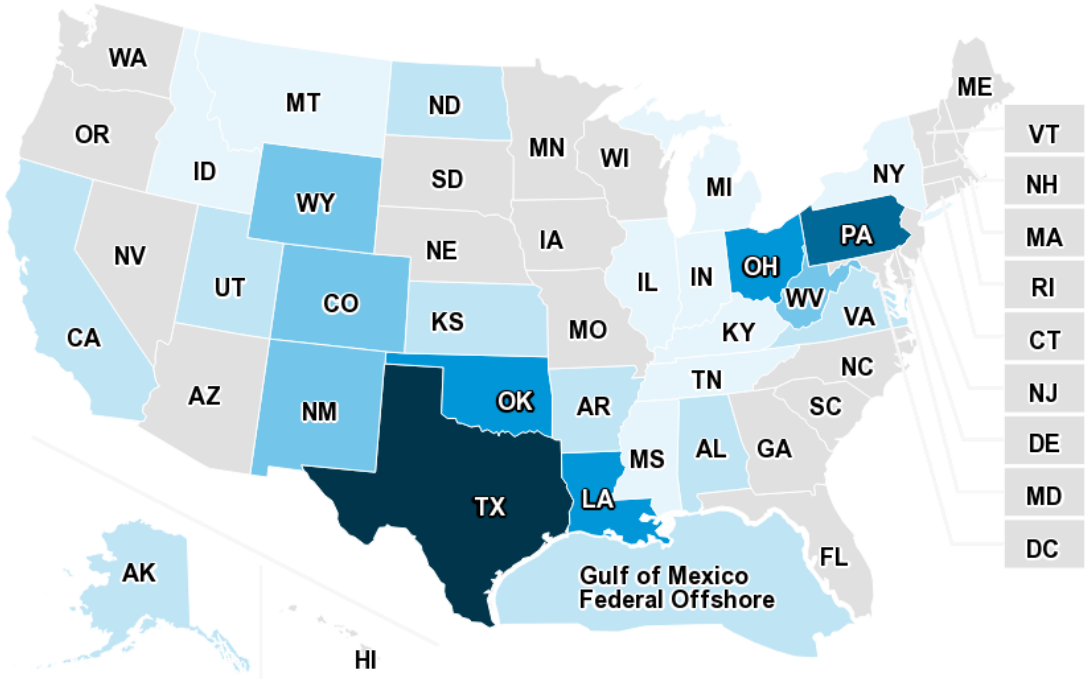
TX: 23.9%

PA: 20.0%

LA: 9.3%

OK: 8.5%

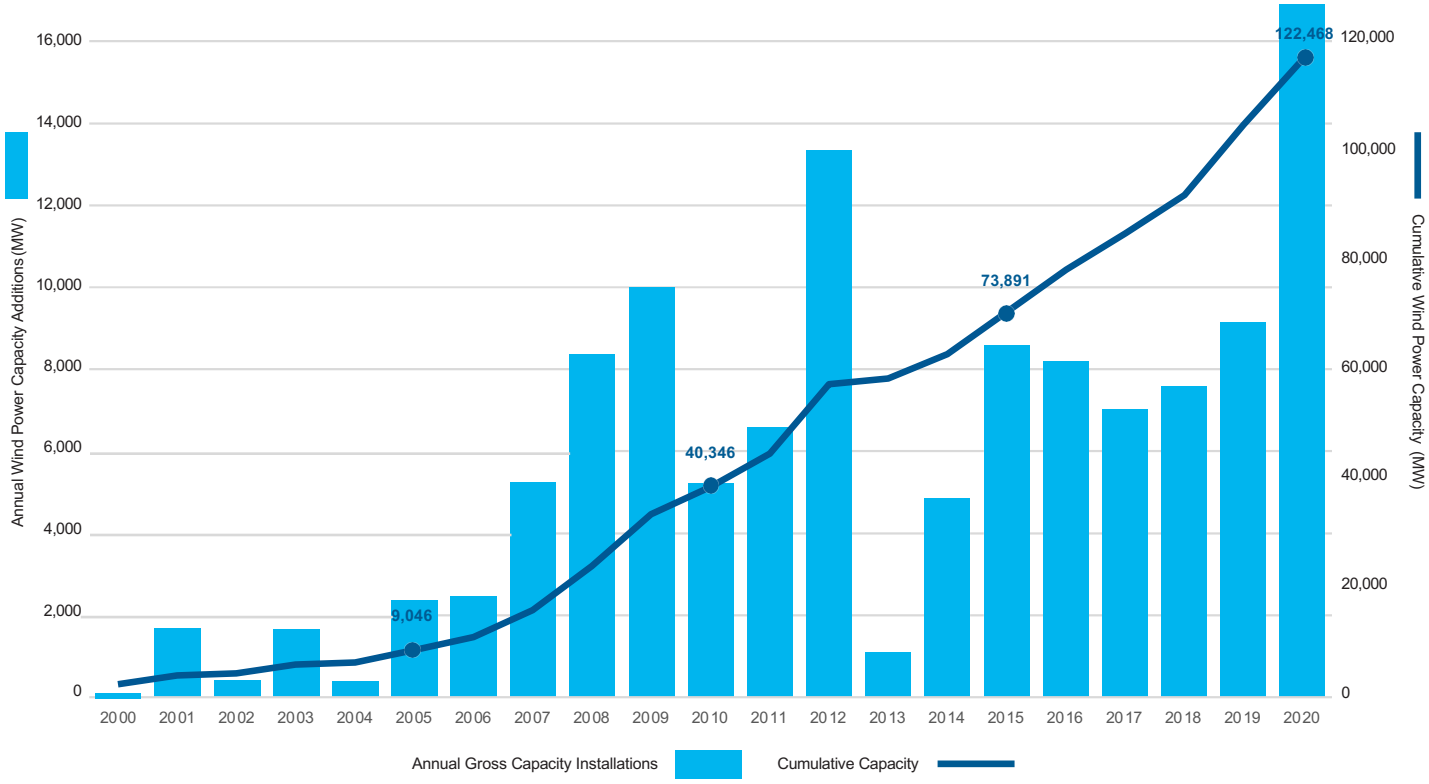
Ohio: 7.7%

