

The Pathways Alliance



**Pathways
Alliance**

March 2023

Advisory

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Forward-looking statements are based on current expectations, estimates, projections and assumptions at the time the statements are made. Actual future results, including expectations and assumptions concerning: demand growth and energy source, supply and mix; amount and timing of emissions reductions; the adoption and impact of new facilities or technologies, including on reductions to GHG emissions; project plans, timing, costs, technical evaluations and capacities, and the ability to effectively execute on these plans and operate assets; that any required support for the pathways from the Government of Alberta and the Government of Canada will be provided; applicable laws and government policies, including climate change and restrictions in response to COVID-19; production rates, growth and mix; general market conditions; and capital and environmental expenditures, could differ materially depending on a number of factors. These factors include global, regional or local changes in supply and demand for oil, natural gas, and petroleum and petrochemical products and the resulting price, differential and margin impacts; political or regulatory events, including changes in law or government policy and actions in response to COVID-19; the receipt, in a timely manner, of regulatory and third-party approvals including for new technologies; lack of required support from the Government of Alberta and the Government of Canada; environmental risks inherent in oil and gas exploration and production activities; environmental regulation, including climate change and GHG regulation and changes to such regulation; availability and allocation of capital; availability and performance of third-party service providers; unanticipated technical or operational difficulties; project management and schedules and timely completion of projects; reservoir analysis and performance; unexpected technological developments; the results of research programs and new technologies, and ability to bring new technologies to commercial scale on a cost-competitive basis; operational hazards and risks; general economic conditions, including the occurrence and duration of economic recessions; and other factors referenced by the companies' in their most recent respective annual reports and management's discussion and analysis, as applicable.

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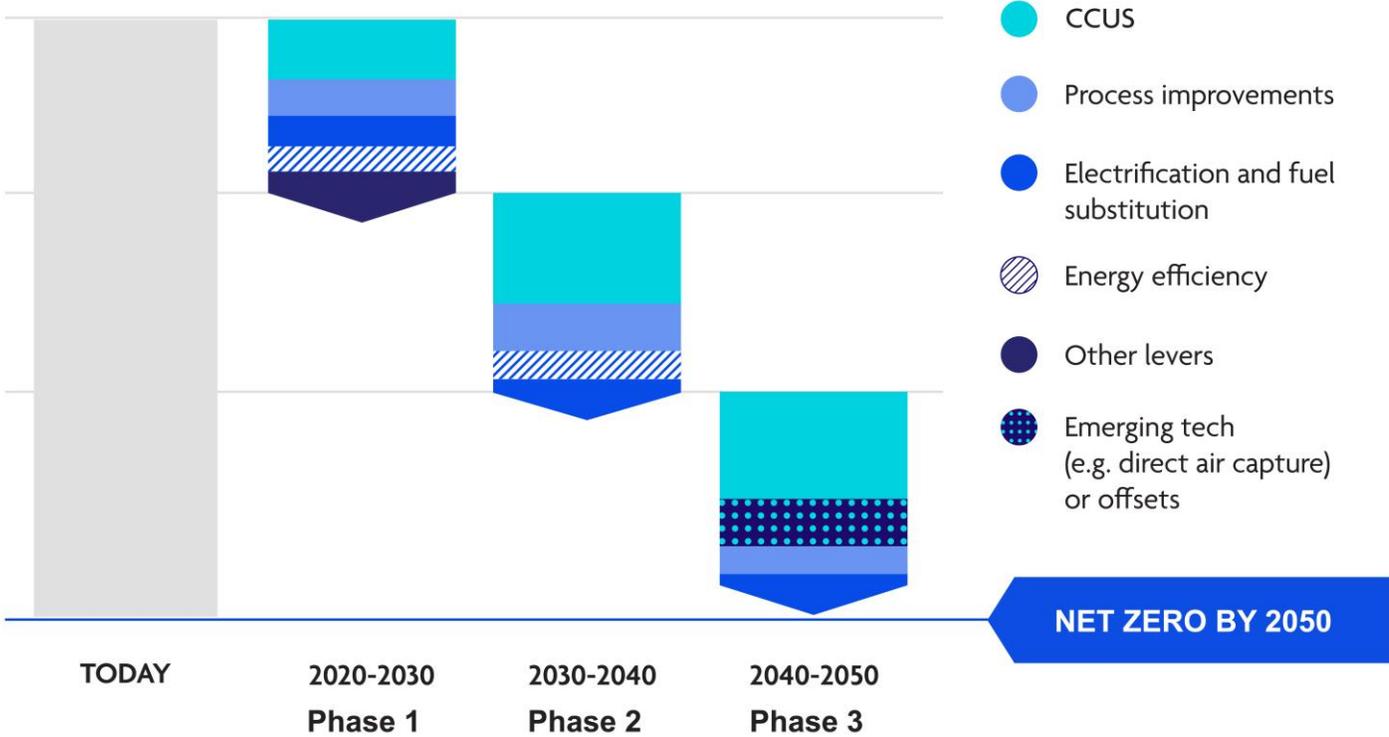
The Pathways Alliance

- The **Oil Sands Pathways to Net Zero Alliance** consists of Canada's six largest oil sands producers, who operate facilities accounting for 95% of oil sands production.
- The **Pathways Alliance goal**, working collectively with the Federal and Alberta governments, is to achieve **net zero greenhouse gas (GHG) emissions from oil sands operations by 2050** to help Canada meet its climate goals, including its Paris Agreement commitments and 2050 net zero aspirations.
- Our plan includes reducing current oil sands GHG emissions by about **22 Mt of CO₂e/yr** by 2030 towards achieving net zero 2050.



