

**The impacts of COVID-19 on the  
energy management sector in the period  
March 2020 to July 2020**

**Final Report - August 2020**



**energy efficiency**  
COUNCIL

## About the Energy Efficiency Council

The Energy Efficiency Council is Australia's industry association for energy management, energy efficiency and demand response. The Energy Efficiency Council is a not-for-profit membership association for businesses, universities, governments and NGOs.

Founded in 2009, the Energy Efficiency Council's members are diverse, but are united by a common cause: building a sophisticated market for energy management products and services that delivers:

- Healthy, comfortable buildings;
- Productive, competitive businesses; and
- An affordable, reliable and sustainable energy system for Australia.

The Energy Efficiency Council's job is to make Australia a global leader in smart energy management. To this end, the Council works with its members and partners to:

- Drive ambitious government policy by advocating for smart energy management policies and programs that deliver for all Australians;
- Support business decision making and growth with trusted, impartial information on energy so that businesses have confidence making the right energy management investments; and
- Ensure quality with standards and professional development by supporting standards development and benchmarking for the sector, and training and professional development for professionals across Australia.

The Energy Efficiency Council is a national organization with headquarters in Melbourne

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## Table of Contents

<b>1. Executive Summary</b> .....	<b>4</b>
1.1 Project overview .....	4
1.2 The impact of COVID-19 on energy management companies and employment .....	4
1.3 Energy management and economic recovery .....	6
1.4 Policy recommendations.....	7
<b>2. Background and methodology</b> .....	<b>8</b>
2.1 Background .....	8
2.2 Methodology.....	8
<b>3. Impacts on energy management companies</b> .....	<b>9</b>
3.1 Demand for services .....	9
3.2 Ability to deliver services and evolution in service models .....	9
3.3 Financial and staffing impacts.....	10
3.4 Employment consequences of COVID-19 .....	11
<b>4. Energy management by sector</b> .....	<b>14</b>
4.1 Households .....	14
4.2 Commercial buildings.....	18
4.3 Government buildings and operations .....	20
4.4 Construction sector.....	21
4.5 Manufacturing .....	23
4.6 Energy markets .....	24
<b>5. Energy efficiency schemes</b> .....	<b>28</b>
<b>6. Stimulus programs</b> .....	<b>30</b>
6.1 Using energy management for economic stimulus .....	30
6.2 Stimulus opportunities in the energy management sector .....	31

# 1. Executive Summary

## 1.1 Project overview

The Energy Efficiency Council was commissioned by the Government of New South Wales and the Government of Victoria to assess the impacts of COVID-19 on the energy management sector in the period March 2020 to July 2020. The views set out in this report are solely those of the authors, and do not represent the view of either of the governments that funded this report.

The information set out in this report will help inform government and industry responses to the impacts of COVID-19 on the energy management sector, and ensure that the sector can contribute to Australia's economic recovery while reducing energy bills, improving health and meeting our emissions reduction targets.

The energy management sector includes a diverse group of individuals and organisations that provide products and services that help households and organisations use energy more productively. The sector includes the manufacturers of products like insulation and efficient appliances, and the tradespeople, professionals and companies that design and install energy efficiency upgrades.

The project involved in-depth qualitative interviews with senior executives from a broad cross-section of the industry, focus groups, literature review and data analysis.

## 1.2 The impact of COVID-19 on energy management companies and employment

Energy management is the largest employer in the energy sector. An estimated 250,000 Australians work in roles that fully or partially involve energy management, including electricians, plumbers and engineers.<sup>1</sup> The sum of the time that these roles spend on energy management is at least 59,000 full-time equivalent (FTE) jobs.

The COVID-19 pandemic has already had major impacts on the energy management sector, including:

- In March and April 2020, social distancing measures and community concerns effectively prevented on-site energy efficiency upgrades in homes and businesses. This impact appears to have been temporary and, with the adoption of appropriate hygiene measures, many energy management activities can be conducted with minimal transmission risks.
- Households have significantly increased their expenditure on 'home improvement', including low-cost energy management measures such as do-it-yourself (DIY) draught-sealing and insulation. This is likely due to people spending more time at home, and so seeking to improve their comfort and reduce their energy bills. This trend has complex impacts on the energy management sector, as low-cost measures generally have low profit margins.
- While businesses are currently focused on reducing outgoings such as energy, many have frozen capital expenditure, including on energy projects. This is having serious impacts on some energy management providers. However,

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<sup>1</sup> Green Energy Markets 2019 *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

some energy users are still paying for advisory services and / or investing in non-capital measures (e.g. system optimisation) and measures that are subsidised by government programs (e.g. lighting upgrades).

The impact of COVID-19 on the energy management sector has been significantly shaped by governments' policy decisions:

- The introduction of JobKeeper and JobSeeker not only allowed many energy management companies to stay solvent and retain their staff, but also provided a boost to consumer and business cashflow and confidence, which likely increased expenditure on energy management services;
- There has been a high take-up of existing government programs that subsidise energy efficiency upgrades for businesses, but only where the out-of-pocket expenses for energy users was relatively low (e.g. compressed air audits in NSW and commercial lighting upgrades in NSW and Victoria);
- The temporary suspensions of incentives under the Victorian Energy Upgrades Program resulted in a significant drop in household energy efficiency upgrades in Victoria; and
- Most federal, state and local government agencies continued their existing projects to upgrade the energy efficiency of their operations, which has been critical to some energy management companies. However, interviewees reported that the number of new energy efficiency projects that have been put out to tender in the last three months was down by around 25 per cent.

The impacts of the pandemic on the energy management sector could become far more serious in the second half of 2020, due to:

- The scaling back of JobKeeper and JobSeeker, which will directly affect energy management companies' ability to retain staff, and also reduce households' and businesses' expenditure on energy management;
- Additional restrictions on business operations and movement of people, as a result of COVID-19 restrictions (e.g. border closures, Stage 4 in Victoria);
- An expected downturn in construction hitting manufacturers of energy efficient products, such as insulation; and
- Energy management companies completing projects that are in their current project pipelines and drawing down on their cash reserves.

Over the next 18 months, the viability of many companies within Australia's energy management sector – and importantly, retention of skilled professionals within the sector – will be affected by:

- The trajectory of the COVID-19 pandemic at a state, national and global level, and associated economic conditions;
- The scale of general stimulus and support measures (e.g. JobKeeper); and

- Specific responses from governments that drive investment in energy management.

If Australia can capitalise on households' and businesses' increased interest in energy management and support expanded investment in this area, it could create over 120,000 job-years of employment.<sup>2</sup> If not, Australia could follow the same trajectory as the US, where more than 250,000 people that worked in energy management in 2019 were unemployed or underemployed in March 2020.<sup>3</sup>

### 1.3 Energy management and economic recovery

A number of international and national organisations have recommended that governments prioritise energy management in economic stimulus packages, including the International Energy Agency (IEA), International Monetary Fund, Business Council of Australia, Australian Council of Trade Unions, Australian Conservation Foundation, Australian Industry Group, Property Council of Australia and Australian Council of Social Service. Energy management has been recommended as a focus for economic stimulus because it is:

- **Jobs-intensive**  
The IEA notes “Energy efficiency is job-intensive”, with jobs particularly concentrated in small and medium enterprises (SMEs).<sup>4</sup> The US Government used energy management in its stimulus response to the Global Financial Crisis (GFC) in 2009-11, with a campaign that focused on upgrading government buildings and the homes of low-income households. This program was estimated to create around 200,000 jobs.<sup>5</sup>
- **Suited to counter-cyclical investment**  
When governments invest to upgrade their own assets in ways that boost energy management it delivers significant long-term reductions in energy and maintenance costs.
- **Delivers other public policy goals**  
The IEA has identified that energy management is the largest source of greenhouse gas abatement in the energy sector to 2040. Energy management can play a key role in reducing energy costs, which will be critical with many households facing energy hardship.

Both locally and globally, governments have made a number of commitments to energy management as part of their stimulus programs. By August 2020, these commitments included:

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<sup>2</sup> Green Energy Markets 2019 *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

<sup>3</sup> BW Research Partnership, 2020 *Memorandum - Clean Energy Employment Initial Impacts from the COVID-19 Economic Crisis, March 2020*, BW Research Partnership, Wrentham MA.

