

RESIDENTIAL ELECTRICITY PRICE TRENDS REPORT

END-YEAR 2019

STRATEGY AND ECONOMIC ANALYSIS
09 DECEMBER 2019

AEMC

Purpose of this report

- To estimate future retail electricity prices and bill outcomes for representative residential consumers in each Australian state and territory. The key components are the electricity consumption of representative consumers, representative retail electricity prices and the electricity supply chain cost components.
- To identify the changes in the energy supply chain cost components that are driving residential electricity prices and bills for each Australian state and territory (excluding the Northern Territory*), and nationally, from 2018-19 to 2021-22 (the reporting period).
- To explain the principal concepts and calculation methods that have been used to generate the results for the key components.

*Note that this figure excludes Northern Territory – See slide 3 for explanation.

Explanations behind the exclusion of Northern Territory

- In previous years, the AEMC used the Territory Generation's bundled wholesale load following price provided by the Department of Treasury and Finance (DTF) to perform the analysis. This price is no longer an accurate representation of wholesale costs in the DKIS due to the entry of independent generators to the Darwin-Katherine Interconnected System (DKIS). As such, publishing this price information would be misleading as an indicator of wholesale electricity prices and could undermine the integrity of future data reporting and analysis.
- Currently all commercial transactions in the Northern Territory's electricity market occur through bilateral contracts between generators and retailers, and information related to these contracts is commercial in confidence. The DTF has informed the AEMC that there does not appear to be any price that can be used for publication without the risk of providing misleading information around the movement of wholesale prices in the DKIS or revealing information that could be detrimental to competition.

Agenda

Our approach

1. Overview of the approach

Results

2. Trends in national residential electricity prices and bills
 3. Key drivers of trends in cost components by jurisdictions
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Main assumptions

4. Electricity consumption and prices of representative customers
 5. Electricity supply chain cost components
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OUR APPROACH



Overview of the approach

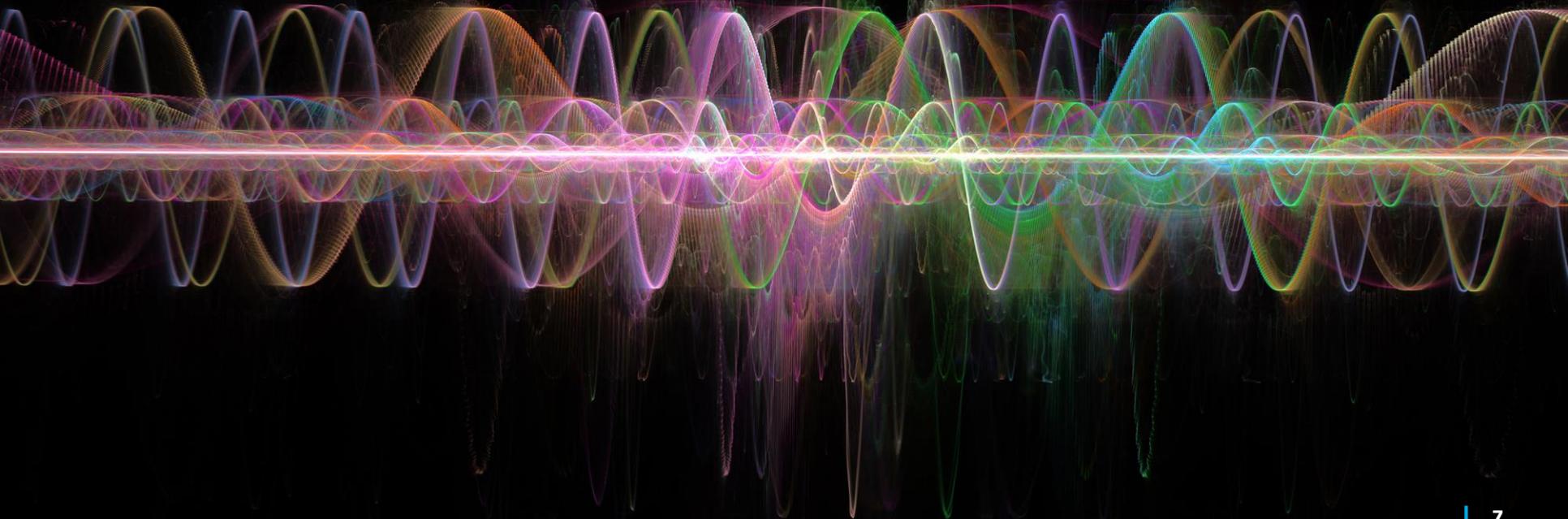
- **Representative customer approach** – we have estimated 2019-20 (2020 for Victoria) retail bills for representative customers, i.e., for a constructed 'typical' customer with an assumed level of consumption.
- **Retail offers** – we have used retail offers obtained from Energy Made Easy and Victorian Energy Compare to estimate the jurisdictional average bill, weighted by retailer customer numbers.
- **Wholesale costs*** – we calculate wholesale electricity purchase costs based on our own market modelling.
- **Environmental costs** are based on the information from the Clean Energy Regulator and jurisdictional data.
- **Regulated network costs**** are assumed to change in line with changes in the revenue allowances of TNSPs and DNSPs.
- **All results** are in nominal terms unless specified otherwise.

* Committed generation information sourced from AEMO.

** Future potential interconnector upgrade costs are not included in the analysis. Regulated network costs may vary because of AER decisions on contingent project applications.

RESULTS

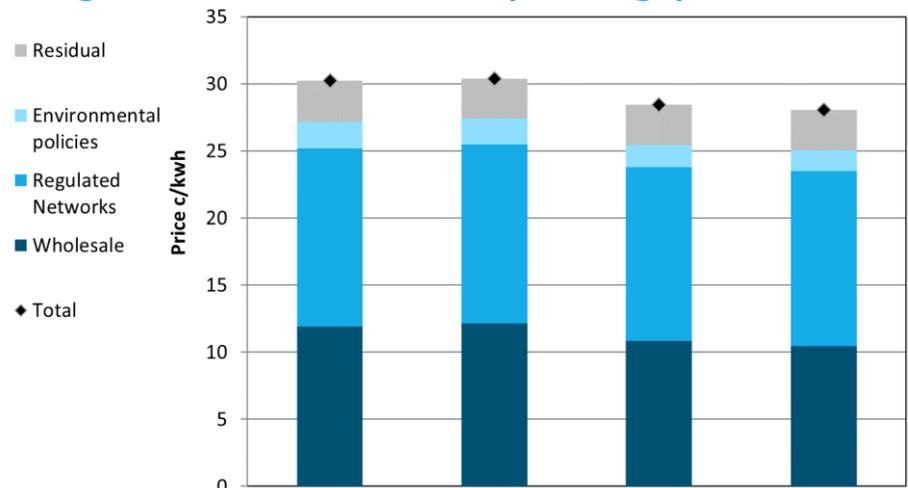
TRENDS IN NATIONAL ELECTRICITY PRICES AND BILLS



National annual residential bill expects to go down over the reporting period*.

↓ \$97

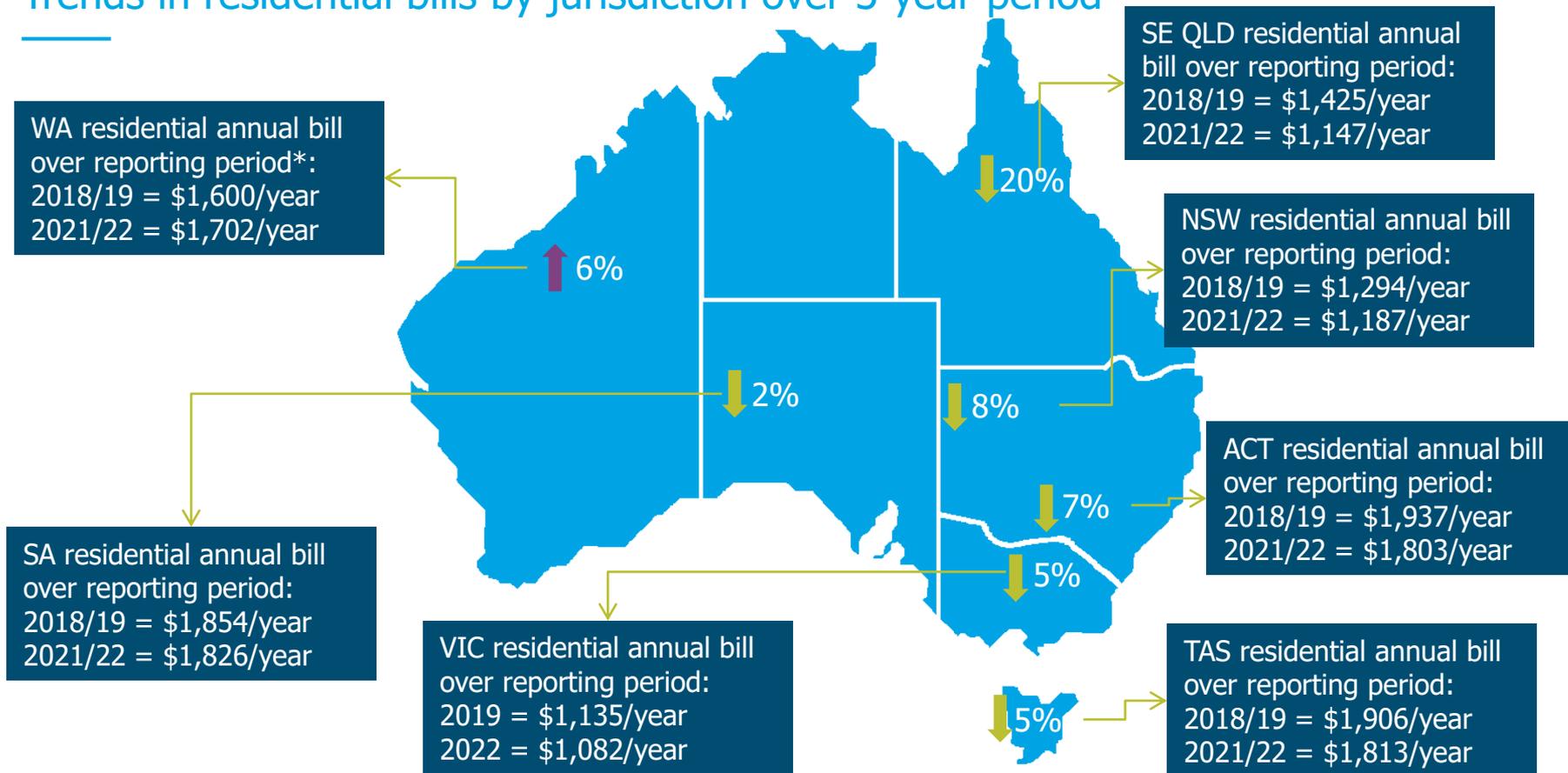
Annual nominal residential bill (weighted by customer numbers) is expected to decrease by 7.1 per cent over the **whole** reporting period.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	1.98	\$90	1.94	\$89	1.67	\$76	1.51	\$68
LRET	0.77	\$35	0.64	\$30	0.40	\$19	0.27	\$13
SRES	0.68	\$31	0.74	\$34	0.67	\$31	0.62	\$29
Jurisdictional Schemes	0.35	\$16	0.39	\$18	0.39	\$18	0.41	\$18
Efficiency Schemes	0.18	\$8	0.18	\$8	0.20	\$8	0.20	\$8
Regulated Networks	13.28	\$601	13.36	\$604	12.94	\$584	13.06	\$590
Transmission	2.22	\$101	2.09	\$95	2.18	\$100	2.28	\$105
Distribution	10.05	\$456	10.34	\$468	9.88	\$446	9.90	\$448
Metering	1.01	\$44	0.93	\$41	0.88	\$38	0.87	\$38
Wholesale	11.90	\$540	12.14	\$550	10.84	\$496	10.45	\$477
Residual	3.05	\$140	2.92	\$132	2.97	\$134	3.04	\$137
Total	30.21	\$1,370	30.35	\$1,375	28.42	\$1,290	28.06	\$1,273

*Note that this figure excludes Northern Territory – see slide 3 for explanation.

Trends in residential bills by jurisdiction over 3-year period



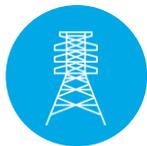
* A different methodology has been used for WA allowing the AEMC to estimate both electricity cost of supply and residential price. Our results for WA should be treated with caution given the different methodology that has been used to establish these prices. Residential prices are set by WA Government.

RESULTS

KEY DRIVERS OF TRENDS IN COST
COMPONENTS BY JURISDICTION



Trends in QLD supply chain components



- Wholesale costs are expected to go down by 12.4 per cent (or \$64) over reporting period.



