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Clean Energy or Coal, Jobs and Displaced Carbon Emissions at Any Cost? Assessing Australia’s Brown Coal v. Solar-Produced Liquid Hydrogen Exports to Japan

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Abstract

In a world shifting to a new global low carbon energy system and economy, renewable energy (RE) generation by Australia for export to its Asian neighbors could be part of a new renewables-driven political economy. We explore the complexities of energy exports and the tensions between the use of fossil fuels versus renewables for energy exports. We first outline Australia’s potential in the transition to renewables and its current national energy policy paralysis. The Australian government has entered into an agreement to export hydrogen to Japan in a purpose-built Japanese shipping fleet. However, the agreement is based on using lignite (brown) coal from the ailing Gippsland mining industry. The comparison of solar versus coal-produced liquid hydrogen exports to Japan is assessed against seven lenses or filters: the public interest ‘No-net-detriment to Australian consumers’ test; Australia’s Paris 2015 carbon dioxide (CO₂) reduction commitment; other environmental impacts such as production-related emissions and embedded energy in shipping infrastructure; socio/political national benefits to GDP; impact on Australia’s energy security; socio/political assessment of impact on Australia’s energy-related foreign policy and Australia-Japan relations; and the way that using coal to generate hydrogen for export to Japan undermines Australia’s commitment to the 2015 UN Sustainable Development Goals (SDGs).

Keywords: liquid hydrogen, lignite coal, solar hydrogen generation, hydrogen exports to Japan, UN SDGs, product life cycle emissions