



CLEARPATH

The Future of Federal Energy RD&D Policy

September 10, 2020

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2020 breaks ice on climate and energy policy



- 1 Overview of ClearPath
- 2 The clean energy innovation imperative
- 3 Biggest DC policy win is major innovation funding increase in FY20
- 4 New momentum: House Republicans launch climate package
- 5 Prospects for largest in decade energy bill in 2020
- 6 New bipartisan cooperation: Largest ever clean incentive proposal

CLEARPATH



Jeremy Harrell
Managing
Director, Policy

- Head of Policy Development at ClearPath
- Chairman, U.S. Nuclear Industry Council (USNIC)
- Legislative Chair, Geothermal Resource Council (GRC)
- Fmr. Republican Congressional Energy and Tax Policy Advisor

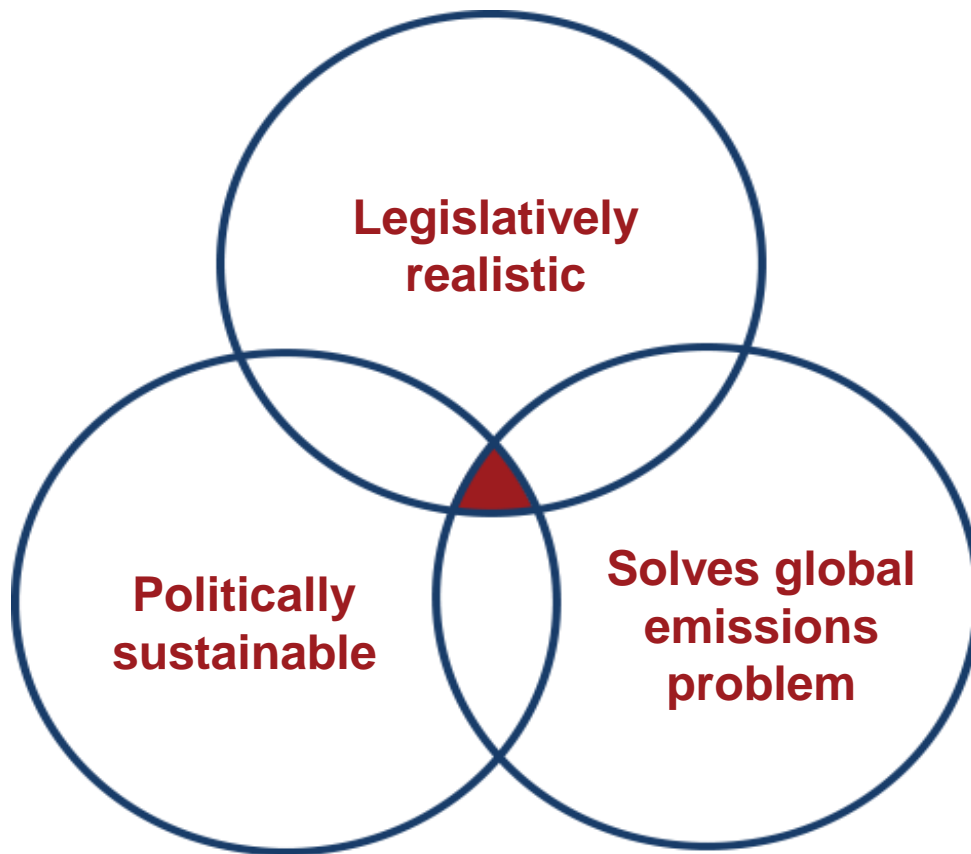
Mission

Advance conservative policies that accelerate clean energy innovation

Vision

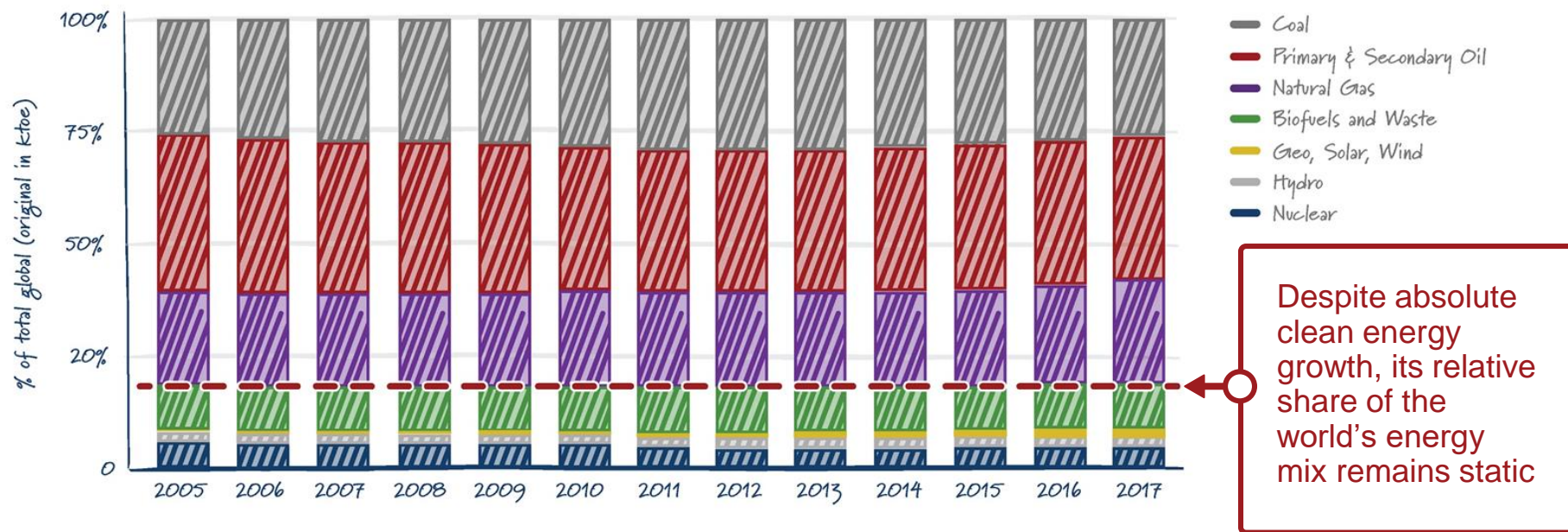
Deep global decarbonization by 2050 through an innovation and deployment agenda -- driving global uptake of clean technology

Climate policy challenge



Global challenge: Clean energy and fossils racing neck and neck

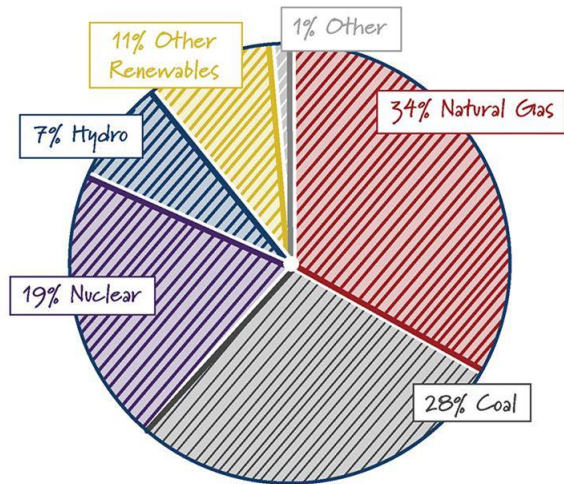
Share of total primary energy supply by fuel type



Despite absolute clean energy growth, its relative share of the world's energy mix remains static

