Deloitte.
Access Economics

Energy offer comparison pricing

Stage two summary report prepared for the Australian Energy Regulator

26 April 2018

Australian Government

AUSTRALIAN ENERGY REGULATOR

Contents

Executive Summary

Executive summary

Background

The complexity and construct of retail energy offers and pricing can present difficulties for consumers in comparing energy plans.

The AER is seeking to develop and implement a price comparison model that communicates to residential consumers the pricing of retail electricity and gas offers in a simple, clear and uniform manner. This is to assist consumers in assessing different energy choices and support them in making decisions regarding their energy plan.

Goals for a comparison price

The goals for a comparison price model are to:

- enable the quick assessment of the approximate cost of each offer
- facilitate comparison between different offers, and
- encourage consumers to compare the energy market and support decision making regarding energy offers.

Stage one focus

The focus for Stage one of this assignment was on selection of a comparison price model and development of the visual representation and content for use in static media (such as informational materials). The recommended comparison price model from Stage one was a reference price model ($ cost over a given time period).

Stage two focus

Stage two extends this work:

- to interactive media, such as websites, to provide residential consumers the option of improving the comparison price for their circumstances and preferences, and
- develops the methodology and algorithms for calculating comparison price estimates for both static and interactive media.

Comparison Price Goals

Executive summary

What we did

In this Stage two of the project, we reviewed the context within which comparison of energy offers occurs. From this we developed principles to inform the design of the methodology for calculating comparison price estimates.

We also considered the online user experience with the aim of providing customer journey options. This was to cater for varying consumer energy knowledge levels, and preferences for detail and answering questions.

The user experience approach, and elements of the methodology for dealing with energy plan benefits and costs, were tested in a small number of consumer interviews. The results of the testing led to refinement of the user journeys.

Finally the calculations & specifications for the comparison price estimate were developed. In developing the calculations the existing AER consumption data-sets and benchmarks were utilised.

What we found

Three methods for calculating reference prices are proposed: a static method based on average consumption and benchmarks; a customised method using some customer information; and a personalised method using bill usage data. These three methods offer increasing levels of personalisation and accuracy, with one method being for static media, and two for interactive media. **These three methods to calculate reference prices, as applied to electricity, are presented on the next page.**

Consumer testing validated the proposed user experience approach and methodology finding that:

- participants had differing preferences for details and interest in personalisation, which the proposed user experience approach addressed and supported, and
- the methodology suggested for dealing with energy plan benefits and charges in the reference price estimates was supported by most participants.

Proposed next steps include

- **Improving information on bills**

  For customers who are considering switching retailers, improved visibility of how a potential new offer compares to their current provider and plan is needed. It is therefore suggested that consideration be given to how the information on customers' bills could be improved to assist consumers in the comparison process.

- **Where comparison price information is displayed**

  A significant proportion of respondents in our Stage one consumer testing wanted to see comparison prices displayed anywhere that an energy offer is advertised including on both retailer and comparison websites.

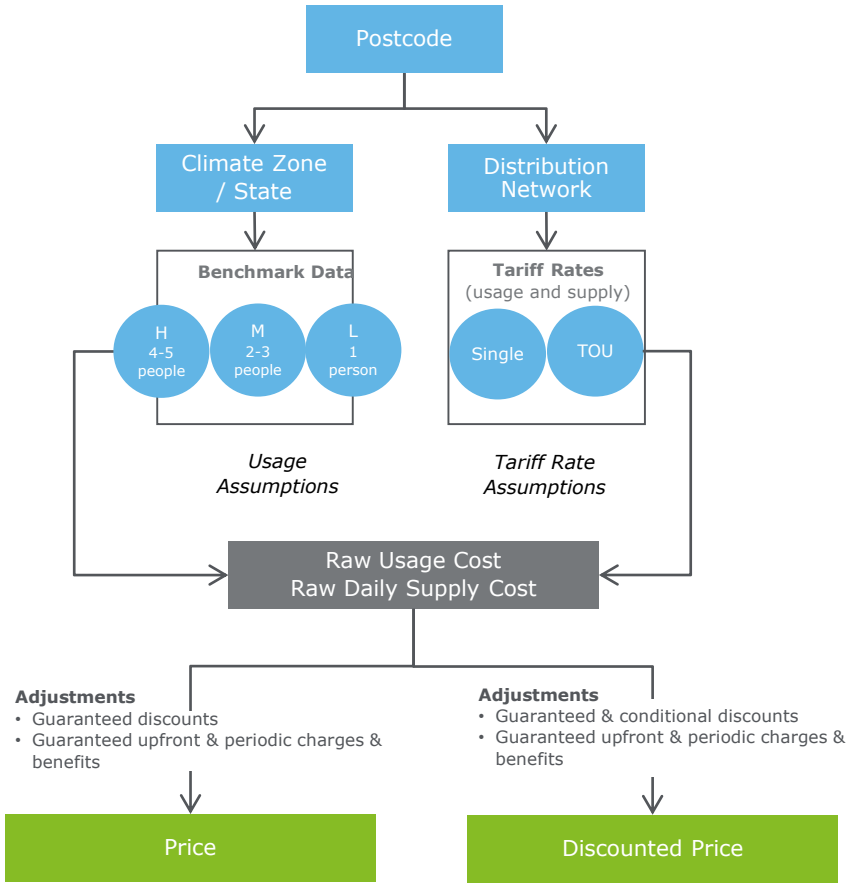
  Further investigation and consumer testing of potential approaches is recommended to assist the AER in its future planning and policy decisions

  Data enrichment and access

  We suggest that the AER refine the current collection and analysis of benchmark data to include: benchmarks estimates at the State, distributor and climate zone level; information on solar panel system size and feed-in proportions; maximum demand; time of use proportions aligned to distributor, rather than only climate zone; and, time of use proportions by consumer types (e.g. work from home, retirees etc.). EME should also seek better access to smart meter data and bill data.

Electricity reference price method flow charts – static, customised and personalised

Static media

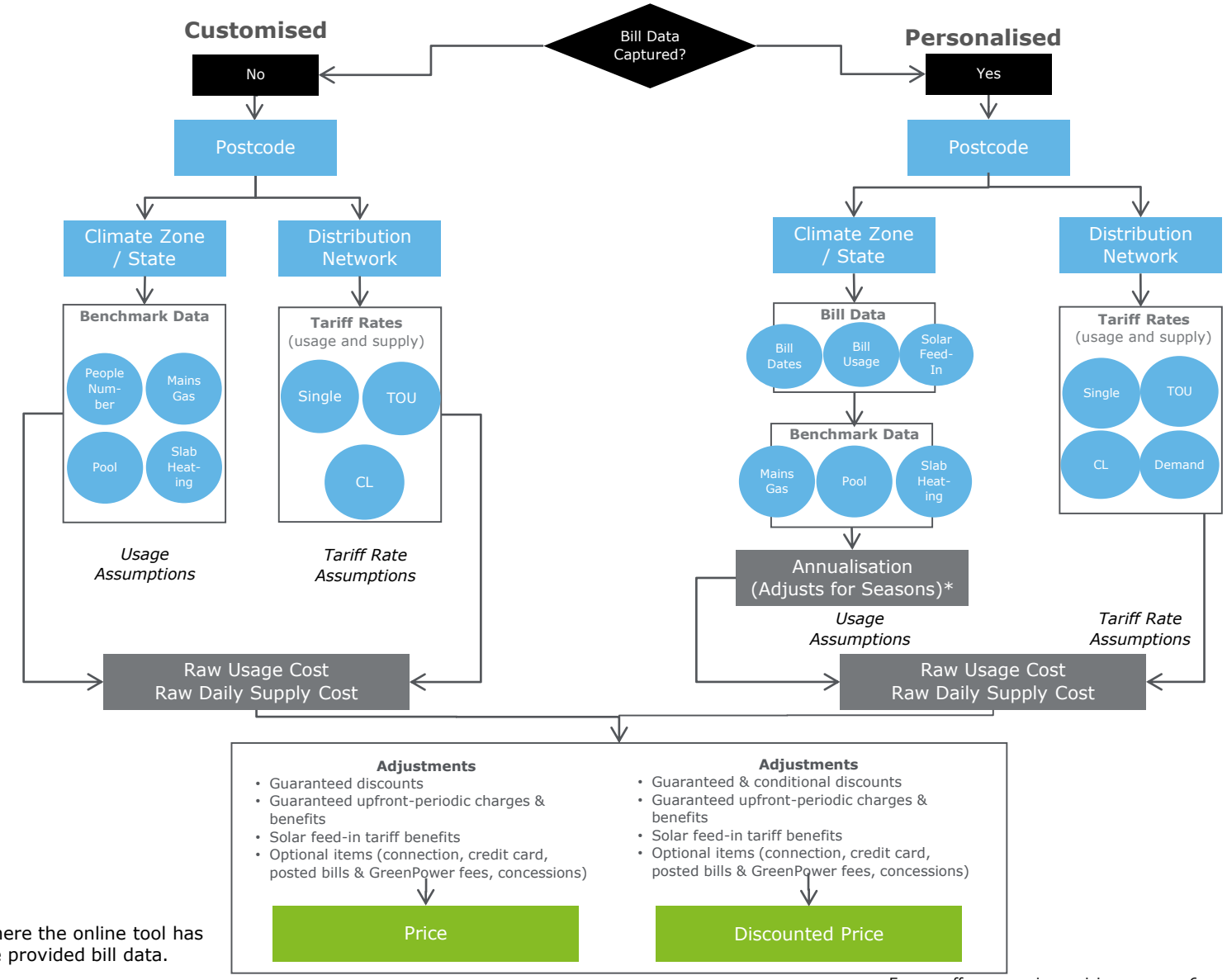


= Assumption / input

= Interim Calculations

= Comparison price estimate

Interactive media



* An additional option for a "bill to bill" comparison price can also be provided (where the online tool has the capability and at the consumer's choice). This estimate does not annualise the provided bill data.

