

PALOS

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Weekly Commentary

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Climate Change: Storing Carbon Underground

In previous reports, we discussed the potential for permanent storage of captured CO₂ in underground reservoirs to be a key component in the comprehensive CCUS (Carbon Capture, Utilization and Storage) process. According to the **Intergovernmental Panel on Climate Change (IPCC)**, capture and storage has the potential to account for over half of the global greenhouse gas reduction efforts required to achieve our lofty carbon reduction objectives.

The storage process operates in two ways. First, captured CO₂ can be sequestered in underground reservoirs, specifically, deep saline formations, coal seams, depleted oil/natural gas formations, and non-depleted oil/natural gas formations. For the latter, captured CO₂ can be used in the enhanced oil recovery process (EOR). The EOR process uses CO₂ as a catalyst for extending the productive life of an oil reservoir. The CO₂, which is injected deep into a producing well, flushes previously unrecoverable oil from the rock formations. This not only extends the productive life of a well, but it also reduces the amount of water required for waterflooding activity. Furthermore, the CO₂ remains sequestered underground perpetually; clearly a win-win for producers and the environment.

The CCUS industry is seen as vital to meeting ambitious GHG reduction targets. In an information letter published by the Government of Alberta (May 12, 2021), the government recognized the importance of creating a regulatory system that is supportive of the industry. Plans include the development of carbon sequestration hubs and clusters, as well as a system of reviewing and issuing storage rights through a permitting process that is competitive, standardized, and transparent. The goal is to advance economies of scale. This can only be realized by creating a system that can identify storage sites and connect emitters with gatherers, transporters, users and storers of CO₂. Keep in mind, Alberta's oil patch has decades of technical expertise and experience in managing carbon capture and use, as well as an abundance of geological storage potential.

WCP Resources (TSX: WCP), is a Canadian exploration and production company that is at the forefront of carbon sequestration. Through its majority ownership of the Weyburn unit in Southeast Saskatchewan, Whitecap has become one of the largest CO₂ sequestration operators in the world. The CO₂, which is purchased from a coal-fired power station in Estevan, SK, and a coal gasification plant in North Dakota, is

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used to extract otherwise unrecoverable oil. While the CO₂ serves an industrial purpose, the injected CO₂ remains safely stored underground. The project currently stores over 1.8 million tonnes of CO₂ per year and has sequestered over 31 million tonnes since 2000; the equivalent of taking 6 million cars off the road for a year (Source: WCP website). The company's CO₂ capture and storage efforts have resulted in WCP achieving 'net negative' carbon emitter status. WCP has also established a 'New Energy' team whose goal is to develop new business opportunities CO₂ capture and storage.

In July, **Shell Canada**, a wholly owned subsidiary of **Royal Dutch Shell (NYSE: RDS/A)**, announced the proposed **Polaris CCS Project** located near Edmonton. The proposed project would capture CO₂ from its Scotford refinery and chemicals operation and use the captured CO₂ to produce lower-carbon fuels or store it underground. Shell expects the initial phase of Polaris to capture and store 750,000 tonnes of CO₂ per year. Phase 2 would involve the creation of a CO₂ storage hub with an expected capacity of over 10 million tonnes of CO₂ per year. Shell's target is to become a net-zero emitter by 2050 (Source: Shell Canada website).

To achieve global CO₂ reduction targets, we view the advancement of a viable CCUS industry as critical in the transformation to a clean energy future. Canada is at the forefront and the opportunities to be a world leader are abundant. However, to be successful, we will need government and regulatory support. This includes the incentives required to stimulate new projects and commence building the necessary infrastructure. Next week we'll look at what governments must do to lend the necessary support and incentivize new projects 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	\$10.17	21.16%
Palos Equity Income Fund - RRSP	PAL101	\$7.71	21.63%
Palos Merchant Fund L.P. (Dec 31, 2020) ²	PAL500	\$1.35	-21.15%
Palos WP Growth Fund - RRSP	PAL210	\$23.38	46.48%
Palos-Mitchell Alpha Fund ³	PAL300	\$11.35	21.75%
S&P TSX Composite (Total Return with dividends reinvested)			21.59%
S&P 500 (Total Return with dividends reinvested)			21.94%
S&P TSX Venture (Total Return with dividends reinvested)			5.54%
Chart 2: Market Data ¹			Value
US Government 10-Year			1.32%
Canadian Government 10-Year			1.19%
Crude Oil Spot			US \$69.29
Gold Spot			US \$1831.50
US Gov't10-Year/Moody BAA Corp. Spread			193 bps
USD/CAD Exchange Rate Spot			US \$0.7984

¹ Period ending September 3, 2021. Data extracted from Bloomberg

² Fund is priced annually

³ Fund is priced weekly on Tuesdays

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