<sup>4</sup> International Energy Agency 2020 *Energy Efficiency and economic stimulus – IEA strategic considerations by policy makers*, International Energy Agency, Paris. Available online at: <https://www.iea.org/articles/energy-efficiency-and-economic-stimulus>

<sup>5</sup> Ibid



- The Queensland Government has brought forward upgrades to schools under its *Advancing Clean Energy Schools* program;
- The Victorian Government has announced a program to upgrade existing public housing, with \$4 million specifically set aside for energy efficiency upgrades to high-rise housing;
- The Australian Government's 'High Energy Using Business Grants';
- The Danish Government has committed \$4 billion to build new energy efficient public housing; and
- The European Union is developing a 'European Green Deal' that will invest over \$1 trillion in environmental upgrades. A major focus will be on renovating existing buildings.

After the research for this report was completed, state governments in Australia made major additional commitments to support energy efficiency. These additional commitments are not documented in this report and will likely significantly affect markets for energy management products and services.

#### 1.4 Policy recommendations

The economic implications of COVID-19 are likely to last several years, and policy responses can be broken down into 'immediate stimulus', such as grants for activities in FY2021, and 'longer-term measures' such as energy efficiency ratings for homes that will accelerate investment in energy management over many years.

In terms of immediate stimulus, the most prospective measures are:

- **Upgrading the energy efficiency of government facilities**, such as office buildings, hospitals, schools and water treatment plants. This measure is very well suited to stimulus because it can be ramped up quickly, will ensure that high-skilled professionals remain in the industry and it is counter-cyclical, delivering billions of dollars in reduced energy and maintenance costs;
- **Building and retrofitting public housing**. Governments have control of all the necessary levers to deliver high-quality results with this measure, it will help retain employment in the construction sector and deliver multiple benefits;
- **Retrofitting private housing**. The reduction in Australian immigration rates will result in a significant reduction in demand for new private housing – incentives for retrofitting existing dwellings will absorb many of the jobs which are likely to be lost in new construction and deliver a significant improvement in community health and energy affordability.
- **Supporting better energy management in businesses**, with a focus on installing sub-metering for large energy users and a Smart Energy Fund to support the retrofit of specific types of commercial buildings.
- **Training and accreditation**. Basic training will help many existing trades and professions shift to delivering high-quality energy efficiency upgrades.

## 2. Background and methodology

### 2.1 Background

‘Energy management’ is a broad term that encompasses ‘energy efficiency’ (e.g. lamps that use less energy to deliver the same or more light) and changing *when* energy is used. The ‘energy management sector’ includes a broad range of organisations such as:

- Manufacturers of products like insulation and efficient lighting;
- Companies, trades and professionals that sell and install products; and
- Companies, trades and professionals that carry out design work and optimisation services, such as tuning the systems that run buildings.

Early in the pandemic, the Energy Efficiency Council was commissioned by the Government of New South Wales and the Government of Victoria to develop a detailed understanding of the impacts of COVID-19 on the energy management sector.

The information set out in this report will help inform government and industry responses to the impacts of COVID-19 on the energy management sector, and ensure that the sector can contribute to Australia’s economic recovery while reducing energy bills, improving health and meeting our emissions reduction targets.

While this report provides a summary of the project, the results of the work were primarily communicated to the project funders through regular meetings to ensure that they had the most up-to-date information as it became available. The views set out in this report are solely those of the authors, and do not represent the view of either of the governments that funded this report.

### 2.2 Methodology

The project involved around thirty interviews with senior executives from a cross-section of the diverse organisations in the energy management sector. The results of these interviews were aggregated and synthesised to maintain confidentiality of the interviewees. Subsequently, additional energy management executives were consulted on the initial findings through consultation papers, two focus group and a series of follow-up interviews.

The Energy Efficiency Council would like to acknowledge and thank the interviewees for their generosity in sharing their time and insights. The interviewees’ input has been critical to this project, and the Energy Efficiency Council is responsible for any errors in collating these sometimes-divergent views to create an integrated picture of the impact of COVID-19 on the sector.



## 3. Impacts on energy management companies

### 3.1 Demand for services

As set out in more detail in Section 3, the COVID-19 pandemic and its economic and policy consequences have had significant impacts on the demand for energy management services and products from households, businesses and energy market organisations.

The influence of COVID-19 on demand for products and services is changing rapidly over time. In mid-March 2020, the demand for energy management declined in most sectors due to concerns about transmission of COVID-19, customers focusing on core issues and a dramatic reduction in economic confidence. Once the initial shock passed, spending on energy management in some sectors increased. However, any increase in COVID-19 cases may depress activity locally, and more broadly, given the inter-connected nature of supply chains and national business models.

The influence of COVID-19 on the energy management sector is likely to be volatile over the coming months; monitoring these impacts will mean that governments and industry are in the best possible position to respond.

The impacts of COVID-19 also vary, both between and within sectors, with a significant increase in low-cost activities in the residential retrofit sector and reduced focus in some industrial sectors. However, most sectors exhibit the following broad pattern:

- Increased interest in energy management to reduce costs and, in the case of households, improve comfort; and
- Concern about significant capital outlay, resulting in households and businesses focusing on measures with low out-of-pocket expenses.

The increased interest in energy management could be harnessed to increase investment in the sector if concerns about capital outlay can be addressed.

### 3.2 Ability to deliver services and evolution in service models

The ability of energy management companies to deliver their services after March 2020 varied by sector and service.

Most interviewees had rapidly adjusted their offices and production facilities in order to operate either remotely or with good social distancing procedures in response to COVID-19. Many companies that provide energy efficiency products and services have staff that need to regularly travel, so they already had a large proportion of their systems set up for online access. However, some interviewees had only recently moved their systems online, and there may be companies that were significantly disrupted by the rapid shift to remote work practices.

While interviewees' offices and production facilities are operating well, services that require long-distance, interstate or international travel have been significantly disrupted:

- Within Australia, reduced frequency of domestic flights, border controls and company policies that limit travel have significantly impeded some energy management services, including upgrades to mines; and
- International travel is likely to be significantly disrupted until at least the end of 2020, seriously impacting some Australian software- and service-based exports, unless providers can find a way to deliver them remotely.

Many energy management services require at least one site visit, including some software-based energy management services. These services were heavily impacted from early March 2020 due to energy users' desire to minimise COVID-19 transmission risk, especially if they involved upgrades to homes or industrial sites. This was exacerbated by governments introducing social distancing measures and policies that suspended incentives for energy efficiency retrofits in homes.

However, some services can be delivered with minimal contact, including:

- Energy efficiency measures that can be ordered online and installed by households, such as curtains and draught-proofing;
- Remotely-delivered services, such as building optimisation. There are major opportunities to optimise existing assets with minimal capital outlay, as buildings are often run quite poorly. There are also growing opportunities for remote auditing. However, access to data remains a significant barrier; and
- Installation of measures outside living areas (e.g. fitting data-capture devices onto smart meters and installation of underfloor insulation).

For services that do require some level of visit to an occupied space, energy efficiency providers have introduced protocols to minimise COVID-19 risks.

Governments have introduced a range of measures to reduce COVID-19 transmission, including temporarily suspending incentives for some activities under energy efficiency schemes. Several interviewees supported the introduction of measures to reduce contact with households, as long as these measures are removed as soon as practicable.

### **3.3 Financial and staffing impacts**

The impact of COVID-19 on energy management services varies by both the type of energy user and service delivery models. In turn, the impact of COVID-19 on energy management companies varies. Even within sectors, COVID-19 has had quite different impacts on companies, with one residential energy efficiency company experiencing the number of 'leads' jumping by over 200 per cent, and another experiencing a 50 per cent drop in the number of monthly installations.

The unprecedented nature of COVID-19 meant that companies are not able to forecast their activities and budgets more than a few weeks out. Accordingly, the boards of many energy management companies have been meeting on a weekly basis. Most energy management companies have seen, or forecast, a reduction in earnings. However, some companies have experienced an increase in earnings and some a dramatic drop in earnings.

Many energy-management companies are only viable right now because they have one or more of the following:

- A pipeline of work that was signed up prior to March 2020. The challenge for some companies is that they have been signing up fewer new projects and are quickly working through their existing pipeline;
- A buffer (cash-in-bank or international parent companies) which will have a finite life-span; and / or;
- Temporary support payments from governments, such as JobKeeper. However, a number of companies that were interviewed were not able to access JobKeeper, either due to their incomes remaining stable or their links to a global parent company.

This means that, while to date only a small number of energy management companies that were interviewed have considered a major downsizing, conditions could become tighter for the sector, especially if:

- The economic downturn reduces expenditure on energy management;
- Reduced construction activities reduce the demand for key products and services; or
- Energy management and climate change become lower priorities for energy users due to lower energy prices and competing priorities.

Most energy management companies have already taken pre-emptive measures to contain costs and preserve cash, even if they fared relatively well during the period March to May 2020. Common actions included:

- Moving most staff onto a 4-day week; and
- Laying off non-core staff.

