



# Central Victorian Demand Tariff Energy Project

(CVDTE)

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A Project facilitated by the



CITY OF GREATER  
**BENDIGO**

and



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**F O R I N F O R M A T I O N**

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## EXECUTIVE SUMMARY

The City of Greater Bendigo, with support from the Bendigo Manufacturing Group, engaged Key Energy & Resources ('consultants') to undertake a review of electricity costs for major electricity consumers in Central Victoria.

The primary objectives of the project were to:

- establish the accuracy of the application of specific regulated charges on 'demand-tariff' business consumers
- identify the standard of electricity management practices within these business consumers; and
- identify the impact on network charges from the reduction in the Transmission Equalisation Adjustment (TEA) payment for these business consumers.

A total of 27 businesses were involved in the project conducted between May 2005 and September 2005, covering some 30 sites in Central Victoria, with a total annual electricity spend of over \$12,300,000.

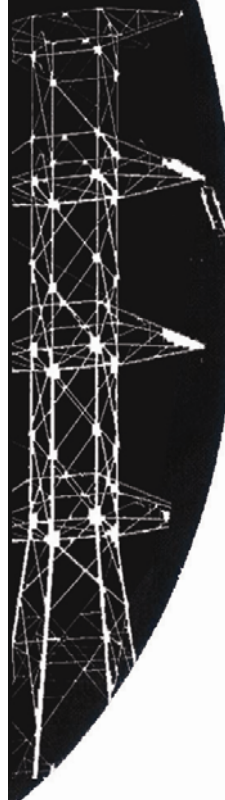
Information provided by the project participants related to the 2004 calendar year and included monthly accounts, interval meter and survey data. A copy of the survey form is included as Appendix 'A'. In addition, research was undertaken by the consultants to gather related qualitative information, benchmark data and examples of best practice.

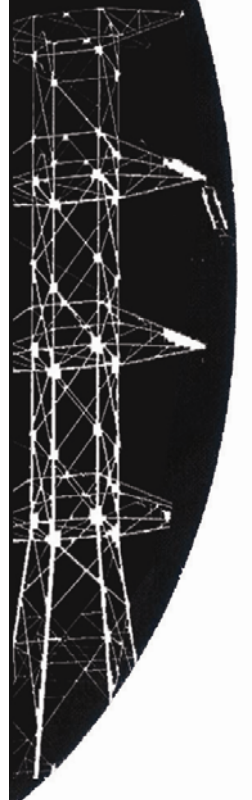
The consultants completed a detailed review of all the data collected and, where required, directly contacted participating businesses for clarification purposes. Information collected has been aggregated in this report to ensure data confidentiality for participating businesses.

Each business received individual (confidential) reports based on the consultant's analysis of their data as a direct benefit from being involved in the project.

The primary findings of this project are:

1. Of the customers surveyed about 30% of sites were paying retail electricity rates that were at least 25% higher than comparable operations across Victoria. Of more concern, 10% of the sites reviewed did not have an electricity supply contract in place and thus were exposed to the wholesale electricity market. This practice is regarded as risky by the project consultants given that wholesale electricity prices can increase two hundred fold within half an hour.
2. More competitive tendering and negotiation practices by the participating businesses have the potential to save the cohort an estimated \$990,173 annually through reduced electricity retail prices.
3. Significant issues in the electricity management practices were identified:
  - 23% of the sites reviewed were on the wrong network tariff. Moving specific sites to the correct network tariff will save about \$171,200 per annum for the cohort.
  - More than 50% of the sites reviewed had incorrect or inappropriate contract demand figures. Resetting to the correct contract demand has the potential to save \$357,000 per annum.





During the study it became apparent that some retailers were not visiting or keeping in regular email or phone contact with participants in the study (apart from when they were renegotiating energy contracts) to perhaps assist their customers in addressing these network tariff issues.

- Western Victorian region's regulated network charges result in Central Victoria business consumers paying a significant price premium for electricity. Based on the participants surveyed, sample electricity consumption profiles were developed. **Table 1** highlights the percentage differential when comparing electricity network costs in the Western Victoria region to similar consumers in Metropolitan Melbourne and Eastern Victoria respectively.

