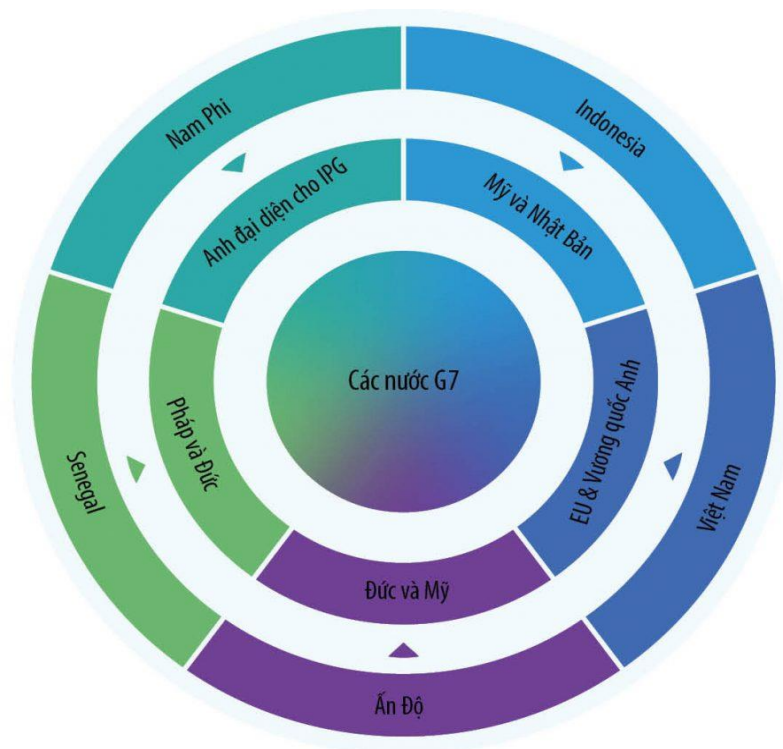


THE JUST ENERGY TRANSITION PARTNERSHIP

1. Introduction

JETP is a financial mechanism where wealthier nations, as Partners, provide funding to a developing nation dependent on coal, to support its transition away from coal usage towards clean energy.

The JETP budget can take the form of non-repayable grants, loans, or investments. As of March 2023, the contributing group of countries includes the International Partnership Group (IPG) and the Glasgow Financial Alliance for Net Zero (GFANZ) Working Group. The IPG comprises Japan, the United States, Canada, Denmark, France, Germany, Italy, Norway, the EU, and the United Kingdom. The GFANZ Working Group involves multilateral and national development banks, as well as financial institutions such as HSBC and Citi Bank.



The structure of countries within JETP

Vietnam's Just Energy Transition Partnership (JETP) was announced in December 2022 after extensive negotiations. This partnership will provide financial, technological, and capacity-building support to Vietnam, along with aiding policy and regulatory enhancements to boost private investment in renewable energy. The initial fund for the next three to five years amounts to \$15.5 billion USD. Vietnam is expected to unveil the

JETP Resource Mobilization Plan (JETP-RMP) in November 2023. Vietnam's initial contribution to JETP includes a commitment of \$7.75 billion USD from the IPG, the Asian Development Bank, and the International Finance Corporation. Private sector investments from financial institutions pledged by the Glasgow Financial Alliance for Net Zero (GFANZ) will also mobilize a corresponding \$7.75 billion USD.

2. Objectives and Operating Principles of JETP

a) Objectives

According to the JETP signed on December 14, 2022, a minimum of \$15.5 billion USD will be provided primarily in the form of concessional loans over a period of 3 to 5 years to support the just energy transition process. Half of this amount will be mobilized from public finance sources with terms more favorable than usual. The remaining half will be mobilized and facilitated from private financial sources to support Vietnam:

- Achieve the peak of total greenhouse gas emissions by 2030, 5 years ahead of the plan. The emissions peak from electricity generation, currently projected at 240 million tons of CO₂ equivalent by 2035 with international support (reduced from 280 million tons of CO₂ equivalent before COP26), will be advanced to 2030 with the emissions peak not exceeding 170 million tons of CO₂ equivalent.
- Limit coal-fired power capacity, currently planned at 37 GW, aiming to reduce it to 30.2 GW, and then gradually phase out coal-fired electricity generation. Develop renewable energy hubs, battery storage production, and renewable energy equipment, offshore wind combined with aquaculture. Aim to establish leading renewable energy centers (technical expertise, legal framework, management, etc.); Vietnam's potential for carbon capture, utilization, and storage (CCUS) is also mentioned.
- The current planned share of renewable energy is 36%, aiming to increase the minimum share of renewable energy to 47% (including wind, solar, and hydro energy) by 2030.
- In terms of policies, enhancing the legal framework to expand public and private investments in Vietnam is being pursued, focusing on renewable energy and just energy transition. This includes measures to improve energy efficiency and reinforce the power grid.

Around 500 million tons of emissions will be reduced by 2035 if these goals are achieved.

b) Operating Principles

Taking the example of South Africa's JETP IP package presented at COP 27, South Africa announced the Implementation Plan for JETP (JETP IP), outlining priority investment requirements in the fields of electricity, new energy vehicles, and green hydrogen. To achieve the goals of JETP IP, South Africa's financial requirement is \$98 billion USD, significantly higher than the committed support of \$8.5 billion USD. This demonstrates the substantial investment needed for energy transition, with JETP support accounting for a small fraction. The \$8.5 billion USD support from the International Partners Group (IPG) aims to address critical needs outlined in the Just Energy Transition Investment Plan (JET IP): i) enhance and expand transmission and distribution networks; ii) decommission and repurpose coal-fired power plants; iii) accelerate renewable energy investments; iv) implement energy-efficient measures; and v) prepare and arrange social infrastructure to facilitate a just energy transition for workers, communities, and affected areas, including job creation opportunities in impacted coal mining regions. Thus, JETP operates as a catalytic support package, expediting the transition process. Recipient nations still need to leverage all available resources, both domestic and international, to achieve self-sufficiency.

According to UNDP's assessment, Vietnam's energy transition might require up to \$60 billion USD annually from now until 2050. JETP marks a starting point and will require additional support programs; leveraging all available domestic and international resources is necessary. Therefore, in the forthcoming negotiation period dedicated to specifying financial terms, reform plans, coordination structures, etc., in order to construct a feasible and scientifically sound Resources Mobilization Plan (RMP), Vietnam needs to focus on creating an RMP that effectively utilizes this funding to serve the just energy transition process.

3. Resources Mobilization Plan (RMP)

The Just Energy Transition Partnership Resource Mobilization Plan (JETP-RMP) will support Vietnam as follows:

a) Developing an ambitious and reliable long-term legal framework for its green transition, including the use of pricing and regulatory instruments; including but not limited to: improving regulatory frameworks to facilitate investments in renewable energy and energy efficiency, and enhancing the power grid in Vietnam;

b) Accelerating the process of decarbonizing its electricity system from the current peak level of the net-zero plan at 240 MtCO₂e by 2035 with international support (reduced from 280 MtCO₂e prior to COP26) to achieve a peak not exceeding 170

MtCO_{2e} of emissions from electricity production by 2030, thanks to strong and meaningful financial support from IPG partners as outlined in section 18, and all technologies to expand the deployment of renewable energy and manage clean energy systems.

c) Collaborating with Vietnam and investors to reduce Vietnam's ongoing coal-fired power projects, currently reaching a planned peak capacity of 37 GW, aiming for a peak of 30.2 GW, as well as providing a reliable and ambitious emission reduction pathway to gradually phase out coal-fired electricity production in the days ahead.

d) Accelerating the deployment of renewable energy and advancing technical expertise to support and manage an increasingly renewable-powered grid, with the goal of enabling Vietnam to maintain a reliable grid and surpass the current planned figure of 36% towards a minimum of 47% of electricity generation from renewables, including wind, solar, and hydro power by 2030, with international support.

