

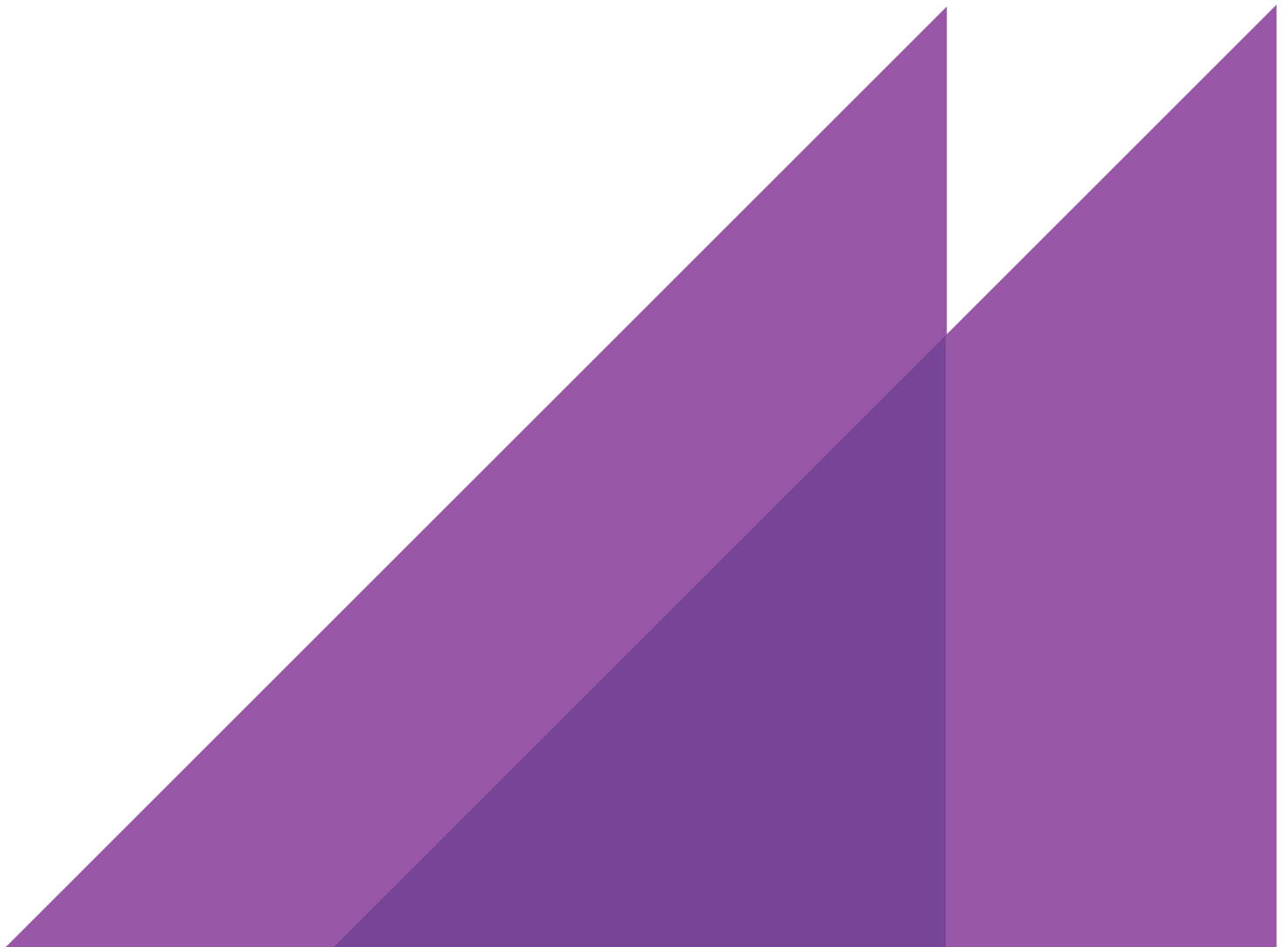
REPORT TO
QUEENSLAND TREASURY

4 SEPTEMBER 2017

RETAIL BILL IMPACT ANALYSIS



QUANTIFYING THE
IMPACTS OF RECENT
GOVERNMENT ACTIONS





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ACIL Allen has been engaged by Queensland Treasury (Treasury) to quantify the impacts on electricity retail prices of recent Queensland Government actions in relation to the electricity sector.

