A decorative graphic on the left side of the slide consists of a grid of overlapping squares in shades of purple and orange, arranged in a stepped pattern that descends from top-left to bottom-right.

Energy cost estimates 2014-15

Approach and results used for 2014-15 Draft Determination

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Location: QCA Offices, Brisbane

Date: 17 February 2014

ACIL Allen's Task

- ACIL Allen to:
 - provide expert advice on energy costs faced by retailers in 2014-15
 - must have regard to the actual costs of making, producing or supplying electricity to non-market customers
- Energy costs include:
 - wholesale energy costs incorporating effects of the carbon pricing
 - costs of complying with the Enhanced Renewable Energy Target
 - NEM fees, ancillary services charges and prudential costs
 - allowance for losses in transmission and distribution of electricity from the regional reference node to end use customers
- Provide estimates for three cases:
 - with **risk adjusted carbon** pricing
 - with **no carbon** pricing (assume perfect certainty – no carbon price in NEM pool price and no carbon price in contract prices)
 - with **full carbon** pricing (assume perfect certainty – carbon price in NEM pool price and carbon price in contract prices)

ACIL Allen's approach energy costs

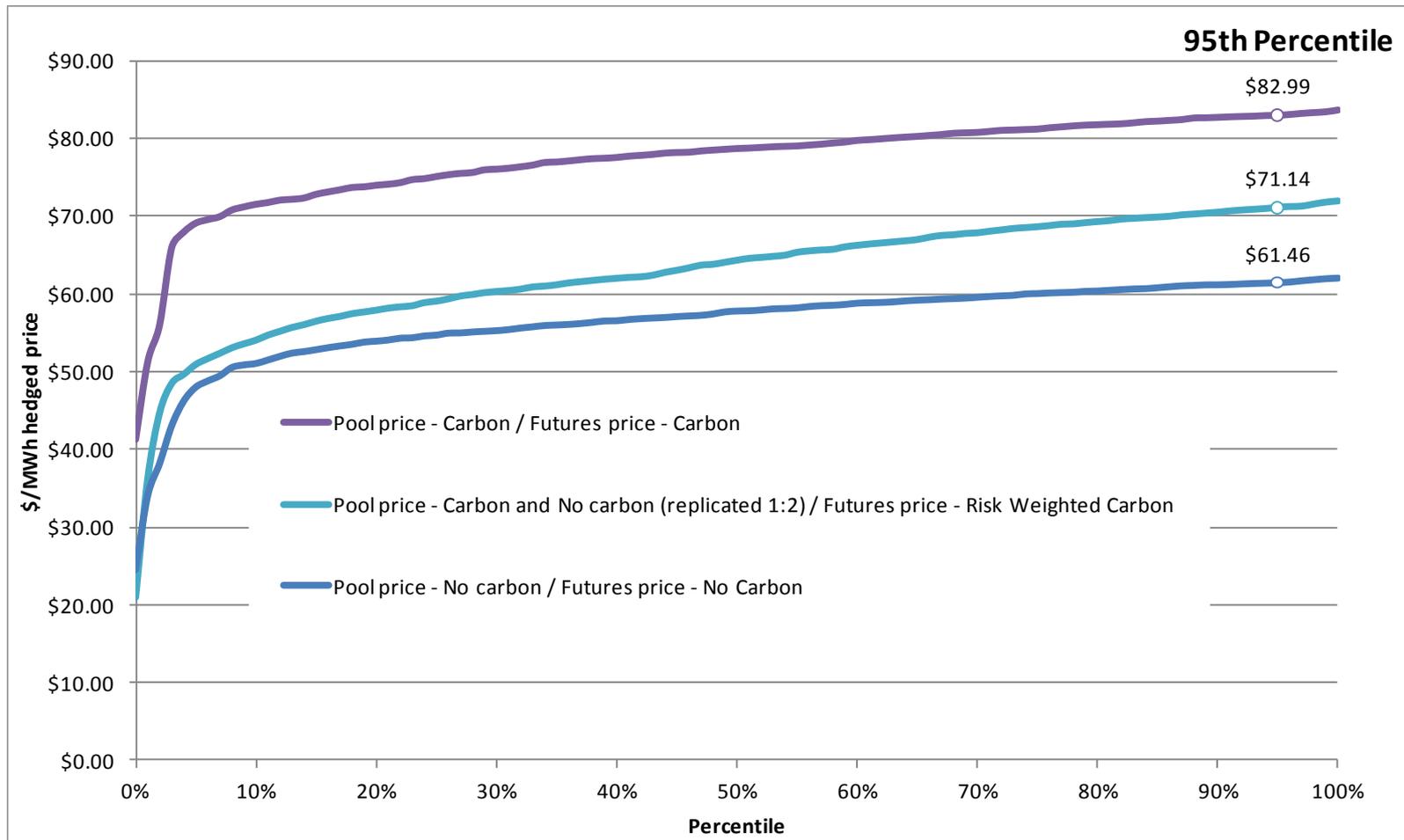
- Provide our best estimate of retailer energy costs in 2014-15 using transparent and observable data where available
- Methodology for the full carbon and no carbon cases 2014-15 (43 demand years with 11 plant outage variations gave 473 simulations of each case) was the same as used in previous determinations which was to:
 - Produce multiple simulations of NEM pool market for
 - Estimate trade volume weighted contract prices and apply the usual hedging strategy to give estimated energy costs after hedging for each simulation
 - choose the **95th percentile** of simulated annual hedged prices as estimate of cost of energy
- For the risk adjusted carbon case the process has been extended to account for the carbon price uncertainty as described in the next slide
- Estimate other energy cost components and losses applying same approach used in 2013-14

