Submission to DCCEEW Electricity and Energy Sector Plan Discussion Paper

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About the Public Interest Advocacy Centre

The Public Interest Advocacy Centre (PIAC) is leading social justice law and policy centre. Established in 1982, we are an independent, non-profit organisation that works with people and communities who are marginalised and facing disadvantage.

PIAC builds a fairer, stronger society by helping to change laws, policies and practices that cause injustice and inequality. Our work combines:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change and public interest outcomes.

Energy and Water Consumers' Advocacy Program

The Energy and Water Consumers' Advocacy Program works for better regulatory and policy outcomes so people's needs are met by clean, resilient and efficient energy and water systems. We ensure consumer protections and assistance limit disadvantage, and people can make meaningful choices in effective markets without experiencing detriment if they cannot participate. PIAC receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

About the Tenants' Union of NSW

The Tenants' Union of NSW is the peak body representing the interests of tenants in New South Wales. We are a Community Legal Centre specialising in residential tenancy law and policy, and the main resourcing body for the state-wide network of Tenants Advice and Advocacy Services (TAASs) in New South Wales. The TAAS network assisted more than 35,000 tenants, land lease community residents, and other renters in the previous 12 months. We have long-standing expertise in renting law, policy and practice. The Tenants' Union NSW is a member of the National Association of Renters' Organisations (NARO), an unfunded federation of State and Territory-based Tenants' Unions and Tenant Advice Services across Australia.

About the South Australian Council of Social Service

The South Australian Council of Social Service is the peak representative body for the non-government, not-for-profit health and community services sector in South Australia. SACOSS' purpose is to influence public policy in a way that promotes fair and just access to the goods and services required to live a decent life. We undertake policy and advocacy work in areas that specifically affect disadvantaged and low-income people in South Australia. SACOSS has a long- standing interest in the delivery of essential services - our research shows the cost of basic necessities like water and electricity impacts greatly and disproportionately on people experiencing vulnerability and disadvantage.

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1. Introduction

PIAC, SACOSS and the Tenants' Union NSW welcome this opportunity to work with the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) in progressing development of an Electricity and Energy Sector Plan (the Plan). In our work with governments, regulators and consumer advocates we have consistently highlighted the need for co-ordinated, strategic approach linking climate and energy policies. This approach must be grounded in robust, evidence-based measures to reduce greenhouse gas emissions, with an explicit focus on improving equity of outcomes for all household energy consumers. We commend the Commonwealth Government for initiating this process and look forward to further opportunities to progress the Plan and develop further detail in its implementation.

Our submission responds to all five key focus areas identified in the consultation paper. As advocates with expertise across the energy, social and rental sectors, our focus in this submission is on households, except where otherwise explicitly stated.

All sector plans, particularly the Electricity and Energy Sector Plan must be shaped by international emissions reductions agreements and the Commonwealth Governments' legislated commitments to eliminate greenhouse gas emissions. They must include concrete targets informed by these commitments, and be derived from the best, most up-to-date evidence regarding what contributions are required from each sector of the Australian economy and community.

The overarching purpose of this plan should be explicit, to link climate and energy policy, aligning with and promoting the objectives of both. It should optimise the contribution the electricity and energy sector can make to the decarbonisation of our society and economy through our energy system transition.

Understandably this plan cannot do everything, but the purpose outlined above should inform the identification of other Government agencies (including Local and State/Territory Governments), policies and processes this plan should seek to influence, align with and link to in order to fully realise its intent. This must include ensuring the Plan integrates with other sector decarbonisation plans and is updated dynamically to adapt to the development of new policy and new evidence regarding what is required to meet our emissions commitments.

Most importantly, this Plan (and the wider decarbonisation planning process) should be seen as an opportunity to use the climate change inspired system transitions to co-ordinate Commonwealth Government actions to improve equity, and actively improve outcomes for all Australian households. This should be done through ambitious targets to make all homes more efficient and sustainable, and energy services more affordably able to support health, wellbeing and prosperity for all in the community.

Efficient electric homes collaboration

Recognising the importance of efficient household electrification, its potential to make significant improvements for Australian households, and the need for coordinated action, PIAC and ACOSS initiated the Efficient Electric Homes Collaboration (EEHC). The EEHC is a growing cohort of

over sixty-five organisations from across social, energy, climate, local government and industry sectors who are working towards efficient electrification of Australian homes.

The EEHC was initiated in early 2023 to develop a shared understanding across different sectors of the desired outcomes from efficient household electrification, how these outcomes can be achieved and what is required from decision-makers and industry. The EEHC is guided by promotion of the following objective, which informs our submission in response to this Plan process:

> *Rapid renewable electrification and improved energy performance of Australia's homes – new and existing – to benefit household energy equity, affordability and health, while accelerating progress to zero emissions and a more resilient economy and community.*

2. Enabling governance

PIAC, SACOSS and the Tenants' Union NSW welcome the step to focus the plan on an overarching vision and objectives alongside an initial scoping of related policies and identification of key focus areas. We support the intent of this governance framework and provide comment in this section on how the framework could be strengthened to effectively deliver on its intent.

A central aspect of the Plan, and a key role the Commonwealth Government can play, is the creation of a robust governance framework and a suite of outcome-based targets to drive and monitor progress against relevant objectives. The Governance framework should be capable of linking meaningfully to climate policy, co-ordinating the required actions, taking responsibility for progressing the objectives and embedding key principles in decision making. The plan needs to identify the responsible entities and where aspects of the plan will be developed and implemented. This plan need not be responsible for all aspects but must clearly indicate where responsibility lies and how consistency across different aspects of implementation will be guided, monitored and delivered.

Along with other community and industry stakeholders, PIAC supports the "OurPower framework.[1] OurPower is a framework for how the sector plans can be developed with an overarching objective, guided by principles, to focus on better outcomes for people and communities. The architecture and approach of Our Power have helped inform the work of the EEHC and should be drawn on in the development of the Plan. The approach and its principles can also form the basis for assessing potential governance and policy approaches, targets, and other initiatives.

2.1 Vision

PIAC, SACOSS and the Tenants' Union NSW support the intent behind having a clearly stated purpose or vision for the Plan. We contend that an overarching 'Vision' is more appropriately

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[1] ACOSS and Total Environment Centre, 2022, *OurPower*

situated above all the Sector Decarbonisation plans, clearly stating the unifying end state the plans are intended to contribute to. Each Plan should then have a stated Purpose. This 'Purpose' then describes the role and contribution of each Plan.

An appropriate overarching Vision for all the sector decarbonisation plans could be:

An efficient, equitable and affordable transition to a zero-carbon economy that delivers better outcomes for all Australian households and communities.

The Electricity and Energy Sector Decarbonisation Plan should then have a clearly stated purpose which relates the Plan to this Vision. We recommend:

Ensure an equitable, efficient energy sector transition supports the decarbonisation vision and provides dependable, affordable, equitable zero-emissions energy services for all Australians.

2.2 Objectives

PIAC, SACOSS and the Tenants' Union NSW support the identification of three key system transformations that necessarily underpin the plan, and the design of objectives to achieve these transformations.

Affordability and equity

Equity and affordability must be the central, fundamental aspects of the Plan, not a consideration after the fact intended to provide amelioration for 'those left behind'. This plan is an opportunity to improve overall equity of outcomes for all Australian households through a transition to 'something better' in the way energy supports the health and wellbeing of Australian households.

PIAC, SACOSS and the Tenants' Union NSW do not find it appropriate to frame the affordability and equity objective as 'empowering consumers'. Contemporary understanding of inherent consumer vulnerability means key outcomes cannot be dependent upon consumers, something which is implicit in the notion of 'empowering consumers'. This objective should instead recognise the need to build fairness through the plan, to support equitable outcomes for all Australian households and support the overall efficiency of the energy system and its transition in Australia. As will be discussed throughout the submission, the plan should not overly rely on consumer choice, responsibility and behaviour, but should instead seek to raise the efficiency, sustainability and affordability of the entire energy sector to improve outcomes for all Australian households, not only those who can or choose to engage with the system in particular ways.

We recommend amending the affordability and equity objective to the following:

Ensuring all Australian households and communities have equitable access to the benefits of an efficient, resilient, sustainable and affordable energy system.

Transforming energy supply

PIAC, SACOSS and the Tenants' Union NSW support the transformation of Australia's energy supply as a necessary focus of the Plan. To achieve our legislated emissions reductions commitments and to support the health, wellbeing and prosperity of Australian households, our

energy supply must rapidly phase out all remaining fossil fuels and replace them with efficient renewable energy alternatives.

We recommend amending the energy supply objective to the following:

Rapidly phasing out fossil fuels, growing renewables and efficient alternative low emissions fuels, while ensuring efficient, resilient, sustainable and affordable electricity and energy supply through the energy transition.

Improving energy performance

PIAC, SACOSS and the Tenants' Union NSW support facilitating demand-side actions and initiatives as a key objective in the plan. We recommend this objective be more explicit in identifying its aim.

We recommend altering the improving energy performance objective to the following:

Enabling and facilitating deployment of, and better household and energy system outcomes from, energy efficiency, electrification, advanced metering, household generation, flexible demand and storage.

2.3 Principles

PIAC, SACOSS and the Tenants' Union NSW note an absence of principles which we consider could provide more robust guidance for the design of implementation measures arising from this Plan. Key principles are needed to guide the development of the Plan, develop outcome targets, and inform what measures are required to implement the Plan and achieve its objectives. These should be enduring principles that can be applied to consideration of issues related to energy sector decarbonisation and inform decisions on how best to achieve the identified objectives in a way that delivers optimal outcomes for all Australian households and communities.

Examples could include:

- Plan targets and commitments should be based on Australian Government climate commitments and should incorporate robust, up-to-date evidence.
- End-point targets and commitments should be expressed at the outset, to provide certainty, with interim targets and commitments utilised to provide scope to monitor progress.
- Good consumer outcomes should not be dependant or contingent upon consumer agency, choice or engagement.
- Household consumers should not carry costs or risks they do not benefit from or are not capable of managing.

We also highlight the principles developed through the OurPower framework[2].

[2] ACOSS and Total Environment Centre, 2022, *OurPower*

2.4 Targets

The Plan must be driven by a comprehensive set of robust, long-term targets with transparent measures to implement, monitor and 'enforce' them. These targets should be informed by and linked to emissions reductions requirements and set both final targets as well as interim pathways that can provide certainty and track progress. The certainty provided by targets is crucial to enable:

- Australian households and businesses to start making informed investment and purchasing decisions, leveraging all available economic resources, and developing efficient workforces and supply chains.
- State and Territory jurisdictions to align policies, programs, and investments supporting these targets and objectives.
- Commencement of future planning for gas networks to enable a managed, smooth, and efficient transition for households.
- The realisation of immediate emissions reductions benefits through reduced energy use and increased utilisation of distributed renewable energy resources and demand management.

The targets embedded in this Plan should:

- Link to Australia's climate change mitigation responsibilities and goals of keeping to 1.5 degrees of warming (and no more than 2 degrees).
- Be derived from the objectives of the Plan and relate to the key principles outlined.
- Involve long-term, end-point-targets which are legislated at the outset. These should also have interim targets to track performance and transition.
- Have comprehensive mechanisms for tracking, measuring and review by a single responsible entity empowered to undertake the role. This should include a range of designated progress markers and indicators set at the outset, with pre-determined review points and triggers for re-evaluation where not met.
- Include interim targets with material impact set at 2030 and 2035, and end-point targets set at 2040 (linked to evidence-based climate change response requirements).
- Involve interim targets which prioritise people and communities experiencing disadvantage and vulnerability in responses (for instance, targets related to contribution to closing the gap for First Nations communities and targets for upgrading social housing by 2030 and 2035).
- Incorporate clear communication across governments and their agencies of what action is required, how much and by when.

Long-term end-point targets should be set at the outset with a clear and unequivocal trajectory of steps and makers along the way. Any cost-benefit assessment of measures in the Plan should relate to the end point targets only and should incorporate the full benefits involved – for instance, in housing performance, the assessment should consider whole-of-life cost (housing and energy) v. whole-of-life benefit, including health and household and energy system benefits.

Targets should be framed to support outcomes for consumers and consumer benefit, rather than measure process or 'industry development'. Where technology specific targets are utilised, they

are best employed as interim targets to support progress towards more comprehensive outcome targets.

Optimal timeline for residential electrification

Targets for residential efficiency and electrification (as detailed below) as developed by the collaboration for Efficient Electric Homes are required. The targets are ambitious, based on the starting point for what is required to meet the emissions reductions challenge. They are substantively achievable if committed to, and able to leverage available resources of Government, industry, and private finance. These targets should be regarded as an example of evidence-based target setting, where targets are derived from objectively determined starting points (i.e.. What is required to meet our emissions reductions requirements). We understand it is possible these initial targets will need to be adapted to accommodate supply, workforce, and other limitations, but should be regarded as a starting point and 'stretch target'. Importantly, in the process of developing further detailed planning and the policies to deliver on these targets, we accept there will likely be a level of flexibility in delivering on the final proportion of each of these targets.

Level 1 – All homes by 2035

- All[3] homes to be efficient and electric by 2035 – where 2035 is a crucial emissions reduction target point and one where the energy system will be substantially renewable.

Level 2 – new and existing homes from 2025 to 2035

- All new homes – efficient and electric no later than 2025 – where this involves immediately proceeding to 'zero-carbon ready' new homes to minimise the future retrofit burden.

- Existing homes – are retrofitted to be efficient and electric by 2035[4] – where this is a stretch target to inform action and provide certainty, and may involve allowing minimal, defined exceptions.

Level 3 – priority retrofits from 2025 to 2030

- Public and community housing is efficient and electric before 2030 – where these represent an economically efficient opportunity to build supply chains and markets while prioritising equity in the transition for those facing the biggest barriers and most likely to benefit.

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[3] For the purposes of target setting 'all homes' has been used. We understand this to be an indicator that the target is intended to be as universal as possible and in practical terms may actually mean 90% of homes, recognising the limitations which may apply to a significant minority of housing.

[4] As with other targets expressed here, we understand that in the process of developing more detailed implementation it is likely this target will involve some housing being upgraded to less than 7-stars, and/or that a certain percentage of housing (for instance up to 10%) may not be upgraded within this timeframe.

- First Nations regional and remote communities housing is efficient and electric before 2030 – where these represent an opportunity to prioritise equity.

- Low-income owner occupier housing is efficient and electric by 2030[5] – where these are a priority group requiring government assistance and support and represent an opportunity to prioritise equity.

- Rental standards for energy efficient and electric homes are mandated by 2025 in line with the community blueprint for minimum energy efficiency standards for rentals[6]. Full compliance with transition to all-electric rental properties should then be required by no later than 2035[7] – where this represents a crucial measure to prioritise equity and address the standards of existing housing stock and improve outcomes for more than 30% of the population who would otherwise be locked out of the benefits of efficient electrification.

- Interim targets for the conversion of gas hot water heaters to heat pumps (or efficient electric, where appropriate). These should be expressed in proportion of total, as well as simple numbers replaced.

While the targets outlined above may be regarded as more appropriately seated within the Built Environment Sector Plan, effective integration of the Plans is likely to require such targets to be communicated and developed within both Plans, detailing how targets contribute to the objectives of each.

3. Mobilising investment to transform energy.

The scope of the challenge of the energy sector transition will require investment well beyond what Governments are capable of. Key to engaging and leveraging this investment is providing certainty and direction through a set of concrete targets, signalled well in advance, and a framework of robust standards, regulations, and incentives. At both large and household scale, standards, regulations, and incentives should not be seen as a crimp on investment, but a clear signal as to where opportunity lies.

The key role for the Plan is to provide clear signals though robust and committed targets and ensure there is consistent continuity between Commonwealth and jurisdictional targets, plans, and schemes, and identify areas where more effective connection is required.

