

Renewable and Energy Installations

Increasing Community Benefit in Regional NSW

Position Paper

For More Information

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Overview

Regional Cities New South Wales (RCNSW) is an alliance of 15 regional cities from across the state. The alliance aims to grow regional cities in New South Wales (NSW) through increased investment that will build productive, liveable and connected regions.

While RCNSW acknowledges the benefits of renewable energy on the climate and economy, our alliance would like to ensure there are longer-term benefits to our communities as the footprint of the renewables industry grows in our regions.

To support this objective, RCNSW has created the following position paper outlining the impact of renewable and energy installations on our communities. Our paper also recommends four key actions for the NSW Government regarding renewable and energy installations and other activities:

1. That a new 'energy' rating category (or sub-category under Business) be introduced for renewable and energy installations in regional NSW; and the revenues generated by this category be in addition to the general rate yield and be applied to: water, wind, solar, waste to energy, coal seam gas (CSG) and hydrogen sites;
2. That a bond arrangement be put in place to provide a source of funding for Local Government to appropriately deal with the disposal of the renewable and energy infrastructure and equipment at the end of their life, should the owner/operator fail to do so;
3. That a *Renewable Energy Community Benefits Fund* be introduced to return a deeper benefit back to our communities (these funds should be applied for through Local Government not the State Government) and may be contemplated within a planning agreement; and
4. That the State Government defer state significant waste management facility applications in regional NSW until such time as a clear policy direction is given on all aspects and standards requiring assessment - including environmental outcomes and human, animal and biodiversity health requirements. Additionally Waste to Energy Plants must only be located in zones allowed by the Local Environment Plan.

NSW Government Alignment

The NSW Government's Electricity Infrastructure Roadmap is a coordinated framework to deliver a modern electricity system for NSW. RCNSW acknowledges the government's estimations that within 15 years, three quarters of the State's existing electricity supply sources are expected to reach the end of their technical life.

It further acknowledges that replacing the retired energy sources and building the infrastructure needed to support the development of NSW is a long-term plan that will require a diverse mix of energy solutions – including solar and wind installations, pumped hydro, hydrogen, CSG, bioenergy and other energy sources.

