



APEC Sustainable Energy Center

APSEC Updates to EGEEEC63

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Outline

- i. **APEC Projects & Activities Highlights**
- ii. **APEC Urban Energy Reports**
- iii. **APSEC's Input to Policy Dialogue**

□ Data driven carbon neutral disaster resilient cities, APEC EWG 04 2022A

- Co-sponsored by AUS, CHL, HKC, INA, JPN, PHL, SGP, THA

■ Project summary

- Aims at accelerating the development towards carbon neutrality by increasing the number of APEC cities or municipalities having the **capacity to collect relevant data** and **to use a multi-stakeholder dialogue** to become carbon neutral and disaster resilient;
- A 2-day virtual **Training of Trainers (ToT)** held in August 2023 empowered 67 local planning officers of APEC municipalities from 10 APEC economies (Canada, Chile, China, Hong Kong China, Indonesia, Korea, the Philippines, Thailand, USA, Viet Nam) coached by leading experts of 10 organizations to collect energy and climate data in cooperation with local stakeholders;
- A 6-day **multi-stakeholder dialogue (MSD)** was held in **North Sulawesi Province Indonesia** in February 2024 and brought together 102 online and in-person participants from 10 APEC economies (Australia, Chile, China, Hong Kong China, Indonesia, Korea, the Philippines, Thailand, USA, Viet Nam) and 12 international organizations to elaborate a carbon neutrality **vision** and for setting three specific 2030 **targets**.
- The **Final Report “Promoting Carbon Neutrality in North Sulawesi: Vision, Targets, Benchmarking and Monitoring”** has been published by APEC in October 2024,
<https://www.apec.org/publications/2024/10/promoting-carbon-neutrality-in-north-sulawesi---vision--targets--benchmarking-and-monitoring> .

APEC Projects & Activities Highlights

- Multistakeholder Dialogue (MSD) held in Manado, North Sulawesi, Indonesia



The North Sulawesi Province, Indonesia

A Vision for Carbon Neutrality and Disaster Resilience

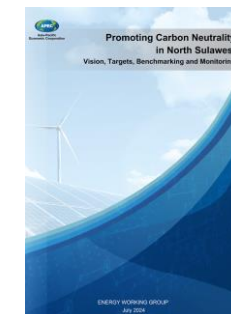
From 21st – 23rd February 2024, the North Sulawesi Province, assisted by international and domestic partners acting within the framework of the APEC Project EWG 04 2022A, “Data Driven Carbon Neutral Disaster Resilient



The North Sulawesi Province, Indonesia

2030 targets on energy intensity, emissions intensity and renewables share for the North Sulawesi Province

North Sulawesi Targets	2021 Value	2030 Target	Units	2021 to 2030 Variation	Global 2020 to 2030 Evolution
Final energy intensity	0.131	0.128	kWh/thousand constant 2010 IDR	-2%	-15%
Emissions intensity	14	9	gCO2/thousand constant 2010 IDR	-36%	-43% (SES) +9%(UnS)
Renewables share in final energy (high target)	27	60	Percent	Multiply by 2.2	Multiply by 2.4
Renewables share in final energy (medium target)	27	53	Percent	Multiply by 1.96	Multiply by 2.4

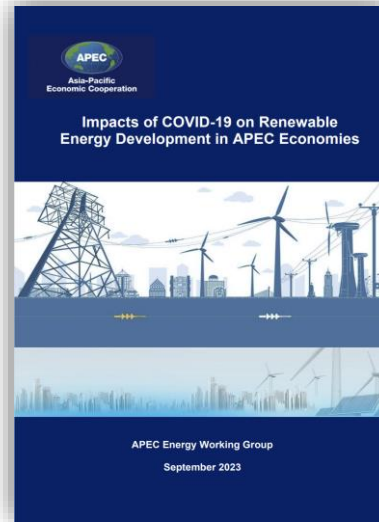


**Final Report:
Promoting Carbon Neutrality in North Sulawesi: Vision, Targets, Benchmarking and Monitoring, October 2024**