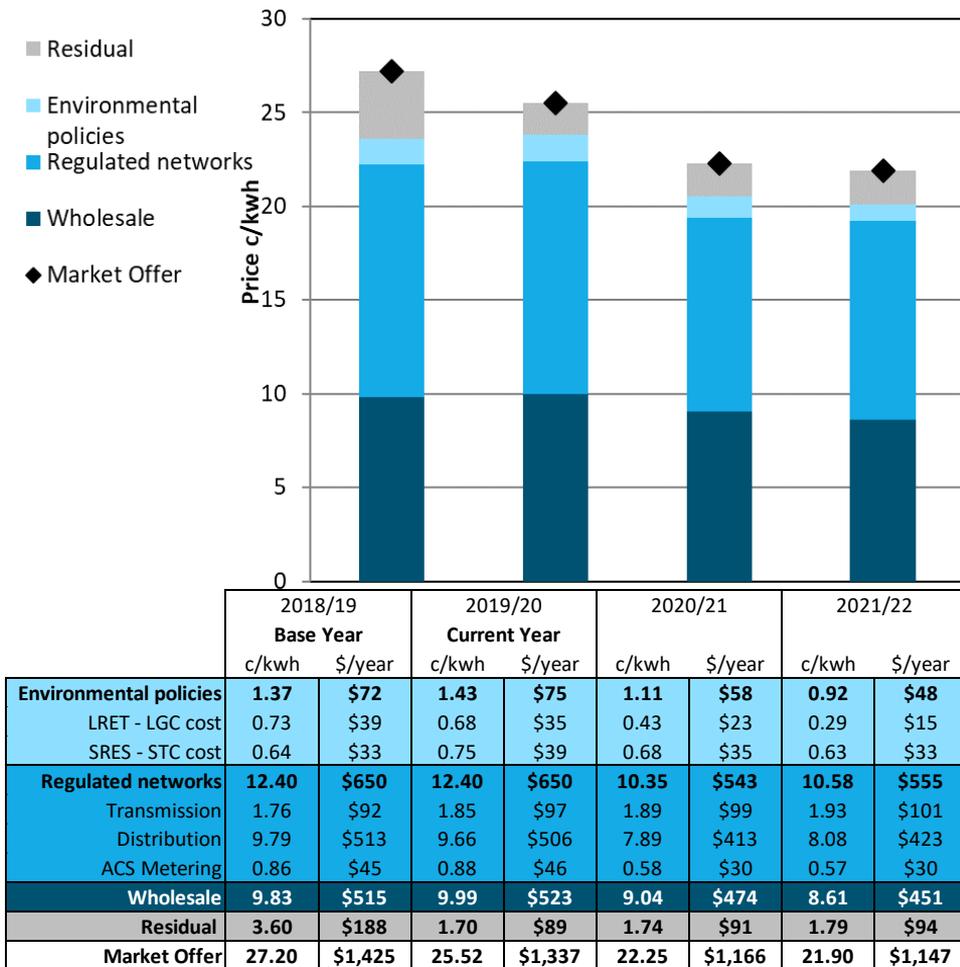
- Regulated network costs* are expected to decrease by 14.7 per cent (or \$95) over reporting period driven by declines in Energex's revenue allowance.



- Environmental costs are expected to go down by 33.1 per cent (or \$24) over reporting period.

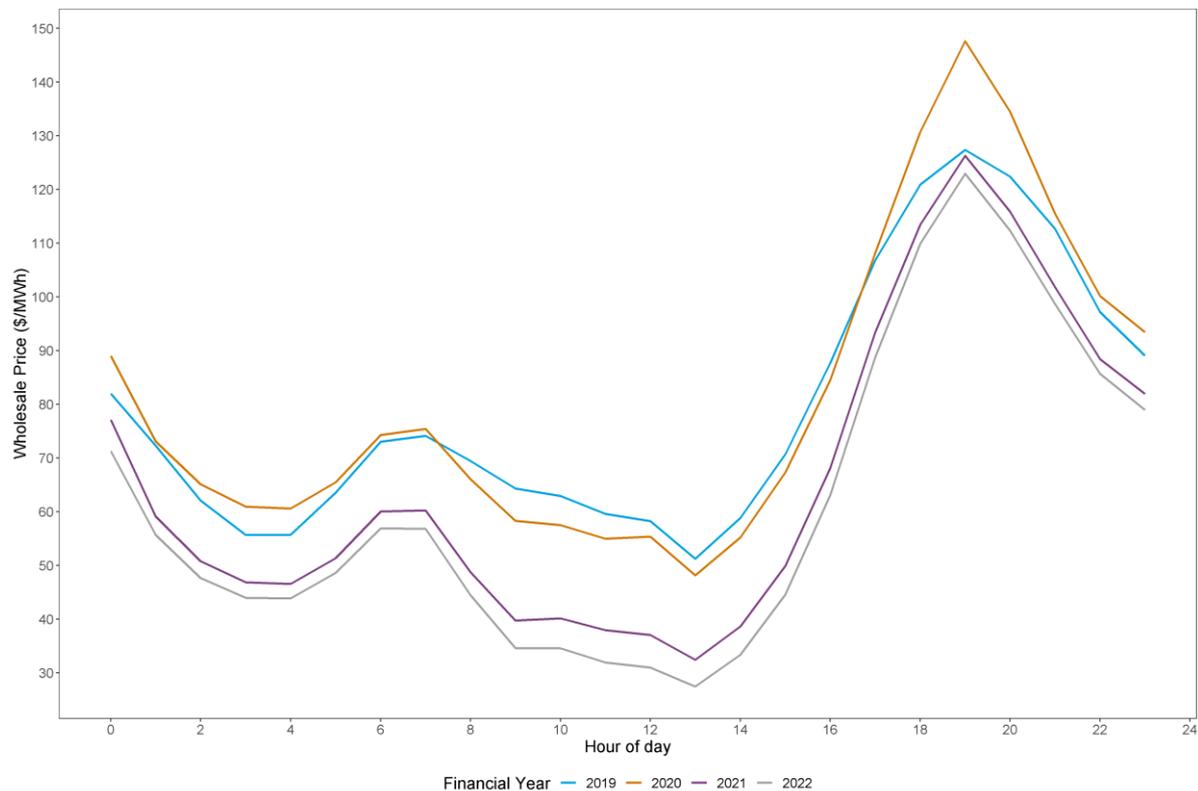


- Annual residential bill is expected to decrease by 19.5 per cent (or \$278) over reporting period, driven by decrease in regulated network costs and wholesale costs.



* The regulated network tariffs in 2018-19 and 2019-20 come from AER annual pricing proposals and in 2020-21 and 2021-22 come from AER draft distribution determinations.

What is driving a decrease in wholesale costs in QLD?



TYPE OF TECHNOLOGY	TOTAL CAPACITY OF COMMITTED BUILD (MW) IN 2022
Solar Farm	595
Wind Farm	496

By the end of 2022, total capacity of committed projects is 1,091 MW. This helps drive down the wholesale costs in QLD.

Total committed generation is only that category of generation sourced from AEMO that had reached financial close before the modelling was undertaken. Other new capacity may have been included as new generation within the modelling period. Since the modelling was undertaken, additional projects have been committed to across the NEM which would impact these results.

Trends in NSW supply chain components



- Wholesale costs are expected to go down by 15.3 per cent (or \$72) over the reporting period.



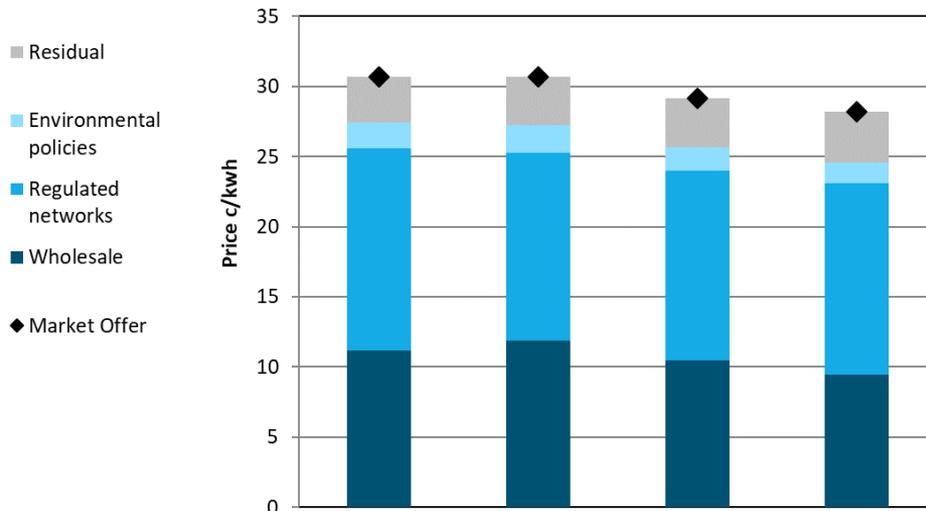
- Regulated network costs* are expected to decrease by 5.2 per cent (or \$32) over the reporting period driven by transmission cost.



- Environmental costs are expected to go down by 23.3 per cent (or \$19) over the reporting period driven by LGC costs.



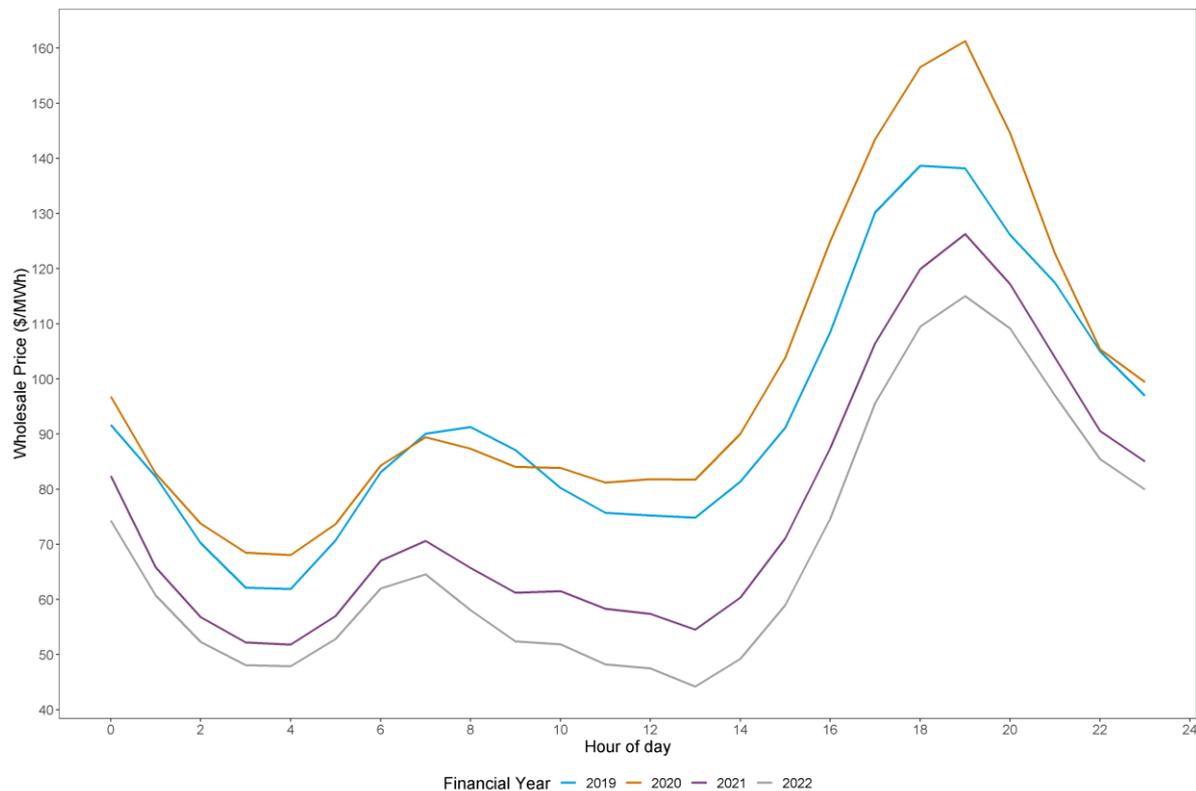
- Annual residential bill is expected to decrease by 8.3 per cent (or \$107) over the reporting period, mainly driven by decrease in wholesale cost.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	1.89	\$80	1.97	\$83	1.64	\$69	1.45	\$61
LRET - LGC cost	0.73	\$31	0.67	\$28	0.43	\$18	0.28	\$12
SRES - STC cost	0.64	\$27	0.75	\$32	0.68	\$29	0.63	\$27
Climate Change Fund	0.34	\$14	0.36	\$15	0.36	\$15	0.35	\$15
Energy Saving Scheme	0.18	\$7	0.18	\$8	0.18	\$7	0.18	\$7
Regulated networks	14.40	\$607	13.43	\$566	13.52	\$570	13.64	\$575
Transmission	3.15	\$133	2.16	\$91	2.26	\$95	2.36	\$99
Distribution	10.59	\$446	10.64	\$448	10.64	\$449	10.68	\$450
ACS Metering	0.66	\$28	0.63	\$26	0.62	\$26	0.60	\$25
Wholesale	11.16	\$470	11.85	\$499	10.50	\$442	9.46	\$399
Residual	3.26	\$138	3.45	\$145	3.53	\$149	3.62	\$153
Market Offer	30.71	\$1,294	30.69	\$1,294	29.19	\$1,230	28.17	\$1,187

* The regulated network tariffs in 2018-19 and 2019-20 come from AER annual pricing proposals and in 2020-21 and 2021-22 come from AER final determinations.

What is driving a decrease in wholesale costs in NSW?

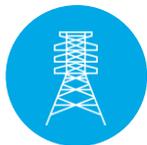


TYPE OF TECHNOLOGY	TOTAL CAPACITY OF COMMITTED BUILD (MW) IN 2022
Solar Farm	1,171

By the end of 2022, total capacity of committed projects is 1,171 MW. This helps drive down the wholesale costs in NSW.

Total committed generation is only that category of generation sourced from AEMO that had reached financial close before the modelling was undertaken. Other new capacity may have been included as new generation within the modelling period. Since the modelling was undertaken, additional projects have been committed to across the NEM which would impact these results.

Trends in ACT supply chain components



- Wholesale costs are expected to go down by 15.7 per cent (or \$124) in over the reporting period.