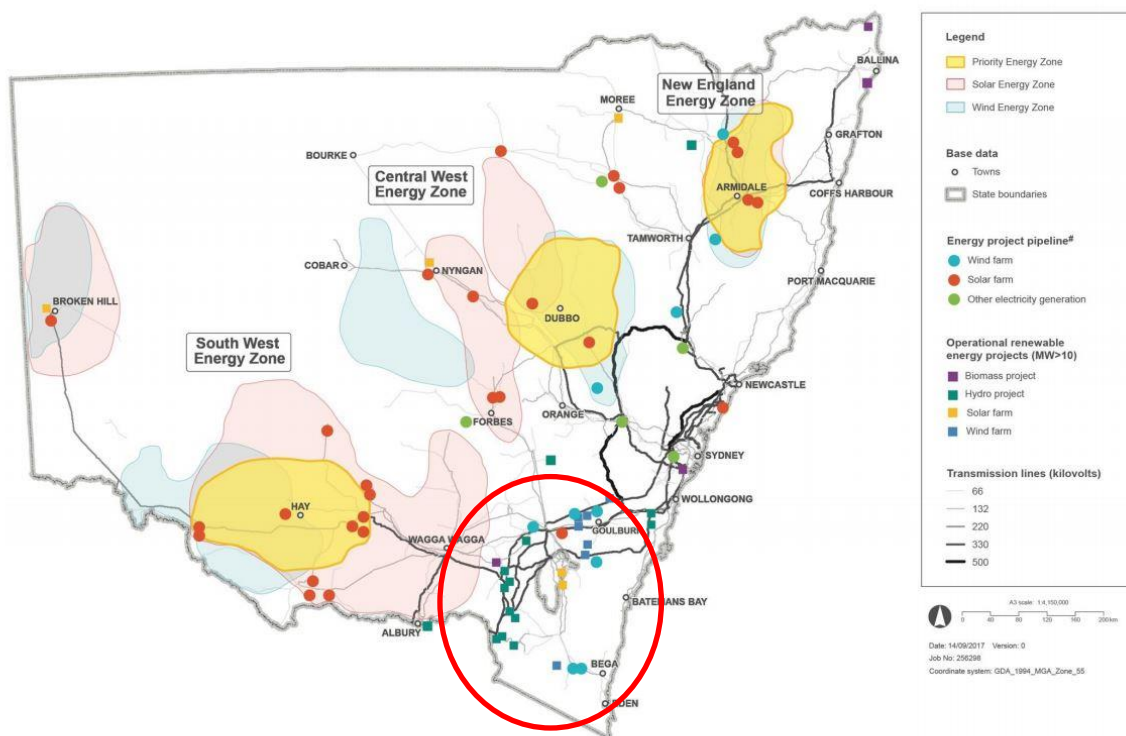
Renewable Energy Zones

RCNSW understands that Renewable Energy Zones are the modern-day equivalent of traditional power stations. They combine generation, transmission, storage and system strength services to ensure a secure, affordable and reliable energy system.

RCNSW acknowledges that part of the Electricity Infrastructure Roadmap is the declaration of Renewable Energy Zones (REZs) in the Central West Orana, Illawarra, New England, South West and Hunter-Central Coast. It is as a result of these zones and the growth of the renewable energy sector (as outlined below), that the RCNSW recommendations regarding the rating, community benefit schemes and equipment disposal of renewable energy installations and other infrastructure in regional NSW, should be considered.

It is however noted that South East is not recognised as an REZ given its prominence with hydro, solar and wind installations, Snowy 2.0, Woodlawn and special activation and regional jobs precincts in the region.

Figure 3. Potential Energy Zones in NSW



* NSW Department of Planning and Environment (2018) Large-Scale Energy Project Pipeline.

The Growth of the Renewable Energy Sector

Renewable energy, most notably solar and wind, is making an increasing contribution to the Australian and New South Wales' energy mix.

In October 2019, there were 17,700 MW of large-scale renewable energy projects with planning approval or progressing through the NSW planning system, representing \$24 billion in investment. These include:

- Approximately 11,400 MW from 81 solar installations, 3,800 MW from 15 wind installations, as well as two biogas and cogeneration projects; and
- The Snowy 2.0 Stage 2 Main Works that has potential to deliver 2,000 MW of capacity.

There were also 1,410 MW of large-scale non-renewable energy projects with planning approval, most notably 1,250 MW of gas projects, worth \$1.25 billion.¹

In addition to renewable energy sources, Australia will require other energy resources such as coal seam gas and hydrogen and technologies like pumped hydro and large scale battery storage to ensure the most efficient use of variable renewable energy resources like solar and wind, as it progresses to a low carbon emissions future.

Solar Installations

At the end of 2018, large-scale solar installations generated more than 1824 MW. In 2020, renewables accounted for 24.7 per cent of energy generation in Australia, with almost one third of renewable power coming from solar energy.

Large-scale solar is becoming a bigger part of the NSW energy mix, with ten additional projects over 50MW set to join the ranks of the existing ten in the next few years. Below is a compilation of operational solar installations in NSW that are over 50MW in size, listed in ascending order:

Broken Hill Solar Plant, 53MW	Moree Solar Farm, 56MW
Parkes Solar Farm, 65MW	Goonumbla Solar Farm, 70MW
Beryl Solar Farm, 87MW	Bomen Solar Farm, 100MW
Nyngan Solar Plant, 102MW	Nevertire Solar Farm, 105MW
Coleambally Solar Farm, 150MW	Finley Solar Farm, 175MW

¹ NSW Electricity Strategy 2019, p. 16

Solar Installations Under Construction NSW

The 50MW+ solar installations in NSW that are currently under construction are as follows, listed in ascending order²:

Beryl Solar Farm, 87MW	Metz Solar Farm, 115MW
Hillston Solar Farm, 115MW	Springdale Solar Farm, 120MW
Maryvale Solar Farm, 160MW	Gunnedah Solar Farm, 165MW
Sapphire Renewable Energy Hub, 170MW	Sunraysia Solar Storage Facility, 250MW
Darlington Point Solar Farm, 333MW	Limondale Solar Farm, 345MW

Wind Installations

Wind power is also increasing its contribution to Australia's energy mix. Wind was responsible for 35.9 per cent of Australia's renewable energy generation in 2020, and accounted for 9.9 per cent of total energy generation:

NSW generated 20.4 per cent of Australia's wind power in 2020, with more to come in the future. In 2021 two new wind installations have already been commissioned, with another two scheduled to be completed by the end of the year. Together, these four wind installations will add an additional 715MW of capacity to NSW's energy mix.

Additional wind projects in various stages of the development process have potential to add even more capacity. While not all of the five projects listed below are guaranteed to be built, together they have the potential to add another 2380 MW of capacity to NSW's energy mix.

Wind Installations operational in 2021 or under construction (Clean Energy Report 2021):

Name	Capacity (MW)	Operational Date
Bango Wind Farm - 46 turbines	244MW capacity	Operational late 2021
Collector Wind Farm - 54 turbines	226.8MW	Operational 20 May 2021
Crudine Ridge Wind Farm - 37 turbines	134.3MW	Under construction completion 2021
Biala Wind Farm - 37 turbines	110MW	Under construction completion 2021

² [Solar Farms in Australia | State-by-State Guide – Canstar Blue](#)

Wind Installations in development stages:

Name	Capacity	Stage of Development
Liverpool Range - 267 turbines	1000MW	Planning approval received
Rye Park Wind Farm - 92 turbines	276MW	Planning approved
Uungala - 97 turbines	400MW	Development approval
Coppabella Wind Farm - 75 turbines	284MW	Planning approved
Hills of Gold Wind Farm - 70 turbines	420MW	In planning process

Hydropower Installations

In 2020, hydropower accounted for 23.3 per cent of Australia's renewable energy generation and 6.4 per cent of Australia's total energy generation.³

While hydropower no longer is the nation's greatest generator of renewable energy, its importance will grow because of its critical role in energy storage and the balancing of Australia's variable wind and solar resources and underpinning a secure and stable transition to a low-carbon emissions future.

Snowy 2.0 is a major addition in the hydropower space. The largest committed renewable energy project in Australia, Snowy 2.0 involves linking two existing dams, Tantangara and Talbingo, through 27km of tunnels and building a new underground power station.

On its completion, Snowy 2.0 will provide an additional 2,000 megawatts of dispatchable, on-demand generating capacity and approximately 350,000 megawatt hours of large-scale storage to the National Electricity Market. The first power generated from Snowy 2.0 is expected in early 2025.⁴

The Australian Energy Market Operator (AEMO) has projected that NSW will need nearly 2.3 gigawatts (GW) of energy storage to maintain system security and reliability in addition to Snowy 2.0. Mapping analysis by the Australian National University identified 20,000 reservoirs in NSW that could be used for pumped hydro development.⁵ Only a small number of the total possible reservoir schemes identified would need to be developed to help meet projected energy storage requirements.

NSW will play a major role in the future of hydropower. The NSW government has committed \$50 million in grants to support the delivery of pumped hydropower projects.

In addition, the government has declared the proposed Oven Mountain pumped hydropower project as Critical State Significant Infrastructure, and GE has signed an agreement with Walcha Energy to develop a 500 MW pumped hydro project at Dungowan Dam.

³ Clean Energy Report 2021, p. 9

⁴ [About - Snowy Hydro](#)

⁵ NSW Electricity Roadmap, p. 8

Coal Seam Gas Installations

Coal Seam Gas (CSG) is used to generate electricity in gas-fired power stations as a low emission alternative to electricity produced from coal.