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5 This target is set to indicate the priority for 'low-income owner-occupied housing as defined in ACOSS report on financing upgrades for low-income housing. We accept this target is likely to involve upgrading some low-income homes to lower than a 7-start rating equivalent, and/or upgrading 90+% of this category of housing,

6 Healthy Homes for Renters Community Sector Blueprint

7 This target is set to indicate the staging and sequencing and align with overall targets based on what is required. As with low-income owner-occupied housing, in practical terms this may involve a proportion of rental housing being upgraded to less than 7-start by this date, or recognising that 90+% of housing may be upgraded by this date.

3.1 Large investment in the energy transformation

The Plan should recognise that the substantive structures to ensure the attractive investment conditions for required generation, storage and transmission are largely in place. Indeed, in some cases there may already be an overly complicated collection of investment incentive signalling and enabling measures. In any case, the role of the Plan should be to note and map these mechanisms and identify opportunities to streamline and improve their efficiency and fairness, rather than augment or add to them.

The Plan should consider measures to improve the orchestration of investment in demand-side measures and ensure they are better integrated with supply side investment, to ensure overall investment is as efficient as possible.

This should extend to requiring the AER, and AEMO (through its ISP) to compare supply side investment options with demand side investment options when planning and approving spending plans. On top of being less expensive for consumers, demand side investments, such as in upgrading energy efficiency or enabling demand side participation, offer greater impact per dollar spent in terms of emissions reduction and reliability. This is because demand side investments not only contribute directly to either increasing supply or reducing demand of energy, they also enable an (expensive) supply side investment to be avoided.

Further attention should be paid to other factors we know are practically limiting the delivery of needed investments in required timeframes. This includes:

- planning approvals,
- connection processes,
- cost-recovery and cost sharing mechanisms,
- skills and supply shortages, and
- engagement processes with impacted communities and measures to maintain social licence.

Governments are increasingly recognising the crucial role of social licence in the transition, and the need to engage with communities earlier and more meaningfully in processes to propose, plan, approve and develop needed infrastructure. The Plan should build on these measures and incorporate the work being done by many stakeholders, such as ACOSS through their 'Fair, Fast and Inclusive framework for climate action'[8].

As part of active measures to build and maintain social licence the plan should consider measures to improve the fairness of cost-allocation and recovery for transition-related investments (such as renewable energy zones, ISP projects and other major transmission projects such as those connecting Snowy 2). The Plan should look to consider reforms to implement a consistent 'beneficiary pays' principles for cost recovery of these projects, where beneficiaries include not only the consumers, but also the commercial entities such as generators

[8] ACOSS, 2024, *Blueprint for Fair, Fast and Inclusive Cliamte Change Action*

and storage providers. The Plan should also consider removing portions of the upfront cost to consumers from cost recovered through bills, which are inherently regressive.

3.2 Wholesale electricity market design change

The move to a more 'two-sided market' offers a range of opportunities and risks for energy consumers. The benefits of more flexible demand and supply to the system can reduce network and wholesale costs for consumers, improve reliability and lower emissions. It can give some consumers (who wish to exercise it) more control of their energy bills and usage. However, as we have noted throughout this submission, the system and its benefits cannot be predicated on consumers exercising that control.

Any reforms to introduce a more two-sided market design should seek to solve these problems at least-cost and most benefit to all consumers, and in a way that promotes the timely transition to a zero-emissions energy system.

To maximise the benefits, such reforms should (where possible) identify opportunities to avoid minor incremental short-to medium-term reforms that often prove to be 'band-aid solutions'. They should instead seek fundamental reforms that realise more benefits and efficiency in the longer term.

Two-sided market

The energy market bodies, including the AEMC, have promoted the idea of a 'two-sided market' as a key aspect of the transitioned energy system. We consider this an example of systemic 'complexity' which will be key to ensuring a more efficient energy system. But it is also a concept that will need to be introduced with consistent principles that:

- Roles and responsibilities in the market are assigned in a way which aligns incentives of market participants with the interests of consumers,
- consumers should be insulated from the complexity of the system to the greatest degree possible,
- consumers should not be required to engage with the market, and
- consumers should not be disadvantaged if they cannot engage.

Subject to these, PIAC, SACOSS and the Tenants' Union NSW consider the key issues a two-sided market could help address are:

- Some consumers (either directly, or through their service providers) want access to products and services that allow them to benefit from more flexible demand, but have very limited opportunity due to a lack of offerings, particularly offerings which deliver genuine benefit.
- Parties other than retailers (such as aggregators) are unable to access the wholesale market to offer products and services to consumers who may want them.
- The wholesale energy market lacks efficient levels of demand flexibility.
- The market operator cannot transparently deploy the demand-side in the same way as generation.

While most consumers will likely continue to contract with retailers for their essential energy supply, aggregators should be allowed to offer services to those consumers who may want them, to help them manage and create value from their flexible loads. Retailers should not be prevented from offering these new products and services, but they should not be the only energy service providers with access to consumers. To ensure a more two-sided market can function, aggregators must be allowed compete on an even playing field with retailers to provide new energy products and services and offer services into the wholesale or other markets. They should not be forced to partner with retailers to provide products and services to those consumers who may want to access them as this will curtail the benefits able to be realised for both the individual consumer and the system as a whole.

Demand-side activity should be enabled in the energy wholesale market through AEMO's central dispatch. While PIAC, SACOSS and the Tenants' Union NSW appreciates this can provide considerable benefits, such as introducing competition to the supply-side and allowing visibility and control of demand, it can also limit these services being provided in other, less complex and costly ways. This should be done by extending the wholesale demand response mechanism (WDRM) arrangements to households, with third party aggregators who can bid into the wholesale market on behalf of household who wish to participate.

It is important to reiterate that most consumers want simplicity and the guarantee of their essential energy needs being met simply, sustainably and affordably. Equitable outcomes depend on delivering this. However, the mechanisms outlined above (and throughout this submission) are likely to be of value for some consumers. Enabling this smaller subset of consumers to be able to engage actively in demand management, directly or through an aggregator or service provider, provides benefits to all consumers, as well as to those who participate.

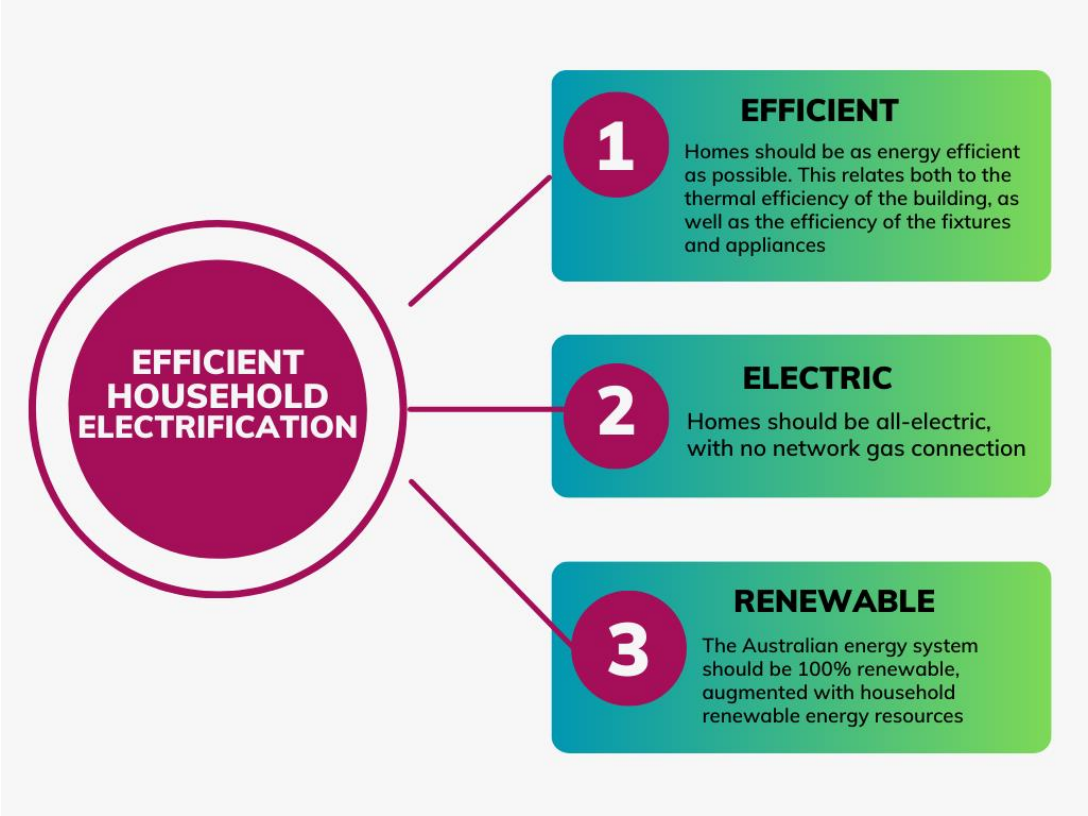
3.3 Direct responses to investment questions

What actions are needed to attract the required large scale private capital and household investment in the energy transformation, with or without government intervention?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout section 3 of this submission.

4. Enabling electrification

Australia's climate and emissions reduction commitments cannot be met without electrification, a step-change improvement to household efficiency, renewable energy resources and more dynamic sharing and management of supply and demand. PIAC, SACOSS and the Tenants' Union NSW strongly support efficient, renewable, electrification of our energy system to the fullest extent possible. Efficient electrification of Australian homes is a focus area for PIAC's team, and the majority of this section of the submission will focus on residential electrification. The information provided here should also help to inform the built environment sector plan.



Efficient electrification is a crucial part of the lowest cost, fastest and fairest pathway for decarbonising the energy system and improving long term energy and housing affordability, equity, and climate resilience.

Australians have been told that the energy transition will lower their energy costs, but most households are not yet experiencing that outcome and indeed many are experiencing increasing energy costs. Efficient electrification is positive action that Governments can take to address this, bolster social licence for the energy transition and ensure it delivers improved outcomes for all households.

Efficient electrification will allow governments to progress action on energy affordability, emissions reduction, community resilience and health outcomes.

Emissions Reduction

Australia's climate and emissions reduction commitments cannot be met without improved household efficiency and renewable electrification. No credible transition and emissions reduction strategy can exist without a significant contribution from improved efficiency and electrification. The International Energy Agency's 'Net Zero by 2050' roadmap includes efficient renewable electrification as a key pillar of decarbonisation for the global pathway to net zero.[9] The International Renewable Energy Agency estimates that electrification and energy efficiency will deliver 45 percent of global emissions abatement to 2050.[10] All credible pathways for emissions reduction involve rapid electrification supported by renewable energy, with supporting improvements to energy efficiency. Efficient residential electrification can further support a faster and cheaper transformation of Australia's energy system by enabling greater use of flexible loads to optimise and manage demand and ensure expensive energy system augmentation is kept to a minimum.

Methane is a dangerous fossil fuel with greater short-term emissions impact on climate change than carbon dioxide. Rapidly decreasing methane emissions is a high impact short-medium term priority for any meaningful emissions reduction response. Its continued domestic production, use and export harms our health, our future prosperity and is incompatible with our global climate responsibilities. Reducing domestic gas demand and meeting emissions reduction targets will require electrification of most existing domestic gas use and the managed decommissioning of gas networks. The International Energy Agency's Pathway to Net Zero by 2050 is unequivocal.[11] There can be no new gas fields approved and existing methane production and use needs to be urgently phased out.

Modelling and planning which asserts an 'ongoing role for gas' must be qualified, with an evidence and principles-based assessment of where gas demand can be eliminated, reduced, and replaced. We address this approach in greater detail later in this submission.

Energy Affordability

As an essential service, energy costs have a big impact on the cost of housing for households. Efficient electrification of homes is an opportunity for decision-makers to have an enduring impact, improving affordability of energy and housing. As household energy costs lower, they lower the overall cost of maintaining a home, leaving people with improved capacity to meet their other needs (including the rent and mortgage costs of the home itself).

Efficient electrification can provide both enduring and short-term improvements to energy affordability for Australian households. The ongoing cost of living crisis, volatile wholesale

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9 International Energy Agency, 2021, *Net Zero by 2050: A Roadmap for the Global Energy Sector*

10 International Renewable Energy Agency, 2022, *World Energy Transition Outlook 2022*

11 International Energy Agency, 2021, *Net Zero by 2050: A Roadmap for the Global Energy Sector*

markets and the significant costs involved in the energy transition will likely continue to result in high energy bills at a time when many people have a reduced capacity to pay. Efficient electrification of homes can produce energy savings for households, while improving social licence for the energy transition.

A fully electric, 7-star home with solar in Western Sydney will spend approx. $2900 less a year in 2024 on their energy bills compared to a 3 star, dual-fuel home (gas and electric).[12] This equates to reducing the households rent or mortgage payments by $55 a week. A fully electric 7-Star home will still save more than $1200 a year, compared to the dual-fuel 7-star home with solar. A significant factor in these savings is removing the ongoing fixed cost of maintaining a gas connection, as well as savings related to the increasing gap between the efficiency of gas appliances and more efficient electric ones (such as heat-pump hot water systems and reverse-cycle air-conditioners.

These savings do not include the increasingly significant impact of new tariff offers which allow all-electric homes (even those without their own solar) to benefit from cheap/free solar energy in the middle of the day, which can be used to heat water, pre-heat or cool homes and charge batteries and EVs. Options for innovative pricing that maximise times of high solar feed-in to provide cheaper energy will increasingly be offered by energy providers. These types of pricing options will be most beneficial to all-electric households where larger loads are electric and more flexible (such as water heating) and are a crucial consideration in improving affordability for homes without access to solar. Crucially, the greater benefits for households also mean significant system-wide savings through improved utilisation of the electricity network (that is, more people using the network outside of peak times, lowering the per-unit cost of the network for all).

Community Resilience

More efficient electric homes, with more scope for flexible demand, are a key contributor to improved household and community resilience in response to the impacts of climate change already being experienced. Australians living in inefficient homes with inefficient appliances are constantly faced with a decision of whether to live in unhealthy temperatures and save on their energy bills or maintain a healthy temperature in their home and receive high energy bills. For many disadvantaged households, the decision is not even available to them as they are without the means or agency to maintain a healthy household environment. Climate change will continue to see more extreme temperatures and humidity, and Australian households need to be able to weather those events, healthily in their homes.

Health impacts of household gas

Methane is a harmful and poisonous gas, regardless of whether it is fossil methane or 'bio-methane'. Pollutants from gas appliances reduce indoor air quality in homes, both when gas is burned and through leakage of unburned methane. Household gas use is increasingly being

[12] Renew, 2022, *Limiting Energy Bills by Getting off Gas* p.20

linked to poor health outcomes including childhood asthma and certain cancers. Cooking with gas is estimated to be responsible for up to 12% of childhood asthma in Australia.[13]

Asthma Australia explains,

> *Cooking with gas is a significant source of household air pollution. Gas cooktops produce a variety of air pollutants, including fine particulate matter, nitrogen dioxide, carbon monoxide, and formaldehyde. Similarly, gas heaters produce a variety of harmful air pollutants, and unflued gas heaters are particularly dangerous because these pollutants remain inside the home rather than being vented outside. Exposure to the pollutants produced by gas cooktops and heaters can trigger asthma flare-ups and contribute to the development of asthma. Cooking with gas is estimated to be responsible for up to 12% of the childhood asthma burden in Australia.[14]*

Phasing out the use of gas in Australian homes through efficient electrification will support improved health outcomes, reduced personal health spending and improved productivity, as well as reduced government health spending. Doctors for the Environment Australia recommend that,

A harm minimisation approach for the 5 million Australian homes with gas appliances requires public education about improving ventilation whenever a gas appliance is used, and phasing out the use of indoor gas appliances. A first practical and urgent first step is to prevent new homes from being connected to reticulated gas to stop making the problem bigger.

Just as building standards specify health based minimum requirements for sanitation, smoke alarms, ventilation, and lighting there are strong health arguments for not permitting indoor gas combustion in future dwellings.[15] This is likely to be true regardless of the composition of the gas, given that even 'green' hydrogen has been shown to have significant Nitrogen Dioxide impacts when burned indoors.