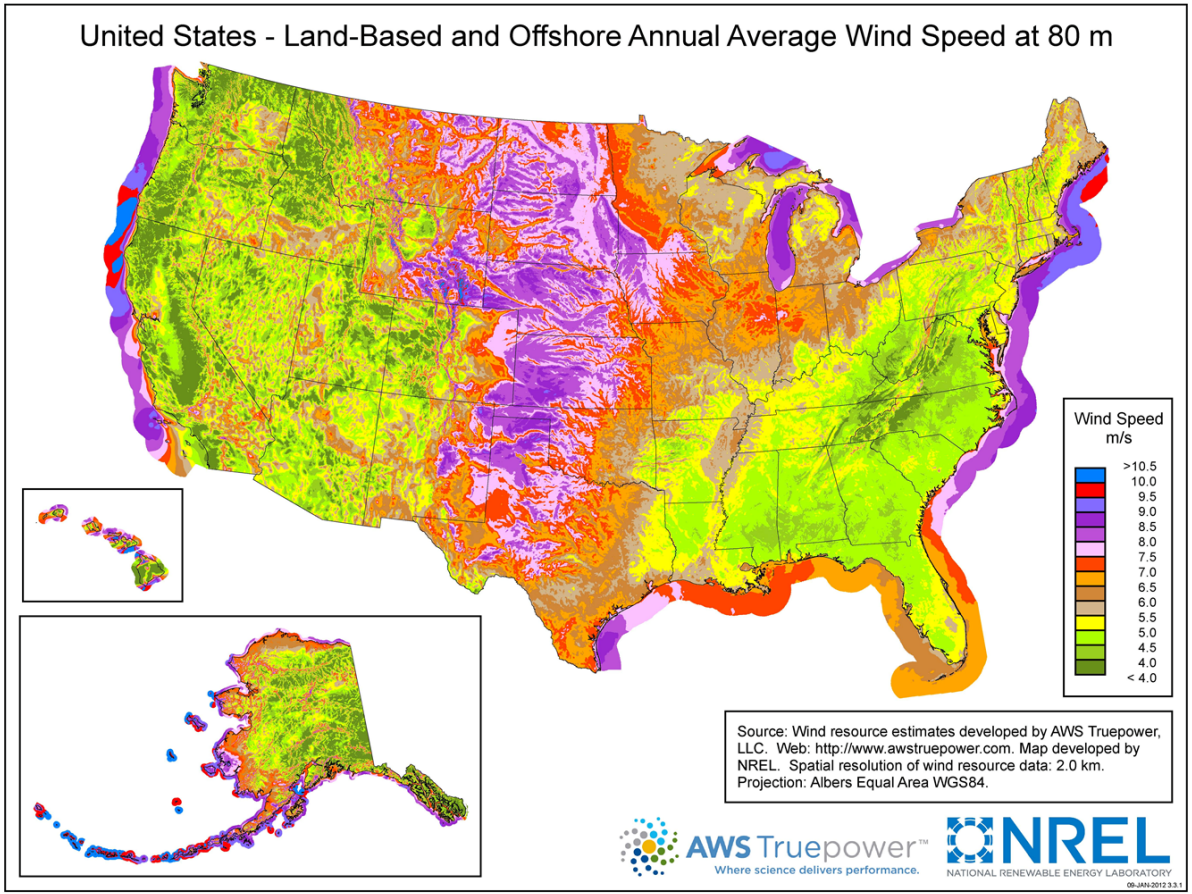


Source: U.S. Energy Information Administration, *Natural Gas Annual*, September 2020

