APEC Workshop on Empowering Women in Just Energy Transitions

APEC Policy Partnership on Women and the Economy

April 2026

Asia-Pacific
Economic Cooperation

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Table of contents

Contents

APEC WORKSHOP ON EMPOWERING WOMEN IN JUST ENERGY TRANSITIONS

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Workshop Summary Report

I. Introduction

On July 2025, the *"**APEC Workshop on Empowering Women in Just Energy Transitions**"* was held in Ha Noi, Viet Nam. The project is led by Viet Nam and co-sponsored by Canada; Chile; Mexico; the Philippines and Thailand. Speakers and participants came from the private sector, business associations, international organizations, research institutions, and APEC economies' relevant Ministries and government agencies.

Through sharing information, experiences, best practices, the "***APEC Workshop on Empowering Women in Just Energy Transitions***" aims to improve capacity building for APEC member economies, especially developing ones through identifying challenges impeding women's participation in just energy transitions; and hence, sharing information, experiences in figuring out approaches to address challenges and support women to participate and benefit from just energy transitions.

II. Background

According to the UNDP, "access to clean energy improves women's lives in a myriad of ways. It supported access to education and quality healthcare, opened new economic opportunities, and reduced unpaid domestic labour".[1] However, in practice, from industry to policymaking, we failed to include women as energy users, decision- makers and agents of change of the energy transitions.[2] It is a fact that women might have limited access to technical education, lack of visible role

[1] https://www.undp.org/blog/be-just-energy-transition-must-include-and-empower-women
[2] https://www.undp.org/blog/be-just-energy-transition-must-include-and-empower-women

model and mentors, as well as face discrimination in workplace, etc.

This project aims to focus on addressing the challenges to empower women with the skills, knowledge and opportunities to participate in the energy transitions, contributing to advancing gender equality and sustainable development goals simultaneously. By ensuring their participation in just energy transitions, we could accelerate progress towards goals such as affordable and clean energy (Sustainable Development Goal - SDG 7), gender equality (SDG 5), and economic growth (SDG 8).

This project is in line with the Chair's Statement of the 13th APEC Energy Ministerial Meeting (EMM 13), in which APEC recognized that "more intensive efforts are needed for economies to accelerate their clean, sustainable, just, affordable, and inclusive energy transitions, consistent with global net-zero greenhouse gas emissions / carbon neutrality by or around mid-century while taking into account the latest scientific developments and different domestic circumstances"; and emphasized that the Just Energy Transition Initiative will both support and built on the implementation of the La Serena Roadmap for Women and Inclusive Growth.

This project is also in line with the APEC Resilience Energy Guidelines since it aims to "support APEC members to achieve energy security and sustainable development, which contained economic prosperity and environmental sustainability".

This project is in line with the La Serena Roadmap for Women and Inclusive Growth (2019-2030) that aims to supporting women's education, training and skills development and access in a changing world of work as well as improving access of women to leadership positions in all levels of decision making. With a focus on women's participation in energy transitions, this project would contribute to enhance women's access to energy as well as participation and leadership for better opportunities without compromising sustainable development goals.

While the project focus on empowering women in just energy transitions, developing economies will be beneficiaries given the fact that they might have limited awareness and experiences in promoting women's participation and

benefiting from energy transitions. Through this project, it is expected to support developing economies in raising the awareness and capture the opportunities to empower women in energy transitions through sharing information, experiences, best practices from APEC member economies.

The project also contributes to support cross-fora collaboration capacity since it simultaneously addressed two issues of both empowering women to harness just energy transitions and just energy transitions for the sake of sustainable and inclusive growth and development.

III. Key Issues

1. Overview of women's participation in just energy transitions

Ms Dinh Bao Linh, Deputy Director, Information Center for Industry and Trade, Viet Nam:

The International Labour Organization (ILO) defines just transition as "greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind". In the context of Viet Nam, an economy located in the tropical monsoon belt and downstream of major rivers, Viet Nam is one of the economies strongly affected by climate change. In fact, in recent times, storms, floods and droughts have occurred more frequently and with greater intensity. For example, Yagi storm in 2024 had left great damages to people in the north of Viet Nam. The early flood in June 2025 also affected the central region, while droughts and saltwater intrusion greatly affected the livelihoods of people in the south.

Damages of climate change risks causing many households, especially women, to fall back into poverty and lose sustainable livelihoods. Energy emissions are a major contributor to climate change. In that sense, just energy transitions are regarded as one among relevant needs to save the ecosystem.

