



Consultation Paper

**Benchmark Retail Cost Index for
Electricity: 2009-10**

8 May 2009

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SUBMISSIONS

Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (the Authority). The Authority is releasing this Consultation Paper as part of its decision making process regarding the calculation of the Benchmark Retail Cost Index (BRCI) for 2009-10. Submissions are invited from interested parties concerning the use of the NEM load (which is defined in the legislation as excluding customers directly connected to the transmission network) to calculate the purchase cost of energy. The Authority will take account of all submissions received by the due date.

Written submissions should be sent to the address below. While the Authority does not necessarily require submissions in any particular format, it would be appreciated if two printed copies are provided together with an electronic version (Microsoft Word format on disk) or by email. Submissions, comments or inquiries regarding this paper should be directed to:

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Submissions must be received by cob **19 May 2009**.

Confidentiality

In the interests of transparency and to promote informed discussion, the Authority would prefer submissions to be made publicly available wherever this is reasonable. However, if a person making a submission does not want that submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two copies of each version of these submissions (i.e. the complete version and another excising confidential information) could be provided. Again, it would be appreciated if each version could be provided on disk. Where it is unclear why a submission has been marked “confidential”, the status of the submission will be discussed with the person making the submission.

While the Authority will endeavour to identify and protect material claimed as confidential as well as exempt documents (within the meaning of the *Freedom of Information (FOI) Act 1989*), it cannot guarantee that submissions will not be made publicly available. As stated in s187 of the *Queensland Competition Authority Act 1997* (the QCA Act), the Authority must take all reasonable steps to ensure the information is not disclosed without the person’s consent, provided the Authority is satisfied that the person’s belief is justified and that the disclosure of the information would not be in the public interest. Notwithstanding this, there is a possibility that the Authority may be required to reveal confidential information as a result of an FOI request.

Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at the Brisbane office of the Authority, or on its website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact the office (07) 3222 0555.

Information about the role and current activities of the Authority, including copies of reports, papers and submissions can also be found on the Authority’s website.

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1. BACKGROUND

The Authority released its Draft Decision on the Benchmark Retail Cost Index (BRCI) for 2009-10 on 2 December 2008. At that time it estimated the increase in costs between 2008-09 and 2009-10 to be 13.63%.

On 14 August 2008 AGL and subsequently Origin Energy (on 1 September 2009) sought a judicial review of the Authority's 2008-09 BRCI Final Decision. On 28 April 2009, judgment was handed down by Justice P McMurdo of the Supreme Court of Queensland (the judgment).

The judgment, cited as *AGL Energy Ltd v Queensland Competition Authority & Anor; Origin Energy Retail Ltd v Queensland Competition Authority & Anor* [2009] QSC 90, is available from the Queensland Supreme Court registry website at www.courts.qld.gov.au.

As the method used in the 2009-10 BRCI Draft Decision was essentially the same as that used in the 2008-09 Final Decision, the judgment has implications for the 2009-10 decision.

In its judgment, the Court found that:

- (a) in working out the benchmark retail cost for both the relevant tariff year and the preceding tariff year, the Authority did not form a view of the likely total costs to be incurred during that year to purchase energy to supply the NEM load of the State for that year, as required by s92(1) of the Act; and
- (b) in working out the total benchmark retail cost for the preceding year, the Authority used data which had not been used in working out that cost when the year to 30 June 2008 had been the relevant tariff year, and which the Authority was not otherwise entitled to use in this decision.

The Supreme Court has not yet made orders in relation to the 2008-09 process. It is possible the orders will require the Authority to recalculate the 2008-09 BRCI to reflect the Court's findings.

1.1 Changes resulting from judicial review of the 2008-09 BRCI

The 2009-10 BRCI Final Decision needs to be made on a basis that reflects the Court decision and differs from that proposed in the Authority's Draft Decision.

This will require the Authority to arrive at an estimate of the cost of purchasing energy to meet the NEM load in isolation rather than basing its estimate on the unit cost of meeting the total State NEM load as had been done previously.

The Authority considers this change of approach should be treated as a framework change¹ to ensure the comparability of BRCI numbers between the two years in question. This will require the BRCI for 2008-09 (the previous tariff year) to be recalculated using the new approach to estimating the purchase cost of energy. However, consistent with the second part of the judgment, the Authority will make no other changes to the way in which the 2008-09 BRCI number is calculated or to the data that was used in that calculation (other than substituting the NEM load for the State load).

