Attachment 8.4

Assessment of the impact of government climate change initiatives

Core Energy & Resources

Revised GN21 Plan

ACT and Queanbeyan-Palerang gas network 2021–26

Submission to the Australian Energy Regulator

January 2021

evoenergy

CORE ENERGY & RESOURCES

Independent Assessment of the impact of Government Climate Change Initiatives on Evoenergy ACT Gas Network, Residential Tariff demand – 2021-2026

Glossary

ACT	Australian Capital Territory
CE&R	Core Energy & Resources Pty Limited
EEIS	Energy Efficiency Improvement Scheme
Qld	Queensland
R-C	Reverse Cycle Air conditioning
SA	South Australia
VRI or VI	Volume residential customer of Evoenergy
Vic	Victoria

Frequently Used Terms

Existing Customer or Existing Connection: A customer registered as a residential customer with a retailer and Evoenergy.

Government Intervention: This report refers to the collective mechanisms of the ACT Government, and overarching Commonwealth Government directions, as Government intervention.

Impacted Connections: existing VI customers at the commencement of the 2022 financial year, who decide to disconnect their dwelling from the Evoenergy network or switch from gas appliances to an alternative energy source, between 2022 and 2026 financial years.

1. Introduction

Core Energy & Resources (CE&R) has been engaged by Evoenergy to undertake an independent assessment of the expected impact of recent developments in ACT Government energy portfolio planning and policy, on the Evoenergy gas connections and demand during the 2022 to 2026 period. In particular, this assessment has regard to the ACT Climate Change Strategy 2019-2025 and the update to the Energy Efficiency Improvement Scheme (EEIS) as summarised below.

Further detail regarding the scope of this engagement is included at Attachment 1.

This engagement leverages the significant experience of CE&R as independent consultant to the gas network sector specifically, and eastern Australia gas markets more generally:

- **Gas networks:**
  - > 30 engagements over 15 years (all multiple engagements other than Tasgas)
    - Evoenergy/ActewAGL
    - Jemena AGN
    - AGN Victoria
    - Multinet
    - AGN SA
    - AGN Qld
    - Tasgas
    - Albury
    - Wagga wagga
- **Gas markets:**
  - >200 engagements over 17 years
    - Energy market data and analysis provided to AEMO over 5 years
    - Analysis of gas resource costs for ACCC under Gas Market Inquiry
    - Analysis of gas market outlook for major retailers – AGL, Origin, Energy Australia
    - Analysis of LNG markets – GLNG, APLNG, QGC, Arrow
    - Analysis of gas transmission systems for APA, Jemena, Epic Energy
    - Analysis of potential resources – Commonwealth Government, NT Government BHP, Esso/Exxon, Origin
    - Acquisition and divestiture support – Beach, AGIG/Envestra, Horizon, Toyota Tsusho, Osaka Gas, China Huadian, Senex, QGC, Energy Australia, Santos

2. Approach

2.1. Introduction

CE&R's approach to this engagement has been designed to ensure it presents a best estimate under the circumstances, as it relates to potential 'Impacted Connections' and demand within the Evoenergy network, between 2022 and 2026, due to Government intervention.

As the revisions to the Climate Change Strategy and EEIS are relatively recent, there is limited actual data on the response of Evoenergy customers and consequential changes in demand (some data for 2020). Therefore, the approach adopted by CE&R has been largely top down, supported by bottom up analysis where appropriate.

CE&R notes the challenge, for forecasting purposes, in distinguishing between appliance switching or a dwelling disconnection. Therefore CE&R has focused its analysis on "Connections Impacted". This refers to numbers of dwellings which are expected to experience a material reduction in gas consumption due to a switching of an appliance to electricity or other energy source, or an outright gas network disconnection.

Further, CE&R notes the uncertainty relating to certain inputs used to derive estimates of future demand. Therefore CE&R has adopted a scenario-based approach, which considers the full range of feasible demand outcomes, between a Low and High range, with Best Estimate representing the most likely outcome within that range.

CE&R acknowledges that it has used a significant degree of professional judgement in undertaking this assessment, based upon over 25 years of relevant experience, and an advanced understanding of Australian gas networks.

2.2. Focus Areas

CE&R has focused its assessment on two principal customer groups:

1. **Existing Tariff VI customers:** disconnections and substitution of appliances by this tariff class are used to arrive at the total number of "Connections Impacted", and the associated consumption per connection to arrive at aggregate annual demand. This includes an estimate of appliance switching from gas room heating (standalone units and ducted), in favour of electrical air-conditioning, and substitution of gas water heating in favour of electrical heat pump or other units, and the associated consumption per connection and impact on annual aggregate demand. Cooking appliances have not been specifically analysed due to low gas use.

2. **New Tariff VI customers:** reduction in the rate of connection of new dwellings, and the associated consumption per connection and impact on aggregate annual demand.

