NORTHERN TERRITORY POLICY OVERVIEW: FIRST NATIONS AND CLEAN ENERGY

Executive Summary

Land rights, native title and renewable energy resources

Approximately 50% of the terrestrial area and 85% of the coastline of the NT is Aboriginal freehold land held under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (*Land Rights Act*).

There have also been a number of determinations of native title, and native title rights and interests exist over an additional 25% of the NT. A further 3.9% of the NT is covered by registered native title claims.

Land rights and native title rights and interests could extend over 80% of the NT when the claims process is completed.

The NT has some of the strongest solar radiation in the world and there is clearly much potential to develop clean energy projects on First Nations titled lands. There is also potential to develop projects for the extraction of critical minerals essential for the transformation to clean energy technologies.

Energy landscape in the NT

The NT energy landscape consists of different networks and systems, each influenced by geography, regulatory framework and size. There are three regulated grids, including the Darwin–Katherine interconnected system, the Tennant Creek network and the southern network (Alice Springs). Outside of these regulated grids there is a mix of regulated minor centres, non-regulated remote communities, licensed self-generating commercial centres and small un-licensed isolated power supplies that include cattle stations, roadhouses and outstations.

The key entities playing a role in the provision and regulation are Territory Generation (electricity generation), the Power and Water Corporation (network provider and system and market operator), Jacana Energy (retailer), the Utilities Commission of the Northern Territory (regulator) and the Office of Sustainable Energy (energy policy coordination).

Outside of the three regulated service areas, the NT Government subsidiary Indigenous Essential Services (IES) provides electricity to more than 39,000 customers residing in around 5,800 homes across 73 remote communities and town camps.

Prepay metering, First Nations, social housing and energy

There are significant energy justice issues for First Nations people in the NT, especially for people living in social housing and remotely.

First Nations residents in social housing experience barriers accessing rooftop solar, and in general pay higher prepaid tariffs for energy. Prepay customers are known to experience regular so-called ‘self-disconnections’ (being disconnections from the power supply when credit runs out).

Customers living in remote communities also do not receive the same consumer protections (e.g. steps to make disconnection an option of last resort) in relation to electricity as those living in the regulated service areas (i.e. Darwin-Katherine, Tennant Creek, Alice Springs).

This unusual prepay metering arrangement has long precluded the option of connecting rooftop solar and there are no applicable standard application forms for connection or export feed-in tariffs (either premium or standard). Connection agreements are a fundamental prerequisite for accessing clean energy and effectively govern who and where benefits in energy transition.

Renewable energy projects

The NT Government has committed to a 50% renewable energy target by 2030 and is working on a strategy to deliver 70% renewable electricity generation in remote communities (through the NT Remote Power System Strategy).

The NT Government supports trials of hydrogen technology and is keen to champion renewable hydrogen investment as part of the Territory's transition to renewables.

There are numerous small and large-scale renewable energy projects at various stages of completion in the NT. The following are examples of projects currently in development that interact with First Nations interests at various levels (individual/family, community and mega-scale).

- In **Alice Springs** 15 public housing tenants are part of an NT Government trial program (a rooftop plus storage trial for public housing).

- In Borroloola, the **Ngardara 'Sun' Project** is a collaboration between the Borroloola community and Original Power to conduct a feasibility study to design and build their own solar microgrid. This will reduce reliance on the town's ageing and polluting diesel generators, while providing a model for community ownership of power generation assets.

- **Sun Cable** is a standout mega project in remote Australia. (This project is currently in voluntary administration as it looks to resolve operational issues and business priorities. As originally proposed it will be both a public utility and an exporter.)

First Nations-led community energy projects

Across the NT there are likely many potential sites that could be viable for community-scale First Nations-led renewable energy systems.

When commencing a community energy project there are a range of factors that should be considered, including that the success of community scale renewable energy development will depend on buy-in and support from community and Traditional Owners. Determining the viability of community-level projects will also come down to a range of factors including the suitability or availability of grid connection, land availability, construction costs and offtake agreements.

Obtaining the right advice will be critical to progress projects, including access to legal, commercial, political, and financial capital to 'buy into' larger projects.

Introduction

The NT was acquired from South Australia by the Commonwealth in 1910 and became self-governing in 1978, although the Commonwealth exercises control of public policy in areas including Aboriginal land rights. Over 30% of the NT population are Aboriginal, as are six of 25 members of the NT Legislative Assembly.

