

Regulatory & Markets Update

*The State of Regulatory Reforms &
Electric Markets*

&

Educating America About Energy

Coal Institute - Summer Trade Seminar

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STATE OF THE ROLLBACK:

4 Best Days So Far



February 16, 2017: President Signs Congressional Review Act:

- Strikes down OSM Stream Protection Rule (threatened mining across US).

March 28, 2017: Energy Independence Executive Order:

- **Reconsideration** of EPA 111 Rules; **Retraction** of federal coal lease moratorium & Obama memos/Guidance re: climate; **Review** by agencies of burdens on energy.

February 9, 2018: Passage of the FUTURE Act to Expand CCUS Credits:

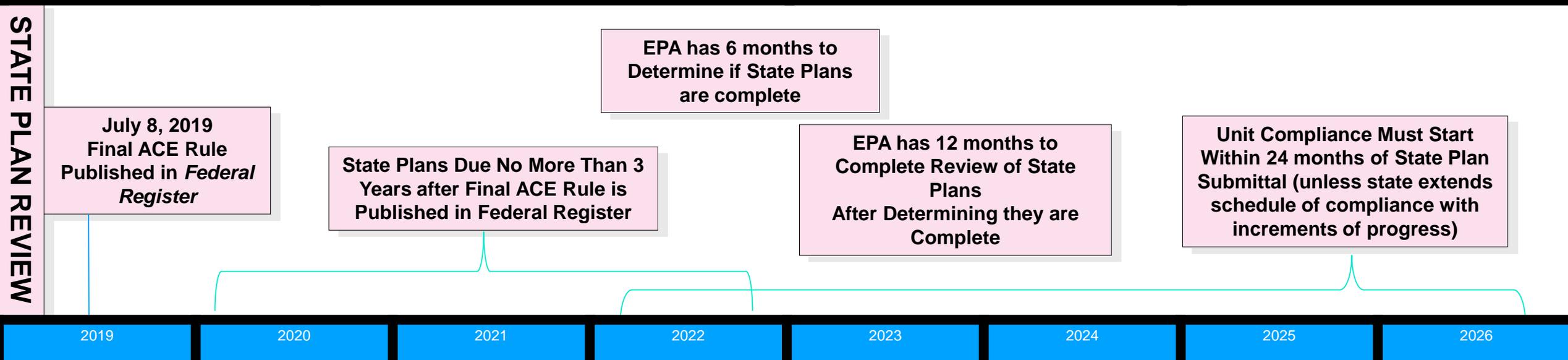
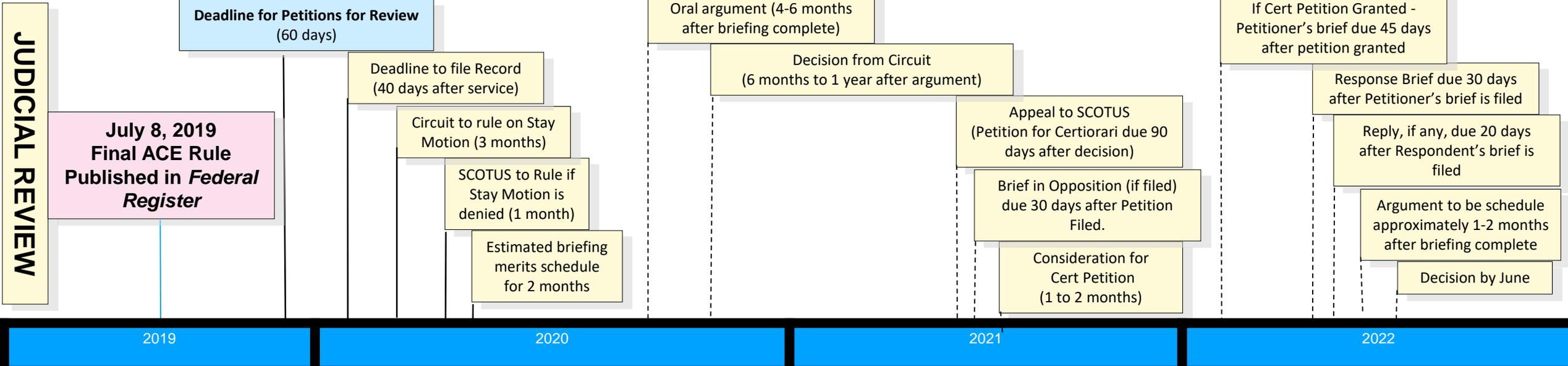
- Expanded, Extended, & Assignable 45Q Tax Credits (key for CCUS EOR projects).

June 19, 2019: EPA Finalizes Affordable Clean Energy (ACE) Rule:

- Rolls CPP back with inside-the-fence, state-led, and flexible rule.
- Excludes trading and launches parallel NSR reforms to encourage efficiency.



Projected ACE Rule Review Timelines





STATE OF THE ROLLBACK:

4 Key Hurdles Yet to Clear



Effluent Limit Guidelines (ELG) Rule

- Bottom ash transport water & FGD wastewater stayed until 11/1/20 – 12/31/2021.
- EPA projects new rollback rule by Fall of 2020 (needed to avoid capex/retirements.)

Coal Combustion Residual (CCR) Rule

- 2015 Obama EPA CCR Rule struck down by DC Circuit in September (no appeal)
- Rule fix needed ASAP to preserve ability to rely upon clay/unlined impoundments.

Fine Particulate (PM_{2.5}) National Ambient Air Quality Standard (NAAQS)

- Staff call to lower (current standard of 12 ppm is already most stringent in the world).

Lingering Risk of GHG Regulation Under Section 111 of the Clean Air Act

- Push by states for “non-significant contribution” Assessment
- This is a back-up plan in case DC Circuit strikes down ACE.



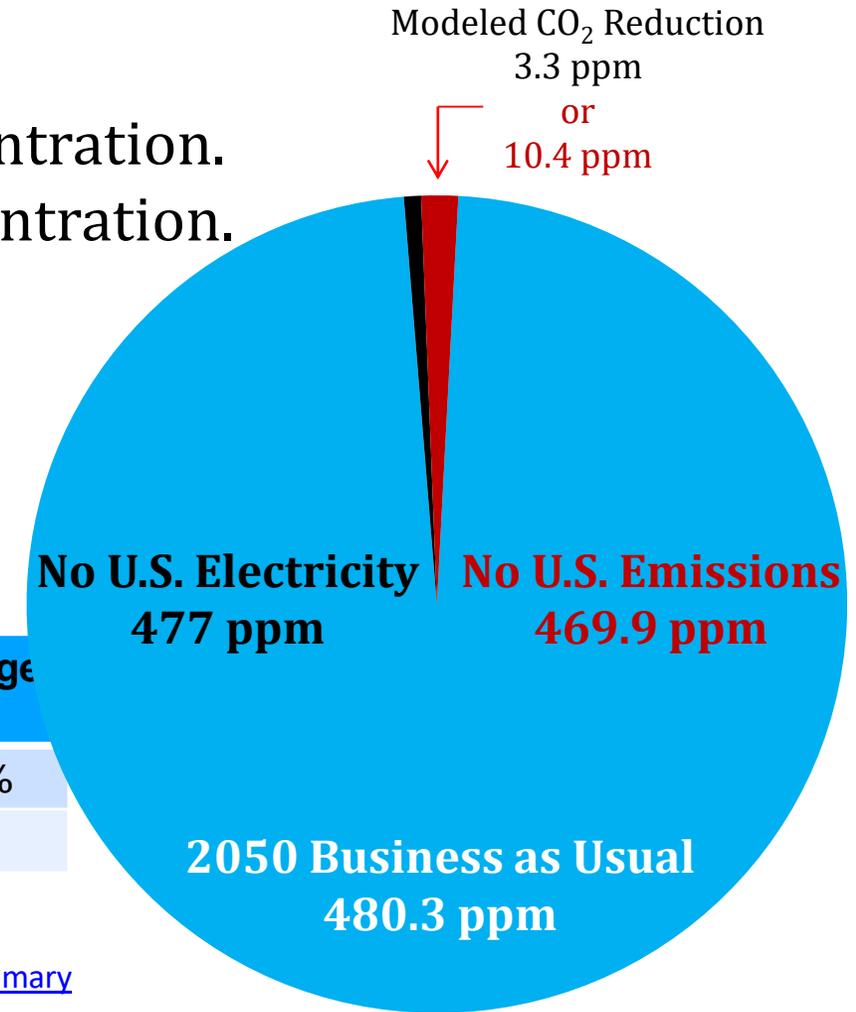
Factual Context for Assessing Whether EGUs “Contribute Significantly to Endangerment” (using IPCC Model & EIA Data)

