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**ZCWP02-19 Renewable energy projects on the indigenous estate:
identifying risks and opportunities of utility-scale and dispersed
models.**

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Executive Summary

This paper considers the opportunities and risks of renewable energy developments for Aboriginal communities in Australia's Pilbara and Kimberley regions. These regions in the North West of Australia have very high rates of Indigenous land tenure, as well as being very attractive for both solar and wind power generation, particularly as developing technology makes it feasible to transport power over large distances. They are also areas remote from Australia's electricity networks and are therefore often reliant on expensive methods of non-renewable electricity generation, including diesel.

We consider renewable energy development for these regions at two different scales. This is because research indicates that different size developments can present different opportunities and risks to Aboriginal communities. These scales are utility (between 30 – 600MW) which, at the time of writing, are predominately intended to generate energy for export or industrial use, and via smaller, dispersed models (distributed generation and microgrids under 30 MW) which are currently more likely to be built to supply energy locally.

Globally, renewable energy developments have seen a trend towards some amount of community ownership for a variety of reasons including: consumer desire to play a more active role in the generation of energy; social licence to operate considerations in relation to developments usually sited close to high population areas; and governments encouraging or mandating some level of community ownership because of a combination of reasons.

Additionally, community ownership may be particularly attractive to Aboriginal communities. Research has found that Aboriginal communities are more likely to obtain broader social and economic benefits from developments in which they have a significant financial stake and have power over other areas of the development to ensure it is in line with their cultural values and responsibilities. Additionally, we detail research from Canada that shows significant promise in relation to Indigenous ownership of smaller scale renewable energy developments.

We find that smaller scale developments are more likely to cater for the energy needs of Aboriginal communities because they are more likely to be set up for that purpose. They are also more likely than utility scale developments to offer the opportunity for significant Aboriginal community ownership because of their lower costs.

Utility scale developments also provide opportunities for Aboriginal communities to benefit, primarily through negotiated access and benefits agreements (including the potential for communities to receive power as a component of such a package, or some form of ownership over the development). We discuss research from the

extractives industry in relation to these agreements, finding that broader social and economic benefits for Aboriginal communities are often less than predicted. Such research suggests that it is more likely that communities will benefit from renewable energy development if it is in line with community priorities, with community ownership, by community leaders and members, in a culturally appropriate manner.

Finally we raise the broader question of First Nations' overall voice and stake in regional economic development associated with the regional energy transition that could see the Kimberley and the Pilbara becoming powerhouses for south east Asian demand for energy, thus securing Australia's position as renewable energy exporter to the region.

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1. Introduction

This paper considers the opportunities and risks of renewable energy developments on the Indigenous estate,¹ both at utility-scale (between 30 – 600MW²) and via smaller, dispersed models (distributed generation and microgrids under 30 MW) (collectively ‘small and medium scale’). It does not consider renewable energy development at a household level, i.e. rooftop solar panels. There has been an explosion in renewable energy investments and project construction across Australia, with flow on benefits for employment, and for the nation’s achievement of various renewable energy and carbon emission targets (The Guardian 2018; Rystad Energy 2018). Nevertheless, Australia lags behind many developed countries, particularly in terms of the existence of policy mechanisms and legal frameworks that encourage the development of the renewable energy industry, and drive the uptake of renewable energy systems across community, government and industry sectors (Renewables Global Status Report 2018). Despite the national policy vacuum relating to renewables, all states in Australia except Western Australia have set renewable energy targets (Climate Council of Australia 2017). As is the case in many other parts of the world (Chapter 2, Renewables Global Status Report 2018), the renewable energy revolution is being driven by state and territory level governments, as well as local governments, communities, households and businesses and industries.

Globally, the development of renewable energy industries has largely occurred without the support of law and policy frameworks that have historically supported national and/or state level fossil fuel energy production. Fossil fuel energy production has tended to be centralised and monolithic, with communities as passive consumers. Renewable energy represents a radically different opportunity for dispersed ownership of energy resources. This is because the resources themselves are dispersed, and because the technology is available for the resource to be captured and used at much smaller scales: for example, solar panels on the roofs of individual households.

This paper focuses on the Kimberley and Pilbara regions in Australia’s remote North West and asks ‘What are the implications of renewable energy developments for Indigenous people and communities?’ It does this looking alternatively at utility and then small and medium scale renewable energy developments. The reason for this division is that there is a worthwhile example provided by Canadian First Nations communities, many of which are driving local energy transitions. Further, community ownership of renewable energy developments is a world-wide trend as communities seek to capture dispersed renewable energy resources at local scales, and to move away from the previously dominant model of centralised electricity providers. In an Indigenous context, energy self-reliance may also appeal for reasons relating to political and economic self-determination.

Certain attributes of North Western Australia make it an ideal location for utility scale developments to take place, including that the region is proximate to south east Asian energy markets and because it has some of the highest intensity solar radiation in the world (ABARE

¹ The term ‘Indigenous estate’ refers to all land that is communally held by Aboriginal and Torres Strait Islander people, according to their traditional laws and customs. The Indigenous estate is recognised by Australian law pursuant to a variety of statutes, including the Native Title Act and various land rights regimes.

² We have defined utility scale in this way based on the Australia Energy Market Operator’s (AEMO) categorization of any generator over 30 MW as ‘semi-scheduled’ - and therefore subject to a different set of rules.

2010). Developing technology means that renewable energy may soon be able to be transported cost efficiently over large distances both within Australia, and across the Asian region. In some areas of Australia's north-west, solar resources are co-sited with very strong and consistent night time wind resources, making such sites doubly attractive to renewable energy developers of utility scale projects.³

The region also holds great promise for small and medium scale developments to occur. The domestic supply of energy to the north west of Australia has traditionally been very challenging given both very small, and very dispersed, populations. The region is also a long way from the more population dense areas of Australia in the south and east of the continent – and is not connected to those electricity grids. A number of scholars however have recently argued that there are economically compelling arguments why these energy intense regions should be connected in the near future (see Chambers et al 2018, Wang et al 2018).⁴

The rationale for renewable energy generation for use by Indigenous communities – particularly those in more remote parts of Australia that are not connected to large electricity grids and are reliant on costly and inefficient diesel generators – is well understood and has been facilitated in the past by government investment for installing solar and battery systems.⁵

This paper also references the growing body of scholarship documenting the ways in which communities (both Indigenous and non-Indigenous) have developed financial, technological and political mechanisms to enable these developments to occur, mostly at a small and medium scale. These mechanisms include highly innovative community ownership models that have underpinned this shift. These communal forms of ownership are in contrast to large scale utilities, which have been characterised until recently in the industrialised world by corporate ownership.

The paper is written in light of a history of uneven benefit-accumulation to Indigenous people and populations from extractive industries in remote Australia. It follows on from an earlier Working Paper (O'Neill, Thorburn, Hunt 2018) that focused on best practice extractive industry agreement making and how its lessons might be applied or bettered by large-scale renewable energy development on the Indigenous estate.

