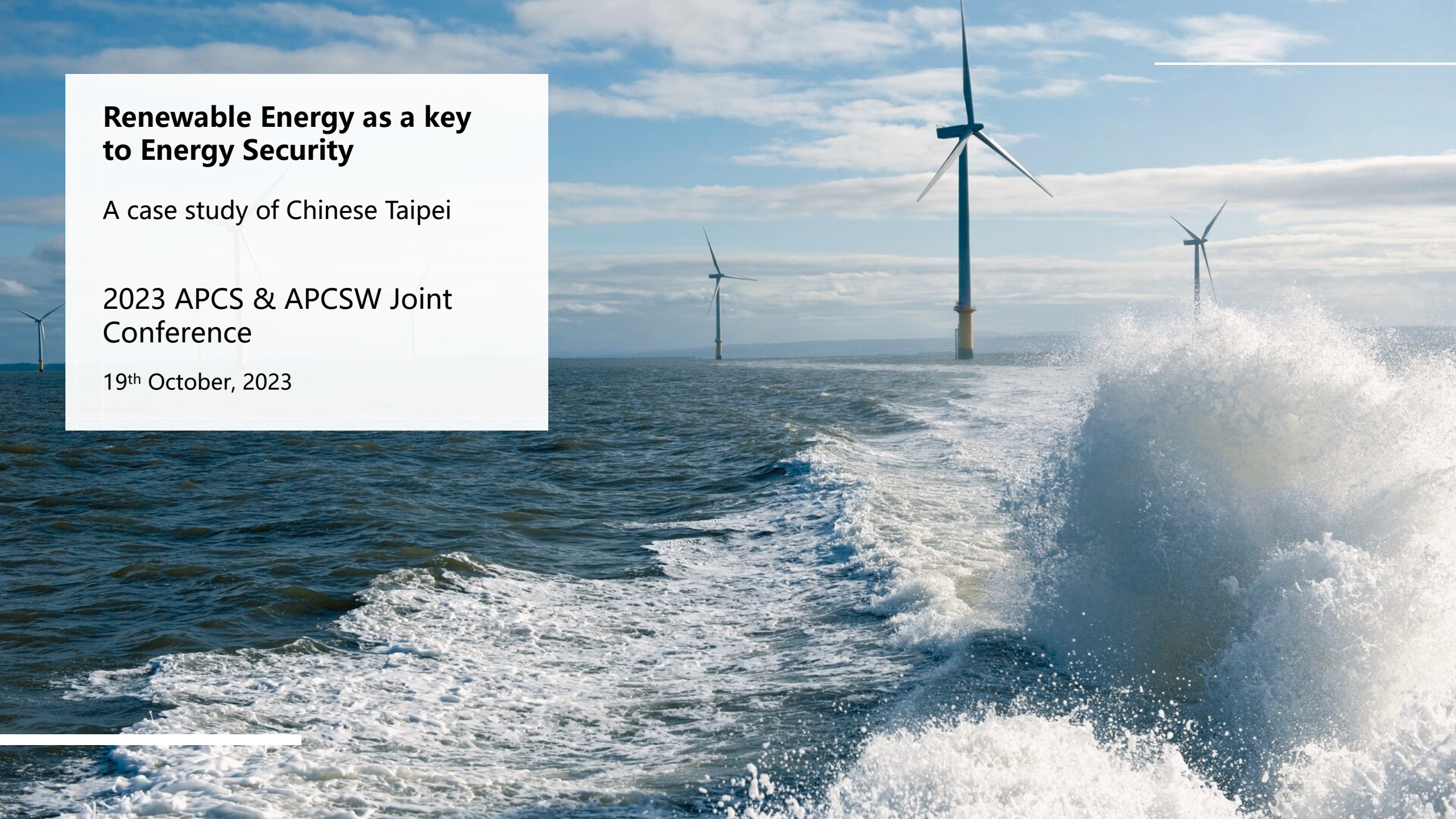


Renewable Energy as a key to Energy Security

A case study of Chinese Taipei

2023 APCS & APCSW Joint
Conference

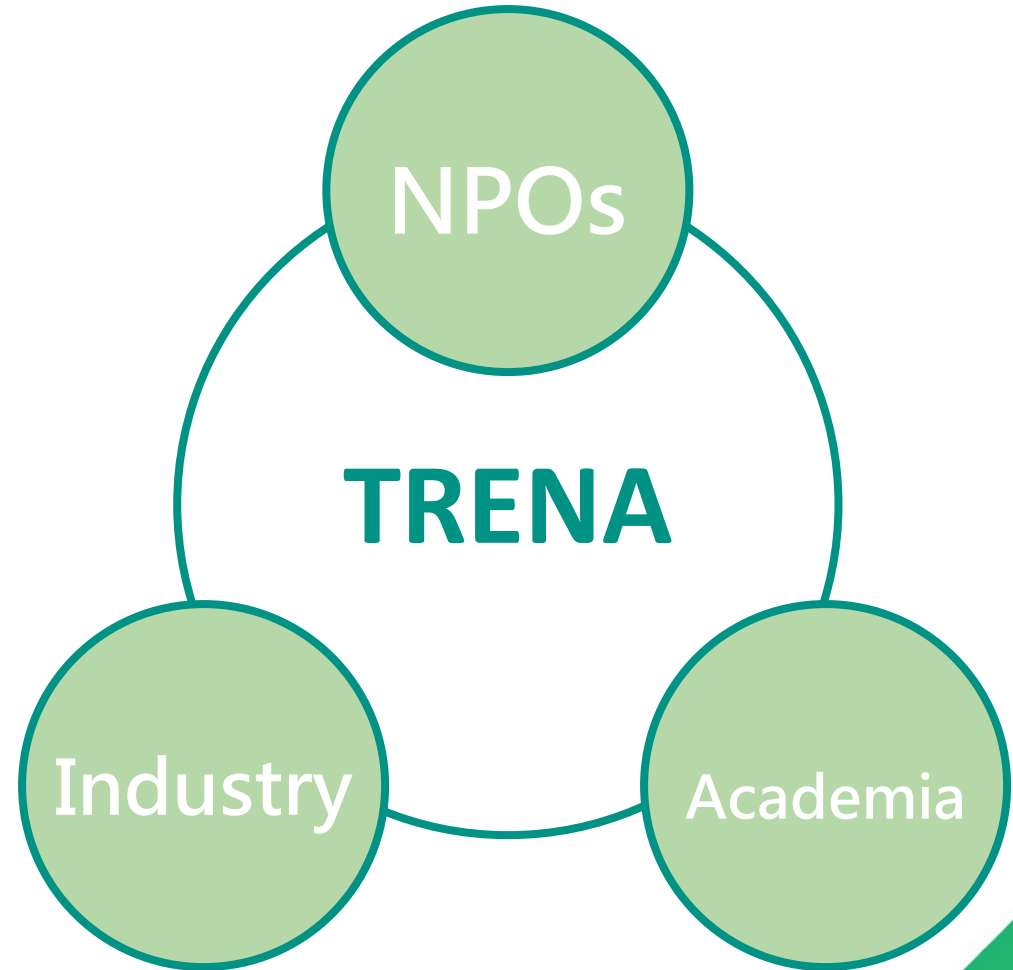
19th October, 2023



Taiwan Renewable Energy Association (TRENA) 台灣再生能源推動聯盟

Taiwan Renewable Energy Association was initiated in 2014 and was formally established in 2015.

It is a NGO that acts as an umbrella for Non-Profit Organizations, Individuals, Academia and Industry to facilitate the energy transition with a focus on creating a better regulatory and policy environment and outreach to the public to promote the benefits of renewable energy.





Raoul Kubitschek

Working in Taiwan renewable energy sector since 2008. Experience in policy, strategy and project development Solar and Wind. Board Member TRENA, active in the European and British Chamber.

German native with fluency in English and Chinese and father of four with a passion for sustainability.

