MONASH University

ENGAGING HOUSEHOLDS TOWARDS THE FUTURE GRID

AN ENGAGEMENT STRATEGY FOR THE ENERGY SECTOR

2019

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GLOSSARY

TERM	EXPLANATION
AirBnB	Online marketplace for short term accommodation in residential housing
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARENA	Australian Renewable Energy Agency
Battery (storage)	Energy storage device typically used by households in conjunction with solar PV systems to store electricity generated onsite, and to draw on to maintain supply of electricity
Blackout	Term used by householders (and sometimes researchers) to describe an unexpected loss of electricity to the home and other homes nearby. Some householders may include load shedding events under this terminology
CALD	Culturally and linguistically diverse
Clean energy	Electricity that is generated from renewable sources such as solar, wind, hydro
CEC	Clean Energy Council
DM	Demand management – initiatives to balance the amount of electricity being used in the market or network. Also known as demand side management
DER	Distributed energy resources – includes distribution level resources, which produce electricity or actively manage consumer demand, e.g. solar rooftop PV systems, batteries, and demand response like hot water systems, pool pumps, smart appliances and air conditioning control[1]
DLC	Direct load control – refers to electricity use of specific appliances in households being controlled remotely by energy companies, either in an ongoing manner or in response to periods of peak demand, usually refers to air conditioning or hot water systems
Demand response	Demand response – A strategy to reduce demand in response to a specific network or market signal or event
Demand (side) response aggregation	Combined or coordinated (aggregated) demand response, usually managed by a third party or utility on behalf of a group of energy consumers (such as households), e.g. Virtual Power Plant
Early adopter (of new energy technologies)	Households that have solar PV array combined with battery storage and/or electric vehicle, or are planning installation of battery storage for self-generated electricity
EEC	Energy Efficiency Council
ENA	Energy Networks Australia
ESL	English as a second language
EV	Electric vehicle (battery or plug in hybrid)
Flat rate (tariff)	Electricity pricing that remains the same throughout the day and night
Future Grid	An electricity system generally thought to be characterised by increasing combinations of rooftop solar PV generation and battery storage, community renewable energy projects, demand response initiatives and/or a range of other emerging technologies and market-based initiatives
Load shedding	Coordinated curtailment of electricity supply in specific areas of the grid to balance supply and demand and stabilise the electricity system
NEM	National Electricity Market
NGO	Non-government organisation
Off-grid	Disconnection from mains electricity services in favour of on-site energy generation and provisioning (may also be used in reference to other utilities)

[1] https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-program

Outage - planned	Electricity outage for which customers are sent prior notification, e.g. for works on network
Outage - unplanned	Unexpected electricity outage (no notification). Also often referred to as 'blackout', and may be caused by site specific incidents (e.g. storms damaging grid infrastructure), load shedding, or overloading of grid during peak periods
Peak alert	A notification sent to energy consumers (e.g. households) informing them of a period of peak demand or network constraint, often accompanied by a rebate or incentive offered to consumers who reduce their peak demand for a short, specified period of time
Peak demand	The period in which the overall amount of electricity being used is at its highest. May refer to daily, seasonal, critical or annual peaks
Peak rebate	A financial rebate, reward or incentive offered to energy consumers who reduce their peak demand during a specified period (normally as part of an opt-in program run by a distributor or retailer)
Power outage	Electricity outage
PV	Photovoltaic (e.g. solar PV array)
SLO	Social license to operate
Smart	Infrastructure or appliances that are automated and/or connected to the internet that generate and communicate data
ToU (tariff)	Time-of-Use (tariff) - whereby households are charged different rates for electricity use at different times of the day
The Energy Charter	A voluntary charter for Australian energy businesses across the supply chain indicating their commitment to energy consumers, whether households, businesses or other enterprises

PART 1
ENGAGEMENT STRATEGY

THE PROJECT

The **Future Grid Homes** project aimed to identify **best practice household engagement** for the Future Grid.

The purpose of this engagement is to improve households' trust, participation in demand management, and adoption of new energy technologies (e.g. solar PV and battery storage) intended to support affordability and reliability objectives for residential energy consumers.

The project focused on the **Australian energy sector** (National Energy Market (NEM), but is likely to have broader applicability. The main focus is on **residential electricity provision** (generation, grid distribution and transmission, and retail market).

Future Grid Homes adopted a **qualitiative methodology** and was conducted in three stages:

> **Stage 1:** Research with households who are already experiencing the types of engagement expected as part of the Future Grid
> **Stage 2:** Energy stakeholder interviews, an analysis of consumer engagement and demand management materials, literature review of best practice engagement, and review of engagement in other related sectors
> **Stage 3:** Development of an engagement strategy for the sector

This report is presented in two parts: **An Engagement Strategy** and **Background Research Report** summarising the project's research findings that inform the Strategy. For a full analysis of Stage 1 household research findings refer to the project's **interim report**.

THE FUTURE GRID

The **Future Grid** is characterised by increasing **distributed energy resources** (DER), **demand response** and **emerging market arrangements**. For households, this includes:

- Technologies such as rooftop solar PV systems, battery storage, automated control of hot water systems, pool pumps, smart appliances or air conditioning
- Demand response programs that ask households to vary the timing of their consumption in response to variable pricing, incentives, rewards or other appeals
- Community-scale projects such as micro-grids
- New market arrangements and increasing third party platforms and vendors, such as demand response aggregation and peer-to-peer trading.

A range of scenarios have been developed for the Future Grid, both in Australia and internationally (CSIRO 2013; CSIRO & ENA 2017; National Grid 2018). However, as yet there is **no agreement on what the Future Grid will look like**, and how households will be involved in its development or operation.

Despite this uncertainty, there is widespread consensus that the Future Grid will be **characterised by increasing diversity and flexibility**, presenting more options for households to engage (and disengage) in this energy future. In particular, the sector (in Australia and internationally) is shifting from 'supply-led' to 'demand-led' thinking, where many consumers have greater control and choice over how they access and consume energy in their homes (Sandys et al. 2018).

Most research points towards the **increasing engagement and participation of households** in the Future Grid, as is already occurring in Australia through the high penetration of rooftop solar generation, and increasing battery uptake.

However, like the Future Grid itself, there is **no consensus on best practice household engagement towards the Future Grid**. While innovative engagement initiatives are underway and emerging, much engagement in the Australian energy sector is still based on traditional understandings of households as bill-paying customers.

The Future Grid Homes Engagement Strategy responds to this **unpredictable, fast-changing and differentiated environment**. It recognises that any engagement strategy for the Future Grid needs to be **flexible and adaptable to different scenarios and possibilities**, and that a 'one size fits all' approach is neither possible nor desirable. Further, it recognises that many households are already engaging with energy in ways that extend beyond its role as a market commodity.

THE STRATEGY

The **Engagement Strategy** draws on findings across all stages of the project to **provide best practice and innovative examples** of household engagement towards the Future Grid.

The Strategy is intended for the energy sector and associated stakeholders, specifically:

- electricity retailers and distributors
- energy policy makers, governance bodies, market operators and regulators, and
- third-party providers or other market participants.

This Strategy would be **best led by a central coordinated body and/or driven by an organisation within the energy sector** to address systemic issues of engagement, and ensure it is delivered in the best interests of household energy consumers. However, this research did not identify a single suitable organisaion to lead delivery of the Strategy. This is both a finding and limitation of this research.

It may also be of interest to consumer advocacy organisations and peak bodies, local councils, other related sectors (e.g. housing and health), and any organisation seeking to promote the long-term interests of household energy consumers.

The Strategy is designed to be read as a **spectrum of different engagement types** that can be used in various combinations (as illustrated by the **Innovative engagement examples**).

The Strategy is intended to:

- **Broaden definitions** of, and available options for, household engagement in the energy sector as it moves towards the Future Grid
- **Demonstrate the breadth and extent of household engagement** in relation to the Future Grid
- **Provide innovative examples** of emerging engagement programs and ideas that are intended to provide inspiration for the sector
- **Inform the development of engagement strategies** towards the Future Grid (for individual businesses, organisations, governance bodies, energy policy makers and the sector more broadly).

The Engagement Strategy includes the following elements.

- **Types of engagement:** An overview of the variety of activities and initiatives that constitute household engagement
- **Principles:** Overarching and guiding principles recommended to inform all household engagement towards the Future Grid
- **Framing and appeals:** Traditional and emerging ways in which electricity can be framed and understood (e.g. as a commodity, environmental impact, or flexible and fluctuating resource), and the associated appeals made to households that follow from these framings
- **Relationships:** How households relate to energy sector stakeholders and vice versa in traditional and emerging Future Grid arrangements
- **Innovative examples:** Exemplary programs that illustrate combinations of the above elements to demonstrate innovative forms of engagement, inform best practice and inspire energy sector understandings of Future Grid engagement.

The Strategy **does not provide a comprehensive overview of what engagement is *already* occurring** in the sector – relevant aspects are addressed in the **Background**

TYPES OF ENGAGEMENT

The Future Grid project identified **many types and purposes of household engagement** occurring within the energy sector that extend beyond current best practice engagement models. This engagement can be initiated by energy businesses (e.g. retailers, distributors), households, communities, governments or other third parties.

The project identified three main types of engagement (See Table 1):

- **Communicate** – Common strategies used to inform, bill, notify or educate households or individuals; as well as household-led engagement to pay bills and resolve issues associated with their energy supply.
- **Understand** – Research and marketing activities intended to understand householders' needs, desires and knowledge, and/or engage them in decision-making processes. Also refers to householder-initiated methods of understanding their own energy needs and availability of supply and demand.
- **Take Action** – Established and emerging programs and initiatives to engage households in demand response or carbon reduction programs; or encourage them to accept and adopt new technologies.

The project found examples of all these types of engagement already occurring in and with Australian households, although some are much more prevalent than others. All types of engagement can be combined together or pursued in isolation.

Some types of engagement can be considered traditional (e.g. informing households of different products or billing them for their energy supply). Others are considered more innovative, such as handing over decision-making power to households via a citizen jury or deliberative decision-making process, or encouraging households to care for the grid through self-rationing and modification of their routines.

Table 1: Types of household engagement

ENGAGEMENT PURPOSE/ TYPE	COMMON INITIATORS	PROCESS/ ACTION	EXAMPLES
		COMMUNICATE	
Inform	Industry and/or government-led	Provide information about market/ retail options and/or ways to shift and save energy	Letters, fact sheets, bill content, websites including offer comparison sites, access to household data
Bill	Industry-led	Send summary of consumption and costs to households	Retailer bill
Pay	Household-led	Engage in energy market by paying bills	Paying bill
Resolve	Household-led	Engage with utilities or Ombudsman to resolve complaint, dispute	Reporting a power outage or disputing a disconnection
Notify	Industry-led Household-led	Notify households of a current or impending network issue Notify retailer or other stakeholders of moving house, connection issue or paying bill	Communicating a planned outage or blackout to households via letter, SMS, email, or social media
Educate	Industry and/or government-led	Educate households about the problems and challenges facing the energy sector	Media commentary, public forums, websites, demand management programs, advertising campaigns
		UNDERSTAND	
Question/ Inquire	Industry-led	Seek specific insights for marketing, product/ program development and customer retention purposes	Market research, e.g. surveys and focus groups
Consult	Industry, governance body, peak body or university-led	Seek to understand what different households/ people want and what their needs are	Social research projects, surveys, interviews, invitation to comment on regulatory papers/ reports
Learn	Household-led	Take interest in and/or seek to understand energy information or issues	News/ media consumption, online searches and forums, discussing with others
Sense/ Monitor	Household-led	Sense and monitor when energy is more or less available by monitoring available generation, consumption and/ or weather reports	Using weather and energy apps and sensory cues to limit/ change timing of activities in the home around availability of local generation
Empower/ Decide	Industry-facilitated, household-led	Hand over decision-making powers to households alongside extensive education	Citizen juries, deliberative forums

Table 1: Types of household engagement
(continued)

ENGAGEMENT PURPOSE/ TYPE	COMMON INITIATORS	PROCESS/ ACTION	EXAMPLES
		TAKE ACTION	
Accept/ Assist	Industry-led	Encourage households to accept or agree to new automated technologies and/or demand-response. Assist them in adopting new technologies.	Direct load control of air-conditioners, external control of batteries, solar export limiting technologies
Save/ Conserve	Household and industry-led	Reduce power use/ avoid wasting power and save money	Managing standby power, lowering/ raising thermostat
Shift/ Reward	Industry and household-led	Offer financial incentives and innovative tariffs that encourage households to shift the timing of energy use to reduce peak demand	Time-of-use pricing, peak rebate tariffs and programs, other time-dependent or variable tariffs
Upgrade	Household, industry and government-led	Seek to upgrade housing stock and appliances to more energy-efficient versions	Rebates, discounts for appliances and home retrofits
Participate	Industry and household-led	Invite households to participate in demand response or peer-to-peer trading initiatives that require their active involvement and collaboration	Peak rebate program, peer-to-peer trading
Generate/ Store	Household and government-led	Install and operate new energy generation and storage technologies	Solar PV, batteries, EVs
Collaborate	Community and household-led, or industry-led for cross-sectoral work	Work on joint projects towards the Future Grid	Community micro-grids, working with other sectors and stakeholders on energy demand issues
Care for others and the grid	Household, government and industry-led	Limit usage during peak times to ensure there is enough energy available for other members of the community	Self-rationing during periods of network constraint, or leaving the home to do something else
Live	Household and appliance sector-led	Energy is part of the practices householders carry out as part of their everyday lives. Households are engaged in energy through practices involving personal comfort, care for others, entertainment, or working from home.	Lifestyle considerations when purchasing, installing or operating the heating and cooling, or engaging in any other activity that requires energy demand
Protect	Consumer advocacy, industry and government-led	Provide special considerations and provisions for households that may be disadvantaged in the energy market	Utility concessions, utility debt relief assistance, hardship programs
Lead	Governance body and government-led	Plan, deliver and communicate for Australia's current and future energy needs	Market rules, policies, plans

PRINCIPLES TO GUIDE ENGAGEMENT TOWARDS THE FUTURE GRID

The Future Grid Homes project identified the following **foundational principles** for the energy sector to guide household engagement towards the Future Grid. These principles are primarily informed by our Stage 1 household research, and are also consistent with our Stage 2 industry research findings (see **Background Research Report**).

Affordable, clean electricity from the grid

- Provide access to electricity for all, including disadvantaged and vulnerable households
- Deliver electricity affordability without requiring extensive engagement
- Transition from centralised fossil-fuel based generation to distributed and centralised renewables delivering clean electricity to households

Accessible, flexible and dependable new energy technologies and arrangements

- Enable household adoption of small-scale solar and other emerging energy technologies
- Support home and community battery installations to secure more continuous electricity and develop a 'resilient' and reliable system
- Provide an electricity grid that can accommodate and encourage household interest in contributing clean energy
- Enable and incentivise households in trading and sharing electricity via peer-to-peer platforms and/or energy aggregation
- Provide consumer protections regardless of how households source their energy

Appeal to broader household interests and concerns

- Look beyond financial motivations and incentives to engage households
- Appeal to fairness, supporting those less advantaged, building community, 'localised' energy production and use, helping support and stabilise the electricity system, educational opportunities for the household/ children, and reducing the environmental impacts of energy use
- Integrate initiatives with household routines and priorities (beyond energy) to broaden engagement and appeal

Simplicity up front

- Minimise the time, effort and knowledge required to engage
- Simplify and reduce choices which confuse and discourage future engagement
- Provide clear pathways to the right organisation to advise, respond to questions, and resolve issues in a timely manner
- Provide avenues for households who want to delve further into particular energy issues and engage more extensively

Act to build trust in the sector as a whole

- Appoint an energy sector organisation to lead a national engagement strategy for the sector guided by guiding principles to deliver strong consumer outcomes
- Increase collaboration across energy-related organisations to ensure all share responsibility for building trust in the energy sector
- Provide transparency and accountability in decision-making to build trust, confidence and good consumer outcomes
- Provide policies and regulations that respond to consumer priorities and/or explain limitations of alternative approaches

Genuine conversations with households

- Facilitate two-way/ multi-way dialogue, including responding to household-initiated conversations and topics
- Consult early in policy and planning processes
- Provide accessible, channels and processes to enable input to decisionmaking that do not require familiarity with energy sector regulatory structures and language

Diversity as progress

- Increase diversity in energy sector organisations and decisionmaking, including cultural, gender and disciplinary diversity
- Understand, acknowledge and work with diversity in households including household type, housing tenure, cultural and language background, financial situation, age, disability and health issues, technical/ technological/digital capacities, housing quality and gender
- Develop research and partnerships to deliver tailored engagement for culturally and linguistically diverse (CALD), disadvantaged and vulnerable households

Opportunities to participate, not obligations

- Present opportunities for households to respond flexibly to different programs and activities, but don't require them to actively participate on an ongoing basis
- Recognise diversity in the need for energy (e.g. for health reasons or due to poor quality housing)
- Provide opportunities for disadvantaged but engaged households

Early adopters as partners

- Avoid communication that positions early adopters of new technology as problems
- Recognise the financial risk taken by households installing solar, batteries, and other new energy technologies and early adopter intentions to help the energy system
- Provide channels for those seeking deeper understanding or with high levels of interest and capacity for technical detail
- Develop communication, financial and regulatory approaches that encourage grid participation and discourage grid defection by positioning the grid as a valuable shared asset and resource (Byrne & Parmenter 2018).

