



# DISTRIBUTED ENERGY IN THE PROPERTY SECTOR

## UNLOCKING THE POTENTIAL

seed



PROPERTY  
COUNCIL  
*of Australia*

**CEFC**  
CLEAN ENERGY FINANCE CORP

## FROM THE CEOS

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There is a huge opportunity for Australia's property industry to transform from a passive participant in the energy market to an active electricity producer and energy market participant. In particular, the rooftops of commercial buildings offer large, and generally untapped, opportunities to generate renewable energy.

By scaling the use of rooftop solar photovoltaic (PV) systems across the sector, property's contribution to the nation's electricity supply has the potential to grow rapidly. This would assist Australia's transition to a low carbon future.

Some property industry players already supply electricity to the grid from rooftop PV systems. Broader adoption of this infrastructure would help alleviate electricity networks' much-publicised cost and congestion problems.

The potential benefits are significant. Consumers and businesses would benefit from a more reliable electricity network and much-needed relief from rising energy costs. Property owners would transform their rooftops into revenue-earning assets. The electricity industry would gain a major source of clean energy. The energy sector would also become more efficient and competitive, creating benefits that flow through the economy.

The property industry has proven its sustainability credentials. It has delivered major improvements in the energy efficiency of buildings; and it has introduced innovative clean energy technology to help reduce emissions.

However, the sector faces regulatory and market-related barriers to realising its potential as a distributed energy producer.

The Property Council of Australia and the Clean Energy Finance Corporation (CEFC) engaged Seed Advisory to identify barriers to distributed energy in property – and to propose solutions to address them. The result is this report, developed to be a practical resource for policymakers, regulators and industry leaders.

We also trust this report will lead to greater dialogue between property and energy industry leaders to help dismantle the barriers to a new, mutually-beneficial collaboration.

The CEFC and the Property Council of Australia have a shared commitment to creating a cleaner, more efficient, more sustainable economy. We are delighted to work together on this project to spread the message about the exciting role the property sector can play in reducing electricity costs and addressing Australia's emissions challenge.



**Ian Learmonth**  
CEO, Clean Energy Finance Corporation



**Ken Morrison**  
CEO, Property Council of Australia

# INTRODUCTION

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The property sector is ideally placed to play a significant role in modernising Australia's traditional, centralised electricity system.

Scaling rooftop solar PV systems across the nation would, of course, increase the input of clean energy into the grid and the overall electricity supply.

However, distributed energy generation and storage would also provide other benefits, due to the highly distributed nature of the property sector. For example, most retail and industrial buildings are in urban areas – much closer to areas of high electricity demand than traditional generation plants located outside cities. With a greater proportion of electricity transmitted over shorter distances, a distributed energy model has the potential to improve network efficiency, reduce losses, minimise network capital expenditure, provide demand response services and increase the provision of system security services.

Distributed energy generation may also in some cases alleviate localised grid congestion, improving the reliability of the electricity network.

The property industry's participation in the energy market could also bring much needed competition in energy services. Property owners, for example, could offer more affordable power to their tenants. Buyers could benefit from more sustainable and affordable property developments.

For Australia to meet its current commitment under the Paris Agreement, and more importantly its contribution to net zero emissions by 2050, action across all sectors is required.

The property sector currently contributes as much as 25 per cent of Australia's emissions. However, it can offset much of this by greatly increasing its production of renewable energy and facilitating the integration of more renewable energy into the electricity mix.

In addition, by helping to accelerate the shift to a low emission distributed energy model, the sector can play a role in developing a more competitive and reliable electricity system for the future.

The CEFC and the Property Council of Australia trust this report will serve as the focal point for a coordinated effort by the property industry, regulators and policymakers to fulfil the property sector's potential role in decarbonising the Australian economy.

## ABOUT THIS REPORT

While there are supportive policies and regulations in some areas, the sector faces several significant barriers to realising its full potential as an energy producer. *Distributed Energy in the Property Sector: Unlocking the Potential* identifies those barriers and suggests practical solutions.