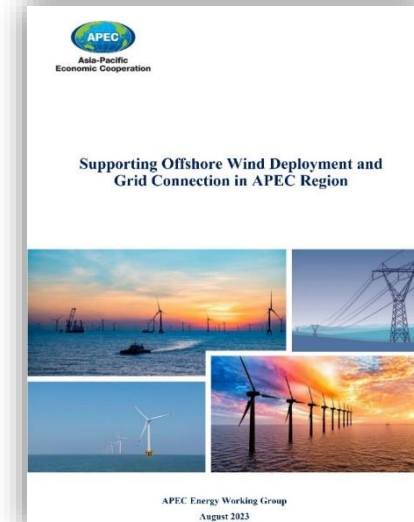
□ English language publications in 2023



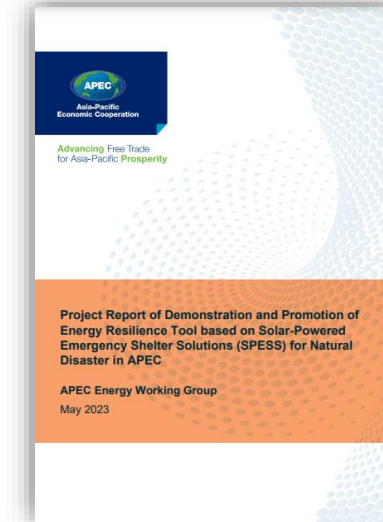
APEC Green Finance Report – Unlocking the Urban Energy Transition
<https://www.apec.org/publications/2023/03/apec-green-finance-report-unlocking-the-urban-energy-transition>



Impacts of COVID-19 on Renewable Energy Development in APEC Economies
<https://www.apec.org/publications/2023/09/impacts-of-covid-19-on-renewable-energy-development-in-apec-economies>



Supporting Offshore Wind Deployment and Grid Connection in APEC Region
<https://www.apec.org/publications/2023/09/supporting-offshore-wind-deployment-and-grid-connection-in-apec-region>



Project Report of Demonstration and Promotion of Energy Resilience Tool based on Solar-Powered Emergency Shelter Solutions (SPESS) for Natural Disaster in APEC
[https://www.apec.org/publications/2023/05/project-report-of-demonstration-and-promotion-of-energy-resilience-tool-based-on-solar-powered-emergency-shelter-solutions-\(sposs\)-for-natural-disaster-in-apec](https://www.apec.org/publications/2023/05/project-report-of-demonstration-and-promotion-of-energy-resilience-tool-based-on-solar-powered-emergency-shelter-solutions-(sposs)-for-natural-disaster-in-apec)

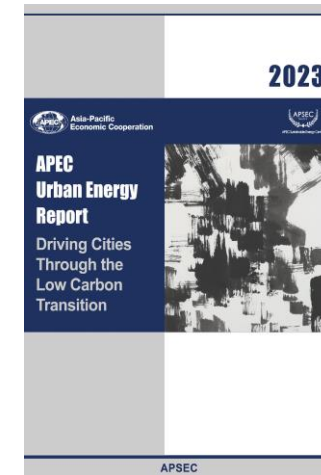
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□ Three Thematic Reports 2023 – 2025 on Urban Energy, each in English and Chinese languages, altogether six reports

■ APEC Urban Energy Report 2023 – Driving Cities through the Low-Carbon Transition (published)

- The English version is the report of self-funded project Research on energy strategies driving cities through the low-carbon transition (EWG 01 2023S), published in 2024 on the APEC website
- APEC Urban Energy Report 2023 - Driving Cities Through the Low Carbon Transition <https://www.apec.org/publications/2024/06/apec-urban-energy-report-2023---driving-cities-through-the-low-carbon-transition>