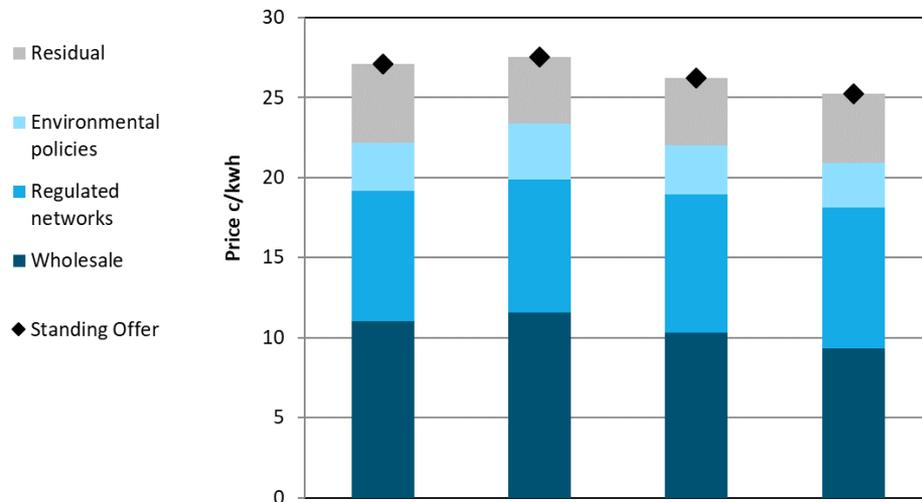
- Regulated network costs* are expected to increase by 9.3 per cent (or \$54) over the reporting period driven by distribution cost.



- Environmental costs are expected to go down by 9.5 per cent (or \$21) over the reporting period.



- Annual residential bill is expected to decrease by 6.9 per cent (or \$134) over the reporting.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	3.03	\$217	3.52	\$252	3.06	\$219	2.74	\$196
LRET - LGC cost	0.74	\$53	0.68	\$49	0.44	\$31	0.29	\$21
SRES - STC cost	0.64	\$46	0.75	\$54	0.68	\$48	0.63	\$45
Feed-in Tariff Schemes	1.24	\$88	1.68	\$120	1.55	\$111	1.42	\$101
EIS	0.41	\$29	0.40	\$29	0.40	\$29	0.40	\$29
Regulated networks	8.09	\$579	8.28	\$592	8.59	\$614	8.84	\$632
Transmission	1.59	\$114	1.38	\$99	1.45	\$103	1.51	\$108
Distribution	5.90	\$422	6.21	\$444	6.40	\$458	6.60	\$472
ACS Metering	0.60	\$43	0.69	\$49	0.74	\$53	0.74	\$53
Wholesale	11.04	\$789	11.58	\$828	10.33	\$739	9.30	\$665
Residual	4.93	\$353	4.12	\$294	4.22	\$302	4.33	\$309
Standing Offer	27.09	\$1,937	27.50	\$1,967	26.19	\$1,873	25.21	\$1,803

* The regulated network tariffs in 2018-19 and 2019-20 come from AER annual pricing proposals and in 2020-21 and 2021-22 come from AER final determinations.

Trends in VIC supply chain components



- Wholesale costs are expected to go down by 16.8 per cent (or \$79) over the reporting period.



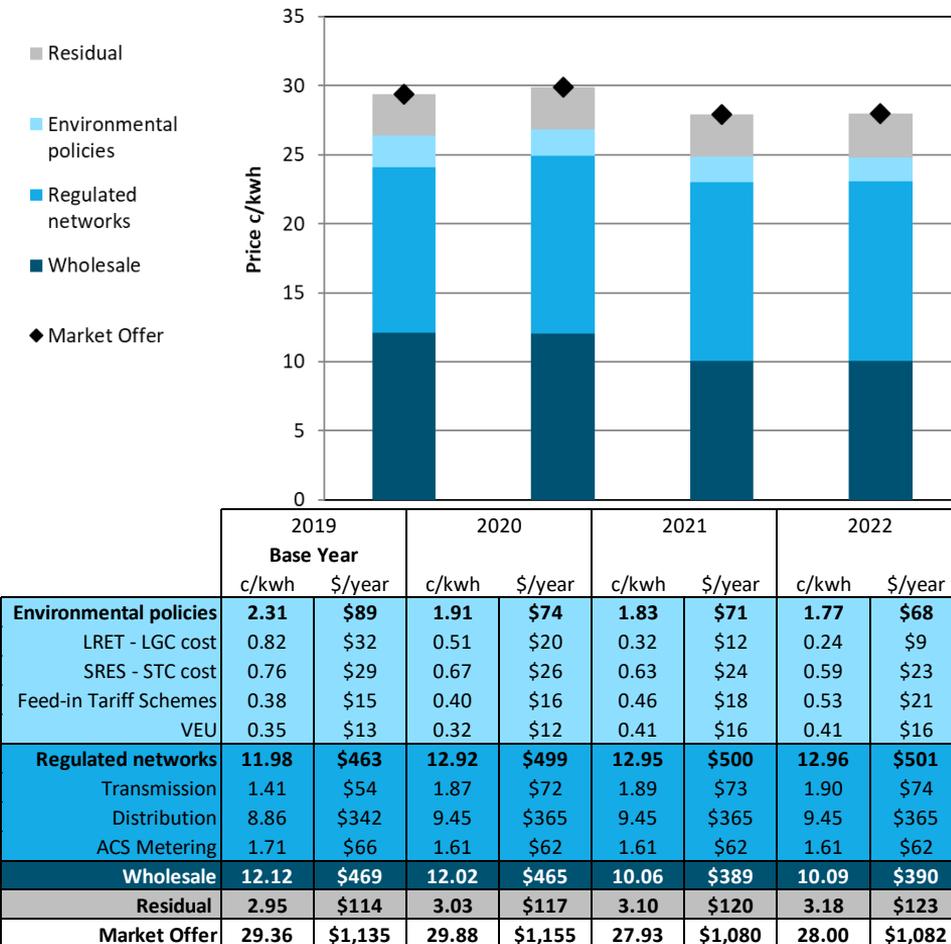
- Regulated network costs* are expected to increase by 8.2 per cent (or \$38) over the reporting period driven by distribution and transmission cost.



- Environmental costs are expected to go down by 23.4 per cent (or \$21) over the reporting period driven by the LGC cost.

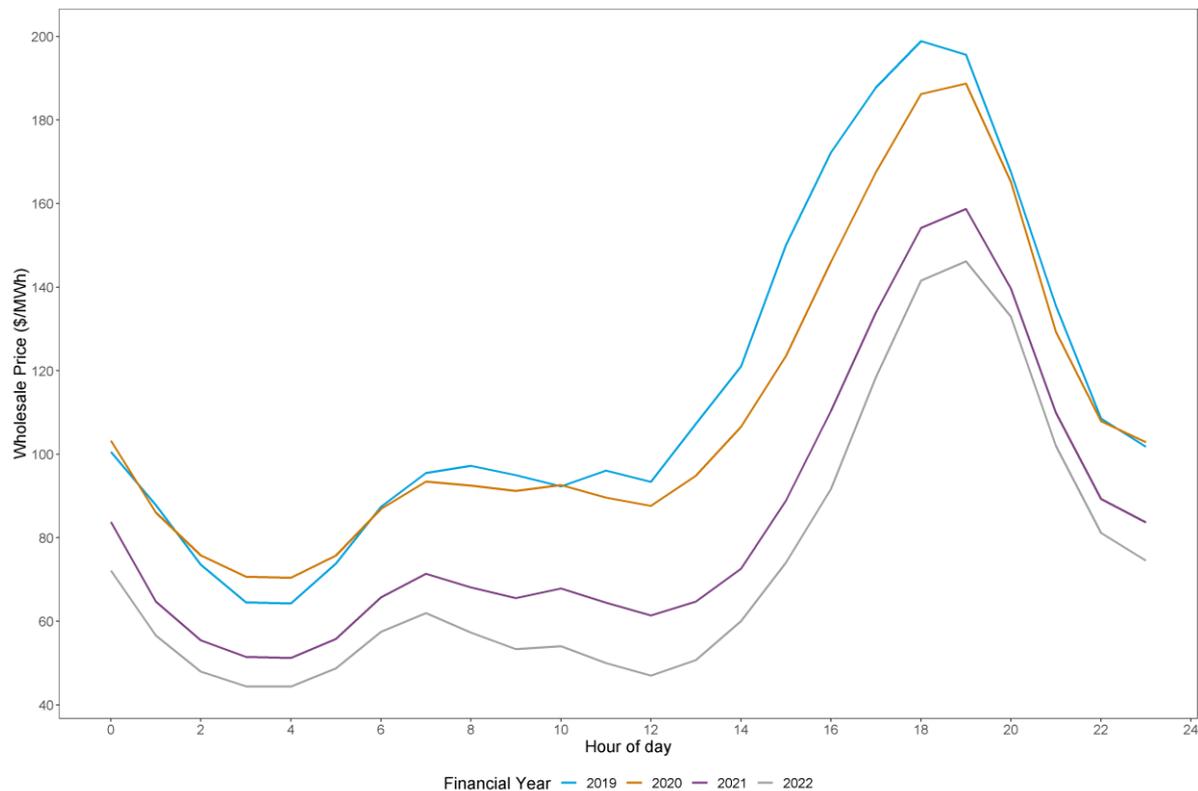


- Annual residential bill is expected to decrease by 4.6 per cent (or \$53) over the reporting period, mainly driven by wholesale costs.



* The regulated network tariffs in 2018-19 and 2019-20 come from AER annual pricing proposals and in 2020-21 and 2021-22 come from AER final determinations.

What is driving a decrease in wholesale costs in VIC?

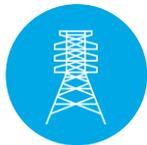


TYPE OF TECHNOLOGY	TOTAL CAPACITY OF COMMITTED BUILD (MW) IN 2022
Wind Farm	1,984
Solar Farm	437

By the end of 2022, total capacity of committed projects is 2,421 MW. This helps drive down the wholesale costs in VIC.

Total committed generation is only that category of generation sourced from AEMO that had reached financial close before the modelling was undertaken. Other new capacity may have been included as new generation within the modelling period. Since the modelling was undertaken, additional projects have been committed to across the NEM which would impact these results.

Trends in SA supply chain components



- Wholesale costs are expected to go down by 10.0 per cent (or \$84) over the reporting period.



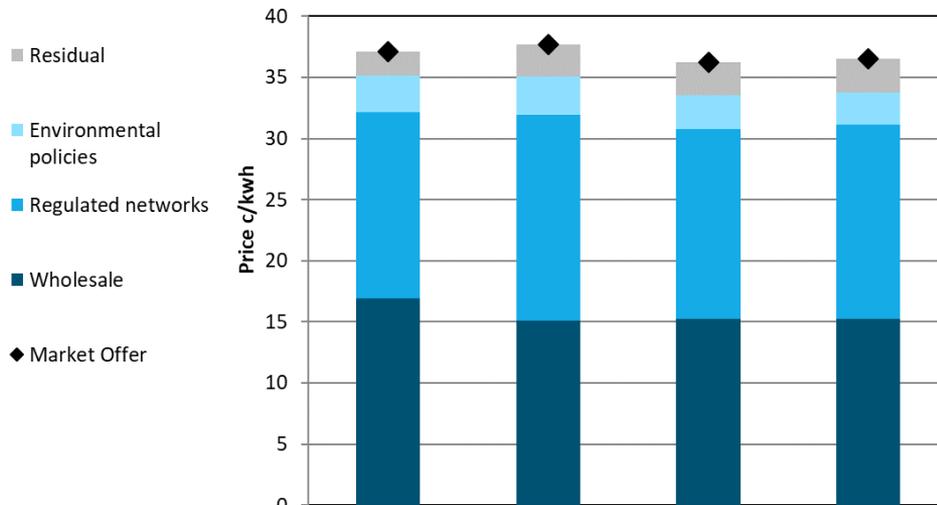
- Regulated network costs* are expected to increase by 4.4 per cent (or \$33) over the reporting period driven by transmission cost.



- Environmental costs are expected to go down by 10.6 per cent (or \$16) over the reporting period.