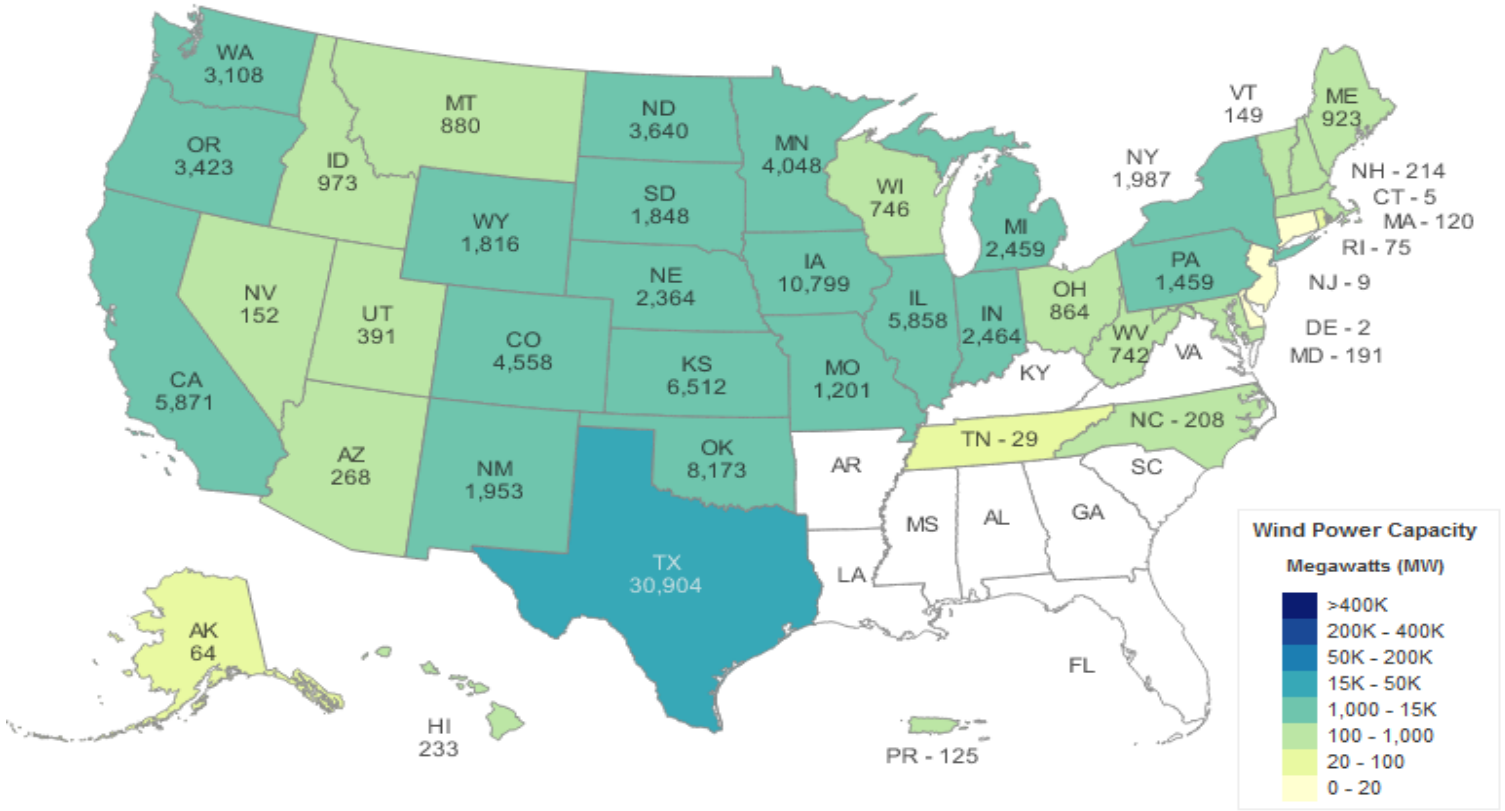
U.S. WIND POWER CAPACITY GROWTH

American Clean Power 4th Quarter Market Report 2020




United States - Land-Based and Offshore Annual Average Wind Speed at 80 m
Wind Speed
m/s
>10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
< 4.0
Source: Wind resource estimates developed by AWS Truepower, LLC. Web: http://www.awstruepower.com. Map developed by NREL. Spatial resolution of wind resource data: 2.0 km. Projection: Albers Equal Area WGS84.
AWS Truepower™
Where science delivers performance.
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
09-JAN-2012 3.3.1

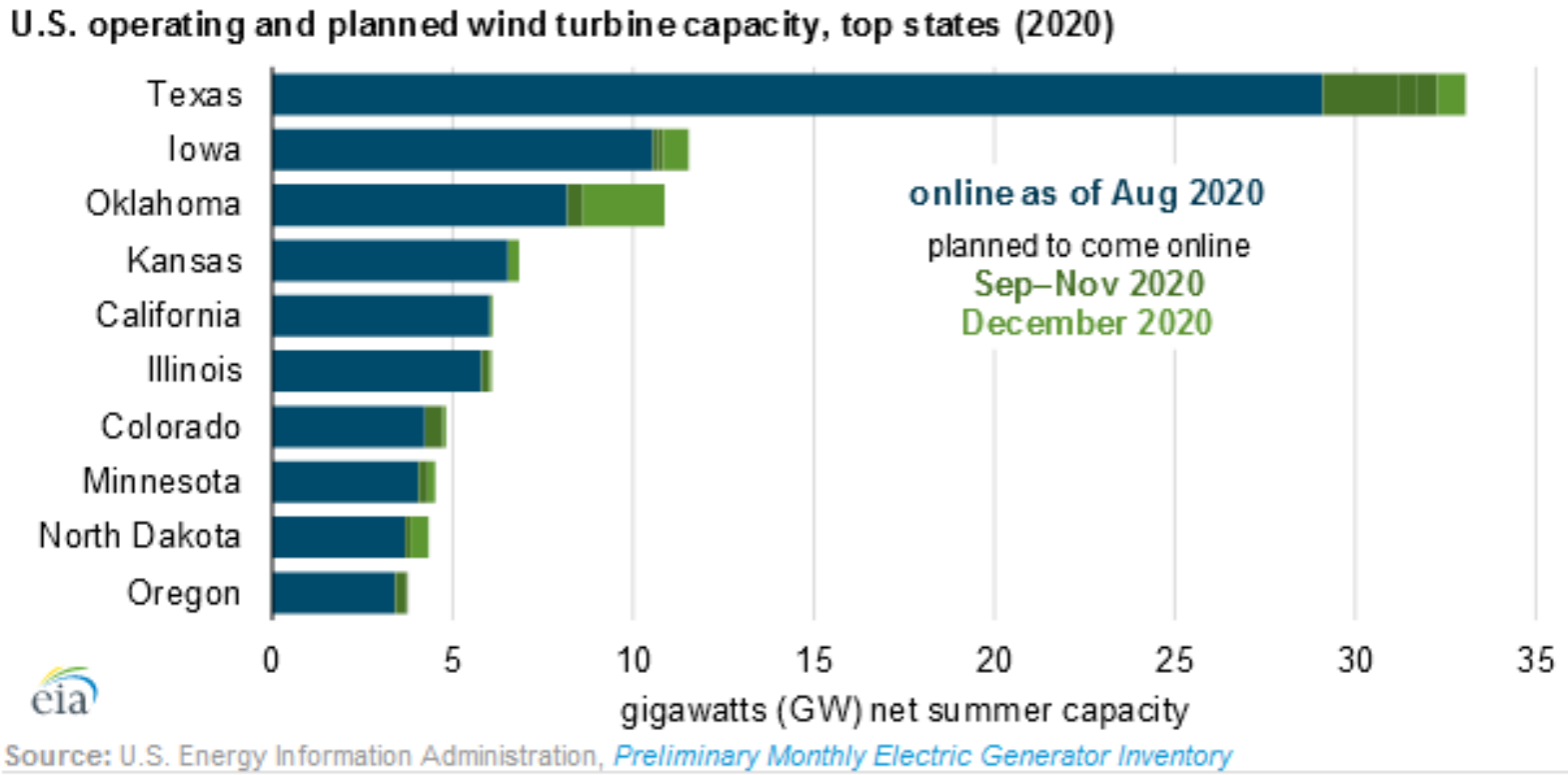
Q3 2020 Installed Wind Power Capacity (MW)