Durable policy, planning and partnerships

- Develop and deliver an integrated long-term energy and climate policy
- Undertake strategic planning to clarify priorities, narratives and responsibilities for engagement
- Ensure visibility of policy, planning, positive initiatives and progress to reassure households that the sector is working towards good consumer outcomes
- Facilitate and engage in partnerships with other relevant stakeholders and sectors to support long-term policy and planning

Consistent, coherent and relevant communication

- Ensure communication is led by trusted and recognisable organisation(s)
- Deliver consistent and strategic messaging to build household understanding and confidence
- Respond to, and build on, topics of interest to households
- Minimise conflicts in information/ narratives from different parts of the energy sector
- Draw on communication learnings from other sectors, e.g. emergency management, water

FRAMINGS OF ELECTRICITY AND ASSOCIATED APPEALS TO HOUSEHOLDS

Electricity has traditionally been framed as a unit of consumption (kilowatt hour) or a commodity (dollars and cents) (see Table 2). This affects how the industry predominantly thinks about people who use electricity (e.g. as consumers or customers) and the types of appeals used to engage with them on energy issues.

In recent decades, electricity has also been framed as a resource with environmental impacts that households need to conserve and reduce.

Table 2: Traditional electricity framings and appeals

FRAMING	APPEAL
Unit of consumption – e.g. kilowatt hours (kWh)	Reduce waste and inefficiency
Commodity in energy market – e.g. cents/kWh	Save money
Resource with environmental impacts – e.g. kg CO^2 emitted	Help the environment, reduce carbon dioxide/ greenhouse gas emissions

The Future Grid presents new opportunities and sometimes requires different framings and appeals for how people relate to electricity (see Table 3). These are often combined with the traditional framings and appeals included in Table 2.

Table 3: Emerging framings and appeals

FRAMING	APPEAL	ENGAGEMENT EXAMPLES
Sustainable, reliable and affordable electricity system	Help us build a long-term sustainable, secure and affordable electricity grid	Policy, regulation, plans, visions, partnerships, collaboration with other sectors
Time-dependent commodity Time and day price variation	Save money by shifting routines or turning off unused appliances and lights	Time-of-use tariffs
Intermittent constraints or abundance Electricity system occasionally and temporally constrained or overloaded, e.g. during extreme (hot) weather, high demand and generation/ network issues There are times when renewables create demand trough	- Gain control over your electricity supply and demand - Benefit the community and help the grid - Get the most out of your local generation and/or tariff - Do something different with your time on hot days - Time your activities around clean energy abundance	- Peak alert or rebate programs, DLC, public messaging, and other incentives to shift demand from times of restriction - Localised generation and/or battery storage - Initiatives to encourage 'solar sponge' activities that consume energy during clean energy abundance
Weather-dependent resource Availability varies throughout the day based on renewable generation	Modify your routines around availability of electricity and grid stress (e.g. consume more when available and less when not)	- Solar rooftop PV generation and/or available battery storage - Weather and energy feedback available through apps and websites
Essential service for living, health, and/or comfort Importance of electricity for self, household or others	Act to help your own and/or other households stay healthy and comfortable during periods of grid stress	- Voluntary energy restrictions during critical peaks to reduce need for load shedding/ rolling blackouts - Appliances and/or offers and programs that ensure household health and comfort
Tradeable commodity/ shared resource Electricity can be sold, traded, shared or donated by households	Sell, share or donate your excess rooftop solar/ renewable generation with/ to others	Energy trading and donation schemes and platforms
Community-controlled asset and service Households involved in decision-making processes and developments about energy generation, supply and use	Help us understand your needs Help us make decisions about the Future Grid Build an energy future for your community	Facilitated deliberative community forums and workshops Micro-grid projects

RELATIONSHIPS

Electricity utility providers have historically adopted a 'predict and provide' or 'build and supply' model which positions them as the providers and suppliers of electricity as a commodity and service. Households have traditionally been the users, customers or consumers of that commodity and service (see Table 4).

In the Future Grid, there is a wider variety of relationships that households can expect to (or want to) adopt with electricity providers and other third parties, some of which are outlined in Table 5.

There is likely to be greater variability in how households engage with the electricity sector. Relationships may therefore involve a combination of both traditional and emerging models.

Table 4: Traditional relationships between households and the energy sector

HOUSEHOLDS	ENERGY SECTOR	RELATIONSHIP EXAMPLE
Citizen-consumers	Government providers	Government run provision of essential service for citizens' needs. Generally characterised by regulated flat rates with some off-peak services
Customers	Utility providers	Privatised and/or competitive market with utilities offering options and choices for consumers
Environmentally responsible citizen-consumers	Government and utility provider advisors	Citizen-consumers responsible for managing their own environmental impacts, but may be supported by governments or utilities to make changes to their homes and lifestyles

Table 5: Emerging household relationships with the energy sector

HOUSEHOLDS	ENERGY SECTOR	EXAMPLE
Prosumers (including community/ citizen utilities, e.g. utilities run by community-based organisations)	Facilitators (of energy technologies, services and platforms (including the electricity grid)	Households generate, self-consume and/or sell excess electricity facilitated by the electricity grid, energy market and third party technology providers
Traders/ sharers/ donors	Trading platform providers or donation facilitators	Utilities/others enable households to trade, share and/or donate their excess electricity on an online platform or via another mechanism
Flexible opportunists	Opportunity providers	Distributors, retailers or third parties provide households with opportunities to engage in other activities during occasional periods of peak demand or network constraint (through incentives) – or ask them to reduce consumption during this time in exchange for an incentive
Technology solutionists	Technology solution providers	Retailers, distributors and governments provide households with technology solutions (such as DLC of air conditioning) to help balance demand on the grid with minimal ongoing involvement or interaction
Citizen-carers	Custodians/ providers of an essential and variable shared resource/ service	Healthy households limit electricity consumption during periods of peak demand/ network constraint to help households who need electricity more than them
Community members	Community partners	Households engage in energy-related issues and projects through their community, in partnership with retailers, distributors and governments (e.g. micro-grids or community-scale distributed electricity generation)
Experts in everyday life and energy demand (co-managers)	Experts in electricity grids (co-managers)	Energy sector stakeholders engage households in conversations about what they want from the future electricity grid, within the limitations of what is technically possible and affordable
Partners	Partners	Households enter into new partnerships with utilities and other energy sector stakeholders, such as making joint decisions about network upgrades
Assistants	Electricity providers in need of help	Households asked to temporarily assist energy sector stakeholders in managing the grid and peak demand by participating in demand response programs or responding to sector communications

INNOVATIVE ENGAGEMENT EXAMPLES

Many forms of innovative household engagement are already taking place in the Australian energy sector, and other initiatives are currently in development as the sector transitions towards the Future Grid. Some of these are discussed in the **Background Research Report**.

The remainder of this strategy is devoted to exemplifying how the emerging framings, relationships and appeals can be brought together into **innovative engagement examples with households**. The examples are guided by the **Principles for Future Grid** engagement outlined earlier, and organised around the **Types of Engagement** identified in our research (Table 1):

- **Communicate**
- **Understand**
- **Take Action**

The examples have been developed by the project team, following completion of all stages of the Future Grid Homes research discussed in the **Background Research Report**. They represent **'blue sky thinking'** and are intended to **inspire creative and innovative ideas** about how to engage households towards the Future Grid, drawing on the elements of the Engagement Strategy discussed above.

Programs are based on emerging ideas and variations on previously successful engagement programs (some conducted in other sectors). They are **not meant to provide an exhaustive list** of opportunities or recommendations for Future Grid household engagement. However, they are **intended to work in tandem** with each other, with some programs providing the grounding and basis for others.

This research has not conducted any risk or legal assessments of these exemplar programs (although there is evidence of some working successfully as trials, or in other sectors/ countries, as indicated). Considering the costs associated with delivering these suggested programs was also beyond the scope of this research. We therefore acknowledge that there may be **practical and other limitations** for some of the examples proposed for the Australian energy sector (e.g. policy, market, regulatory, technical).

Each program is suited for delivery by different combinations of stakeholders (suggestions identified). Applicability will vary based on network constraints, load profiles and generation mixes in different jurisdictions, as well as household interest and suitability. We recommend further discussion with, and research conducted by, energy sector stakeholders to determine the suitability of these exemplary programs for engagement towards the Future Grid.

COMMUNICATE

‘Vari-Grid’: A national communication campaign to engage households in grid issues and raise awareness of electricity’s variability

Engagement type: Communicate – Inform; Educate

Summary: The Vari-Grid campaign is a long-term, persistent initiative to gradually introduce new understandings and ways of supporting the grid and system health to households. It highlights the value of the grid as a shared asset, raises visibility of the grid and demand-related issues, and repositions electricity as a flexible and variable resource in the Future Grid. It introduces households to ideas about using energy responsibly and productively (e.g. times to moderate energy consumption to relieve pressure on the grid, and times to actively consume when high renewable energy production creates potential load troughs).

Delivery: The Vari-Grid campaign is ideally delivered by a trusted national organisation or energy governance body. It could involve a prominent public identity or engaging character (e.g. cartoon) to attract interest and communicate issues to households. The campaign is intended to utilise television, social media and print to reach households. An accompanying song/ tune/ jingle could increase familiarity and recall. The campaign could be combined with other initiatives, such as an app to enable households to access real-time, localised guidance about when energy is constrained (moderate for ‘grid relief’) and when energy needs to be consumed (for example, asking households to act as a ‘solar sponge’).

Participants: Energy governance body, energy sector organisations

Technology: Media and digital communications channels, graphic and cartoon design

Framing and Appeals: Electricity framed as an intermittently constrained or abundant, dependent partly on the weather. Appeals to the idea that electricity is a shared and variable resource that we all need to manage (in order to deliver financial or social benefits to households and the wider community)

Relationship: Suits many/ most of the emerging relationships identified in the Engagement Strategy. Utility providers as custodians, co-managers or opportunity providers of an essential but variable resource. Households as citizen-carers, co-managers or flexible opportunists.

Inspiration and Evidence:

- Household familiarity and engagement with long-running Australian campaigns such as Slip, Slop, Slap (Montague et al. 2001)
- ‘Papa Energy’ campaign regarding electricity safety, consumption and reducing peak demand in Iran (Anon 1997)
- Past water campaigns that have successfully positioned water as a temporarily restricted and shared asset (Kurtz 2005)
- Other Stakeholders: Media organisations and platforms

Iran’s ‘Papa Energy’ (Images: online)

‘Kids’ Grid’: An education program for children about energy issues and the Future Grid

Engagement type: Communicate – Educate

Summary: The Kids’ Grid campaign seeks to educate primary school age children about energy issues and the Future Grid in ways that resonate with them. It will introduce concepts of peak demand, energy conservation, and engage children about how best to think about and use energy in the Future Grid. Kids’ Grid will produce a series of booklets and educational resources. A cartoon character would be developed to represent ‘the grid’, and depict it in various visual ways (e.g. overheating / sweating during peak demand). Promoting grid awareness and responsible energy use to children is likely to have ongoing benefits into the future as they grow up.

Delivery: The program could be delivered in schools or by community groups as a series of lessons by representatives of Kids’ Grid, or by existing teachers and educators.
Participants: Distributors, schools, school-aged children 6-12 years

Technology: Online media, digital communications, graphic design

Framing and Appeal: Electricity is framed as a weather dependent resource that may be intermittently constrained or abundant, and which is an essential resource for living, health and comfort. The program will help children become attuned to the dynamics of energy generation and grid stress in a basic way, and help them understand what the grid ‘needs’ in order to remain ‘healthy’.

Relationship: Working with households and families to ensure all people (not just those that pay bills) are aware of Future Grid issues and are more likely to engage in the future.

Inspiration and Evidence:

- “Reddy Kilowatt” – a cartoon character that has been used in the US energy sector over several decades to engage children (Associated Press 1998)
- Research indicates that childhood energy practices ‘stick’ with us through to adulthood (Aguirre-Bielschowsky et al. 2018)

Other Stakeholders: Local councils, energy industry regulators, retailers, peak bodies, education board, families/ parents

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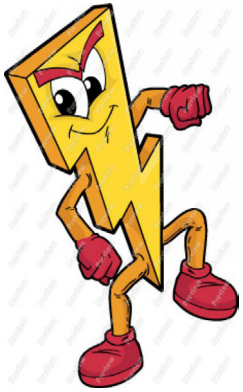


Image from: GetDrawings.com

‘Watts Up?’: A communication campaign aimed at youth and young adults

Engagement type: Communicate – Educate

Summary: The *Watts Up?* campaign aims to engage young people (12-25 years) by producing and disseminating a range of popular digital media materials that communicate the broad changes and challenges facing the Future Grid in relation to climate change. The material is produced in a way that engages and resonates with young people, by adopting forms of communication (such as memes and short video clips) that are prevalent in online digital culture.

Delivery: The production of communication materials would be commissioned by the energy sector and disseminated via a combination of social media (including youth-oriented platforms like YouTube, Instagram and Snapchat) and targeted advertising, such as during youth-oriented TV viewing hours or on youth radio networks like triple j.

Participants: This campaign is best delivered by a peak body or energy governance organisation such as Energy Networks Australia, ARENA, AEMO or AEMC. Though retailers or distributors may engage in similar strategies, the aim of *Watts Up?* is to educate young Australians about the Future Grid and build trust through public involvement, rather than promote a particular business.

Technology: Online media, digital communications, graphic design

Framing and Appeal: The framing of energy in this campaign is broad. *Watts Up?* appeals to young people to better understand the dynamics of energy generation, climate change and emerging grid issues, and provides innovative ways to engage and respond (e.g. sharing and commenting on social media).

Relationship: Young people as citizen-consumers and flexible opportunists.

Inspiration and Evidence:

- Recent use of memes as marketing and consumer engagement tool to target youth: e.g. https://www.hookresearch.co.uk/brands-using-memes/
- NSW Police successfully using memes on social media to engage with the public: https://youthsense.com.au/marketers/nsw-police-force-youth-engagement-strategy/
- Childhood energy practices have been found to stabilize over time and ‘stick’ with us through to adulthood (Aguirre-Bielschowsky et al., 2018; Hansen 2019)

Other Stakeholders: Governments, regulators, distributors, retailers, consumer advocacy organisations, youth groups and associations, media outlets

Images: Memes developed by report authors

‘Cool Wisdom’: An advertising campaign that takes inspiration from community knowledge about staying cool on hot days

Engagement type: Communicate – Educate; Understand – Question/ Inquire; Consult; Learn

Summary: The Cool Wisdom advertising and/or social media campaign is based on a series of interviews with households that seek to understand how they stay comfortable on extremely hot days, or during periods of network constraint. The program will draw on community wisdom from diverse households that have grown up with different cultural, climatic or generational experiences (e.g. elderly people, CALD groups). It aims to share and circulate creative ways to stay cool during periods of network constraint within the community. It is best delivered in conjunction with other demand management initiatives targeting hot days and heatwaves.

