Meeting Minutes of the 3rd Meeting of the Presidential Office National Climate Change Committee

Date: Thursday, January 23, 2025, 4:00 PM

Location: Reception Hall, Office of the President

Chair: Convener Lai Ching-te

Recorder: Ministry of Environment (MOENV)

Attendees: Deputy Convener Cheng Li-chiun (鄭麗君), Deputy Convener James C. Liao (廖俊智), Deputy Convener Tung Tzu-hsien (童子賢), Advisor Lee Yuan-tseh (李遠哲), Advisor Eugene Chien (簡又新)

Committee Members: Liu Chin-ching (劉鏡清), Wu Cheng-wen (吳誠文), Liu Shyh-fang (劉世芳), Chuang Tsui-yun (莊翠雲), Kuo Jyh-huei (郭智輝), Chen Shih-kai (陳世凱), Chen Junne-jih (陳駿季), Peng Jin-lung (彭金隆), Paul Peng (彭双浪)(on leave), Lai Po-szu (賴博司), Terry Tsao (曹世綸), Tseng Wen-sheng (曾文生), Sophia Cheng (程淑芬), Lydia Hsiao-mei Lin (林筱玫), Shih Shin-min (施信民), Lee Ken-cheng (李根政), Ho Tsung-hsun (何宗勳), Chao Chia-wei (趙家緯), Chen Hui-ping (陳惠萍), Huang Pin-han (黃品涵), Su Huey-jen (蘇慧貞), Lin Tze-luen (林子倫), Chou Kuei-tien (周桂田), Tseng Chung-jen (曾重仁)

Non-voting Participants: Secretary-General to the President Pan Men-an (潘孟安), Executive Secretary Peng Chi-ming (彭啓明), Deputy Executive Secretary Chang Tun-han (張惇涵), Presidential Office Spokesperson Karen Kuo (郭雅慧), Deputy Minister of Interior Tung Chien-hung (董建宏), Political Deputy Minister of Transportation and Communications Chen Yen-po (陳彥伯), Deputy Minister of National Development Council Kao Shien-quey (高仙桂), Vice Minister of Economic Affairs Lien Ching-chang

I. Chair's Remarks

Advisor Lee Yuan-tseh, Advisor Eugene Chien, Deputy Convener and Vice Premier Cheng Li-chiun, Deputy Convener and Academia Sinica President James C. Liao, Deputy Convener and Chairman of Pegatron Corporation Tung Tzu-hsien, esteemed committee members, and fellow citizens watching the live broadcast, good afternoon.

Today is the third meeting of the National Climate Change Committee. With Lunar New Year coming up in just a few days, I would like first of all to wish everyone a happy new year.

I also want to thank each of the advisors and committee members for actively taking part in working group discussions over the past three-plus months. Thanks to your professional suggestions, we have gradually built consensus, focused on our goals, and made progress in policy.

In this new year, we will continue working together on challenges to ensure that Taiwan can keep marching toward sustainable development.

Just days into 2025, raging wildfires broke out in the Los Angeles area which may become the costliest wildfire disaster in United States history.

The World Meteorological Organization also announced that 2024 was the warmest year on record, with a global mean temperature of over 1.5 degrees Celsius above pre-industrial levels for the first time. The year 2024 saw multiple heat waves, droughts, torrential rains, windstorms, and other natural disasters. These extreme climate events continually remind us how urgent and necessary it is to adapt to climate change.

For this reason, the United Nations Framework Convention on Climate Change is urging all countries to propose their 2035 Nationally

Determined Contributions (NDCs) prior to this year's COP30. Otherwise known as NDCs 3.0, they call for bigger and faster carbon reduction measures.

The COP has been hosted most recently by countries including the United Kingdom, the United Arab Emirates, and now Brazil, all of which have announced new carbon reduction commitments along with Japan and the US.

Other countries around the world are scheduled to release their updated NDCs in February, so it is expected that even more countries will follow suit starting next month.

We also need to ask ourselves the following: Can Taiwan maintain a stable foothold amidst the international trend toward carbon reduction, and perhaps even keep pace with the international community? We must be able to answer this question in the affirmative.

In particular, Taiwan's semiconductor industry plays a very important global role, and our baseball team are world champions. In many areas, we perform quite well. In the eyes of the international community, today's Taiwan is not the Taiwan of the past. We must be even more proactive as we work to fulfill our international responsibilities.

For this reason, just last month the MOENV issued the phase three periodic regulatory goals for greenhouse gas emissions, which boost Taiwan's 2030 NDC target to a reduction of 28±2 percent, with 2005 as the reference year, as compared to the previous NDC target of 24±1 percent.

At our last meeting, I mentioned that we need to set new, more proactive carbon reduction goals for 2032 and 2035. So for today's meeting, members of the administration have put forward a draft proposal which would set Taiwan's new 2032 and 2035 NDC targets at emissions reductions of 32±2 percent and 38±2 percent, respectively, compared with 2005.

We have to take aggressive domestic action based on our 2032 NDC target. Then, based on our 2035 target, we must keep pace with international carbon reduction efforts, and do our part to contribute to global climate governance.

I want to emphasize that these targets were set only after taking a pragmatic inventory. During this time, under the leadership of Vice Premier Cheng Li-chiun, the Executive Yuan National Council for Sustainable Development's Net Zero Emissions Transition Taskforce has held intensive meetings and discussions with various government agencies as well as experts and scholars. They first reviewed and optimized carbon reduction plans proposed independently by ministries and agencies through a bottom-up approach, but found that reduction levels were still insufficient.

The taskforce therefore decided to conduct a top-down approach, establishing flagship carbon reduction projects for six major sectors to further increase reduction levels. The voluntary bottom-up plans of different government agencies, plus the top-down macro focus of the Executive Yuan, were combined to produce the new carbon reduction targets.

This is the beta version of Taiwan's NDC 3.0. Perhaps some people will feel it doesn't go far enough, or that it goes too far. However, we took inventory for the plan in a responsible manner, and put the targets forward very pragmatically. Moving ahead, the government will, in accordance with law, continue to communicate with all sectors of society and build a broader consensus to ensure even more comprehensive carbon reduction plans.

To achieve national greenhouse gas reduction targets, we will need active contribution from the government, corporations, schools at all levels, and civil society. In addition to government agencies using their bottom-up approach to continue adding depth to existing carbon

reduction targets, it is important for the Executive Yuan to take its top-down approach in promoting flagship carbon reduction projects, which will rely on the following six major innovative mainstays: technological innovation, financial support, carbon pricing, regulatory adjustment, green-collar professionals, and community-driven approaches. These will act as accelerators that drive lifestyle adjustments in areas including food, clothing, housing, and transportation.

In addition, climate change education is also very important. It must be carried out at the national level in order for it to be set up throughout all of society and provide a consensual basis regarding the active pursuit of net-zero and climate adaptation.

I also want to ask that the MOENV and the Ministry of Education, in accordance with the Climate Change Response Act, actively plan and comprehensively promote sustainable development-oriented climate change education, and engage in dialogue with youth. This adds to the nation's capabilities and lays the foundation for Taiwan's sustainable future.

Transitioning to a net-zero future is a shared goal for Taiwan and the entire world, and it is also a shared responsibility for the sake of future generations and a sustainable Taiwan. We absolutely must join with people from all walks of life, and all of our nation's citizens, to act together.

I hope that government agencies at all levels will begin to establish cooperative ties with a wide variety of groups and organizations, including schools, communities, social groups, and media, to carry out broad-ranging, tailored climate change education and promotion. This way, we can build understanding and consensus among all citizens regarding climate change and the transition to net-zero, bring about further behavioral changes, and achieve low-carbon lifestyles.

In closing, I would like to thank you all for your participation and support. I firmly believe that our joint efforts most certainly can enable Taiwan to move stably and pragmatically toward the vision of net-zero emissions by 2050.

II. Confirmation of the Meeting Agenda

Decision: Meeting agenda confirmed.

III. Confirmation of the Minutes of the Second Committee Meeting

Meeting Decision: Minutes of the second committee meeting confirmed.

