

3. Renewable Energy Case Studies

In this section we will consider the biofuels, geothermal, and solar policies of a select group of APEC economies, which have extended and/or plan to extend substantial resources to the promotion of these technologies as desirable substitutes for conventional fossil fuels. The imperatives of energy security and the oil crisis of the 1970s drove major attempts to boost novel energy technologies. Of late, increasing concerns about global climate change have made the emission mitigation potential of renewable energy technologies a declared core benefit as well.

Biofuels in the US and Indonesia have garnered support largely on account of their purported energy security benefits. The environmental benefits of biofuels, which were once considered a positive externality from their use, are now under question. Biofuels are proving to be an expensive greenhouse gas emissions abatement strategy. Key US policies in support of the biofuels industry include mandates, tax incentives, import tariff, and loans and grants, while Indonesia has introduced biofuel targets and subsidies. The fiscal burden of supporting biofuels has been increasing rapidly in the US. It is unclear whether Indonesia's biofuel subsidies and targets are calibrated to reflect the contribution of the biofuel industry toward social objectives such as energy security or emissions reductions. Transparency in US regulatory policy at the policy formulation stage appears to be lacking. Furthermore, the institution of subsidies/tax credits for ethanol appears to have been influenced by lobby groups. While Indonesia has made progress in promoting transparency in the development of regulations, further effort is needed to involve stakeholders and to quantify the true cost of support for the biofuel industry. Indonesia needs to work on the cohesiveness of its policymaking among central government agencies and local governments.

Projections of Australia's geothermal resource are quite large; however, the potential to support commercially viable power plants has not yet been proven. In contrast, Indonesia has a mature geothermal industry with commercially viable geothermal capacity. Australia's geothermal industry faces resource uncertainty, cost, and financing difficulties, whereas the Indonesia's electricity pricing structure acts as the principal impediment to the expansion of the geothermal industry. Indonesian geothermal policies are based largely on inflexible targets and prices that are constrained in responding to changing market conditions. This rigidity could be costly for Indonesia if enforced. Furthermore, as in the case of biofuels, policy cohesiveness is an area of concern in Indonesia given that a formal coordination mechanism amongst the central and local government agencies is not present. In contrast, Australia has introduced measures to promote alignment across policies.

The solar insolation resource in Australia and Thailand is considerable. This high technical potential in both economies notwithstanding, the large drops in solar photovoltaic (PV) module prices in the last few years is still not sufficient in making solar PV competitive with other renewables and fossil fuel technologies in the two economies. Solar PV continues to remain an expensive means of abating greenhouse gas emissions in both economies. Given that Australia uses subsidies and grant programs to promote solar PV installations, the ability to respond to changing market conditions is diminished, unlike Thailand's Feed-in-Tariff program and renewable energy targets that are reasonably flexible. Australia has introduced and generally implemented measures to promote alignment, transparency, and stakeholder engagement across a range of solar PV policies, but in some cases there is duplication of support measures.

The renewable energy case studies are organized as follows. We begin by looking at conventional biofuels in the US and Indonesia. Geothermal policies in Australia and Indonesia are considered next. Finally we discuss solar PV policies in Australia and Thailand.