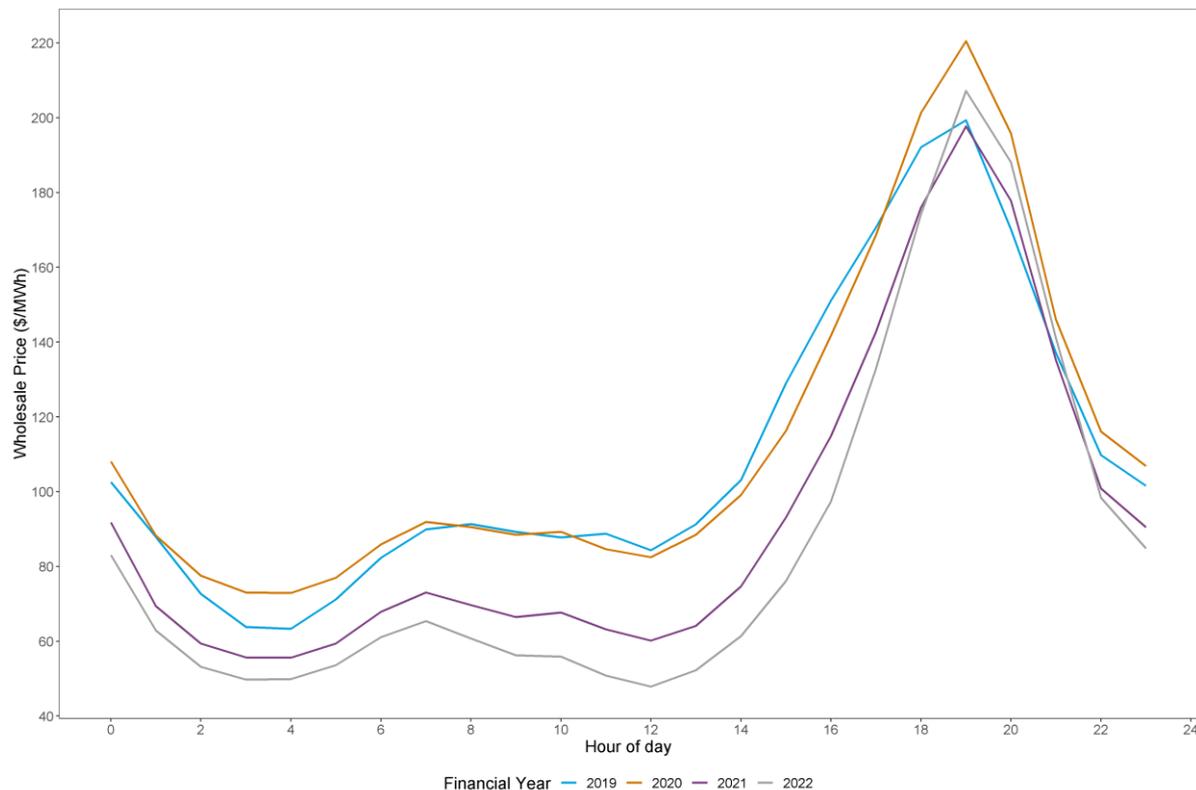
- Annual residential bill is expected to decrease by 1.5 per cent (or \$27) over the reporting period, mainly driven by wholesale cost.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	2.95	\$147	3.16	\$158	2.83	\$141	2.63	\$132
LRET - LGC cost	0.77	\$38	0.70	\$35	0.44	\$22	0.30	\$15
SRES - STC cost	0.64	\$32	0.75	\$38	0.68	\$34	0.63	\$32
Feed-in Tariff Schemes	1.29	\$64	1.45	\$73	1.45	\$73	1.45	\$73
REES	0.25	\$13	0.25	\$13	0.25	\$13	0.25	\$13
Regulated networks	15.27	\$763	16.82	\$841	15.51	\$776	15.93	\$797
Transmission	3.02	\$151	3.25	\$163	3.38	\$169	3.52	\$176
Distribution	11.62	\$581	12.89	\$645	11.45	\$573	11.73	\$587
ACS Metering	0.62	\$31	0.68	\$34	0.68	\$34	0.68	\$34
Wholesale	16.90	\$845	15.09	\$754	15.23	\$761	15.22	\$761
Residual	1.96	\$98	2.61	\$130	2.67	\$134	2.74	\$137
Market Offer	37.07	\$1,854	37.68	\$1,884	36.24	\$1,812	36.53	\$1,826

* The regulated network tariffs in 2018-19 and 2019-20 come from AER annual pricing proposals and in 2020-21 and 2021-22 come from AER draft distribution determinations.

What is driving a decrease in wholesale costs in SA?

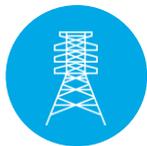


TYPE OF TECHNOLOGY	TOTAL CAPACITY OF COMMITTED BUILD (MW) IN 2022
Wind Farm	86
Solar Farm	135

By the end of 2022, total capacity of committed projects is 221 MW. A decrease in wholesale costs in SA is partly driven by the interconnection between SA and VIC.

Total committed generation is only that category of generation sourced from AEMO that had reached financial close before the modelling was undertaken. Other new capacity may have been included as new generation within the modelling period. Since the modelling was undertaken, additional projects have been committed to across the NEM which would impact these results.

Trends in TAS supply chain components



- Wholesale costs are expected to go down by 10.9 per cent (or \$74) over the reporting period.



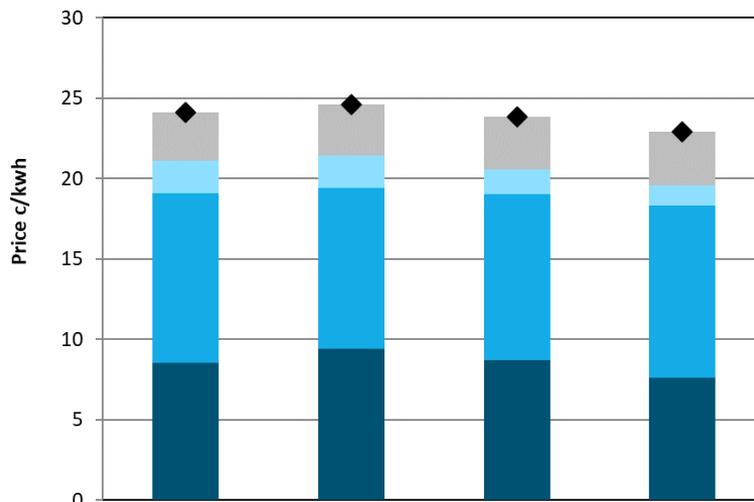
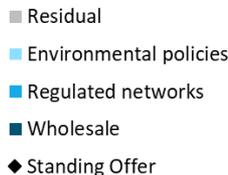
- Regulated network costs* are expected to increase by 1.5 per cent (or \$13) over the reporting period.



- Environmental costs are expected to go down by 36.2 per cent (or \$58) over the reporting period.



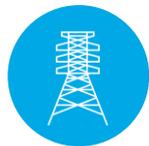
- Annual residential bill is expected to decrease by 4.9 per cent (or \$93) over the reporting period, driven by wholesale costs and environmental costs.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	2.04	\$161	2.00	\$158	1.56	\$123	1.30	\$103
LRET - LGC cost	1.06	\$84	0.91	\$72	0.58	\$46	0.39	\$31
SRES - STC cost	0.98	\$77	1.08	\$86	0.97	\$77	0.91	\$72
Regulated networks	10.52	\$832	10.02	\$793	10.35	\$818	10.68	\$845
Transmission	2.30	\$182	2.21	\$175	2.24	\$177	2.28	\$180
Distribution	7.65	\$605	7.22	\$571	7.51	\$594	7.82	\$618
ACS Metering	0.57	\$45	0.59	\$47	0.59	\$47	0.59	\$47
Wholesale	8.56	\$677	9.41	\$744	8.69	\$687	7.63	\$603
Residual	2.98	\$236	3.16	\$250	3.24	\$256	3.32	\$263
Standing Offer	24.11	\$1,906	24.59	\$1,945	23.83	\$1,884	22.93	\$1,813

* The regulated network tariffs in 2018-19 and 2019-20 come AER from annual pricing proposals and in 2020-21 and 2021-22 come from AER final determinations.

Trends in WA supply chain components



- Wholesale costs are expected to go up by 7.5 per cent (or \$53) over the reporting period driven by gas price.



- Regulated network costs** are expected to be flat over the reporting period.



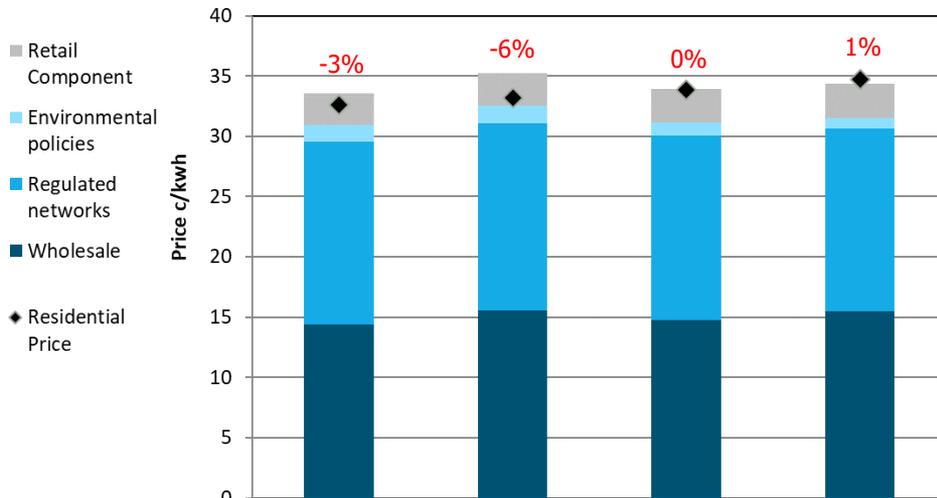
- Environmental costs are expected to go down by 33.7 per cent (or \$23) over the reporting period driven by the LGC cost.



- Annual residential bill is expected to increase by 6.4 per cent (or \$102) over the reporting period.

* Note that the red highlighted numbers show the difference between the cost of supply and residential price.

** The regulated network tariffs in 2018-19 and 2019-20 come from Western Power's annual price lists for network charges and in 2020-21 and 2021-22 come from Western Power's network access arrangement.



	2018/19 Base Year		2019/20 Current Year		2020/21		2021/22	
	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year	c/kwh	\$/year
Environmental policies	1.40	\$69	1.46	\$71	1.12	\$55	0.93	\$46
LRET - LGC cost	0.76	\$38	0.70	\$34	0.45	\$22	0.30	\$15
SRES - STC cost	0.64	\$31	0.75	\$37	0.68	\$33	0.63	\$31
Regulated networks	15.17	\$744	15.51	\$761	15.26	\$749	15.14	\$743
Transmission	1.50	\$73	2.04	\$100	2.45	\$120	2.92	\$143
Distribution	12.58	\$617	12.87	\$631	12.24	\$600	11.67	\$573
Metering	1.09	\$53	0.61	\$30	0.58	\$28	0.55	\$27
Wholesale	14.40	\$706	15.59	\$765	14.80	\$726	15.47	\$759
Retail Component	2.62	\$128	2.71	\$133	2.72	\$133	2.78	\$136
Cost of Supply	33.59	\$1,647	35.27	\$1,730	33.90	\$1,662	34.33	\$1,684
Residential Price	32.62	\$1,600	33.19	\$1,628	33.86	\$1,660	34.70	\$1,702

New build results – WA

TYPE OF TECHNOLOGY	COAL PRICE* (\$/GJ)
2018/19	3.01
2019/20	3.02
2020/21	3.02
2021/22	3.04

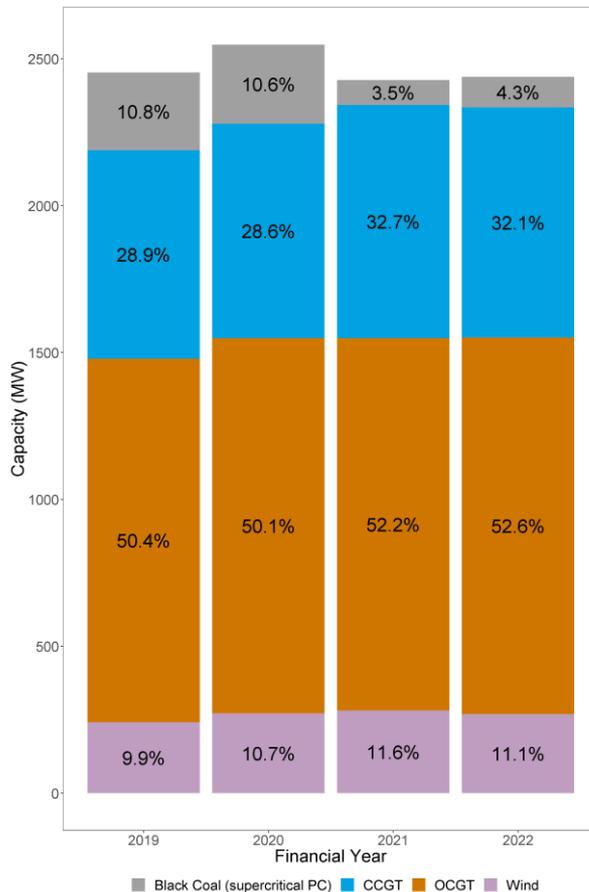
TYPE OF TECHNOLOGY	GAS PRICE** (\$/GJ)
2018/19	8.98
2019/20	9.47
2020/21	7.51
2021/22	7.68

*Based on the AEMO Input and Assumptions workbook 2019 – Lowest estimate for new coal entrant – February 2019

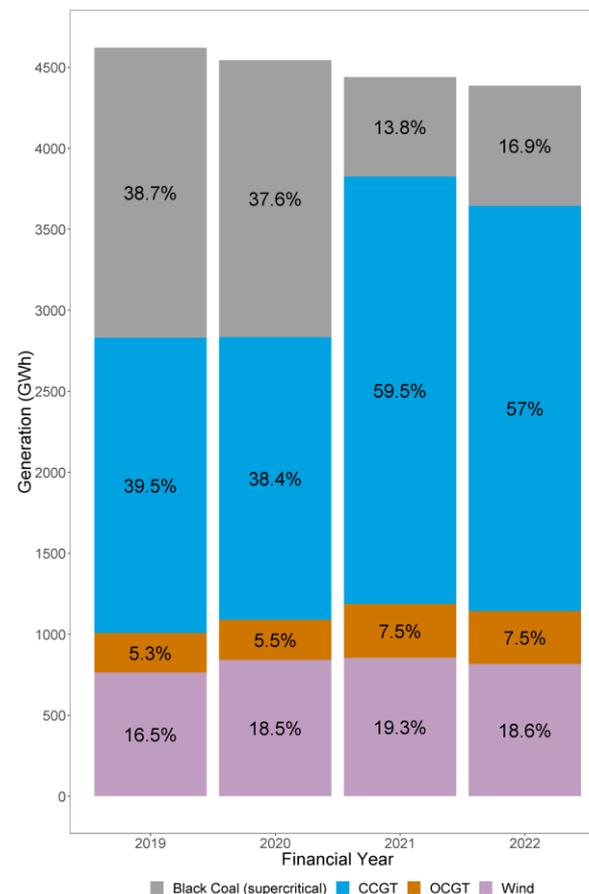
**Based on the GSOO WA 2018 – LNG netback prices base scenario

***Based on a representative customer load profile

Capacity***



Generation***



Limitations – 1

- **Spot price modelling:**

1. Our spot price modelling assumes bidding behaviour mirrors historical bid profiles. We have calibrated bids so that our modelled spot prices align with current futures prices.
2. Nevertheless, the shape of our modelled prices – i.e., *when* high prices occur – is driven by historical bid profiles. Bidding behaviour may of course change, and this would affect our results.