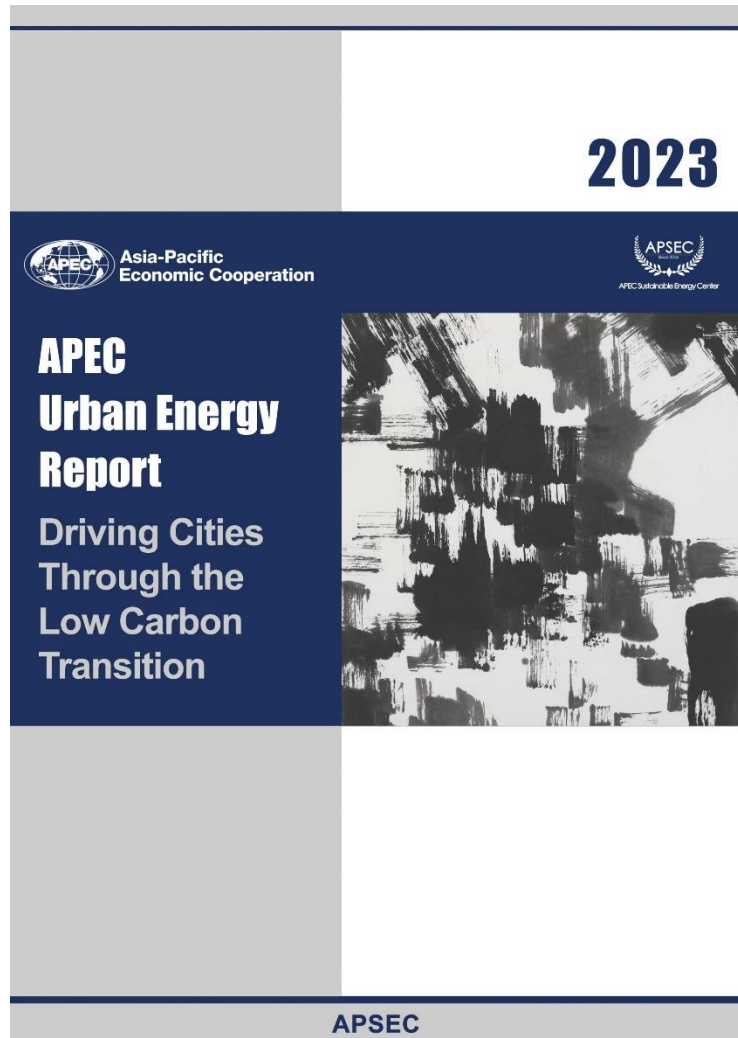


■ APEC Urban Energy Report 2024 – Storage as Transition Enabler (ongoing)

- The English version is the report of self-funded project Research on Energy Storage to Enable Energy Transition in APEC Cities (EWG 03 2024S), to be published in early 2025

■ APEC Urban Energy Report 2025 – Research on Urban Heating and Cooling (planned)