2.3. Approach to Forecasting Future Demand

2.3.1. Existing connections

- The ACT Government Climate Strategy, as summarised in Section 4 below, sets out a target of "around 60,000 existing households not connected to gas by 2025, increasing to around 90,000 in 2030 and all houses by 2045".

- CE&R has reviewed this 60,000 target (10,000 per annum) and formed the view that achieving the Government targeted level by 2025 will be highly challenging, and likely to require further incentives or mandated disconnections to ensure the target is achieved.

- CE&R has undertaken analysis and used its professional judgement to assess the range of likely disconnections, having regard to:

Political considerations

  - Recent result of ACT Government election – increased majority, with the Greens winning an unprecedented 6 seats
  - The level of commitment of ACT Government to meeting emission targets as they relate to gas
  - Commitments, under the ACT 2020 Parliamentary and Governing Agreement which to phase out gas for infill developments, ACT Government buildings, and public transport.[1]
  - Historical performance of ACT Government in meeting emission-related reductions (e.g. electricity). As an example, we could mention the ACT Government's recent announcement that they have actually exceeded their 2020 emissions reduction target)[2]

Emission Abatement Considerations

  - The significant weighting of gas as a contributor to ACT emissions (22% - refer below) and therefore the need to take timely action, particularly given the likely timing of emission reduction initiatives relating to transport (most likely beyond 2026)

Residential Appliance Considerations

  - The estimated appliance mixes of ACT households within the ACT network
  - The maturity of appliances and estimated timing of replacement of gas appliances (which is a natural time to consider switch to electricity)

Socio-economic considerations

  - Priority household numbers and incentive to disconnect or switch appliances
  - Lower income households more broadly, with higher responsiveness to financial considerations
  - Higher income households with low to moderate responsiveness to financial considerations

[1] (https://www.cmtedd.act.gov.au/__data/assets/pdf_file/0003/1654077/Parliamentary-Agreement-for-the-10th-Legislative-Assembly.pdf). Appendix 1.

[2] (https://reneweconomy.com.au/act-beats-2020-emissions-reduction-target-achieving-45-pct-cut-since-1990-1990/

2.3.2. New Connections

- The ACT Government Climate Strategy, as summarised in Section 4 below, sets out a target of "a decline in new houses connecting to gas, with no houses connected to gas by 2045." This is separate from the target relating to Existing Connections.

- The Government has not provided specific targets (beyond a target of zero by 2045), for a future reduction in new connections, however CE&R assumes that it will be a material reduction to warrant specific reference. Further, CE&R notes that the Government has moved to support such reductions, including by removing the mandated requirement for gas connection in new suburbs.

- CE&R has undertaken analysis and used its professional judgement to assess the range of likely reduction in new connections, having regard to:

    - Historical and forecast number of new connections and forecast consumption
    - Estimates of new dwelling completions
    - The estimated appliance mix of new connections within the ACT network
    - Responsiveness to Government policy

3. Summary

The following is a summary of CE&R's best estimate, high and low scenarios of the future changes the Evoenergy ACT network demand, which is attributable to Government intervention, having regard to ACT Government targets, and ACT Government performance to date in achieving previously stated emission reduction targets.

- Existing connections – Impacted connections of an average of 7,500 p.a., at an average reduction in consumption of 35 GJ p.a.
- New connections – Reduction in connections of an average of 250 dwellings p.a. at an average reduction in consumption of 15 GJ p.a.

Higher and Lower scenarios assume a variation in number of Impacted Connections for Existing VI customers, with all other factors held constant.

Table 1: Summary of CE&R Forecast of Impact of Government Intervention Only on VI Gas Demand

Summary	FY	2022	2023	2024	2025	2026
Best Estimate						
Annual demand impact	GJ	266,250	266,250	266,250	266,250	266,250
Cumulative annual demand impact	GJ	266,250	532,500	798,750	1,065,000	1,331,250
Percentage of 2020 Demand	%	4.09%	8.17%	12.26%	16.34%	20.43%
High						
Annual demand impact	GJ	301,250	301,250	301,250	301,250	301,250
Cumulative annual demand impact	GJ	301,250	602,500	903,750	1,205,000	1,506,250
Percentage of 2020 Demand	%	4.62%	9.25%	13.87%	18.49%	23.12%
Low						
Annual demand impact	GJ	213,750	213,750	213,750	213,750	213,750
Cumulative annual demand impact	GJ	213,750	427,500	641,250	855,000	1,068,750
Percentage of 2020 Demand	%	3.28%	6.56%	9.84%	13.12%	16.40%

CE&R notes that the number of connections which are projected to be impacted by 2026 represent approximately 25% of existing Evoenergy VI connections in 2020.

4. Background – ACT Government Initiatives

4.1. ACT Climate Change Strategy[3]

The strategy presents the ACT Government's climate change response to 2025. It outlines the actions Government will take to meet its legislated emission reduction target of 50–60% (below 1990 levels) by 2025 and establish a pathway for achieving net zero emissions by 2045.

