

CCS POLICY IN THE U.S.

MATT BRIGHT

SENIOR ADVISER – ADVOCACY & COMMUNICATIONS



GLOBAL CCS
INSTITUTE

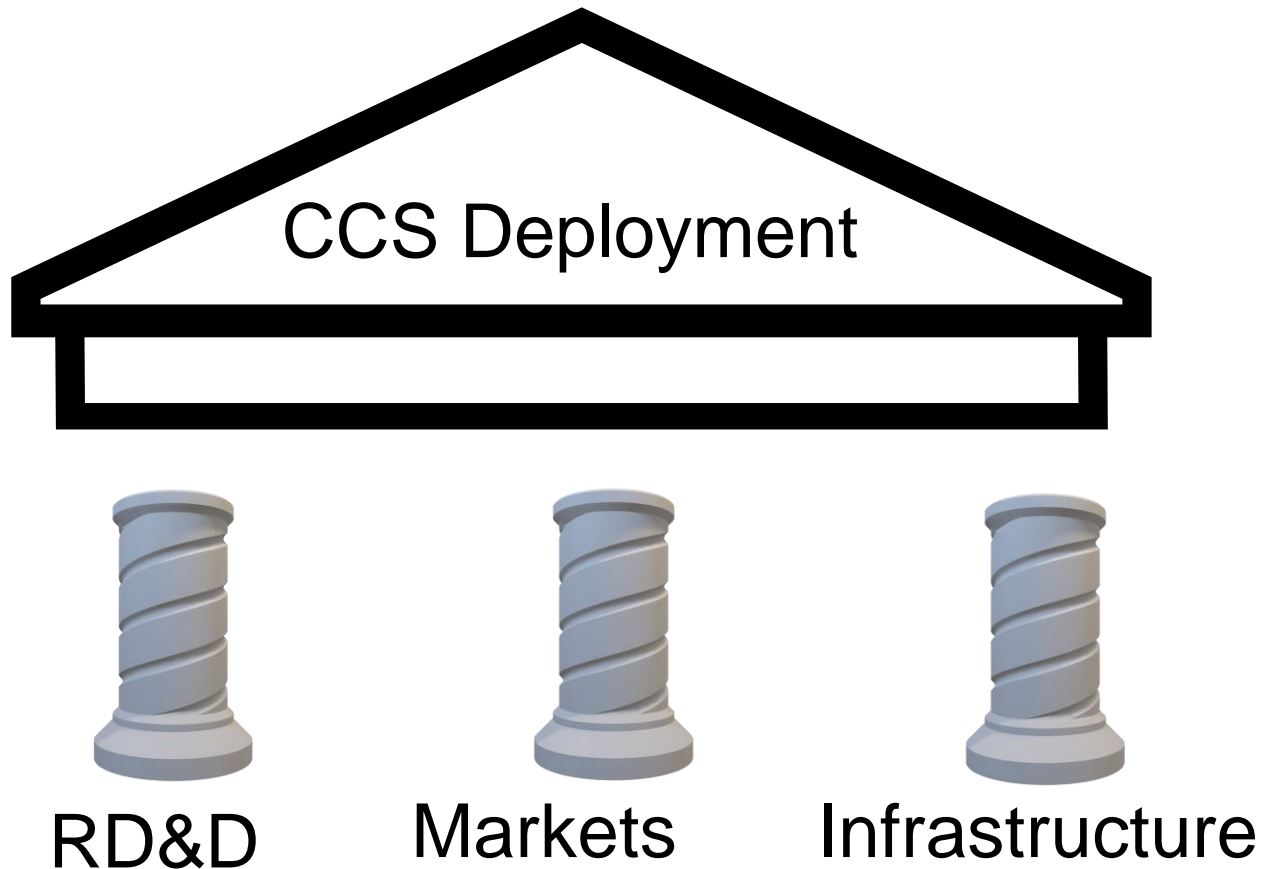
SURVEYING THE U.S. POLICY LANDSCAPE



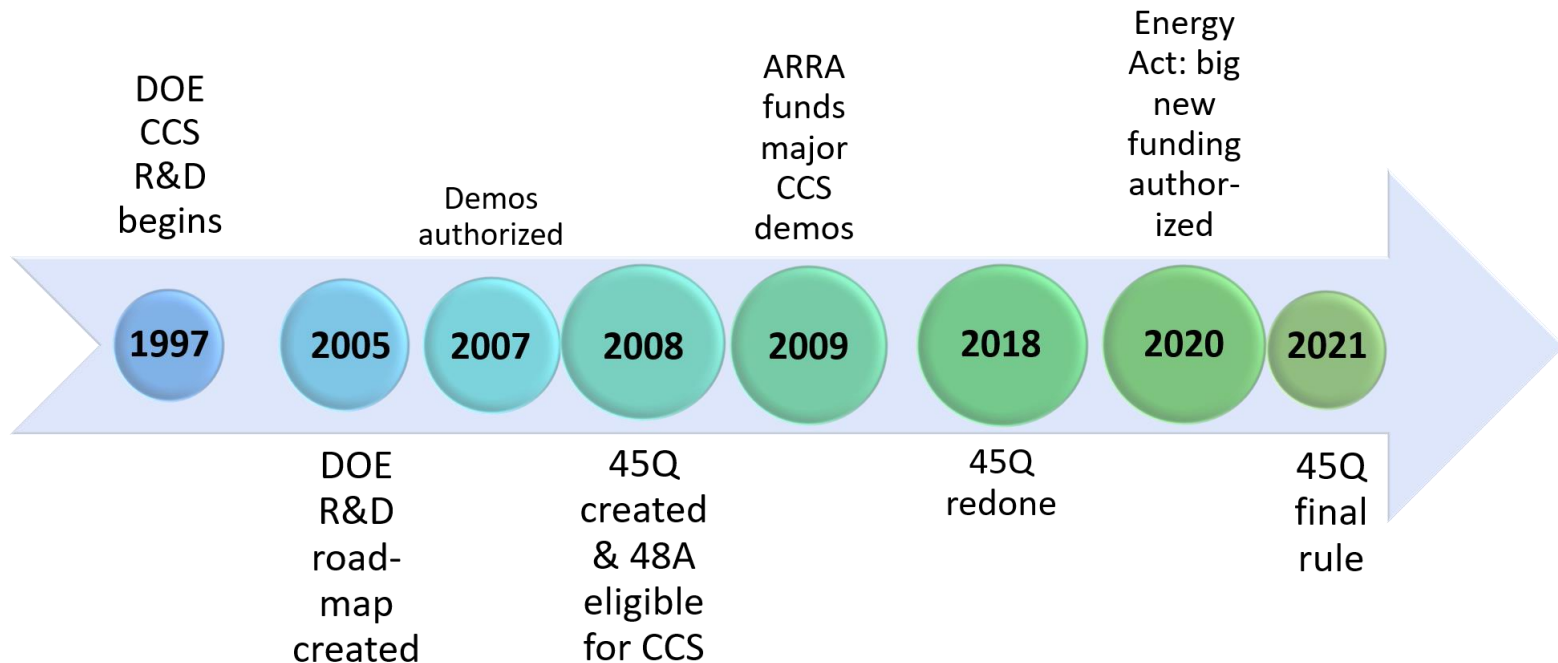
<https://www.globalccsinstitute.com/resources/publications-reports-research/>