³ See the Asian Renewable Energy Hub – <https://asianrehub.com/>

⁴ Chambers et al (2018) propose a trans-continental energy superhighway that travels through central Australia and connects to the ASEAN super grid via a hub in northern Australia. Additionally, they say that there is the possibility that developments in the efficiency of transmission cabling might soon mean that the remoteness of Australia's north-west no longer makes the proposition of connecting to national grids uneconomic. They state: "a refocus of less than 25% of the Australian fossil fuel industry subsidies over the next 10 years would fund both a national energy superhighway and connection of the full range of Australia's energy capabilities to the lucrative and expanding Asian energy markets" p 628. See also Wang, C., Dargaville, R. and Jeppesen, M. (2018) who argue for the economic viability of connecting Australia's national electricity market (NEM) grid to supply that of Indonesia via submarine link.

⁵ See for example, Centre for Alternative Technologies and Bushlight– which have now morphed into private consulting firm Ekistica Pty Ltd <https://www.ekistica.com.au/>

a. Background and context: The Australian renewable energy sector is booming despite uncertain policy environment

In 2018 the Climate Council of Australia observed that Australia is experiencing a renewables and battery energy storage boom.⁶ They documented 54 projects under construction in Australia in 2018, comprising \$11.2 billion in investment and the creation of 7884 jobs.⁷ Geoscience Australia reports that Australia has the highest solar radiation per square metre of any continent, providing the best solar energy resource in the world. These kinds of resources suggest that Australia is in a position to become a renewable energy superpower (Chambers, Russell-Smith et al. 2018). This potential appears to close to realisation, in spite of the policy uncertainty at a federal level in Australia (Simshauser 2018). Australia looks set to eclipse its Renewable Energy Target⁸ with 29 per cent of electricity to be generated by renewable sources by 2020, and 50 per cent by 2025 (Australian National University 2018).

Most Australian states have set renewable energy targets of between 40 and 100 percent by 2030, and a number are targeting net zero emissions by 2050 (Climate Council 2017: ii). These targets are comparable with international trends. These targets have increased over the last decade as the costs of renewables have continued to fall, and public concern about climate change, and related political pressure, continues to grow (Vaughan 2018). It is not only governments that are setting renewable energy goals: two thirds of Future 100 companies have also set ambitious renewable energy targets (Climate Council of Australia 2018 p iii).

The Australian Government's Renewable Energy Agency (ARENA) has identified four investment priorities for the sector:

1. Deliver secure and reliable electricity;
2. Accelerate solar PV innovation;
3. Improve energy productivity; and
4. Export renewable energy.

Export of renewable energy from Australia looks increasingly possible thanks to technological advances in batteries and energy storage, and in energy transmission across large distances without significant energy loss (Blakers, Luther et al. 2012, Chambers, Russell-Smith et al. 2018; Wang et al 2018). The potential use of renewable energy is also mooted for the production of

⁶ <https://www.climatecouncil.org.au/resources/battery-storage-2018/> See Climate Council (2018) Fully charged: Renewables and storage powering Australia. (<https://www.climatecouncil.org.au/uploads/d4a4f17c09c83d03f13234051e3e77d8.pdf>)

⁷ For the full list of projects see <https://www.cleanenergycouncil.org.au/policy-advocacy/jobs-and-investment.html>)

⁸ Australia's large scale renewable energy target is "33,000 gigawatt hours of additional renewable energy generation by 2020." See <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data#progress>

‘clean’ hydrogen, a new kind of energy source which can be produced from renewable energy via electrolysis with zero carbon emissions (ACIL Allen Consulting for ARENA 2018).⁹

The potential for Australia to be a regional energy superpower has been identified by a range of sources (Australian National University 2018, Chambers, Russell-Smith et al. 2018, Changlong et al 2018). Principle barriers to this occurring are political, cultural and institutional rather than technical or economic (Sovacool 2009, Blakers, Luther et al. 2012, Diesendorf and Elliston 2018). For Australia to position itself competitively in the Asia Pacific region, governments and/or large corporations will have to invest in the connecting infrastructure to resolve bottlenecks in the national energy system. This infrastructure includes interconnectors between states and renewable energy zones. Investing in energy storage systems, such as Snowy 2.0, will also be necessary (Baldwin, Blakers et al. 2018). Renewable energy export will require either under-sea cables – as proposed by the AREH consortium¹⁰ to be constructed off the north Pilbara coast – or liquid hydrogen export facilities, which will require shipping access to port facilities (Bruce et al 2018).

b. Community energy in Australia: part of a global social movement for dispersed and locally owned systems

Globally, in both developed and less developed parts of the world, some communities have become dissatisfied with conventional and centralised models of energy production because they have ‘...little-to-no influence over the sustainability of their energy supply’ and because energy companies ‘generally (do) not reinvest profits locally’ (REN21 Secretariat 2016: 137; see also Harnmeijer, Harnmeijer et al. 2012 and Morris 2016). Community investment in these kinds of developments in Australia has been rapidly increasing, and, as elsewhere in the world, is underpinning the increasing acceptability of renewable energy infrastructure and developments such as wind turbines (Holmes à Court 2018).

Communities adjacent to a proposed commercial renewable energy development are increasingly likely to be offered the opportunity to invest, via various mechanisms including community trusts and individualised portfolios of shares. Such an approach facilitates the company obtaining community approval (known as a ‘social licence to operate’) and provides surrounding communities with cheaper energy and income via feed-in tariffs or in some cases, tax credits (REN21 Secretariat 2016:138). These community buy in schemes have been strongly facilitated in countries like Germany where policy elements have included an energy purchase obligation and a guaranteed price for the electricity produced. Many governments, including that of Scotland, some provinces in Canada and the Victorian state government in Australia, have legislated for some degree of community ownership of renewable energy

⁹ “Most of the jobs associated with any future hydrogen exports will be located where hydrogen production or export facilities are built. It is most likely that the facilities will be located close to the supply of renewable energy. Renewables, particularly large scale solar PV or concentrated solar thermal projects are most likely to be located where the solar irradiance is high in Australia. Such areas of high solar irradiance (and reasonable ease of access to appropriately sized areas of land) tend to be in regional areas. Hydrogen production for export may therefore particularly benefit regional communities, traditional owners of the land, and the broader Australian community through the direct employment associated with hydrogen production facilities”. P v-vi ACIL Allen Consulting for ARENA (2018). Opportunities for Australia from Hydrogen Exports.

¹⁰ <https://asianrehub.com/>

developments (Harnmeijer, Harnmeijer et al. 2012, Roberts, Bodman et al. 2014, McHarg 2016, Karanasios and Parker 2018).

c. Current status of renewable energy in Indigenous communities

To date, renewable energy development in Australian Indigenous communities has been almost exclusively at a very small scale and off-grid – not for redistribution beyond a local group of households. In remote areas particularly, renewable energy development has occurred on a scale suitable to replace diesel generators. The approach to this type of renewable energy development has been largely ad hoc and has not occurred as part of regional development or systematic energy planning. Nonetheless, for remote communities, replacing expensive diesel generators with solar and battery systems presents multiple benefits. These include reducing household energy costs, increasing energy security and reliability, and enabling sustainable economic development through development of small businesses (from IBA media release, mid 2017).