More than 30 per cent of the eastern Australian gas network is fed by coal seam gas. This natural gas forms part of the gas supply piped into more than one million homes and businesses in NSW. The major CSG resources in NSW are found in the Gunnedah, Gloucester and Sydney basins, and on the NSW-Queensland border in the Clarence-Moreton Basin.

Commercial production of CSG began in Australia in 1996 in the Bowen Basin. The Camden Gas Project has been producing gas in south-western Sydney since 2001, and produces approximately five per cent of NSW's gas needs. CSG exploration is also taking place in the Narrabri region in northern NSW.⁶

Hydrogen Plants

Hydrogen has the potential to assist in the reduction of emissions through the use of clean hydrogen for industrial feedstocks and heating, as well as the blending of hydrogen in gas networks and using hydrogen to power the nation's cars, buses, trucks and ships.

Australia's National Hydrogen Strategy (2019) estimates that a new hydrogen industry could generate approximately \$200 million per year in additional national GDP by 2030.

By 2019 the Australian Government had committed more than \$146 million to hydrogen projects.

NSW is already home to an established hydrogen-based industry. With the state's established industrial base, extensive transport networks and major metropolitan and regional population centres, hydrogen producers in NSW have local market opportunities as well as export potential.

The NSW Government passed amendments in the Electricity Infrastructure Investment Bill, to guarantee a \$50 million investment to the green hydrogen sector and exempt the renewable energy it uses from infrastructure charges.⁷

The Government also announced a funding agreement for the Tullawarra B project in the Illawarra, which is Australia's first dual fuel capable hydrogen/gas power plant. Tullawarra B will provide more than 300 megawatts of dispatchable capacity and sets a new benchmark for how gas generators can be consistent with NSW's plan to be net zero by 2050 by using green hydrogen and offsetting residual emissions.⁸

In March 2021, Energy Minister Matt Kean also announced at least a \$70 million commitment to the development of one of the State's first green hydrogen hubs in the Hunter.⁹

⁶ [Coal and coal seam gas - About | Department of Agriculture, Water and the Environment](https://www.resourcesandgeoscience.nsw.gov.au/), <https://www.resourcesandgeoscience.nsw.gov.au/>

⁷ [\\$50 Million Green Hydrogen Boost In NSW - FuelCellsWorks](#)

⁸ Australia's first green hydrogen and gas power plant, NSW Media Release 3 May 2021

⁹ NSW Government Media Release "Hunter Hydrogen Hub to drive jobs, investment and a Net Zero Future"

Finally, the \$15 million Jemena Western Sydney Green Gas Project, co-funded by ARENA, involves designing and constructing a Power-to-Gas facility that will convert solar and wind power into hydrogen via electrolysis. It will inject and store a small percentage of hydrogen (less than 2 percent by volume) into part of the Jemena Gas Network, to demonstrate how existing gas pipeline infrastructure can be used to store excess renewable energy.¹⁰

It should be noted that the ACT Government has commissioned Australia's first government fleet of hydrogen vehicles, 20 Hyundai NEXOs, which will be fuelled by green hydrogen¹¹.

Land Occupied by Energy Installations

Waste to energy processes and the associated infrastructure intersect two pressing issues for our membership.

Waste to Energy

Waste to energy processes and the associated infrastructure intersect two pressing issues for our membership. It is recognised by RCNSW that waste-to-energy facilities contribute to the state's objectives in developing a modern energy network with a diverse range of sources to supply the state's future needs.

As collectors of waste, it is further recognised that the facilities play a role in reducing landfill. A problem that has been exacerbated since 2018, when China and other nations throughout Asia stopped importing recyclable waste.

RCNSW acknowledges that Australia sends around 22 million tonnes of waste to landfill each year and that NSW's share is around 6.8 million tonnes - more than 30% of the national total¹². It is clear that the objective of transitioning to a circular economy over the next 20 years is an important position for the Government to deal with these twin objectives.

