# Jemena Gas Networks (NSW) Ltd

## Revised 2020-25 Access Arrangement Proposal

Attachment 13.1

Response to the AER's draft decision - Demand

# Table of contents

# Abbreviations

| | |
|---|---|
| AA | Access Arrangement |
| ABS | Australian Bureau of Statistics |
| AER | Australian Energy Regulator |
| Core Energy | Core Energy & Resources |
| ENA | Energy Networks Australia |
| HIA | Housing Industry Association |
| MIRN | Meter Installation Registration Number |
| NGO | National Gas Objective |
| NGR | National Gas Rules |
| RSA | Reference Service Agreement |

# Overview

This document sets out our response to the Australian Energy Regulator's (**AER**'s) draft decision on the demand for the 2020-25 Access Arrangement (**AA**) period.

For Tariff D[1], in its draft decision the AER stated it is satisfied that our forecast for Tariff D was arrived at on a reasonable basis and represented the best forecast possible in the circumstances. For this reason, we have not revised our forecasts for Tariff D.

For Tariff V[2], in its draft decision the AER accepted our forecasts as placeholders. The AER also stated that it is satisfied that the overall demand forecasting methodology applied by our consultant, Core Energy & Resources (**Core Energy**), was consistent with rule 74(2) of the National Gas Rules (**NGR**). However, the AER noted that our forecasts would not be accepted in the AER's final decision unless we provide certain further information and update inputs.

Table OV–1 summarises the AER's draft decision on demand and our response.

**Table OV–1: JGN's response to AER draft decision on demand**

| Topic/item | AER draft decision comments | JGN response |
|---|---|---|
| **Tariff V** | | |
| Methodology to forecast new connection numbers | Accepted subject to provision of further information and clarification on some key inputs and assumptions, relating to:<br>• Billing data and penetration rate calculation<br>• Zero consuming meters<br>• Volume boundary meter strategy. | Further information and clarification provided. |
| Methodology to forecast consumption per connection | Accepted | No response required. |
| Input data | Accepted subject to use of:<br>• Latest actual demand and customer data<br>• Latest Housing Industry Association (**HIA**) data. | Updated input data used. |
| **Tariff D** | | |
| Forecast of new connection numbers | Accepted. | We accept the AER's draft decision. No response required. |
| Forecast consumption per connection | Accepted. | We accept the AER's draft decision. No response required. |

## Attachments

Table OV–2 lists the attachments to our Revised 2020-25 AA Proposal which provide further information on our response to the AER's draft decision and our revised demand forecast.

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1    Tariff D applies to Demand Customers, that is those customers greater than 10TJ p.a.

2    Tariff V applies to Volume Customers, that is those customers less than 10TJ p.a.

**Table OV–2: Revised 2020 AA Proposal attachments on Demand**

| Attachment | Name | Author |
|---|---|---|
| 13.1 | Response to the AER's draft decision - Demand | JGN |
| 13.2 | Demand forecast update | Core Energy |
| 13.3 | Demand forecast models (revised proposal) | Core Energy |
| 13.4 | Demand mapping to Reference tariffs (Tariff V) | JGN |
| 13.5 | Demand mapping to Reference tariffs (Tariff D) | JGN |

# 1.     JGN's response to the draft decision

In its draft decision, the AER expressed general acceptance of our demand and customer forecasts but required further information and the use of updated data in order to accept the forecast in its final decision.

The AER concluded that it is satisfied that the overall demand forecasting methodology applied by Core Energy is consistent with rule 74(2) of the NGR.

The AER's draft decision:

- Accepts our Tariff D forecasts as being consistent with rule 74(2) of the NGR and as the best forecast possible in the circumstances.[3]

- Accepts our Tariff V forecasts as placeholders, subject to updating inputs and providing further information.

For the AER to accept our Tariff V forecasts in its final decision, we have:

- Asked Core Energy to revise its Tariff V forecasts having regard to updated inputs, as requested by the AER. The updated inputs reflect data for 2018-19 that was not available at the time Core Energy's original forecasts were produced.