- **Network costs:**

1. Our analysis takes into account relevant information from the latest available network revenue determinations.

Limitations – 2

- **Retail offers:**

1. We have assumed that the residual component of the bill, which is derived from the difference between September 2019 retail offers and the sum of the other cost components, remains constant in real terms.
2. In reality, the retail margin and retail costs may change over time, and this would affect our results.

Accuracy of estimated national prices on year ahead

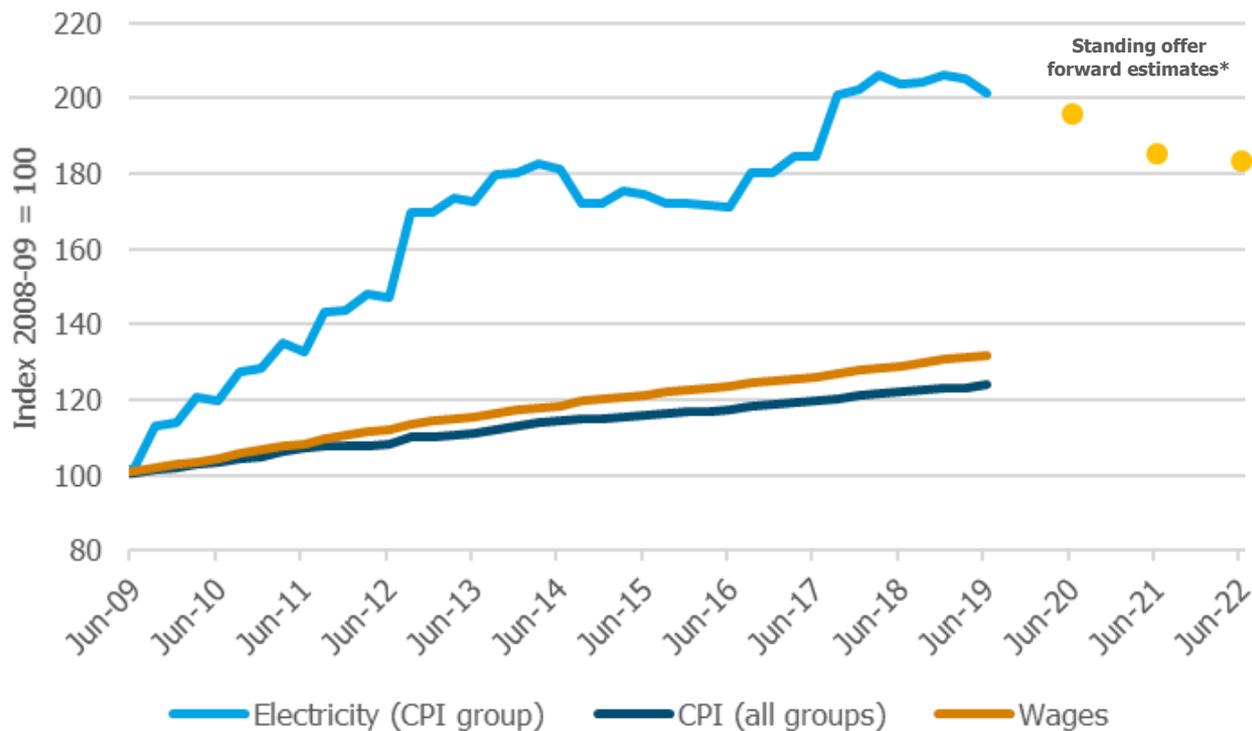
National average prices and costs	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019/20
Source of estimated prices and costs	2013 report	2014 report	2015 report	2016 report	2016 report	2017 report	2018 report
Source of actual prices and costs	2014 report	2015 report	2016 report	2017 report	2018 report	2018 report	2019 report**
Total retail price							
Estimated price	27.95	26.83	25.21	25.8	26.49	29.58	28.69
Estimated price change		-1.12	-1.62	0.59	0.69	3.09	-0.89
Estimated direction of trend		Decrease	Decrease	Increase	Increase	Increase	Decrease
Actual price	28.57	25.68	24.71	28.16	30.24	29.85	30.35
Actual price change		-2.89	-0.97	3.45	2.08	-0.39	0.5
Actual direction of trend		Decrease	Decrease	Increase	Increase	Decrease	Increase
Accuracy of expected vs actual trend		Correct	Correct	Correct	Correct	Within 1%	Within 5%
Network costs							
Estimated price	14.4	14.23	11.93	12.07	12.2	13.57	13.49
Estimated price change		-0.17	-2.3	0.14	0.13	1.37	-0.08
Estimated direction of trend		Decrease	Decrease	Increase	Increase	Increase	Decrease
Actual price	13.87	13.37	12.24	13.63	13.22	13.33	13.36
Actual price change		-0.5	-1.13	1.39	-0.41	0.11	0.03
Actual direction of trend		Decrease	Decrease	Increase	Decrease	Increase	Decrease
Accuracy of expected vs actual trend		Correct	Correct	Correct	Incorrect	Correct	Within 1%
Wholesale costs*							
Estimated price	5.26	10.49	11.18	7.39	8.14	11.28	10.34
Estimated price change		5.23	0.69	-3.8	0.75	3.14	-0.94
Estimated direction of trend		Increase	Increase	Decrease	Increase	Increase	Decrease
Actual price	10.3	10.52	10.38	10.01	11.7	11.72	12.14
Actual price change		0.22	-0.14	-0.37	1.69	0.02	0.42
Actual direction of trend		Increase	Decrease	Decrease	Increase	Increase	Increase
Accuracy of expected vs actual trend		Correct	Incorrect	Correct	Correct	Correct	Incorrect
Environmental costs							
Estimated price	4.49	2.11	2.1	2.18	1.87	1.78	2.07
Estimated price change		-2.38	-0.01	0.08	-0.31	-0.09	0.29
Estimated direction of trend		Decrease	Decrease	Increase	Decrease	Decrease	Increase
Actual price	4.39	1.79	2.08	2.01	1.75	2.08	1.94
Actual price change		-2.6	0.29	-0.07	-0.26	0.33	-0.14
Actual direction of trend		Decrease	Increase	Decrease	Decrease	Increase	Decrease
Accuracy of expected vs actual trend		Correct	Within 1%	Incorrect	Correct	Incorrect	Incorrect

Source: AEMC 2013, 2014, 2015, 2016, 2017, 2018 and 2019 Residential Electricity Price Trends reports.

Note: * For 2014-15 and 2015-16, expected and actual wholesale and retail costs were combined and presented as 'competitive market costs'. For 2016-17, 2017-18, 2018-19 and 2019-20 the comparison of actual and expected results are for wholesale costs only.

** For 2019 report, the figures are estimated by excluding Northern Territory.

Comparing electricity cost to inflation and wages growth



Source: ABS 6401.0 – Sep 2019, ABS 6345.0 – June 2019 and AEMC analysis.

Note: * Note that the standing offer forward estimates differ to the estimates of the growth rates of the national residential prices presented at the start of the slide pack because the latter estimates contain estimates from other jurisdictions, which use market offer data rather than standing offer data.

MAIN ASSUMPTIONS

ELECTRICITY CONSUMPTION AND PRICES OF
REPRESENTATIVE CUSTOMERS

Electricity consumption of representative customers

- Representative customers are defined by their electricity consumption characteristics, which are their total annual electricity consumption measured in kWh and how this consumption varies through the year, on a quarterly basis.
- Data provided by the AER from their 2017 Electricity Bill Benchmarks are used to estimate the annual consumption value and quarterly breakdown for most jurisdictions.
- Equivalent values to the AER are provided by jurisdictions in South Australia and Western Australia.
- The AER benchmark values are based on a survey of around 8,000 households where participants are asked about their homes and the way in which they use electricity.

The same consumption levels have been used for the whole reporting period

Table 3: Annual consumption of representative consumer – based on AER benchmark values

JURISDICTION	MOST COMMON HOUSEHOLD TYPES	CONSUMPTION BY TYPE (KWH)	TOTAL ANNUAL CONSUMPTION (KWH)
Queensland	2 person household, no mains gas, air conditioning, off-peak hot water and on a market offer	Tariff 41: 4,434 Tariff 33 (Controlled Load 2): 806	5,240
New South Wales	2 person household; mains gas and on a market offer	4,215	4,215
Australian Capital Territory	2 person household, no mains gas, electricity water heating and on the regulated standing offer	7,151	7,151
Victoria	2 person household, mains gas and on market offer	3,865	3,865
Tasmania	2 person household, no mains gas, electric water heading and on the regulated standing offer	Tariff 31 (Lighting): 3,559 Tariff 41 (Heating): 4,349	7,908

Source: AER

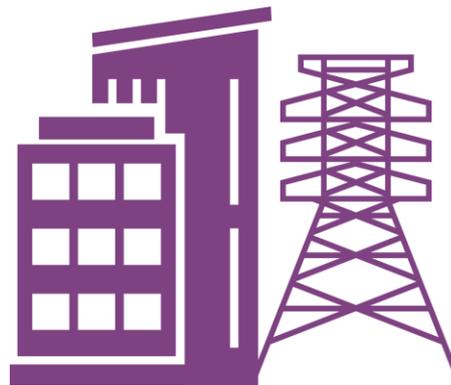
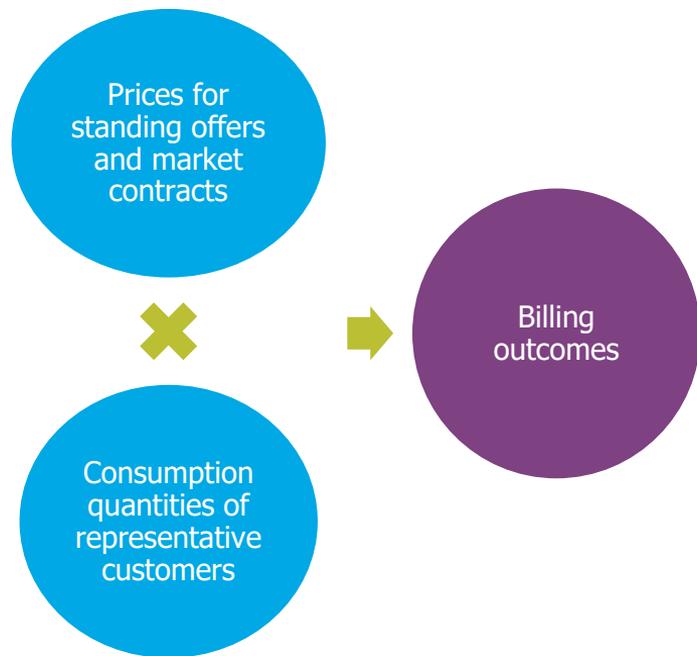
The same consumption levels have been used for the whole reporting period

Table 4: Annual consumption of representative consumer – provided by jurisdictional governments

JURISDICTION	MOST COMMON HOUSEHOLD TYPES	GENERAL CONSUMPTION (KWH)	TOTAL ANNUAL CONSUMPTION (KWH)
South Australia	2 person household; mains gas and on a market offer	5,000	5,000
Western Australia	2 person household, no mains gas, electricity water heating and on the regulated standing offer	4904	4904

