Speaker : Charles Postles, BP Solar Europe
Event : Renewable Energy Conference 2007
Date : 15- 16th March, Berlin

Spoken words apply

Positioning of BP in the global low carbon power market

- [VIPs], Ladies & Gentlemen. Good afternoon and thank you for the opportunity to share BP's strategy on low-carbon power with you today. First, I want to explain how we in BP assess the potential of the low carbon power market. Secondly, how we have transformed our own business to play an important role in this market, and finally what we see as the challenges as well as the priorities for us and the industry for the years ahead.

1. Potential of the global low carbon power market

BP believes the world has reached a turning point in recognising the challenge of climate change:

- the recently published Intergovernmental Panel on Climate Change ("IPCC) report" states that "the warming of the climate system is unequivocal". 11 of the last 12 years rank as the warmest on record. It adds that the levels of greenhouse gases such as carbon dioxide, methane and nitrous oxide have "increased markedly as a result of human activities" over the past 250 years.
    - $C0_2$ has increased from a pre-industrial level of 280ppm to 379ppm in 2005, and today it is at around 430ppm. It is estimated that it could reach 500ppm by 2050
    - The average temperature in 21st century has increased by between 1,1°C and 6,4°C

- The often quoted study by Sir Nicholas Stern, the former Chief Economist of the World Bank, concludes that climate change and global warming are serious global threats which demand an immediate response:

    If we do nothing to fight climate change, economic growth and wealth may suffer by 20% over the long-term. Hence it is more cost effective to invest now in climate protection even if this looks expensive in the short run.

- SLIDE "The global emissions challenge"-
- To most people electricity seems like a very clean product. It creates no emissions in your home. Yet the electricity industry is the largest single source of CO_2 emissions globally, emitting 40% of the total. That's twice the level of CO_2 emissions from the transport sector.

- SLIDE "Electricity demand and CO_2 - Worldwide demand for power is forecast to almost double by 2030, and it is also forecast that about two-thirds of power generation capacity that will be needed in the next 25 years has yet to be built.
- Given this rate of growth, if we are to transition to a low carbon economy we must now move quickly from discussion to action, and actions taken now to switch to low carbon power can make a huge difference.
- This presents a big challenge and opportunity for business.
- We know that in order to limit the rise of average temperature to 2° C and the GHG content in the atmosphere to around 500ppm CO_2 emissions cannot increase any further. Given predicted economic growth and increasing energy demand, that means that substantial reduction in CO_2 emissions is of paramount importance. We must do everything to stabilize CO_2 emissions in 2050 at today's levels.
- BP's experience in solar, wind and hydrogen power has convinced us that these technologies have matured to a point at which they can become economically viable at scale.
- All of this adds up to good reasons to create a low-carbon power sector and to start a new global business in BP.

2. How have we transformed our business

- SLIDE "A Business Opportunity" - BP believes this activity represents a commercially robust, attractive business proposition and one in which we are able to be a distinctive player with the ability to help reduce $C0_2$ emissions in a significant way.

We believe there is a good opportunity for business and policy-makers to work together to create a low-carbon power sector. That's why we have created a business called BP Alternative Energy launched in November 2005, bringing together all BP's low-carbon power businesses.

- SLIDE "2008 Global Business" - With Alternative Energy BP is making a commitment to develop low-carbon power in targeted global markets in four areas:

    - BP Solar – a leading, global PV business that we have built over the past thirty years.
    - Our newly established and fast-growing wind business.
    - BP's plans for projects that generate power from hydrogen with carbon capture and storage.
    - Our combined cycle gas turbine operations, where natural gas produces half the CO_2 emissions of coal per unit of power generated.

This portfolio is complemented by power marketing and trading activities, ensuring cleaner electricity is efficiently delivered to markets.

SLIDE “BP’s commitment to Alternative Energy”:

At the launch of Alternative Energy, BP committed to build a growing and profitable low carbon business. We will invest more than $8bn in Alternative Energy over the next 10 years, and we expect the business to reduce forecast CO_2 emissions by more than 24 million tonnes per year by 2015.

Over its first 3 years, we have committed to

- investing $1.8bn in BP Alternative Energy
- increase sales of PV to 300MW
- enter the wind power business with a material presence, reaching 450MW by 2008
- start to build two of the world’s first industrial scale hydrogen power projects with and carbon sequestration (in Peterhead, Scotland and Carson, US)
- Start construction on 2 new co-generation facilities totalling over 700 MW

The 10 year aspirations of BP Alternative Energy are even more challenging but clearly depend on adequate support schemes, securing investment and developing markets.

In its first year of operations, BP Alternative Energy has made some good progress. Here are a few examples.