Efficiently electrifying Australian homes is the best approach to addressing these adverse health outcomes. Health issues from indoor gas use would remain if the reticulated gas network was converted to use 'renewable gases' such as bio-methane and hydrogen.

Enabling electrification for a smooth transition

While there has been some progress towards efficient electrification of Australian homes, Governments and decision-makers are not yet taking the co-ordinated, long-term strategic action required. This lack of committed and consistent action is likely to have serious detrimental consequences, increasing costs for many households and unnecessarily increasing risks and

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13 Knibbs, Woldeyohannes, Marks, Cowie. 2018 *Damp housing, gas stoves and the burden of childhood asthma in Australia*

14 Asthma Australia, 2023, *Inquiry into Residential Electrification: Senate Standing Committee on Economics*, p.4

15 Doctors for the Environment Australia, 2023, *Submission to the Inquiry on Home Electrification, Senate Economics Reference Committee*, p.2

costs for the economy as a whole. Currently regulations, policies, subsidies, and programs support continued use of networked gas that undermines and works against progress and endangers an effective response to climate change and improving the affordability of energy and housing.

Efficient electrification is about ensuring our energy system and housing are fit for the future, affordable, efficient, sustainable, and able to support the health and well-being of all in the community. Efficient electrification means co-ordinated action to set and improve energy efficiency standards in housing, electrify housing, and accelerate the transition to a renewable energy system.

This involves co-ordinated decisions at all levels of Government to:

- Ensure new housing is all-electric and 'zero-carbon ready' now.
- Progressively upgrade the thermal shell of existing housing, including insulation, draught proofing, window-glazing, and shading.
- Rapidly replace inefficient and/or gas appliances for heating, hot-water, and cooking with efficient, electric alternatives.
- Ensure optimally healthy indoor temperatures, air quality, ventilation, and measures to reduce condensation.
- Upgrade any wiring and other associated costs for households that are sometimes required to enable electrification.
- Halt growth of the gas network, plan for its efficient retreat and progressively disconnect homes from the gas network.
- Rapidly decarbonise energy generation.
- Enable efficient installation of Consumer Energy Resources (CER) as necessary including rooftop solar, batteries and household energy management systems[16]. This includes putting in place systems and regulations to optimise and share the benefits of CER.
- Implement pricing structures and service offerings (such as solar soak tariffs, sharing and demand response aggregation programs) which allow all consumers to benefit from renewable generation, regardless of whether they have assets themselves.

Implementing these actions equitably, at scale, within the timeframe needed will require a range of legal, policy, assistance, and incentive measures to support outcomes for all households.

Energy Efficiency

To fully achieve the positive social, economic, and ecological outcomes that are possible, electrification must be efficient, renewable electrification. As highlighted by the Energy Efficiency Council,

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[16] Governments should ensure that all Australian households have access to the benefits of renewable energy. It is not necessary, possible or desirable that every individual home have an individual solar and battery system.

> *… using and managing energy is just as critical to reducing bills and emissions as generating electricity… Energy efficiency improvements not only reduce overall energy demand, they can create downward pressure on energy prices and emissions, generating employment and lowering bills for consumers.*[17]

Efficient electrification of Australian households needs to build out from energy efficiency as the starting point. Households should be supported to first upgrade the thermal shell of their house (insulation, draught proofing, window-glazing, and shading) and then replace major appliances for heating, hot-water with efficient, electric alternatives. Replacement of cooking appliances should then be a later consideration, with households either able to disconnect from gas completely and replace with an electric alternative or consider bottle gas alternatives where they are committed to options for cooking with flame. The order of priority for appliance replacement is crucial to facilitate greater pace of change, minimise initial requirements for wiring upgrades, and ensure the maximum benefits for each step are immediately realised by the household.

It will then be most cost-effective for households to consider installation or access to CER (rooftop solar, batteries and household energy management systems) after energy efficiency upgrades have been made and they have a better understanding of their energy-use requirements in a more efficient home (and therefore a greater degree of certainty regarding the relative benefits of further interventions).

While it's important that decision-makers support the community to understand and contribute to improved energy efficiency, they must prioritise policies and programs that facilitate tangible physical improvements of Australian households over relying on consumer information and behaviour change. Discussion of energy performance and efficiency is often framed around the behaviour of households, with responses prioritising consumer and public information, and assistance to change behaviour. Key determinants of the poor energy performance of Australian households and communities are physical not behavioural. They are related to poor building standards, inefficient appliances, and business and service regulations that are not fit-for-purpose. Addressing these inadequacies is not a matter of consumer choice for most people, but an area where active change must be managed and supported by Governments through long term targets and the implementation of standards and regulations, with supporting incentives and Government funding.

Efficient, electric appliances

Australian households need to be supported to replace existing inefficient and/or gas appliances with efficient, electric appliances. The current common practice of replacing 'like-for-like' is no longer fit-for-purpose.

Inefficient and/or gas hot water systems ➡ Efficient electric hot water systems or heat pumps

Inefficient and/or gas heating / cooling systems ➡ Thermal shell energy efficiency upgrades, fans and reverse-cycle air conditioners

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[17] Energy Efficiency Council, 2023, *Putting Energy Efficiency to Work: The Forgotten Fuel Series* p.1

Inefficient and/or gas cooking systems	➡	Efficient electric ovens and induction cooktops (with scope for additional bottle-gas options)

Distributed and Consumer Energy Resources

CER enables households to generate, store and manage energy behind-the-meter through technologies including solar PV, batteries, and household energy management systems. While many Australian households have already installed rooftop solar systems, access to solar and its benefits is unequal even for those who can afford to install it. Low-income households, renters and people living in strata properties are further disadvantaged in accessing the benefits of CER.

Access to CER has benefits for individual households and for the flexibility and resilience of electricity networks. Electrification of households allows large, flexible loads (like water heating, heating, and cooling) to help improve electricity network utilisation, balance renewable energy generation in the system and ensure all households and the system (including those without solar assets) can benefit from excess solar energy at peak generation times. Electrified household load offers the opportunity for households who wish to, to sell their demand (and its flexibility) and benefit financially through demand response and demand management that ensures the system is more efficient. Lower peak demand (through greater efficiency and greater demand flexibility) lowers peak network augmentation costs and lowers generation/wholesale energy costs for all households, energy users and the entire energy system. At the same time more flexible electrified load, increases the utilisation of the electricity networks outside of peak times, lowering the unit cost of the network component of energy for all users.

Tariff reform and energy market innovation will be required to ensure that households unable to install CER are can still be given the option to access the benefits of CER. This includes things like better utilisation of demand management and demand response, social and solar soaker tariffs, network batteries and more efficient public infrastructure.

In electrification, the role to be played by consumer resources is crucial and cannot rely on individual consumer choice because:

- systemic outcomes (such as our response to climate change, and our need to equitably deliver an affordable and sustainable energy system for all Australians) are too important to be contingent on the aggregated choices of millions of diverse, often vulnerable individuals.

- because most people do not have (and cannot consistently be given) the agency, information, or financial means, and are not in any meaningful position to independently act in a way that will ensure consumer resources deliver themselves and (and the system as a whole) the desired outcomes and benefits.

- Maximising scope for individual choice and benefit will not address outcomes for the significant majority unable to fully exercise choice, and in the case of gas in homes, will actively lead to worse outcomes for others. The individual choices of some to retain network gas connections, has real cost implications for others (many of whom are vulnerable), so it is reasonable to manage that impact by appropriately curtailing (but not

preclude) scope for individual choice through standards, regulations and long-term Government decisions to retire the gas network. As noted above, those households with an ongoing wish to cook with flame can retain options to do so without relying on connection to a network whose costs are socialised.

Government must play its role, through this sectoral plan, to plan, require, enable, incentivise, and actively support the deployment of consumer energy resources that will deliver outcomes for all consumers and the Australian community.

Industrial and commercial entities, as well as those involved in grid energy supply, are in a position to act more independently, with a financial imperative to maximise their benefits through the implementation and use of energy resources. Unlike household energy consumers, they consume energy consciously, with the ultimate power to decide not to consume (to pause, downgrade or shutter their business). Energy is essential for households, and they must continue to consume regardless of their capacity to afford, or their perspectives of the services they are utilising. Their choices regarding energy are driven by the needs (outcomes) the energy provides, not the characteristics of the energy itself. This fundamental difference must be reflected in reforms to energy which do not rely on consumer agency.

4.1 Barriers to electrification

At the outset it is important to note that focusing on 'removing barriers' will not be sufficient to deliver on the intended objectives of the energy sector decarbonisation plan. In many cases the barriers regarded as preventing efficient renewable electrification of Australia's energy sector could be removed without a material, consistent impact on outcomes. For instance, lack of reliable information, or inability to access upfront (interest free) funding are often presented as 'barriers' to uptake of efficiency upgrades and consumer resources. While these are contributors, we regard removing these barriers as necessary, but not sufficient, to achieve the consistent and equitable outcomes intended in the timeframes required. For instance, research with landlords has shown that no amount of additional incentive is likely to drive electrification and upgraded energy efficacy of their properties until standards and regulations require it.

Removal of barriers should then be regarded as an important 'enabling' plank of the plan, alongside robust measures to directly require and provide access to efficient renewable electrification.

With this context established, we regard the most relevant barriers to efficient, renewable electrification to be broadly understood as:

Structural
These are regulations, policies, laws or standards and protections that are either absent, obsolete or miss-aligned, such that they either actively prevent efficient electrification of the energy sector or ensure that its progress is limited to those who can choose to 'exceed' required standards. This is arguably the most important area of action for the Federal Government, where the sector plan can reform structures to require and support more consistent prioritisation of efficient electrification.

Circumstantial
These are broad circumstances which households are impacted by, such as the tenure or nature

of their housing (such as residing in apartments and/or renting), the geography of their residence (such as residing in remote areas at the end of grid, or subject to extreme temperatures), and the quality of their housing (its poor efficiency, its dual fuel connection, insufficient metering, or inability to install solar or batteries).

Many circumstantial barriers can be substantially addressed through measures to address structural barriers (such as by raising building standards, banning new gas connections, and introducing and raising minimum energy efficiency standards for rentals). However, they also require further measures to overcome - these range from direct action to improve social housing outcomes, support to convert and upgrade apartment buildings, measures to enable Stand Alone Power Systems (SAPS), Microgrids and community energy arrangements in remote communities, and schemes to ensure renters and apartment dwellers can 'share' excess solar.

Individual barriers
These are barriers specific to households or cohorts of households, such as having fixed or low incomes, residing in First Nations communities, residing in social housing, being from a culturally and linguistically diverse background, or otherwise having limited literacy or numeracy skills.

Addressing these barriers relies on robust measures to address both the structural and circumstantial barriers and recognising that more directly targeted support is required. Measures here for household electrification might include re-aligned rebates and 'white certificate' schemes to provide assistance to electrify and upgrade efficiency, new measures to support electrification and participation in demand management and solar-sharing schemes, reforms to rebates, as well as directly funding upgrades and access to resources for first nations communities, those residing in social housing and others with low incomes. While better, reliable information will be part of these measures, it will not be sufficient to overcome individual barriers for many households.

4.2 System improvements to support electrification.

Electrification as rapid as required does present a challenge and will require measures to ensure more efficient co-ordination of demand and supply, more efficient network utilisation, more flexible management or demand and more efficient system pricing and service regulation. Again, we reiterate this increased systemic complexity need not, and should not, fall on consumers.

We are concerned with the overly simplistic narrative that electrification will lead to huge increases in peak demand. While AEMO and other agencies have a crucial role in plotting plausible scenarios for demand, we note an historic tendency to consistently overestimate future demand. In the past this led to a material over-build in many distribution networks (gold-plating) that must be avoided again if the energy system transition, and the necessary electrification of households, is to be undertaken efficiently.

It is important to recognise that while electrification, including the introduction of EVs, will increase overall electricity demand, it need not materially increase the peak demand which drives most network augmentation and wholesale energy cost increases. Indeed, in principle increased network utilisation (more people using more energy) will result in lower network 'per unit' costs, resulting in savings for consumers. This will depend on ensuring that increased demand is efficient, and flexible, and able to be managed to minimise impact at peak times. Where the most significant new electrified loads (such as water heating, heating, and EV charging) can be

managed flexibly, this is a very practical prospect and should be a priority of measures incorporated in the plan.

PIAC, SACOSS and the Tenants' Union NSW have provided detailed responses for measures which will enable better co-ordination of demand and supply throughout this submission. In addition, the Plan should include:

- Expansion of white certificate schemes to include efficient electrified household loads (including EV chargers), with measures to link efficiency schemes (such as the NSW PDRS) to an expanded wholesale demand response mechanism.

- Requiring retailers (and other aggregators and service providers) to offer products, rebates, or incentives to households to encourage demand response, battery discharge and load management from those who wish to participate.

- Requiring retailers to offer more controlled load services. e.g. for air-conditioning or other voluntary load shedding.

- introducing common guidelines for existing retailer-led peak demand reduction programs to increase visibility and consumer protections.

- Expanding and strengthening small customer protections for control of consumer energy resources, to allow for the full expansion of the WDRM to small customers (beyond less critical loads, which may be introduced with less specific protections).

- Strengthening incentives for distribution networks to increase uptake of the DMIS.

- Reforms to prevailing CER market arrangements to enable CER aggregators and home energy management service (HEMS) providers to compete on an equal basis with retailers.

- Improving network utilisation and making better use of CER assets through enabling flexible export limits (dynamic operating envelopes). This relies on the above reforms and providing DNSPs with visibility of the network through free and timely access to the full range of 'advanced power quality data'.[18]

- Considering reforms to reform the framework for metering to better align roles and inceptives, improve transparency and efficiency and prevent anti-competitive practices. PIAC, SACOSS and the Tenants' Union NSW support returning responsibility for metering and meter-data services to networks.[19]

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[18] PIAC, 2022, *Submission to the AER's Review of the regulatory framework for flexible export limit implementation.*

[19] PIAC, 2023, *Submission to AEMC Review of the regulatory framework for metering services.*

- Enabling ,more efficient network utilisation and flexible demand management through robust reforms to network pricing frameworks and practices to encourage innovative network tariff designs which incentivise network utilisation outside of peak demand periods. Importantly, this should be clearly separated from retail pricing and should not result in consumers being required to take up more flexible pricing options (such as demand or time of use pricing). Retailers should offer options for these products but should not be able to require consumers to agree to them.

- The top priority should be allowing households the option to participate in demand response – particularly wholesale demand response – if they choose, with a provider of their choosing. It is crucial that provider not have to be a FRMP or a retailer to ensure the benefits to the household (and all consumers) are maximised. This would entail extending the existing WDRM to households, which should be actively supported by the sector plan.

4.2.1 Facilitating household demand response

The Plan should actively promote upgrading the wholesale demand response mechanism (WDR) and extending it to households to maximise the pool of demand response (DR) available. This can help deliver a more efficient, lower cost, lower risk system overall with immediate and ongoing benefits to all consumers (even if only a small proportion of consumers choose to participate). It also offers households another option to manage their energy bills by incentivising DR actions (through aggregation and other management services) and providing them a fairer share of the benefit of these actions.

Households have 100's of MW of prospective demand response. With the uptake of EVs and electrified gas loads (such as hot water and heating) required as part of this plan, this figure will likely amount to 1,000s of MW. If aggregated, even a fraction of these sources (who may wish to or be able to participate at any particular point in time) of demand response could offer considerable value to the market in a way that will lower wholesale energy costs and required network augmentation costs for all consumers.

Despite these potential benefits, the question of how to provide adequate consumer protections has been a limiting factor in its application to households. While there are material consumer protection issues to consider, excluding households from participation in WDR programs is unnecessary and fails to fully promote the NEO and ensure the best outcomes for all households.