¹ While the changes required may or may not strictly constitute a change of framework for the purposes of section 107(1) of the Electricity Regulation, the Authority considers that this change is similar in effect to a change in framework and therefore should be treated in a like manner to ensure the comparability of BRCI numbers between the two years in question.

As the Authority proposes a change to the calculation of the 2009-10 BRCI from that previously indicated, it invites submissions from interested parties on the proposed changes. Submissions should be received by the Authority no later than 19 May 2009.

1.2 NEMMCO load data for 2007 and 2008

The Authority is also taking this opportunity to advise interested parties of its estimate of the NEM load to be used as the denominator in calculating the 2009-10 BRCI. In the Draft Decision it was noted that Powerlink had identified an additional Transmission Node Interconnector (TNI) that is directly connected to the transmission network and should therefore have been excluded from the calculation of the NEM load. Previously, Powerlink had not advised the Authority that this particular TNI was a directly connected customer.

2. PROPOSED METHOD FOR FORECASTING ENERGY PURCHASE COSTS BASED ON THE NEM LOAD

The total State NEM load of Queensland comprises the loads of two broad classes of electricity consumers. There are a small number of consumers that draw their electricity directly from the Powerlink transmission network (“directly connected customers”) while the vast majority of customers draw their electricity from the distribution supply networks of Energex and Ergon Energy. The (Queensland) “NEM load” is defined in the Electricity Act as the load associated only with those customers connected to a distribution supply network.

Previously, the Authority had estimated the cost of purchasing energy to meet the NEM load based on a unit cost of purchasing energy to meet the entire State NEM load. The judgment requires that the Authority calculate the cost to purchase energy to meet the smaller NEM load directly.

2.1 Forecasting the Queensland NEM load

The “2008-09 CRA Addendum” approach

The starting point for this review is CRA’s 2008-09 BRCI Addendum Report of 26 May 2008, *Calculation of the Benchmark Retail Cost Index for 2007-08 and 2008-09* (available from the Authority’s website). In that Addendum Report, CRA provided an estimate of the unit cost of purchasing energy based on the entire State NEM load and an alternative based on the smaller NEM load for the 2008-09 tariff year. As can be seen from Table 2.1, the estimated unit purchase cost based on the NEM load was significantly higher than that based on the total State NEM load, as was the resultant estimate of the change in the BRCI. However, CRA expressed concerns about the comparability of its NEM load estimate for 2008-09 with its estimate for 2007-08.

Table 2.1: 2008-09 EPC and BRCI, impact of using the small load

Component of BRCI	2008-09 BRCI Final Decision (total State NEM load)	2008-09 CRA Addendum approach (NEM load)
Energy Purchase Costs (\$MWh)	\$52.91	\$61.53
Total Benchmark Retail Cost Index (% change over 2007-08)	5.38	9.22

Source: CRA 2008, Table 16, Table 7.2 & Table 26.

The Authority asked CRA to calculate an energy purchase cost for 2009-10 using the same methodology as it had adopted to arrive at its estimate of energy purchase costs based solely on the smaller NEM load and presented in its Addendum Report of 26 May 2008.

When CRA attempted this exercise it found that the resulting half-hourly NEM load estimates this method produced contained numerous and significant errors in terms of the relative size of half-hourly load estimates for the NEM load and the excluded directly connected customers. CRA concluded that the methodology it had used to arrive at the alternative purchase cost estimates in its May 2008 Addendum Report was flawed.

Flaws in the CRA 2008-09 Addendum approach

For 2008-09, CRA had estimated the smaller NEM load by extrapolating the NEM load shape for 2007-08 (which included actual data for the second half of 2007 and forecast data for the

first half of 2008) while allowing for forecast peak demand and total energy consumption in 2008-09. This meant that the NEM load was estimated by selecting energy and peak demand growth rates that were consistent with observed historical growth in this load, and spreading the energy consumption growth in such a way as to emulate the load shape observed in the historical data.