The Australian Government's JobKeeper payment was identified by multiple interviewees as critical to the company being able to retain the majority of their workforce. The greatest risk identified by interviewees was that if they had to let experienced staff go, many would either retire or move to another sector due to their highly-transferrable skills. This would result in the permanent loss of capacity.

### **3.4 Employment consequences of COVID-19**

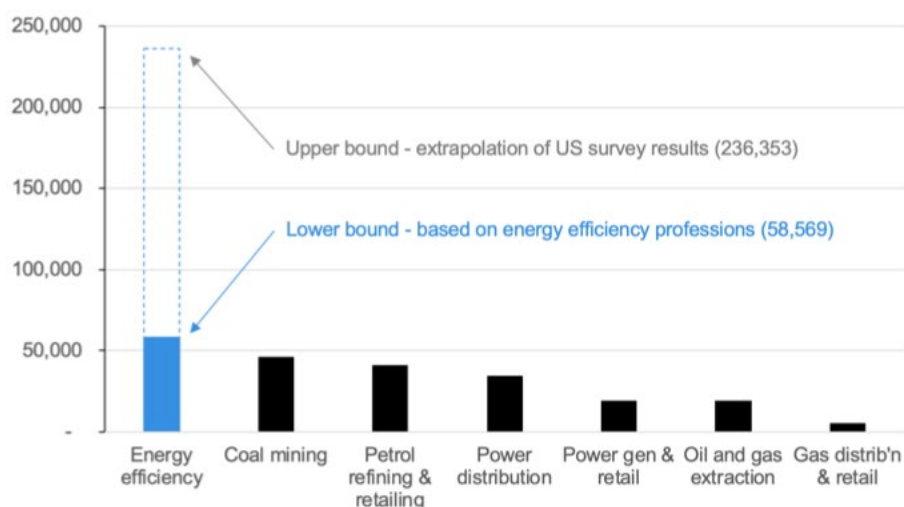
The IEA notes that "energy efficiency is job-intensive" and a 2019 study from Green Energy Markets estimated that over 250,000 Australians worked in roles that partially or fully involved energy management, including engineers, architects and tradespeople.<sup>6,7</sup> The sum of this part- and full-time labour adds up to a minimum of 59,000 FTE roles in energy management.

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<sup>6</sup> International Energy Agency 2020 Energy efficiency and economic stimulus, IEA, Paris. Available online at: <https://www.iea.org/articles/energy-efficiency-and-economic-stimulus>

<sup>7</sup> Green Energy Markets 2019 *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

**Figure 1. Employment in the energy efficiency sector in Australia in 2019**



Source: Green Energy Markets 2019, *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

This figure is comparable with the results of multiple detailed studies on overseas economies. For example, E2 estimates that in late 2019, over 2.3 million Americans worked in energy efficiency.<sup>8</sup> In fact, Australia appears to have a relatively low number of people employed in energy management compared to other developed economies, likely due to our comparatively lower focus on energy management.

Since February 2020 there have been significant job losses from the energy efficiency sector in the US. BW Research Partnerships' analysis of the US Department of Labor data found that 69,800 workers in '*energy efficiency occupations*' filed for unemployment benefits in March, around 3 per cent of the energy efficiency workforce.<sup>9</sup>

BW Research Partnerships notes that this figure is conservative as it does not include underemployment or temporary unemployment, and the total number of newly unemployed or underemployed in energy efficiency in the US could be closer to 250,000. The authors expected further job losses in April 2020, and predicted that unemployment and underemployment in the energy efficiency sector in the US could rise to around 15 per cent of the 2019 workforce.

If Australia lost a similar proportion of jobs in energy efficiency as the US, that could result in the loss of over 8,800 FTE jobs in Australia. To date, it is unlikely that Australia has lost this number of jobs in energy efficiency, due to the rapid action taken by Australian national and state governments in responding to the health and economic effects of COVID-19. Interviewees particularly highlighted the importance of the JobKeeper payment and governments proceeding with contracts on matters such as the upgrade of government facilities.

However, without further action it is very likely that Australia will lose a significant proportion of its energy management capacity in 2020 and 2021. Conversely, with

<sup>8</sup> E2 2020 *Clean Jobs America 2020*, E2, Washington DC.

<sup>9</sup> BW Research Partnership, 2020 *Memorandum - Clean Energy Employment Initial Impacts from the COVID-19 Economic Crisis, March 2020*, BW Research Partnership, Wrentham MA.

the right policy environment Australia could not just retain current employment levels in the energy management sector, but gain a significant number of jobs over the next two years, absorbing individuals that have lost their jobs in other parts of the economy. Indeed, if COVID-19 results in an expansion of energy management, it could create an estimated 120,000 job-years of additional employment in Australia.<sup>10</sup>

**Table 1 Potential employment in Australia from energy efficiency upgrades**

Efficiency upgrade	Employment (job years)
Replace electric storage water heater with heat pump	8,056
Replace LPG water heater with heat pump	1,291
Install or top up insulation	4,339
Draught sealing	1,388
Install single efficient heat-pump heater/cooler in households dependent on electric resistive and/or gas non-ducted heaters	4,827
Replace ducted gas heating with several efficient heat pump heater/coolers	12,146
Replace LV halogen downlights with LEDs	2,265
Commercial building efficiency upgrades	47,545
Mining sector efficiency upgrades	7,627
Manufacturing efficiency upgrades	29,283
Water & Waste Services efficiency upgrades	621
Transport sector efficiency upgrades	1,023
<b>TOTAL</b>	<b>120,411</b>

Source: Green Energy Markets 2019, *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

<sup>10</sup> Green Energy Markets 2019 *Energy Efficiency Employment in Australia*, Green Energy Markets, Melbourne.

## 4. Energy management by sector

### 4.1 Households

Interviews and data show that, after the initial shock associated COVID-19, overall household investment in low-cost energy management measures significantly increased. This is likely due to a broader trend of households refocusing their expenditure on 'home improvement', combined with colder weather and concerns about energy bills. However, there is a risk that household investment in energy management may fall significantly in the second half of 2020.

#### *4.1.1 Patterns of household investment in energy management*

In March 2020 investment in residential energy efficiency market was affected by the need to reduce personal contact. Interviewees around the country reported that many households appeared to have concerns about installers visiting their houses in March, but these concerns waned throughout April and May. This reduction in concern was likely facilitated by energy efficiency providers adopting a number of measures to reduce transmission risks to very low levels, including:

- Protocols such as masks, gloves and sanitising surfaces;
- Remotely delivering some energy efficiency services, such as phone-based delivery of energy advice; and
- Installing energy efficiency measures such as underfloor insulation and wall cavity insulation without entering the home at all.

Multiple interviewees during this project provided data that suggested a widespread increase in demand for lower-cost energy efficiency measures, including:

- A lighting manufacturer saw a 15 per cent increase in the sale of efficient LED luminaires through retail channels;
- Insulation manufacturers reported an average increase of around 30 per cent in sales of DIY insulation products through retail outlets (DIY stores);
- An energy efficiency service provider in South Australia saw a 70 per cent increase in customers contacting them for energy efficiency upgrades that are free under the Retailer Energy Efficiency Scheme (REES);
- A manufacturer of products such as draught-excluders saw 145 per cent increase in the sale of products through their online store; and
- In March 2020 an insulation installer saw a 270 per cent month-on-month increase in consumers contacting them for information on possible services.

However, several interviewees also noted significant declines in the sales of more expensive products and services which had larger profit margins (e.g. underfloor insulation). In some instances, the decline in sales of higher-cost products meant that energy management companies were making significantly less profit. In one instance, a company effectively closed a major arm of its business in April 2020 after its overall sales increased but profit margin deteriorated.