For example, the Northern Territory (NT) government partnered with ARENA in 2014 to fund the instalment of 10MW of solar power across 27 communities with the aim of reducing diesel consumption.¹¹ A different example of renewable energy investment now exists in Western Australia, where Carnegie Clean Energy partnered with the Perth Noongar Foundation (PNF) and Indigenous Business Australia (IBA) as co-equity investors in the \$17 million 10 MW Northam Solar Farm. The Noongar partners stated that the project would ‘...offer our people, and the greater community, access to a clean, renewable energy that is sustainable and aligns with our cultural values and responsibilities.’¹² Business opportunities for Noongar people, as well as employment, are built in to the partnership.

Yet, by and large, the potential role of Indigenous people in financially partnering in renewable energy developments has not been actively pursued or encouraged in Australia, apart from a few isolated cases.

However, a much broader conceptualisation of the potential role for First Nations people in renewable energy development can be seen in the legislative and policy frameworks of renewable energy in Canadian provinces – some of which have been driving First Nations involvement in renewables for two decades or more.

2. Indigenous benefit and policy settings: A quick glance at the renewable energy transition in Canada

In Canada, both the national and provincial governments recognise that the transition to green energy can provide an opportunity to advance reconciliation with First Nation peoples, as well as enable socio-economic development in those communities.¹³ This is in a context where, in 2018, 17% of Canada’s total energy supply came from renewable energy sources.¹⁴ By 2015, 50% of the Canadian population had participated in the development of Community Energy

¹¹ A recent NT government discussion paper identified a further 60 communities to which this program could be expanded Northern Territory Government (2018:21). Climate Change: Mitigation and adaptation opportunities in the Northern Territory.

¹² <https://reneweconomy.com.au/carnegie-brings-indigenous-investors-10mw-solar-farm-73753/>

¹³ <https://www.nrcan.gc.ca/20093>

¹⁴ https://www.nrcan.gc.ca/e_nergy/facts/renewable-energy/20069

Plans. These plans are created to help define community priorities around energy with a view to improving efficiency, cutting emissions, enhancing community resilience, managing future risks, and driving economic development (Community Energy Association and Quest 2015).

Indigenous involvement in renewable energy projects in Canada has benefited greatly by specific policy settings which have encouraged, or indeed legislated, for such involvement. The Indigenous Renewable Energy Research Project in 2016 estimated that there were approximately 300 Indigenous clean energy projects across 194 communities in Canada.¹⁵ Another survey identified over 1000 small scale projects, and 152 medium scale projects across Canada (greater than 1 MW according to that report's definition) (Henderson 2017).

Many of the renewable energy projects have been enabled by provincial government funds which specify how profits derived from renewable energy projects on Indigenous lands will be shared with First Nations people¹⁶ (Krupa, 2012). For example, British Columbia, the province which leads the way with over 50% of the nation's renewable partnership projects, established the First Nations Clean Energy Business fund to promote Indigenous community participation in the clean energy sector. This fund supports agreements between the British Columbia Government and successful applicants for capacity and equity funding. It also provides revenue sharing agreements between the B.C. Government and eligible First Nations. These agreements, which prescribe the percentage of revenue from the development which is to go to the relevant First Nations, are subject to complete transparency, and all 52 in place are available online.¹⁷ Similar investment funds to support First Nations involvement in renewable developments now exist in every province in Canada (Karanasios and Parker 2018; Henderson and Sanders 2017).

Canadian provincial government subsidisation is not the only source of Indigenous investment. Other forms include:

...community funds, funds from treaty settlements and land claims, community trusts, debt financing through the project development partner, direct grants from the project developmental partner, external terms, and/or external borrowing backstopped by guarantees provided by governments, Indigenous financial institutions like the First Nations Finance Authority, or project partners (Henderson and Sanders 2017: 5; for more detail, see also Krupa 2012).

The existence of 'supporting regulatory and fiscal policy that were negotiated and adapted to Indigenous sustainability visions' has proved crucial to the success of a range of such projects across Canadian provinces (Karanasios & Parker 2018: 169). Henderson and Sanders (2017: 3) similarly observe that the 'extent of Indigenous clean energy participation would not have been possible without public sector programs and mechanisms'. In Canada, provincial and territorial

¹⁵ <https://indigenousenergy.ca/about/>

¹⁶ "50% of new incremental water and land rentals, for any one project will be deposited in to the FNCEBF. A total of 75% of those deposited funds will be directly shared with First Nations whose territory may be impacted by a clean energy project, for a total of 37.5% of the deposited rentals. The remaining 12.5% will remain in the fund to further support capacity and equity grants."

(<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-clean-energy-business-fund>)

¹⁷ <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/first-nations-clean-energy-business-fund-revenue-sharing-agreements>

government departments with responsibility for energy, climate change and economic development have been driving Indigenous involvement.

Across Canada, it is now the norm for Indigenous communities to hold approximately 25% ownership of clean energy projects. This has been facilitated by the contractual requirements for such developments and ‘price-adders’ which favour projects with First Nations partnerships (Henderson and Sanders 2017). This same report, which surveyed renewable energy project across Canada, recorded an estimated \$ 2.5 billion in profit for First Nations communities over 15 years, and \$167 million in net annual returns from renewable energy projects. It also recorded 299 First Nations people in renewable energy employment, and \$842 million in estimated Indigenous employment income. The authors noted a total generating capacity of such projects of 19,516 megawatts, or nearly one fifth of the country’s overall power production infrastructure (Henderson and Sanders 2017).

3. Utility scale¹⁸ renewable energy projects: Risks, benefits and opportunities

The development of ‘utility-scale’ renewable energy projects presumes the energy produced from such installations will be exported – either to other towns or communities within Australia, offshore, or for uptake by industry. For the purposes of this paper, we have defined utility scale as installations that produced between 30 and 660 MW of electricity. Utility scale renewable energy is also distinct from ‘mega’ projects, which are becoming more common globally. The only mega project in the planning/negotiation phase in Australia is the Asian Renewable Energy Hub¹⁹ in the northern Pilbara, which plans to generate 13 GW per annum.

In a region like the Kimberley, which is not connected to the major power grids of the south of the state of WA, each town operates as its own kind of microgrid. Apart from the large towns of the east Kimberley, which derive their power from the Lake Argyle hydroelectric scheme, the majority of towns in the Kimberley are currently powered by gas-fired power plants – which are owned and run by the WA State Utility Horizon Power. Smaller communities tend to rely on diesel generators, combined with small solar systems (Phillips, Rose and Bunn 2018). Recent modelling in the Kimberley Clean Energy Roadmap suggests that such a micro-grid model would also be the most economic approach to a roll-out of renewables across the Kimberley, although these scenarios did not consider energy opportunities or demands beyond domestic usage, and the demands of the Thunderbird mine site, on the Dampier Peninsula north of Broome (ibid 2018).

The authors of this report also presumed that the majority of the \$560 million required to transition the Kimberley to renewable energy could be sourced from government agencies, including the WA government and ARENA, as well as the private sector. While the question of Indigenous equity in such a transition to renewable energy is briefly mentioned, there is little detail except to say that investment opportunities for Indigenous people exist. Our proposition

¹⁸ We have defined Utility Scale as between 30 and 600 MW. Please see glossary for justification/source of these parameters.