**Table 1 – Average network cost differential comparing Powercor's Western Victorian Distribution Region to CitiPower's Melbourne-based and SP AusNet's Eastern Victorian Distribution Regions**

Customer Class	Network Charges for CitiPower (Melbourne Metropolitan)	Network Charges for SP AusNet (Eastern Victoria)
High Voltage Demand	27%	14%
Low Voltage Demand	21%	7%
Non Demand User	31%	17%

- The Essential Services Commission (ESC) draft decision for Powercor's proposed Distribution Charges for 2006 to 2010 could see a significant reduction in the distribution tariff in the order of 25.5%. A final determination by the ESC is anticipated in October 2005. A reduction of the scale proposed by the ESC for the Western Victorian Region would address some of the inequities in network costs currently being experienced by participating businesses, provided that the reduction is equitably reflected in tariffs across the Western Victorian Region.
- The 20% reduction in the Transmission Equalisation Adjustment (TEA) on the 1st July 2005 has translated into an increase of 2% in network costs for participating businesses.
- No discrepancies were found in the account analysis process. Bills were reconstructed using the Consumer's half hourly data. In addition, verification and application of regulated charges, including network costs and loss factors were cross-checked against the accounts.
- Site inspections conducted by the consultants during the project revealed a number of poor energy management practices, including equipment being left on unnecessarily, that could save a further 10% of total energy use with a pay back of about three years or less.

**Table 2 - Summary of identified cost saving opportunities for participating consumers**

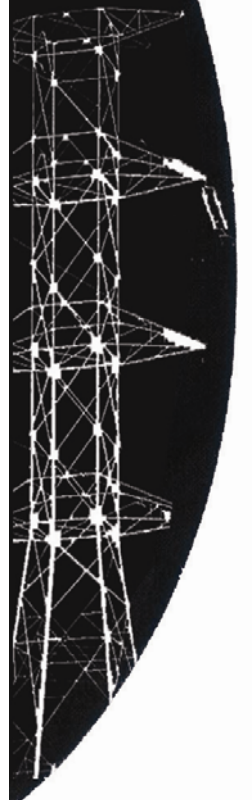
<b>Opportunity</b>	<b>Number of Sites</b>	<b>Estimated Savings \$ pa</b>	<b>Savings %' of Total Cost of Electricity</b>
More Competitive Retail Rates	21	\$990,173	17%
Tariff Change	7	\$171,200	9.2%
Demand Reset	16	\$357,600	4%
<b>Total</b>		<b>\$1,518,973</b>	<b>12%</b>

Improving tendering and negotiation practices plus correctly re-assigning \$1,519,000 annually – equivalent to a 12% reduction on the total annual electricity costs of the project participants. This would translate into bottom line profit for these companies.

## **RECOMMENDATIONS**

In order to assist electricity consumers across the Central Victoria area to achieve the lowest possible electricity costs, it is recommended that the Bendigo Manufacturing Group:

1. Lobby for the permanent retention and increase in the level of the Transmission Equalisation Adjustment (TEA). Reduction of the TEA at 1 July 2005 has increased total network electricity cost by about 2% and contributed further to the inequity between rural and metro based businesses.
2. Vigorously support the Essential Services Commission (ESC) Draft Determination on Distribution Charges for 2006 to 2010. However, this support is conditional on the clear and unequivocal understanding that regional areas, such as Central Victoria, will have a demonstrable tariff reduction that ensures parity across the Powercor Region and not continue to favour customers in areas close to metropolitan Melbourne. In the absence of support for the Draft Determination, there is an increased likelihood that the ESC will bow to pressure from the network providers to reduce the proposed fee reductions.



3. In order to reduce the high transaction costs, provide local businesses with more information on the electricity market, network tariff structures, etc. In particular this could include:
  - Training workshops to more fully explain the operation of the deregulated electricity market and best practice techniques for negotiating retail electricity supply contracts plus account management and reconciliation processes.
  - Provision of information on local network tariffs and rules of thumb on how these tariffs can be minimised. Again, this could be done via workshops.
  - Facilitation of groups of SMEs who can jointly negotiate their retail electricity contracts. This will increase negotiating leverage and reduce negotiating overheads.
  - Basic 'energy management' information that will help local consumers more wisely use energy, monitor monthly accounts and further reduce costs provided as a standing resource by the regulator or government.
4. Establish mechanisms to provide local businesses with cost effective on-going support and professional advice including:
  - Approaching industry organisations to inform them of this report and assist in the facilitation of targeted workshops.
  - The ESC mandate that all Distributors are to regularly (at least annually) liaise with their business customers, to ensure that businesses are on the most appropriate network tariff.
5. Lobby for changes to the setting and management of demand-based tariffs including:
  - Automatic monthly reset of a company's 'Maximum Demand' to the contract rate, rather than 12 months from the date of a written request by a consumer. This change should also incorporate an ability, with notice and agreement, to exceed the contract demand level without incurring ongoing financial penalties and subsequently be charged only for the incurred excess demand consumption on that day.
  - Change the time interval for the 'Maximum Demand' calculation from the current 15 minutes to 30 minutes.
6. Lobby for the extension of the Off-peak period from 11.00pm – 7.00am EST to 10.00pm to 7.00am EST on weekdays. The Off-Peak period should change automatically to correspond with both EST and EDST.
7. A similar study should be undertaken of gas costs for consumers in the Central Victorian area. Based on the consultant's experience with the electricity accounts reviewed there is every possibility that similar cost related problems would be identified.