2050 IMPACT OF DECARBONIZING ELECTRICITY:

- NO COAL FLEET = 2.06 ppm (0.4%) reduction in CO₂ concentration.
- NO FOSSIL FLEET = 3.3 ppm (0.7%) reduction in CO₂ concentration.
- Modeled global temperature reduced by a mere 0.016°C.

2050 IMPACT OF DECARBONIZING ENTIRE U.S.:

- 10.4 ppm (2.2%) reduction in CO₂ concentration.
- Modeled global temperature reduced by 0.053°C.



Emissions	2010	2020	2030	2040	2050	% Change
World	30,834	34,972	36,398	39,317	42,771	+38.7%
U.S.	5,571	5,260	4,839	4,867	5,071	-8.9%

Sources: Energy Information Administration, International Energy Outlook 2017, [World carbon dioxide emissions by region; MAGICC6 Model](#); Intergovernmental Panel on Climate Change Fifth Assessment Report Working Group I, [Summary for Policymakers](#); National Oceanic and Atmospheric Administration [Global Land and Temperature Anomalies](#).

The Problem With Power Markets:



There is No TRANSPARENCY!

- 1. The premise of American “green” energy moving the needle is fundamentally flawed.**
 - .4-.7% of global concentration of CO2
 - Expensive energy = energy deprivation = deadly.
- 2. Subsidies hidden from consumers in tax bills.**
- 3. All fuels receive subsidies but massive disparity in Return on Investment (in \$/MW).**
- 4. Direct/Indirect Subsidies Distorting Markets:**
 - Transmission socialized across entire markets.
 - Growing costs of balancing wind & solar.
 - Stranded costs & lack of market signals for capacity.

CALL TO ACTION:

The Lack of Transparency in American Power Markets Leads to “Grid Parity” Claims & and “100% Renewable” Mandates that Mislead Ratepayers & Endanger Grid Resilience.

Price of Renewables - Hidden in our Tax Bills

Table 3-5. Fiscal Year 2013 Electricity Production Subsidies and Support¹⁷⁷

Beneficiary	Direct Expenditures	Tax Expenditures	Research and Development	Federal and RUS Electricity	Total	Share of Total Subsidies and Support
Renewables	7,408	3,373	722	176	11678	72%
Biomass	62	9	47	-	118	1%
Geothermal	221	22	2	-	245	2%
Hydropower	194	17	10	171	392	2%
Solar	2,448	1,712	234	-	4393	27%
Wind	4,274	1,614	49	-	5936	37%

DOE
(2018):

JCT
(2017):

Federal Tax Expenditures for Wind (2016-2020)	Federal Tax Expenditures for Solar (2016-2020)
23,700,000,000.00	12,300,000,000.00

Sources: EIA Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016 (Table 1) (April 2018); DOE Grid Study (Table 3-5)(2017); JT. COMM. ON TAXATION 2016 REPORT.

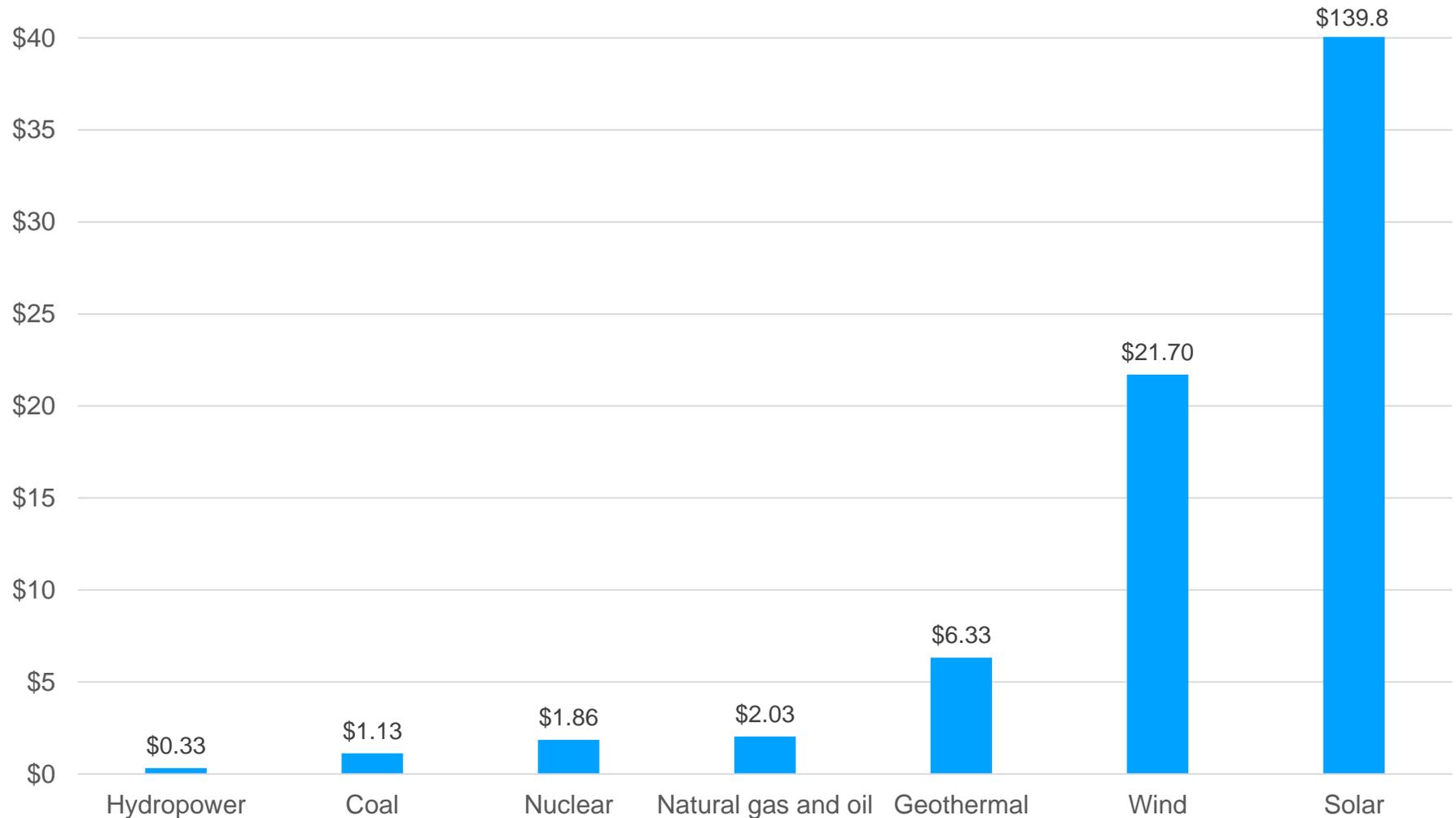
Comparing the ROI of Federal Energy “Subsidies”

Many claim that all forms of energy receive “subsidies,” but wind & solar deliver far less return on investment (ROI).

