speech mobility eng

slide 1

Presentation at EU conference 'Energy in Motion' ('*EU journey towards sustainable mobility*'); by Mr. Rein Willems, President Shell Nederland. Wednesday October 20, 2004. Westergasfabriek, Amsterdam

Energy transition, a new Industrial Revolution

Ladies and gentlemen,

Our venue today is a most appropriate place to discuss 'Energy in Motion'. Between 1884 and 1967 a coal gasification plant on this spot supplied the city of Amsterdam with coal gas.
Shell's discovery in 1959 of the giant Groningen gas field led to the closure of all gasification plants in the Netherlands, this one included.
A fine example therefore of 'Energy in motion'.

It's interesting to realise that plants like this produced synthesis gas. It is a mix of carbon monoxide and hydrogen. Syngas and hydrogen are two components that could play a leading role in the next energy transition.
Synthesis gas is feedstock for the Fischer-Tropsch process for producing superior oil products.
Hydrogen is now 'everybody's darling' with no emissions at combustion apart from a small plume of water vapour.

Slide 2

Energy transition offers immense challenges. But it is not the only challenge, nor even the greatest of them.
In the Shell vision the energy industry faces a double task.

1) Produce more fossil fuels; safe, clean and affordable.
   Our scenarios picture a world in which energy consumption will double – at least – till 2050.
   As the combined effect of a growing world population and increased average prosperity.
   At present global energy consumption is some 200 million barrels of oil equivalent per day.
   Fossil fuels take up 80% of that. Of the anticipated 400 million barrels in 2050, maybe still 50% will be fossil based. You don't have to have studied maths to realise that 50% of 400 million exceeds 80% of 200 million.
2) Develop new renewable energy products and energy sources.
   At present modern renewables supply only fractions of 1% of global energy consumption. It is too small a base to make a massive transition away from fossil fuels likely for many years to come.

Shell is active on both fronts, expanding in fossils and creating new sustainable energy sources.

At present our new activities portfolio contains wind, solar, hydrogen, biomass and geothermal energy. We are front runners in gasification techniques, including Gas-to-Liquids. We are also studying CO_2 sequestration.

In fossils we are leaders in gas, especially LNG. We see gas as the 'bridging fuel' to the 'renewables age'. Shell also has production of non-conventional oils from oil sands. Plus intense R&D projects in shale, heavy oil and coalbed methane.

Energy transition is a fascinating business. I regard it as the equivalent of an Industrial Revolution.

Slide 3

I should now like to discuss some current developments in 'green' transportation fuels.
For instance, Shell's participation in the cellulose ethanol demo plant of the Canadian enzyme manufacturer Iogen.
Forget the conventional ethanol production method – here the work is done by the Trichoderma re-esei micro-organism. The organisms produce a unique enzyme that can decompose cellulose completely into sugars. Feedstocks can be anything 'green', from corn stalks and straw to poplar trees.
It is not just developing new energy sources, it also means creating jobs in the countryside, 'jobs for the rural boys'.

Compared with petrol, EcoEthanol derived from cellulose reduces carbon dioxide emisssions by more than 90 per cent.
This year a final investment decision will be taken where to build the first worldscale commercial plant. Investment needed is $200-300 million.

The EU Directive that states that by 2010 renewables will have to account for 5.75 per cent of the EU's transport fuel pool stimulates our thinking.
It is an interesting target, this 5.75 per cent. Not over-ambitiously high, but enough to demand the development of innovative production methods.

The only way to meet this target is by the development of second generation conversion techniques.
There are many more prospecting ways of Advanced Biomass Conversion. Industry plus science and technology groups have several research irons in the fire, because it is still uncertain what the winning solutions will be.
Other advanced conversion techniques under development are for instance Biomass-to-Liquids or fast pyrolysis. The latter is being developed by a group led by Professor Van Swaaij of Twente University of Technology here in the Netherlands.