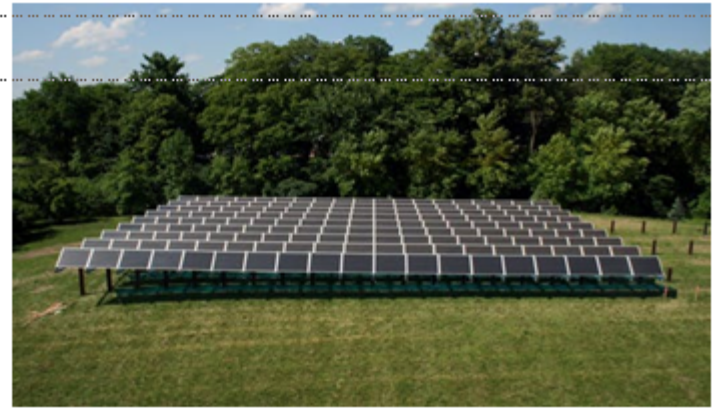
Total Installed Wind Capacity: 111,809 MW

Source: American Wind Energy Association Market Report

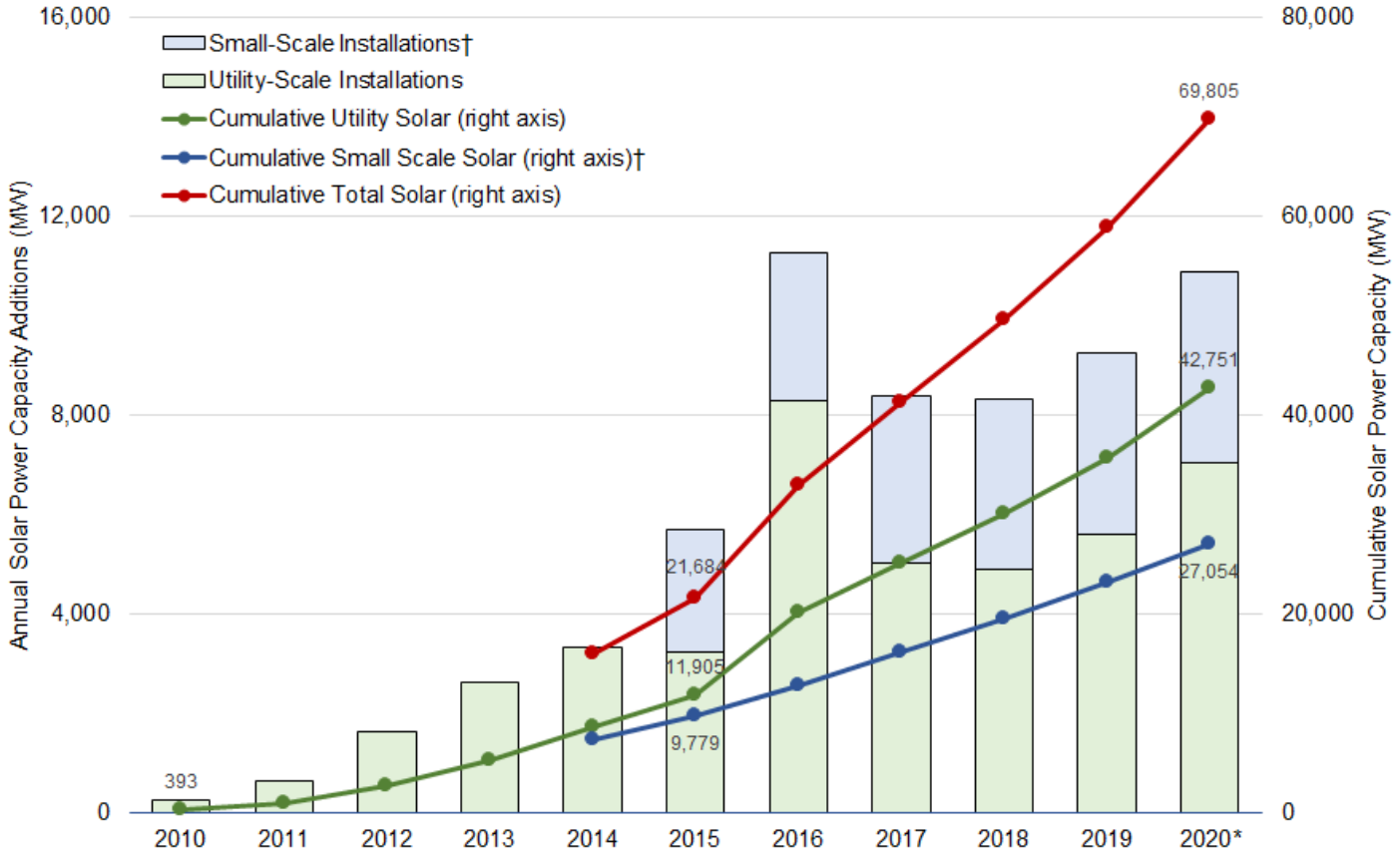
Wind Capacity by State



Source: U.S. Energy Information Administration, *Preliminary Monthly Electric Generator Inventory*