Production tax credit subsidies for existing renewable energy technologies do not promote innovation.

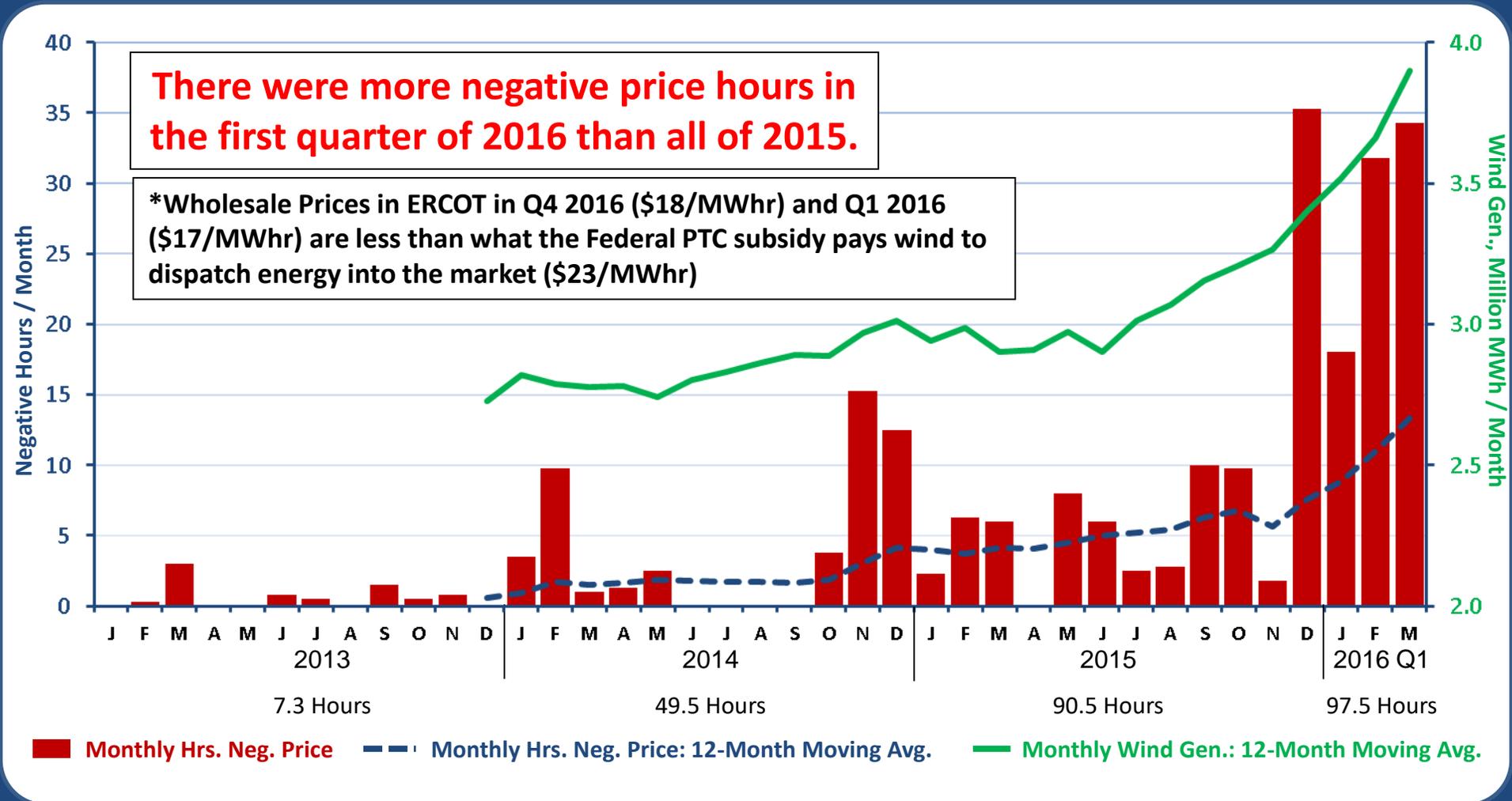
Sources: Office of Management and Budget, [Analytical Perspectives](#); Joint Committee on Taxation, [Estimates of Federal Tax Expenditures](#); Department of Energy, [Statistical Tables by Appropriation](#); Census Bureau, [Consolidated Federal Funds Report](#); Department of the Treasury, [Section 1603 List of Awards](#); Energy Information Administration, [Electricity Data Browser](#)

Subsidies per Unit of Electricity Generated (2017 USD/MWh, 2003 - 2017 Average)



Renewable Subsidies Have Distorted Markets:

“Negative Pricing” = When wholesale price of power actually is LESS THAN ZERO
(i.e. generators have to pay to stay online and generating!)