According to Prof. Van Swaaij, this year's winner of the Royal Dutch/Shell Award for sustainable development and energy, advanced biofuels could supply 20-40 per cent of the global consumption of transport fuels by 2025.
In 50 years' time, biofuels could - in his vision - account for one third of global primary energy consumption. A quarter of all global acreage will then be used for growing 'energy crops'.

These systems, the enzyme route, BtL and fast pyrolysis, have the attraction that they do not require corn, sugar or wheat as feedstocks. In Shell's opinion it is an element of basic ethics that biomass-for-energy should not compete with the cultivation of food crops.

If we consider advanced biofuels to be the 'first line of attack' in the energy transition, hydrogen could be the second.
Major technical hurdles must still be overcome, like the on-board storage of hydrogen in cars. But our experts in Shell Hydrogen do not see these hurdles as either critical or unlikely to be resolved.

Fuel Cell Vehicles (FCVs) have the potential to become a mainstream technology. It is however difficult, if not impossible, to say when.
We foresee that a combination of advanced internal combustion engine technology and advanced biofuels could be an alternative.

Of course there is the classic 'chicken-and-egg problem'. No hydrogen cars will be sold if there are no hydrogen filling stations. And no stations will be built if there are no FCVs on the road.

Slide 4

To break this vicious circle, Shell Hydrogen is promoting the idea of 'Mini-Networks'. We advocate the founding of Public Private Partnerships. Each PPP would exploit four to six hydrogen filling stations on a semi-commercial basis. See them as satellites circling an existing industrial production site for hydrogen.
We should bear in mind that at present 50 million tons of hydrogen is already produced yearly worldwide. But almost entirely for industrial use in refineries and chemical complexes. And also almost exclusively derived from natural gas.

In a PPP we see a participation of fleet owners, car manufacturers, component producers, energy companies, governments and other authorities.
PPPs have a wider role to play. They must:

- create an infrastructure of hydrogen service stations;
- address technical and manufacturing challenges;
- fund the transition to mass production of FCVs;
- introduce international engineering and safety codes and standards;

- build political awareness and public understanding.

Consumers and citizen must be made enthusiastic for FCVs and hydrogen. But all in a realistic approach.
At present many politicians are very positive. Sometimes even to a level that bears the threat of over-enthusiasm that could create unrealistic expectations.

Every new technology, whether advanced biofuels or hydrogen, runs the risk of opposing pressure groups trying to hijack the issue. Either positively or negatively.
In the situation of a wide gap between vision and current reality, people often begin to feel anxious, frustrated or discouraged.
A common response is to evade the challenge. Either by narrowing the vision or by denying it, or by overlooking aspects of current reality.
Our challenge is to create platforms on which vision should simultaneously acknowledge current realities. Then energy is generated that tends to draw current reality towards the vision. And mutual trust is build.
As an industry this will support us to take effective actions to create the results we collectively want.
Consumer choice, political and environmental agendas will shape the future transportation markets.

Ladies and gentlemen, there is an old agricultural wisdom: 'You can't grow wheat faster by pulling at the stalks.'
Growth is better stimulated by careful watering, fertilizing and protecting crops against diseases and vermin.
We see Public Private Partnerships as nurseries. They can give the hydrogen transition a kick start and bring expectations, visions and realities into line with each other.

Slide 5
I'll come to my conclusions:

- Energy transition is a reality – Shell is investing in it on a global scale.
- But fossil fuels have to do the 'heavy duty work' during the run-up to the new energy future. 'Transition transport fuels' can be LPG, CNG and GTL.
- Biomass is most likely the front runner in producing green transport fuels. Hydrogen a runner up, with a very long term high potential in conjunction with nuclear fusion.
- Public Private Partnerships are necessary vehicles to accelerate energy transition.
- We have to create networks where realities and visions come together.
- We have to create mechanisms to make people enthusiastic for new energy and transport technologies, within the limits of reality.

I thank you for your kind attention.
Text Oct 8, 2004.