ASIA-PACIFIC
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Instructions to Abstract Authors

2018 Key Dates

Submission of Abstracts due:	**Monday, 16 July 2018**
Notification of abstract selection to authors:	**Monday, 13 August 2018**
Papers due for peer review:	**Monday, 15 October 2018**
Feedback from reviewers to authors:	**Monday, 12 November 2018**
Final paper submission due from authors:	**Monday, 26 November 2018**

Your contribution will not be formally accepted and scheduled, until you have registered your attendance at the conference.

Please indicate by ticking which stream/s best fits your abstract

	STREAMS Topics listed are a guideline only. Submissions in related areas are welcome
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☐	**Deployment & Integration** *Renewables integration, policy and regulation* *Forecasting and Resource assessment* *Minigrids and Community owned Renewables* *Field experience, performance, yield and reliability* *Distributed Energy Resources, EVs and Low emissions transport*
☐	**Solar Heating and Cooling, Low Carbon Living** *Energy Efficiency and Demand Management* *Housing and appliances* *Solar heating and cooling including heat pumps* *Cities and Communities* *Competing with gas in the domestic & commercial market*
☐	**Concentrating Solar Thermal** *Fundamentals and components* *Storage, systems and power cycles* *CSP integration, design and modelling* *CSP and high temperature processing*
☐	**Solar Fuels & Chemistry** *Storage* *Hybrids, complementary solutions and discrete applications* *Fuels and chemicals from electricity and heat* *Energy for heavy industry*
☒	**Solar energy solutions for emerging economies** *Islands and remote regions* *Supergrid and interconnections between countries* *Field Experience, Performance and deployment*

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Economic viability of an international transmission network in Australasia

Changlong Wang [1 2] , Roger Dargaville[1 3]

1. The Energy Transition Hub, Melbourne, VICTORIA, Australia
2. The University of Melbourne, Carlton, VICTORIA, Australia
3. Monash University, Clayton, VICTORIA, Australia

E-mail: changlong.wang@climate-energy-college.org

According to the International Energy Agency, electricity demand in South East Asia is expected to grow many folds in the next two decades requiring an additional 400 GW of electricity infrastructure. However, the current power system in the ASEAN countries is heavily fossil fuel based and in need of systematic planning for energy transition. Australia has substantial solar and wind resources that could be exported to the energy-hungry ASEAN countries via a submarine HVDC link through Indonesia. This paper will examine the economic viability of such a proposal that connects Northern Australia with Indonesia's Java-Bali island (an island with more than 70% of Indonesian national energy consumption) as a first step to form an Australasia super grid.

We set up three scenarios with different abatement trajectories (intended nationally determined contribution, 80% and 100%) to explore the least-cost transition options (locally integrated plus intercontinental interconnection) for Java-Bali. The modelling work will be conducted with the Melbourne/Monash University Renewable Energy Integration Lab (MUREIL) model that we have developed, which aims to explore different least-cost configurations for the electricity market generation mix that satisfies specified demand projections and emission abatement targets, subject to system inertia constraints, unit commitment, and economic dispatch with DC optimal power flows. The model solves for the transition from today's generation capacity mix to 2050 in 5-year increments, using hourly demand and energy generation potential data. The model explores a great range of generation options including large-scale solar PV, concentrating solar power, wind, open and combined cycle gas, large-scale batteries, geothermal, biomass, oil, pumped hydro storage, demand response, and coal with carbon capture storage.

We will show that a 100% renewable Java-Bali energy system can be a reality economically and technically in 2050 with help of HVDC imports from Australia. The results are sensitive to the assumed cost of the long distance HVDC lines. It may be more economically beneficial if the Indonesia grid is further interconnected with other Southeast Asian countries to form a larger Australasia super gird.