Gender equality is an indivisible part in driving progress across all Sustainable Development Goals (SDGs).

Among those efforts, the Women for Climate-Resilient Societies (EmPower), a joint United Nations program led by the UN Women and the UN Environment

Program (UNEP), seeks to address some of these challenges. Guided by the principle of "Leaving no one behind", the program provided low interest loans to renewable energy enterprises led by women and individuals from remote and rural communities in the Asia-Pacific region, finances climate-friendly solutions to build resilience.

According to the International Network of Energy Transition Think Tanks (INETTT) (2025), "in many economies, vast economic inequalities must be managed for continued peace and overcome for resilient human development, and any abrupt change to the economic status quo- including rapidly phasing out entire industrial sectors – risks sparking further political instability. Energy systems worldwide required transformation to tackle climate challenges, supported long-term economic development and reinforced energy security. However, climate mitigation and energy transformation would affect certain workers, consumers and communities negatively". For example, in Indonesia, coal mining communities could be hit hard by the economy's intended phase-down of thermal power plants since 250,000 people in Indonesia are working in the coal mining sector. If the Government closed the mines, in the short term, male workers would encounter difficulties to nourish their family, and women might face further family burdens. In Colombia, economic inequalities, with enduring gaps in urbanization, geographic, ethnic and gender inequality hindered the process of just energy transitions. In South Africa, both climate mitigation and socioeconomic safeguards should be considered. The Congress of South African Trade Unions first highlighted the importance of just transitions to "protect the most vulnerable from the effects of climate change" and later explicitly called for mitigating transitions impacts on working class groups, including workers, communities and small businesses.

According to ESCAP (2024), women accounted for only 16% in the traditional energy sector and are paid 15% less than their similarly skilled male counterparts. Female representation in the renewable energy sector is higher, at 32%, but still does not approach fairness.

In 2024, amongst Asia-Pacific regional ESCAP member economies, "not one ministry of energy is headed by a woman, and women holding positions within the upper ranks of the ministries were few." Jobs in energy sectors are often seen as

physically demanding and technical, reinforcing perceptions that they are more suited to men. Women are disadvantaged in accessing information about job opportunities, and companies often lacked inclusive policies such as flexible working hours or family support, which could discourage women from entering or advancing in the industry. Furthermore, in some contexts, companies also perceived female employees as more expensive to hire due to paid parental leave and are therefore less motivated to hire women. This is compounded by a lack of female role models and mentors, which limited young women's ability to envision themselves in these careers.

The report "Green Advantage: Women's Workforce and Leadership – Foundation for Sustainable Business Development in Viet Nam" released by the International Finance Corporation (IFC) and the Australian Government on 18 June 2025, pointed out that although solar energy, plastic recycling, and rice production sectors played a central role in Viet Nam's climate goals, the proportion of women in the formal workforce and leadership positions remained very low – averaging only 23% and 21%, respectively. Overall, there is still a large gap in income between men and women. Statistics from the General Statistics Office (GSO) of Viet Nam showed that in the first six months of 2025, the average income of female workers is 23% lower than that of male ones. To address the issues, initiatives are being implemented to attract more girls and women into science, technology, engineering and mathematics (STEM) fields and energy-related education to address the underrepresentation of women in the workforce. Projects like those supported by the EmPower are helping women especially those in rural communities to access clean energy technologies like solar-powered drying houses, improving their livelihoods and resilience.

The World Bank research team estimated that Viet Nam's path to net-zero emissions would create nearly one million new jobs by 2040, particularly in STEM fields. Businesses needed to take proactive measures to ensure women had fair access to these employment opportunities. In practice, businesses recognizing the role of women in sustainable transitions might have a clear advantage in closing the skills gap, creating better jobs, attracting investment and leading Viet Nam's green transition with a more efficient and sustainable operating model.

In summary, women are increasingly recognized as a key to a successful and just energy transitions, but their participation in the formal energy sector remained very low, especially in leadership and technical positions. There has been a significant increase in women's participation in renewable energy and related sectors, but significant barriers and gender inequalities persisted. It is believed that more incentive policies are needed to remove barriers to women's participation, building a future-ready workforce, and improving business performance. Partnerships with financial institutions are crucial in expanding financial access for women and communities.

