

South East Asia's Transition to Renewable Energy

Opportunities for cooperation between
Australia and South East Asia

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1. Preface

Countries in the South East Asia (SEA) region are developing very dynamically, with high economic and population growth and corresponding growth in energy demand and, in particular, electricity consumption.

These countries are at a crossroads regarding their energy supply systems, to keep pace with economic growth and at the same time implement the Paris Agreement (PA) and achieve Sustainable Development Goals (SDG), with some countries in the region still working towards achieving universal access to electricity and clean cooking fuels. Currently, supply is dominated by fossil fuels, and growth is also dominated by fossil fuels, in particular coal, while only a small fraction of the existing renewable energy potential is being used in the region, with progress in renewable energy deployment being very diverse across each country.

Current projections show a high growth in energy demand, and a continuation of reliance on fossil fuels, at odds with the climate and sustainable development goals for a region that is highly vulnerable to the impacts of climate change (Chapman et al. 2019; Chapman, Urmee, and Fuentes 2020; Fuentes et al. 2018, 2019) and despite the continuing reduction of costs for renewable energy technologies (in particular wind and solar) and storage. A significant fraction of projected global coal capacity growth in the next 10 to 15 years could occur in this region, in particular Indonesia, Vietnam, and the Philippines – threatening the achievement of the Paris Agreement temperature goal of limiting global warming to 1.5°C.

Eight out of the ten ASEAN member states have adopted, in their Nationally Determined Contributions (NDC) to the Paris Agreement, quantitative targets to reduce greenhouse gas emissions.

This policy paper synthesizes policy recommendations based on recent reports published by the Energy Transition Hub on how SEA can transition to renewable energy, including the opportunities for cooperation with Australia, as well as Energy Transition Hub publications on potential for Australia to scale up renewable energy including for new export opportunities.

2. Renewable Energy in South East Asia: Current situation, potentials and barriers

Member countries of the Association of South East Asian Nations (ASEAN) have adopted targets and/or policies to increase the adoption of renewable energy, energy efficiency and in some cases electrification. In addition, ASEAN member states have jointly agreed a target to increase the share of modern, sustainable renewable energy to 23% (excl. traditional biomass) of total primary energy mix and reducing energy intensity by 30% by 2025 (Fuentes et al. 2018). The International Renewable Energy Association (IRENA) estimates that investment in renewable energy would have to be significantly scaled up from about 3 million USD annually at present to 27 billion USD annually to achieve the regional objectives (for details see Fuentes et al. 2018). A Paris Agreement compatible pathway in line with Sustainable Development goals for the ASEAN region would imply an accelerated transformation towards decarbonised electricity generation.

Currently, ASEAN countries are still following fossil fuel intensive pathways, with large potentials for renewable energy, in particular solar and wind mostly untapped, and costs in particular for solar and wind energy falling rapidly globally but also in the region. Studies have found solar has the potential for a large share in SEA's future, and there is vast and largely untapped potential for wind power in the Philippines, Thailand, Indonesia and Vietnam (Fuentes et al. 2018). Many studies show that 100% renewable energy can be achieved in South East Asia by 2050, including using regional cooperation with a HVDC regional interconnector from Australia to Asia (for details see: Chapman et al. 2019, 2020; Fuentes et al. 2018, 2019).

The ASEAN Power Grid (AGP) is a regional initiative to build transmissions lines across country boundaries to share power. The AGP is framed in the recent Plan of Action (APAEC) aimed at "Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All". It was not specifically developed to integrate more renewable energy, however, recently, IRENA launched the "Greening ASEAN Power Grid Initiative" to accelerate the development of utility-scale renewables-based electricity. This initiative was approved in 2015 by the ASEAN Senior

Officials Meeting but progress has been slow and several barriers and technical challenges remain. However it is generally recognized that the AGP will present ASEAN countries with several benefits creating stronger export market opportunities and investment incentives, reducing investment costs and increasing net savings.

3. Renewable Energy expansion in South East Asia: Opportunities for collaboration with Australia

There is an increasing focus of many bilateral and multilateral programmes focusing on increasing investments in renewable energy mostly from European countries. In contrast, cooperation with Australia does not focus on renewable energy but rather on coal, including cooperation on so-called clean coal technologies. This stands in stark contrast to the urgent need to decarbonize energy systems to achieve the Paris Agreement and Sustainable Development objectives, and the massive renewable energy opportunities that have been highlighted at regional level.