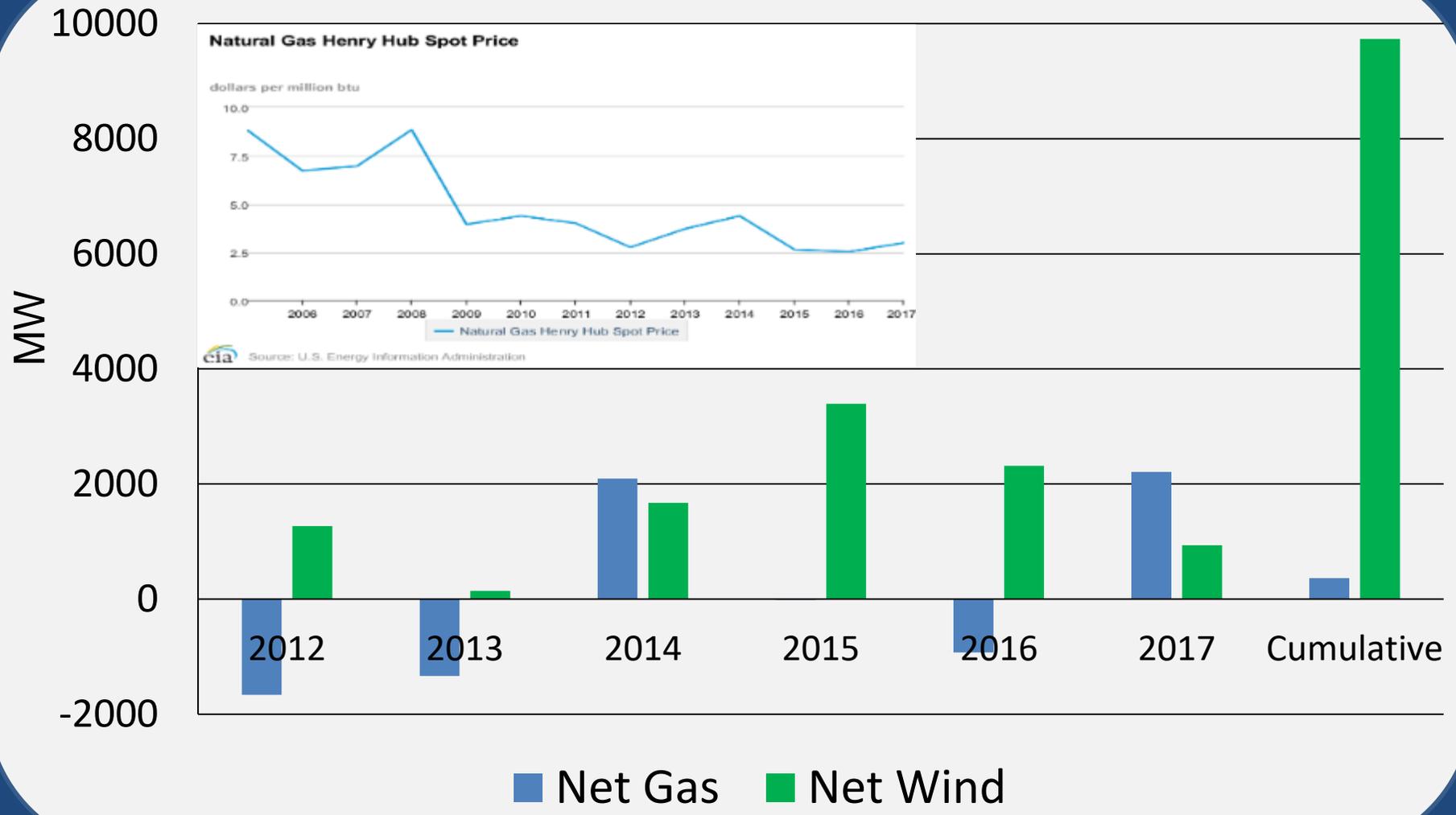


Note: Instances of negative pricing are based on occurrences in the ERCOT North Zone, a leading indicator of market-wide conditions.

Sources: ERCOT 15-Minute Settlement Data, North Zone, 2011-2016, sum of intervals in the month with negative settlement prices; 2011 – Mar. 2016 ERCOT Energy and Demand Reports;

*ERCOT real time settlement data, north zone, 2015-2016

Erosive Effect of Negative Pricing on Texas Market - Failing to Attract New Power Plants – Gas Too (this is NOT just about Coal & Nuclear)



Sources: EIA-860M, October 2017. Installed capacities. Includes Electric Utility, IPP CHP, and IPP Non-CHP units; excludes industrial and commercial gen.



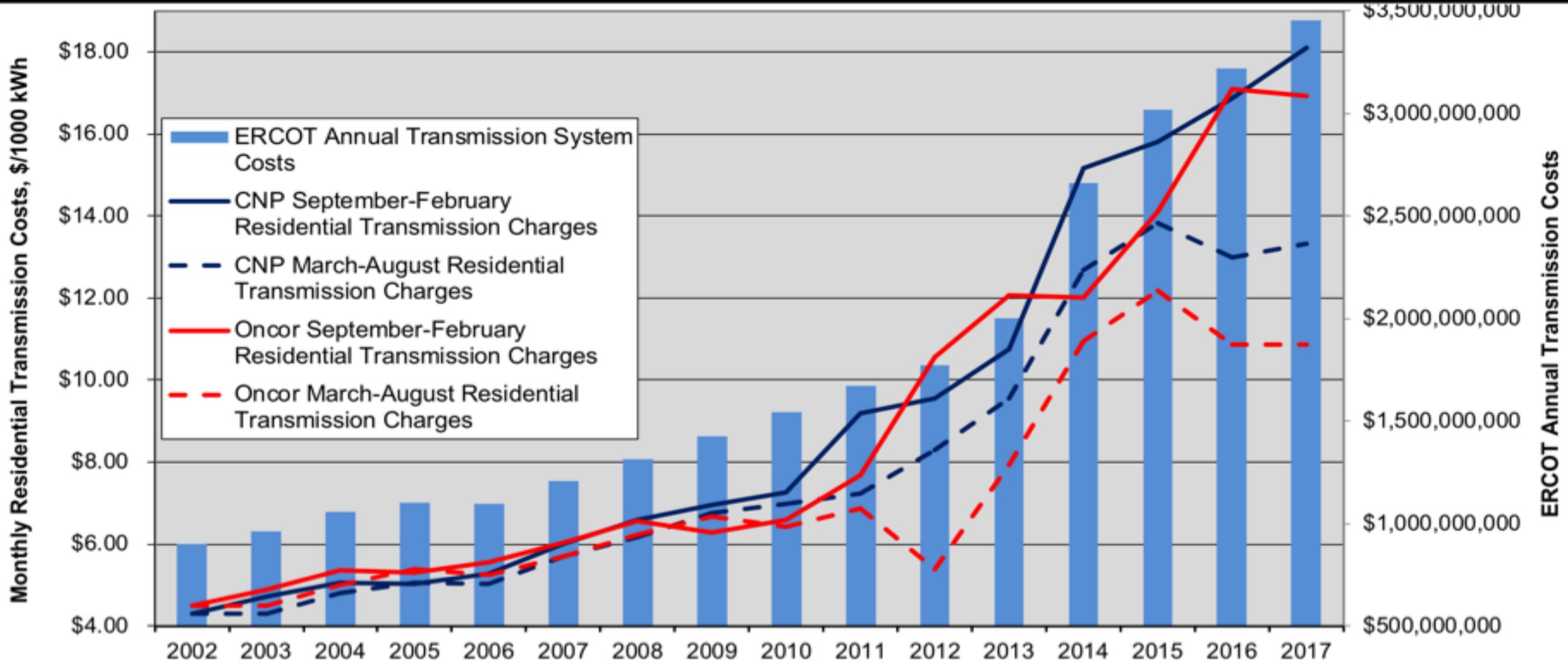
Indirect Subsidies Explored

Current Regulatory Frameworks Hiding Costs:

- Multi-billion renewable-driven transmission projects socialized across entire markets.
- Growing costs for ancillary services (to balance wind & solar) not factored into RE prices.
- Costs of premature retirements (driven by market distortions) borne primarily by utilities in deregulated markets & ratepayers elsewhere.