- Provided further information, as requested by the AER.

In this Attachment 13.1 we set out the required revised forecasts and provide the requested further information. In summary, our response to each of the AER's requests is set out in Table 1–1.

**Table 1–1: Information requested by the AER**

| Information requested | Information provided |
|---|---|
| **Input data** | |
| Incorporate updated demand and customer forecast based on 2018–19 actual data, and the latest HIA data. | Updated demand and customer forecasts based on the latest data is provided in Section 2.1.2. |
| **Methodology to forecast of new connection numbers** | |
| Provide clarifications on the basis in which the billing data is derived including the source data and associated workings in a separate worksheet. | Clarification is provided in Section 3.1. |
| Provide clarifications on the accuracy of using a one year lag between HIA data and JGN connections, including the likely error margins to the penetration rates. | Clarification is provided in Section 3.2. |
| Describe the concept of zero consuming meters, its application to the demand and customer forecasts, how it differs from disconnections, its relationship with other areas in JGN's proposal, and the reasons it complies with the National Gas Objective (**NGO**). | Now referred to as suspended connections. Explanation is provided in Section 4. |
| Confirm the impact to the demand and customer forecast with and without JGN's volume boundary meter strategy in which individual hot water meters remain on offer for buildings with centralised hot water systems. | Clarification is provided in Section 5. |

For completeness, we note that the AER has only conditionally accepted our demand forecasts as a 'placeholder', subject to providing an updated forecast for actual data for 2018-19 with a statement that it will reject the demand forecast unless the additional information is provided.

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[3]     Note, due to the inclusion of an additional customer as a prudent discount customer, the PTRM input at a tariff level differs slightly from June 2019 inputs.  See attachment 13.5 Demand mapping to Reference tariffs (Tariff D).

We note that:

- Incorporating actual 2018-19 data into our June 2019 submission was simply not feasible at the time our 2020 Plan was submitted in June 2019 as the regulatory year had not ended and the data also required review and audit.

- Updating the demand forecast for 2018-19 data within the seven week response window, which has spanned the Christmas period, has been a considerable task. As the demand forecast feeds into other building block items, it delayed the update of all financial information, a practical reality that the Rules have not contemplated.

Nonetheless, we consider that the information provided within this attachment provides the AER with the required updated demand forecasts to approve our proposal.

We note that the AER's approach to adopting a placeholder decision is unorthodox and doesn't align with the NGR requirements for making a draft decision – in particular, the AER has not indicated any changes that it would make to our demand forecast if it is not satisfied with the update and rejects this element of our Revised 2020 Plan. Should the AER not be satisfied with the additional information we have provided, and should it seek to make a substitute estimate, we expect that, in accordance with the Rules, we will be provided with at least 30 business days to respond to its decision.

# 2. Updated demand and customer forecasts

## 2.1.1 AER's draft decision

In its draft decision, the AER states that it would like us to, among other things, incorporate updated demand and customer forecasts based on 2018-19 actual data, and the latest HIA data in the Tariff V forecast. The AER also recommended that we seek independent assurance on any updates to the demand and customer forecasts as well as validating that the key inputs used in the demand and customer forecast are fit for purpose.

## 2.1.2 JGN response

In response to the draft decision, we have asked Core Energy to revise its Tariff V forecasts having regard to updated inputs, as requested by the AER. These updated forecasts are set out in Core Energy's report (included as Attachment 13.2 of our Revised 2020-25 AA Proposal) and summarised in Section 6. Regarding this updated forecasts we note that Core Energy:

- Confirms that is has adopted the same methodology in developing the revised forecasts as it used in its original forecast, which we submitted with our 2020 Plan.

- Confirms that it has updated its forecast (included as Attachment 13.3) by:

  - Updating the weather normalisation model based so that it incorporates 2018-19 weather data.

  - Updating the demand forecasting model for the latest connections and demand data sourced from JGN and the latest HIA data.