Delivery: Edited videos of interviewees with short clips describing how they keep cool on extremely hot days or during heatwaves. Audio of interviewee experiences is put together with innovative animation, as seen in the popular series and subsequent electricity ad campaign, ‘Creature Comforts’, by Aardman Animation. An Australian equivalent could use Australian native animals, insects or plants.

Participants: This campaign is best led by distributors, retailers, governments or an energy governance body
Technology: Showcases innovative cooling techniques and practices: e.g. use of fans, sprinklers, hoses, clothing, curtains, drinks, food

Framing and Appeal: Electricity is viewed as an essential service that can be used in less intensive ways that still allow people to stay healthy and comfortable

Relationship: Households as co-creators of their energy demand and as cultural communities. Energy sector stakeholders as facilitators of shared and collective wisdom

Inspiration and Evidence:

- Nick Park and Aardman Animation’s ‘Heat Electric’ campaign for the UK Electricity Board was based on an earlier short film titled ‘Creature Comforts’, with the advertisements running from 1990-1992: https://www.youtube.com/watch?v=B9svHH6SCZ4

Other Stakeholders: Community & health providers, aged care organisations, CALD community groups, community advocacy organisations

Image: Still from ‘Creature Comforts’

‘Weather WATTchers’: Linking electricity grid demand with weather forecasts

Engagement type: Communicate – Inform; Educate; Take Action – Collaborate

Summary: Weather WATTchers gives households a simplified indicator of energy demand and grid stress in their area by providing this information alongside weather reports for local areas across various media platforms (e.g. social media, forecasting apps and weather news reports). Similar to reporting on pollen counts or the UV index in order to promote health outcomes, Weather WATTchers is designed to link the weather and seasonal information with energy generation in a meaningful and simple way. It is intended to encourage understanding of renewable energy as a weather-dependent and variable resource. It also builds on people’s strong general interest in the weather.

Delivery: Weather forecasts to include electricity generation data as part of the weather report. TV is an ideal medium given its visual nature, high viewership, and platform for a trusted, independent person (e.g. weather reporter) to explain the significance of information. Other mediums could also be used for delivery, particularly weather apps, which could send out alerts during peak or trough generation.

Participants: The program is best led through a government agency (e.g. AEMO) in partnership with Bureau of Meteorology and media outlets. The information provided should be seen as a government-supported public service (like weather forecasts), rather than sponsored content.

Technology: Existing or updated tools to forecast, track and provide renewable generation data, weather data, media and online platforms

Framing and Appeal: Renewably-generated electricity framed as a weather-dependent resource, with periods of abundance and temporary constraints. Appeals to householders’ understandings regarding requests for them to modify routines around availability of electricity and grid stress.

Relationship: Households and utility providers as co-managers of the electricity system

Inspiration and Evidence:

- Inclusion of pollen count (spring), thunderstorm asthma and UV radiation index (summer) in weather reports
- Monash University’s Climate Change Communication Research Hub is running a similar project called Climate Communicators. The project links climate researchers and media organisations in order to promote the communication of long-term climate information in short-term weather forecasts: www.monash.edu/mcccrh/projects/tv-weather-presenters-as-climate-communicators

Other Stakeholders: Generators, distributors and retailers

Image: Pixabay

Image from: Vecteezy

Image from Pixabay

UNDERSTAND

‘Collaborative Energy Consumption’: Understanding how peer-to-peer electricity trading could assist the future grid

Engagement Type: Understand – Question/ Inquire; Consult

Summary: Collaborative Energy Consumption is a research project undertaken by a university or research provider to understand how peer-to-peer trading and sharing of residential electricity could best deliver benefits to households and the Future Grid. Energy sharing has wide appeal amongst early adopter households with solar PV and battery infrastructure. With peer-to-peer energy platforms currently in development and deployment, this research will help the energy industry formulate a strategy to engage with and accommodate emerging forms of energy trading.

Delivery: In-depth research with early adopter and other households interested in peer-to-peer energy trading, representatives of trading platforms, network operators, regulators, and other relevant stakeholders

Participants: Researchers, households, trading platforms, market regulators, network operators, distributors and retailers

Technologies: Smartphones, online trading platforms

Framing and Appeal: Energy framed as a tradable commodity and shared resource that households can sell, share or donate to others

Relationship: Households as prosumers and/or traders/ sharers/ donors of their excess electricity. Utilities as facilitators and platform providers

Inspiration and Evidence:

- Stage 1 of the Future Grid Homes research indicated householders’ desires to sell their excess energy locally or donate it to those in need.
- ‘Collaborative Consumption’ (Botsman & Rogers, 2010) and the associated online peer-to-peer economies of exchange in other sectors such as AirBnB and Uber.
- Review of existing peer-to-peer energy trading projects (Zhang et al. 2017)

Other Stakeholders: Energy industry regulators, network operators, peer-to-peer trading platforms, consumer rights organisations, community support organisations.

Image: P2 Power, the retail brand operated by emhTrade Ltd

‘How Will We Live in the Future Grid?’: Understanding householders’ changing digital lifestyles

Engagement type: Understand – Question/ Inquire; Consult

Summary: How Will We Live in the Future Grid? is a research project designed to understand how households’ lifestyles, expectations and aspirations are changing, and what this will mean for their energy wants and needs in the Future Grid. This includes questions about family, health and comfort; entertainment and technology desires; and changing working arrangements. This knowledge will help inform future forecasting, planning and delivery of Future Grid initiatives.

Delivery: Facilitated/ deliberative community forums and workshops, in-depth household research and/or surveys.

Participants: The research could be led by research organisations, electricity retailers or distributors, consumer advocacy groups or other representative bodies. Households would be asked to participate in the research to help understand their expectations of the future.

Technology: None required

Framing and Appeal: Electricity framed as part of the practices or services people want and participate in. The research provides an opportunity for households to contribute understandings of their lifestyles, desires and future needs to inform delivery of the Future Grid.

Relationship: Households framed as workers, parents, partners, carers and pleasure-seekers and utilities as the providers of a service to support these practices.

Inspiration and Evidence:

- The research team has recently been awarded an ARC Linkage grant with partners Ausgrid, AusNet Services and Energy Consumers Australia to undertake similar research.
- The Dynamics of Energy, Mobility and Demand (DEMAND) Centre led from Lancaster University in the UK has spent five years researching ‘what energy is for’ to inform demand management (http://www.demand.ac.uk/)
- The ConsEnSus project in Ireland followed a similar approach (applied more broadly to sustainability and consumption) (Davies et al. 2014).

Image from Flickr (commercial use)

‘Future Grid Partners’: a program to engage adopters of solar, batteries, EVs and related technologies

Engagement type: Understand – Consult; Empower/ Decide; Communicate – Educate; Take Action – Collaborate

Summary: The Future Grid Partners program aims to build trust and understanding to maximise the potential of household distributed energy resources (DER) to support the electricity grid. It provides a two-way channel of communication (e.g. a facilitated social media/ networking platform) between early adopter households and the energy sector which could be used to:

- Gain insights on emerging issues and interests for early adopters (via queries and submissions)
- Involve early adopters in decision-making regarding DER
- Deliver feedback and recognition of the contributions of DER households
- Distribute information about grid issues and constraints, new technologies and tools for managing energy, relevant resources and organisations, avenues for issue resolution, and local or virtual shared interest groups
- Provide information on current and emerging initiatives (e.g. energy donation, aggregation, peer-to-peer trading) and other ways for these households to use technology to assist the electricity system
- Deliver content tailored to state/location-based registered households
- Enable access to more detail and depth on electricity issues than might suit other types of households
- Provide access for households to participate in consultation activities
- Gather useful installation and location data for planning
- Identify locations for community power initiatives and link interested households and relevant organisations.

Delivery: Predominantly digital delivery (email and website), but may include phone channel. A peak industry organisation would need to be identified and probably funded to run the program (e.g. Clean Energy Council (CEC), Energy Efficiency Council (EEC), Australian Renewable Energy Agency (ARENA)). The program involves partnerships with energy technology providers and other organisations which can submit relevant opportunities/ information for distribution. Households could register/opt-in when installing new technologies, or be enrolled via installers, distributors, retailers, and community/ renewable energy groups. The program could possibly be delivered as opt-out enrolment to improve reach and position household energy generation and storage as a key component of the electricity system.

Participants: Industry bodies (e.g. CEC, EEC, ARENA), governments, energy providers and organisations, technology installers, community/renewables groups, early adopter households

Technology: Online platform

Framing and Appeal: Energy generation and storage households as trusted contributors to the electricity system, but who also share some responsibility for it’s effective and efficient operation. A strategic and collaborative approach for households to feel engaged in a beneficial and appreciated movement, connect and share with others, build and contribute knowledge, and find ways to maximise financial viability of renewable technology installations.

Relationship: Households as prosumers, flexible opportunists, traders, technology solutionists and/ or co-managers of peak demand and the electricity grid. Energy sector stakeholders as facilitators; opportunity, platform and technology providers; and co-managers.

Inspiration and Evidence:

- Solar Citizens and Renew (Alternative Technology Association (ATA))
- Research on the potential of emergent energy technologies to promote new energy practices and ‘energy citizenship’ (Devine-Wright 2007 and Ryghaug 2018)

Image: Pixabay

TAKE ACTION

Long-term energy and climate change plan and policy

Engagement type: Take Action – Lead

Summary: A long-term energy and climate change plan and policy for the country will provide industry confidence and build trust amongst households – enabling all other forms of engagement. The plan will provide direction for the evolution of the Future Grid, and enable households to understand and invest in demand management programs, emerging technologies and other localised programs and services that fit into a broader vision for the country.

Delivery: A policy document and implementation plan released and communicated by federal government and communicated through a national media campaign.

Participants: The long-term plan needs to be set by federal government, in consultation with many other stakeholders.

Technology: None required

Framing and Appeal: Providing sustainable, secure and affordable energy

Relationship: Households as citizens who rely on government to provide leadership and direction in the best interests of the nation

Inspiration and Evidence:

- Consensus from household and industry research conducted for this project that a national policy and plan is urgently needed
- Research supports the need for a stable energy and climate policy (e.g. Kuiper 2019)
- Europe's mandatory National Energy and Climate Plans (NECP's) introduced in 2018

Other Stakeholders: Local and state governments, citizens/ voters, all sectors of society. May require mediation or an independent body to assist in establishing bipartisan support, for example New Zealand's Globe-NZ established in 2016 (Graham 2018).

Images: Pixabay

‘Cool Ways to Have Fun’: An incentivised peak alert activity program

Engagement type: Take Action – Participate; Shift/ Reward

Summary: The Cool Ways to Have Fun program is an incentivised peak alert demand response program for households that are willing and able to temporarily reduce their residential electricity use by doing an activity outside the home during periods of grid stress (tailored to specific jurisdictions/ regions). It involves partnering with local businesses in a network constrained area to offer a range of discounted or free local entertainment options in cool spaces on hot days.

Delivery: Peak alert text messages, coupled with an online or paper-based voucher system for local partnering businesses and community services

Participants: This program is best suited to retailers or distributors wanting to engage households to reduce peak demand on network-constrained or high demand days.

Technology: Online platform to promote and provide entertainment options

Framing and Appeal: Providing and appealing to different ways to spend time on a very hot day or network constrained period (by doing an activity outside the home and turning air conditioning and other appliances off)

Relationship: Households as flexible opportunists or co-managers of peak demand and the electricity grid. Utilities as flexible opportunity providers.

Inspiration and Evidence:

- Recommended in previous study with families funded the Consumer Advocacy Panel (Nicholls and Strengers 2014).
- Jemena use of vouchers as incentives in Power Changers demand management program trial
- Resembles other entertainment voucher and (membership) rewards programs (e.g. Groupon, Entertainment™, RACV, Red Energy)

Other Stakeholders: Local business and community services (e.g. cinemas, museums, art galleries, local libraries, pools)

Image: Pixabay

‘Splash and Dash’: A community splash park

Engagement type: Take Action – Save/ Conserve; Protect; Care for others and the grid

Summary: Splash and Dash is a community splash park project installed in network constrained areas with high levels of disadvantage/vulnerability (e.g. households living in energy inefficient and high-rise social housing, with high exposure to heat and difficulties paying energy bills). Splash parks feature free access to zero depth water (safe for children) and cooling water play equipment, shading, family-friendly park facilities including shaded seating, BBQs and play areas for other seasons.

Delivery: Partnership (e.g. with local councils), promotion in local community combined with messaging about peak demand and turning off air conditioners and appliances when leaving home to go to the splash park (or other places).

Participants: This project could be led by distributors who need to reduce demand in areas of network constraint while supporting vulnerable communities (building household trust and engagement).

Technology: Splash/spray technology previously developed for other sites

Framing and Appeal: Electricity for air conditioning is costly and high usage in hot weather can cause challenges for the electricity grid. Provides different and healthy ways to spend time (especially with children) during hot weather while reducing electricity use and costs (getting out of the house and turning air conditioning and other appliances off).

Relationship: Households as flexible opportunists or parents/ carers of children. Distributors as opportunity providers and community carers

Inspiration and Evidence:

- Recommended in Heatwaves, Homes & Health study funded by Energy Consumers Australia (Nicholls et al. 2017)
- Splash parks (also known as splash pads, spray pads, water playgrounds) are used extensively in other countries as a response to heat vulnerability, (e.g. Canada, see Anon 2018 and Toronto4kids 2018), and have been delivered by some local councils in Australia (e.g. Long Gully Splash Park in Bendigo, see City of Greater Bendigo, n.d.)
- Other organisations have pointed towards water sector collaboration with local government planners as a way for energy networks to deliver well-planned and integrated energy solutions (NAGA & EAGA 2017)

Other Stakeholders: Local council, social housing providers, community services (e.g. health services), community advocacy organisation

Image from Flickr (commercial use)

‘Fair Air’: A nationally-coordinated Direct Load Control (DLC) program for air conditioners

Engagement type: Take Action – Accept/ Assist; Upgrade; Care for others and the grid

Summary: The Fair Air program aims to normalise and enable successful and widespread DLC of air conditioning throughout Australia. The program involves:

- A combination of rebranding, alternate language (e.g. replacing references to control, limit, etc. with moderate, sustain and support)
- Consistent and widespread messaging
- More integrated deployment of technology and associated programs (including preferencing opt-out arrangements over opt-in)
- Recognition of participation and beneficial impacts

Delivery: Government-led (ideally federal), facilitated by peak bodies and utilities, appliance retailers and installers, and local councils

Participants: Governments, utilities and appliance retailers and installers working to engage and reassure households
Technology: Existing infrastructures and increased roll out of DLC demand response technology

Framing and Appeal: Electricity as an essential service for living and health that may occasionally need to be locally restricted during extreme weather and network constraints, giving households an opportunity to benefit the whole community. DLC provides all households with minimal effort/ cost opportunity to contribute to a national effort to improve electricity reliability and prices

Relationship: Households as technology solutionists, co-managers and/or partners in the management of the national grid. Energy sector stakeholders as solution providers, co-managers and providers.

Inspiration and Evidence:

- Nation-wide roll-out of free water efficient technologies, including shower-heads and aerators
- Target 155: Victoria campaign that normalised water efficiency technologies and water conservation activities
- High levels of acceptance of DLC in Queensland and widespread support for the idea in other Australian trials.

Other Stakeholders: Energy retailers (for opt-out and connection agreements)

Image: Pixabay

‘Homes for Household and Grid Health’: A long-term partnership between the energy, health, housing and environment sectors

Engagement type: Take Action – Collaborate; Protect; Upgrade; Lead; Live

Summary: The Homes for Household and Grid Health partnership involves collaboration between the energy, health, housing and sustainability sectors to progress towards energy efficient homes and practices. The partnership would pursue better integration of health sector objectives and approaches (encourage use of cooling and heating to protect health) and energy objectives (reduce peak demand and carbon emissions) via a shared vision of improved energy efficiency of housing and appliances as integral to better health, financial and environmental outcomes for Australian households experiencing the impacts of climate change.