RCNSW understands that operators who seek to recover energy by thermally treating waste must comply with the policy to protect the community and to ensure best use is made of waste materials. It is further understood that to progress the use of this energy source the Government requested that the NSW Chief Scientist and Engineer provide independent expert advice on energy recovery facilities and related environment protection frameworks. The report that has been adopted by government made recommendations to ensure proposals adopt international best practice standards and controls to protect human health and the environment.

As outlined in the *Waste and Sustainable Materials Strategy - Meeting our Future Infrastructure and Service Needs*, however, it was stated that the requirement for a strong and modern pipeline of infrastructure investment to deal with the state's waste would be delivered partnership with Local Government and industry.

It is in the spirit of this partnership and based on the split of waste generated between Sydney and regional NSW that RCNSW is recommending that strong consideration be given to future sites

¹⁰ Australia's National Hydrogen Strategy, p xix

¹¹ [Hydrogen refuelling station opens in Canberra - Our Canberra \(act.gov.au\)](#)

¹² [NSW Coalition, Labor back waste to energy as solution for waste management – NWRIC](#)

selected for this - particularly infrastructure. RCNSW recommends waste to energy plants to be defined under the State Environmental Planning Policy (SEPP) 33 Hazardous and Offensive Development, permitted in Industrial Zones. The communities of Regional NSW should not be considered an ideal location for these sites purely based on their regionality and space to accommodate such facilities.

Current applications such as the Veolia Limited facility at Woodlawn Tarago and the Hi Quality facility at Windellama and Jerrara Power Pty Limited are all proposed to take waste from Sydney LGAs and are also currently being controversially received by the communities for which they are earmarked in regional NSW. On this basis it is the position of RCNSW that Waste to Energy Plants only be located in zones allowed by the Local Environment Plan.

While the Government's commitment to adopt international best practice standards and controls to protect human health and the environment is welcomed by RCNSW, the real test will be in the details of those protections and community belief in the science that supports them - especially as this policy setting is an area which is still evolving.

Our members have questions regarding the sources of waste to be used as fuel stock, its transportation through regional areas, the number and size of facilities and the impact on local amenity require much more consideration to allow our communities to provide the necessary social licence required to secure the successful future operation of this emerging technology. Until such time as they can be addressed, we are seeking a commitment to defer all applications.

Recommendation: That the State Government defers state significant waste management facility applications until such time as a clear policy direction is given on all aspects and standards requiring assessment including environmental outcomes and human, animal and biodiversity health requirements.

End of life Infrastructure

End of life infrastructure for the renewable sector is an emerging space. Governments of all levels will need to ensure there is a range of regulations to ensure the waste generated by the renewables sector is appropriately dealt with and that communities – especially those in regional areas - are not left carrying the burden of any legacy costs.

Case Study Photovoltaic Panels

The rapid growth in photovoltaic solar panel installations has made end-of-life panel recycling an emerging but urgent issue. It is forecast that NSW will generate 3,000 - 10,000 tonnes per year of waste solar PV panels and battery storage systems by 2025, rising to 40,000 – 71,000 tonnes per year by 2035.¹³

In the “Scoping study for photovoltaic panel and battery system reuse and recycling fund” report prepared for NSW Department of Planning, Industry and Environment¹⁴, it was noted that the largest impact of end-of-life waste for solar panels will impact regional NSW significantly, particularly the

¹³ <https://www.epa.nsw.gov.au/working-together/grants/infrastructure-fund/circular-solar-trials-expression-of-interest>

¹⁴ “Scoping study for photovoltaic panel and battery system reuse and recycling fund” report prepared for NSW Department of Planning, Industry and Environment by UTS Institute of Sustainable Futures & Equilibrium Consulting (March 2020)

LGAs of Boga, Broken Hill, Queanbeyan, Dubbo and Murrumbidgee. However, with the establishment of the 5 REZs, this impact is expected to widen to almost all RCNSW member councils.