3 PILLARS OF CCS POLICY



TIMELINE OF ENACTED CCS POLICY IN THE U.S



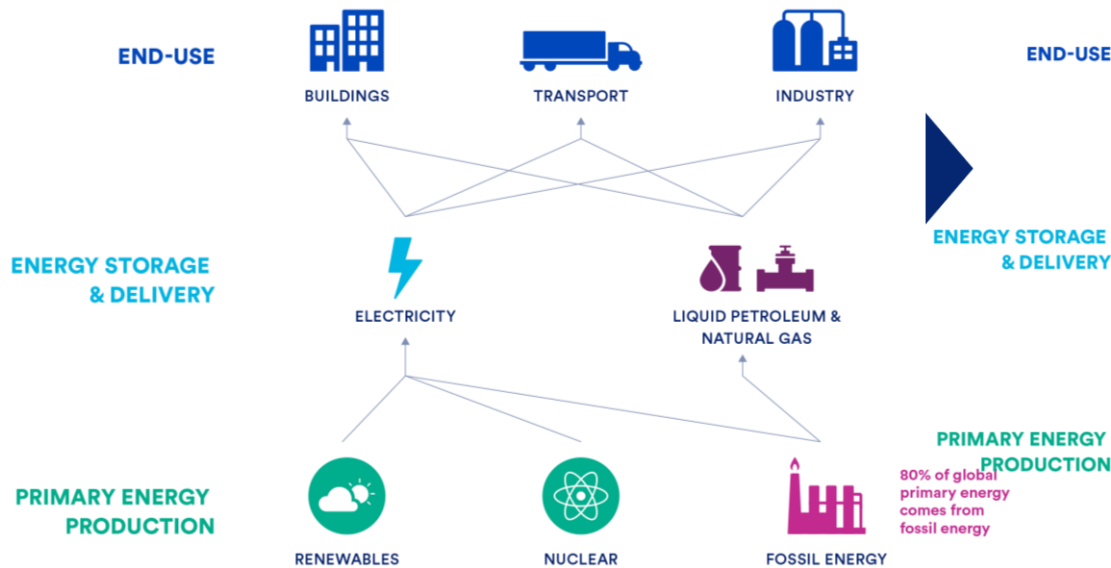
Carbon Capture in the US & Europe

Lee Beck, International Director, Carbon Capture
Clean Air Task Force

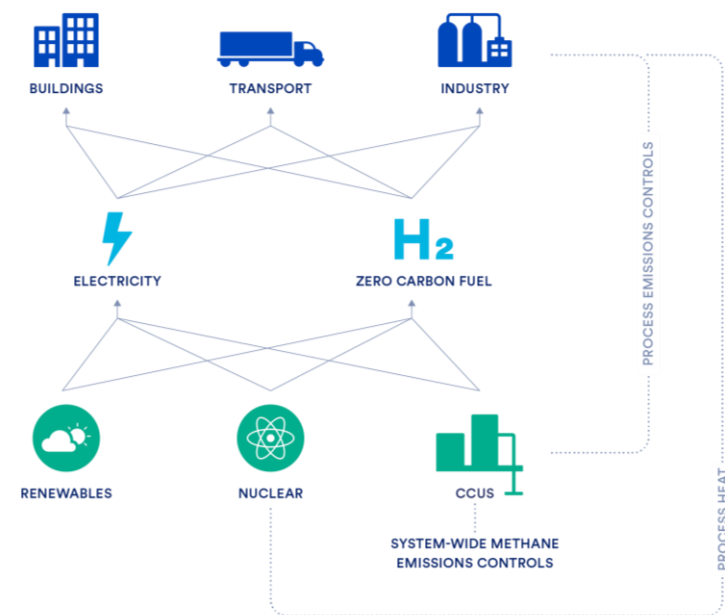


— What we need to do

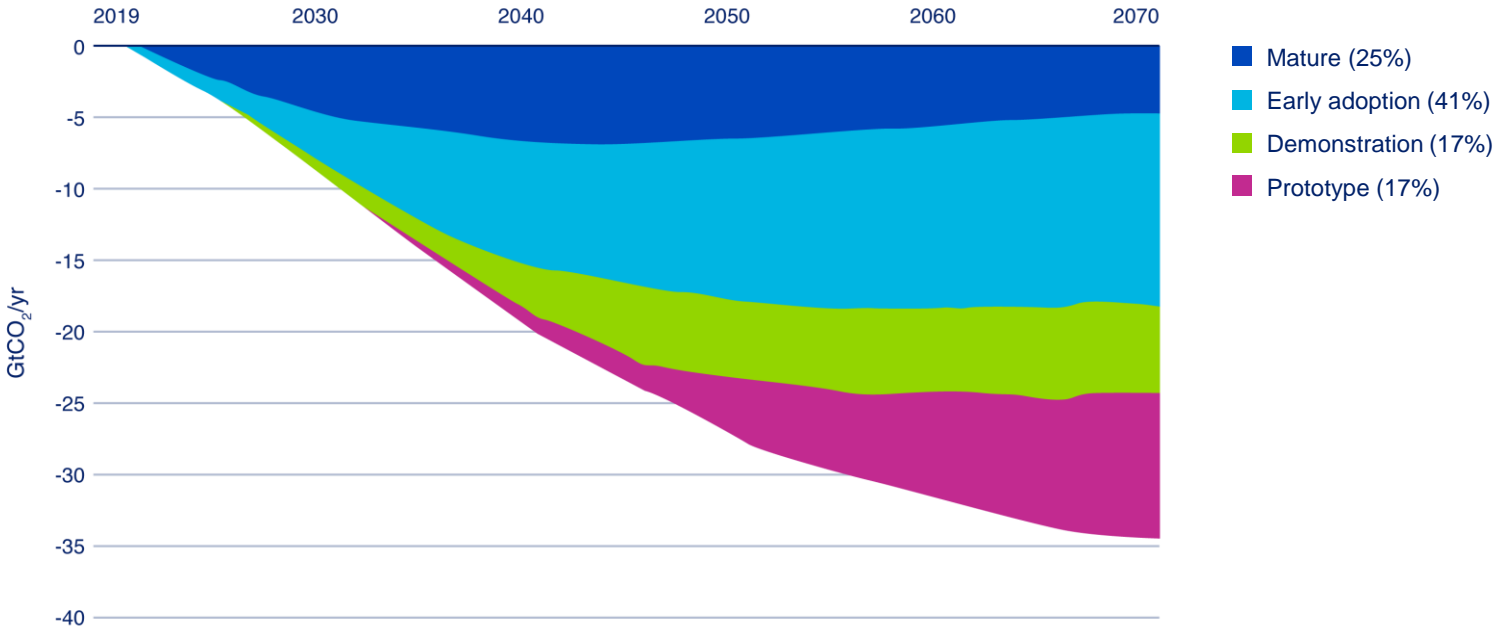
Carbon Intensive Energy System



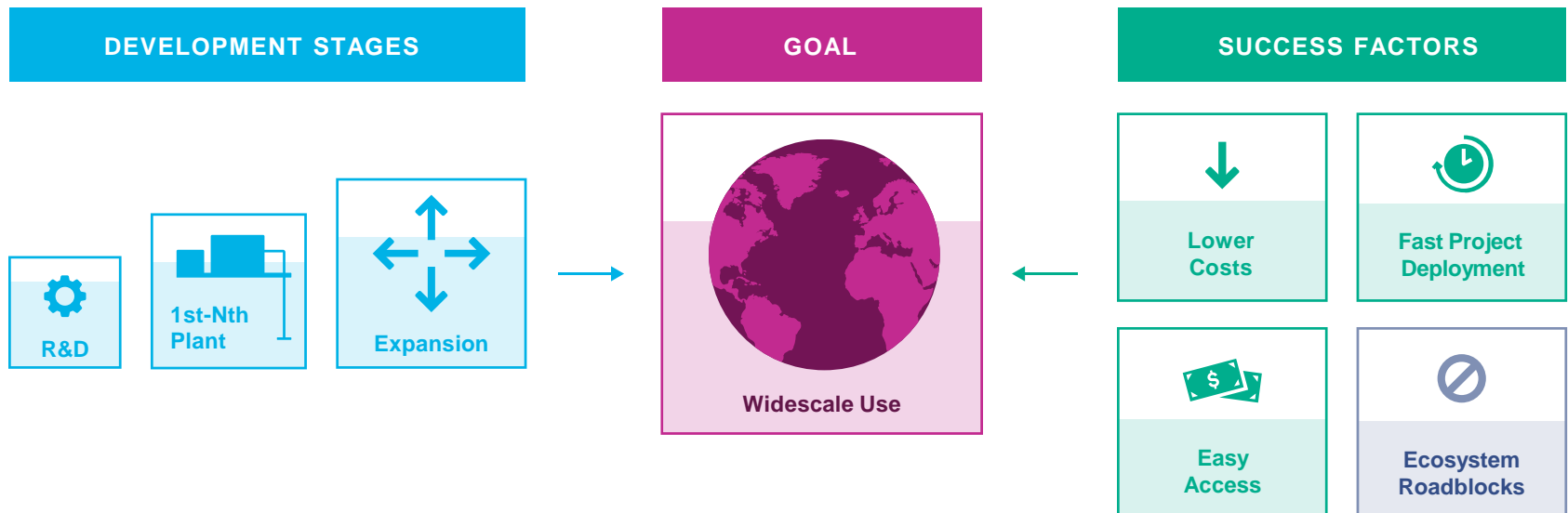
Decarbonized Energy System



Innovation imperative for decarbonization



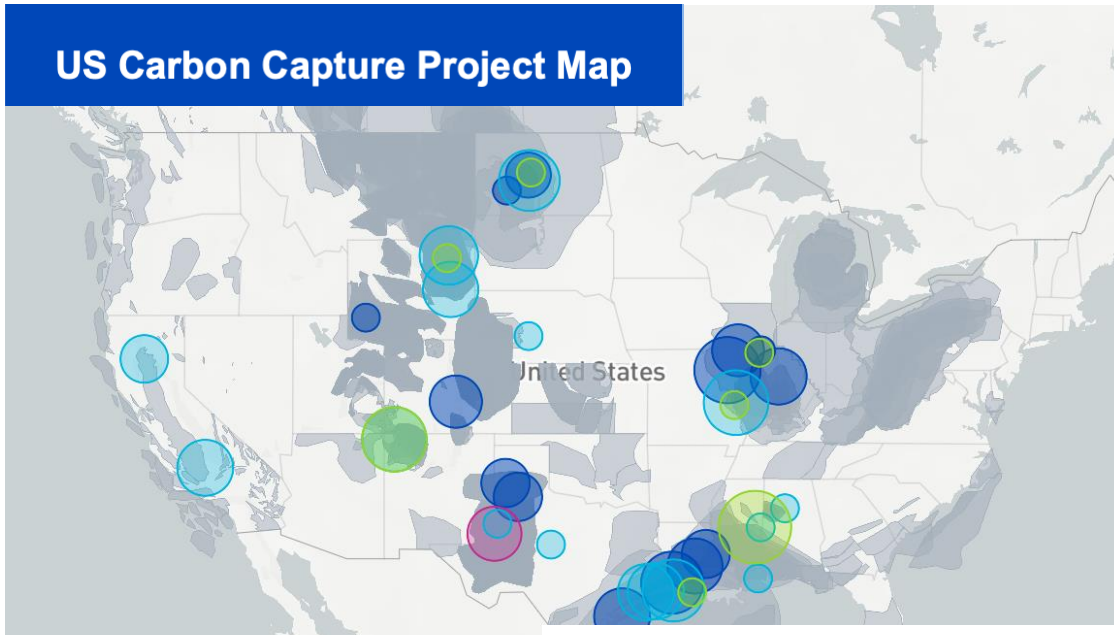
CATF Technology Innovation Framework



Innovation policy must enable success factors for climate policy to become the primary driver of technology deployment

