

Carbon Capture, Use and Storage in the New Carbon Economy



USEA workshop
June 12th, 2018

www.centerforcarbonremoval.org
[@CarbonRemoval](https://twitter.com/CarbonRemoval)

Pop Quiz: Art History

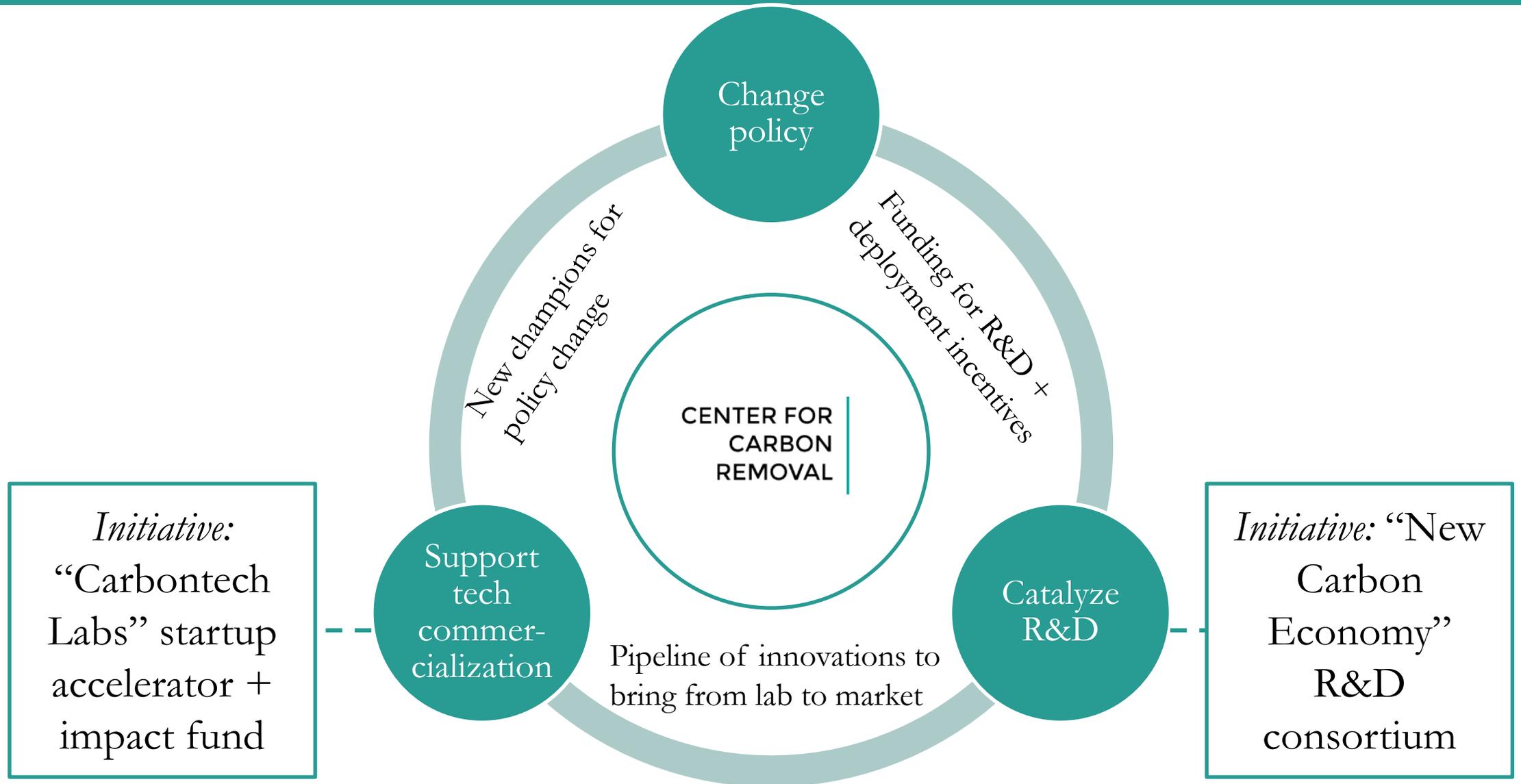


Pop Quiz: Art History



<http://www.tate.org.uk/art/artworks/blake-cerberus-n03354>

Center for Carbon Removal: NGO on a mission to build a growing economy that sequesters more carbon than it emits.