Transmission Costs of Integrating Renewables

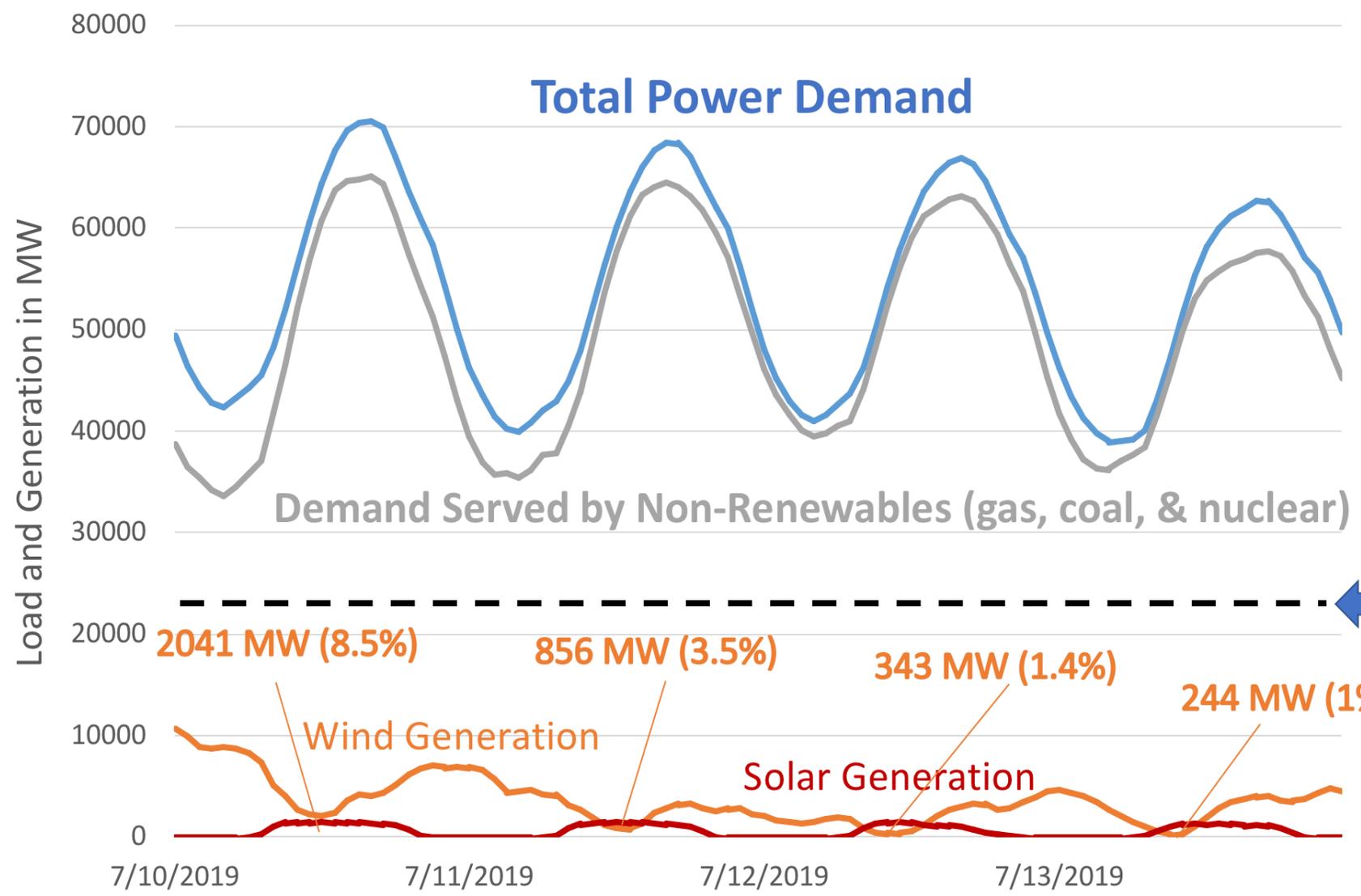
Case Study: ERCOT



83% increase in regulated charges (T&D)

16% decrease in competitive charges (energy)

Off-Peak Exuberance vs. On-Peak Reality:



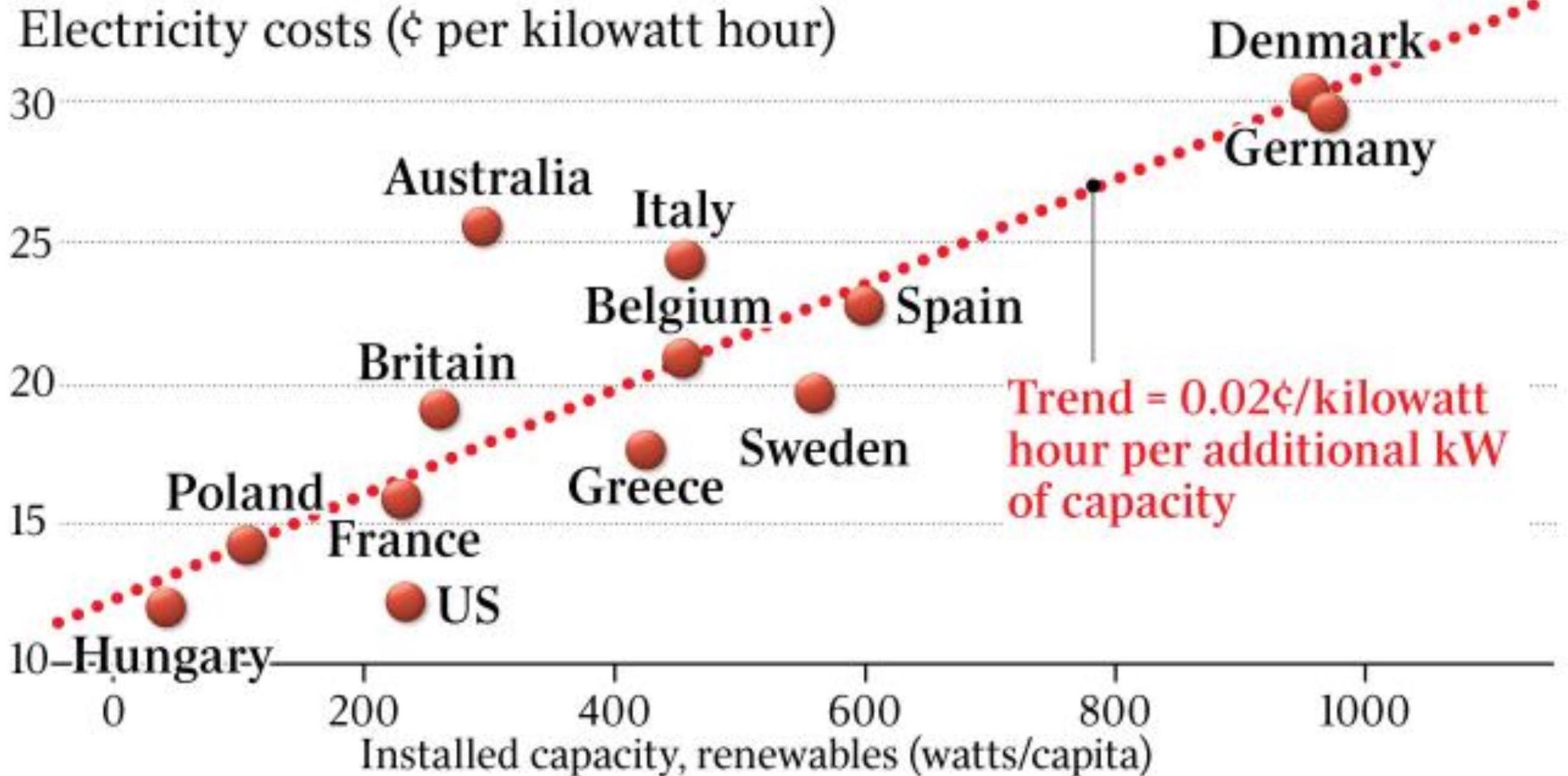
OFF-PEAK EXUBERANCE:
[Houston Chronicle](#) headline,
“Texas wind generation breaks record, ERCOT reports”
 (19,168 MW Wind on 12/14/18 when entire grid needed only 36,760)

ON-PEAK REALITY:
 Wind underperformance from 7/10-7/13/19 on & off peak.

