

Vietnam



Country at a glance

- Population: 87.8 million (2010) [1]
- Total area: 331,210 sq. km [2]
- Carbon emissions per capita: 1.49 metric tons (2010) [3]
- Energy consumption per capita: 0.01 MWh (2010) [4]
- Percentage of global carbon emissions: 0.43% (2010) [3]



Vietnam's Largest solar facility

This solar cell array, of 1092 high efficiency solar panels, is the second largest outside of the USA. It is seen here being tested in Ho Chi Minh City. The system is expected to generate about 321 MWh per year.

Intel Goes Solar in Vietnam by IntelFreePress. Permission Under CC BY 2.0 License
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Table 1 Breakdown of energy use, electricity and heat generation, 2010

	Primary energy sourced within country		Energy imports minus exports	Primary energy used within the country ^(a)			Electricity Generation ^(b)		Heat Generation ^(c)		
	unit	ktoe		%	ktoe	GWh	%	GWh	%	GWh	%
Coal, including brown coal & peat		24,646	37	0	14,651	170,393	25	19,687	21	0	0
Oil fuels		16,030	24	2,852	18,982	220,764	32	4,009	4	0	0
Natural gas		8,122	12	0	8,122	94,454	14	43,602	46	0	0
Nuclear		0	0	0	0	0	0	0	0	0	0
Hydroelectric		2,369	4	0	2,369	27,555	4	27,550	29	0	0
Biofuels and waste		14,707	22	0	14,707	171,046	25	55	0	0	0
Solar photovoltaics		0	0	0	0	0	0	0	0	0	0
Solar thermal		0	0	0	0	0	0	0	0	0	0
Tide, wave and ocean		0	0	0	0	0	0	0	0	0	0
Wind		0	0	0	0	0	0	0	0	0	0
Geothermal		0	0	0	0	0	0	0	0	0	0
Electricity (imported)		0	0	399	399	4,636	1	0	0	0	0
Sub total Renewables		17,077	26	0	17,077	198,601	29	27,605	29	0	0
Totals		65,874	100	3,251	59,230	688,849	100	94,903	100	0	0

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

Notes:

Standard conversion used is 1 ktoe = 11.63 GWh

(a) Sum of energy sourced within country, energy imports minus exports, international marine and aviation bunkers and stock change flows.

(b) Includes all electricity generation, including any exported.

(c) Does not include electrical heating. Includes waste heat recovery from electricity generation plants.

Table 2 Breakdown of transport fuel use, 2010

(in ktoe)	Total transport mix	%	Domestic aviation	Road	%	Rail	Pipeline transport	Domestic navigation	Non-specified (transport)
Oil products	10,144	100	249	9,895	100	0	0	0	0
Total	10,144	100	249	9,895	100	0	0	0	0

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

Stand on climate change

Vietnam ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 16 November 1994 and the Kyoto Protocol on 25 September 2002. During the UNFCCC COP 17 in Durban, Vietnam's Minister of Agriculture and Rural Development stated that Vietnam has recently approved the nation's National Strategy on Climate change for providing long-term and clear direction for the country to act on climate change adaptation, mitigation and cross-cutting issues in addition to other on-going policies and programmes [5].

National climate change programmes

In 2003, the National Environment Protection Strategy by 2010 and vision until 2020 was approved by the Prime Minister. The strategy aims to promote the application of clean technologies, cleaner production processes and the use of less polluting, more environmentally sound fuels and materials. In 2006, the Government established the National Target Program (NTP) on Energy Efficiency to raise public awareness, promote research and development of science and technology, and enforce regulations on energy conservation and efficiency. The Program sets a three to five per cent conservation rate for national energy consumption for 2006-2010 and five to eight percent for 2011-2015.

In 2008, the Government approved the NTP to Respond to Climate Change. The main objective of the Program is to determine sectoral and regional impacts for each time period, so as to develop feasible action plans to effectively respond to climate change, in the short and long term, in order to achieve sustainable development, to seize opportunities to develop towards a low-carbon economy and to join the international community's efforts in mitigating climate change and protecting the climate system. The development and implementation of GHG mitigation options, such as CDM projects, have made substantial contribution to achieving the national sustainable development goals. The NTP lays out nine targets and their means for 2009-2015, including the 93 formulations and implementation of GHG mitigation options. In addition, the Government has also issued many other legal documents related to climate change response [6].