- Confirms that each of the other requests for additional information set out in Section 12.1.1 of the AER's draft decision have been addressed in its Demand forecast update (Attachment 13.2).

- Provides independent assurance regarding updates to demand and customer forecasts, as well as validating that the key inputs in the demand and customer forecast are fit for purpose.

# 3. Penetration rates

In its draft decision, the AER requested that we:

- Provide clarifications on the basis in which the billing data is derived including the source data and associated workings in a separate worksheet.[4] The AER later clarifies that it is specifically interested in the process and assumptions we undertook to derive billing data for the purpose of determining the historical penetration rates.[5]

- Provide further clarifications on the accuracy of using a one year lag between HIA data and JGN connections, including the likely error margins to the penetration rates.[6]

The AER stated that its acceptance of the penetration rate in its final decision is subject to the accuracy of the billing data and how well it fits with the HIA data.[7]

Below we set out:

- The process and assumptions used to derive the data used in the calculation of historical penetration rates.

- Why using a one year lag between HIA data and dwellings connected provides a more accurate forecast.

- Why Core Energy's penetration rate forecast represents the best forecast possible in the circumstances.

To be clear, in the context of Core Energy's demand forecast, "penetration rate" refers to the proportion of new dwellings in NSW which connect to our network. This measure is a "NSW-wide penetration rate" and is different to the "new-estate penetration rate" used elsewhere in our proposal. The key difference is that the NSW-wide penetration rate takes into account that our network does not cover 100% of NSW (in fact, it covers about 80% of the state).

## 3.1 Process and assumptions to provide data for Core Energy's historical penetration rate calculations

Our understanding is that the AER is primarily concerned with how HIA data and billing data was aligned to account for the one to many relationships between connections[8] and dwellings introduced since we introduced our volume boundary meter in 2015-16.

The AER notes that it is not clear on the process and assumptions we undertook to derive this data or the assurance process that Core Energy might have undertaken to ensure that this data is fit for purpose relative to the HIA data.[9] The AER also requested that we provide assurance that there is no overlaps in the way we derived the billing data.[10]

Core Energy's NSW-wide historical penetration rates are based on the ratio between (lagged) HIA new housing commencements and the number of new dwellings we connect.

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[4]    AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand,* November, p.12-6.

[5]    Ibid p.12-14.

[6]    Ibid*,* p.12-6.

[7]    Ibid, p.12-18.

[8]    The AER referred to meters but we understand that they meant connections (as a single connection can have multiple meters – for instance many of our high-rise customers have a gas and a hot water meter).

[9]    AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand,* November, p.12-17.

[10]    Ibid p.12-17.

The number of new dwellings we connect is the sum of new home, medium density and high-rise connections, together with an estimate of the number of dwellings sitting behind our volume boundary connections.

Our connections data has already been independently audited by KPMG and presented in our AA RIN response. The Basis of Preparation document confirms the basis on which information on new connections is sourced as follows:[11]

> *The number of new connections data was sourced directly from SAP Business Warehouse (BW) on 1 October 2019. The data included the 'minimum year', which was the year that the customer became a customer and represents a 'new connection'. In other words, a customer was added in RY2019 when it had a minimum year of 2019.*

> *The data also contained the connection category codes that were directly mapped to the RIN variables (Electricity to gas, New homes, New medium density/high rise, Industrial and commercial tariff).*

As our billing data does not include the number of dwellings behind each volume boundary connection, we have estimated the number of dwellings we supply for these connections. This was done by counting the number of dwellings listed in each connection application. The actual number of dwellings may differ from the number of dwellings listed in the application as a developer may decide to change the size of their development at a later date.

Our process for estimating the number of dwellings behind volume boundary connections is described in more detail in Core Energy's demand forecast update (Attachment 13.2).