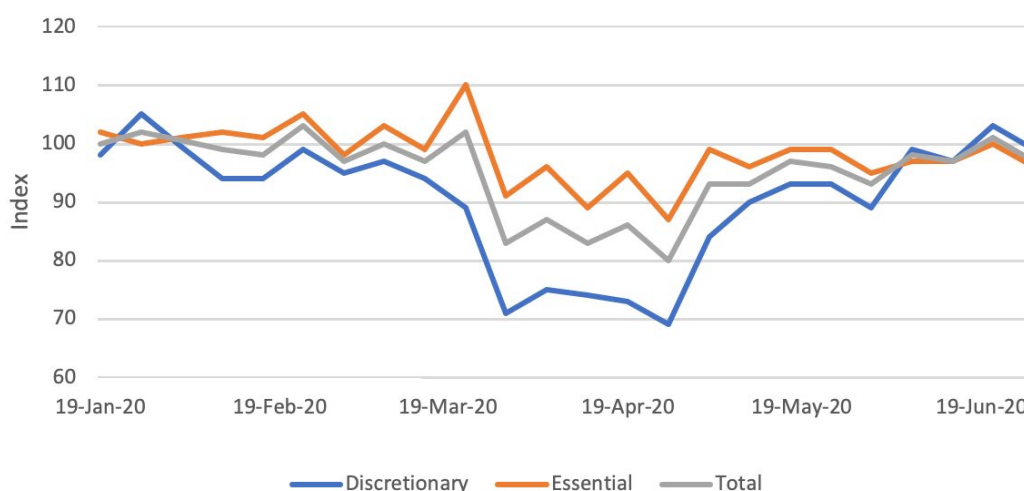


#### 4.1.2 Potential drivers of investment in energy management

COVID-19 has had major impacts on households and their consumption of goods and services. Unemployment and under-employment have increased, and a national survey conducted by Roy Morgan Research in April 2020 found that 33 per cent of Australians had seen their income decrease during the pandemic.<sup>11</sup> This decrease in income, along with concerns about COVID-19, reduced both consumer confidence and spending. Overall consumption per capita fell rapidly March 2020 (Figure 1).

Consumption per capita recovered in May and June 2020, driven at least in part by JobKeeper and JobSeeker. Analysis by AlphaBeta in June 2020 found that discretionary spending by high-income earners was 15 per cent below the 2019 baseline, while discretionary spending by low-income earners, who have benefitted more from JobKeeper and JobSeeker, was 20 per cent above 2019 baseline levels.<sup>12</sup> This has driven significant concerns that premature reduction in JobKeeper and JobSeeker could cause consumption to fall significantly.

**Figure 2: AlphaBeta weekly index of consumption per person**



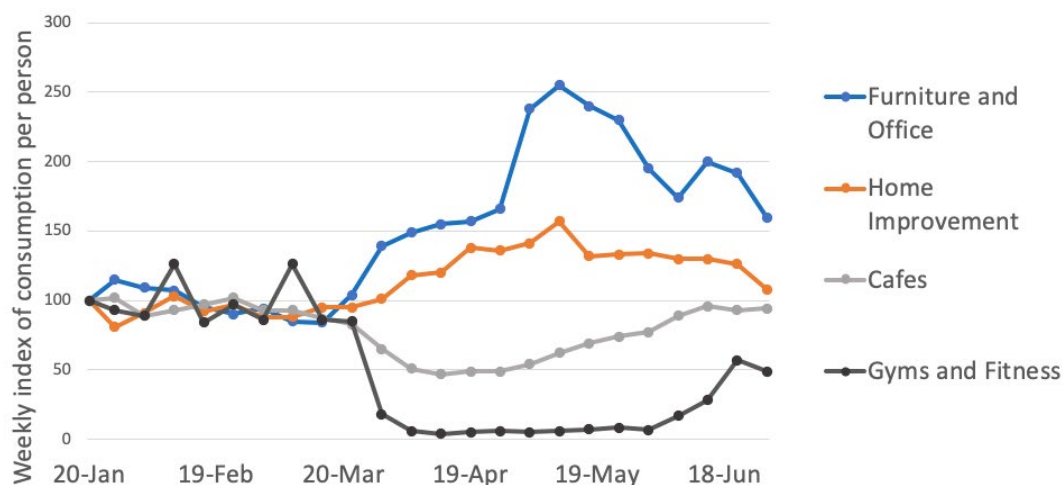
Notes: Weekly index of consumption per person, 100 = normal weekly base excluding Christmas.  
Source: AlphaBeta and Illion (2020) *COVID19 Economic Tracking*

Consumers have also significantly changed the focus of their spending, with reductions in expenditure in areas that are affected by social distancing requirements (e.g. cafes, gyms and fitness) and significant increases in expenditure in areas such as food delivery, home improvement and furniture (Figure 2). Spending in some of these categories is starting to return to pre-COVID patterns, but some could remain permanently changed.

<sup>11</sup> Thomsen, A., O'Neill, E., Hobbs, B.M. and Solomon, S. 2020 *COVID-19 and Consumers: from crisis to recovery*, Consumer Policy Research Centre, Melbourne.

<sup>12</sup> <https://www.illion.com.au/2020/06/29/aussie-battlers-bolster-economy-throughout-pandemic/>

**Figure 3: AlphaBeta weekly index of consumption per person by category**



Notes: Weekly index of consumption per person, 100 = normal weekly base excluding Xmas.

Source: AlphaBeta and Illion (2020) *COVID19 Economic Tracking*

‘Home improvement’ includes a range of energy management measures, including draught-proofing and insulation. Increased expenditure on home improvement is likely to have occurred for a variety of reasons, including that some households:

- Are spending more time at home and are more motivated to make upgrades;
- Have more of their discretionary spending available for home improvement due to reduced expenditure on goods and services such as eating out and gyms; and
- Have more time to make home improvements and meet tradespeople.

In addition to a general increase in interest and expenditure on home improvement, households might be paying particular focus to energy management because:

- Interest in home sustainability and thermal comfort have been increasing in recent years, with construction companies reporting an increasing proportion of households adding optional sustainability features to their homes;
- The introduction of stay-at-home orders coincided with autumn, which is normally when households increase their focus on measures that improve thermal comfort. These measures include insulation and draught-proofing, but also very *inefficient* products such as electric plug-in heaters; and
- Households have expressed increased concern about energy bills.

The Australian Energy Market Commission (AEMC) expects that the number of households experiencing energy bills stress will increase during 2020 due to reduced incomes and increased energy consumption.<sup>13</sup> With households spending more time at home, many will run their heating for longer; in Victoria, residential electricity

<sup>13</sup> Australian Energy Market Commission 2020 *Retail Energy Competition Review – Final Report*, AEMC, Sydney.

demand in April and May 2020 was 21 per cent higher than the same period in 2019.<sup>14</sup> For households that rely on electricity for heating and live in homes with poor insulation and draught-sealing, their electricity bill could more than double.

A survey of Australians conducted on 28-31 May found that:<sup>15</sup>

- Electricity bills remain households' top cost-of-living concern, with 73 per cent of respondents putting it as one of their top-three concerns, ahead of both 'groceries' and 'mortgage or rent'.
- 67 per cent of energy decision-makers expect their electricity bill to increase this year, with 28 per cent expecting it to be 'a lot higher'; and
- 20 per cent of energy decision-makers have already requested assistance from retailers or other parties to help them pay their electricity bill.

The number of households experiencing energy bill stress is likely to rise in the second half of 2020. Many consumers receive their electricity bills every three months, and many households' financial situations could deteriorate over time as they draw down on savings and if government support (such as JobSeeker payments) is wound back.

#### *4.1.3 Future trends for energy management*

Improving the energy efficiency of homes would improve health, reduce energy hardship and lower greenhouse gas emissions. As the energy management industry has adopted a range of hygiene practices recommended for tradespeople, they should be able to continue to provide energy management services even under stronger social distancing policies.

However, households' ability to invest in energy management is likely to fall significantly in the second half of 2020, as savings are drawn down, the impacts of recession are felt more keenly and JobKeeper and JobSeeker payments are wound back. This means that government programs are likely to be critical for maintaining investment in energy management.

The current high level of interest by households in energy management means that interventions by government could be particularly effective at driving energy efficiency improvements, such as:

- **Ensuring the quality, consistency and accessibility of information.** A range of media outlets and organisations provide conflicting messaging and advice on energy management. Improving the consistency of this information and funneling people towards end-to-end services could assist households; and
- **Providing incentives.** The combination of significant interest in energy efficiency and wariness of capital outlay means that incentives are highly effective right now.

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<sup>14</sup> Australian Energy Market Commission 2020 *Retail Energy Competition Review – Final Report*, AEMC, Sydney.

<sup>15</sup> Essential Research 2020 *Shock to the system, energy consumers' experience of the COVID-19 crisis*, Essential Research, Melbourne.