Using the same methodology for 2009-10 based on known load data for 2007-08 and most of 2008-09, when CRA compared its estimates of the NEM load with the estimates of the total State NEM load, it discovered that, in a significant number of half-hour periods (around 1,600 half hourly observations), the estimated smaller NEM load was larger than the total State NEM load, often by a considerable margin. Clearly this is not plausible because it would require a negative load for those customers directly connected to the transmission network. This result was not evident in the load forecast by CRA for 2008-09 in its May 2008 Addendum Report but, as the method used was the same, CRA concluded that the approach was flawed and recommended an alternative be developed.

The “CRA ratio” methodology

In light of the above, CRA concluded that estimating the small load in isolation from the total load was not appropriate. Given the reported results of applying this approach for the 2009-10 BRCI process, the Authority agrees.

Instead, CRA suggested an approach based on its estimate of the historic ratio of the NEM load to the total State NEM load for each half-hour in the year with the resulting ratios applied to the forecast total State NEM load to arrive at the half hourly smaller NEM load.

In other words, under the CRA ratio approach, the smaller NEM load is estimated assuming the historical ratio of NEM load to total State NEM load is maintained in each half hour. In this way it is mathematically impossible for the smaller load to exceed the larger State NEM load (the problem observed above). However, the Authority was concerned that this approach required an assumption that there will be a continuation of historically observed ratios between the two loads in every half hour. It is not clear that this is a realistic assumption.

ACIL Tasman critique of CRA small load methodologies

Given the issues noted above and the Authority’s concerns about the assumptions required under the ratio approach, the Authority also sought an opinion from ACIL Tasman (ACIL) as to the best way to forecast the NEM load for use in estimating energy purchase costs. In this context, the Authority asked ACIL for its views on the problem identified by CRA and the alternative approach suggested by CRA to solve the initial problem.

2008-09 Addendum Report methodology

ACIL considered that, given the observed result reported by CRA above, applying CRA’s method for estimating the NEM load used in its May 2008 Addendum Report, and which formed the basis for calculating the alternate estimates of purchase costs in that Addendum Report, would not provide a robust forecast of the required half-hourly load. ACIL concluded that the errors CRA had observed appeared to be the result of not specifying a minimum level of demand in its model when forecasting the half-hourly load.

CRA ratio methodology

ACIL was also of the view that, while the ratio approach suggested by CRA would solve the mathematical problem experienced in forecasting the 2009-10 NEM load using the May 2008

Addendum Report methodology, the increase in the total State NEM load should not be assumed to be the same as the increase in the smaller NEM load in each half-hour period and that to do so would be likely to lead to an overestimate of the growth in maximum demand for the NEM load.

2.2 ACIL Tasman method

ACIL recommended an alternative approach to forecasting the NEM load for 2009-10 which it believed overcame the problems observed by CRA with its May 2008 Addendum Report methodology, without requiring the assumption of constant ratios of half-hourly demand incorporated in CRA's suggested approach.

The ACIL Tasman methodology

ACIL proposed a methodology for forecasting the smaller NEM load which is briefly described in the following steps. ACIL provided a paper - *Forecast Load Traces, May 2009* - describing its proposed method which has been released at the same time as this Consultation Paper.

Step 1: Forecast the total State NEM load for 2009-10

Load forecasts are generally based on historical half hourly data for the total national NEM load adjusted to reflect forecasts of likely future peak demand and total energy consumption. Forecasts of future peak demand and energy consumption are provided annually by NEMMCO in its Statement of Opportunities (SOO). The SOO includes forecasts of summer and winter peak demand and annual energy consumption for each of the NEM jurisdictions (Queensland, NSW, Victoria, South Australia and Tasmania) for the current year and the following nine years. The latest SOO forecasts were released in October 2008 and covered the ten years from 2008-09 to 2017-18.

Since the 2008 SOO forecasts were prepared and released, much has changed in the economic environment underlying those forecasts and the generally accepted view of likely future economic activity. As a consequence, it is generally accepted in the industry that the 2008 SOO forecasts no longer provide a good guide to future electricity demand. As these forecasts were prepared in more optimistic economic times, before the "global financial crisis" and the attendant world wide economic slow down, it is likely that the forecasts for 2009-10 and, at least, the following few years, over-estimate both demand and consumption. It may be that more up to date forecasts would also show lower load factors as well and that these two things might offset each other to some extent. However, the Authority has been unable to source any alternative estimates of acceptable quality of future demand and annual energy consumption to use in place of the existing 2008 SOO forecasts.