Approach for risk adjusted carbon price

- Previous determinations assumed no carbon price uncertainty – in this instance uncertainty exists
- A risk weighted carbon price of averaging around \$7.00/MWh was inferred for ASX futures prices by subtracting the broker prices with the AFMA addendum
- Given that full carbon pricing would add around \$21.00/MWh, the \$7.00/MWh suggests that the market factored in a 1 in 3 chance of carbon price being retained in 2014-15
- Currently the inferred risk weighted carbon price is estimated at around \$3.00/MWh which suggests a 1 in 7 chance that the carbon pricing will remain.
- Cost of energy was taken as 95th percentile of a distribution containing 1419 hedged price simulations (473 simulations with the full carbon price in the pool price modelling and 946 (2x473) simulations with no carbon price in the pool price modelling).
- This approach meant that a third of the hedged prices in the distribution were based on pool prices with full carbon in line with the 1 in 3 chance above.
- ACIL Allen proposes to move to the current (1 in 7) rather than average (1 in 3) for the Final Determination although the effect on estimated energy costs will be very small.

Simulated hedged prices for the three cases

Energex NSLP



Stakeholder comments

- Important not to have prices too low
 - Response: Use of 95th percentile of prices is to address this point.
- Should use greater range of hedging instruments
 - Response: Futures prices are transparent and market reflective and as such represent an appropriate basis for determining the cost of energy.
- Carbon price uncertainty
 - Response: Development of three carbon cases was to address this point giving QCA a choice in its pricing response. ACIL Allen recommends the use of the risk adjusted carbon price case whether or not carbon is repealed.
- Lack of variability in the loads
 - Response: ACIL Allen is satisfied that based on detailed analyses of the load profile and the resultant spread of hedged prices that there is sufficient load variability in the modelling when compared with history. As a test, variability was added to loads – minimal impact on 95th percentile hedged price
- Lack of transparency in the methodology
 - Response: ACIL Allen is satisfied that it has provided sufficient detail for stakeholders to make their own reliable assessments of the process.