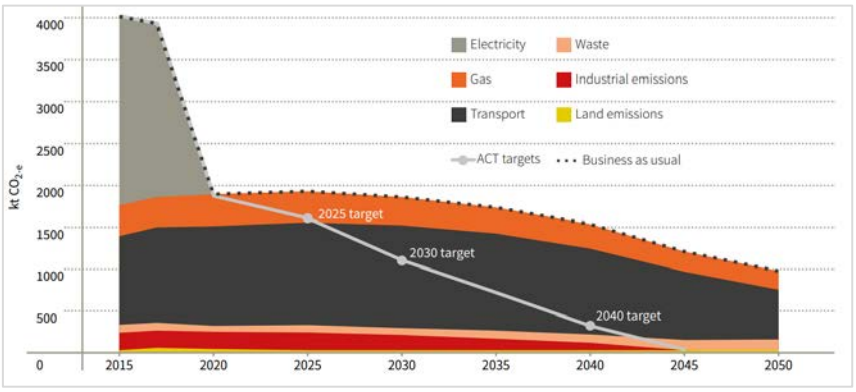
The strategy will be in place until 2025, when a new strategy will be developed to guide the ACT to meeting its 2030 target, taking account of community feedback, technology, and scientific advice.

The ACT has committed to reducing emissions (from 1990 levels) by:

- 40% by 2020
- 50–60% by 2025
- 65–75% by 2030
- 90–95% by 2040
- 100% (net zero emissions) by 2045.

The following chart and table provide a summary of BAU emission estimates and targeted reductions.

Figure 4.1: Estimated emissions – ACT



	AMBITION	2020	2025	2030	2040	2045
Legislated targets (% reduction from 1990 levels)	Low	-40%	-50%	-65%	-90%	-100%
	High	-40%	-60%	-75%	-95%	-100%
Maximum allowable emissions in target year to meet target	Low	1918	1598	1119	320	0
	High	1918	1279	799	160	0
Reduction from previous target—equivalent level of ambition	Low	-	320	479	799	320
	High	-	639	480	639	160
Business as usual emission projections (without further Government intervention)		1918	1925	1862	1517	1284
Reduction required factoring in business as usual decrease in emissions—low ambition	Low	-	327	743	1197	1284
Reduction required factoring in business as usual decrease in emissions—high ambition	High	-	646	1063	1357	1284

Source: www.environment.act.gov.au/__data/assets/pdf_file/0003/1414641/ACT-Climate-Change-Strategy-2019-2025.pdf/_recache

The above table shows that the Government is targeting an emission reduction, between 2020 and 2025 in the range of 17% (Low) and 34% (High).

[3] https://www.environment.act.gov.au/__data/assets/pdf_file/0003/1414641/ACT-Climate-Change-Strategy-2019-2025.pdf/_recache

The Climate Change Strategy has been designed to ensure alignment with a range of related initiatives, including the EEIS.

4.2. EEIS[4]

The ACT Government introduced the Energy Efficiency Improvement Scheme (EEIS) in 2013 with operational effect to 2021. More recently the ACT Government has extended the EEIS for another 10 years, from 2021 to the end of 2030.

EEIS places a requirement on energy retailers to achieve energy savings in households and small-to-medium businesses. A target has also been placed on them to ensure a proportion of the savings are delivered to Priority Households (lower income, hardship etc – see Attachment 3).

The Australian Capital Territory (ACT) Energy Efficiency (Cost of Living) Improvement Act 2012 (the Act) establishes the EEIS. EEIS is administered by the Environment, Planning and Sustainable Development Directorate (EPSDD).

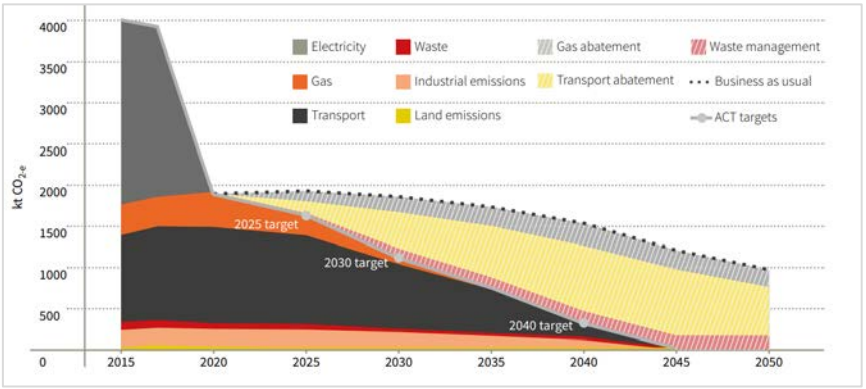
The objectives of the Act are to:

- encourage the efficient use of energy
- reduce greenhouse gas emissions associated with stationary energy use in the Territory
- reduce household and business energy use and costs
- increase opportunities for priority households to reduce energy use and costs.