1. Stage one overview

Stage one

Approach

Stage one focus

The focus for Stage one of this assignment was on selection of a comparison price model, and development of the visual representation and content for price comparison information to be displayed in static media (such as informational materials).

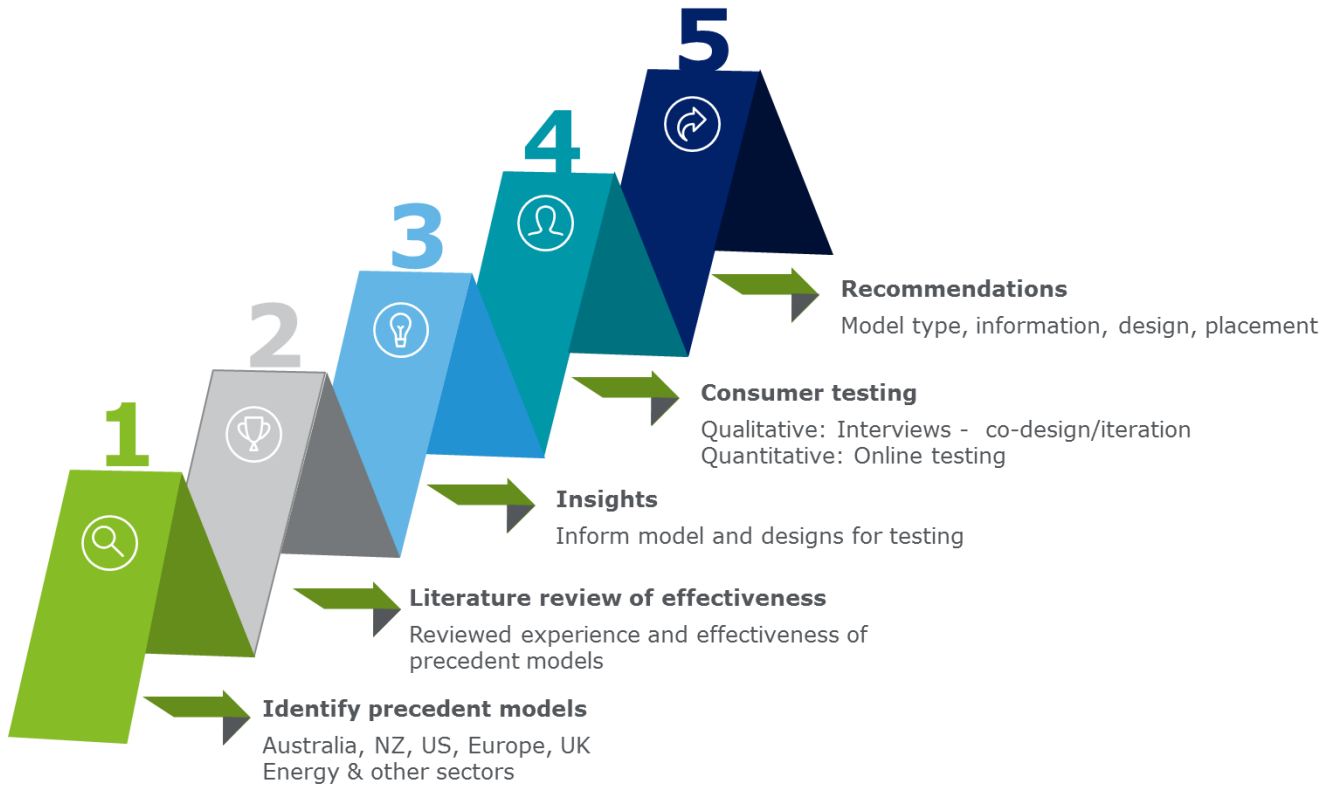
What we did

In developing a price comparison model for energy offers, the following approach was taken:

- Precedent comparison price models used across a range of jurisdictions and sectors were researched - along with literature regarding the effectiveness of these models in practice. This was so as to identify a short-list of options for testing with consumers
- The short-listed options were then evaluated through both qualitative and quantitative consumer testing and to determine their *ease of use*, *comparability*, and *relevance* to arrive at a recommended price comparison model.

Stage one Approach

From a desktop scan of precedents and literature… to testing of concepts with consumers to support recommendations



Stage one

Outcomes

Comparison price model

A reference price model (total estimated cost over a nominated time period) was the recommended comparison price model.

Design for static media

The proposed wireframe design for the visual layout and categories of content for use across static media is depicted to the right.

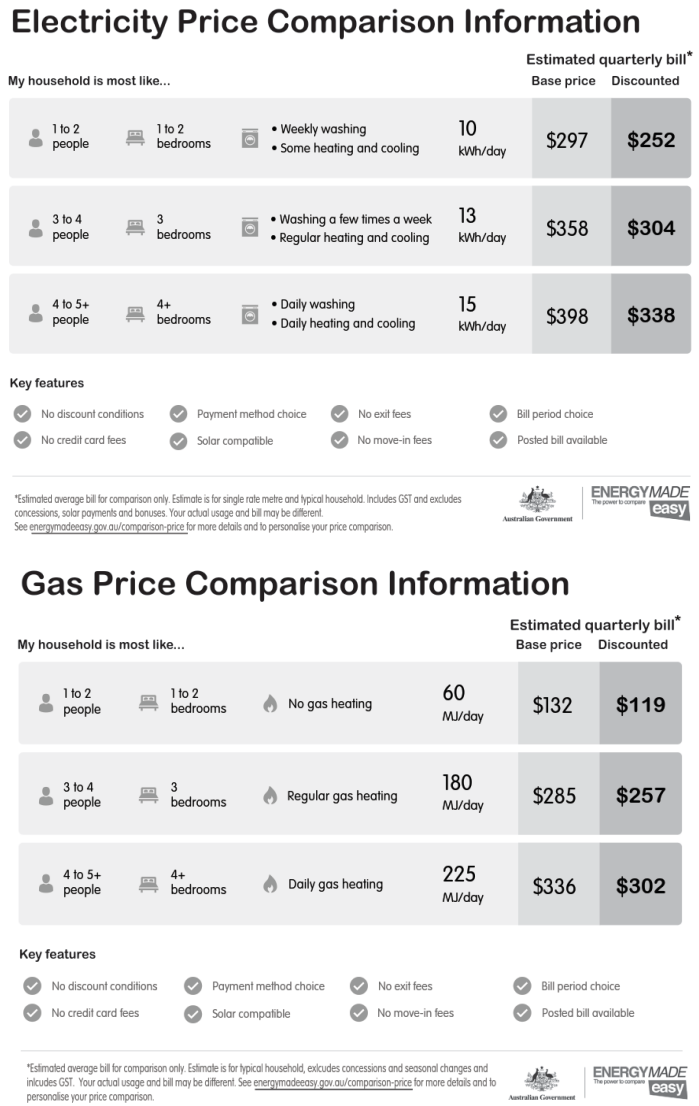
Rationale

These recommendations were based on:

1. Prior research on comparison price models

2. Insights from the consumer testing, in which participants
   - Preferred the reference price formats in focus interviews
   - Consistently viewed the recommended design format as the best of the three options tested to help them decide which energy plan is best for them (66% of respondents)
   - Strongly supported a quarterly estimated price (47% of respondents)
   - Wanted additional information, which supported inclusion of Key Features
   - Gave consistent feedback in interviews that the Government and EME logos improved trust in the information.

Recommended design for static media



Stage one
Outcomes

The consumer testing also provided insights relevant for the implementation of a comparison model, particularly with respect to locations for displaying comparison prices and potential improvements to energy bills to assist consumers in using the information.

Improving information on bills

The majority of participants wanted to see comparison prices displayed on their energy bills, though in interviews it was also apparent that participants struggled to find the relevant information on their bills for using a comparison price model.

This suggested opportunities for improving the clarity of information on bills, and highlighting information such as average daily usage.

Locations for displaying price comparison information

A significant proportion of respondents wanted to see comparison prices displayed on comparison websites, energy retailers' websites, and anywhere that an energy offer is advertised.

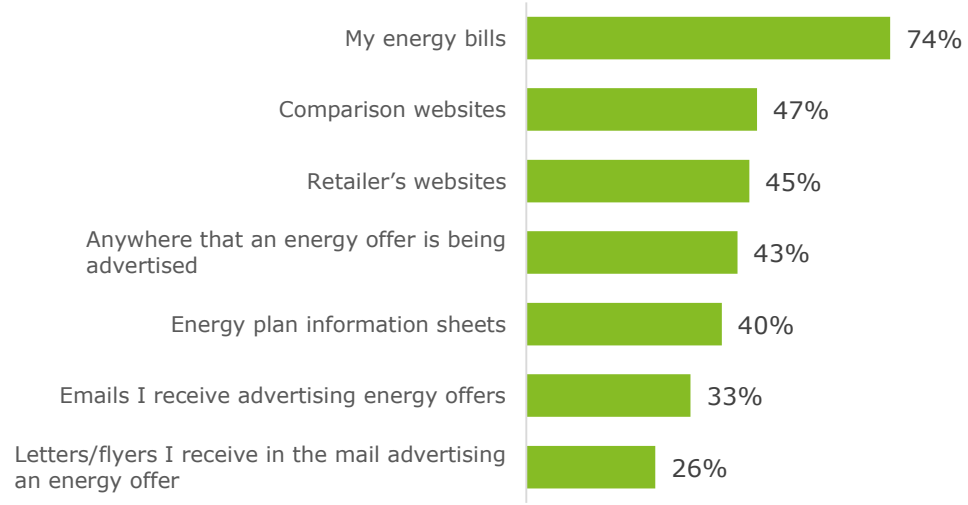
To ensure both a wide and consistent application, consideration needs to be given to how the comparison price methodology and assumptions can best be implemented across multiple platforms external to energymadeeasy.gov.au, and how to make it easy for retailers to access the energymadeeasy.gov.au algorithms.