- There are household demand response options which have little or no risk of affecting people's quality of life – such as pool pumps and household batteries - that, if aggregated, could offer a lot of value to the market and households.
- Australian Consumer Law already provides key consumer protections people need for many demand response contracts, like pool pumps and household batteries. These loads could be operated with adequate consumer protections under current ACL provisions.
- The work of extending existing consumer protection arrangements to deal with more sensitive and complicated loads – such as air conditioners and electric vehicles - is underway through the AER and the Plan should support these processes and can seek to introduce its own interim programs and protections where it is warranted.

In Appendix 1 PIAC sets out a practical framework to enable households to have the option of participating in wholesale demand response while balancing concerns regarding consumer protections.

4.3 Role of governments

Government, policymaker and regulator leadership, commitment and systems are needed to co-ordinate national and jurisdictional action on decarbonisation and efficient electrification of Australia's energy sector. This can provide certainty and robust policy signals by initiating:

- planning and regulatory reforms
- collaboration across jurisdictions
- implementation of improved standards
- signals and incentives for investment, including providing certainty through targets and commitments.
- implementation and co-ordination of supports to target disadvantaged households, and
- providing vision and lead public narrative.

Decision-makers must provide the political leadership that is necessary for the sectoral plan objectives to be achieved. Political leadership involves implementing robust governance and systems of responsibility and oversight, long-term planning, prioritisation in budgets, ownership of the public narrative, leading by example and more. Decision-makers have a responsibility to provide political leadership on the social and technological changes that are necessary for our society and economy, such as efficient electrification of the Australian energy sector.

The decarbonisation of Australia's electricity and energy sector cannot be facilitated solely through reliance on undirected market-based frameworks and consumer choice. Markets and private investments will be crucial but can only play their part if given clear direction on desired outcomes through the co-ordinated decision-making of Governments.

Decision-makers can lead-by example through adopting a whole-of-government and/or organisation approach to efficient electrification. Efficient electrification should be embedded into all departments, related agencies, and assets.

Decision-makers also have a responsibility to promote cohesive and accessible public narratives about the necessity of the energy transition. They need to reject, or very clearly curtail, narratives of consumer choice and fuel optionality, and instead engage with the public on why decarbonisation of their homes, businesses and society is required, going to leave them better off, and how they are going to be supported on that journey.

4.3.1 Regulation, governance & legislation

Effective, well-designed standards, laws and regulation will support lowest-cost and high-quality efficient electrification of Australian homes.

Laws, rules and regulations of the energy market require considerable reform to better support and facilitate efficient electrification as existing legislation, regulation and governance is predicated on supporting and expanding gas networks and increasing gas utilisation.

Comprehensive, co-ordinated reform is urgently required to enable efficient household electrification within the required timeframes.[20]

Across most jurisdictions, regulations and policy impede improved standards of building and energy efficiency. Standards for rental properties, new residential builds, upgraded existing homes and appliances will need to be urgently updated to make them fit-for-purpose. These standards will need to be supported by mandatory disclosure of home energy performance. Key will be assigning clear responsibility for managing and monitoring standards and ensuring compliance. This is particularly crucial in relation to appliance and CER standards and compliance.

Energy markets, gas networks & businesses

Co-ordinated policy, regulatory signals and supporting policies from the Commonwealth and jurisdictional governments are required to allow regulators and gas businesses to plan for and enable an orderly retreat of residential gas network connections in the long-term interests of Australian household energy consumers and the wider community. The retreat of gas networks and the electrification of households is critical to enabling more scope for decarbonisation of the energy sector.

Priority areas for the Plan should include:

- Commit to targets and dates for the cessation of new residential gas connections, the phase out of residential gas networks, the cessation of the sale of residential gas appliances and the electrification of homes.

- Improve co-ordination between governments, regulators & businesses. This should seek to align policy, planning and investments to enable the transformation of Australia's energy system away from reticulated gas.

- Coordinate a review of gas laws, regulations and policies, and product and service standards and compliance through the National Energy Transformation Partnership. This review must be focussed on alignment of policies and regulations across jurisdictions with an objective to facilitate efficient electrification of households within the target dates.

- Reform national energy laws such as the National Energy Objectives and network Regulatory Investment Tests. To promote, facilitate and value electrification, energy efficiency, demand management and social equity.

- Require that the Integrated System Plan gives greater weighting to electrification, energy efficiency and demand management opportunities in future plans. This activity could be

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[20] ACOSS, EEC, AiG & PCA, 2023 *Enabling the energy performance revolution: energy governance and market reform*

supported by resourcing the development of an annual Energy Performance Statement of Opportunities.

- Fix the Wholesale Demand Response Mechanism to encourage commercial and industrial demand response is more effectively utilised and extend the mechanism to households.

- Move towards a single, consumer-centred regulatory framework for energy that efficiently and fairly allocates costs over time.

- Adjust or establish markets and programs to reflect the value of energy demand management and other distributed energy resources.

- Ensure sufficient funding to relevant regulators for monitoring, compliance, and enforcement.

- Regulation, policies and processes which minimise costs to consumers of transitioning away from gas. This includes ensuring consumers do not bear risks or costs of the creation of new potential 'renewable' gas opportunities, ensuring the full costs of new non-residential gas connections are recovered at connection.

- Through the NETP facilitate reform of State planning laws and regulations to prioritise electrification, remove preferences for gas and support conversion.

- Ensure a unified whole-of-government responsibility to implement and oversee the progress and effectiveness of reforms.

Data and Information

More information on Australia's housing stock, appliance-use and CER are required for the Department to appropriately plan, coordinate and budget for the decade-long project of energy sector decarbonisation and efficient electrification of Australian homes. There is lack of data on the condition of housing, including public and community housing, which makes it difficult to know the extent of improvements required, quantify and prioritise opportunity presented through efficient electrification and estimated costs to upgrade. A similar lack of visibility over the number and types of gas appliances and different CER technologies used across Australian homes also impacts regulation, planning and government budgeting for electrification.

Mandatory measurement and disclosure of home energy performance is a critical enabler of the residential upgrades required for efficient electrification. For this, a single, robust rating scheme consistently applied across the country is required. Home energy performance should be disclosed for all residential buildings when they are sold and leased. Both mandatory minimum rental energy efficiency standards and zero carbon ready building standards will be bolstered by mandatory disclosure of home energy performance. Mandatory disclosure will provide greater transparency over energy performance to people buying and leasing homes allowing for more informed decision-making by consumers.

Priority actions for the Plan should include:

- Commission a comprehensive baseline study of residential energy performance to build a critical mass of energy performance ratings and create a high-quality data set on residential energy performance. This should not delay ongoing work on implementation of electrification.
- Audit the number of gas connections in Australian households, including major appliance types (water heating, heating and cooking). This work should classify connections by whether they have one, two or three appliances, to inform a prioritisation plan for electrification that delivers most benefits to consumers at each step.
- Provide a national definition of a zero carbon ready home.
- Urgently finalise and implement a national residential building energy performance rating system for existing homes.
- Introduce mandatory disclosure of energy performance for all buildings when they are sold and leased, by 2026.

Building Standards

Strengthening building standards and mandating zero-carbon homes for new builds from 2025 will ensure all new homes built in Australia are efficient, electric and resilient homes. This will limit the number of dwellings that will require efficient electric upgrades in the coming decades and take advantage of the huge increase in new home construction already being initiated. Making these changes now maximises the number of homes with scope to integrate further consumer energy resources, and to benefit from the resources of others regardless (through being able to efficiently manage demand and utilise excess solar, for example).

Around 8 million dwellings were constructed (nationally) prior to the introduction of any residential energy efficiency standards. The average energy efficiency NATHERs rating of existing homes in Australia is 1.7 stars, compared to new homes which are now required to meet a rating of 7 stars (out of a possible 10 stars). While more than building standards and policies will be needed to facilitate the scale of retrofitting required for existing housing stock, a range of regulatory and policy tools are available to be leveraged now to initiate the change required. This includes:

- The Trajectory for Low Energy Buildings
- National Construction Code (NCC)
- NatHERS for existing homes

Priority areas for the Plan should include:

- Set a date and create a long-term strategy to achieve zero carbon ready existing residential buildings. Including a long-term goal and end date, with incremental stages. The date should be consistent with limiting global warming to 1.5 degrees C. Our recommendation, developed through the EEH, presented earlier in this submission demonstrates what this should look like. This strategy will need to explore in more detail the most efficient and practical way to substantively meet these targets and, as outlined earlier, this may involve accepting practical limitations to the targets.

- Bring forward the NCC process and ensure zero carbon ready new homes (best practice thermal efficiency, all-electric, powered by renewable) are required as soon as practicable, and in any case no later than 2026.

- All new government housing at least 7.5 plus star rating and renewable-powered (or able to participate in renewable power sharing and demand management schemes).

- Set out a long-term strategy for climate resilient buildings that can adapt to acute shocks and long term stresses from climate change.

- Drive harmonised compliance, monitoring and enforcement of the National Construction Code.

- Initiate a process to consider practical measures to drive the retrofit of existing residential buildings to meet zero-carbon ready standards within the required timeframes. This should include co-ordination with residential disclosure and rental minimum standards, planning law changes, enabling measures through local government planning and rating mechanisms, and other tools to enable and incentivise energy efficiency upgrades through finance, insurance and other frameworks.

Appliance standards

Appliance standards ensure that Australian households can access quality, safe, efficient and affordable appliances which operate as intended. Crucially these standards ensure important appliances (such as inverters) operate as expected, at scale. This is vital to ensuring they consistently perform as expected to the degree system planners and operators can rely on them.

To better enable efficient electrification of Australian homes, decision-makers need to raise appliance standards, improve the frameworks for updating and implementing them and ensure robust compliance, including ensuring open interoperability of device operation and management systems.

Australian households will need to replace existing gas appliances with more efficient electric alternatives. This will involve replacing appliances used for heating, hot water and cooking. Households and tradespeople need clear signals, including timelines, mandates and training, to understand, inform and facilitate this replacement process.

Priority areas for the Plan should include:

- Reviewing and raising energy performance standards for household fixtures (such as water heaters, air-conditioners) and appliances. Fixtures and appliances which do not meet high minimum standards should be removed from the market. At a minimum this should include:

    - Mandated Energy Performance Standards (MEPS) – Expand the Mandated (as opposed to Minimum) Energy Performance Standards (MEPS) to all appliances used in homes, including for solar, inverters, and heat pump or electric instantaneous water heaters.
    - Harmonise and update regulatory standards for appliances including GEMS Act, and Australian Standards technical standards to encourage electrification, DER integration and demand flexibility trading readiness.

    - Raising the minimum standards of consumer resources (such as heat pumps, inverters, batteries and charges) to ensure they are durable and fit-for-purpose to deliver reliable and long-lasting outcomes for consumers.

- Implement programs to facilitate and subsidise 'trade-in' and replacement of household fixtures and appliances, prioritising those with high-energy or emissions intensity. This must include water heaters, heating and cooling systems and fridges as a minimum, and prioritise support for electrification. Fixtures and appliances provided through these programs should be openly interoperable and high quality.

- Ensuring other appliance replacement programs prioritise appliances which support household health and wellbeing – such as fridges, washing machines, and portable heating and cooling appliances.

- Eliminate inefficient appliances sold in Australia by tightening requirements and expanding eligible appliances via the Greenhouse and Energy Minimum Standards (GEMS).

- Set an end date for the sale of gas appliances, starting with gas hot water heaters and gas heaters, in advance of decommissioning the residential gas network.

- Mandate the replacement of residential gas appliances (specifically gas water heaters and heaters) with more efficient electric alternatives from 2025 (and no later than 2030)

- Ensuring that gas appliances and their emissions are considered in the development of national indoor air quality standards, which should be prioritised in the next National Clean Air Agreement work plan

- Requiring best practice standards compliance procurement and provision through Commonwealth and jurisdictional programs and budgets (such as NSW's ESS, PDRS and white certificate, appliance replacement and other rebate programs)

- Initiating a co-ordinated plan to identify and address standards failures in key consumer resource assets (such as inverters, PV, batteries, and chargers).[21]

- Investigating and implementing options to ensure open interoperability of device operation and management systems and pursue reforms to protect against proprietary contracting and 'lock-ins'.[22]

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[21] PIAC https://piac.asn.au/2023/06/19/submission-to-the-aemc-review-into-consumer-energy-resources-technical-standards-draft-report/

[22] PIAC 2023 Submission to the AER review of the regulatory framework for flexible export limit implementation, page 7 https://piac.asn.au/2022/12/09/submission-to-aer-review-of-the-regulatory-framework-for-flexible-export-limit-implementation/

- Leading work to co-ordinate national reforms, improve the processes for standards updates, and strengthen legal and regulatory frameworks for compliance and enforcement activities related to consumer resources.

4.3.2 Governments must facilitate consumer outcomes

This Plan, its objectives and good outcomes for Australian households cannot rely or be dependent upon consumer information. Reliable, independent, accessible information will help maximise scope for choice for some households, and help improve outcomes for many, but it is not sufficient and, in many cases, will have little impact for most households. Providing more information on good products and services will not be effective if poor products and services are still allowed (and likely to be cheaper), and will only entrench disadvantage for the majority of consumers unable to access high-quality products and services.

Discussion of electrification, energy performance and improved consumer outcomes is often framed around the behaviour of households, with responses prioritising consumer and public information, and assistance to change behaviour. Key determinants of the poor energy performance, and benefit from consumer resources of households and communities are physical not behavioural. They are related to poor building standards, inefficient appliances, inappropriate standards and regulations and business and service provision that is not fit-for-purpose. As we have outlined, this Plan should prioritise action on these factors, and regard improved information provision as an additional enabler.

Consumers would benefit from the creation of a 'one-stop-shop' platform for:

- independently provided information,
- assistance regarding efficient electrification, improved energy performance, consumer resource deployment, and beneficial operation of resources,
- demonstration of benefits for various interventions,
- accessing home assessments,
- assistance in identifying support,
- planning interventions,
- accessing reliable service-providers
- Accessing government and industry assistance schemes.

This type of platform can be built into the central delivery mechanism for upgrades and be linked to the number of innovative finance schemes which are currently being proposed. The one-stop-shop platform can also be leveraged as an efficient means of building trust, community connection, serving as a central point for outreach and building social licence.

4.4 Response to electrification consultation questions

What actions are required to ensure Australia's energy systems can enable increased electrification, while maintaining equity, reliability and security?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout section 4 of this submission. Key actions include:

- Adopting an efficiency first principle and ensuring electrification is efficient and powered by renewable energy.
- Prioritising disadvantaged consumer cohorts as detailed in Section 7 of this submission.
- Enabling effective and efficient demand response and demand management.
- Prioritising a residential gas network transition plan as detailed in Section 5 of this submission.
- Improving and updating regulations, rules and standards including appliance, building and rental standards.

What insights do you have on the pace, scale and location of electrification, and how to embed this in system planning?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout section 2, 4 and 7 of this submission. The pace and scale of electrification needs to be achievable, ambitious and must align with our climate commitments. Residential electrification of priority cohorts identified in section 2 and section 7 should inform the Plan, rather than geographic locations.

How can electrification efforts be sequenced to align with expansion of electricity generation and network capacity?

PIAC, SACOSS and the Tenants' Union NSW have provided responses relevant to this question in section 4.2 of this submission.

5. Growing alternative low carbon fuels

PIAC, SACOSS and the Tenants' Union NSW welcome recognition that emissions from methane producers, transporters and users will need to be rapidly eliminated for Australia to meet its climate commitments and decarbonisation goals. Our organisations disagree that methane gas needs to remain an "important source for backup generation" when demand flexibility, batteries and other storage can provide the same function while also reducing emissions. In any case we contend this assertion is overly simplistic and does not provide the necessary framework to assess the scope of the role of methane (or any gas) and how that role will be determined. Australia's energy future is one of efficient, renewable electrification, with targeted, strongly merit-based utilisation of genuinely renewable zero/low-emissions alternative gases where they are required.