The NT is highly fiscally dependent on the rest of Australia being allocated $3.6 billion of GST revenue by the Commonwealth Grants Commission in 2021–22, being 4.7% of the total to 1% of the population. This is mainly due to the high cost of delivering services in remote areas, the population's relatively high degree of service needs, as well as low revenue raising capacity.

The NT is highly solar prospective, with more limited wind resources.

Without a current transmission line to the major sites of electricity demand in Queensland or South Australia, the NT is unlikely to play a major role in decarbonising the population-dense National Energy Market (NEM) on Australia's eastern seaboard by 2050.

Instead, the NT's contributions to decarbonisation likely lie in generating electricity for local consumption through projects in relative proximity to the local demand centres near Darwin, and co-located with present and future large energy users such as critical minerals production, datacentres, mining and defence projects.

Other possibilities involve the potential export of renewable electricity, green hydrogen or commodities processed with clean energy to Asia. (The technological and economic underpinnings of such ambitions are promising yet still to be proven.)

The recently updated Closing the Gap Dashboard information repository produced by the Productivity Commission shows that across almost all targets, disparities between Indigenous and non-Indigenous Territorians are not declining and in some cases are increasing. Addressing this inequality must remain a core focus of policy in the NT. The Census shows that First Nations people in the NT experience the greatest disadvantage compared to First Nations people in all other state and territory jurisdictions, and that this gap in outcomes has been widening in the NT over the last decade.

There is also emerging evidence from the Bureau of Meteorology and CSIRO that the NT is heating quite rapidly due to the impacts of climate change. This will place added pressure to reduce emissions and ensure access to affordable sources of renewable energy in the future.

A. Jurisdictional First Nations data and information for the NT

What is the First Nations population for the NT and what are the demographics?

The NT's First Nations population was estimated at 77,000 in 2021, being 31% of the total NT population of 250,000. This is an unusual population on several grounds.

Compared to the rest of Australia, the NT has by far the highest proportion of Indigenous people (8 times the national proportion of 4%).

This population has grown threefold in the last 50 years. Because most of this population increase arises from births rather than identity change, and because of interstate migration, the NT's First Nations population is growing more slowly than that of other states and territories.

The NT First Nations population is young, with a median age of 26, but is slightly older than the First Nations population in the rest of the country. This is mostly because of lower rates of mixed Indigenous and non-Indigenous partnering in the NT, rather than due to differences in the number of children that people have. First Nations people in the NT also die far younger than First Nations people in the largest states New South Wales and Queensland (median age at death of 58, compared to 64 and 63 respectively in 2021).

The population has a geographical distribution that makes the delivery of standard services, including energy, extremely challenging.

Over 70% of the First Nations population lives outside urban localities in an estimated 600 plus places, with many small homelands only being occupied on a seasonal basis (in part because of the absence of essential services including energy, water, education, health and other services).

What are the prominent First Nations institutions in the NT?

The NT has four Aboriginal land councils (Northern Land Council (NLC), Central Land Council (CLC), Tiwi Land Council (TLC) and the Anindilyakwa Land Council (ALC)) that represent Traditional Owners and have para-governmental land management functions under the *Aboriginal Land Rights Act 1976* (Cth) (*the Land Rights Act*). The NLC and CLC are also native title representative bodies for the purposes of the *Native Title Act 1993* (Cth) (*the Native Title Act*).

These statutory authorities are exceptional in Australia in terms of the strength of the rights they administer on behalf of Traditional Owners and native title holders, their political leverage and financial resourcing, and the proportion of the NT's land over which they have some governmental jurisdiction. The land councils also administer native title rights and interests under the *Native Title Act*, with a number of native title holders also establishing Prescribed Bodies Corporate (PBCs) to manage their own native title rights and interests.

The statutory Aboriginal Areas Protection Authority established under NT law which has authority to protect sacred sites is relatively powerful by Australian standards. Since the abolition of community councils in 2008, residents of Indigenous communities have had somewhat distant representation through local government 'super shires' at the regional level.

The lead social policy advocacy body for First Nations interests in the NT is the Aboriginal Peak Organisations Northern Territory (APO NT), being an alliance of the Aboriginal Medical Service Alliance Northern Territory (AMSANT), North Australian Aboriginal Justice Agency (NAAJA), the four land councils, Aboriginal Housing NT (AHNT) and the Northern Territory Indigenous Business Network (NT IBN). The Northern Territory Government has agreed to partner with APO NT in implementing its commitments under the National Agreement on Closing the Gap.

These peak bodies represent dozens of smaller First Nations organisations.