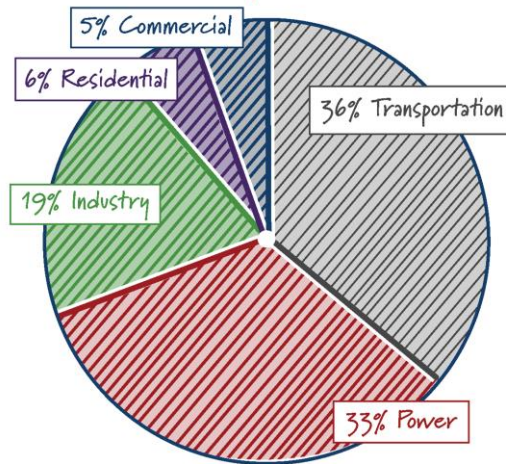
Start with the end in mind

Total U.S. Electricity Generation by Source



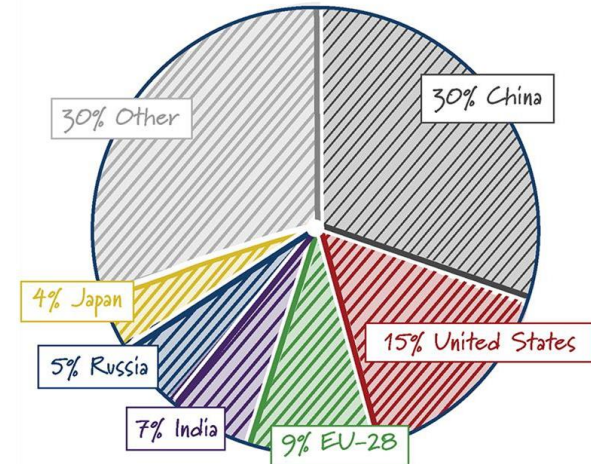
Source: [US EPA, Emissions & Generation Resource Integrated Database](#)

U.S. Emissions by Economic Sector



Source: [US EPA, Greenhouse Gas Inventory Data Explorer](#)

Global Emissions by Country

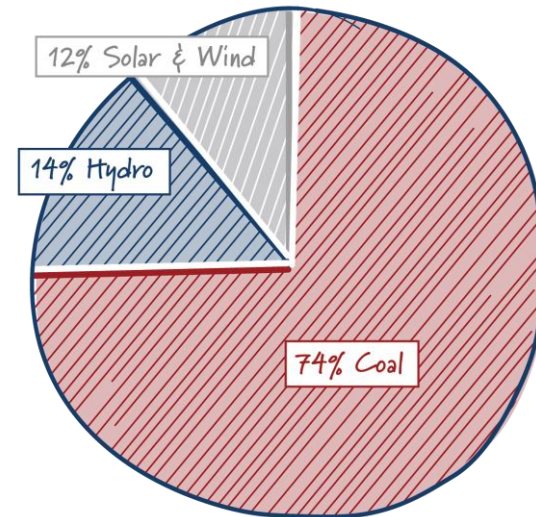


Developing countries still choosing high emitting technologies

China Belt and Road initiative investing heavily in coal fired plants.

In Pakistan, for example, coal new build heavily outweighs zero emissions sources with Chinese support.

Generation Capacity of CPEC Power Plants By Fuel



Source: [Downs 2019, Columbia Center on Global Energy Policy](#)