¹⁹ For more detail see: <https://asianrehub.com/>

is that building Indigenous equity into a renewable energy future could form the basis of a different kind of economic future for Indigenous people.

The existence of vast tracts of sparsely inhabited land in north-western Australia suggests considerable opportunity for renewable energy developments of scale. The vast majority of this land is subject to Indigenous rights and interests.²⁰ The following section overviews how agreements developed with large-scale extractive industries have often resulted in sub-optimal outcomes for Indigenous parties. This suggests that a different approach might be necessary both to build in Indigenous benefit in the future, and to secure Indigenous access to renewable energy.

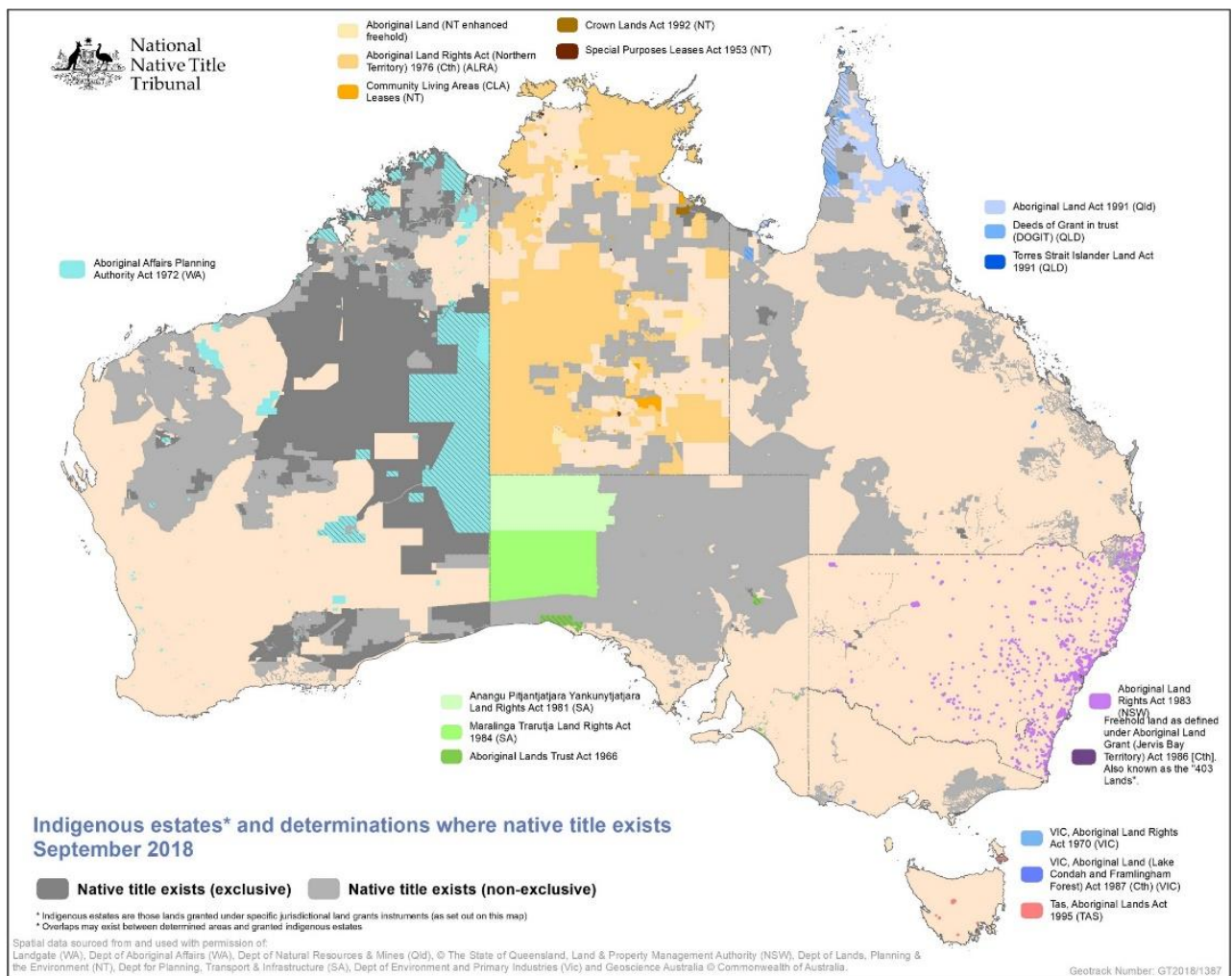


Figure 1: Indigenous Estates and determinations where native title exists September 2018. (Sourced from National Native Title Tribunal, 2018)

a. Resource Extraction on the Indigenous Estate: benefits and impacts

As discussed in our previous working paper, the predominant experience of Aboriginal people

²⁰ See O’Neill, Thorburn and Hunt (2018).

in dealing with large scale development on traditional lands has been in relation to mining and the extractive industry. Lessons from these engagements are therefore important to consider as the renewable energy industry develops.

Several years ago, one of the largest resource booms in Australia's history came to an end (Sheehan and Gregory, 2013: 121). That resource boom saw large amounts of resource wealth extracted from, or next to, land on which Australian Indigenous communities live (Minerals Council of Australia, 2011: 4). Yet the traditional owners of that land — like Indigenous people world-wide — are on average less educated, live shorter lives and pass on less wealth to their children than their non-Indigenous counterparts (Australian Bureau of Statistics, 2017). That resource wealth has largely not helped to improve the lives of Indigenous traditional owners has been described as 'the Australian paradox' and 'poverty in the midst of plenty' (Langton and Mazel, 2008; Altman and Martin, 2009, ix).

The history of the interactions between resource extraction companies and Indigenous Australians has long been fraught, the former having carried out its operations on the Indigenous estate without regard for its owners for much of that time. The recognition of Indigenous rights to their traditionally owned land from the 1970s onwards ended the most egregious acts by resource extraction companies, including whole communities being forced to make way for developments without consultation, notice or compensation. The recognition of traditional rights to land saw the advent of agreement making with developers seeking to access traditionally owned land, as discussed in our previous Working Paper (O'Neill, Thorburn and Hunt).

Yet, in spite of these advancements, researchers have continually found that the benefits of resource extraction projects are not shared equitably by the land's Indigenous owners. In the early 1980s, Cousins and Nieuwenhuysen wrote of the limited social and economic benefits accruing to Aboriginal communities from royalty and other funding streams associated with such developments (Cousins and Nieuwenhuysen 1984). In 2009, in the middle of the most recent boom, Nieuwenhuysen wrote that:

It is ... disappointing to learn that, after yet another major mineral boom in Australia, when in the five years to 2006 mining export revenues rose by over \$100 billion (or around 70 per cent), Indigenous people still do not share equitably in the vast incomes which are generated from their lands in the remote regions of Australia (Altman and Martin, 2009, ix).

Scholars note a complex range of contributing factors, including the following broadly applicable explanations. Firstly, the institutional capacity of primarily Indigenous organisations is not robust enough to properly implement the agreement. Secondly, poor human capital in Indigenous communities means that people are not able to participate in the economies of a mine site, combined with concurrent failure by companies and governments to enable participation. Thirdly, government substitution, where governments fail to provide essential services in areas of resource extraction with the expectation that companies will fill the gap,

for example Argyle Diamond Mine Trust money being used to fund renal services (Campbell and Hunt, 2013; Scambary, 2010; Langton and Mazel, 2008; Trebeck, 2007).