Unprecedented Momentum in Europe and the US

US Carbon Capture Project Map



NEGATIVE EMISSIONS



INDUSTRIAL CARBON CAPTURE



NEW BUSINESS MODELS



HUBS & CLUSTERS

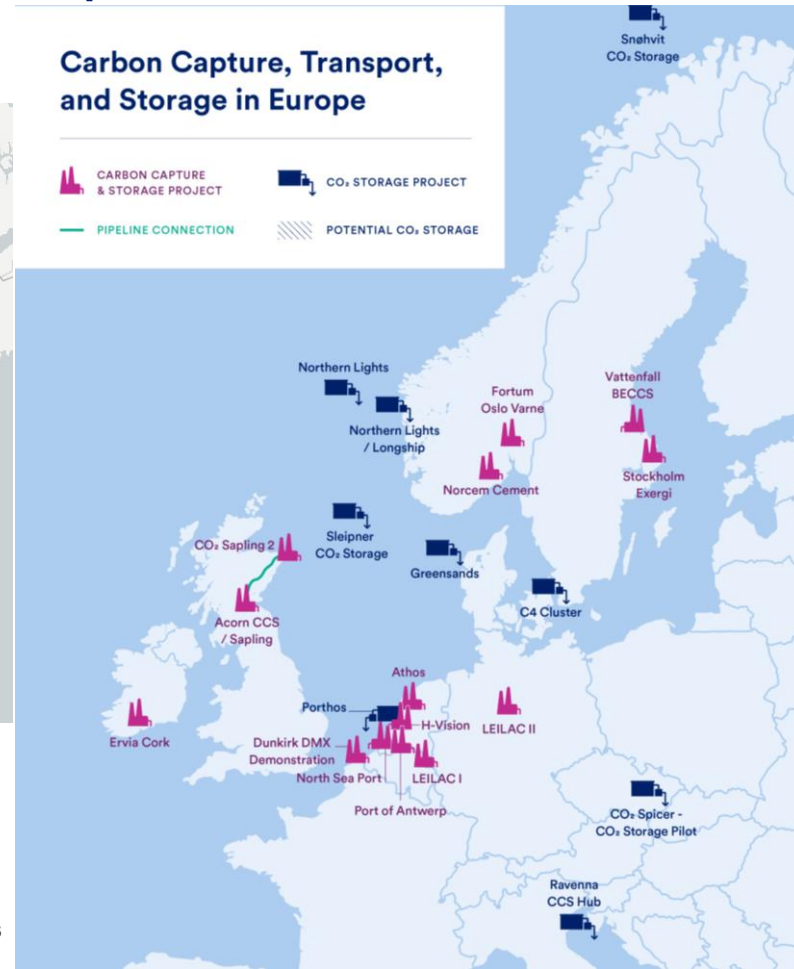


UTILIZATION

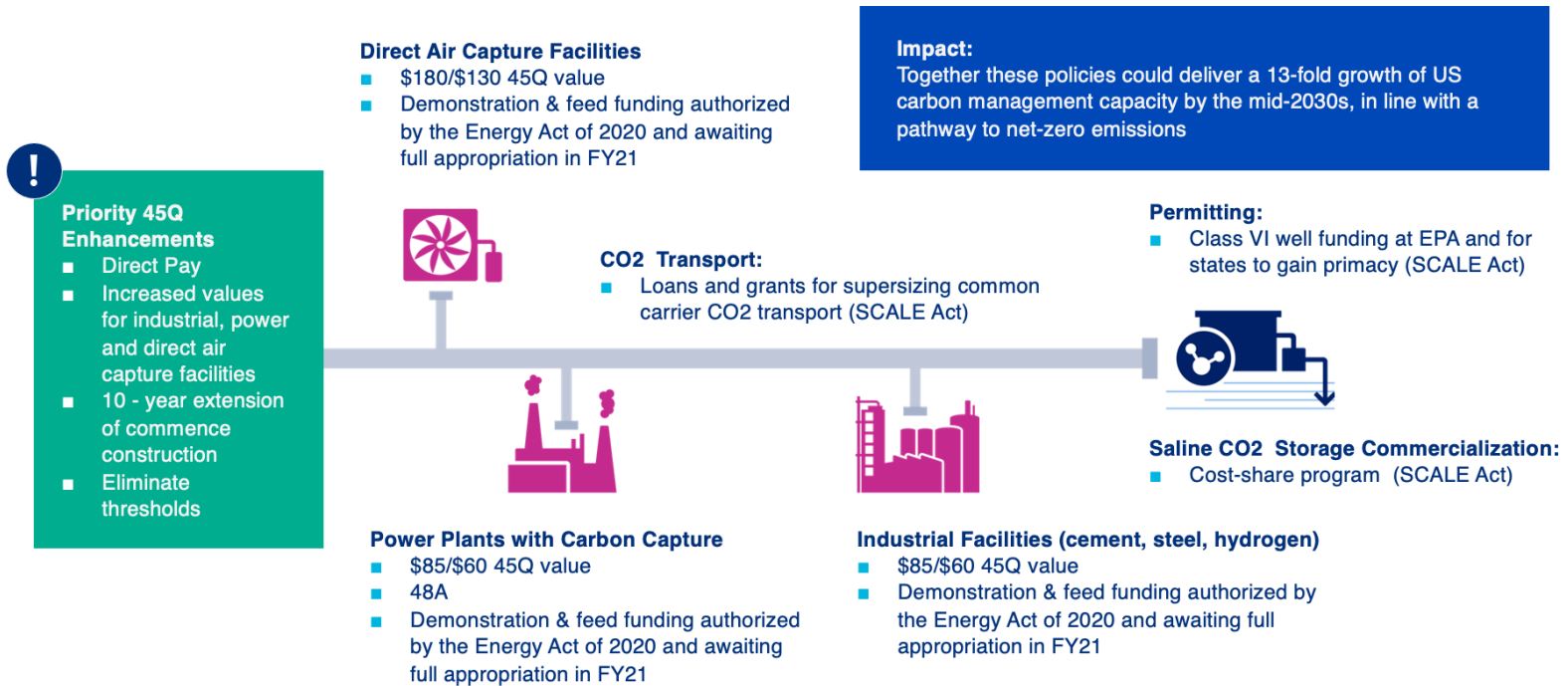


NEW PARTNERSHIPS

Carbon Capture, Transport, and Storage in Europe



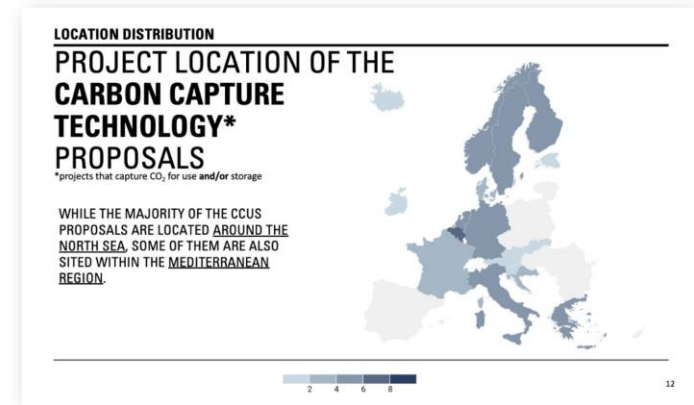
US: American Jobs Plan biggest proposed investment into carbon capture commercialization ever put forward by a single government



If enacted, policies could help grow US carbon management capacity 13-fold by the mid 2030s.

Europe: Unprecedented momentum but more must be done to improve policy framework & refine strategy

- Historic multi-billion Euro investments by Dutch and Norwegian government in full chain carbon capture projects with capacity to expand to accommodate future CO2 storage demand
- UK: Investment in industrial decarbonization clusters as part of 10-point plan with further policy action in planning
- Policy announcements from governments of Sweden, Denmark, and Germany
- EU: CATF focused on advocating for comprehensive deployment strategy as more must be done to commercialize carbon capture, removal and storage technologies, while optimizing the current policy framework and Fit for 55 Package
 - Inclusion of CO2 storage and transport in Ten-E revision
 - EU Emissions Trading System and Innovation Fund Reform



Politics

Germany's 2045 Net-Zero Goal Means Accepting Unpopular Technologies

The more ambitious climate target will require the deployment of carbon capture and negative emissions technologies

Follow us on #TenETuesday

Future Areas of Collaboration and Shared Learnings



- Climate-forward innovation
- CO2 capture-specific deployment incentives via 45Q
- Direct Air Capture



- Comprehensive climate policy
- Carbon removal vs. emissions reductions targets
- Front-loading of CO2 infrastructure investments and CO2 storage business models
- Industrial decarbonization via industrial cluster consortia

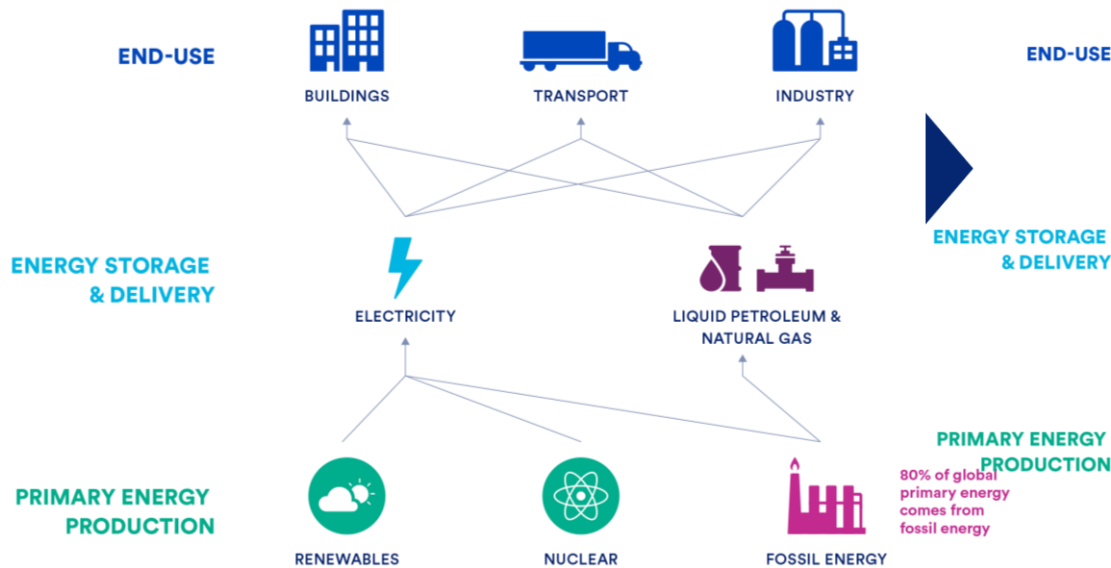
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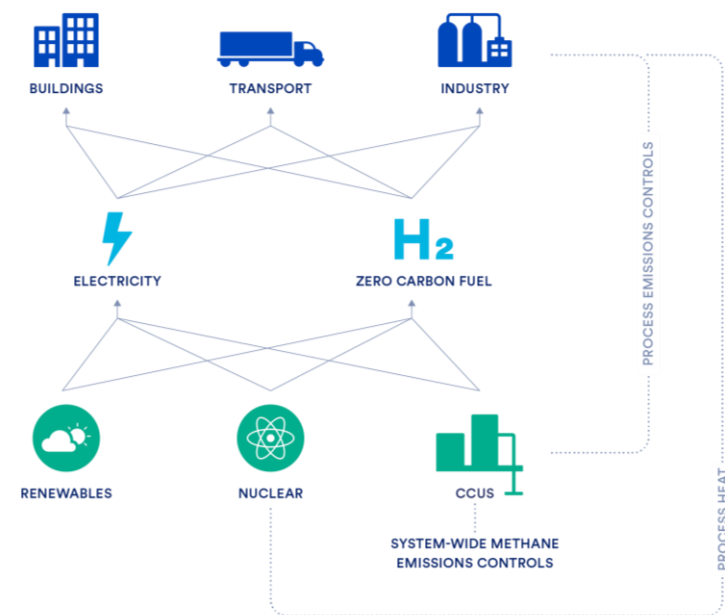