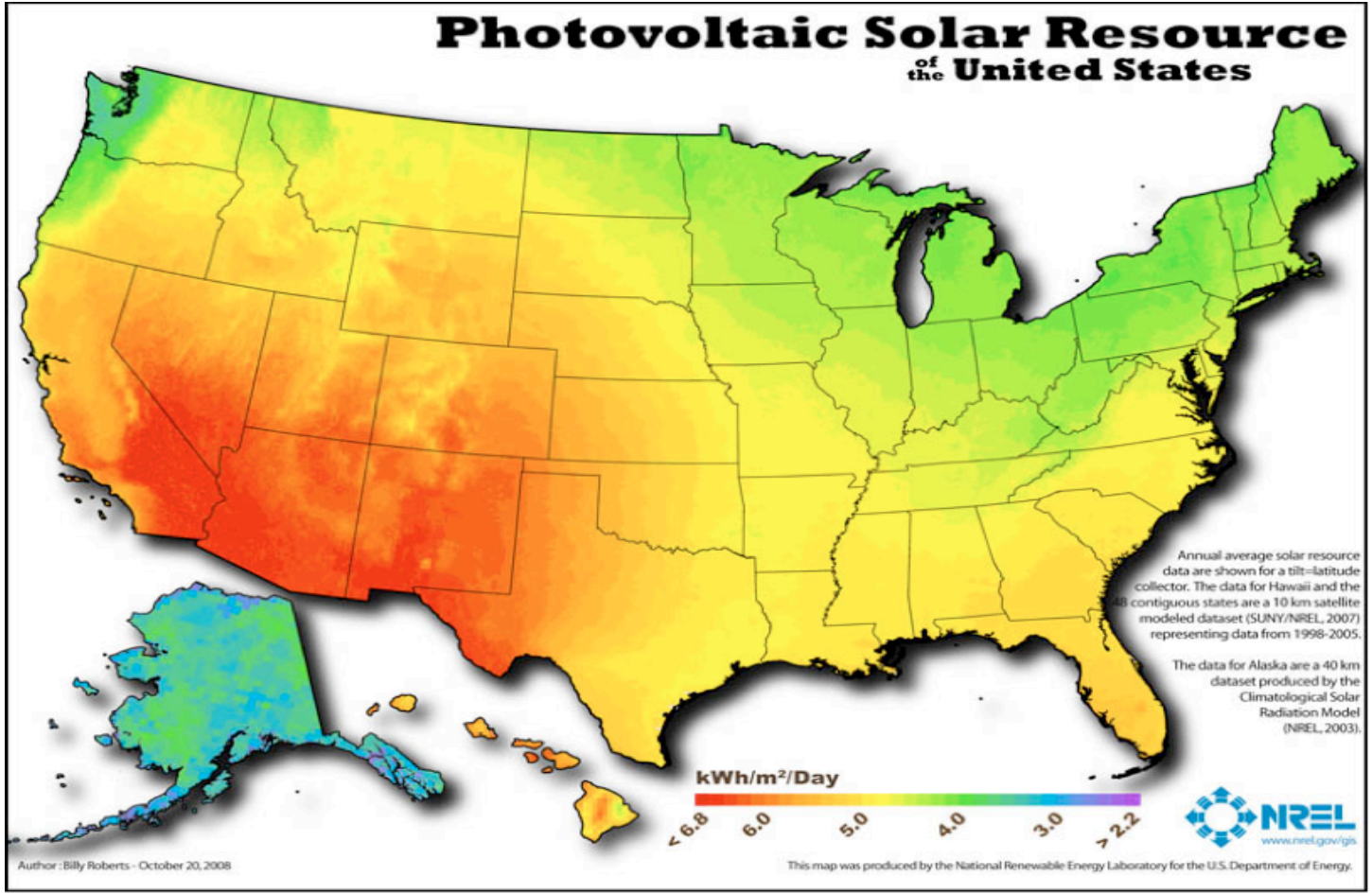


U.S. Annual and Cumulative Solar Installations 2010-2020



* through November 2020
† data on small-scale installations not reported before 2014

Data source: EIA-860 and EIA-860M


Photovoltaic Solar Resource
of the United States
Annual average solar resource data are shown for a tilt=latitude collector. The data for Hawaii and the 48 contiguous states are a 10 km satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005.
The data for Alaska are a 40 km dataset produced by the Climatological Solar Radiation Model (NREL, 2003).
kWh/m²/Day
< 6.8
6.0
5.0
4.0
3.0
> 2.2
NREL
www.nrel.gov/gis
Author : Billy Roberts - October 20, 2008
This map was produced by the National Renewable Energy Laboratory for the U.S. Department of Energy.