Delivery: Lead by an energy governance organisation and involving:

- Cross-sectoral activities to highlight differing shared understandings and develop strategy
- Advocacy to governments to support improved energy efficiency standards and delivery for new housing and programs for existing housing
- Development of education and materials to improve health sector professional awareness of energy considerations (thermal comfort of home, patients’ ability to afford energy) in medical assessments and health advice
- Identification of heat and cold vulnerable households via the medical and home care system for referral to energy retrofit programs

Participants: Governance organisation, governments, energy and consumer advocate organisations, health sector organisations (including Doctors for the Environment), sustainability and retrofit delivery organisations

Technology: Communication technologies, energy efficiency materials and devices

Framing and Appeal: Electricity as a shared and essential resource for household health and wellbeing, for which multiple sectors have responsibility and interest in ensuring its conservation and availability when most needed. Improves knowledge, capability and outcomes for multiple sectors

Relationship: Households as carers and experts in their everyday lives (e.g. their health and comfort practices). Energy sector stakeholders as providers of an essential service for grid and household health and partners with sectors which share responsibility for delivering better energy outcomes for households.

Inspiration and Evidence:
Recommended in previous studies (Nicholls et al. 2017; Strengers and Maller 2011)
Housing Summit and Communique (ECA 2018)

Other Stakeholders: Community housing providers, home owners, landlords, renters, home construction and trades sectors, health and community services

Image: Pixabay

‘Comfy Critters’– A program to encourage low-energy comfortable environments for pets

Engagement type: Take Action – Participate; Live; Protect

Summary: Australia has one of the highest pet ownership rates of anywhere in the world and most pets stay at home during the day (AMA 2016) and emerging evidence suggests that Australians are increasing heating and cooling their homes for pets (Strengers et al. 2019). The Comfy Critters program promotes low-energy ways for households to keep their pets warm and/ or cool. Stay-at-home options include the provision of cosy beds and the use of coats and microwaveable heat packs in winter, and the use of fans, natural ventilation, cool mats and frozen treats in summer. New pet owners may receive a one-off voucher towards the purchase of these items. Out-and-about options include pet-friendly zones in temperature-controlled shopping centres, libraries, and other public areas, and pet friendly businesses such as retails shops and pubs.

Delivery: This national program could be delivered by energy retailers and distributors with the support of other energy stakeholders (e.g. advocacy groups, sustainability organisations) interested in helping households lower their bills and reduce energy demand in summer and winter. It involves partnering with and/or is promoted via local councils, vets, pet shops and adoption or animal welfare organisations.

Participants: Peak bodies and distributors who want to manage peak demand while recognising households’ caring priorities for their pets

Technology: Low-energy heating and cooling technologies for pets

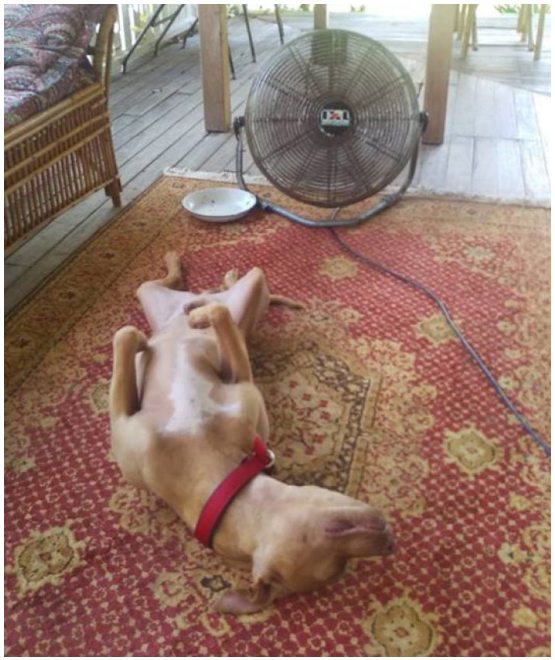
Framing and Appeal: Electricity is framed as an essential service for everyday life and health. Allows households to feel confident that their pets are safe and comfortable in ways that use less energy and reduce their bills. Allows householders to include their pets in their everyday practices and keep them cool.

Relationship: Households framed as carers. Utilities framed as providers of an essential service

Inspiration and Evidence:

- Pet-friendly dining deck at Orion Springfield Central shopping centre in Ipswich (QLD) and dog-friendly shopping centres throughout the US.
- Dog-friendly retailers in the US place a sticker on their window and a large number of UK retail stores have pet-friendly policies.
- Safe Place for Pets – an organisation created specifically to address the reluctance of victims of domestic violence to leave without their pets.
- RSPCA provides information and tips on how to keep pets cool in summer (see: RSPCA 2019)

Other Stakeholders: Local councils and businesses (shopping centres, libraries, retailers)



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PART 2
BACKGROUND RESEARCH REPORT

INTRODUCTION

This Background Research Report provides a summary of the research conducted for the Future Grid Homes Project culminating in the development of an **Engagement Strategy** for the energy sector. It is intended to provide supporting evidence and background research for the Future Grid Homes' Engagement Strategy.

The project is set in a context of considerable change regarding households' relationships and engagement with the energy sector as it moves towards the Future Grid.
The composition of technologies, programs and relationships likely to arise in the Future Grid are still unknown. However, it is likely to involve increasing penetration of rooftop solar PV generation and battery storage, community renewable energy projects, demand response initiatives and a range of other emerging technologies and market-based initiatives targeted towards or led by households (AEMO 2018a; Walker 2017).

A key feature of the Future Grid is differentiation in the types of scenarios, technologies, services and programs that households might engage in (CSIRO 2013). Additionally, the AEMC reports increasing frequency of AEMO intervention to stabilise the grid as the energy mix changes, extreme heat increases, and reliance on air conditioning continues (AEMC 2019a).

Within this uncertain, variable and fast-changing operating environment, best practice engagement strategies are yet to be established. Additionally, households are engaging (and disengaging) on their own terms and in ways the energy sector had not anticipated.

*The **Future Grid Homes** project (2018-19) aimed to identify best practice engagement strategies, concepts and relationship models to improve consumer trust, participation in demand management, and adoption of new energy technologies (e.g. solar PV and battery storage) intended to support affordability and reliability objectives for energy consumers.*

The project adopted a qualitative methodology comprised of:

- In-depth household research (Stage 1)
- Stakeholder research, literature insights and content analysis of demand management and consumer engagement materials being produced by the energy sector (Stage 2)
- An engagement strategy for the sector (including findings from stages 1 and 2) based on research conducted across all stages of the project (Stage 3)

This Background Research Report summarises the findings from Stage 2 of the Future Grid Homes project (stakeholder and energy sector research). Stage 1 (household research) is summarised in the project's **Interim Report**.

Given the project's focus on the Future Grid, this report (and the Engagement Strategy) mostly refer to electricity technologies and relationships when discussing the 'energy sector'. We also use this term broadly to refer to utilities, regulatory and operational organisations and energy-related government activities.

The research team adopted a broad definition of the term 'engagement', and sought to understand what it meant to both households and energy sector stakeholders. In this project, **residential sector engagement encompasses**:

- Direct and indirect communication, collaboration and interaction with households via energy retailers, distributors, governments, media and commentary, and other third parties
- Involvement of households in energy sector decision-making processes
- Household interaction with emerging technologies, such as solar PV and battery storage, and energy feedback (data) systems
- Household interest and participation in the current retail energy market and new market arrangements (e.g. peer-to-peer trading) and/or demand management programs (e.g. peak alerts and Direct Load Control)
- Changes in household routines and activities arising from unplanned outages, participation in demand management, and/or interaction with new and emerging energy technologies anticipated as part of the Future Grid

Stage 1 also considered household disengagement, disinterest and disatisfaction in and with energy sector issues and activities.

The Background Research Report includes the following sections:

- **Aims, scope and methodology**
- **Engaging towards the Future Grid** – an overview of the international and Australian context and industry engagement
- **Current and best practice approaches to household engagement** – drawing on scholarly literature and relevant reports (Australian and international perspectives)
- **Review of Australian energy sector engagement documents and strategies**
- **Analysis of Australian demand management engagement materials**
- **Inspiration from other sectors** – including Australian and international examples from bushfire management, water supply, waste management, health and policing
- **Insights from industry stakeholder interviews**
- **Emerging Principles for the Future Grid** – based on a synthesis of this research.

AIMS, SCOPE AND METHODOLOGY

Table 6 describes the three stages of qualitative research that underpinned the Future Grid Homes project. In Stage 1, the project team conducted interviews with Australian households to address the project's first key outcome:

> **1.** Improved understanding of how residential consumers currently relate to and understand the electricity grid and its associated services and technologies in the context of their everyday lives, and how they want to be engaged with in the future.

A full analysis of Stage 1 is provided in the project's **Interim Report**.

In **Stage 2**, the project team focused on how the energy sector approaches household engagement to address the project's second key outcome:

> **2.** Improved understanding of how consumer engagement models and professionals in the energy sector frame communication about the electricity grid and related services (e.g. demand response programs) to residential consumers, including the concepts, assumptions, limitations and frameworks that underpin current approaches.

Stage 2 research was undertaken in two phases.

Phase 1 consisted of an analysis of key communication and engagement materials being produced by the energy sector to understand common assumptions, concepts and methods used to understand, communicate and engage with householders. This analysis was supported by insights from industry research reports and scholarly literature on household and community engagement.

Phase 2 involved interviews with 12 energy sector stakeholders involved in delivering Future Grid initiatives and/or supporting engagement (NEM-wide). Interviews explored the following themes:

- How stakeholders understand householders and what language they use to describe, communicate and engage with them
- How stakeholders understand best practice household engagement, and what this currently looks like in and for the energy sector
- How stakeholders think engagement is changing, or needs to change, in relation to the Future Grid
- Key communication and engagement challenges stakeholders believe the industry currently faces and how these can be best addressed

Stages 1 and 2 contributed to the development of the Engagement Strategy (Stage 3). The Strategy addresses the project's third key outcome which is to deliver:

> **3.** Increased sectoral capacity to build consumer trust and engage households in demand management and other critical issues needed to transition towards a Future Grid.

Table 6: Overview of Future Grid Homes Methodology

Stage 1: Household interviews and home visits	Home visits and semi-structured interviews with 51 households in VIC, SA, NSW, ACT and QLD who fit the criteria for three overlapping categories:[2] • Early adopters (21 households) • DM participants (21 households) • Blackout experiences (22 households) • Home visits conducted August-November 2018
Stage 2: Engagement materials analysis	Review and analysis of engagement materials, including: • 27 communication DM materials disseminated by utilities (15), one regulatory organization, and one energy magazine. • 10 publicly available engagement documents and strategies from Australian energy sector organisations (3 regulatory and 7 network businesses/ organisations), plus 3 advocacy organisation reports on consumer engagement • Scholarly literature on energy engagement and Future Grid activities • Innovative examples from other sectors
Stage 2: Stakeholder interviews	Semi-structured interviews with 12 energy sector stakeholders working in the areas of DM and grid integration of new technologies from: • 3 consumer advocacy organisations • 6 utility organisations (4 distribution, 1 retailer, 1 utility representative) • 3 government/regulatory organisations • Interviews conducted March-April 2019

[2] 13 households fulfilled two categories (total of 64 representatives of the three categories)

ENGAGING TOWARDS FUTURE GRID: OVERVIEW OF CHANGING TRENDS

INTERNATIONAL AND AUSTRALIAN CONTEXT

Electricity systems around the world are undergoing unprecedented change. Like Australia, most power systems are transitioning from centralised generation to diversified distributed generation with resources and technologies of various scales, including clean energy technologies installed and operated by households.

Distributed energy resources (DER) "produce electricity or actively manage consumer demand e.g. solar rooftop PV systems, batteries, and demand response like hot water systems, pool pumps, smart appliances and air conditioning control" (AEMO 2019: 1). Electric vehicles are also anticipated to impact the profile of demand and potentially contribute to demand response (Engel et al. 2018).

On the one hand, energy consumers (including households) are driving the transition via their uptake of distributed generation (solar and related technologies). They are seeking clean, affordable, and reliable electricity and expect the grid to integrate their technologies and electricity generation (see Table 7). However, there are also significant technical and operational challenges to be managed (such as unpredictable flows of energy into the grid, unfavourable local impacts on voltage, and potential impacts on network components and household appliances). There are also equity concerns that the costs of this energy transition may fall more heavily on non-DER households and that the 'energy market death spiral' scenario, encouraging households to go off-grid, could contribute to detrimental outcomes for those remaining reliant on the grid (Byrne and Parmenter 2018).

In Australia, the AEMO and ENA are investigating how to transition from a one-way to two-way electricity grid and optimise DER to maximise outcomes for consumers (AEMO & ENA 2018). As part of the transition, the energy sector sees opportunities to reduce network augmentation and associated costs, increase network resilience, and integrate greater levels of renewable energy. More accessible and immediate data, digitalisation and automation are priority aspects of the transition from the industry's perspective (see Table 7). In addition, the potential benefits of electricity system transformation are expected to be mediated via a "proliferation of players accessing new value and introducing new business models and services" (Sandys 2018: 4) to encourage energy consumers to engage with DER in ways that support an efficient and reliable electricity system.

Table 7: Expectations of the Future Grid

FUTURE GRID EXPECTATIONS	KEY QUALITIES	KEY CHARACTERISTICS
Households (see Interim report)	Reliable Fair Affordable Clean / Sustainable Local Simple	Cheaper and cleaner electricity Opportunities to install home solar and batteries, get electric cars A grid and market that supports household power generation and storage - and provides back up when needed Local generation and use of electricity Benefits shared with the community Easy to navigate and use
Energy sector (including government)	Reliable Efficient / Smart / Optimised Cost-effective Technologically innovative Decarbonised Decentralised Data-driven Variable Flexible/ Demand-responsive Digital Tailored Automated Balanced Secure Transformative	Consumers adopting and interacting with new electricity products, providers, services and technologies in a variety of ways 'Active' consumers - more engaged, informed, and responsive to grid issues 'Passive' consumers – wanting to hand over control to utilities or third parties Consumers buying and selling energy in different ways New players and products accessing value and introducing new business models and services

INDUSTRY ENGAGEMENT TOWARDS THE FUTURE GRID

Early work on the Future Grid in Australia proposed and modelled four scenarios in which 45% of electricity is generated by end users by 2050 (CSIRO 2013):

1. **'Set and forget':** passive consumers accept industry-led demand management and tariff regimes that require some decisions up front but very little engagement afterwards
2. **'Rise of the prosumers':** engaged consumers demand a wide range of active and ongoing choices particularly around home energy generation
3. **'Leaving the grid':** consumers respond to energy costs and technology availability by going 'off-grid' with their own energy generation and storage
4. **'Renewables thrive':** consumer uptake of on-site generation combined with engagement in demand management and support for the centralised grid

Building on these scenarios, the Electricity Network Transformation Roadmap (CSIRO and ENA 2017) was developed to guide the transformation of Australia's electricity networks toward a consumer-oriented future over the following decade. These substantial initiatives and subsequent work are based on a future where households engage with electricity in new ways, including more 'active' and 'passive' participation with electricity products, providers, services and technologies.

The uptake of DER in Australia has moved rapidly and it is generally agreed that rooftop solar electricity generation, residential or localised storage, and demand management will play a key role in the Future Grid.

Alongside this work, the energy sector has sought to build engagement with household consumers. The AER's Consumer Engagement Guideline (2013) set out a framework to enable consumer views and preferences to influence network service providers' decisions, service priorities, capital expenditure proposals and price structures.

