

Alaska's Carbon Management Opportunities

House Special Committee on Ways & Means



Presented by
John Crowther, Deputy Commissioner
Rena Miller, Special Assistant to the Commissioner
Alaska Department of Natural Resources
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- **What is Carbon Management?**
- **Carbon Offsets**
- **Carbon Capture, Utilization, and Storage**
- **Why is Carbon Management good for Alaska?**



WHAT IS CARBON MANAGEMENT?



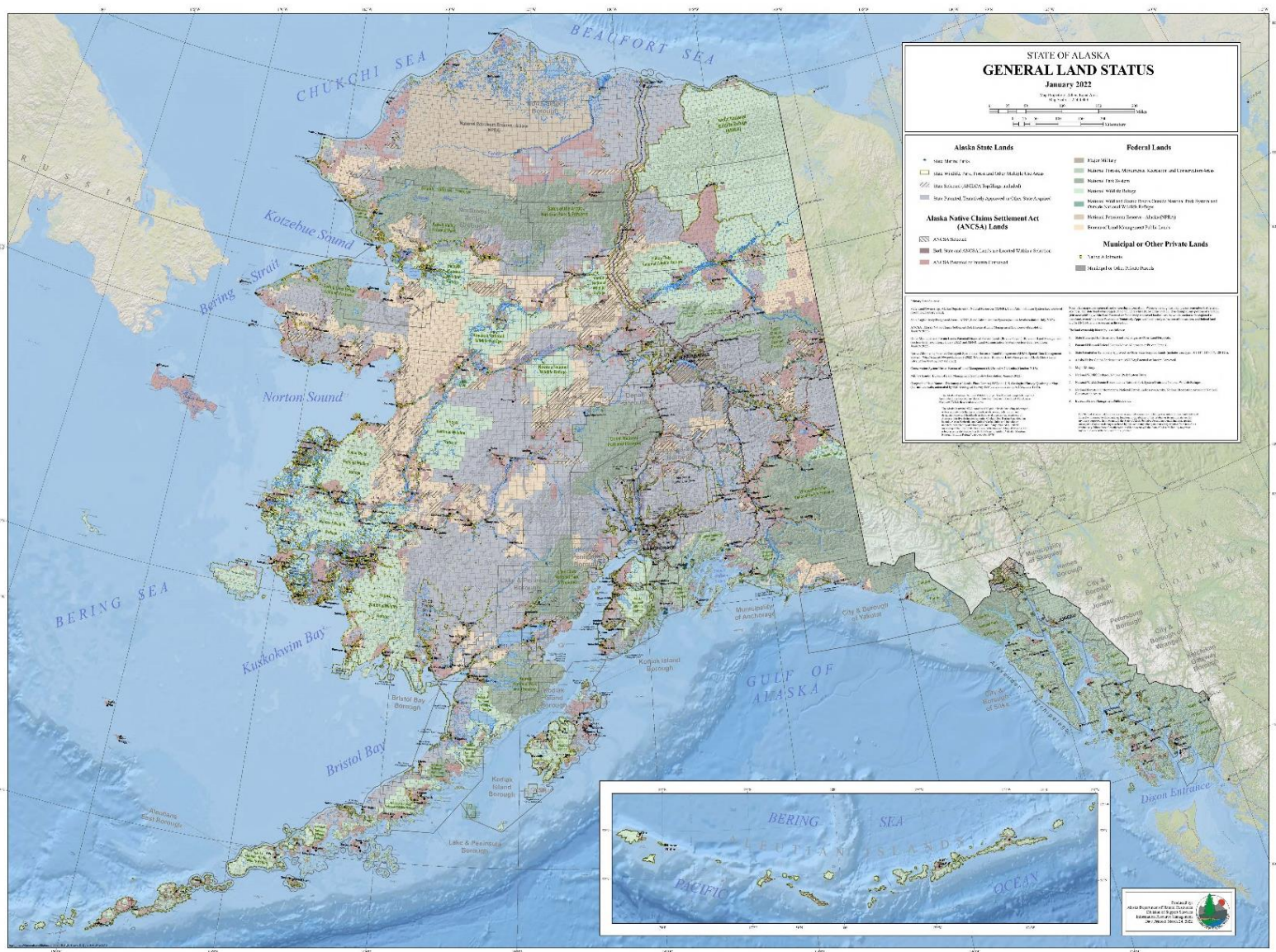
CARBON MANAGEMENT – NOT SO SIMPLE





CARBON OFFSETS

CARBON MARKETS – ALASKA'S POTENTIAL



CARBON MARKETS - GROWTH



Insights from:

The **voluntary carbon market:**
2022 insights
and trends



BCG

A report by Shell and BCG

2021

Compliance market soared to



The voluntary market reached



~\$850bn in value

2.5x value of 2020

~15 GtCO₂ transacted volume

~\$2bn in value

4x value of 2020

~500 MtCO₂ transacted volume

2022

was a record-breaking year for both compliance and voluntary carbon markets

During which, approximately

166Mt

of carbon emissions were covered by retirements

Voluntary markets expected to be

5x

bigger by 2030

Reaching a market size of

\$10-40 bn in value
and **0.5-1.5 GtCO₂** in scale⁴

That is comparable to the emissions of the aviation industry, which reached ~1 GtCO₂ in 2019⁵.

KEY ATTRIBUTES OF CARBON CREDITS

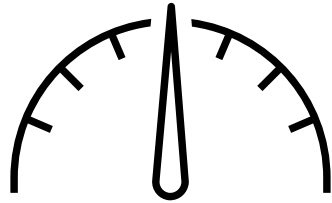


Robust verification and validation of carbon removal and reduction is essential to credibly claim credits



Real

A physical project with defined boundaries and a tangible impact on GHG emissions



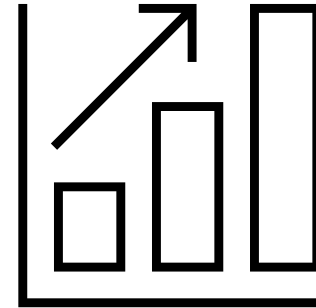
Measured

Measurable and verifiable impact on GHG emissions



Permanent

Indefinite removal or reduction of GHG emissions



Additional

Project wholly reliant on Carbon finance



Independently Verified

Competent and independent assessment and verification



CARBON CAPTURE, UTILIZATION, AND STORAGE (CCUS)