2020 – NIRAS Taiwan, Managing Director

2019 – 2020 The Renewables Consulting Group

2018 – 2019 petawatt energy, Founder

2015 – 2017 wpd Taiwan, Director PV

2010 – 2015 DEinternational Taiwan

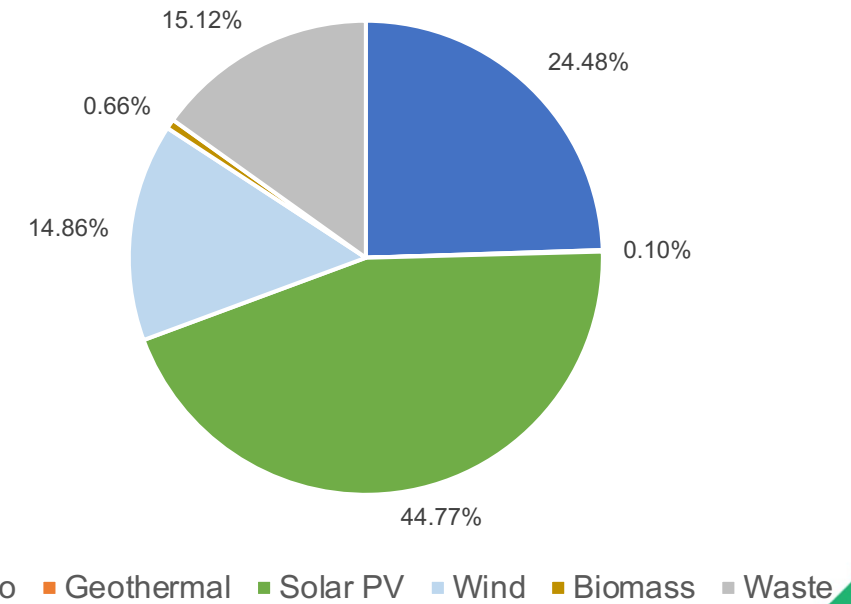
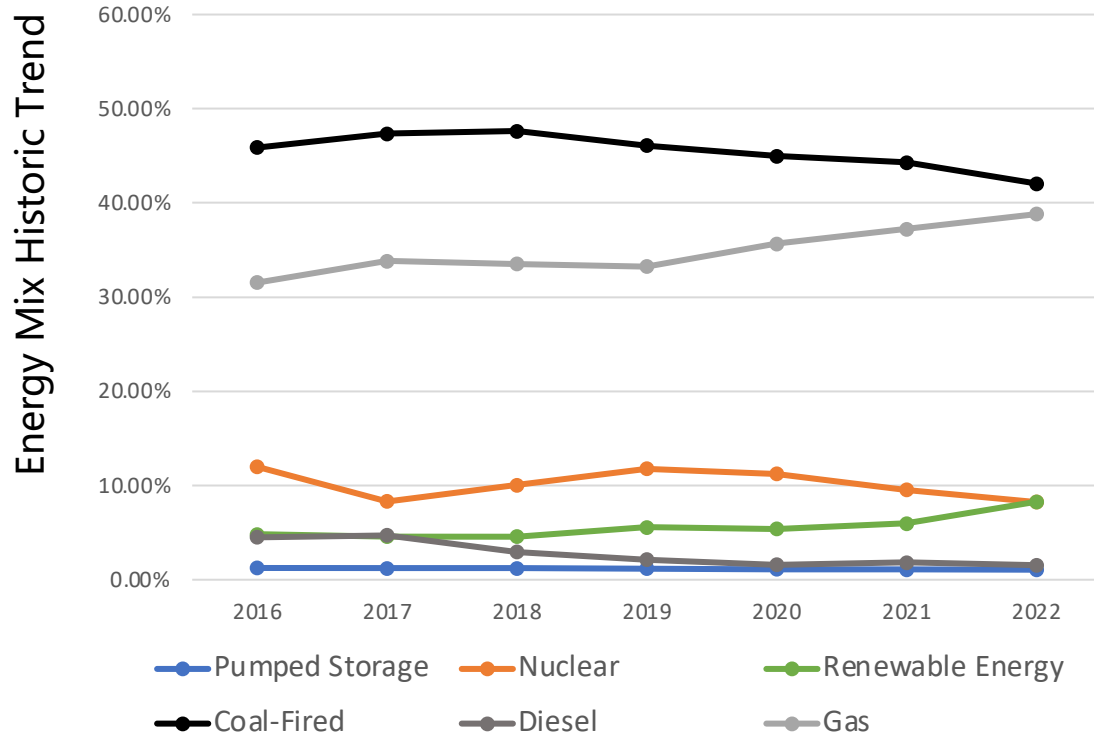
2008 – 2010 German Trade Office Taipei

2008 M.A. Modern Chinese Studies Economics
University of Heidelberg

Taiwan's Renewable energy generation surpassed nuclear in 2022

Taiwan is one of the world's most energy-insecure economies, relying on maritime imports for about **97%** of its energy.