e) Guiding an equitable transition, among other factors, according to the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, to ensure that the entire society can benefit from the green transition by enhancing access to affordable energy and engaging with organizations and stakeholders to help meet the needs of those most affected by the green transition, such as workers and communities in sectors and areas impacted by the transition.

f) Develop and implement education programs, vocational training, and retraining to enhance the skills and capabilities necessary, and support job creation for workers in sectors and regions affected by the transition, as well as other forms of support to ensure improved living conditions for workers after the transition;

g) Identify the role of the private sector and create a favorable environment for businesses to actively participate in the transformation process, such as reducing loan risks, facilitating shareholding and banking finance, auctioning licenses, expediting permits, and enhancing competitiveness;

h) Create opportunities for technological innovation and private investment to promote the creation of green and decent jobs as part of a low-carbon prosperous economy; and design mechanisms to ensure affordable electricity for vulnerable, vulnerable, and low-income groups;

i) Negotiate – with partner support – the cessation of investment in coal-fired power plants to achieve these objectives, where appropriate;

j) Negotiate the closure of old, inefficient coal-fired power plants to facilitate access to clean energy;

k) Develop the renewable energy industry, including but not limited to developing renewable energy centers, battery storage and renewable energy equipment production, green hydro production, offshore wind platform planning combined with aquaculture and post-fishing logistics;

l) Work towards establishing an excellence center for renewable energy in Vietnam to share expertise, support skill development, understanding of technology and regulations, and facilitate voluntary cooperation between Vietnam and the private sector in technology transfer to accelerate and expand the deployment of renewable energy and clean energy system management in Vietnam and the region;

m) Implement the use of multi-purpose land for renewable energy production, agriculture, and aquaculture to improve agricultural production and processing through improved energy access and job creation for rural workers.

4. Challenges

a) For the electricity generation sector

In the Power Development Plan for the period 2021-2030, with a vision to 2050 (PDP VIII), in accordance with the government's guidance to continue reducing coal-fired power capacity to align with commitments made at COP26 in December 2021, the development direction of thermal power plants in Vietnam until 2050 is as follows:

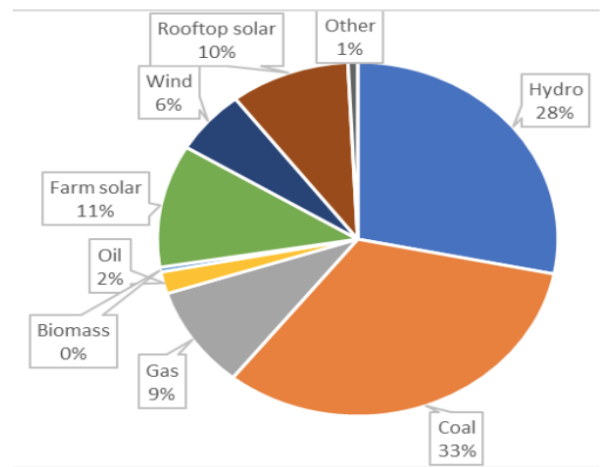
- Halt the development of coal-fired power plants after 2030 and gas-fired power plants after 2035.
- Coal-fired power plants are projected to co-fire with biomass or ammonia after 20 years of operation, with co-firing rates starting at 20% and gradually increasing to 100%. By 2050, there will be no more coal-fired power plants in the projects.
- Gas-fired power plants are expected to co-fire with hydrogen after 2030, starting at 20% and gradually increasing to 100%. In the future, as technology improves and hydrogen prices decrease, it might be possible to build new-generation power plants using hydrogen. Towards 2050, all gas-fired power plants will transition to using hydrogen.

This power development plan requires high investment costs, and the cost of electricity production by 2050 is projected to increase by around 30% compared to previous plans. Vietnam's energy transition plan for power development requires strong support from the international community to achieve the goal of reducing national GHG emissions.