Utility decarbonization commitments



15% emission reduction 2018-2022



Net zero carbon emissions in electric company by 2050*



60% CO2 reduced by '30
80% CO2 reduced by '50



Net zero emissions by 2050

2018

2019

2020



45% carbon reduction by 2020, 80% carbon reduction by 2050*



80% CO2 reduced by '30,
100% Clean by 2050*



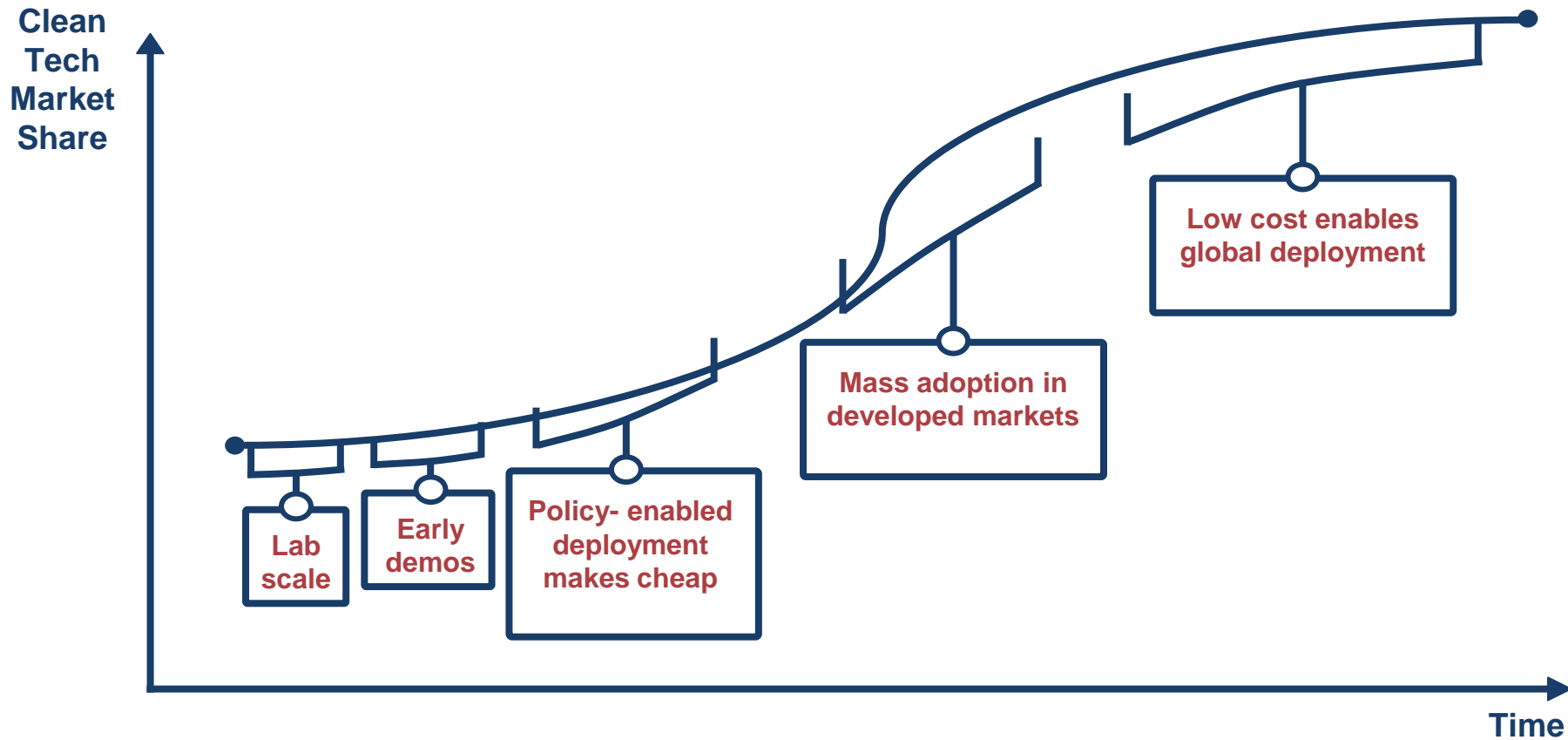
Net zero carbon emissions by 2050*



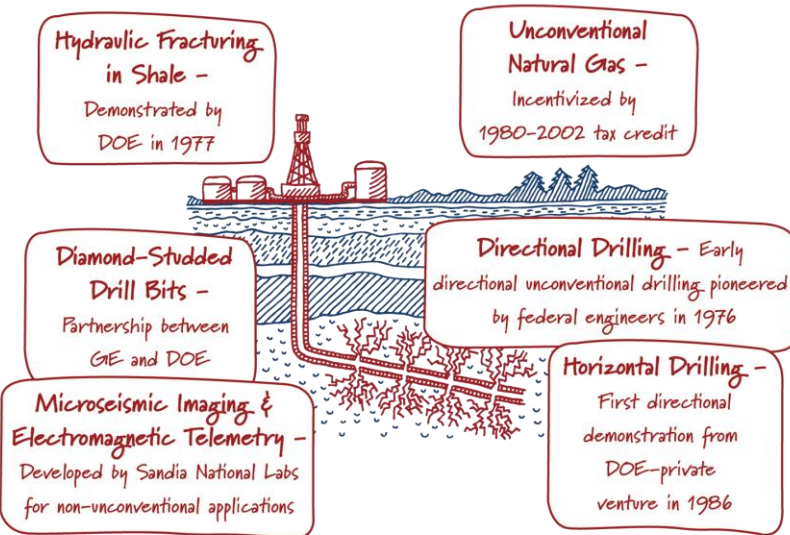
50% CO2 reduced by 2030, "low to no" carbon by 2050*

* Indicates new technology is required to achieve commitments

U.S. Policy should push clean technology up the global “S-curve”



We know the innovation policy playbook that produced breakthroughs - example of cheap unconventional gas



~\$500M applied R&D in public private partnership

- Horizontal drilling
- Hydraulic fracturing
- 3D seismic imaging
- Diamond headed drill bits
- Combined cycle natural gas turbines

\$6B to \$12B in tax incentives between 1985-91

\$100M+ investments by Gas Research Institute

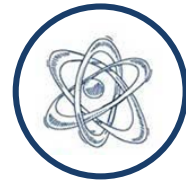
- Commercialization & cost shares (e.g. Mitchell)