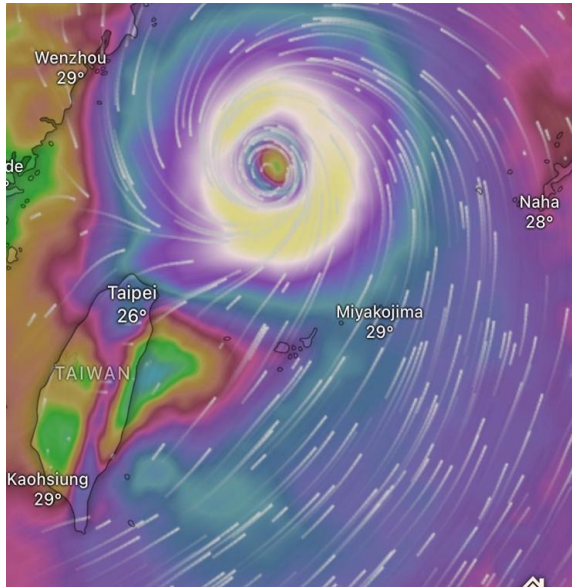
Solar PV and Wind energy are the main drivers of renewable energy growth 2016-2022. Renewable energy generation in 2022 grew by 87.3% compared to 2016, with Solar PV and Wind accounting for 86.08% and 18.77% of the total growth, respectively (over the same period, hydropower decreased by about 6.53%)



Climate Change and Green Energy

Taiwan is vulnerable to climate change impacts, including typhoons and sea-level rise, which can affect the reliability and efficiency of renewable energy sources.

The following strategies can mitigate climate change impacts on renewable energy:



Diverse, Local Energy Sources

Use a mix of renewable energy sources, including solar, wind, hydro, and geothermal energy, to reduce reliance on a single source. This diversification helps ensure a stable energy supply, even during adverse weather conditions.

Distributed Generation

Promote distributed energy generation, such as rooftop solar panels, small wind turbines, and microgrids. These systems can improve local energy resilience by reducing dependence on centralized power plants.

Battery Energy Storage

Implement energy storage solutions like lithium-ion batteries to store excess energy during periods of high production and release it when needed. This helps mitigate intermittency issues associated with some renewable sources.

Grid Modernization

Upgrade the electrical grid to handle intermittent energy sources more effectively. Smart grids and advanced grid management systems can enhance the stability and reliability of renewable energy distribution.

Climate Data and Forecasting

Utilize advanced climate data and forecasting tools to predict extreme weather events. This information can help operators prepare for disruptions and adjust energy production accordingly.

Government Policies

Enact policies that encourage investment in renewable energy and resilience measures. This may include financial incentives, feed-in tariffs, and climate adaptation regulations.