2. Identifying concerns and obstacles that impeded women's participation in just energy transition

Dr Nguyen Anh Tuan, Executive Committee Member, Viet Nam Energy Association (VEA); Member of Science Council, Viet Nam Energy Review and Dr Vũ Thị Thanh, Institute for Family and Gender Studies, Viet Nam Academy of Social Sciences (VASS): The speaker stressed that the transitions to low-emission and renewable energy represented one of the most critical pathways for sustainable development in Viet Nam, yet women continue to face numerous barriers to full participation in this process, in terms of both structural and cultural factors that limited women's opportunities.

Women's participation in just energy transitions is not only a matter of fairness but also of effectiveness. When women are excluded, the transition risks being less inclusive, less innovative, and ultimately less sustainable. Barriers range from entrenched social norms and discrimination to institutional and policy gaps that fail to address gender inequalities and account for the perspectives and needs of women. Women face challenges in accessing technology, technical training, and financial resources, while their opportunities for career development and networking remain limited. Their involvement in decision-making processes within the energy sector is often minimal, and the lack of a safe and supportive working environment further compounds these obstacles.

Despite these challenges, important initiatives have been undertaken in Viet Nam to advance gender equality within the energy transitions. Efforts have been made to strengthen women's leadership roles in energy agencies and to build their

capacity through training and education. Communication campaigns had raised awareness about efficient energy use, while livelihood support had been provided to women engaged in energy-related projects. Networks of women working in the energy field are being established, and advocacy is ongoing to promote gender equality in technical training institutions. Additionally, programs had been developed to support women-led enterprises in accessing renewable energy, alongside initiatives that informed women about the benefits and opportunities of clean energy technologies.

Policy support provided a strong foundation for efforts to promote the transitions and target of achieving net-zero emissions by 2050, which are underpinned by Viet Nam's robust legal framework on gender equality, enshrined in the 2013 Constitution and the Gender Equality Law of 2006. These legal instruments aimed to eliminate gender-based discrimination and ensured equal opportunities in politics, economics, and labor. Viet Nam's commitments are further reflected in the Action Plan for the implementation of the 2030 Agenda for Sustainable Development, with a focus on SDG 5 on gender equality and SDG 7 on affordable and clean energy.

Corporate social responsibility initiatives by major energy corporations have also begun to incorporate gender equality, emphasizing human resources development and women's participation. Policy recommendations continued to be advanced to ensure that women benefited equally from the opportunities presented by the energy transitions.

To sum, while women in Viet Nam continue to face significant barriers in the energy sector, the growing alignment of legal frameworks, institutional initiatives, and practical projects provided an important foundation for change. Promoting gender equality in the energy transitions is not only about ensuring fairness but also about unlocking the full potential of society to achieve a cleaner, more resilient, and more sustainable future.

Ms Camila Quiroz Paredes, International Cooperation Officer, Ministry of Women and Gender Equity, Chile:

In Chile, there is a persistent underrepresentation of women in energy sector. Women made up only 5% of technical roles in energy companies (Ministry of

Energy of Chile, 2024). Women earned nearly 25% less than their male peers for performing the same jobs. Gaps in training contributed to limited career pathways and few promotion opportunities.

Chile "Energy + Women" Program which is launched in 2019 established a public-private alliance in an attempt to boost participation of women in the clean energy sector. To date, there have been more than 120 organizations joining the alliance. The program consisted of 10 pillars, 14 measures and 40 actions. Since 2023, the program had focused on 4 strategic lines: achieving parity in leadership; reducing wage gaps; increasing women's employment in all roles; and institutionalizing gender equality plans.

According to the Annual Report on Gender & Human Rights: Progress 2024, Challenges 2025, 75% of companies had gender equality policies, 72% had codes of conduct to prevent discrimination, 21% of CEOs are women (increasing from 11%), all 16 regions of Chile had roundtables on women in the energy sector.

Chile had also implemented initiatives to promote women in just energy transitions. For example, the Green Hydrogen (GH2) initiative aims to advance green hydrogen through Domestic Action Plan. The initiative is aligned with both domestic and international standards on gender equality. Gender equality strategy within the Action Plan included minimum 30% quota for women in GH2 training programs; participation of women in GH2 network and leadership courses; development and dissemination of gender equality responsive recommendations for the evaluation, installation and operation of green hydrogen production and consumption projects.

Regarding education and training, there are 330 women trained in leadership programs in 10 regions, 250 women certified as Class D electrical installers, 6th Energy + Women Job Fair held in 3 regions with more than 40 organizations involved, showcasing STEM role models for women and girls.

