AUSTRALIAN ENERGY REGULATOR

WORKING PAPER

Thursday, 24th March 2022

Consumer Vulnerability: A Case for Change

Stakeholder Workshop – 24 March

CONTEXT

Story to date

Early work by CPRC and AER and initial workshops on draft consumer vulnerability strategy

Desire amongst stakeholders for better understanding of current costs

AER conducted initial assessment of the costs associated with vulnerability

Today

Discuss the case for change and the costs of vulnerability

Coming months

Discuss and design models for action

There are issues with traditional assumptions about consumer vulnerability and energy

CHALLENGING TRADITIONAL ASSUMPTIONS

Three traditional assumptions held by economic regulators	Issues with these assumptions
1 **Income distribution should be dealt with through the tax transfer system**	These do not always prevent adverse outcomes…
2 **Other forms of vulnerability should be dealt with through other support systems**	... so some consumers face disconnection …
3 **The energy market should be as efficient as possible**	… **but** energy is essential for all consumers so disconnection is a last resort …
	… impacting market efficiency

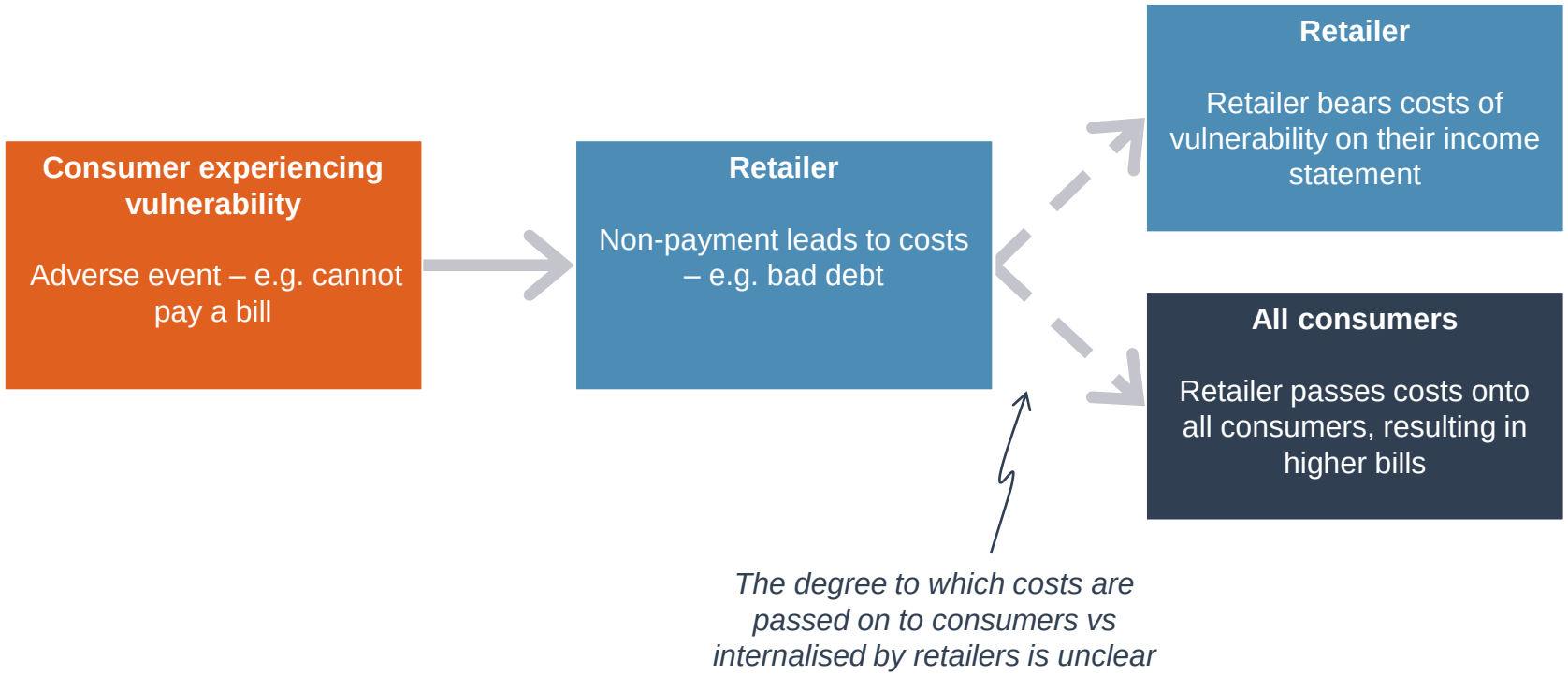
The energy system today struggles to deal with consumer vulnerability…

ISSUES WITH CURRENT SYSTEM

	Incentives/capability to address consumer vulnerability		Resulting issues
	Incentives	**Capability**	
Consumers	✓ Highly incentivised	✗ Limited capability & compounded by market characteristics	• Misaligned incentives to address consumer vulnerability • Information and capability gaps, particularly for consumers and governments, compounded by market characteristics • Overreliance on disconnection (or threat of) despite energy being an essential service • Potential inefficiencies
Retailers	✗ Limited incentive, overreliance on disconnections	✓ Higher capability	
Generators, networks, etc.	✗ No incentive	✗ No capability	
Governments & NFPs	✓✗ Incentivised but limited visibility	✓✗ Capable but limited visibility	

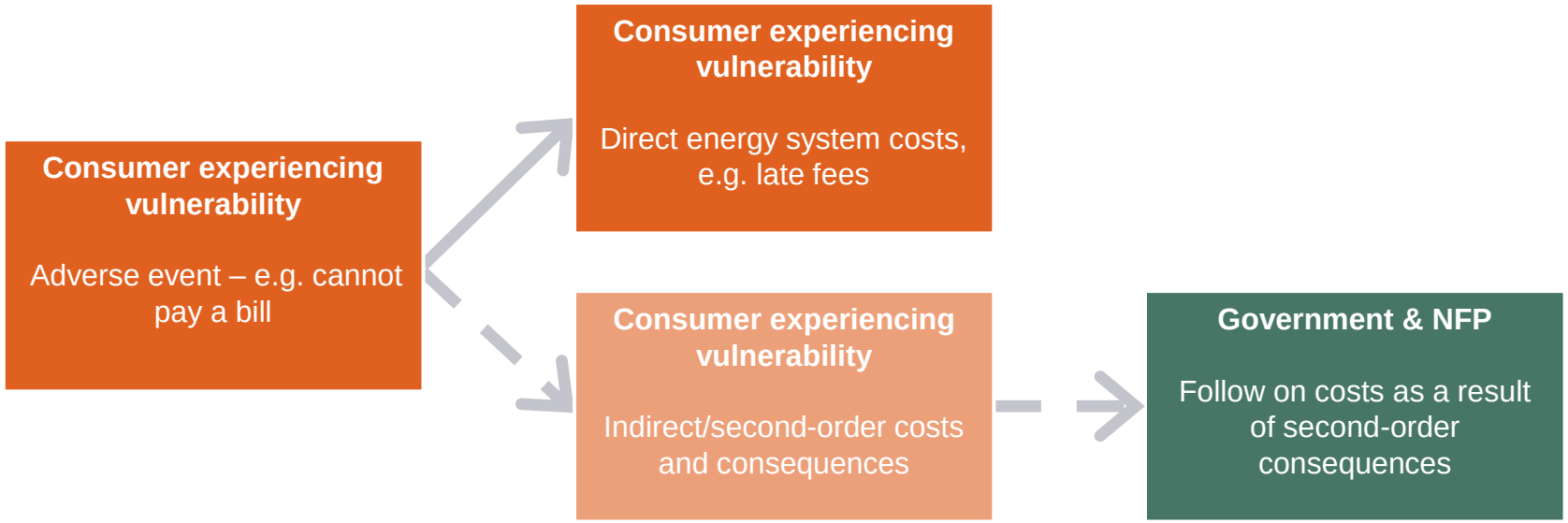
… leading to costs for retailers and potentially other consumers…

DISTRIBUTION OF RISKS AND COSTS ACROSS THE ENERGY SYSTEM



… as well as substantial costs for consumers themselves, and potential second order costs to government services

DISTRIBUTION OF RISKS AND COSTS BEYOND THE ENERGY SYSTEM



DISCUSSION QUESTION: PROBLEM DEFINITION

Current state…

Status quo assumptions	Resulting issues	Leading to…
• Income distribution should be dealt with through the tax and transfer system • Other forms of vulnerability should be dealt with through other support systems • The energy market should be as efficient as possible	• Misaligned incentives to address consumer vulnerability • Information and capability gaps • Overreliance on disconnection (or threat of disconnection) • Potential inefficiencies	• Bad outcomes for consumers • Substantial costs to retailers, consumers and governments • Potentially inequitable sharing of costs

For discussion:

What else would you change or add to this problem definition?

It is important to recognise the full spectrum of costs related to vulnerability…

DIFFERENT TYPES OF COSTS

Type	Definition
Directly measurable financial costs	Estimated through revealed prices in markets
Quantifiable non-financial costs	Estimated using a methodology that infers a price as a proxy for a revealed price
Unquantifiable non-financial costs	No broadly accepted market-like methodology to use as a proxy for a revealed price

…which are borne by a broad range of stakeholders within and beyond the energy market

CONSUMER VULNERABILITY COST FRAMEWORK

Indicative example costs only	A Costs to consumers facing vulnerability	B Costs to other energy market participants*	C Costs beyond the energy market
Directly measurable financial costs	• **Relating to the energy market**, e.g. being on an inappropriate tariff • **Not related to the energy market**, e.g. non-energy support services	• e.g. cost of recovering debt • Does **not** include cost of proactive interventions supporting consumers (e.g. concessions)	• e.g. costs to the health system/ other support services after an energy market event triggers second-order consequences
Quantifiable non-financial costs	• **Relating to the energy market**, e.g. cost of time spent navigating energy market • **Not relating to the energy market**, e.g. cost of time spent navigating other support services	• e.g. time spent by non-vulnerable consumers waiting in phone queues	• e.g. increased wait time for debt help services
Unquantifiable non-financial costs**	• e.g. stress and inconvenience, impacts to mental health, security and safety	• e.g. erosion of trust in the energy system as a result of poor consumer outcomes	• e.g. health impacts on individuals needing to wait longer for services that vulnerable energy consumers are also accessing

* Includes consumers non experiencing vulnerability, retailers, distributors, generators, regulators, and governments (including government programs specifically related to energy)
** Or very challenging to defensibly allocate a financial cost; however 'frequency' or 'outcomes' could be analysed

Source: Quantitative cost model

DISCUSSION QUESTION: COST MODEL

For discussion later:

At a high-level, what aspects of the cost model approach resonate with you?

In your experience, where are the most significant vulnerability-related costs in the system? Are there any substantial costs we may have missed?

Many consumers face vulnerability at some point in their lifetime

BROAD DEFINITION OF VULNERABILITY

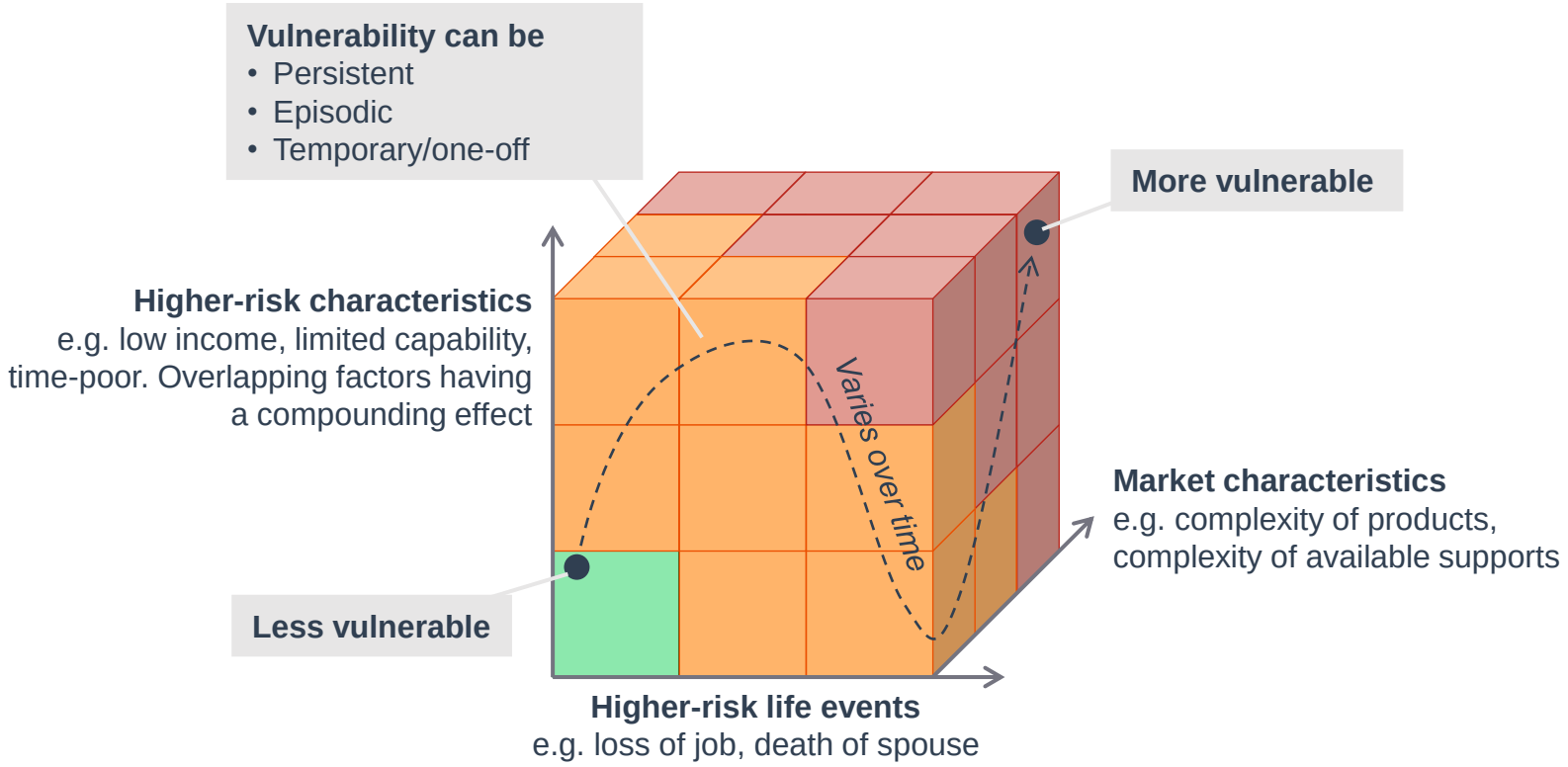
AER definition

Attributes or circumstances that mean a person may be:

- Significantly less able to protect or represent their interests or engage effectively and/or
- Significantly more likely to suffer detriment

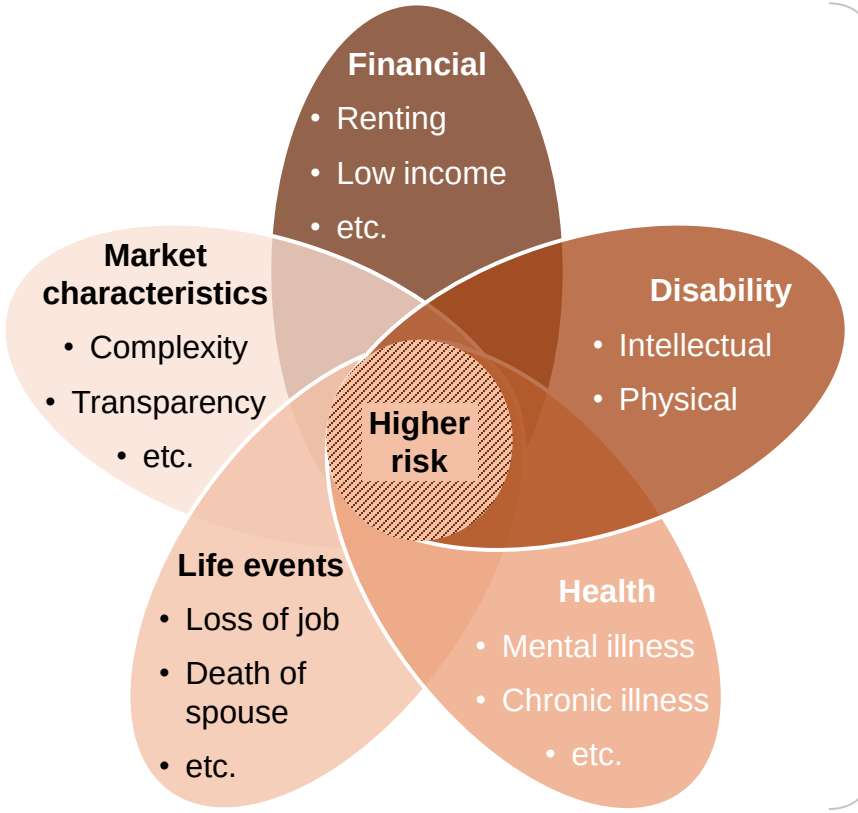
Consumer vulnerability may stem from:

- Characteristics of the energy market or products
- Personal circumstances, such as low income, disability or poor mental health



Overlapping characteristics and circumstances are likely to compound the risk of vulnerability, but estimating the prevalence of this overlap is difficult