Massive scale-up of cheap, cleaner gas power

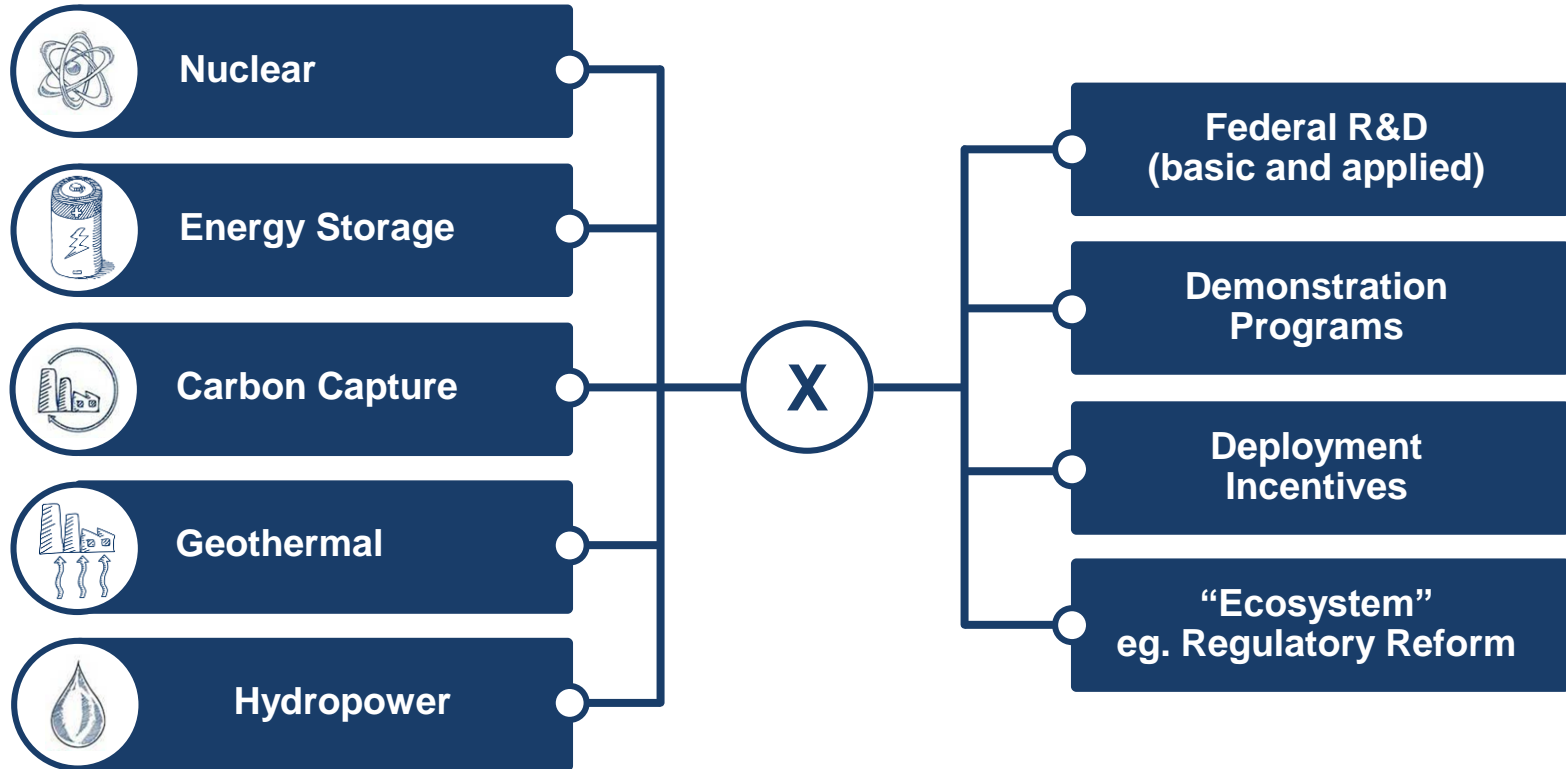
Congress heavily in clean in 2018/19



	Clean capital impact (max)
45Q CCS Incentive	~ \$50,000 M
45J Nuclear Incentive	\$6,000 M
FY'19 Clean RD&D	\$5,810 M
FY'18 Clean RD&D	\$5,550 M
NEICA Nuclear Innovation	~\$3,000 M
NEIMA Reg Development	~ \$140 M
Total	~ \$70,000 M



