



Danish Energy  
Agency

Three decorative circles are overlaid on the image: a purple circle in the upper right, a teal circle in the lower left, and a large white circle in the center containing the text.

The joint  
Danish-Vietnamese  
cooperation on  
climate and energy

# Key Data

## Vietnam

Population (millions):	92.7 (2016)
CO <sub>2</sub> -emissions (Mega tonnes):	168.3 (2015)
CO <sub>2</sub> (t/capita):	1.83 (2015)
kg CO <sub>2</sub> /GDP:	1.09 (2015)
Investment in RE (billion \$US):	0.7 (2016)

Source: IEA 2017, WorldBank 2016 and Frankfurt School-UNEP Centre/BNEF 2017

## NDC Goals - Vietnam

The government of Vietnam has committed to an unconditional reduction of carbon emissions by 8% against a baseline and up to 25% conditionally.



## Denmark

Population (millions)	5.7 (2016)
CO <sub>2</sub> -emissions (Mega tonnes)	32 (2015)
CO <sub>2</sub> (t/capita):	5.63 (2015)
kg CO <sub>2</sub> /GDP:	0.09 (2015)
Investment in RE (billion \$US):	2.5 (2016)

Source: IEA 2017, WorldBank 2016 and Frankfurt School-UNEP Centre/BNEF 2017



## Green government-to-government cooperation

Inclusive, sustainable growth and development is a strategic objective of Denmark's development cooperation. Economies in transition and emerging economies are considered key players for achieving the global Sustainable Development Goals and it is important to provide support for their sustainable development, as they demand expertise, knowledge, technologies and investments to make appropriate strategic choices for their sustainable development. This is not least true with regard to development of their energy sector.

The Danish Energy Agency's global cooperation intends to assist partner countries with their transition to a low carbon pathway reaching the National Determined Contribution (NDC) targets they committed to at COP21.

The primary modality of the Danish Energy Agency is to engage in government-to-

government cooperation to promote the common climate change agenda. It strives for true peer-to-peer exchange to advance the understanding of policy options, strengthen planning - and framework conditions, and strengthen enforcement of regulation.

The overall development objective agreed to by the counterparts of the Partnership Program between Denmark and Vietnam is that the most cost-effective opportunities for low carbon transition in energy system are more widely adopted throughout Vietnam.

## Facing the challenges

For emerging economies, a reliable and stable energy supply constitutes a critical component for continued economic development. The use of renewable energy resources and working for enhanced energy efficiency increases the reliability

of the energy system. The transition to low-carbon technologies also contributes to mitigate climate change – a global challenge very present to most emerging economies. Vietnam is a fast accelerating economy, increasingly experiencing change of land use with sprawling urbanization and bustling enterprises.

Anticipating a depletion of national energy resources, combined with high use of fossil fuels and inefficient energy use, is adding to climate change and instability of the energy system. In response to this, Vietnam has recently strengthened its ambition on climate change mitigation through a dramatic increase in use of renewable energy as well as reduced energy intensity. The Danish experiences of upscaling renewable energy use and energy efficiency, while maintaining economic growth, are put into action in a joint energy efficiency project in Vietnam.

## Cooperating on long-range energy planning, integration of RE in the power system and energy efficiency in industry

Since 2013, Vietnam and Denmark have had a long-term cooperation agreement to strengthen Vietnam's transition to a low-carbon economy. Based on already achieved results the cooperation with Vietnam for the period 2017-2020 has three main focus areas: scenario modeling of the

power sector, integrating renewable energy in the power grid, and energy efficiency in the industrial sector.

DEA cooperates with the Ministry of Industry and Trade (MOIT) in Vietnam through the joint Danish/Vietnamese DEPP program.

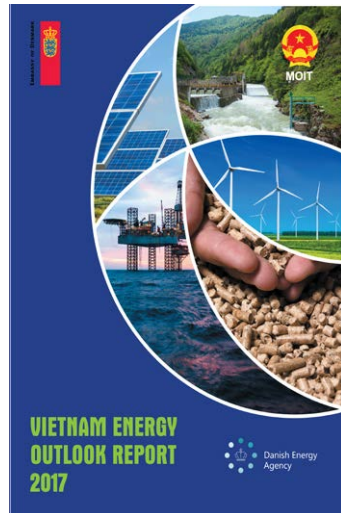


To underline the cooperation a Danish senior advisor is posted long term at MOIT in Vietnam.

The present three-year program is funded with DKK 21 million from the Danish Climate Envelope.