COMPOUND EFFECT OF OVERLAPPING DRIVERS

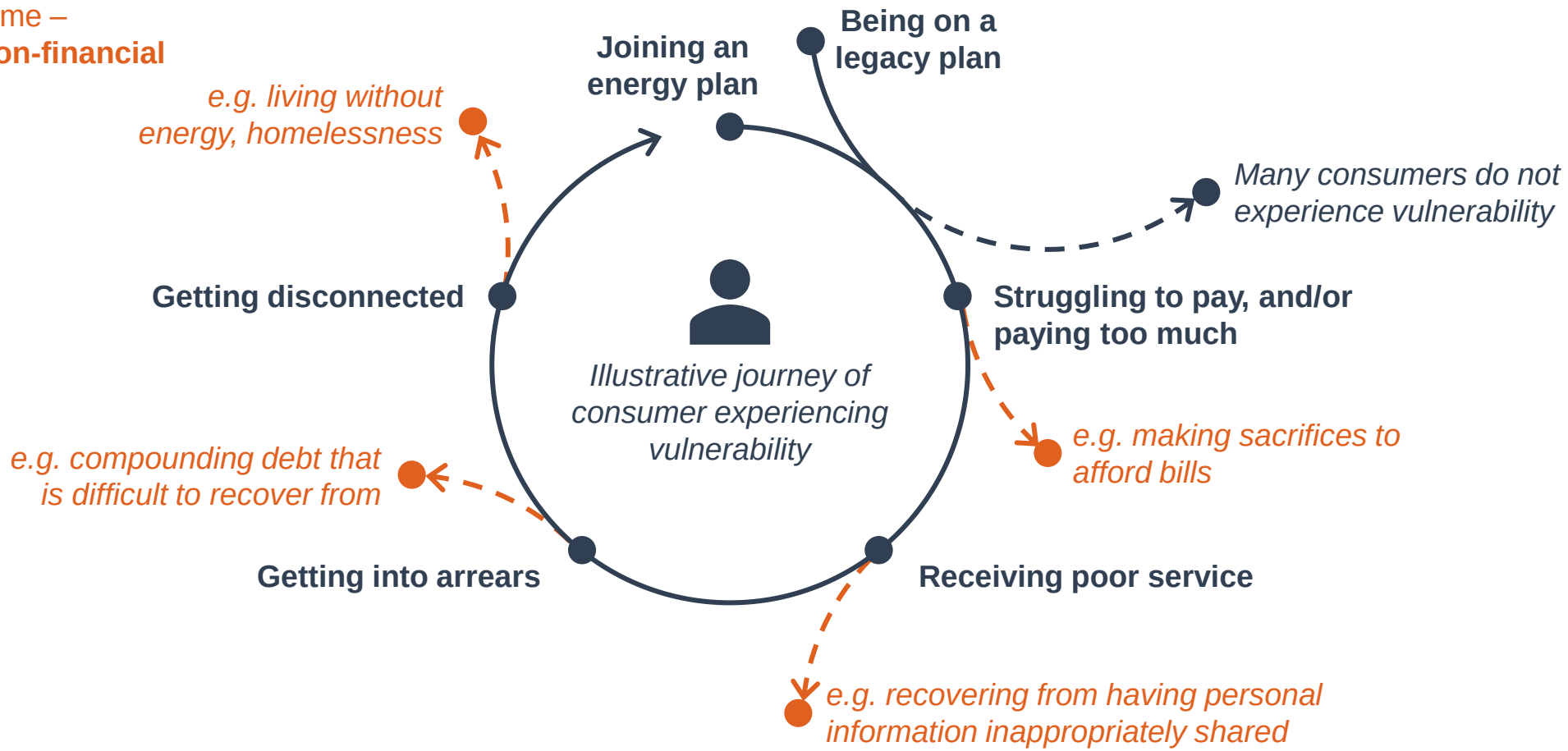


There are **limited existing data sets** that map the overlap of multiple different higher-risk characteristics/circumstances

Events in the energy system can lead to adverse outcomes for consumers experiencing vulnerability

ENERGY SYSTEM INCIDENTS OR EXPERIENCES ALONG THE CUSTOMER JOURNEY

- Energy market event
- Adverse outcome – **financial or non-financial**



We have developed 15 consumer archetypes to illustrate the range of costs of consumer vulnerability

CUSTOMER ARCHETYPES

TO BE REFINED

Nature of vulnerability	Archetype	
Persistent vulnerability	1.	Renting, long-term financially disadvantaged single parent
	2.	Renting family who can't afford more efficient fittings
	3.	Low income couple with limited literacy
	4.	Large migrant family with limited English
	5.	Person with an intellectual disability living alone
	6.	Renting, low-income multigenerational family
	7.	Large, low income Indigenous family
Episodic vulnerability	8.	Individual dealing with substance abuse
	9.	Single parent with unwell child
	10.	Individual with chronic mental health condition
	11.	Parent with chronic illness
	12.	Family violence victim/survivor
One-off vulnerability	13.	Couple family whose primary earner has lost job
	14.	Recently widowed elderly person
	15.	Young family facing temporary financial stress

Explored as examples on subsequent pages

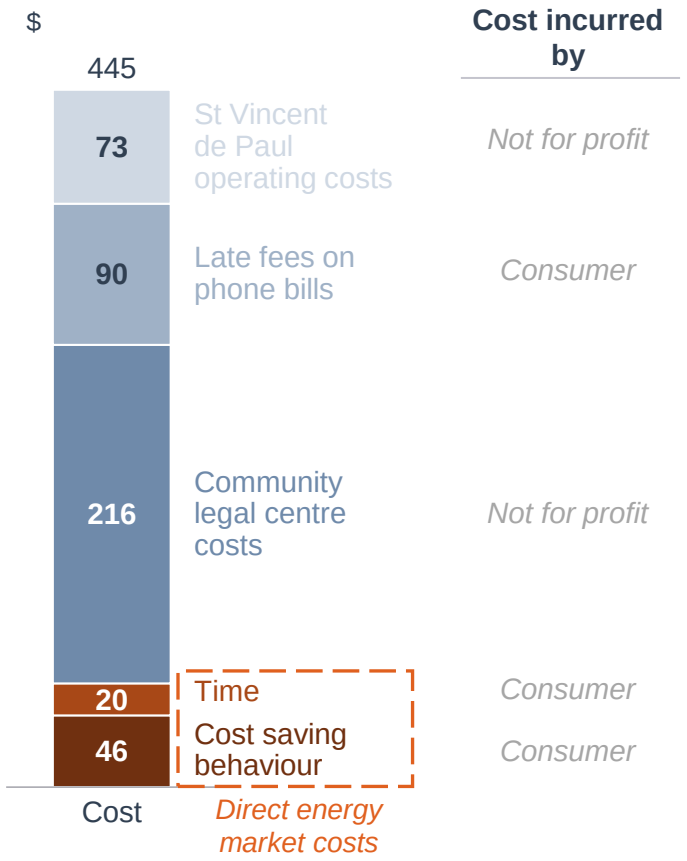
As an example, one archetype illustrates that direct energy system costs only capture a small fraction of the total costs of vulnerability

ARCHETYPE 6: RENTING, LOW-INCOME MULTIGENERATIONAL FAMILY *ILLUSTRATIVE. FEEDBACK WELCOMED*

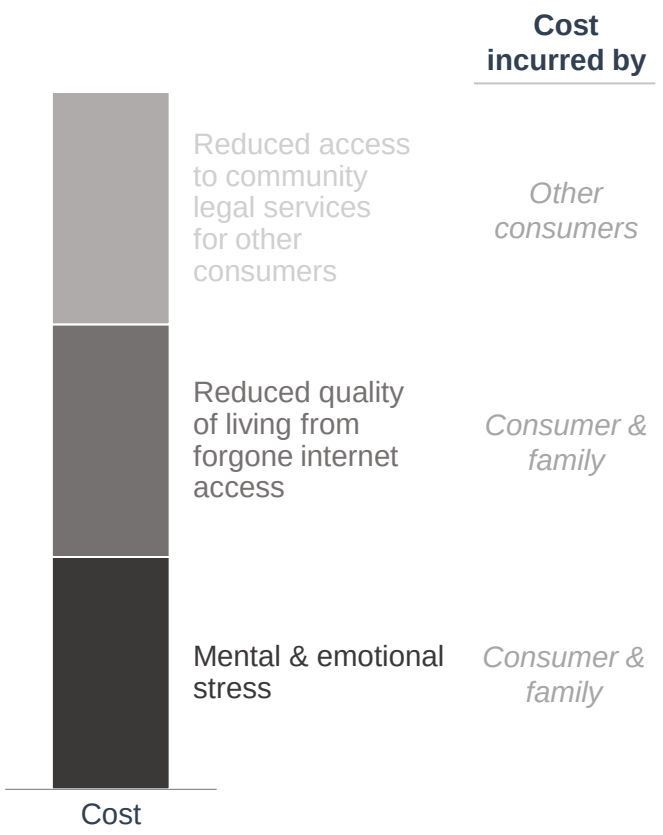
Consumer characteristics/story

- Long-term financially disadvantaged multi-generational family of nine living in a rural area
- Both parents are casually employed and earn a low income while they care for their five children and two grandparents; they cannot afford a bigger home and are overly crowded
- Five children often leave electrical appliances (e.g. TV, lights, fans) turned on
- Family have tried to call their retailer to get financial assistance, however were transferred between operators multiple times & gave up
- While they always pay their energy bill on time, the parents live in constant financial stress and regularly delay payment of their phone bills, and forgo internet access
- To save money & ensure they meet their energy bills, the family often access charitable assistance such as:
  - Purchasing clothing & furniture from St. Vincent de Paul
  - Accessing Community Legal Centres for advice on managing notices relating to other debts owned

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; AER Retail Performance data; No Gaps Dental

Another archetype illustrates that customers who are not typically perceived as 'vulnerable' can find themselves in vulnerable situations and incur substantial costs

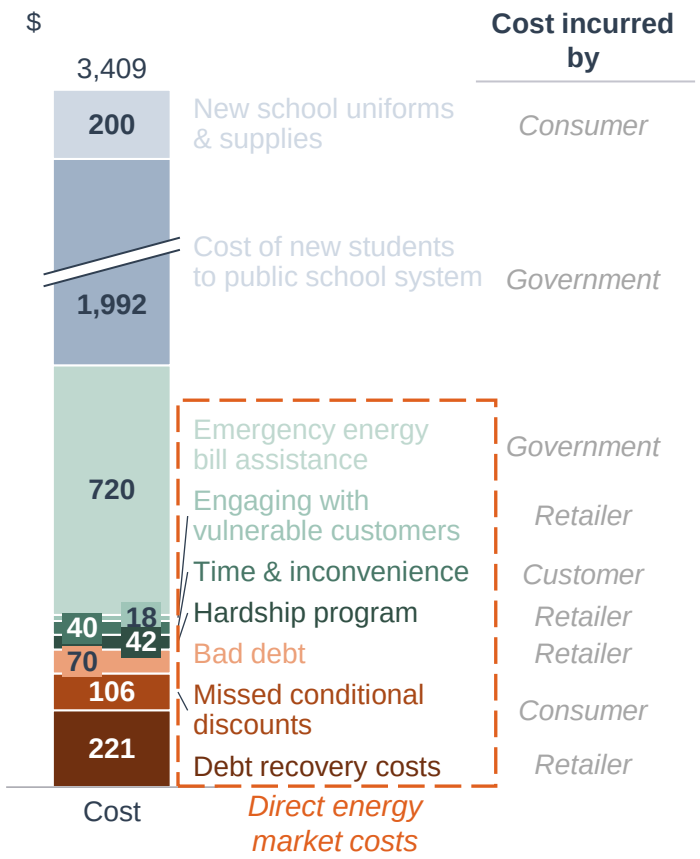
ARCHETYPE 13: COUPLE WHO HAVE LOST PRIMARY JOB

ILLUSTRATIVE. FEEDBACK WELCOMED

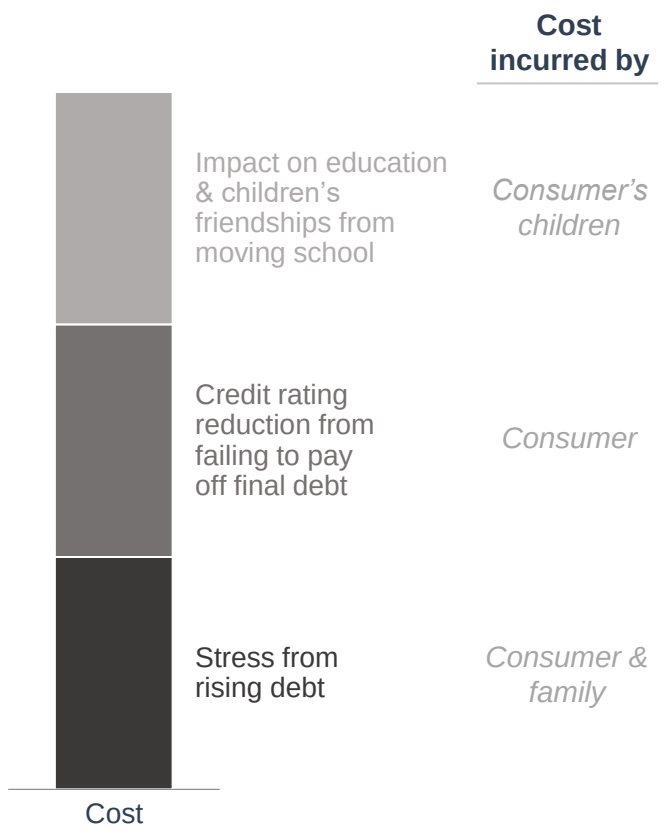
Consumer characteristics/story

- Couple living with three children in a house they own, with average income
- Primary household earner loses job due to cutbacks during the COVID pandemic
- Couple apply for JobSeeker, however these are not enough to cover mortgage repayments, school fees, utility bills, food, etc
- Falling behind on their energy bills, the couple decide to cut back on phone & internet, health insurance, and move children to a public school
- Struggling to make ends meet, the couple call their retailer and arrange to be placed on a hardship program
- Couple access QLD Emergency Energy Bill Assistance program
- Despite the hardship program, they continue consuming more energy than paying for, and their energy debt rises
- Primary income earner finds a new job. Couple pay off majority of debt, aside from $70, which they forget to pay when they switch retailer. Retailer writes debt off

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; Press reports; Australian Department of Industry, Science, Energy & Resources

We have developed an indicative assessment of the costs associated with each consumer archetype

CONSUMER ARCHETYPES AND POSSIBLE COST PROFILES

TO BE REFINED

Archetype		Indicative assessment of costs (qualitative*)
1.	Renting, long-term disadvantaged single parent	Medium
2.	Renting family who can't afford more efficient fittings	Medium
3.	Low income couple with limited literacy	Medium
4.	Large migrant family with limited English	Medium
5.	Person with an intellectual disability living alone	Medium
6.	Renting, low-income multigenerational family	Medium
7.	Large, low income Indigenous family	Higher
8.	Individual dealing with substance abuse	Higher
9.	Single parent with unwell child	Medium
10.	Individual with chronic mental health condition	Higher
11.	Parent with chronic illness	Medium
12.	Family violence victim/survivor	Higher
13.	Couple family whose primary earner has lost job	Medium
14.	Recently widowed elderly person	Medium
15.	Young family facing temporary financial stress	Medium

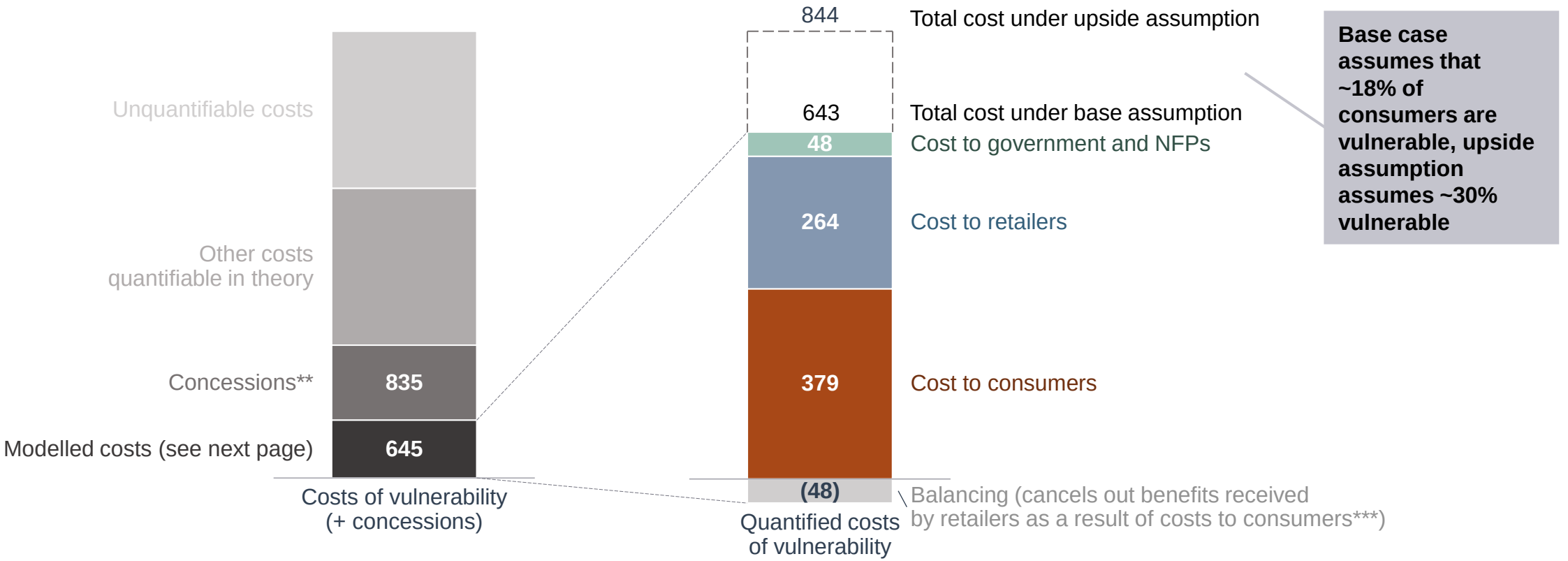
* Qualitative assessment. Higher = physical harm or widespread lasting impacts; Medium = some lasting impacts; Lower = minor stress, small, short-term impacts to quality of life

Source: Quantitative cost model; qualitative cost assessment

There are ~$640 million in system costs that we can estimate in aggregate

QUANTIFIABLE COSTS OF VULNERABILITY, BAU YEAR*

$ millions p.a.



* Electricity and gas consumers in Queensland, New South Wales, ACT, Victoria, Tasmania and South Australia

** Concession costs not counted in costs of vulnerability as they are a cost of existing proactive interventions, sometimes targeted at reducing vulnerability, rather than a cost resulting from an outcome of vulnerability itself

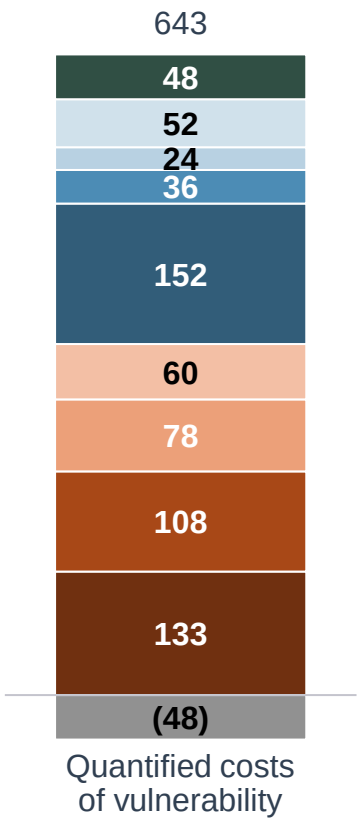
*** Equal to average retailer EBITDA margin x (cost to consumers of: lack off access to efficient appliances & fittings, cost saving behaviours, lack of access to solar) plus missed concessional discounts and inappropriate tariffs

Source: Quantitative cost model

… this is broken up into aggregate quantifiable costs to consumers, retailers and government

QUANTIFIABLE COSTS OF VULNERABILITY, BAU YEAR*

$ millions p.a.