The extended EEIS makes specific reference to natural gas. It presents an objective to encourage a shift from gas to electricity by removing the mandated requirement for gas connection in new suburbs, supporting gas to electric appliance upgrades and encouraging new-builds to be all-electric.

The Strategy presents a summary of the targeted reductions from natural gas, transport and other emission classifications, as follows:

Figure 4.2: Estimated emission reductions – ACT



Source: www.environment.act.gov.au/__data/assets/pdf_file/0003/1414641/ACT-Climate-Change-Strategy-2019-2025.pdf/_recache

The Strategy refers to the following specific metrics, as they relate to gas:

Significant reductions in gas use in the residential sector to 2030, and reduction in commercial gas use in later years towards 2045.

- Around 60,000 existing households not connected to gas by 2025, increasing to around 90,000 in 2030 and all houses by 2045.

[4] https://www.environment.act.gov.au/__data/assets/pdf_file/0006/1384215/Results-Of-Consultation-On-An-Energy-Efficiency-Improvement-Scheme-Extension.pdf

- A decline in new houses connecting to gas, with no houses connected to gas by 2045.

Commitments under ACT 2020 Parliamentary and Governing Agreement

The AXT Government, under the ACT Parliamentary and Governing Agreement has made commitments, which to phase out gas for infill developments, ACT Government buildings, and public transport.[5]

[5] (https://www.cmtedd.act.gov.au/__data/assets/pdf_file/0003/1654077/Parliamentary-Agreement-for-the-10th-Legislative-Assembly.pdf). Appendix 1.

5. Natural Gas within the ACT Energy System

5.1. Customer Numbers and Gas Use

As the focus of this assessment is on the Volume Residential Individual (VRI (pre 2019) or VI (post 2020)) tariff class, the following paragraphs address residential use.

The residential customer base utilises gas for the following primary purposes (CE&R estimate):

- Seasonal space/room heating – average of 30-50+ GJ p.a.
- Water heating – average of approximately 6-15 GJ p.a.
- Cooking/other – average of approximately 1-3 GJ p.a.

The following table (2015) provides a guide to the percentage of gas use by household in ACT compared to other Australian States/Territories. Of particular note is the high percentage of space heating in ACT.

Table 5.1: Grattan Institute analysis of household gas use

State	Cooking	Space heat-ing	Water heat-ing	Other appli-ances	Total
	Share of state household gas use, %				
New South Wales	9	34	52	5	100
Victoria	2	74	24	0	100
Queensland	29	2	49	21	100
Western Australia	6	27	63	4	100
South Australia	7	26	64	2	100
Tasmania	37	30	26	6	100
ACT	2	77	21	0	100
Northern Territory	38	0	18	45	100

Source: https://grattan.edu.au/wp-content/uploads/2020/11/Flame-out-Grattan-report.pdf

The Evoenergy Access Arrangement Proposal summarises the 2018-19 actual residential gas customer numbers and consumption for the 2021 to 2026 period, by customer usage block, where Block 1 in the table is the lowest level of use and Block 4 is the highest level of use.

Table 5.1.1: Summary of VI gas use by usage block

2018–19	
Total customers	**151,098**
Block 1 GJ	1,618,417
Block 2 GJ	3,504,449
Block 3 GJ	595,783
Block 4 GJ	944,477
Total usage GJ	**6,663,125**

Source: Evoenergy

The above table shows that the vast majority of consumers are in blocks 2-4, and the average usage is over 41 GJ, which indicates a high use of gas for either or both water heating and space/room heating.

5.2. Gas Appliances in ACT

As a guide to the number of gas appliances in ACT, CE&R has referred to a study undertaken in 2015, which included a projection for 2020, and analysis of the usage of Evoenergy customers by block as presented below.

Table 5.2 Energy Consult for Department Industry | Projected Appliance Stock (No.)

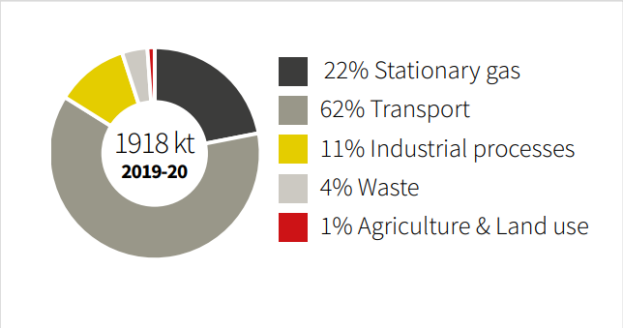
Year (Based on 2000 base year)	2020
Heating Equipment	212,066
Electric resistive	105,935
LPG gas non-ducted	5,187
Mains gas ducted	70,337
Mains gas non-ducted	25,960
Wood Heaters	4,648
Water heating	164,604
Electric Water - Med/Large	30,977
Electric Water - Small	21,098
Gas instant (LPG)	348
Gas instant (mains)	56,926
Gas storage (LPG)	234
Gas storage (mains)	43,450
Heat pump	1,030
Solar electric	9,055
Solar gas	1,453
Wood	34

Source: https://www.energyrating.gov.au/document/report-residential-baseline-study-australia-2000-2030

5.3. Emissions

Following the Government's initiative to achieve net zero emissions from electricity generation by 2020 (achieved), Stationary gas becomes the second largest source of emissions – an estimated 22% of emissions in 2020.