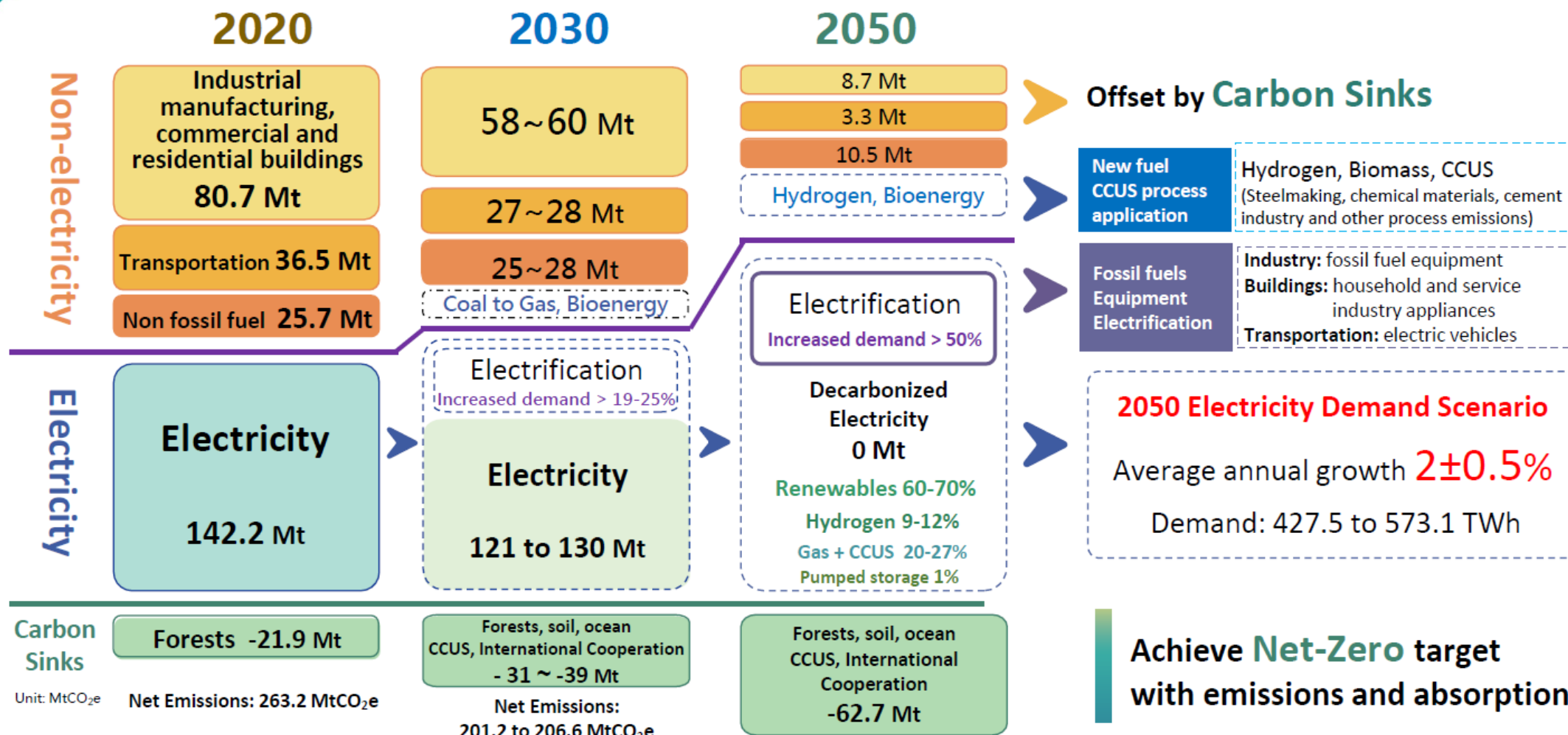
Climate-Resilient Infrastructure

Design renewable energy infrastructure, such as solar panels and wind turbines, to withstand extreme weather events, including typhoons and flooding. Elevated solar installations and robust wind turbine designs can minimize damage.



Taiwan Plans to Achieve Zero Net Emissions by 2050

Renewable energy is expected to contribute 60-70% of the total energy supply



Taiwan Energy Supply Breakdown goals for 2050



Policy Recommendation

Acceleration of infrastructure delivery

Taiwan must actively promote renewable energy infrastructure support measures, such as offshore wind ports, grid feeders and smart grids, in response to the specific decentralised nature of renewable energy.

Increasing energy security through renewable energy

Taiwan's energy self-sufficiency rate is only about 2%, even if we don't consider geopolitical issues, climate change may affect the importation of natural gas, making Taiwan face the possibility of power shortages.

Green talent is the foundation of green transition

In order to ensure the success of its green transition, Taiwan needs to better cultivate resources for reskilling and upskilling in key green energy industries.

Energy price should be normalized

Taiwan's electricity price is in the top five lowest in the world, which has suppressed inflation, but it has also led to huge losses for TPC and has also put into question the economic benefits of private investment in renewable energy for self-use, and the normalisation of energy prices will help accelerate the green transformation and appealing green energy market for investors and project owners alike.

Making Just Transition a core policy value

In accordance with the international Just Transitions, Taiwan's energy transition must account for related socioeconomic impacts to ensure that vulnerable populations are not impacted adversely.

Active Outreach for a successful Energy Transition



Thank you for your attention.
Contact: trena@trena.org.tw