In 2009, Marcia Langton noted the large economic disparities between the Indigenous communities close to mine sites with the workforce servicing those sites. She observed that this effect was in keeping with 'the resource curse', a trend observed particularly in the developing world whereby mineral wealth does not lead to improved socio-economic conditions of surrounding communities. The reasons for a localised resource curse operating in Indigenous communities, she argues, are 'low levels of Aboriginal education and skills, combined with racism, poverty, poor housing, and high levels of morbidity and mortality' resulting in low economic participation (Langton, 2010, see also Scambary 2010, 232).

Similarly, Benedict Scambary argued that even where traditional owners have negotiated beneficial agreements, the promised socio-economic impacts of those agreements often failed to materialise. He analysed three agreements widely seen as strongly beneficial for traditional owners, concluding that, despite noteworthy successes, they largely do not live up to their promise for creating economic opportunity for disadvantaged Indigenous communities. The reasons for this are 'numerous and complex', he argues, among them:

...the level of accord between defined agreement beneficiaries and local Indigenous conceptions of relatedness; [the strength of] Indigenous organisations arising from the agreements; their ability to represent the diversity of their memberships; the various effects of statutory and agreement defined conditions on the flow of benefits ...; the impact of agreements upon the role of the state as a service provider; and the nature of Indigenous autonomy over agreement benefits (Scambary, 2010, p.3).

Unsurprisingly, the circumstances in which positive benefits accrue to Indigenous communities from local resource extraction are the corollary of those reasons discussed above. Langton, for instance, emphasises the importance of strong, open and accountable institutions, drawing on the work of American economist Joseph Stiglitz who highlights the importance of institutional quality, particularly accountability, in ensuring lasting positive impact of mining booms (Langton, 2010; Stiglitz, 2007).

Campbell and Hunt (2013), writing of a successful community development program run by the Central Land Council and funded by community money derived from royalties, suggest the following factors are influential. They say that royalty money is best spent where it is according to community priorities, with community ownership, by community leaders and members, in a culturally appropriate manner. They also emphasise the importance of significant investment in capacity development and strong local governance structures. In the specific programs they examined, they write of the importance of community development on a regional scale, run by a strong land council, as one way to ensure benefit. Campbell and Hunt acknowledge that the impacts of large scale development on the Indigenous communities have predominately been very negative.

b. Differences between Renewable Energy and Extractive Industry Development

Utility scale renewable energy projects are different from extractive developments in several important ways, as discussed in our previous working paper. These include that utility scale renewable energy developments – and the resources they seek to capture - are dispersed over relatively vast areas. They are likely to have less of an environmental impact than a mine and clearly have very positive benefits in terms of carbon emissions abatement. They also have a potential lifetime measurable in generations, rather than decades. The Asian Renewable Energy Hub²¹, proposed for the north Pilbara, for example, is planning to be producing energy for 60 years, or 3 generations.

Like extractive industries, both solar farms and wind turbines can impact ‘landscape amenity’, a term which refers to the cultural associations of ‘pleasing’ landscapes. This could impact the Kimberley, an area associated with high ‘wilderness’ values, in particular, although there are still vast areas of the both the Kimberley and the Pilbara rarely visited by outsiders. These developments also clearly have a potential impact on Indigenous cultural heritage.

Their dispersed character means there is potential for such developments to co-exist with other enterprises, such as cattle stations, or with agricultural developments, although the latter remains a rarity in Australia’s north.

The other crucial observation is the global push for renewable energy companies to share benefits of these kinds of developments with local and regional communities. This pressure is shifting what is considered best practice by both renewable energy companies, and by government – although there is a great deal of diversity globally in what kinds of benefits might be offered (Kerr, Johnson et al. 2017). The way benefits of renewable energy generation on the Indigenous estate might be shared across or between neighbouring groups is an important consideration.

Some of the commercial opportunities, risks and considerations for First Nations in relation to utility scale renewable energy developments on or near their land are now considered.

i. Commercial Opportunities

Opportunities presented to Indigenous people, particularly those in more remote parts of Australia, by the renewable energy industry could be significant, and could be quite different from the kinds of opportunities which have emerged from industrial developments on country up to now. Opportunities associated with larger scale developments include:

- Benefits from land access and benefit sharing agreements negotiated with renewable energy companies;

²¹ <https://asianrehub.com>

- Development of mainstream commercial partnerships with renewable companies involving part ownership, and hence revenue, from onselling of energy resources via Power Purchasing Agreements (PPAs- see glossary);
- Employment in both construction and maintenance of renewable energy installations;
- Siting of energy-purchasing businesses adjacent to renewables developments – with flow on opportunities for employment, or co-investment, or contract-based businesses. This might include PPAs for provision to industries, or to electric vehicle recharge stations;
- Minimising cost of electricity for surrounding communities, in exchange for land access or a ‘social licence to operate’ where the community are not landowners;
- Energy export to potentially enormous markets in countries with limited renewable resources such as South Korea, Japan and Indonesia;
- Energy security for future generations; and potentially,
- Energy sovereignty – that is, ownership of the sources and distribution of energy.

Clearly a number of these could be enhanced by a proactive policy and/or legislative environment, as well as by the development of financing options for Indigenous groups to enable part or total equity in renewable energy projects. Considerable investment in the development of the necessary infrastructure to either export energy, or to transmit energy resources to less energy rich parts of Australia and the Asia Pacific region, would also be necessary (see Chambers et al 2018)

ii. Constraints to Indigenous participation

In simple terms, and in the context of renewable energy as a development proposition for Indigenous lands, constraints are as follows:

1. Native title/land rights as proprietary interests in land are unique forms of land title. They enable communal decision making and group ownership. They are inalienable – or non-transferrable or sellable. How these regimes – and benefits packages negotiated via these – might interact with renewable energy developments is yet to be seen in Australia. That these land assets cannot be sold means that they are also difficult to obtain a mortgage over, which limits the capacity of many traditional owner groups to raise capital for investments.²²
2. Populations are dispersed – so the need for a social license to operate (and concomitant benefits package) can be mitigated by placing renewable energy developments away from where people live. In more populated parts of Australia, the social licence to operate imperative gives neighbouring communities leverage to receive benefits from renewable energy developments, or the opportunity to invest in such developments. This is less likely to be the case in remote Australia where communities are so dispersed that companies do not have to accommodate a local, densely populated community.

²² See notes from Indigenous Property Rights Roundtable held in Broome, May 2015 (<https://www.humanrights.gov.au/news/speeches/indigenous-property-rights-land-business-and-governance>)

3. Socio-economic resources of Indigenous groups are generally limited, as is their capacity to co-invest on conventional terms.

iii. Longer Timeframes

Having a utility scale industrial development on traditionally-owned country for three generations could transform the socio-economic status of a TO group – but only when the benefits negotiated under the native title agreement are sufficient, appropriate and capable of responding to changes in externalities.