	% of total	
Total	100%	
Cost of programs supporting consumers	7%	Cost to govt. and NFPs
Other costs to retailers	7%	Cost to retailers
Cost of engaging with consumers facing vulnerability	3%	
Cost of debt recovery	5%	
Cost of bad debt	21%	
Other costs to consumers facing vulnerability	8%	Cost to consumers facing vulnerability
Cost saving behaviours	14%	
Cost of time spent navigating the energy market	15%	
Lack of access to efficient appliances & fittings	20%	
Balancing amount **		

* Electricity and gas consumers in Queensland, New South Wales, ACT, Victoria, Tasmania and South Australia

** Equal to average retailer EBITDA margin x (cost to consumers of: lack off access to efficient appliances & fittings, cost saving behaviours, lack of access to solar) plus missed concessional discounts and inappropriate tariffs

Source: Quantitative cost model

We could use archetypes to understand the total quantifiable system cost, but there are major data gaps

ESTIMATING SYSTEM COST OF VULNERABILITY USING ARCHETYPES

Difficult to model for all consumers, though we can estimate for a single example consumer

Difficult to estimate. Archetypes would need to be mutually exclusive and collectively exhaustive

Archetype		**Annual system costs** ($)	**Number of consumers**	**Total system costs** ($)
1.	Renting, long-term disadvantaged single parent	?	?	?
2.	Renting family who can't afford more efficient fittings	?	?	?
3.	Low income couple with limited literacy	?	?	?
...	…	…	…	…
			Total quantifiable cost of vulnerability:	**?**

The true quantifiable cost is likely to be substantially larger than the modelled aggregate cost

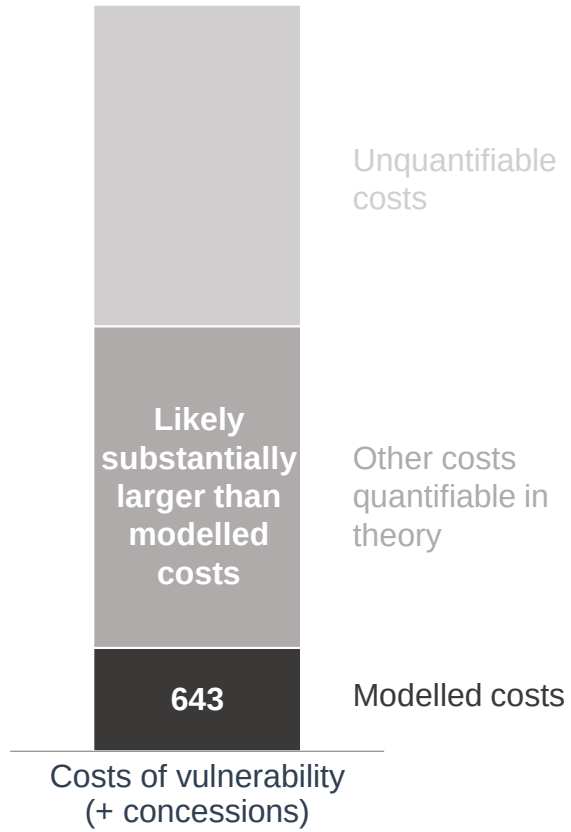
CONSUMER ARCHETYPES AND POSSIBLE COST PROFILES

TO BE REFINED

	Archetype	Quantifiable costs
1.	Renting, long-term disadvantaged single parent	20% / 80%
2.	Renting family who can't afford more efficient fittings	100%
3.	Low income couple with limited literacy	4% / 96%
4.	Large migrant family with limited English	65% / 35%
5.	Person with an intellectual disability living alone	56% / 44%
6.	Renting, low-income multigenerational family	15% / 85%
7.	Large, low income Indigenous family	100% / 0.4%
8.	Individual dealing with substance abuse	4% / 96%
9.	Single parent with unwell child	12% / 88%
10.	Individual with chronic mental health condition	8% / 92%
11.	Parent with chronic illness	6% / 94%
12.	Family violence victim/survivor	9% / 91%
13.	Couple family whose primary earner has lost job	36% / 64%
14.	Recently widowed elderly person	100%
15.	Young family facing temporary financial stress	66% / 34%

Cost items included in $645m estimate

Cost items not included*



* Many of these costs not entirely attributable to energy market vulnerability. Other factors are likely to contribute

Source: Quantitative cost model; qualitative cost assessment

DISCUSSION QUESTION: COST MODEL

For discussion:

At a high-level, what aspects of the cost model approach resonate with you?

In your experience, where are the most significant vulnerability-related costs in the system? Are there any substantial costs we may have missed?

A new approach is needed to address these significant costs and make consumers and the system overall better-off

WHAT NEEDS TO CHANGE?

Current state…

Future state…

Status quo assumptions	Resulting issues	Leading to…	What needs to change?	Leading to…
• Income distribution should be dealt with through the tax and transfer system • Other forms of vulnerability should be dealt with through other support systems • The energy market should be as efficient as possible	• Misaligned incentives to address consumer vulnerability • Information and capability gaps • Overreliance on disconnection (or threat of disconnection) • Potential inefficiencies	• Bad outcomes for some consumers • Substantial costs to retailers, consumers and governments • Potentially inequitable sharing of costs	• A system that engages consumers, including those with complex needs • Earlier and better targeted support • Equitable and efficient sharing of costs and risks • Better protections for consumers, from contracting to disconnecting	• **Better outcomes** for consumers • **Lower costs** for consumers, retailers, and governments • **More equitable and efficient sharing** of costs and risks

'How?' – subject of future workshops

DISCUSSION QUESTION: FUTURE STATE

For discussion:

What needs to change to help address costs and make consumers and the system overall better-off?

What other outcomes should we target?

Future state…

What needs to change?	Leading to…
• A system that engages consumers, including those with complex needs • Earlier and better targeted support • Equitable and efficient sharing of costs and risks • Better protections for consumers, from contracting to disconnecting	• **Better outcomes** for consumers • **Lower costs** for consumers, retailers, and governments • **More equitable and efficient sharing** of costs and risks

'How?' – subject of future workshops

We will work closely with you to refine these estimates and co-design options for ambitious actions to drive real change for consumers experiencing vulnerability

NEXT STEPS

Refine costs and archetypes in consultation with you

- Refine cost assumptions and update inputs as new data becomes available
- Identify and model any missing cost categories
- Review ‘archetypes’ and understand whether there are any gaps

Further discussion of design principles for new models and their relative importance

- For example, discuss the relative importance of actions that:
  - Minimise consumer’ quantifiable costs and unquantifiable costs as much as possible
  - Protect consumers against the most severe individual costs and consequences
  - Deliver overall value for money and efficient and equitable management of resources
  - Minimise perverse incentives
  - Complement existing actions and initiatives while being streamlined

Discuss ‘game changing’ actions, building on discussions last year

- Frame and discuss potential sub-options or design choices that relate to high-level options
- Consider funding, governance and implementation considerations

AUSTRALIAN ENERGY REGULATOR

Thursday, 24th March 2022

Appendix

LIST OF APPENDICES

LIST OF CONSUMER ARCHETYPES

Higher correlation with vulnerability

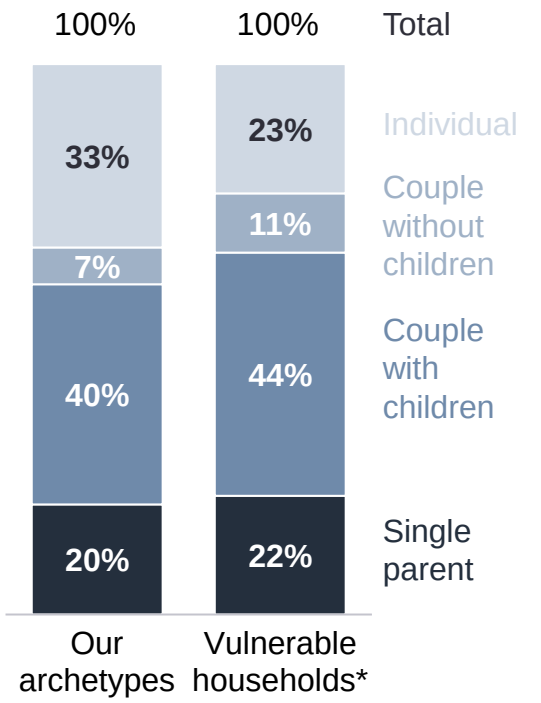
Nature	Archetype	Household structure	Housing tenure	Literacy/ Language	Financial status	Disability/ illness	Life events	Other drivers	Energy market status/event
Persistent vulnerability	1. Renting, long-term financially disadvantaged single parent	**Single parent**	**Renting, private**	Average	**Low income**	N/A	N/A	N/A	**Payment plan, concessions**
	2. Renting family who can't afford more efficient fittings	Couple with children	**Renting, private**	Average	Middle income	N/A	N/A	N/A	N/A
	3. Low income couple with limited literacy	Couple	Own outright	**Low**	**Low income**	N/A	N/A	**Elderly; using payday lending**	**Concessions**
	4. Large migrant family with limited English	Couple with children	**Renting, private**	**Low (ESL)**	Middle income	N/A	**Recently migrated**	**Unfamiliar with market**	N/A
	5. Person with an intellectual disability living alone	Individual	**Renting, public**	**Low**	**Low income**	**Intellectual disability**	N/A	**Indigenous**	**Disconnection**
	6. Renting, multigenerational low-income family	Multiple gene-rations	Mortgage	Average	**Low income**	N/A	N/A	**Regional area; overcrowded house**	N/A
	7. Large, low income Indigenous family	Couple with children	**Renting, public**	Average	**Low income**	N/A	**Higher than normal bill**	**Indigenous**	**Hardship; wrongful disconnection**
Episodic vulnerability	8. Individual dealing with substance abuse	Individual	**Renting, private**	Average	**Low income**	N/A	N/A	**Substance abuse; family violence victim/survivor**	**Disconnection**
	9. Single parent with unwell child	**Single parent**	Mortgage	High	High income	**Child: chronic illness**	N/A	**Require air-conditioning**	**Long power outage during flood**
	10. Individual with chronic mental health condition	Individual	**Renting, private**	Average	Middle income	**Mental illness**	N/A	N/A	**Disconnection**
	11. Parent with chronic illness	**Single parent**	**Renting, private**	High	**Low income**	**Chronic illness**	N/A	**Uncertain employment**	**Payment plans**
	12. Family violence victim/survivor	Individual	**Renting, private**	High	Middle income	N/A	**Separated from partner**	**Family violence victim/survivor**	**Contact details shared by mistake**
Temporary vulnerability	13. Couple family whose primary earner has lost job	Couple with children	Mortgage	High	Middle income	N/A	**Lost job during Covid**	N/A	**Hardship**
	14. Recently widowed elderly person	Individual	Own outright	Average	Savings + pension	**Physical disability**	**Husband dies**	**Elderly; grieving**	**Threatened with disconnection**
	15. Young family facing temporary financial stress	Couple with children	**Renting, private**	Average	**Low income**	N/A	**New baby**	**Young; using BNPL**	**Payment plan**

The characteristics of our archetypes broadly align with the characteristics observed among consumers potentially experiencing vulnerability

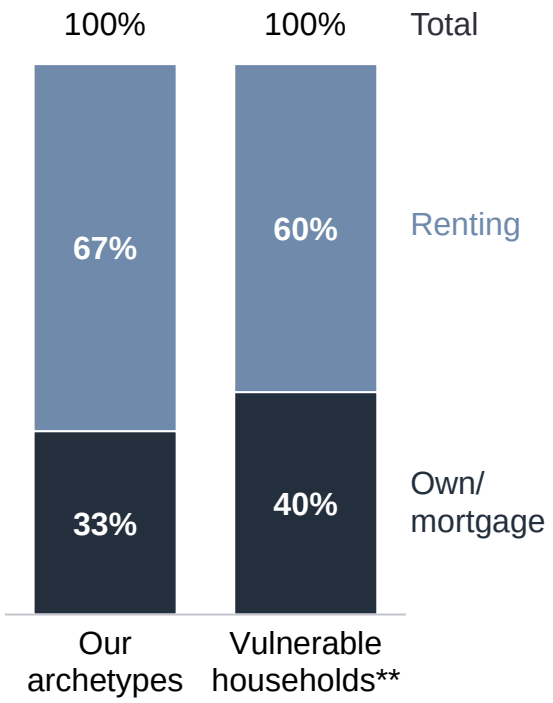
COMPARING ARCHETYPES WITH AVAILABLE DATA

% of households

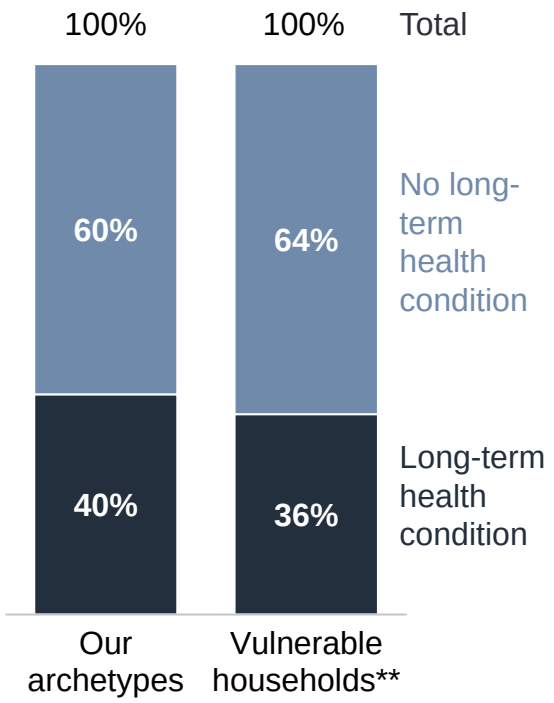
Household structure



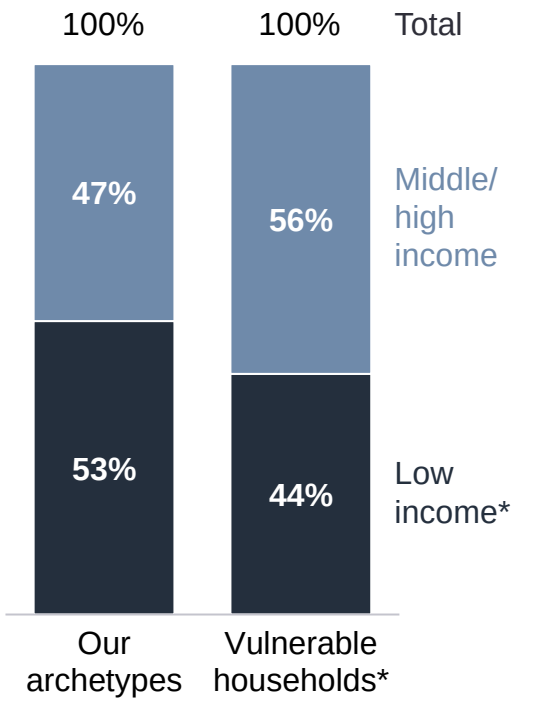
Housing tenure



Health conditions in household



Financial status



* Households who were unable to pay a utilities/telco bill in 2019, adapted from ABS Household Financial Resources data

** Households who could not pay electricity, gas or phone bills on time at some point in at least 2 years out of every 3, according to VCOSS data

Source: ABS *Household Financial Resources*; VCOSS *Battling On – Persistent Energy Hardship*

Archetype 1

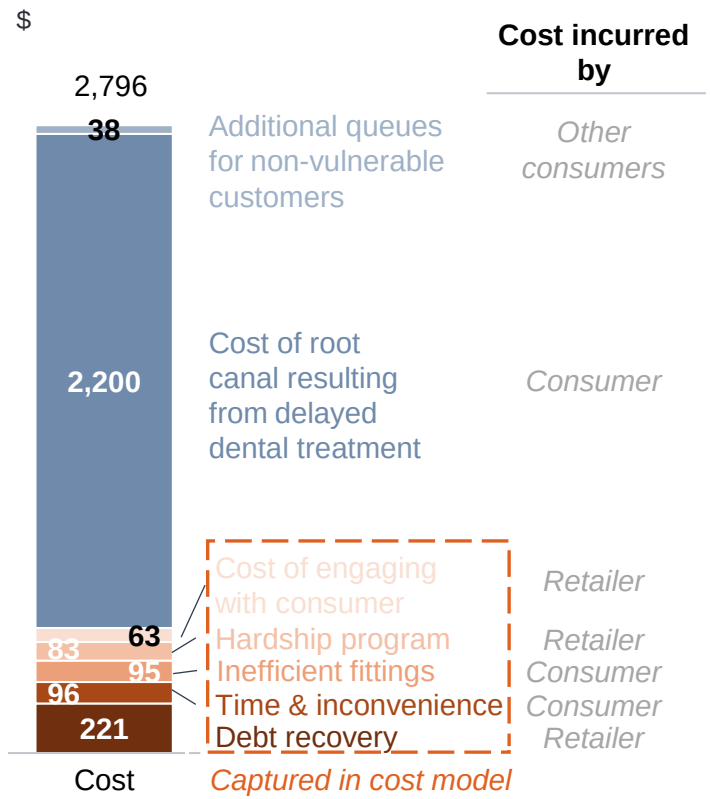
1 ARCHETYPE: RENTING LONG TERM FINANCIALLY DISADVANTAGED FAMILY

ILLUSTRATIVE. FEEDBACK WELCOMED

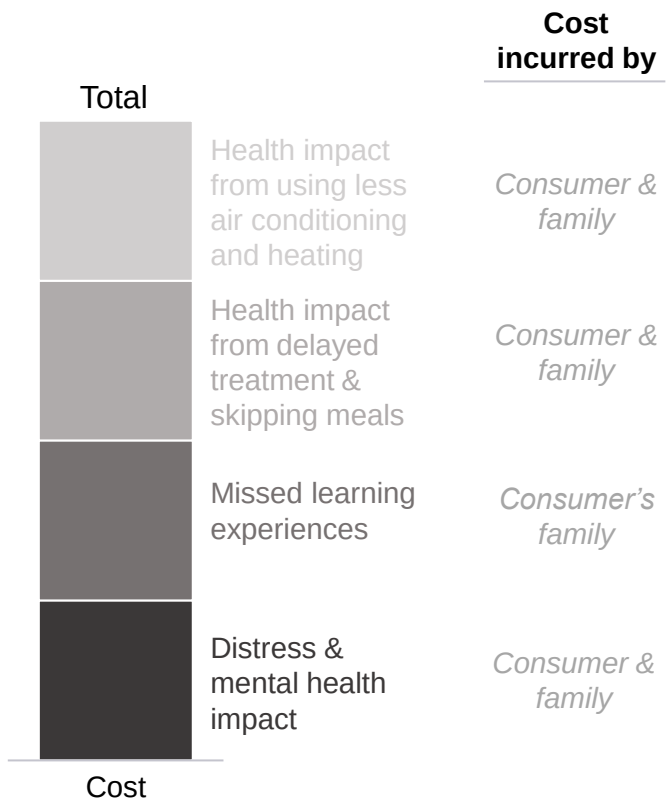
Consumer characteristics/story

- Single mother with 2 children and low income, relying on various government supports
- Rents private housing with inefficient fittings & appliances, waiting to access public housing
- Conscientious about energy consumption, but regularly slips in and out of energy debt
- Accesses concessions, and has been on hardship in the last year and is currently on a payment plan
- Regularly makes sacrifices to pay for energy, including
  - Delaying dental treatment
  - Skipping meals
  - Missing school excursions
  - Using less air-conditioning or heating
- Due to delayed dental treatment, customer requires a root canal they wouldn't otherwise have required

