



Vietnam towards net zero with Danish support

Vietnam pledges to net zero by 2050 at COP26. Denmark supports Vietnam in realizing goals.

During COP26 in 2021, Vietnam pledged to net zero emissions by 2050. With an energy and carbon intensive economy under rapid development, the challenge will be significant. Since 2013, Vietnam and Denmark have had an official collaboration on energy. The partnership focuses on offshore wind and energy efficiency.

Potential for offshore wind in Vietnam is substantial. Danish firms are already present in the market.

Vietnam has considerable potential for offshore wind energy with over 3200 km of coastline. By 2030, Vietnam can have more than 10 GW offshore wind energy generation given improved regulatory conditions. A number of Danish wind companies are already operating in Vietnam and have recently increased their presence here.

Energy efficiency is a priority for Vietnam.

With rapidly increasing energy demand and substantial energy waste in industry, energy efficiency is a priority for Vietnam. Danish companies already export energy efficiency technology to Vietnam.

Danish energy technologies to Vietnam increased in recent years.

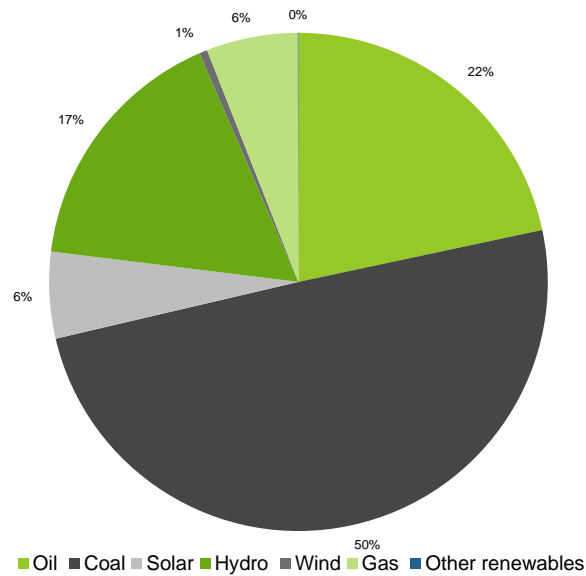
Recent years have seen a significant increase in Danish energy technology export to Vietnam. The exports amounted to over 250 mill. DKK in 2021 and consist of a broad range of technology areas that all have witnessed increases in recent years.

Vietnam's energy mix is dominated by fossil fuels, with coal at 50%.

GDP, energy consumption and carbon emissions

Vietnam is a developing country with high GDP growth and a high dependency on fossil fuels. 78% of energy consumption comes from fossil fuels – coal 50%, oil 22%, gas 6%. The rest of the energy mix consists of 17% hydro, 6% is solar and 1% wind energy. Vietnam has no nuclear energy generation.

Figure 1: Vietnam’s energy mix, 2021

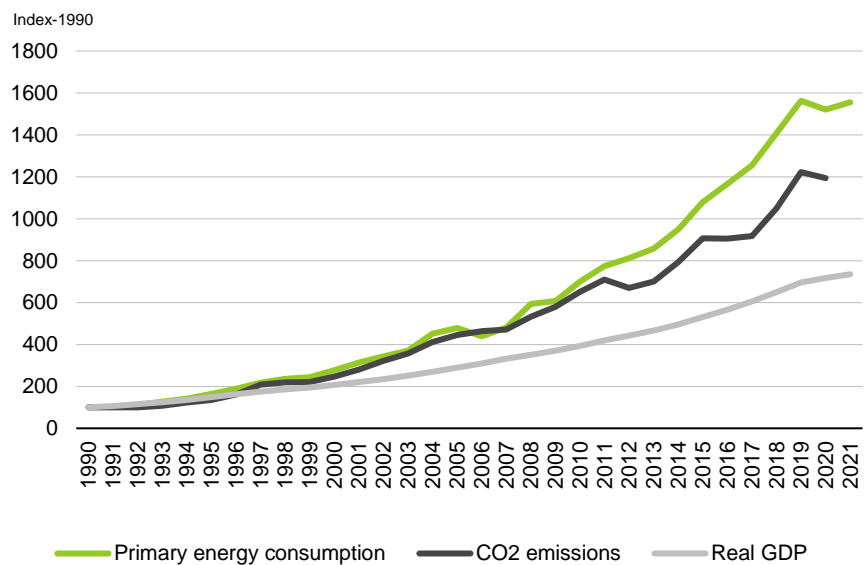


Source: Our World in data

Strong GDP growth with even higher rates of growth for energy consumption and CO2 emissions.