IV. Report Items (Omitted)

1. Status report on items listed in the second committee meeting

(Presented by Executive Secretary Peng Chi-ming)

2. Progress report on Proactively Setting New Carbon Reduction Targets

(Presented by Minister of Environment Peng Chi-ming)

3. Progress report on Implementing Carbon Reduction Action Plans

(1) Comprehensive Carbon Reduction Action Targets

(Presented by Deputy Minister of National Development Council Kao Shien-quey)

(2) Carbon Reduction Actions in the Energy Sector
(Presented by Vice Minister of Economic Affairs Lien Ching-chang)

(3) Carbon Reduction Actions in the Manufacturing Sector
(Presented by Vice Minister of Economic Affairs Lien Ching-chang)

(4) Carbon Reduction Actions in the Residential and Commercial

Sector
(Presented by Deputy Minister of Interior Tung Chien-hung)

(5) Carbon Reduction Actions in the Transportation Sector
(Presented by Political Deputy Minister of Transportation and Communications Chen Yen-po)

(6) Carbon Reduction Actions in the Agricultural Sector
(Presented by Minister of Agriculture Chen Junne-jih)

(7) Carbon Reduction Actions in the Environmental Sector
(Presented by Minister of Environment Peng Chi-ming)

V. Discussion Items (in speaking order)

Committee members are invited to comment on report items 2 and 3; written opinions will be included in the meeting minutes.

(1) Committee Member Remarks

1. Committee Member, Lai Po-szu

Under the leadership of the Vice Premier, all ministries have made significant efforts in setting Taiwan's comprehensive net-zero carbon reduction targets, as well as carbon reduction targets for the six major sectors. These efforts are commendable and should be encouraged. The members of the Manufactures United General Association of Industrial Park of R.O.C represent a crucial segment of Taiwan's industrial supply chain. They account for 90% of the nation's industrial parks, representing 14,000 enterprises and 700,000 workers, primarily small- and medium-sized enterprises (SMEs) in traditional industries. Therefore, as the Executive Yuan enhances the NDCs, it should simultaneously consider industry chain adaptation and stability of energy supply.

In recent years, traditional industries have faced economic downturns, compounded by uncertainties from conflicts in the Middle East and the tariff policies under US President Donald Trump. SMEs are facing numerous challenges. While the government is accelerating the development of renewable energies, a complete transition cannot happen overnight. It is essential to consider interim energy policies to ensure affordable electricity prices for industries during the transition period. The government should assess the feasible capacity and generation potential of solar and wind power, while reducing generation costs to provide domestic industries with reasonably priced and stable green electricity.

The power sector accounts for over 60% of Taiwan's total carbon emissions, making energy structure a key factor in achieving the national carbon reduction targets. To ensure stability of power supply while promoting net-zero transition, the initial phase of renewable energy deployment must include natural gas or solid recovered fuel (SRF) as transitional energy sources to replace coal. The government should also strengthen public communication efforts to enhance societal acceptance of natural gas and SRF power generation. At the same time, Taiwan should develop a diversified energy mix and accelerate new energy technology development to balance power supply stability with renewable energy growth.

The residential and commercial sectors have already planned for development of low-carbon and green building policies for future construction. The government should further promote green procurement in both the public and private sectors to enhance carbon reduction benefits.

2. Committee Member, Tseng Chung-jen

The government's setting carbon reduction targets and formulating action plans demonstrate the determination of the president and the administrative team, which is commendable. In addition to the upcoming public hearings, it is suggested that the government engage more with students and educators on campuses to bridge the gap with younger generations.

At present, Taiwan's renewable energy development is predominately in wind and solar power, with geothermal energy also included in future plans. However, Taiwan is still not domestically energy self-sufficient, making the import of zero-carbon energy inevitable, which means that hydrogen and ammonia will play critical roles. While the MOEA has already included hydrogen under energy management, ammonia has not yet been incorporated. It is recommended that the government promptly include ammonia in the energy category to accelerate its development as a viable energy source.

The government's goal of electrifying 3,600 heavy-duty trucks by 2035 is far from the current total number of 176,000 trucks, the reason given for which is that the government is waiting for domestic manufacturing capabilities. However, carbon reduction efforts should prioritize timeliness and efficiency over localization. Given that heavy-duty truck production is not one of Taiwan's strengths, it is impractical to wait for domestic technology to mature. The more practical and reasonable approach is for Taiwan to actively introduce the most advanced international technologies to accelerate carbon reduction progress. A similar challenge exists with light-duty trucks.

The government plans to replace high-energy-consuming neon signs with energy-efficient LED alternatives, but the fundamental solution should be reduction at the source. Neon signage is deeply embedded in Taiwan's commercial culture, but regulatory measures could be considered to limit excessive neon signage as a source reduction strategy. While public acceptance may pose challenges, strengthening communication and public awareness efforts could help achieve substantial reductions in energy consumption at the source.

3. Committee Member, Terry Tsao

First and foremost, I applaud the president and the committee for providing the public with a clear strategic direction and a comprehensive framework for the national net-zero pathway. Your proactive efforts and firm commitment toward achieving the net-zero targets are commendable.

To ensure the effective advancement of targets, a regular review and progress tracking mechanism should be established. During implementation, if certain key milestones cannot be met, corrective measures should be immediately initiated. For example, the progress of solar panel installation lagged significantly last year, yet no alternative solutions were introduced, affecting public perception of the effectiveness of net-zero initiatives and renewable energy deployment.

In terms of carbon reduction and energy transition, renewable energy users, including large corporations and operators on industry supply chains, have made long-term net-zero commitments through such initiatives as RE30 and RE100. As these companies work to fulfill their commitments, they are closely monitoring the progress of Taiwan's green energy

development to ensure that the supply of green energy meets the targets on schedule. Any shortfall could impact these companies' own commitments to reduce carbon emissions and their international competitiveness. Additionally, the industrial sector recognizes the government's efforts in advancing the second energy transition and supports emerging diversified green energy procurement options and other flexible approaches.

From the perspective of renewable energy developers, diversified green energy development is a key direction for the second energy transition. However, in evaluating various green energy sources, priority should be given to mature green energy technologies with scalability advantages, such as solar and wind power. These technologies have reached a stable stage of development and can more rapidly contribute to achieving renewable energy targets. Therefore, while promoting a diverse range of green energy solutions, it is essential to ensure that the deployment of solar and wind power remains on schedule so as to maximize carbon reduction benefits and support the nation's overall net-zero transition goals.

4. Committee Member, Sophia Cheng

Thank you to the administrative team for your dedicated efforts. I believe this is the most thorough and intensive policy initiative I have seen in my decades of involvement in public sector policymaking. Regarding communication strategies, after a policy is introduced, efforts should focus not only on minimizing misinformation but also on seizing effective communication opportunities to help the public understand its purpose. For example, over the past five years, the main

drivers of price increases in Taiwan have been rent, the costs of dining out, and agricultural produce, particularly fruits and vegetables. However, some public discourse has attributed this to "green-flation," which is an unfair characterization. Climate change is the primary factor behind rising food prices, rather than green policies. I suggest clarifying this with the media to correct any misinformation.

Recently, US financial institutions have drawn widespread attention as they withdraw from climate initiatives in response to Trump's policies. In response, some United Nations affiliated financial alliances have begun allowing non-member participation. While financial institutions remain hopeful of advancing climate investments, they are also increasingly concerned about risks of litigation in the US. Meanwhile, countries outside the US continue to actively promote climate finance. In my role as Chair of the Asia Investor Group on Climate Change (AIGCC), for instance, I observed a steady increase in the number of investment institutions participating.

Taiwan has been identified by the World Bank as a country highly vulnerable to natural disasters, yet our response measures to extreme climate events remain insufficient. If climate change contributes to inflationary pressures, Taiwan should respond more proactively. For example, NDC 3.0 Beta version includes net-zero action plans and pathways to targets The government should strengthen communication efforts to ensure that key stakeholders understand the policy content. Going forward, thematic and ribbon development strategies should be employed in continued communications to maintain clarity and prevent misinformation.

The Residential and Commercial Sector Carbon Reduction

Action Plan highlights the risk of communities becoming isolated due to windstorm disasters, emphasizing the need to enhance community resilience through the deployment of solar panel installation. Currently, the financial sector has initiated two community renewable energy projects and local regional revitalization projects near Siaolin Village in Kaohsiung and in Jiangjun, Cigu, and Dingshan Elementary School in Tainan. By donating in support of local power station construction, businesses can repurchase green electricity, thereby making ESG contributions while getting access to renewable energy. If a comprehensive assessment could be conducted to identify suitable locations for community renewable energy projects across Taiwan, and if a corporate participation platform could be established, it would create opportunities to leverage private sector resources. Given that natural environmental conditions vary across regions, energy solutions should be adapted to local conditions.