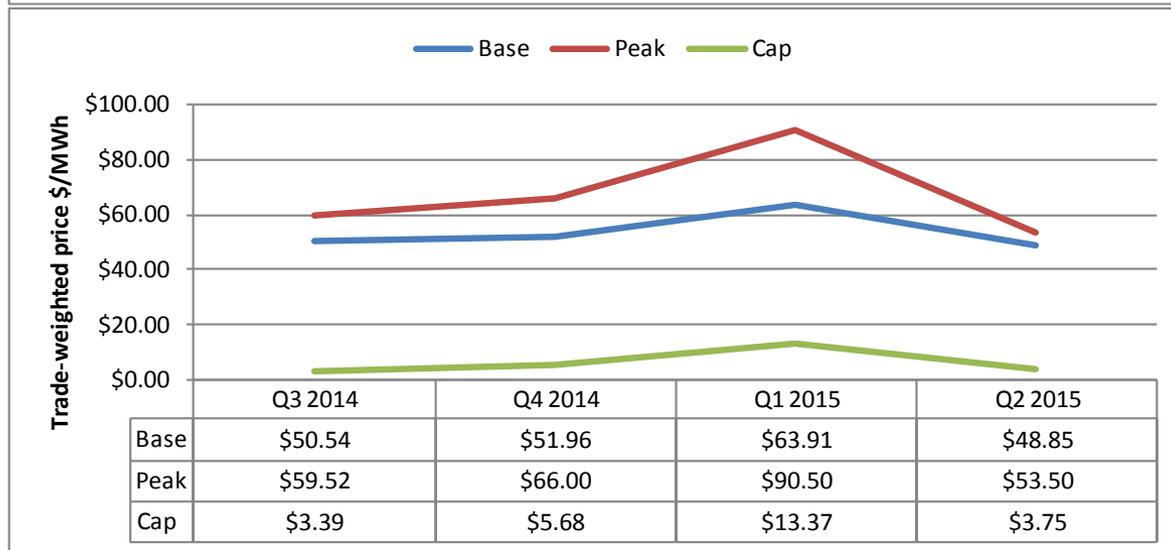
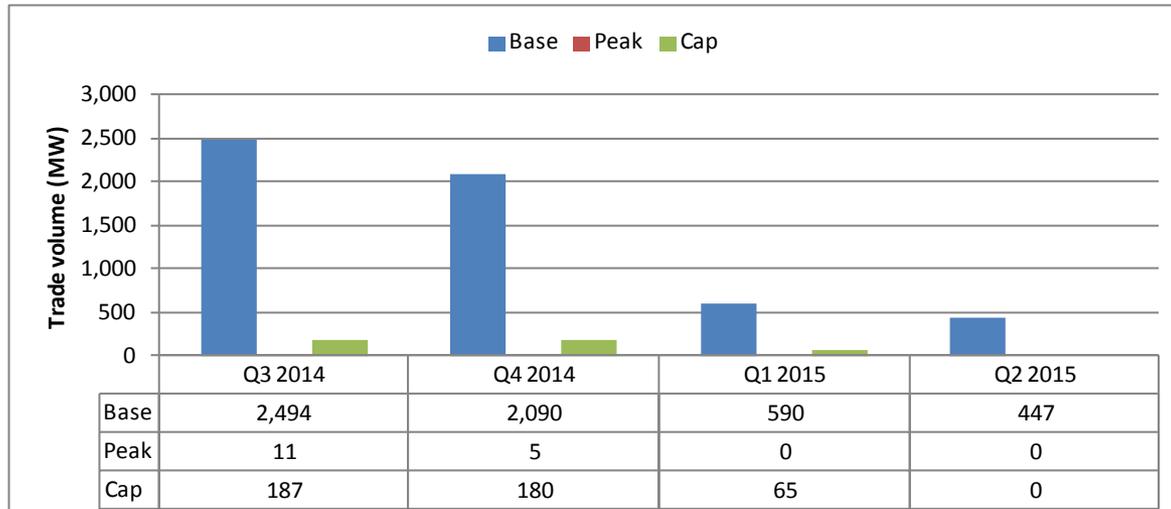
Stakeholder comments (cont.)