Source: South Australia Government and Western Australia Government

Representative retail electricity prices



Our analysis has used the lowest offer for each retailer

Actual retail offers for 2018-19 and 2019-20

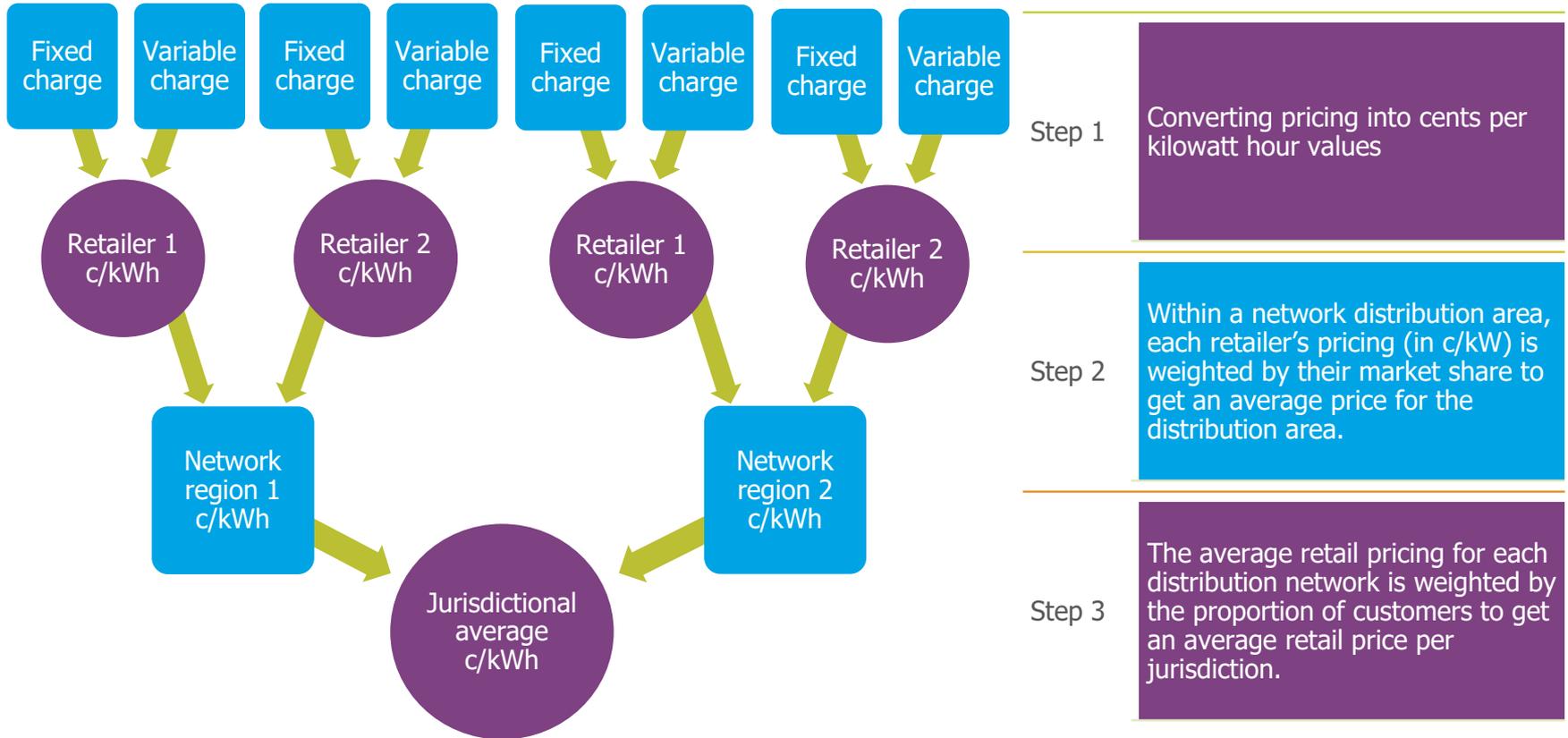
Table 5: Sources of electricity pricing data

JURISDICTION	OFFER	2018-19	2019-20
NSW, ACT, SA	Standing	Retailer offers obtained from Energy Made Easy on 1 July 2018	Retailer offers obtained from Energy Made Easy on 20 September 2019
	Market		
South East Queensland	Standing	Retailer offers obtained from Energy Made Easy on 1 July 2018	Retailer offers obtained from Energy Made Easy on 20 September 2019
	Market		
Tasmania	Standing	Aurora Energy approved standing offer prices from 1 July 2018	Aurora Energy approved standing offers prices from 1 July 2019
	Market	None	None
Victoria	Standing	None	None
	Market		
Western Australia	Government set prices	2018-19 Electricity Price Order	2019-20 Electricity Price Order
	Market	None	None

Source: AEMC and cited sources

Note: Victorian price changes occur on a calendar year basis, unlike all other jurisdictions where price changes occur on a financial year basis. Data used for estimating Victorian offer price in 2019 come from Victorian Energy Compare on 1 August 2019.

Process of calculating a jurisdictional average price



MAIN ASSUMPTIONS

ELECTRICITY SUPPLY CHAIN COST
COMPONENTS

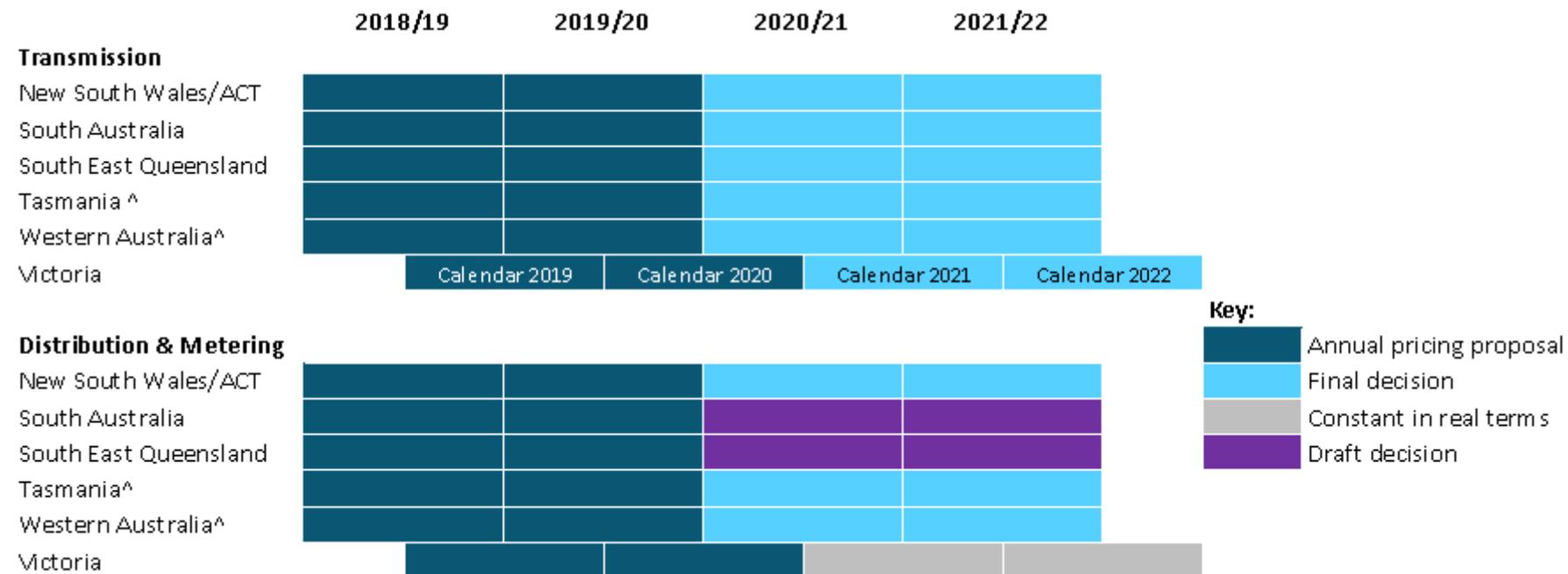
Regulated network costs

Regulated network costs are estimated using Annual Pricing Proposals produced by the distributed network service providers (DNSPs) before each new financial year (or calendar year for Victorian network businesses). These proposals are to be approved by the AER and set out the overall network use of service (NUOS) charge for each tariff class. This can be broken down into the:

- transmission use of service charge (TUOS)
- distribution use of service charge (DUOS)
- metering charges (capital and non-capital)
- jurisdictional scheme costs (if applicable).

We assume the representative consumer in each jurisdiction still has a Type 6 accumulation meter owned by a DNSP.

Regulated network costs – Network tariff sources and regulatory periods

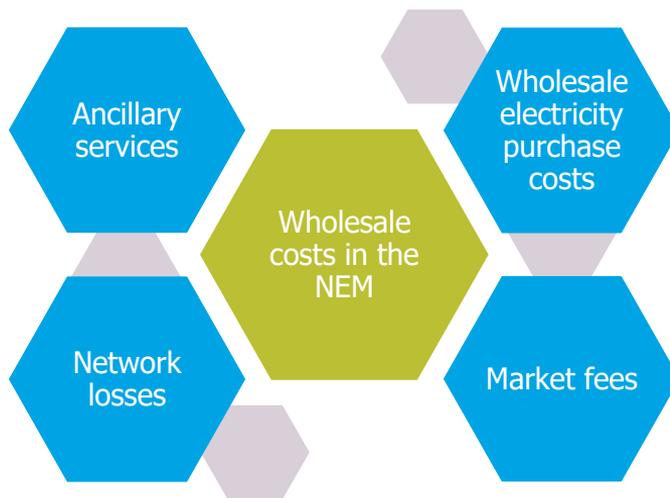


^ These network service providers are both the transmission and distribution businesses.

Wholesale electricity costs in the NEM

Ancillary services are those services used by the market operator to manage key technical characteristics of the power system, such as frequency control. Based on AEMO's historical 2016/17 to 2018/19 ancillary service settlement data, we have used 3-year moving average to interpolate results in future years. Costs in Western Australia are estimated using information from the Economic Regulation Authority (ERA).

Estimated transmission and distribution loss factors were based on AEMO's 2018/19 and 2019/20 loss factor data, except for Tasmania where the factors were obtained from the Tasmania Energy Regulator's (TER) retail pricing determination.



There are many steps in the process of calculating wholesale electricity purchase costs. In subsequent slides we will examine these in details.

Market fees are charges to market participants to cover the operational expenditures of AEMO. AEMO's estimated market fees have been used for the reporting period. The actual NEM fee for 2018-19 is \$0.44/MWh. The fee is then estimated to increase to 12% for each of the forward 4 years.