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; AER Retail Performance data; No Gaps Dental

Archetype 2

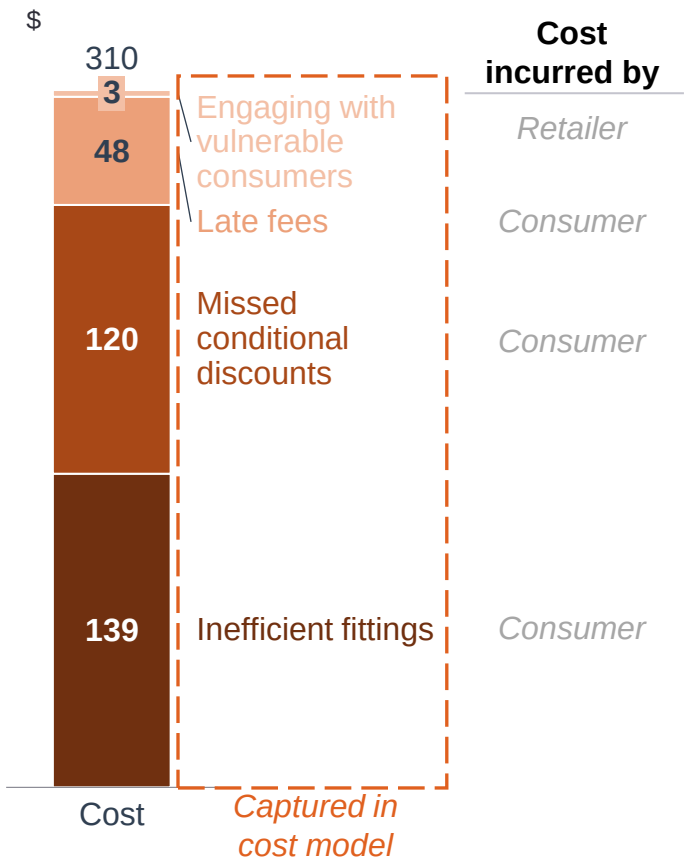
2 ARCHETYPE: RENTING FAMILY

ILLUSTRATIVE. FEEDBACK WELCOMED

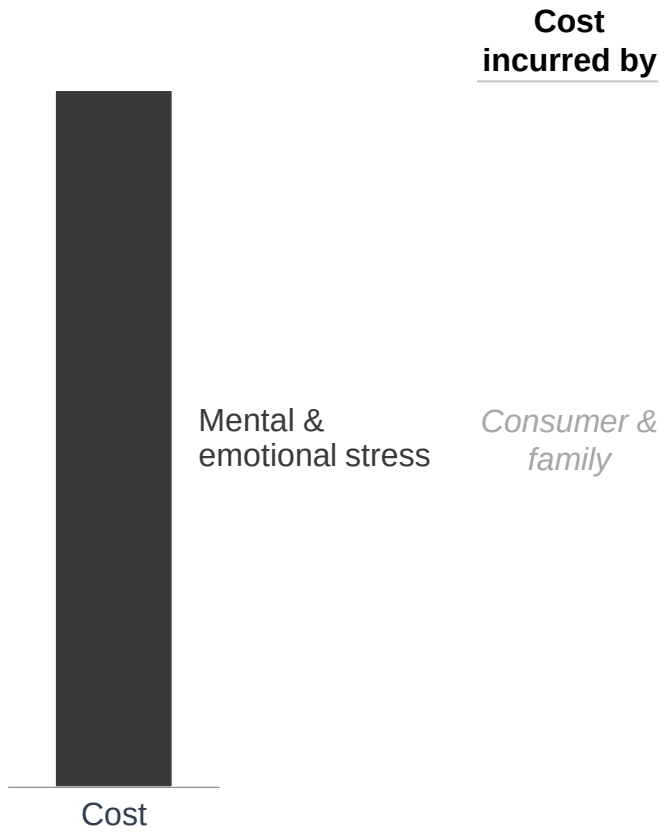
Consumer characteristics/story

- Couple with two young children, on a conditional discount tariff
- Couple is privately renting a two bedroom apartment, however the apartment is:
  - Poorly insulated
  - Without properly sealed windows, allowing cold draughts to come through
  - Equipped with an inefficient water heating system, dishwasher, and old electric stove
  - Not equipped with centralised heating
- The couple is unable to change furnished elements of apartment to reduce their bills. Even if they were allowed to, it would be too expensive for their budget
- Conscientious of their budget; they often delay payment of energy bills, incur late fees, and miss their conditional discounts

Quantifiable costs*



Non-quantifiable costs



* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

Archetype 3

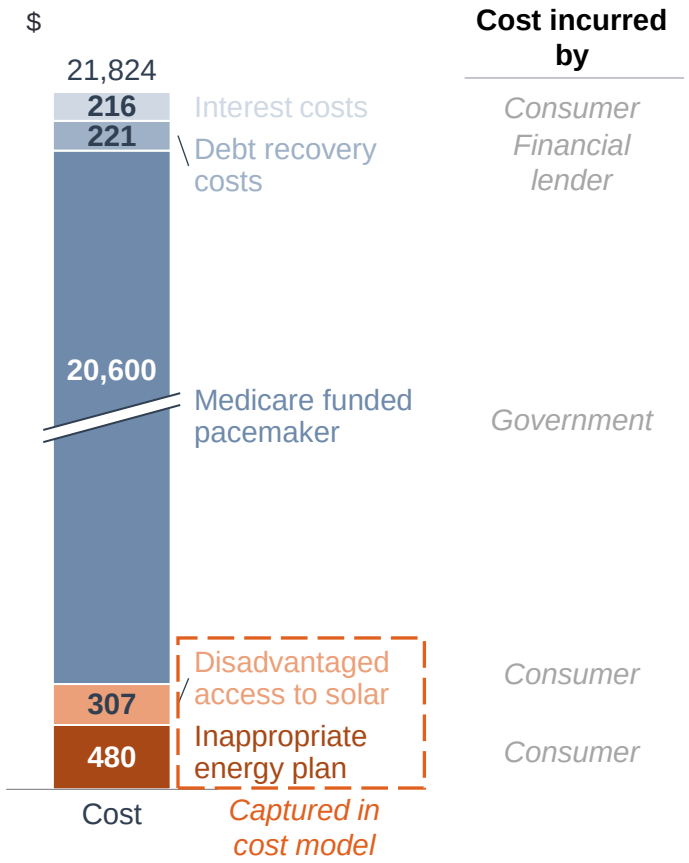
3 ARCHETYPE: LOW INCOME FAMILY WITH LIMITED LITERACY

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Elderly couple living together who own their home outright. Despite owning their own home, they cannot afford Solar panels due to their low income
- Couple has low literacy and financial-literacy skills & rely on the Aged Pension for income
- Couple have been on a standing market offer for last 5 years; they are unaware that they can access a better deal, however would have if they had been informed of the option
- Often struggling to manage their budget, the couple frequently incur late fees & use payday lenders or credit cards to pay their energy bills
- They accrue interest at a rate of 20% p.a. on these transactions
- The couples' debt grows rapidly. Their lender / bank pursues debt recovery actions, and the couple are forced to cancel their private health insurance to help pay their debt
- Elderly Husband has pacemaker inserted later in the year & is funded via Medicare

Quantifiable costs*



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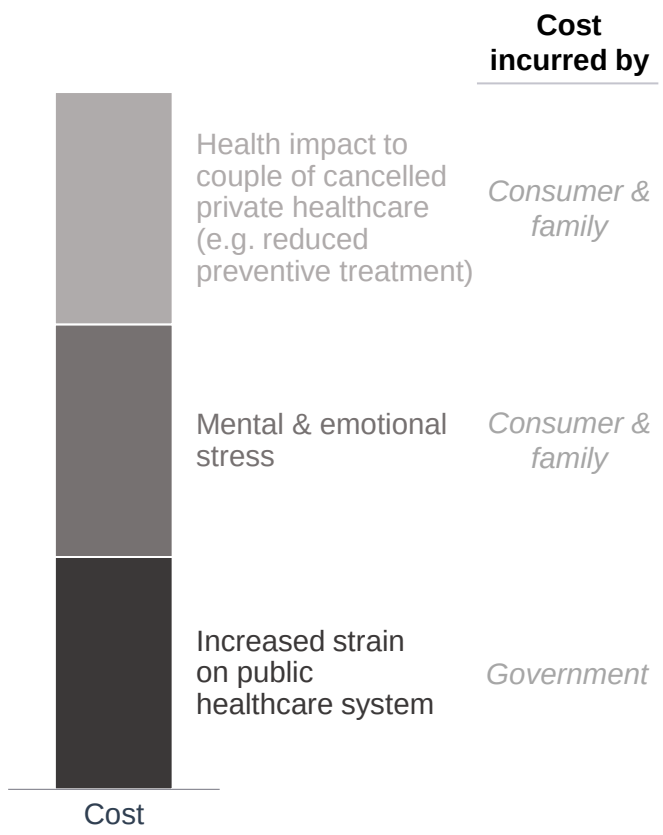


* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; MediBank

Archetype 4

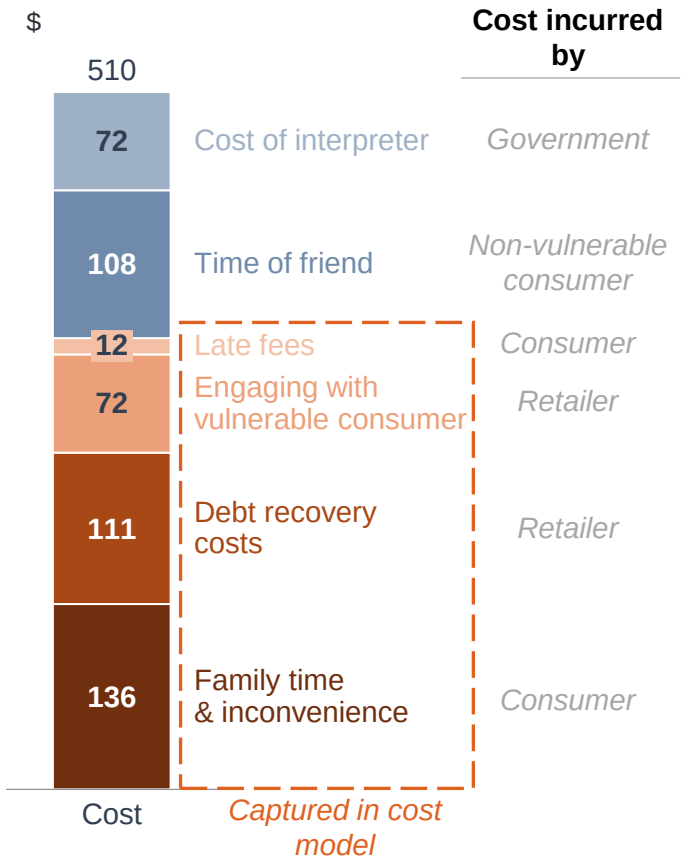
4 ARCHETYPE: LARGE MIGRANT FAMILY WITH LIMITED ENGLISH

ILLUSTRATIVE. FEEDBACK WELCOMED

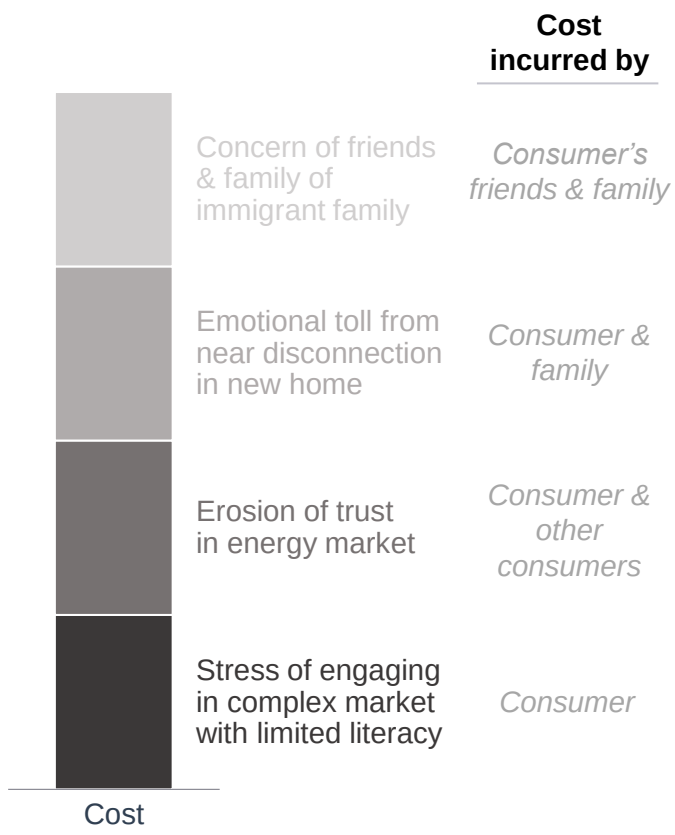
Consumer characteristics/story

- Family has recently immigrated from overseas with limited English language skills
- Family move into an apartment with energy already connected from the prior tenant
- Family use electricity for three months, but do not realise that they are required to register an account with a retailer
- Existing retailer mails them multiple disconnection notices, engages debt collection agency and applies late fees to bill
- Family shows notices to an English-speaking friend, who recognises the issue and instructs them to contact their retailer immediately
- Family spends three hours researching interpreters and eventually book one
- Family calls retailer with interpreter; spends two hours on phone to retailer to get the account set-up and various issues remedied

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

Archetype 5

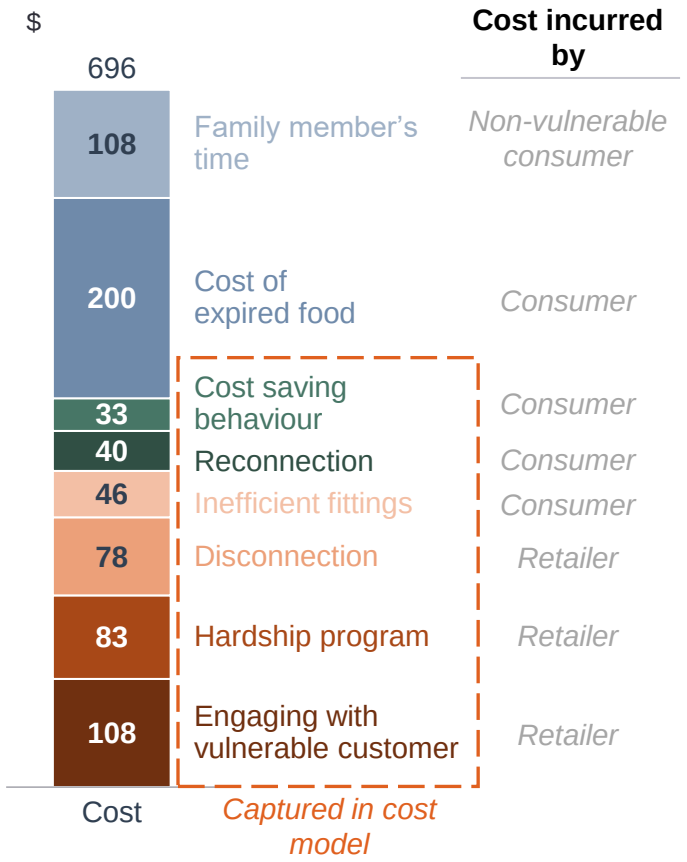
5 ARCHETYPE: PERSON WITH INTELLECTUAL DISABILITY

ILLUSTRATIVE. FEEDBACK WELCOMED

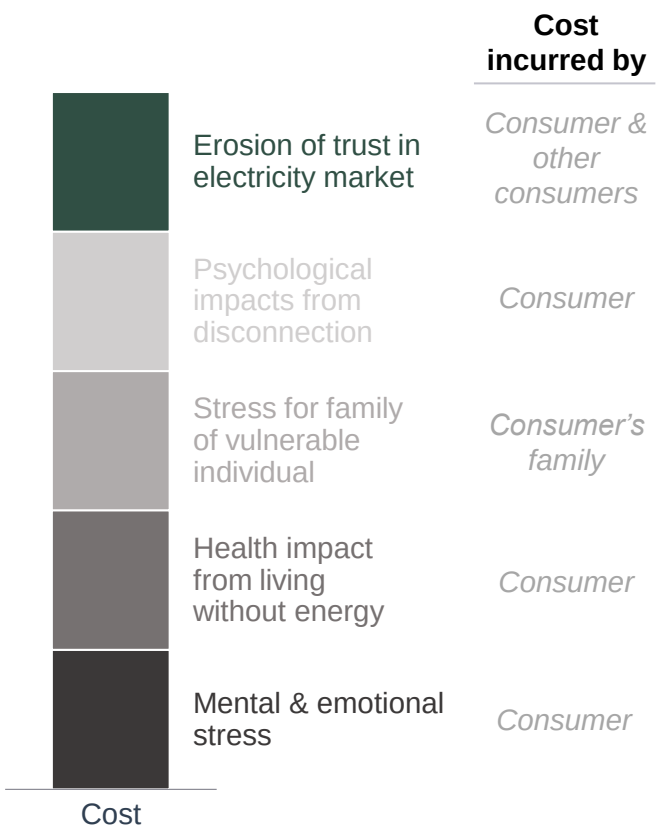
Consumer characteristics/story

- Indigenous person with intellectual disability lives alone in public housing
- Their public housing is energy inefficient, increasing their energy consumption; additionally, they often leave appliances turned on overnight
- Heightened consumption combined with their low income results in them often being behind on their energy bill
- Their retailer threatens disconnection
- Their intellectual disability impacts engagement with their retailer, and they do not respond to the disconnection notice; they get disconnected
- They do not know what to do, and live without energy for a few days; all the food in their fridge expires
- They reach out to a family member, who spends three hours on the phone to retailer on their behalf, organising for the individual to be placed on a hardship program