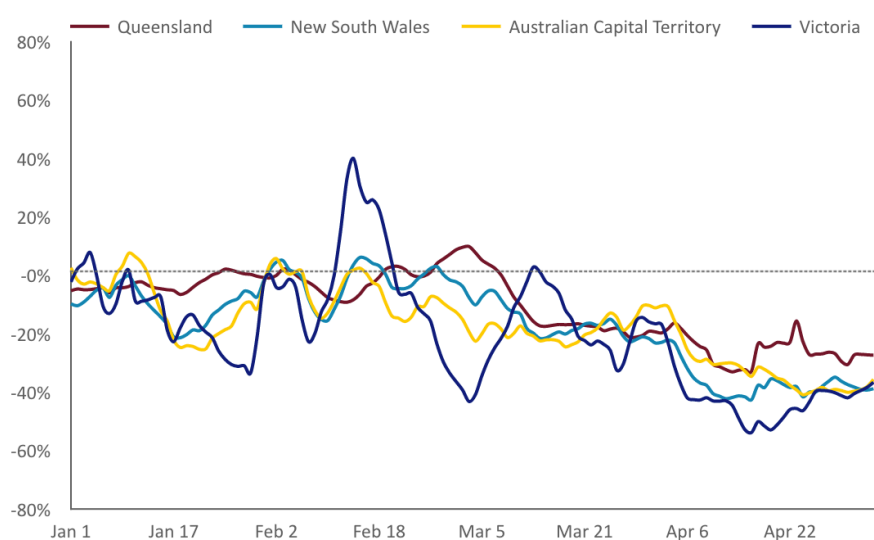
## 4.2 Commercial buildings

Commercial buildings, which include offices, hotels and shopping centres, have been strongly impacted by COVID-19. Interviewees noted that, during the most extreme period of lockdown in March-May 2020:

- Many major shopping centres had less than 40 per cent of their tenancies open. In suburban and regional shopping centres, which are dominated by supermarkets, a higher proportion of centres were fully operational;
- Airports had less than 10 per cent of their normal foot traffic;
- Office occupancy may have been as low as 5 per cent; and
- Hotels were almost completely empty unless they were being used for quarantine.

While a number of commercial sites may have fully closed down, many did not and many have now reopened. Commercial buildings are not designed for partial occupancy, which means that many commercial buildings are using 50 per cent or more of their normal energy use for this time of year. The CIM Index, which aggregates the energy used by shopping centres managed by CIM, found that the average shopping centre in April 2020 was using just 35 per cent less energy than it would have last year.

**Figure 4: CIM Index – Change in energy consumption in shopping centres**



Notes: The Index compares year-on-year energy use based on rolling 7-day averages

Source: CIM (private correspondence)

Interviewees reported that commercial building owners were unusually interested in energy management in April and May because:

- With dramatically reduced prospects for income, commercial building owners are intensely focused on reducing their costs, including energy costs. Psychologically, paying energy costs for largely empty sites may have further

focused people's attention. Several interviewees reported that the crisis had prompted building managers to develop an understanding of the various components of energy bills (e.g. network versus retail charges, a level of detail they had not previously paid attention to);

- Given the reduction in activities, many staff at property companies now have the organisational bandwidth to focus on energy management; and
- Many building owners needed to seek expert advice in order to fully or partially close down their sites. Closing down sites is extremely complicated, as a poorly executed shut-down can damage equipment or result in problems like Legionella outbreaks. During this engagement, many property managers had learned about energy issues.

While commercial building companies are very focused on reducing costs, they are also wary of spending capital in the current crisis. Many parts of the commercial building sector face uncertain futures. For hotels, COVID-19 is likely to dramatically cut international tourism for some time, although an upswing in domestic tourism is possible. For offices and shopping centres, the economic fallout from COVID-19 is likely to be exacerbated by a shift to remote working and online shopping.

A survey by ANZ and the Property Council undertaken in June and July 2020 gave an overall national property sector confidence score of 76, which is negative (below 100) and well below the historic average of 126.<sup>16</sup> Capital growth expectations for offices were minus 66, retail minus 64 and hotels minus 73.

Nevertheless, there is a strong potential for improved energy management in the commercial building sector in the next 12 months, especially if it is supported by a shift in the energy management industry and the right policy measures. Interviewees reported that large property companies remained committed to their climate goals. The following could help ensure that the commercial building sector continues acting on energy management over the next 12-18 months:

- **Upgrading the energy efficiency of government assets.** There was extremely strong feedback from interviewees that the continuation of government contracts has been critical in the last two months, and upgrading government assets such as schools and public housing would be crucial to both support the energy management sector and lead by example;
- **Promotion of opportunities to optimize existing assets** with relatively little capital outlay. Examples include Building Management System reprogramming and software-facilitated site management. Promoting the savings accrued by property companies that have engaged these services could drive uptake;
- **Expand policies that reduce the cost of energy management.** In particular, the energy efficiency certificate schemes in NSW and Victoria have resulted in many SMEs installing energy efficiency lighting upgrades; and

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<sup>16</sup> <https://research.propertycouncil.com.au/research-and-data/anz-property-council-survey>

- **Time-linked incentives drive action.** The Australian Government's incentive to depreciate 100 per cent of an asset if it is installed before 30 June 2020 (now extended beyond 30 June) resulted in a number of hotels in one state investing over \$50 million in solar PV and energy management.

Beyond the next 12 months, there are some significant challenges for the commercial building sector. Office buildings will no longer just be competing with each other for tenants, they will also be competing with working from home. This suggests that offices will need to provide comfort and lifestyle benefits, which could drive improvements in energy efficiency. However, offices will also need to be adapted to minimise transmission of infections (e.g. more space per person and enhanced air filtration and circulation) which could result in increased energy use.

### 4.3 Government buildings and operations

Interviewees that provide energy management services to both the private and public sectors noted a significant discrepancy between activity in the two sectors. While most private sector energy efficiency upgrades had been suspended, projects commissioned by governments had continued, or even been brought forward. In particular, interviewees noted that governments had been keen to explore options to upgrade the energy efficiency of public buildings that were unoccupied, such as aquatic centers.

However, interviewees also noted that there has been a roughly 25 per cent reduction in the number of new government energy efficiency projects that have gone out to tender in the last few months. While the reason for this was unknown, interviewees speculated that it could potentially be due to:

- Some governments delaying their budgets from around May until later in 2020; and
- Governments focusing staff time on urgent matters, such as the public health response to COVID-19.

This suggests one of the most straightforward ways of governments supporting the energy management sector during this period is, at minimum, maintaining the pipeline of efficiency projects at pre-pandemic levels, and where possible ramping activity up.



#### 4.4 Construction sector

COVID-19 has already had a heavy impact on employment in the construction sector. Interviewees indicated that they are currently servicing construction projects that are underway, but expect a drop off in residential and commercial construction in the second half of 2020.

COVID-19 is expected to reduce the demand for new housing because it has:

- **Reduced household purchasing power**  
Higher unemployment and stagnant or declining wages will result in households having less money available for housing.
- **Reduced immigration**  
In the 2019 calendar year there were 533,500 overseas migrant arrivals, and 322,900 overseas migrant departures, delivering a net increase to Australia's population of 210,700.<sup>17</sup> In May 2020 the Hon Alan Tudge MP, Australian Minister for Population, Cities and Urban Infrastructure, indicated that immigration for FY2021 would be around 85 per cent lower than projected, and could remain suppressed for several years.<sup>18</sup>
- **Reduced local and foreign investment in housing**  
Foreign investment has been responsible for a huge boom in housing construction from 2013, with foreign investment approvals in residential real estate increasing from \$36.5 billion in 2013-14 to \$72.4 billion in 2015-16.<sup>19</sup> Some local and foreign investors have purchased homes and neither occupied nor rented them out, which increases total demand for new construction.

All three factors will put downward pressure on housing prices. However, reduced immigration will have a particularly significant impact on new home construction, as it will result in a very large reduction in the number of people requiring housing. Multiple sources indicate that, without intervention, home construction is likely to fall by just under a third between FY2020 and FY2021:

- One interviewee suggested that annual home construction could contract around 30 per cent, from 90 million m<sup>2</sup> to approximately 65 million m<sup>2</sup>.
- PowerHousing Australia and CoreLogic suggest that the number of houses completed could fall by 33 per cent from an expected 180,000 homes in FY2020 to 120,000 homes in FY2021.<sup>20</sup>

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<sup>17</sup> Australian Bureau of Statistics (ABS) 2020, *ABS Report 3101.0 – Australian Demographic Statistics, December 2019*, ABS, Canberra.

<sup>18</sup> <https://minister.infrastructure.gov.au/tudge/interview/transcript-3aw-interview-neil-mitchell-0>

<sup>19</sup> PowerHousing Australia and CoreLogic 2020 *Australian Affordable Housing Report 2021 – COVID-19 Response Edition*, PowerHousing Australia, Canberra.

<sup>20</sup> *ibid*

- The Master Builders Association has reduced its projection for new housing commencements in FY2021 by 28 per cent from 159,000 to 115,822.<sup>21</sup>

The impact of COVID-19 on current commercial construction and infrastructure projects has been limited, but private investment is likely to fall significantly due to the economic downturn and uncertainty about the future demand for a range of building types, such as offices competing with remote working.

The energy management sector provides a range of services to the construction sector, including:

- Products that improve the energy efficiency of a dwelling, such as insulation and building wrap;
- Energy efficient appliances such as heat-pump water heaters; and
- Design and construction services.

