

Oil price plunge challenges green energy advance

THE plunge in oil prices has been portrayed as a severe blow to clean energy deployment, particularly renewables. But the effects will be modest in major electricity markets – where the bulk of the clean energy transformation has taken place so far – and where renewables mostly compete with gas and coal.

Over the past five years, an average of \$266 billion has been invested annually in clean energy worldwide. Most of this has been pumped into renewable electricity generation capacity, which does not directly compete with oil. Wind and solar have expanded rapidly even as subsidies and support have in general become less generous. And their advance has mainly been driven by dramatic improvements to their cost competitiveness, as well as by the removal of barriers, such as grid bottlenecks. Nevertheless, the halving since last summer in the price of Brent to trade between \$45-\$60/b so far this year will have an effect in various sectors and regions.

If lower oil prices persist, one sector that could be hurt is clean cars – electric, fuel cell and hybrid. They cost more than conventional vehicles, but save owners money on oil. Data from Bloomberg New Energy Finance (BNEF) showed that, with gasoline at \$2.09 a gallon, electric vehicle penetration in the US could reach 6% of the light-duty vehicle fleet by 2020, whereas with gasoline at \$3.34/g, the electric vehicle share could be 9%. The share is less than 1% today.

Elsewhere, in a number of oil-producing nations and many low-income developing countries, diesel generators and oil-burning power plants still produce a significant amount of electricity. With oil at \$100/b, the replacement of these generators or their hybridisation with renewables was just beginning to take off. While diesel and oil-based power is still pricey at \$60/b, the pressure to switch is reduced. And there could be a question mark over Saudi Arabia's plan, announced in 2012, to invest \$109 billion in 41 gigawatts (GW) of solar power by 2032, said BNEF. Saudi Arabia burns up to 900,000 barrels of oil a day to generate over 50% of its electricity.

Still, with Dubai's state utility Dewa in December nailing down the world's cheapest solar deal yet – at under \$0.06 per kilowatt-hour or roughly \$0.03 cheaper than gas – the region still shows promise. The low tariff, bid in a fully commercial, unsubsidised setting, disproves persisting misconceptions in the Middle East about the high cost of solar and should provide a boost to other governmental procurement programs in the Gulf, in particular in Saudi Arabia, noted renewable energy consultancy Apricum.

In the US, paradoxically, a lower oil price could nudge gas prices higher. Shale oil production often pumps associated gas, so with fewer rigs drilling for oil, there will be a marginal drop in associated gas production. Oil at \$60/b could mean a gas price as much as \$0.90 per million British thermal units (Btu) higher than if oil was at \$100/b, BNEF said. With wind and even solar power increasingly competitive with coal and gas without subsidies, as well as many utilities having to meet renewable portfolio standards, combined with new rules forcing coal plant retirements, the effect of lower oil prices in the US is expected to be insignificant.

In Europe, gas prices are often tied to oil, so a lower crude price will tend to push down gas prices. But the renewable energy roll-out in the EU is generally driven by specific targets and policy initiatives, so cheaper gas, combined with a carbon price that increased over 40% last year, is likely to reverse the recent surge in coal-fired generation. Still, cheaper oil prices will challenge the biofuels sector, which competes directly with oil as a transport fuel.

Ultimately, the effects of lower oil prices will depend

on whether they remain low for a sustained period. Some analysts expect a rapid recovery to \$100/b, because this is the price needed to justify ongoing exploration for new resources. But there are grounds for thinking that lower prices may persist.

BNEF research shows that at \$75/b, as many as 19 US shale regions would be unprofitable. However, existing wells would not be shut as long as they cover their variable cost, which is much lower, often at around \$20-\$30/b. Thus production is cut only as well output falls, which would take one to two years in the absence of new drilling activity in those regions. Of greater significance, however, is the growing understanding that the slump in oil prices was more of a demand shock than a supply shock, spurred by China's slowdown, falling US dependence on imported oil, weakness in the global economy and shifts in consumer behaviour.

"The orthodox view of unlimited oil-demand growth simply does not hold in a world of super-efficient engines, electric vehicles, desperate air pollution problems, and action on climate," says Michael Liebreich, chairman of the advisory board at BNEF. In fact, the US economy has expanded by 8.9% since 2007, while demand for finished petroleum products has dropped by 10.5%. Improvements in gas mileage and reductions in miles driven per person have had more of an effect on cutting US oil imports than unconventional production.

Liebreich added: "The story should not be how falling oil prices will impact the shift to clean energy, it should be how the shift to clean energy is impacting the oil price". But lower oil prices could present a daunting challenge for the clean energy sector. The community is in danger of hyping the benefits that will come from a sustained period of low oil prices and underestimating the significant harm it could do to clean-tech firms, says *Business Green's* editor James Murray.

"If the low oil price is sustained – admittedly, a big if – the short to medium-term implications for clean tech will prove significant and largely negative. The cost of clean energy will become more expensive relative to gas (or simply less competitive in those lucky regions where clean energy already undercuts fossil fuels). Meanwhile, electric car and energy-efficiency investments will all be left looking less financially attractive compared with recent years," he said.

On the upside, renewables, particularly solar, have strong long-range prospects because their input is constantly improving technology rather than a diminishing natural resource. Solar, for instance, is becoming cheaper and cheaper. Conversely, commodity-based energy sources are increasingly expensive to extract, ship and refine, and are inherently subject to price volatility. The stability offered by the clean-tech industry should comfort investors in the wake of oil's evident volatility, says the UN's climate chief Christiana Figueres.

"Volatility in prices is one that incrementally and gradually makes investment in oil and gas more risky than investment in renewables, where it is very predictable what the upfront cost of infrastructure is, and then the price of fuel from then on is very predictable and certain," she added. No doubt, the oil markets will continue to be volatile. Many analysts expect oil prices to rebound towards \$80-\$100/b over the next year or two as the market balances out. (Many of these same analysts did not foresee the price collapse of 2014.)

If one takes a longer view, clean-energy technologies should get even more competitive, particularly if innovators crack the energy storage code. And as more governments move to price carbon, factoring environmental costs into the price of fossil fuels, the more viable clean energy will be. That said, should hydrocarbons remain cheap, then green energy will have an uphill struggle. **DE** ●