First Nations organisations also operate in sectors such as employment services, homeland resource agencies, independent schools, conservation and community-based ranger programs, royalty receiving corporations, and so on. The Office of Regulator of Indigenous Corporations lists

681 currently registered corporations in the NT, with many other First Nations organisations also existing under other regulatory and non-regulated frameworks.

What rights and interests to land and waters do First Nations hold in the NT? Are there First Nations land / native title claims remaining to be resolved? What opportunities exist to develop projects on the tenure held by First Nations?

Land granted under the *Land Rights Act* provides Traditional Owners with a strong form of inalienable tenure, providing a high level of control over access and resource use by others. Approximately 50% of the NT's terrestrial area and up to 85% of its coastline is covered by Aboriginal freehold under the *Land Rights Act.*

There are also native title rights and interests to a further 25% of the NT (at 1 March 2023) mainly held by native title holders as non-exclusive (shared) possession over pastoral leases. There are a further 18 registered claims over 3.9% of the NT.

Land rights, and native title rights and interests, could extend over 80% of the NT when the claims process is completed.

Land holders under the *Land Rights Act* hold a veto right over mineral exploration and thus extraction, and similarly strong rights regarding other development on their lands. Traditional Owners of areas covered by native title rights—typically pastoral leasehold stations—have much weaker legal rights, generally limited to consultation regarding future developments, as well as non-exclusive access and usage rights.

There is much potential to develop clean energy projects on First Nations title lands as maps of solar irradiation clearly show. There is also potential to develop projects for the extraction of critical minerals essential for the national transition to renewables.

Does the Commonwealth or Territory government provide funding or support to First Nations representative organisations in any way, and specifically for renewable energy outcomes?

The four NT land councils (NLC, CLC, TLC and ALC) shared administrative funding of $137 million in 2021–22 paid from the Aboriginals Benefit Account (ABA) which was originally set up in 1976 under the Aboriginal Land Rights (Northern Territory) Act 1976. The ABA earns its income from the payment of mining royalty equivalents. This level of funding for land management by land councils is incomparable in the Australian context.

The NT Aboriginal Investment Corporation (NTAIC) was established in November 2022 using ABA funds, with aims of promoting self-management, economic self-sufficiency, and social and cultural well-being of Indigenous people living in the NT. Its functions include investing to advance these purposes. The NTAIC is currently developing its mandatory strategic investment plan (SIP) outlining its priorities and objectives for a period of three to five financial years. It is subject to an investment limit, requiring the Minister's agreement for investments over $100 million. The NTAIC operates as a charitable organisation with a grants program, and as a long-term investment manager. Both functions could potentially support First Nations renewable energy outcomes.

The land councils and other significant community-controlled organisations are also shareholders in a range of long-running private companies that hold charitable investment trusts, reportedly with considerable assets holdings (e.g. Centrecorp Pty Ltd, and North Australian Aboriginal

Corporation). These private equity holdings could be leveraged to provide financing for Aboriginal investments in renewable energy projects.

The North Australia Infrastructure Fund (NAIF) set up in July 2016 aims to provide debt or equity project finance for development or enhancement of infrastructure in northern Australia. NAIF finance is provided to infrastructure projects that meet NAIF's Investment Mandate that can stimulate local economies, enhance productivity, and generate public benefit. The fund's scope includes energy. It supports projects are of public benefit, are in northern Australia, exhibit a capacity to repay loans (for debt finance), generate a return to Government (for equity investments), have an Indigenous engagement strategy, and demonstrate potential to contribute to wider economic benefits.

The 2022-23 Budget increased the allocation to the NAIF by $2 billion to $7 billion.

Although not specific just to the NT, funding of $83.8 million was announced in the 2022–23 Federal Budget for a First Nations Community Microgrids Program. This program is being administered by the Australian Renewable Energy Agency (ARENA).

The Australian Government's new $600 million Growing Regions Program will open for expressions of interest on 5 July 2023. This program will invest in infrastructure and community projects across regional Australia. Local government entities and not-for-profit organisations can apply for grants of between $500,000 and $15 million through the program.

Other national sources of potential funding for renewable energy outcomes in the NT include Indigenous Business Australia and the Indigenous Land and Sea Corporation.

A description of the levers, capacities and capabilities required to negotiate an equitable benefit for renewable energy projects

The larger renewable projects in the NT are likely to be solar farms that can extend over square kilometres of First Nations-titled land.