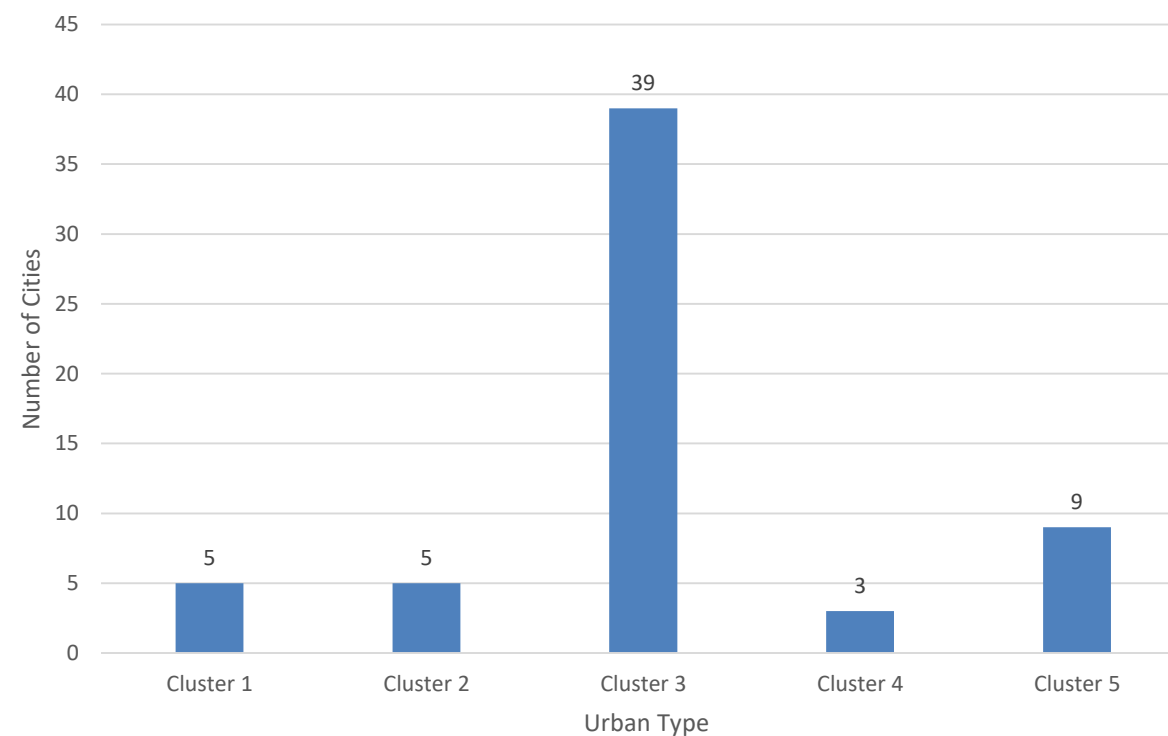
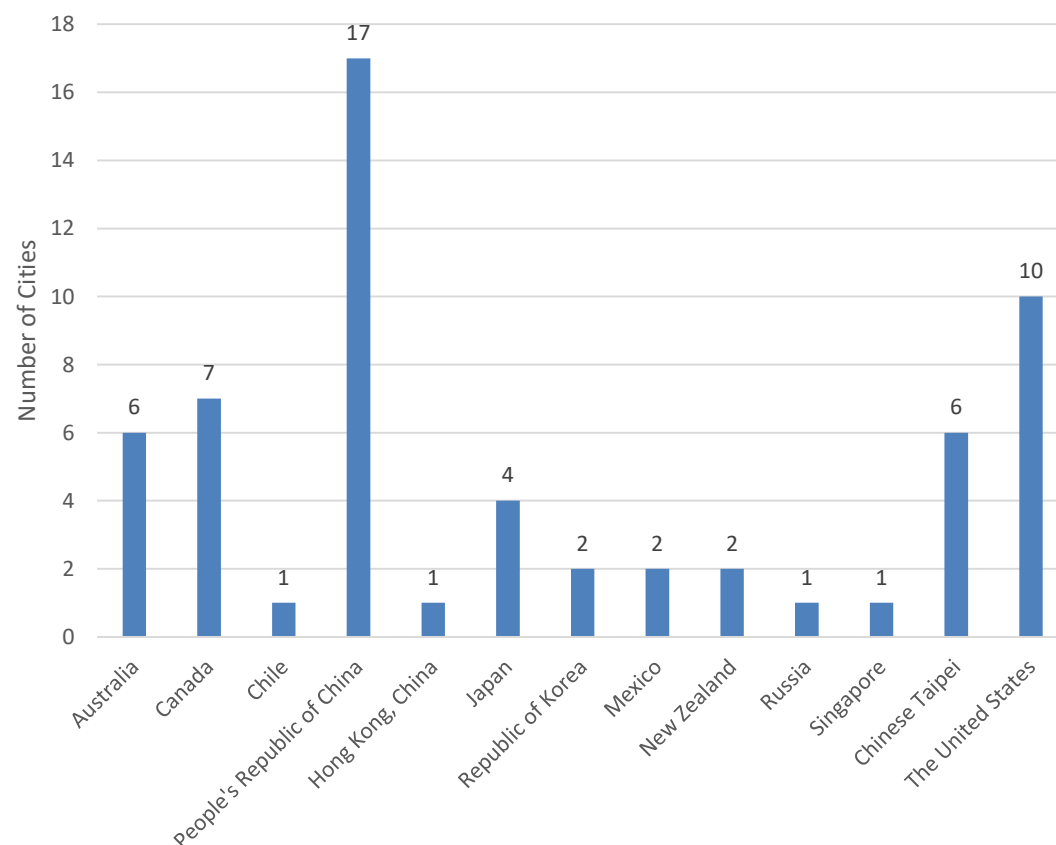
Summary of APEC Urban Energy Report 2023 – Driving Cities through the Low-Carbon Transition