- **LRMC as a price floor and inclusion of PPAs**
 - Response: These matters have already been considered and not seen as appropriate in Queensland where the regulated price will apply to many customers and need to reflect market values as closely as possible.
- **Allowance for the government's "Direct Action"**
 - Response: The policy is still in the formative stages it is not possible to make any adjustment to energy costs at this stage.
- **LGC prices be based on LRMC of wind generation**
 - Response: A thorough investigation was undertaken which concluded that the LRMC approach would require a host of further debatable assumptions and was considered inferior to the futures pricing approach already in use.
- **Forward volatility premiums should be added**
 - Response: Futures contracts would be expected to include the option value associated with the length of time to expiry, therefore, in our view the methodology already reflects any volatility premium

Contract prices 2014-15 Draft Determination

- Trade weighted futures prices are used in the analysis as follows:
 - ASX Energy futures for the risk adjusted case
 - Broker futures with the AFMA addendum for the no carbon case
 - for the full carbon case a full carbon allowance was added to the no carbon case
- Contract prices for 2014-15 suggest an increase in underlying wholesale energy costs (i.e. before carbon) of around \$13.00/MWh and this is also evident in the pool price modelling
- At the time of the 2014-15 Draft Determination:
 - there was the usual level of trading in base contracts in all quarters
 - there had been very little or no trading in peak and cap contracts for the first two quarters of 2015
- ACIL Allen expects that trading in the peak and cap futures in H2 2015 will have occurred before the cut off for the Final Determination

Trading and prices for ASX Energy futures in Qld.



Results for 2014-15 Draft Determination

Settlement class	WEC at the Queensland reference node (\$/MWh)	Renewable energy and market fees at the Queensland reference node (\$/MWh)	Total transmission and distribution loss factor (MLFxDLF)	TEC at the customer terminal (\$/MWh)	Difference with Risk adjusted carbon case	Difference with 2013-14 Final Determination
Risk adjusted carbon case						
Energex - NSLP - residential and small business	\$71.14	\$9.04	1.073	\$86.03	-	-\$0.68
Energex - Control tariff 9000	\$45.85	\$9.04	1.073	\$58.90	-	-\$3.81
Energex - Control tariff 9100	\$58.61	\$9.04	1.073	\$72.59	-	-\$1.73
Energex - NSLP - unmetered supply	\$71.14	\$9.04	1.073	\$86.03	-	-\$0.68
Ergon Energy - NSLP - SAC HV, CAC and ICC	\$63.35	\$9.04	1.088	\$78.76	-	-\$3.34
Ergon Energy - NSLP - SAC demand and street lighting	\$63.35	\$9.04	1.135	\$82.16	-	-\$3.48
Full carbon case						
Energex - NSLP - residential and small business	\$82.99	\$9.04	1.073	\$98.75	\$11.85	\$12.04
Energex - Control tariff 9000	\$59.29	\$9.04	1.073	\$73.32	\$13.44	\$10.62
Energex - Control tariff 9100	\$71.23	\$9.04	1.073	\$86.13	\$12.61	\$11.80
Energex - NSLP - unmetered supply	\$82.99	\$9.04	1.073	\$98.75	\$11.85	\$12.04
Ergon Energy - NSLP - SAC HV, CAC and ICC	\$76.61	\$9.04	1.088	\$93.19	\$13.26	\$11.09
Ergon Energy - NSLP - SAC demand and street lighting	\$76.61	\$9.04	1.135	\$97.21	\$13.26	\$11.57
No carbon case						
Energex - NSLP - residential and small business	\$61.46	\$9.04	1.073	\$75.65	-\$10.38	\$12.21
Energex - Control tariff 9000	\$36.58	\$9.04	1.073	\$48.95	-\$9.95	\$9.65
Energex - Control tariff 9100	\$49.90	\$9.04	1.073	\$63.25	-\$9.35	\$11.88
Energex - NSLP - unmetered supply	\$61.46	\$9.04	1.073	\$75.65	-\$10.38	\$12.21
Ergon Energy - NSLP - SAC HV, CAC and ICC	\$54.91	\$9.04	1.088	\$69.58	-\$9.18	\$11.15
Ergon Energy - NSLP - SAC demand and street lighting	\$54.91	\$9.04	1.135	\$72.58	-\$9.58	\$11.63