From 1990 to 2020, Vietnam has experienced annual average growth in GDP by 7%, leading to a 7-fold increase in GDP over that period. Meanwhile, annual energy consumption has grown by approximately 9,5% and CO2 emissions by 8,5%. Typical for a developing growth economy, energy consumption and carbon emissions have increased at higher rates than GDP. In the past decade a slight decrease in carbon intensity of energy consumption has occurred.

Figure 2: Real GDP, energy consumption and CO2 emissions

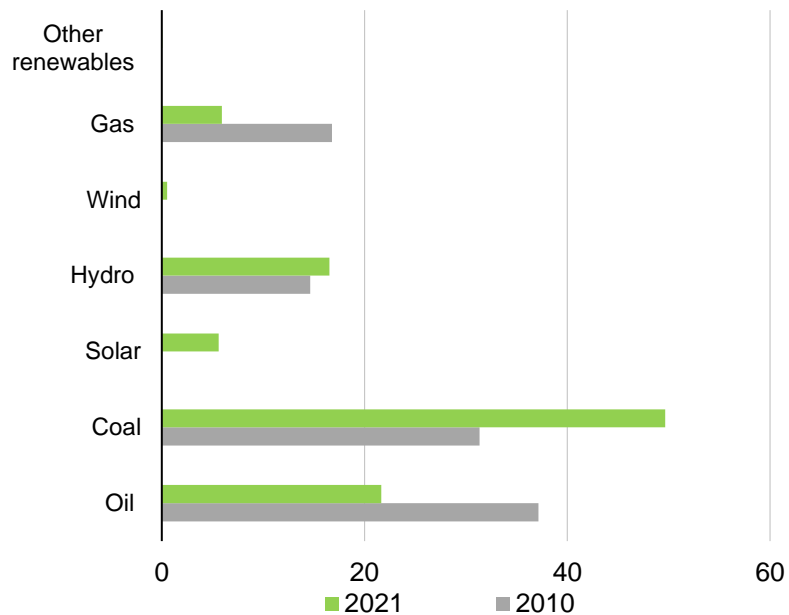


Source: Our world in data and the World Bank

Significant increase in renewables over the last decade but still low. Substantial increase in use of coal while decrease in oil and gas.

The share of solar and wind in the energy consumption accounts only for a small portion, 6% in 2021. Nevertheless, it represents a relatively large increase from below 1% in 2010. Vietnam has also experienced an increase in the share of hydro power from 2010-2021 from an already high level. The most remarkable change in primary energy consumption during the last decade is from oil to coal. The share of oil consumption is down by 15 percentage points while the share of coal consumption is up 18 percentage points. Additionally, the gas share has declined by 11 percentage points.

Figure 3: Share of energy consumption by energy source



Source: Our world in data

Vietnam commits to net zero by 2050.

Vietnam towards net zero with Danish support

As a developing nation, Vietnam's engagement in climate change mitigation is still in its early stages. Nevertheless, Vietnam has increasingly taken steps to mitigate climate change over the last decade, committing to net zero emissions by 2050. However, as a nation in rapid economic development with a large energy intensive industry and almost 100 million inhabitants with increasing income and living standards, this commitment will be challenging.

Vietnam is partnering with Denmark to support the energy transition.

In order to address this challenge, Vietnam has partnered with Denmark for guidance and support. Vietnam Energy Outlook Report 2021 has been issued with the assistance of the Danish Energy Agency, detailing Vietnam's path toward net zero emissions.

Vietnamese-Danish energy partnership is entering its third phase with a focus on offshore wind and industrial energy efficiency.

Vietnam has a large potential for offshore wind. By 2030 Vietnam can achieve 10 GW offshore wind and 30-65 GW by 2045 with improved regulatory conditions.

Danish wind technology companies are active in Vietnam. The present increase in activity is likely to continue.