We can confirm there is no overlap in our data and that Core Energy has counted every dwelling once.[12]

We asked Core Energy to independently review the calculations used to derive these billing estimates and to provide assurance over our calculations. Core Energy has found that our calculations are robust, commenting that:[13]

> *CORE has undertaken an interview with JGN team members responsible for the relevant data and undertaken a 'walk through' the process and has received relevant data to illustrate the process at a highly granular level.*

> *CORE confirms that it has reviewed the approach to developing the assumed penetration rate, based on billing data and notes that dwelling numbers and connection numbers are consistent and has assessed the approach to be reasonable and consistent with rule 74(2) of the NGR.*

As our connections numbers have been audited by KMPG and the dwelling number estimates reviewed by Core Energy, the AER can be confident that the data used to calculate historical penetration rates is accurate.

## 3.2    Using a one year lag between HIA data and dwellings connected provides a more accurate forecast

In the draft decision, the AER requested that we provide further clarification on the accuracy of using a one year lag between HIA data and JGN connections, including the likely error margins to the penetration rates.[14]

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[11]    JGN, Response to the 2020-25 Access Arrangement, Regulatory Information Notice; RIN Attachment 2, Basis of Preparation, Section E5.2.1 – Number of New Connections.

[12]    Core Energy's model calculates total dwellings connected by adding up the number of new connections and dwellings who are only supplied via our volume boundary product. Core Energy does not add hybrid dwellings (supplied via a volume boundary meter and individual metering product) as these dwellings are already included in the connections. This ensures no double counting of dwelling numbers.

[13]    Core Energy, *Demand forecast update*, January 2020, p.11

[14]    AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand,* November, p.12-6.

In particular, the AER sought the assurance that the one year lag between HIA data and JGN connections remains appropriate in determining penetration rates during periods of significant upward or downward trend in construction activities, and that there are no overlaps with the way we derived the billing data.[15]

The use of a one year lag between HIA data and residential connections is one part of the methodology adopted by Core Energy. Section 4.3 of Core Energy's demand forecast update addresses the AER's request for clarification on the accuracy of using a one year lag between HIA data and JGN connections.

In its conclusion, Core Energy confirms that:[16]

> *CORE considers the use of HIA data and a one-year lag to be a prudent basis for deriving estimates of future residential connections and the estimates included with the Revised Model to be reasonable and consistent with Rule 74(2) of the NGR.*

Core Energy notes that it has consistently used a one year lag of HIA data (which is data on housing commencements) to derive an estimate of housing completions (which is the potential time of connection) for the following reasons:

- Core Energy has observed a statistically significant relationship between JGN connection data and HIA data with a one year lag as set out in an Attachment 2 to Core Energy's demand forecast update.

- 12 months is prudent estimate of the time from commencement to completion of an 'average' dwelling. Core Energy also references Australian Bureau of Statistics (**ABS**) data on average dwelling completion times.

- The HIA is one of few reputable data providers available in the Australian market. Core Energy has used other data from another specialist provider in the past and found results less accurate.

- The approach has been used and accepted by the AER in prior regulatory submissions.

- Core Energy is not aware of a suitable alternative which is consistent with rule 74(2) of the NGR.

Based on Core Energy's advice, our view is that there is both a logical explanation for our connections being related to HIA data with a one year lag, and statistical evidence that there is such a relationship between our connections and HIA data with a one year lag.

Our view, and Core Energy's view, is that the use of HIA data with a one year lag is reasonable and consistent with Rule 74(2) of the NGR. We also think that using HIA data with a one year lag is particularly important during periods of significant upward or downward trend in construction activities.

The reason is that forecasting connections during these times, by having regard to the observed one year lag, will result in better forecasts. If there is a significant increase in housing starts in a particular year, then we would expect a significant increase in new connections the following year; this is captured by Core Energy's forecast methodology.

## 3.3 The best possible penetration rate forecast in the circumstances

We note that the AER observed a downward trend in the penetration rate for each of years between 2012–13 to 2017–18 and considered that "*Although the correlation is not as strong in some years compared to others, the downward trend is consistent enough in recent years to warrant a more in-depth review…*"[17]

Core Energy has chosen to use an historical average penetration rate, reflecting the fact that the penetration rate is relatively variable over time, and taking any single year's estimate would increase the potential for forecast error.