Figure 5.3: Estimated share of emissions – ACT (electricity net zero by 2020)



Source: www.environment.act.gov.au/__data/assets/pdf_file/0003/1414641/ACT-Climate-Change-Strategy-2019-2025.pdf/_recache

CE&R considers it to be on the critical path for the ACT Government to achieve a significant reduction in gas use to remain broadly on target to achieve its near term (2025) targets. This is because, as the Government acknowledges, initiatives relating to transport and industrial processes will not deliver required savings until the 2026-2030+ timeframe.

5.4. Evidence of impact of Government Intervention

Evoenergy has sourced data from retailers regarding the number of heating appliances that have utilised the available rebates when switching to electrical appliances during the year to August 2020, as summarised in the following table. The table shows that there were a total of 2,400 Impacted Connections in the heating appliance segment alone.

As this is the early stage of the revised Government policy, CE&R considers it likely that the numbers will increase as awareness strengthens and customers face renovation and replacement decisions.

Table 5.4 Gas heating appliance switching utilising rebates to August 2020

Removed Gas Appliance	Installed electrical heating appliance	Total August 2019 – Aug - 2020
Gas Room heater	Wall Air conditioning	1,602
Ducted Gas heater	Ducted R-C	801

Source: Evoenergy, with data from retailers

6. Assessment of Impact of Government Intervention on VI Demand

6.1. Impacted Connections and Demand Reduction

CE&R has undertaken analysis of available data to derive a best estimate of the number of connections that are expected to be impacted by Government Intervention. Customers have been segmented as follows:

- **Larger consuming households:** multiple water heaters and ducted gas heating and/or multiple stand-alone systems and cooking
- **Low-mid consuming households:** (excluding lower income/ priority households) - lower capacity of water heating and lower capacity of room heating
- **Lower income/ priority households:** as defined by legislation – refer below and Attachment 3

Summary

CE&R's best estimate is summarised as follows:

- Existing connections – Impacted connections of an average of 7,500 p.a. at an average reduction in consumption of 35 GJ p.a.
- New connections – Reduction in connections of an average of 250 dwellings p.a. at an average reduction in consumption of 15 GJ p.a.

Further detail is provided in the following table and paragraphs.

Table 6.1: CE&R estimates of number of Impacted Connections per annum

Best Estimate	2022	2023	2024	2025	2026
Low income/ priority households	3,000	3,000	3,000	3,000	3,000
Low-mid consuming households	4,000	4,000	4,000	4,000	4,000
Larger consuming households	500	500	500	500	500
Total - annual	**7,500**	**7,500**	**7,500**	**7,500**	**7,500**
Total cumulative - annual	**7,500**	**15,000**	**22,500**	**30,000**	**37,500**

CE&R notes that the number of connections which are projected to be impacted by 2026 represent approximately 25% of existing Evoenergy VI connections in 2020.

6.1.1. Lower Income and Priority Households

The ACT Government has specified that Priority Households are to be a key focus area of the EEIS.

The Act requires the Minister to set a Priority Household Target (PHT). This is a percentage of a retailer's total energy savings obligation to be delivered within priority households.
The priority household target was set at 20% from 2017 to 2019. This has been increased to 30% for 2020 to encourage retailers to provide more opportunity for low-income households to participate in the scheme.[6]
CE&R has referred to Government statistics to define the number of households likely to be impacted, as summarised in Attachment 2.

[6] https://www.environment.act.gov.au/energy/smarter-use-of-energy/energy-efficiency-improvement-scheme/how-the-scheme-works/priority-household-target

CE&R has determined that 17.3% or close to 25,000 households (by 2026) will meet the lower income/ Priority Household criteria. A target of 30% (of total ACT EEIS target of 10,000 per year or 60,000 existing customers by 2025) represents up to 3,000 households per annum at an average consumption of 30 GJ p.a.

6.1.2. Low-mid Consuming Households

Based on analysis of 2018 consumption per MIRN, CE&R has determined there to be approximately 90,000 customers within this cohort (part of 30-50 GJ line only), consuming approximately 25% of annual VI demand.