Table 1: Installed capacity of the different power sources in Viet Nam's electricity system

Power source	Installed capacity (MW)
Hydro	22,345
Coal	25,820
Gas	7,398
Oil	1,579
Biomass	356
Farm solar	8,907
Wind	4,667
Rooftop solar	7,660
Other	619
Total	79,351

Figure 2: Structure of electricity system in terms of installed capacity



Source: National Dispatch Centre, EVN, 2022

Coal-fired thermal energy sources play a crucial role in providing electricity for Vietnam's power system as a stable and cost-effective source of electricity. Maintaining this energy source in the coming years remains necessary to ensure a reliable and secure national energy supply. However, developing coal-fired power plants also increases GHG emissions, has negative environmental impacts, and leads to dependence on imported energy. Various approaches can be applied to reduce GHG emissions from coal-fired power plants: (i) no new coal-fired power plants after 2030, (ii) co-firing with biomass and ammonia for existing coal-fired power plants, and (iii) early retirement for existing coal-fired power plants that cannot convert to co-firing fuels.

The fuel transition process for coal-fired power plants must consider the costs arising from the fuel conversion process, such as extended lifespan costs, retrofitting costs to enable co-firing with other fuels, efficiency reduction rates over the extended lifespan, efficiency reduction rates when co-firing, co-firing fuel prices, and others. These costs are used to calculate system-wide costs for energy transition scenarios.

For co-firing ammonia in coal-fired power plants, the blending ratio of ammonia in coal-fired power plants presents a significant challenge. Additionally, due to the high cost of ammonia fuel, co-firing 20% ammonia in coal-fired power plants would increase the Levelized Cost of Energy (LCOE) by 34% compared to 100% coal-fired plants. The LCOE of co-firing biomass plants would increase by approximately 10% with 15% biomass co-firing and 19% with 20% biomass co-firing compared to 100% coal-fired fuel sources.

b) Regarding financial aspect

National Contribution Targets (NDCs) (by 2030) and net-zero emission targets (by 2050). Prior to the International Partners Group (IPG) declaration of JETP, aiming to mobilize \$7.75 billion USD from each international public and private financial source to reduce 6.8 GW coal-fired power capacity by 2030 and increase wind and solar energy generation from 36% to 47% of total electricity production, crucial steps need to be taken as follows:

1. Calculate the investment costs for expanding renewable energy generation to produce enough electricity to replace the 6.8 GW coal-fired power capacity by 2030, considering the need for grid expansion, funding to address unemployment of coal mine workers and power plant employees, as well as their retraining.

Assuming that coal-fired power plants operate based on base load, replacing 6.8 GW requires approximately 50 TWh of renewable electricity annually. Assuming an annual capacity factor of 25% for combined solar and wind power, around 22 GW of new wind and solar power capacity is needed. The current cost per MW of onshore wind and solar is approximately \$1.2 million USD/MW. The overall financial requirement for 22 GW of wind and solar power would thus be around \$26 billion USD, much higher than the committed \$15.5 billion USD by IPG.

With JETP financial needs also needing to cover the costs of expanding the grid to connect new renewable power plants, supporting the livelihoods of coal mine workers and power plant employees until they find new jobs, as well as retraining the workforce, the actual financial gap for JETP becomes much larger.

The priority for the Vietnamese government is therefore to adjust investment estimates for various necessary activities to achieve JETP goals regarding renewable electricity generation and coal plant replacement. This allows for calculating the funding gap and subsequently analyzing how this funding gap can be closed.

2. Evaluate potential funding structures for different activities within JETP.

The funding structure for new renewable power plants will vary based on project size and related companies. Evaluate the required volume of equity capital and types of necessary debt financing, as well as commercial financial capability depending on project characteristics and initiators. High domestic financial capacity will reduce the need for support from JETP.

Expanding the power grid is often commercially unattractive and therefore needs to be funded through public sources. This also applies to funding for unemployment benefits and workforce retraining. Retiring coal power plants earlier than the final technical term may require payments to compensate plant operators for revenue losses related to early retirement. These activity portfolios will therefore depend on receiving concessional or highly favorable funding.