Quarterly comparison price estimates and seasonality

Participants significantly preferred to see price comparison information expressed as a quarterly cost estimate. It is worth noting however that seasonal variability in consumption and tariffs (in particular gas), can compromise the integrity of a single quarterly estimate. It was suggested therefore that options to address this be considered as part of Stage two.

We note however, that post our Stage one report, the AER has decided to progress with annual comparison price estimates following its stakeholder consultations and submissions received to its draft Retail Price Information Guidelines.

Where should information be displayed?



2. Stage two approach

How we developed the comparison price calculations and online user experience

A context and principle based approach was adopted and tested with consumers

Context
Consideration was given to the energy usage data available to support assumptions, the construct of energy plans, consumer research & insights relating to energy comparison, along with the goals for a comparison price model

Methodology
Principles were established that informed the development of a methodology for calculating comparison price estimates both for today, and for future energy plans innovations, by providing a guiding framework

Online user experience
The approach for interactive tools was developed with the aim of providing options for consumers with varying levels of energy engagement and knowledge of their household usage

Testing
Testing of the user experience approach and elements of the interactive methodology was undertaken with a small number of consumers. Subsequent refinements were made

Calculations & specifications
Calculations and requirements were developed for comparison price estimates

3. Comparison price methodology

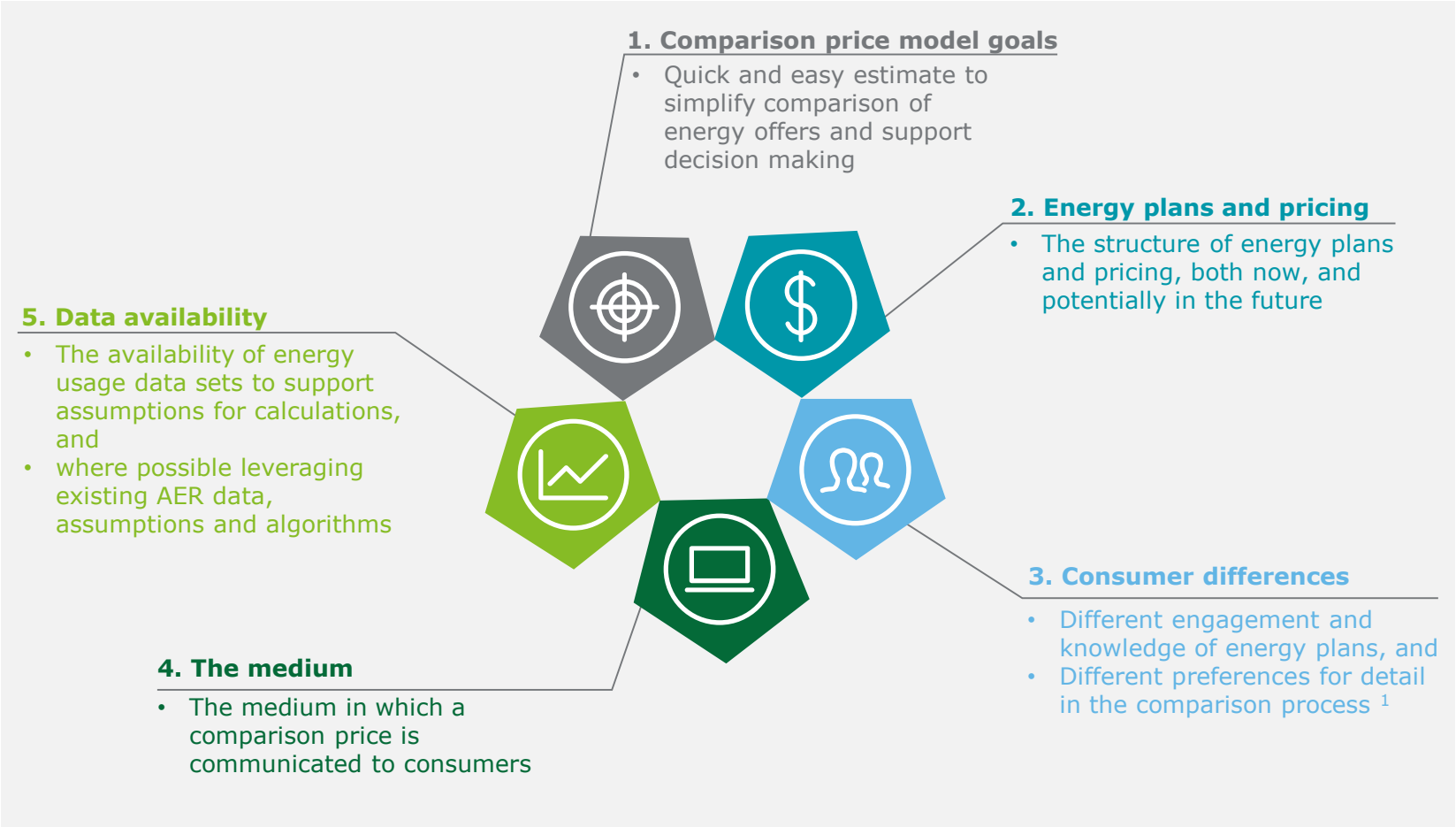
Methodology – considerations

A broad range of factors were considered in developing the methodology for calculating comparison prices

In developing the methodology for calculating a comparison price for residential consumers, a number of factors were taken into consideration. These included:

1. Comparison price model goals
2. Energy plans and pricing
3. Differences across consumers
4. The medium used to communicate the comparison price, and
5. Data availability.

Key considerations in developing the methodology



1. Bastion Latitude, Energy Made Easy, Market Research, Usability & User Experience Report, May 2017

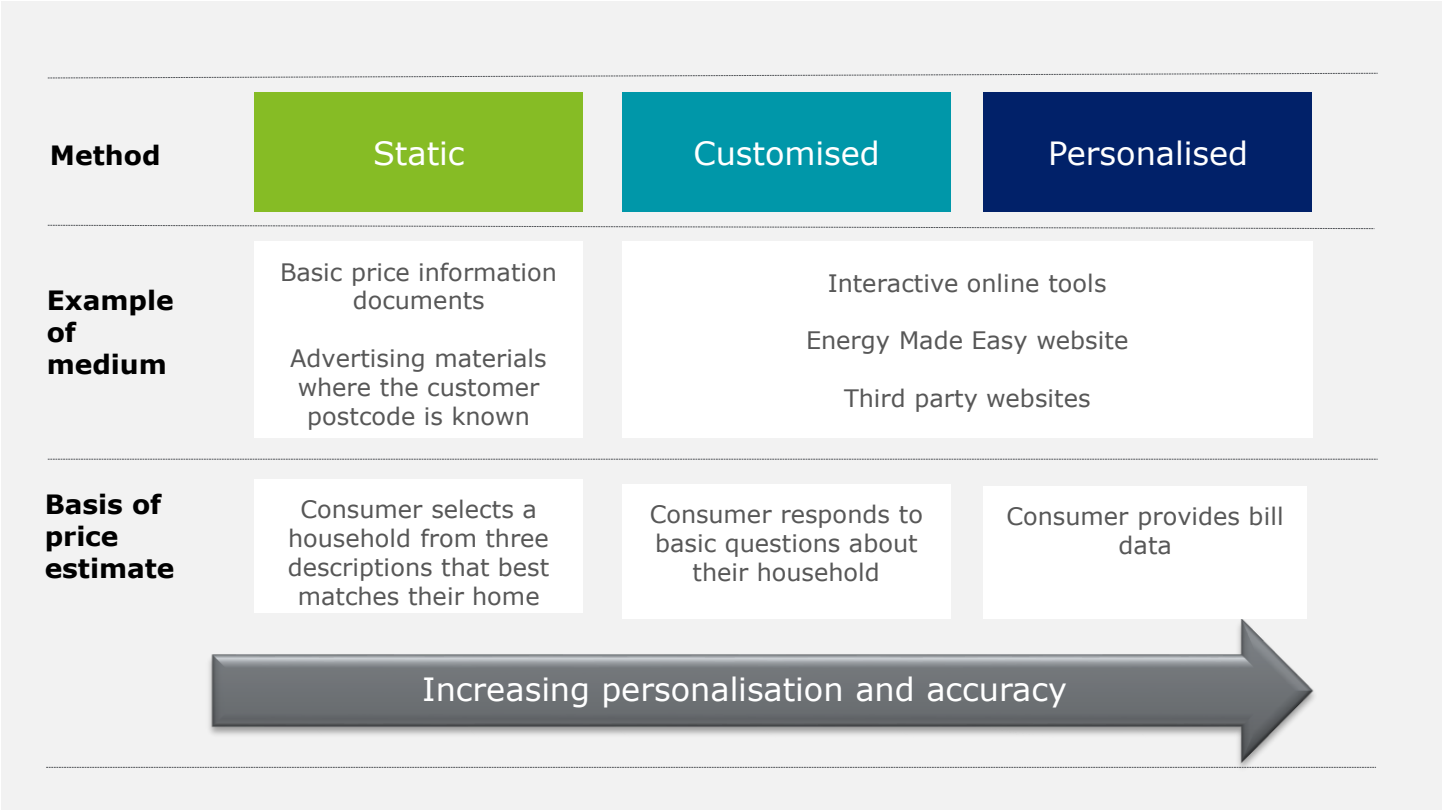
Methodology – three methods

Given the considerations, we developed a 'static' and two 'interactive' methods with increasing levels of personalisation and accuracy

Three calculation methods (static, customised and personalised) were proposed in order to:

1. Provide options for improving the accuracy of estimates provided in static forms, and thereby address some of the limitations inherent in current static comparison price estimates
2. Provide online refinement options that cater to the needs of a broad spectrum of consumers:
   - from those who want a simple, fast process - such as consumers with low engagement or knowledge of energy plans,
   - to those who are happy to provide more details for greater accuracy.

