



Oceania & Pacific Islands Access to Energy Brief

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Introduction

The region of Oceania and the Pacific Islands covers a somewhat vague geographical area. In the context of this brief, we will take it to refer to the larger and developed nations of Australia and New Zealand, as well as the less developed island regions of Melanesia, Micronesia, and Polynesia. This large area, covered mostly by ocean, is highly differentiated in its use of energy. As an illustrative example, we can look at electricity production in Figure 1. Australia produces 45 times the electricity of the other island nations combined; New Zealand produces seven times the amount produced by the other nations combined.¹



Australia 244 GWh
New Zealand 40 GWh
Others N Cal 5.4 GWh

Figure 1: Comparison of electricity production between Australia, New Zealand, New Caledonia, and the totality of all other nations in the Pacific Islands region. Source: Hourcourigaray et al, 2014

Therefore, the energy access challenges between these various areas differ drastically, and we will treat them separately in this brief. As developed nations, Australia and New Zealand

face access to energy challenges similar to North America and Europe: high prices and the transition to renewables. Across

¹ Hourcourigaray, Jean, David Wary, and Stéphane Bitot. "Renewable Energy in the Pacific Islands: An Overview and Exemplary Projects," 2014. <http://www.afd.fr/webdav/site/afd/shared/PUBLICATIONS/RECHERCHE/Scientifiques/Serie-grise/Energies-renouv-VA.pdf>.



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the rest of the region, access to energy is much more sporadic: about 70 per cent of people do not have electricity, and about 85 per cent do not have access to clean cooking technologies. The challenges of connecting rural populations and the potential developmental payoffs – including better access to education, health services, and higher incomes – are also comparable to other developing nations.

The Pacific Island Countries (PIC)

There are, however, important defining features of the access to energy challenge in the PIC. First of all, the population of the Pacific Islands region is spread across tens of thousands of islands covering an area roughly the size of Europe.² Governments and development partners in the region continue to prioritize grid-based electricity development, evidenced by the continued subsidization of electricity prices and the establishment of ambitious grid-based renewable energy targets.³ Subsidies benefit people who live in the region's urban areas, but do little for the many rural communities on remote islands. Despite ambitious renewable targets, countries in the PIC region currently spend about 10 per cent of GDP on petroleum product imports, which remains the main source of energy for both rural and urban populations. Especially in rural areas where there is access, electricity is almost exclusively provided by diesel-powered microgrids.⁴ Because of its remote nature, the PIC region faces very high prices for petroleum products, and reliance on diesel can constrict other access to energy initiatives. For example, rural communities that do have electricity are forced to pay so much for diesel fuel that they are often unable to make other potentially more benefi-

² Dornan, Matthew. "Access to Electricity in Small Island Developing States of the Pacific: Issues and Challenges." *Renewable and Sustainable Energy Reviews* 31 (2014a): 726-35.

³ Dornan, 2014a.

⁴ UN Women. "Gender and Energy in the Pacific." UN Women, 2014. <http://asiapacific.unwomen.org/-/media/field%20office%20eseasia/docs/publications/2014/8/sids%20brief%207%20gender%20and%20energy%20in%20the%20pacific.ashx>.



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cial investments, such as in modern cooking fuels or improved cookstoves.⁵

The region's average rate of electricity access, 70 per cent, hides a more nuanced situation. With the exception of four countries, every nation in the PIC has electricity access greater than 90 per cent.⁶ The four exceptions are: Papua New Guinea (PNG) with 13 per cent access, the Solomon Islands with 15 per cent, Vanuatu with 27 per cent, and the Federated States of Micronesia (FSM) with 65 per cent access to electricity.⁷

However, three of those nations – PNG, Solomon Islands, and Vanuatu – also make up about 95 per cent of the total land area of the PIC, and contain 82 per cent of the population, explaining the low average rate of electricity access across the region.⁸ Therefore, efforts to increase energy access in the PIC should target these three countries. Interestingly, the rates of electricity access in each of these countries – at some of the lowest in the world, comparable to parts of sub-Saharan Africa – are significantly lower than would be expected when looking at per capita GDP, as seen in Figure 2.