A critical issue in negotiations will be if First Nations landholders are in favour of any proposed development or oppose it. Clearly on *Land Rights Act* land, Traditional Owners will be able to trigger 'right of consent' provisions which alongside well-resourced land councils with a critical mass of expertise (and expert strategic and commercial advice), should facilitate equitable agreement making.

The situation on land where native title (almost all non-exclusive possession) has been determined provides an opportunity to negotiate an Indigenous Land Use Agreement (ILUA), although there will be no legal right of veto for native title holders. Transmission infrastructure will likely fall within s 24KA of the *Native Title Act* which deals with facilities for services to the public (and so the same procedural rights apply as an ordinary title holder, so if over a pastoral lease then the same rights as pastoral lessees). Section 24H of the *Native Title Act* (airspace) may also apply for wind farms.

In the NT, there is a risk that renewable energy proponents will seek to develop projects on land where the legal rights of Traditional Owners are weakest. For example, the move of the Sun Cable Australia-Asia Power Link proposal, from originally being situated in an Aboriginal Land Trust (under the *Land Rights Act*) near Tennant Creek to a pastoral lease (Powell Creek station) where native title non-exclusive possession has been determined, is consistent with a proponent

operating in response to this incentive, but the reasons for this decision have not been made public.

There is also a potential conflict of interest that will need to be managed between Traditional Owner groups and the potential investment vehicles described above. Specifically, land councils may consider financing renewable energy projects in the NT through vehicles such as NTAIC. Land councils also represent Traditional Owners in negotiations regarding projects of these sorts on their customary lands. This potential conflict of interest should be carefully managed.

Critical minerals extraction may also be proposed on First Nations lands in the NT. Here the *Land Rights Act* once again provides strong and well-understood *de facto* property rights. Given the uneven distribution of mineral deposits, proponents are less able to move projects to areas where land tenure offers weaker rights for Traditional Owners.

What are key and recent issues relating to economic development and First Nations in the NT?

The Closing the Gap Dashboard recently updated by the Productivity Commission indicates that only 34% of Indigenous adults aged 25–64 years are in employment (compared to 86% of non-Indigenous people in the NT and 56% of Indigenous people nationally). The outcome of Target 8 – to increase the proportion of Indigenous people aged 25-64 who are employed to 62% by 2031 - explains to a great extent the extent of poverty experienced by First Nations in the NT with an estimated 50% of the NT's First Nations population living in households below the poverty line.

The election in May 2022 of a new Federal Government with legislated national and global commitments to decarbonisation, transition to clean energy and biodiversity conservation, opens 'new' economic opportunities for First Nations people, especially those living remotely on First Nations-titled lands who experience the highest rates (even within the NT) of socioeconomic disadvantage.

What do we know about existing relationships between First Nations and the renewable energy sector in the NT?

The renewable energy sector operates at several levels in the NT, including the provision of rooftop solar to individual homeowners. Power and Water Corporation (PAWC) invests in infrastructure for remote communities and large and mega-projects.

Sun Cable is the standout mega project in remote Australia at present. (This project is currently in voluntary administration as it looks to resolve operational issues and business priorities. As originally proposed, it will be both a public utility and an exporter. The NLC is in the process of negotiating a land use agreement over the solar farm site at Powell Creek, and the transmission line easement and onshore and export facilities in the Darwin region with a diverse set of landowners.).

Alice Springs has often led the way in renewable energy, through programs such as Solar City, as well as through research, studies, and technical solutions developed by a range of agencies, such as the Centre for Appropriate Technology (CfAT), Ekistica, Desert Knowledge Australia (DKA), CSIRO, the Alice Springs Town Council, Charles Darwin University (CDU) and private interest groups.

To assist the Territory achieve its commitment to a 50% renewable energy target by 2030, the NT Government established the Intyalheme Centre for Future Energy which is home to the largest multi-technology solar demonstration facility in the southern hemisphere located in Alice Springs at Desert Knowledge Australia's Solar Centre.

The flagship project for Intyalheme is the Alice Springs Future Grid Project. Future Grid is a whole-of-systems project considering how Alice Springs can achieve 50% renewable energy by 2030. It involves multiple stakeholders with the aim to identify and overcome barriers to further renewable energy penetration in the southern electricity system, the Alice Springs network.

Are there energy security/access/justice issues for First Nations in the NT? If so, what are they and why do they exist?

There are significant energy justice issues for First Nations people in the NT and especially for people living in social housing and remotely.