Regarding private sector participation in the energy transition, the insurance industry holds high expectations, and many other industries have an interest in investing. Taiwan has abundant private resources, but the key challenge lies in channeling these resources into projects that are commercially viable, offer long-term returns, and are self-liquidating. A predictable and stable government policy framework is crucial in this process. If policy directions change abruptly, the anticipated investment returns may not materialize. Therefore, during the planning phase, the government should clearly define its own responsibilities as well as the areas open for private investment. Additionally, providing a 5-to-10-year policy outlook would help attract private investment.

Regarding energy transition and green electricity procurement, the current market still favors enterprises capable of purchasing entire renewable energy projects, making it easier for them to secure green electricity. Recently, both the private sector and local governments have been actively promoting corporate power purchasing. However, the key challenge lies in integrating existing electricity trading platforms with businesses seeking to participate to foster a healthy ecosystem for green electricity development.

5. Committee Member, Chao Chia-wei

Recently, many net-zero related budgets have been frozen due to issues related to nuclear energy. Overemphasizing nuclear energy's role in net-zero efforts could potentially undermine progress on net-zero initiatives. It is apparent from the meeting materials that nuclear energy will not be a key option for Taiwan's net-zero transition in the decade up to 2035. This is a critical policy message that must be emphasized in external communications.

During his remarks, the president mentioned that the current carbon reduction targets are in a beta version. However, the highest target currently reaches only 40%. The following proposals could help increase the target by an additional 6% to 7%, which can be a direction for collective effort.

- To address accelerating renewable energy, currently the installed capacity target for solar power is set at 35 GW, but private sector estimations suggest that an additional 10 GW or more is feasible. If the solar power target is adjusted to 45 GW, it would result in a carbon reduction increase of over 10 million metric tons, contributing approximately 4% to overall emission reductions.

- In the manufacturing sector, when discussing China Steel Corporation (CSC) and CPC Corporation, Taiwan, it is essential to also consider the overall decarbonization strategies of the steel and petrochemical industries. Additionally, if CSC aligns with the international Science-Based Targets (SBT) for carbon reduction, its 2035 emission reduction target should be 55% instead of 44%. Achieving this goal would result in an additional reduction of over 3 million metric tons of CO_2, contributing to an additional overall emissions reduction of 1.5%.
- The transportation sector estimates that from 2023 to 2035, public transportation ridership will increase by approximately 50%, which will naturally lead to a reduction in private vehicle usage. The government is actively promoting sustainable, human-friendly transportation, but the current plans do not fully reflect a comprehensive approach or a strong commitment to innovation, which is regrettable. According to transportation sector projections, if efforts to curb private vehicle use are strengthened and the electrification of transportation is accelerated, it would still be possible to reduce emissions by an additional 2 million metric tons.
- Based on a comprehensive evaluation of carbon reduction potential, there is still an opportunity to raise the emissions reduction target to 46-47%, thereby narrowing the gap with the 52% reduction target proposed by the private sector. Over the past six months, significant efforts have been made on all fronts. Moving forward, it is hoped that existing mechanisms can be effectively utilized, and that ongoing dialogue will help refine targets and optimize strategies, further advancing carbon reduction targets.

Institutional innovation should incorporate community-driven approaches to deepen the energy transition. Community-driven initiatives should not be limited to the occasional sandbox, but rather integrated into energy transition. For example, when promoting solar power, small hydropower, or geothermal energy, relying solely on government-to-government models without considering community participation, citizen-led initiatives, or indigenous-led geothermal development strategies will limit the potential impact. Community-driven approaches are not just an add-on but should be considered the core of the second energy transition. Moving forward, flagship projects should place greater emphasis on the role of community-driven initiatives.

6. Committee Member, Chou Kuei-tien

According to the Manufacturing Sector Carbon Reduction Action Plan, in 2022, the manufacturing sector accounted for 52% of Taiwan's total carbon emissions. The reduction targets for 2030, 2032, and 2035 are set at 18%, 19%, and 21%, respectively. When converted into the national carbon reduction contribution, the manufacturing sector's share will be 9% for 2030 and 10.5% for 2035. To achieve carbon reduction targets, further assessment is needed to determine whether additional strategies or measures can be implemented to further expand carbon reduction efforts in the manufacturing sector.

According to the MOENV, the top 500 emission sources nationwide (i.e., 553 companies emitting more than 25,000 metric tons of emissions annually) account for 92% of total emissions in the manufacturing sector, while SMEs contribute only 8%. Among these 500-plus companies, the top 30

emitters alone account for 83% of total manufacturing sector emissions. It is recommended that an enhanced carbon reduction strategy be developed specifically for these top 30 enterprises to achieve greater emissions reductions.

With regard to regulatory adjustment, Taiwan's Pathway to Net-Zero Emissions in 2050, announced at the end of March 2022, places significant emphasis on regulations and social sciences. In particular, community-driven initiatives and social governance require a substantial number of interdisciplinary social science professionals. However, the current resource allocation for social sciences by the National Science and Technology Council (NSTC) and the National Development Council (NDC) remains relatively low. In Taitung, local tribes have established a watershed alliance, aiming to actively participate in, oversee, and negotiate geothermal development projects. However, the current environmental impact assessment (EIA) mechanism does not formally include them. This highlights the importance of community-driven efforts, an area where social sciences should intervene. I believe that communicating with experts only after conflicts have arisen is not an effective approach. Therefore, it is recommended that NSTC and NDC increase resource investment in social sciences.

Among the top 10 carbon emitters nationwide, four are Formosa Plastics Group (FPG) companies, collectively accounting for approximately 16.95% of total emissions. Recently, FPG has announced plans to shut down several factories. When assessing the impact on related industries, it is crucial to prioritize issues concerning a just transition. However, the availability of relevant data in academia remains highly limited. Therefore, it is requested that the NDC or the

MOEA assist in disclosing key factory adjustment data and providing information on the operational, workforce, and revenue changes of the 553 companies subject to carbon fee collection.

7. Committee Member, Su Huey-jen

As global temperatures exceeded 1.5°C above pre-industrial levels for the first time last year, in addition to continuing efforts to reduce carbon emissions, we must also proactively assess adaptation measures. The flagship projects have already covered nearly all possible carbon reduction initiatives. However, I would like to offer three specific observations and recommendations:

(1) First, from a public communication perspective, each of the six major sectors should identify key projects that are of high public concern and can be concretely assessed and prioritize clear explanations and precisely track the gap between public understanding and the actual content, with effective responses being made to strengthen public confidence in policy resilience. This approach can also encourage the private sector to commit resources over the long term and help participation.

(2) Second, when various government departments launch necessary projects in response to new trends, they should assess whether sufficient professional capacity is in place and provide the necessary guidance and monitoring to ensure that expected outcomes are both accurate and substantial. For example, the Ministry of the Interior (MOI) plans to integrate carbon-conscious strategies into old building renovation projects. However, the expertise and operational models required for this approach may differ significantly from past successful urban renewal programs. It is recommended to

establish a comprehensive, cross-disciplinary professional network to serve as an advisory or support mechanism, ensuring that the intended objectives are fully realized. Similarly, in areas such as carbon footprint verification and assurance requirements set by the Financial Supervisory Commission, the expertise and capacity required for each process differ. Therefore, when implementing multiple initiatives, it is crucial to effectively coordinate cross-sector professional teams and integrate resources to ensure that all targets are met on schedule.

(3) Third, at present, there seems to be no comprehensive assessment of infrastructure adjustments, such as grid modernization, which could help address renewable energy grid integration challenges. Taipower proposed a NT$500 billion ten-year grid resilience enhancement plan in 2022, for which Premier Cho has expressed hopes of goal completion by 2028. In comparison, Europe's largest private-sector power company plans to invest over €9.6 billion between 2024 and 2026 to grid modernization. Going forward, the meetings chaired by Vice Premier Cheng could explore opportunities for industry collaboration within the broader infrastructure blueprint, as well as the potential for private sector investment to support these initiatives.

8. Committee Member, Lin Tze-luen

(1) According to COP29 data, the global information and communications technology (ICT) sector accounts for approximately 1.5% to 4% of global carbon emissions. Given Taiwan's significant role in the semiconductor industry and related fields, its relative carbon emissions within the sector may be even higher. While Taiwan's overall carbon emissions

make up only 0.55% of the global total, the country can leverage its strengths in digital technology and innovation to provide solutions for the global net-zero transition. The NDC 3.0 Beta version, announced today, sends a clear message to the international community: Taiwan is not only committed to increasing its own carbon reduction targets, but also aims to contribute to global decarbonization efforts by utilizing its strengths and working along with the international community.