Overview of the 3 methodologies for calculating a comparison price estimate



Methodology – core principles

Principles were established to develop the three methodologies covering 'how', 'when' and 'what'

Over-arching principles were established to define the approach to the calculations for various categories of energy plan charges and benefits covering how these would be addressed, when they would be included in calculations, and what assumptions or inputs are required.

HOW

categories of energy plan charges and benefits would be addressed in the calculations

WHEN

specific energy plan charges and benefits could be included in the calculations based on

1. the Medium
   e.g. 'static' versus 'interactive'
2. consumer preferences for
   - detail
     e.g. simple questions versus inputting bill data
   - plan features

WHAT

assumptions or inputs are required for calculations based on

1. the Medium
   e.g. 'static' versus 'interactive'
2. consumer preferences for detail
   e.g. simple questions versus inputting bill data

Principles – 'How'

Defining how categories of energy plan charges and benefits would be addressed in the calculations

The key drivers of the various energy plan charges and benefits were identified and categorised. For each category of charges/benefits the approach to the methodology for the calculations was defined. This principle based approach was used to ensure consistency in approach within categories, but also to provide a framework for how future innovations in energy plans could be folded into the calculations.

Non-financial benefits, such as free movie tickets, or merchandise, are excluded from the calculations because of the varying nature in their application and value.

Categories of energy plan price drivers

	Driver Category				
	Usage	**Time**	**Bill Value**	**Upfront or Periodic**	**Other**
Plan Charges (examples)	Cents per kWh / MJ used • Usage charges • GreenPower incremental usage charges	Daily charges • Supply and metering fees Weekly charges • Weekly GreenPower charges	Payment processing fee	Upfront lump-sum • Establishment fee, connection fee Annual/periodic lump-sum • Annual /monthly membership fee • Bill postage fee	
Plan Benefits (examples)	Usage benefits • % discount off usage charges • Cents per kWh/MJ concession • % concession off usage charges	Daily benefits • % discount off supply charge • $ credit per day • $ concession per day	Discount off total bill	Upfront lump-sum • Account credit or voucher Introductory discount • Bonus discount for limited time period Annual/periodic lump-sum • Account credit or voucher	Solar Feed-In
Methodology	Calculate against usage	Calculate against time period of price estimate	Calculate against total bill	Amortise total annual value over 12 months	Calculation specific to item

Principles – ‘What’ and ‘When’

‘What’ key inputs are needed
‘When’ specific plan charges and benefits are included in calculations based on the medium & customer preference

For each of the three calculation methods (static, customised and personalised), we defined the required ‘what’ inputs, and ‘when’ individual energy plan charges and benefits are included in the calculation.

The flow-charts, set out on the next page, illustrate these principles for electricity plans.

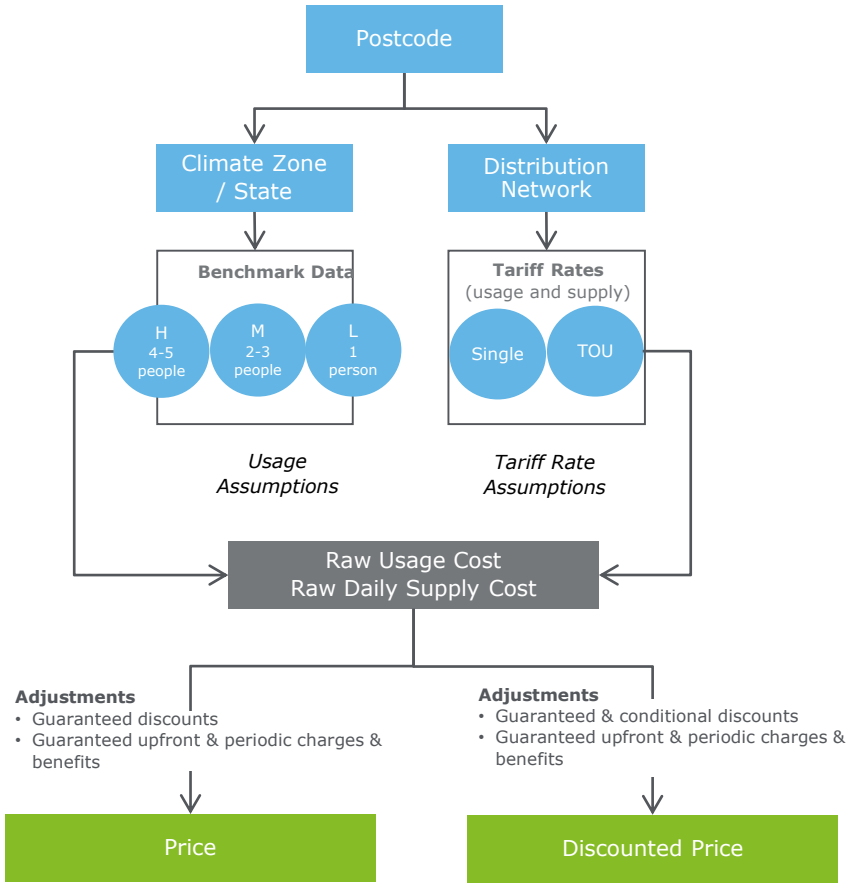
Gas plans follow a similar approach to electricity, however are simpler as:

- time of use, controlled load and demand tariffs are not currently applicable to gas, and
- usage estimates for the static and customised methods are currently only available at a State/Territory level and exclude variations for climate zone within the State.

Refer to **Appendix 2** for the equivalent flow-charts for gas plans.

Principles – 'What' and 'When' flow-charts for electricity

Static media

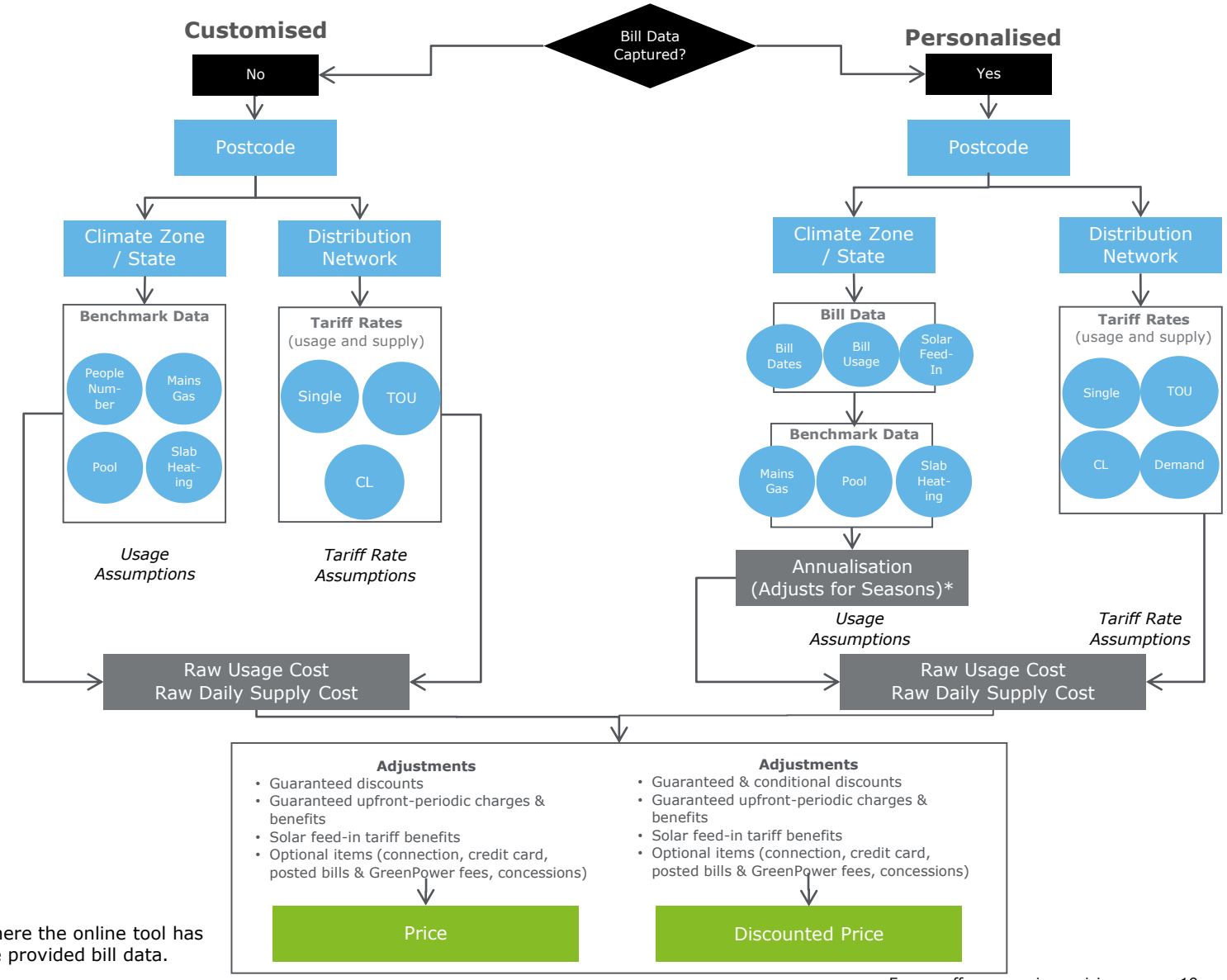


= Assumption / input

= Interim Calculations

= Comparison price estimate

Interactive media



* An additional option for a "bill to bill" comparison price can also be provided (where the online tool has the capability and at the consumer's choice). This estimate does not annualise the provided bill data.

