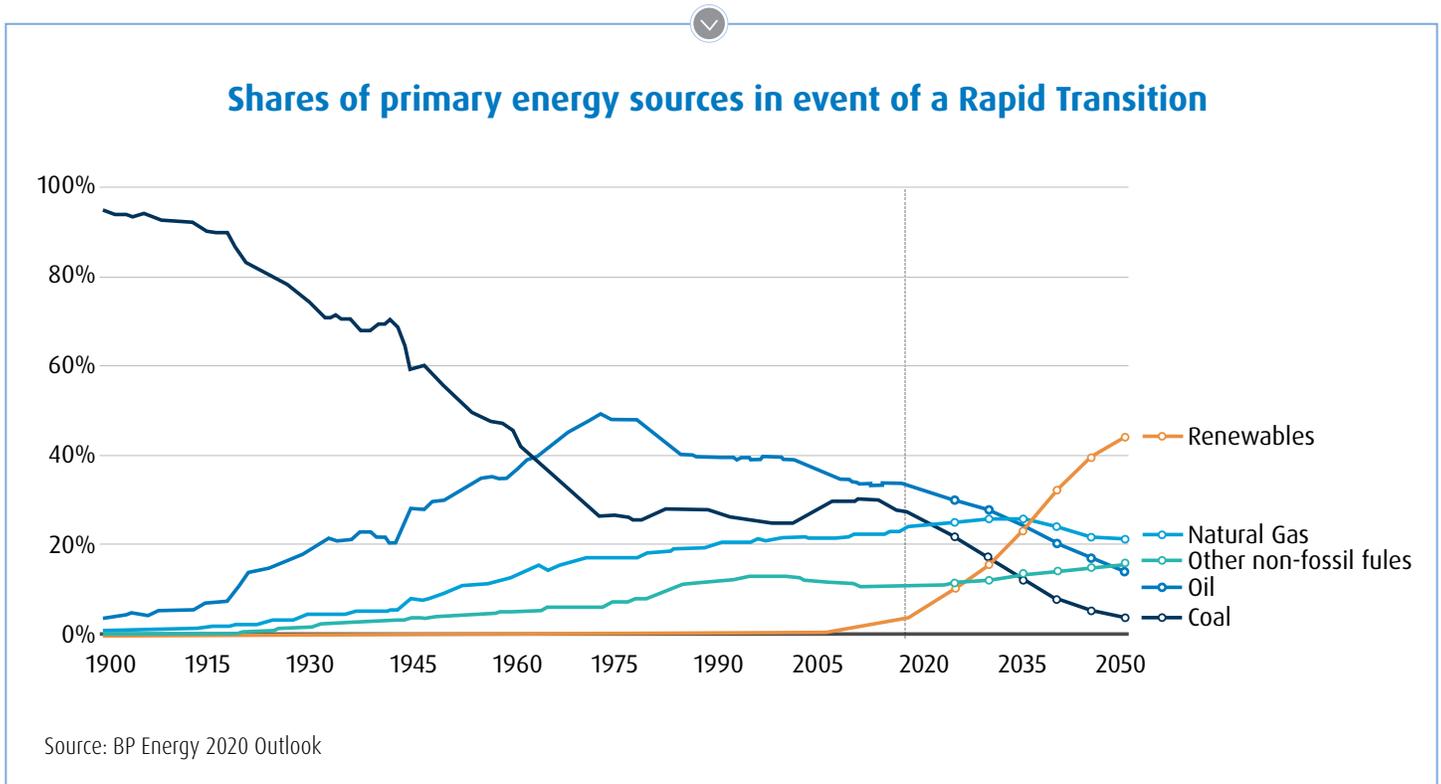


# Clean Energy – The Global Transition

Climate change is not an issue. This was the view a couple of decades ago, and today it is one of the hottest topics. Pun intended. We are seeing its devastating effects with flooding, drought, forest fires, storms, and more. While these represent the physical risks, there are also transitional risks, and financial risks as we see the economy transition from fossil fuels to renewables, for example, the risk of stranded assets. Stranded assets are fossil fuel supply and generation resources that lose their value as a result of the transition to a low-carbon economy.

Innovations in the renewable energy space present an excellent growth opportunity for investors who are looking to benefit from the global transition. Oil giant, BP plc's latest Energy Outlook explains that while global energy demand continues to grow, the structure of this demand is likely to change with the role of fossil fuels declining and renewables playing a key role in meeting future global demand.



## What’s fueling this transition?

Around the world's governments have begun to introduce climate change plans and carbon tariffs. China, the world’s biggest carbon emitter has announced a plan to be carbon neutral by 2060. China is also a leader in the Electric Vehicles space and investing heavily in solar development.