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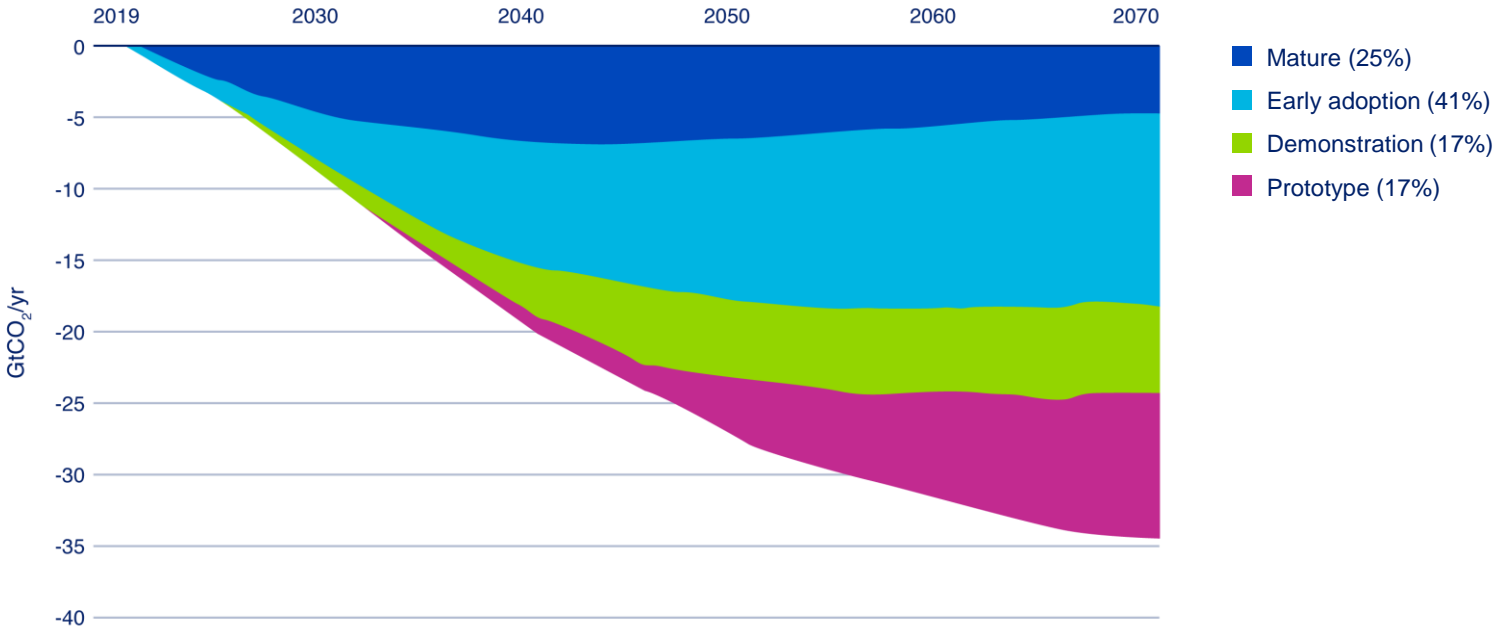
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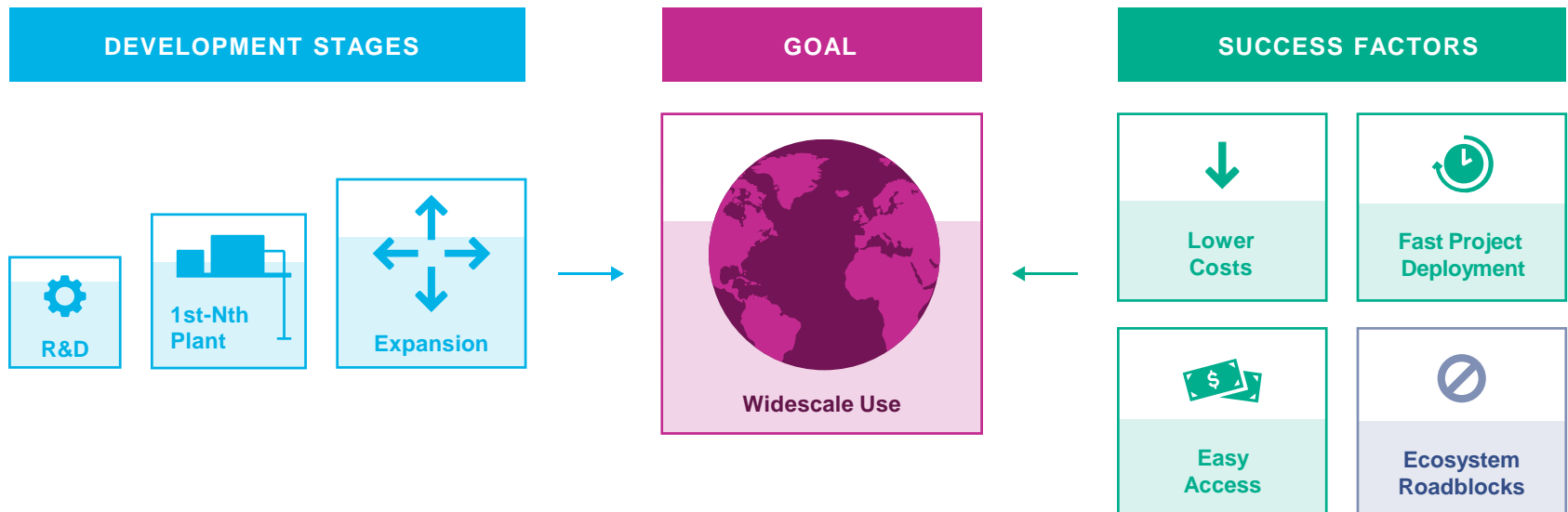
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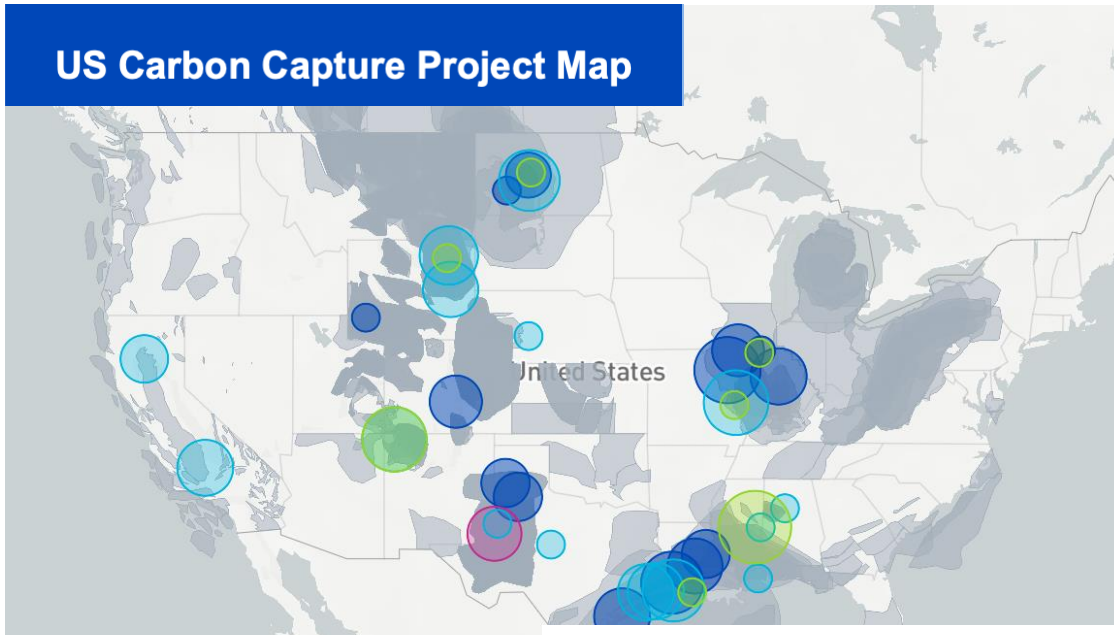
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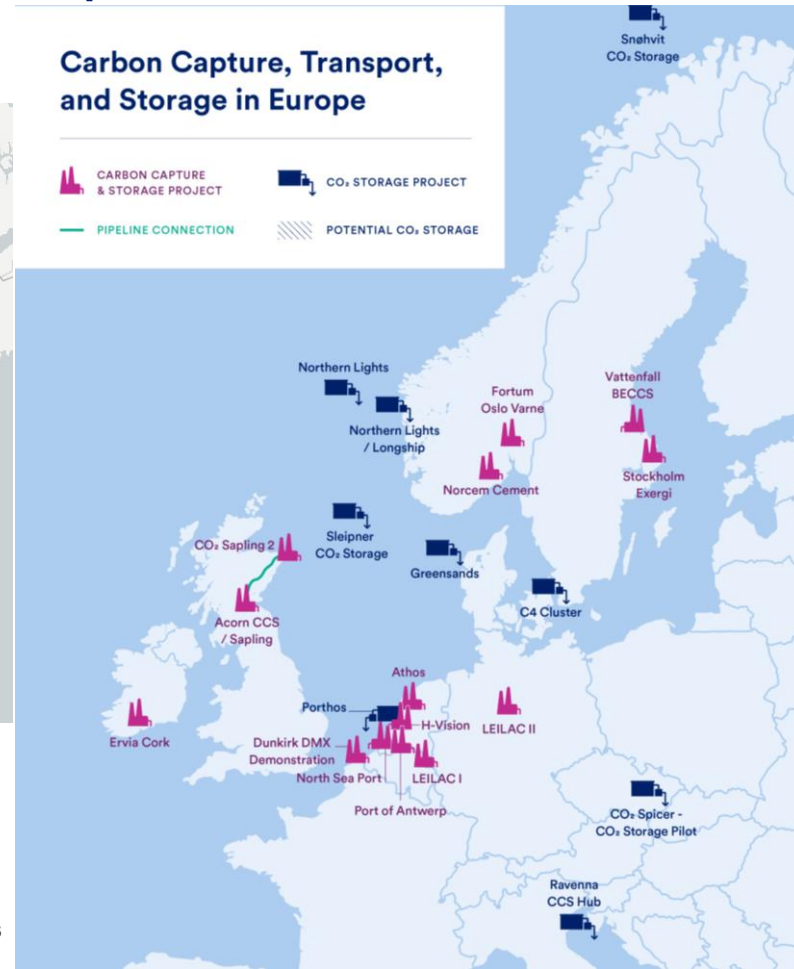