A reduction in construction volumes will have a significant impact on the suppliers of energy efficient products, but the scale of this impact will depend on whether new buildings are designed to be efficient or not. For example, if the proportion of new homes with heat-pump water heaters significantly increases in 2021, the number of units sold could remain steady or increase even if there is a decline in total construction volumes.

Accordingly, interviewees' greatest concern was that governments might back away from introducing stronger minimum standards and compliance processes for the construction of new buildings. State Government decision making on this front can be very important; one Australian-based manufacturer reported that they will lose significant sales due to the Western Australian Government's decision to delay the introduction of all provisions in the 2019 update of the National Construction Code (NCC) until 2021.

Interviewees provided extremely strong feedback that the following areas would be critical for the sector:

- Implementation and compliance of NCC 2019 and strengthening of NCC 2022; and
- Government contracts in fields like streetlight upgrades and public housing upgrades.

Therefore, in considering stimulus for the construction sector, governments will need to consider:

- Governments are a major procurer of public housing, commercial buildings and infrastructure, and their decisions will impact the construction sector;
- Maintaining momentum for energy efficiency standards for new buildings will support demand for energy management products;
- Decisions on immigration policy will impact on housing demand; and

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<sup>21</sup> <http://www.masterbuilders.com.au/Resources/Industry-Forecasts>

- Stimulus programs focused on residential renovation may deliver stronger uplift in employment than stimulus programs focused on new builds. If population growth is stagnant, incentives to increase residential construction rates could further reduce dwelling prices, which in turn would deflate the incentive for new construction. In contrast, incentives for renovation could help to retain employment in the construction sector without adding to downward pressure on housing prices.

#### 4.5 Manufacturing

COVID-19 has had a significant impact on manufacturing. While some sectors (e.g. food and beverage) saw a substantial increase in the demand for their products in March 2020, this was followed by a steep decline in April. As a result, the Australian Industry Group's Australian Performance of Manufacturing index dropped by 17.9 points in April, the largest month-to-month fall in the history of the index.<sup>22</sup>

Interviewees generally reported that industrial energy efficiency activity had almost entirely stalled in March and much of April, as corporate bandwidth was limited by the need for manufacturers to focus on:

- Introducing new processes and procedures, such as staggering shifts to minimize the risk of COVID-19 transmission within their workforce; and
- Sometimes significant increases or reduction in demand for products, which had different but significant impacts on corporate focus.

In March many manufacturing and mining sites introduced complete bans on non-core employees visiting their sites, in order to minimise the risk of transmission of COVID-19. Even if energy efficiency providers were allowed to access sites, they were frequently not able to fly or travel interstate to visit more remote sites.

The issues above are likely to be temporary. A far more significant impact has been the strong concern about spending capital on non-core and/or non-urgent matters. Accordingly, many energy efficiency service providers have pivoted to focusing on advisory services (e.g. energy efficiency audits).

Despite these challenges, some manufacturers are interested in better controlling their energy costs. Several interviewees noted that NSW grants that made energy management activities very affordable (e.g. grants for compressed air improvements) had been invaluable in driving energy management activities. Interviewees were very concerned about the temporary suspension of NSW grants (as they migrated to new programs structures) as this left them without any means to obtain work in between the periods when the grants were functioning.

In addition to general economic uncertainty, the manufacturing sector is likely to face increased global isolation, with Australia and many other countries prioritising stronger domestic supply chains. For some sectors, this could result in increased overall demand for local production; in other sectors, it could result in reduced

<sup>22</sup> Australian Industry Group 2020 *Performance of Manufacturing Index – April 2020*, Ai Group, Melbourne.  
<https://www.aigroup.com.au/resourcecentre/economics/performance-indicators/PMI/>

overall demand. As local facilities are retooled to adjust to changing circumstances, this will present a crucial window to improve their energy productivity.

#### 4.6 Energy markets

COVID-19 has had a relatively modest impact on overall energy demand in Australia compared to other countries. The IEA estimates that electricity demand has fallen by 20 per cent or more in several countries, as increases in residential energy demand outweighed by much larger reductions in commercial and industrial energy demand.<sup>23</sup> IEA modelling found that overall energy use (including transport and direct combustion of fuels) declined an average of 18 per cent in countries that are in partial lockdown, and 25 per cent in countries that are in full lockdown.

In contrast, electricity demand in Australia's National Electricity Market was only around 2.4 per cent lower in the period 16 March 2020 to 21 April 2020 than the same period in 2019.<sup>24</sup> For the longer period 1 April to 30 June, electricity demand was only 2 per cent lower in 2020 than in 2019.<sup>25</sup> The relatively modest impact of Australia's lockdown on electricity demand is likely due to:

- Many of Australia's largest energy users, including mines and manufacturers, have continued to operate during the shutdown;
- While commercial building and SME energy use had declined, many are still operating at partial energy load; and
- Household energy use has increased significantly.

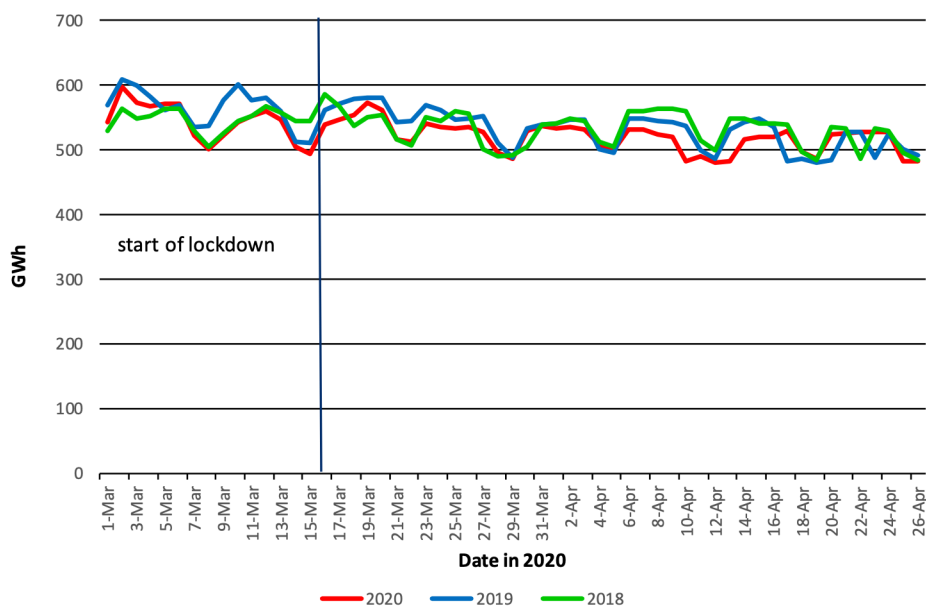
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<sup>23</sup> International Energy Agency 2020, *Global Energy Review 2020 – The Impacts of the Covid-19 crisis on global energy demand and CO2 emissions*, International Energy Agency, Paris.

<sup>24</sup> Saddle, H. 2020 *National Energy Emissions Audit Report – April 2020*, The Australia Institute, Melbourne.

<sup>25</sup> Australian Energy Market Operator 2020 *Quarterly Energy Dynamics Q2 2020*, Australian Energy Market Operator, Melbourne.

**Figure 5. Daily total electricity consumption in the NEM during March and April 2018, 2019 and 2020**



Source: Saddler, H. 2020 *National Energy Emissions Audit Report – April 2020*, The Australia Institute, Melbourne.

While COVID-19 has had a relatively modest impact on overall electricity demand in Australia, it has had significant impacts on particular categories of energy users. For example, within the region serviced by the distribution network service provider (NSP) Jemena, in the week starting 22 June 2020 (compared to the same week in 2019):

- Total electricity demand was only 3 per cent lower;
- Residential demand was 10 per cent higher;
- Small business demand was 9 per cent lower; and
- Large business demand was 11 per cent lower.<sup>26</sup>

The change in demand among particular categories of user, and sub-categories such as ‘households with gas heating’, has impacted on the geographical distribution of electricity demand. Again, in the Jemena region, in mid-April electricity demand fell at 16 per cent of sites in the Victorian suburb of Bundoora, but at just 2 per cent of sites in the suburb of Dallas.

In combination with other factors, COVID-19 has also likely had a significant impact on energy prices. The Australian Energy Market Operator reported that wholesale electricity prices in the NEM fell 49 per cent in the year to March 2020, from \$130 per megawatt-hour to \$66 per megawatt-hour.<sup>27</sup> The global glut in oil and gas also resulted in wholesale gas prices falling 42 per cent from \$9.75 per GJ to \$5.63 per GJ.