First Nations residents in social housing experience barriers accessing rooftop solar and in general pay higher prepaid tariffs for energy (see Table 1) which financially penalise high-energy households—those households that are variously overcrowded, thermally inefficient and/or poorly maintained within regions subject to both hot and cold temperature extremes. As a general rule, remote living Indigenous Territorians who are the most socioeconomically disadvantaged section of the NT pay the highest tariffs for electricity.

Table 1: Power tariffs in the NT

Power tariffs in the NT	
Standard meter 27.373 cents per kilowatt hour plus fixed charge of 53.96 cents per day Amount (GST inclusive)	**Prepayment meter** 30.0941 cents per kilowatt hour includes a fixed daily charge Amount (GST inclusive)

Since the 1970s there has almost been an expectation that people who live most remotely on homelands will either have no access to electricity or will have access to often unreliable hybrid systems including diesel generators that can be expensive to operate.

The under-provision of affordable energy for First Nations people in the NT contributes to and exacerbates disadvantage and contributes to poor health, high morbidity and premature death rates that far exceed those for the general population. As case studies have demonstrated, it is becoming clear that even where people might invest in rooftop solar, they will struggle to gain access to the grid and face installation barriers.

B. Jurisdictional renewable energy policies and information in the NT

Overview of the energy landscape in the NT

The NT energy landscape consists of a number of different networks and systems, each influenced by geography, regulatory framework and size.

In summary these are:

- Three regulated grids including the Darwin–Katherine interconnected system, the Tennant Creek network and the southern network (Alice Springs)
- Regulated minor centres include Yulara, Timber Creek, Borroloola, Nhulunbuy and Ti Tree
- Non-regulated remote communities
- Licensed self-generating commercial centres such as mine sites and tourist resorts
- Small unlicensed isolated power supplies that include cattle stations, roadhouses and outstations.

The first and largest of the three regulated networks is the northern network, known as the Darwin-Katherine Interconnected System (DKIS) which services approximately 150,000 people, including in Batchelor, Adelaide River, Pine Creek, Mataranka and Berrimah. The DKIS is currently transitioning toward being a competitive electricity market. The second (and smallest) of the regulated networks is Tennant Creek, which services approximately 7,000 people in and around the town of Tennant Creek, at the intersection of the Stuart and Barkly Highways. The third regulated network is the southern electricity system, servicing approximately 28,000 customers in the Central Australian town of Alice Springs.

Who plays a role in the provision and regulation of energy in the NT for consumers?

Electricity Generation ***Territory Generation***	Territory Generation is the largest electricity generator in the NT. It owns 596 megawatts (MW) of installed capacity and contracts an additional 5.1 MW from independent power producers, including 4 MW of solar from Uterne solar station in Alice Springs. Territory Generation owns and operates eight power stations and 65 generating units, including a battery energy storage system. These are located at Channel Island, Weddell and Katherine (in the Darwin-Katherine interconnected system); Tennant Creek; Ron Goodin/Sadadeen Valley and Owen Springs (the Alice Springs power system); Kings Canyon and Yulara. Territory Generation holds a generation licence for these three major networks which are energised by gas-fired generators - either combined cycle gas turbine/steam systems, open cycle turbines or dual-fuel engines.
Network Provider *Power and Water Corporation*	Power and Water Corporation (PAWC) is the sole licensed network provider for both regulated networks and non-regulated networks in the NT. It manages the local network of electricity poles and wires. It also holds generation and retail licences for the non-regulated networks including the IES communities, Jabiru, Nhulunbuy, Alyangula and the McArthur River Mine. PAWC provides services to remote Indigenous communities via its not-for-profit subsidiary Indigenous Essential Services.
Retailer ***Jacana Energy***	Jacana Energy is the primary shopfront, or retailer for residential customers within the regulated networks of Darwin-Katherine, Tennant Creek, Alice Springs, as well as a small number of the non-regulated networks (Daly Waters, Borroloola, Timber Creek, Elliot, Newcastle Waters, Yulara, Ti-Tree and Kings Canyon).

