



Kingdom of the Netherlands

Renewable Energy in Vietnam

In spite of Vietnam's current dependency on fossil fuels and coal, the Vietnamese government actively supports renewable energy, and the sector is thereby becoming increasingly interesting for Dutch companies and organisations. While realising the challenges, business opportunities can be found in biomass, wind and solar energy.

With a population of over 90 million people, Vietnam has the third largest population in Southeast Asia after Indonesia and the Philippines. Since the mid-eighties, the country has transitioned from the rigidities of a centrally planned economy into one of Asia's fastest growing emerging markets. It reached lower middle income status in 2010 and is a member of WTO and regional forums, including the Association of Southeast Asian Nations (ASEAN). After several years of lower economic growth, Vietnam's economy is gaining momentum again and is expected to grow by 6-7% annually in the upcoming years. Currently, the country has negotiated several Free Trade Agreements (FTAs), including one with the EU that is expected to be in place in 2018.

Due to both rapid industrialisation and remarkable economic growth, domestic energy consumption levels have increased with almost double the speed of Vietnam's already high GDP growth levels, growing on average by approximately 12% per year between 2006 and 2016. Different estimations of energy demand in Vietnam vary from increasing threefold to eightfold from 2015 to 2030.

According to the Boston Consulting Group, Vietnam's middle and affluent class will double in size between 2014 and 2020, from 12 million to 33 million. By 2020, Vietnam's average per capita income will rise from USD 1,400 to USD 3,400 a year.

Business environment

The market for renewable energy and energy efficiency in Vietnam is still limited in size, but it is definitely emerging and its growth potential is high, given rising awareness that continued economic and demographic growth ensure a subsequent increase in energy demand. The Vietnamese government is committed to the promotion of renewable energy and energy efficiency and has taken several measures (including mechanisms, policies, incentives and supporting schemes) to improve the environment for expansion over the last few years. Although this is a positive development, there are still a number of impediments – such as energy pricing and feed-in tariffs – that prevent a broad-scale translation of the renewable energy potential into bankable initiatives. Energy security and savings, cleaner production, emission reductions and sector reform will remain priority issues on the Vietnamese political agenda for years to come, and this is set to create significant market opportunities for trade and investment.

In March 2016, the government revised its '7th Power Development Plan for 2011 to 2030' and placed a stronger emphasis on renewable energy. Fossil fuels, hydro and coal still remain the main supply of Vietnam's energy consumption and were scheduled to grow strongly in the 7th Power Development Plan of 2011. In the revised 2016 version, however, the 2030 target for

coal production has been cut by approximately 30% from 76 GW to 55 GW. Instead, renewable energy – generated by solar technology in particular – will play a much larger role in 2030 compared to the 2011 estimate. Aside from this, the revised plan focuses on the liberalisation of the market. Currently the market is largely controlled by the Vietnam Electricity Cooperation (EVN), a state-owned enterprise. Despite the increasing level of energy market liberalisation since 2002, this power company still controls most of the infrastructure and generating capacity. It supplies electricity to consumers and industry at below-cost price, for which it is compensated through a complex system of subsidies. In the coming years the market is likely to improve as EVN will be part of Vietnam’s privatisation program.

Currently Vietnam lags far behind other countries in non-hydro renewable energy deployment, and it is using very little non-hydro renewable power for improvement of electricity access by households in the remotest areas (off-grid, mini-grid, or grid connected community systems). As hydro power approaches its maximum utilization, a growing reliance on coal could undermine the quality of Vietnam’s economic growth. In November 2015, the government of Vietnam adopted a Renewable Energy Development Strategy 2016 - 2030 with an outlook until 2050 (REDS), which came into force in 2016. The Strategy guides renewable energy development in the country, setting clear medium and long-term goals. Special focus herein is set on wind, biomass and solar technologies.

Feed-in Tariffs (FiT) are proposed by the Ministry of Industry and Trade and decided on by the Prime Minister. The FiT are a crucial element in building a bankable proposition for new renewable energy projects. Vietnamese FiT are indicated in the table below.