This summary report, and a more detailed report, was produced by Seed Advisory, which was engaged jointly by the CEFC and the Property Council of Australia. It builds on our previous joint report, *Distributed Energy in the Property Sector: Today's Opportunities*, which highlights the current distributed energy technologies that property owners and managers can deploy to reduce emissions and energy bills.

This report is designed to help policymakers, regulators and key industry decision-makers to understand the barriers to the property sector participating in the energy market. The report discusses:

- The opportunity in terms of the potential size of rooftop PV generation capacity in Australia's property sector
- The regulatory, policy and market related barriers to realising this potential
- The actions the property sector, regulators and policymakers can take to address those barriers.

# THE OPPORTUNITY

## GENERATION CAPACITY

Building rooftops have the potential to be a major contributor in the electricity sector's transition to a low carbon future. Solar PV capacity could increase to nearly three times its current level. This estimate is based on doubling residential solar PV installations and the potential to accelerate installation on both industrial buildings and major retail shopping centres, as illustrated in Figure 1.

To put this into perspective, estimated additional solar PV capacity would be equivalent to just over 50

of the 250 Megawatt (MW) Sunraysia project in New South Wales. When generating, its annual production would be equivalent to 2,500 MW of coal generation<sup>1</sup>, illustrating the significant contribution that the property sector could make to decarbonise electricity supply.

These findings, while conservative, are consistent with other estimates for the long-term potential for renewable energy generation in the property sector by the Australian Sustainable Built Environment Council (ASBEC) and ClimateWorks Australia<sup>2</sup>.