(2) COP29 introduced Green Digital Action, which aligns well with Taiwan's strengths. The international community is also looking to leverage digital tools to drive carbon reduction measures. Therefore, Taiwan should incorporate digital action into its decarbonization strategy, maximizing its unique potential and capabilities. For instance, Taiwan's development of smart grids is a key advantage, with the smart meter penetration rate set to reach 100% by 2035. This presents a valuable opportunity to enhance smart technology infrastructure.

(3) The transportation sector has already included sustainable aviation fuel (SAF) in its strategy, which is a positive development. Additionally, as Taiwan holds approximately a 10% share in the global shipping market, it is recommended that sustainable fuel strategies for maritime vessels also be incorporated. Furthermore, guidance and planning should be provided for key maritime decarbonization initiatives.

9. Committee Member, Tseng Wen-sheng

(1) Taiwan's smart grid infrastructure is primarily developed by Taipower, with an average annual investment of approximately NT$50 billion, accumulating to a substantial scale over time. Future investments will focus on two key

areas: First, as industrial development and electricity demand grow, new load areas need to be planned. Currently, science parks have been designated as the initial project. Second, existing power grid infrastructure needs to be reinforced. For example, considering national security and climate change adaptation, conventional outdoor substations are being converted into indoor substations.

(2) The biggest challenge facing Taiwan's smart grid is not funding. However, if the private sector is willing to invest, it could be a direction worth planning and opening up, and it could foster positive developments in new infrastructure models. Additionally, as a state-run enterprise, Taipower could benefit from performance benchmarking against private sector operators. This would help the public better understand the challenges associated with electricity and energy costs, as well as the long-term implications of energy policies.

(3) Regarding smart power meters, the first step in energy conservation is ensuring that users are aware of their electricity consumption. Currently, Taipower is developing a smart power meter system integrated with a mobile app that allows users to monitor their electricity usage situation in real-time. This initiative is being actively promoted.

(4) The key to a successful energy transition lies in establishing professional teams, particularly in renewable energy sectors (such as geothermal energy) where the required expertise may differ from the past. In addition to developing domestic talent, international collaboration and the introduction of foreign expertise will be essential. This approach can enhance cross-department cooperation and promotion.

(5) In the field of artificial intelligence (AI), Taipower's Dispatch

Control Center serves as the core infrastructure of the power system. Over the next five years, Taipower plans to develop a computer-simulated dispatch system, which will help optimize the scheduling of renewable energy generation and enhance power allocation and fairness in the future electricity trading market. This infrastructure initiative is critical to the future development of Taiwan's power sector.

10. Committee Member, Chen Hui-ping

(1) The government and various ministries have demonstrated proactive and pragmatic efforts in formulating the 2030 carbon reduction targets, even though different sectors may have different expectations and perspectives on the specific figures. I believe the core value of the NDC 3.0 report lies in gaining support from the industrial sector and the public as well as in publicly disclosing Taiwan's carbon reduction goals and strategies. It is recommended that communication focus on concrete and persuasive narratives to help the public better understand the tangible outcomes of these policies.

(2) The government can help the public envision a future shaped by the NDC 3.0 reduction targets. For example, the manufacturing sector report indicates that GDP growth will not be negatively impacted by carbon reduction policies; and the transportation sector stated that in the future 100% of urban buses and half of all taxis and sedans will be electric vehicles. Since these statistics allow the public to recognize the benefits of carbon reduction, using visualizations is recommended to enhance public understanding of policy outcomes. For instance, the energy sector could illustrate how much of each kilowatt-hour of electricity will come from renewable sources in the future, helping the public gain a

clearer understanding of Taiwan's energy transition. Additionally, emphasis should be placed on investment figures, green growth opportunities, and air pollution reduction, so the public can personally connect with the policy's tangible impacts. Overall, NDC 3.0 has identified flagship projects as key leverage points for effective carbon reduction. To maximize policy impact, efforts should be made to connect the statistics with everyday life, allowing people to develop a stronger sense of connection with the targets.

(3) In terms of information disclosure, some ministerial data has not been fully presented in the overall report. For example, while the energy sector provides emission factors and specific outcomes, it lacks baseline data for comparison, making it difficult to assess the reduction progress from the baseline to 2030. It is recommended that the overall report includes both the reduction figures and baseline data, enabling the public to clearly understand the actual impact of emission reduction efforts.

(4) According to the World Economic Forum's 2024 Global Risks Report, the top three global risks are misinformation and disinformation, extreme weather events, and societal polarization – all of which are critical issues and challenges Taiwan is currently facing. Additionally, Environment Minister Peng pointed out that the 2030 carbon reduction target is set at 28% ± 2%, partly due to uncertainties surrounding climate funding allocation following the amended Act Governing the Allocation of Government Revenues and Expenditures. It is recommended that these risk assessments be incorporated into policy effectiveness evaluations, along with additional explanations, to provide a more comprehensive understanding of the risks and

challenges in achieving the carbon reduction targets.

(5) Regarding oversight and governance, at COP29, countries were urged not only to formulate NDC 3.0 but also to enhance transparency. Therefore, it is crucial for government ministries to regularly report their carbon reduction progress to the committee. However, I am concerned about whether the committee can continue to operate effectively in the long term. While committee members may be willing to serve on a voluntary basis, it is still necessary to design a sustainable oversight mechanism.

11. Committee Member, Shih Shin-min

(1) Last year, global temperatures rose by 1.5°C. In contrast to US President Trump's decision to withdraw from the Paris Agreement, President Lai's active convening of the National Climate Change Committee demonstrates the importance Taiwan places on addressing climate change, a stance we can take pride in. Although Taiwan's carbon emissions account for a relatively small share of global emissions, we have consistently taken a responsible and proactive approach to carbon reduction efforts. Many island nations face severe climate challenges similar to Taiwan's. Thus, it is recommended that Taiwan strengthen engagement and cooperation with these countries in the future and share expertise in carbon reduction and climate adaptation. Furthermore, despite budget cuts and funding freezes, I hope the committee can continue to operate to meet public expectations for climate policies.

(2) It is recommended that the Chief Sustainability Officer (CSO) Training Workshop include content on sustainable urban development planning and public works, as well as climate

change adaptation assessments and considerations.

(3) The manufacturing industry is Taiwan's primary source of carbon emissions. While large enterprises possess strong expertise in carbon reduction planning and sufficient financial resources, the implementation of low-carbon technologies is influenced by government policies, incentives, and regulatory constraints. It is recommended that the government enhance communication with big emitters, especially state-owned enterprises, and accelerate their low-carbon transformation and energy self-sufficiency. Additionally, CSC currently uses 2019 as its carbon reduction baseline year. It is suggested that the company align with the government's baseline year of 2005 for consistency in emissions tracking.

(4) The industrial low-carbon transition strategy is expected to continuously reduce carbon intensity. In addition to carbon intensity, it is recommended to also present Taiwan's energy intensity or energy productivity to track trends in these key indicators so as to facilitate international comparisons.

(5) From a resource circulation perspective, incinerators represent the final stage of the circular system and are also one of the major sources of CO_2 emissions. It is recommended to strengthen support measures for resource circulation, expand the range and volume of recyclable materials, and enhance economic benefits. These efforts would reduce waste sent for incineration and lower carbon emissions from incinerators.

12. Committee Member, Lee Ken-cheng

(1) First, with rises in global temperatures surpassing 1.5°C, the warming has exceeded levels tolerable for humans and has caused severe biodiversity loss. Even if net-zero emissions are achieved, it may only prevent further deterioration and not be

enough to reverse current conditions. Since the Kyoto Protocol was signed in 1998, Taiwan has held multiple National Energy Conferences to discuss carbon reduction, yet emissions have continued to rise. From former President Tsai Ing-wen to current President Lai, Taiwan has entered its most proactive period of carbon reduction efforts. It is encouraging to see government ministries proposing ambitious policies to accelerate this transition. However, we still feel that current efforts are insufficient to fully address climate change and fulfill Taiwan's international responsibilities. Moreover, external challenges, such as policy shifts under US President Trump, make it clear that overall implementation of carbon reduction policies will be rather difficult.

(2) To address Committee Member Tsao's recommendation, it is essential to establish regular review mechanisms, progress tracking, and corrective measures to ensure targets are met. The core of policy execution lies in effective implementation, allowing society to tangibly experience its impact. Additionally, echoing concerns raised by other committee members, information transparency and public participation play a key role in gaining broad public support through social validation. If the public questions the accuracy of government data, it could hinder future policy advancements.