Although the current FiT is not at market price levels, there are still opportunities for Dutch businesses. The common misconception in Vietnam is that renewable energy at this moment is too expensive. However, most calculations are based on currently operated renewable energy systems and technologies. What is not included is the rapid pace of innovation and efficiency gains that can be seen in wind, solar and biomass technology.

Source	Decision	FiT	Remark
Solar	Decision No.: 11/2017/QĐ-TTg of April 11, 2017	VND 2,086/kWh (9.35 USD cents/kWh, excluding VAT)	<ul style="list-style-type: none"> • FIT only applicable if efficiency of solar cells is >16% or if efficiency of modules is >15% • In effect only until June 30, 2019
Wind	Decision No.: 37/2011/QĐ-TTg of June 29, 2011	VND 1,614/kWh (7.8 USD cents/kWh, excluding VAT)	For contract period of 20 years from the day of trading operation
Biomass	Decision No.: 24/2014/QĐ-TTg of March 24, 2014	VND 1,220/kWh (5.8 USD cents/kWh, excluding VAT)	For eligible plants over a period of 20 years
Solid Waste	Decision No.: 31/2014/QĐ-TTg of May 5, 2014	<ul style="list-style-type: none"> • Power generation projects by direct burning of solid waste: 2,114 VND/kWh (10.05 USD cents/kWh) • Power generation projects by combustion gas collected from the solid waste landfill: 1,532 VND/kWh (7.28 USD cents/kWh) 	

Power Purchasing Agreements with EVN, the energy infrastructure monopolist, are seen as the way to establish bankable propositions with predictable revenue flows according to long-term (20-year) contracts. The current template does not meet this goal yet, and relevant institutional stakeholders are in dialogue with the government to make the necessary adjustments.



Business opportunities

Wind energy

Vietnam is considered to have the best wind resources in Southeast Asia. Located in the monsoon climate zone, and shaped by its over 3,000 km long coastline, Vietnam’s potential to develop and generate wind power is large. The World Bank recently identified great potential for harnessing wind energy in Vietnam’s south central regions and the Mekong Delta. Estimations from an existing 2011 wind atlas cite around 24 GW of potential. In order to harness this potential, the country introduced FiT back in 2011 and the government now intends to revise these tariffs to make them market-oriented. Scaling up wind energy also calls for a favourable investment climate. This requires project developers, investors, financiers, policy-makers and public authorities to be familiar with the specific technical, commercial and socio-economic aspects of wind power. However, these upscaling objectives cannot be achieved in the present situation, as neither institutions nor investors are in a position to stimulate the wind energy market, nor to plan and implement wind energy projects in an economically viable manner.

According to the Renewable Energy Development Strategy 2016-2030, Vietnam will promote on-shore wind power until 2030 and assess the potential for off-shore wind resources as an electricity solution for after 2030. As other players are well-established on the on-shore Vietnamese wind market already and will have an advantage over most Dutch companies, opportunities will be better on the not-yet-established off-shore wind market. In the short term, consultancy projects in the on-shore wind sector could also be considered.

Biomass energy

Biomass is an important source of energy in Vietnam, and being an agricultural country, Vietnam has a high level of biomass energy potential. Agricultural waste is most abundant in the Mekong Delta region, responsible for approximately 50% of the waste of the whole country, and in the Red River Delta, producing 15% of the country's waste. It is estimated that approximately 90% of domestic energy consumption in rural areas is derived from biomass such as fuel wood, agricultural residues and charcoal. Moreover, biomass fuel is also an important source of energy for small industries located mainly in rural areas. According to a report of the Vietnam Energy Association, in total biomass could amount to up to 9 billion kWh in 2020 and 80 billion kWh in 2050. There are still many obstacles, such as high investment and low returns. The government is working on more supporting policies and land and tax incentives to reduce the costs of importing spare parts and equipment.