Overall plan to get to net zero

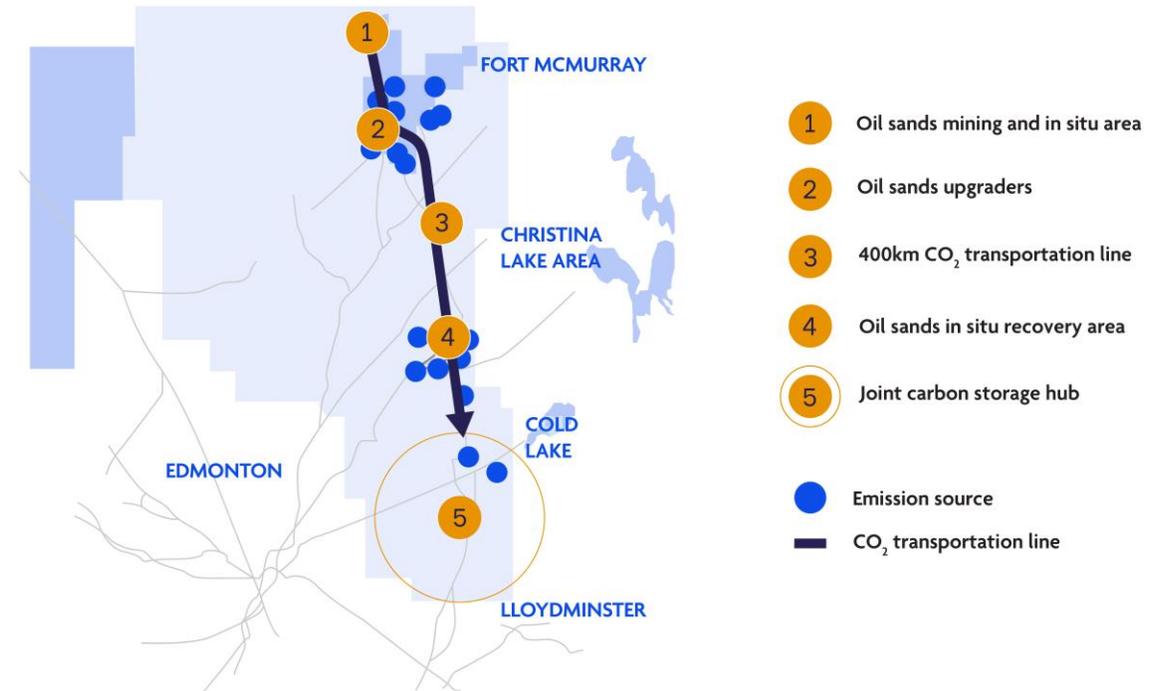
No single solution gets us to net zero – multiple parallel pathways are needed.



The Pathways foundational project – the “anchor”

Proposed Transportation Line

- The Pathways vision is anchored by a **major carbon capture utilization and storage (CCUS)¹ system including capture facilities and a transportation line** connecting oil sands facilities in the Fort McMurray, Christina Lake and Cold Lake regions to a **carbon storage hub** near Cold Lake.
- Benefits of the foundational project:
 - Enables technology development to lower the cost of carbon capture projects.
 - Accelerates opportunities to deploy innovative capture solutions and positions Canada to export this technology and expertise.
 - The same infrastructure is also a key enabler for other industries.
 - The first stage of the plan includes about \$16.5B of investment by 2030 for the CCS project.
- The CCS transportation line will be able to be expanded in phases to gather captured CO₂ from 20+ oil sands facilities.
 - Phase 1 - volumes of 10-12 Mt/yr from 14 facilities
 - Phases 2/3 - expansion capability for a total of up to 40 Mt/yr



¹CCUS involves using safe and proven technologies to capture CO₂ from fuel combustion or industrial processes, transport it via pipeline or other methods and use the CO₂ to create valuable products or permanently store it deep underground in geological formations.

Foundational Project – work to date

- Early engagement with more than 20 Indigenous communities along the proposed transportation and storage network corridor.
- Selected by the Government of Alberta to continue exploratory work on the CCS hub to safely and permanently store CO₂ captured from oil sands operations and other interested industries.
- Conducting Engineering studies for the Phase 1 CO₂ capture facilities.
- Twelve feasibility studies completed on oil sands sites with engineering work advancing.
- Completed pre-engineering work on the 400-kilometre pipeline that will carry captured CO₂ to the storage hub; more detailed engineering work is underway.
- Environment field programs underway to support a regulatory application in late 2023.