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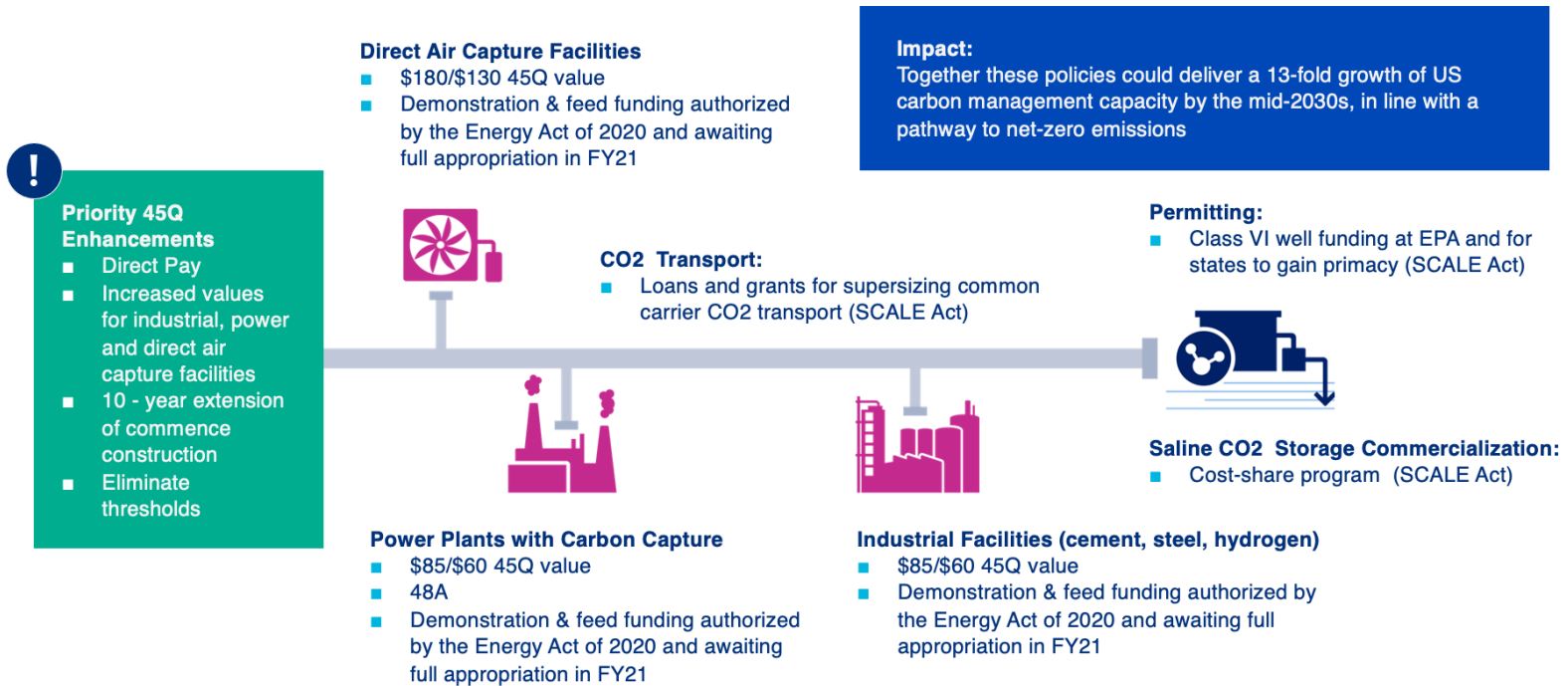