System and Market Operator ***Power and Water Corporation***	PAWC is the Northern Territory Electricity System and Market Operator and is responsible for managing electricity markets and power systems across the NT to ensure that all Territorians have access to affordable, secure and reliable energy. This means the network owner, PAWC, often also doubles as the system controller, giving it a lot of power in decision-making and operation.
Regulator ***Utilities Commission of the Northern Territory***	The local electricity regulator is the Utilities Commission of the Northern Territory. The Utilities Commission seeks to protect the long-term interests of consumers of services provided by regulated industries with respect to price, reliability and quality.
Energy Policy Coordination ***Office of Sustainable Energy***	The NT Office of Sustainable Energy coordinates energy policy and the implementation of renewables across government. Priority tasks include developing strategies for advancing the government's renewable energy target of 50% by 2030 and realising opportunities for the creation of low cost, reliable, clean energy.
Pricing ***NT Pricing Order***	The NT Pricing Order sets the maximum electricity price that electricity retailers can charge households and small businesses in the NT and applies a Uniform Tariff Policy across the Territory. This means that customers pay the same price regardless of their location and the cost of supplying electricity to them. The government-owned electricity suppliers (PAWC and Jacana Energy) have access to a Community Service Obligation (CSO) which subsidises the cost of generation within higher cost networks.

Services outside of the three regulated service areas: homelands and town camps and prepay metering

Outside of the three regulated service areas, the NT Government through its subsidiary Indigenous Essential Services provides electricity to more than 39,000 customers residing in around 5,800 homes across 73 remote communities and town camps.

Customers living in these remote communities do not receive the same protections in relation to electricity as those living in the regulated service areas (i.e. Darwin-Katherine, Tennant Creek, Alice Springs).

Although customer numbers by meter type (both post-pay and prepay) are not publicly available at the township level, prepay is typically the default payment system for many First Nations public housing residents in the NT. Estimates indicate around 9,000 First Nations households are either mandated or electing to use prepaid metering in remote communities, including approximately 2,000 households residing in the larger networks of Darwin, Katherine, Tennant Creek and Alice Springs.

In the unregulated networks, generation is typically provided by diesel generators, with the incremental integration of increasing shares of renewable energy, typically from centralised solar farms constructed close to the powerhouse and aimed at reducing fuel burn and carbon emissions and decreasing the cost of CSO's paid to the provider.

Further, there are approximately 10,000 people living across 2,400 homes in more than 500 homelands for whom service levels vary significantly by location, and access to consumer protections are absent. These outstations/homelands and remote communities are predominantly energised by diesel gensets with increasing shares of renewable energy sourced from solar and wind.

What are the key policies, programs and initiatives relating to renewable energy in the NT

Solar

The NT has some of the strongest solar radiation in the world and the NT government has committed to 50% renewables by 2030 (up from 10% in 2020).

Government, industry, community and First Nations organisations have all been involved in leveraging the opportunity of renewable energy and have each contributed to a rich local history of clean energy innovation and development, across scales from small to large, both on and off-grid.

At the rooftop level the strong solar resource means that an average household system (sized 6.6 kW) can generate up to 34 kwh per day in the NT, which can greatly reduce household energy bills.

The early 'premium' feed-in tariff (FiT) of 26.65 c/kWh that some Territorians received, subsidised by the NT Government, was successful as an incentive to boost solar uptake. The Territory government has recently been through a process of reforming renewable energy incentives in the NT. These tariffs need to be set to facilitate the uptake of renewable energy while avoiding inequitable supply costs for customers.

The government owned electricity retailer, Jacana Energy has announced changes to the solar feed-in tariff rates and currently offers a standard feed-in-tariff for post-pay customers who export their excess energy during the day back to the grid at a rate of 9.13 c/kWh.

The Government is now offering incentives to encourage homes and businesses to invest in energy storage (batteries) to support system security, stability and resilience within the three main NT electricity networks.

Wind (onshore and offshore)

While the NT has an abundance of solar energy resources, particularly in regions south of the seasonal monsoon cloud cover, opportunities for wind and hydro are more limited compared to other parts of the country.

Renewable energy and industry in the NT - the NT Renewable Hydrogen Strategy

The Territory Government supports trials of hydrogen technology and is keen to champion renewable hydrogen investment as part of the Territory's transition to renewables. The government's Renewable Hydrogen Strategy outlines the Territory's competitive advantages and

how it will leverage these to secure private sector investment to be a centre of hydrogen technology research, production and use in Australia.

The Territory Government aims to de-risk establishment of a renewable hydrogen zone and progress development precincts, such as the Middle Arm Sustainable Development Precinct, so as to complement the Hydrogen Master Plan by establishing the physical environment and ecosystem required for private sector investment in hydrogen infrastructure. The Hydrogen Master Plan is designed to be a dynamic long-term planning document, with activities delivered in two parallel parts:

> ***Part 1: Laying the foundations****: to build the Territory's competitive advantage and identify areas that require further development to optimise government and private sector investment. The Territory will focus on building the foundations to support the growth of a local renewable hydrogen industry and create opportunities for the early adoption of renewable hydrogen as a fuel source.*
>
> ***Part 2: Scaling to export****: to be based on a detailed assessment of the international hydrogen market and supply chains. This reflects the nascent and developing nature of the renewable hydrogen industry and is intended to provide opportunity for the Territory to consider the alternative development pathways available to scale to export which could emerge as the industry and technology matures.*

What renewable energy projects are in the pipeline in the NT?