Testing of proposed approach

Key elements of the calculation methodology and principles validated in consumer testing

During the consumer testing outlined in the next section, key elements of the proposed approach were validated with consumers.

This included the proposed:

- personalisation options
- how upfront benefits and charges where included in the estimated comparison prices (e.g. account credits, connection fees), and
- inclusion of additional fees in the estimated comparison price (e.g. payment processing fees, paper bill fees etc).

Key limitations

Limitations of energy consumption data and the price estimation calculations

Data Limitations

Our technical companion report provides reasonable consumption estimates for static and customised media which are predominantly based on AER benchmark data sets. Limitations to the current consumption estimates that impact the accuracy of price estimates for consumers, are as follows:

- Electricity time of use benchmarks are calculated by climate zone, not distributor. This means that the variation in time of use periods across distributors is not captured in time of use consumption profiles
- Data is not complete across States, with limited time of use consumption data available in Queensland and no data available for the Northern Territory and Tasmania
- The sample sizes supporting gas consumption benchmarks are limited compared to electricity
- There is insufficient information to generate different consumption profiles for time of use estimates based on consumer lifestyle (e.g. work from home, out during the day etc.)
- Currently information on maximum demand has not been collected, preventing the inclusion of demand charges in price estimates for static media and the customised interactive media method
- There is not enough information on solar system and solar feed-in proportions to make tailored estimates on solar feed-in benefits where customers don't input data from their bills
- Deviations in retail time of use definitions from those used in benchmarks will not be captured in the price estimate, meaning that retailers who increase their peak consumption periods will not be treated differently to those whose peak period fits the benchmark definition
- When only one static media is generated per DNSP zone, consumption benchmarks must be averaged, weighted by population, across climate zones within the distribution area. Ideally, static media would be produced for each climate zone within a DNSP
- No data on electric vehicles and battery storage is currently available to be incorporated into customised price estimates. These technologies are increasingly becoming more relevant to household electricity consumption
- Information about small business energy consumption is currently lacking and therefore estimations are not currently supported for business energy consumers unless bill data is available.

Estimation limitations

There is potential to improve on the EME approach to seasonalising consumption data from bills for personalised calculations. In the current treatment of bill data, consumption is averaged over the bill period based on the benchmark season weightings. This process does not take into account that bill data may perfectly align with seasons, rather than crossing them. In these instances the allocation of consumption to particular seasons could be based more on actual bill data rather than the benchmark season weightings. However, we note these instances would be relatively rare, and may not materially impact retail bills unless energy prices differed significantly across seasons.

Sensitivity analysis

Whilst the sensitivity analysis outlined in our technical companion report provides some confidence around comparison prices, it is important to note that the sensitivity testing was relatively narrow in that:

- Only benchmark consumption estimates were tested for the static media. Individual consumption profiles may differ significantly from the benchmarks, which is difficult to capture with this approach
- Over time, new and different retail offers will enter the market such that repeating this analysis will be valuable as it may produce different results.

4. Consumer testing

Developing the testing materials

User experience design principles and application

In order to test the proposed three-part methodology – and more specifically the interactive media components – wireframe prototypes were developed and the user experience was tested with a small number of consumers.

In developing the testing materials, six user experience principles informed, and were applied, to the wireframe and user experience designs (see right for details).

User experience principles

Clear and simple
Ask me questions that I can easily understand.

Contextual support
Provide me with additional information when a question or term is complicated.

Transparency
Tell me what is or isn't included in the price estimates and how options effect my results.

Personalised
Allow me to add additional information if I want and not because I have to.

User-centered
Design solutions that I understand and for how I want to use them.

Quick process
Show me products that align to my living circumstances without asking too many questions.

How user experience principles were used

Informed design and user experience decisions.

Applied to design of key processes and the wireframe prototypes.

Used to evaluate and test iterations of user experience recommendations.

Consumer testing

Objectives and methodology

Objectives

Consumer testing was used to gain a deeper understanding of how consumers respond to the proposed user experience approach for interactive tools. The tools were designed to give customers the option of improving the accuracy of the comparison price for their circumstances.

In particular the consumer testing process aimed to:

1. Test the ease of use of an interactive online comparison tool design that gives residential customers the opportunity to personalise the plans, and the comparison price estimate, for their individual household circumstances and preferences
2. Identify potential improvement opportunities for the initial required questions, the customer experience for personalisation options, and the summary results screen, and
3. Test elements of the proposed methodology for the comparison price estimates with consumers.

Methodology

The consumer testing comprised of a three step process involving: focused one-on-one testing and validation of the interactive media designs with consumers; iteration of the user experience and designs; followed by further one-on-one testing.

1. One-on-one focus interviews

The focus interviews provided qualitative information on the useability of interactive web-based prototype and identified improvement opportunities.

2. Refinement of Comparison Options

Using feedback and insights from the interviews, the designs were iterated and refined.

3. One-on-one focus interviews

Further testing of the improved designs in consumer interviews extended the insights into their usability and identified further improvement opportunities.

Customer testing

Structure and participants

Interview structure

Each interview was conducted face-to-face for one hour at Deloitte offices in Sydney and Brisbane on March 21 and Melbourne on March 23.

In each session, participants were asked to test a wireframed prototype of a comparison tool for the AER website, with an aim to determine how the design could be improved to make it easier to use, simpler to understand and give customers more confidence in the results.

Each of the participants was asked to use the prototype as if they were really searching for a new energy plan. As they completed each section they were asked to share their thoughts about the experience, then answer some more targeted questions.

Between the two days of testing, the designs were updated to reflect some (although not all) initial feedback from consumers.

Activity

During the interviews, participants were asked to work through each section of the prototype one by one. In each section they were asked to provide feedback and answer some specific questions. The aim was to get them to use the prototype in a realistic scenario.

Interviewees were also given two design alternatives for the results section of the prototype to gain their feedback and preferences.

Interview participants

Eight one-on-one interviews

Four female and four male participants

Four 20-34 year olds, two 35-49 year olds, and two over 70

One high-school or lower education, one with certificates or diplomas, and six with at least a bachelor's degree

Two with household incomes under $50k, two $50-$100k, three $100-$150k, and one over $150k

A range of cultural backgrounds including Australian, Bangladeshi, Chinese, Congolese, English, Indian, and New Zealander

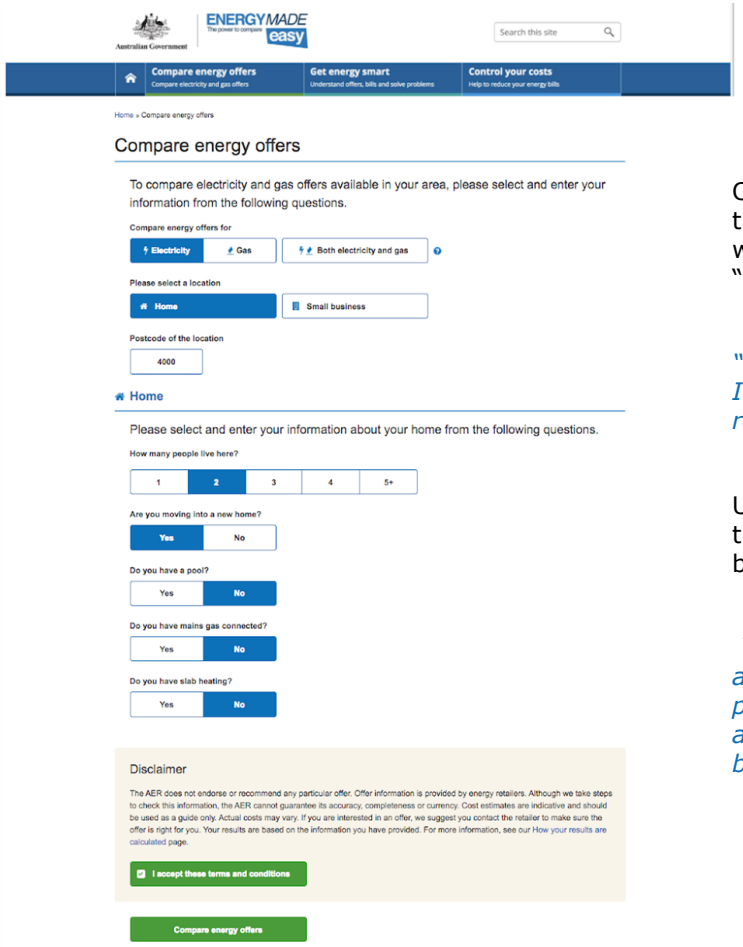
Two from Sydney, two from Brisbane and four from Melbourne

Participants were either the main or joint decision maker in their household and had a range of levels of energy knowledge and engagement

Focus interviews

Prototype – first round

Examples of a sample of the prototype screens tested in the first round of consumer interviews are provided below and on the next page, along with some of the key insights from the first round of testing.