Top 10 Solar States

State ranking based on the cumulative amount of solar electric capacity installed through Q3 2020

1 California

29,218 MW

7,859,309

6 Nevada

3,644 MW

631,447

2 Texas

6,751 MW

783,663

7 New Jersey

3,472 MW

557,971

3 North Carolina

6,487 MW

782,293

8 Massachusetts

2,910 MW

485,429

4 Florida

5,749 MW

687,816

9 Georgia

2,668 MW

312,450

5 Arizona

4,821 MW

750,880

10 New York

2,482 MW

414,690

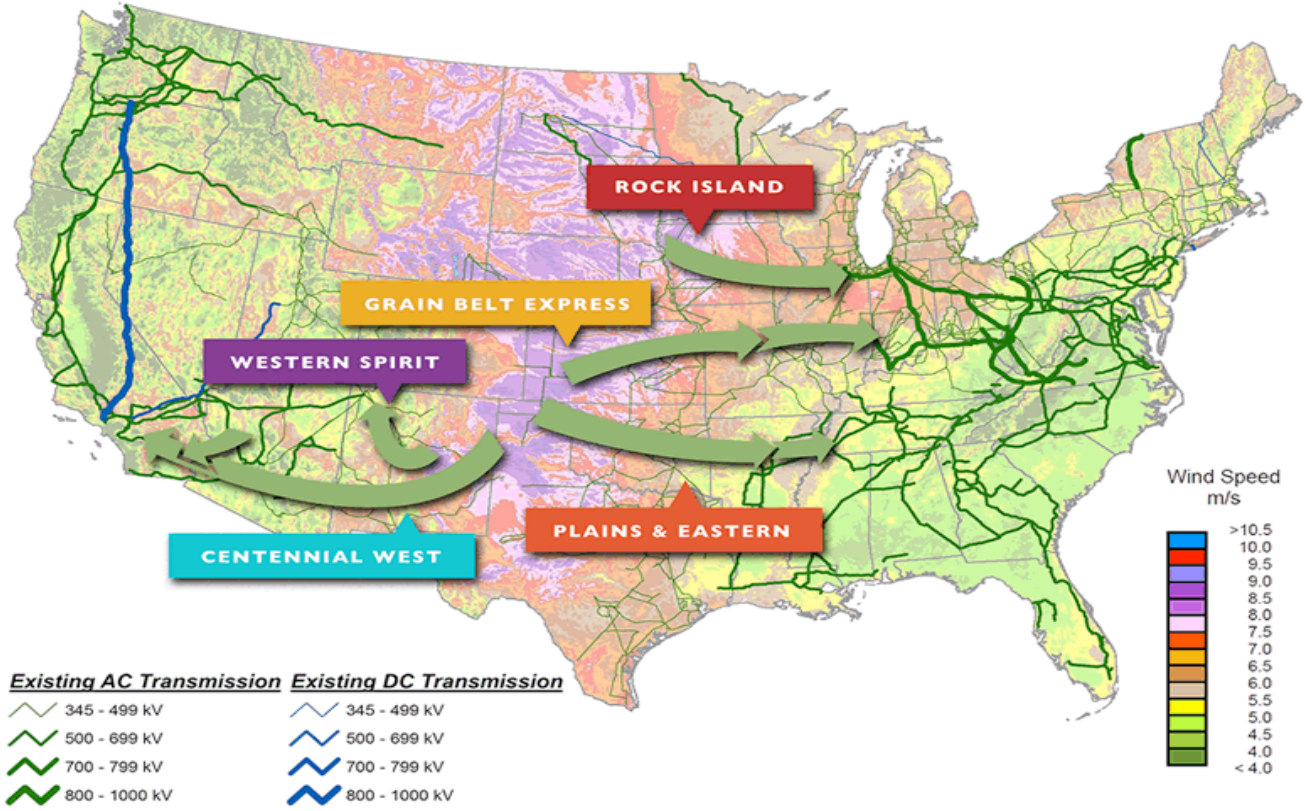
Equivalent of the number of homes supplied by solar energy.

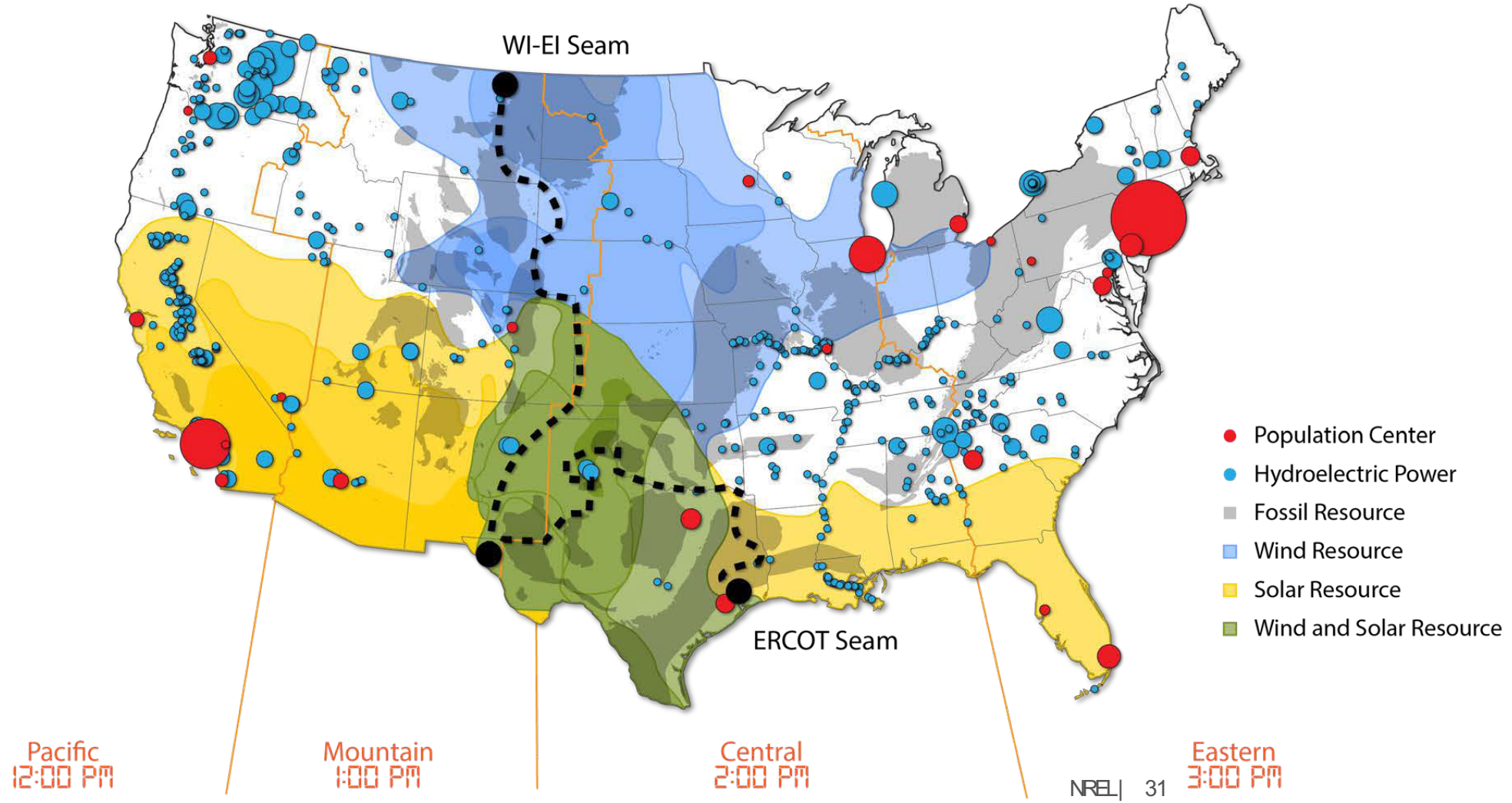
All data is sourced from SEIA/Wood Mackenzie Power & Renewables Solar Market Insight® 2020 Q4 Report.
For more information, contact research@seia.org

