

# Capacity Building Series: Energy Transition in Australia



**Greater Mekong Subregion  
ENERGY TRANSITION TASK FORCE  
July 2024**

# BACKGROUND

## Capacity Building to Help Accelerate Energy Transition

The Asian Development Bank (ADB), acting as secretariat to the Greater Mekong Subregion (GMS) Energy Transition Task Force (ETTF), and the Australian Department of Foreign Affairs and Trade (DFAT) led a study tour on green energy transition in Australia on 16-23 July 2024.

The study tour aims to share with GMS as well as Association of Southeast Asian Nations (ASEAN) member states experiences and lessons on Australia's pathway to net-zero by 2050.

The 8-day study tour included these activities:

- participation at the Australian Clean Energy Summit
- discussion with Australian Energy Market Operator
- meetings with the governments of New South Wales and Australia Capital Territory
- visits to sites that showcase energy transition technologies (green hydrogen, solar and wind farms, and pumped storage hydro)
- a masterclass delivered by professors at the Australian National University.

Twenty-nine (29) participants, 11 of whom are women, representing national ministries, regulatory authorities, and energy utilities in Cambodia, People's Republic of China, Indonesia, Lao People's Democratic Republic, Malaysia, Thailand, and Viet Nam participated in the study tour. Representatives of ASEAN Centre for Energy, ASEAN Electricity Regulators' Network, and Heads of ASEAN Power Utilities/ Authorities also joined.

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# THE SUMMIT



## Connecting, Energising, Collaborating

The Australian Clean Energy Summit 2024 held in Sydney on 16-17 July gathered industry leaders and federal and state governments to discuss the most pressing topics on clean energy today.

At the opening, Jenny McAllister, Assistant Minister for Climate Change and Energy, Australia, remarked that the renewables transformation of Australian homes, grid and economy is a once in a generation economic opportunity that can deliver jobs and lift living standards.

Australia has more solar panels per capita than any other parts of the world.

The leaders' panel highlighted Australia's enormous potential to become a global clean energy superpower in the race to net zero.

However, Ted O'Brien, Shadow Minister for Climate Change and Energy, warned that about 90% of Australia's baseload energy are being forced out of the grid over the next 10 years without any guarantee of a replacement. Investment has stalled against the plan to build out 7 gigawatts (GW) of new renewable energy projects every year.



**“We’re helping keep Australia’s lights on – and its water hot – now, and in the future.”**

The Australian Energy Market Operator (AEMO) manages the electricity and gas systems and markets across Australia. It is responsible for

- maintaining secure electricity and gas systems
- managing electricity and gas markets
- leading the design of Australia’s future energy system.

AEMO is owned by the government and industry. It recovers its operating costs through fees paid by industry participants. AEMO led the development of Australia’s roadmap to energy transition called Integrated System Plan.

*“Renewable energy connected with transmission and distribution, firmed with storage and backed up by gas-powered generation is the lowest cost way to supply electricity to homes and businesses as Australia transitions to a net-zero economy.” – ISP*



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## POLICY DIALOGUE

The group met with representatives of state governments in Australia to understand the roles of state and federal governments in energy transition.

### **New South Wales: Renewable Energy Zones**

Five zones have been identified to keep NSW electricity reliable as coal-fired power stations retire.

The REZs will service the growing energy needs of emerging green manufacturing, energy intensive agriculture, and export market opportunities.

- The NSW Electricity Infrastructure Roadmap is a legislated plan to transform the sector into one that is cheap, clean and reliable.
- It coordinates investments in transmission, generation, storage and firming infrastructure.
- Roadmap costs are passed through to consumers who are connected to the distribution network.

### **Australia Capital Territory: Building a Battery Ecosystem Approach**

- A key challenge will be ensuring batteries are delivered in the right quantities, scales and locations
- Larger batteries are cost effective but provide less support to electricity network.
- Smaller batteries can provide distribution network support and put downward pressure on electricity prices.
- The private sector is keen to deliver projects, but face barriers that are slowing this.

Canberra is the first jurisdiction outside of the EU to be powered by 100% renewables.

The **ACT Big Canberra Battery Project** will deliver an ecosystem of batteries across the ACT to ensure that electricity grid remains stable.





With New South Wales government representatives



With ACT government representatives

# SITE VISITS

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## Examples of energy transition technologies

### **Western Sydney Hydrogen Hub, New South Wales**

With cofinancing from the Australian Renewable Energy Agency, Jemena built one of the first power-to-gas trials to inject hydrogen into the gas distribution network in Western Sydney. Hydrogen is produced by a 500 kilowatts (kW) on-site electrolyser, which is powered by the electricity network. The use of electricity is offset by Jemena's purchase of greenpower product.



### **Ratch's Collector Wind Farm, New South Wales**

The wind farm has a capacity of 226.8 megawatts (MW) and it is operating since 2021. RATCH-Australia is one of the largest owners and operators of renewable and firming energy generation assets in the Australian market.



## SITE VISITS

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### **Royalla Solar Farm, Canberra**

Operating since 2014, this solar farm was once the largest photovoltaic plant in Australia with 20 MW rated capacity (24 MWp) and around 82,000 solar panels installed on 41 kilometers of fixed structures. The farm can generate clean energy equivalent to the consumption of around 4,500 homes in the area.



### **Snowy Hydro Discovery Center, New South Wales**

The Snowy Scheme is one of the civil engineering wonders of the modern world consisting of eight power stations, 16 major dams, 80 km of aqueducts and 145 km of interconnected tunnels with over 5,500 MW of generating.

The Snowy 2.0 will link two dams through a 27 km tunnel and a new



underground power station.

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# MASTERCLASS



## **Australian National University professors delivered a 1-day masterclass for the study tour participants.**

Topics: Australian national electricity market, energy transition experience, pumped storage hydropower, and cross-border electricity trade in Southeast Asia

### Key points

- Grid connectivity is critical to electricity trade.
- The electricity sector provides the best opportunity to make the most rapid decarbonizing impact given that electrification of the other sectors is harder to address.
- Capacity investment scheme is a key policy instrument used by Australia's federal government to underwrite revenue for electricity. It is intended to ramp-up investment in renewables, promote lower and more stable consumer prices, etc.
- ASEAN's pumped hydro energy storage is 100x more than needed to support 100% renewable energy.
- The ASEAN Power Grid will unlikely complete in 2040, but gradual integration would benefit from enhanced political and social support, continued focus on bilateral initiatives, solar/wind and pumped hydro storage, and HVDC interconnection.