CARBON CAPTURE, UTILIZATION, AND STORAGE

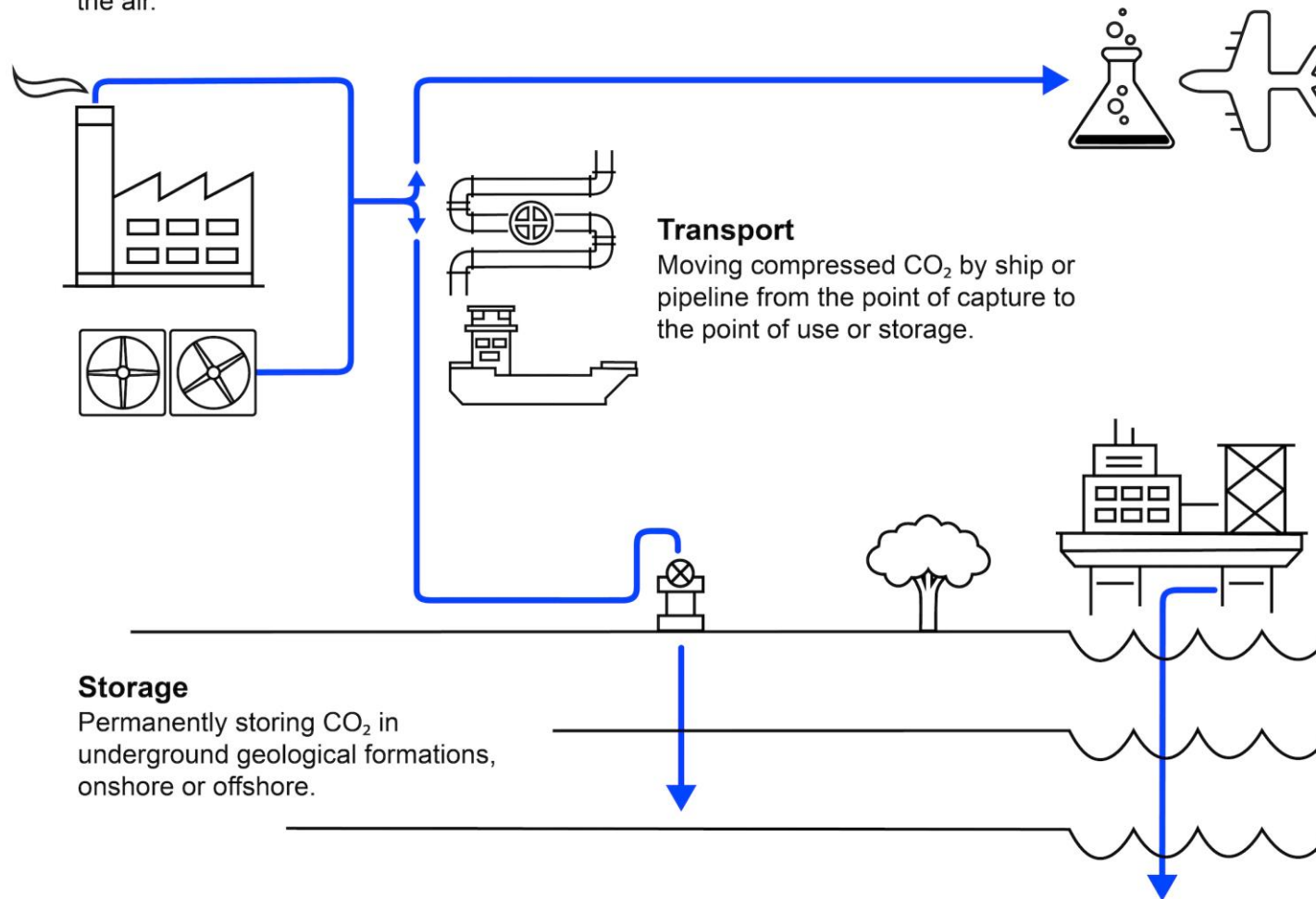


Capture

Capturing CO₂ from fossil or biomass-fuelled power stations, industrial facilities, or directly from the air.

Use

Using captured CO₂ as an input or feedstock to create products or services.



CCUS – WHAT AND WHY?



What is it?

- Carbon Capture, Utilization, and Storage (CCUS) is a process to capture carbon dioxide (CO₂), from industrial processes, point sources, or even directly from the atmosphere, for the purpose of utilizing it for other activities or storing it underground in geologic formations

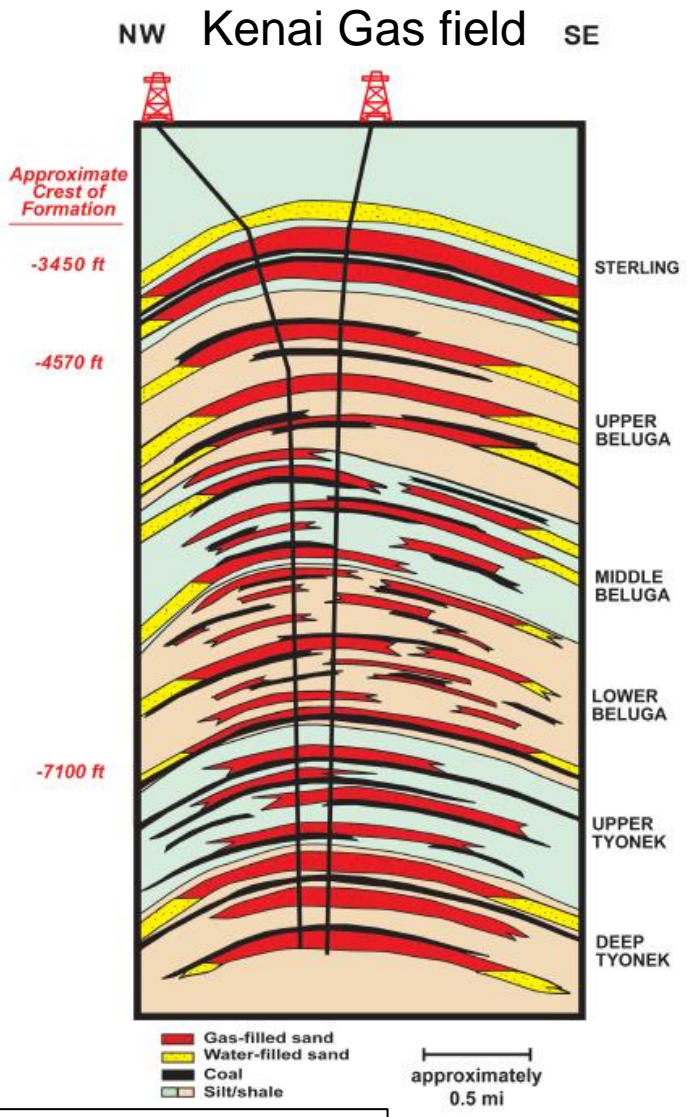
Why Now?

- Sets the stage for continued development of Alaska's oil resources, and potential major gas development
- The CCUS market is rapidly expanding, both within the U.S. and worldwide
- Recent federal legislation has expanded grants and tax incentives for CCUS, increasing industry interest
- Federal funds are available for states seeking Class VI well permitting, showing federal support for state primacy
- Protracted project timelines and milestone requirements in the federal tax credit structure necessitate prompt action

What is the potential in Alaska?