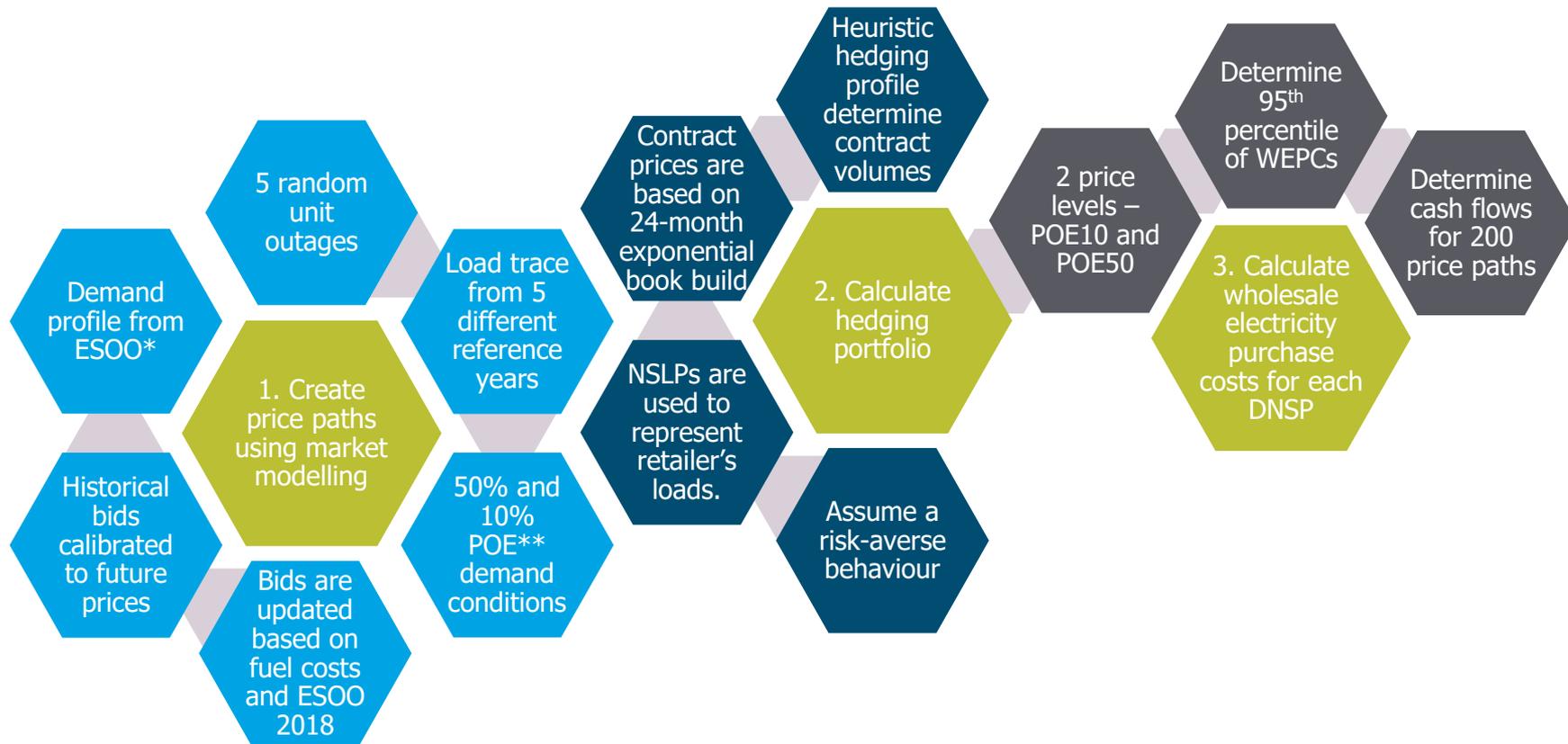
Wholesale electricity purchase costs

1. Create price paths using market modelling

2. Calculate hedging portfolio

3. Calculate WEPCs for each DNSP

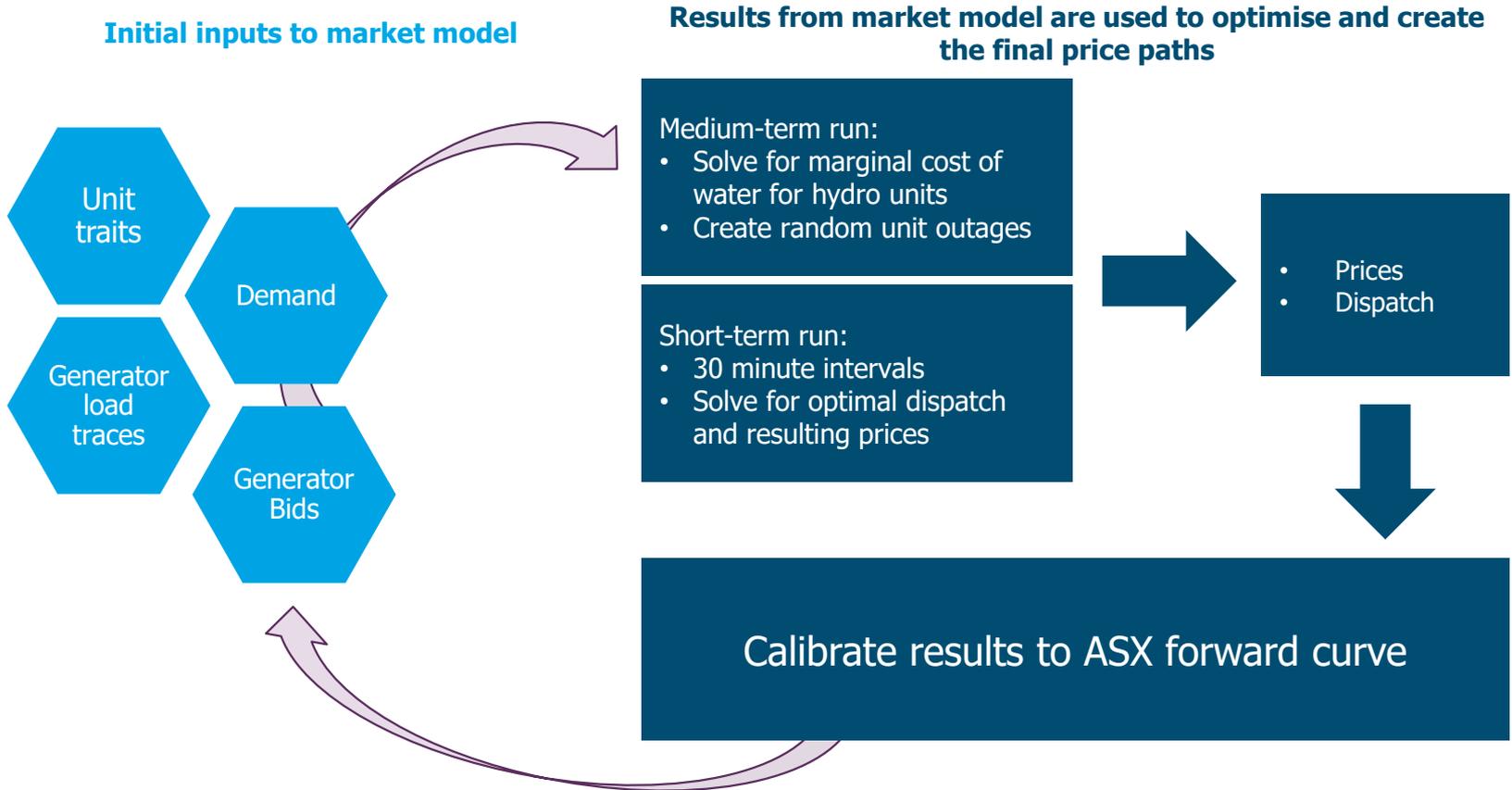
Wholesale electricity purchase costs – Main assumptions