Installed Wind:
 ~24,000 MW

Average from 12 to 6 PM:
 2,704 MW (11% capacity factor)

NEWS FLASH: Renewable Energy Means Expensive Power

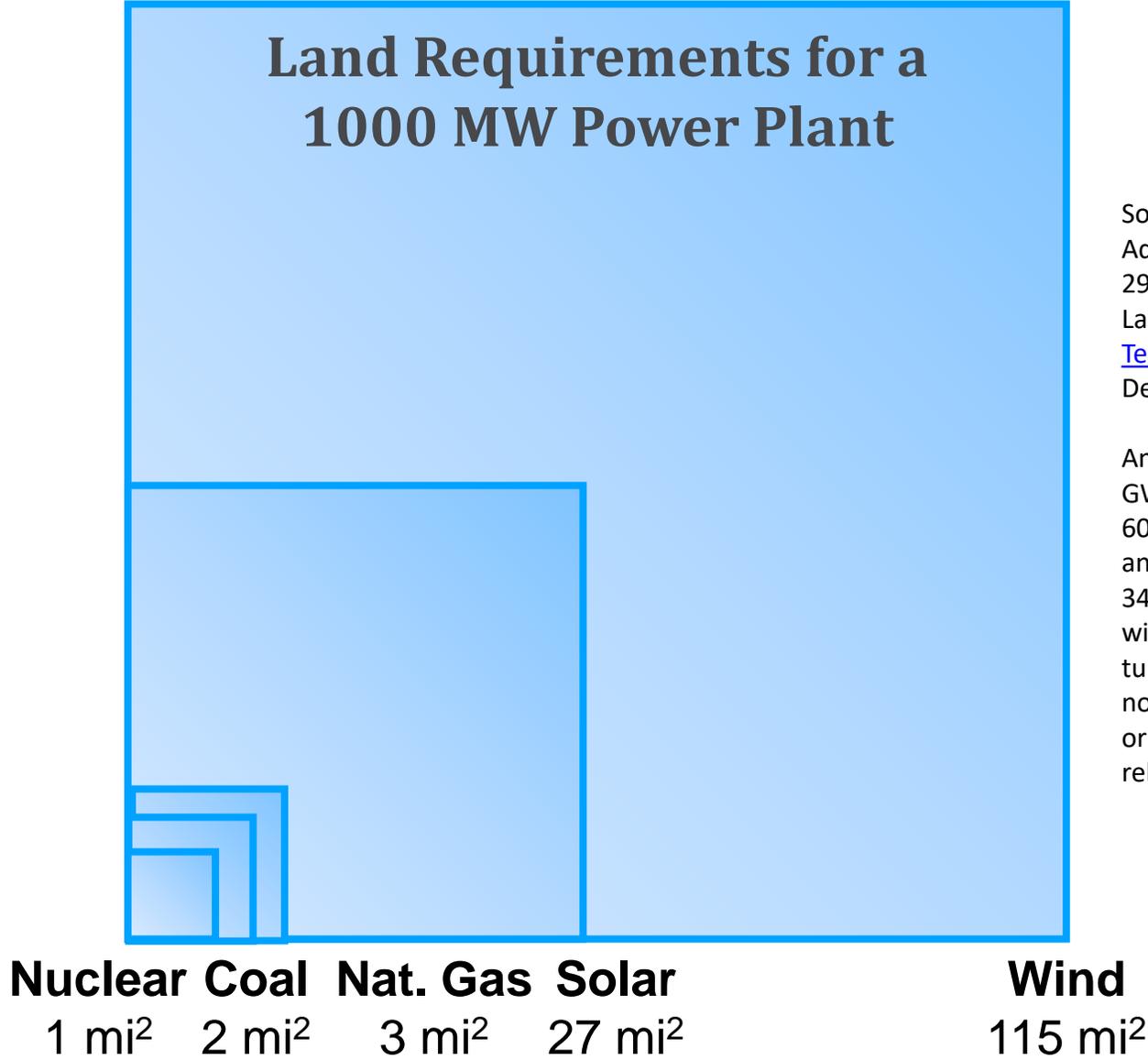


ENERGY DENSITY = ENVIRONMENTAL STEWARDSHIP

Density of U.S. Energy Resources

Power Source	W/m ²
Nuclear	307
Coal	182
Natural Gas	101
Crude Oil	22
Solar	8
Hydroelectric	1.7
Wind	1.0
Ethanol	0.3

Source: Vaclav Smil, *Power Density*, MIT Press, 2015.



Sources: Energy Information Administration, [Today in Energy](#), Nov. 29, 2017; National Renewable Energy Laboratory, [Land Use by System Technology](#); Vaclav Smil, *Power Density*, MIT Press, 2015.

Amount of land required for 5,000 GWh of annual production, assuming 60% capacity factor for nuclear, coal, and natural gas, 20% for solar, and 34% for wind. Land requirements for wind include spacing between turbines. Values for wind and solar do not include land for transmission lines or energy storage to ensure equal reliability to dispatchable power.

BILL GATES SHAMES WALL STREET RE: ENERGY



<https://youtu.be/9xe3BWPsBTU>

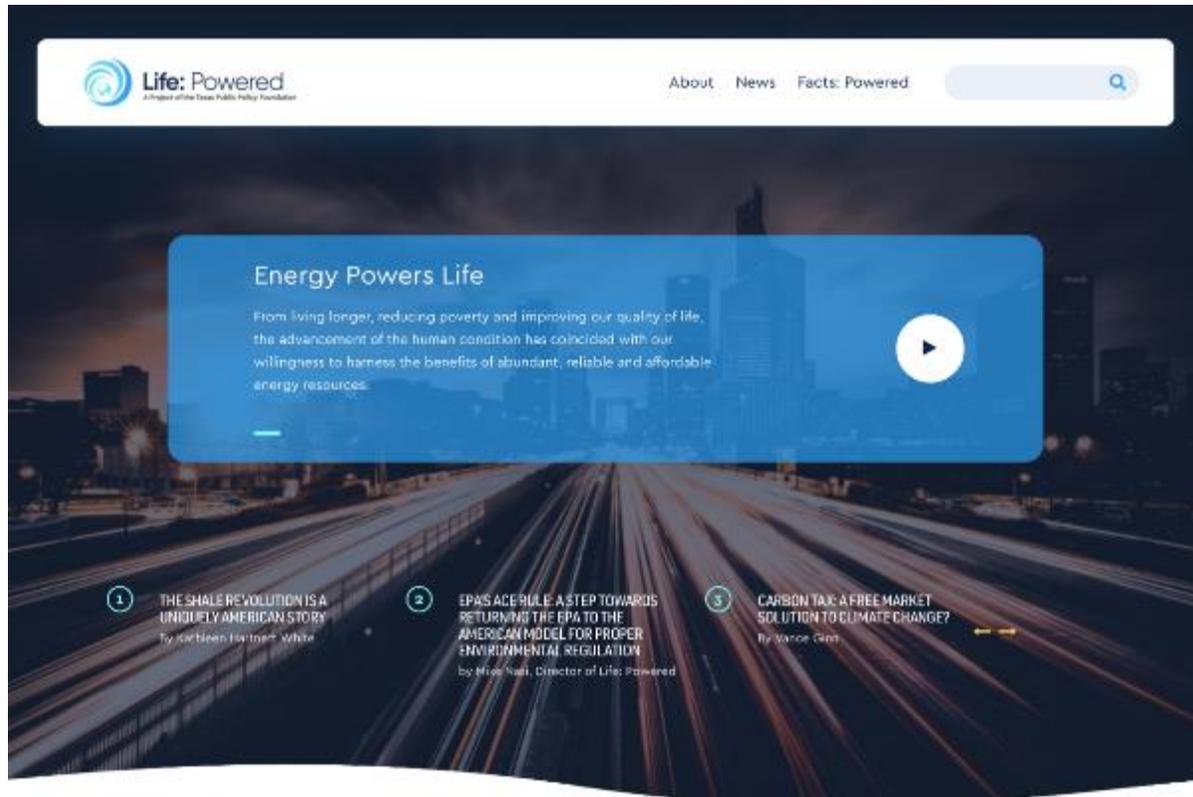
- **“Do you guys on Wall Street have something in your desk that makes steel?”**
- **“Are planes going to fly through the sky based on some number you put on your spreadsheet.”**

EXCITING NEW ENERGY EDUCATION CAMPAIGN!

www.LifePowered.org



To focus the national conversation about energy resources on the importance of reliable, abundant, affordable energy to the American quality of life and the advancement of the human condition.



