MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT OF VIETNAM
DEPARTMENT OF CLIMATE CHANGE

# *DECARBONIZATION FROM ENERGY TRANSITION*



## Japan's contributions towards a decarbonised and resilient Asia

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# VIETNAM GHG EMISSIONS IN 2010, 2014 AND 2016

*Unit: Thousand tons of $CO_2e$*

| Sectors | | 2010 | 2014 | 2016 |
|---|---|---|---|---|
| ***Total emission*** | | ***264,210.67*** | ***278,659.70*** | ***316,734.96*** |
| 1 | Energy | 151,879.06 | 175,540.20 | 205,832.20 |
| 2 | IPPU | 25,844.05 | 38,732.71 | 46,094.64 |
| 3 | AFOLU | 68,710.81 | 44,997.92 | 44,069.74 |
| 4 | Waste | 17,776.74 | 19,388.87 | 20,.738.38 |

*Source: Vietnam BUR3*

***Energy sector***: emissions in 2016 increased by **17.3%** or 30,292.00 thousand tons of $CO_2e$ compared to 2014 and by **35.5%** or 53,953.14 thousand tons of $CO_2e$ compared to 2010.

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# BAU SCENARIO OF ENERGY SECTOR TO 2050

*Unit: Millions tons of $CO_2e$*

| Emission sources | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ***2014*** | ***2020*** | ***2025*** | ***2030*** | ***2035*** | ***2040*** | ***2045*** | ***2050*** |
| **Manufacturing and constructions** | 49.4 | 66.9 | 114.2 | 257.5 | 301.4 | 359.9 | 407.4 | 455.8 |
| **Transport** | 33.2 | 47.7 | 65.1 | 89.1 | 118.4 | 152.7 | 192.5 | 241.4 |
| **Commercials, Agriculture and Services** | 13.6 | 18.1 | 25.1 | 41.2 | 56.1 | 73.3 | 89.5 | 109.3 |
| **Energy Industry** | 75.4 | 214.8 | 296.3 | 290.6 | 355.2 | 386.8 | 413.0 | 403.8 |
| **TOTAL EMISSION** | 171.6 | 347.5 | 500.7 | 678.4 | 833.8 | 972.7 | 1102.4 | 1210.3 |

*Source: Vietnam NCCS 2022*

***Electricity demand 2021-2030***: based on data of PDP8 and updated NDC report 2020.
***Energy/electricity demand 2031-2050***: based on PDP 8 and the Draft "National Energy Master Plan for the 2021-2030 period, range look to 2050".

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# VIETNAM'S SCHEME ON TASKS AND SOLUTIONS TO IMPLEMENT THE DECISIONS OF COP26

**July 25th, 2022 - Decision No. 888/QD-TTg** approving the Scheme on tasks and solutions to implement the decisions of the 26th Conference of the Parties to the UNFCCC (COP26) aims to:

- actively participate in the global low-carbon development;
- mobilize resources to innovate technology to transform growth models and restructure the economy;
- contribute to global efforts to respond to climate change;
- develop solutions to respond to climate change and implement energy transition to fulfill the commitment to achieve "net zero emission" by 2050.

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# BAU SCENARIO OF ENERGY SECTOR TO 2050

