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"$4 Gasoline and Fuel Economy: Auto Industry At a Crossroads"

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Introduction

Mr. Chairman, Congressman Sensenbrenner and other Members of the Committee: Thank you for your leadership on this issue. And thank you for the opportunity to describe the efforts of my company, DONG Energy, to help address the twin challenges of climate change and oil dependence, including through our partnership with Project Better Place.

DONG Energy is one of the largest integrated energy groups in the Nordic region. We produce oil and gas from the North Sea, are Denmark's largest power generator with a production portfolio where some 20% of total capacity is based on renewable energy (mostly wind), and we distribute power, heat and gas to more than 1 million customers across Denmark, Germany, Sweden and The Netherlands. DONG Energy is majority owned by the Kingdom of Denmark. The remaining shares are currently held by municipalities and local utility companies, but a public offering of shares is about to happen whenever conditions in the stock market as a whole are determined to be right.

Let me begin by placing DONG Energy's climate change efforts in context. The commitments of my home country, Denmark, to address these climate change concerns take place within the broader framework of commitments undertaken by the European Union as a whole. The EU has committed to achieving, by the year 2020, a 20% cut in greenhouse gas emissions compared to 1990 (30% if international agreement is reached); a 20% increase in energy efficiency; and a 20% share of renewable energies in energy consumption.

However, Denmark's national climate change commitments also reflect our own longstanding dedication to the highest possible levels of environmental protection. In many areas, Denmark's commitments exceed those of the EU. In the EU burden-sharing process, Denmark has received CO_2 reduction targets that substantially exceed the EU average (i.e. 21% compared to 1990 emissions versus an EU average of 8%, and 20% compared to 2005 emissions in 2020 for the sectors not covered by the EU emissions trading system versus an EU average of 10%). Likewise Denmark's national target for renewable energy is set at 30% renewable energy in 2020, thus exceeding the average EU target by 50%. In addition, Denmark is the first country in the world to commit itself to actually reducing overall energy consumption, aiming for a 2% reduction by the year 2011.

Over the last 20 years, Denmark has achieved an increase in GDP of about 75%, with almost no corresponding increase in energy consumption. This improvement in energy efficiency has been achieved through gradual technological improvements in many sectors across the economy, ranging from upgrading of power plants to the highest possible efficiency standards to better insulation of buildings and active campaigning for change to more energy efficient appliances.

But within this overall positive picture, one sector stands out, and helps to explain our interest in the Better Place model: transportation.

The transportation sector in Denmark has shown a constant, steady increase in energy consumption. And if this cycle is not broken, Denmark will be unable to meet its international climate change obligations.

At DONG Energy, we believe that the overall solution to the climate challenge will come from a mixture of complementary initiatives. So we are pressing ahead on several different fronts.

We are a partner in seven of the 10 largest offshore windfarm projects in the world, and due to constant trimming of our portfolio of conventional power plants we now operate some of the world's most energy-efficient units with energy utilization rates approximately 30% higher than the EU average.
In the transportation sector, we are committed to the development of second generation bio-ethanol as a means of improving fuel efficiency in the existing car fleet. And we are a shareholder in a company jointly owned with Project Better Place, whose objective is to convert the vehicles driven in Denmark from gasoline to electrical power as quickly as possible.

The Denmark/Better Place Fit

What are the factors that led DONG Energy, as well as the Danish government, to conclude that the Better Place model would work in Denmark? There are several.
First, there is one key historical reason. At the time of the first oil shock of 1973, Denmark was totally dependant on imported fuel, and 94% of fuel consumed was oil. That shock had a profound impact on Denmark, underscoring for us the inadequacy of relying on energy sourced from unreliable suppliers and regions, and prompting a commitment to energy self-sufficiency. Because of that shock, Denmark was one of the first countries to commit to wind energy. Within 20 years, the country was also a net exporter of oil.
Second, Denmark's transportation infrastructure has several notable features, which taken together make Denmark an excellent testbed for efforts to convert today's gasoline-based transport system: a heavy reliance on having one's own vehicle, irrespective of the fact that car purchase and ownership of conventional gasoline or diesel cars is massively taxed; a vehicle transportation grid constrained by geography in how much it can grow; not surprisingly, consistent and growing traffic congestion; and a comparatively high gasoline cost, a large portion of which is made up of taxes.
Finally, and perhaps most importantly, one key pillar of the Better Place model is that all of the electrical power needed by the car fleet could come from renewable sources. As I have mentioned, Denmark was an early mover on wind energy, and retains one of the highest ratios of wind-to-other energy sources in the world. In 2007, wind energy contributed about 19% to total power production. But as old, small and now comparatively in-efficient wind mills are now being retired and replaced with bigger and more powerful ones, this ratio will increase even further. And in this environment cars represent an almost ideal customer profile for this extra capacity.
We have estimated that one 2MW windmill (a medium-sized turbine, typically positioned offshore) can, on average, supply the energy needed for 3,000 cars. In a country with 5.4 million inhabitants and some two million passenger cars, the entire passenger fleet could run on electricity produced by less than 750 windmills or 1,500 MW wind capacity installed.
In 2006 the installed wind capacity in Denmark was 3,135 MW, 423 MW of this being offshore wind turbines. With the measures decided in the recently approved Danish energy plan, wind capacity is expected to increase with an extra 1300 MW (i.e. about 40%) until the year 2012.

Benefits to Denmark From the Changeover to Electric Cars

So we have a very high degree of confidence that this model can and will work in Denmark. We have also very high – but we believe quite realistic – expectations of the benefits this model will bring, for emissions, energy efficiency and individual consumers.
We have estimated, for example, that even if all of the electrical charging of cars was sourced from coal-fired power plants, net CO2 emissions would still decline by half because electric motors are 3-4 times more efficient than either gasoline or diesel ones. The more wind power we have, the higher the CO2 emissions improvements will be.
We also expect there to be cost efficiencies as well, since most vehicle charging will take place at night, when wind power is in excess supply. In fact, by charging the cars at night Denmark will be able to use wind energy that otherwise would have to be exported to neighboring countries, typically at relatively low prices. Moreover, because there will an electrical grid operator who can aggregate energy storage across the grid, that energy can be sent back to the grid during peak hours. This optimizes the use of Denmark's wind

capacity, and improves the ability to increase the share of renewable energy in the production portfolio

We also believe there will be substantial cost savings to the individual driver. Based on even conservative estimates of the anticipated cost of both vehicles and batteries, we believe that consumers who migrate from gas to electric cars can enjoy immediate savings of some 15-20% per month, and quite considerably more if in fact the subscription model drives down the price of vehicles in the manner that we expect.

Electric cars will thus contribute substantially to reaching the Danish and European long-term goals of independence from fossil fuels, and will correspondingly lessen the energy dependence on countries led by politically unstable regimes, a situation that has not improved much since the last oil crisis.

The Challenges That Remain

For these reasons, both DONG Energy and the Danish government strongly support efforts to transform our transportation infrastructure from gasoline to electricity. There are, of course, supply constraints at present both from the auto manufacturing industry and amongst battery producers that we are working to address. There is also work underway to ensure that Denmark’s public policy framework works in favor of – or at least not counter to – this model.

But we believe these challenges are surmountable. Indeed, we believe they must be surmounted if we are to break free from our oil dependency and secure the environmental, security and consumer benefits that this transformation can bring.

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