Additional major projects

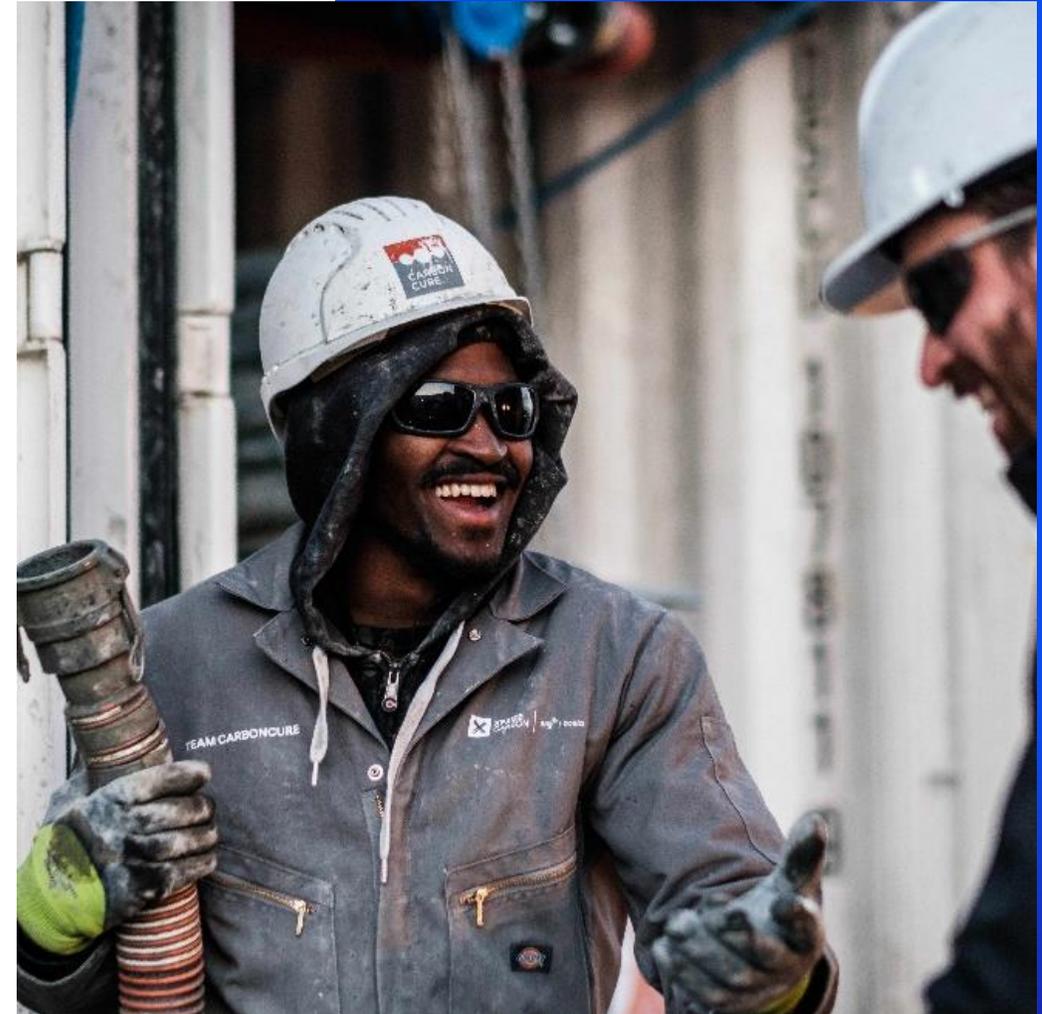
- The Pathways Alliance plans to spend an additional \$7.6 billion on other significant emissions reduction projects by 2030. They are also key our goal of a 22MT reduction by the end of the decade.
- This planned funding would be for major decarbonization projects advanced by member companies such as:
 - Wider use of solvents in production
 - Increased energy efficiency
 - Additional cogeneration and electrification projects.
- Pathways members are also investing in R&D to enable future phases of the path to net zero to be achieved.



Clean Technology Development

We are committed to a low carbon future by exploring and advancing technologies such as:

1. Carbon Capture, Utilization and Storage (CCUS)
2. Natural Gas Decarbonization
3. Solvent Extraction
4. Low carbon heat and power
5. New Mining Technologies
6. Emerging Technology



Carbon Capture Utilization & Storage (CCUS)





Thank you

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Working with governments

Government of Canada

- Investment Tax Credit announced in the 2022 fall federal budget is a positive and welcome support for carbon capture utilization and storage.
- Other programs, such as Net Zero Accelerator/Strategic Infrastructure Fund, offer potential collaborative approaches to reduce emissions.

Province of Alberta

- Entered into an agreement with the Government of Alberta to start detailed evaluation to support the CCS hub and enable safe and permanent storage of CO₂ in the Cold Lake Region.
- Actively discussing other programs with the Alberta government on emission reductions.

We will continue working in collaboration with Canadian federal and provincial governments on an effective fiscal and policy framework as we meet the world's demands for lower GHG emissions and the oil it needs as part of the energy mix.

Global CCUS project funding support