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

Archetype 6

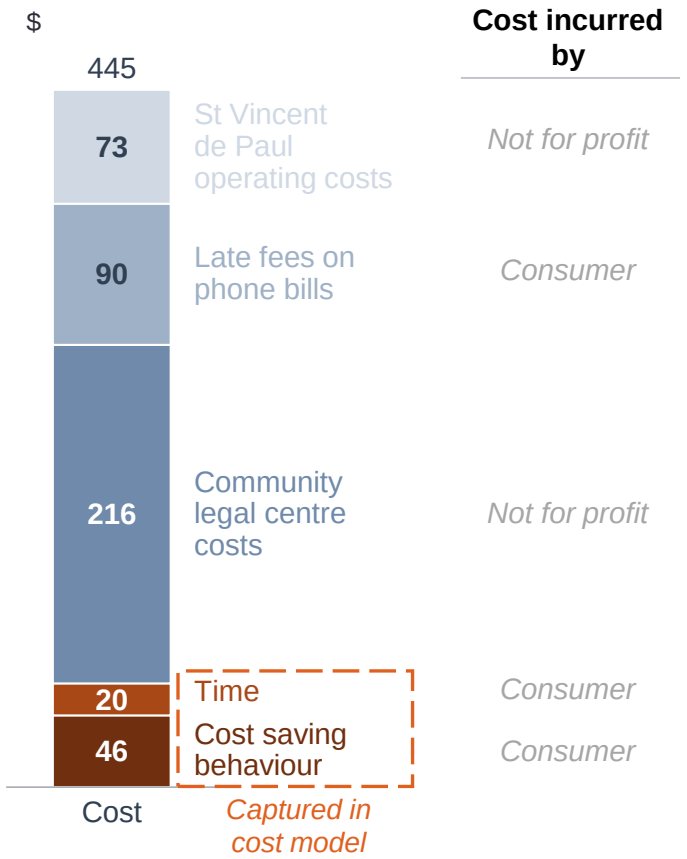
6 ARCHETYPE: RENTING, LOW-INCOME MULTIGENERATIONAL FAMILY

ILLUSTRATIVE. FEEDBACK WELCOMED

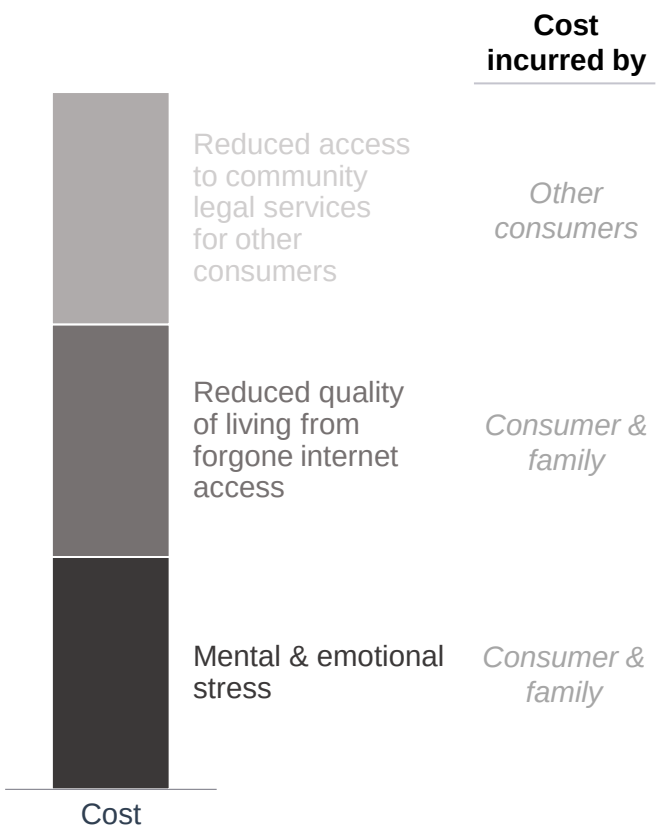
Consumer characteristics/story

- Long-term financially disadvantaged multi-generational family of nine living in a rural area
- Both parents are casually employed and earn a low income while they care for their five children and two grandparents; they cannot afford a bigger home and are overly crowded
- Five children often leave electrical appliances (e.g. TV, lights, fans) turned on
- Family have tried to call their retailer to get financial assistance, however were transferred between operators multiple times & gave up
- While they always pay their energy bill on time, the parents live in constant financial stress and regularly delay payment of their phone bills, and forgo internet access
- To save money & ensure they meet their energy bills, the family often access charitable assistance such as:
  - Purchasing clothing & furniture from St. Vincent de Paul
  - Accessing Community Legal Centres for advice on managing notices relating to other debts owned

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; Optus; Vinnies

Archetype 7

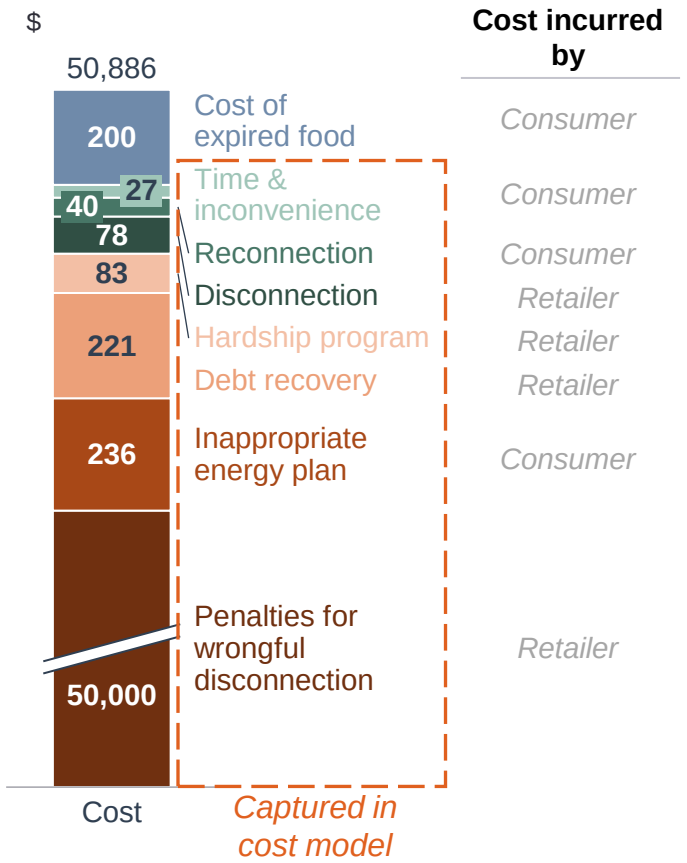
7 ARCHETYPE: LARGE, LOW INCOME INDIGENOUS FAMILY

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Indigenous family living in public housing relying predominantly on social assistance supports for income
- On a standing offer plan
- During hot summer months family relies heavily on air conditioning to cool apartment
- Family receives abnormally high electricity bill, and cannot make payment
- Due to past experience of racial discrimination when seeking help from companies, family is deterred from reaching out to retailer & does not respond to first disconnection notice
- Family do not receive any further disconnection notices, however are prematurely disconnected
- Family call retailer to organise re-connection, and are placed onto a hardship program. Re-connection takes several days, during which time much of their refrigerated food expires
- Retailer penalised for wrongful disconnection

Quantifiable costs*



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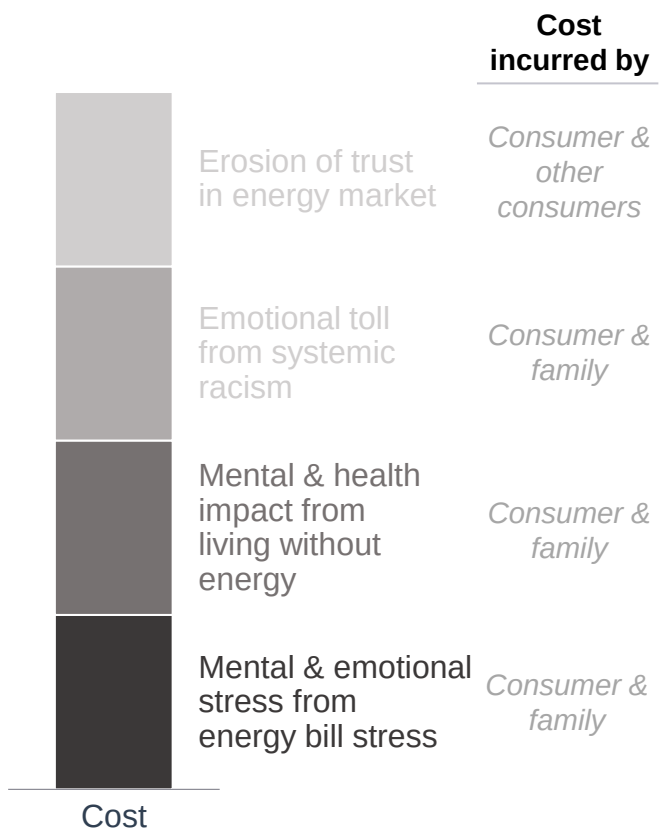


* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

Archetype 8

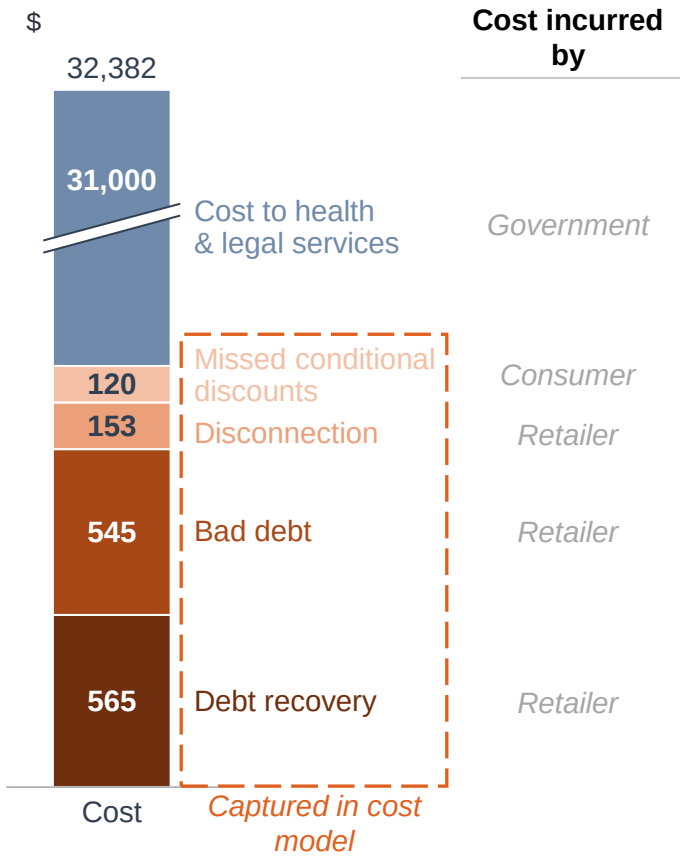
8 ARCHETYPE: INDIVIDUAL DEALING WITH SUBSTANCE ABUSE

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Individual is privately renting an apartment, earns a low-level income, and is struggling with substance abuse
- They are experiencing a particularly intense episode of substance abuse, and has not paid their energy bill in several months
- Despite several disconnection notices issued by retailer, they continue to delay payment
- They are eventually disconnected
- They continue living without energy for several weeks
- Living without energy intensifies substance abuse, and triggers additional mental illness, ultimately leading to loss of income
- Individual is eventually evicted from tenancy and becomes homeless
- They apply for social housing, however no spots are available in the foreseeable future

Quantifiable costs*



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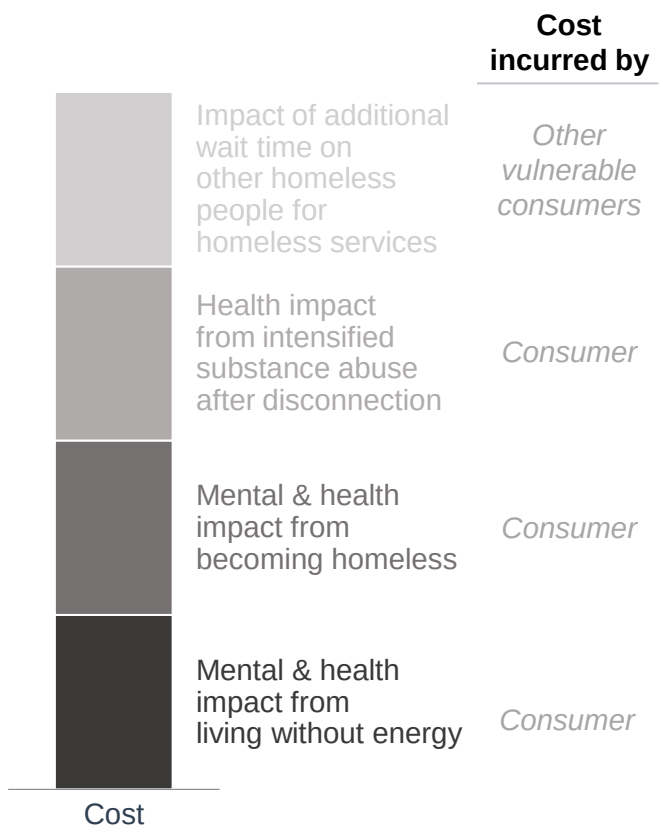


* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; Pathways to homelessness report (NSW)

Archetype 9

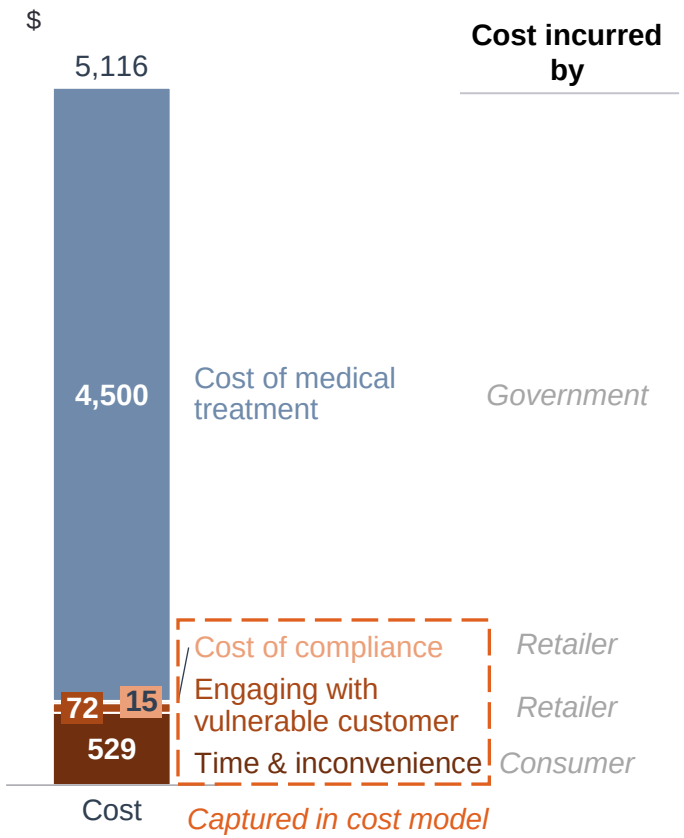
9 ARCHETYPE: SINGLE PARENT WITH UNWELL CHILD

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Single parent living with an unwell child who requires constant air conditioning / heating to assist body temperature regulation
- There is an lengthy blackout in their home due regional flooding
- As the ambient temperature rises through the day, the child struggles to regulate their body temperature and begins feeling unwell
- The child is taken to the hospital for treatment, where she is admitted to the ICU for the day
- The single parent is forced to take carer's leave to care for her child
- After power is restored, parent and child return home

Quantifiable costs*



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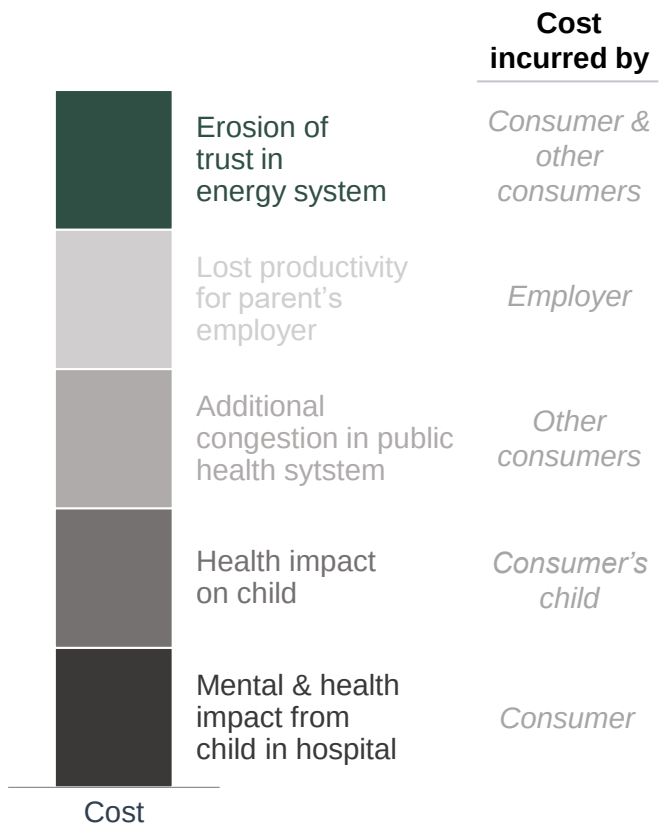


* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; Medical Journal of Australia, SIRA NSW

Archetype 10

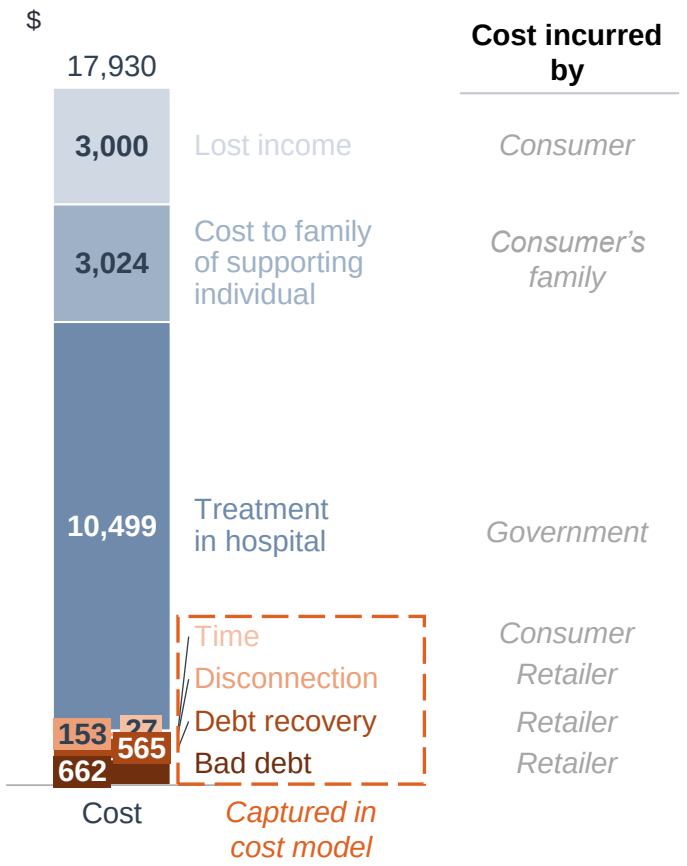
10 ARCHETYPE: INDIVIDUAL W/ CHRONIC MENTAL HEALTH CONDITION

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Individual lives with multiple chronic mental health conditions, and typically works from home as a graphic designer
- They have reduced their workload due to mental illness and are struggling to pay their energy bills
- They try to call their retailer to seek help, however are transferred between operators frequently and become frustrated, eventually giving up
- They are disconnected
- They are unable to work from home because they have no electricity, and lose their primary source of income
- Eviction from rental tenancy triggers further mental health issues, and individual is admitted to local hospital for treatment
- They begin receiving social assistance payments & live with family once discharged from hospital

Quantifiable costs*



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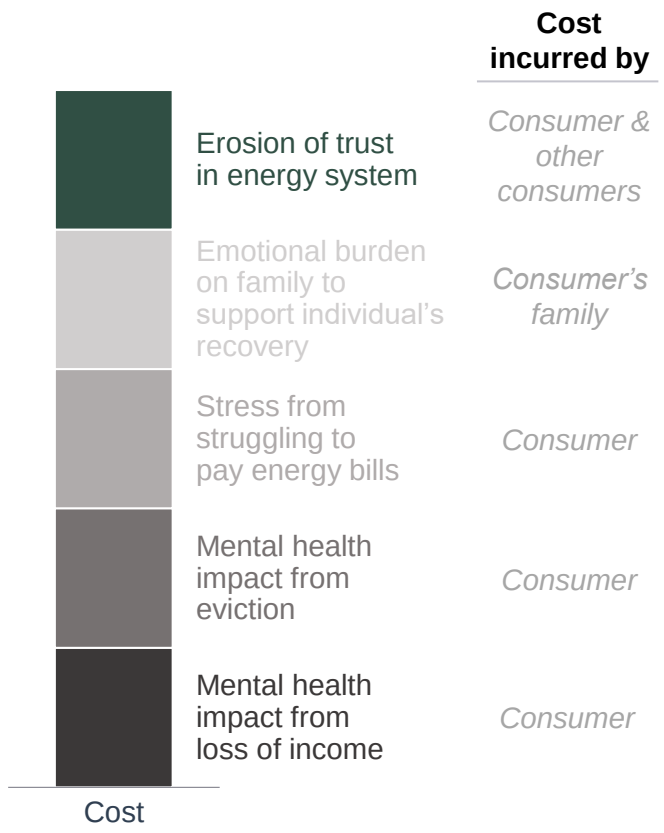


* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

Archetype 11

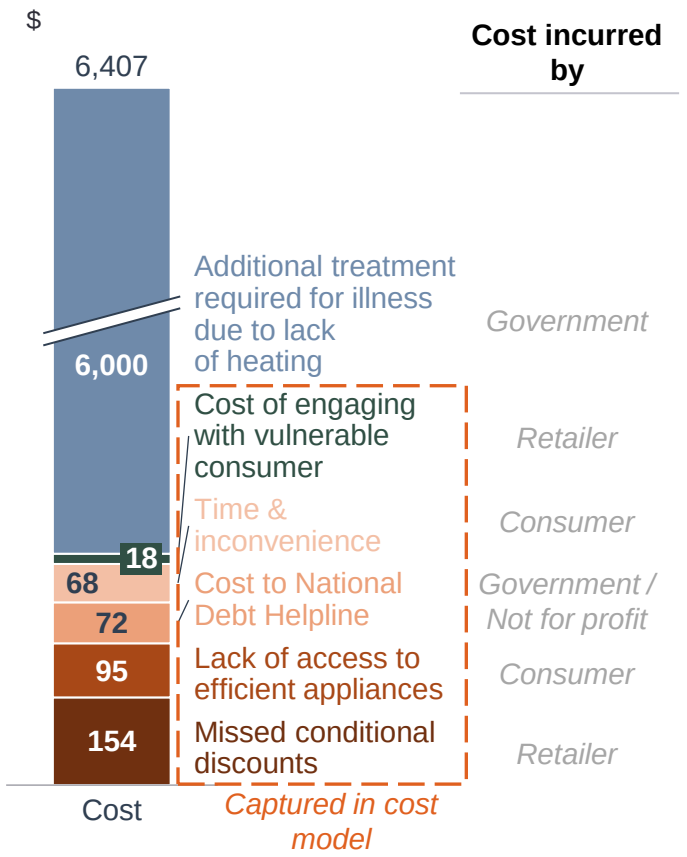
11 ARCHETYPE: PARENT WITH CHRONIC ILLNESS

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Single parent with a chronic illness and low income lives with their child in a rental apartment
- As renters, they are unable to upgrade apartment fittings to save money on their bills
- Parent's income is highly variable, as they are casually employed and illness often prevents them from working for several days at a time
- After falling behind on their utility bills, they reach out to the National Debt Helpline, who suggests they enter into a payment plan
- They contact their retailer and enter into a payment plan
- Family continues living in episodic financial stress, and often conserves energy consumption via self-disconnecting heating & other appliances to save money

Quantifiable costs*



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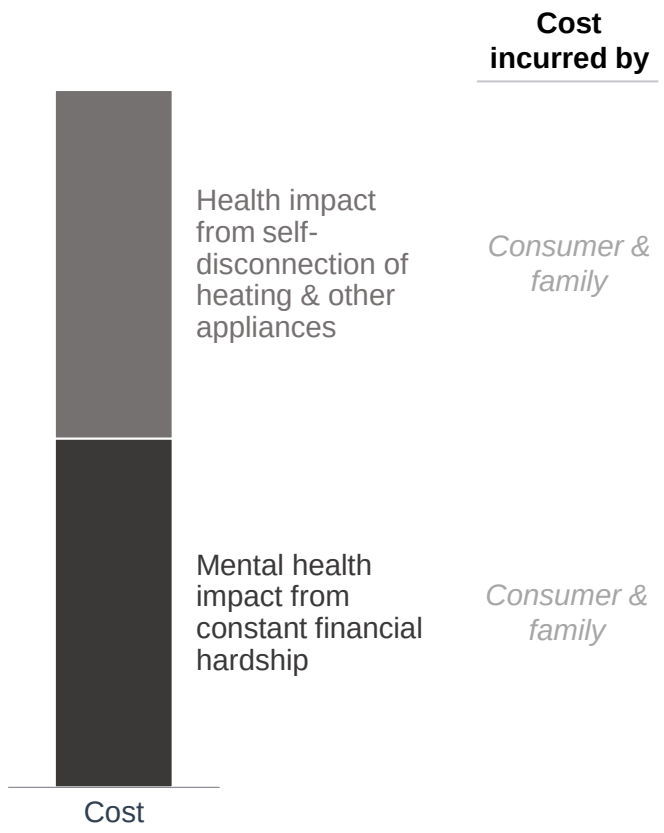


* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; National Hospital Cost Collection Report – 2014-15

Archetype 12

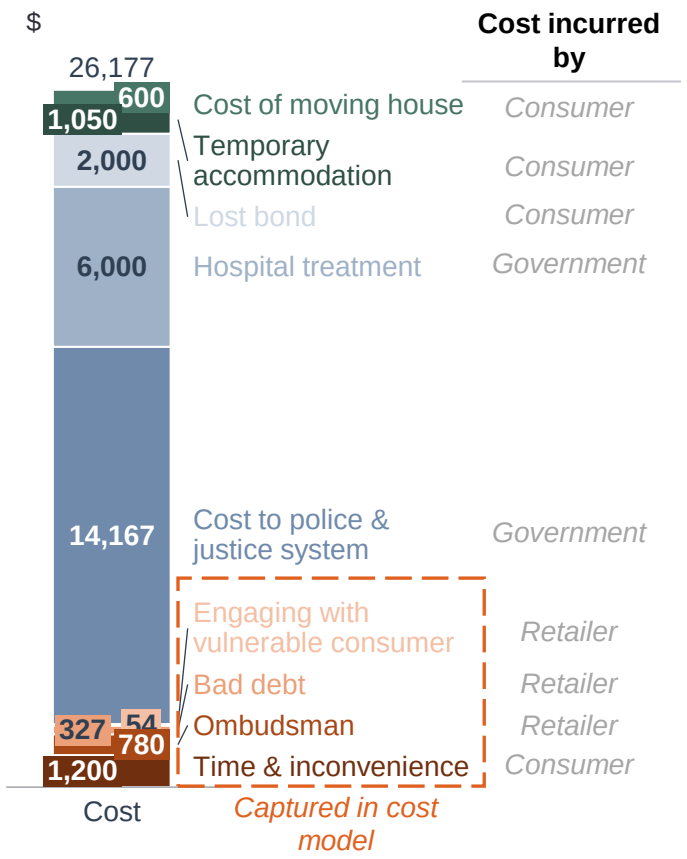
12 ARCHETYPE: FAMILY VIOLENCE VICTIM/SURVIVOR

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Individual with a family violence order against her former partner
- Renting at a new address after separating from former partner, and registers a new premises with her retailer
- Retailer sends email including new address to former partner, whose contact details are on account
- Former partner visits new address, assaults individual, and is arrested
- Individual spends three days in hospital before moving into temporary emergency accommodation and places her belongings in storage
- Individual moves house again, losing her rental deposit, and consequently getting behind in her phone and internet bills
- Former partner changes account address to his own; accrues debt on her account; retailer eventually writes this debt off
- Individual complains to ombudsman about release of personal data for former partner

Quantifiable costs*



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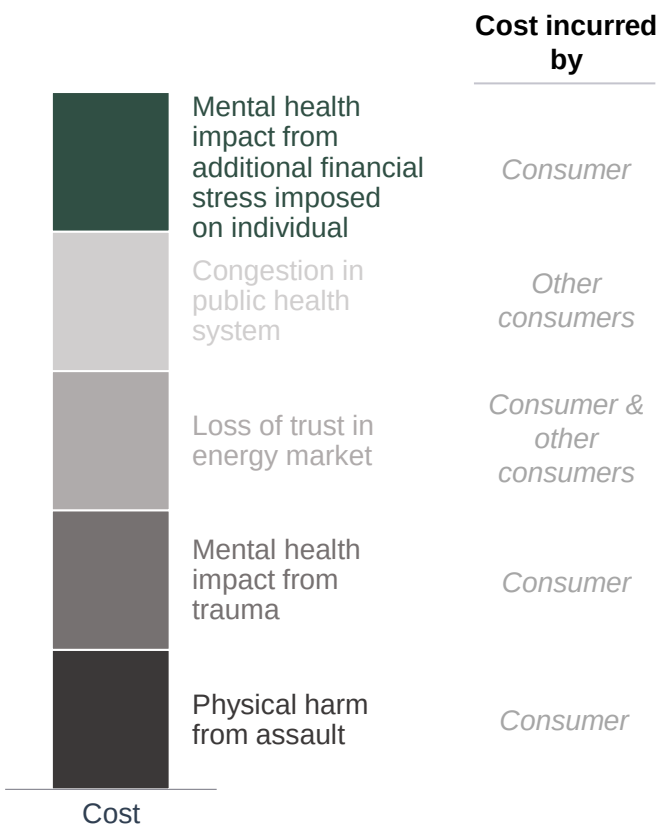


* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; National Hospital Cost Collection Report – 2014-15; AIHW

Archetype 13

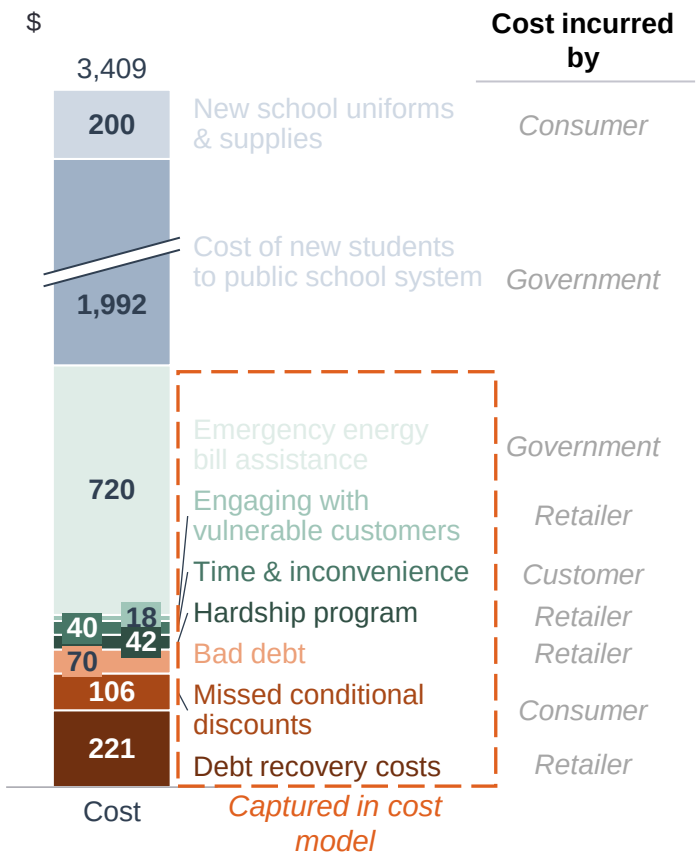
13 ARCHETYPE: COUPLE WHO HAVE LOST PRIMARY JOB

ILLUSTRATIVE. FEEDBACK WELCOMED

Consumer characteristics/story

- Couple living with three children in a house they own, with average income
- Primary household earner loses job due to cutbacks during the COVID pandemic
- Couple apply for JobSeeker, however these are not enough to cover mortgage repayments, school fees, utility bills, food, etc
- Falling behind on their energy bills, the couple decide to cut back on phone & internet, health insurance, and move children to a public school
- Struggling to make ends meet, the couple call their retailer and arrange to be placed on a hardship program
- Couple access QLD Emergency Energy Bill Assistance program
- Despite the hardship program, they continue consuming more energy than paying for, and their energy debt rises
- Primary income earner finds a new job. Couple pay off majority of debt, aside from $70, which they forget to pay when they switch retailer. Retailer writes debt off

Quantifiable costs*



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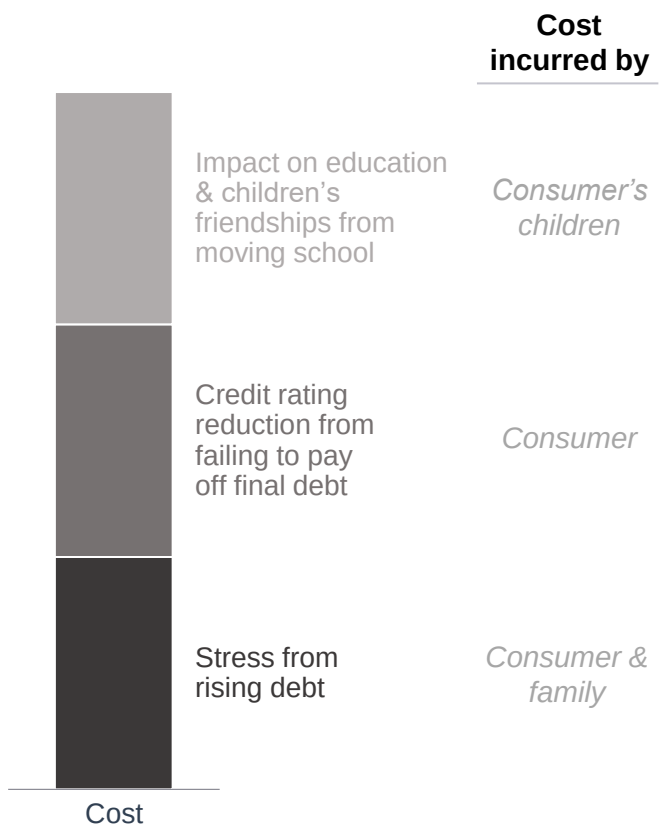


* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; Press reports; Australian Department of Industry, Science, Energy & Resources