3 key takeaways

1. Carbon capture, use, and storage = broad portfolio of options
2. Progress in unconventional places = new capture and use options gaining traction
3. Policy happening now

What is carbon capture, use and storage?

Capture

Power plants



Coal, gas, biomass

Industrial sources



Fossil + bioenergy;
Fuel refining, chemical manufacturing,
cement/steel production

Direct air capture



Clean energy powered

Use and Storage

Enhanced oil recovery



Oil production

Use in products
("Carbontech")



Synthetic fuels, chemicals, plastics,
cement, carbon fiber, etc.

Non-oil geologic storage

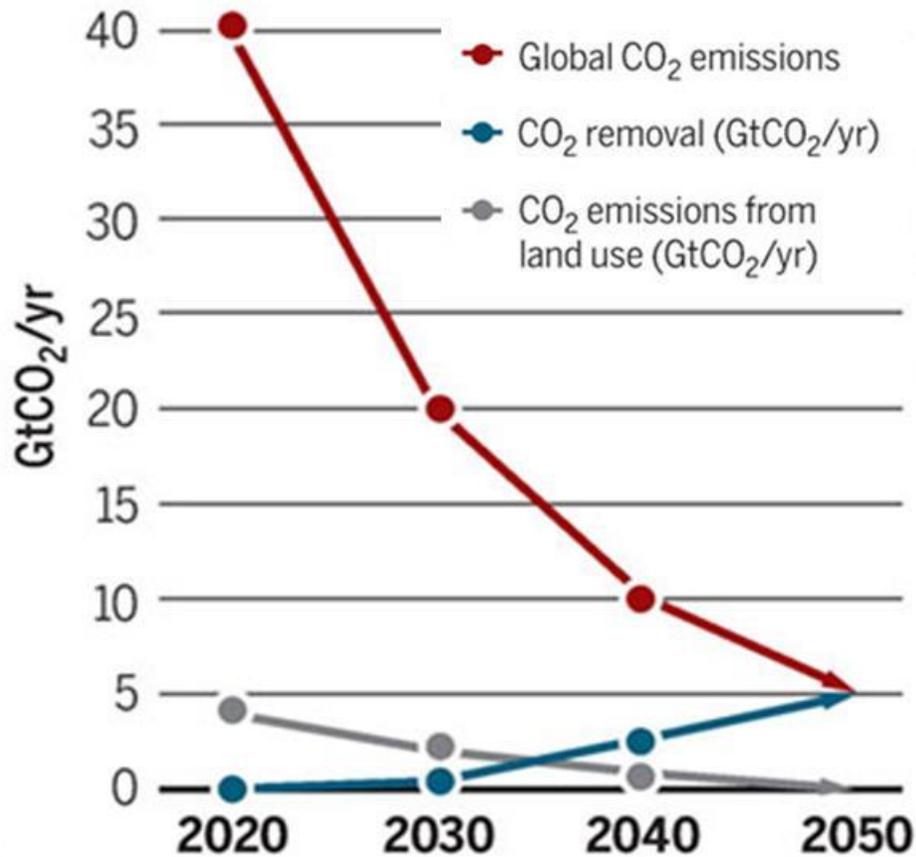


Saline aquifers, basalts
On and off-shore

Why carbon capture, use, and storage?

Part 1 – for climate change, need to build a new carbon economy

Global carbon law guiding decadal pathways



Carbon capture, use and storage helps us achieve these goals faster, cheaper:

1. **Deeply decarbonize**
2. **Eliminate land use emissions**
3. **Scale carbon removal strategies**

Source: Rockstrom et. al in Science

Why carbontech?