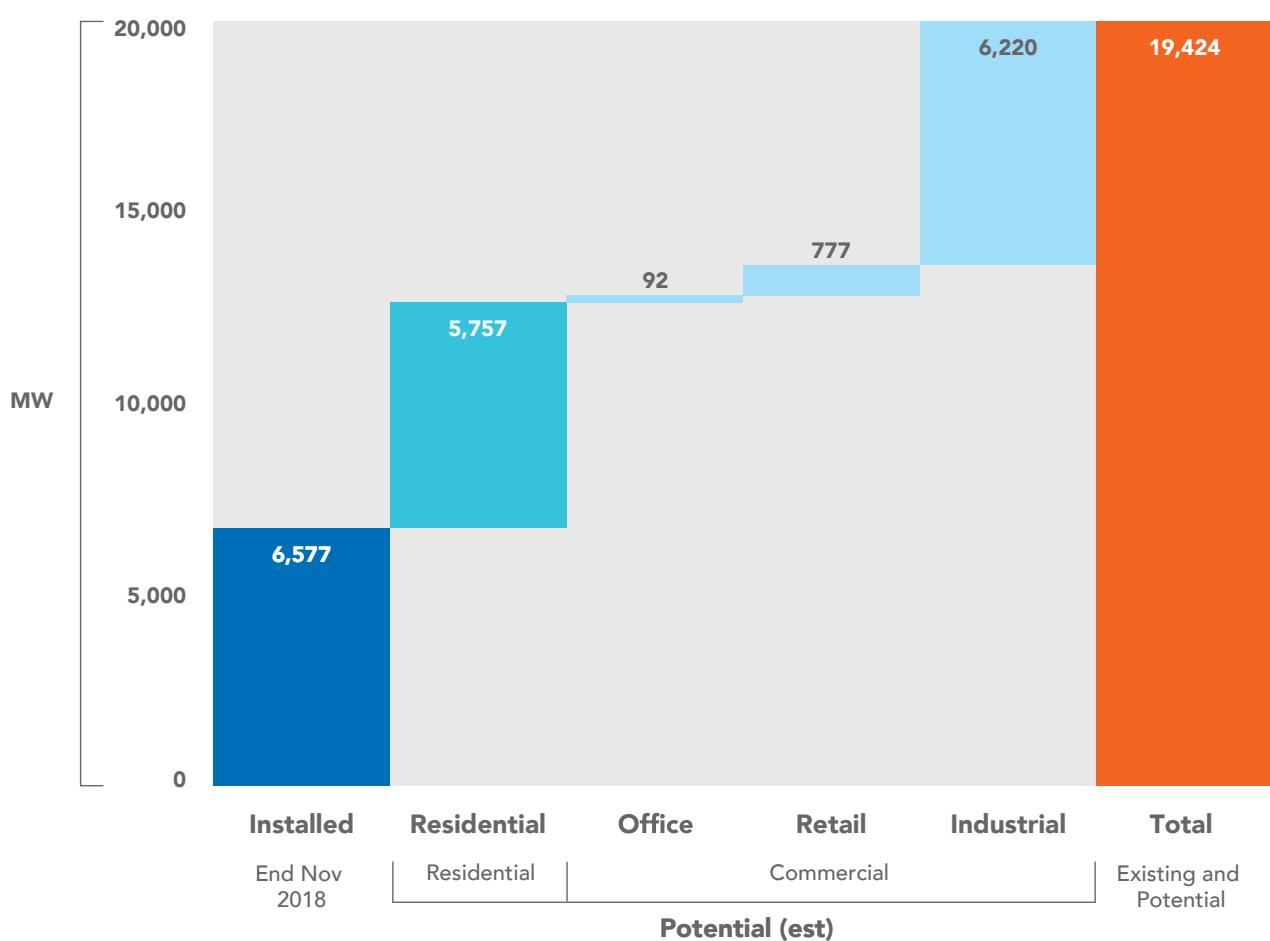


Figure 1: Existing and estimated potential additions to the installed solar PV systems, by property sub-sector, Australia, 2018, MW.

<sup>1</sup> Assumes an 80 per cent capacity factor for the coal generator and an average 16 per cent capacity factor for the solar generation.

<sup>2</sup> Australian Sustainable Built Environment Council (ASBEC), *Low Carbon, High Performance: How buildings can make a major contribution to Australia's emissions and productivity goals*, May 2016; ASBEC and ClimateWorks Australia, *Built to Perform: An Industry Led Pathway to a Zero Carbon Ready Building Code*, July 2018.

# BARRIERS TO REALISING THE PROPERTY SECTOR'S CLEAN ENERGY POTENTIAL

While there has been significant growth in residential rooftop solar, the commercial and industrial property sectors have only just begun to realise the opportunities for lower electricity costs and reduced emissions presented by solar PV and other technologies, such as batteries. These technologies are becoming increasingly available and affordable<sup>3</sup>.

However, if the electricity industry is to maximise the contribution of distributed generation in lowering emissions and providing other network benefits,

then some existing regulatory, market and participant barriers need to be addressed.

Seed Advisory has worked closely with the Property Council of Australia, its members and the CEFC to identify these barriers. Collectively, the barriers add to the cost and complexity of developing and connecting distributed generation. They include regulatory and planning arrangements, commercial and tax considerations and practices. These barriers are summarised below:

## **1. Unnecessary costs, delays and uncertainty in current grid connection processes.**

Unclear and non-uniform grid connection requirements create immediate barriers for property owners considering distributed energy projects.

## **2. Limited routes to market.**

Access to the electricity market is generally limited to a negotiated agreement with the building owner's energy retailer to export power to the grid. Wholesale market participation is possible for large-scale distributed electricity projects, but it incurs high costs of entry and offers low returns. Neither current route to market provides an attractive return on investment. Sales to tenants are also generally short term, providing no certainty.

## **3. Regulatory models that do not necessarily reward distributed energy producers.**

Regulatory and revenue models reflecting the additional network benefits that distributed generation can provide are not well developed, creating further disincentives for investment in generation for export to the grid. Existing market and network support programs are small and limited in scope relative to the property sector's spatial representation and potential ability to contribute.

## **4. Poorly aligned network and property sector planning processes.**

There is minimal coordination of electricity network and property development planning programs, and little communication between the two sectors. As a result, property developers have little incentive to design buildings and precincts that permanently reduce electricity demand or reduce the costs of grid augmentation.