This is necessary because longer timeframes will potentially have compounding effects in terms of both benefits and costs of such developments. They will therefore incur greater degrees of uncertainty about how both benefits and costs will be affected by domestic externalities such as changes in commodity prices (including the energy being sold), changes to relevant laws, local populations, regional demographics and regional industries, local and regional climate change, and changes in demands for land access. The risks and uncertainties associated with renewable energy being produced for an export market include shifts in international agreements, treaties and diplomatic relations between trading nations, the development of alternative renewable energy technologies, global changes in climate patterns, volatility of resource markets and impact on the price of fossil fuels and the volatility of the political economies of the importing nations.

The degree to which Traditional Owners are affected by these kinds of uncertainty related to international markets would depend entirely on the nature of the benefits agreement they sign. The best kinds of agreements are likely to contain provision for different kinds of investment portfolios, and include both high risk, potentially highly profitable elements, as well as low risk payments which are not tied to production and protected from market volatility. Such agreements would mitigate unnecessary exposure to market volatility for Traditional Owners.

Arguably it is virtually impossible to build a future scenario across an intergenerational timeframe with any certainty. Native title agreements to date can account for variations in circumstances; for example, if more than one group is found to hold native title, if more companies come on board or the corporate structure changes, or if production of the commodity increases, agreements can be adjusted.

However to ensure an ongoing social licence to operate – and to appraise the impacts of negotiated benefits, agreements over such long time frames should be required to build in regular review of the agreement's terms.

iv. Dispersal of Resource

A radical difference between renewables and extractive resources is that renewable energy resources – the wind and the sunlight – are dispersed. This has important implications for neighbouring groups of traditional owners, who might share similar access to the same energy resources, or who might have marginal advantages over one another in terms of proximity to future export nodes (ports, undersea cables) or in topography or in terms of the coherence and human capital of the group and therefore the ease and success with which developers might presume benefits agreements to be negotiated and implemented.

A good example of how traditional owners might avoid such a ‘divide and conquer’ approach exists in the way in which the Kimberley Land Council planned for the distribution of benefits across TO groups in the Kimberley, prior to the identification of a preferred site by the State Government for the Browse Basin gas development, which sought to process offshore gas somewhere on the Kimberley coast (O’Faircheallaigh and Twomey 2010, O’Neill 2019 forthcoming).

This plan by regional Kimberley traditional owners ensured that wherever the development was sited, out of the 40 sites that were originally identified, there would be a sliding scale of benefits distributed to TO groups across the Kimberley. The highest percentage would go to local TOs on whose country the gas plant would be sited, scaled out to a wider distribution of benefits across the region. This process was supported by a Traditional Owner Taskforce, which contained representatives of all the coastal native title claims upon which potential sites had been identified. (O’Faircheallaigh and Twomey 2010: 24) Traditional owners recognized that the LNG development would have impacts, both positive and negative, that would be highly significant, felt throughout the Kimberley, and that would be intergenerational. Such an approach also ensured that the developers could not benefit from neighbouring Indigenous groups – whose country might be suited to the gas development - competing against one another, and bidding for the lowest price.²³

There are also parallels between renewable energy resources and dispersed resources including water: both can be harvested across neighbouring traditional owner groups. For example, in the Victorian town of Stanley (non-Indigenous) residents were unable to prevent the extraction of 19 million litres of groundwater from a highland aquifer by multinational beverage company Asahi that residents said would negatively impact on the environmental and agricultural values of the area, because of an agreement that the company had reached with a single landowner (White and Nelson, 2018).

Therefore the dispersed nature of renewable energy resources might challenge TOs to think strategically, and more regionally, about how to engage with the opportunities that such an industry presents.

4. Dispersed model renewable energy developments: Risks, benefits, opportunities

Arguably there are two scales of potential renewable energy development on the Indigenous estate which are smaller than the utility-scale option discussed above. The first has been occurring for some years, and is the development of small, off-grid solar or hybrid energy systems for dispersed Indigenous communities. That such developments are not connected to a wider grid means there is no opportunity for the sale of this energy to other communities or towns; the benefits of such energy developments are therefore limited to cheaper, or free,

²³ See O’Neill, L. (2019 forthcoming). "The Bindanbur Bombshell: The True Traditional Owners of James Price Point and the Politics of the Anti-Gas Protest." *University of New South Wales Law Journal* 42(2): "Aboriginal elders approached the KLC saying that given significant interest in industrialising the Kimberley they wanted a single consultation process in which all companies had to come "through one door and tell us the same message." (From Wayne Bergmann, then KLC CEO, interview)

electricity, the provision of a handful of jobs to maintain the technology²⁴ and what has become known as ‘energy access and reliability’ (See glossary).

The second scale would be the development of larger renewable energy installations which could supply energy to medium and larger size towns across northern Australia – to both Indigenous and non-Indigenous residents – as well as possibly to industry. These developments would have parallels with similar scale installations elsewhere in Australia (such as Sapphire Wind Farm in NSW) and could provide competitively priced and secure sources of energy for the populations living in towns in northern Australia. Developments of this scale would benefit from investment in regional development plans which take account of future energy needs – including the supply of electricity to electric vehicles – and potential growth of other industries such as hydrogen-based export, or the mining of New Energy metals used in the rapidly growing market for energy storage such as lithium ion batteries.²⁵ (Future Smart Strategies 2018). Low and dispersed populations will diminish the cost-effectiveness of such installations in the immediate term, but the populations of these regions are predicted to grow; just how fast the population of northern Australia will grow will depend on various policy signals, and government investment (See Commonwealth Government 2015).

Arguably the issues of energy justice and energy reliability – and how these might be attained by remote Indigenous communities – have been under-theorised in Australia. Energy justice raises concerns that relate to equitable access to cheap and reliable energy; equitable both between more urban Australians and remote Indigenous people, and among those Indigenous people themselves. The track record in Australia of remote Indigenous communities’ access to other utilities, for example, to clean water, indicates that energy access and security are not guaranteed.²⁶

The concept of energy security suggests reliability of energy supply, but it is also underpinned by notions of control and ownership of the energy sources. A number of international scholars observe that a transition to energy security for minority groups such as Indigenous people will not be ensured by a mere technological approach, but rather that such a transition must challenge conventional, industrial ways of organising production and power relations (Newell and Mulvaney 2013; Sovacool and Dworkin 2014). Energy production is crucial to any form of economic growth; the continued marginalisation of Indigenous people from regional economies seems likely unless concerted efforts are made to ensure that Indigenous people have a strong voice and stake in the energy transition which is going to take place on Indigenous lands. The policy initiatives undertaken by various Canadian provincial governments offer a range of possible approaches.

²⁴ Phillips et al (2018) estimated renewable energy systems for the entire Kimberley could be maintained by 180 people annually.