## 1. INTRODUCTION

The privatisation of the electricity market in the 1990s resulted in the establishment of the following components:

- Retail Sector – This sector is competitive and includes multiple Victorian and interstate based retailers. Consumers are able to negotiate an energy contract with a retailer which buys electricity in bulk from the National Electricity Market (NEM) and sells it to consumers. Retailers should be the consumer's first point of contact to manage aspects of the electricity supply such as connections, billing and network tariff issues.
- Network Sector – This sector is the non-competitive, regulated, component of the electricity market and comprises a Transmission company and 5 Distribution companies in Victoria. Transmission services relate to the delivery of electricity from the generators to major distribution points in Victoria. Distribution services provide for the delivery of electricity from the major distribution points to consumers. Victoria has 5 'Distribution Regions' – Powercor services the Western Victorian Region and delivers electricity to the businesses involved in this project.
- Generation Sector - Generators produce electricity and compete to sell what they produce into the NEM.

Refer Appendix 'B' for further explanation of the above components.

As stated above, the only competitive component of the electricity market that the consumer can negotiate is the actual 'energy cost'. The other electricity costs included on monthly / quarterly accounts are:

- regulated network charges that are based on a combination of transmission and distribution tariffs.
- National electricity market charges

It is the consumer's responsibility to ensure that the network tariff is appropriate for their site(s) and all account charges are accurate. However, consumers may not be aware that assistance can be obtained from their retailer to address such issues.

Previous studies undertaken by the City of Greater Bendigo and Bendigo Manufacturing Group on 'Electricity costs for Central Victorian businesses' (2002 and 2004) identified a range of potential energy management issues and inequities in regulated charges that subsequently led to the development of this Central Victorian Demand Tariff Energy (CVDTE) project.

The CVDTE project focussed on the following objectives:

- To establish the accuracy of the application of specific regulated charges on 'demand-tariff' business consumers;
- To identify the standard of electricity management practices within these business consumers; and
- To identify the impact on network charges from the reduction in the Transmission Equalisation Adjustment (TEA) payment for these business consumers.

The City of Greater Bendigo with support from the Bendigo Manufacturing Group engaged Key Energy and Resources ('consultants') to undertake the project over the period from May 2005 to September 2005.

Twenty-seven (27) business consumers agreed to be part of the project, providing 2004 calendar year data from 30 sites across Central Victoria. The diverse range of participating businesses included engineering / metal based enterprises, food manufacturers, building product manufacturers, textile companies, water processing enterprises, auto component manufacturer, health provider, animal pharmaceutical manufacturer, stock feed processor, mining company, arts, entertainment and recreation organisations. Data provided included monthly accounts, electronic interval meter data, tendering, contracting and monthly account reconciliation processes. It should be noted that where clarification of data was required, further direct contact with relevant companies was undertaken. In addition, the consultants completed research on comparable businesses operating in 2 other 'Distribution Regions', identified electricity cost benchmarks and best practice.

On the completion of the data analysis, participating companies were provided with detailed confidential site reports, many of which were personally explained with one-to-one meetings being conducted. Feedback from this component of the project has indicated that the communication of this information has been valued and appreciated by the businesses.

**CVDTE  
Project**

**electricity**



## 2. ELECTRICITY USAGE AND COSTS

As part of this project, the consultants reviewed the electricity use patterns and costs of participating businesses that resulted in:

- The development of three ‘typical’ electricity use patterns that broadly represented different consumers types involved in the study – i.e. high voltage demand, low voltage demand and non demand users;
- Comparing costs for these consumer types in the Central Victoria Region with costs for similar consumer types in other parts of Victoria;
- Cross checking invoicing for possible billing errors; and
- Examining on-site electricity management practices.