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[15] AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand*, November, p.12-18.

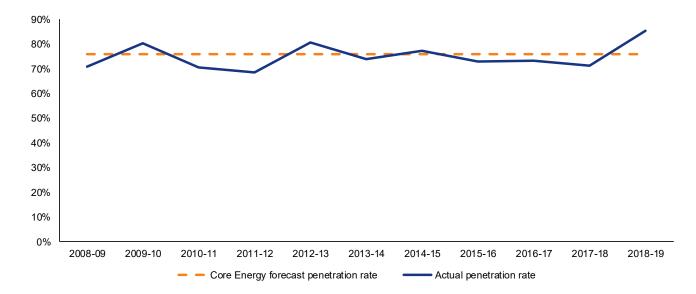[16] Core Energy, *Demand forecast update*, January 2020, p.13

[17] AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand*, November, p.12-18

As shown in Figure 3-1, looking only at the data from 2012-13 to 2017-18, there does appear to be a downward trend in the penetration rate. However, we would note that the trend looks quite different over different periods. For instance, even changing the starting year by one year would suggest a different conclusion: the apparent trend over the period from 2011-12 to 2017-18 and the period from 2013-14 to 2017-18 looks quite different to the apparent trend over the period from 2012-13 to 2017-18. This suggests that caution should be used in concluding that there is a genuine trend in the historical data on penetration rates; this data is, after all, quite variable.

The penetration rate for 2018-19, which is now available, confirms the risk of concluding that there is a trend to the historical data on penetration rates. The penetration rate for 2018-19 was higher than the penetration rate for any of the previous 10 years (this is largely due to the completion of a number of apartment buildings in 2018-19). Revisiting the apparent trends in the historical data with this most recent year provides a different picture again: one of increasing penetration rates.

Accordingly, we believe that Core Energy's approach is appropriate and is consistent with Rule 74(2).

**Figure 3-1 Penetration rate over the 2008-19 period**

# 4. Suspended connections (formerly zero consuming meters)

In the draft decision, the AER requested several pieces of information to clarify the concept and impact of zero consuming meters in the Core Energy Forecast. Namely, the AER requested:

- A detailed definition and description of zero consuming meters.

- How zero consuming meters differ from disconnections.

- The application of the concept of zero consuming meters in practice.

- How our figures for zero consuming meters are derived, including any assumptions and adjustments we might have made in determining the proposed volume.

- The application of the concept of zero consuming meters to the demand and customer forecast.

- The relationship between zero consuming meters and other areas in JGN's proposal.

- The reasons the application of the concept of zero consuming meters to the demand and customer forecast complies with the NGO.[18]

We provide the requested information in the sections below.

## 4.1 A description and definition of suspended connections

We recognise that some confusion has arisen from inconsistencies in the language used in the market to refer to the same activity.

In order to clarify this confusion, we and Core Energy have relabelled zero consuming meters as "suspended connections".

Suspended connections are sites which have been disconnected at the request of a retailer so that the flow of gas is physically stopped on a temporary basis.

Suspended connections and abolishments are separate concepts. In the context of the demand forecast prepared by Core Energy:

- "Suspended connections" are sites that have been temporarily disconnected (typically through 'wadding' or locking of the meter). Typically, the Meter Installation Registration Number (**MIRN**) is temporarily disconnected at the request of the retailer due to non-payment, customer move-out or failure of the customer to set up a retail agreement. The meter remains on site and the MIRN remains in the market.

- "Disconnections" are sites which have been permanently disconnected or "abolished".[19] With these customers, the meter is removed from site, the service to the property is permanently disconnected (e.g. by isolation of the main in the street) and the MIRN is removed from the market.