“100 % Renewable Isn’t Doable” Video

<https://youtu.be/fwaZ7-9Cxii>



“Wind Power Isn’t Reliable” Video

<https://youtu.be/Vjcp0llz32o>



Expensive Energy Hurts the Poor the Worst

Civil Rights Suit Exposes California's Regressive Green Energy Agenda

"California's climate change policies ... have caused and will cause unconstitutional and unlawful disparate impacts to California's minority populations ..."

"Since most of the world's energy is still produced from fossil fuels, energy consumption is still highly correlated to economic productivity and per capita incomes ..."

SUPERIOR COURT OF THE STATE OF CALIFORNIA
COUNTY OF FRESNO
UNLIMITED CIVIL JURISDICTION

THE TWO HUNDRED, an unincorporated association of civil rights leaders, including LETICIA RODRIGUEZ, TERESA MURILLO, and EUGENIA PEREZ,

Plaintiffs/Petitioners,

v.

CALIFORNIA AIR RESOURCES BOARD, RICHARD COREY, in his Official Capacity, and DOES 1-50,

Respondents/Defendants.

Case No. _____

VERIFIED PETITION FOR WRIT OF MANDATE; COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

[Code Civ. Proc. §§ 1085, 1094.5, 1060, 526; Gov. Code § 12955 *et seq.* (FEHA); 42 U.S.C. § 3601 *et seq.* (FHA); Cal. Const. Art. I, § 7; Art. IV, § 16; U.S. Const. Amd. 14, § 1; 42 U.S.C. § 1983; Pub. Res. Code § 12000 *et seq.* (CEQA); Gov. Code § 11346 *et seq.* (APA); H&S Code § 38500 *et seq.* (GWSA); H&S Code § 39000 *et seq.* (CCAA); Gov. Code § 65088 *et seq.* (Congestion Management Plan)]

"... the 'net zero' GHG threshold would operate unconstitutionally so as to disproportionately disadvantage low income minorities in need of affordable housing relative to wealthier, whiter homeowners who currently occupy the limited existing housing stock..."

"CARB's VMT reduction scheme and its ongoing efforts to intentionally increase congestion are an assault on the transportation mobility of people, which disparately harm minority workers..."

BERNIE DID NOT GET THE MEMO . . .



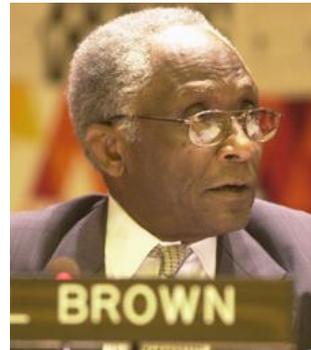
“Climate change is directly related to the growth of terrorism.”

DNC debate, November 2015

“Climate change is not just an environmental issue. It is a racial justice issue.”

Twitter, May 2019

**WHILE WE ARE FACT CHECKING CLIMATE
CATASTROPHISTS, LET'S TAKE A LOOK AT PAST
PREDICTIONS. . .**



**WHATEVER HAPPENED TO THE
“ONE LIE RULE?”**

Noel Brown



“Entire nations could be wiped off the face of the earth by rising sea levels if global warming is not reversed by the year 2000.”

Associated Press interview, 1989.

Mostafa Tolba



“The world faces an ecological disaster as final as nuclear war within a couple of decades unless governments act now.”

**UN Meeting -
May 11, 1982**

Al Gore



“Unless drastic measures to reduce greenhouse gases are taken within the next 10 years, the world will reach a point of no return.”

Premiere of “An Inconvenient Truth”, 2006

“The entire North ‘polarized’ cap will disappear in 5 years.”

**Event with German scientists,
December 13, 2008**

AND THEN THERE IS . . .

Alexandria Ocasio-Cortez (“AOC”)



“The world is going to end in 12 years if we don’t address climate change and your biggest issue is how are we gonna pay for it? This is the war; this is our World War II.”

MLK day event, January 2019

America Leads the World in Cleaning the Air Video

<https://youtu.be/htosc7929oA>



PITTSBURGH

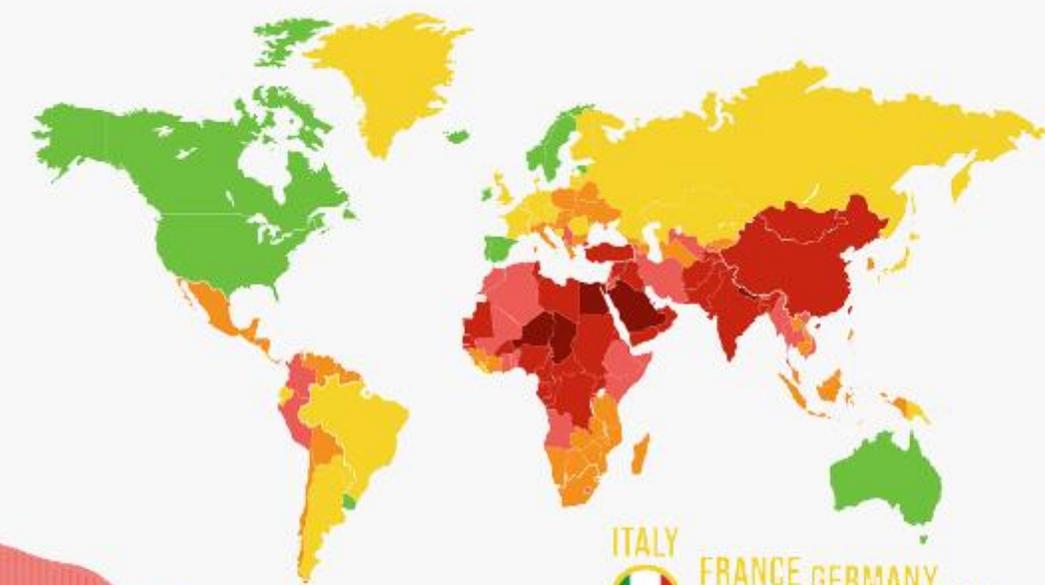
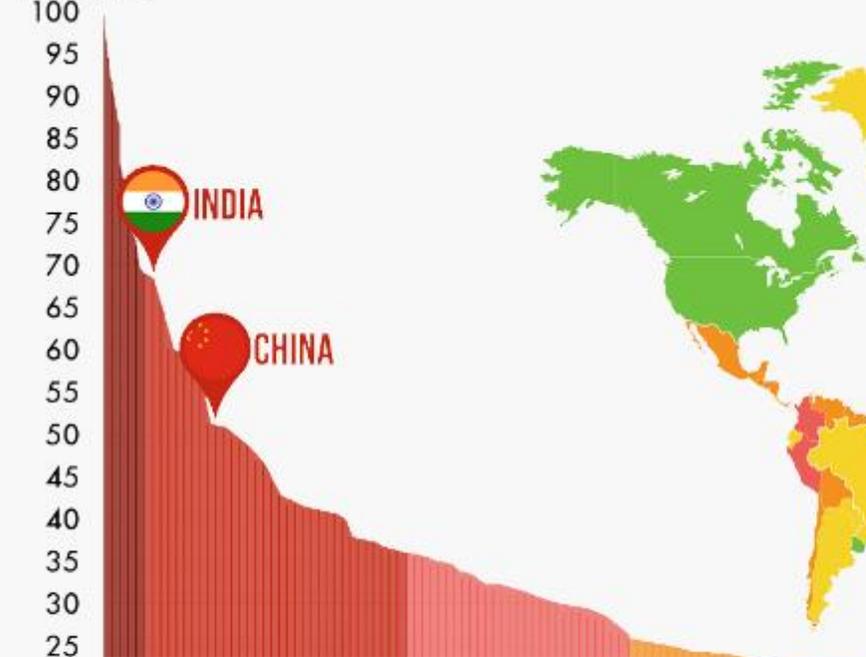