### 2.1 ELECTRICITY USE PATTERNS AND COSTS

Electricity use patterns for the participating businesses reviewed are summarised in Appendix C. It should be noted that specific business names are not included for confidentiality reasons.

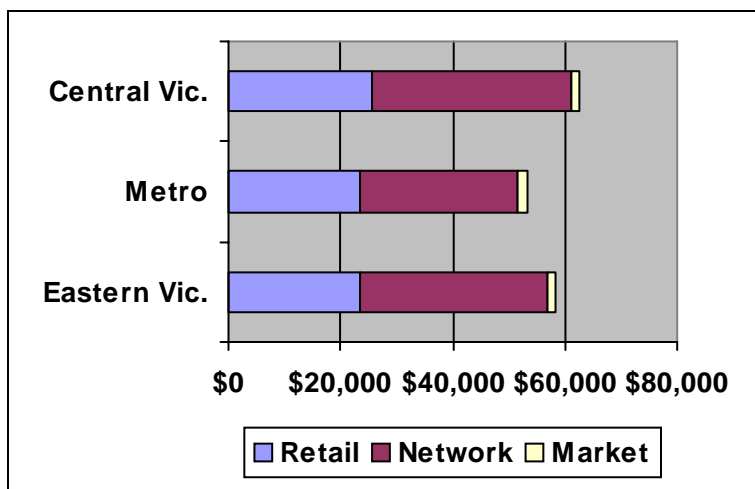
Based on the data collected, the details of the three consumer types identified were

- High Voltage Demand: Peak 5,573 MWh, Off peak 4,190 MWh, Demand 1,714 kW
- Low Voltage Demand: Peak 390 MWh, Off peak 190 MWh, Demand 236 kW
- Non Demand User: Peak 394 MWh, Off peak 209 MWh

Electricity costs for deregulated customers paying more than \$20,000 per annum are typically broken down into three major components i.e. retail charges (including renewable energy certificates and metering); Network Use of System Charges (Network Tariff) and Market Fees including ancillary services.

For demonstration purposes, **Figure 1** shows the typical cost break down for a low voltage demand customer in 3 designated distribution areas – Powercor’s Western Victorian Distribution Region (which encompasses Central Victoria), CitiPower’s Melbourne-based Distribution Region and SP AusNet’s Eastern Victorian Distribution Region.

**Figure 1- Cost Breakdown for a Low Voltage Demand Customer**





## 2.2 RETAIL COSTS

The dominant retail cost is the ‘negotiated electricity rate’, which is usually split into peak and off peak components. This negotiable rate reflects the energy retailer’s costs (plus a margin) for buying electricity from the National Electricity Market and selling it to a consumer. This negotiated rate is not dependent on the location of a consumer.

**Table 3** provides details of the participants’ average negotiated electricity rates compared to benchmark data for similar consumers elsewhere in the NEM provided by the consultant.

**Table 3 – Comparison of average negotiated energy rates and the average market rate**

Ave Group Retail Rates		Ave Mkt Rates for 2002-05	
c/kWh	c/kWh	c/kWh	c/kWh
Peak	Off Peak	Peak	Off Peak
5.627	2.761	4.85	2.55

The benchmark retail rates of 4.850/KWh peak<sup>1</sup> and 2.550/kWh off peak are the average negotiated market rates for 2002 to 2005 on a three year contract as provided by the consultant. Some consumers in the study were on rates as high as 7.9c/kWh for peak and 3.2c/kWh for off peak.

60% of the participants’ sites were paying higher than the benchmark rates. The survey also identified that 30% of the sites were paying retail electricity rates at least 25% higher than the comparable benchmarks.

The retail charges also include three other costs.

- Line Losses

The line losses in Central Victoria are significantly higher than the metropolitan areas. This is due to the losses being a function of the distances that SP AusNet (Transmission) and Powercor (Distribution) have to deliver the electricity (i.e. more poles and wires and additional terminal stations). Losses are calculated from a reference node to the general area and are voltage and feeder specific.

There are two types of line loss factors - Distribution Loss Factor (DLF) and Marginal Loss Factor (MLF) formerly Transmission Loss Factor (TLF). These loss factors are multiplied together to get the total loss factor. **Table 4** shows the breakdown of these loss factors for a Low Voltage customer on a long distribution feeder with a substation on their premises.