In particular, Treasury requested ACIL Allen estimate the retail electricity bill impact for a typical residential customer, commercial customer and industrial customer resulting from the following actions:

- Directing Energex and Ergon Energy (Ergon) not to appeal the Australian Energy Regulator's (AER) determination
- Decision by Powerlink not to appeal the AER's determination
- Decision to remove the costs of the Solar Bonus Scheme from network tariffs
- Recommissioning of the Swanbank E gas-fired power station and directing Stanwell Corporation (Stanwell) to adjust its wholesale market offers in order to lower wholesale prices
- An aggregation of the above impacts.

ACIL Allen has undertaken this analysis for 2015-16, 2016-17, 2017-18 and 2018-19 financial years.

ACIL Allen has utilised its proprietary electricity market model, PowerMark, and other in-house models for this analysis. ACIL Allen has also sourced relevant information from publically available sources, for example, the AER electricity determinations.



Treasury requested ACIL Allen estimate the retail electricity bill impact from specific recent actions by the Queensland Government in relation to the electricity sector.

2.1 Outline of scenarios

The requested actions are outlined in the following paragraphs and are summarised in Table 2.1. ACIL Allen estimated the retail bill impact resulting from each action in isolation by estimating the retail bill for a base scenario and a counterfactual scenario for each action. The base scenario represents the current situation, with each action taken by the Government. The counterfactual assumes there was no action taken by the Government. The estimated retail bill impact resulting from each action is calculated as the difference between the base scenario and the counterfactual.

2.1.1 Energex and Ergon

On 29 October 2015, the Queensland Government announced a directive to Energex and Ergon Energy not to appeal the AER's final determination.

The base scenario for this action uses the regulated revenues for Energex and Ergon from the current AER final determination, which was released on 29 October 2015.

The counterfactual uses the regulated revenues from Energex and Ergon's revised proposals submitted in July 2015 and assumes the network businesses successfully appealed the final determination with the Australian Competition Tribunal (ACT), or similar judicial process.

Key differences between the network business's revised proposals and AER's determination include a higher weighted average cost of capital (WACC), a lower value of imputation credits (Gamma), and in Ergon's case, higher capital and operating expenditure.

2.1.2 Powerlink

In March 2015, the AER commenced the process to determine Powerlink's regulated revenues for the period 2017-18 to 2021-22. The final determination was made in April 2017. During this time, Powerlink did not appeal the AER's decisions.

The base scenario for this action assumes the regulated revenues for Powerlink from the current AER final determination.

The counterfactual estimates regulated revenues where it is assumed that Powerlink applied for and received a higher WACC (6.75% versus 6.01%) and a lower Gamma of 25%, rather than just accept the AER guidelines for Gamma of 40%.

2.1.3 Solar Bonus Scheme

On 31 May 2017, the Queensland Government announced that it would not pass on the costs of the Solar Bonus Scheme from 2017-18 for at least three years. This is the base scenario.

The counterfactual assumes that the costs of the Solar Bonus scheme continued to be passed onto customers via network charges over the period 2017-18 to 2019-20.

2.1.4 Swanbank E and Stanwell

On 4 June 2017, the Queensland Government announced a number of measures intended to lower wholesale electricity prices in Queensland. This announcement included requiring Stanwell to return the Swanbank E power station to service from January 2018 and a directive to Stanwell to adjust its market offers to lower electricity wholesale prices.

