Carbon Management Legislation and Opportunities
Resource Development Council

Presented by John Boyle, Commissioner-designee
Alaska Department of Natural Resources
March 16, 2023
• What is Carbon Management?
• What Carbon Management isn’t
• Carbon Offsets
• Carbon Capture, Utilization, and Storage
• Why is Carbon Management good for Alaska?
What is Carbon Management?
Carbon Management - simplified

Nature Based Offsets / Carbon Removal

Offsets / Leasing

Carbon Capture Use and Storage (CCUS)

Source: GaffneyCline
Carbon Management – not so simple!

Source: GaffneyCline
What Governor Dunleavy’s Carbon Management legislation is not

- New taxes on industry or Alaskans
- Emissions limits
- A “cap and trade” system
- Locking up land
Carbon Offset Program (SB 48 / HB 49)
Opportunity for Alaska

- Alaska has the resources
  - Forest carbon potential:
    - 100 million acres of uplands
    - Tens of millions of acres of forested State lands
  - Kelp potential:
    - 60 million acres of tide and submerged lands
- Potential affirmed
- Benefits for revenue, diversification, economic development
- Constitutional responsibility for maximum use
State-owned forest land
Carbon markets - growth

“The voluntary carbon market: 2022 insights and trends” report by Shell and BGC

2021

- Compliance market soared to
  - $850bn in value, 2.5x value of 2020
  - ~15 GtCO₂ transacted volume

- The voluntary market reached
  - $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
  - $10-40bn in value
  - 0.5-1.5 GtCO₂ in scale

That is comparable to the emissions of the aviation industry, which reached ~1 GtCO₂ in 2019.

Source: SP Global Platts, Ecosystem Market Place, BCG analysis.
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.
Status of SB 48 / HB 49

Senate Bill 48 Carbon Offset Program on State Land
• 1/27/2023 Introduced by Gov. Mike Dunleavy
• Currently in Senate Resources
  o 2/24/2023 First hearing
• Next referral: Senate Finance

House Bill 49 Carbon Offset Program on State Land
• 1/27/2023 Introduced by Gov. Mike Dunleavy
• Currently in House Resources
  o 3/1/2023: First hearing
  o 3/15/2023 Public testimony
  o 3/17/2023 Hearing
• Next referral: House Finance
Carbon Storage - CCUS (SB 49 / HB 50)
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.

Transport
Moving compressed CO₂ by ship or pipeline from the point of capture to the point of use or storage.

Storage
Permanently storing CO₂ in underground geological formations, onshore or offshore.

Source: International Energy Agency
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 potentiating 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 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.
Enabling carbon storage

How SB 49/HB 50 enables carbon storage:

• Provides for the use of public lands for CCUS
• Accounts for the amalgamation of property interests and protection of correlative rights
• Outlines relationship between other commercial minerals and reservoirs to be used for storage
• Enables permitting for CO₂ pipelines
• Defines ownership of carbon dioxide and ascription of liability
• Addresses authority for Safe Drinking Water Act (SDWA) Underground Injection Control (UIC) Class VI well primacy
Requirements for geologic CO$_2$ storage

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

- Porosity – void space
- Permeability – interconnected voids
- Trap
- Seal

Depth $\geq 2,600$ ft

Sandstone, Tyonek Formation (blue is pore space)

Mudstone, Nanushuk Formation (Umiat 18)

500 µm = 0.5 mm

200 µm = 0.2 mm

Impermeable mudstone (no blue space)

Courtesy K. Helmold

Enos and Maier (2013)
Geologic Storage Potential: 1600+ Gt

• 2021 Global CO₂ emissions 36.3Gt
• Storage Targets: Depleted Oil & Gas Fields, Saline Aquifers, Unminable Coal Seams

12.4 billions barrels through CO₂ EOR

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
Senate Bill 49 Carbon Storage (CCUS)
• 1/27/2023 Introduced by Gov. Mike Dunleavy
• Currently in Senate Resources
  o 3/10/2023 First hearing
  o 3/13/2023 DNR presentation continued
• Next referral: Senate Finance

House Bill 50 Carbon Storage (CCUS)
• 1/27/2023 Introduced by Gov. Mike Dunleavy
• 2/10/2023 First hearing in House Resources
• 3/8/2023 Passed out of House Resources
• Currently in the House Finance Committee awaiting first hearing
Why is Carbon Management good for Alaska?
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

Source: International Energy Agency
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

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.

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

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

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

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?
Thank you!

John Boyle
DNR Commissioner-designee