BP Solar has:

- Doubled its manufacturing capacity from 100MW to 200MW with expansion at its plants in India and Spain. Further expansions are planned including in Frederick, US.
- Developed a new silicon growth process named “Mono^2” that significantly increases cell efficiency over traditional multi-crystalline-based solar cells.
- Launched a research project at the Institute for Crystal Growth in Berlin, to investigate a new way to reduce the silicon needed for a solar cell, by working together to develop a process for the deposition of silicon on glass.
- Reached agreement with “Banco Santander” to construct up to 278 PV solar power plants in Spain with a total capacity of 18 – 25 MW.
- Partnered with California Institute of Technology, US, on research programme to investigate making a new generation of powerful cells.

Wind power – During our first year we made some major investments to build our wind power business, particularly in the US. Our aim is to become one of the world's leading wind project developers by 2015.

- We currently operate 2 wind farms in the Netherlands
- In the US we have bought "Greenlight Energy Inc", and "Orion Energy LLC", and we have formed a strategic alliance with "Clipper Windpower" for the joint development of wind projects.
- Our US wind portfolio includes the opportunity to develop almost 100 projects with a potential total generating capacity of some 15,000 MW.
- We expect to begin construction on five wind power generation projects in the US in 2007 in four states – California, Colorado, North Dakota and Texas – the projects are expected to deliver a combined generation capacity of some 550 MW.
- Under a long-term supply agreement with "Clipper Windpower", we have secured a mix of firm and contingent options of up to 2,250 MW of Clipper turbines to use in our global wind portfolio.
- Outside the US we plan to start building wind farms in the UK and India.

Hydrogen Power - BP is very much involved in projects exploring the opportunities around sequestration, and BP's Alternative Energy team is using that experience to become a leader in power generation from hydrogen.

Hydrogen power is a new and exciting concept in energy – one that could revolutionise the world of low-carbon electricity generation.

This new generation of power stations will use a fossil fuel feedstock such as coal, petroleum coke or natural gas, from which some 90% of the carbon dioxide is extracted and stored deep underground. The resulting hydrogen is then used to generate clean power for the grid.

Such power stations have massive potential worldwide because they mean countries can go on using fossil fuels while reducing the environmental impact of today's plants. This is particularly significant for big coal users such as the US, China and India.

- We have announced plans for two new projects – a 475MW power station in Scotland and a 500MW plant in California – and we are working with partners with a view to developing many more.

Combined cycle gas turbine operations - We believe that power stations fired by natural gas will be a major part of the future's lower-carbon economy because natural gas is the cleanest fossil fuel available. When used in power generation, gas-fired power produces only half the carbon dioxide of conventional coal-fired plants.

- In BP Alternative Energy we now have stakes in some 12,000MW of natural gas power capacity around the world, including the US, Vietnam, Spain and Korea.

SLIDE “Challenges and priorities”:

3. Challenges and priorities for BP and the industry for the years ahead

The PV industry provides a good example of how industry and governments can together work at addressing the challenges and priorities that BP Solar and the industry are facing.

Our vision to be a leading, profitable player, driving the cost of PV-generated electricity down to the same price at which we buy our electricity from the grid, so-called “grid parity”.

To do that, we are investing in R&D to develop new technologies, expanding our manufacturing processes to achieve real economies of scale, developing new manufacturing processes to leverage greater efficiencies and creating differentiated offers that will help stimulate demand growth.

To this end, support schemes which offer security for investment are essential.

- BP supports a liberalization of markets and in principal opposes long term subsidies.
- However, RE technology is not sufficiently mature to be able to compete in the free market with the existing energy technologies. Therefore a limited period subsidization for the market introduction in the sense of a market incentive is crucial.
- With our own experiences of different support schemes available for renewable energies globally, we would strongly recommend the feed-in-tariff system remains in place. We are convinced that this is the most successful and effective tool to reach grid parity as soon as possible.
- Germany is one of the most important key-markets worldwide for the development of RE/ PV technologies. Security in planning and investment is important to secure ongoing cost reductions.
- With the Renewable Energy Sources Act (EEG), Germany has the most successful and effective support scheme, which has by now been copied by many other countries.
- The review process of the EEG in 2007 should not endanger a system that is already working very well.

Conclusion:

I) There is a great business opportunity for low carbon power

II) BP has already taken necessary steps to play an important role in that market.

III) The success in establishing a free-standing low carbon power market will further depend on consistent support schemes

Industry for their part can drive for continued cost reductions, technological breakthroughs and marketing advances. Together they bring us to the point of “grid parity”, where low carbon power technologies achieve parity with conventional energy sources.

As I said before, we have clear targets for AE and a strong commitment for growth globally. Much is at stake:

- energy security,
- diversification of the energy mix,
- mitigation of CO_2 emissions,
- employment opportunities, and
- above all a sustainable development of the global energy market

Low carbon power can make a major contribution to a sustainable environment and we are looking forward to contributing significantly.

SLIDE “Thank you”