HSBC and its low-carbon crystal ball

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The bank has set out a number of scenarios for the development of the low-carbon economy, with a starring role for energy efficiency

By Roberta Harrington

- **The low-carbon market is expected to reach US$2.2 trillion per year by 2020**
- **The EU will take the top spot, followed by China and the US**
- **Efficiency and renewable energy sources are likely to be the top sectors for investment**

Over the next decade, the global market for low-carbon energy is likely to triple in size to US$2.2 trillion per year. The low-carbon energy market will grow from 1.3% of global GDP in 2009 to 2.1% of global GDP in 2020 – an overall 11% estimated compound annual growth rate from 2009 to 2020. However, there will also be a major shift in emphasis for investment opportunities – from low-carbon power to energy efficiency, such as plug-in hybrid and electric cars. The amount of upfront capital required globally for the "climate economy" will more than triple, to US$1.5 trillion per year, a large but manageable sum. China's low-carbon market will overtake the US' – but not the European Union's – by 2020, according to the most likely scenario set out in a new report by HSBC Global Research. The paper, Sizing the Climate Economy, was co-authored by analyst Nick Robins, head of the London-based bank's Climate Change Centre of Excellence.

Differing speeds

In the report, the analysts conclude that over the next decade there will most likely be "diverging growth paths" in the three key markets. "In the EU, we expect renewable but not energy efficiency targets to be met; in the US, we project limited growth in clean energy, and in China, we expect current targets for clean energy to be exceeded," said the report. The study does offers four different scenarios for the next decade, ranging from a backlash against climate control to the rapid growth of a green-based economy with the most likely scenario – dubbed the "conviction" scenario – at neither extreme.

For example, the analysts predicted the low-carbon energy sector would accelerate from US$740 billion in 2009 to anything from between US$1.5 trillion to US$2.7 trillion in 2020, with US$2.2 trillion the most likely, conviction, figure. In the EU, the analysts concluded that the 20% greenhouse gas target – cutting to below 1990 levels by 2020 – would be retained and that the union would, "in spite of many doubters," meet its renewable targets. But the analysts said the EU would miss its 20% energy efficiency improvement targets – recent EU documents suggest efficiency improvements in the range of 11% to 13%.

A key finding on China was issued, with a prediction that the country would "surpass its current renewable capacity target by over 40%, while achieving efficiency goals in line with the Copenhagen scenario." Indeed, China will leapfrog over the US in terms of its share of the low-carbon energy market, increasing its current 17% share to 24%, a compound annual growth rate of 14%. The US share will dip slightly from 21% in 2010 to 20% in 2020, while the EU will remain in the lead, but its share will shrink to 27% from 33% by 2020. Japan will fall from fourth place to fifth, dropping behind India. In the EU, HSBC assumed
a carbon price of 30 euros (US$39) per tonne.

In one of the more unsettling predictions, the analysts gauged that an economy-wide cap-and-trade scheme was not likely to be introduced in the US before 2020. More likely are caps for the utility sector only, the analysts said, which would constrain coal and natural gas. HSBC does, though, predict that clean energy incentives will be introduced in the US, more along the lines of the socalled Lugar Senate Bill – the Practical Energy and Climate Plan Act – which called for utilities to be required to source 15% of their electricity from 2015 to 2019 from "diverse" sources. The diverse energy technologies range from wind power to coal-bed methane (CBM), nuclear and efficiency. Under the Lugar Bill, the minimum base quantity of diverse power would rise steadily to 50% by 2050.

Opportunities

Globally the investment opportunities are substantial. Energy efficiency becomes the single largest opportunity by 2020, say the analysts. Overall growth will increase that market to US$1.2 trillion by 2020 as governments

implement policies to deliver “negative cost” improvements in building and industrial efficiency, and transform the transport sector through a major shift to hybrid and electric vehicles (EV). In fact, the EV market is expected to skyrocket more than twenty-fold by 2020 to reach US$473 billion.

Although energy efficiency and management has the most gains, the renewable energy market – not counting biofuels – has the most robust growth, to US$544 billion globally. That assumes that an additional 1,000 GW of renewable capacity will come on-stream between 2010 and 2020. With other low-carbon energy sources, renewables will grow by 8.6% per year to reach US$1 trillion by 2020. The low-carbon economy will continue to be more capital-intensive, but with lower operating costs, note the analysts.

“A continuation of the historical 60:40 split between debt and equity suggests a need for US$6 trillion in debt and fresh equity of US$2 trillion” over the next decade, predicted the report. “Importantly, we expect one-third of investments will come from the household sector in the form of building efficiency improvements, decentralized renewables and low-carbon vehicles; new funding models are required to make this a reality,” said the authors.

After the next decade, the world is expected to change more dramatically. The report concluded: “It is in the following decade, from 2020 to 2030, that we expect a step-change as carbon pricing becomes more prevalent, as longlead time assets such as nuclear and carbon capture and storage [CCS] potentially come on-stream and the deployment of breakthrough products such as [EV] becomes mainstream.”