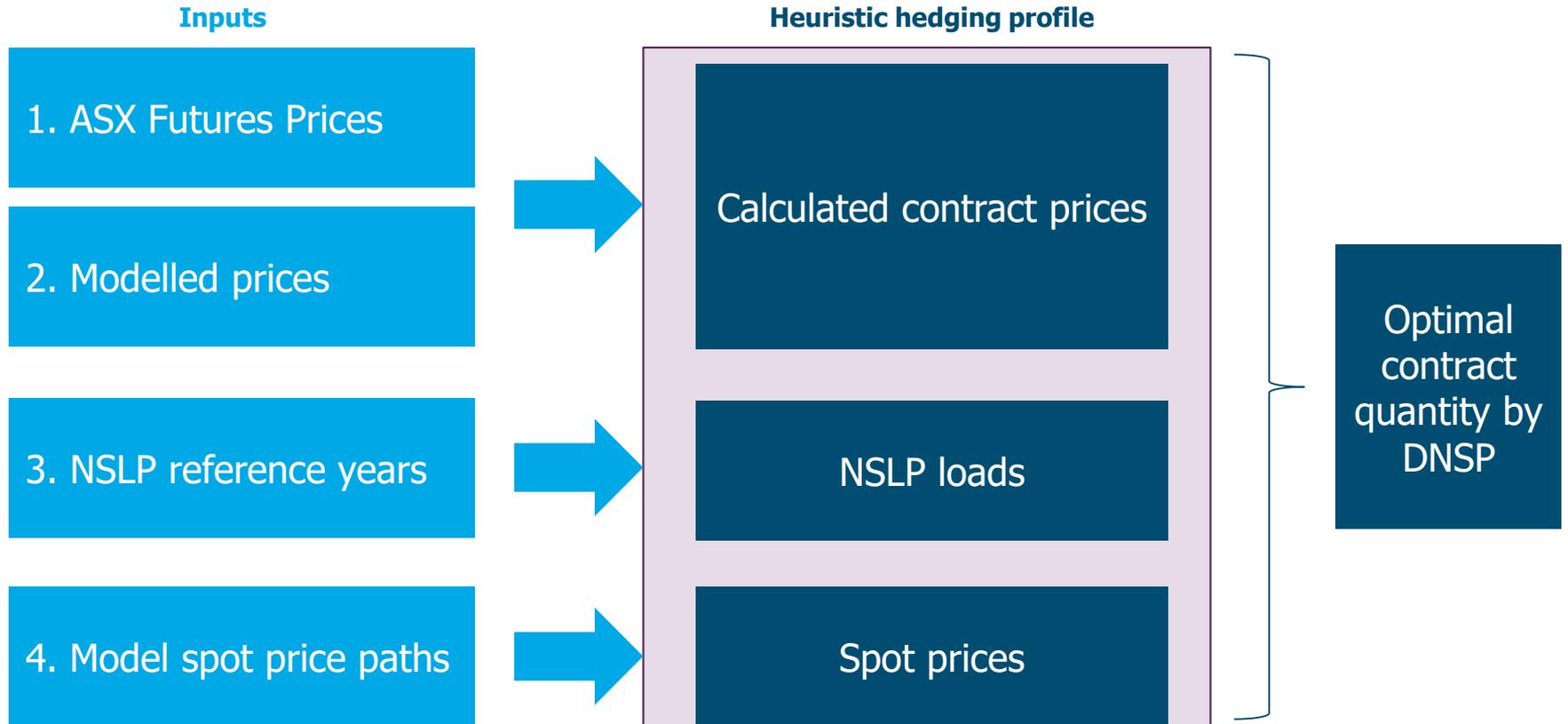
*Electricity Statement of Opportunities

**Probability of Exceedance

1. Create price paths using market modelling

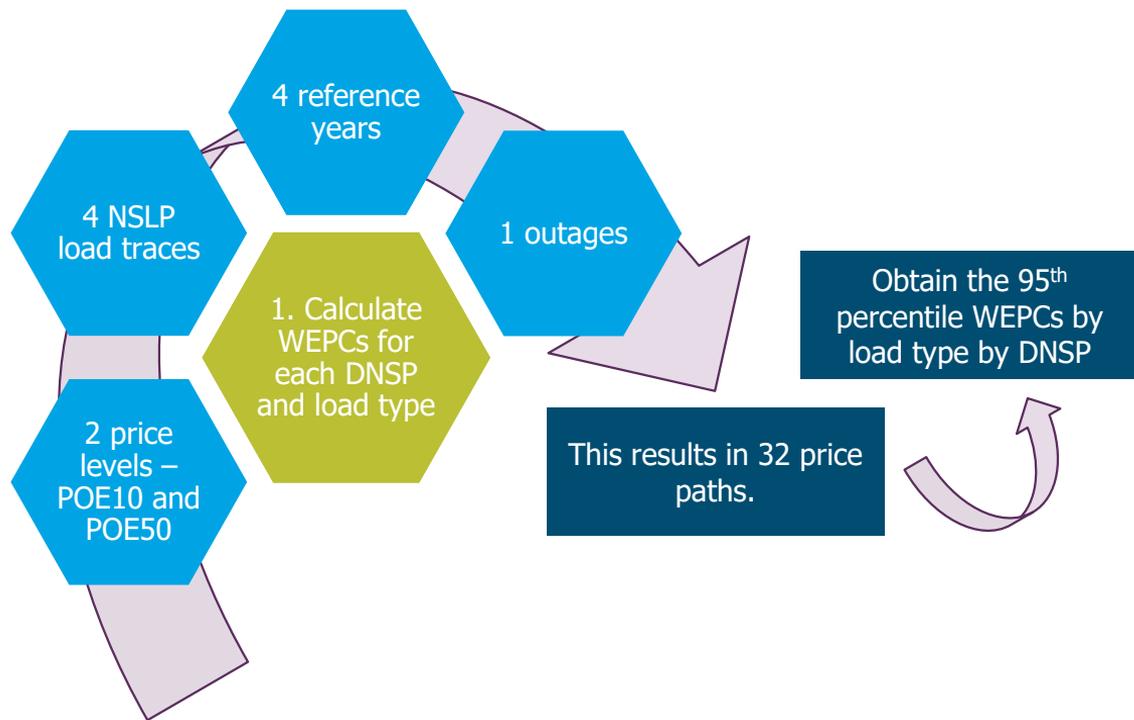


2. Calculate optimal hedging portfolio

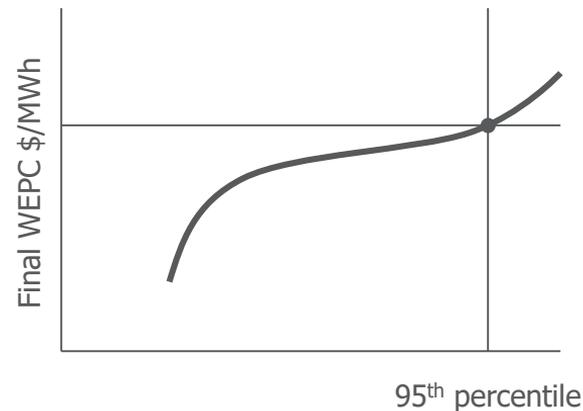


3. Calculate wholesale electricity purchase costs for each DNSP

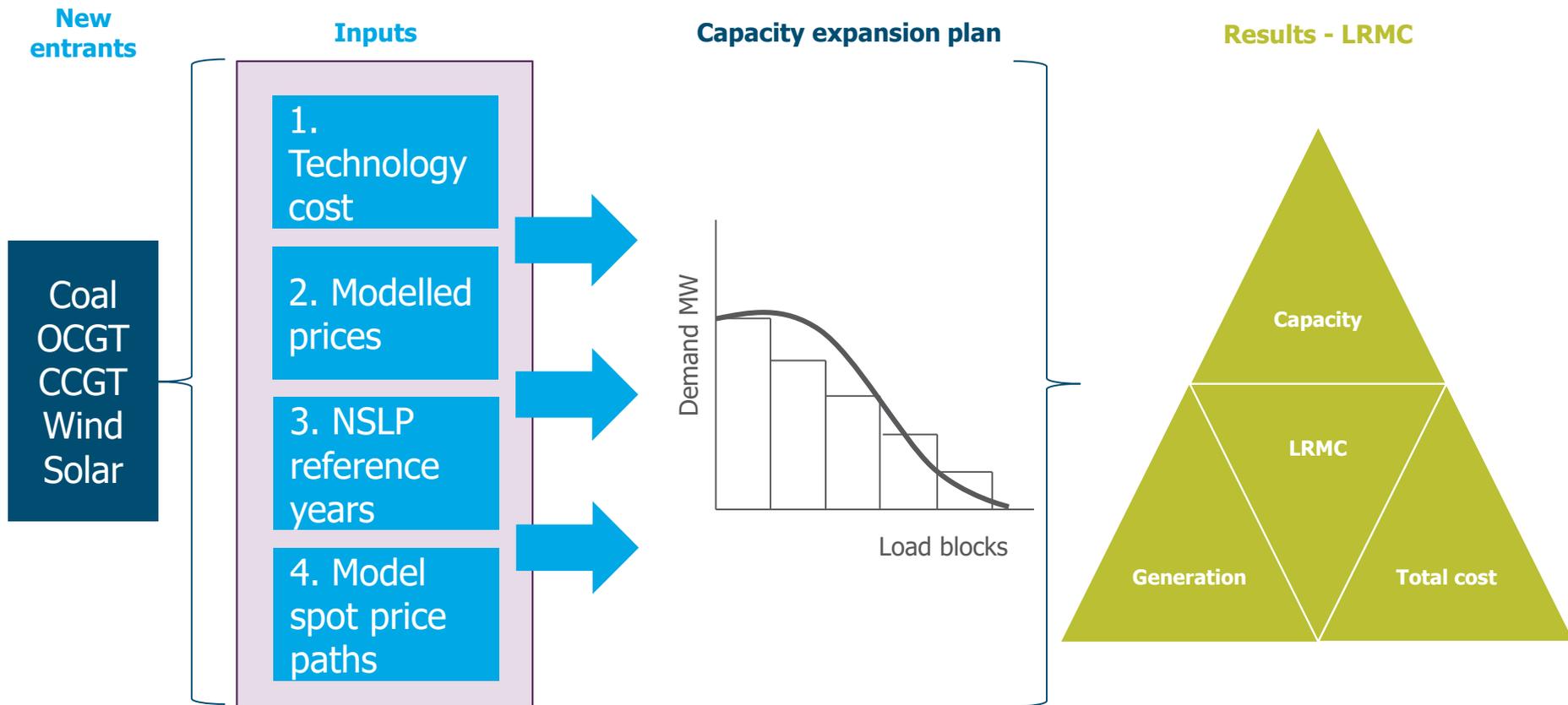
Step 1



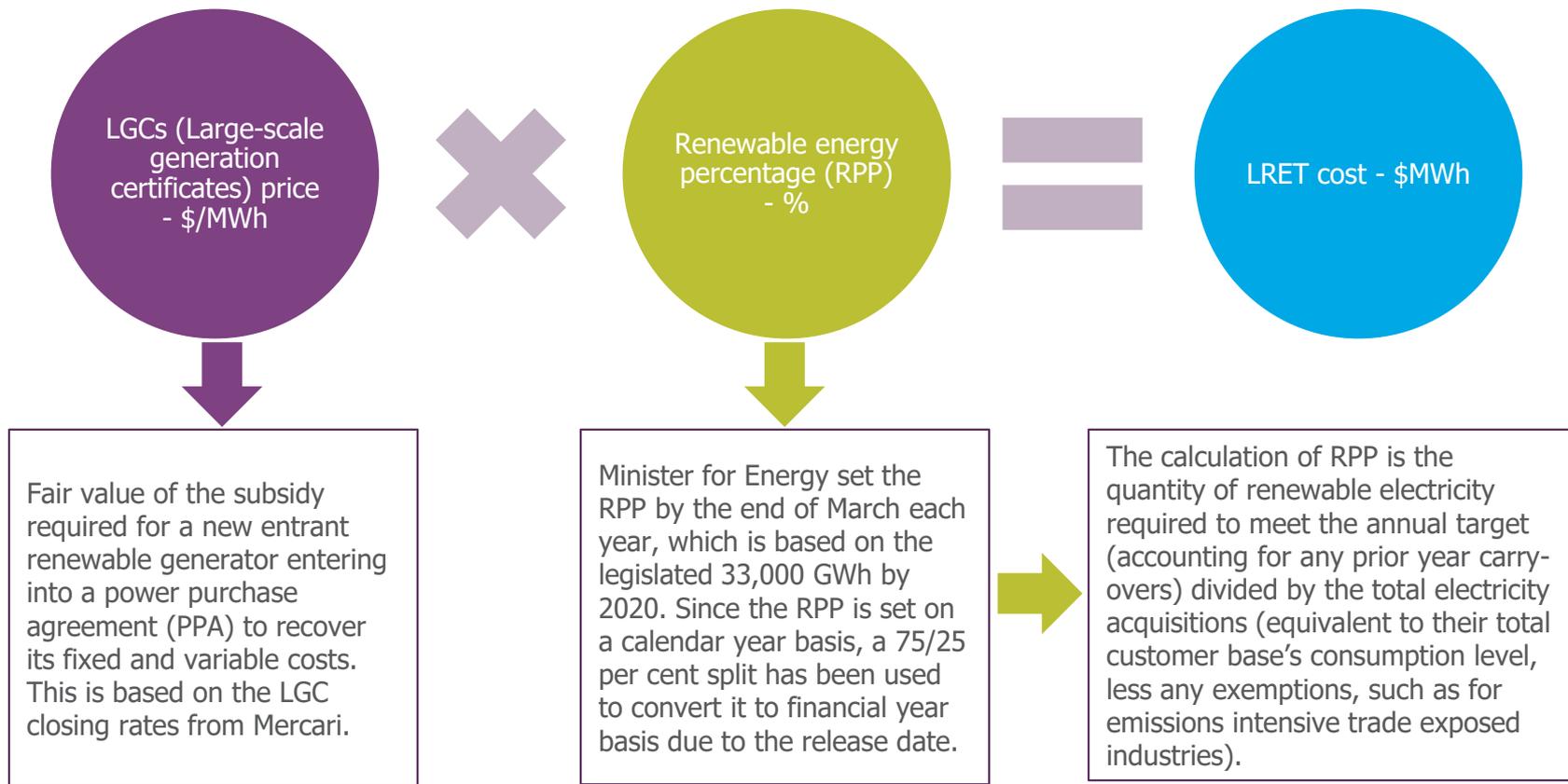
Step 2



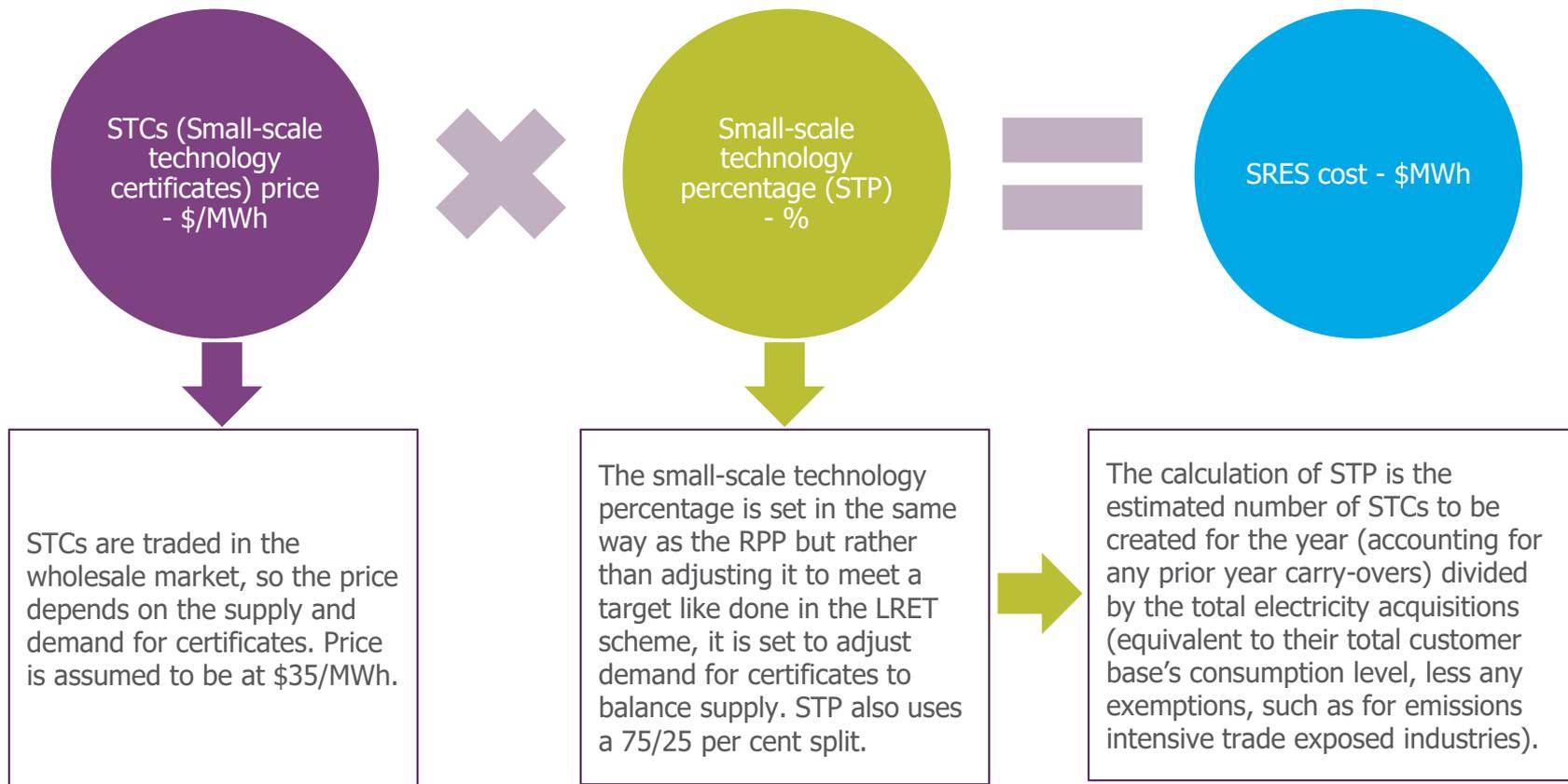
Calculate standalone long run marginal cost (LRMC) for Western Australia



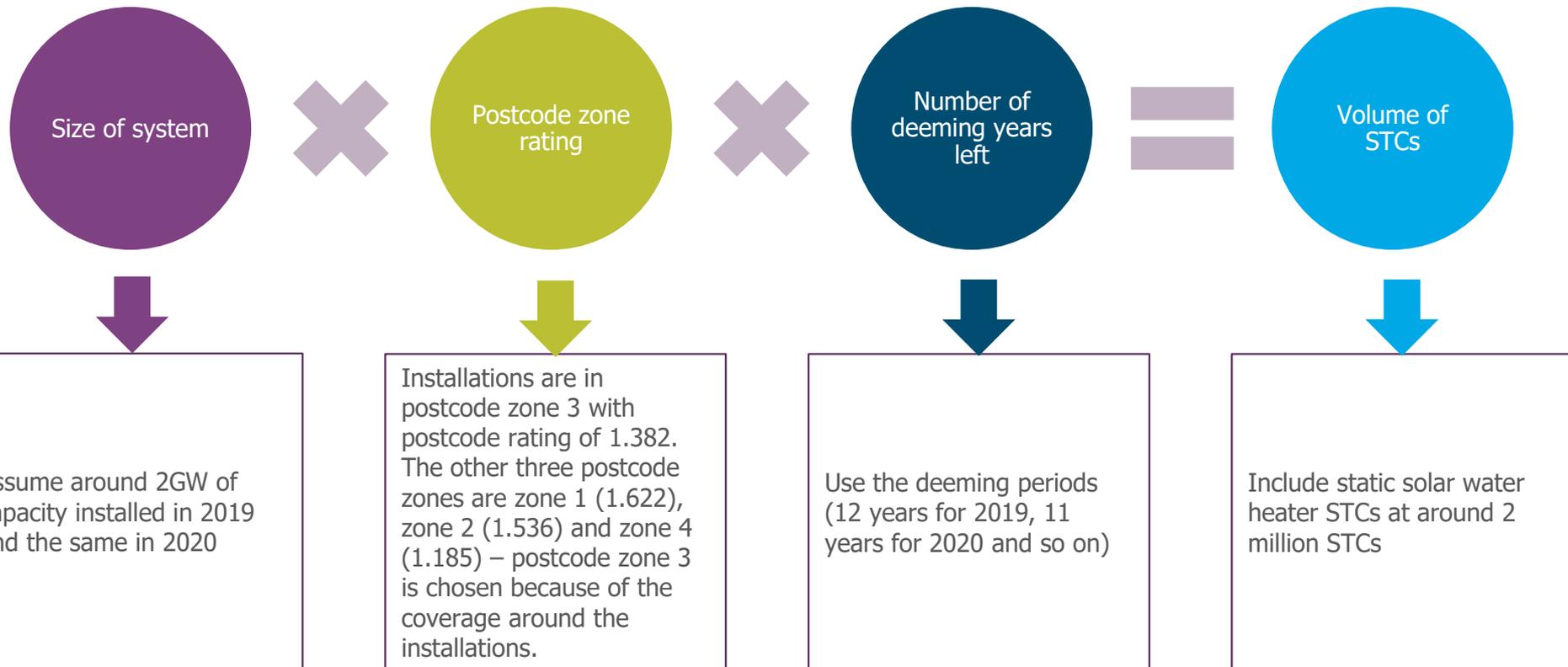
Environmental costs – Renewable energy target - LRET



Environmental costs – Renewable energy target - SRES



Environmental costs – Renewable energy target – SRES - STCs

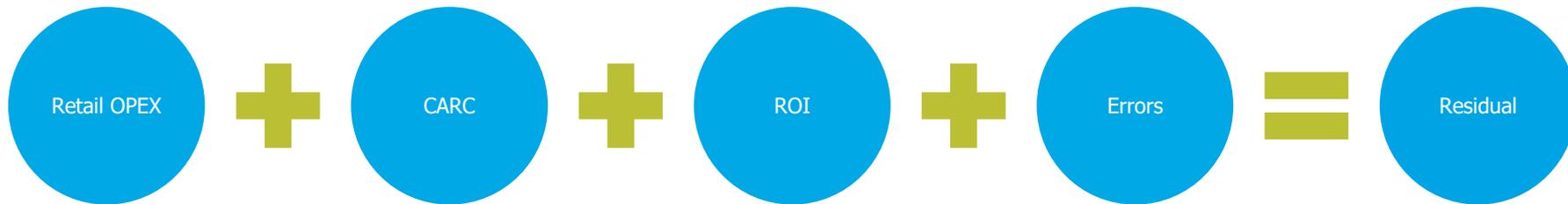


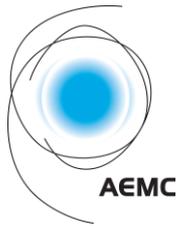
Residual component or retail cost

Method of deriving the residual component from the retail offer price



Representation of residual component





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