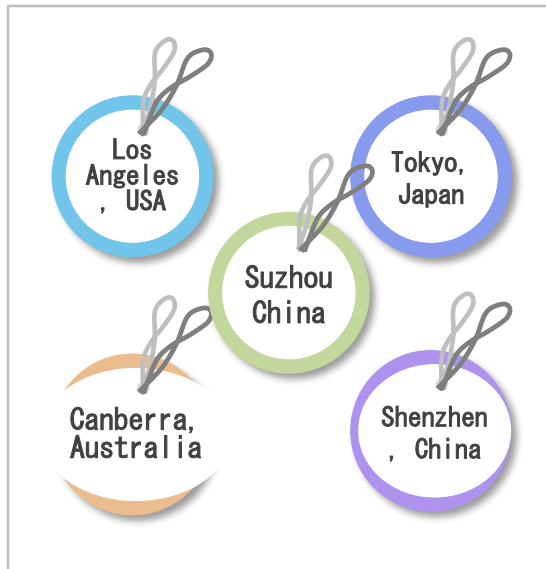
- **Greenwashing** has become a major issue of carbon neutrality requesting cities to keep higher reporting standards.
- Cities face a **density challenge** as renewables require large amounts of land. Among the other challenges are the lack of local environmental **data** as well as high **disaster risks** that negatively affect financial resources needed for carbon neutrality.
- The credit risk guarantee (**CRG**) are a financial instrument that could be better used by cities in cooperation with their economies.
- Environmental, social and governance (**ESG**) information and Global Reporting Initiative (**GRI**) are two competing approaches to accounting and public information of cities.
- The **GDP** as a measure for value-added should be complemented by a Gross Holistic Product (**GHP**) containing, among others, information from the System of Environmental-Economic Accounting.
- Reporting frameworks of Global Covenant of Mayors (**GCoM**) and **CDP** are undergoing change to meet requirements of cities in the global south.
- Three APEC **case studies** (US and CHL) are presented in the report.

□ APEC Urban Development and Carbon Neutrality

Based on the APEC City Stats database, this research report selects 7 indicators to cluster analysis 60 cities in 13 economies in the APEC region. Through K-means cluster analysis, 60 APEC cities are divided into five clusters.



□ Inspiration from the case of carbon neutrality in APEC cities



1 Overview of carbon emissions and energy development

2 Carbon neutrality goals, challenges and ways to achieve

3 Urban clean energy development strategy analysis

- Improving building energy efficiency and building energy electrification,
- Promote the use of renewable energy in buildings,
- The development of green buildings and zero carbon buildings,
- Promote the new energy vehicles such as electric vehicles or hydrogen fuel vehicles.

4 Urban carbon neutral investment and green finance application

- Step up government investment in clean energy projects and power infrastructure,
- Attract private sector investment in green industries
- Banks and investment companies should actively launch various green financial products to attract investors to invest in low-carbon and sustainable projects.