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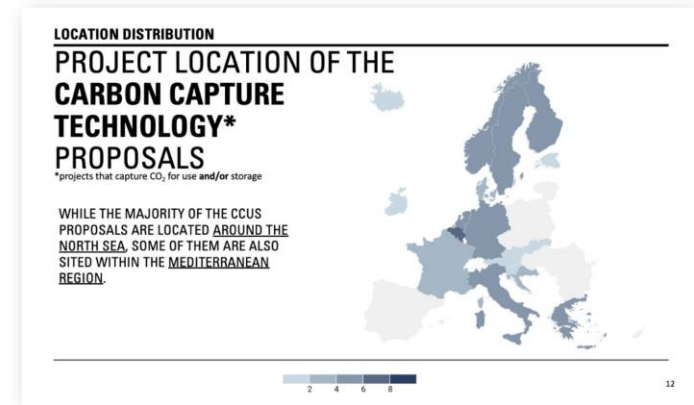
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The logo features a stylized graphic on the left consisting of a dark blue line that descends from the top left, then a red line that descends from the top left, then a white line that descends from the top left, and finally a dark blue line that descends from the top left. These lines converge into a single horizontal line that extends across the top of the slide, ending in a red arrowhead pointing to the right. The word "CLEARPATH" is centered above this line, with "CLEAR" in dark blue and "PATH" in red.