Regarding public policy and infrastructure, a state-wide gender equality mainstreaming strategy is deployed using Chilean Standard NCh3262, the first ISO-type gender equality standard in the world which is a voluntary system adopted by public and private institutions. The standard aimed to create a cultural transformation toward gender equality, including in human resources management

policies and practices which covered recruitment, career development, access to training, equal payment, harassment and misconduct prevention, and employee well-being. Under the framework of the Standard, a Gender Committee is set up with clear action plans, diagnostics and procedures.

The Ministry of Energy had developed a set of gender equality indicators for organizations and projects in the green hydrogen vehicles (H2V) sector. These indicators are structured around four key dimensions, including: workforce participation (measuring the proportion of women and men across all roles within the project or company); decision-making roles (tracking women's representation in leadership positions, technical committees, and governance bodies to promote female leadership in the H2V sector); wage gaps (evaluating the average salary differences between women and men in equivalent roles); and gender equality policy assessment (monitoring the implementation and outcomes of internal policies on gender equality, work–life balance, and shared care responsibilities).

3. **Addressing concerns and/or challenges related to innovation, adoption of technologies to unlock bottlenecks for women's participation in just energy transitions**

Ms Sutthasini Glawgitigul, Plan and Policy Analyst, Department of Alternative Energy Development and Efficiency (DEDE), Thailand:

According to IEA (2023), the ratio of men vs. women in leadership position in energy sector is approximately 3:1. Women accounted for 39% in the global energy workforce, with 20% in energy technical roles. The underrepresentation of women in energy sector had impacted technology development, deployment and scaling.

Case studies in Thailand helped to demonstrate the progress in practice, where and how women could participate across project stages and to inspire replication and scale-up. The first case study is the Biogas in livestock communities implemented by the Community Children Foundation under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn. In this program, women operating small-scale biogas systems are trained in local dialects financial literacy. The benefits that the program brought about are reduced fuel costs and better sanitation which demonstrated that the program could be scaled up with agricultural co-ops.

Another case study is the case of Sunsawang social enterprise. Sunsawang installed solar electricity for communities in Thai-Myanmar border villages. The work involved many women who played the roles of technicians, educators and sales agents. Through this model, the company could combine income generation and build local trust. The third case study is SolarSTEP – New Energy Nexus. The goal of the SolarSTEP with a strong gender equality lens is to equip community representatives, mechanics and engineers with knowledge they could use to implement solar projects to accelerate the use of renewable energy in local communities across Thailand.

It is agreed that women participation in energy sector faced certain barriers such as limited access to tools, technology, technical training; underrepresentation in STEM and technical fields; financial hurdles to scale or invest; cultural and social norms; lack of gender equality policy implementation; skill gaps in solar, wind, storage; limited access to innovation; fieldwork perceived as "men's work"; women excluded from community decisions; and lack of \inclusive product design and deployment, etc.

In order to overcome these challenges, there should be more training for women in clean technologies with programs that were customized to their needs. This is a prerequisite condition for women to be truly embedded in the sector. The next step is to facilitate flexible finance such as microloans or pay-as-you-go systems as that women could access to finance. Mentorship networks should be built to support women. At the policy level, policies should be inclusive from design to data collection, as well as more investment in STEM and digital skills for girls and women.

Ms Wan Nihayah binti Wan Hussin, Principal Assistant Secretary, Ministry of Energy Transformation and Water Transformation, Malaysia:

In 2023, Malaysia launched their Energy Transition Roadmap (NETR) with low carbon and inclusive energy future target, emphasizing on social fairness and regional development. NETR is structured around six key focus areas: Energy efficiency (EE); Renewable Energy (RE); Hydrogen; Bioenergy; Green Mobility; and Carbon Capture; Utilization and Storage (CCUS). Projects had been developed and implemented under these areas, including Efficient Switch;

Renewable Energy Zone; Energy Storage; Energy Secure; Green Hydrogen; Hydrogen for Power; Biomass Demand Creation; Future Mobility; Future Fuel; CCS for Industry.