As part of Vietnam's Ministerial Statement at the UNFCCC COP 17, the country has been committed to work towards a low carbon economy by reducing Green House Gas emissions especially in the agriculture, industrial and transportation sector, as well as through the National Target Programme (NTP) to respond to Climate Change. Vietnam has also adopted the approaches of voluntary climate change adaptation and mitigation, National Programme on Energy Efficiency and Conversation, the development and use of renewable energy, 5 million hectare reforestation programmes, UN-REDD Viet Nam [7].

Energy Sector:

- Switching from coal-fired to LNG thermal power: By 2030, 500 MW of electricity produced by thermal power plants will be generated by LNG instead of coal.
- Small-scale hydropower replacing coal thermal power: By 2030, 150 MW of coal-fired electricity will instead be produced by small-scale hydropower. Because the amount of electricity generated by a small-scale hydropower plant is relatively small-50% of its power, the generation of 150MW of electricity, a hydropower plant needs a capacity equivalent to 240 MW.
- Wind power replacing coal-fired thermal power: By 2030, 200 MW of coal-fired thermal power will instead be produced by wind power. A wind power station has 100% efficiency despite generating electricity equal to about 25% of its power; the generation of 200MW of electricity requires a wind power station with a capacity of 640 MW. The CO2 mitigation potential of this option is approximately 14.2 million tCO2 at an abatement cost of US\$16.2/tCO2 [6].

- Development and use of renewable energy
 - The National Energy Development Strategy (for the period up to 2020, with an outlook to 2050) Targets to develop power plants and power networks, ensure sufficient supply of electricity for socio-economic development, and ensure the 99.7% reliability of electricity supply in 2010.
 - Achieving a share of renewable energy in the total commercial primary energy supply of 3% in 2010, 5% in 2025 and 11% in 2050;
 - Completing the energy program for rural and mountainous areas, and increasing the proportion of rural households using commercial energy to 50% in 2010 and 80% in 2020 (by 2010, 95% of rural households will have access to electricity)
 - The Renewable Energy Action Plan and Power Development Master Plan of Vietnam, period of 2011-2020, outlook to 2030 are also supporting the development of energy sector. Vietnam has Avoided Cost Tariff (ACT) for renewable power production. The electricity tariff is calculated by avoided costs of the national power grid when 1 kWh is generated to the distribution power grid from a small renewable energy power plant [8].

Agriculture Sector:

- Rice paddy field water drainage in the Red River Delta: An active irrigation and drainage system ensuring adequate water supply has been used for one million ha of rice paddies in the Red River Delta, with 50,000 ha in 2010, 700,000 ha by 2020 and finally 1,000,000 ha by 2030.
- Rice paddy field water drainage in the South Central Coast: An active irrigation and drainage system ensuring adequate water supply has been applied to 200,000 ha of rice paddies in the South Central Coast with 30,000 ha in 2010, 150,000 ha by 2020 and finally 200,000 ha by 2030.

Forestry sector:

Use a combination of the programs within the agro-forestry sector such as the programs to protect and conserve existing forest areas and forest plantation program, etc. in order to speed up the implementation of the programs to conserve and enhance the greenhouse gas sinks in Vietnam. To protect, develop and ensure sustainable usage of 16.24 million ha of land that have planned for the forestry; as well as to increase forest coverage from 37% in 2005 to 42.6% by the year of 2010 and 47% by the year of 2020 [7].

Ministry of Agriculture and Rural Development co-ordinate with other Ministries, sectors and localities to develop sectoral action plan to mitigate green house gases emission, protect forest and green house gases sinks via policies, technologies, awareness raising. Those are:

- Develop the programs to effectively utilize bare land and bold hills to create more employment, thus promote hunger eradication and poverty reduction, and resettlement;
- Participate in the programs of forestry sector to propose the policy encouraging the use of alternative materials
- Develop the program to carry out the measures irrigating paddy fields; change of the crops; properly plan the season to reduce the greenhouse air;
- Push up the livestock rearing, closely linked to animal feed industry and treatment of animal waste (in form of biogas) [7].

Ministries involved in climate change/energy policy making:

Ministries involved	Web links
Ministry of Natural Resources and Environment	www.monre.gov.vn/v35/default.aspx?tabid=673
Ministry of Agriculture and Rural Development	www.agroviet.gov.vn/en
Ministry of Industry and Trade	tietkiemnangluong.com.vn/en

Education institutes involved in climate change/energy policy making:

Education Institutes involved	Web links
University of Applied Science, Laurea	www.laurea.fi/en/

References

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