Four 'best-practice' principles for engagement were provided by the Consumer Engagement Guideline:

- Clear, accurate and timely communication
- Accessible and inclusive
- Transparent
- Measurable

While not specifically oriented towards the Future Grid, the focus on engaging 'systematically, consistently and strategically with consumers on issues that are significant to both parties' has led to significant consultation with households on related topics (e.g. tariff structures and costs, the impact and costs of solar, demand management) as part of network businesses' regulatory proposal processes.

Networks have also developed engagement strategies to guide their development of demand management solutions (see **Review of energy sector engagement documents and strategies**) and keep registers of parties interested in demand management.

CURRENT AND BEST PRACTICE APPROACHES TO HOUSEHOLD ENGAGEMENT

In Australia and internationally, stakeholder engagement is a component of most energy sector activities, including delivery of renewable infrastructure projects (Walker et al., 2011), changing energy market rules (AEMC 2019b), and providing energy services to homes via new technologies, contracts, and tariffs.

In addition, households are engaging on their own terms. For example, interest in community ownership of energy projects is rising overseas and in Australia, potentially as a response to lack of engagement from traditional energy suppliers and relationships (Marsh, 2013).

This section summarises key engagement insights from the international research literature, energy sector and other relevant sources in relation to the residential demand and supply of electricity.

SEGMENTATION TO ENGAGE

Consumer segmentation is widely used by energy providers, stakeholders and researchers to improve understanding of residential energy use and provide models for how to engage consumers more effectively. It is commonly employed to improve an energy business's market share, increase its customer base or maximise use of its assets by delivering targeted consumer offers, tariffs or programs. The technique is becoming more popular in differentiated and complex environments, like the Future Grid, where households are engaging (and disengaging) in more varied ways than previously possibly.

Segmentation frameworks identify broadly defined 'kinds' of energy users (for example 'new to energy', 'budget driven', or 'green advocates'), usually categorised according to particular demographic variables and (fixed) attitudes and behaviours in relation to energy and its use. They can also recommend program design and engagement approaches for specific categories. A 2018 report from Acil Allen reviewed 35 energy segmentation models (including Australian and international examples), demonstrating the prevalence of this approach (Acil Allen 2018).

While segmentation can lead to more tailored products and services, the efficacy of psychographic and behavioural segmentation for achieving reductions in household resource consumption (energy and water) has been questioned in the following ways:

Simplistic or minimal segments: 'Segmentation' can rely on a simplistic, bifurcated view of its 'end users' as either indifferent, or deeply engaged with energy issues (Goulden et al. 2018). Further, it carries the risk of leading to strategies that focus on one person in a household, rather than treating households as heterogenous collectives of different types of people with diverse interests and motivations.

Limited ability to account for change and movement between segments: Segmentation "risks mistaking a current diversity of reconfigurable energy-using practices as the fixed characteristics of immutable population archetypes" (Goulden et al. 2018: 183). It also risks obscuring significant cultural complexity and diversity (Sofoulis 2011).

Focuses on how people relate to energy, rather than what people use energy for: Most segmentation models focus on individual views about and behaviours towards energy rather than how energy is part of people's everyday practices (e.g. heating, cooling, laundering, cooking) (Shove and Walker 2014; Strengers 2013). This limits opportunities for intervention to energy technologies and information that "appeal to the economic rationalist consumer or change consumer attitudes and beliefs around energy" (Browne et al. 2013: 5).

LANGUAGE AND WHY IT MATTERS

Dominant energy sector language and terminology intended to engage households has been critiqued in the following ways:

Unappealing: Research with UK householders found the language used by the energy industry to be "profoundly unappealing to anyone outside the system" (New 2017).

Implies a one-way relationship between households and energy utilities: Predominant references to households as 'consumers' or 'customers' conveys an energy market-driven approach to supply and demand and fosters the conception of one-way relationships, an 'us and them' mentality, and an assumed detachment or passivity of households (Devine-Wright & Devine-Wright, 2005; Strengers 2013).

Implies households (only) have a monetary relationship with energy: The terms 'customer', 'consumer' and 'user' describe "someone who pays the bills [and] consumes" (Norman 2006, p.46). It also erases or masks significant complexity.

Overlooks what energy is used for: Market-oriented terminology reinforces assumptions that home energy use occurs in logical and economically rational ways – in contrast with the idea that household energy use is a by-product of everyday practices or services (Shove and Walker 2014; Strengers 2013).

Limits possible modes of engagement: 'Customer' and 'consumer' framings limit the types of engagement possible to products and market offers (that can be bought or consumed).

Best practice engagement towards the Future Grid involves **shifting from transactional to relationship terminology**. This is an extension of what is already occurring in many energy markets around this world. As Ruotsalainen et al. (2017: 236) note, "the current economy is already a hybrid of market and social relations, open sharing, and private profits".

This shift involves:

- **Developing a vocabulary of the relationship:** A "vocabulary of the transaction" is giving way to a "vocabulary of the relationship" (Steinman et al. 2000: 115), where customers, consumers and users become co-operative partners (co-producers and co-managers) (MacGill and Smith 2017; Miller and Senadeera 2017; Olkkonnen et al. 2017; Espe et al. 2018; Smale et al. 2019; Strengers 2011).
- **Identifying emerging relationships between households and the energy sector:** Use of the term 'prosumers' is on the rise within the energy sector as the number of homes with rooftop solar increases (McGill and Smith 2017). The term 'prosumager' has also been suggested to identify those with distributed storage (Sioshani 2019). Words that are new and unfamiliar to the general public may be useful to reframe internal sector thinking about relationships with energy user, but have limited utility for external engagement.
- **Emphasis on community and citizen values:** Olkkonen et al. (2017) note that in the case of energy, the definition of a prosumer as a combination of consumer and producer is insufficient. They propose a hybrid consumer-producer-citizen, in recognition of the prosumer's embeddedness both in the local community and in the broader dynamics (and politics) of energy.
- **Moving towards partnerships, collaboration and co-creation:** A paradigm based on partnership, collaboration and co-creation is widely associated with innovation and value-creation across a range of service sectors (Lee et al 2012; Oertzen et al. 2018) and is associated with increased levels of satisfaction, trust, and loyalty (Prahalad & Ramaswamy 2004; Haro et al. 2014).
- **Identifying new opportunities:** Co-creation is specifically identified by Philip New (2017: 3) as one of the pathways towards finding out "what people cherish about energy" which could in turn "unlock new business models, new choices for consumers, and new answers to the challenge of balancing supply and demand".

Based on these considerations, this report deliberately refers to residential energy consumers as households where possible. This terminology:

- Avoids assuming households have a specific relationship to the market (e.g. as customers or consumers)

- Foregrounds the practices and priorities integral to everyday life in the home
- Provides opportunities to identify a wider spectrum of engagement possibilities

As noted above, the AER best-practice principles for consumer engagement are:

- Clear, accurate and timely communication
- Accessible and inclusive
- Transparent
- Measurable

BEST PRACTICE ENGAGEMENT: KEY CONSIDERATIONS AND CURRENT MODELS

Via these principles the AER also encourages two-way communication and measures to understand and involve consumers on an ongoing basis (AER 2013). The AER principles were prepared to guide service providers' consumer engagement activities relating to regulatory processes.

The Future Grid Homes research indicates that these principles need to be part of an ongoing process of integrating sector experiences and learnings with broader engagement insights to ensure best practice household engagement towards the Future Grid (as identified and discussed in this report).

THE IMPORTANCE OF TRUST

Household trust in the privatised energy sector is widely acknowledged as an underlying issue that needs to be addressed as part of improving engagement in both the UK and Australia (e.g. Cass 2006; Sehic et al. 2017). Trust of institutions tends to be lower than between individuals, and this is particularly the case for institutions that are perceived to be acting in their own self-interest (e.g. privatised companies) (Mumford & Gray 2010).

In Australia, the energy sector is working to address this issue through processes such as The Energy Charter (2019).

Trust is integral to Future Grid household engagement in the following ways:

- Engaging with the community is important for developing what is commonly referred to as a 'social licence to operate' (SLO), where there must be an ongoing acceptance of a company and its operating procedures by employees, stakeholders, households, and the general public (Hall et al. 2015).
- Loss of energy consumer protections in the Future Grid has been flagged within the sector as a risk to householder trust in the energy system (CALC 2016). The draft 'behind the meter' code of practice from the Clean Energy Council (CEC) seeks to address some of this risk (2018).
- Collaborations with institutions not directly related to private industry, such as consumer advocacy groups, NGOs, local government, universities, and national broadcasting media organisation (such as the ABC) are likely to build trust, as these organisations are seen as trusted sources of information by households (Mumford & Gray 2010).

A key issue with household trust in the current Australian political climate is the lack of a unified, clear federal government policy and vision for energy and climate change (Kuiper 2019). As our **interim report** demonstrates, the absence of a clear national energy policy or plan results in distrust in the intentions of energy sector stakeholders who are working towards the Future Grid. It also results in confusion, given the conflicting political positions and messages. As Kuiper (2019: 21) finds in her study of how to maximise distributed energy resources "an inescapable conclusion from my research is that government leadership and vision are vital for timely development of clean, smart, customer-centric electricity systems".

IAP2 PUBLIC PARTICIPATION SPECTRUM: A DOMINANT MODEL

The IAP2 Public Participation Spectrum is commonly used within the Australian energy sector (e.g. AER 2013) to describe levels of engagement and encourage more involving, collaborative and empowering approaches to public consultation.

The IAP2 framework was developed to enable engagement practitioners and project managers from any sector to understand different kinds of public participation. It proposes five levels of public participation (see Figure 1). While not specifically designed for the energy sector, the framework has come to be regarded as an international standard for public engagement (PwC 2015).

Each step of the IAP2 spectrum implies different relationships between the public and the service provider in question. The 'inform' and 'consult' levels are more likely to be associated with what Sofoulis and Strengers (2011) describe as historical and rationalist relationships that treat the public as customers, and rational and/or responsible consumers.

Subsequent levels of engagement, from consult onwards, are more likely to conceive the public as cultural communities and networks, prosumers, partners or co-managers (Sofoulis and Strengers 2011).

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Limitations of the IAP2 model include that:

- It can "limit the adaptability and responsiveness of engagement approaches" (ENA and CSIRO 2016: 10)
- Service providers efforts to move towards the more collaborative space/ level of engagement (IAP2) tend to gravitate back to 'consult' and 'involve', while the 'empower' category remains elusive (PIAC 2018)

OTHER MODELS FOR ENGAGEMENT AND PARTICIPATION

There are many other public, community, and citizen participation models, some general and others oriented towards particular applications – for instance in government, workplaces, or working with children. Most share a linear progression over five to eight stages, each associated with increasing levels of public/community/citizen empowerment (see Figure 2).

Critics of ladder-type models argue that the implication of a linear and hierarchical progression is inaccurate and limiting, calling instead for recognition that different modes of engagement will be appropriate for different circumstances (Carpentier 2016).

IAP2'S PUBLIC PARTICIPATION SPECTRUM

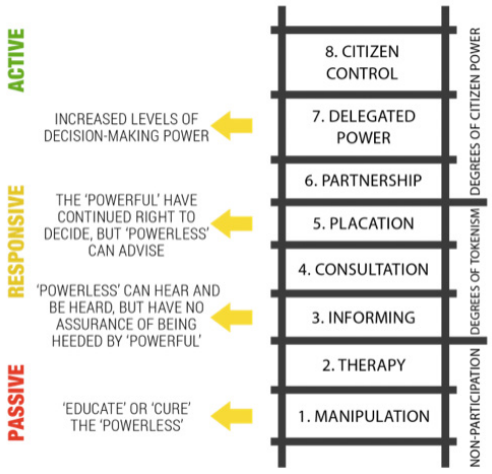
iap2 international association for public participation

The IAP2 Federation has developed the Spectrum to help groups define the public's role in any public participation process. The IAP2 Spectrum is quickly becoming an international standard.

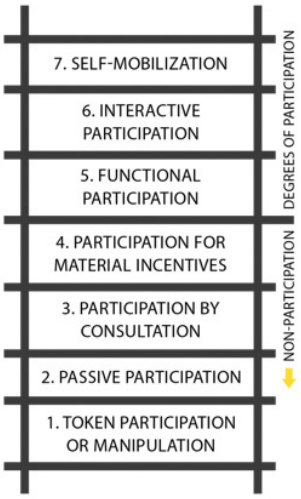
INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 1 IAP2 Public Participation Spectrum
Source: IAP2 Federation

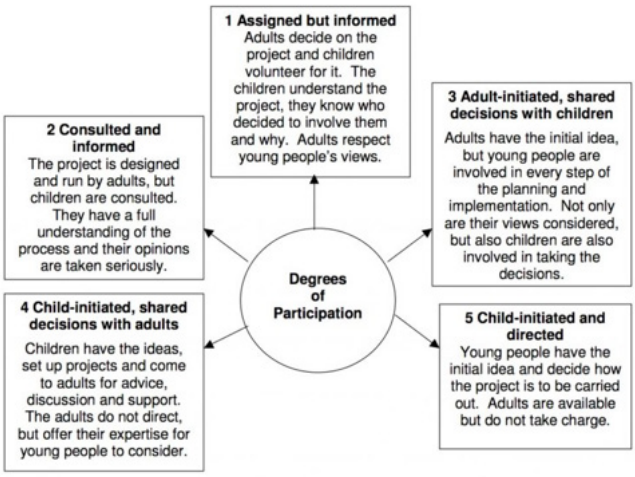


Ladder of Participation
Source: Arnstein 1996



Typology of Participation
Source: Pretty 1995

Ladder of Participatory Approaches
Source: Kanji and Greenwood 2001



Degrees of Participation
Source: Treseder 1997

Form	What 'participation' means to the implementing agency	What 'participation' means for those on the receiving end	What 'participation' is for
Nominal	Legitimation – to show they are doing something	Inclusion – to retain some access to potential benefits	Display
Instrumental	Efficiency – to limit funders' input, draw on community contributions and make projects more cost-effective	Cost – of time spent on project-related labour and other activities	As a means to achieving cost-effectiveness and local facilities
Representative	Sustainability – to avoid creating dependency	Leverage – to influence the shape the project takes and its management	To give people a voice in determining their own development
Transformative	Empowerment – to enable people to make their own decisions, work out what to do and take action	Empowerment – to be able to decide and act for themselves	Both as a means and an end, a continuing dynamic

Typology of Interests
Source: White 1996

Figure 2 Examples of engagement and participation models

White's (1996) Typology of Interests (see Figure 2) takes a different approach by considering how public participation is valued by the 'implementing agency' and what that means for those on the receiving end. Like the IAP2 spectrum, it suggests that 'empowerment' is transformational in contributing to more collective, self-mobilizing and dynamic processes of engagement.

Recognising that IAP2 alone is not sufficient to account for the complexities of engaging households, energy sector stakeholders are already looking to other partnership models including those informed by VCOSS' Partnership Practice Guide (designed for health, housing and community services sectors) (VCOSS 2018), and the Continuum of Joint Effort model (see Figure 3) for participatory consultation (e.g. ENA and CSIRO 2016). The VCOSS Partnership Practice Guide highlights 'sharing' as integral to genuine and effective partnerships.

Most engagement models highlight a progression from one-way information delivery to two-way partnerships that are consistent with other insights regarding the transition towards the Future Grid.

For example, the research literature indicates that participatory and deliberative approaches are likely to promote household engagement. Genuine and in-depth deliberative forums can help establish trust between energy suppliers and communities (CUAC 2013, see also Warburwton 2008a, 2008b). These also resemble the 'collaborate' and 'empower' ends of the IAP2 spectrum.

Importantly, the appearance of being deliberative without having the means to do so in practice is insufficient (Cotton & Devine-Wright, 2012). Industry engagement documents need evidence of policies and processes that would enable real deliberative practices to occur (Hindmarsh & Matthews, 2008). Additionally, these models do not cover all aspects of engagement associated with the Future Grid, such as household participation in demand management and other emerging initiatives that involve more than participating in decision-making processes.