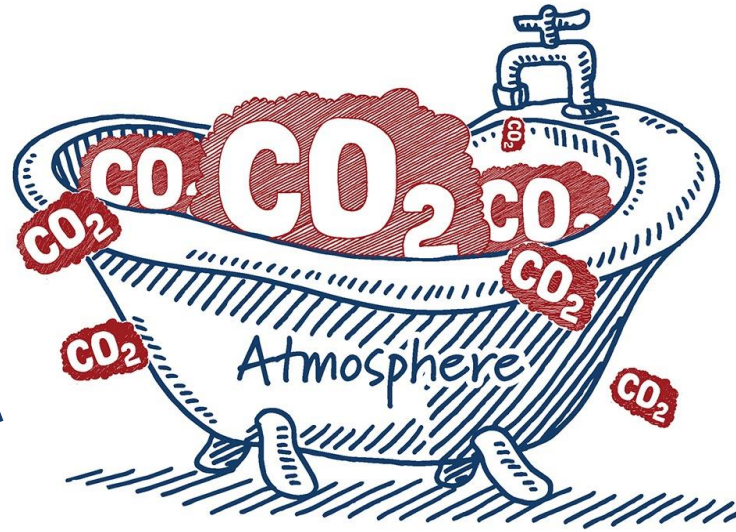
CLEARPATH

**Carbon Capture & Storage Policy for a Net-Zero
Future**

Jena Lococo
Policy Analyst
lococo@clearpath.org

The Role of Carbon Capture

Decarbonizes hard-to-abate sectors



Reduces emissions from existing energy infrastructure

Low-carbon hydrogen production

Removes carbon from the atmosphere

Recent Carbon Capture Announcements



NextDecade RioGrande
Brownsville, TX
LNG

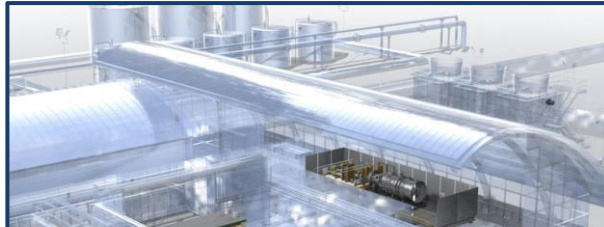


Summit Carbon Solutions
Midwest USA
Ethanol Corridor



American
Petroleum
Institute

American Petroleum Institute
Climate Action Framework



Project Mendota
Fresno County, CA
Biomass with Carbon Capture



Navigator
Midwest USA
Ethanol Corridor

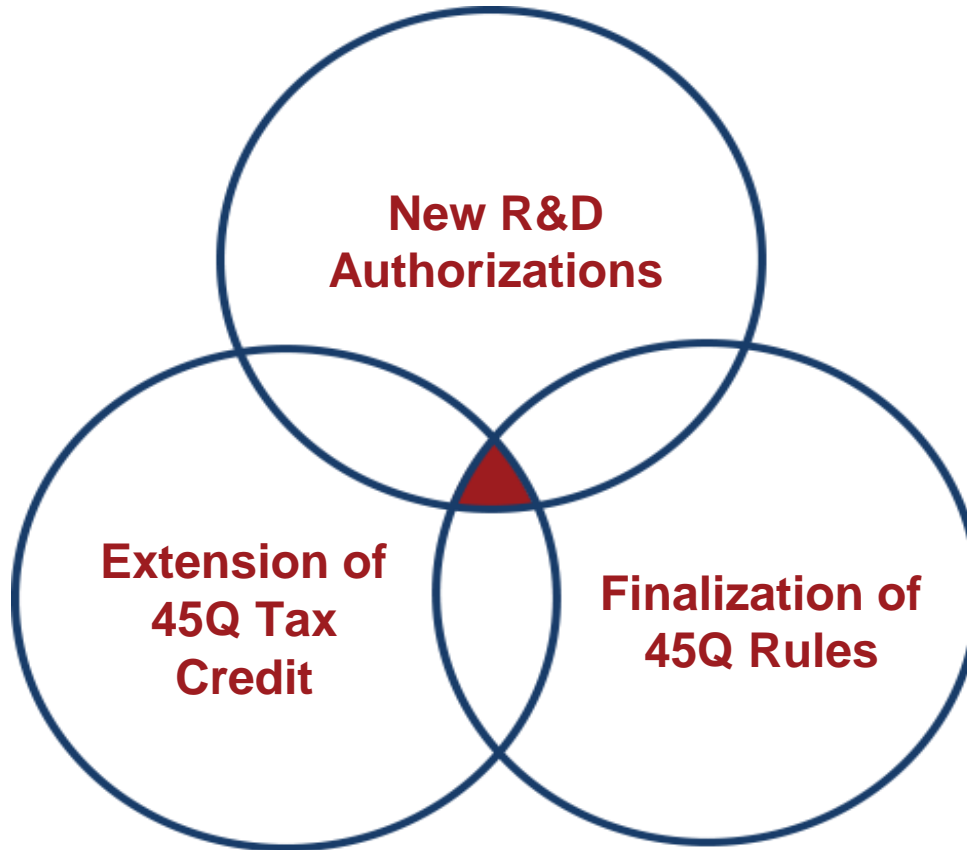


XPRIZE
CARBON
REMOVAL

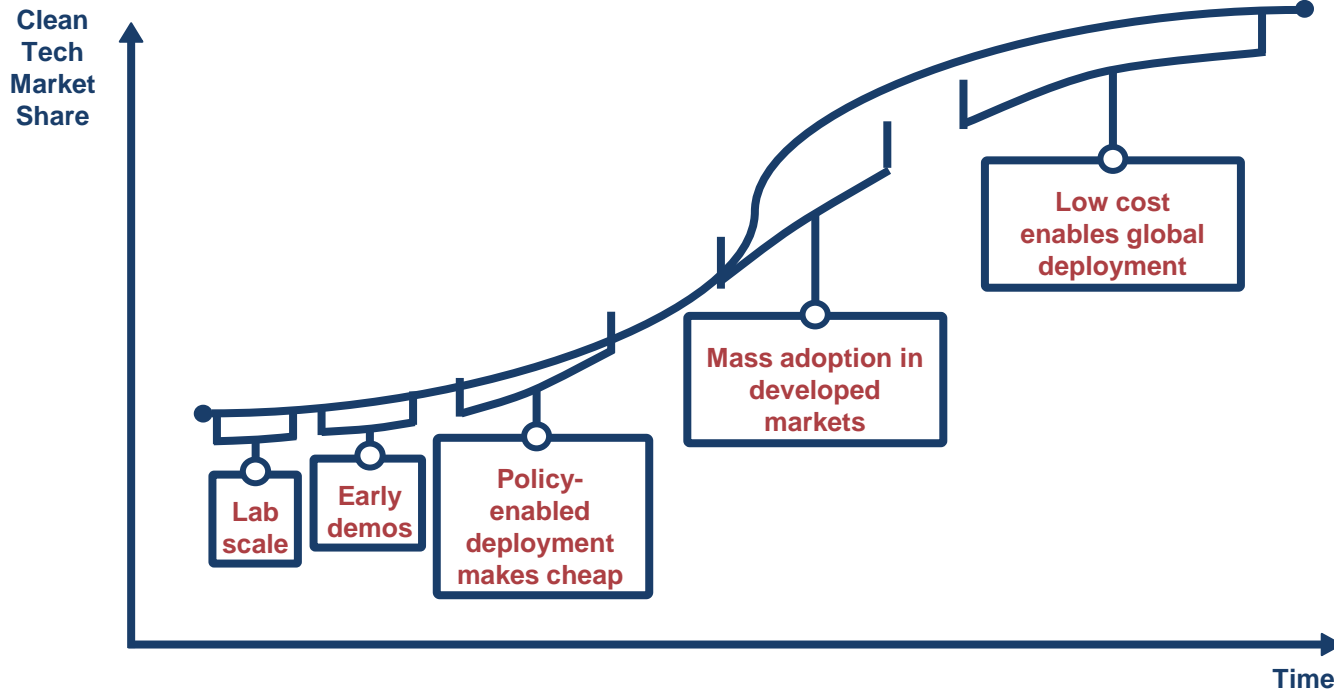
MUSK FOUNDATION

XPRIZE & Musk Foundation
\$100M Prize for Carbon Removal

The Policy Trifecta



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



Three Key Policy Pillars



Lower Cost

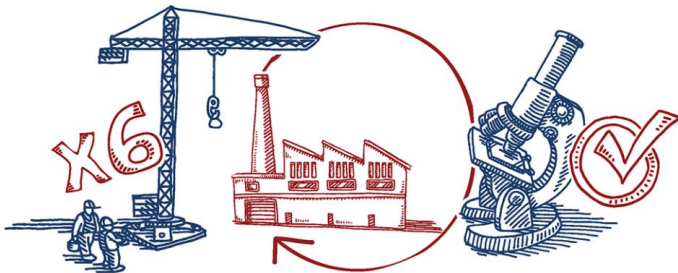


Infrastructure Buildout



Streamlined Permitting

Lower the Cost



Federal investment in Research, Development, & Demonstration (RD&D)

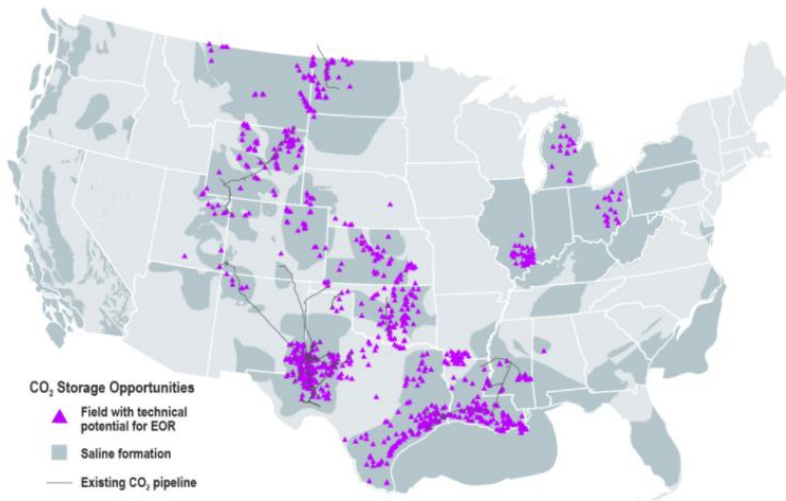
- Investment in RD&D is critical to reducing the cost of carbon capture and enabling new projects
- Innovation needed for difficult to decarbonize sectors
- Energy Act of 2020 called for an unprecedented wave of new commercial-scale technology demonstrations on a rapid timeline



Extension and Expansion of 45Q Tax Credit