Archetype 14

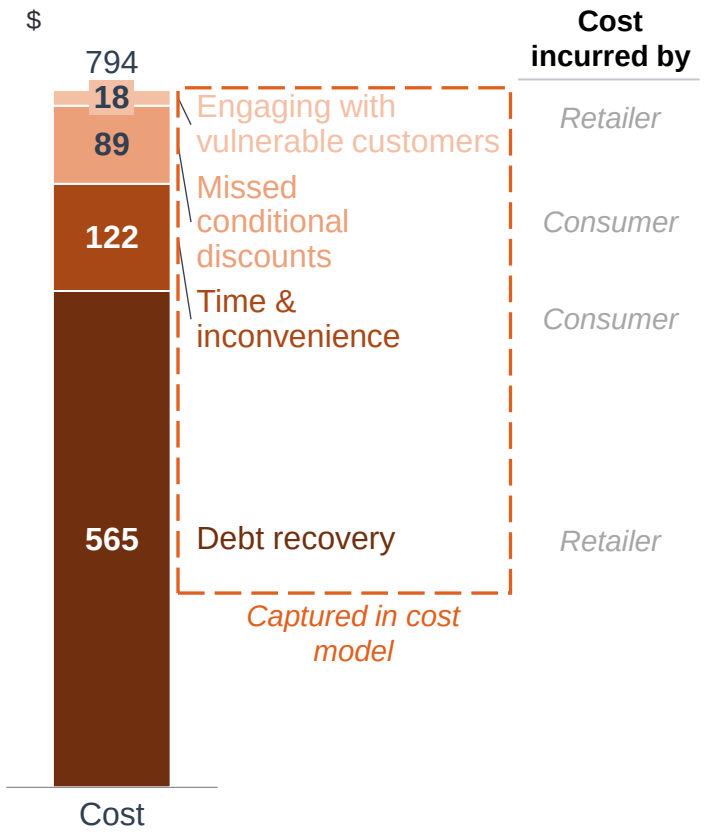
14 ARCHETYPE: RECENTLY WIDOWED ELDERLY PERSON

ILLUSTRATIVE. FEEDBACK WELCOMED

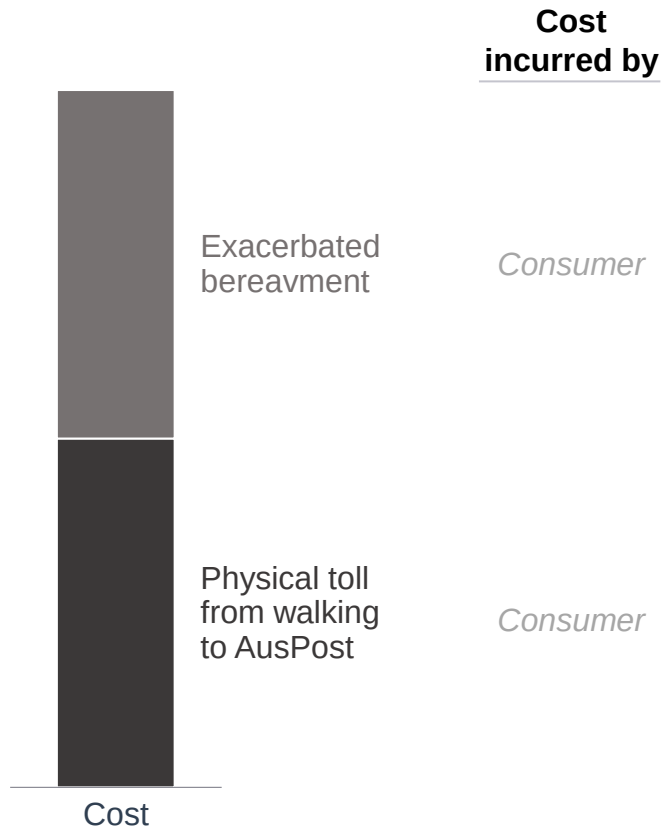
Consumer characteristics/story

- Elderly couple on aged pension live together in a house which they own; husband has recently had a hip replaced and has limited mobility
- Couple do not have any family living nearby, and do not have internet access
- The wife manages their utility bills, and typically pays them at the local AusPost
- Wife passes away
- Grieving widow receives ongoing energy bills, however puts off paying them during time of emotional stress, missing conditional discounts
- Widow continues to receive bills & eventually receives disconnection & debt collection notice
- Despite physical disability, widow is forced to walk to the local AusPost to pay the bill; and continues making this trip every few months to pay ongoing bills

Quantifiable costs*



Non-quantifiable costs



* Electricity & gas customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model

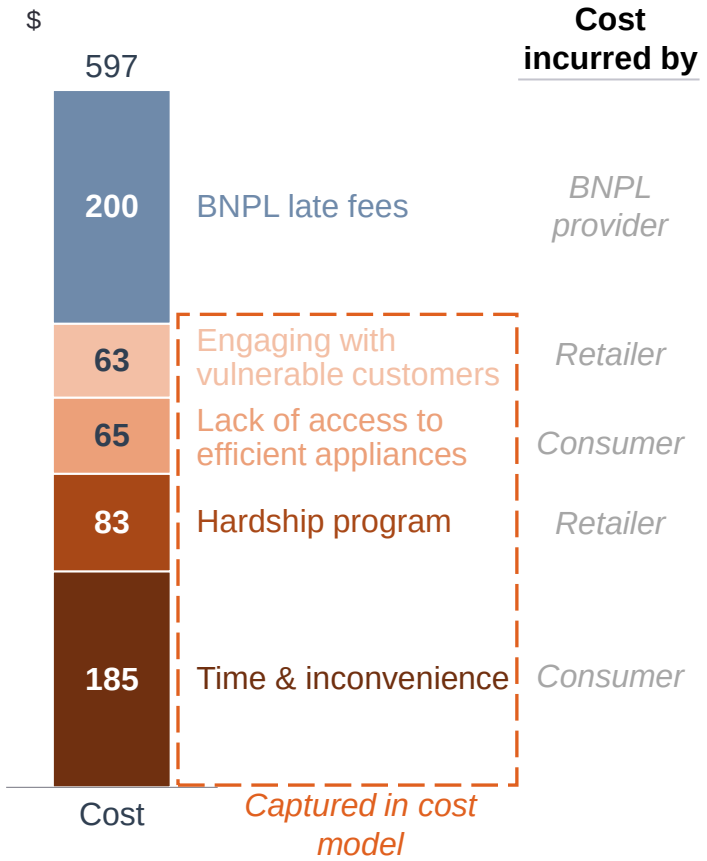
Archetype 15

15 ARCHETYPE: YOUNG COUPLE FACING TEMPORARY FINANCIAL STRESS *ILLUSTRATIVE. FEEDBACK WELCOMED*

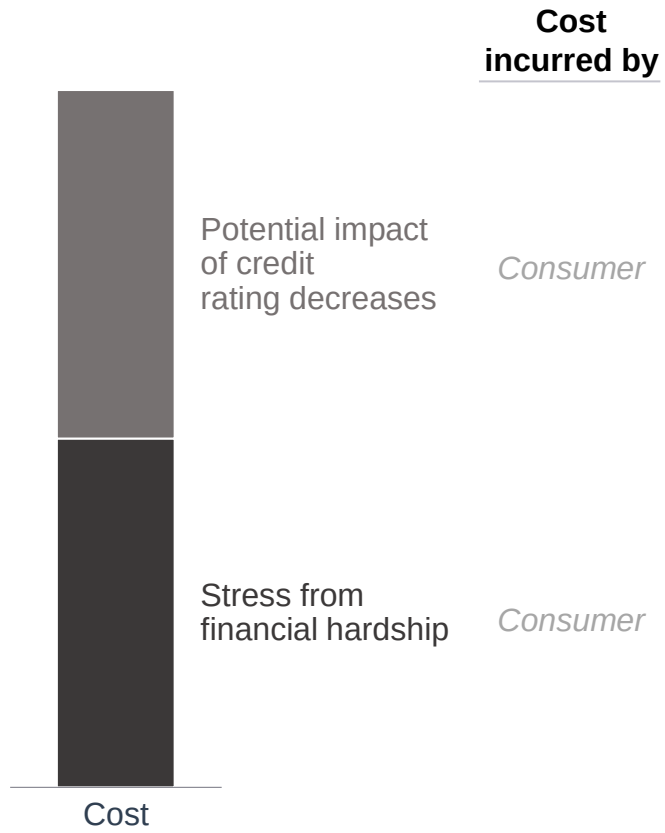
Consumer characteristics/story

- Young couple have just moved in together after with new baby
- High financial cost of new child increases imposes additional financial strain on low income family – they begin paying their utility bills with Buy Now Pay Later ('BNPL') services
- Couple cannot afford efficient appliances
- Couple end up in severe debt with BNPL providers
- Couple default on their BNPL obligations, and can no longer access the services
- Unable to pay their energy bills, they contact their retailer and are placed on a hardship program
- Couple eventually pay off energy debt & after approx. 12 months and are removed from hardship program

Quantifiable costs*



Non-quantifiable costs



* Electricity only customer; costs not entirely attributable to energy market vulnerability - other factors are likely to contribute

Source: Quantitative cost model; BNPL competitor websites

LIST OF APPENDICES

- Consumer archetypes
- **Quantitative model key assumptions**
- Deep-dive: energy usage reduction assumptions
- Quantitative model outputs & sensitivity analysis
- Cost framework with detailed list of costs

Selection of key assumptions

KEY ASSUMPTIONS RELEVANT TO MULTIPLE COST LINE ITEMS

Legend
- *Taken from AER / ESC / ACCC*
- *Based on similar data & assumed it is a reasonable proxy*
- *Indicative estimate made in consultation with AER team*

Victoria only; for other states, we use data directly reported by AER

Cost item	Assumption	Value	Rationale / commentary
Multiple cost items	# of electricity concession customers in Victoria	**940,000**	• Victorian ESC Market report says that a) almost 1m customers have concessions, b) more than one third (~900k) customers have concessions • We assume the approx. midpoint of these two data points
Multiple cost items	% of gas customers in Victoria which are eligible for concessions	**34.6%**	• Equivalent to the proportion of electricity customers in Victoria which are concession eligible
Multiple cost items	Proportion of electricity payment plan customers which also receive concessions	**NEM (ex. Vic): 58.3%** **Vic: 48.5%**	• Assumed equivalent to the proportion of hardship customers who are also concession-eligible
Multiple cost items	Proportion of gas payment plan customers which also receive concessions	**NEM (ex. Vic): 33.1%** **Vic: 49.9%**	• Assumed equivalent to the proportion of hardship customers who are also concession-eligible
Multiple cost items	Marginal time spent by consumers experiencing vulnerability on phone to retailers, navigating energy market, and seeking help from external sources	**Multiple values** *(refer to calculation methodology pages)*	• In the absence of data, intuitive assumptions have been made in consultation with the AER team
Multiple cost items	Numerous data points relating to calculating costs for natural gas customers	**Assumed equal to electricity**	• In the absence of gas-specific data, we have assumed that some data points (e.g. elements of retailer cost to serve data, conditional discount prevalence, etc) are equivalent to electricity • Refer to calculation methodology pages for further information

* Excluding concession customers who are on a payment plan or hardship program

Selection of key assumptions

KEY ASSUMPTIONS: COSTS TO CONSUMERS

Legend
- *Taken from AER / ESC / ACCC*
- *Based on similar data & assumed it is a reasonable proxy*
- *Indicative estimate made in consultation with AER team*

	Cost item	Assumption	Value	Rationale / commentary
●	**Lack of access to efficient appliances***	Reduction in annual energy consumption from more efficient appliances	**Elec: 5% Gas: 5%**	• Triangulated from selection of industry & academic research papers – see next appendix for detail
●	**Cost of time**	Time spent by vuln. consumers interacting with energy market	**1.1 – 6.8 hours p.a.**	• Combination of assumptions cumulatively implying that consumers facing vulnerability spend 1.1 – 6.8 extra hours p.a. (depending on their level of vulnerability) engaging with the energy market
		Opportunity cost of time for consumers facing vulnerability	**$27.1/hr**	• Assumed ABS Quartile 1 hourly earnings in main job
●	**Cost saving behaviours***	Reduction in annual energy consumption from cost saving behaviours	**Elec: 2.5% Gas: 4%**	• Triangulated from selection of industry & academic research papers – see next appendix for detail
●	**Cost of inappropriate tariff**	Proportion of customers on standing offers who are vulnerable	***Equivalent to overall prevalence of vulnerability in each customer group***	• No information available to discern if prevalence of vulnerability is higher or lower on standing offers
●	**Cost of missed conditional discounts**	Proportion of customers on conditional discount tariffs who are vulnerable		• No information available to discern if prevalence of vulnerability is higher or lower on conditional discounts
		Average conditional discount value	**Electricity: 8.1% Gas: 1.3%**	• AER Annual Retail Market Report (2020-21) provides discount values for electricity & gas; converted to average percentage
●	**Cost of late fees**	Average late fee	**$12 per quarter**	• Scan of retailer fee schedules revealed approx. uniform rate of $12/quarter amongst major and many small retailers
●	**Cost of reconnections**	Proportion of customers who are reconnected to network	**100%**	• Intuitively reasonable that all customers are eventually reconnected; no evidence suggests the counterfactual

* See appendix for triangulation

Selection of key assumptions

KEY ASSUMPTIONS: COSTS TO RETAILERS

Legend
- *Taken from AER / ESC / ACCC*
- *Based on similar data & assumed it is a reasonable proxy*
- *Indicative estimate made in consultation with AER team*

	Cost item	Assumption	Value	Rationale / commentary
●	**Cost of bad debt**	Proportion of bad debt attributed to customers experiencing vulnerability	**80%**	• Data to accurately estimate not available; intuitive assumption made in consultation with AER staff
●	**Cost of debt recovery**	Proportion of debt recovery costs attributed to customers experiencing vulnerability	**80%**	• Data to accurately estimate not available; intuitive assumption made in consultation with AER staff
●	**Cost of engaging with consumers exp. vulnerability**	Cost of retailer time	**$36/hr**	• In the absence of retailer data, we have assumed the ABS median hourly wages in main job
●	**Cost of compliance activities**	Share of cost to serve attributed to compliance	**4%**	• Data for select financial services firms suggest share of ~5-7% of cost to serve • Intuitive assumption made in consultation with AER staff that energy retailing is marginally likely less compliance intensive
●	**Cost of hardship programs**	Proportion of hardship program costs attributable to customers experiencing vulnerability	**100%**	• Data to accurately estimate not available; intuitive assumption made in consultation with AER staff
●	**Cost of disconnections**	Proportion of disconnections associated with customers experiencing vulnerability	**80 – 100%** (depending on disconnection type)	• Getting disconnected is an extreme outcome likely avoided wherever possible by non-vulnerable consumers; likely heavily weighted towards consumers experiencing vulnerability
●	**Penalties for non-compliance**	Proportion of fines relating to all customers (e.g. switching customers without consent, failure to notify of power outages), attributable to consumers experiencing vulnerability	**25%**	• Intuitive assumption make in consultation with AER staff that consumers experiencing vulnerability are marginally more likely than general population to have broader obligations breached by energy companies

The number of consumers experiencing vulnerability is a key input that we estimate via four assumptions; these imply ~18% of consumers are experiencing vulnerability

NUMBER OF CUSTOMERS EXPERIENCING VULNERABLITY

Customer cohort	Description	Total # of customers (Thousands)	Share assumed to be experiencing vulnerability (Percent)	Implied customers experiencing vulnerability (Thousands)
Hardship	Customers who are on a retailers' hardship programs	128	**100%**	128
Payment Plan	Customers with a payment plan in-place with a retailer	195	**90%**	176
Concession	Customers receiving a concession on their energy bill	2,560	**40%**	1,024
General	Customers who are not a hardship, payment plan or concession customer	6,530	**5%**	327
Total		**9,413**	**18%**	**1,655**

Assume that ~75% of concession customers are vulnerable, excluding est. 1.2m homeowning pensioners*

The Victorian ESC has provided guidance that their *standard assistance* customers map to payment plan customers in the rest of the NEM, and that *tailored assistance* customers map to hardship customers

Cohort numbers from AER & Victorian ESC have been adjusted to remove overlap between concession customers and hardship/payment plan customers using data from the AER & Vic. ESC

* Note that a portion of the 1.2m will also be vulnerable, but the amount is difficult to estimate

Source: AER Retail Performance Data; Victorian ESC Energy Market Report 2020-21

This range appears defendable, given that several reference points hint at a possible rate of vulnerability of c.15 – 25%

REFERENCE POINTS (1/2)

Taken during the COVID pandemic

Proxy for vulnerability	Statistic	Source
% of households who were unable to pay a bill at some point in 2019*	10%	ABS, *Household Financial Resources data*
% of Victorian households facing energy bill payment difficulty at least 1 out of every 3 years (2018)	23%	VCOSS, *Battling On*
% of households who are concerned about their ability to pay energy bills (Victoria, June-October 2020)	21-29%	ESC, *Customer Sentiment Surveys*
% of households identifying as “financially stressed” (January-April 2021)	20-25%	Melbourne Institute Covid-19 tracker
% of population who live in poverty (February 2020)	14%	ACOSS, *Poverty in Australia 2020*
% of population with savings of less than one month’s income	30%	Centre for Social Impact & NAB: *Financial Security & the Influence of Economic Resources*

* Pre-Covid data. Proportion of households unable to pay bill dropped through the pandemic, most likely due to government income support

Source: ABS; VCOSS; ECS; ACOSS: Centre for Social Impact & NAB

Additionally, data suggests that c.20 – 40% of Australians experience circumstances which commonly lead to outcomes associated with vulnerability

REFERENCE POINTS (2/2)