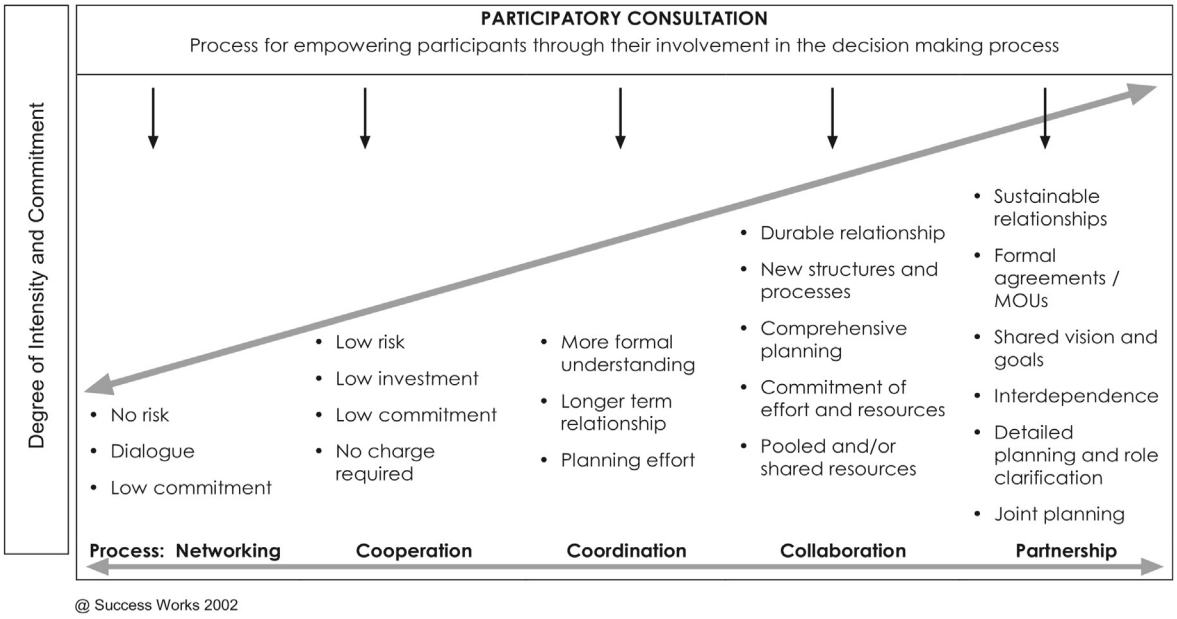


Figure 3 The Continuum of Joint Effort
Source: Success Works, 2002 and included in Putting Partnerships into Practice Final Report. Report prepared for the Department of Human Services 2004

REVIEW OF ENERGY SECTOR ENGAGEMENT DOCUMENTS AND STRATEGIES

The project team reviewed 10 publicly available engagement documents and strategies from Australian energy sector organisations (3 regulatory and 7 network businesses/ organisations) (see Appendix 1). Three advocacy organisation reports on consumer engagement were also reviewed.

The aim of this analysis was to understand the current foci of energy sector engagement. The documents reviewed were prepared for a range purposes (although not necessarily explicitly stated). Key observations from this review are included below.

Minimal focus on engaging households in demand management or other Future Grid issues

- Strong focus on consultation as engagement (including interchangeable use of terms).
- Energy sector engagement thinking otherwise often directed towards increasing household participation in the energy market, especially via information provision and tools, e.g. "a consumer engagement blueprint to empower consumers and make it easier for them to compare offers" (AEMC 2013: 2).
- Network businesses' demand side engagement strategies are predominantly focused on engaging with (potential) non-network service provider organisations to deliver non-network solutions.
- Occasional references to direct load control, variable pricing or peak rebates in energy sector documents do not pursue how to build households engagement with these demand management initiatives (other than relying on implicit financial incentives).

Engagement (as consultation) does not necessarily directly involve households

- Engagement may be conducted via organisations deemed to represent households' best interests, rather than directly with households e.g. "we will work with you to reflect your views… We will partner with you for advice and innovation in developing solutions ..." (AER 2017: 5).
- The IAP2 spectrum is informing some engagement thinking and there is interest in more deliberative and in-depth forms of consultation, such as interviews, community forums and citizen panels, to increase household and or consumer representative input into sector decisionmaking.

Ambiguity regarding households, consumers and stakeholders

- Households are often bundled into non-specific categories such as 'stakeholders', 'customers' or 'consumers', i.e. not distinguished from others either in terminology or inference.
- It is unclear whether some regulatory organisation references to 'stakeholders', 'you' and/or partnering includes households, e.g. "Our commitment is to work with you…" (AEMO 2016: 1).
- As most energy sector documents appear to be sector-facing (not written for household readers) it is unclear whether provision of a point of contact (such as an email address, phone number or Demand Side Engagement Register) serves to support household participation in, and feedback on, industry engagement.

Early recognition of the need for new relationships and engagement styles

- Network businesses and organisations' documents and strategies refer to the changing relationships between traditional providers and consumers in the Future Grid.
- Energy Networks Australia's '*Transforming the energy conversation'* document refers to the changing expectations of consumers as the 'one-way' grid is "replaced by new enabling networks" and states that "if such a dynamic future is to be realised, it will require closer engagement by customers and networks" (ENA 2014: 5).
- There is minimal publicly available (individual organisation or coordinated electricity sector) strategy to address the unique challenges and maximise the substantial opportunities of household engagement towards the Future Grid.
- Consumer advocacy strategies generally consider a wider range of potential household issues focused on "meaningful and genuine engagement" (CUAC 2013: 1) and are more clearly focused on delivering better outcomes for energy consumers.

REVIEW OF DEMAND MANAGEMENT ENGAGEMENT MATERIALS

In the absence of an overarching strategy to engage households in the Future Grid (see previous section), the sector is trialling and delivering a range of demand management initiatives – both structured programs and public appeals and information. The success of these initiatives is reliant on capturing attention and convincing households that their participation and response is worthwhile (to their household, the community and/or the system/ electricity grid).

The project team reviewed 27 materials produced by the energy sector (mainly network and retail businesses) to engage households in demand management initiatives. Materials came from 17 sources including 15 energy companies, AEMO and Renew magazine (see Appendix 2). The analysis focused on:

- **Appeals** – how the call to engage with demand management – or the question of 'why is this important?' – appeals to households
- **Tone** – the tone of the communication, whether informative/educational, persuasive/encouraging, and/ or rallying (as in a call-to-action)
- **Relationship** – how households are positioned in relation to the energy provider

The analysis found that demand management materials include two dominant **appeals** to engage households (see Table 8):

1. Households will receive financial benefits and incentives for managing, reducing or shifting their electricity use
2. Households will benefit the electricity grid by taking part in a demand management initiative

Two other less prevalent appeals were also found. These refer to broader benefits to the community and/or the environment. Most materials do not encourage community mobilisation, or appeal to households as partners in energy management.

The engagement materials are mostly characterised by an informative/educational **tone** with elements of persuasion and encouragement. Some program materials also adopt a rallying tone characterised by a call to action which positions the electricity grid as being at risk. As with community and environmental benefits, this represents a moral appeal to help out and be part of something bigger but with an added emphasis on taking personal action (see Table 8).

Households are primarily positioned as being in an assistant **relationship** with energy companies, helping them to do their job more effectively – a shift from the common positioning of households as consumers or customers, which was also found in the materials. The notion of households or the community as partners with energy providers was also occasionally evident (see Table 8).

Table 8: Appeals, tones and relationships reflected in demand management engagement materials

APPEAL Why demand management is important	TONE The pitch, quality and strength of messaging	RELATIONSHIPS How the energy user is positioned in relation to utilities
Individual financial benefits 'get paid more for doing less' (19 materials)	Informative/educational 'when we save energy, it means less need to create new infrastructure' (20 materials)	Consumer/user 'reward(s) electricity users who shift some use to non-peak periods' (7 materials)
Helping the grid/ network 'help to alleviate pressure on the electricity grid' (16 materials)	Rallying 'be part of the solution!' (6 materials)	Partnership with individual/ household 'we are working with our customers' (2 materials)
Community benefit and common good 'helps share electricity in your community' (7 materials)	Persuasive/Encouraging 'participating…is easy, it won't cost you anything, and…you won't have to do a thing.' (15 materials)	Consumer as network assistant/participant 'everyone can play their part in easing the strain on the supply' (17 materials)
Reducing environmental impact 'reducing our carbon footprint' (3 materials)		Partnership with the local community 'we'd rather invite you to work with us as a community' (1 material)

INSPIRATION FROM OTHER SECTORS

A range of materials (documents and websites) were reviewed by the project team to seek inspiration regarding household engagement from and within other sectors. Table 9 provides a summary of innovative approaches with relevance to the energy sector.

BUSHFIRE MANAGEMENT

In the bushfire management sector, "community engagement" is framed as "a process incorporating a range of activities designed to achieve behavioural change that minimise the impact of bush fire and other emergencies" (NSW RFS 2018: 11). It has the "objective of 'nudging' people along the pathway toward sustainable and beneficial change". This approach resonates with the energy sector's intentions of engaging households in demand management initiatives.

People are segmented into 'at risk' communities (e.g. those that are more susceptible to bushfire risk) including aging residents, multicultural communities, indigenous communities, school children, transient residents, or residents without access to motor vehicles. Engagement is seen to differ between these segments, requiring forms of communication and interaction tailored to maximise their likelihood of success. A similar segmentation process could be conducted for 'at risk' households, who may be more vulnerable to network constraints or rising electricity prices.

The NSW Rural Fire Service has a number of innovative engagement approaches that may be relevant to the energy sector, such as in person training for households at risk of fire damage, and up to date information about the proximity of fires to residential areas in a given area.

WATER SUPPLY

The water supply sector has been engaging with households (as consumers of water) for many years, with heightened engagement occurring during and since the major droughts of the early 2000s. One notable engagement behaviour change program is Target 155, run by the Victorian State Government.

Target 155 asks households to limit water consumption to 155 litres per person per day, positioning water as a limited resource that should be valued and conserved where possible. In proposing this specific target, the program consistently attempts to leverage notions of the community and the collective to engage with people about water savings. Target 155 frames past reductions in water consumption in a positive way, reinforcing the notion that the community's efforts to save water should be celebrated:

"Our growing city means greater pressure on our water supplies… Melburnians have adopted a great culture of using water efficiently… We each just need to use six litres less each day" (Victorian Government, 2019).

Household consumers are not offered any financial rewards or penalties for meeting Target 155, in contrast to water restrictions, which can be policed and enforced. Instead, households are told that they, and their water-saving practices, are contributing to a collective benefit.

The Target 155 website has embedded language translation for 10 languages other than English, allowing CALD communities to easily read and understand the engagement materials.

Although there are significant differences between the energy and water sectors (Kurtz et al. 2005), Target 155 is considered a successful campaign that demonstrates the value of positioning an essential service as a limited and precious resource. During the campaign, Melbourne households reduced their usage from 188 litres per day in 2006/07 to 147 litres per day in 2011 when the campaign was formally discontinued (Liubinas & Harrison 2012). The program also demonstrates the potential value of non-financial campaigns that emphasise community responsibility and common good.

Another form of engagement in the water sector is run by City West Water (CWW 2019), based in Victoria, which produced a series of short video clips called "Water Wallies" – suitable for dissemination on social media or television. The videos depict people wasting water in various domestic situations, such as taking excessively long showers, watering footpaths, or using a washing machine for a single item of clothing. They are subsequently 'caught in the act' by their family and friends, emphasizing a social norm of water conservation.

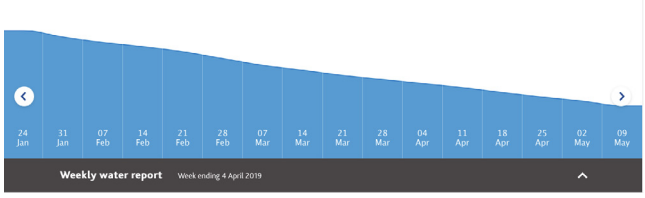


Figure 4 Melbourne Water weekly water report
Source: https://www.melbournewater.com.au/water/water-storage-and-use#/ws/freq/weekly/type/wateruse

The Melbourne Water website provides interactive graphics for how much water is being used collectively and individually on a day-to0day basis, with a blue storage graph symbolising the declining daily water levels in the city's water supply (see Figure 4). This is intended to raise awareness of water availability, allowing people to see when the system is under stress, and helping to position water as a seasonally variable and sometimes restricted resource.

Similar information about the availability of electricity could help the sector position electricity as a fluctuating and variable resource, particularly during extreme weather events when some jurisdictions are likely to experience network constraints.

WASTE MANAGEMENT

Household engagement in waste management is characterised by approaches that take a phase-based approach (instead of once-off engagement). Engagement strategies tend to be focused on particular types of projects, such as the implementation of a new organic waste collection service, or the location of a new waste management site near a local community.

Engagement for these projects commonly involves four distinct stages:

- Pre-launch communications to give households information about the project, including why it is being implemented, and point of contact
- Information and support when the implementation is occurring
- A monitoring and evaluation program, which includes the establishment of baselines to understand how the engagement is proceeding over time and compared to elsewhere
- Ongoing education and communication to householders throughout the life of the program

The establishment and maintenance of trust is seen as crucial for engagement in the waste management sector. Any perceived conflict of interest from waste management companies, such as an agenda to be profitable whilst also providing waste management services, can undermine the public's trust in the sector. Similar issues and considerations apply for the energy sector.

Setting up partnerships between the community, waste management operators, and mediating third parties is also seen as a way to engage households in waste management issues and to build trust between these groups. These partnerships may be formed to deliver particular projects, and/or to "create an open dialogue with community stakeholders on matters that may impact them" (Metropolitan Waste Resource and Recovery Group 2016: 7).

HEALTH

The NSW Government's Agency for Clinical Innovation has used storytelling as a means to engage consumers and understand their needs in "experience based co-design". They describe this as the "oral, visual or written sharing of our stories and experiences with others… a tool to guide ACI Networks, Taskforces and Institutes on gathering consumer, family and staff stories when designing, implementing or evaluating improvements, activities, products and services".

Storytelling allows people from diverse cultures to communicate in a way that is appropriate to them. It values their lived experience and allows health providers to gain insights into patients' lives that might not be found using other forms of engagement.

One of the most prominent examples of successful public engagement in the health sector is the "Slip, Slop, Slap!" campaign, initiated by the Anti-Cancer Council of Victoria in 1981. The iconic seagull character and jingle is credited with a dramatic shift in attitudes toward sun protection and behaviour over the past several decades (Sun Smart Victoria 2019).

POLICING

The NSW Police Force has been commended by the youth engagement organisation Youth Sense, and media outlets Daily Telegraph and Huffington Post for its innovative use of social media as a way to engage young people about important issues of law enforcement and the legal responsibilities of Australian citizens.

The Police Force's innovative use of 'memes' – digital images overlaid with text that convey humorous messages or meanings – has received widespread engagement on social media platforms such as Facebook, Instagram and Twitter. Viewed as a form of consumer engagement that reaches a notoriously difficult to access demographic – teenagers and young adults – this approach has been noted as a successful form of messaging for the policing sector.