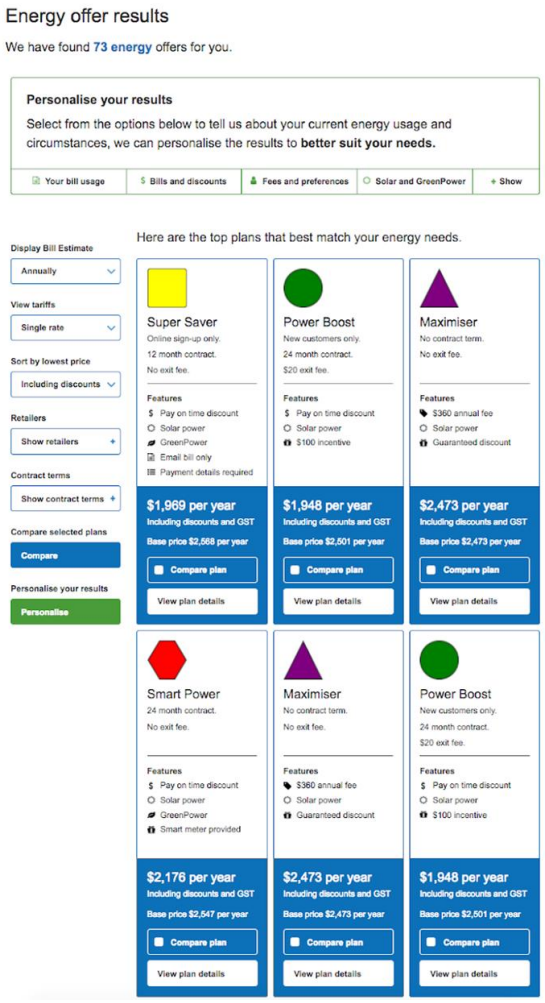


Overall this layout and structure of this page tested well with users. It was commented that the layout was "clear, simple and clearly defined."

"Very easy to fill out… no it's perfect. It doesn't give the answers yet… the rest is obvious."

Users with solar panels mentioned that they would feel comfortable being asked this question upfront.

"It hasn't asked about solar… assuming that will come in another page. I think solar is really important and if it was added here it wouldn't be too many questions."



For the first round of testing there was mixed feedback regarding what users expected to see within the discounted price. It was clear that they wanted to know what was included in the price, and explanation of this needed to be available.

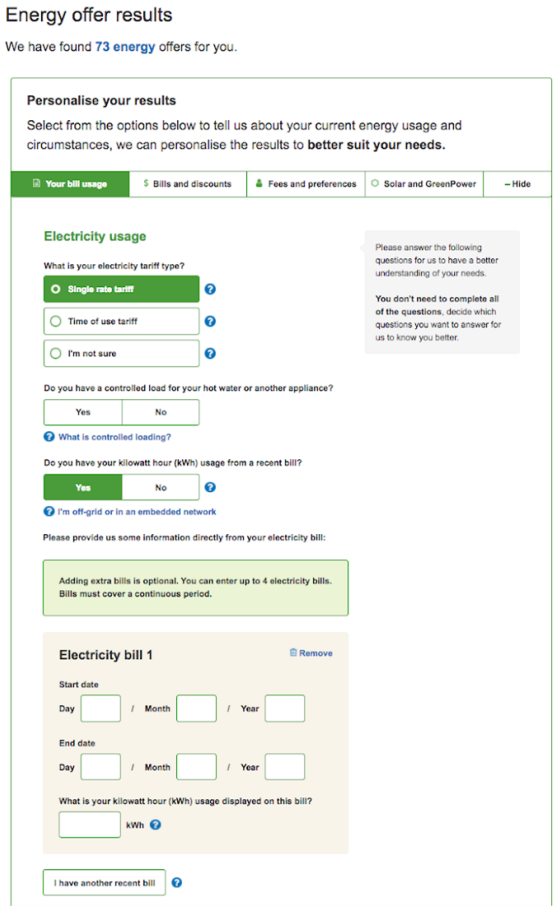
"Needs to be clear what discounts and incentives are included in the prices."

"No I would just think the bill I'm going to pay is for the power I'm using, any other costs is not included."

"Yeah, that needs to go in here as well. … all those costs add up."
[regarding inclusion of additional costs, move-in fees and other upfront fees in cost estimates]

Focus interviews

Prototype – first round

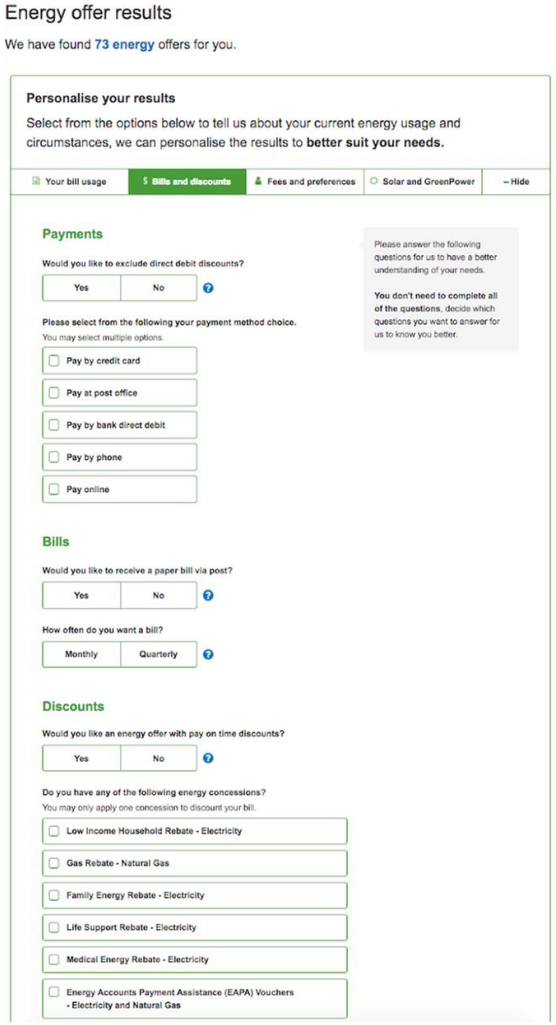


Users found this section very easy and simple to fill in.

"It's easy enough, yeah its good."

There was a bit of confusion around tariff types and controlled loading but after reading the tooltips it was understood how they needed to respond to the question.

"I'm not sure what controlled loading is. I missed the hint but it's good to put it there."



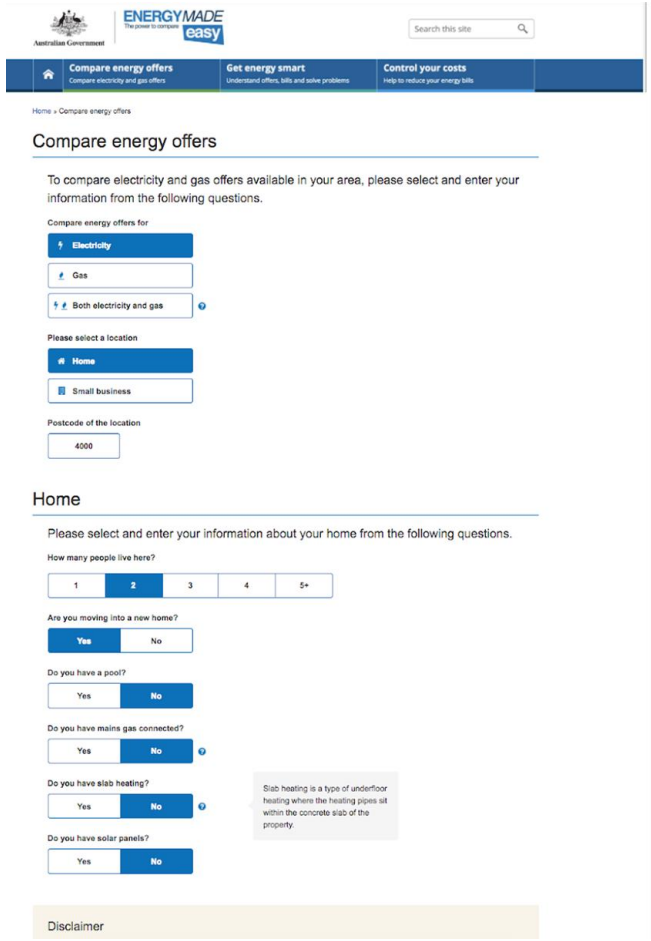
There was positive feedback on the option to select paying at the post office, and the paper bill option.

"Love the way you have 'pay at the post-office'.... my grandmother, the only way she can pay is at the post-office."

Focus interviews

Prototype – second round

Examples of a sample of the prototype screens tested in the second round of interviews are provided below and on the next page, along with some of the key insights from the this round of testing. Key changes made to the prototype following the first round of interviews included moving the solar panel question to the initial search questions, and simplifying and consolidating some of the filters, personalisation labels and content.