Rapid energy demand growth and an industrial sector with substantial energy waste make energy efficiency a priority. Denmark is actively developing energy efficiency measures and exporting technology to Vietnam.

Denmark and Vietnam began their energy collaboration in 2013 with Danish support dating back even further.

The Energy Partnership Programme between Vietnam and Denmark is now entering its third phase. The first phase focused on low carbon development in the industrial and building sectors and the second phase concentrated on energy efficiency and renewable energy integration. The third phase will focus on offshore wind and industrial energy efficiency between 2021 and 2025.

Offshore wind and energy efficiency

Vietnam has considerable potential for offshore wind with over 3,200 km of coastline. According to the Danish Energy Agency the potential amounts to 137 GW while the World Bank estimates as much as 600 GW. Vietnam can feasibly achieve 10 GW of offshore wind in 2030 and 11-25 GW in 2035 supplying 5-12% of the country's electricity needs, according to the World Bank and the Danish Energy Agency. The current draft of the Vietnam Power Development Plan 8 estimates similar numbers with offshore wind power capacity at about 7 MW in 2030 and 30-65 GW in 2045 supplying 10-15% and 31-43% of electricity needs, respectively. However, this is contingent upon improved regulatory conditions.

Danish manufacturers, wind developers, and suppliers are already active in Vietnam, and their turbines make up most of the new onshore wind energy deployed. As such, Denmark already has a substantial wind energy presence in Vietnam, which is expected to grow in the coming years as witnessed by strong collaboration and agreements for future development of wind projects.

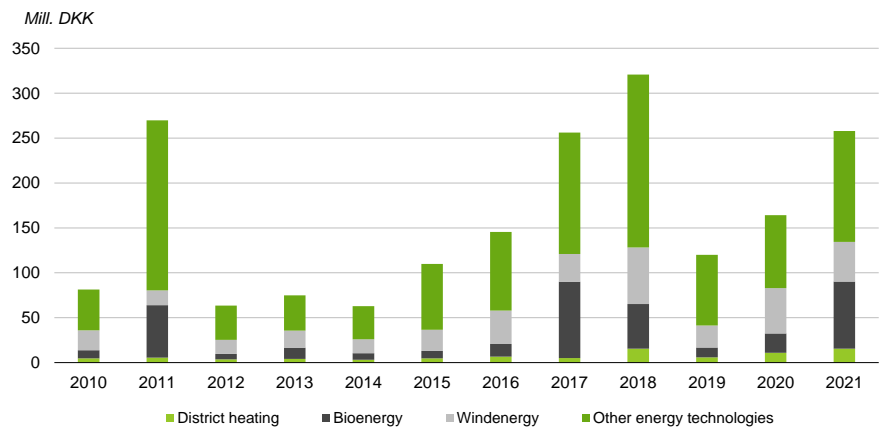
Vietnam's energy demand is increasing rapidly with an annual growth rate of 11%. The industry is driving most of the demand accounting for 49% of total energy demand at present. Energy waste in the industrial production is substantial. Thus, energy efficiency improvements within the industry are a priority for Vietnam and policies addressing the area have been introduced. Part of the Danish Energy Partnership Programme focuses on implementing necessary energy efficiency regulations in the energy-intensive industrial sector. It also assists 63 provinces in developing energy efficiency action plans. Within selected high-intensive energy industries in Vietnam, incentives are planned, and a catalogue of energy efficiency technologies is under development. As the largest category of energy technology exported to Vietnam, energy efficiency technologies are already significant. The newly introduced initiatives are likely to increase exports further.

Significant increase in Danish energy technology exports over the last 5 years. The main drivers of increased export are bioenergy and wind power, but "other energy technologies" remains the largest group.

Danish energy technology export to Vietnam

Danish exports of energy technology to Vietnam has increased over the last decade. Recent years have seen significant increases, with average annual exports being 110 mill DKK in 2010-2015 and 210 mill DKK in 2016-2021, however with strong annual variation. "Other energy technologies" represent the largest export group, but bioenergy and wind power have driven the recent export increase.

Figure 1: DK Energy technology Exports to Vietnam



*Note: Other technologies denotes technologies for energy production, energy storage, and various components.
Source: Eurostat and calculations by the Danish Energy Industries Federation*