## **5. Costs incurred due to regulatory requirements on embedded networks.**

Commercial property owners are required to observe new regulatory requirements in embedded electricity networks to sell energy to their tenants. These requirements can be particularly expensive in brownfield sites where retrofitting is required to comply with metering obligations. In addition, new proposals for licensing embedded networks need to be streamlined to deliver the desired outcome of consumer protection and lower costs.

## **6. Impediments to non-network participants providing electricity network services.**

Several regulatory and policy conditions have led to reduced competition and may increase costs for electricity consumers. Existing network providers are typically the sole providers of distribution network services in residential developments in each state. The Australian Energy Market Commission's (AEMC) proposed approach to further regulating the embedded network sector reinforces the networks' sole provider position, reducing competition and increasing costs to customers.

## **7. Commercial arrangements such as net leases and the 'split incentive' problem.**

In commercial assets, the limited tenure of tenants discourages building owners from investing in distributed power generation because the lease terms lack the length of time required to achieve a return on the investment. In addition, net rental agreements, unlike gross rents, prevent owners from recovering capital items such as solar PV units as operating expenses (commonly referred to as the split incentive problem). Current tax arrangements for residential apartments also create a further disincentive to install PV systems.

<sup>3</sup> Energetics, *Distributed Energy in the Property Sector: Today's Opportunities*, Clean Energy Finance Corporation and Property Council of Australia, September 2018, <https://www.cefc.com.au/media/401967/cefc-distributed-energy-in-the-property-sector.pdf>. Estimates of existing and potential commercial and industrial installations differ, depending on the data source.

# RECOMMENDATIONS: REMOVING THE BARRIERS TO DISTRIBUTED GENERATION

This report makes several recommendations that may assist in addressing the barriers to distributed generation in the commercial property sector, while increasing customer choice in the energy market and improving the nation's economic efficiency.

Greater economic efficiency is a desirable outcome in itself. Removing regulations that have no obvious rationale would improve the penetration of distributed generation without adverse consequences.

Changes to energy market regulation require improvements in economic efficiency: the Federal Government's National Electricity Objective (NEO) essentially demands sustained improvement in economic efficiency for changes to the status quo to be considered.

For each barrier, we have provided a broad recommendation, and one or more proposed actions that policymakers, regulators and leaders of key organisations in the energy and property sectors might consider.

## 1. Unnecessary costs, delays and uncertainty in the current connection application process

Recommendations	Detailed Proposed Actions
Increase transparency, improving the efficiency of existing markets where the property sector has the potential to contribute	<ul style="list-style-type: none"><li>The AEMC and the Australian Energy Regulator (AER) to consider requiring electricity distribution and transmission networks to provide more detailed public information on existing and potential network constraints. This could help identify areas where distributed power producers, aggregators and others have the potential to provide relief from the constraints.</li></ul>
Better align energy market regulation and commercial practice to reduce the administrative burden and costs of complying with existing regulation	<ul style="list-style-type: none"><li>Energy Networks Australia (ENA) to work with the property sector to standardise and document the requirements for property participants' connections and exports to the grid.</li><li>The property sector to work with ENA to publish technical details from connection agreements, details of which are generally classified as commercial in confidence. Publication of key details would assist in reducing costs and uncertainty in negotiating new connection agreements.</li></ul>

## 2. Limited routes to market

Recommendations	Detailed Proposed Actions
Develop new regulatory structures to reflect a changing environment, in line with a broader vision where the property sector and the electricity industry work together to reduce emissions and customers' costs	<ul style="list-style-type: none"><li>The Council of Australian Governments (COAG) to consider working with energy market regulators and state governments to review the scope of energy market licences and the responsibilities of licensees. The aim would be to free up future energy markets and increase the range of market participants.</li></ul>

Increase market transparency, improving the efficiency of existing markets where the property sector has the potential to contribute

- The Australian Energy Market Operator (AEMO) to work with the property sector to drive participation in the National Electricity Market (NEM) by improving the NEM's communications and interfaces with the property sector. The recent demand response trial by AEMO and the Australian Renewable Energy Agency (ARENA) shows how improved communication and enhanced interfaces drive participation and better market outcomes.
- AEMO to work with the property sector to better address the sector's requirements for participating in the energy market, and to standardise AEMO's requirements for distributed power producers.
- The AEMC to consider a review of the performance of the Small Generation Aggregator Market Participants program that was introduced as a result of a rule change. The aim would be to identify whether the concept is developing in line with expectations or whether thought needs to be given to alternative options, such as revising AEMO's fee structure to encourage the standalone entry of small power producers.