- Alaska's depleted oil & gas fields, saline aquifers, and deep coal seams have significant CO₂ storage potential
- Alaska has important competitive advantages – we own the pore space & we know the reservoirs
- Fifteen other states have passed CCUS omnibus legislation that we have learned from

REQUIREMENTS FOR GEOLOGIC CO₂ STORAGE

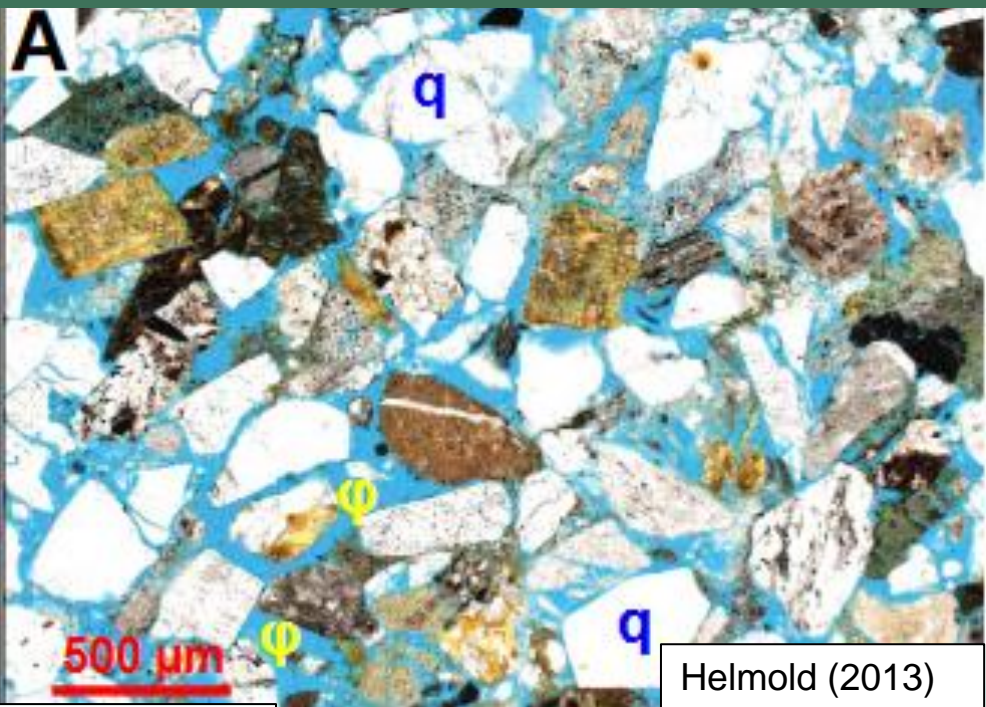


Enos and Maier (2013)

Sandstone, Tyonek Formation
(blue is pore space)

Depleted Reservoirs, Saline
Aquifers, or Unmineable
Coal Seams with:

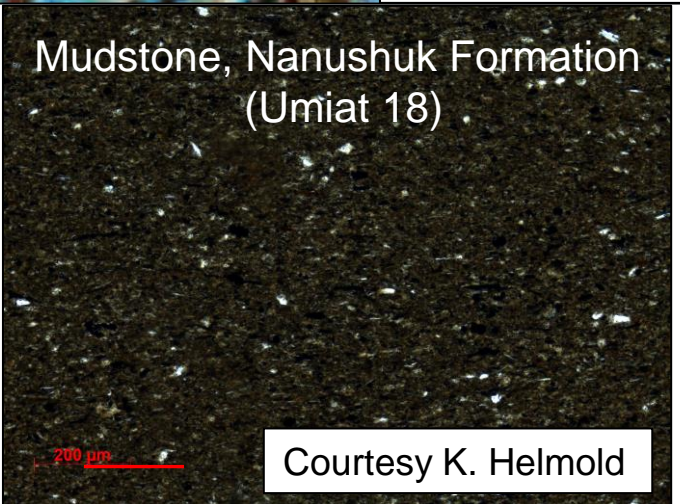
- Porosity – void space
- Permeability – interconnected voids
- Trap
- Seal
- Depth >~2,600 ft



500 μm = 0.5 mm
200 μm = 0.2 mm

Helmold (2013)

Impermeable
mudstone (no
blue space)



Courtesy K. Helmold

CCUS – WHERE?

