MARKET UPDATES

The path from oil to alternative energy hindered by long-term hurdles

By Gene Walden, Senior Finance Editor | 10/12/2021

The world still runs on oil. And despite continuing strides in the alternative energy market, global dependence on fossil fuel is likely to persist for many years to come.

“Regardless of what happens with electric cars over the next 10 years, we expect demand for oil in the petrochemical industry to continue to grow through at least 2050,” explained John Groton, Jr., CFA, Director of Administration and Materials & Energy Research.

The price of oil has quadrupled since the start of the pandemic – with West Texas Intermediate rising from an $18-per-barrel average in April 2020 to about $75 this October. Over the past year, oil prices have essentially doubled from about $38 at the start of October 2020. Motorists have seen the effects of this spike at the pump, with the cost of gasoline up about $1 per gallon over the past year.

As temperatures fall this winter, homeowners could also see a substantial rise in their heating bills, with the price of natural gas jumping about 180% over the past 12 months.

The rise in energy prices has coincided with the reopening of the economy, as global auto travel and industrial consumption have returned to pre-pandemic levels. While oil supply had exceeded demand even before the pandemic – spurring an extended slump in the oil market – supply and demand have recently returned to a more typical balance, driving up prices.

“Inventories grew a lot in the spring and summer of 2020, but all those inventories have been completely absorbed in 2021,” according to Groton. “In fact, inventories in the developed markets are about 100 million barrels below normal. While it feels like oil prices are high in 2021 at about $70 per barrel, the average price over the past 10 years has been about $66 per barrel, and it has been about $64 per barrel over the past 20 years. So, we're not out of line with historic levels – it just feels like we've advanced a lot based on what happened last year.”

What’s keeping oil prices elevated?

Although electric cars and alternative energy technologies are slowly cutting into the demand for oil, a more disciplined approach by oil producers has helped correct the supply and demand imbalance and could keep oil prices at an elevated level well into the future.

“OPEC supply cut discipline has been excellent and companies are changing business plans,” said Groton. “OPEC is bringing barrels back to market matched with demand increases rather than in front of demand increases. Western companies are more concerned with enjoying the cash flow return for shareholders or reinvesting in renewables rather than killing the golden goose by raising production, which historically is how things worked.”

“They're redirecting spending to renewables and away from oil and gas,” he added. “When you produce less oil, that leads to higher prices, which leads to better cash flow and more money to reinvest in renewables. It’s a virtuous cycle.”

The major oil producers, such as bp and Royal Dutch Shell, have become reluctant to take on long-term oil production projects, such as deep-water drilling. “They’ve become very averse to doing projects that take five to 10 years to develop and then produce oil for 20 years not knowing what 2040 is going to look like,” said Groton.

Historically, U.S. shale producers have stepped up drilling when oil prices rose to levels that made fracking profitable, but even that may be changing, according to Groton. “For most companies, management compensation metrics have changed from incenting production growth to incenting cash flow and return on capital. The number of wells being drilled this year is up versus last year because oil prices are up, but it's nowhere near the rig count of the past when oil prices have been in the $70-a-barrel range.”

Alternative energy faces cost hurdles

The two most dominant technologies in the alternative energy market are solar, which provides about 3% of U.S. electricity generation, and wind, which provides about 8%. Hydrogen-based energy which, when using a renewable power input, is a carbon-free process of splitting water into hydrogen and oxygen molecules to produce fuel and heat, is also gaining traction.

“Over time, the costs for solar and wind generation have dropped a lot through scale and engineering,” explained Groton. But rising costs this year could drive up production costs. “For solar, in particular, polysilicon modules that comprise solar panels have had price increases. That’s unusual.”

“Additionally,” he noted, “solar and wind installations consume a lot of steel, a lot of aluminum, and a lot of cement. All three of those commodities have had dramatic price increases this year, so for some of the more ambitious scenarios regarding where alternatives and renewables stand within electricity generation, the economics of that have been tougher this year.”

Ambitious government goals for alternative energy generation may spur continued development, but Groton believes that the reality of market dynamics could short-circuit those ambitions. “It's easy to set goals for 2040 and 2050, but what actually has to happen for those things to occur is very different.”

The manufacturing process in the production of solar and wind generation applications can also be counterproductive in lowering emissions. “The materials that are required for this evolution to alternative energies – steel, aluminum, and cement – create some pretty unpleasant carbon footprints,” said Groton. “Aluminum production is responsible for more than 2% of global emissions and steel is even higher. We need to recognize that decarbonization via more electrification of transportation does not come cost free either in terms of the expenses required or the carbon footprint that goes along with those developments.”

The growing number of electric and hybrid automobiles is slowly reducing oil demand, with automakers placing increasing emphasis on their development. Ford recently announced plans to invest more than $11 billion in new facilities to manufacture electric cars and batteries, with the goal of increasing the share of electric vehicles in its new vehicle fleet to 40% by 2030.

But it could be many years before electric cars make a significant dent in oil demand, according to Groton. “The base of existing cars and trucks is so big at over 1.2 billion – with about a 12-year average life per vehicle – that the turnover from standard combustible engine vehicles will take time. We also expect demand for diesel fueled trucks to continue to grow, especially in the emerging markets.”

One more complicating factor is the supply of cobalt used for lithium-ion batteries. “About 80% of the world's cobalt is mined in the Democratic Republic of Congo and most of that is processed in China, so there's a risk when we talk about the energy transition,” explained Groton. “We may not be as concerned about dependence on foreign oil anymore, but we might start talking about our dependence on foreign countries for materials. Technological, economic, and political risks exist in the development of alternative energies.”

Despite progress in reducing fossil fuels, the supply and demand dynamics of the energy market will continue to be a moving target. “There are a number of influences that go into the investment mosaic of the energy industry, which makes it very complex and difficult to predict in the short term,” said Groton. “That’s why we don’t get too moved by the near-term noise, but rather recognize that it’s an industry that’s driven by economics 101, supply and demand, and then making judgments about the best companies to invest in within that landscape.”

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