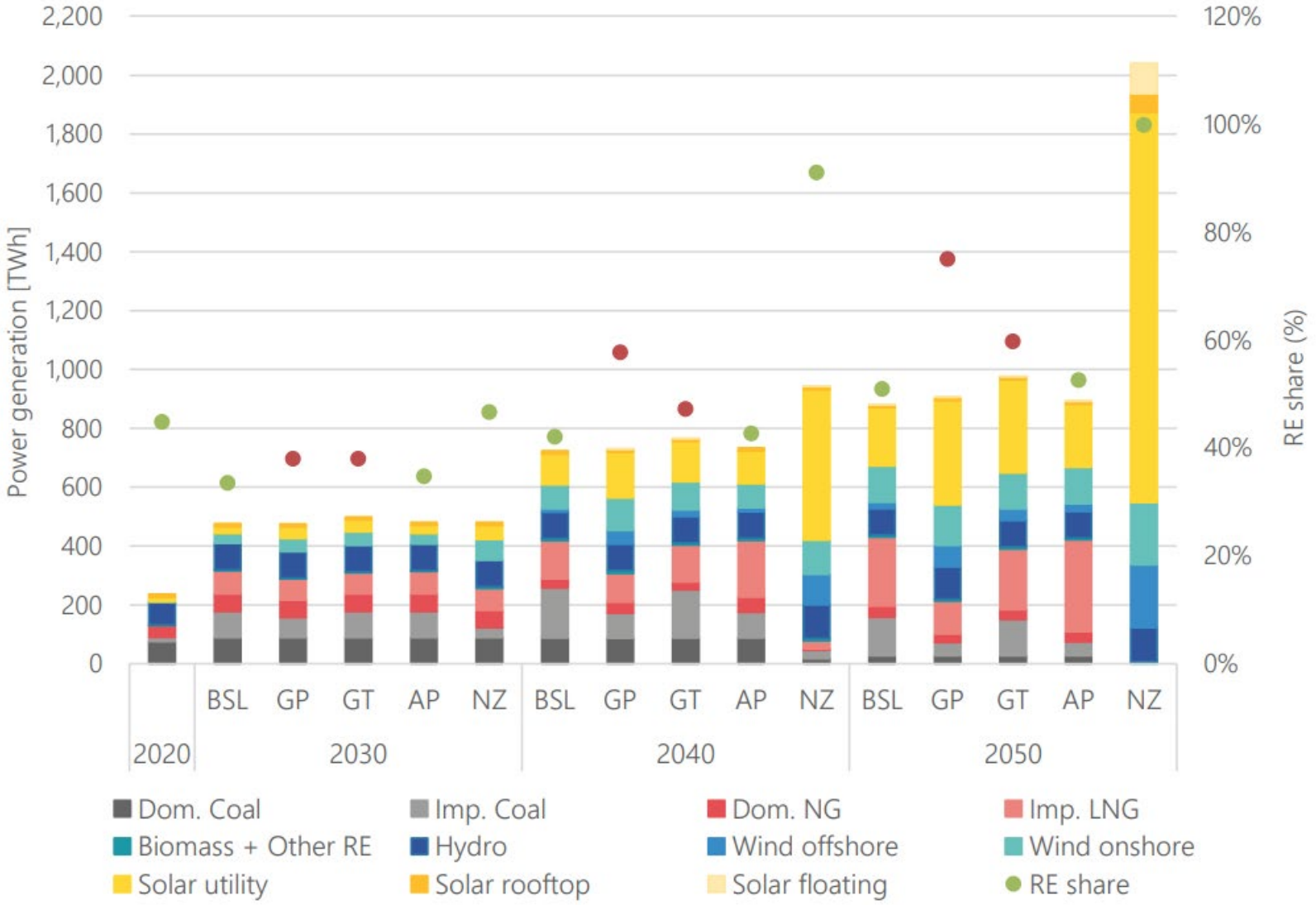


Figure 5.5 Power generation in analysed scenarios

*Source: Vietnam Energy Outlook 2021*

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# VIETNAM'S SCHEME ON TASKS AND SOLUTIONS TO IMPLEMENT THE DECISIONS OF COP26


## ENERGY-RELATED OBJECTIVES

- Encourage the use of **green energy in transportation**, using 100% E5 gasoline; **reduce greenhouse gas emissions by 32.6% in energy production** (compared to the BAU scenario).
- Realizations of **offshore wind and wave energy potentials**; identify marine areas that attract investors, implement and operate offshore wind power projects;
- **Renewable energy sources** (hydroelectricity, wind power, solar power, and biomass power) shall account for at least **33%** of total electricity generation; reduce fossil fuel sources;
- Develop **new energy projects with no emissions** such as hydrogen fuel, green ammonia,
- Develop **energy storage technology** (battery, hydroelectricity, heat storage, smart grid); ensuring stability and integrating renewable energy in the power system at high rate.