Table 6.1.2: VI Customer demand within usage intervals

Consumption range	No. of customers	Total Consumption for range GJ	% customers	% consumption
0GJ	6,146	0	4%	0%
up to 5GJ	14,258	31,564	9%	0%
>5 to 15GJ	29,787	297,743	20%	4%
>15 - 30GJ	29,346	639,454	20%	9%
>30 - 50GJ	28,366	1,126,349	19%	16%
>50 - 100GJ	35,715	2,445,933	24%	36%
>100 - 150GJ	4,643	537,935	3%	8%
>150 - 176GJ	470	75,645	0%	1%
>176 - 250GJ	427	88,251	0%	1%
>250 - 500GJ	499	179,001	0%	3%
>500 - 718GJ	226	136,431	0%	2%
>718 - 1000GJ	160	135,676	0%	2%
>1000GJ	441	1,166,900	0%	17%
Total	150,484	6,860,881	100%	100%

Source: Evoenergy 2018 market analysis

CE&R analysis indicates that Low-mid consuming households will be characterised by a higher proportion of water heating and cooking and lower proportion of room heating use. Therefore, the most likely scenario for higher volume gas reduction involves disconnection or switching of:

- Residual room heating as appliances reach end of life and/or consumers are incentivised to switch
- One or multiple water heaters as appliances reach end of life and/or consumers are incentivised to switch

Based upon analysis of EEIS data, Evoenergy gas usage by blocks, a range of appliance related research documents, CE&R has assessed there will be an average of 4.5% of households within this cohort that will switch away from gas or approximately 4,000 impacted connections per annum, at an average consumption of 38 GJ per impacted connection.

6.2. Higher Consuming Households

Based on analysis of 2018 consumption per MIRN, CE&R has determined there to be approximately 50,000 customers within this cohort (part of 30-50 GJ line only), consuming approximately 70% of annual VI demand.

Table 6.2: VI Customer demand within usage intervals

Consumption range	No. of customers	Total Consumption for range GJ	% customers	% consumption
0GJ	6,146	0	4%	0%
up to 5GJ	14,258	31,564	9%	0%
>5 to 15GJ	29,787	297,743	20%	4%
>15 - 30GJ	29,346	639,454	20%	9%
>30 - 50GJ	28,366	1,126,349	19%	16%
>50 - 100GJ	35,715	2,445,933	24%	36%
>100 - 150GJ	4,643	537,935	3%	8%
>150 - 176GJ	470	75,645	0%	1%
>176 - 250GJ	427	88,251	0%	1%
>250 - 500GJ	499	179,001	0%	3%
>500 - 718GJ	226	136,431	0%	2%
>718 - 1000GJ	160	135,676	0%	2%
>1000GJ	441	1,166,900	0%	17%
Total	150,484	6,860,881	100%	100%

Source: Evoenergy 2018 market analysis

CE&R analysis indicates that Higher consuming households will be characterised by a higher proportion of both water heating and room heating use (increased proportion of ducted). Therefore, the most likely scenario for higher volume gas reduction involves disconnection or switching of:

- Room heating as appliances reach end of life and/or consumers are incentivised or ultimately mandated to switch
- One or multiple water heaters as appliances reach end of life and/or consumers are incentivised to switch

Based upon analysis of EEIS data, Evoenergy gas usage by blocks, a range of appliance related research documents, and CE&R view of lower responsiveness or this class to incentives, CE&R has assessed there will be an average of 1% p.a. of this cohort will switch away from gas substantially or 500 impacted connections per annum, at an assumed average consumption of 48 GJ per impacted connection.

6.2. Cross-check

Evoenergy has recently engaged a consultant to undertake a market survey to assess the potential for customers to materially reduce future gas consumption. CE&R has reviewed the results, focusing on the period to 2026, to determine whether there is consistency between the independent analyses.

CE&R considers that the survey does provide additional support or evidence of the potential for a material reduction in gas use within the Tariff VI cohort during the 2022-2026 period.

Key findings of the survey include:

- There is potential for 9% of customers to switch appliances away from gas within 1 year and 25% within 5 years
- During the 2022-2026 period both renovations and retirement of old appliances are expected to be significant drivers of change
- The existence of rebates is expected to influence customer behaviour significantly
- Less than 25% of customers are likely to change gas appliances with gas
- Over 33% of appliances are at an age when replacement is likely within 5 years

7. Conclusion | Best Estimate of Future Impact on VI Connections and Demand

Based upon the analysis summarised above, CE&R has derived scenario-based estimates of VI gas demand reductions during 2022-2026, which are attributable to Government intervention. The scenarios extend from a low to high range, with Best Estimate being CE&R's estimate of the most likely single-point position within that range.

7.1. Summary

CE&R's best estimate is that Government Intervention will cause gas usage within the VI tariff segment to fall by 266,250 GJ in 2022, increasing to 1,331,250 GJ in 2026. The aggregate fall is estimated to be 3,993,750 GJ.