SEIA Solar Energy Industries Association®

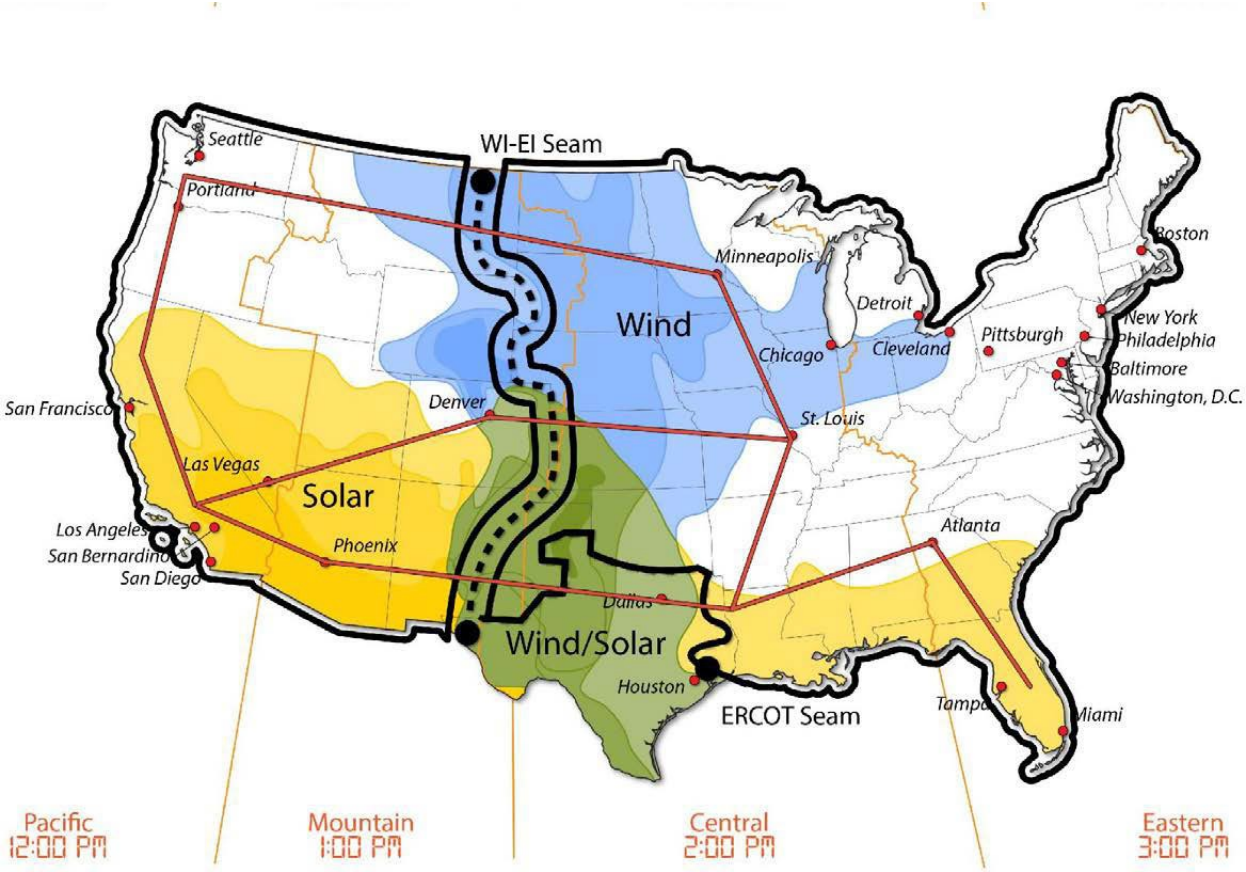
www.seia.org/smi

Electric Transmission Line Capacity/Needs (one vision)




WI-EI Seam
ERCOT Seam
Population Center
Hydroelectric Power
Fossil Resource
Wind Resource
Solar Resource
Wind and Solar Resource
Pacific
12:00 PM
Mountain
1:00 PM
Central
2:00 PM
Eastern
3:00 PM

NREL Interconnections Seams Study (Oct. 2020)



Design 3 (D3)

Macrogrid (a nationwide HVDC transmission network) is built and additional AC transmission and generation are co-optimized to minimize system costs.