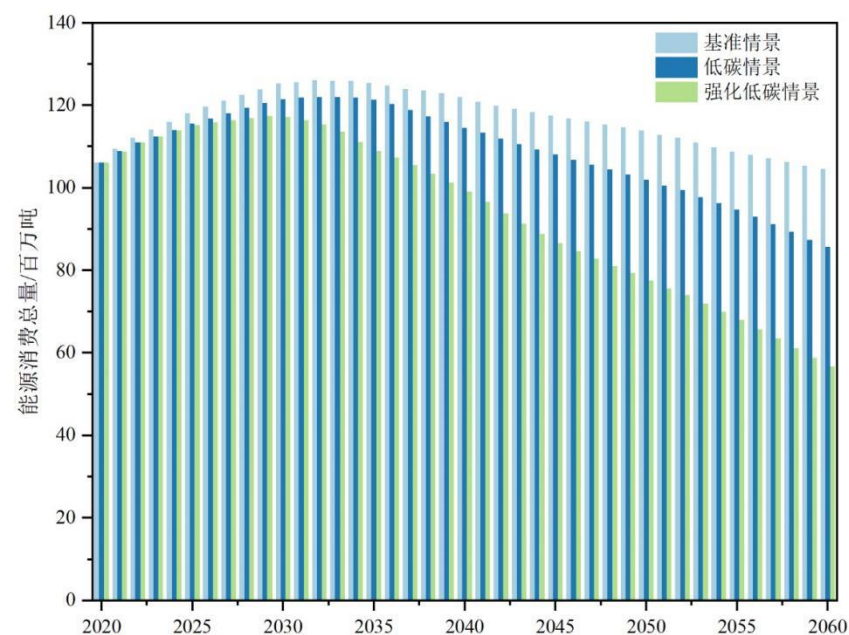
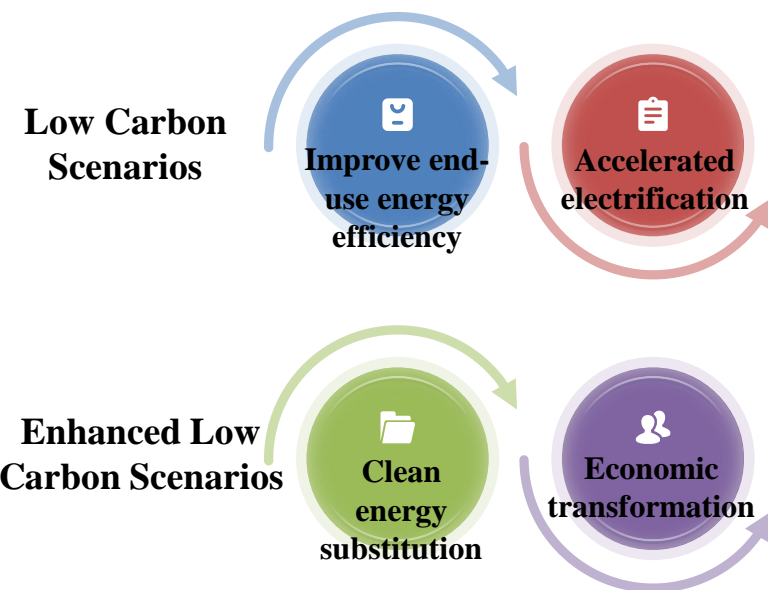
5 Analysis of urban smart construction strategy

- Cloud computing, big data, artificial intelligence, Internet of Things, 5G, etc.
- 'Digital twin cities'