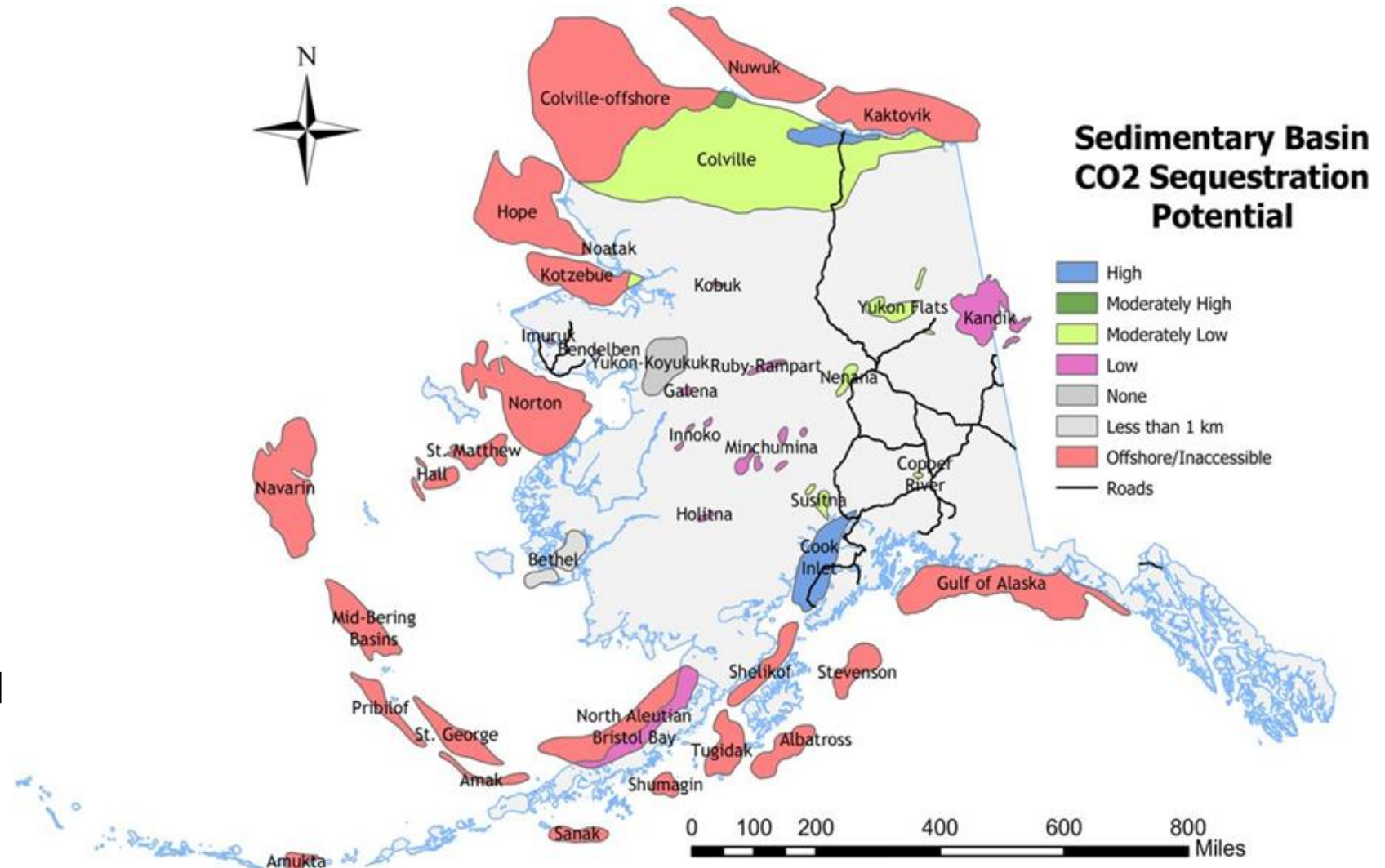


Geologic Storage
Potential: 1600+ Gt

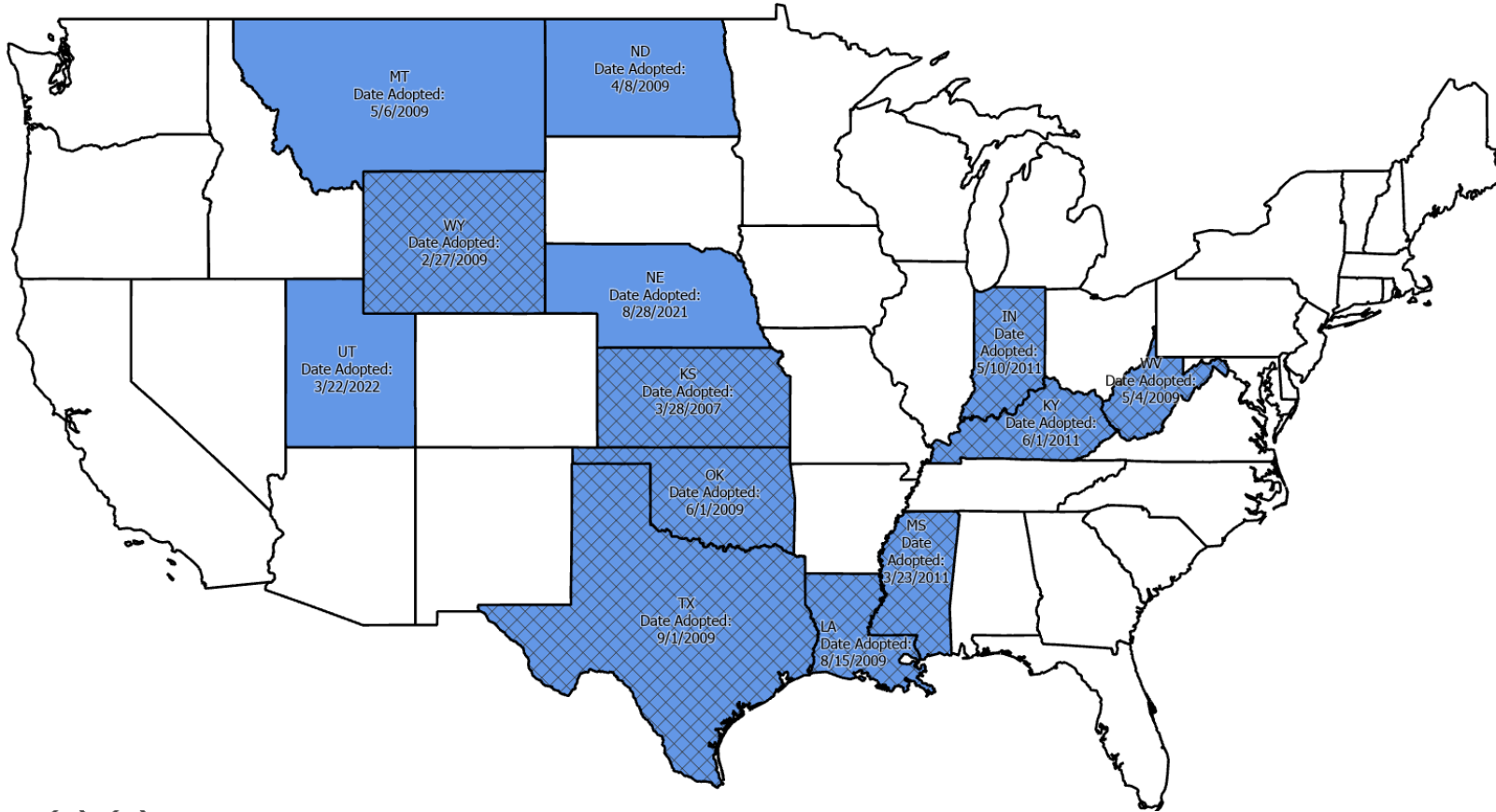
- 2021 Global CO₂ emissions = 36.3 Gt
- Storage Targets:
 - Depleted Oil & Gas Fields