PARIS



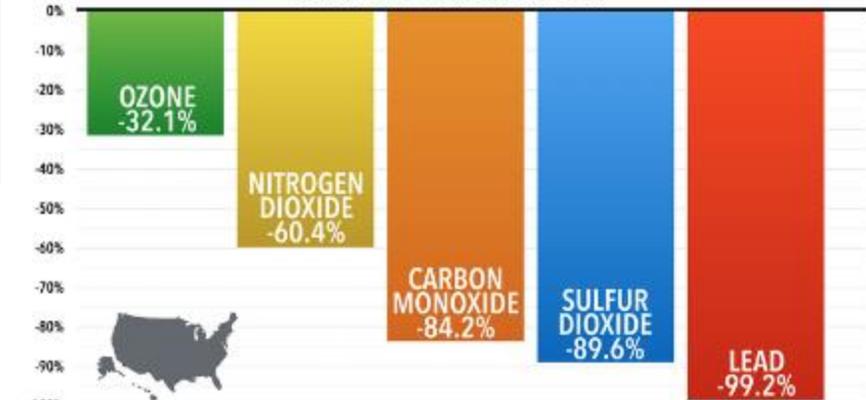
SHANGHAI

PM2.5 LEVELS



CLEANER AIR IN AMERICA

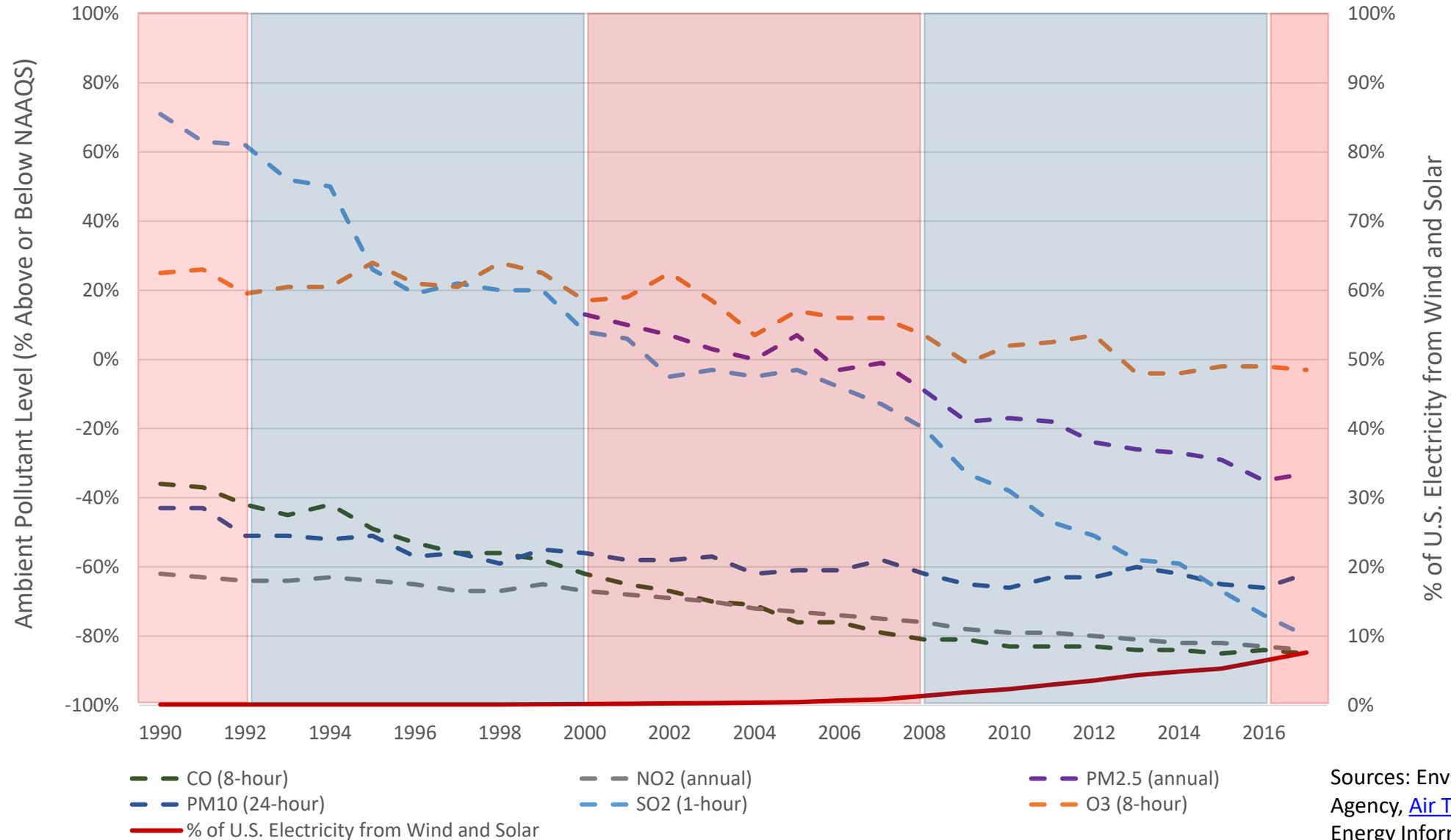
LOWER POLLUTION LEVELS SINCE 1980



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We Have Made our Air Safe with Technology, Not Ideology



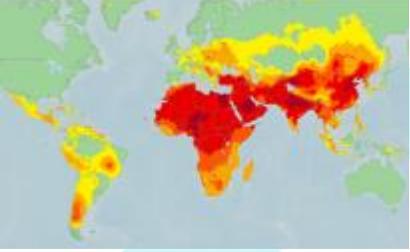
Sources: Environmental Protection Agency, [Air Trends Report 2018](#); Energy Information Administration, [Total Energy Data Browser](#)

“Energy Poverty” Video

<https://youtu.be/nEovKjVkJUpc>



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Regulatory & Markets Update



QUESTIONS?

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