Methane is a dangerous fossil fuel with greater short-term emissions impact on climate change than carbon dioxide. Rapidly decreasing methane emissions is a high impact short-medium term priority for any meaningful decarbonisation of the energy sector. The IEA notes methane's global warming potential is nearly 90 times that of Carbon Dioxide over a 20 year period, and between 20-40 times over 100 years[23] This is in addition to its impact in emitting carbon dioxide when burned. Its continued domestic production, use and export critically endangers our health, our future prosperity and is incompatible with our global climate responsibilities. Reducing domestic gas demand and meeting emissions reduction targets will require rapid electrification of most existing domestic gas use and the managed decommissioning of gas networks. The International Energy Agency's Pathway to Net Zero by 2050 is unequivocal[24]. There can be no new gas fields approved and existing methane production and use must be urgently phased out.

There is no uncertainty over the future of methane gas. What is uncertain, and what this Plan can contribute to resolving, is how, how efficiently and how quickly we can reduce and replace our gas use and efficiently electrify our energy sector. This Plan can help provide direction to ensure electrification is as rapid, efficient and equitable as possible, delivering optimum benefits to households. It can also provide solid principles to guide how we can regard gases as genuinely renewable and low/no emissions, and how and where genuinely renewable gas can be efficiently and sustainably employed and supplied.

The National Energy Objectives now include reduction of carbon emissions, meaning that Australian energy market bodies and regulators are required to consider the carbon and climate implications of energy investments and services.[25] This is the first step in the wider integration of climate policies and targets into all aspects of Government policy, standards and regulation. This Plan should be guided by and aligned with these ongoing processes and help to provide a consistent and coherent basis to ensure Australia meets its required emissions reduction targets

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23 IEA https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change

24 International Energy Agency, 2021, *Net Zero by 2050: A Roadmap for the Global Energy Sector*

25 National Electricity Law (Schedule to *National Electricity (South Australia) Act 1996*), s 7; National Gas Law (Schedule to *National Gas (South Australia) Act 2008*), s 23, National Energy Retail Law (Schedule to *National Energy Retail Law (South Australia) Act 2011*), s 13

in a manner that optimises benefits to Australian consumers, and is efficient, affordable and equitable.

Energy affordability for Australian households is increasingly compromised by residential gas use. Alternatives which are cheaper (now and over the long-term) are already known, available well-proven and increasingly accessible. Electrification, fuel-switching, demand flexibility, energy efficiency and broader emissions reduction actions mean that the future of gas in households must be one of rapid retreat. Without leadership and coordination from the federal government, the necessary and inevitable retreat from gas will be slower, inconsistent, more expensive and unfair and result in poor outcomes for Australian consumers, particularly disadvantaged cohorts including low-income households, renters and people in rural and remote communities.

The choice is not between electrification and something else, but electrification which is rapid, efficient and equitable, or electrification that is unmanaged, costly and leaves many of those already disadvantaged much worse off. To achieve the stated objectives, this Plan must play its role in supporting accelerated, efficient and equitable household electrification, and ensure domestic gas use and exports are rapidly phased out, with targets for material reduction by 2030, 2035 and 2040.

Our organisations recognise the role that methane gas has played in the Australian economy and the complexities that arise from its necessary retreat. These complexities, well managed, also present opportunities to pursue more efficient alternatives leaving the Australian community and economy healthier, more efficient, more sustainable, more resilient and more prosperous in the long term.

5.1 Decarbonisation of the gas sector

Australia needs to plan to affordably meet our future energy requirements while enabling rapid emissions reduction in line with our responsibilities to address climate change. Considering decarbonisation of the gas sector is a crucial part of this process. Any energy sector decarbonisation plan must be a plan for managing a rapid reduction in demand for and use of gas, both domestically and in export. Anything less is irresponsible in its impacts on the climate and contributes to unacceptable risks of stranded assets, and increased inequity and unaffordability in household energy.

PIAC, SACOSS and the Tenants' Union NSW reiterate that the energy sector decarbonisation plan requires leadership, coordination and strong, consistent policy signals from the Commonwealth government. The necessary rapid phase-out of domestic demand for gas must not be left to consumer 'choice', but should be driven by a facilitated, orderly change process.

Our organisations recommend that the department devise a sectoral decarbonisation plan based on a merit order that seeks:

- To first **remove or eliminate** the requirement for (reticulated) gas use;
- Second, where removal is not possible, **reduce and minimise** the amount of gas required;
- Third, **replace** methane with the most appropriate, efficient and genuinely lowest emission gas alternative;

- Finally, capture, use and offset any residual emissions to ensure zero or negative-net emissions.

We highlight that CCUS and offsets are unreliable, inefficient and prohibitively expensive. Their role should be minimised and only considered as a final step to deal with residual emissions that cannot be eliminated, reduced or substituted by other means. This approach ensures not only that emissions reduction can be rapid and enduring, but also accomplished with the least cost and risk to households and the Australian community. Our organisations contend that if a Remove > Reduce > Replace merit order of action is meaningfully adopted, there should be almost no situation in which capture, use or offsetting of residual emissions is required.

Australian households are concerned with what energy does, and other than wanting it to be renewable and affordable, are not concerned about what form it comes in and how it is provided. They assume (and rely on) robust standards and decisions-making by Governments to ensure the energy they need is provided as sustainable, healthily and affordably as possible. Therefore, decisions on the decarbonisation of the energy sector must be founded on our global climate responsibilities and consumer benefit – the affordability and efficiency of meeting energy needs – implemented through a commitment that there is no reticulated gas in households by 2035. This clear statement and provision of certainty should be the foundation of the Plan. From this, the Plan can provide further detail identifying the specific challenges in achieving this and how policy, regulation and incentives will need to respond.

5.2 The gas regulatory framework

Reform of the gas regulatory framework to facilitate the rapid reduction of methane use and export should be an urgent priority of the Plan. Ambitious targets are needed to provide certainty for consumers, regulators, investors and gas businesses, the regulatory framework is a key tool in enabling those targets to be delivered.

Existing regulations of gas businesses, particularly gas network businesses, are not consistent with climate change policies and a contemporary understanding of what will be required to efficiently transition and decarbonise the energy sector. Put simply, they are not capable of delivering investment and use of energy that is in the long-term interests of consumers. Existing legislation, regulation and governance is predicated on supporting investment in expanding gas networks and increasing gas utilisation. This includes legislative and policy frameworks for the National Gas Law, the National Gas Rules, and State and Territory legislation governing the use and operation of gas infrastructure in each jurisdiction.

Reducing domestic gas demand and meeting emissions reduction targets will require electrification of most existing domestic gas use and the managed decommissioning of gas networks. The current legislative and regulatory framework must be reformed in order to accommodate and facilitate this efficiently.

Managed reduction in domestic gas demand, which this Plan must enable, involves risks which must be managed and mitigated to ensure consumers are not unreasonably impacted. This will require changes to National Gas Law, regulation and policy, considered holistically in conjunction with retail pricing and practices, to manage risks and costs for gas networks and consumers, and

support a rapid, managed energy system transition. Priority actions for the sectoral plan should include:

- Improve co-ordination between governments, regulators & businesses. This should seek to align policy, planning and investments to enable the transformation of Australia's energy system away from reticulated gas.

- Reform of national and State specific energy laws, standards and rules to ensure they are fit for purpose to facilitate the efficient, managed retreat of gas distribution networks.

- Reform of State planning laws and regulations to prioritise electrification, remove preferences for gas, prevent new residential gas connections and support conversion.

- Improve appliance standards and ensure robust compliance, including ensuring open interoperability of device operation and management systems.

- Ensure a unified whole-of-government responsibility to implement and oversee the progress and effectiveness of reforms.

5.3 Planned retreat of the residential gas network

Reducing domestic demand relies on facilitating the orderly retreat of the residential gas network. Co-ordinated policy, regulatory signals and supporting policies from the Commonwealth government would allow regulators and gas businesses to plan for and enable an orderly retreat of gas networks to manage the rapid, efficient reduction of domestic gas demand.

In addition to the legal and regulatory measures above, the plan should include the following actions:

- Encouraging and supporting States and Territories to implement immediate moratoriums and bans on new connections to residential developments. Ending new gas connections ensures residential gas demand peaks immediately and ensures the challenge of domestic gas network retreat is only as big as it is today. Jurisdictional planning, building standards and other laws should be similarly aligned.

- Initiate a process to consider comprehensive reform of gas laws and regulations to enable efficient, staged gas network retreat as a key plank of domestic demand reduction.

- Adopt specific regulatory changes to ensure the full costs of any new gas connections to non-residential developments are fully recovered from the connecting entity with ongoing risk assumed by the gas network business.

- Initiate specific regulatory reform to enable gas network businesses to refuse new connection requests.

- Initiate policy and regulatory reform to allow (and require) gas network businesses to assess their networks and progressively plan for and implement staged network retreat

where it is efficient to do so. This will be a key plank of a managed reduction in domestic demand. This planning process should engage gas network businesses, electricity networks, local governments and jurisdictional governments to co-operate on developing and implementing these plans.

- Consider the appropriate sharing of costs and risks of potential unrecovered gas network assets between consumers, governments and gas network businesses. This may include consideration of subsidising the cost of decommissioning residential gas connections.

- Develop co-ordinated measures for gas networks to work with Governments to assist vulnerable households through supporting targeted electrification.

- Ensure that future new gas network investments (such as network conversions and augmentations to accommodate distributed hydrogen to households) are solely the risk (and cost) responsibility of gas network businesses and cannot be recovered from existing household consumers.

- Require gas businesses to identify areas of declining demand or 'inefficient' network utilisation as a basis for managed network retreat with sufficient signals to consumers and governments.

- Provide targeted assistance to consumers (especially those experiencing vulnerability). This should include encouraging gas businesses to direct budgets for innovation, marketing (such as those currently used to subsidise new gas appliances) and demand management, towards supporting consumers to reduce their demand and efficiently disconnect from gas.

- Consider the need for measures to require and support the write down of gas network business assets.

Gas businesses have known about the risks of climate change and the role of methane for many years and prudent risk management should have involved planning for network retreat and declines in demand without unreasonable impacts on consumers.

Concerningly, far from prudent risk management and future planning, gas network businesses have incentivised new connections and increased household gas demand. This has included continuing to offer incentives for households to switch to gas appliances without providing accurate information regarding the impacts and costs of those appliances and the risk that households will be left with stranded investments. This Plan must help address these issues and should seek to highlight every opportunity to encourage, require and enable gas businesses to support the rapid reduction of domestic gas demand.

Without coordination, leadership, supports and strong policy signals from the Commonwealth government, consumers will face considerable risks from the inevitable changes to gas use and supply as part of necessary measures to reduce domestic gas demand.

Consumers experiencing disadvantage, and those without the agency or resources to efficiently electrify will experience further impacts on energy affordability as the customer base shrinks and

gas supply becomes more expensive. The plan must highlight the need to prioritise these cohorts in plans to electrify, to ensure rapid reductions in domestic gas demand also contribute to improved energy equity and affordability. Far from managing the risks of leaving 'vulnerable' cohorts behind, we should be planning to prioritise them for efficient electrification.

We note that the discussion paper indicated a intention for "governments, regulators and pipeline owners" to work together on risk allocation[26]. Any further consultation, engagement and planning on the question of risk allocation must include consumers and consumer advocate in these deliberations.

5.4 Low carbon gas alternatives

The evidence-based alternatives to methane gas are, in order of applicability and impact, energy efficiency, electrification, household renewables and batteries, demand response and dynamic demand management, and targeted use of selectively sourced biogas and green hydrogen. These alternatives must be implemented and supported according to their merits to ensure the most effective and efficient solutions are pursued. For instance, hydrogen is not a viable option for residential use and its characteristics indicate it should initially be supported as the best solution to the decarbonisation of existing hydrogen related product use.

5.4.1 Efficient residential electrification

As detailed in section 4 of this submission, PIAC, SACOSS and the Tenants' Union NSW strongly support the efficient electrification of Australian homes as the best, most efficient and affordable means of reducing household gas demand and addressing household emissions. Efficient, renewable electrification of Australian households is also a key contributor to a more efficient energy system, and improved energy affordability and equity.

No potential 'alternatives' to efficient household electrification address the household cost-implications of maintaining a secondary network connection for gas, a connection with rapidly reducing utility and increasing cost.

Any 'alternatives' to electrification also fail to address the substantial lost value for households (particularly those without solar of their own) and the community, in not being able to benefit from solar energy through demand flexibility of their largest household loads (such as water heating and space heating). Increasingly, households can access cheap (or even free) energy during times of high solar generation, with dual fuel households twice disadvantaged by increased costs as well as lost opportunities to benefit. Importantly, this remains the case regardless of what gas is in the network.

Put simply, the transition of the energy system is expensive, and consumers simply cannot afford to sustain, augment, upgrade and transition two networks, particularly when one is fundamentally less sustainable, efficient and affordable. The electricity network is a fundamental platform for the

[26] DCCEEW, 2024, *Electricity and Energy Sector Decarbonisation Plan Discussion Paper*, p.25.

transition and efficient household electrification ensures all households can benefit from its transition at least cost, and most benefit to them.

5.4.2 Biogases and hydrogen

Biogases and hydrogen will have a role to play in replacing methane gas in targeted circumstances where no other solution exists, and where they are the most efficient, effective and lowest emissions option. Substituting methane with biogases or hydrogen in the residential gas distribution network is not plausible, efficient or effective. Residential use of hydrogen or biogases as potential 'alternatives' to the methane gas residential network either fail to contribute to emissions reduction and improved household health or involve substantial unnecessary cost and risk to households. Use of either in gas networks would represent an inefficient 'waste' of resources whose economic supply is limited and would be better utilised elsewhere where they will be more important.

Hydrogen

Hydrogen will have a role to play in decarbonisation and the transition to a prosperous renewable economy. The shape and scope of that role must be meet the specific needs of the Australian community and economy, and must best promote the interests of the Australian people.

Hydrogen is not a viable or plausible solution for households in the foreseeable future. Due to the properties of hydrogen and methane, hydrogen could only (theoretically) make a meaningful contribution to emissions reduction where it is 100% of the gas used in the network. The cost implications for repurposing the current fossil gas network to accommodate green hydrogen, particularly in the short term, make this practically impossible and economically irresponsible. It is also important to consider that any green hydrogen would be produced using the very same renewable energy which household electrification would rely on, at astronomically greater cost to households and the energy system, and with significantly lesser efficiency. Hydrogen is not a viable alternative for households and efforts to commercialise green hydrogen should be directed towards those uses where it is most suitable and efficient.

PIAC provided a more detailed response on the future of hydrogen to the recent National Hydrogen Strategy Review[27].

Biogases

Biogases (such as biomethane) are often presented as an alternative for households as they are functionally similar to existing gas. While biogases will be required in decarbonisation, biomethane is not viable or desirable as a wholesale replacement for the current residential gas network. Utilising biogases does not address the household health implications of gas usage in homes. It would also continue to leave households inefficiently supporting two networks and unable to benefit from the rapid growth of solar energy. There are also functional limits to the amount of efficiently and economically accessible biogases which can genuinely be regarded as low emissions, and these sources should be retained for uses where more efficient

[27] PIAC, 2023, *Submission to the National Hydrogen Strategy Review*.

decarbonisation options are not available such as high-temperature heat applications, and as a feedstock.

It is important to note that while 'renewable' (in that it can be derived from sources which can be renewed) biomethane is still methane, a dangerous greenhouse gas. The value of bio-methane (and other biogases) as 'lower' emissions fuels is heavily dependent upon their source and the assumption that source would otherwise be releasing emissions (methane) which are captured and utilised as a biofuel. In many cases (such as landfill, sewage, forest waste) those sources will themselves need to undergo significant changes as part of implementing a more sustainable circular economy. That is, we will need to drastically reduce our production of landfill waste, sewage and forest and agricultural waste. In any case, assessments of the role of biofuels (and particularly biomethane) will have to consider a range of factors which will materially limit the amount of efficiently accessible biofuel available. This is not compatible with moves to inject biofuels into the gas network as a long-term alternative.