 - Saline Aquifers
 - Unmineable Coal Seams

12.4 billions barrels
through CO₂ enhanced
oil recovery (EOR)

Gigatons = 1 billion tons = Gt



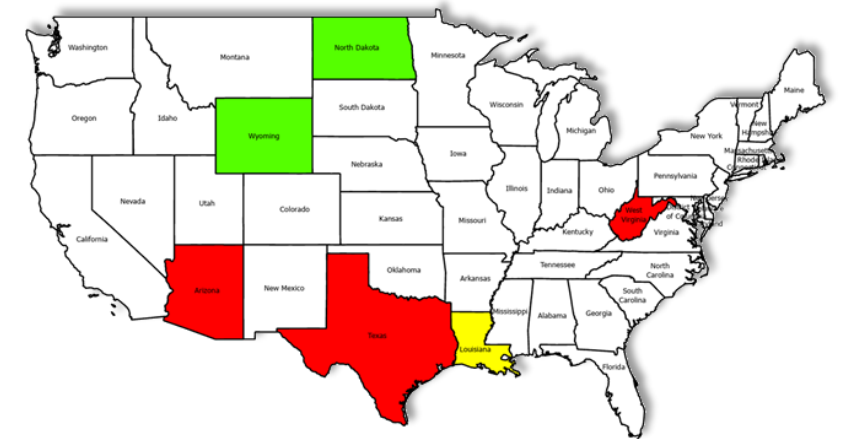
CCUS – WHERE ELSE?