### **3. Regulatory models that do not necessarily reward distributed energy producers in providing lower electricity costs**

Recommendations	Detailed Proposed Actions
<p>Integrate planning for electricity networks and new property developments, particularly greenfield developments, as part of a broader vision of the future role of the property sector in reducing emission and customers' energy costs</p>	<ul style="list-style-type: none"> <li>The AER and AEMC to establish a working group with the property sector to investigate implementation of potential savings in energy infrastructure from lower behind-the-meter energy usage. This could include developing market structures that split savings appropriately between the developer (in lower development charges), the developer's customers (in lower energy usage and connection charges), and customers generally (in lower network costs).</li> <li>Where a distribution network identifies a potential or emerging constraint due to a change in the use of a site – such as the conversion of an industrial site to a multi-unit residential development, or a change from agricultural to residential zoning – the distributor should be encouraged to engage with the site's developer to identify ways in which the development can reduce the requirement for additional energy infrastructure to service the site.</li> <li>The AER to consider reviewing the design, coverage and performance of the Regulatory Investment Test for Distribution (RIT-D) and, where appropriate, the Regulatory Investment Test for Transmission (RIT-T). The aim would be to allow distributed power producers, aggregators and others to maximise their potential contribution to network performance and avoided investment.</li> <li>The AEMC and the AER to work with the property sector to reduce developers' costs of adopting distributed power generation in tenanted buildings. This would include considering financial models for how landlords and tenants could share the cost benefits of behind-the-meter distributed generation. Energy market regulations could be adjusted to allow for these financial models while still meeting the regulations' objectives, encouraging more investment in distributed generation.</li> </ul>

#### 4. Poorly aligned network and property sector planning processes

Recommendations	Detailed Proposed Actions
Improve the energy industry's efficiency by recognising the potential contribution from better integration of electricity networks and new and existing property developments	<ul style="list-style-type: none"> <li>The AEMC and the AER to consider requiring greater transparency across the planning decisions for distribution and transmission networks, over the short and longer term, particularly in relation to planning infrastructure for network growth. The aim would be to optimise infrastructure investment across the property sector and by the electricity networks, reducing developers' direct costs and customers' total costs.</li> </ul>
Improve the energy industry's efficiency by extending technology neutrality across the sector	<ul style="list-style-type: none"> <li>COAG to consider working with energy market regulators and state governments to identify ways of ensuring economy-wide technology neutrality, and to ensure that the costs of entry for new technologies are as low as possible, by avoiding the imposition of regulatory and technical protections disproportionate to the risks posed to the network.</li> <li>The property sector to consider working with ENA and its members to increase the sector's participation in energy markets, and to more actively recruit participants for the networks' programs.</li> </ul>
Integrate planning for electricity networks and new property developments, particularly greenfield developments, as part of a broader vision of the future role of the property sector in reducing emissions and customers' costs	<ul style="list-style-type: none"> <li>ARENA to consider supporting research into the potential for lower economy-wide costs from shifting to a less network-centric approach to supplying energy, by quantifying the costs and benefits.</li> <li>The AER to consider working with the AEMC, state governments and the property sector to reconsider how current network and development planning occurs, costs are allocated, and design and equipment choices in private networks and buildings are weighed against network alternatives.</li> </ul>

#### 5. Costs incurred due to regulatory requirements on embedded networks

Recommendations	Detailed Proposed Actions
Better align energy market regulations and commercial practice to reduce the administrative burden and costs of complying with existing regulations	<ul style="list-style-type: none"> <li>The property sector to address the costs and complexity of the recently introduced requirements for customers of embedded networks by developing standardised meter installation designs and customer contracts.</li> <li>The AER and AEMC to work with state governments and the property sector to revise the approach to licensing embedded networks and licence exemptions and seek to streamline arrangements involving multiple parties that will assist in achieving the desired outcomes of consumer protection and lower costs.</li> </ul>