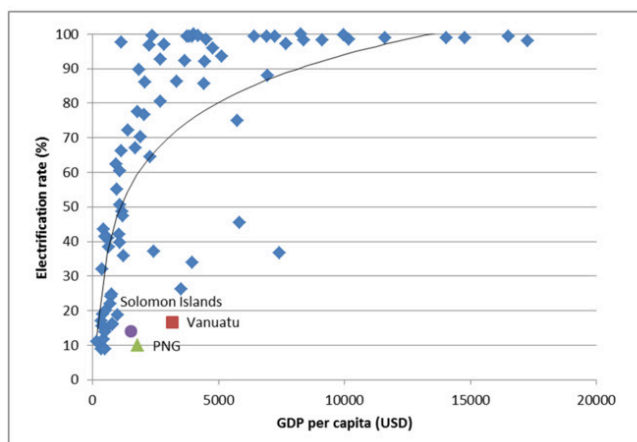


Figure 2: Access to electricity and GDP per capita. Note: power supply may be from off-grid or grid sources, and may not be a 24-hour supply. Source: Dornan, 2014.

5 UNDP. "Energy and Poverty in the Pacific Island Countries: Challenges and the Way Forward." Bangkok, Thailand: United Nations Development Programme, 2007. <http://www.snap-undp.org/elibrary/Publications/EnergyAndPovertyPacificIslands.pdf>. Bloomberg. "The Future of China's Power Sector – Executive Summary." Bloomberg New Energy Finance, August 27, 2013. <http://about.bnef.com/white-papers/the-future-of-chinas-power-sector/>.

6 Hourçourigaray et al, 2014.

7 Ibid.

8 UNDP, 2007.



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A recent paper from the Development Policy Centre in Canberra, Australia, pinpoints a few possible explanations for this anomaly. Foremost among them is the allocation of government resources; the region's governments choose to prioritize grid extension and renewable energy infrastructure – for which it is easier to secure international funding – over small-scale and challenging rural electrification projects.⁹ Paradoxical to the goal of providing secure and clean energy to the entire population, high renewable energy targets in the PIC may actually prevent rural electrification.¹⁰ The region's ambitious targets (100 per cent in many countries; further reading here) will require extensive investment in large-scale solar, wind, and biomass projects that only make economic sense near populated urban areas that are already connected. For instance, the most powerful solar energy project in the PIC, built largely with support from New Zealand, recently began operation in Apia, the capital of Samoa. The project's capacity, at 2.2 megawatts, is far beyond the power requirements of most small PIC communities.¹¹ Given such low levels of demand in rural areas, connecting these communities – even with renewable microgrids – will have only a very minor impact on helping countries reach their targets.¹² To see a widespread increase in rural electrification rates in the PIC, governments will have to make a major shift in policy to encourage renewable off-grid connections, even if the shift is at the expense of their ambitious renewable targets. This is likely to pose a considerable challenge.

Research by the United Nations highlights what is referred to as the “gender-energy nexus.” This nexus is the complex relationship – seen in other developing countries,

⁹ Dornan, Matthew. “Energy Poverty and Access to Electricity in the Pacific: Heading in the Wrong Direction?” Devpolicy Blog, February 10, 2014b. <http://devpolicy.org/energy-poverty-and-access-to-electricity-in-the-pacific-heading-in-the-wrong-direction-20140210/>.

¹⁰ Dornan, 2014b.

¹¹ Wilson, Catherine. “Surf, Sand and Solar Power – the Future of Samoa.” New Zealand Herald, September 6, 2014, sec. World. http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=11319921.

¹² World Bank, 2013.