Legislation Recently Updated



States with Comprehensive Legislation



Class VI Primacy Approved



Class VI Pending Application



Class VI Pre-Application

STATEWIDE CCUS WORKGROUP



Workgroup Committees

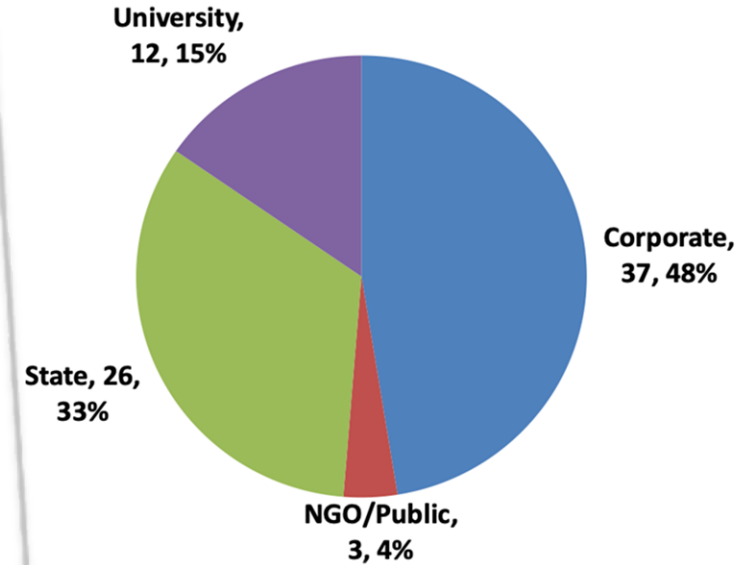
1. Regulatory framework
Stakeholder white paper
2. Government engagement and funding opportunities
3. CCUS Roadmap
4. Public outreach and education



CCUS



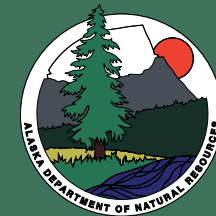
Institute of Northern Engineering
University of Alaska Fairbanks