(3) The committee's strongest consensus at present is the need to accelerate the development of renewable energy. According to the energy sector report, achieving 11.82 GW installed capacity of ground-mounted PV systems will require an additional 12,600 hectares of land by 2035, which will entail the use of large tracts of agricultural land. To prevent social conflict, rural energy self-sufficiency and agricultural and fisheries development should be considered, as well as

alignment with the Ministry of Agriculture (MOA)'s agriculture-focused renewable energy policy, to ensure ground-mounted PV systems can coexist with agricultural activities. It is recommended that the MOEA and the MOA promptly discuss concrete solutions, including the swift publication of the MOEA's white paper on energy land use and the MOA's white paper on farmland to facilitate public discussion. Additionally, adjusting the profit distribution model for solar PV, ensuring the achievement of ground-mounted PV targets, and advancing institutional reforms led by Vice Premier Cheng will be key issues for the future development of renewable energy.

(4) One of the key challenges facing the manufacturing sector is the transformation of the petrochemical industry. For decades, this high-carbon emission, high-energy-consuming sector has been a source of social tension and conflict in Taiwan, from past opposition to the Fifth Naphtha Cracker and Kuokuang Petrochemical projects to the current renewal of the Fourth Naphtha Cracker in Linyuan, Kaohsiung. Although the Linyuan project has passed feasibility assessments, its capacity expansion could nearly double carbon emissions. Similarly, the expansion of TSMC's Kaohsiung plant is also expected to increase emissions. The urgent challenge now is how to align national industrial policies with Taiwan's carbon reduction pathway to prevent inconsistencies. In this context, community-driven initiatives will be crucial.

13. Committee Member, Ho Tsung-hsun

(1) Today's meeting proposed a 2035 carbon reduction target of 38% ± 2%. While this may lead to differing opinions among civic groups, it is important to recognize that setting such a

target is inherently challenging. The president's determination and Vice Premier Cheng's leadership in coordinating efforts across ministries should be acknowledged and commended. Additionally, the MOENV will hold a public hearing on the draft of the phase three periodic regulatory goals for greenhouse gas emissions in February, and will gather input from various sectors. If communication efforts are expanded and ongoing reviews continue, there remains the possibility of further adjusting the target by the end of the year.

(2) The MOENV stated that Taiwan's total electricity demand in 2035 is projected to be below 350 billion kWh. The president had previously requested that industry representatives assess the electricity demand for AI development in Taiwan, but the results have yet to be disclosed. Recently, the NT$100 billion subsidy budget for Taipower was cut, raising public concerns about potential electricity price increases and industrial impacts. This issue requires further attention.

(3) Regarding Taiwan's Comprehensive Carbon Reduction Action Plan and solar PV deployment, it is recommended to refer to international examples, such as in Europe, where vertical solar panels are installed on building facades. While the framework for community-driven initiatives is well-developed, community integration and execution systems remain insufficient. To achieve localized energy conservation and carbon reduction, it is suggested that villages and neighborhood communities establish community energy conservation and carbon reduction service centers using a social enterprise model. These centers would assist residents in installing solar panels, upgrading to energy-efficient appliances, and implementing water-saving measures, with any surplus revenues reinvested into the community. This

model could serve as a grassroots driver for Taiwan's net-zero transition.

(4) In the transportation sector, the concept of walking and cycling as the first step in public transportation is commendable, but it lacks further explanations and supporting measures. In rural areas outside of Taipei and New Taipei City, public transportation infrastructure remains underdeveloped, making travel inconvenient for both locals and international visitors. It is recommended that the government propose concrete strategies to improve transportation accessibility. Additionally, Taiwan's regulations on medium- and large-sized pets using public transportation are not pet-friendly. Since 2018, the number of registered pet births has exceeded that of humans. It is suggested that more comprehensive pet-friendly transportation policies be introduced, such as designated pet-friendly cabins on trains, to meet the rising market demand.

(5) Taipei City has more than 15 large-scale parks. It is recommended that the MOA assess the feasibility of integrating these urban parks into the carbon sink mechanism.

(6) Flagship projects should be more closely aligned with everyday life, emphasize nationwide participation in the net-zero transition, and deliver tangible benefits in food, clothing, housing, and transportation. Creative marketing strategies such as lotteries, tax rebates, and consumer rewards could be implemented to encourage public participation and make policies more accessible and relatable to daily life.

14. Committee Member, Huang Pin-han

(1) Since I joined the Taiwan Youth Climate Coalition (TWYCC) in 2012, the average age of its members has gradually

increased from 16-22 years old to 25 years old, and in the past three years, the age range has further shifted to 25-35 years old. According to a *Bloomberg* poll in the US, the 30-40 age group is most concerned about climate change, while those under 29 prioritize inflation, with climate change as their second-most important issue. Given that youth communities often experience anxiety about future uncertainties, the TWYCC is particularly focused on the following two key issues:

- First, as rises in global temperatures surpass the 1.5°C threshold, climate disasters will inevitably occur. A key concern for youth and future generations is how to adapt and coexist in a changing climate. Adaptation has therefore become a major focal point for youth communities.
- Second, given limited resources, time, social conditions, and budget constraints, achieving the 2030, 2032, and 2035 carbon reduction targets requires a comprehensive cost-benefit analysis to evaluate the effectiveness of various carbon reduction measures over the next 5 to 10 years. Beyond the MOENV's public hearing on the phase three periodic regulatory goals for greenhouse gas emissions, it is recommended that all ministries hold public hearings and invite civic groups that are concerned with climate and net-zero issues to participate. This would help assess policy resource investment and the effectiveness of carbon reduction efforts, ensuring priority is given to the most impactful measures. Additionally, government agencies should appropriately disclose relevant data and information to enhance public engagement among concerned parties in the community. The challenge of communicating climate change and the net-zero transition is not solely a government

responsibility but also a shared challenge among all NGOs. Expanding climate discussions from a small group of experts to broader public participation would enable society to collectively identify the most effective carbon reduction solutions, making it a key driver for a successful net-zero transition.

(2) Adequate policies and budget allocations are critical to driving carbon reduction efforts. By utilizing subsidies, tax benefits, and other financial incentives, individuals and households can be encouraged to actively participate. This will allow them to experience the tangible benefits and contributions of carbon reduction efforts, thereby significantly enhancing overall effectiveness. For example, the energy-efficient appliance subsidy program has already shown positive results. In the future, electric vehicle subsidies should not only focus on charging infrastructure expansion but also provide more attractive policy incentives by using the tax reduction measures previously implemented by the Ministry of Finance as a point of reference.

(3) Oversight and assessment and performance evaluation of carbon reduction initiatives can be aligned with the Climate Change Response Act. Each government ministry should publish an annual progress report detailing the outcomes of greenhouse gas reduction targets for the six major sectors. Additionally, establishing a feedback mechanism alongside the release of the annual review report would allow for broad stakeholder input. This would help improve underperforming initiatives while reallocating resources from successfully implemented projects to other areas in need. Such an approach would not only enhance public and community engagement but also be paired with phase-based carbon reduction and

impact assessment, enabling rolling budget adjustments.

15. Committee Member, Lydia Hsiao-mei Lin

(1) Data transparency and verification: It is recommended that the sources of data disclosed in this meeting report be made public, allowing for further verification and double-checking. This would also serve as a reference for future estimations and policymaking decisions.

(2) Development and accessibility of the energy information platform: The establishment of an energy information platform is critical. This topic has been discussed in multiple meetings, and it is recommended that the platform present data in a user-friendly and easily comprehensible way. For example, converting carbon reduction figures into quantifiable monetary values could enhance public understanding of policies and encourage broader participation in advancing net-zero initiatives.

(3) Technology innovation and market adoption: In the field of technological innovation, it is hoped that new technologies, equipment, and construction methods will receive official recognition and be included in government and corporate procurement options. Financial support is crucial to ensure that incubation-stage technologies can successfully be transitioned into marketable products. Thus, a more comprehensive funding mechanism should be established.

(4) Carbon pricing mechanism and its implementation in SMEs: The carbon pricing mechanism is a valuable innovation, as its payment structure incentivizes industries to actively engage in carbon reduction. However, many businesses still have uncertainties about energy-saving and carbon reduction strategies. It is suggested that successful case studies be

highlighted and simplified modular approaches be developed to help companies rapidly implement carbon reduction measures. Special attention should be given to increasing the acceptance and willingness of SMEs to adopt these solutions.