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but particularly prevalent in the PIC – between energy and gender roles. For example, gender bias has been shown to influence people’s perceptions of the benefits of energy access: when given the choice, men opt to light the outside of a house for security reasons, while women opt to light the kitchen.¹³ Additionally, gender considerations affect the development outcomes of access to energy. Public street lighting, for instance, particularly benefits street vendors by allowing them to operate for longer hours; in the PIC, street vendors are predominantly women.¹⁴ Furthermore, widespread street lighting is highly correlated with a decrease in gender-based violence and sexual assault, which is prevalent across the entire PIC region.¹⁵ When governments choose to prioritize electricity infrastructure to power core sectors such as industry, women often see little to no benefit, as they are already marginalized and do not participate in income-generating activities.¹⁶ Specific, targeted energy access interventions, such as domestic supply, refrigerators, and improved cookstoves have a much greater impact on the quality of life of women in the PIC.¹⁷ These gender considerations demonstrate the importance of community-directed energy projects. Only by asking rural communities living without electricity access what their real needs are can governments and development agencies implement successful projects. It should also be noted that there are a number of remote communities in the region that simply do not want electricity connection, preferring to maintain traditional ways of living.¹⁸ If a community does not see the benefit of an electricity connection, than any initiative will be certain to fail.

¹³ UN Women, 2014.

¹⁴ Ibid.

¹⁵ UN Women, 2014.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Hourcourigaray et al, 2014.



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Energy Poverty in Australia

“Electricity sectors around the world have undergone major structural change over the last 20 years... These structural changes have spawned an escalation of household electricity prices at rates well above inflation and income growth.”¹⁹ This quote is from a 2012 paper in the Australian Journal of Social Issues that goes on to identify Australia – the poster child for electricity sector liberalization – as a country where low-income people are increasingly at risk of falling into this new concept of energy poverty. In the context of a developed nation such as Australia, a household is considered to be in “energy poverty” when its inhabitants are forced to spend at least 10 per cent of their income on energy bills.²⁰ The paper goes on to point out that increasing numbers of Australian households are experiencing discomfort and ill health, as well as other forms of material and social deprivation, because of the need to choose between essential household items and using electricity to maintain a decent standard of living.²¹ The paper argues that current income support schemes do not ameliorate the problem, and that, to combat energy poverty, the government must recognize it as a distinct social ill. The authors recommend “an energy policy approach with explicit social objectives” to combat this rising trend, along with an aggressive program to subsidize meaningful energy efficiency.²² Since the publication of this paper in 2012, energy poverty has become a relatively common topic in the Australian mainstream media; an article in the Sydney Morning Herald last year ran the headline “Australians now live in ‘energy

19 Chester, Lynne, and Alan Morris. “A New Form of Energy Poverty Is the Hallmark of Liberalised Electricity Sectors.” *Australian Journal of Social Issues* 46, no. 4 (2011): 435+.

20 Chowns, Jacqueline. “‘Energy Poverty’ a Growing Problem.” *The University of Sydney News*, August 20, 2012. <http://sydney.edu.au/news/84.html?newsstoryid=9874>.

21 Chowns, 2012.

22 Chester and Morris, 2012.



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poverty.”²³ The article generally focuses on the way that utility companies unnecessarily boost electricity prices by “gold-plating” infrastructure – or, in other words, by spending big on pole and wire upgrades that do not need to happen to justify sharp price increases for consumers.²⁴ The Australian Council of Social Service also released a report the same year entitled “Preventing shocks and addressing energy poverty,” which emphasizes that, although most people in Australia are enjoying better living conditions than ever before, there is a significant subset of the country – comprised mostly of vulnerable populations such as single parents, aboriginal people, and people with disabilities – who do not have access to reliable sources of energy for cooking, lighting, washing and cleaning, communications, or heating and cooling.²⁵

²³ West, Michael. “Australians Now Live in ‘Energy Poverty.’” The Sydney Morning Herald. December 27, 2014. <http://www.smh.com.au/business/australians-now-live-in-energy-poverty-20141223-12d3sk.html>.

²⁴ West, 2014.

²⁵ ACOSS. “Preventing Shocks and Addressing Energy Poverty.” Australian Council of Social Service, 2014. http://www.acoss.org.au/images/uploads/Concessions_paper_2014_FINAL.pdf.