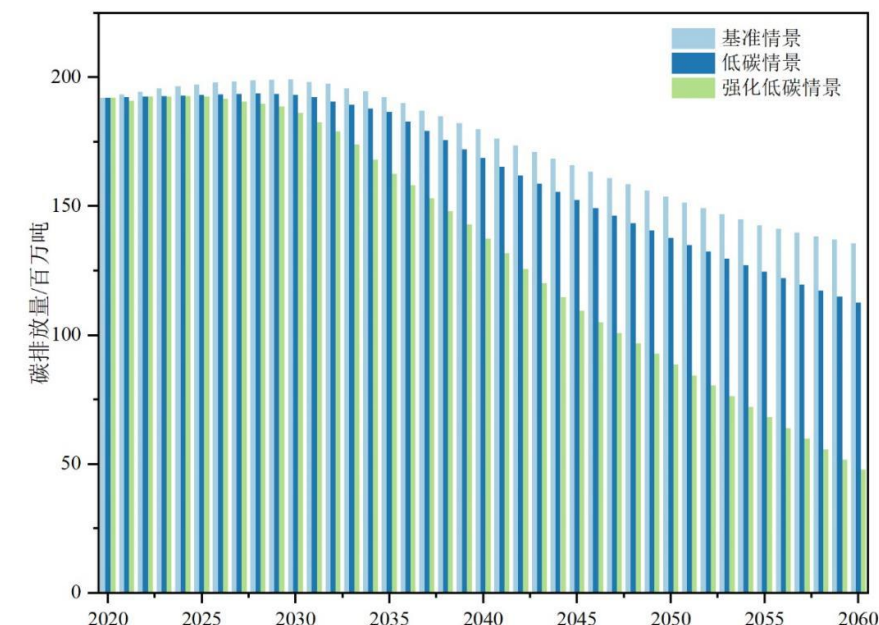
□ Carbon Emission Analysis in Tianjin

Take 2020 as the base year. The energy demand module of the LEAP model is used to forecast and analyse the energy demand of cities in 2021-2060 under different scenarios. Set BAU Scenarios, Low Carbon Scenarios, and Enhanced Low Carbon Scenarios.

Analysis of the main measures of carbon neutrality



Total energy consumption under different scenarios



Total carbon emissions under different scenarios

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- **2024.1.10**, APSEC and the Peru team held the **first online meeting**. Professor Zhu Li introduced the center's situation and work basis in the field of green hydrogen from various aspects such as policy dialogue, flagship reports, cooperation networks, policy advice, and energy storage platforms, and put forward cooperation proposals.
- **2024. 2. 12**, APSEC received the Policy Dialogue **Concept Note** from the Peruvian side.
- **2024. 2. 21**, APSEC **feedback about the Policy Dialogue** Concept Note, studied the discussion paper (3.12).
- **2024. 3. 27**, in a **second online meeting with Peru team**, APSEC expressed its commitment to participate in the policy dialogue on the development and implementation of the APEC Regional Low hydrocarbon Policy Framework for APEC Peru Year 2024. APSEC prepared to discuss next steps, such as: conducting in-depth research and assessing the hydrogen technology and market situation, planning the hydrogen energy value chain, and developing a domestic hydrogen energy roadmap or strategy. After the meeting, the **minutes of the meeting** were drawn up and sent to the Peruvian side.

- **April 2024: APSEC conducted a survey on the progress of hydrogen energy in APEC economies:** According to the full research, **14 of the 21 economies in the APEC region have put forward hydrogen-related development policies**, APSEC organized a meeting of green hydrogen experts in China to discuss and analyze these documents.
- **April to July 2024: APSEC transmitted proposals for Revision of the '[Discussion paper] APEC Policy guidance'** to Peru and participated in both virtual workshops of **2024.05.17** and **2024.05.28**. Sent written comments to Peru. Participated in all the drafting sessions and sent comments on **2024.07.17** to Peru
- **August 2024: APSEC sent input to Annexes A and B to Peru:**