- 45Q tax credit is viewed as the single most useful tool in spurring the development of CCUS projects
- Utility could be improved by increasing the credit value, allowing direct pay, reducing minimum capture thresholds, and extending duration
- Multiple proposals in Congress currently

Build out of Infrastructure

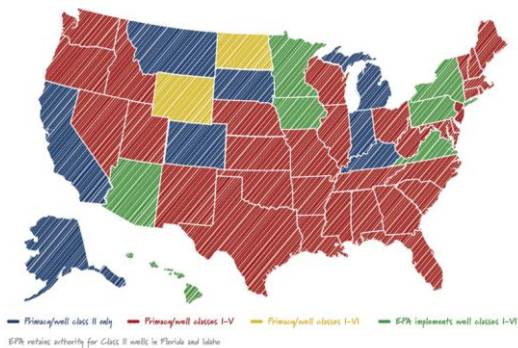
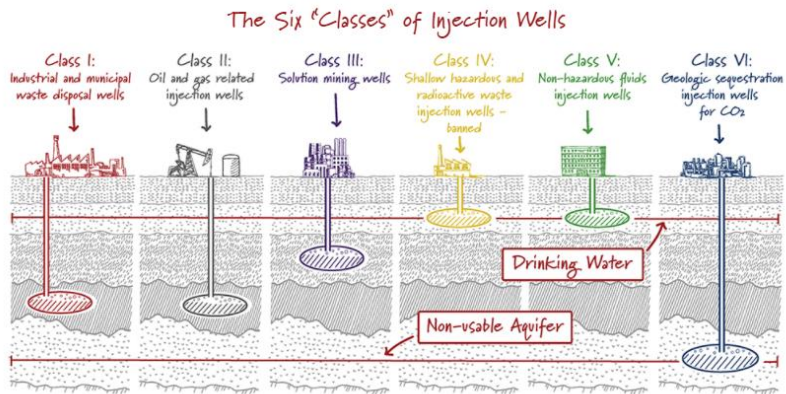


Source: Elizabeth Abramson, Great Plains Institute, 2020.

Storing CO₂ and Lowering Emissions (SCALE) Act

- Significant buildout of CO₂ transport and infrastructure needed for widespread deployment
- Enables more CO₂ capture by connecting storage locations and emitters, realizing economies of scale, and creating a carbon management market
- SCALE Act establishes programs to support the buildout of infrastructure
 - Front-End Engineering Design (FEED) studies
 - Loan and Grant Program
 - Builds on Department of Energy carbon sequestration program

Streamline Project Permitting



Source: Environmental Protection Agency 2021

Class VI Program Reform

- Class VI wells are used to inject CO₂ into deep rock formations for the purpose of long-term underground storage – known as geologic sequestration
- Class VI requirements are a key factor in cost-effective deployment of CCUS
- There are currently only two active Class VI wells, which took six years each to obtain permits
- Changes can be made to streamline permitting process while still ensuring environmental protection
- Enabling state primacy will further accelerate deployment