Biogas is likely to have a very small, targeted role as a temporary solution for the small number of dwellings that are extremely difficult to efficiently electrify in the short term.

5.5 Response to growing alternative low carbon fuels consultation questions

What policy settings and certainty are required to support a fair, equitable and orderly transition for the decarbonisation of both natural gas and liquid fuels?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout section 5 of this submission. Our organisations support a principles and evidence based, merit-driven policy and transition planning for gas and liquid fuels.

6. Building Australia's clean energy workforce

Decarbonisation of Australia's energy sector represents an ongoing economic opportunity to build domestic capacity, resilience, prosperity and employment. Planning, targets, timeframes and collaboration across governments, industry, unions and education providers will be crucial to achieving the necessary supply chain and workforce requirements.

Robust, long-term employment and supply chain targets provide industry with the certainty required to scale up and develop the capacity required to meet the needs of the community. Incrementalism has, in the past undermined the ability to develop industry skills, employment pathways, supply chains and other key domestic industry capacities. Bold commitments and targets may present a challenge, but the act of commitment helps provide the certainty required to meet that challenge.

Long-term targets will underpin ongoing processes to upgrade technical training, education and professional capacity through universities, vocational training institutions, commencing with the upskilling of existing workers and trainers.

Priority actions for the Plan should include:

- A dedicated workforce plan to meet additional 32,000 electricians required by 2030 and 2 million workers in building and engineering by 2050.[28]
- Develop a training programme in consultation with key industry stakeholders for upskilling existing workers to be able to deliver gas transition and electrification upgrades safely and effectively. Specific opportunities to augment the skills of plumbers and gas-fitters to undertake basic conversion works (for instance, for hot water replacement work) are examples of this.
- Establishment of local content requirements for actions emerging from the sector decarbonisation plan.

PIAC, SACOSS and the Tenants' Union NSW broadly support the recommendations made by the Electrical Trades Union in their submission to the Senate Standing Committee on Economics Inquiry into Residential Electrification.[29]

We highlight the forthcoming publication by the Energy Efficiency Council[30] which will provide further detail and guidance on the workforce requirements necessary for the decarbonisation of Australia's energy sector, and support the Plan incorporating this work.

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[28] Jobs and Skills Australia, 2023, *The Clean Energy Generation: Workforce needs for a net zero economy*, p.17

[29] ETU, 2023, *Submission to the Senate Standing Committee on Economics Inquiry into Residential Electrification*, p.1

[30] Energy Efficiency Council, 2024, *Residential Energy Upgrades Workforce Mapping Project*

7. Maximising outcomes for people

PIAC, SACOSS and the Tenants' Union NSW strongly support the Department's recognition that "people are at the centre of the energy transformation" and encourages the Department to design and implement a Plan that reflects this centrality. Our energy system is formally predicated on the long-term interests of consumers[31], however in practice the current delivery of energy as an essential service is not meeting the needs of most people and communities across Australia.

The transition "can have the twin benefits of increasing equity and helping us to meet our decarbonisation objectives", but it will not automatically do so. The Plan needs to explicitly centre equity throughout its entire design and implementation to ensure better outcomes for all Australian households and communities as the clearly stated intent. Most importantly, this process should not assume the role of the Plan is to mitigate potential negative impacts on some Australian households, as has been the approach to date. It should be seen as an opportunity to use the climate change inspired energy system transition to co-ordinate Commonwealth government actions to improve equity, and actively deliver better outcomes for all Australian households and communities, with ambitious targets to make their homes more efficient and sustainable, and their access to energy more affordably able to support health, wellbeing and prosperity.

PIAC, SACOSS and the Tenants' Union NSW support the Department's focus on sharing the benefits of the energy transition equitably throughout the community, but this should not result in a shift towards a focus on equitable access to technology. Individual access to any particular technology or product may be limited and it may be neither possible (or efficient) to overcome this. However, a focus on better outcomes for all households and communities provides an effective frame to guide the implementation and use of new technology and services that can benefit all households regardless of their individual access to the technology or product itself. This is crucial as it clearly indicates that better outcomes are the intent of Plan.

A clear purpose of this Plan must be guide the forthcoming National Consumer Energy Resources Roadmap[32] to ensure that resources are deployed most efficiently, where and how they best contribute to the objectives of the Roadmap and optimise impacts for all consumers (not merely those with consumer resources). The Plan and subsequent Roadmap should identify opportunities for all levels of government to ensure standards, regulations and policies promote and ensure equitable deployment of consumer energy resources, support equitable benefit from deployment, and enable targeted support for deployment (and benefit) for households unlikely to be able to benefit otherwise. This falls into several broad categories of action the Plan and subsequent Roadmap should include:

- Raising the 'floor' and creating the standards to ensure all households are 'efficient' and electric.

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31 Australian Energy Market Commission, 2023, *National energy objectives*

32 Energy and Climate Change Ministerial Council, 2024, *Meeting Communique Friday 1 March 2024*

- Aligning laws, regulations, and policies with deployment benefit objectives.
- Providing certainty through long term commitments.
- Leveraging and realigning existing resources and programs at all levels of government.
- Focussing direct support on those otherwise unable to access and benefit from resources.
- Considering incentives to enable others to meet long-term requirements and share the benefits of their resources.

7.1 Energy is a cost of housing and key to the cost of living.

Energy affordability should not be considered through a narrow cost-of-living lens. While the current cost-of-living challenge is undoubtedly an important consideration, the cost implications of effective, equitable decarbonisation of our energy sector will have broader (long term) positive economic repercussions. The Plan should incorporate a broader analysis of household and government savings in housing, energy, health and wellbeing that will flow from effective decarbonisation and energy transition policy.

As an essential service, energy costs have a huge ongoing impact on households. Decarbonisation of our energy sector is an opportunity for decision-makers to have an enduring impact on improving affordability of energy and housing. As household energy costs lower, they lower the overall cost of maintaining a home, leaving people with improved capacity to meet their other needs.

Decarbonisation of our energy sector through efficient residential electrification can provide both enduring and short-term improvements to energy affordability for Australian households. A fully electric, 7-star home with solar in Western Sydney will spend approx. $2900 less a year in 2024 on their energy bills compared to a 3 star, dual-fuel home (gas and electric).[33] A fully electric 7-star home will still save $1200 a year more than a 7 star duel fuel home. A significant factor in these savings is removing the ongoing fixed cost of maintaining a gas connection, as well as savings related to the increasing gap between the efficiency of gas appliances and more efficient electric ones (such as heat-pump hot water systems and reverse-cycle air-conditioners.

[33] Renew, 2022, *Limiting Energy Bills by Getting off Gas* p.20

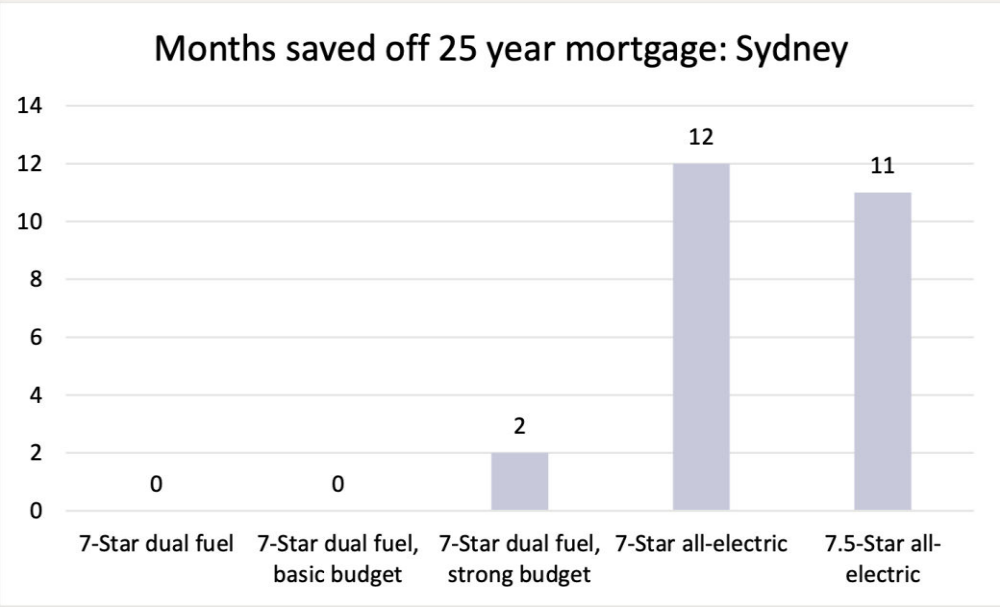

Figure 1: Analysis from Renew[34] on mortgage offsets from electrification upgades – not updated for current interest rates

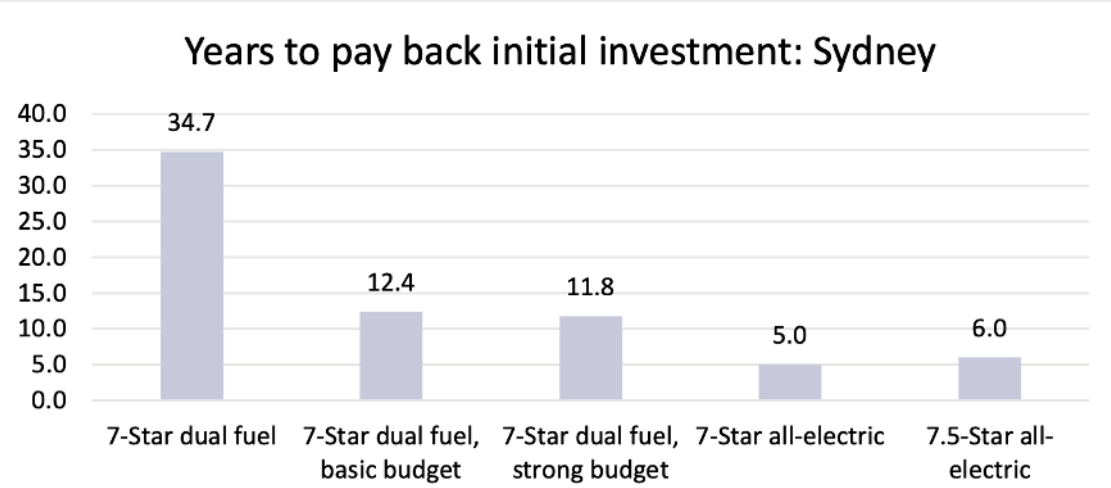

Figure 2: Analysis from Renew[35] on payback period for electrification upgrades – not updated for current interest rates

These savings do not include the significant impact of new pricing offers which allow all-electric homes (even those without their own solar) the option to benefit from cheap/free solar energy in the middle of the day for some of their more flexible loads (like water heating). Innovative pricing that maximise times of high solar feed-in to provide cheaper energy will increasingly be offered by energy providers. These types of offers will be most beneficial to all-electric households and are a crucial consideration in improving affordability for homes without access to solar who can use some of their larger loads (like water heating) more flexibly.

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34 Renew, 2021, *Households Better off* p.25

35 Renew, 2021, *Households Better Off*, p.24.

7.2 How consumers interact with the energy system

The Plan should seek to facilitate an energy transition that reduces the burden of action and engagement required of consumers. The energy transition is an opportunity to improve things for households by making energy easier, more affordable and more sustainable.

There is often an assumption that actions to install solar demonstrate that consumers want to "interact with the energy market in more dynamic ways." While there may be a minority of energy consumers who wish to engage deeply with the energy system, the experience of the current energy retail market demonstrates that most consumers want to "set and forget" when it comes to their energy, including with solar and batteries. Indeed, many consumers install solar and other energy assets on the assumption it will enable them to think less about energy because it will be more affordable and easier. Those households interested in complexity and more active engagement with energy are, by definition, more capable and designing a system to meet their needs would be poor practice. In any case it is unreasonable and incorrect to make broad assumptions regarding consumer preferences in planning reforms of a system that must work for all households, including the large proportion of more vulnerable, less capable consumers for whom energy is and should be as simple as possible.

While the energy transition will inevitably result in more complexity – this should be complexity in the system not in consumers' homes. The Plan must recommend and facilitate regulations and protections that protect all consumers on the assumption that energy is essential, and everyone needs a simple system that reduces the burden on them.

7.2.1 Reform of the energy retail market

To fully achieve the affordability and equity outcomes made possible by the decarbonisation of the energy sector the energy retail market must be reformed. The current system is no longer fit-for-purpose and is not serving the needs of the Australian people nor meeting the requirements for an equitable and effective energy transition.

Consumers across the National Energy Market (NEM) are experiencing an extended period of high housing and energy costs exacerbating financial hardship and consumer vulnerability[36], impacting health and wellbeing[37] and heightening consumer dissatisfaction and distrust of the energy market.[38]

Households have many different aspects of their lives requiring their time and effort and current understanding of consumer vulnerability[39] indicates making fair outcomes in essential services contingent on market engagement increases the incidence and impact of consumer vulnerability.

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36 Australian Energy Regulator (AER), 2023 *State of the energy market 2023*

37 ACOSS, 2023 *Energy and Cost of living snapshot*

38 Energy and Water Ombudsman NSW, 2023 *Annual Report 2022-2023*

39 CPRC, 2019 Exploring approaches to consumer vulnerability: a report for the Austrlian Energy Regulator

The most recent ACCC report[40] into the NEM demonstrates the failure of an energy retail market predicated on consumer choice and engagement, with clear indications throughout the report that the current system is not fit-for purpose. This includes:

- 47 percent of residential customers on plans equal to or higher than the default offer – an offer which is itself intentionally set above the efficient cost to serve in order to encourage 'consumer engagement with the market'.
- 42 percent of concession customers are on plan equal to or higher than the default offer – meaning valuable Government supports are being eroded to support poor retail practice and inefficiency.
- 79 percent of residential customers could have been on a better market if they switched from their current offer – demonstrating the fundamental problem at the heart of the current market, that we allow most consumers to pay more than is necessary in order to retain the (mostly theoretical) possibility of some consumers getting a better deal.

Further, through 'Towards Energy Equity', 'Gamechanger' and in the most recent State of the Market 2023 report, the AER has recognised that existing energy market arrangements fail to adequately support consumers experiencing disadvantage and are contributing to increased consumer vulnerability:

> *for a range of reasons, many consumers face barriers to actively participate in the market and secure the best offer for their situation. This can exacerbate existing structural inequalities, whereby those who can least afford it are paying higher energy rates.*[41]

The fundamental assumption that consumers can 'shop around' for more efficient, fairer retail offers has never been reasonable where it relies on an impossible level of consumer information and near constant consumer engagement. It is increasingly irrelevant advice where market offers are priced at or above the level of the DMO. The ACCC report reflects the decades of experience of consumer advocates in identifying the consumer information and choice framework as the cause of consumer detriment and poor consumer outcomes. if we accept that energy is essential and should be provided equitably and affordably for all, good outcomes cannot be dependent on consumer choice and consumer information.

Alongside other consumer and social organisations, PIAC has written to Energy Ministers recommending the addition of an Energy Equity, Inclusion and Affordability workstream to the National Energy Transformation Partnership. Reform of the energy retail market was one of three key recommendations included in the letter.

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40 Australian Competition and Consumer Commission, 2023, *Inquiry into the National Electricity Market - December 2023 Report*

41 Australian Energy Regulator (AER), 2023, *State of the energy market 2023*, p.248.

The Plan should recommend that Energy Ministers and energy regulators commence a retail market reform agenda as a matter of priority, at a minimum this should include:

- A holistic review of the default market offer (DMO) and the role of robust, efficient default price protection in alleviating consumer vulnerability resulting from interaction with an essential service (energy).

- The circumstances where default price protection should apply to ensure consumers are protected by a fair/efficient default in all circumstances where they have not explicitly consented to the material conditions of their retail offer.