This issue has been recognised by the NSW government in the announced \$10 million for a new recycling fund for solar panels and battery system. This program is being run by the EPA to establish a collaborative ‘whole-of-supply chain’ project trial that will target the waste generated by the end-of-life solar panels and/or battery systems within a circular economy framework.

In December 2019, the Australian Renewable Energy Agency (ARENA), on behalf of the Australian Government, announced up to \$15 million in funding to support research that aims to address end-of-life issues for solar PV panels, as well as increasing their efficiency and lowering their cost.

It is noted by RCNSW however, that the NSW and Federal programs are currently in trial phase, as the recycling of panels is an emerging space. These initiatives are reflective of the challenges associated with recycling this technology, which is currently impractical, has a high-cost and importantly, contains harmful chemicals.

The challenges associated with end of life process for solar panels are well documented but so too are community concerns regarding new developments – particularly where there is no requirement by installation owners to dispose appropriately of the expired panel waste.

Under current planning regulations there is no mechanism for local government to require solar installation operators to appropriately dispose of any waste and if appropriate action is not taken, then this is a challenge left to the community – via local government – to solve and fund.

In response to the growth of the sector, RCNSW recommends that the NSW Government investigate legislative mechanisms to ensure solar installation operators are required to pay a bond to local government that could be returned when operations cease and the operation’s waste is appropriately disposed of by the operators.

The issue of the disposal or recycling of components of renewable installation components is not confined to solar panels. For example, wind turbine blades are not recyclable and have ended up in landfill. The industry itself has recognised the problem, with Danish wind turbine company Vestas announcing last month the development of new technology to fully recycle wind turbines.¹⁵ RCNSW believes that a consideration of the disposal of all renewable installation components has merit.

Recommendation: That a bond arrangement be put in place to provide a source of funding for local government to appropriately deal with the disposal of renewable infrastructure at the end of their life, should the owner/operator fail to do so.

¹⁵ [Vestas unveils new technology to recycle wind blades and stop dumping | RenewEconomy](#)

New Rating Category

Under current rating categories (residential, business, farmland and mining) the nature and intensity of the use of gas, wind, solar and other renewable and energy installations on private land is not captured appropriately, nor is there an appropriate contribution to the rate burden.

The scale of the infrastructure envisaged under the NSW Electricity Roadmap is large. The Roadmap estimates that the footprint of required new electricity infrastructure could be up to 11,000 km of transmission and more than 2,000 km² of generation.¹⁶

The NSW Electricity Strategy¹⁷ observed that many areas with the strongest renewable resource potential are located far away from the existing network, which was primarily designed to connect coal-fired generators and the Snowy Hydro Scheme. To connect the scale of new generation required to meet NSW's future energy needs, it will be critical to efficiently develop transmission to these new locations.

Under the current regulations, the term of renewable and energy installation development is not appropriately recognised. There is an assumption that these installations are permanent developments and should therefore be rateable as an unimproved parcel of land. This is the basis for other forms of 'agriculture'.

In reality solar installations, like wind installations and other renewable and energy infrastructure, have a limited period of existence. In the case of solar installations – it is based on the life of the panels which may be up to 30 years. It is the position of RCNSW that renewable and energy installations are developments (industrial) and have very little relevance to the land, if you consider land as defined to be in existence before and after the removal of the associated development and available for use on the basis of other surrounding land uses for example 'agricultural'.

The disregarding of developments on the land for rating purposes is, in principle, the basis of the unimproved capital valuation of land, whereas mining, exploration, gas and wind and solar installations are capital undertakings.

As highlighted in the Regulations S493 -494, and 529, mining (as defined under the Mining Act) is recognised as a rating category, whereas renewable and energy installations are not recognised. Mining is identified as an ordinary rate, whereas energy production, including all renewable installations may be considered a business activity for rating purposes.

In all instances, the longevity of the development is not considered, which historically impacts on the general or ordinary rate categories across a council area.