The Territory government is working on a strategy to deliver 70% renewable electricity generation in IES remote communities. Delivery of the strategy is also an action under the government's Climate Change Response and a recommendation of the Territory Economic Reconstruction Commission to transition IES communities to renewable-based systems by 2030. The main source of electricity in IES communities is currently diesel-fired generation. The strategy aims to reduce energy-related diesel consumption in these communities whilst improving energy security and reducing emissions.

The NT Remote Power System Strategy is intended to be a framework to deliver renewable energy systems to the 73 remote communities supplied by IES. The Strategy is progressing detailed analysis of each IES community to map the optimal renewables development pathway by considering design, existing assets and future demand.

Other projects of note include:

- The NT Government has invested $6.1 million towards the 1.1 MW solar PV and 3 MWh battery at the Wurrumiyanga Solar and Energy Storage Pilot Project in the Tiwi Islands. It is expected that the project will achieve about 50% diesel fuel displacement.

- Singapore-based Sun Cable is seeking to develop the Australia-Asia Power Link. The project is a 17–20 GW solar farm and 36-42 GWH energy storage project with a solar and battery complex proposed for a 12,000-hectare site in the Barkly region. The NT Government passed the *Solar Project (Australia-Asia Power Link) (Special Provisions) Act* on 2 June 2022 in order to streamline regulatory processes. As noted above, this project is currently in voluntary administration as it looks to resolve operational issues and business priorities by mid 2023.

What renewable energy projects have been concluded?

There are several small and large-scale renewable energy projects at various stages of completion in the NT.

Four utility-scale solar farms have been constructed in the Darwin region. Three of the four are owned by Italian multinational ENI—a 25 MW facility at Katherine and two 10 MW facilities at Batchelor and Manton. Merrick Capital owns another 10 MW facility at Batchelor, known as Batchelor 2, part-funded by the NAIF.

The Australian Department of Defence has two behind-the-meter solar farms (with energy storage) —a 9.2 MW facility at Robertson Barracks and a smaller 2.5 MW facility at the Royal Australian Air Force Darwin base.

A 5 MW facility (100 MW of rooftop solar) operates behind-the-meter at Darwin airport.

The $62m NT Solar Energy Transformation Program (NT Solar SETuP) deployed 10 MW of solar PV integrated with existing diesel power stations in 26 remote communities. Delivered through PWAC's subsidiary IES, the program was part-funded through ARENA. The majority of system installations were designed to achieve 15% diesel fuel displacement. The system installed at Daly River (Nauiyu) was aimed at achieving about 50% diesel fuel displacement.

The $5 million Rooftop solar in schools program saw 642 kW of solar panels installed at 25 schools in every Territory region from 2018–2020, including some remote and very remote schools.

Until 2014, CfAT's Bushlight project was successful in embedding community engagement, training, quality assurance, and operation and maintenance into the broader design and procurement process for renewable energy systems on smaller remote homelands. Since then, ARENA has funded feasibility studies through the Remote and Regional Reliability fund including at Marlinja and Borroloola.

Are there any policies or frameworks or programs in the NT that are relevant / have a focus on First Nations outcomes?

The Territory owned PAWC was the first NT Government Corporation to create in 2017 a Reconciliation Action Plan (RAP) which outlines their vision for ensuring Aboriginal and Torres Strait Islander people have the same opportunities in health, employment and education as all other Territorians.

What rules or policy does the NT have for promoting energy storage?

Greater energy storage is important to the maintenance of system security and stability as the NT pursues 50% renewables by 2030 and 70% renewables within remote communities.

Within the three main electricity networks, the NT Government is offering incentives to encourage homes and businesses to invest in energy storage.

NT homeowners, businesses and not-for-profits can apply for a grant through the Home and Business Battery Scheme to buy and install batteries and inverters. Eligible applicants can access a grant of $450 per kilowatt hour of useable battery system capacity, to a maximum of $6,000.