Table 9: Innovative forms of engagement from other sectors

SECTOR	INNOVATIVE FORM OF ENGAGEMENT	FRAMING OF RESOURCE, SERVICE AND/OR HOUSEHOLD RELATIONSHIP	TARGET OF ENGAGEMENT	EXAMPLE QUOTE
Bushfire management	Knowledge and training programs delivered in person by Rural Fire Service officials for landowners about how to prepare for bushfire danger	Bushfire danger is a risk that is co-managed by the fire service and private landholders	Individual private landholders	"Hotspots is a community engagement program that provides private landholders and land managers with the skills and knowledge to actively participate in fire management for the protection of life and property"
Bushfire management	Real time updates via "Fires Near Me" mobile app about bushfire threats in household's local area	Equipping households/ general public with relevant information to better enable them to co-manage their bushfire risk	Households	"This app will: let you know if there any fires within 50km of your location... Display any fires within a 10 km radius of your location."
Water supply	Engaging households as part of a community of water users	Water conservation is framed as a collective responsibility, and something to be achieved by everyone	City wide community	"Our growing city means greater pressure on our water supplies… Melburnians have adopted a great culture of using water efficiently… We each just need to use six litres less each day."
Water supply	Embedded translation of online engagement material into 10 languages commonly spoken in Australia's migrant communities	Australian households recognised as culturally and linguistically diverse, and all households need to be able to access and understand engagement materials	Cultural and linguistic communities and households	"Arabic, Greek, Farsi, Hindi, Italian, Punjabi, Simplified Chinese, Tagalog, Traditional Chinese, Vietnamese"
Water supply	Production of a series of short video clips - "Water Wallies" - highlighting wasteful water practices	Water conscious citizens engender social responsibility and provide peer pressure by reminding friends and family members not to use water unnecessarily	Households as responsible water users	"You wouldn't put a goldfish in a swimming pool. So then why run the washing machine for a pair of socks? Daaaad... Save water and energy by only running your washing machine when it's full."
Waste Management	Partnering with third party organisations	Seeking to improve trust between households and utilities / providers	Households as part of communities who's trust needs to be earned through engagement	"Create an open dialogue with community stakeholders on matters that may impact them"
Health	Storytelling in Healthcare	Co-designing of healthcare provision with patients by gaining insight into their everyday lives, histories, and experiences	Individuals and families from diverse cultures that can communicate their interests by sharing their experiences through storytelling	"Storytelling is the oral, visual or written sharing of our stories and experiences with others. This is a tool to guide ACI Networks, Taskforces and Institutes on gathering consumer, family and staff stories when designing, implementing or evaluating improvements, activities, products and services."

INSIGHTS FROM INDUSTRY STAKEHOLDER INTERVIEWS

The project team interviewed twelve energy sector stakeholders about engagement – six from utility organisations (distributors, retailers, or representative organisations), three from government/regulatory organisations, and three from consumer advocacy organisations.

Interviewees had often worked in a range of energy roles and organisations. They were asked to speak about their observations and experiences in the energy sector and did not necessarily reflect official views or positions of their employer organisations.

This section summarises key insights from these interviews relevant to engaging households towards the Future Grid.

WHAT IS HOUSEHOLD ENGAGEMENT IN THE ENERGY SECTOR?

Engagement occurs in various forms but is hard to define

- There is no consistency or agreement amongst industry participants about what engagement is
- Most industry stakeholders found it difficult to define engagement and instead referenced one or more forms of engagement currently practiced by the sector (see Table 10)
- Understandings of engagement varied along a spectrum (similar to those discussed earlier). Engagement included transactional arrangements (e.g. outage response/reporting and billing), working with consumers to ensure what is delivered aligns with their expectations, through to involving consumers in sector decisionmaking and future planning (see Table 10)

'I wouldn't say that there's any kind of general understanding about what engagement is or what it should be or what it means [in government]' (Regulatory/ government organisation)

Industry-led engagement is usually front-of-mind

- Most industry stakeholders focused on utility-led forms of engagement – particularly consultation processes conducted by networks
- Recognition of household-initiated forms of engagement (when prompted) including attribution of the emerging Future Grid to household interest in and adoption of new energy technologies

One-directional engagement

- Engagement is usually conducted on industry terms, timelines and areas of interest
- Tends to involve informing rather than conversing with households
- Can be negative towards early adopter households rather than acknowledging and supporting their interest in participating in the energy system
- Recognition that engagement involves understanding consumers' needs and preferences

'Engagement… involves understanding people's needs and the context they're in… what are their capabilities, what are the constraints they face? … That involves talking to the actual people, not just sitting around a table with a bunch of experts, having an idea based on what their mum says.' (Regulatory/ government organisation)

'If you don't engage, you don't understand what's driving the community and consumers. And a really good example of that is the industry tends to think poorly of things like solar PV subsidies and those types of things that, if they talk to consumers, that's what consumers want.' (Regulatory/ government organisation)

WHAT ARE THE PERCEIVED PROBLEMS WITH HOUSEHOLD ENGAGEMENT?

In addition to some concerns and (perceived) issues included in Table 10, industry stakeholders raised the following overarching problems concerning household engagement.

Household engagement and trust is limited

- Households pay for a service and may not be interested in deeper engagement
- There is a limited response to price signals and cost-reflective pricing
- Households have other priorities beyond spending time understanding and responding to complex energy issues
- Distrust in the sector is limiting further engagement

'Consumer engagement is largely about price and reliability.' (Network/ retail organisation)

'It is an essential service, it's necessary for our survival. So, to what extent should a person have to engage, to get a good price, to access clean energy?... the lack of information out there, transparent information, reliable bodies you can go to.' (Consumer advocacy organisation)

'It's unreasonable to expect consumers to become experts in relation to a complicated industry.' (Regulatory/ government organisation)

'We're an industry that's lost its social licence to operate in the way that we wanted to.' (Network/ retail organisation)

Energy organisations working in isolation on engagement

- Energy engagement activities are occurring on many fronts, but often in isolation and with little coordination
- Distributors and retailers are focused on their individual issues and customer bases, but are reluctant to talk/ collaborate to each other, and are operating in an environment with little support from other parts of the sector
- Lack of coordination contributes to energy 'noise' and conflicting messaging which may further discourage household engagement

'I think we're probably, all of us, sort of, in isolation, are doing our bit to try to kind of protect some of our social licence and keep our customers happy and informed. But I wouldn't say that there's a unified view… I couldn't say it's a whole sector kind of approach, with any confidence.' (Network/ retail organisation)

'There are two very different worlds going on [regulated and unregulated].' (Network/ retail organisation)

Lack of enduring policy, leadership and plan

- Lack of federal government policy providing clear direction and unifying energy and climate policy for the country is affecting household engagement
- State government support for transition to renewable energy (in some jurisdictions) can create technical challenges for the sector
- Sector stakeholders trying to work together to overcome some of the challenges arising from lack of overarching policy

'If I look at the top level… nobody's looking at it holistically… so many different regimes coming through. Everybody's confused on the message and it's only amplified by the time it gets to the market and to our customers… there just needs to be one driving policy.' (Network / retail organisation)

'I think that everything comes down to one simple thing which is just a failure to properly integrate energy and climate policies. I think energy wise, everything's fine, it's just that failure to create a long-term pathway.' (Regulatory/ government organisation)

'I think the highly political nature of energy and people using it as an election platform and that sort of thing… [We need] federal government policy that provides some sort of clear direction – which we're not hanging our hopes on any time soon. So we're more focussing on a state level, how we can work together… to kind of encourage some sort of collaboration and shared view.' (Network / retail organisation)

BENEFITS AND CHALLENGES OF HOUSEHOLD ENGAGEMENT TOWARDS THE FUTURE GRID

Future Grid inevitable and potentially beneficial for better consumer outcomes

- The Future Grid will involve more data and new technologies to support the grid, but it's unclear what it will look like
- More diffuse and diverse range of products, technologies and relationships
- Will rely on greater use of technologies like automation, electric vehicles, home solar and batteries
- Should reduce consumer costs for electricity

'I think the grid of the future will be what it turns out to be… it's just starting to in an abstract sense though there's a lot more solar in the system now… our view of the future is that you can get a lower cost system in total that is cleaner and as reliable if not more reliable by transforming the grid' (Network/ retail organisation)

'I would say the future grid is what we're transitioning towards and we have no certainty what it will look like, but it's going to have a greater amount of decentralised energy resources and prosumer engagement, for better or for worse' (Regulatory/ government organisation)

Changing relationship between households and providers

- Disagreement about whether the Future Grid will involve more or less engagement from households, or will be fundamentally led by households and other consumers
- More choices for households (e.g. technologies, tariff structures, where to buy, sell and trade energy) and more decisions about how and when to use energy
- Entry of 'third parties' to assist households to navigate options and respond
- Requires new conversations with households and household trust in the sector
- Will involve collaboration between industry and household owners/ operators of energy technologies to optimise the energy system

'A very engaged collaborative environment where we're actively having conversations with groups, communities, consumers and stake holders that we serve.' (Network / retail organisation)

'Completely different [relationship with] consumers… consumers will make a lot more choices directly or indirectly around how and when they use [energy]… I might choose to set [the battery] up to export and import all the time, I might let somebody else do that for me… I don't imagine many people will be all that excited to be involved themselves.' (Network/ retail organisation)

'New technology to support the grid and allowing people to have those choices that they can interact with us in a manner that suits them.' (Network/ retail organisation)

Household acceptance of automation/ external control by energy sector is needed

- Home automation/ external control is viewed as necessary to manage emerging system challenges, e.g. high levels of distributed generation entering the system (creating demand 'troughs'), potential impact of EV charging on peak demand, potential to utilise battery stored energy to stabilise the grid
- Automation viewed as supporting the Future Grid through technologies that reduce risks and maximise benefits of household generation and storage
- Increased household understanding of why the energy sector wants control of new technologies is needed (to develop 'social licence to automate')

'Accepting new terms and conditions of their devices that they put in their homes and, for example, being centrally controlled by the network…more of the decentralised stuff and more need for minute-by-minute, second-by-second management of the network. People may think it's pretty intrusive... now is a good time to start educating people on why it's getting harder for networks.' (Regulatory/ government organisation)

Households defection from the grid is a possible, undesirable outcome

- Households may disconnect from the grid due to increasing availability of more affordable alternative systems, and/or household distrust in the sector
- May cause vulnerabilities for off-grid households, e.g. reliability and lack of consumer protections
- Grid defection (other than at the network fringe) is a risk to maintenance and affordability of the grid and could negatively impact households who cannot afford or access off-grid systems

'A customer can move away in a couple of ways. The customer can move away because they're disengaged…Customers also, you know, there is questions out there around going off grid and as solar and battery become more and more viable.' (Network/ retail organisation)

'From an equity perspective, residualised costs are a problem. It means higher costs for that group who remain [on the grid]. If it's mainly the poor who do remain, poor systems usually mean poor service, no common interest in systems, you know? Whether it's a public healthcare system or a public education system, it's really important that there is common interest to maintain a high-quality system.' (Consumer advocacy organisation)

BEST PRACTICE ENGAGEMENT

Energy engagement is evolving and best practice is not yet established

- Household engagement is a relatively new area for many stakeholders in the energy sector
- Agreement that industry is not, on the whole, doing engagement well – other than some specific examples of strong consultation activities
- Uncertainty about how to achieve better engagement
- Collaboration and empowerment (from IAP2 framework) are worthy aims but difficult to achieve

'IAP2's obviously a very well known one [engagement model] and it's something that we do use quite a lot… there are some things that, you know, whether it's a regulatory obligation and we can only be at the inform or consult end of the spectrum, you know, but where we can, we are certainly looking to collaborate and empower with customers.' (Network/ retail organisation)

Mixed views on how to best engage and appeal to households

- Some stakeholders point towards (stronger) price signals as the main path to greater household engagement
- Other stakeholders are seeing households engage with ideas of community benefit, protecting vulnerable others, and helping the electricity system
- Community/ local energy projects are pathways to engage and build trust with households

'Ultimately, that comes down to pricing signals in the sense that, if I'm a household.... I'm not really gonna be very concerned about how it impacts the broader system because I'm literally thinking about my own circumstances and my own decision making.' (Regulatory/ government organisation)

'There's a lot of interest from customers in helping out the system from a community perspective, you know, and I think that's worked in sectors like the water sector.' (Regulatory/ government organisation)

'Community energy group members obviously think of themselves as being part of something that's like a small part of the system that is, you know, has a particular identity as well. So more of those kind of projects and groups get up, more people have a sense how they connect to the broader system.' (Consumer advocacy organisation)

'I think this is a global trend that there is people that really do want to have localisation in all areas and energy is one of those. And with changes in technology, it becomes quite easy to, well,

maybe not easy, but much more achievable to do.' (Network/ retail organisation)

Industry coordination needed to build household understanding and trust

- Although individual business actions can cause distrust, rebuilding trust is a sector-wide issue
- Reducing complexity and contradictions in messaging needed
- Increasing transparency (especially in pricing) needed
- Raising householder understanding of energy issues involves strategic partnerships including working with solar installers, community groups and others

'Because the industry's so complex, anything that's happening in energy reflects badly on all of us.' (Network / retail organisation)

'As an industry we've been very good at confusing people… Because there's so many bodies making so many voices, that so many people are confused, that we use so many acronyms. We don't speak plain, simple English.' (Network / retail organisation)

'We need to actually sort out our house… we need to create the environment where people [energy sector organisations] have an incentive to work together and, at the moment, they don't, they really don't.' (Network / retail organisation)

Building digital engagement

- Data platforms coupled with personalised/ targeted feedback will support engagement
- Use of real time data and emerging digital capabilities
- Social media, including podcasts, Twitter and LinkedIn, is supporting targeted and strategically timed communication and engagement
- Social media is an existing resource that can support sector learning

'The right data platform so people can actually effectively communicate with a grid and help shape it… we want to be then able to [communicate] through an app… predictively.' (Network / retail organisation)

I think, we could do much better harnessing off the information that's out there, through people's conversations on social media… it's probably a strong role for all levels of government, subject to resourcing obviously, to play a role in busting myths about certain aspects of the energy sector or energy policy… being much more proactive.' (Regulatory/ government organisation)

Supporting and utilising diversity in households and sector decision-making

- Trialling approaches to engage with culturally and linguistically diverse households and making programs/ services accessible to them
- Designing participation options for the highly engaged (e.g. early adopters) and households who are less engaged
- Ensuring people with a wider range of backgrounds, experiences, and qualifications are involved in, and can influence, sector decision-making

'Do we have to do a Vietnamese version to communicate that the network's under strain? Can you turn your power down, that sort of thing? So, we're starting to think about how we communicate with ESLs.' (Network / retail organisation)

'I've got a team of all engineers so it's all really good for us to do that because golly we can come up with really great solutions that nobody wants but they elegantly solve the problem!' (Network / retail organisation)

'The room's male, pale and stale… There's not enough diversity in the market to actually represent what's going on in the community… rather than extracting value from the market, trying to inject value so it's an equitable relationship… I don't think anybody's struggling to pay their power bill here.' (Network / retail organisation)

A role for regulation to support good consumer and grid outcomes

- Planned and managed introduction of peer-to-peer trading needed to resolve regulatory issues, avoid adding further unwanted complexity for households, ensure households are the main beneficiaries, and avoid poor outcomes which could erode trust
- Opportunities to utilise housing and thermal efficiency as a source of DER

'[Peer-to-peer trading] is all smoke and mirrors at the moment… it should be a universal platform run by the government. So, your standards are set. Nobody runs off and buys the biggest and the best to screw other people.' (Network / retail organisation)

'There's some regulatory challenges that we probably need to overcome… there's a reason that retail has regulation around customer protection and fair trading… Ensuring that one of the providers or one of the facilitators of that treats customers fairly, is commercially viable, and builds trust in the system… there's a risk that if we don't keep an eye on that and there is something that happens, again, the industry as a whole will take a back step on the trust angle.' (Network / retail organisation)

'Engagement – thermal efficiency in this country is the most under-utilised source of demand management… I don't know when building standards are going to catch up in this space but it is kind of absurd that you can have a two-star gas heater in a six-star new home.' (Network / retail organisation)

STAKEHOLDER ROLES AND RESPONSIBILITIES

'In an ideal world' engagement would be done differently

- Thinking about how household engagement could be done more strategically is often constrained by what is seen to be realistic/ practical given the current structure of the energy sector
- Circumstances that are seen as likely to be more conducive to successfully engaging households include:
    - A more integrated energy sector structure, e.g. less organisations with different/ competing priorities
    - Less complexity in issues and the energy market for households to comprehend
    - Where possible, consistent approaches to household engagement (e.g. programs and messaging)

'Nationally consistent, form of engagement?... In an ideal world, I'd say yes. But in the world we live in, given that various states are doing their own thing, I'm not sure how practical it would be.' (Regulatory/ government organisation)