<sup>26</sup> Jemena 2020 Jemena Weekly Consumption Tracker, 22 June to 28 June, Jemena, Melbourne.

<sup>27</sup> Australian Energy Market Operator 2020, *Quarterly Energy Dynamics – Q1 2020*, Australian Energy Market Operator, Melbourne.

Australian electricity demand is likely to return to close to its 2019 levels as social distancing measures are lifted, but demand growth is likely to be muted, or negative, for several years due to negative or low economic growth. While global oil and gas demand are likely to increase once overseas restrictions on travel are loosened, the IEA projects that gas demand in 2020 could be 5 per cent lower than in 2019, and oil demand 9 per cent lower.<sup>28</sup> Accordingly, it is likely that Australian domestic wholesale electricity and gas prices will slightly increase later in 2020 but remain significantly lower than they were prior to March 2020.

Lower wholesale prices may have a limited impact on the residential sector's interest in energy management, due to increased consumption driven by COVID-19 related restrictions. However, reductions in wholesale electricity and gas prices could significantly reduce business interest in energy management, by reducing the cost-benefit of various energy management upgrades.

Changes in prices and demand will not reduce the need for greater use of energy management to boost electricity affordability and reliability. Energy management (including energy efficiency and demand response) can provide a raft of services to the energy sector, including:

- Low-cost capacity to ensure that there is sufficient capacity in the electricity system, particularly after the retirement of large generators like Liddell;
- Low-cost capacity to reduce wholesale electricity prices. The delta between high and low wholesale prices in the NEM remains significant;
- Low-cost capacity to reduce the need for expenditure on network infrastructure; and
- Ancillary services, such as frequency control and system balancing. It is notable that, while wholesale electricity prices have come down, ancillary service costs in the first quarter of 2020 were extremely high.<sup>29</sup>

Interviewees noted that the ongoing increase in the penetration of wind and solar PV, especially if it is combined with a decline in overall demand, will mean that intermittent renewable generation will supply an increased proportion of Australia's energy demand. Accordingly, action to better manage the grid remains essential.

Additionally, there continues to be an imperative for:

- System operators and network service providers to invest in software and other services that will help them better manage the grid; and
- Governments and energy market institutions to continue progressing energy sector reforms to unlock demand side resources.

Interviewees noted that the recent decisions to introduce Mandatory Primary Frequency Response (PFR) will likely have a far more negative impact on the storage

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<sup>28</sup> International Energy Agency 2020, *Global Energy Review 2020 – The Impacts of the Covid-19 crisis on global energy demand and CO2 emissions*, International Energy Agency, Paris.

<sup>29</sup> Australian Energy Market Operator 2020, *Quarterly Energy Dynamics – Q1 2020*, Australian Energy Market Operator, Melbourne.



and energy management sectors than COVID-19, and urged governments to continue to progress sensible energy market reforms.

## 5. Energy efficiency schemes

There are currently four energy efficiency schemes running in Australia – the NSW Energy Security Safeguard (ESS), the Victorian Energy Upgrades (VEU) program, the South Australian Retailer Energy Efficiency Scheme (REES), and the ACT’s Energy Efficiency Improvement Scheme (EEIS).

Participants in these schemes reported that there was a significant contraction in residential energy efficiency activities in energy efficiency schemes in Australia in March 2020. In order to protect households and installers, on 1 April (and again on 13 July) Victoria temporarily suspended four activities in the VEU program: incandescent lighting upgrades, weather sealing, and the installation of low flow showerheads and in-home displays.

However, interviewees reported that householder concerns resulted in a rapid drop in retrofit activities in March and April 2020 even in jurisdictions that *didn’t* suspend activities under their energy efficiency programs, likely due to household concerns about contact with service providers.

Interviewees reported a resurgence in residential activity in South Australia from mid-April, due to:

- Declining levels of concern about interpersonal contact;
- More households directly calling accredited providers (APs) and asking for energy efficiency upgrades; and
- More people being at home and available for contact or upgrades. This includes people that may not have been at home during previous door-knocking campaigns.

Less residential activity has resumed under the VEU due to the suspension of incentives for number of key residential measures.

In commercial activities, there has been a significant decline in activities that either involve significant co-contributions or take place at larger sites, as larger sites have often restricted access to contractors. However, there have been upgrades to SME sites that do not involve significant out-of-pocket expenses, particularly lighting upgrades at sites that have been closed due to the lockdown.

Energy efficiency schemes appear to be acting as *de facto* stimulus programs, driving economic activity that would not otherwise occur. Commercial lighting retrofits are likely to be strongly additional in the current economic climate. Given this, some interviewees strongly recommended that incentives for lighting activities should be maintained for at least another 18 months before being phased out.

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*“Energy efficiency schemes appear to be acting as de facto stimulus programs...”*

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The most significant challenge facing some APs is that, if they are not able to access sites to carry out activities, they may not be able to meet their commitments in forward contracts. While some parties (retailers and APs) in the market have allowed for delays in fulfilling forward contracts, other parties have insisted on contracts being fulfilled, with the result that the companies owing certificates will either have to buy certificates at very high prices or default on their contracts. Multiple sources reported that there was a significant risk that the forward contract issue could result in the closure of a number of otherwise viable companies due to the extraordinary circumstances associated with the pandemic.

The 2020 targets for the South Australian REES have already been met, although some individual retailers may not have met their targets. The impediment to banking in South Australia between 2020 and 2021 has significantly slowed activities since June, and there is a very material risk that energy efficiency activities under the REES could effectively halt in South Australia between September 2020 and early 2021. Accordingly, some interviewees strongly recommended that retailers in South Australia should be allowed to bank excess certificates from 2020 for 2021.

In summary, energy efficiency schemes can play a key role in supporting Australia's economic recovery, as they lower the cost for households and businesses to undertake energy efficiency measures.

Key issues that will need to be considered over the next 18 months include:

- Enabling energy efficiency upgrades at homes and businesses while minimising the risk of COVID-19 transmission;
- Determining whether any action needs to be taken on forward contracts, given the potential for this issue to result in some companies closing and skilled individuals permanently exiting the industry;
- Setting a relatively slow rate for the phase-out of lighting upgrades from energy efficiency schemes; and
- Supporting energy efficiency activities with relatively low upfront costs that could capitalise on the high level of interest in energy management, including building fabric upgrades.

## 6. Stimulus programs

### 6.1 Using energy management for economic stimulus

Australia's economy has been significantly impacted by COVID-19. A number of international and national organisations have recommended that governments consider prioritising energy management in economic stimulus packages, including the IEA, International Monetary Fund, Business Council of Australia, Australian Council of Trade Unions, Australian Conservation Foundation, Australian Industry Group, Property Council of Australia and Australian Council of Social Service.

Energy management is well-suited for stimulus because it is:

- **Jobs-intensive**  
The IEA estimates that every US\$1 million invested in energy management creates 15 job-years of employment, significantly higher than many other sectors. This is because energy management is generally labor-intensive and less capital intensive, relative to many other stimulus options;
- **Rapidly deployed**  
Renovation of existing buildings and industrial facilities can proceed rapidly compared to the construction of new buildings; and
- **Delivers multiple goals**  
If governments choose to go into debt to stimulate the economy it makes sense to invest in measures that deliver multiple long-term economic and community benefits. Energy management reduces energy bills and improves energy security; improves the healthiness of buildings; increases economic productivity; and reduces greenhouse gas emissions.

The [Sustainable Recovery](#) report from the IEA and the International Monetary Fund (IMF), released on 21 June 2020, recommends a suite of policies to drive investment in energy efficiency, low-carbon electricity and electric vehicles. The IEA and IMF estimate that these measures would:

- Increase global economic growth by 1.1 per cent each year;
- Save or create roughly 9 million jobs over the next three years, with over 1.6 million jobs in retrofitting buildings; and
- Reduce annual greenhouse gas emissions by 4.5 billion tonnes by 2023.

On 23 June 2020 the IEA's Global Commission for Urgent Action on Energy Efficiency released its [final report](#). The Global Commission included a number of global leaders, energy ministers and corporate executives, and their broad recommendations for prioritizing energy management are likely to result in a number of governments, particularly in Europe, focusing on energy management in their stimulus programs.

In July 2020 the Climate Change Authority released its report '[Economic Recovery, Resilience and Prosperity after the Coronavirus](#)'. The Climate Change Authority strongly recommends that energy efficiency is a key element of Australia's initial response to COVID due to the number of jobs that it creates. The report states:

*“Measures to support energy productivity can boost employment and incomes while offering some of the cheapest ways to reduce emissions and generate financial savings for businesses and households.”*

A number of governments have made policy decisions to support energy efficiency.