To support these 6 levels, NETR highlighted five enablers, including Energy Efficiency (financing and investments); Renewable Energy (human capital and capabilities); Hydrogen (policy and regulation); Bioenergy (policy and regulation); Green Mobility (technology and infrastructure); Carbon Capture, Utilization and Storage (CCUS) (governance)

To support women participation in energy sector, strategic entry points had been identified in three areas. Regarding capacity building, NETR outlined the need for developing reskilling programs tailored for green industries, upskilling in areas such as solar installation & maintenance, energy audits, green building. These training programs could be expanded to encourage women's participation, including via community colleges and universities offering energy-related programs. Regarding financing, they developed funding tools responsive to gender equality, including launching microgrants for women entrepreneurs in RE and EE; expanding SME incentives for women-led green businesses; establishing public – private financing platforms with a gender equality lens. Regarding policy & inclusion, they focused on governance and planning, promoting cross – sector collaboration through involving engagement with Ministries, universities and technical institutions, private and civil society stakeholders, and so on.

Ms Nghiem Thi Ngoan, Program Officer, GIZ, Viet Nam:

In society, women still face many challenges. From a cultural and social aspect, women are expected to take on main responsibilities of childcare, eldercare and household work, etc., which makes them have less time and energy to acquire new skills and experiment with technology, thus affecting their digital and technological literacy. From a financial aspect, it is common that big decisions in family such as investment or expenses are made by men. Ownership of major assets such as land, houses also belonged to men leading to the fact that women often lacked collaterals when they sought loans for business investment.

Looking through statistics produced by many international organizations, it is a common finding that the percentage of women participating in energy sector is

low. However, it is insufficient to conclude inequality unless examined in concrete context. For example, in practice, looking into rooftop solar power installation and maintenance jobs, the working conditions are hard, the outdoor temperature is very high, rooftop work involves heavy equipment and exposure to the sun. As a result, most technicians are men, this fact is not due to formal exclusion, but due to practical demands.

In order to clearly identify issues and challenges that had impacts on women's access to energy sector, it is necessary to develop a gender-disaggregated database in energy sector. The data should include information regarding job positions, ranks, salaries, employees' experiences, motivation and access to training opportunities, and so on.

When seeking opportunities to enhance women's participation in energy sector, the role of men should not be neglected. First of all, women need support from their own families, sharing responsibilities with spouses or families helps ease women's burdens. At workplace, two-way dialogues between business leaders and employees should be carried out instead of just focusing women-only forums, since dialogues should include business leaders, HR personnel, men and policymakers to understand gender equality and then are able to co-design and promote effective solutions.

Mr Joachim Monkelbaan, Global Trade and Sustainable Development Advisor:

In 2020, APEC published the "Path to Inclusive Energy Transition in the APEC region: How to Enhance Women's Empowerment in the Energy Field" which is a helpful guidance to empower women in the energy transitions in APEC member economies. The objective is to ensure women were not only beneficiaries but active participants in driving clean-energy solutions. Challenges faced by women could be categorized into 4 main groups: technology reach; skill development; financing hurdles; and policy constraints. Regarding the first challenge, women in off-grid or rural settings often lacked reliable connectivity, making it difficult to access digital tools, platform-based monitoring and e-commerce. Solutions must be co-designed to local contexts and languages. In terms of technical capacity and training, the percentage of female enrollment in STEM is low with 35% globally, some economies fall to 25%. Therefore, targeted academies, mobile mentoring

and peer-learning models to bridge this gap are needed. Regarding finance, women entrepreneurs often paid higher rates and lacked traditional collateral. Micro-loans and blended finance could unlock capital for clean-energy ventures. At the policy level, streamlining permits and embedding gender equality in assessments in policy could reduce delays and ensure women–led projects receive the necessary support. It is recommended that we should apply a gender equality approach to energy policies and programs, strengthen capacity building and tailored finance and promote multilateral cooperation and knowledge sharing.

There are case studies showing that with women's participation in energy sector the results have been improved. For example, there is a solar pump project in Tanzania. Initially, the failure rate is 85% due to unsuitable inverters. Through co-design workshops with local women, developers adapted inverter specifications to local needs, resulting in reliable pumps and significant agricultural gains, which made yields increased by 40%. Another case is solar academies in India. Weekend workshops and mobile mentoring had empowered women technicians, especially 200 women had been certified as solar technicians. The maintenance had accelerated with the repair response time decreasing from 72 hours to 24 hours. Furthermore, technician jobs in solar installation and maintenance had created new career pathways for women. Another case study is green microloans in the Philippines. Blended funds for women's clean energy ventures had helped 120 businesses launched in the last 18 months with 98% loan repayment rate. Simplified applications and group guarantees had enabled women – led startups to access capital for cookstoves, home systems and mini-grids.