- Australia has the opportunity to leverage its plentiful wind and solar energy resources, proximity and connections to SEA, experience and skills with renewable energy technologies and projects including in remote areas, to assist and mutually benefit from advancing renewable energy in the region.
- Australia has huge potential to become a renewable energy superpower to export renewable energy to SEA to meet SEA's increasing energy demand, meet the Paris Agreement pledges and achieve sustainable development goals (Fuentes et al. 2018).
- Research into scenarios for 200% renewable energy power generation in Australia highlight the potential for deep decarbonisation in Australia, meeting electricity generation with renewables, electrify mobility, buildings and industry, in addition to developing zero-emissions exports (Burdon et al. 2019; Ueckerdt et al. 2019).
- Opportunities for zero emissions export opportunities vary from HVDC regional interconnectors, green hydrogen, green steel and green energy embodied in energy intensive goods (Burdon et al. 2019; Lord 2019; Ueckerdt et al. 2019). Expectations for an increase in green hydrogen demand is currently mostly focused on South Korea and Japan, but opportunities also lie within SEA countries in particular when considering 100% renewable energy and decarbonisation scenarios in line with the Paris Agreement (Chapman et al. 2019, 2020; Fuentes et al. 2018, 2019).

- Australian renewable energy exports will assist both Australia and SEA in a cost effective renewable energy transition and deep decarbonization (Fuentes et al. 2018; Ueckerdt et al. 2019).

4. Recommendations for collaboration between Australia and South East Asia

To summarise the analysis of recent briefing papers from the Energy Transition Hub, the following opportunities for collaboration between Australia and South-East Asia to enhance investment in renewable energy in South-East Asia should be explored:

- Paris Agreement: Collaboration and exchange on enhancing NDCs and developing long term strategies with a focus on renewable energy opportunities across sectors, both due for submissions to the UNFCCC in 2020 and NDCs to be scaled up in a five-year cycle.
- Joint research, modelling and scenario development for regional renewable energy cooperation.
- Explore how Australia's skills and experience in renewable energy and energy efficiency can support a cost effective and timely renewable energy transition for the region, including experience relating to:
 - private and public investments;
 - grid scale, micro grid scale, and
 - off grid stand-alone technology.
- Jointly develop and share experiences for a renewable energy transition including just transition strategies for the phase out of fossil fuels in particular for fossil fuel exporting countries and regions, taking into account the need to shift investments from fossil fuels to renewable energy.
- Collaborate with others, including Germany and other European countries to align cooperation in supporting an accelerated renewable energy uptake in SEA, including through regional cooperation within the ASEAN.
- Explore export and trade opportunities between Australia and SEA; including renewable energy export through high energy embodied products, zero carbon metal production, HVDC regional interconnectors and green hydrogen, at national and state level, exploring employment opportunities in the energy and manufacturing sectors both in Australia and in SEA.
- Joint stakeholder dialogues and pilots with industry on renewable energy cooperation, trade and export.

- SDGs: Collaborate to ensure renewable energy programmes also support SEA countries in meeting SDGs.

All these recommendations have been developed before the COVID-19 health and economic crisis, which is understandably a key priority for all countries in the region. However, with the focus increasingly moving towards economic recovery and stimulus programmes, this is an unprecedented window of opportunity to combine recovery programmes with the urgent need to shift investments towards a clean energy transition, and regional cooperation focusing on this energy transition can become a vital element to support sustainable development.

References

- Burdon, Rebecca, Llewelyn Huges, Michael Lord, Silvia Madeddu, Falko Ueckerdt, and Changlong Wang. 2019. *Innovation and Export Opportunities of the Energy Transition*. Energy Transition Hub.
- Chapman, Anna, Tania Urmee, and Ursula Fuentes. 2020. *Energy Transition to Renewable Energies: Opportunities for Australian Cooperation with the Philippines*. Energy Transition Hub.
- Chapman, Anna, Tania Urmee, Caitlin Shem, and Ursula Fuentes. 2019. *Energy Transition to Renewable Energies: Opportunities for Australian Cooperation with Vietnam*. Energy Transition Hub.
- Fuentes, Ursula, Tania Urmee, Chris Muir, Muhammad Hasnat Morshed Bhuyan, and Anna Chapman. 2019. *Transition to Renewable Energy: Opportunities for Australian Cooperation with Indonesia*. Energy Transition Hub.
- Fuentes, Ursula, Tania Urmee, Chris Muir, and Muhammad Hasnat Morshed. 2018. *Energy Transition to Renewable Energies Opportunities for Australian Cooperation with South East Asia / ASEAN Countries*. Energy Transition Hub.
- Lord, Michael. 2019. *From Mining to Making - Australia's Future in Zero-Emissions Metal*. Energy Transition Hub.
- Ueckerdt, Falko, Roger Dargaville, Hans-Christian Gils, Dylan McConnell, Malte Meinshausen, Yvonne Scholz, Felix Schreyer, and Changlong Wang. 2019. *Australia's Power Advantage: Energy Transition and Hydrogen Export Scenarios*. Energy Transition Hub.