## 4.2 Why we cease to charge retailers for suspended connections

The concept of suspended connections has been developed in response to retailer concerns with continuing to pay network charges for sites which have been temporarily disconnected (but not permanently abolished). The concept was developed in 2018-19 when we agreed a new policy with retailers that network charges would cease 20 business days after the suspension of a MIRN. The change was implemented in October 2019, and applies to

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MIRNs which were already suspended, and to MIRNS which have been disconnected since that date. For these affected MIRNS, network charges ceased 20 days after disconnection.

This change was already contemplated in Clause 12(a) of the proposed Reference Service Agreement (**RSA**) submitted in June 2019, which provides that the MIRN is removed from the RSA Customer List[20] 20 business days following disconnection. The impact of this is that the Retailer is no longer charged network charges for the MIRN.

Since the submission of our 2020 Plan in June 2019, JGN has agreed with Retailers that network charges will cease from the date of suspension. This has been reflected in Clause 12(a) and 12(b) of the proposed RSA.

Suspending network charges for suspended MIRNs is different from the historical situation that previously applied where network charges continued to apply to these sites.

## 4.3 Application to demand and connection forecasts

Core Energy has accounted for the suspended connections policy in its forecasts of both connections and consumption per connection for Tariff V.

For connections, an adjustment has been made to the remove of suspended connections.

For consumption per connection, Core Energy noted in its original report that the forecast for existing customers was to "*experience a mild increase in 2019 due to the significant ZCM* [zero consuming MIRN] *removal program which will remove connections from that customer group without any corresponding loss in volume.*"[21]

Core Energy has accounted for the suspended connections in a consistent way by reflecting the policy in:

• Its residential connections forecasts – total customer numbers are lower due to the removal of suspended connections in addition to disconnections (abolishments).

• Its residential demand per connection forecasts – demand per connection is higher in 2019-20 because there are fewer total connections when total demand is unchanged.

• Its residential demand forecasts – residential demand is lower as the load from future suspended connections is removed reflecting that while these connections are currently using gas this will cease when they are suspended.

We rely on our SAP billing records to provide connections data. The same billing records are the source of the number of suspended connections.

Core Energy states in respect of suspended connections that it "*has undertaken a review of data provided by JGN, calculated the estimates to be included with the Revised Model and determines them to be reasonable and consistent with Rule 74(2) of the NGR.*"[22]

## 4.4 Relationship with other areas of JGN's proposal

As discussed above, the suspended connections policy is accounted for in Core Energy's forecast of demand and connections. These forecasts of demand and connections then have a relationship with proposed tariffs.

The suspended connections policy is also reflected in Clause 12(a) and 12(b) of the proposed RSA which provides that disconnected MIRNs will not be charged network charges following disconnection.

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[20]   The Customer List is the list of all Delivery Points to which we provide a service to under the Reference Service Agreement.

[21]   Attachment 8.2 of our 2020 Plan, p. 38.

[22]   Core Energy, *Demand forecast update*, January 2020, p. 14.

Beyond this, given that accounting for the new suspended connections policy does not affect forecasts of new connections, there are no material relationships with other aspects of the proposal.

## 4.5    Compliance with the NGO

JGN's view is that accounting for suspended connections, specifically the treatment of suspended connections in our demand forecast, will clearly result in improved forecasts of residential connections, residential demand per connection and total residential demand.

Given retailers' preferences not to be charged for temporarily disconnected sites, JGN's view is that accounting for this in the forecasts will result in more accurate forecasts, in compliance with the NGO.

In contrast, failing to account for suspended connections will result in overstating the number of residential accounts and understating the average consumption per account.

## 4.6    Other matters

The AER noted that there may be overlap between our suspended connections and a late submission from the Energy Networks Association (**ENA**) on network disconnection requests that arise from limited or no access, as well as customers refusing to pay for their energy consumptions.

We can confirm that there is no overlap between the issues raised by the ENA submission and suspended connections as a MIRN needs to be disconnected in order to be suspended.

# 5. The impact of JGN's volume boundary strategy

In the draft decision, the AER did not accept our proposal to withdraw our individual hot water metering product from 2020-21.

