Eminent Domain Law as Climate Policy

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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

www.dsireusa.org / September 2020

WA: 15% x 2020 (100% x 2045)
OR: 50% x 2040 (large utilities)
CA: 60% x 2030 (100% x 2045)
AZ: 15% x 2025*
NV: 50% x 2030 (100% x 2050)
UT: 20% x 2025†
MT: 15% x 2015
CO: 30% by 2020 (IOUs) *
(Cole)
KS: 20% x 2020
CO: 30% by 2020 (IOUs) *
NM: 80% x 2040 (IOUs) (100% by 2045)
LA: 105 MW
MO: 15% x 2021†
TX: 5,880 MW x 2015*
OK: 15% x 2015
SD: 10% x 2015
ND: 10% x 2015
MN: 26.5% x 2025 (IOUs)
WI: 10% x 2015 (100% x 2025)
IL: 25% x 2026
MI: 15% x 2021†
IN: 10% x 2025†
OH: 8.5% x 2026
VA: 100% x 2045/2050
NC: 12.5% x 2021 (IOUs)
SC: 2% 2021
HI: 100% x 2045
CT: 40% x 2030; (100% x 2040)
NY: 70% x 2030 (100% x 2040)
MA: 35% x 2030 + 1% each year thereafter (new resources)
6.7% x 2020 (existing resources)
(60% x 2050)
RI: 30.5% 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

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

- Petroleum
- Natural gas
- Renewables
- Coal
- Nuclear
U.S. primary energy consumption by energy source, 2019

- Total energy consumption: 100.2 quadrillion British thermal units (Btu)
- Total renewable energy consumption: 11.4 quadrillion Btu

- Petroleum: 37%
- Natural gas: 32%
- Nuclear electric power: 8%
- Coal: 11%
- Renewable energy: 11%
- Geothermal: 2%
- Solar: 9%
- Hydroelectric: 22%
- Wind: 24%
- Biomass waste: 4%
- Biofuels: 20%
- Wood: 20%

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

- Transportation: 28%
- Electricity: 27%
- Industry: 22%
- Commercial & Residential: 12%
- Agriculture: 10%

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

- Natural gas: 35%
- Petroleum: 29%
- Coal: 15%
- Nonfossil: 21%

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

- Petroleum: 45%
- Coal: 24%
- Natural gas: 31%

Totals may not equal 100 because of independent rounding.

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%
U.S. Electricity Generation by Fuel

Figure 7.2 Electricity Net Generation
(Billion Kilowatthours)

Total (All Sectors), Major Sources, 1949–2019
Sources of U.S. electricity generation, 2019
Total = 4.12 trillion kilowatthours

- Wind: 7.3%
- Hydro: 6.6%
- Solar: 1.8%
- Biomass: 1.4%
- Geothermal: 0.4%
- Renewables: 17%
- Nuclear: 20%
- Coal: 23%
- Natural gas: 38%
- Petroleum: 1%

Note: Electricity generation from utility-scale facilities. Sum of percentages may not equal 100% because of independent rounding.
Major fuel/energy sources for U.S. electric power sector, 2018

- Nonfossil: 39%
- Coal: 31%
- Petroleum: 1%
- Natural gas: 29%

Carbon dioxide emissions by end-use sector, 2018

- Natural gas: 33%
- Coal: 66%
- Petroleum: 1%

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

Note: Well data for Illinois and Indiana are from USGS, 2007. All other well locations are from DrillingInfo.com and show active wells.
Crude Oil Production by Region


- Permian
- Gulf of Mexico
- Eagle Ford
- Bakken
- Alaska
- Niobrara
- Utica
- rest of U.S.

Other U.S. tight oil:
- Eagle Ford (Texas)
- Spraberry (Texas Permian)
- Bakken (N.D., Mont.)
- Wolfcamp (Texas and N.M. Permian)
- Bone Spring (Texas and N.M. Permian)
- Niobrara-Codell (Colo. and Wyo.)
- Mississippian (Okla.)
- Austin Chalk (La., Texas)
- Woodford (Okla.)
**Top 5 States**
TX: 41.4%
ND: 11.6%
NM: 7.4%
OK: 4.7%
CO: 4.2%

Note: Crude oil incudes lease condensate.
Natural Gas Production by Type and Region

AEO2020 dry natural gas production by type (trillion cubic feet)

Reference case

2019
history projections

Natural gas production by geologic region (trillions of cubic feet per year)

2007 → 2017

Marcellus
Alaska
Permian
Haynesville
Eagle Ford
Niobrara
Utica
Gulf of Mexico
Bakken

2000 2010 2020 2030 2040 2050
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

[Bar chart showing annual wind power capacity additions and cumulative capacity growth from 2000 to 2020.]
Wind Capacity by State

U.S. operating and planned wind turbine capacity, top states (2020)

- Texas
- Iowa
- Oklahoma
- Kansas
- California
- Illinois
- Colorado
- Minnesota
- North Dakota
- Oregon

Online as of Aug 2020
Planned to come online
Sep–Nov 2020
December 2020

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

2. Texas
   - 6,751 MW
   - 783,663 homes

3. North Carolina
   - 6,487 MW
   - 782,293 homes

4. Florida
   - 5,749 MW
   - 687,816 homes

5. Arizona
   - 4,821 MW
   - 750,880 homes

6. Nevada
   - 3,644 MW
   - 631,447 homes

7. New Jersey
   - 3,472 MW
   - 537,971 homes

8. Massachusetts
   - 2,910 MW
   - 485,429 homes

9. Georgia
   - 2,668 MW
   - 312,450 homes

10. New York
    - 2,482 MW
    - 414,690 homes

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Equivalently 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.
Electric Transmission Line Capacity/Needs (one vision)
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)

• 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-\textit{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

- 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)
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?


• 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)


• Public Utilities and Transportation Electrification, 104 Iowa L. Rev. 545 (2019)

• Future-Proofing Energy Transport Law, 94 Wash. U. L. Rev. 827 (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)