- Protecting the validity of the choices consumers do make, by ensuring retailers cannot unilaterally change the terms of a consumer's contract (including price and pricing structure) during the term of their contract.

- How consumer preferences regarding 'postage stamp pricing' (consistently revealed in distribution network consumer engagement) can be reflected in the structure of default retail pricing protections and retail regulations more broadly – that is, how can we deliver on peoples expectations that they should pay the same for the same service?

- How environmental costs can be removed from the cost stack of bills and instead recovered through government revenue and taxation to ensure vulnerable consumers are not carrying a disproportionate cost burden of transition costs.

- The role of a reformed DMO as part of the introduction of an obligation on all retailers to offer a flat-price option to all consumers regardless of the network tariff the retailer may face.

- The role of efficient, widely applied default pricing in incentivising retailers to understand consumer preferences and create alternative products that demonstrate value to consumers and genuine choice of products.

- The role of network tariff reform and cost-reflective network tariffs in enabling opportunities for retailers to offer genuine product choice to consumers, rather than simply passing signals through to consumers.

Ensuring fair, simple and consistent access to affordable energy services must be a key part of enabling the transition, and robust retail regulation is crucial to ensuring the transition delivers for all consumers.

7.3 Community support for the energy transformation

Community support for the energy transformation will depend on delivering fair and equitable outcomes for all Australians. As discussed throughout this submission, we disagree that this support will be facilitated by requiring consumers to "fully engage" with the transition. It will be the role of governments to ensure that all Australian households and communities have access to the benefits of the energy transition, whether people choose to (or can) engage with the process or not.

Experience over recent years has demonstrated that the energy system transition will not be smooth. It is likely to involve significant shocks that impact energy costs for consumers over the medium term, and significant investments that will increase system costs. Prioritising efficient electrification of Australian homes and pursing a retail market reform agenda are meaningful and positive actions that governments can take to provide medium to long term outcomes for households.

The Plan should recommend that Commonwealth and jurisdictional governments fund more of the energy transition through general revenue rather than pushing costs onto consumers through regressive on-bill costs. Current green schemes and jurisdictional actions, including the NSW Roadmap, being paid for through bills rather than taxes may be appealing to governments in the short-term but will have negative implications for how people experience the energy transition.

Australian households and communities are consistently told that the energy transition will make energy cheaper, but without action to more fairly recover the costs of transitioning the energy system (such as green scheme costs, the cost of renewable energy zones and large-scale transmission investments) the short-medium term experience will likely be one of higher bills as the costs of the transition are pushed onto bills. The Plan should involve measures to shift energy system transition off bills onto more progressive and equitable means of recovery, including Government Budgets, which are more suited to dealing with the temporal differences between the incurring of system transition costs, and the realisation of benefits through lower energy prices.

7.4 Supporting all households through the transition

While early-adopting households are decarbonising their homes and lifestyles largely off their own volition, the majority of Australian households will need to be incentivised and supported to decarbonise. Various funding and financing arrangements will be required alongside supports targeted at specific, disadvantaged cohorts. This section of our submission identifies actions required to support low-income homeowners, social and private renters, multicultural communities, First Nations communities and households and apartment-dwellers.

We again reiterate the importance of prioritising measures in the Plan to address structural and circumstantial contributors to poorer outcomes for these identified groups. Such measures improve outcomes without relying on individual choice, action or capacity. They help 'raise the floor' and provide a robust foundation on which more specific measures to target these groups (to address 'individual factors') can be effective. More vitally, without these measures' incentives will be ineffective at worst, and at best will only serve to provide further benefits to those in the community who already have sufficient income, agency and capacity.

In addition to actions outlined in the following sections, measures to target improved outcomes for these groups requiring extra support could include:

- Government backed 'for purpose' energy service provider(s) who could be utilised to take social housing tenants and other identified cohorts more disadvantaged consumers 'off market'. New entities need not be created, with scope to 're-purpose' part of Snowy Hydro's retail subsidiaries and other entities already owned by State Governments, to

operate on defined terms.

- Considering limiting energy charges for social housing tenants to a percentage of their income. This could be enabled by improvements to social housing, utilisation of consumer resources, and schemes to manage demand and 'share solar'.

- Utilising a government backed or 'for purpose' energy service provider to implement solar sharing between those with resources/those electrified homes without solar.

- Support for a First Nations community energy agency funded to build energy independence, and community capacity as well as improve service outcomes for First Nations communities.

These examples are presented to demonstrate the principle that the transition pathway the Plan is plotting needs to be comprehensive and must consider the full range of measures which can ensure decarbonisation of the energy sector goes hand in hand with an improvement in the way energy services meet the needs of all consumers. Failure to consider new ways of ensuring equity and affordability in energy service provision will be failure to seize the opportunity the transition presents.

7.4.1 Private renters

More than 30% of Australians live in rental properties and many will rent for their entire lives. Existing tenancy laws provide no scope for renters to electrify or influence the efficiency of their home. Without any requirement to do so, landlords rarely upgrade the housing they provide to be healthy, efficient and affordable.

Mandatory minimum energy efficiency standards for rental properties are necessary and overdue. Not only will these standards help to facilitate efficient electrification of Australian homes, but they are also needed to provide basic protections and living standards for Australians who rent. We rightly assume food preparation businesses must meet high standards of health and cleanliness, audit those standards and accept no excuse for breaches of those standards. It is neither acceptable nor comprehensible that the most essential of needs, housing for renters, is subject to such weak and inconsistent standards which ineffectively rely on self-enforcement by tenants.

We highlight the Community Sector Blueprint: a National Framework for Minimum Energy Efficiency Rental Requirements[42] and recommend the sector Plan adopt its structure, principles and incorporate key aspects of it. Minimum energy efficiency standards for rentals should be a priority measure in this Plan, is key to transitioning a third of Australia's households, and is crucial for ensuring renters have improved access to the benefits of the energy transition.

While we understand much in the blueprint is the direct responsibility of State Governments, the Plan has a role to adopt the architecture and promote co-ordination with it. We recommend that

[42] Healthy Homes for Renters, 2022, *Community Sector Blueprint: National Framework ofr Minimum Energy Efficiency Rental Requirements*

decision-makers adopt the objectives, principles and outcomes contained in the Blueprint as part of a range of measures to improve energy performance in rental homes.

In addition, PIAC, SACOSS and the Tenants' Union NSW support the Plan incorporating recommendations from an ACOSS report[43] on funding low-income retrofits, and highlights the following:

Private rental retrofit programs should aim to:

- Establish Environmental Upgrade Finance programs across local councils to provide low-cost, long-term, on-property finance, paid back through rates.
- While the EUF program is being established, provide low or zero-interest loans and conditional and targeted subsidies. Subsidies should be tied to a cap on rent increases.
- Funding for these retrofits could come from the Australian Efficiency and Resilience Retrofit Fund (AERRF). A separate special purpose finance vehicle could be established to deliver the program.

7.4.2 Social housing residents

Social housing upgrade programs provide considerable opportunities to encourage markets, supply chains and workforces for efficient electrification while prioritising households most in need of support in their electrification journey. They represent a means of piloting and developing the delivery architecture which will be required by all potential finance mechanisms for the wider community, including those like the Electrify Everything Loans recently proposed by Rewiring Australia[44]. Importantly, Commonwealth, jurisdictional and municipal governments have a crucial role to play in directly improving outcomes for social and community housing tenants.

The Plan should include the government role in enabling better outcomes through all social and community housing providers. This role could include:

- Redesigning the HEUF or initiating another fund able to be practically accessed by social and community housing providers design something else that community housing providers.
- 'Raise the floor' by setting best-practice standards for building energy efficiency, electrification, and consumer resource benefits in all social and community housing.

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43 ACOSS, 2024, *Funding and Financing Energy Performance and Climate-Resilient Retrofits for Low-Income Housing*

44 Rewiring Australia https://www.rewiringaustralia.org/eels

- Ensure providers adhere to a principle of prioritising energy efficiency upgrades (building shell and fixtures) first, then electrification, then solar and other renewable assets.

- Implement targets and funded support programs to unwind and convert legacy gas embedded networks.

PIAC, SACOSS and the Tenants' Union NSW recommend the Plan include a commitment based on the ACOSS recommendations outlined below.

ACOSS recommendations[45]:

- Implement a single residential building energy performance rating tool and climate-resilience tool for existing homes to support implementation and financing of retrofits. Work with public and community housing providers to test and finalise the tool.

- Build on existing social housing retrofit funding to establish a 7-year program to fully fund energy performance (energy efficient, all electric, with rooftop solar) and where needed climate-resilience retrofits, for all public housing and regional and remote Aboriginal community-controlled housing, prioritising Aboriginal housing, before 2030. Funding for retrofits could draw on the Australian Efficiency and Resilience Retrofit Fund (AERRF).

- Build on existing social housing retrofit funding to establish a 7-year grants program to support energy performance (energy efficient, all electric, with rooftop solar) and, where needed, climate-resilience retrofits for community housing that is owned and managed by the Community Housing providers. The funding for these retrofits could come from the Australian Efficiency and Resilience Retrofit Fund (AERRF), as proposed in the recommendation above. A separate special purpose finance vehicle could be established to provide:
    - Access to zero-interest or low-interest loans.
    - Access to non-competitive continuous grants to pay up to 90% to implement the retrofits, including project assessment and project management.
    - Additional funding for replacement of stock (where it's not cost effective to upgrade), to ensure there is no net reduction in present or future stock

7.4.3 Low-income households

Low-income households are those most impacted by inefficient, unhealthy homes and the least able to efficiently electrify, improve efficiency and benefit from consumer resources without adequate additional supports (beyond the structural measures we have already outlined). When considering additional supports beyond 'raising the floor' for all through standards and regulation, the programs, supports and measures identified in the Plan should focus on groups, such as low-income households, requiring additional assistance.

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45 ACOSS, 2024, *Funding and Financing Energy Performance and Climate-Resilient Retrofits for Low-Income Housing*

PIAC, SACOSS and the Tenants' Union NSW support the recommendations contained in the ACOSS paper[46] examining funding options for supporting low-income homes to 'retrofit', improve efficiency and benefit from consumer resources.

ACOSS funding paper recs:

- Prioritise and directly invest in energy performance and climate-resilience retrofits for low-income housing and enabling infrastructure. This will improve health outcomes, reduce deprivation, and build economies of scale and market capacity to reduce the costs of all housing retrofits.

- Pursue long-term green, social or other bonds, to provide low-cost, long-term sources of debt capital that can directly finance and refinance (public and private sector) investments to support energy performance and climate-resilience retrofits.

- Establish an Environmental Upgrade Finance (EUF) program, that can be tailored by local councils to support energy performance and climate-resilience retrofits for private landlords and owner-occupiers. EUFs provide low-cost, long-term finance, that stays with the property, and is repaid through council rates. Low-income owner-occupiers should receive an additional subsidy to participate. Local councils would need support to establish such programs with appropriate consumer protections in place Funds to support the EUFs could come from the Australian Efficiency and Resilience Retrofit Fund (AERRF)

7.4.4 First Nations households and communities

The energy sector decarbonisation plan should align with the First Nations Clean Energy Strategy currently being co-designed between the Department and First Nations stakeholders. PIAC, SACOSS and the Tenants' Union NSW strongly support the development and implementation of a national First Nations Clean Energy Strategy which is informed, shaped and implemented through the direct involvement of First Nations stakeholders and communities[47]. The Strategy is a crucial opportunity to address systemic inequity and disadvantage experienced by First Nations people and communities, through improved access to dependable, sustainable, and affordable energy services, and greater agency and control in their engagement with the broader energy system and industries. Further, the ongoing energy transition can greatly benefit from the invaluable community knowledge, experience and connection to Country of First Nations people and communities

46 Ibid.

47 PIAC, 2024, *Submission to DCCEEW Consultation Paper on the First Nations Clean Energy Strategy*

PIAC, SACOSS and the Tenants' Union NSW support the First Nations Clean Energy Network submission[48] to the First Nations Clean Energy Strategy consultation. We recommend the sectoral plans seek to incorporate and implement relevant recommendations from that process.

In addition, we reiterate ACOSS recommendations[49] to support the finance of upgrades for housing in First Nations communities.

ACOSS Recommendation:

- build on existing social housing retrofit funding to establish a 7-year program to fully fund energy performance (energy efficient, all electric, with rooftop solar) and where needed climate-resilience retrofits, for all public housing and regional and remote Aboriginal community-controlled housing, prioritising Aboriginal and Torres Strait Islander housing, before 2030. Provide additional funding for replacement of stock (where it is not cost effective to upgrade), to ensure there is no net reduction in present or future stock (see section 6.4 for details). Funding for retrofits could come from the Australian Efficiency and Resilience Retrofit Fund (AERRF).

7.4.5 Culturally and linguistically diverse households and communities

Different communities have varied experiences of energy and efficiency, different needs and will require different strategies to ensure efficient electrification, efficiency upgrade and consumer resource deployment can meet those needs. Targeted funding should be made available to multicultural communities to run deep engagement and support programs which can help shape the implementation of efficient electrification and consumer energy policies.

PIAC has sought insights from organisations that work in and with different multicultural communities on how communities can be more involved in the household energy transition. The following recommendations reflect those insights. In addition, we support the recommendations made by the Sydney Community Forum in collaboration with Energy Consumers Australian their recently published report.[50]

- Fund enduring community engagement programs with long-term timeframes, rather than 12–36-month limitations, to provide scope to undertake the deep community listening and connection building work required.

- Build relationships with a range of existing community leaders (formal and informal) as they are trusted and connected.

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48 First Nations Clean Energy Network 2024, *Submission in response to the First Nations Clean Energy Strategy Consultation Paper*

49 ACOSS, 2024, *Funding and Financing Energy Performance and Climate-Resilient Retrofits for Low-Income Housing*

50 Energy Consumers Australia and Sydney Community Forum, 2024, *Insights Report: Understanding the diversity of consumers and their experiences of the energy system*.

- Engage with communities with the time and intention to listen and seek insights. Different communities will have their own structures and requirements, and often have their own solutions to unique issues they are experiencing, including how to improve awareness of and access to efficient electrification in a way that best suits their community.

- Work with pre-existing organisations, cultural groups and other communications networks e.g. the Arab Council, Pasifika church groups and informal advice networks.

- Develop and provide information that is:
    - easily accessible in multiple formats, including through direct dissemination by existing community leaders,
    - in different languages,
    - culturally appropriate. E.g. images used in visual materials (also noting that images and infographics can be as or more effective than translations), and
    - in simple, understandable language not jargon.

- Have people with English as a second language review flyers, websites and other communication materials for plain language and cultural appropriateness.

- Use cultural events as promotion opportunities including Lunar New Year and Diwali celebrations.

It is crucial to plan and fund genuine programs to engage with diverse communities, understand their experiences, concerns and needs, and work with them to develop and implement efficient electrification programs, plans and options which account for those. It will be important to address and unpack overly simplistic narratives (such as that CALD communities have a cultural connection to 'gas' which necessitates retaining gas networks) and understand the experiences and concerns which underpin them. CALD communities must be included in the transition and benefit from the positive changes it will involve. They must have a part in developing the answers which will help them to realise those benefits, while preserving a meaningful connection to their culture and way of life.

7.4.6 Apartment residents

Decarbonising and efficiently electrifying apartments, multi-dwelling buildings and strata properties presents a notable challenge. These housing arrangements present distinct hurdles to efficient electrification due to multiple ownerships, a blend of owner-occupiers and renters, private and shared energy infrastructure, limits to CER installation and the potential presence of embedded energy networks. Decision-makers will need to collaborate with industry and with organisations such as strata peak body groups to fully identify and address the added social, legal and technical challenges of efficiently electrifying apartments.