As a result of that decision, the AER changed Core Energy's demand forecasting model. The AER requested that we clarify whether they had adjusted Core Energy's model appropriately and the impact of JGN's volume boundary metering strategy on connection numbers and demand.[23]

## 5.1 The AER's adjustments to Core Energy's forecasting model

Our 2020 Plan included an estimate of the capex savings from our volume boundary metering strategy (the introduction of our volume boundary metering product as well as the withdrawal of our hot water metering product).

We did this by amending Core Energy's model to prepare a counterfactual forecast. Core Energy had forecast that the proportion of high-rise dwelling supplied by our volume boundary product would increase to 77%. In our counterfactual we assumed that the number of dwellings choosing to use our volume boundary product would hold constant at 2017-18 levels: 41%.

The AER's applied a similar adjustment in its draft decision. However, the AER assumed that the number of dwellings choosing to use our volume boundary product would continue rising to 65% then hold steady.

While this kind of adjustment is acceptable for calculating a high-level cost estimate for a counterfactual to give a sense of the capex savings from our volume boundary product, it does not provide the best estimate possible in the circumstances (and does not comply with Rule 74) and in turn should not be used in a demand forecast.

The key issue is that the AER's forecasting approach does not result in a sufficiently granular forecast (as it does not provide a connections forecast at the high-rise subsegment level) and does not take into account the market forces currently in play (for instance Core Energy has identified that there is momentum behind our volume boundary product).

As a result we do not believe that the AER's adjustments to the Core Energy model (nor the ones we made in our counterfactual) are appropriate to use to forecast demand.

In regards to the AER's finding that shifting dwellings from volume boundary metering to individual metering marginally increases throughput, Core Energy's analysis of our billing data found that buildings supplied with our volume boundary metering product consumed less gas than those on our individual metering product and this is reflected in their forecast. We have identified two reasons for this. Firstly, embedders have a greater incentive (relative to developers) to design and install more efficient hot water systems and are experienced at optimally maintaining and operating these plant. Second, high-rise buildings with embedders tend not to be fitted with bayonet points, as this requires the embedder to incur additional capital to meter,[24] reducing how much gas is consumed at these sites.

## 5.2 Core Energy has amended its forecast to reflect that we will continue to provide individual hot water metering

Given we are no longer proposing to remove our hot water metering product, we asked Core Energy to revise its forecast to reflect this.

Core Energy has forecast the proportion of high rise dwellings that fall into each of the following categories:

- **Centralised hot water**: sites with individual metering for each dwelling (hot water meters or hot water and gas meters).

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[23] AER 2019, *Draft Decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020 to 2025, Attachment 12 Demand,* November, p.12-16

[24] Embedders tend not to meter cooktop consumption given the low volumes this uses. Bayonet points, however, can use significant amounts of gas if a gas heater is installed.

- **Instantaneous hot water**: sites with individual gas meters for each dwelling.

- **Volume boundary**: sites with a single volume boundary meter.

- **Hybrid (volume boundary and centralised hot water)**: sites which have both a volume boundary meter and individual hot water meters.

Core Energy has forecast the proportion of high rise dwellings that fall into each of these categories based on historical trends observed in the last three years[25] following the introduction of the volume boundary metering strategy, as well as the factors influencing developer decision making.

Based on the historical trends shown in Figure 5-1, and high-rise construction timelines (where projects can take anywhere from two to five years to construct[26]) Core Energy is forecasting that uptake of our volume boundary product will increase. This is partly because the take-up of volume boundary metering has continued to rise year-on-year.