(5) Youth participation and information dissemination: Younger generations are actively engaging in discussions on public platforms such as Climate Action and Our World in Data. This model provides valuable insights for future domestic information dissemination strategies. Notably, today's 20-year-olds will be the backbone of society by 2035, making their involvement in the net-zero transition critical. It is essential to simplify information delivery so that young people can integrate sustainability efforts into their aspirations while creating economic value. The actual implementation and ongoing development of the energy information platform are anticipated.

(2) Government Representative Remarks

1. Committee Member, Wu Cheng-wen

(1) Here are some key takeaways from the 2025 Science and Technology Advisory Meeting of the Executive Yuan in January:

- Future planning should include clear targets, pathways, and strategic approaches, all grounded in science. Additionally, public communication and engagement must be strengthened. Social resilience for energy transition should incorporate multiple aspects, including a diverse low-carbon energy portfolio, but given Taiwan's limited land area, the potential social costs and ecological impacts must be considered.

- In Taiwan, the development of solar and wind power is constrained by availability of land. International science and technology advisors have recommended that carbon reduction policies take into account overall energy needs, recognizing that as national economic and technological development progress, energy consumption will continue to rise. While reducing reliance on high-carbon energy sources, alternative energy options must be explored. For example, domestically developed green energy sources (such as small hydropower and geothermal energy) remain insufficient, making it necessary to assess the feasibility of importing energy sources. Currently, imported coal and natural gas both contribute to carbon emissions; however, natural gas has a lower carbon footprint compared to coal. Therefore, during the transition period, it is recommended to replace coal with gas. Furthermore, the development of green hydrogen and green ammonia will rely on imports. The subsequent power generation technologies, such as fuel cells, will require significant land, port, and pipeline infrastructure, demanding substantial resources and raising various social concerns. It is imperative to immediately initiate policy planning and strengthen public engagement and communication.

(2) Vice Premier Cheng has initiated efforts within the Executive Yuan to enhance civic communication and participation. Yesterday, the NSTC hosted a presentation on outcomes of the civil society net-zero sandbox focusing on building a net-zero social foundation through technological, social, and network capabilities, which showcased innovative net-zero technological solutions implemented by civic groups. Vice Premier Cheng highlighted five key institutional innovations:

technological innovation, financial support, carbon pricing, regulatory adaptation, and development of green-collar talent. Originally designed as a top-down approach to carbon reduction actions, the inclusion of civic participation has transformed the initiative into a bottom-up model. Looking forward, we hope to utilize carbon fee revenues in conjunction with local revitalization efforts to accelerate the expansion of public-private collaboration and civic participation mechanisms, ultimately fostering broad societal consensus.

(3) Deputy Convener Remarks

1. Deputy Convener, Tung Tzu-hsien

(1) During our participation in this committee, we have dedicated significant effort to deliberating relevant issues and have witnessed the substantial work undertaken by various ministries in formulating carbon reduction targets. However, I would like to remind everyone: Do not focus solely on pulling the cart; we must also look ahead to see the road. Our discussions on carbon reduction and climate change are inherently shaping the direction of development of our energy mix. From an energy perspective, there are several key considerations. First, we must be mindful of the impact of energy on climate change and carbon emissions; second, it is essential to strike a balance between ensuring the needs of the public and supporting industrial development; and last, attention should also be given to the impact of energy on the environment and the environmental carrying capacity.

(2) From an environmental perspective, when discussing the proportion of renewable energy, many regard Denmark's wind power and Germany's solar photovoltaics as exemplary models. However, there are significant differences between

these two countries and Taiwan in terms of population size, geographic conditions, and industrial characteristics. For example, in 2024, Taiwan's land carrying capacity for solar photovoltaics was estimated to be 2.3 times that of Germany's. If the promotion of solar photovoltaics continues, Taiwan's target generation capacity for 2035 would need to increase by 2.6 times. Ignoring the differences in plains and mountainous terrain, Taiwan's land carrying capacity for solar photovoltaics would exceed five times that of Germany. Therefore, we must conduct a pragmatic assessment, as continuously raising renewable energy targets could impose an unsustainable burden on Taiwan's land resources.

(3) According to the current plan, the 2035 wind power target will require an increase in offshore wind turbines from the existing 300-plus units to approximately 2,000 units. Considering that spacing between turbines is necessary to prevent wake effects and minimize ecological impacts, an average of one turbine needs to be installed per kilometer. Based on calculations, the additional turbines will occupy approximately 2,000 square kilometers of maritime space. However, carbon reduction efforts and targets require long-term implementation, and 2035 represents only an interim goal. To achieve net-zero emissions by 2050, further expansion of renewable energy development will be necessary. Given Taiwan's population density and limited land and maritime resources, careful evaluation of realistic conditions is essential during planning to avoid severe impacts on land and the environment.

(4) If carbon reduction targets lead to energy price increases beyond what households and industries can bear, sustaining the policy until 2030, 2035, or even 2050 may become unfeasible. Looking at current international trends, Sweden

and Switzerland have abolished legal restrictions on the operational lifespan of nuclear power plants, instead adopting an annual inspection system that allows reactors to continue operating if they pass safety assessments. Germany, although long regarded as an anti-nuclear model, simultaneously maintains the highest coal-fired power generation capacity in the European Union. Coal accounts for over 28% of its electricity generation – far exceeding the EU average of 9%. Energy policy implementation inevitably involves trade-offs, as no approach can simultaneously maximize all advantages. Given Taiwan's limited land area and high population density, it must strike a balance between industrial development, energy security, and sustainability, as pursuing carbon reduction targets to the extreme without considering trade-offs is not a viable option.

(5) Currently, Taiwan's energy import dependency stands at 96.2%, with projections for the proportion to decrease to 90% by 2030, primarily due to renewable energy. Solar photovoltaics, which do not require imported fuel, are considered a key strategy for enhancing energy self-sufficiency. However, photovoltaic equipment has a lifespan of 20 to 25 years, necessitating annual imports valued between NT$50 billion and NT$100 billion. Therefore, a careful assessment should be made of how to reduce dependence on a single import source regarding large-scale solar energy development.

2. Deputy Convener, James C. Liao

(1) According to the latest data, it is not the period leading up to 2050 that will experience the most severe impacts of climate change. Instead, projections indicate that rising CO_2

concentrations will lead to ocean acidification, causing $CaCO_3$ in marine environments to release additional CO_2. This process is expected to trigger a true environmental catastrophe between 2070 and 3000. Therefore, we must not limit our planning and policy direction based on current perspectives alone. It is essential to consider environmental conditions beyond 2050 and proactively initiate adaptation measures.

(2) In the future, the electricity demand driven by AI could be virtually unlimited, making energy demand forecasting increasingly challenging. In this regard, I echo the perspective of Deputy Convener Tung – Taiwan has limited land area, and the total capacity for renewable energy is inherently capped. Therefore, we must consider alternative energy options to meet future demand.

(3) Last year, Germany experienced a two-week period with insufficient wind and sunlight, leading to electricity imports from France, which has long relied on nuclear power as its primary energy source. Drawing from Germany's experience, when evaluating energy options, we must conduct a comprehensive assessment that includes energy security, energy growth, and Taiwan's specific circumstances. This was also the key conclusion of the Science and Technology Advisory Meeting of the Executive Yuan held in January this year.

3. Deputy Convener, Cheng Li-chiun

(1) Since last August, colleagues from various ministries have worked collaboratively to actively develop carbon reduction action plans. We also extend our gratitude to the committee members for their participation in numerous meetings and for

providing valuable insights. In this meeting, we have presented the NDC 3.0 Beta version. Moving forward, a public hearing will be conducted to gather broad societal input and continue public engagement. Additionally, a consultation and collaboration system will be established under the Executive Yuan's Task Force on Climate Change and Net Zero Emissions Transition.

(2) The current carbon reduction targets represent a responsible beta version formulated on action plans with concrete carbon reduction impact assessments. These targets are derived from calculations that include 20 flagship carbon reduction projects and 80 voluntary carbon reduction initiatives, all of which are accounted for within a carbon ledger. As a result, the carbon reduction targets are verifiable, and if there are delays in progress, the reduction strategies will be continuously reviewed and adjusted accordingly.

(3) The current flagship projects focus on reducing carbon emissions at the source, but this remains insufficient. Institutional innovation must serve as an accelerator for net-zero transition. Additionally, community-driven initiatives and civic participation are crucial, as public engagement is key to fostering a collective societal vision. Locally manufactured small hydro power equipment and the circular economy model of growing coffee using recycled coffee grounds exemplify Taiwan's local innovation, reflecting the kind of social innovation we aim to encourage.