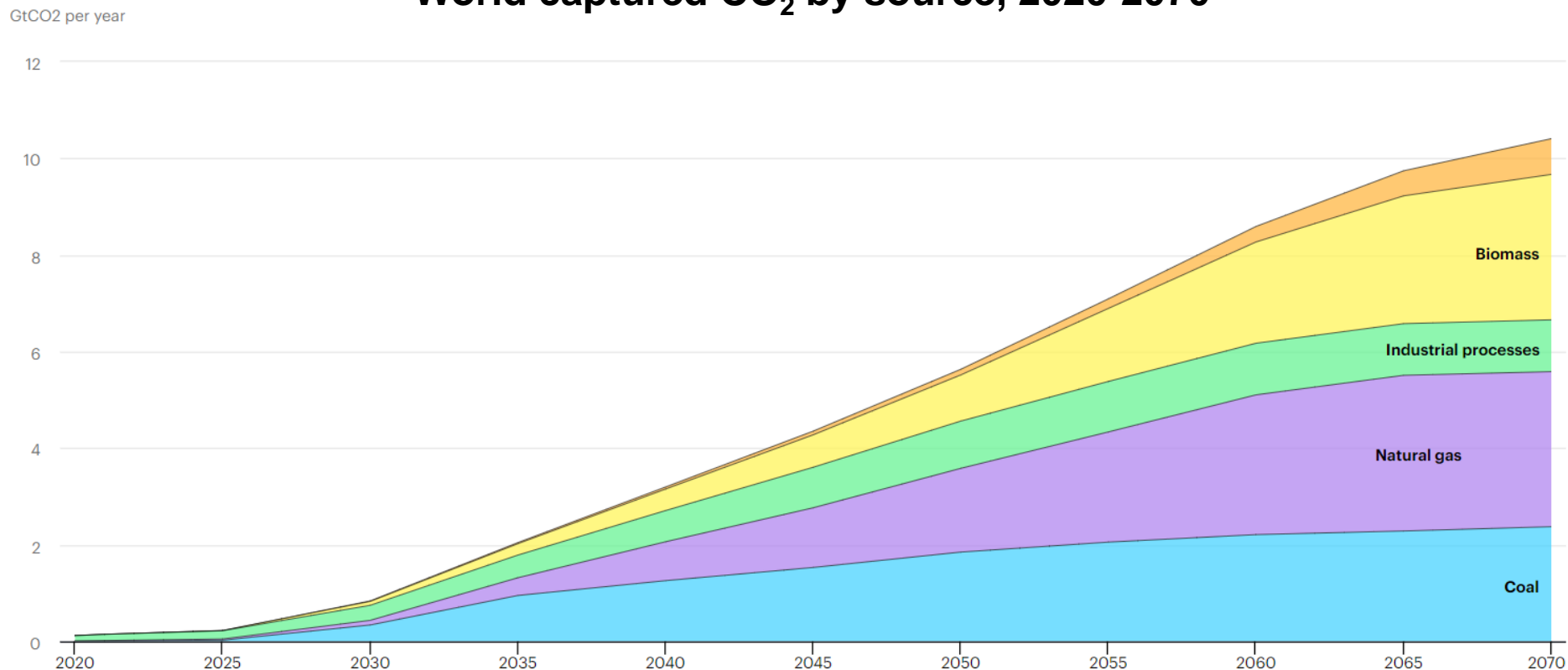


WHY IS CARBON MANAGEMENT GOOD FOR ALASKA?

CARBON MARKETS – MORE GROWTH



World captured CO₂ by source, 2020-2070



- Approximately 35 commercial CCUS facilities today globally
- Targeted growth: 2,500 facilities to reach International Energy Agency (IEA) scenario of net zero carbon emissions by 2070

IEA, Lic

Coal Natural gas Industrial processes Biomass Direct air capture

Source: [International Energy Agency](https://www.iea.org/)

NET ZERO GREENHOUSE GAS (GHG) INITIATIVES OF NORTH SLOPE COMPANIES



ConocoPhillips Emissions Reductions Targets and Performance

- Reduce methane intensity by 10% and routine flaring to zero by 2025.
- Reduce Scope 1 and Scope 2 Greenhouse Gas (GHG) intensity by 40–50% (gross operated and net equity) by 2030
- Net zero Scope 1 and Scope 2 emissions by 2050

[Emissions Reduction Targets | ConocoPhillips](#)

ENI's Strategy Against Climate Change

- 35% reduction in net Scope 1, 2, and 3 emissions by 2030
- 55% reduction in net Scope 1, 2, and 3 emissions by 2035
- 80% reduction in net Scope 1, 2, and 3 emissions by 2040
- Net zero Scope 1, 2, and 3 emissions by 2050

[Net Zero al 2050 | Eni](#)

Exxon 2030 Greenhouse Gas (GHG) Emission Reduction Plans:

(Relative to 2016 level and apply to Scope 1 and Scope 2 GHG emissions from operated assets)

- 20–30% reduction in corporate-wide GHG intensity
- 40–50% reduction in upstream GHG intensity
- 70–80% reduction in corporate-wide methane intensity
- 60–70% reduction in corporate-wide flaring intensity

[Advancing climate solutions | ExxonMobil](#)

Hilcorp

“We have to operate to the same high standards as everyone else. We may be private, but we have capital providers, we have partners, we have lots of other people involved in business with us. They’re feeling those pressures (i.e. ESG, emissions reductions), and we have to be responsive to those as well.” — Greg Lalicker, Hilcorp CEO.

[How America's Biggest Privately Owned Oil Company Takes A Divergent Approach To The Energy Transition \(forbes.com\)](#)

Repsol Path Towards Decarbonization

- 55% reduction in scope 1 and scope 2 emissions in operated assets by 2025
- 30% reduction in scope 1, 2, and 3 net emissions by 2030
- Net zero by 2050

[Net zero emissions by 2050 commitment | Repsol](#)

Santos Path to Net Zero

- 26–30% reduction in scope 1 and scope 2 absolute emissions (from 2020 baseline) by 2030
- Actively work with customers to reduce scope 1 and scope 2 emissions by > 1 million tons of carbon dioxide per year by 2030
- Scope 1 and scope 2 absolute emissions at net zero by 2040.
- **Santos has committed to net-zero emissions (scope 1 and scope 2) for the Pikka Project**

[Santos to be net-zero emissions by 2040 | Santos](#)

[Santos Announces Pikka FID | Santos](#)

QUESTIONS?



John Crowther
Deputy Commissioner
John.Crowther@alaska.gov
907-269-8429

Rena Miller
Special Assistant to the
Commissioner
Rena.Miller@alaska.gov
907-317-6887