Economy	Carbon pricing: Compliance instruments (either ETSs or Carbon taxes) or Crediting mechanisms ; https://carbonpricingdashboard.worldbank.org/	Taxonomy of Green Economy
Australia	Australian Carbon Credit Scheme (ACCS) 2012, https://carbonpricingdashboard.worldbank.org/credits/factsheets?mechanism=CR_GOV_AUS Australia Safeguard Mechanism (ETS), 2023: https://carbonpricingdashboard.worldbank.org/compliance/factsheets?instrument=ETS_AU2	Australian Taxonomy in Project phase since July 2023, expected to enter into force by end 2024 https://www.asfi.org.au/taxonomy/#about
Brunei Darussalam	Discussing	ASEAN taxonomy for sustainable finance Version 2 updated 19 February 2024. The ASEAN Taxonomy Version 2 can be found at the following websites: • Sustainable Finance Institute Asia – https://www.sfinstitute.asia/wpcontent/uploads/2024/02/ASEAN-Taxonomy-Version-2-Effective-19Feb2024.pdf • Association of Southeast Asian Nations – https://asean.org/ • ASEAN Capital Markets Forum – https://www.theacmf.org/sustainable-finance/publications
Canada	Canada Federal Fuel Charge 2019; https://carbonpricingdashboard.worldbank.org/compliance/factsheets?instrument=Tax_CA Canada Federal OBPS 2019; https://carbonpricingdashboard.worldbank.org/compliance/factsheets?instrument=ETS_CA Canada Federal GHG Offset System 2022; https://carbonpricingdashboard.worldbank.org/credits/factsheets?instrument=ETS_CA	Canadian Green and Transition Financial Taxonomy Framework https://climateinstitute.ca/news/canadas-new-climate-investment-taxonomy-framework-critical-to-securing-competitiveness-achieving-targets-experts-say/ March 2023: Taxonomy Roadmap Report



- **APSEC Input to Annexes A and B**
 - **ANNEX A: Mapping of APEC local hydrogen roadmaps, strategies, market instruments and financing tools**
- So far, 16 economies in the Asia-Pacific region have proposed hydrogen-related policies, including Australia; Canada; China; Hong Kong, China; Indonesia; Japan; Korea; Malaysia; New Zealand; Peru; Philippines; Russia; Singapore; Thailand; USA; and Vietnam. Hydrogen policies developed by Asia-Pacific economies show a high level of importance and support



ANNEX B: Table of current APEC projects related to clean and low-carbon hydrogen

Since 2020, APEC has approved a total of six green hydrogen-related APEC fund projects involving international standards, application programs, and Platform construction, path design and many other aspects. The specific project content is shown in the following table:

Table 2: APEC approved green hydrogen related projects

Serial number	Project Name	Project number	Economies	Year
1	International Standard for Low-Carbon Hydrogen	SCSC-05-2020	New Zealand	2020

- **APSEC Contribution to Workshop on “Exchange of best practices for the development of green and low carbon hydrogen roadmaps in the Asia-Pacific region”, 11 August 2024, Lima**
- ◆ Prof. S. Defilla Moderated Panel Discussion (Session 3) on: “The Renewables and the potential for clean hydrogen in the hard-to-abate industries, transportation and power”. Questions raised:
 1. What are the conditions for APEC region to boost renewables? Essential frameworks are:
 1. Carbon pricing (11 APEC economies apply this in either of three forms)
 2. Taxonomy for green economy (20 APEC economies apply or are discussing this)
 3. Energy Attribute (or green electricity) certificates (19 APEC economies trade in this). **Should EWG discuss an APEC-wide trading scheme for clean hydrogen certificates?**
 4. Public procurement by internationally competitive tendering (how many APEC economies?)
 2. Niche markets for pilot projects: Do APEC economies prioritize the cheapest renewable electricity to produce hydrogen?
 3. Discussed three sets of measures:
 1. “No regret” measures to implement immediately
 2. “Forward guidance” measures to be taken within 2 to 5 years
 3. “Value to wait” measures to be taken after 2030 – if at all

Two questions discussed in the panel merit to be discussed further:

1) Discussing and setting up **APEC-wide trading scheme for clean hydrogen certificates**

- Objective: to generate finance for the development of clean hydrogen, thereby discharging government budgets of APEC economies.
- Challenge: harmonize different approaches of already existing certification systems in certain APEC economies to create an APEC-wide trading scheme for clean hydrogen certificates.
- Project should be driven by an interested APEC economy.

2) Public **procurement of clean hydrogen and technology transfer within public private partnerships**

- Objective: allow developing and emerging economies to develop public procurement as an alternative to subsidies which they can not provide
- Challenge: reconcile internationally competitive tendering with protection of local industries and technology transfer.
- This might require capacity-building in developing and emerging APEC economies
- Project should be driven by an interested APEC economy

Looking Forward to Future Cooperation ~



THANK YOU!