### Long-range energy planning

The government of Vietnam has adopted an ambitious strategy for renewable energy deployment in the power sector. To



assist the implementation of this strategy, Denmark has helped develop capacity in the field of power sector planning, using Danish tools and approaches to effectively integrate large amounts of renewable energy. In 2017 a power planning model was developed for Vietnam and MOIT and DEA have jointly published the first Vietnamese Energy Outlook Report 2017. The Energy Outlook Report 2017 indicates that it is possible to operate the Vietnamese electricity system with very high levels of renewable energy without incurring curtailment of RE generation.

The objective of the first component of the DEPP 2017-2020 program is to develop Vietnam's energy system in a more sustainable way through implementation of cost-optimized policy and planning by assisting the MOIT's Electricity and Renewable Energy Authority, EREA, to commission, develop, and analyze comprehensive long-term energy scenarios. The goal is that decisions on the future development paths of the energy sector are

based on the Energy Outlook Report and comprehensive scenario analyses carried out. It is expected a new Energy Outlook Report to be jointly published by 2019.

EREA, being the responsible agency under MOIT for the development of the Vietnamese Power Development Plan cooperation with DEA includes development and training in the use of the scenario modelling in Balmorel as well as other modelling tools in order to potentially integrate it in the National Power Development Plan 8.

### **Renewable Energy Integration in the Power System**

A well-managed and regulated power system is crucial for development of a low-carbon energy system. The responsible entity under the MOIT regulating the electricity activities and power market is the Electricity Regulatory Authority of Vietnam, ERAV.





The second component of the DEPP programme focuses on supporting ERAV's implementation of the 2013 prime ministerial decision on a power market reform. The reform sets out the conditions and power sector organizational structure to form and develop the power market in three stages in Vietnam. Good progress has been made in establishing the necessary regulatory framework and from 2019 onwards, a competitive power market can be operated in full.

The objective of the second component is through training to support ERAV in being sufficiently prepared for a new grid operation paradigm that efficiently integrates a larger share of variable RE into the electricity grid as targeted for in the Vietnam RE Master Plan. This will also support ERAV in its key objectives of furthering energy security, maintaining a reasonable price for electricity and protecting the environment.

Based on experiences from these activities, DEA will support ERAV in improving the regulatory framework for forecasting and ancillary services. DEA particularly supports ERAV and the National Load Dispatch Centre (NLDC) in the integration of variable renewable energy in the electricity system through capacity development in load forecasting and forecasting of generation. This will equip ERAV and NLDC with better tools for proactive handling of uncontrolled variations in supply and demand and hence more renewable energy can be integrated in the energy system without compromising security of supply. Furthermore, DEA supports ERAV and NLDC in assessment of needs for and effective procurement of ancillary services.



## Low carbon development in the industrial sector

The industrial sector being one of the most energy consuming sectors in Vietnam and it is essential to secure an energy efficient industry. Vietnam has a comprehensive policy on the promotion of energy efficiency (EE), particularly with regards to large energy intensive industries. The Department of Energy Efficiency and Renewable Energy Agency, EESD, under MOIT is responsible for managing the Law on Energy Efficiency and Conservation, LEEC, at national level. At provincial level the Departments of Industry and Trade, DOIT, is responsible for implementing the LEEC.

The focus of the third component of the DEPP 2017-2010 program is to further strengthen the policy on energy efficiency in industry in order to exploit the potential for improving the energy efficiency in the industry even more. Based on the experiences with implementing the LEEC at national and provincial levels

and DEA's experiences with regulating one of the world's most energy efficient industrial sectors, focus will be on possible adjustments of the legal basis and the implementation of the law both on national and local levels.

The objective will be to introduce a set of tools for MOIT to monitor the development in the impact of the LEEC and by this give MOIT the possibility to propose needed adjustments of the legal framework and guidelines, make the needed adjustments of the administration of the LEEC etc. Focusing on both national and provincial levels the possible adjustments will be thoroughly investigated in close cooperation with both EESD (MOIT) and the DOITs in two selected provinces.



The Danish Energy Agency's Centre for Global Cooperation supports emerging economies to combine sustainable future energy supplies with economic growth. The initiative is based on four decades of Danish experience with renewable energy and energy efficiency, transforming the energy sectors to deploy increasingly more low-carbon technologies.

Learn more on our website:  
[www.ens.dk/en/our-responsibilities/global-cooperation](http://www.ens.dk/en/our-responsibilities/global-cooperation)

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