Carbon Dioxide (CO2) emissions were once regarded as external to profit maximizing equation by many corporations, today we’re seeing companies beginning to set goals to become carbon neutral, net zero, or even carbon negative (as recently announced by IKEA<sup>1</sup>).

The cost of renewables has declined significantly due to technology developments and economies of scale as global supply chains grow in size and strength. Onshore wind and solar photovoltaic power are now, frequently, less expensive than any fossil-fuel option, without financial subsidies

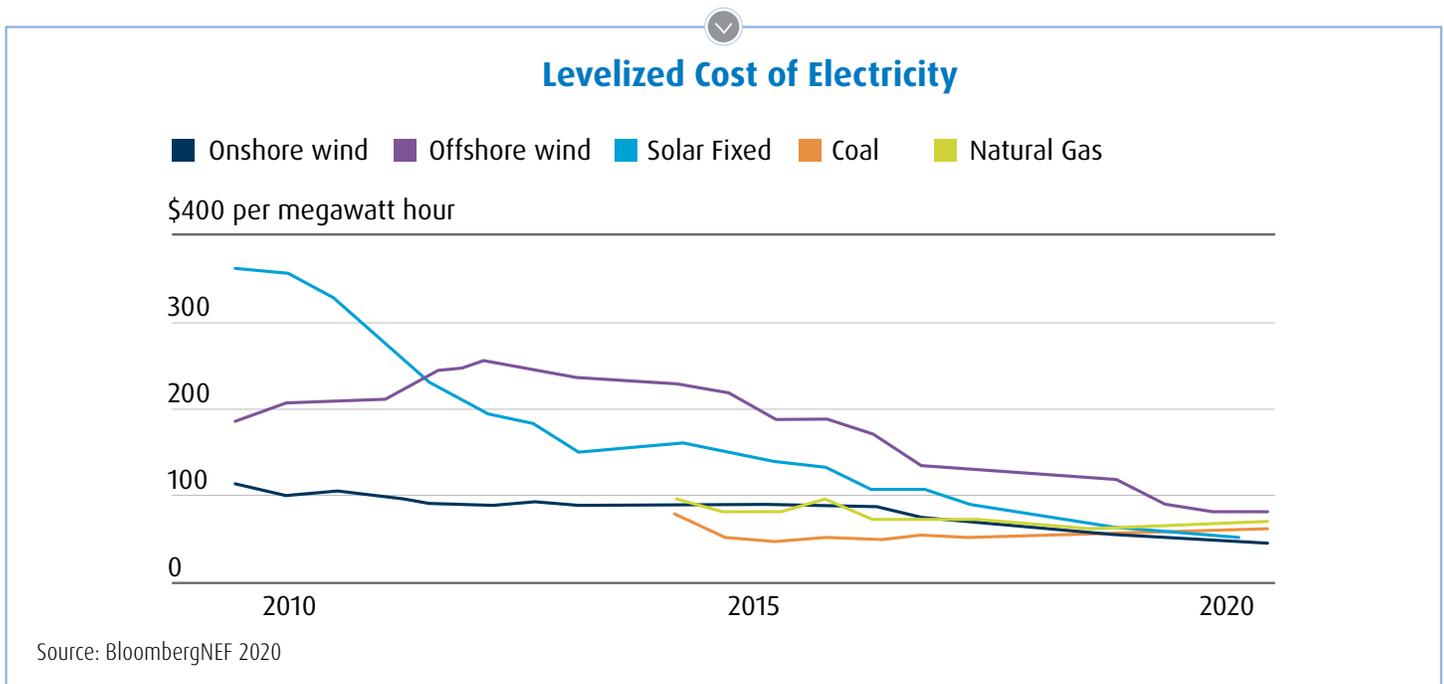
<sup>1</sup> Forbes Dec 2020

<sup>2</sup> Our World in Data 2019

**Did you know?** On day one of President Biden’s administration the US rejoined the Paris Agreement on Climate, shortly thereafter they announced a \$3 trillion dollar energy and infrastructure plan as part of their new green deal.

**Did you know?** “Net zero” Goals give wiggle room for companies to buy carbon credits or invest in tech that can capture and store carbon underground. So not eliminating them, but more of a new form of accounting. The jury is still out in terms of whether companies will prove their progress through reporting, or if it’s a PR exercise.

**Did you know?** The price of solar has decreased by 89% since 2010<sup>2</sup>. The cost of coal is expected to remain the same if not higher with the introduction of carbon tariffs.



While the cost of renewables has come down, energy storage remains an issue that needs to be addressed. We need some grid storage solutions to reach scale to for example battery farms.