- On 8 July the UK Government announced £3 billion of stimulus funding will be dedicated to improving energy efficiency:
  - £1 billion will focus on making public building energy efficient, including schools and hospitals. As part of this \$50 million has been dedicated to pilot approaches to make public housing more efficient;
  - £2 billion will go towards ‘green home grant’ vouchers. Each household will be able to apply for up to £5,000 of vouchers that will cover two-thirds of the costs of measures such as insulation and double-glazing. Low-income households will be able to apply for up to £10,000 of vouchers.
- Denmark will invest €4 billion to build energy efficient social housing; and
- The European Union is developing a European Green Deal that aims to deploy €1 trillion of investment to reduce emissions and improve environmental sustainability. The intent is for the EU to provide around 50 per cent, with the remaining budget coming from states and the private sector. The most significant proposal being considered under this banner is the ‘Renovation Wave’, which aims to drive energy efficiency retrofits on 80 per cent of buildings in the European Union by 2050.

## **6.2 Stimulus opportunities in the energy management sector**

The economic impacts of COVID-19 will likely last several years, and governments should consider a range of immediate stimulus measures (e.g. grants for FY2021) and longer-term measures that will encourage energy efficiency activities (e.g. energy efficiency ratings for homes when they are sold).

Governments will need to develop stimulus policies that deliver best use of public funding. A comprehensive package of stimulus programs for energy management is outside the scope of this report, but the results of this project suggest a number of opportunities that should be considered.

### *6.2.1 Improving the energy efficiency of government buildings*

Improving the energy efficiency of government facilities, such as offices, hospitals, schools and water treatment plants, is an excellent stimulus measure because:

- It is jobs intensive. AlphaBeta estimates that investing \$1 billion to upgrade the energy efficiency of government buildings will deliver 24,000 job-years of employment (8,000 jobs over a three-year period).<sup>30</sup> This program would employ the highly-skilled people that are at high-risk of permanently exiting the energy management sector due to COVID-19;

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<sup>30</sup> Alpha Beta 2020 *Clean Jobs Plan - a report for the Climate Council*, Alpha Beta, Melbourne.

- It can be rapidly scaled. The governments of NSW and Victoria both have well-established programs to improve the energy efficiency of their facilities. These programs can be rapidly scaled-up through the injection of funds, resulting in quick deployment of cost-effective projects;
- Investing in the energy efficiency of government buildings during a recession is counter-cyclical, as it delivers long-term reductions in government operating expenditure.
- It would deliver major benefits, including improved comfort, reduced government energy bills, reduced emissions and community leadership.

These factors were key drivers in the US Government investing heavily in energy efficiency upgrades in public buildings to stimulate the economy after the Global Financial Crisis. The UK, EU and other governments have announced or are currently considering similar measures.

### 6.2.2 Building and upgrading public housing

Building new public housing, and upgrading the energy efficiency of existing public housing, can:

- Deliver multiple social benefits. Australia is estimated to have a shortfall of over 400,000 social housing dwellings;<sup>31</sup>
- Create a significant number of jobs. Beyond Zero Emissions estimates that building new 150,000 new energy-efficient social housing dwellings could create 85,000 ongoing jobs;<sup>32</sup> and
- Employ people from the construction sector that would be heavily impacted by the reduction in private sector residential construction.

### 6.2.3 Residential retrofit program

Australian homes that were built prior to 2005 have an average NatHERS rating of under 2 stars. These homes are expensive to run and provide limited protection from hot and cold weather. As a consequence, researchers have found that Sydney has double the rate of deaths associated with cold weather as Stockholm.<sup>33</sup> Further, Morshed et al. estimate that retrofitting homes to a minimum of 5.4 stars in Melbourne would reduce deaths associated with heatwaves by 90 per cent.<sup>34</sup>

A retrofit program focused on homes would likely include a variety of upgrades delivered by trades and professionals, including: installing heat-pumps for heating and cooling; efficient hot-water systems; insulation; window upgrades; and draught-proofing.

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<sup>31</sup> City Futures Research Centre, UNSW 2019, *Estimated need and costs of social and affordable housing delivery*, UNSW, Sydney.

<sup>32</sup> Beyond Zero Emissions 2020 *The Million Jobs Plan*, Beyond Zero Emissions, Melbourne.

<sup>33</sup> Gasparini A. et al 2015 "Mortality risk attributable to high and low ambient temperature: a multi-country observational study," *Lancet* 25 July 2015; 386 (9991):369-75

<sup>34</sup> Morshed A. et al 2016 "Modelling the correlation between building energy ratings and heat-related mortality and morbidity," *Sustainable Cities and Society* 22 (2016) 29-39



Retrofitting existing homes is well suited for a stimulus program because:

- Retrofitting homes could employ thousands of people from the construction industry. AlphaBeta estimates that investing \$890 million of public funds to support the retrofit of 600,000 homes per annum over the next three years would deliver 21,000 job-years of employment (7,000 jobs over a three-year period), which is a significant underestimate.<sup>35</sup>
- Unlike incentives for new construction, incentives to retrofit existing homes will keep people in the construction sector employed without delivering an oversupply of private housing. Population growth through immigration in Australia is likely to be 85 per cent lower than projected for FY2021, which will significantly reduce the demand for housing; and
- It delivers significant co-benefits by improving health and reducing energy bills. The New Zealand 'Warm Up New Zealand' program was estimated to deliver benefits of \$1.28 billion compared to costs of \$0.33 billion.<sup>36</sup>

A key challenge will be encouraging households to spend on renovation during a period with low confidence about the economy. In addition to grants, governments could explore financing options, such as Property Assessed Clean Energy (PACE) loans, where the repayment of an energy efficiency upgrade is attached to the property, not the homeowner.<sup>37</sup>

Governments should also consider advisory services to households on the range of low and higher-cost measures that they should consider to upgrade their homes. Advice needs to be quite specific, such as advising on the potential capacity and models of reverse-cycle air conditioners that might suit their property.

However, the most significant drive to energy efficiency upgrades would be introducing mandatory energy efficiency ratings for homes when they are sold.

#### *6.2.4 Upgrading industrial sites*

Australia's large energy users have been rated one of the least energy efficient in the world by both the IEA and the American Council for an Energy Efficient Economy.<sup>38</sup> This reduces our productivity and competitiveness and increases our exposure to energy price shocks. In particular, many large energy users in Australia lack both energy sub-metering and energy management systems, which are standard in many other developed countries.

A challenge for driving industrial site upgrades is that many companies have put freezes in place on capital spend. Accordingly, government programs that focus on either high levels of subsidy and/or measures with low capital costs are likely to be most effective.

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<sup>35</sup> Alpha Beta 2020 *Clean Jobs Plan - a report for the Climate Council*, Alpha Beta, Melbourne.

<sup>36</sup> Grimes et al. 2012 *Cost Benefit Analysis of the Warm-Up New Zealand: Heat Smart Programme*, Motu, Wellington.

<sup>37</sup> More commonly known as Environmental Upgrade Agreements (EUAs) in Australia, and generally associated with commercial buildings. In the US PACE arrangements have driven significant activity in the residential sector.

<sup>38</sup> American Council for an Energy Efficiency Economy 2018 *International Energy Efficiency Scorecard*, ACEEE, Washington.

Governments could potentially consider:

- Energy management systems training for large energy users, based on the NSW Government's model;
- Free technical support (e.g. compressed air audits) with low capital costs; and
- Free installation of sub-metering to large businesses that use more than \$2 million of energy per year at a site, up to a value of \$300,000 per site, to cover up to 80 per cent of their energy use. We estimate that this program would only need to cost around \$60 million to \$80 million to cover Australia's 300 largest energy users. This program would deliver upgrades that are almost entirely additional to business-as-usual, as Australian energy users very rarely invest in sub-metering despite it underpinning good energy management.

#### *6.2.5 Upgrading commercial buildings*

The energy efficiency of Australia's commercial building varies by sub-sector. While Australia's premium offices are among the most energy efficient in the world, our shopping centres, hotels and lower-grade offices are generally inefficient. During the Global Financial Crisis, the Australian Government introduced a Green Buildings Fund that resulted in a number of leading demonstration projects, and leveraged around \$4 of private investment for every \$1 of government investment. A similar program that focused on sectors like shopping centres, hotels and lower-grade offices could help kick-start the transition in these sectors.

#### *6.2.6 Skills and training*

Achieving very high levels of energy efficiency in Australia will require a long-term program of developing skills. However, a range of relatively discreet training programs could be used to scale up Australia's workforce to deliver energy efficiency upgrades, with a particular focus on supporting the trades that currently work on new building construction to transition across to retrofitting existing homes.





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