Priority actions for the Plan should include:

- Implementing a ban on new residential gas connections
- Raising residential building efficiency standards
- Implementing minimum energy efficiency standards for rentals

- Implementing mandatory energy efficiency disclosure
- Aligning supports, assistance measures, rebates and industry schemes and ensuring they are available to apartment residents and operators
- Initiating collaboration between gas and electricity network providers and:
    - Identifying and mapping building types by the nature of the efficient electrification tasks
    - Developing frameworks to respond to buildings in each type, according to a reasonable assessment of efficiency and cost/benefit
    - Supporting businesses to collaborate with strata and building management entities to convert gas connected apartments, and upgrade availability of consumer resources.
- Implement and support schemes to manage demand and share solar and make them available to apartment residents.

7.4.7 Embedded network residents

The Plan should help to address the significant, long-running impacts and inequities experienced by residents of embedded networks as a critical step in Australian households have equitable, protected access to the energy they need.

Embedded networks, properly structured, can provide benefits to consumers through more efficient access to on-site generation, and shared, efficient infrastructure and appliances. However, most embedded networks have been structured to absorb energy cost differentials and take advantage of lighter regulation and less responsibility, to deliver additional revenue for developers and operators.

Any future for embedded networks including for heating, cooling and consumer energy resources, must squarely place the onus on the proponent to demonstrate what tangible beneficial consumer outcomes will be realised as a result, and guarantee they will be delivered. This should be accompanied by robust regulation to ensure equivalent consumer rights and protections are also delivered.

PIAC, SACOSS and the Tenants' Union NSW strongly support prohibiting gas embedded networks in new developments. Banning new gas embedded networks will help to ensure that consumers are not left with the expensive, polluting and increasingly outdated technology. An immediate moratorium and ban on gas embedded networks ensures the challenge of embedded network zero-carbon energy transition is only as big as it is today. This is an important consideration, given the expense and complications that can be involved in retrofitting many gas-embedded network arrangements.

7.4.8 Youth and young people

Young people are under-represented and a cohort who both experiences a range of disadvantages and is often excluded from support and assistance. A number of measures outlined previously will be crucial to ensuring better outcomes for youth and young people,

particularly those relating to building standards, rental efficiency standards and improved access to solar share schemes.

7.5 Embedding circular economy principles

Consumer engagement conducted by energy and water businesses, which PIAC consistently attends as an observer, demonstrates consistent, high support for embedding environmental sustainability considerations into the energy transition. This is particularly important in considering how the (limited) role of alternative gases is determined, and how solar, battery and other resource recovery and recycling schemes are integrated with the transition.

7.6 Response to household outcomes questions

What actions are required to ensure better energy outcomes for people and businesses, and maximise their benefit from the energy transformation?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout the entirety of this submission, particularly in sections 2, 4, 5 and 7.

The Energy Sector Plan (and the wider decarbonisation planning process) should be seen as an opportunity to use the climate change inspired system transitions to co-ordinate Commonwealth Government actions to improve equity, and actively improve outcomes for all Australian households.

What social licence and circular economy aspects should be considered as part of the pathway for the energy transformation?

PIAC, SACOSS and the Tenants' Union NSW have provided extensive responses relevant to this question throughout the entirety of this submission, particularly in sections 7.3 and 7.5.

8. Further information

In this section we provide links to a number of previous PIAC submissions and external resources which are relevant to this process.

CER regulation

The following resources provide further detail on necessary and desired regulatory reform for a fast and fair household energy transition.

- 2024 PIAC submission to 'NSW DCCEEW Household Energy Strategy'
- 2022 PIAC submission to 'Promoting innovation for NSW Energy consumers'
- 2022 PIAC submission to 'Review into consumer energy resource technical standards'
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Energy system and regulations

- 2024 PIAC submission to 'AEMO Draft 2024 Integrated System Plan'

- 2023 PIAC submission to 'AEMC Review of the regulatory framework for metering services'
- 2023 PIAC submission to 'DCCEEW Review of the Integrated System Plan'
- 2022 PIAC submission to 'AER Review of the regulatory framework for flexible export limit implementation'

Standards

- 2024 IEEFA 'Appliance standards are key to driving the transition to efficient electric homes'
- 2022 PIAC submission to 'Sustainability in residential buildings: Proposed BASIX changes'
- Green Building Council Australia & Property Council of Australia (2023) *Every Building Counts: Federal Policy Plan*
- Renew (2021) *Households Better Off: Lowering energy bills with the 2022 National Construction Code*

Electrification and Decarbonisation

The following resources provide further detail on how efficient electrification of Australian homes can contribute to our energy affordability, emissions reduction efforts and our climate commitments.

- 2023 Climateworks Centre 'Climate-ready homes: Building the case for a renovation wave in Australia'
- Energy Efficiency Council 2023 'Clean Energy, Clean Demand: Enabling a zero emissions energy system with energy management, renewables and electrification
- 2023 PIAC 'Submission to the Senate Economic Reference Committee Inquiry into Residential Electrification'

Funding & finance for efficient electrification

These resources provide further detail into potential avenues for funding and financing efficient electrification of Australian homes. Some of these resources provide specific policy advice on supporting low-come households.

- 2024 ACOSS report 'Funding and financing energy performance and climate-resilient retrofits for low-income housing'.
- Australian Sustainable Finance Institute 2023 'Industry Workshop: Finance for Home Retrofits'

Equity in the household energy transition

These resources provide further detail on specific cohorts of NSW residents who will require targeted supports, policies and resourcing to effectively implement a Household Energy Strategy.

- 2024 Energy Consumers' Australian & Sydney Community Forum 'Insights Report: Understanding the diversity of consumers and their experiences of the energy system'
- 2024 First Nations Clean Energy Network submission to the DCCEEW First Nations Clean Energy Strategy.
- 2023 Voices for Power 2023 '*Our roadmap to clean and affordable energy'*
- 2023 Sydney Community Forum '*Submission to Residential Electrification Senate Inquiry*'
- Brotherhood of St Lawrence 2023, 'Enabling electrification: addressing the barriers to moving off gas faced by lower-income households
- ACT Council of Social Services 2023 'Supporting a fair, fast and inclusive energy transition in the ACT'
- 2023 Community Sector Blueprint: National Framework for Minimum Energy Efficiency Rental Requirements

Energy Efficiency

The following resources provide further evidence demonstrating why energy efficiency and electrification must be progressed together by detailing the affordability, health and emissions reductions benefits that are gained through energy efficiency.

- Energy Efficiency Council and ANZ 2023 'Putting Energy Efficiency to Work: The Forgotten Fuel Series"
- Climate Council 2022 'Tents to Castles: Building Energy Efficient, Cost-Saving Aussie Homes'
- Energy Consumers Australia and Renew 2022 ' Energy Efficient Housing Research'
- International Energy Agency 2023 'Energy efficiency and behaviour' in *Net Zero Roadmap: A Global Pathway to Keep 1.5 in Reach*

Gas is costing Australian households

The following resources include modelling and costings demonstrating how much more dual-fuel households pay for their energy compared to efficient, electric homes.

- Institute for Energy Economics and Financial Analysis, 2024 'Fast, efficient, flexible electrification can cut energy bills and support the shift to renewables'
- Environment Victoria 2023 'It's a Gas: How ditching gas this winter can cut heating bills by 75%'
- Climate Council 2022 'Switch and Save: How Gas is Costing Households'

- Renew 2021, 'Households Better Off: Lowering energy bills with the 2022 National Construction Code'
- Renew 2022, 'Limiting energy bills by getting off gas'

Health impacts of gas

The following resources detail some of the health risks from the use of gas in homes

- Asthma Australia 2022 'Homes, Health and Asthma in Australia'
- Climate Council 2021, 'Kicking the Gas Habit: How Gas is Harming our Health'
- Doctors for the Environment 2020 'Home Gas Appliances and Your Health: Fact Sheet'

Gas network transition – necessity, risks & myth-busting

The following resources provide greater detail into why a retreat of the gas network is necessary and policy requirements for advancing efficient renewable electrification. Some of these resources address stranded assets, risk management and cost recovery.

- Grattan Institute 2023 'Getting off gas: why, how, and who should pay?'
- Energy Consumers Australia 2023 'Stepping Up: A smoother pathway to decarbonising homes'
- Energy Consumers Australia 2023 'Risks to gas consumers of declining demand'
- Institute for Energy Economics and Financial Analysis 2023 ''Renewable gas' campaigns leave Victorian gas distribution networks and consumers at risk'
- Institute for Energy Economics and Financial Analysis 2024 'Declining demand, uncertain forecasts rasie questions over AEMO's latest gas supply warning'
- Friends of the Earth, Melbourne 2023 'Community Gas Retirement Roadmap: How and why to get off gas in Victoria"

Appendix 1.

Extending Wholesale Demand Response to household consumers.

Current protections framework

The National Energy Customer Framework (NECF) is intended to work in conjunction with the Australian Consumer Law (ACL) with respect to consumer protections. However, the NECF itself only provides for the energy-specific regulation where there is a sale of electricity or gas to a customer connected to the grid. As a result, the requirements in the National Energy Rules (NER) for retail authorisation and exempt selling arrangements apply only where there is a financial transaction relating to the volumes of energy and has generally revolved around the existence of a metered connection.

This means that providers of many energy related services, with similar potential consumer harms to those where energy is transacted, do not currently have to comply with any energy-specific regulation under the NECF. Instead, they are only bound to the more general consumer protections under the ACL.

In the past, this approach may have been suitable because most energy services required metered transactions. Now, with emerging technologies and business models, it is clear that this approach provides insufficient protections for some consumers.

Limiting protections only to where energy is metered and traded runs the risk of creating loopholes. For example, the provider of a product or service can avoid complying with consumer protections that apply under NECF's retail exemption arrangements, simply by not selling energy on a per kWh basis and so avoiding the need for an exemption.

Harm-based protections

PIAC supports a system where the protections offered to consumers are commensurate to the potential harm the consumer may face should they lose that energy product or service – the higher the potential harm, the stronger the protections offered to the customer. This should not depend on the model of provision and reflects the nature of energy as an essential service.

PIAC does not support any delay to the inclusion of household demand response options that carry little or no risk of harm to people's health and wellbeing.

Potential harms from household WDR

The potential harm to households from any particular DR event depends on a number of factors including:

- The type of energy use being affected by the DR event (e.g.: whether it is heating/cooling load or battery storage) and its duration.
- Characteristics of the household itself, such as whether there are medical conditions that make them more sensitive to temperature changes.
- The context of when and where the DR event occurs, such as whether it is on an extreme weather day.

Very broadly, these harms could be categorised as either:

- Financial harms in terms of choosing an appropriate offer, payment conditions or warranty terms. For instance, if there is information asymmetry between potential DR providers and households regarding the value of the DR load, households may not be well-placed to properly compare competing offers and judge which is most suitable for them.

- Inconvenience from the loss of usage of some appliances during a DR event. For instance, there may be potential impacts to the household's amenity from temporary loss of controlled load hot water.

- Harms to health and wellbeing from the loss of use of some appliances during a DR event. For instance, there may be potential impacts to an individual's health from losing full access to heating or cooling devices during extreme weather events.

The potential financial harms from WDR are similar to the potential harms that currently exist for households in receiving their traditional grid supply and through their own investment in behind the meter technologies such as rooftop PV. In this regard, many of the existing customer protection frameworks provide adequate protections for some DR.

By contrast the potential harms to health and wellbeing from WDR are fundamentally different to those that currently exist for traditional grid supply of energy. In the case of an unplanned outage of traditional grid supply, the harm is from the loss of all (or at least a significant portion) of the energy supply to their home for an indefinite time until the outage is resolved. In the case of WDR for households, the harm is from the loss of full usage of one or several specific appliances within a home for a relatively well-defined period until the DR event ends.

There are several important differences here to highlight in the case of WDR: it is inherently controllable; it is only for specific loads not the entire home's supply; it is not necessarily the full loss of supply of those loads; it is for a finite time; and in many cases the consumer can opt out of, or override, the DR event.

Types of energy usage

The types of energy usage for household WDR sit on a spectrum from flexible, having no impact to the household's health and wellbeing, to inflexible, having the potential to impact the household's health and wellbeing.

	Flexible loads		**Inflexible loads**
	Increasing degree of potential harm to household		
	Increasing need for consumer protections		
Examples	• Home battery • Pool pump	• Electric hot water systems • Smart appliances	• AC on day 4 of a heatwave for typical household

		• AC on day 1 of a heatwave for typical household • EVs – from, say, 100% to 50% of state of charge	• AC for temperature-sensitive consumers • EVs – last 10% of charge
Potential harms	• No impact on health or wellbeing from deferring this energy use • Potential for financial harm	• Inconvenience to household from deferring this energy use but little or no potential impact to their health and wellbeing • Potential for financial harm	• Potential material impact to health and wellbeing from deferring this energy use • Potential for financial harm

Figure 1: Categorisation of potential loads offered for demand response by the potential harm to the households

It is worth noting from Figure 1 that air-conditioning (AC) can sit at various places on the spectrum from flexible to inflexible loads to offer for DR. This depends on a range of factors governing the context of its use including the type of household that is potentially offering it and the time at which it is offered.

For instance, the impact to a household's health and wellbeing from reducing their AC load for an hour may be negligible on the first day of a heatwave, especially if the house has good thermal insulation and is well sealed, meaning there is only a small and potentially unnoticeable change in indoor temperature during the DR event. However, this may not be the case if it is the fourth day of a heatwave or the house has poor thermal insulation. The potential impact on the health and wellbeing can be quite high if anyone in the household is particularly temperature sensitive, such as those suffering from thermos-regulatory illness, the elderly or young children.

One potential way to address this may be to establish temperature ranges outside of which the indoor temperature is not allowed to deviate for households during a DR event through their AC. In this case, a typical household without thermal sensitivity may have a relatively wide temperature range (for example 15-28°C) within which the impact to their health and wellbeing is minimal. The automated AC can cycle down during a DR event while the indoor temperature remains within this range. During this cycling, if the temperature deviates from this range, the AC will cycle on again to maintain the household's wellbeing. By contrast, the temperature range for households that are temperature sensitive would be much narrower, for example, to a range of just 3-5 degrees. In both cases, the automatic maintenance of temperature within appropriate ranges can be supplemented with an override option for the household to opt-out in the lead-up to or during a planned DR event, for whatever reason.

A framework such as this could allow households to participate in and derive the benefits of WDR whilst balancing consumer protection requirements.

Proposed solution for household WDR

PIAC proposes a tiered approach to consumer protections commensurate to the potential harm from **category of load** being offered for DR.

Category 1 – flexible loads with negligible potential harm

These correspond to the flexible loads described in Figure 1, such as pool pumps and household batteries. For these loads there is no material risk of affecting people's health and wellbeing – in fact most households will not even notice the loss of these loads for the duration of a DR event.

The potential harm, if any, from the loss of these types of loads during a DR event are limited to relatively minor financial impacts. As such, these types of loads can generally be adequately covered by existing, non-energy specific protections such as the ACL. These loads could be included in WDR immediately.

Category 2 – potential inconvenience

These correspond to loads in the middle of the spectrum described in Figure 1 such as hot water systems and smart appliances such as washing machines and clothes dryers. We do not propose to include air conditioning in this category due to the complexity involved in creating a framework that would differentiate between cases where providing DR through AC (such as on day 1 of a heatwave) and when it is more inflexible load and has higher risk to health and wellbeing (day 4 of a heatwave or for those with medical issues).

The loss of these loads during a DR event may cause inconvenience to households but will not cause material risk of harm to health or wellbeing. As such, these would benefit from basic protections, beyond those offered in the ACL but not as prescriptive as those offered in energy-specific regulations.

Category 3 – higher potential harm

The correspond to the inflexible loads described in Figure 1 such as heating or cooling by air-conditioning and EV charging. These have a higher risk of causing harm to household's health and wellbeing from the loss of these loads during a DR event.

These should not be part of the targeted demand response market before appropriate, energy-specific consumer protections have been extended to them as the ACL and voluntary industry code such as the NETCC are inadequate. The work to develop these protections should commence at the earliest opportunity.