The 35 MW Darwin-Katherine Battery Energy System is the NT's first big battery and will replace some gas-fired generation at Channel Island. It will strengthen the Darwin-Katherine network and support households, businesses and industry to install more rooftop solar, while delivering cost savings of around $9.8 million per year and reducing carbon emissions by ~58,000 tonnes.

In the southern network, a 300 kW/358 kWh large-scale battery trial is underway at the Desert Knowledge Australia (DKA) Solar Centre to enable a microgrid trial at the DKA site south of Alice Springs.

Does the NT government provide any support or funding, or have specific policy for community energy projects?

The NT government presently doesn't provide specific funding or support for community energy projects.

When commencing a community energy project there are a range of factors that should be considered, including that the success of community scale renewable energy development will depend on buy-in and support from community and Traditional Owner groups. Managing expectations and building trusting relationships will be crucial, as will building capacity, understanding and experience of clean energy projects to spark interest and aspirations in this field.

Capacity, experience, and interest will differ between communities. Projects will require accurate information to ensure common understandings of project benefits and risks. Obtaining the right advice will be critical to progress projects, including access to legal, commercial, political, and financial capital to 'buy into' larger projects.

Across the NT there are likely many potential sites that could be viable for community-scale renewable energy systems. Determining the viability of particular projects will often come down to:

1. Suitability or availability of grid connection
2. Land availability
3. Construction costs; and
4. Offtake agreements.

Community energy project are assessed through a development cycle to confirm their viability and generally will be required to pass multiple milestones before being constructed.

NT businesses and organisations can apply for funding for projects that support employment of Aboriginal people via the Aboriginal Workforce Grants Program. The program provides funding for projects that result in Aboriginal people getting jobs and developing their careers within the workplace. Eligible projects must include structured mentoring through a professional service for career and workforce development, wraparound services including on-site mentoring, transport and/or accommodation.

For context, in 2022, 543 construction tenders for $987 million were awarded in the NT and 540 of those went to Territory contractors. Of these, 73 contracts with a value of $147 million awarded went to Aboriginal Business Enterprises, accounting for 13.4% of all contracts.

The NT Homelands Capital Program provides funding for the upgrading or purchasing of new infrastructure that delivers housing, municipal and essential services to NT homelands and town

camps not covered by an NT Government lease. The minimum total project cost that organisations can apply for under this program is $10,000, with the maximum being $300,000.

Are there social housing or community energy project solutions of note?

In Alice Springs, the NT government is launching a rooftop solar plus storage trial for public housing on 15 public housing properties that will help inform the planning of future public housing builds and the management of rooftop solar power on current public housing stock.

In Borroloola, the Ngardara 'Sun' Project is a collaboration between the community and Original Power to conduct a feasibility study to design and build a solar microgrid, reducing reliance on the town's ageing and polluting diesel generators, while providing a model for community ownership of power generation assets.

On Groote Eylandt, a number of communities have installed solar and battery storage solutions.

Are there barriers to the placement of solar on First Nations housing?

Since the introduction of user-pays for essential services in First Nations communities in 1992, many residents have lived with energy insecurity, paying high costs on prepaid power cards and being known to experience regular so-called 'self-disconnections' (disconnections from power supply when credit runs out). These disconnection events spoil food and medicine, and leave homes too hot to live in. Balancing spending across basic necessities such as rent, fuel and electricity is challenging for many.

This unusual prepay metering arrangement has long precluded the option of connecting rooftop solar and there are no applicable standard application forms for connection or export feed-in tariffs (either premium or standard). Connection agreements are a fundamental prerequisite for accessing clean energy and effectively govern who and where benefits in energy transition.

In a context in which remote public housing in 73 discrete First Nations communities and the Town Camps in Alice Springs and Tennant Creek are almost exclusively First Nations occupied, the absence of a connection agreement for prepay customers is an example of government policy effectively prohibiting participation in the potential benefits of clean energy.

Moreover, regulatory barriers including interconnection, metering requirements and feed-in tariffs are not the only barriers. Other infrastructural issues persist, for instance, the Department of Territory Families, Housing and Communities requires an engineer to sign off on the structural integrity of public housing before panels can be installed. Structural integrity cannot be assumed for remote public housing in the NT.

Accordingly, it is very challenging for prepay households in the NT to access clean energy (and the potential economic benefits of clean energy). For prepay households who have tried to access clean energy opportunities (i.e. solar panels), the lack of precedent has required complex negotiation between providers, retailers, meter manufacturers, advocates and residents. The lack of certainty around connection and feed-in-tarriff (FiT) processes adds both delay and cost for hard-pressed prepay customers.