

PALOS

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Weekly Commentary

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By Charles Marleau CIM[®] and William Mitchell CIM[®]

Climate Change: Moving the CO2

Regardless of whether carbon is collected from a stationary source (e.g., carbon emitting industries like natural gas processing, cement, and hydrogen production) or via direct air capture, the sequential steps of collecting and conditioning the CO2 for storage or transportation must be in place. Developing pipeline systems, and building the end of line infrastructure for storage, utilization, and/or sequestration, are requirements for the CO2 capturing process to be successful.

The most efficient method of moving CO2 is via specialized pipelines that are uniquely designed and built for CO2 transportation. Captured CO2 needs to be either compressed, conditioned for transport, or liquefied for storage. Further, the system must be of a sufficiently large scale to be efficient and economically beneficial. Storage facilities will be required at both the front and/or back end of the system. In addition, compressor stations, control systems and offloading facilities designed to distribute the CO2 to either end users or for the underground storage will also be needed.

There are two world class projects currently on our radar. The **Alberta Carbon Trunk line (ACTL)** system is Canada's newest CCUS project. A joint venture between **Wolf Midstream** and **Enhance Energy** (private) the ACTL is designed to facilitate Canada's ambitious carbon reduction objectives. The ACTL system is capturing carbon emissions from Alberta's industrial heartland and transporting the captured CO2 for use in the **Enhanced Oil Recovery (EOR)** process. By using CO2 for EOR purposes, oil reserves that were previously considered as depleted are now recoverable, furthering the productive life of a well. EOR technology injects CO2 into an underground reservoir which effectively pushes oil to the surface. The economic benefit is fourfold: improved well economics, job creation, improves productivity, and carbon reduction.

Currently, the ACTL system captures CO2 from two sources. The North West Redwater Partnership's (NWR) Redwater Refinery was designed with the objective of minimizing the facility's environmental impact by capturing its CO2 emissions. Also offering carbon feedstock to the ACTL system is Nutrien's (TSX/NYSE: NTR) Redwater nitrogen fertilizer plant. The system is capable of capturing up to 14.6 million tonnes of CO2 per year, which equates to 20% of Oil Sands emission or the equivalent of removing 3 million cars from the roads. The ACTL system was also designed with expansion capability in mind.

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This past June, Pembina Pipeline Corporation (TSX: PPL. NYSE: PBA) and TC Energy Corporation (TSX/NYSE: TRP) announced plans to develop the **Alberta Carbon Grid (ACG)** project, a massive carbon transportation and sequestration system capable of transporting over 20 million tonnes of CO₂ per year. This equals roughly 10% of Alberta's industrial emissions. The ACG joint venture will connect oil sands projects in the Fort McMurray region as well as industrial carbon emitters in Alberta's industrial heartland with a centralized storage hub. By leveraging PPL's and TRP's expertise, existing pipeline systems can be retrofitted or expanded to meet the specific requirements for CO₂ transportation. The ACG project is an open access platform and has the potential to create a multi-billion-dollar industry, create new economic benefits from CO₂ storage and utilization, and greatly reduce the environmental impact of Canada's oil patch. The project is expected to be operational by 2025.

Canada is well established as a global leader in CCUS technology. Given the importance of the energy sector to our collective economic well-being, the development of an economically viable CCUS industry is critical to meeting our CO₂ targets while safeguarding our energy sector. Looking ahead, it's clear to us that as CCUS technology and infrastructure development accelerates, new investment opportunities are on the horizon and we will continue to monitor events in the CCUS industry.

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Chart 1: Palos Domestic Funds versus Benchmarks (Total Returns) ¹	FundServ	NAVPS	YTD Returns
Palos Income Fund L.P.	PAL100	\$9.85	17.36%
Palos Equity Income Fund - RRSP	PAL101	\$7.48	18.08%
Palos Merchant Fund L.P. (Dec 31, 2020) ²	PAL500	\$1.35	-21.15%
Palos WP Growth Fund - RRSP	PAL210	\$21.41	34.15%
Palos-Mitchell Alpha Fund ³	PAL300	\$10.65	14.27%
S&P TSX Composite (Total Return with dividends reinvested)			18.67%
S&P 500 (Total Return with dividends reinvested)			19.35%
S&P TSX Venture (Total Return with dividends reinvested)			-1.18%
Chart 2: Market Data ¹			Value
US Government 10-Year			1.26%
Canadian Government 10-Year			1.14%
Crude Oil Spot			US \$62.32
Gold Spot			US \$1781.00
US Gov't10-Year/Moody BAA Corp. Spread			198 bps
USD/CAD Exchange Rate Spot			US \$0.7800

¹ Period ending August 20, 2021. Data extracted from Bloomberg

² Fund is priced annually

³ Fund is priced weekly on Tuesdays

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