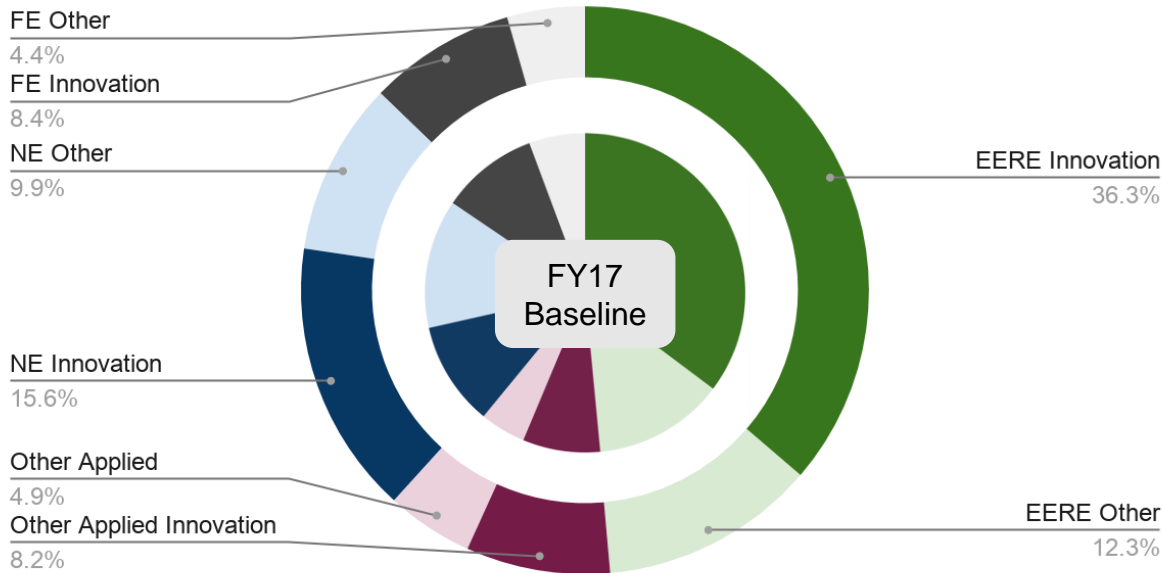
Key technologies and policy areas



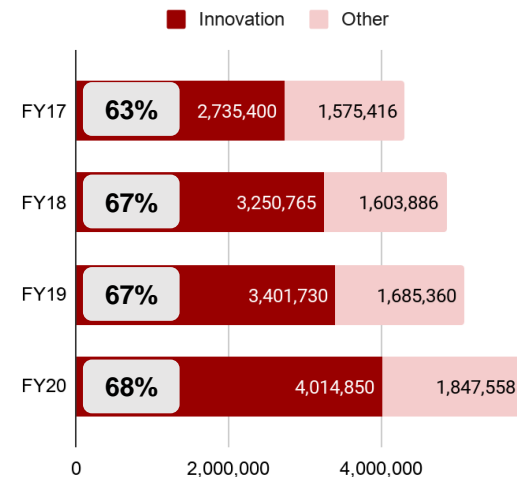
FY20 added ~\$800M, tracking to 2x goal over 10 years

FY20 DOE Applied Energy

% of USD 5,862 M



Total DOE Applied Energy Spending



Recent Administrative Clean Energy Goals Advanced

U.S. Development Finance Corporation

- Increased authorities to export American clean technologies abroad
- Eliminate OPIC/DFC's restriction on advanced nuclear investments

45Q Final Rule-Making

- Two years after enactment, implementation guidance advances
- Momentum to extend and enhance the 45Q Tax Credit
- RHG projects 5 year extension could unlock 144 million metric tons of capture capacity through 2035.