Part 2 – huge economic opportunity... if we move first

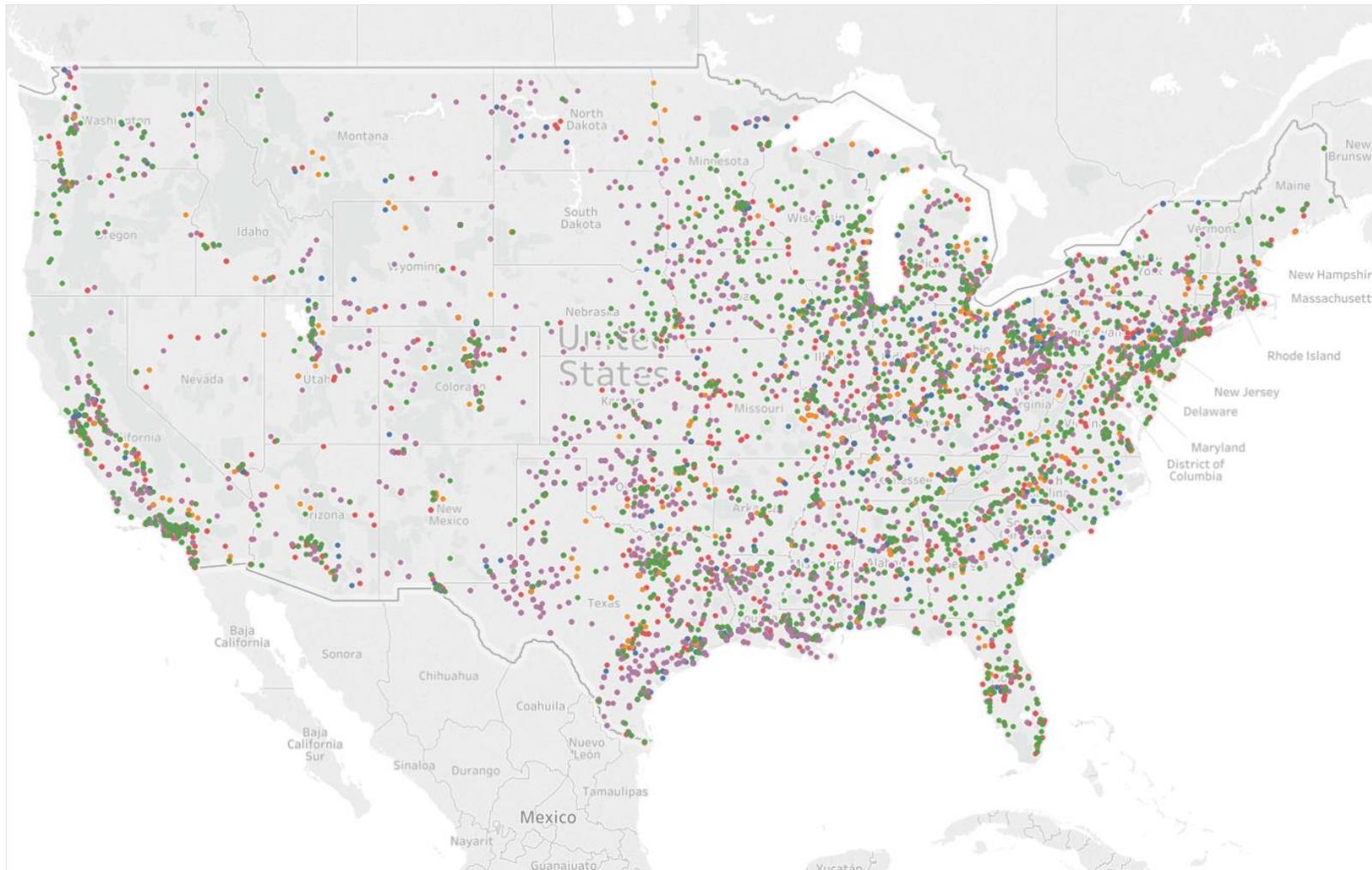
Global market size, 2017



Where is carbon capture opportunity?