(4) The government's current carbon reduction action plans and targets are formulated as a strategic direction for Taiwan's green growth, with the aim of achieving a vision of green living and innovative development for the nation. This constitutes Taiwan's version of a net-zero transition plan,

encompassing energy-saving technologies and technological energy storage solutions, both of which have the potential for international export. Additionally, today's presentations primarily focus on carbon reduction, while climate adaptation efforts remain a key focus of the Executive Yuan's Task Force on Climate Change and Net Zero Emissions Transition. Further discussions and deliberations on these initiatives will continue in the future.

(4) Advisor Remarks

1. Advisor, Eugene Chien

(1) The content of today's NDC 3.0 Beta version is highly comprehensive, in-depth, and pragmatic. Once the relevant targets and plans are finalized, effective communication during the public announcement stage will be crucial. Recent surveys indicate that over 60% of the public has never heard of Taiwan's policy for net-zero emissions by 2050. Therefore, ensuring that society fully understands and supports the policy implementation will depend on the emphasis we put on external communication, as well as collection of input from various sectors of society.

(2) Taiwanese enterprises have achieved significant success in sustainable growth on the international stage. The execution strategies employed in Taiwan's past efforts to promote corporate sustainable growth can serve as a reference for future initiatives, following four key steps:

- Step 1: Top-down process – The initiative must begin with a declaration and commitment from leadership. It is recommended that the president announce the initiation of policy, followed by ministry heads outlining specific actions within their respective jurisdictions. Clear communication is

essential to ensure employees fully understand the initiative. Communications should reach through all levels of government, and promises and commitments should be made to the public.

- Step 2: Formulating an action plan – The plan must include a clear timeline, budget allocation, and key performance indicators to ensure effective execution.
- Step 3: Implementation – All tasks must be carried out rigorously.
- Step 4: Preparing a sustainability report with third-party certification – The private sector's approach can serve as a model in requiring the publication of an annual sustainability report, the content of which must be transparent and sincere. The report should communicate completed work and ongoing challenges to the public while integrating third-party verification to validate the results.

(3) Regarding the issue of a 1.5°C temperature rise, according to the Paris Agreement, climate change mitigation and adaptation must advance in parallel. An analysis of the wildfires in Los Angeles shows that despite California's strong performance in mitigation efforts such as stringent vehicle emission regulations, its adaptation measures were insufficient, and firefighters struggled to obtain adequate water due to reservoir shortages. Therefore, it is recommended that while advancing mitigation efforts, Taiwan should also reassess its aging infrastructure to ensure adaptation to future temperature increases. Additionally, new buildings and government public infrastructure should be required to meet green and sustainability standards, which would help improve the current situation.

2. Advisor, Lee Yuan-tseh

(1) Since COP21, two key global consensus points have emerged in discussions on global warming and the future of humanity: first, to prevent the earth's average temperature from rising beyond 1.5°C; and second, to ensure the achievement of net-zero emissions by 2050. However, the global average temperature rise has already exceeded 1.5°C. Even with our efforts to achieve net-zero emissions, whether we can truly create a better future remains a profoundly serious question – one that is difficult to answer for future generations. We cannot continue to ignore the current reality; we must take action to prevent further environmental deterioration. Otherwise, humanity will face an existential threat.

(2) When discussing national climate change strategies, energy transition and solar photovoltaics often come to mind. However, Taiwan faces constraints such as limited land area and high population density, with an average of over 600 people per square kilometer, alongside relatively limited solar resources. In case of energy supply shortages, one potential solution is to "purchase sunlight," even from abroad. This involves converting sunlight into electricity, using electrolysis to produce hydrogen or ammonia, and then liquefying and transporting it to Taiwan. Upon arrival, ammonia can be broken down to make hydrogen, which can subsequently be used for combustion-based power generation.

(3) During the planning of the Fourth Nuclear Power Plant in Taiwan, political interests and related controversies further complicated the issue. As a result, the challenges Taiwan faces today are not just scientific, but are also closely tied to policy and economic considerations. Given the current circumstances, purchasing sunlight is an inevitable path that

Taiwan must take.

(5) Convener, Lai Ching-te

I would like to first express my gratitude to all committee members for your valuable insights. I also want to extend my appreciation to Vice Premier Cheng and the six ministries for their dedicated efforts in preparing comprehensive reports, which demonstrate our commitment to addressing climate change.

I will now issue a consolidated directive based on the three reports presented today.

First, regarding the 2032 and 2035 carbon reduction targets presented today, as president of Taiwan, I reaffirm our commitment to carbon reduction. Moving forward, we will strengthen social communication mechanisms and solicit broad input from various sectors. After incorporating this feedback, a proposal will be submitted to the Executive Yuan for approval, ensuring that Taiwan's NDC 3.0 aligns with international standards. I request that administrative departments take committee members' suggestions from today's meeting into consideration, further refine plan content, and work collaboratively to demonstrate strong execution, ensuring that the targets are reached on schedule and with the expected quality.

Second, to ensure the effective advancement of the carbon reduction process, the administrative departments have provided a comprehensive action plan for review. Moving forward, the administrative departments must also strengthen performance oversight and assessment mechanisms, establish key milestones, and report progress to this committee every six months. The entire process will be transparent and conducted with integrity, allowing for ongoing policy efficacy assessment so as to steadily achieve carbon reduction targets. Every committee member serves as a

third-party representative, impartial and certified, offering validation for society.

Third, energy is at the core of carbon reduction. We must continue accelerating the development of renewable energy while implementing reforms in the green energy development process to enhance transparency, simplify procedures, and strengthen collaboration between the central and local governments to improve efficiency.

At the same time, we must consider energy security and Taiwan's unique advantages and constraints when evaluating the potential for a diversified energy mix. And we must maintain an open mindset in these discussions.

Additionally, we must continue optimizing power grid infrastructure and promoting the widespread adoption of energy storage technologies to ensure a stable and efficient energy supply. These efforts must have a scope and timeline. Furthermore, green manufacturing processes and low-carbon technologies should be integrated into various industries and state-run enterprises, while greater participation from SMEs in the green supply chain should be encouraged.

Fourth, in the manufacturing sector, we must continue to encourage large enterprises to lead in the low-carbon transition, with major companies leading the way for smaller companies. Based on industry characteristics, mature technologies should be maximally adopted, while forward-looking technologies should be strategically developed to reduce carbon fee expenditures and build a green supply chain. I also specifically request that efforts continue to enhance the capacity of energy service companies to support industries in implementing energy-saving measures and achieving the digital and net-zero twin transition.

Fifth, energy conservation and carbon reduction in the residential and commercial sectors have a direct impact on quality of life for all citizens. Expanding on existing green building policies, we should accelerate the implementation of building energy efficiency standards. By promoting net-zero and near-zero buildings, we can further drive the development of smart building materials and industries involved in making energy-efficient equipment.

Sixth, low-carbon transition in the transportation sector has become a global trend. We must continue accelerating the electrification and decarbonization of transportation, expand the distribution of charge points, and advance the development of SAF. Additionally, maritime transportation should also be considered for inclusion.

Seventh, agriculture is the foundation of various sectors and professions in Taiwan and a cornerstone of the nation's economic security. Therefore, greater technological innovation is needed to develop a low-carbon, sustainable agricultural sector and enhance its ecological resilience. I also want to emphasize the importance of public-private collaboration and a just transition throughout this process, ensuring that farmers can also benefit from net-zero transition.

Eighth, the immense potential of the circular economy cannot be overlooked in the path toward net-zero transition. We must accelerate the development of resource recycling technologies while also enhancing public awareness and participation in green, sustainable, net-zero lifestyles. Recently, startups in Taiwan have been exploring the recycling of semiconductor waste and discarded solar panels to recover hydrogen. If proven feasible, this represents an excellent circular economic model and a viable solution to Taiwan's pressing waste management challenges.

Additionally, regarding items listed in the second meeting,

respective ministries have actively engaged in planning and implementation. With the coordination, division of responsibilities, and integration efforts of the Executive Yuan, multiple cross-ministerial, cross-sectoral, and cross-thematic action plans have been advanced. Moving forward, I ask the Executive Yuan and relevant ministries to continue driving and monitoring these initiatives, and to report outcomes to the public in a timely manner.