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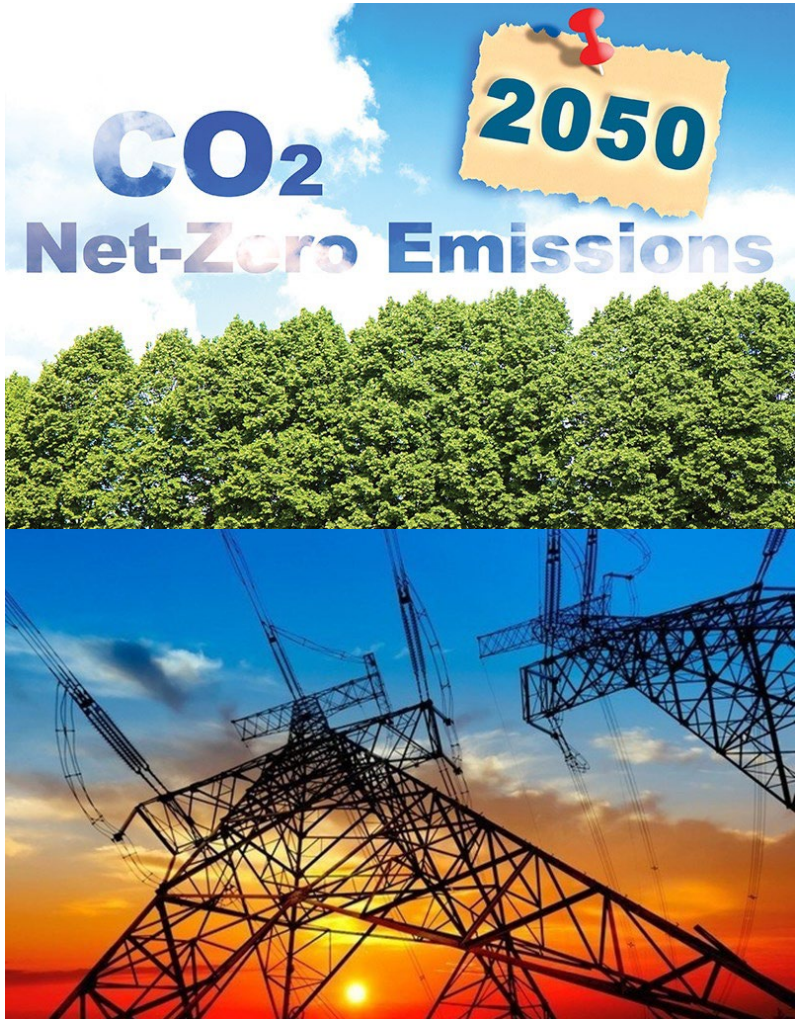
# VIETNAM'S NATIONAL STRATEGY OF CLIMATE CHANGE TO 2050

**July 26, 2022, Decision No. 896/QD-TTg** approving the National Strategy on Climate Change for the period to 2050 in order to

- proactively **adapt to climate change**, reducing vulnerability, loss and damage to climate change;
- reduce greenhouse gas emissions to achieve "**net zero emission**" by 2050,
- **actively and responsibly contribute to the international community** in protecting the earth's climate system;
- **take advantage of opportunities** from climate change response to transform growth models, improve resilience and competitiveness of the economy.



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# VIETNAM'S NATIONAL STRATEGY OF CLIMATE CHANGE TO 2050

**By 2030, reduce GHG emissions by 43.5% compared to the BAU**

- ***Energy sector***, reduce by 32.6% and will not exceed 457 million tons of CO2eq.
- ***Agricultural sector***, reduce by 43.0% and will not exceed 64 million tons of CO2eq.
- ***Forestry and land use sector***, reduce by 70% and carbon sequestration to increase by 20%, at least - 95 million tons of CO2eq.
- ***Waste sector***, reduce by 60.7% and will not exceed 18 million tons of CO2eq.
- ***Industrial processes***, reduce by 38.3% and will not exceed 86 million tons of CO2eq.
- Facilities with annual GHG emissions of *2,000 tons of $CO_2$eq* or more must reduce GHG emissions.