Under Section 494 of the Local Government Act, councils must make and levy each year an ordinary rate on all rateable land in their area. This includes the classification of mine lands, but excludes renewable installations or developments specifically.

¹⁶ NSW Electricity Roadmap, p. 25

¹⁷ NSW Electricity Strategy p. 17

Advice from the Office of Local Government has indicated that solar installations (or other energy production) cannot be a nominated sub category, but may be included under a location or business or agricultural basis. These classifications are where the problems of legislation begin to have impacts on the general rate base of Councils.

The Independent Pricing and Regulatory Tribunal's (IPART) consideration of the definition of Industrial properties in its 2016 *Review of the Local Government Rating System*¹⁸ supports RCNSW's contention that land on which renewable energy installations sit should be rated **industrial**:

Industrial properties could be defined based on Local Environment Plan (LEP) zonings, as is the case under the ESPL. According to the Standard Instrument – Principal Local Environment Plan, industrial activity is defined as follows:

Industrial activity means the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity.

The fact that renewable and energy installations' activities produce, store and transport energy fits appropriately with a definition of an industrial property.

It is on this basis that RCNSW believes that gas, solar, wind and other renewable and energy installations are indeed an industrial activity and that a separate category for this activity should be created to appropriately share the rate burden with community members. It is on that basis a split valuation may be obtained for the installation (and its buffer) separate from the remainder of the property/ies upon which the facility is situated. For example, a current 1000ha farmland category property with a ULV of \$1m, may have a split valuation prepared by the NSW Valuer General for the energy and farmland categories on that property. As that energy development and use is in addition to the previous farmland use, so too should the rates generated by the energy development be in addition to the current general rate notional income.

Recommendation: That a new 'energy' rating category (or sub-category under Business) be introduced for renewable and energy installations in regional NSW; and the revenues generated by this category be in addition the general rate notional income and be applied to: water, wind, solar, waste to energy, coal seam gas (CSG) and hydrogen sites.

¹⁸ Final Report, December 2016, p. 139

Renewable Energy Community Benefit Fund

According to the Clean Energy Council (CEC), it is increasingly common for financiers and all levels of government to require that renewable and energy developments actively show they have a social licence to operate in the local community, in order to gain long-term contracts, access support schemes or secure finance.

This arrangement is most commonly in place with wind installations on a voluntary basis, with various schemes in place throughout regional NSW. In their guide, “benefit sharing options for renewable energy projects” (October 2019), the CEC has further stated that incentivising the renewable energy industry to value benefit sharing has multiple benefits.

The CEC states that this activity encourages a fairer allocation of benefits among hosts, neighbours and the local community and helps to position communities to maximise the benefits of renewable energy developments. Benefit sharing is thus recognised as a strategic means to enhance social licence and maintain it over time.

This was highlighted through the March 2020 approval of the \$768 million 720-megawatt New England Solar Farm on the Northern Tablelands, which attracted almost 70 objections and carried a condition that at the termination of the project, the land be restored to agricultural use.

Much of the community’s concerns were focused on potential devaluation of property prices, the loss of prime agricultural lands, and adverse impacts on the social and economic capacity of the region.

The application of s7.12 development charges under the Environment Planning and Assessment Act to energy installations may be problematic as the use of these type of Contribution Plans was not supported by the NSW Productivity Commission’s recent review of Infrastructure Contributions in NSW. The review also noted that in some cases the consent authority (i.e. Minister for Planning or Independent Planning Panel) has not imposed a condition requiring payment in accordance with this type of Plan.

Considering the growth of this sector and also the government’s commitment to REZs as part of the NSW Electricity Plan, RCNSW recommends that an obligation to establish a Community Benefits Fund be legislated by the NSW Government for all large-scale solar and other renewable energy installations in regional NSW, that may potentially be activated under a planning agreement available under the Act .

Recommendation: That an obligation for a *Renewal Energy Community Benefits Fund* be introduced to return a deeper benefit back to our communities (the funds should be applied through local government not the state government) and may be contemplated within a planning agreement.