ACIL's forecasts for the total State NEM load in 2009-10 are therefore based on forecasts of summer and winter peak demand and annual energy delivered from the transmission network as published by Powerlink in its 2008 Annual Planning Report (which are consistent with the 2008 NEMMCO SOO forecasts of scheduled generated summer and winter peak demand and scheduled sent out annual energy) and the latest NEMMCO half-hourly load data for each Queensland TNI up to 31 March 2009.

Step 2: Forecast and subtract the 2009-10 load of customers directly connected to the Powerlink transmission network

The forecast of the 2009-10 load of customers directly connected to the Powerlink transmission network has also been based on the Powerlink 2008 Annual Planning Report. The Annual Planning Report provides 10 year forecasts of summer and winter peak demand and annual

energy consumption based on low, medium and high economic growth scenarios for the transmission network in total. The report also provides summer and winter peak demand forecasts for customers directly connected to the transmission network.

Like the NEMMCO 2008 SOO forecasts, the Powerlink forecasts (released in June 2008) also fail to capture the impact of the substantially different economic climate now affecting the current and future outlook for electricity demand. However, the Authority has again been unable to source any more recent, reliable data to use instead of the existing Powerlink forecasts. It is also worth noting that more recent forecasts for the Queensland load alone would not be able to be used without similar contemporaneous forecasts for the rest of the NEM jurisdictions.

As a result, ACIL relied on the existing Powerlink forecasts and applied these to actual half-hourly load data provided by the Authority for each of the individual connection points supplying directly connected customers to arrive at a forecast 2009-10 half-hourly load for directly connected customers.

By subtracting this half-hourly load for directly connected customers from the half-hourly total State NEM load developed at step 1, ACIL produced a half-hourly load profile for the smaller NEM load to be used in estimating energy purchase costs in the calculation of the 2009-10 BRCI.

2.3 Calculating energy purchase costs

As noted at the outset, the object of this exercise is to produce estimates of the cost of energy component of the 2009-10 BRCI based on meeting only the smaller NEM load. The preceding discussion develops an approach to forecasting that load. Once developed, that NEM load forecast is then used by CRA in the same way as has been discussed previously in the Authority's Draft Decision on the 2009-10 BRCI and set out in detail in CRA's 2009-10 Second Final Report that accompanied the Draft Decision to arrive at an estimate of the unit cost (in \$MWh) of purchasing energy to meet the NEM load in 2008-09 and 2009-10.

In essence, that process involves estimating the number and value of peak and flat swaps and cap payments that would be required so that:

- (a) flat swaps are purchased up to the 80th percentile of the off-peak load;
- (b) peak swaps are purchased up to the 90th percentile of the peak load; and
- (c) \$300 caps are bought beyond the cover of swaps to cover up to 105% of the maximum peak load.

The hedge book is constructed as per the CRA methodology set out in its 2009-10 Second Final Report that accompanied the Authority's 2009-10 BRCI Draft Decision and uses a probabilistic framework whereby forecasts are blended at a ratio of 30% (10POE), 40% (50POE) and 30% (90POE) to construct the hedge book of a sample retailer.

2.4 Recalculating the 2008-09 energy purchase cost

As noted above, the Authority considers the change in method for calculating the energy purchase cost component of the 2009-10 BRCI to be of sufficient magnitude to warrant recalculating the 2008-09 energy purchase cost component on a consistent basis. As the Authority did not develop a forecast of the half-hourly NEM load for 2008-09 (as it had not been required under the approach used by the Authority at the time) and the method used by CRA in its May 2008 Addendum Report has been shown to be flawed, the Authority also asked

ACIL to apply the same approach outlined above in relation to 2009-10 to develop a half-hourly NEM load profile for 2008-09.

In undertaking this exercise, and consistent with the second part of the court decision, ACIL constructed the 2008-09 load profile based on information that would have been available at the time of the 2008-09 Decision. Essentially, ACIL used the 2007 NEMMCO SOO forecasts of peak demand and annual energy consumption and actual load data for the 2007 calendar year.