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# VIETNAM'S NATIONAL STRATEGY OF CLIMATE CHANGE TO 2050

**By 2050, net zero emissions (peak in 2035)**

- ***Energy sector***, reduce by 91.6% and will not exceed 101 million tons of CO2eq.
- ***Agricultural sector***, reduce by 63.1% and will not exceed 56 million tons of CO2eq.
- ***Forestry and land use sector***, reduce by 90% and carbon sequestration will increase by 30%, total of at least -185 million tons of CO2eq.
- ***Waste sector***, reduce by 90.7% and will not exceed 8 million tons of CO2eq.
- ***Industrial processes***, reduce by 84.8% and will not exceed 20 million tons of CO2eq.
- Facilities with annual GHG emissions of *200 tons of CO2eq* or more must reduce GHG emissions.

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# VIETNAM'S NATIONAL STRATEGY OF CLIMATE CHANGE TO 2050

## GHG EMISSION REDUCTION IN ENERGY SECTOR

### Energy supply

- Accelerating **clean energy development** and **energy efficiency**;
- Develop small **hydropower plants** & expanding a number of medium and large hydropower plants;
- Increasing the capacity of concentrated solar power plants, rooftop solar power, onshore and offshore wind power, biomass power, developing technologies for hydrogen, ammonia, tidal and wave energy;
- By 2030, renewable energy sources will account for at least **33%** of total electricity generated, **55%** by 2025;
- Gradually shifting from **coal power to cleaner energy**; convert to clean, zero-emission fuels for fossil fuel-fired plants, towards the maximal reduction of fossil fuels for power generation by 2050;
- Considering developing **nuclear power** with modern technology while safety conditions are met;
- Developing **energy storage technologies** and smart grid, ensuring a high level of stability and integration of renewable energy in the power system
- Upgrading **energy transmission and distribution system** to increase efficiency, reduce loss, and support the efficient integration of renewable energy sources.
- Researching and applying **carbon capture and storage** (CCS) technology for power plants using fossil fuels and industrial production facilities.

# VIETNAM'S NATIONAL STRATEGY OF CLIMATE CHANGE TO 2050

## GHG EMISSION REDUCTION IN ENERGY SECTOR

### Energy use

- Strengthening energy efficiency solutions and promoting the shift to clean energy;
- Increasing the penetration rate of energy-efficient and high-performance equipment, using hydrogen to replace coal;
- Agricultural electrification and energy efficient equipment in post-harvest agricultural production chains.
- Developing anti-heat buildings and houses, using green, nature-based cooling solutions, using low-emission building materials and recycled materials.
- Developing and applying energy efficiency standards and regulations for buildings;
- Improving energy efficiency of equipment and cold chain systems;
- Using energy efficiently in transportation through applying fuel consumption standards, roadmap to switch to using clean fuel for vehicles, electric and hydrogen vehicles.
- Restructuring the transport market, road transport to inland and coastal waterways; road to railway transport, increasing transport efficiency;
- Transitioning from private to public transport; deploying the metro system in big cities.