Core Energy has also identified that, even though we will continue offering our individual hot water metering product, as we had signalled to the market (up until the AER's draft decision) that this product would not available, developers would already have designed their buildings to accommodate our volume boundary product.
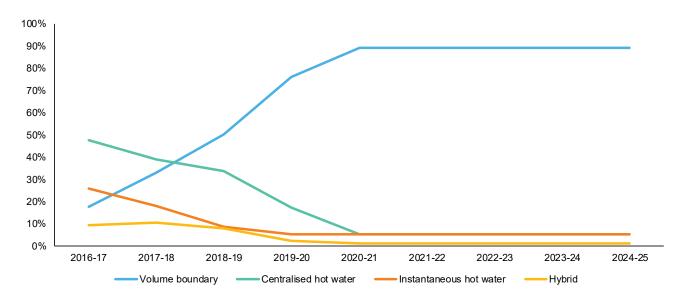
**Figure 5-1 High-rise dwellings connected by sub-segment (%) actual and forecast**



Based on the observed historical trends and the latest market developments Core Energy forecasts that:

- The number of sites supplied by volume boundary metering will continue to grow before holding steady at 89% in 2021-22.

- The proportion of centralised hot water dwellings will fall to 5% as only a minority of developers will opt to install individual hot water metering, given this option costs developers more (they have to pay for the hot water plant) and reduces the size of the dwellings for sale (as additional space is required for our metering assets).

- The proportion of instantaneous hot water dwellings will continue to fall (following a demonstrated historical trend), from 9% to 5% by 2020-21, after which time the percentage is expected to remain relatively constant.

- The number of hybrid sites will fall to 1%, reflecting the historical ratio of hybrid to centralised hot water sites.

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[25]   Data for 2015-16 is not included as this was the first year VB was available. There were very few VB connections in the first year it was available reflecting the construction timeline.

[26]   See the RBA's report on Houses and Apartments in Australia https://rba.gov.au/publications/bulletin/2017/jun/pdf/bu-0617-1-houses-and-apartments-in-australia.pdf

The biggest difference compared to Core Energy's original forecast is that it is now forecasting that some dwellings will be supplied via the Centralised hot water (5%) and Hybrid configurations (1%).

However, another notable difference is the reduction in how many sites Core Energy is forecasting will be supplied via the instantaneous hot water configuration. This reflects that a clear trend can be seen now that we have three years of data and in particular the low take-up in 2018-19. Rather than forecasting that the proportion of dwellings being supplied via this configuration will hold steady at 2016-17 – 2017-18 levels (23%) Core Energy is forecasting that this will continue to fall to 5%.

# 6. JGN's revised demand forecast

This section summarises our review forecasts of connections, demand per connection and total demand for Tariff V, in the same form presented in our 2020-25 AA Proposal.

Since the AER's draft decision is that our forecasts for Tariff D are consistent with rule 74(2) of the NGR, we have not updated those forecasts and do not reproduce those here.

Table 7–1 sets out our forecast of connections at 30 June each year, demand per connection and total demand for residential customers for the 2020-25 period.[27]

**Table 7–1: Tariff V – Residential forecasts**

|  | **2020-21** | **2021-22** | **2022-23** | **2023-24** | **2024-25** |
|---|---|---|---|---|---|
| Residential connections (number) | 1,426,103 | 1,445,411 | 1,464,509 | 1,483,589 | 1,503,402 |
| Residential demand per connection (GJ/a) | 19.1 | 19.0 | 18.8 | 18.7 | 18.5 |
| **Residential demand (GJ/a)** | **27,249,292** | **27,459,486** | **27,604,083** | **27,744,939** | **27,877,128** |

Table 7–2 sets out our forecasts of connections at 30 June each year, demand per connection and total demand for small business customers for the 2020-25 period.

**Table 7–2: Tariff V – Small business forecasts**

|  | **2020-21** | **2021-22** | **2022-23** | **2023-24** | **2024-25** |
|---|---|---|---|---|---|
| Small business connections (number) | 37,629 | 38,151 | 38,668 | 39,180 | 39,689 |
| Small business demand per connection (GJ/a) | 357.0 | 354.0 | 350.5 | 346.2 | 342.4 |
| **Small business demand (GJ/a)** | **13,432,111** | **13,505,587** | **13,554,159** | **13,565,938** | **13,590,312** |

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[27]    Core Energy's demand forecast models are included as Attachment 13.3 of our Revised 2020-25 AA Proposal.