2.5 The Authority's position

The Authority proposes to adopt the approach to forecasting the half-hourly NEM load developed by ACIL to arrive at a NEM load profile for 2008-09 and 2009-10. CRA will use the load profiles developed by ACIL to:

- (a) recalculate the 2008-09 energy purchase cost component of the BRCI; and
- (b) to calculate the 2009-10 energy cost component of the BRCI consistent with the recent judgment.

3. CALCULATING THE NEM LOAD DENOMINATOR FOR 2007 AND 2008

3.1 Requirements under the Act

The Electricity Act requires that the BRCI be determined by dividing the total benchmark retail cost for the relevant tariff year by the NEM load for the previous calendar year, in order to determine the unit cost of supplying electricity, expressed in c/kWh.

All stakeholders agree that the appropriate classification of the load for this purpose is the State NEM load excluding customers directly connected to the transmission network.

For the 2009-10 BRCI, the relevant NEM load is that for calendar year 2008. At the time the Authority released its Draft Decision, part of this year was necessarily forecast. The estimate of the 2008 NEM load at that time was 36,437,000 MWh (see Table 5.1 of the Authority's 2009-10 Draft Decision).

3.2 2009-10 Draft Decision

Unidentified directly connected customer

In its 2009-10 Draft Decision, the Authority advised all parties that Powerlink had identified an additional TNI as being a directly connected customer to the transmission network, which it had not previously identified as such. This meant that the load from that particular TNI should have been excluded from previous calculations of the NEM load.

As this advice was received from Powerlink only shortly before the Authority's Draft Decision was due to be released, the Authority decided that it would not remove this particular TNI, which accounts for about 2% of the total Queensland load, for the 2009-10 Draft Decision. Instead, the Authority advised that it would resolve this issue in its 2009-10 Final Decision by removing this TNI load from both the 2007 and 2008 calculations of the NEM load so that the denominators in the BRCI formula would be constructed on a consistent basis.

There were no objections to this approach in submissions received in response to the Authority's Draft Decision.

Apportioning part of a TNI to the NSW grid

Subsequent to the Draft Decision, the Authority also identified that a portion of one TNI load, which passes through a Queensland TNI but then flows into the New South Wales grid, should also be excluded from the NEM load calculation. In the adjustments noted below, the Authority has also removed the NSW portion of this load from the NEM load calculated for both 2007 and 2008 to be used in the 2009-10 Final Decision.

3.3 2009-10 Final Decision

The 2008 load for the denominator in the 2009-10 Final Decision

Table 3.1 shows the NEM loads that the Authority used in its Draft Decision and the NEM loads that it intends to use as the denominators for calculating the 2009-10 BRCI in its Final Decision.

Table 3.1: 2008 Queensland Load (MWh) – 2009-10 Draft and Final Decisions

Load	Draft Decision 2009-10	Final Decision 2009-10
	2008 Load (Partially forecast data)	2008 Load (Full year actual data)
Total State load	45,978,000	47,367,386
Less directly connected customers previously identified	9,541,000	9,733,992
Less TNI not previously identified and portion of load flowing to NSW not previously removed	na	782,504
NEM load for 2008	36,437,000	36,850,890

Sources: NEMMCO and Powerlink.

Adjusting the 2007 load to ensure consistency in the denominator

Table 3.2 shows the change in the Authority's estimate of the 2007 actual NEM load after aligning the excluded TNIs in both years.

Table 3.2: 2007 Queensland Load (MWh) – 2009-10 Draft and Final Decision

Load	Draft Decision 2009-10	Final Decision 2009-10
	2007 Load	2007 Load
Total State load	46,727,000	46,726,276
Less directly connected customers previously identified	9,687,000	9,686,561
Less TNI not previously identified and portion of load flowing to NSW not previously removed	na	780,856
NEM load for 2007	37,040,000	36,258,859

Sources: NEMMCO and Powerlink.

3.4 The Authority's position

For the 2009-10 Final Decision, the Authority proposes to calculate the NEM load for 2007 and for 2008 to be used as the denominator in calculating the 2009-10 BRCI as set out in Tables 3.1 and 3.2 making the adjustments noted to correct for a previously unidentified directly connected customer and to remove a portion of the load from one TNI that flows into the NSW grid.