The Swanbank E power station announcement is yet to affect pool prices, but its impact is clearly evident in the futures market, particularly in relation to Queensland 2018 futures prices. On the trading day following the Government's announcement, observable Queensland electricity futures prices fell by over \$10/MWh for the Queensland base calendar year 2018 and fell a further \$5/MWh by the end of June 2017.

It should be noted that the announcement to bring back Swanbank E was made at the same time as the Government's directive to Stanwell to alter its market behaviour. For this reason, these impacts cannot be separated out in the futures price analysis.

The base scenario for this action involves estimating the cost of energy in 2017-18 and 2018-19, assuming Swanbank E returns to service from Q1 2018 and that Stanwell adjusted its market offers from around June 2017.

The counterfactual assumes Swanbank E remains mothballed and that Stanwell does not adjust its market offers.

TABLE 2.1 SUMMARY OF SCENARIOS

Action - Description	Base scenario	Counterfactual
Energex and Ergon - Directing Energex and Ergon not to appeal the AER's determination	Regulated revenues under current AER final determinations for Energex and Ergon	Regulated revenues as per Energex and Ergon revised proposals (July 2015), which include higher WACC, lower Gamma, and in Ergon's case, higher capex and opex.
Powerlink - Decision by Powerlink not to appeal the AER's determination	Regulated revenues under current AER final determination for Powerlink using a WACC of 6.01% and Gamma 40%	Regulated revenues using a WACC of 6.75% and Gamma 25%
Solar Bonus Scheme - Decision to remove the costs of the Solar Bonus Scheme	Costs of Solar Bonus Scheme are removed from network charges from 2017-18	Costs of Solar Bonus Scheme are passed through to customers via network charges from 2017-18
Swanbank E and Stanwell - Recommissioning of Swanbank E and the direction to Stanwell to lower wholesale prices	Swanbank E returns in January 2018 and Stanwell's market behaviour changes from around June 2017	Swanbank E remains mothballed and Stanwell's market behaviour does not change

SOURCE: ACIL ALLEN AND QUEENSLAND GOVERNMENT ANNOUNCEMENTS

2.2 Methodology

2.2.1 Network costs

For the actions involving the network component of the retail bill (Energex Ergon, Powerlink and Solar Bonus Scheme), ACIL Allen used its in-house electricity retail model to estimate the retail bill for

typical customers, by inputting regulated revenues for the relevant network business for the base and counterfactual scenarios. Regulated revenues were sourced from AER's post-tax revenue model (PTRM). In the case of Ergon and Energex, outputs were used from the July 2016 Ergon and Energex proposals for the counterfactual and from the revised PTRM approved by the AER for the base scenario. In the case of Powerlink, the PTRM was used to recalculate revenues for a change to the WACC and Gamma.

2.2.2 Cost of energy

The Swanbank E and Stanwell action involved estimating the cost of energy component of the retail bill. ACIL Allen used its proprietary wholesale market model, PowerMark and ASX Energy futures price data to estimate the cost of energy to a retailer in 2017-18 and 2018-19. The cost of energy estimates were then fed through ACIL Allen's in-house retail model to estimate the retail bill for typical customers.

Contract prices were estimated using the trade-weighted average of daily settlement prices from ASX Energy since the contract was listed up until April 2018, which would be the approximate cut off date for market data in a notional 2018-19 retail price determination. Daily settlement prices were extrapolated out from August 2017 and daily trade volumes observed between August 2016 and April 2017 for 2017-18 were used to complete the data set.

ACIL Allen used a distribution of spot prices from our current Reference case along with the trade-weighted contract prices to run through our in-house retail hedge model to calculate the cost of energy.

This process was repeated for the counterfactual. This required re-running the spot price projections with Swanbank E remaining mothballed, Stanwell market offers not adjusted and estimating the Queensland futures prices as if the announcement did not occur. Under this scenario, daily settlement prices from ASX Energy were extrapolated out from 2 June 2017 (just prior to the announcement to bring back Swanbank E and direct Stanwell to adjust market offers) and daily trade volumes observed between June 2016 and April 2017 for 2017-18 were used to complete the data set.