²⁵ “WA is home to the world’s most accessible abundance of New Energy metals - lithium, rare earths, cobalt, vanadium, tin, tantalum, nickel, manganese and magnesium - essential components in energy storage devices, such as lithium ion batteries” (Future Smart Strategies 2018: 13)

²⁶ For example, a 2015 WA Auditor General’s report into power, water and wastewater services to 84 remote communities found drinking water at 68 failed to meet Australian standards. (<https://audit.wa.gov.au/reports-and-publications/reports/delivering-essential-services-remote-aboriginal-communities/communities-reliable-power-water-supply-water-quality-often-not-meet-australian-standards/>)

5. Concluding remarks

The Kimberley Clean Energy Roadmap, which modelled a range of possible renewable energy scenarios for the West Kimberley, only considered generating electricity for the domestic energy market of the Kimberley. This market, based on current population figures of the Kimberley, and the limited industry needs, is very small in comparison to other areas in the south and east of Australia.

However, as the development of the Asian Renewable Energy Hub²⁷ in the north Pilbara suggests, global industries and investors now recognise the extent of renewable energy resources in NW Australia, and also are acting on the demand for renewable energy in nearby Asian markets.

The potential for green hydrogen as an exportable commodity has been recently documented (Bruce S, et al 2018, ACIL Allen Consulting for ARENA, 2018) and could underpin renewable energy export from north Western Australia, as well as forming the basis for other kinds of industries.

The explosion in renewable energy investment in Australia also has implications for different kinds of industrial development in Australia's north-west, including a growing interest in lithium, and other rare metals. What is clear is that the shift away from mining and exporting fossil fuels is underway in Australia. The implications of an economy which is driven by renewable rather than conventional sources of energy are many. New markets will emerge, as will new competitors.²⁸

This paper has sought to explore the potential benefits and risks to Indigenous people of smaller and larger scale renewable energy developments, however the issue of scale might not be the most crucial. Rather the question of ownership and use of what is to become the future source of energy is central. The real opportunities for indigenous people in renewable energy go far beyond being recipients of a list of negotiated 'benefits', to longer term, strategic and regional considerations of building in Indigenous involvement into an energy transition which would see regions such as the Kimberley and the Pilbara becoming powerhouses for south east Asian demand for energy, and securing Australia's position as renewable energy exporter to the region. The next phase of this research proposes to engage with First Nations' organisations in the Kimberley and Pilbara regions to share these findings and engage in a discussion with them about their energy futures.

²⁷ <https://asianrehub.com/>

²⁸ See for example Buchanan's 2018 essay on Russia's reorientation to the Asia Pacific in its energy export strategy.

Glossary

Prosumer

The idea that citizens are not just consumers, but that they also have potential to be energy producers, particularly of renewable energy. The prosumer can play an active role in the generation of energy, energy storage and demand side management (e.g. through smart meters and equipment to monitor, control and operate energy usage) (Roberts, Bodman et al. 2014).

Energy citizenship

The idea that through triggering a wider consciousness among citizens and communities of energy issues, these people can contribute more broadly to the energy transition. This term includes ideas like the prosumer and community energy, but it also goes further and includes citizens beginning to participate in owning or operating distribution grids (e.g. through co-operative and/or municipal ownership/management), and in supply (not just producing and exporting electricity to the grid, but also supplying end of the line customers – either through participation in wholesale energy markets or through direct supply) and energy service companies (ESCOs). This concept recognises that as a precondition for engaging in these roles citizens need to be provided with the capacity to become knowledgeable participants and to exercise their rights to effectively participate in the political dimension of energy policy (Roberts, Bodman et al. 2014).

Energy access and reliability

More commonly referred to as ‘energy security’ at a global level, we have used the term ‘energy access and reliability’ because in Australia ‘energy security’ is used to denote the provision of energy with minimum disruptions to supply.

For ‘energy access and reliability’ we are using the International Energy Agency’s definition of ‘energy security’, being “the uninterrupted availability of energy sources at an affordable price”. Energy security has many dimensions: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Short-term energy security focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance. Lack of energy security is thus linked to the negative economic and social impacts of either physical unavailability of energy, or prices that are not competitive or are overly volatile.

Power Purchase Agreements (PPA)

A PPA is a contract between two parties, one who generates electricity (the seller) and one who seeks to purchase electricity (the buyer). The buyer may be a corporation, a local government, a local business or a school, etc. PPAs are usually crucial in obtaining renewable energy project finance.

Utility-scale

The Australian Energy Market Operator (AEMO) treats any installation generating over 30 MW as 'semi-scheduled'. General consensus is that 'utility-scale' is between 30 MW and 600 MW.²⁹ 30 MW would equate to a solar farm of around 100,000 solar panels. Current wind turbines can now generate between 2 and 4 MW each, so a utility scale wind farm would consist of between 9 and 15 large wind turbines. Another way to think about utility scale is the land area required. Wind turbines require considerable spacing to function, so a 30 MW installation would require approximately 350ha, while a 30 MW solar installation would require approximately 50 ha.

Feed-in policy (feed-in tariff or feed-in premium)

A policy that typically guarantees renewable generators specified payments per unit (e.g., dollars per kWh) over a fixed period. Feed-in tariff (FIT) policies also may establish regulations by which generators can interconnect and sell power to the grid. Numerous options exist for defining the level of incentive, such as whether the payment is structured as a guaranteed minimum price (e.g., a FIT), or whether the payment floats on top of the wholesale electricity price (e.g., a feed-in premium).

²⁹ See AEMO 'Participant categories in the National Energy Market': http://www.aemo.com.au/-/media/Files/Electricity/NEM/Participant_Information/Participant-Categories-in-the-NEM.pdf

References

ACIL Allen Consulting for ARENA (2018), Opportunities for Australia from Hydrogen Exports
<https://arena.gov.au/assets/2018/08/opportunities-for-australia-from-hydrogen-exports.pdf>

Australian Bureau of Statistics, Census of Population and Housing: Reflecting Australia - Stories from the Census 2016 (28 June 2017)

Australian National University (2018), Media Release: Energy policy needs to board the renewable energy train, Canberra: Australian National University
<http://www.anu.edu.au/news/all-news/energy-policy-needs-to-board-the-renewable-energy-train>

Baldwin, K., et al. (2018), Media Release: Australia's renewable energy industry is delivering rapid and deep emissions cuts
<http://energy.anu.edu.au/files/Australia%27s%20renewable%20energy%20industry%20is%20delivering%20rapid%20and%20deep%20emissions%20cuts.pdf>

Barrington-Leigh, C., & Ouliaris, M. (2017) 'The renewable energy landscape in Canada: A spatial analysis' Renewable and Sustainable Energy Reviews

Blakers, A., et al. (2012) 'Asia Pacific Super Grid – Solar electricity generation, storage and distribution' Green, Vol2 Issue 4

Bruce, S. et al. (2018) National Hydrogen Roadmap. CSIRO: Australia

Buchanan, E. (2018) 'Fueling Asia: Russia recalibrates its foreign energy strategy. ANU College of Asia and the Pacific', Paradigm Shift
<http://asiapacific.anu.edu.au/energysecurity>

Campbell, D. and Hunt, J. (2013) 'Achieving Broader Benefits from Indigenous Land Use Agreements: Community Development in Central Australia' Community Development Journal 48:197

Cameron, E., & Levitan, T. (2014) 'Impact and benefit agreements and the neoliberalization of resource governance and indigenous - State relations in Northern Canada' Studies in Political Economy, Vol 93, 25–52

Chambers, I., et al. (2018) 'Australia's north, Australia's future: A vision and strategies for sustainable, economic, ecological and social prosperity in northern Australia' Asia Pacific Policy Studies 5: 615-640.