To sum up, five strategic areas that collectively contributed to dismantling key bottlenecks to women participation in just energy are participatory co-design, tailored capacity building, innovative financing, policy & regulatory reform and knowledge sharing network.

4. Exploring mechanism to promote women's participation in just energy transitions

Mrs. Maya Muchlis, the Executive Director, Founder, Executive Director, Women in Mining & Energy (WIME), Indonesia:

Indonesia's mining and energy sectors face a persistent underrepresentation of women driven by weak gender equality policies, limited awareness among leadership, and a shortage of female talent. Despite near – equal enrollment in STEM fields (45% women vs. 55% men), only 6% of women secured technical roles in the energy sector, pointing to systemic barriers beyond education. Social biases discouraged women from entering STEM careers, fueled by perceptions that technical and field-based work is a male domain, while women are better suited for office roles. These challenges are particularly acute in Eastern Indonesia, where patriarchal norms, a lack of female role models, and domestic responsibilities further restrict women's access to energy careers.

Globally, women held 32% of renewable energy jobs (IRENA, 2019), yet their representation in technical positions remained significantly lower. Without targeted interventions, Indonesia risked underutilizing a key segment of its workforce during critical transitions to clean and sustainable energy. Addressing this issue required removing social stereotypes, creating pathways for women into technical energy roles, and fostering inclusive leadership in the sector.

The mentee mentorship program is designed to address these issues. The targeted mentee participants are STEM girls in Eastern Indonesia. The recruitment is based on online submission, including a motivational video, followed by an interview with the committee. Once selected, the mentees attend one-on-one session with a minimum requirement of 6 virtual mentoring sessions which include tailor-made mentoring toolkit and syllabus with additional knowledge sessions on renewable technology and gender equality. The program also includes midterm review and virtual networking with professionals; field trips to RE plants (wind power and hydro-dam) and local authorities; virtual classes on skills relevant to job hunting; etc.

The program produced positive outputs and impacts. There are 26 applicants who are interviewed and 20 mentees are selected and matched with professionals of the

RE sectors. There are 3 virtual classes; 1 mentee leveraged the internship opportunity; 1 mentee accepted position as a science teacher; 1 mentee accepted position as a warehouse staff in a power service company; 1 university acknowledged mentoring program as elective unit for the mentees. Throughout the program, there are key learnings for scaling other programs in the future.

During the program, many mentees shared the need for emotional support as they navigated the stress of their final university semester and the pressure of job hunting. This transition is often intensified by parental expectations and social pressure, leading to anxiety and self-doubt. During the sessions, several mentees experienced emotional breakdowns, highlighting the importance of mental well-being at this stage. Emotional support must be prioritized alongside technical and career development to help them build resilience and confidence. There is room to explore collaboration with the Ministry of Women Empowerment and Child Protection. There is also a strong need for a regional peer network among young women in STEM. Such a community would provide shared support, fostered collaboration, and promoted long-term growth and leadership among female professionals in the energy sector.

Ms Zheyuan Zhang, Program Officer, Department of Legal and Institutional Reform, China Energy Administration:

The world is currently witnessing a new revolution in science, technology and industry. Green and low-GHG emission –development, digital and intelligent technology and sustainability had become the overwhelming trends of our times. Despite differences in development stages and available resources, we shared the goal and challenge of securing the energy supply and achieving green and low-GHG emission transitions. China had made significant progress in its energy transitions, contributing its solutions to a key global issue of our time, demonstrating its approach to governance and fulfilling its responsibility.

China had made notable progress in energy transitions in the areas of clean energy development, high-quality economic and social development, meeting the people's need for a better life and synergizing with high – standard environment protection.

By the end of May 2025, renewable energy generation installed capacity exceeded 2000GW, the total installed capacity of wind power and PV exceeded that of thermal power. The proportion of non-fossil fuels in the total electricity consumption of society had increased to about 40%, marking a growing share of green energy in China's energy mix.

In recent years, investment in fixed assets in the energy sector provided a strong basis for steady and sound economic growth. A series of key energy projects had been completed and put into operation, and a complete industrial chain for energy equipment manufacturing had been built.

Over the past decade, China's energy demand and supply had remained balanced. Energy prices had also remained generally stable, ensuring energy security for more than 1.4 billion people.

The quality of China's refined oil products consistently improved to reach advanced international levels. Average coal consumption of coal-fired power generation had reduced to 303 grams of standard coal per kilowatt-hour, serving to underpin the Beautiful China initiative.