DOE Crosscuts and Expansions

- Energy Storage Grand Challenge
- Integrated Energy System pilots
- Energy-Water Nexus Crosscut
- Industrial carbon capture expansion

Broad industry, labor, NGO support for clean innovation

“We are writing to urge you to place legislation addressing energy and climate technology innovation on the Senate’s fall legislative calendar”



**ALLIANCE
TO SAVE ENERGY**



THIRD WAY



U.S. Chamber of Commerce

Senate bill update: current state of play



Prospects for passing were initially strong

- 83-0 vote to proceed to the bill
- McConnell supportive
- 2025 Demos: 4 Carbon Capture, 5 Storage, 2 Adv. Nuclear, & 4 Geothermal

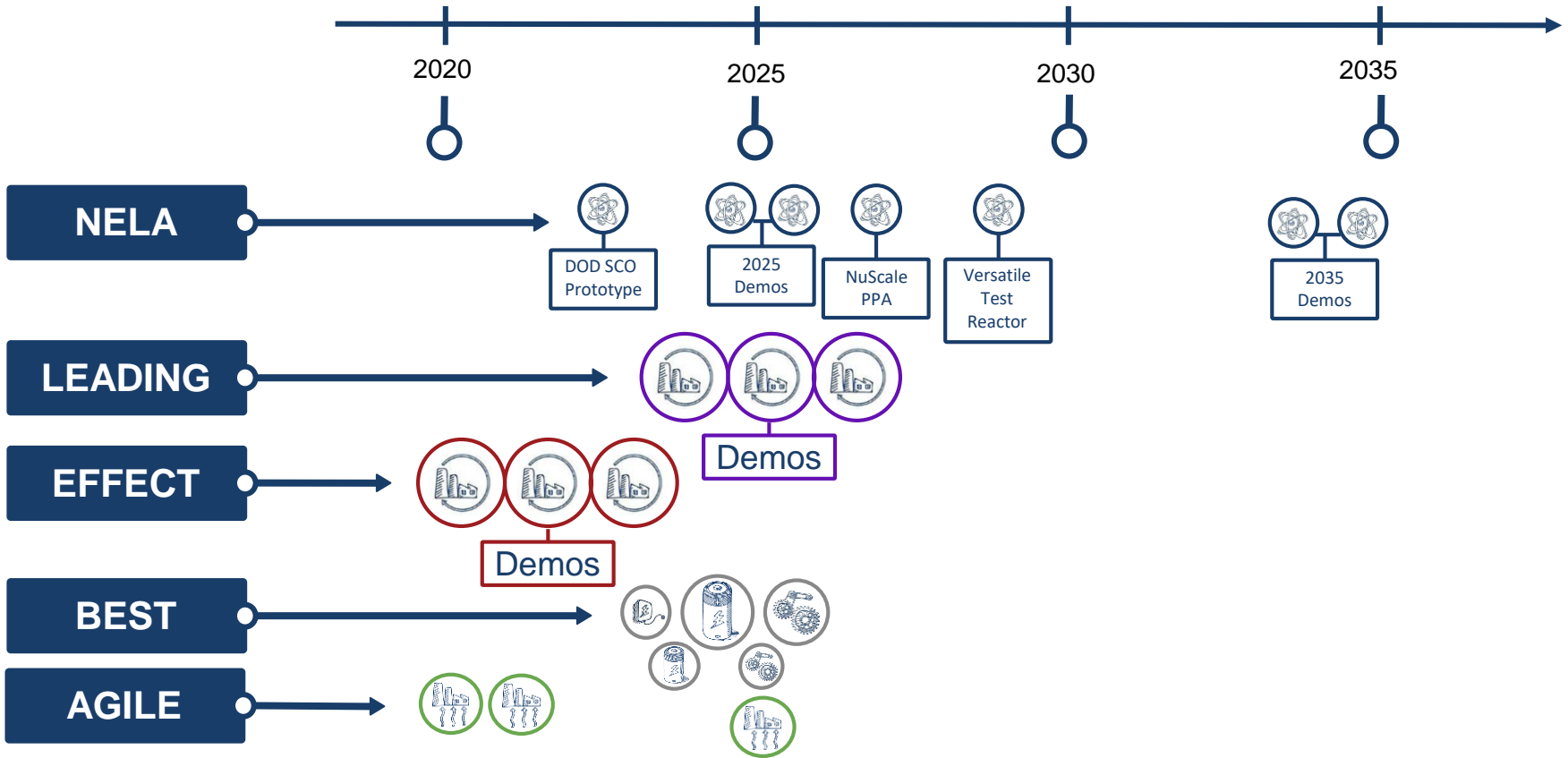
Failed cloture vote on Senate floor

- 16 amendments adopted pre-cloture
- Some R opposition garnered by Shaheen-Portman building codes provision
- Politics of Kigali (HFCs) Amdt. prompted Schumer-Senate Dem opposition

Hope remains for passage this year

- McConnell allowed reconsideration
- HFC compromise near
- House RD&D package advancing in late September


Moonshot demonstration program in AEIA 2020



High priority legislative initiatives overview

Policy Initiatives

Overview



Energy Sector Innovation Credit
(H.R.5523)

Creates a new “technology neutral” tax incentive that facilitates investment in innovative new dispatchable clean energy technologies.