The Vietnamese government should conduct specific studies to determine funding structures for all types of projects within JETP. The purpose of this exercise is to examine whether the international funding committed under JETP can adequately achieve the coal plant replacement targets of JETP, or if additional international funding is needed. This exercise should also clearly identify which domestic public and private funding sources are available and should be exploited with what level of priority.

3. Evaluate potential policy instruments to mobilize financing for necessary activities to achieve JETP goals and prioritize them. The Vietnamese government can primarily employ various tools to leverage both domestic and international finance, public and private, beyond the financial commitments of the IPG:

Provide government guarantees for private investments, thereby reducing debt costs and increasing the debt-to-equity ratio;

Introduce a domestic system to generate emission reduction certificates, the sale of which would provide additional income streams for renewable energy projects, making these projects more attractive to initiators;

Introduce clear legislation for generating emission reduction certificates as per Article 6.2 of the Paris Agreement, and negotiate specific purchase agreements for International Transfer Mitigation Outcomes (ITMOs) with the member governments of IPG. If IPG member governments are willing to purchase ITMOs from renewable energy projects within the framework of JETP, this revenue stream could significantly reduce the need for concessional funding components for those projects.

4. Assess the need for specific legal regulations to maximize public financing and incentives: The Vietnamese government should delegate studies to assess potential legal barriers to implementing the ideal financing structure of renewable energy projects, grid

expansion, unemployment benefits for coal mine and power plant workers, and labor retraining. These studies should also provide recommendations for changes in laws and regulations to stimulate the most effective financing structure.

5. Enhance an enabling environment for and access to green finance: The Vietnamese government should enhance market liquidity by increasing transparency, improving corporate governance, and enhancing the legal framework for green finance. Encouraging investor participation can be achieved by introducing new financial instruments and products such as green bonds, green indices, green certificates, green investment funds, green credit, etc. Specific criteria and a list of green projects for different sectors, as well as capacity building for funding organizations, are necessary to enable the evaluation of green projects within JETP.

6. Develop the JETP RMP: Identify priority investment portfolios, funding sources, and tools, along with a clear roadmap describing specific steps and designated timeframes for implementation, as well as expected outcomes in JETP-RMP. RMP should distinctly outline which IPG/GFANZ partners provide what funding amounts at which times, differentiated by funding type (grant funds - for projects, technical support, etc. - guarantees, concessional loans - loan characteristics), clear terms and conditions for concessional loans provided by IPG should also be discussed and specified to ensure compliance with State Budget Law and Public Debt Management Law, not deviating from Official Development Assistance (ODA), and making JETP funding more attractive than the "normal" capital market. JETP-RMP should be as specific as possible about the actual projects to be funded and identify gaps where additional project proposals need to be explored.

7. Ensure close coordination and consultation with stakeholders: The development of JETP RMP should involve relevant government agencies such as the Ministry of Planning and Investment, the Ministry of Finance, responsible ministries for priority sectors, provinces, domestic and international financial sectors, international partners (IPG, Global Financial Alliance for Climate Goals (GFANZ), etc.). Particularly concerning grant components, the communities affected by the transition should be heard. Comprehensive engagement is a crucial strategy to ensure a fair transition.

5. Opportunities

A feasible solution when reducing coal reliance is to accelerate the deployment of renewable energy (solar, wind). Thus, there is a need to integrate renewable energy at a higher level, requiring significant capital investment in the transmission grid system, technological infrastructure for system control, AI technology, energy storage

technology development such as pumped hydro, battery storage, hydrogen technologies, CCUS (Carbon Capture, Utilization, and Storage).

As the energy transition will give rise to new industries, legal frameworks for these emerging sectors are mostly absent. Research and learning from other countries' experiences are necessary to establish a roadmap for enacting legal foundations and policies, as well as mechanisms for these new domains.

Moreover, there is a demand for technology, workforce training, enhancing management capabilities, technology adoption, and operational know-how across the value chains of offshore wind, solar power, CCUS, and hydrogen. Vietnam should seize opportunities for sponsorships to receive technology transfers, training, and enhance investment in research and development.

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