Part 1 – lots of places

EPA GHG Inventory 2016



- ELECTRICITY
- INDUSTRY
- FOSSIL FUEL PRODUCTION & USE
- MINERALS
- BIOGENIC

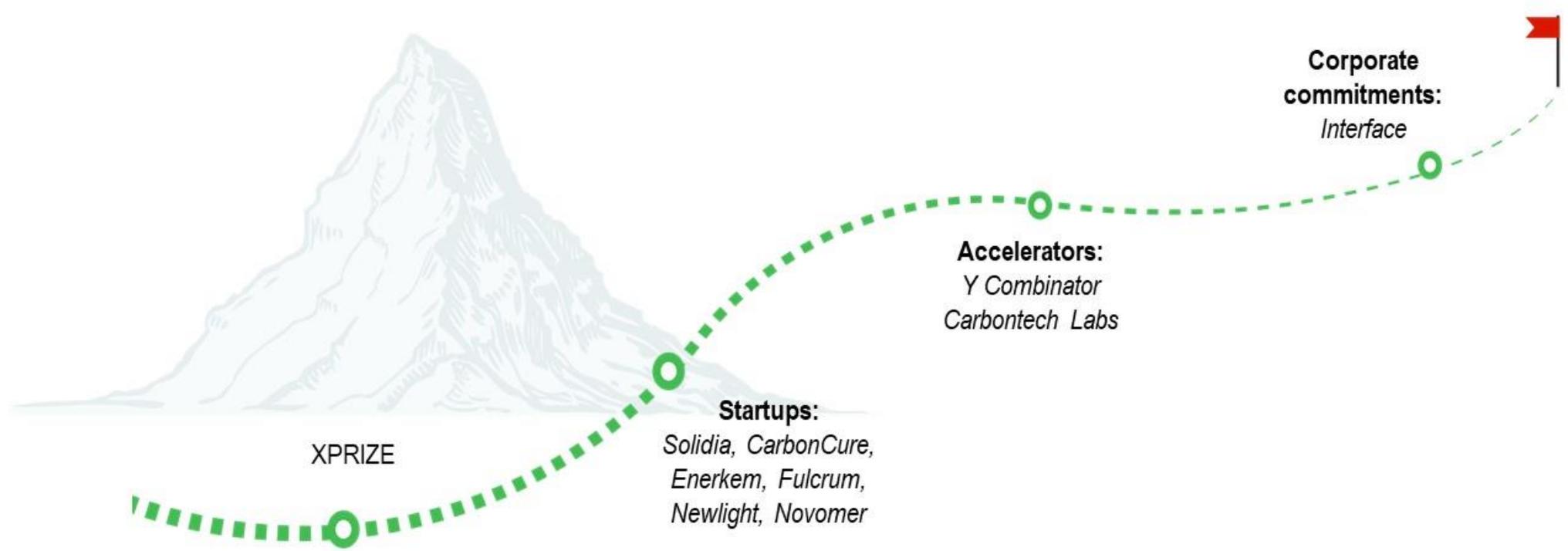
Where is carbon capture opportunity?

Part 2 - everywhere



Where is carbontech commercial interest?

Carbontech has growing commercial traction



Enacted

- 45Q production tax credit includes wide range of capture, use, and storage
- Department of Energy research and development funding call for projects

Introduced

- USE IT Act (Senate)
- Carbon Utilization Act (Senate)
- Fossil Energy Innovation Act (House)

Policy Outlook – US State and International

State

- *California:*
 - Buy Clean Act for low carbon building materials procurement
 - Low Carbon Fuel Standard carbon capture rule making

International

- *Europe:*
 - UK funding \$25M in research
 - Pilot projects in UK, Sweden, Norway, Netherlands
- *Canada:* research funding plus provincial carbon market opportunities

Content

- *Title 1:* Research and development at EPA
 - \$25M direct air capture innovation prize
 - \$50M in carbon utilization research funding
- *Title 2:* permitting and regulations
 - Inclusion of CO₂ infrastructure in FAST Act
 - Creation of task force to assess regulations related to carbon use and storage

Status

- Introduced with bipartisan co-sponsors (Barrasso, Capito, Whitehouse, Heitkamp)
- Passed Senate Environment and Public Works unanimously
- Hotlined for Senate floor vote

3 key takeaways

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2. Progress in unconventional places
3. Policy happening now

Thank you!

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Initiative Overview: Carbontech Labs



Carbontech Labs

A virtual *startup accelerator* for businesses turning waste carbon into valuable uses.

The Accelerator:

- Focus on customer discovery and product-market fit
- Host “bootcamps” with instruction and mentorship
- Specialized advisory network of 30+ investors, corporates, and subject experts
- Access to test facilities/labs

The Impact Fund:

- \$20M evergreen seed fund to invest in most promising startups that graduate from the startup accelerator
- Estimated to make 5, ~\$250k investments annually

Learn more at: <http://www.centerforcarbonremoval.org/carbontech-labs/>