Climate Council of Australia (2017) Renewables Ready: States leading the charge Melbourne: Climate Council Australia

Climate Council of Australia (2018) Renewables and Business: Cutting prices and pollution Melbourne: Climate Council Australia

Climate Council (2018) Fully charged: Renewables and storage powering Australia
Melbourne: Climate Council Australia.

Community Energy Association and Quest (2015) Community Energy Planning: Getting to implementation in Canada,
<https://www.ourcommons.ca/Content/Committee/421/FINA/Brief/BR8398218/br-external/Community%20Energy%20Planning-Getting%20to%20Implementation%20in%20Canada-e.pdf>

Commonwealth Government (2015) Our North, Our Future: White Paper on Developing Northern Australia <https://www.industry.gov.au/data-and-publications/our-north-our-future-white-paper-on-developing-northern-australia>

Cousins, D. and J. Nieuwenhuysen (1984) Aboriginals and the Mining Industry: case studies of the Australian experience, Sydney: Allen & Unwin

Department of Industry, Geoscience Australia and the Bureau of Resources and Energy Economics (2010) Australian Energy Resource Assessment Canberra: Government of Australia

Diesendorf, M. and B. Elliston (2018) 'The feasibility of 100% renewable electricity systems: A response to critics' Renewable and Sustainable Energy Reviews 93: 318-330

Future Smart Strategies (2018) Lithium Valley: Establishing the case for energy metals and battery manufacturing in Western Australia Perth: Regional Development Australia.

Harnmeijer, A., et al. (2012). A Report on Community Renewable Energy in Scotland, Edinburgh: Edinburgh Centre for Carbon Innovation.

Henderon, C. and C. Sanders (2017). Powering reconciliation: A survey of Indigenous participation in Canada's growing clean energy economy. Ottawa, Canada: Lumos Clean Energy Advisers.

Holmes à Court, S. (2018) 'NSW's largest windfarm highlights power of community investment' The Guardian Australia

Kahn, K. and C. O'Faircheallaigh (2010) Kimberley LNG Precinct Strategic Assessment Indigenous Impacts Report Volume 3 Broome: Kimberley Land Council

Karanasios, K. and P. Parker (2018) 'Tracking the transition to renewable electricity in remote indigenous communities in Canada' Energy Policy 118: 169-181

Kerr, S., et al. (2017) 'Understanding community benefit payments from renewable energy development' Energy Policy **105**: 202-211

Kimberley Development Commission (2015) 2036 and Beyond: A Regional Investment Blueprint for the Kimberley Perth: Government of Western Australia

Krupa, J. (2012) 'Identifying barriers to aboriginal renewable energy deployment in Canada' Energy Policy 42: 710-714

- Krupa, J., et al. (2015) 'Participatory and multi-level governance: applications to Aboriginal renewable energy projects' Local Environment 20(1): 81-101
- Langton, M. and O. Mazel (2008) 'Poverty in the Midst of Plenty: Aboriginal People, the 'Resource Curse' and Australia's Mining Boom' Journal of Energy and Natural Resources Law 26(1): 31-65
- Langton, M. 'The Resource Curse' (2010) Griffith Review 28
- McHarg, A. (2016) 'Community Benefit Through Community Ownership of Renewable Generation in Scotland: Power to the People?' Sharing the costs and benefits of energy and resource activity: legal change and impact on communities. Oxford: Oxford University Press.
- Australian Government and Minerals Council of Australia (2011) Minerals Industry: Indigenous Economic Development Strategy 2011-2018
- Morris, C. (2016) 'Why people come together in community projects' Energy Transition: The German Energiewende <https://energytransition.org/2016/03/why-people-come-together-in-community-projects/>
- Newell, P. and D. Mulvaney (2013) 'The political economy of the 'just transition'' The Geographic Journal 179 (2)
- Northern Territory Government (2018) 'Climate Change: Mitigation and adaptation opportunities in the Northern Territory (Discussion Paper)' Darwin: Northern Territory Government
- O'Faircheallaigh, C. and J. Twomey (2010) Kimberley LNG Precinct Strategic Assessment - Indigenous Impacts Report Volume 2 - Traditional Owner Consent and Indigenous Community Consultation: Final Report Broome: Kimberley Land Council
- O'Neill, L. (2019 forthcoming) 'The Bindanbur Bombshell: The True Traditional Owners of James Price Point and the Politics of the Anti-Gas Protest' University of New South Wales Law Journal 42(2)
- Phillips, R., Rose, B. and L. Bunn (2018) Kimberley Clean Energy Roadmap. Broome: Environs Kimberley, The Wilderness Society and the Lock the Gate Alliance.
- Renewable Energy Policy Network for the 21st Century (2016) Renewables 2016 Global Status Report. Paris: REN21 Secretariat
- Rezaei, M., & Dowlatabadi, H. (2016) 'Off-grid: community energy and the pursuit of self-sufficiency in British Columbia's remote and First Nations communities', Local Environment 21(7)
- Roberts, J., et al. (2014) Community Power: Model Legal Frameworks for Citizenowned Renewable Energy. London: Community Power and ClientEarth

Rystad Energy (2018) Press release: Radical turnaround in utility-scale solar economics in Australia <https://www.rystadenergy.com/newsevents/news/press-releases/turnaround-utility-scale-solar-economics-australia/>

Scamبارy, B. (2013). My Country, Mine Country: Indigenous people, mining and development contestation in remote Australia. Canberra: CAEPR & Australian National University Epress

Simshauser, P. (2018) 'Garbage can theory and Australia's National Electricity Market: Decarbonisation in a hostile policy environment', Energy Policy 120

Sheehan, P. and R. G. Gregory (2013) 'The Resources Boom and Economic Policy in the Long Run', Australian Economic Review 46 (2)

Sovacool, B. K and M.H. Dworkin (2014) Global energy justice: problems, principles, and practices. Cambridge: Cambridge University Press

Sovacool, B. K. (2009) 'Rejecting renewables: The socio-technical impediments to renewable electricity in the United States', Energy Policy 37(11)

Sovacool, B. K. and L. C. Bulan (2011) 'Behind an ambitious megaproject in Asia: the history and implications of the Bakun hydroelectric dam in Borneo', Energy Policy 39 (9)

Taylor, J. and B. Scamبارy (2005) Indigenous People and the Pilbara Mining Boom: A Baseline for Regional Participation, CAEPR Research Monograph No. 25, Canberra: ANU E Press

Trebeck, K.A. (2007) 'Tools for the Disempowered? Indigenous Leverage Over Mining Companies' Australian Journal of Political Science 42 (4)

Vaughan A (2018) 'EU raises renewable energy targets to 32% by 2030', The Guardian Australia (14 June 2018)

Wang, C, Daragville, R and Jeppesen, M (2018) 'Power system decarbonisation with Global Energy Interconnection – a case study on the economic viability of international transmission network in Australia' Global Energy Interconnection, Vol 1, No. 4.

White, E and Nelson, R. (2018) 'What happens to small towns whose water becomes big business for bottled brands?' The Conversation (17 May 2018)