Towards a sustainable, reliable and affordable energy system in the Netherlands

The (energy) sector contributes substantially to Dutch national income, exports and employment. The government has therefore opted for a modern industry policy aimed at making better use of the economic opportunities for both green and grey energy. The Netherlands has embraced a courageous vision: by 2050, the country will have a sustainable, reliable and affordable energy system. As part of this, the Dutch aim to cut CO_2 emissions by half to generate some 40 percent of our electricity from sustainable sources like wind at sea and biomass by that time. Carbon emissions will be reduced by a combination which involves increasing the portion of renewable energy, energy saving, nuclear energy and Carbon Capture and Storage. By 2020, the European Renewable Energy Directive sets the target of 14% renewable energy. Renewable resources will play an important role in the bio based economy. To stimulate renewable energy production, the government has earmarked an annual sum of € 1.4 billion from 2015, which represents a major step towards achieving the 2020 target.

Innovation and public-private partnerships are key to the Dutch approach: the government, private sector, and academia co-operate on the following priority topics: energy savings in industry and the built environment, gas, smart grids, wind at sea, solar energy and bio energy. The Netherlands is experimenting with energy from waves, algae and biomass and the Dutch have developed innovative solutions in decentralised energy production in greenhouses, CO_2 'recycling' and waste heat utilisation for their energy intensive horticulture industry. As a result, compared to other countries, the proportion of installed decentralized capacity in the Netherlands is very high. In addition, the Dutch are investing heavily in Smart Grids, which facilitate developments such as electric vehicles. In fact, the city of Groningen has the first 'live' smart grid community in Europe: PowerMatching City.

Source: Flying Focus

Websites
www.cleantechholland.nl - Dutch export platform for Dutch clean tech companies
www.dekoepel.org – Dutch Renewable Energy Association (Dutch language)
www.energiened.nl – Association of Energy Producers, Traders and Retailers (Dutch language)
www.vlm.fme.nl - Association of Suppliers of Environmental Equipment and Technology
www.ecn.nl - Energy Research Centre of the Netherlands
www.biobasedeconomy.nl - Networking platform for government, companies, scientists and NGOs

Key aspects and strengths

- The Netherlands has established itself as a pivotal player in the European gas market. The country is not only a major natural gas producer and the source of advanced gas technology, it is also Europe's leading gas broker. Fifty years of experience in organising public-private partnerships to manage the gas business turned the country into a European gas hub. The Dutch have unmatched capacity to cope with seasonal fluctuations in gas demand, providing north-western Europe with much-needed flexibility. Renowned institutes such as the Groningen Energy Delta Institute train people from all across the globe. In addition, the Netherlands is establishing itself as leader in green gas.
- With its location at the heart of Europe and the logistical, petrochemical and industrial centre around the Port of Rotterdam, the Netherlands aims to become Europe's bio fuel hub.
- There is extensive experience in the field of energy efficiency due to a long tradition of multi-annual voluntary agreements on energy efficiency between Dutch industry and the government. This has made Dutch industry one of the most energy efficient in the world.
- The Dutch have leading expertise in offshore wind energy, co-combustion of biomass in coal-fired power plants, pre-treatment methods of biomass, the use of landfill gas, and the use of heat pumps combined with heat and cold storage.
- The Netherlands has an international reputation for research in renewable energy, due, in part, to the work of the energy research centre ECN. The Netherlands ranks 6th worldwide with regard to patent applications involving solar PV.

Facts & Figures

- Almost 30 percent of the European natural gas reserves are in the Netherlands. 15 to 20 percent of the gas consumed in Europe comes from the Netherlands. Total gas exports totalled 25.3 billion cubic meters in 2010.
- In 2010, the gross final electricity production from renewable sources represented 9.1 per cent of net electricity consumption, growing from 7.5 percent in 2008. The most significant renewable energy sources in the Netherlands were wind energy, which accounted for 3.5 and bio-energy accounting for 5.4 percent. Within bio-energy about half comes from co-firing, a quarter from waste incineration and the rest from biogas and local CHP plants.
- 6.3 million tons of municipal waste is converted in twelve efficient and clean waste incinerators to power, heat and reusable resources from the ashes.
- 'Green gas' technology, the gasification of biomass, has been patented by Dutch energy company ECN. Studies indicate that about 10 percent of the Dutch natural gas consumed can be replaced by biogas by 2020. In 2010, the annual production of green gas from biogas increased from 16 to 37 million Nm3.
- The distribution network for gas is the most dense in Europe and of very high quality, with a total length of 12,200 kilometres of transmission pipelines and 136,400 kilometres of distribution pipelines.
- In 2010, 2.2 million ton of bio ethanol and 1.5 million ton of biodiesel were imported in Rotterdam harbour for local use and trading.

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