Opportunities for Dutch organizations can be found, as this is one of the sub-sectors for which there appears to be the strongest match between Dutch economic interests and the development opportunities in Vietnam. The Netherlands has much to offer in terms of biomass application, including a range of start-ups and accumulated expertise. Biomass is an area in which the Netherlands has a lot of experience as well as an explicit commitment to further developing its knowledge. While the level of sophistication of the Vietnamese market is relatively low, and the availability of capital limited, Vietnam offers an interesting opportunity for experimenting with different techniques and developing techniques that are particularly suitable for developing countries. Dutch businesses can offer various techniques for transforming raw biomass into energy carriers, including palletisation, torrefaction, gasification and pyrolysis. Alongside this, opportunities can be found in our strong record on agriculture, which could give the Dutch leverage to get involved at a strategic level in developing the Vietnamese government's approach to biomass use. On a more operational level, opportunities can be found in: knowledge transfer and capacity building, management and advisory skills, biogas- and landfill gas-related expertise, technological expertise, biomass-related projects and financial expertise.

Example of Dutch players in biomass

In the biomass sector, a project by SNV has installed 132,000 farm-scale biogas facilities, with a further 75,000 installed outside of the SNV program as a result of the demonstration effect. It may be possible to further utilise the potential of biogas. SNV is looking to move on to medium-scale biogas facilities for larger farms, e.g. with 500-1,000 pigs.



Solar energy

Having one of the highest number of hours of sunshine annually in the world – approximately 2,000 to 2,500 on average – Vietnam's potential for solar energy production is high. Vietnam's solar map shows that the southern regions in particular are suitable, reaching average solar intensity levels of 5 kWh per square meter per day. By 2030, Vietnam hopes to produce 12 GW of solar energy annually, coming from insignificant levels today.

As FiT were only introduced recently, solar energy production is currently minimal. However, the Ministry of Industry and Trade (MOIT) has accepted incentives for future investments in solar energy. Besides the FiT, additional land incentives, investment incentives, import tax exemptions and corporate income tax reductions will be provided once a solar PV project proposal is approved. As such, the country is preparing itself for large investments in the solar energy sector, and through the revised Power Development Plan Vietnam aims for the output of solar energy to go up from virtually nothing now to 0.8 GW in 2020 and 12 GW in 2030, the latter accounting for 3.3% of the total energy production that year. Dutch investors should keep a close eye on these developments, as once these incentives are implemented, the country will be poised to receive large sums of investments in solar energy production.

Currently there are more than 30 projects at some stage of development ranging from 20-300 MW, and plans to invest a total of USD 3.3 billion into solar energy development were reported in a single province of the country. As the proposed incentives for solar energy generation are accepted, the largest burden – lack of bankability due to FiT – for this sector has been overcome. As such, Dutch investors should keep an eye on developments in the country, as Vietnam is getting ready for large-scale investments in wind, biomass and solar energy projects to keep up with increased energy consumption and to meet government goals.



Source: Ly Minh Dang

Business support

The Embassy in Hanoi and the Consulate General in Ho Chi Minh City can provide information about the renewable energy sector in Vietnam and applicable rules and regulations. Companies can also be provided with an overview of potential business partners in Vietnam and can be introduced to relevant government authorities or businesses.

In addition, the Government of the Netherlands has developed several instruments to support Dutch companies in doing business in Vietnam, such as financing for demonstration projects, feasibility studies and knowledge acquisition. For more information, please visit www.rvo.nl.

For general information on doing business in Vietnam please refer to the [Factsheet Doing Business in Vietnam](#).

More information

For more information on Vietnam's renewable energy sector and the available instruments to support Dutch businesses, please contact the economic section of the embassy at:

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To remain updated on events and business opportunities in Vietnam, please sign up to our regional LinkedIn Group [ASEAN-Neth: Dutch Business in South-East Asia](#).

Trade fairs

- Enertec Expo (annual) www.vietnam-ete.com
- Renergy Vietnam (annual) www.renergyvietnam.com
- Electric & Power Vietnam (every two years) www.electricvietnam.com

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