Nuclear Energy Leadership Act
(S.903/H.R.3306)

Establishes a federal RD&D goal to demonstrate alongside private industry 2 new advanced reactor concepts by 2025 and 2-5 more by 2035.



Enhancing Fossil Fuel Energy Carbon Technology Act (S.1201) & the Fossil Energy Research and Development Act (H.R.3607)

Modernizes federal fossil energy RD&D to accelerate the commercialization of new coal and natural gas carbon capture projects over the next decade.



Launching Energy Advancement and Development through Innovation for Natural Gas Act (S.1685/H.R.3828)

Establishes a federal RD&D goal to demonstrate alongside private industry three natural gas carbon capture technologies by 2025.



Better Energy Storage Technologies Act
(H.R.2896/S.1602)

Accelerates the RD&D of long-duration storage technologies and aims to demonstrates 3-5 grid scale technologies by 2025.



Advanced Geothermal Innovation Leadership Act (S.2657) & Advanced Geothermal R&D Act (H.R.5374)

Reorients research and development of both existing and enhanced geothermal systems, bolsters public private partnerships, and improves permitting.

116th Congress Innovation Legislation

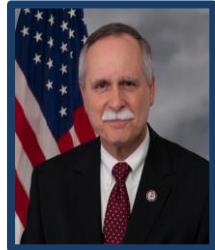
	House Introduced	House Committee Approved	Senate Introduced	Senate Committee Approved	Passed by House or Senate
Carbon Capture, Utilization, and Storage	USE It Enhanced 45Q CCUS Tax Credit Act	Fossil Energy RD&D Act LEADING Act	Carbon Capture Modernization Act	EFFECT Act LEADING Act	USE It Act
Advanced Nuclear	Nuclear Energy Leadership Act	Nuclear Energy R&D Act			Nuclear Energy Leadership Act
Energy Storage	Storage ITC	Better Energy Storage Technologies Act	Storage ITC		Better Energy Storage Act
Advanced Renewables	Enhancing Geothermal Production on Federal Lands Act	Solar Energy R&D Act Advanced Geothermal Energy R&D Act Water Power R&D Act		AGILE Act Solar Energy R&D Act	
Innovation	Energy Sector Innovation Credit	ARPA-E Reauthorization		ARPA-E Reauthorization	

Bipartisan Industrial Sector Decarbonization Policy Emerges

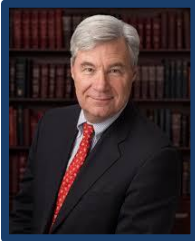
Clean Industrial Technology Act (S.2300/H.R.3978)



Rep. Sean Casten (D-IL)



Rep. David McKinley (R-WV)



Sen. Sheldon
Whitehouse (D-RI)



Sen. Shelly Moore
Capito (R-WV)

Establishes new crosscutting industrial emission reduction technology program focused on...

- Low carbon materials
- Industrial production processes
- High performance computing
- Liquid and gaseous fuel emission reductions

House Rs rollout initial climate package



McCarthy



Graves



Westerman



Wenstrup



McKinley



Schweikert



Crenshaw

Quotes

- *“Republicans’ pro-growth, consumer-first policies are ones that can become law and have an actual impact on our future.” - Leader McCarthy*
- *“commonsense solutions to combating our changing climate.” - Rep. Gosar*

1st Leg - Carbon Capture

1. Permanent 45Q tax credit for carbon capture and sequestration
2. Carbon utilization research hub for R&D and deployment
3. Direct Air Capture and CCS deployment through permit reform and incentives
4. Trillion Trees Act

Additional Legs

- **Clean Energy:** Research and Development of clean energy technologies
- **Conservation:** Initiatives to decrease plastic waste and other conservation action



Bipartisan members introduce cleantech tax policy

Republicans



Reed



LaHood



Schweikert



Amodei



McHenry

Democrats



Panetta



Suozzi



Gottheimer



Sewell

Supportive Organizations (Partial)



Eligible Technologies (Partial)



Q&A