## 6. Impediments to non-network participants providing electricity network services

Recommendations	Detailed Proposed Actions
<p>Improve the energy industry's efficiency by opening up competition in markets to allow third-party suppliers to provide network and network support services</p>	<ul style="list-style-type: none"> <li>• The AEMC and the AER to consider working with COAG and state governments to create a single, consistent package of technical requirements (including metering, levels of protection, and the design of protective equipment and network connections) across local and national markets between AEMO and distribution networks. The aim would be to lower participants' costs and maximise potential participation in future markets.</li> <li>• The AEMC and the AER to consider working with COAG and state governments to address the competition policy issues raised by networks' potential multiple roles in the 'Open Networks' vision of the future electricity system. The major electricity networks could have roles as major customers, owner/operators and service providers, as well as controlling third-party access to the physical network. The networks' potential incumbency advantages need to be reviewed. In addition, shifting more of the networks' traditional roles into competitive markets would open up participation for new industry entrants.</li> <li>• Economy-wide technology neutrality to include removing regulations that discriminate between service providers on grounds other than their demonstrated safety and performance. These regulations currently discourage competition. For example, embedded networks that otherwise meet all the conditions for a Victorian licensing exemption cannot be built across public roads. This appears to be based on a presumption that licensed network service operators are the only parties able to safely build a network that crosses a public road.</li> </ul>

## 7. Commercial arrangements such as net leases and the 'split incentive' problem

Recommendations	Detailed Proposed Actions
<p>Improve the efficiency of markets by educating property tenants and increasing their awareness of the benefits of distributed energy generation</p>	<ul style="list-style-type: none"> <li>• Federal and state governments to collaborate with property sector experts and provide up-to-date advice to property owners and body corporates on the potential benefits of distributed generation in reducing energy costs and building emissions.</li> <li>• State governments and local government bodies to collaborate with property sector experts to develop and publicise models that can assist in overcoming split incentive issues (such as equipment upgrade agreements).</li> <li>• Commercial property owners to re-consider net rental models and whether gross lease and energy-sharing agreements could help accelerate implementation of cost-effective distributed energy solutions.</li> <li>• The Australian Taxation Office to consider changes allowing the body corporates of apartment buildings to retain ownership of solar PV systems and to offset revenue from generation against costs. Under current tax arrangements, individual apartment owners must include income received from generation in their tax returns.</li> </ul>

# ABOUT US

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## CLEAN ENERGY FINANCE CORPORATION

The CEFC is responsible for investing \$10 billion in clean energy projects on behalf of the Australian Government. We help lower Australia's carbon emissions by investing in renewable energy, energy efficiency and low emissions technologies. We also support innovative start-up companies through the Clean Energy Innovation Fund. Across our portfolio, we invest to deliver a positive return for taxpayers.

The CEFC has committed more than \$1.1 billion in debt and equity investments to a broad range of property-related projects. These investments include 'demonstration' projects with the ability to deliver best-in-class performance around energy efficiency and the integration of renewable energy into new and existing buildings.

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## PROPERTY COUNCIL OF AUSTRALIA

The Property Council of Australia is the voice of the industry that employs 1.4 million Australians and shapes Australia's cities. Property Council members invest in, own, manage, develop and build the things that matter to Australians: homes, shopping centres, office buildings, logistics hubs, retirement villages, schools, health precincts, tourism and hospitality venues and more. Our members are committed to prosperity, jobs and great cities. Together we provide the thought leadership and research that will help decision-makers create those cities: good governance, smarter planning, better infrastructure, sustainability and fewer inefficient property taxes.

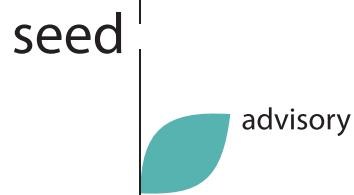
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