An energy crisis looms as forecasts ignore US shale quality

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The obsession with US shale oil is leading the world into an energy crisis.

The world's leading forecasting agencies have hailed shale's tremendous growth as key to meeting oil demand in the coming decades. But by focusing on volume rather than quality, they are missing the point.

Crude extracted from shale rock is generally far lighter than conventional oil and is not the type wanted by the world's oil refiners as demand for heavier products such as diesel increases and demand for petrol decreases.

At the same time, we are approaching the limits of achieving full vehicle fuel efficiency while European consumption has grown faster than previously

anticipated.

Once the lack of demand from refiners starts to limit the growth of US shale production, we will end up with lower oil supply and higher consumption.

All the while, oil-producing countries are reducing their upstream investment and international oil companies are moving from long cycle investment that brings desirable crude quality to short investment cycles leading to unwanted crude quality.

The US shale revolution turned conventional wisdom on its head, not only changing the energy landscape in the US, but also the global direction of trade in oil, natural gas, and LNG. But when it comes to oil, the forecasting agencies have ignored crude quality.

They forecast "explosive" growth in shale oil production in the coming years. By doing so, they are sowing the seeds for an energy crisis.

Oil-producing countries' reaction of the forecasts is simple: if growth in shale oil production is going to cover growth in global oil demand and more, why should I invest to grow or even maintain production capacity? Can my oil find alternative uses, such as petrochemicals?

But it is important to pay attention to what has happened in the US. As a result of the mismatch between crude quality and refining capacity, we have already hit a refining wall in the US. This explains why all additional crude produced has to be exported. But soon we are going to hit a worldwide refining wall, with plants not suited to running such a light slate.

The story does not end there. Most of the decline in demand for oil in the coming years according to forecasting agencies does not come from the wide adoption of electric vehicles, but from improvements in fuel economy, where rising efficiency is expected to lower demand significantly.

But the forecasts exaggerate the improvements, and the growth of global oil demand to 2040 is grossly underestimated.

We have already reached the minimum size of small cars since they cannot be smaller than our bodies.

The data are telling us a compelling story: the average fuel efficiency of new cars sold in the US has been virtually flat in the past five years. Sales of sports utility vehicles and light trucks have skyrocketed while sales of small cars nosedived.

The story is not limited to the US. Sales of SUVs and crossover cars in China are increasing rapidly, making fuel economy improvement difficult. Rich people in Africa are buying the fanciest and largest cars they can buy.

Another problem in long term forecasts is that they ignore the “rebound effect” that results from energy efficiency and fuel economy improvement.

Overwhelming evidence shows that the improvement of fuel efficiency leads to an increase driving frequencies and distances. In fact, the “Uberisation” of the world is leading to more demand for transportation and higher demand for fuel.

Finally, Europe. Oil demand collapsed during the financial crisis of 2008, leading to forecasts of a permanent decline in the region's consumption.

But as several European economies recovered, demand rebounded, forcing analysts to revise up forecasts virtually every quarter since 2014. Nevertheless, for some reason, forecasters still expect Europe's oil demand to decline forever.

The predictions indicate a fundamental problem in modelling oil demand in Europe. Strong economic growth throughout the continent will lead to large oil demand increases.

The massive migration of people from Africa, the Middle East and countries in Asia are reversing population growth trends, leading to higher energy consumption than predicted.

Crude quality will prevent shale from delivering the necessary supply growth in the coming years to meet demand. There will be no readily available replacement by the time the market discovers the cold reality.

Growth in global oil demand will be way larger than estimated because forecasters are exaggerating the impact of fuel economy and underestimating demand growth in Europe.

The irony is US shale producers will benefit only when the current long-term demand forecasts are shown to be wrong. Only then will shale have a role as most of the supply and demand gap will come from motor vehicles and petrol, for which shale is a better source. But the gap for other oil products will remain. The industry needs to rethink.

Anas Alhajji is an adviser to oil companies and oil-producing countries.

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