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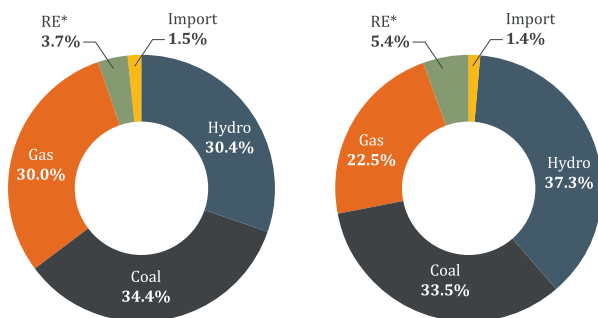
Support to the Up-Scaling of Wind Power

Expertise and experience from Germany to develop wind power in Viet Nam

The Energy Sector in Viet Nam

Viet Nam's fast-growing economy is the main driver for the **rapidly increasing electricity demand** throughout the country over the past years. Viet Nam's annual electricity production increased more than tenfold, from 8.6 TWh in 1990 to 145.5 TWh in 2014 (World Bank, EVN, 2015). The annual increase in this period was between 12-15%, almost twice as high as the GDP growth rate.

Viet Nam's **overall installed electricity generation capacity** was 39 GW in 2015. Hydropower, natural gas and coal are the dominant sources for power production.



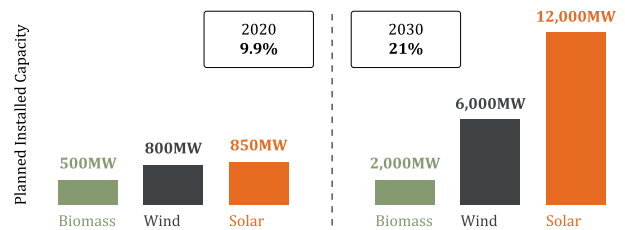
* Including small hydro power

Wind Power Sector in Viet Nam

According to the National Power Development Plan (PDP VII), Viet Nam aims to increase its renewable energy share in power production substantially. For wind power, starting on a low base of 52 MW installed capacity in 2015, the targets are set to **800 MW in 2020**, and **6,000 MW in**

Located in the monsoon climate zone, and shaped by its over **3,000 km** long coastline, Viet Nam's potential to develop wind power is large. Estimations from an existing 2011 wind atlas cite around 24 GW of potential. To develop the market,

however, a number of regulatory and market barriers as well as capacity needs need to be overcome.



Source: Revised PDP VII (calculated on the basis of projected electricity production in 2020/2030)

Up-Scaling of Wind Power in Viet Nam

The project **Support to the Up-Scaling of Wind Power in Viet Nam** aims to address these in the period 2014-2018 through technical assistance. It is implemented by the *Ministry for Industry and Trade (MOIT)* and its *General Directorate for Energy (GDE)* as well as the *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*. The project with a total budget of EUR 6.900.000 is commissioned by the Federal Ministry of Economic Development and Cooperation (BMZ) under the German Climate Technology Initiative (DKTI).

The project consists of **three Action Areas**, each geared towards the development of the sector.

1. Under the project, MOIT and GIZ work jointly on improving **Action Area 1: Legal and Regulatory Frameworks**. For example, guidelines are developed that improve the investment process into wind power in Viet Nam, and analyses are conducted highlighting the costs as well as the benefits for wind power in the energy mix. Amongst others, partners for these activities include Electricity of Viet Nam (EVN), the Electricity Regulatory Authority of Viet Nam (ERAV), the Institute of Energy (IE), as well as provincial authorities (e.g.DOITs).

Example: Proposal for a new Feed-in Tariff

Based on capital and operational expenditures as well as wind data in Viet Nam, GIZ has developed a tool to calculate a feed-in tariff that would likely be economically viable under local conditions. A proposal has subsequently been developed for the revision of the current tariff that is widely perceived as too low for a nascent market.

2. In order to tackle technical, financial, and practical needs in the sector, **Action Area 2: Capacity Development** comprises trainings with public institutions as well as Vietnamese project developers, local banks, consulting companies, or specialised engineering firms. Trainings and courses include subjects such as trainings on the entire project development, cash flow modeling for wind farms, grid-integration of wind farms, and financing trainings for local banks.

Example: Wind Power Evening Class

GIZ conducted this course from September to January 2016. As for content, technical and financial aspects of wind power development as well as policy support mechanisms were explained and discussed. In order to address the existing gender imbalance in the energy sector, GIZ promoted the participation of female students. As a result, the evening class counted with more than 40% of female participants, and 5 of the top 10 performers were women. Due to the overall success and high interest, the evening class will be additionally implemented in 2017 in Ho Chi Minh City, Da Nang and Can Tho.

Example: Wind Measurement Campaign

GIZ is measuring wind speeds at 60m and 80m height at different sites in the country in an effort to validate, and improve the accuracy of available meteorological surface data as well as identify potential sites for the development of projects. The data is published on the [World Bank Open Energy Data Platform](#) and further description of the sites of wind measurement are available on [Google Maps](#).

3. In order to learn from the extensive experience in wind power development in Germany, **Action Area 3: Technology Cooperation** aims to facilitate partnerships between the two countries. Research cooperation between Vietnamese and German universities on wind power are supported through the project. Additionally, companies in the wind power sector of the two countries are brought together in order to transfer knowledge and technology, provide opportunities for business partnerships as well as investments into wind power.

Example: Wind Power Summer School

MOIT and GIZ are working closely with German and Vietnamese universities to organise a two-week Wind Power Summer School in summer 2016. Up to 30 students of engineering, economics, or financial disciplines from the two countries will have the opportunity to learn from experts and companies how the technology works, projects are being developed and financed, and maintained. The summer school is rounded up by a job fair.



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Registered offices

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Address

MOIT/GIZ Energy Support Programme
Unit P042A, 4th Floor, Coco Building
14 Thuy Khue Street, Tay Ho District, Hanoi, Viet Nam
T +84 (0) 4 39 41 26 05
F +84 (0) 4 39 41 26 06
E office.energy@giz.de
I www.giz.de/vietnam
www.gizenergy.org.vn

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Author

Tobias Cossen, Hanoi

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Incamedia
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