Finally, I would like to once again express my gratitude to the three deputy conveners for initiating the seven sub-group meetings under this committee. I also extend my appreciation to all committee members for their collective wisdom and consensus-building, providing the administrative team with even more ideas. We will continue working toward our goals. Thank you.

VI. Extempore Motions

Motion 1: In the hope that this committee can continue its operations without being affected by the Legislative Yuan's budget review, we firmly believe that as long as the government is committed to promoting national sustainable development, we remain dedicated to supporting this cause. Therefore, we will voluntarily forgo payment for participating in this committee to help ensure its continued operation. We hope that the committee can persist in making meaningful contributions to Taiwan's climate change response and sustainable development. (Proposed by Committee Member Shih Shin-min and all private sector committee members and advisors)

1. **Motion Explanation by Committee Member Shih Shin-min**
2. **Resolution:** Deep gratitude is extended to all committee members for their solidarity. The committee will continue its operations.

Motion 2: The government should plan and promote a science-based participatory reform of the electricity system, utilizing integrated resource planning to enhance long-term confidence in both society and the market. (Proposed by Committee Member Su Huey-jen and four other committee members)

1. **Motion Explanation by Committee Member Su Huey-jen**
2. **Committee Member Responses:**

(1) Committee Member, Tseng Wen-sheng

1. For the electricity supply and demand report drafting process, it is suggested to start with a simplified version, gradually supplementing data and details, and appropriately expanding the content based on subsequent discussions.
2. The root of Taiwan's energy transition disputes lies in land use. Ministries should establish a communication mechanism to confirm land use planning approaches. If the available land areas can be designated in advance, policy implementation will become more feasible. If land resources prove insufficient to support renewable energy development and net-zero targets, alternative solutions should be devised early to reduce disputes and uncertainties during the transition process. Additionally, the government has already implemented judicial mechanisms to prevent past rent-seeking behaviors commonly seen in land development projects, enhancing policy fairness and transparency. Moreover, demand-side management should also be incorporated into power sector resource planning.
3. The government must clearly explain that Taiwan's electricity demand is driven by industrial development, using concrete data and projections as a basis. Analyses

should be done at the direction of academic institutions or impartial organizations using information transparency and by establishing platforms so as to ensure scientific rigor and credibility in decision-making.

(2) Committee Member, Kuo Jyh-huei

1. This proposal is closely related to the societal level and requires clarification of its core objectives. If the ultimate goal is carbon reduction, it should be pursued through broad social consensus and collective participation. However, individual behavioral changes are built over time, making it challenging to drive shifts in daily habits. An alternative approach could be to achieve carbon reduction by modifying the surrounding environment. For instance, identifying key environmental factors that influence behavior and starting with improvements there could foster public recognition and gradually encourage behavioral changes.
2. The 2050 net-zero emissions target is rapidly approaching, yet progress remains slow. The government must fully explore all technological possibilities, prioritizing environmental adjustments as a starting point while adopting diverse approaches to facilitate carbon reduction. In achieving the 2030 renewable energy target, we still face many constraints. Therefore, when implementing carbon reduction strategies, no potentially effective method should be excluded from consideration.

(3) Deputy Convener, Cheng Li-chiun

1. The flagship projects have been formulated in accordance with the Climate Change Response Act. For a successful energy transition, a comprehensive governance framework

must be established. As the proposal concerns the governance structure for the overall transformation of the power system, relevant ministries will be invited to collaborate in advancing these efforts.

2. The key focus of the energy governance framework is territorial and spatial governance. Currently, the MOI, the Ministry of Transportation and Communications, and the Ocean Affairs Council are conducting a comprehensive mapping and assessment of land and maritime areas to facilitate integrated spatial planning and management while establishing relevant procedures. Concurrently, supporting measures are being implemented, including amendments to the Electricity Act and the Renewable Energy Development Act, in order to restructure the market framework. This includes the energy service system, power transmission and distribution models, and battery charging service systems, aiming to establish a viable energy governance model for Taiwan.

3. **Resolution:** This motion is approved in principle. Vice Premier Cheng is requested to invite the initiators of the motion, relevant ministries, and other committee members to discuss the implementation details. A concrete plan will be presented at a future committee meeting.

Motion 3: It is recommended that after the government clearly defines the 2030, 2032, and 2035 NDC carbon reduction targets, it should ensure transparency by publicly disclosing the greenhouse gas reduction modeling and projections. This should include scenario analysis, abatement costs for industry, electricity consumption growth, energy-saving pathways, and estimated electricity carbon emissions factors. Collaboration should be

established with industries, academia, civil society organizations, and relevant stakeholders to foster joint carbon reduction efforts across national, industrial, and societal levels. (Proposed by Committee Member Chou Kuei-tien and three other committee members)

1. **Motion Explanation by Committee Member Chou Kuei-tien**
2. **Response by Deputy Convener Cheng Li-chiun**

(1) Following the release of the NDC 3.0 Beta version, social engagement will continue. Consideration will be given to establishing a mechanism and collaborative method under the Executive Yuan's Task Force on Climate Change and Net Zero Emissions Transition to facilitate ongoing dialogue with various sectors of society.

(2) The process of setting targets and action plans is currently underway, with six key institutional innovations driving Taiwan's comprehensive carbon reduction efforts. However, as the flagship projects involve both the civic sector and industries, social engagement and collaboration are essential. Moving forward, a dedicated platform will be established for this.

3. **Resolution:** This motion is approved in principle. Vice Premier Cheng is requested to invite the initiators of the motion, relevant ministries, and other committee members to discuss the implementation details. A concrete plan will be presented at a future committee meeting.

Motion 4: It is recommended that the Executive Yuan establish a comprehensive social dialogue process to ensure that the finalized version of NDC 3.0 aligns with the net-zero pathway. (Proposed by

Committee Member Chao Chia-wei and four other committee members)

1. **Motion Explanation by Committee Member Chao Chia-wei**
2. **Resolution:** This motion is approved in principle. Vice Premier Cheng is requested to invite the initiators of the motion, relevant ministries, and other committee members to discuss the implementation details. A concrete plan will be presented at a future committee meeting.

VII. Chair's Closing Statement

Net-zero emissions by 2050 is Taiwan's goal. Once again, I express my gratitude for everyone's dedication and contributions. I also extend my appreciation to the Executive Yuan and relevant government agencies for their efforts in coordinating with the Task Force on Climate Change and Net Zero Emissions Transition and facilitating cross-agency consultations, which have led to new developments in our climate actions.

Building upon former President Tsai's 12 key strategies for the net-zero transition, we have introduced flagship projects and implemented six key innovative mechanisms.

We have also planned for continued government investment in net-zero initiatives, with a projected budget surpassing NT$1 trillion by 2030. Additionally, we aim to mobilize at least NT$5 trillion in private green financing and investment by 2030.

At today's meeting, we presented the 2032 and 2035 carbon reduction targets. These targets are not only critical milestones in Taiwan's journey toward net-zero emissions, but also a key opportunity to demonstrate our commitment and responsibility to the world. Moving forward, we must take a proactive approach to implement these goals.

As we end this meeting, I would like to highlight three key conclusions:

First, I kindly request the three deputy conveners to continue hosting monthly sub-group discussions. These meetings will provide committee members and government agencies with more opportunities for dialogue and collaboration. Additionally, they will offer opportunities to develop medium- to long-term policy recommendations aligned with the seven key areas of this committee.

Second, the new carbon reduction targets presented today are just the beginning. Moving forward, the administrative team is requested to strengthen social communication, actively implement the proposed measures, and further build consensus across society.

Third, while we have set clear targets and are committed to fostering more communication, the most crucial aspect is execution. I urge the administrative team to pragmatically assess potential challenges, seek effective solutions, and continuously refine strategies through adaptive adjustments. Most importantly – implementation, implementation, and more implementation!

On February 7 this year, the MOENV will hold a public hearing on the phase three periodic regulatory goals for greenhouse gas emissions. I urge the administrative team to broaden societal dialogue, ensuring that civil society can fully and effectively participate in the discussions. This will help advance climate action toward a more proactive next stage.

At the last meeting, I emphasized addressing issues honestly, proposing solutions pragmatically, and resolving problems practically. Moving forward, we must uphold this principle to ensure that the 2030, 2032, and 2035 carbon reduction targets are successfully achieved on schedule.

Achieving net-zero emissions is a long journey, and only through unity and collective effort can we overcome the challenges ahead. Let us continue working together to make Taiwan a model for global climate

action and contribute even more to the world. Thank you.

VIII. Meeting End Time: 8:30 p.m.