Table 7.1: CE&R best estimate of VI Impacted Connections and demand reductions due to Government Intervention

Best Estimate	FY	2022	2023	2024	2025	2026
Existing VBI Connection reductions	GJ	262,500	262,500	262,500	262,500	262,500
New connection reductions	GJ	3,750	3750	3750	3750	3750
annual demand impact	GJ	**266,250**	**266,250**	**266,250**	**266,250**	**266,250**
Cumulative annual demand impact	GJ	**266,250**	**532,500**	**798,750**	**1,065,000**	**1,331,250**
Percentage of 2020 Demand	%	**4.09%**	**8.17%**	**12.26%**	**16.34%**	**20.43%**

CE&R notes that the number of connections which are projected to be impacted by 2026 represent approximately 25% of existing Evoenergy VI connections in 2020.

7.2. Existing VI Impacted Connections

CE&R's best estimate is that Government Intervention will cause gas usage by the Existing VI tariff segment to fall by 262,550 GJ in 2022 and 1,312,500 GJ in 2026. The aggregate fall is estimated to be 3,937,500 GJ, based on the following:

- **Connections Impacted:** Having regard to the assumed appliance stock in 2020, the expected replacement timing of these appliances and existing incentives to switch away from gas, CE&R considers it most likely that an average annual level of 7,500 connections will be impacted.

- **Consumption:** CE&R considers it most likely that the Impacted Connections will be weighted in favour of a high proportion of room heating (ducted and standalone units - favouring R-C air) and a high proportion of water heating in favour of heat pump technology or solar units. Therefore, an estimate of 35 GJ per annum of gas use has been relied upon. This is also held constant of Low and High scenarios

Table 7.2: CE&R best estimate of Existing VI Impacted Connections and demand reductions due to Government Intervention Only

Best Estimate	FY	2022	2023	2024	2025	2026
Reductions	#	7,500	7,500	7,500	7,500	7,500
Consumption per connection	GJ	35	35	35	35	35
Annual demand impact	GJ	**262,500**	**262,500**	**262,500**	**262,500**	**262,500**
Cumulative annual demand impact	GJ	**262,500**	**525,000**	**787,500**	**1,050,000**	**1,312,500**
Percentage of 2020 Demand	%	**4.03%**	**8.06%**	**12.09%**	**16.11%**	**20.14%**

7.3. New VI Connections

CE&R's best estimate is that Government Intervention will cause gas usage by new VI tariff segment customers to fall by an average of 3,750 GJ p.a. between 2022 and 2026. The aggregate fall is estimated to be 56,250 GJ, based on the following:

Connections: Having regard to the relaxation of requirements which have favoured gas use for water heating within new homes, CE&R considers it most likely that new connection numbers will fall – at an average annual level of 250 connections. This is also held constant of Low and High scenarios

Consumption: CE&R considers it most likely that the reductions in new dwelling connections will be associated with a small proportion of room heating (favouring R-C air) and a higher proportion of water heating. Therefore, an estimate of 15 GJ per annum of gas use has been relied upon. This is also held constant of Low and High scenarios

Table 7.3: CE&R best estimate of New VI customer and demand reductions due to Government Intervention

Best Estimate	FY	2022	2023	2024	2025	2026
Reductions	#	250	250	250	250	250
Consumption per connection	GJ	15	15	15	15	15
Annual demand impact	GJ	**3,750**	**3,750**	**3,750**	**3,750**	**3,750**
Cumulative annual demand impact	GJ	**3,750**	**7,500**	**11,250**	**15,000**	**18,750**
Percentage of 2020 Demand	%	**0.06%**	**0.12%**	**0.17%**	**0.23%**	**0.29%**

Attachment 1 | Engagement Scope

Evoenergy is seeking Core to prepare an independent estimate of the above post modelling adjustments. Specifically, to provide a best estimate of the likely impact of Government policies on demand and abolishments on volume market demand. To the extent that government policies are unknown, Core will use expert judgment based on the evidence available. The output this consultancy will be quantitative estimates of the forecast effect of the ACT Climate change strategy on demand, as per Table A below.

Table A: Output – forecast effect of ACT Climate Change Strategy on VI demand

		2022	2023	2024	2025	2026
Demand reduction	GJ					
Impacted customers	No.					

These estimates will be supported by an accompanying memorandum and spreadsheet which provide the basis for the best estimate produced.

The estimates will take into account:

- The 2019-25 ACT Climate Change Strategy;
- ACT Labour and ACT Greens election commitments and Parliamentary and Governing Agreement of 2 November 2020;
- The impacts of similar policies (that the consultant is aware of) in other jurisdictions;
- The credibility of ACT Government policy announcements, informed by the ACT Government having achieved 100 per cent renewable electricity ahead of schedule;

Attachment 2 | ACT Household Income

CE&R has referred to the following statistics to define Lower Income and Priority Households in ACT. The focus has been on the lowest 2 quintiles.