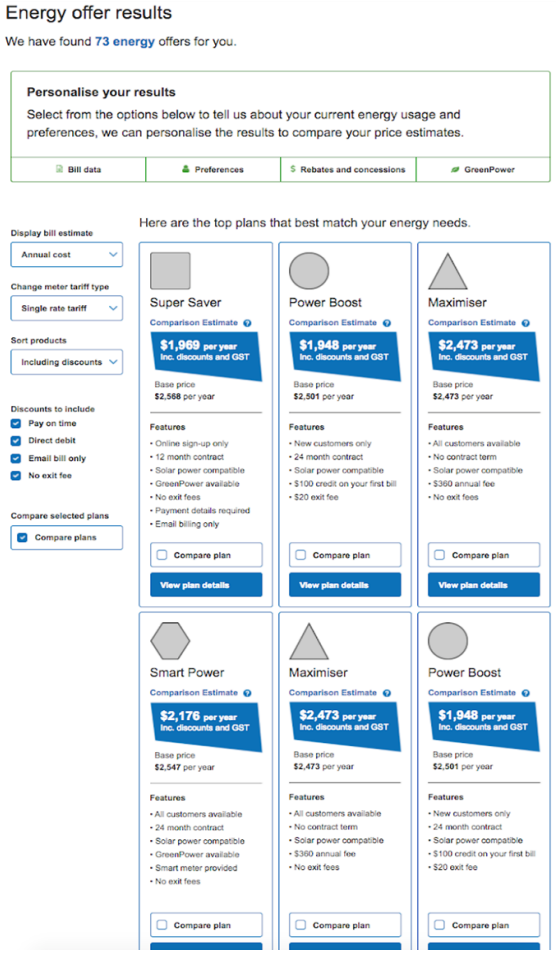


Participants generally found this section very easy to complete. There were no issues with the length of the form or the type of questions being asked.

"It's pretty straight forward, and I if was coming to a comparison website pretty much this is what I would expect."

Not all participants knew what Mains Gas or Slab Heating were. Generally, they were happy to continue after simply pressing no.

"I'm not sure what gas mains are."
"I have no idea [if I have slab heating]", she then read the tooltip for a few seconds and continued "oh, yep I have that."



Most people could not understand how base price and discounted price calculations differed. Participants commented it was good to see the breakdown of what the prices include and exclude in the tool-tip, however, there was too much text in the body.

"I don't know what's meant by base price."

"I would click the info button because I don't really know what it means."

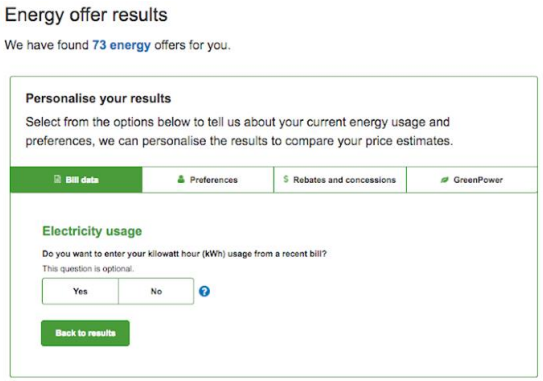
Participants suggested that the prices should include any ongoing fees, but not exit fees.

"The credit is off your first bill so it's a definite that your getting it. Where as an exit fee you may never leave, but it's good to know that if I have to leave the company I'll have to pay the money."

There was a split as to whether or not incentives are considered discounts. Most argued that they should be considered discounts and included in the discounted price "cos it says including discounts".

Focus interviews

Prototype – second round

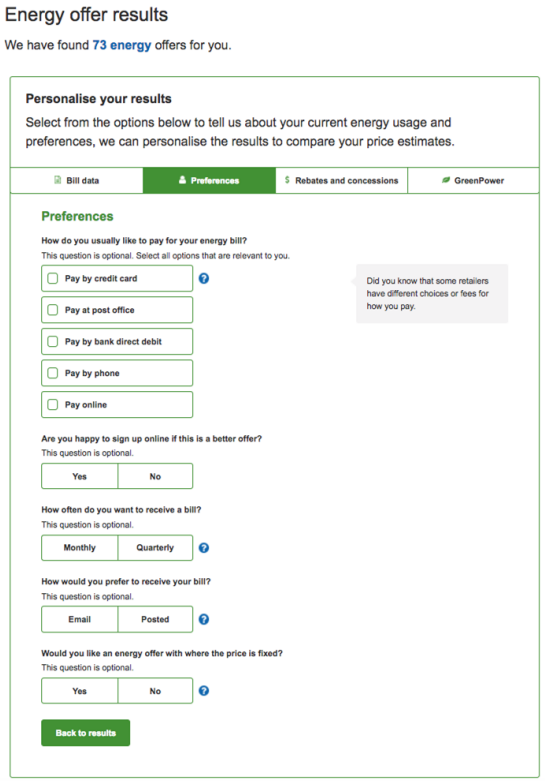


This section was a major improvement from the first iteration. Having the option to click *no* and not see the detail gave non-engaged users a better experience.

"I would click yes, then see it and just press no."

It can be quite a slow process entering lots of numbers into fields. Ways to speed up this process should be investigated.

"Is it possible to have an upload option? And it fills up all your details, rather than having to enter in the details"



Most questions tested well, but the fixed pricing question was confusing, with participants assuming a fixed price meant the bill amount would never change.

"You pay the same, doesn't matter what your usage is."

Additionally, some participants did not know what a tariff was in relation to the tooltip for the fixed price question.

"Tariff means nothing to me."

Focus interviews

Key insights from user testing

Four key insights were identified from the user testing. These were:

1

The initial search form was generally easy to complete by participants. Some questions were confusing but with supporting tooltips became easy to understand

2

Participants had differing preferences for details and interest in personalisation – which the proposed approach addressed and supported

3

Greater transparency is needed on what is and isn't included in the price estimates, and how some of the selections and filters changed the price or results

4

Proposed methodology for estimating price was supported by majority of participants

Further refinements

Based on the insights from the testing the following aspects on the wireframes were updated:

- refinement of the language and content used throughout, for example questions, buttons as well as sort and filter options
- refinement of tooltip content to provide users with simple and easy to understand information, and
- updated design of product tiles in the results to display in "rows" stacked on top of each other, as this was the preferred option from testing.

Recommendations

Further improvements

We suggest the AER consider the following potential improvements to the functionality and design of wireframes:

- Functionality for users to be able to upload an existing bill to be scanned by EME so as to auto-fill the relevant input fields with the bill data
- How users compare 2 products at once. It was discussed in the user interviews that participants would prefer to compare products side by side to be able able to have all features clearly listed. Based on initial testing feedback, it is suggested that the side by side comparison list all features and display if the product does, or does not, have the feature

7. Summary and next steps

Summary

A context and principle based approach was adopted and tested with consumers

Following consideration of the context within which the comparison of energy offers occurs, principles were developed to inform the design of the methodology for calculating comparison price estimates.

Three calculation methods where proposed so as to:

1. Provide consumers the opportunity to improve the accuracy of estimates provided in static forms, and thereby address some of the limitations inherent in static price estimates, and
2. Provide online refinement options that cater to the needs and preferences of a broad spectrum of consumers,

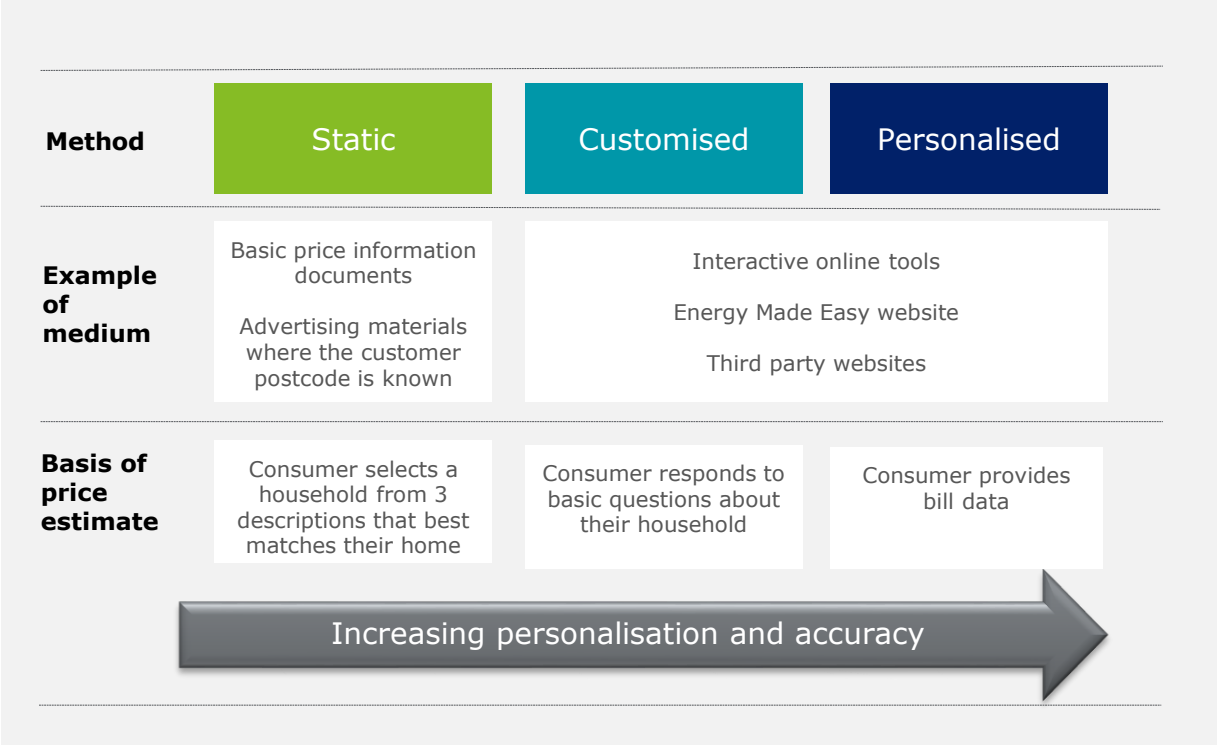
The three approaches, static, customised and personalised are shown to the right.

This user experience approach and elements of the methodology for dealing with energy plan benefits and costs were tested in consumer interviews.

The testing found that participants had differing preferences for details and interest in personalisation options, with the proposed user experience approach catering to these differences; and, that the methodology suggested for dealing with elements of the plan benefits and charges in the price estimates was supported by most participants.