## Innovation in Action - Case Study: Underwater Energy Storage System

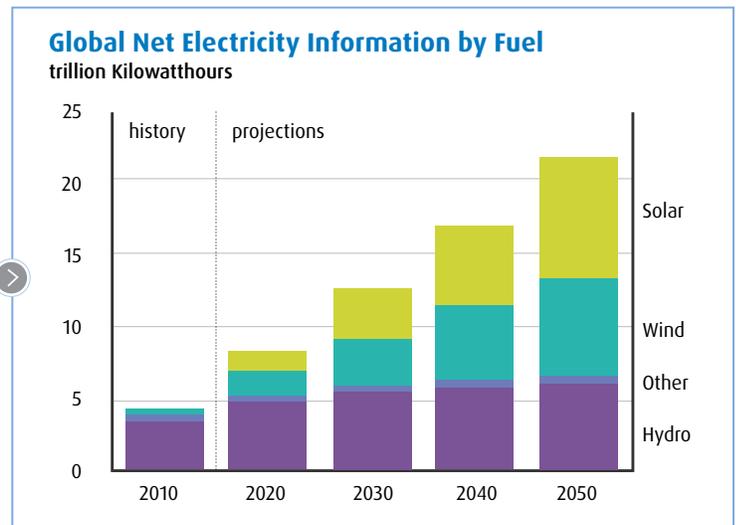
Hydrostor is a developer of Advanced Compressed Air Energy Storage and has tested a new facility on Toronto Island. This stores off-peak electricity until it's needed in on-peak times.

### Tell me more...

Excess electricity is sent to the storage facility. This energy is run through an electrical compressor which pressurizes atmospheric air. The heat generated during compression is pumped to a storage accumulator. Then, the compressed air is pumped to marine salvage balloons located underwater. When the stored energy is needed, the weight of the water is used to push the compressed air back to the facility on land. Compressed air is then reheated and drives an expander which produces electricity, which is transferred back to the grid.

## Diversification

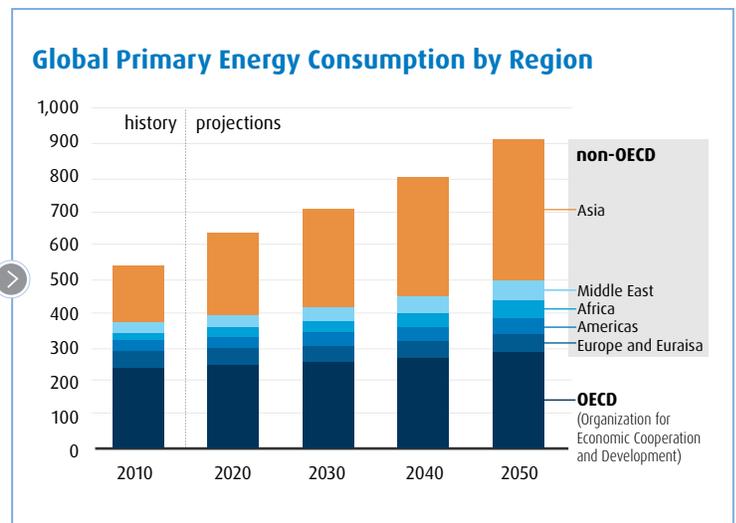
Don't put all your eggs in one basket. In 2050, electricity generation from renewables is expected to come from a well diversified mix of wind, solar, hydro. While currently this is dominated by hydro, going forward it looks to be an even split based off growth expectations for the different sectors.



Source: U.S. Energy Information Administration, IEO2019 Reference Case (2010-2050), International Energy Outlook 2019, <https://www.eia.gov/outlooks/ieo/>.

## Go Global

The transition to net zero, and the fight against climate change is a global effort. In fact, the majority of growth is expected to come from non-OECD countries (though President Biden is showing exponential growth may also come from the US).



Source: U.S. Energy Information Administration, International Energy Outlook, Reference case

## Access Clean Energy with BMO Global Asset Management

### BMO Clean Energy Index ETF (ZCLN)/BMO Clean Energy ETF Fund

BMO GAM's Global Clean Energy ETF & Mutual Fund tracks the S&P Global Clean Energy Index. Providing liquid and tradable exposure to a target of 100 companies from around the world that are involved in clean energy related businesses. The Fund and ETF provides a diversified mix of clean energy producers as well as clean energy technology and equipment companies. With rising yields in early 2021 leading to a rising cost of inputs, we have seen a pull back in the sector. This is potentially creating an attractive entry point for investors as the drivers supporting growth in this area remain unchanged.

### Fund Codes

Fund Name	Fund Code/Ticker	MER**
BMO Clean Energy Index ETF	ZCLN	0.40%
BMO Clean Energy ETF Fund	BMO95119	0.40%

\*Management Expense Ratio (MER) is estimated as Fund is less than one year old.



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