Uncertainty about responsibility for leading engagement in Australia

- The sector would benefit from a national voice to lead engagement towards the Future Grid
- There is no clearly suitable or agreed organisation to perform this role
- A variety of organisations and initiatives are considered suitable bodies to lead Future Grid engagement (including AER, AEMO, AEMC, ENA, ECA, Energy Security Board, CSIRO, federal and/or state governments, the Energy Charter)
- All of these bodies have limitations when acting in sector-wide engagement initiatives:
    - Limited spheres of responsibility/ interest/ influence
    - Bias, issue neutrality, political concerns
    - Lack of in-house capabilities/ resourcing
    - Lack of profile/ contact with the general public
    - Outside the current scope of their role

'There should be just one regulating body rather than the multitude of voices that are coming through because that just adds further confusion… I can't believe we've got AEMO, AER, duplication of effort, no clarity on the message… we need a bigger platform and you need somebody with people's best interests at heart… there's just nobody that, how do I put it? Is a trusted adviser 100%.' (Network/ retail organisation)

'I think there's a few bodies that are trying to provide that national voice. But it's very hard just given the polies [politics] of energy and climate for anyone to cut through. … We also have to be very conscious… we can't be too activist about it… there's just so much change driven by technology and policy, it's hard for anyone to really have a nationally dominant or consistent voice.' (Regulatory/ government organisation)

'So there could well be a role for governments to actually get out there and promote that kind of community activity, you know, if you want to help the system then you know either reducing your demand at a certain time or engaging with energy service providers to sell your electricity back to the grid, can provide broader benefits to the system.' (Regulatory/ government organisation)

Table 10: Forms of engagement and associated issues discussed by industry stakeholders

	FORM OF ENGAGEMENT	SUMMARY	ISSUES & CONCERNS EXPRESSED BY STAKEHOLDERS
Minimal informative engagement	Operational / service provision (by energy sector)	• Provides energy, bills and related communications to households • May assume households are not interested in energy beyond price and reliability • Households not expected to play active role in system	• Households perceived as ill informed or unwilling to engage, therefore further engagement viewed as unproductive • Energy sector perceived as best-placed to make the decisions about improving consumer and grid outcomes
Informative/ communicative/ influential engagement	Marketing (by energy sector)	• Market research and advertising activities • Aims to attract and retain customers	• Not always in household best interests • Can distract, annoy or hinder other forms of engagement
	Educational (by energy sector)	• Predominantly information provision • Aims to help households understand energy issues and make better choices • May seek to encourage changes in behaviour to improve consumer or grid outcomes • E.g. bill inserts, web-based information, energy offer comparison tools, media messaging	• Difficulties attracting householder attention • Pricing and bills not transparent • Not always in utility (retailer) interests to help households reduce/manage usage • Energy market and issues are complex and hard for general public to understand • Conflicting messages from different parts of the sector, including governments
	Political (by governments)	• Aims to influence household views towards governments and/ or political parties	• Political 'agenda' may not align with energy sector priorities and messages • Can contribute to household confusion
Participatory/ active/ empowered engagement	Consultation (by utilities, government, regulatory bodies)	• Involves households and communities in decisions that affect them • Aims to elicit preferences and understand the needs of people about whom decisions are made • Often occurs via third parties representing households, e.g. advocacy organisations (who may or may not have direct contact with households) • A required part of network regulatory processes • Can involve negotiation with consumers, e.g. the AER 'New Reg' Process • Varies widely in degrees of involvement and participation from households	• Doubts about households being sufficiently informed to contribute or represent the general population • Concerns about whether consultation findings genuinely impact decisions • Concerns about duplication, inefficiency and costs to consumers • Does not necessarily occur early enough in decisionmaking/ policy processes • Consultation by government limited by lack of time, capacity and/or direct communication channels with households • Consultation perceived to waste time seeking 'consensus'; delays progress and action
	Active involvement (by households)	• Something households do/ initiate • E.g. enrolling in and responding to demand management initiatives, installing solar PV and other energy technologies, participating in new markets • Less front-of-mind as a form of engagement than sector-led forms, but recognised as integral to the Future Grid	• An alternative to households lack of response to or interest in cost-reflective tariffs • Involvement may be a (necessary) response to high energy costs • Equity concerns for those 'locked out' of participation, financial or other impacts on vulnerable households • Lack of consumer protections • Complexity, excess choice and distrust discourage active involvement

EMERGING PRINCIPLES FOR THE FUTURE GRID

Stage 1 of the Future Grid Homes project involved in-depth and at-home research with 51 households in NSW, Vic, SA, ACT and Qld. The cohort included early adopters of battery storage and electric cars, demand management program participants, and households who had experienced significant blackouts (see Stage 1 **interim report**).

This section summarises the findings from the Stage 1 household research and links these to the **Principles** that guide our **Engagement Strategy** towards the Future Grid (see Table 11). The principles are also guided by, and consistent with, the Stage 2 research discussed in this report.

Table 11: Summary of key household research findings and emergent principles

STAGE 1 HOUSEHOLD RESEARCH KEY FINDINGS	PRINCIPLES
CHALLENGE: Reliability • Most householders are satisfied with grid reliability and attribute most blackouts to weather or other unmanageable events • Householders are concerned about their or others' vulnerability to power outages during extreme weather, and as a result of their growing dependence on information and communication technologies used to work at home and stay in touch with others • Home battery storage is increasingly attractive for those wanting more reliable access to electricity	Affordable, clean electricity from the grid Accessible, flexible and trustworthy technologies/ systems

CHALLENGE: Distrust
• Household distrust in energy businesses, organisations and/ or policymakers is widespread and related to perceptions of:
  • High energy bills, unfairness, and inequity in access to energy as an essential service
  • Unwanted/ confusing market complexity and choice
  • Lack of justification for price rises
  • 'Low' or 'unfair' feed-in-tariffs
  • Lack of energy policy, energy planning and leadership
  • Politicisation of energy
  • Dissatisfaction with privatisation of energy services
	Act to build trust in the sector as a whole
	
	Affordable, clean electricity from the grid

CHALLENGE: Disengagement and Different priorities
• Some households are 'unengaged', meaning they have little interest in energy, tariffs, the market, or grid technicalities
• 'Deliberate disengagement' describes people who disengage due to dissatisfaction and frustration arising from complexity in the energy market and disappointment and disillusionment with energy decisionmaking
• The time, skills, and interest required to navigate energy issues are not considered justified given outcome uncertainty and other priorities in householders' busy or stressful lives
• Sector communications can be unengaging, unhelpful, confusing or discouraging
• Unengaged/ disengaged households can still be interested in:
  • New energy technologies
  • Energy efficiency in the home
  • Health, comfort and productivity at home (that involve energy services)
  • Energy policy regarding affordability, reliability and environmental impacts
	Simplicity up front
	
	Diversity as progress
	
	Opportunities to participate, not obligations

STAGE 1 HOUSEHOLD RESEARCH KEY FINDINGS	PRINCIPLES
PATHWAY: Participation via Energy Generation • Households are already engaging with the electricity system via home energy generation, and most others want to be able to (regardless of financial, tenure, or other constraints) • Making their 'own' energy makes sense to households and responds to feelings of powerlessness around energy issues • Men are more interested in energy monitoring than women, but most early adopter households alter their routines to improve financial outcomes and/or to assist with demand issues • Battery adoption can also be a 'one-off' form of participation and modification of household routines to suit energy imperatives may not suit all households • Early adopters want their efforts and contribution of 'clean' energy to support the grid better acknowledged • Householders may not have a full understanding of the complexities of energy demand, networks, and costs • There is low awareness of potential to lose consumer protections under some energy technology arrangements	Accessible, flexible and dependable technologies/ systems Early adopters as partners (not problems)
PATHWAY: Participation via Demand Management • Householders' reasons to participate in a peak rebate or Direct Load Control programs vary and include personal benefits, educational opportunities, and/or delivering collective action or benefit (including to the energy system) • Demand management participants are interested in more opportunities to contribute • Occasional peak events capture household attention for action • Participation in demand management programs improves understanding of the energy sector and grid/network constraints and build support for further initiatives • Without foundational knowledge and a coherent case for demand management in Australia, households can doubt the need for or benefits of demand management and response • Households may be concerned about the impact of demand management on sick, elderly or vulnerable households	Appeal to broader household interests and concerns Opportunities to participate, not obligations Consistent, coherent and relevant communication

PATHWAY: Sharing and Equity
• The concept of energy sharing appeals to most households even if not previously exposed or considered
• Sharing appeals to householders as a response to widespread concern for more vulnerable others who may not be able to afford electricity or access renewable electricity in their homes
• Potential to add further unwanted complexity or disadvantage in the energy market is a concern
• Solar households are already engaged with the idea of sharing energy. Sharing includes:
  • Deeding household-generated electricity into the grid for 'collective' use
  • Exploring housing arrangements which enable multiple families or generations to share a property and the benefits of energy generated and stored with new technologies
  • Researching, trialling and awaiting peer-to-peer trading opportunities
• Peer-to-peer trading has potential to build trust in the energy sector but needs to be clearly communicated to minimise the potential for confusion, and planning is needed to ensure that consumers are the primary beneficiaries, and rules and regulations address equity risks
	Affordable, clean electricity from the grid
	
	Simplicity up front
	
	Appeal to broader household interests and concerns

STAGE 1 HOUSEHOLD RESEARCH KEY FINDINGS	PRINCIPLES
PATHWAY: Communication	Consistent, coherent and relevant communication

• Householders are concerned about energy sector communication including:
  • Lack of communication on topics of interest
  • Relevance and presentation of communication
  • Inconsistency and contribution to confusion
  • Not knowing if organisations or messages can be trusted
	Simplicity up front
	Diversity as progress

• Householders are uncertain whether they would welcome more of the usual types of communication from the sector	
• Household disinterest is not fixed; raising energy topics for discussion with households (such as via emerging issue statements - see Stage 1 research) resulted in household interest, opinions, and questions	Genuine conversations with households
• Householders want greater transparency and honesty from the sector – including hearing more about why prices have gone up, limitations of the grid, how the Australian context compares with other countries, what the benefits of infrastructure upgrades have been and will be	
• The role of household air conditioning in contributing to peak demand and options to address this issue are not well understood. Relating peak electricity demand to household water restrictions can shift householders' position regarding their role in addressing peak demand, and result in more positivity towards demand management	

• Going 'off-grid' is an appealing idea but:
  • Use of the term 'off-grid' does not usually mean that households would completely disconnect
  • Awareness of potential impact and costs to those who remain on the grid is low
  • Brief discussions shift householder thinking to remaining connected to deliver surplus energy, sustain the grid, and ensure backup power	

PATHWAY: Leadership and Consultation	Genuine conversations with households

• Householders are looking for coordinated and effective leadership on energy issues:
  • Evidence that the energy sector understands and is responding to householder concerns and interests
  • A clear plan to ensure energy in Australia is not only affordable and reliable, but also becoming more environmentally sustainable
	Act to build trust in the sector as a whole

• Ensuring the grid can accommodate increasing distributed energy generation is viewed as a national priority and this is likely to be important for building and maintaining trust in the energy sector (low prior awareness of this issue)	Durable policy, planning and partnerships

• Research is viewed as a form of consultation, and householders are willing to give their time to consultation processes that:
  • Allow them to express their concerns in their own words
  • Enable them to learn about energy issues without having to navigate technical jargon	

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APPENDICES

1. Sector engagement documents reviewed

ORGANISATION	DOCUMENT
Australian Energy Regulator	Revised Stakeholder Engagement Framework 2017
Australian Energy Market Commission	Empowering Consumers: A blueprint for informing and empowering small consumers in NSW energy markets
Australian Energy Market Operator	Stakeholder engagement commitment
Jemena	Demand Side Engagement Document
AusGrid	Demand Side Engagement Document
Energex	Demand Side Engagement Strategy
Transgrid	Stakeholder Engagement Summary Report
TasNetworks	Demand Management Engagement Strategy
Energy Networks Australia	Transforming the Energy Conversation: Meaningful Consumer Engagement
SA Power Networks	Demand Side Engagement Document
Consumer Policy Research Centre	Five preconditions of effective consumer engagement – a conceptual framework
Consumer Utilities Advocacy Centre	Meaningful & Genuine Engagement: Perspectives from Consumer Advocates
Uniting Care	A deliberative approach to consumer engagement in the energy sector

2. Demand management engagement materials reviewed

ORGANISATION	TYPE OF MATERIAL	PROGRAM OR TOPIC	DETAILS
AEMO	Sponsored media	Energy saving tips	Broadly targeted information on 'smart ways to stay cool this summer'
AGL	Webpage	Peak Energy Rewards 'Managed for You' program	DLC program (A/C and EV charging station) with financial rewards – $300 on sign up, plus $30 for each 2-hour peak event participated in (maximum 8 per year)
Ausgrid	Letters	CoolSaver (A/Cs)	DLC program (A/C). Invitation, reminder and welcome letters sent to eligible participants. Rewards of $160 gift card on sign up plus $120 card for each of two summer periods that customer allows remote activation.
Ausnet	Webpage	Peak Partners	Financial reward for every Kwh of electricity saved during peak events.
	Pdf flyer/mailout	Berwick Chase Primary School Peak Partners	Companion program linked to primary school – flyer for recruiting families
	Webpage	Demand management	Provides explanation of DM and links to case studies
Endeavour Energy	Webpage	CoolSaver (A/Cs)	DLC program (A/C) with financial rewards – $75 sign up bonus each summer of participation, plus free A/C service or $150 cash
	Webpage	SolarSaver	Subsidised battery installation - 25% of total costs
Energex	Webpage	Positive Payback program for households	DLC program, (A/C). One-off rewards/incentives of $200 to $400 for installing energy efficient technologies (A/C) and/or connecting to economy tariffs (hot water, pool pump).
	Webpage	PeakSmart A/C program	Specific information relating to peak demand and the PeakSmart air conditioning program
	Webpage	Managing electricity demand	Page explaining peak events
	Webpage	Peak demand	Page explaining peak demand
	Webpage	Peak demand and PeakSmart program	Series of videos explaining peak demand and actions households can take.
	Video		
Energy Australia	Webpage and video	Demand response trial (for a VPP)	Rewards/incentives for participating in demand response events and/or installing a network -controlled battery
Ergon Energy	Webpages	Peak demand and PeakSmart program	DLC program. One-off rewards/incentives of $100 to $400 for installation of energy efficient technologies (PeakSmart A/C, pool pump

Evoenergy	Webpage	Demand management trials	SMS peak reduction and VPP (battery customers). Rewards proposed as a potential but not confirmed.
	Video	Future Proofing the ACT Electricity Network	Explains their reduction trials – SMS and VPP (as above)
Horizon Power	Webpage	Power Ahead trial	Customers incentivised to participate in 'challenges' involving limiting their energy use during peak events. $100 sign up bonus plus between $300 and $1,100 at program end if they succeed.
Jemena	Video	Power Changers	Instructional video showing actions households can take around the home to save energy.
	News brief (online)	Shifting the Balance of Power	Jemena's Executive General Manager, Customer and Markets explains the transformative potential of Demand Response Management for the sector.
Powercor	Webpage	Energy Partner	DLC program. Rewards of $20 for participating in an event for the full three hours.
	Webpage	Demand management	Information on Powercor's approach to demand management
Powershop	Webpage and App	Curb Your Power	Demand response program which asks customers to reduce power use to a 'Curb target' during peak times. $10 reward for each event. Additional bonus (minimum $150) if complete all events (up to 10 per year).
ReNew Magazine	Online article	AGL demand response trial for a VPP (2016)	Article reporting on AGL's trial.
Synergy	Promotional brochure (pdf)	Peak Demand Saver® Plan	VPP trial at Alkimos Beach (WA). PV customers virtually store excess energy. Bill credits for excess generation and for generation above consumption.
SA Power Networks	Webpage	Demand management	FAQs relating to managing peak demand
United Energy	Webpage	Summer Saver trial	Voluntary program inviting participating households to reduce energy use for 3 hours on 'event days'. Rewards of $5 for each Kwh reduced (against baseline), and 50% bonus if participate for full 3 hours.
ReNew Magazine	Online article	AGL demand response trial for a VPP (2016)	Article reporting on AGL's trial.

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