In terms of energy consumption, the Chinese government fostered green models of energy consumption by promoting consumption of renewable energy such as shifting from traditional fuels to electricity for processes, clean heating, new energy vehicles and adopting green and low-GHG emission ways of life such as green living, low-carbon products and green travel.

While technological innovation played an important role in developing new quality productive forces, China promoted mechanisms to support innovation such as offering incentives, promoted application of technological advances, developing green energy technologies including completing industrial chains of wind and solar PV equipment, improving the hydropower industrial chain, upgrading the nuclear power technologies, accelerating smart grid technology, as well as improving the utilization of traditional energy sources including applying technologies in the coal-fired power industry and advancing oil and gas exploration and production technologies.

In an attempt to modernize energy governance, China focused on building a fair and open energy market with effective competition. Private enterprises had

become a main force in China's new energy sector. Open and transparent energy trading platforms have been created. The energy price formation mechanisms are improved with market – based energy pricing reform and price regulation system. Modernizing energy governance also included strengthening Government guidance and services by boosting the guiding role of development plans. Reinforcing the rules of law in energy transitions could be achieved through developing a complete legal system, advancing law-based government administration and improving judicial services.

5. **Multi-stakeholders' roles and identifying resources to strengthen finance and capacity building to empower women in just energy transitions**

Mr Vu Quang Dang, Independent Consultant, Viet Nam:

The speaker shared a case study of Vinamilk, a big milk enterprise in Viet Nam that had strong commitment towards Net-zero aim by 2050. The enterprise started its first step in 1990 with organic fertilizers. Since 2012, Vinamilk had voluntarily prepared Sustainable Development Reports in accordance with international standards. In 2020, Vinamilk completed the target of 1.0 million trees and trained 45 local residents in forest conservation. Since 2013, Vinamilk had constructed smart warehouses, saving 70% energy, solar PV utilization at all factories and farms, electric forklifts, biomass boilers, biogas, meeting ISO50001 standard. Since 2021, Vinamilk conducted GHG inventories for all milk factories and farms, following the international ISO14064 standard. Vinamilk launched the Net-Zero commitment in 2023. Two factories and one farm had Carbon Neutrality Certificates PA 2060:2014. They also launched targets, strategies and roadmaps to achieve the NZ2050 with KPIs for all departments, factories, farms, promotion of green communications with the first target in 2027 to reduce GHG emissions by 15%.

In Viet Nam, there is a huge demand for green finance. Currently, the total loan outstanding from green projects in the first quarter of 2025 is USD27 billion, 8 times higher than that of 2005. The capital demand for green growth and climate change for the period from 2022 to 2040 is estimated at USD368 billion while

capital demand for power generation and transmission grid in 2026 - 2050 is USD835.4 billion.

In May 2025, Viet Nam passed the Resolution 198/2025 on policies and mechanisms to promote private development which listed renewable energy, clean energy and green agriculture projects as priority projects. The Resolution also provided preferential interest rate of 2% for green, circular and ESG projects among other things.

Ms Maria Cecilia M. Domingo, Vice President and Head, Enterprise & National Government, MERALCO; and President and CEO, MSpectrum Inc., Women Business Council Philippines (WomenBiz), the Philippines:

The imperative of just energy transitions lies not only in shifting toward cleaner and more sustainable energy sources but also in ensuring that the process is inclusive and fair. Without justice, energy transitions risked deepening existing social divides, particularly by excluding women who remained underrepresented in this critical sector. The recognition that "equality meant business" underscored the fact that gender equality is not just ethical imperatives but also economic ones. The ILO had demonstrated that enterprises required at least 30% representation of women to unlock the tangible benefits of gender equality, making balanced representation a fundamental component of effective business strategy.

Promoting women's participation in the energy transitions requires a multi-stakeholder ecosystem in which governments, private companies, financial institutions, academia, and communities should have defined roles. Governments are responsible for policies that advance gender equality and incentives that level the playing field. Employers must incorporate inclusive practices in hiring, leadership development, and workplace culture. Financial institutions could provide a gender equality lens and green financing that empower women-led enterprises in the energy sector. Communities and civil society play a vital role in mobilizing, mentoring, and ensuring fairness at the grassroots level, while academia and training institutions provide women with greater access to STEM education and reskilling opportunities. This ecosystem thrives only when trust is built, and initiatives reach the last mile, particularly to vulnerable communities and post-disaster recovery settings.