Household Income and Wealth, Australia: Summary of Results, 2017–18							
EQUIVALISED DISPOSABLE HOUSEHOLD INCOME(a)		**2007–08**	**09–10**	**11–12**	**13–14**	**15–16**	**17–18**
Mean income per week							
Lowest quintile	$	450	515	519	542	530	507
Second quintile	$	845	906	882	901	815	858
Third quintile	$	1,202	1,202	1,191	1,188	1,113	1,166
Fourth quintile	$	1,501	1,529	1,496	1,536	1,451	1,464
Highest quintile	$	2,475	2,362	2,336	2,276	2,077	2,296
All persons	$	***1,298***	***1,303***	***1,285***	***1,290***	***1,195***	***1,256***
Adjusted lowest income quintile(c)	$	483	550	561	588	575	548

(a). Equivalised Disposable Household Income estimates are adjusted by equivalence factors to standardise them for variations in household size and composition, while taking into account the economies of scale that arise from the sharing of dwellings

Gross Household Income (b)							
Mean income per week							
Lowest quintile	$	552	685	639	633	685	642
Second quintile	$	1,436	1,574	1,532	1,537	1,491	1,466
Third quintile	$	2,232	2,398	2,364	2,371	2,210	2,216
Fourth quintile	$	3,203	3,453	3,310	3,426	3,107	3,254
Highest quintile	$	5,693	5,649	5,598	5,606	5,010	5,814
All households	$	***2,625***	***2,753***	***2,689***	***2,714***	***2,508***	***2,687***
Adjusted lowest income quintile(c)	$	601	738	722	694	733	684

(b) In 2017–18 dollars, adjusted using changes in the Consumer Price Index

(c) Lowest income quintile excluding the first and second percentiles. See Explanatory Notes for more information

Source: ABS

Gross Household Income

17.3% of households received less than $1,000 in gross weekly household income

Gross Weekly Household Income	Households	%
Nil income	858	0.5
$1-$149	895	0.5
$150-$299	1,976	1.2
$300-$399	3,098	1.9
$400-$499	301	0.2
$500-$649	7,087	4.3
$650-$799	6,889	4.2
$800-$999	7,396	4.5
$1000-$1249	11,211	6.9
$1250-$1499	12,596	7.7
$1500-$1749	4,540	2.8
$1750-$1999	14,879	9.1
$2000-$2499	10,488	6.4
$2500-$2999	27,922	17.1
$3000-$3499	13,913	8.5
$3500-$3999	10,399	6.4
$4000-$4499	9,640	5.9
$4500-$4999	2,334	1.4
$5000-$5999	13,455	8.3
$6000-$7999	2,299	1.4
$8000 or more	782	0.5

Source: ABS

Attachment 3 | Priority Households

The Act requires the Minister to set a Priority Household Target (PHT). This is a percentage of a retailer's total energy savings obligation to be delivered within priority households.

The priority household target was set at 20% from 2017 to 2019. This has been increased to 30% for 2020 to encourage retailers to provide more opportunity for low-income households to participate in the scheme.[7]

The criteria for Priority Households for individuals and premises is set out below.

Priority Household criteria for individuals[8]

An eligible Priority Household is defined as a residential premise where at least 1 person who lives there:

- is a recipient of an ACT Government energy concession
- holds a Commonwealth pensioner concession card or health care card
- holds a Department of Veterans Affairs pensioner concession card, TPI gold repatriation health care card, war widow's repatriation health care card, or gold repatriation health care card
- holds a Commonwealth seniors health card
- holds a Commonwealth low income health care card
- receives a Commonwealth disability support pension
- is accessing an energy retailer's hardship program
- is referred to a NERL retailer by one of the following organisations:
  - ACT Civil and Administrative Tribunal (ACAT)
  - Care Inc. (Financial Counselling Service and the Consumer Law Centre of the ACT)
  - St Vincent de Paul Society
  - The Salvation Army

Priority Household criteria for premises[9]

Any of the following tenanted dwellings are also considered to be an eligible priority household:

- a public housing property managed by Housing ACT
- a property provided by a registered community housing provider
- a property used for providing accommodation or tenancy support by a registered provider of supports under the National Disability Insurance Scheme Act 2013 (Cwlth)
- a property used for providing residential care under the Aged Care Act 1997 (Cwlth) if both of the following apply:
- the residential care is provided by an approved provider under that Act
- the approved provider is a registered entity under the Australian Charities and Not-for-profits Commission Act 2012 (Cwlth)

These definitions are set out in Section 4 (Prescribed classes of people—Act, dict, def priority household, par (d)) of the Energy Efficiency (Cost of Living) Improvement Regulation 2017.

[7] https://www.environment.act.gov.au/energy/smarter-use-of-energy/energy-efficiency-improvement-scheme/how-the-scheme-works/priority-household-target
[8] https://www.environment.act.gov.au/energy/smarter-use-of-energy/energy-efficiency-improvement-scheme/how-the-scheme-works/priority-household-target
[9] https://www.environment.act.gov.au/energy/smarter-use-of-energy/energy-efficiency-improvement-scheme/how-the-scheme-works/priority-household-target