Calculations and specifications for the comparison price estimates were developed, along with a the style guide for displaying comparison price information on energy price information materials and interactive online tools (such as websites). These are specified in a separate detailed report.

Overview of the 3 methodologies for calculating a comparison price estimate



Next steps

Additional areas to investigate further

Improving information on bills

Comparison price information that is calculated in a consistent manner on static or interactive tools provides great price comparability between potential new energy plans that consumers may be considering. However for customers who are considering switching, improved visibility of how a potential new offer compares to their current provider and plan is needed to aid in decision making.

It is therefore suggested that consideration be given to how the information on customers' bills could be improved to assist consumers in the comparison process.

Further, from our Stage one consumer interviews it was apparent that participants struggled with finding the information on their bills that was relevant for using a comparison price model (for example the average daily usage for their household), therefore further work to improve the usability of this type of bill information is also recommended.

Where comparison price information is displayed

A significant proportion of respondents in our Stage one consumer testing wanted to see comparison prices displayed on comparison websites, energy retailer's websites, and anywhere that an energy offer is advertised.

We understand that the AER is potentially considering a broad application of the comparison price model that could encompass retailer and comparison websites.

Further investigation and consumer testing of potential approaches is recommended to assist the AER in its future planning and policy decisions.

Whilst there are complexities to such an approach, the benefits of a consistent price estimate methodology is that it would:

- improve the comparability of offers that are being researched and compared by consumers across unrelated websites and platforms, and
- thus potentially minimise customer confusion and resultant indecision.

Further, as outlined in our Stage one report, to facilitate both a wide and consistent application aligned with customer expectations, further consideration is suggested on:

- how the comparison price methodology and assumptions can best be implemented across multiple websites platforms external to energymadeeasy.gov.au
- how best to support its wide adoption by making it easy for retailers to access the energymadeeasy.gov.au algorithms, and
- if regulatory reform is needed to encourage its broad application.

Next steps

Enhancing calculations

Data enrichment

The calculations described in our technical companion report provide reasonable consumption estimates for static and customised media and are based on available data sets such as the AER's ACIL Allen consumption benchmarks[1]. However, benchmarking data is currently not purposefully developed for price comparison purposes, and additional data refinements will help enhance the accuracy of consumption and price estimates. These refinements include:

- Benchmarks estimated at the State, distributor and climate zone level to ensure the most accurate level of data
- Greater level of time of use data collected for Queensland, Tasmania and Northern Territory
- Gathering more detail on gas consumption to generate more accurate gas benchmarks
- Information on maximum demand across State, distributor and climate zone to include demand charges in estimated pricing
- Information on solar system size and feed-in proportions across State, distributor and climate zone
- Time of use proportions aligned to distributor, rather than climate zone, to account for different time of use time periods
- Generating time of use proportions for different consumer profiles, for example, work from home/home during the day, mainly home at night, weekends etc., through targeted benchmarking questions
- Revise the seasonal treatment of personalised data across seasons, such that consumption is extrapolated from bill data, rather then smoothed across seasons (as outlined in Key limitations)
- Development of benchmarks or data to support business consumers

Data access

EME should seek to improve ease of access to consumption data, external to the benchmarking process, to improve the functionality and accuracy of EME. For example, EME could:

- Improve access to smart meter data via distributors and build in the functionality to import smart meter data into EME for comparison. Access to smart meter data increases the ability for consumers to get a personalised price estimate rather than one based on assumptions, and
- Create the functionality for users to upload an existing bill to scan the document and auto-fill the relevant input fields with the correct data. This minimises effort required for users to gain a price estimate, increasing the probability that they will complete the comparison process.

Data updates and review

We recommend that benchmark data, along with a review of comparison price methodology, continues to occur every 3 years to ensure that the most recent data and pricing trends are captured in price estimates.

Furthermore the AER should investigate the development of electric vehicle data and battery storage data to ensure that benchmarks are able to incorporate the impact of new technologies on consumption in the future. Ideally this data would be included into calculations once 5% of households are using this technology.

At implementation of the comparison price methodology it is also suggested that monitoring is undertaken to ensure the methodology is operating and implemented in practice as expected. Further when new innovations are launched into the market, it may be necessary to review and provide guidance on how the comparison price methodology will apply.

1. ACIL Allen, Energy Consumption Benchmarks, October 2017. Accessed online: https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/electricity-and-gas-bill-benchmarks-for-residential-customers-2017

Appendices

Appendices

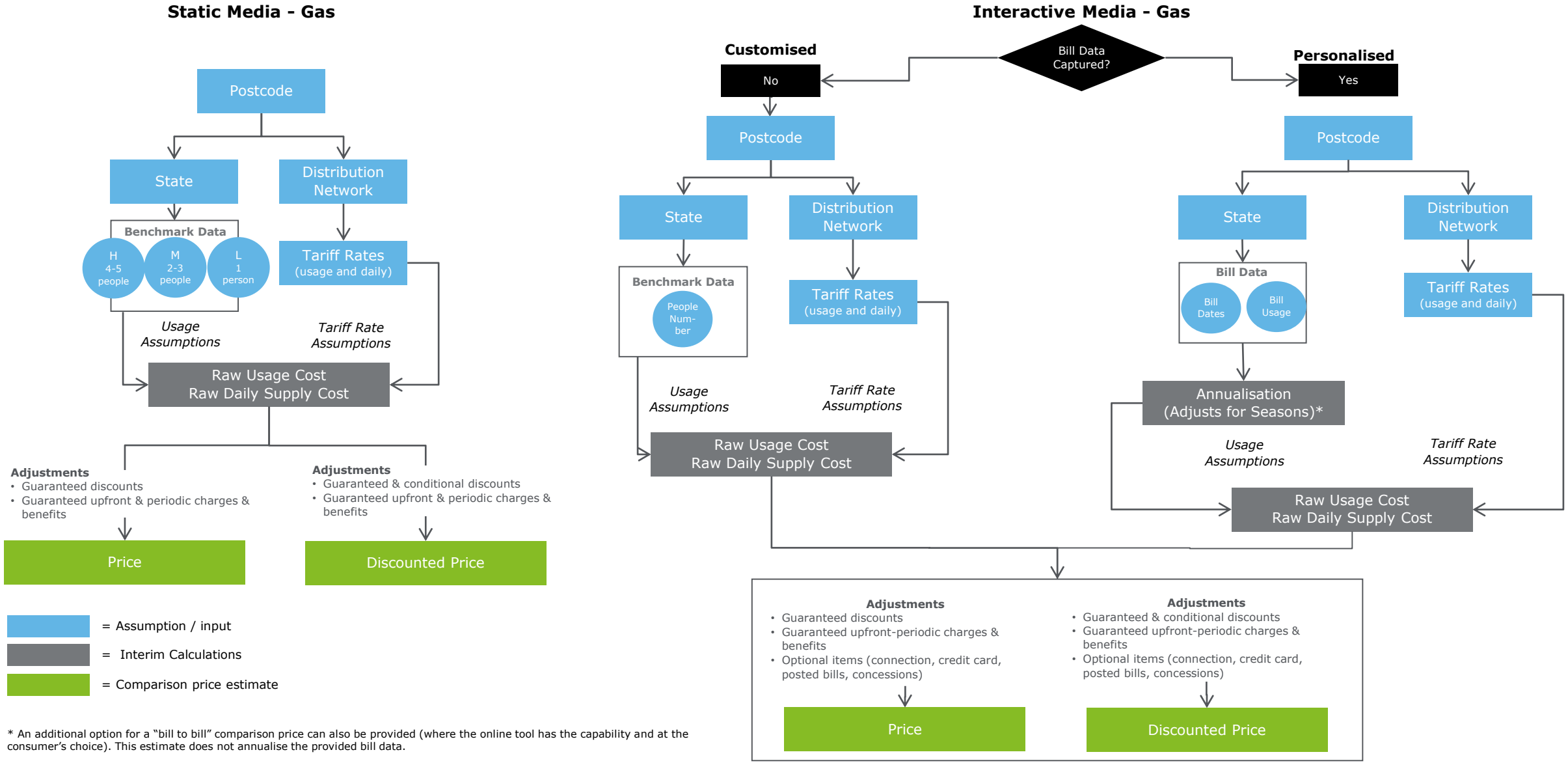
A1. Glossary and abbreviations

AER	Australian Energy Regulator
AEMO	Australian Energy Market Operator
Annual Comparison Price	A comparison price that is estimated for a full year.
Bill to Bill Comparison Price	A form of personalised comparison price that is calculated using bill data provided by a customer that is calculated based on the usage and time period entered by the customer without any adjustments to provide an annual comparison price. It provides the most direct comparison back to the cost on the customer's bill
Comparison Price	The price calculated according to the methodology in this report that excludes all conditional discounts (guaranteed discounts are included)
Comparison Discounted Price	The price calculated according to the methodology in this report that includes all discounts (guaranteed and conditional)
CL	Controlled Load
EME	Energy Made Easy, the AER's energy comparison website
DNSP	Distribution Network Service Provider
FiT	Feed-in Tariff (for Solar)
PV	Photovoltaic – a form of solar energy technology
Raw Cost	The raw usage and supply charges prior to adjustment for any other factor (refer to page 19 flow-charts for full details)
SR	Single Rate
State	All references to State include States and Territories
TOU	Time of use

Appendices

Section	
A1. Glossary & abbreviations	37
A2. Gas calculation flowcharts	39

A2. Gas Principles – 'What' inputs and 'When' specific charges and benefits are included



* An additional option for a "bill to bill" comparison price can also be provided (where the online tool has the capability and at the consumer's choice). This estimate does not annualise the provided bill data.