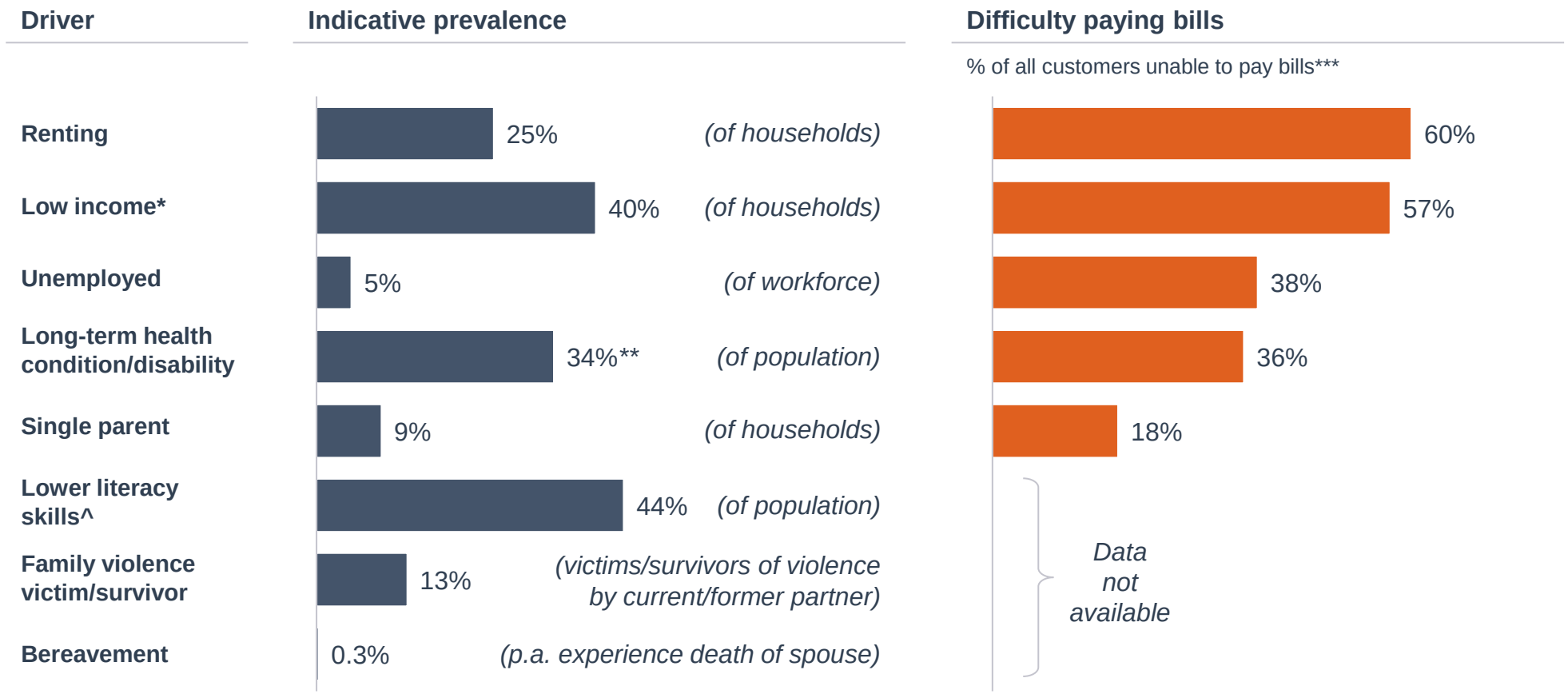
Proxy for vulnerability	Statistic	Source
% of people who have literacy skills "below what is considered enough to get by in everyday life" (2011)	44%	ABS, *Assessment of Adult Competencies*
% of Australians for whom English is not the first language	15%	Australian Institute of Health and Welfare (2018): *Culturally and Linguistically Diverse Populations*
% of Australians with a disability	20%	Australian Institute of Health and Welfare (2017): *Life expectancy & disability in Australia*
% of Australians who have experienced domestic violence in their lifetime	13%	Australian Institute of Health and Welfare (2019); *Family, Domestic & Sexual Violence in Australia; Continuing the National Story*
% of Australians who experience a mental disability at some point in their lifetime	45%	Australian Institute of Health and Welfare: *Mental Health Services: In Brief (2019)*
% of national debt helpline customers experiencing mental health problems	20%	Consumer Action Law Centre (2019) Energy Assistance Report
% of Australians who rent	30%	Australian Housing & Urban Research Institute: *The Changing Institutions of Private Rental Housing (2018)*
% of Australians living in housing that is likely to reduce their physical and mental wellbeing	10%	Baker (2019): *An Australian Geography of Unhealthy Housing*

Includes 13% at Level 1 (lowest of 5 levels defined by ABS) and 31% Level 2 literacy

Source: Consumer Policy Research Centre; ABS; Australian Institute of Health and Welfare; Consumer Actions Law Centre; Australian Housing & Urban Research Institute

There are several commonly-identified risk factors associated with vulnerability

COMMON DRIVERS OF CONSUMERS FACING VULNERABILITY



* Bottom two quintiles of household weekly income; implies threshold of $775/week or $40,300/year at 40th percentile equivalised disposable household income
** Includes population with a disability resulting in a moderate to severe core activity limitation or a schooling/employment restriction, and people who have a long-term health condition
*** Customers unable to pay an electricity, gas or phone bill on time at some point 2 out of last 3 years, Victoria
^ Proportion of population with literacy levels below what is considered sufficient to "get by" in daily life, according to ABS analysis

Source: *Battling On: Persistent Energy Hardship* (VCOSS); ABS Census data 2016; ABS data

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Based on research quantifying the impact of retrofits, we assume that a 5% reduction in annual consumption is achievable, aligning with the approx. midpoint of Aus. estimates

ASSUMPTION: REDUCING ELECTRICITY CONSUMPTION VIA BETTER FITTINGS

Data used in assumption triangulation

Initiative	Initiative / data description	Sample households	Region	Avg. % reduction	Source
Major retrofit + Home energy visit	2 projects in Australia involving a visit to a person's home (to discuss energy usage, bills, tips, etc) and **installing new technologies** at the dwelling such as **replacement of large appliances** (e.g. heating cooling, hot water systems, refrigerators)	282	Australia	10%	Energy Consumers Australia
Minor retrofit + Home energy visit	11 projects across Australia involving a visit to a person's home and installing or providing **minor energy saving devices** (e.g. replacement of lighting, drought sealing, window coverings)	7,705	Australia	6%	Energy Consumers Australia
Major retrofit	2 projects in Australia involving installing new technologies at the dwelling such as **replacement of large appliances** (e.g. heating cooling, hot water systems, refrigerators)	847	Australia	4%	Energy Consumers Australia
Retrofit	**Vic. Govt. estimates** that an average household can save $110-150/year (~4.5 – 6%) on energy bills via upgrading appliances such as lighting, hot water systems, heating, televisions, fridges, clothes dryers, & pool pumps	N/A	Victoria	2.25 – 3% *(Assume Elec is half)*	Vic Govt.
Retrofit	Sample of 75 houses in Victoria which received one or more of: appliance upgrades, draught sealing, heater/cooler maintenance, heater/cooler upgrade, hot water service insulation, hot water service maintenance, insulation, LED lighting, window treatment, and zoning	75	Victoria	1.05%*	James, M., & Ambrose, M. (2016)
Minor retrofit + Home energy visit	Dutch program which offers advice via a home energy visit and simple energy saving appliances (valued at ~70Euros) to low income households at no cost, reducing household's energy consumption by 16% in total	~226,000	Germany	8% *(Assume half% retrofit)*	EU

* Indicates result was not statistically significant at the 0.05 threshold

Programs which focus predominantly on behavioural shifts in Australia tend to result in less energy savings; we therefore will assume a 2.5% reduction in annual consumption

ASSUMPTION: REDUCING ELECTRICITY CONSUMPTION VIA BEHAVIOUR

Data used in assumption triangulation

Initiative	Initiative / data description	Sample Households	Region	Avg. % reduction	Source
Various behavioural	Various energy efficiency initiatives designed to **induce behaviour change** through energy efficiency workshops, in-home visits, or digital engagement tools	~10,000	Australia	0 – 6%	Energy Consumers Australia
Home energy assessment + minor retrofit	**Home energy assessment** performed for 1032 households (with 1024 receiving very minor retrofits – e.g. low cost draft proofing, fridge thermometers, lighting)	1,032	Victoria	6%	Energy Consumers Australia
Home visits and/or in-home displays	Sample of 74 Victorian households which received **individualised or group meetings to discuss energy actions**, and/or received **in-home-display energy monitors**	74	Victoria	0.8%*	James, M., & Ambrose, M. (2016)
Real-time usage feedback	Information about immediate energy usage provided by usage on in-home devices or on a website	N/A	USA	1 – 15%	Drehobl, A., Chikumbo, M., Tanabe, K. (2018)
Home energy reports	Reports sent intermittently to residential customers with feedback about energy usage, energy efficiency tips, normative comparisons to similar neighbourhoods, and other information (USA-based)	N/A	USA	1.2 – 2.2%	Drehobl, A., Chikumbo, M., Tanabe, K. (2018)
Minor retrofit + Home energy visit	Dutch program which offers advice via a home energy visit and simple energy saving appliances (valued at ~70Euros) to low income households at no cost, reducing household's energy consumption by 16% in total	~226,000	Germany	8% *(Assume half behavioural)*	EU

* Indicates result was not statistically significant at the 0.05 threshold

Less data is available for gas-only studies; we assume a 5% reduction in annual gas consumption from improved fittings, given Australian data points

ASSUMPTION: REDUCING GAS CONSUMPTION VIA RETROFIT

Data used in assumption triangulation

Initiative	Initiative / data description	Sample households	Region	Avg. % reduction	Source
Retrofit	Sample of 75 houses in Victoria which received one or more of: appliance upgrades, draught sealing, heater/cooler maintenance, heater/cooler upgrade, hot water service insulation, hot water service maintenance, insulation, LED lighting, window treatment, and zoning	75	Victoria	9%*	James, M., & Ambrose, M. (2016)
Retrofit	**Vic. Govt. estimates** that an average household can save $110-150/year (~4.5 – 6%) on energy bills via upgrading appliances such as lighting, hot water systems, heating, televisions, fridges, clothes dryers, & pool pumps	N/A	Victoria	2.25 – 3% *(Assume gas is half)*	Vic Govt.

* Indicates result was not statistically significant at the 0.05 threshold

Given we have identified only one Australian report, we draw on international reports and conservatively assume a 4% reduction is appropriate

ASSUMPTION: REDUCING GAS CONSUMPTION VIA BEHAVIOUR

Data used in assumption triangulation

Initiative	Initiative / data description	Sample households	Region	Avg. % reduction	Source
Behaviour	Sample of 74 Victorian households which received **individualised or group meetings to discuss energy actions**, and/or received **in-home-display energy monitors**	Victoria	74	12%*	James, M., & Ambrose, M. (2016)
Home energy reports	Reports sent intermittently to residential customers with **feedback** about energy usage, **energy efficiency tips**, normative **comparisons** to similar neighbourhoods, and other information	USA	N/A	0.3 – 1.6%	Drehobl, A., Chikumbo, M., Tanabe, K. (2018)

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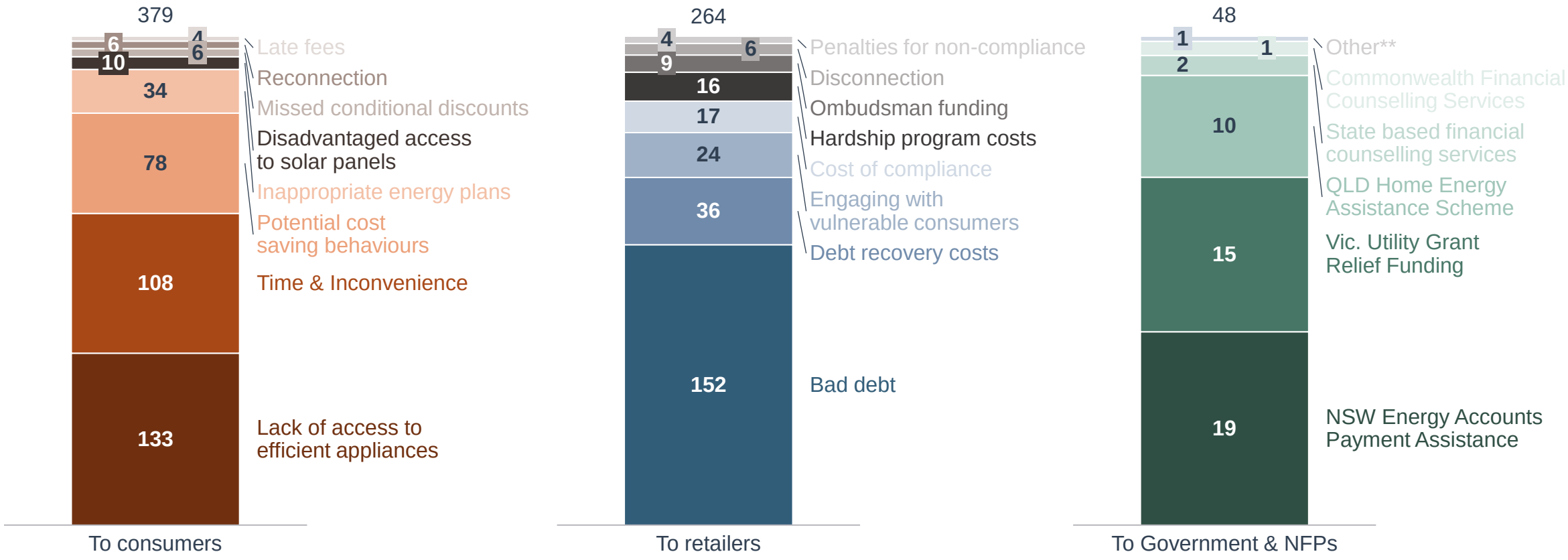
Outputs from the quantitative cost model demonstrate that the majority of quantifiable costs are worn by consumers and retailers

QUANTIFIABLE COSTS OF CONSUMERS EXPERIENCING VULNERABILITY, BAU YEAR*

$ millions per annum



* Electricity and gas consumers in Queensland, New South Wales, ACT, Victoria, Tasmania and South Australia

** Other includes the SA Emergency Electricity Payment Scheme, Way Forward (not for profit) operating costs, and the cost of recently announced financial counselling positions in Victoria

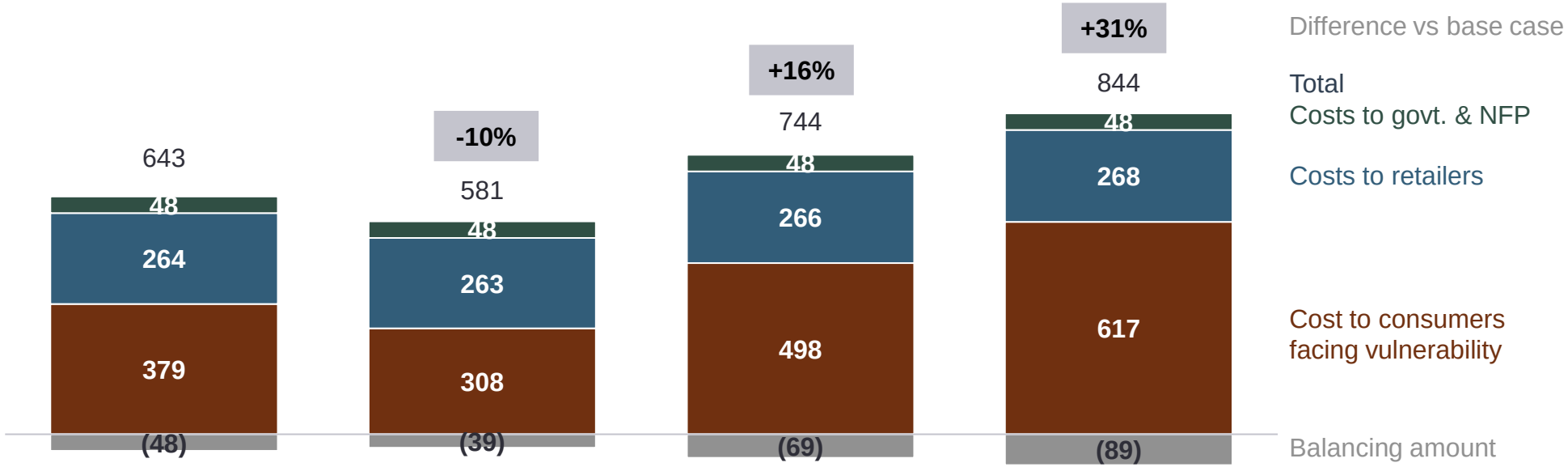
Source: Quantitative cost model

The proportion of consumers considered vulnerable is a key assumption

SENSITIVITY ANALYSIS: PREVALENCE OF CONSUMER VULNERABILITY

FIRST DRAFT – FEEDBACK REQUIRED

$ millions



	18% vulnerable (Base case)	13% vulnerable	24% vulnerable	30% vulnerable
% vulnerable:				
Hardship	100%	100%	100%	100%
Payment plan	90%	90%	90%	90%
Concession	40%	25%	50%	60%
General	5%	5%	10%	15%
Overall	**18%**	**13%**	**24%**	**30%**

Source: Quantitative cost model

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There is an extensive range of possible costs and consequences

CONSUMER VULNERABILITY COST FRAMEWORK: FULLER RANGE OF COSTS

TO BE REFINED

	A Costs to consumers facing vulnerability	B Costs to other energy market participants	C Costs beyond the energy market
Directly measurable financial costs	• Cost of being on an unsuitable tariffs • Lack of access to efficient appliances/fittings • Potential efficient behavioural improvements • Lack of access to solar benefits • Reconnection costs • Cost of missing conditional discounts/late fees • Cost of interest/fees on loans taken to pay bills • Cost of recovering from adverse energy market events • Cost of medical treatment, legal services, etc. • Cost of lost income	• Cost of writing off bad debt • Cost of recovering debt • Cost of hardship programs • Cost of compliance activities & penalties for non-compliance • Cost of disconnections • Cost of funding ombudsman • Cost of engaging with consumers experiencing vulnerability • Cost of government support services for consumers experiencing vulnerability	• Cost of medical/dental treatment • Costs to legal & court system • Costs to public housing system • Cost of homeless support services • Costs to charity and NFPs of supporting consumers experiencing vulnerability • Costs to other utilities, telcos, councils etc. from consumers unable to pay bills • Costs to family and friends supporting consumers facing vulnerability
Quantifiable non-financial costs	• Cost of time spent navigating the energy market • Cost of time spent navigating support services beyond the energy market	• Cost of additional time spent waiting in phone queues for non-vulnerable consumers • Additional cost of energy due to increased cost to serve	• Cost of additional wait time for medical & other support services
Unquantifiable non-financial costs	• Stress & emotional impacts • Mental & physical health impacts • Discomfort & physical harm • Quality of life • Safety • Confidence in self and society • Missed opportunities • Grief & bereavement • Potential future impact of poor credit rating	• Erosion of trust in the energy system as a result of poor consumer outcomes	• Impact of congestion/additional wait time in government services, including – Healthcare system – Public education – Public housing – Legal & court system – Homelessness support services