It is difficult to assess the impact of the Government's direction to Stanwell to alter its offer curves to lower wholesale price outcomes. It is not unusual for a portfolio of generators to review and adjust its offer curves on a regular basis – responding to changes in market conditions and its hedge position. Hence, any change in Stanwell's offer curve shape may not necessarily be fully the result of the Government's direction.

ACIL Allen analysed Stanwell's offer curves over a 12 month period and noted that during the summer of 2016-17, Stanwell appeared to offer capacity into the market in a way that suggested it had a lower than usual level of hedge cover. This level was lower than what ACIL Allen normally assumes for Stanwell in its internal Reference case projection of the NEM. ACIL Allen is also of the opinion that the change in Stanwell's offer curves in the 2016-17 summer is in response, in part, to an observable change to the market behaviour of some of the coal fired generators in New South Wales, which appear to be shadow pricing gas fired generation and/or rationing coal usage (possibly in response to constraints in delivered coal supply). In the counterfactual, ACIL Allen has assumed that Stanwell's lower level of hedge cover persists throughout the projection period. This may well overstate the impact of the Government's direction to Stanwell to adjust its market behaviour because Stanwell may have adjusted its offer curves in any case over time (i.e. regardless of the Government's direction).



The impact on average retail bills was undertaken for 2015-16, 2016-17, 2017-18 and 2018-19. Not every action applies to every year. The estimates include GST.

Retail bill estimates for 2015-16 and 2016-17 contain actual data where data is readily available, e.g. wholesale spot prices. Estimates for 2017-18 and 2018-19 incorporate projected data.

3.1 Energex and Ergon

The analysis for the Energex Ergon action was undertaken for 2015-16 to 2018-19. There is no change in 2015-16 as the appeal would have occurred after the final decision in October 2015. However, the changes applicable to 2015-16 in the counterfactual have been spread over the remaining years of the determination period and include the time value of money. This is the reason for the increase in impact on the bill over time.

TABLE 3.1 IMPACT ON AVERAGE ANNUAL RETAIL BILL (REAL \$2015-16, INCL. GST) – ENERGEX AND ERGON

	2015-16	2016-17	2017-18	2018-19
Residential	\$0	(\$39)	(\$82)	(\$116)
Commercial	\$0	(\$12,650)	(\$24,750)	(\$35,200)
Industrial	\$0	(\$19,250)	(\$39,050)	(\$55,000)

Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.

SOURCE: ACIL ALLEN ANALYSIS

3.2 Powerlink

The analysis for the Powerlink action was undertaken for 2017-18 to 2018-19 because the latest determination period is applicable from 2017-18.

TABLE 3.2 IMPACT ON AVERAGE ANNUAL RETAIL BILL (REAL \$2015-16, INCL. GST) – POWERLINK

	2015-16	2016-17	2017-18	2018-19
Residential	-	-	(\$6)	(\$6)
Commercial	-	-	(\$1,430)	(\$1,760)
Industrial	-	-	(\$2,200)	(\$2,750)

Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.

SOURCE: ACIL ALLEN ANALYSIS

3.3 Solar Bonus Scheme

The analysis for the Solar Bonus Scheme action was undertaken for 2017-18 to 2018-19 since the period over which it applies commences from 2017-18.

TABLE 3.3 IMPACT ON AVERAGE ANNUAL RETAIL BILL (REAL \$2015-16, INCL. GST) – SOLAR BONUS SCHEME

	2015-16	2016-17	2017-18	2018-19
Residential	-	-	(\$56)	(\$56)
Commercial	-	-	(\$17,050)	(\$15,950)
Industrial	-	-	(\$26,950)	(\$25,300)

Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.
SOURCE: ACIL ALLEN ANALYSIS

3.4 Swanbank E and Stanwell

The analysis for the Swanbank E and Stanwell action was undertaken for 2017-18 to 2018-19, because these actions apply from 2017-18. The action has little estimated effect on 2017-18 retail bills, since it is assumed that retailers had already hedged the vast majority of their load prior to the Government's direction and the hedged price dominates the price paid by retailers in the ACIL Allen in-house retail hedge model.