Uses of Eminent Domain (examples)

- Highways and roads (government)
- Economic development and redevelopment (government)
- Oil and gas pipelines (private)
- Electric transmission lines (private)

Kelo v. City of New London, 549 U.S. 469 (2005)

- Court held 5-4 that a city's use of eminent domain for a redevelopment plan to "revitalize an economically distressed city" by creating jobs and increase tax revenues was a "public use" under the Fifth Amendment.
- Public backlash resulted in more than 40 states amending state constitutions or enacting statutes to limit use of eminent domain for economic redevelopment.
- State law changes focused almost solely on *government* use of eminent domain; did not limit private party use of eminent domain previously defined as "public use" under state law

Eminent Domain Laws for Energy Transport

- Interstate natural gas pipelines (federal since Natural Gas Act of 1938)
- Interstate oil and NGL pipelines (state)
- Interstate electric transmission lines (state)
- *Kelo* backlash in the states had generally not changed these laws

Shifts Since 2005 (post-*Kelo*)

- Fracking for oil and gas (approx. 2007)
- Massive buildout of oil and gas pipelines
- Growth of renewable energy
- Increased concern over climate change
- Some (limited) efforts by Congress to allow FERC and DOE to help build interstate transmission lines in EPAct 2005

State Lawsuits Challenging Eminent Domain Use for Oil and NGL Pipelines

- Bluegrass Pipeline Co. v. Kentuckians United to Restrain Eminent Domain, 478 S.W.3d 386 (Ky. Ct. App. 2015) (no public use)
- Mountain Valley Pipeline v. McCurdy, 793 S.E.2d 850 (W. Va. 2016) (no public use)
- Puntenney v. Iowa Utilities Bd., 928 N.W.2d 829 (Iowa 2019) (public use)
- Enbridge Energy (Illinois) v. Kuerth, 99 N.E.3d 210, 218 (Ill. Ct. App. 2018) (public use)
- Sunoco Pipeline L.P. v. Teter, 63 N.E.3d 160, 173-74 (Ohio Ct. App. 2016) (public use)

Federal Lawsuits Challenging Eminent Domain for Natural Gas Pipelines

- Lawsuits in multiple federal district and appellate courts since 2017 challenging FERC grants of eminent domain for natural gas pipelines under Natural Gas Act and U.S. Constitution (citing *Kelo*)
- Court decisions scrutinizing use of eminent domain for pipeline designed for export (Nexus), eminent domain of state lands (PennEast) and use of "tolling orders" (Atlantic Sunrise)

State Law Legislative Moratoria on Oil Pipeline Eminent Domain

- South Carolina (Act 304)
  - Three-year moratorium in 2016 on eminent domain for oil pipelines
  - Prompted by Palmetto Pipeline controversy
- Georgia (H.B. 413)
  - 2016 moratorium on eminent domain for oil pipelines expired in 2017 and replaced by H.B. 413 requiring state permit from EPD and certificate of public necessity from DOT to use eminent domain
  - Prompted by Palmetto Pipeline controversy

Eminent Domain as Incentive to Build/Not Build Energy Projects

- Eliminate eminent domain for fossil fuel projects
- Expand eminent domain for clean energy projects
- Integrate eminent domain law into state (and ultimately federal) clean energy policy
- New role for state public utility commissions in approving eminent domain authority through identifying projects that promote clean energy as “public use”?
- Comprehensive approach to eminent domain as climate policy (rather than piecemeal, reactive legislation)

Options for New State Legislation

- Eliminate completely eminent domain for oil pipelines and natural gas pipelines and related infrastructure
- Redefine “public use” in state statutes
- Redefine “need” in certificate of need legislation for pipelines and transmission lines to include climate and clean energy considerations
- Redefine “need” in certificate of need legislation for electric transmission lines to include regional clean energy expansion

Opportunities for the Biden Administration?

- Greater use of existing federal eminent domain authority for electric transmission lines through EPAct 2005. See Avi Zevin, et al., Building a New Grid Without Legislation (Dec. 2020)
- Partnerships and financial incentives for above ground or underground supergrid? See NREL Interconnection Seams Study (Oct. 2020)
- Using permitting power through Army Corps of Engineers and other agencies to discourage, rather than encourage, new fossil fuel infrastructure
- Proposing Congressional changes to use of eminent domain for interstate natural gas lines (supporting efforts of FERC Chair Richard Glick)
- Grants and planning for financial and other support for ”just transition” in communities that will be losing fossil fuel generation and that will be hosting new renewable generation and transmission lines

Further Reading

- The *Public Use Clause in an Age of Natural Gas Exports*, 72 Stan. L. Rev. Online (Apr. 2020)
- *Eminent Domain Law as Climate Policy*, 2020 Wis. L. Rev. 49 (2020)
- *Energy and Eminent Domain*, 104 Minn. L .Rev. 659 (2019) (with James Coleman)
- Regulating the Energy "Free Riders," 100 B.U. L. Rev. 581 (2020)
- *Public Utilities and Transportation Electrification*, 104 Iowa L. Rev. 545 (2019)
- *Future-Proofing Energy Transport Law*, 94 Wash. U. L. Rev. 827 (2017)
- *Expanding the U.S. Electric Transmission and Distribution Grid to Meet Deep Decarbonization Goals*, 47 Envtl. L. Rep. 10749 (2017)
- *Reconstituting the Federalism Battles in Energy Transportation*, 41 Harv. Envtl. L. Rev. 423 (2017) (with Jim Rossi)
- *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 Iowa L. Rev. 947 (2015) (with Danielle Meinhardt)