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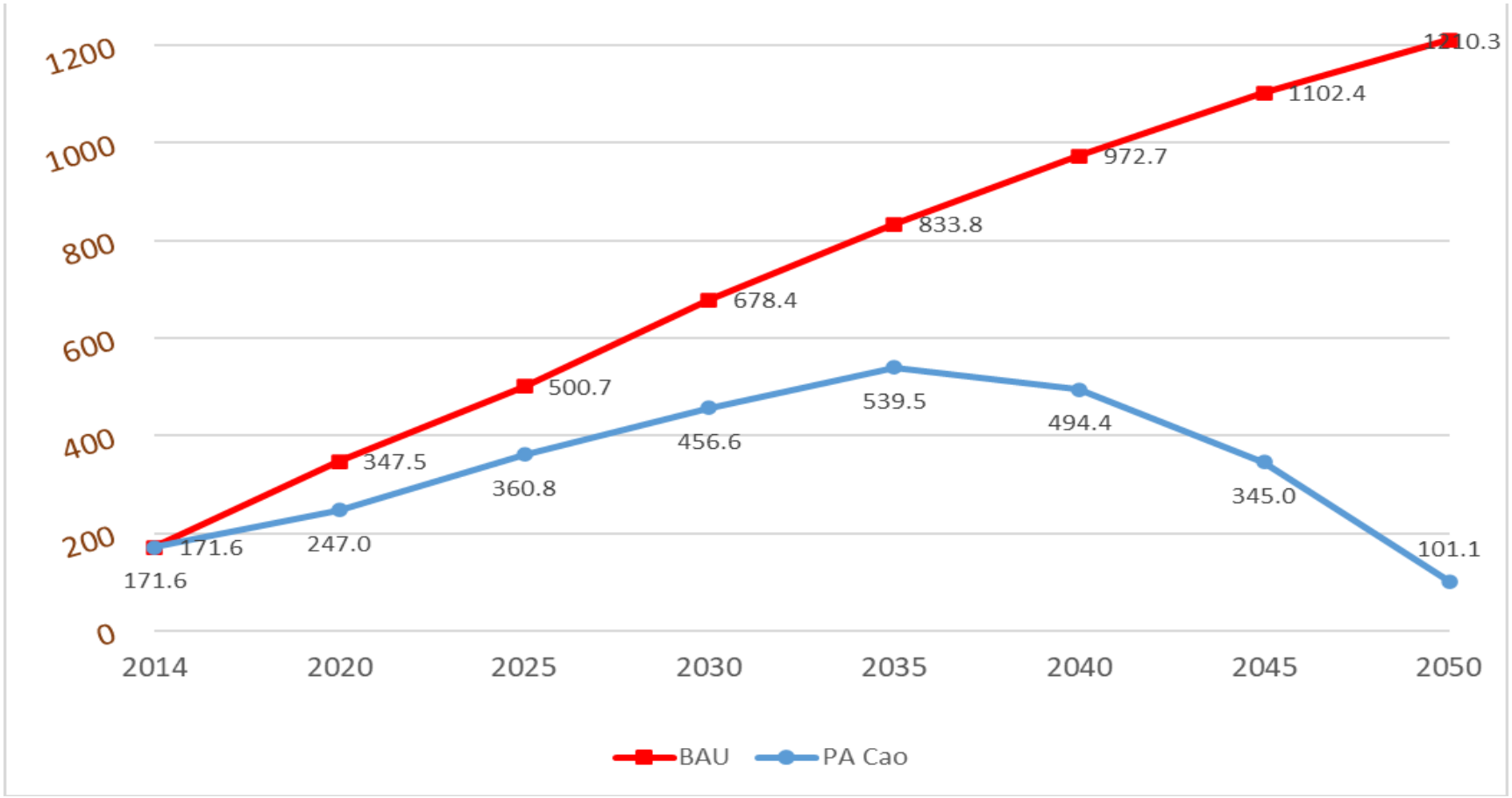
# BAU vs HIGH MITIGATION SCENARIO FOR ENERGY SECTOR TO 2050

*Unit: millions tons of $CO_2e$*




*Source: Vietnam NCCS 2022*

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# OBSTACLES, CHALLENGES AND SOLUTIONS

## Key issues to consider

- **Evolution of sector policies and planning** - the 8th Power Sector Development Plan - must keep clean energy transition at its core;
- **Barriers for renewable energy** deployment should be eliminated;
- The **power grid** needs to be urgently expanded and modernized to keep pace with the growth of new clean energy technologies;
- **Consumer-side energy efficiency and demand moderation measures** are immediate low-hanging fruits;
- A systematic approach to **mobilizing the large amounts of financing** needed for the energy transition;
- Timely and **sector-specific investment climate reforms** are needed for private sector participation;
- **Enacting regulations which support public sector financing**, including channeling of ODA resources and climate funds to the sector, where it complements and leverages the private sector, such as for power grid development, PPP projects, is essential..

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# *Thank you for your attention!*



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