TABLE 3.4 IMPACT ON AVERAGE ANNUAL RETAIL BILL (REAL \$2015-16, INCL. GST) – SWANBANK E AND STANWELL

	2015-16	2016-17	2017-18	2018-19
Residential	-	-	(\$2)	(\$33)
Commercial	-	-	(\$1,210)	(\$19,140)
Industrial	-	-	(\$9,020)	(\$41,800)

Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.
SOURCE: ACIL ALLEN ANALYSIS

3.5 Aggregate change

Table 3.5 combines the elements summarised above, to give an estimate of the aggregate change in annual retail electricity bill associated with each action for a typical customer. For example, ACIL Allen estimates for residential customers, the Government's actions could decrease a typical household's annual electricity bill by as much as \$210 or sixteen per cent for the year 2018-19.

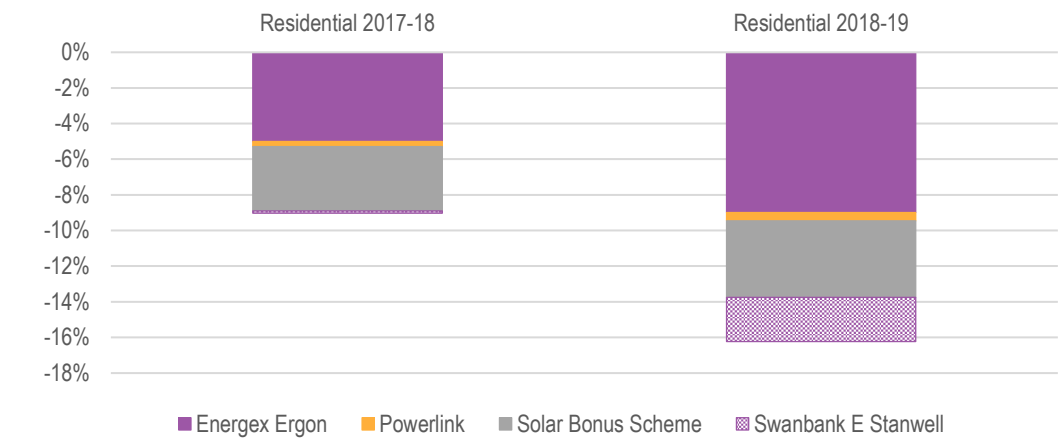
TABLE 3.5 IMPACT ON AVERAGE ANNUAL RETAIL BILL (REAL \$2015-16, INCL. GST AND %) – TOTAL

	2015-16		2016-17		2017-18		2018-19	
	Real \$2015-16	%	Real \$2015-16	%	Real \$2015-16	%	Real \$2015-16	%
Residential	\$0	0.0%	(\$39)	-2.3%	(\$146)	-8.9%	(\$210)	-16.1%
Commercial	\$0	0.0%	(\$12,650)	-1.9%	(\$44,440)	-7.4%	(\$72,050)	-16.7%
Industrial	\$0	0.0%	(\$19,250)	-1.7%	(\$77,220)	-7.2%	(\$124,850)	-16.5%

Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.

SOURCE: ACIL ALLEN ANALYSIS

FIGURE 3.1 IMPACT ON AVERAGE ANNUAL RESIDENTIAL RETAIL BILL (%) – TOTAL



Note: Assumed usage: residential 4.8 MWh/user/year; commercial 2,898 MWh/user/year; industrial 6,037MWh/user/year.

SOURCE: ACIL ALLEN ANALYSIS

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