The private sector is an indispensable partner in this process, and Meralco, the Philippines' largest electric distribution utility, provided a strong example of leadership. While Meralco already reflected greater representation of women, the company aimed to move beyond representation toward becoming a leader in inclusion. Meralco had developed a three-wave strategy. EMBARK laid the foundation for gender equality in the workplace. EMBED worked to embed cultural change by aligning with the United Nations Women's Empowerment Principles and initiating new programs to foster inclusivity. EMBRACE expanded the scope further by launching initiatives for workplace accessibility, particularly for neurodivergent individuals with physical challenges, while also advancing sensitivity training for employees.

Despite these advances, significant barriers remained. Scaling up successful initiatives, addressing cultural resistance, and overcoming structural inequalities are challenges that must be addressed through collective efforts and persistent action. The message is clear: just energy transitions cannot be considered just unless women are active participants, leaders, and beneficiaries of change. Ensuring their full inclusion would not only fulfill principles of equality but also strengthen the resilience, innovation, and sustainability of the energy transitions itself.

IV. Discussion, Recommendations and Conclusions

Through active discussions and exchanges at the Workshop, speakers and participants shared insights and experiences on how to advance women's participation in just energy transitions. Key recommendations are summarized below:

1. Recommendations for MSMEs

- *Enhance awareness:* MSMEs should strengthen their understanding of the importance and benefits of engaging women in the just energy transitions, recognizing it as vital to their own sustainable growth.
- *Foster inclusivity:* MSMEs are encouraged to build an inclusive work environment for women through supportive policies, regulations, and workplace facilities. Measures could include flexible working hours and arrangements, establishing childcare facilities or areas at the workplace, and

promoting greater awareness among men of women's roles in the just energy transitions.

- *Leverage networks:* MSMEs should actively engage with women's business associations to seek support, share experiences, and benefit from women's empowerment initiatives.

2. Recommendations for APEC member economies/governments

- *Raise awareness:* Increase public and institutional awareness of the benefits of just energy transitions that fully include women.
- *Integrate gender equality into energy policy:* Ensure mainstreaming of gender equality is incorporated in all aspects of energy policies, including the design and implementation of funding mechanisms that support inclusive and responsive initiatives.
- *Develop inclusive policy narratives:* Governments, NGOs, and businesses often have different perspectives; therefore, a customized and coherent policy narrative is needed to align these perspectives toward a shared goal of gender equality in the just energy transitions.
- *Data and evidence-based policy:* Collected and used disaggregated data to design and monitor policies and programs that promoted women's participation in the energy transitions.
- *Promote responsive financing to advance gender equality:* Increase access to responsive funding for energy projects and provide dedicated loan programs for women-led SMEs in the energy sector.
- *Support women-led innovation:* Encourage and fund women-led energy start-ups, particularly in renewable energy fields.
- *Promote women's participation in STEM***,** including but not limited to introducing targeted incentives for recruiting and training women in STEM fields; integrating professional and ethical responsibilities related to gender equality into educational curricular; strengthening policy and legal frameworks to encourage more women to join and advance in the STEM, energy, and climate sectors.
- *Capacity building and networking,* including but not limited to establishing platforms for women to access capacity building, training, and mentorship programs; developing literacy and training workshops for women on energy

transitions; creating a dedicated website or online platform for women in energy transitions to share experiences, discuss challenges, and build networks; encouraging collaboration and knowledge exchange at the regional level to scale up successful initiatives.

- *Leadership and advocacy*, including but not limited to increasing leadership and decision-making opportunities for women in energy-related sectors; strengthening women's business associations to support advocacy, policy dialogue, and empowerment; developing advocacy tools, such as mobile applications, to promote women's engagement in the just energy transitions.

3. Recommendations for APEC as a whole

- *Share best practices:* Promote the exchange of best practices on proposal development, funding mechanisms, planning, and roadmaps related to gender equality and climate initiatives.
- *Facilitate exchange programs:* Encourage student exchange and internship programs among APEC member economies to foster learning and collaboration in the fields of gender equality and climate action.
- *Promote cross fora collaboration:* Strengthened collaboration across APEC sub fora to advance efforts to address climate and energy issues with a focus on gender equality.

Hereinabove are some recommendations from the workshop's participants and speakers that require further thought and discussion at the upcoming PPWE meetings to be transformed into more concrete, practical activities.

THE END!