<sup>1</sup> In general, Peak times are from 7.00am until 11.00pm, Monday to Friday. Off Peak times are all other times plus all weekend.

**Table 4 - Distribution Loss Factor (DLF), Marginal Loss Factor (MLF) and Total Loss Factor**

Region	DLF	MLF	Total Loss Factor
Central Vic.	1.0648	1.0807	1.1507
Metro	1.0489	1.0033	1.0524
Eastern Vic.	1.067	0.9939	1.0605

If a customer is on a High Voltage supply their DLF will be lower and if you take supply by a cable to your building then the DLF will be higher. In Central Victoria there are two Marginal Loss Factors dependent on the voltage supply (66kV and 22kV), the table above is for a 66 kV Voltage MLF.

Using the data contained in **Table 3**, the average negotiated retail rates of 5.627/kWh peak and 2.761/kWh off peak for participating companies are adjusted by the loss factors. In Central Victoria the impact of Low Voltage losses would bring these retail rates to about 6.471/kWh peak and 3.175/kWh off peak.

**For 60% of the participating business sites that were identified as having higher negotiated retail rates, the 'Total Loss Factor' adds further penalties to the electricity costs of these businesses.**

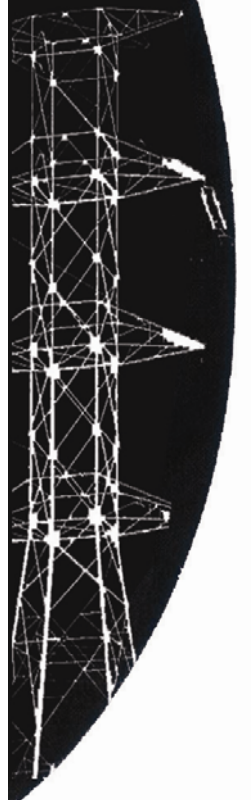
- **Metering**

The metering cost is made up of meter hire, data collection and other meter charges. The typical annual cost is between \$850 to \$1,200 depending on the choice of meter provider. There was no appreciable difference in metering costs across the sample group surveyed and similar customers in Metropolitan Melbourne and Eastern Victoria.

- **Renewable Energy Certificates (REC)**

Location has no bearing on the cost of RECs.

**Surveyed businesses across the Central Victorian area were identified as paying excessively high retail rates. Negotiated 'electricity retail rates' should be within a narrow range across Victoria and the higher rates paid by 60% of the sites surveyed is indicative of inappropriate contract negotiation practices.**



## 2.3 NETWORK CHARGES

The regulated Network Use of System (NUoS) or Network Charge is the cost of delivering electricity to the customer from the generators. This is made up of two charges - Transmission Use of System (TUoS) and Distribution Use of System (DUoS) charges.

As noted earlier, there is one Transmission Company and 5 Distribution companies throughout Victoria. Three of these Distributors are metropolitan based (AGL/Agility, CitiPower and United Energy/Alinta) along with two metropolitan/rural based Distributors - Powercor and SPAusNet (formerly TXU).

The network charges have a number of components; an energy charge (peak & off peak), demand charge and a standing charge. The demand charge, where applicable, is generally the highest cost item associated with a Demand based tariff.

### 2.3.1 Incorrect Network Tariff

It is the consumer's responsibility to ensure that the network tariff is appropriate for their operations and all account charges are accurate. However, consumers may not be aware that assistance can be obtained from their retailer to address such issues which is unlikely to be a high priority for many consumers either through lack of knowledge or time constraints in running their businesses.

The businesses that were surveyed had over \$500,000 of savings attributable to sites with high contract demand settings or being on the wrong network tariff. This was partly due to both the lack of understanding of network tariffs by the businesses as well as knowing who to approach to assist. However, it was also indicative of the retailers not being as proactive as they might have been in discharging their account management services.

The biggest savings, associated with network tariffs, were for those sites on maximum demand tariffs that the consultants found were on the wrong contract demand figure. More than 50% of the sites reviewed had incorrect or inappropriate contract demand figures. Resetting to the correct contract demand has the potential to save \$357,000 per annum.

In addition, 23% of the sites reviewed were on the wrong network tariff. Moving specific sites to the correct network tariff will save about \$171,000 per annum for the cohort.

**During the study it became apparent that:**

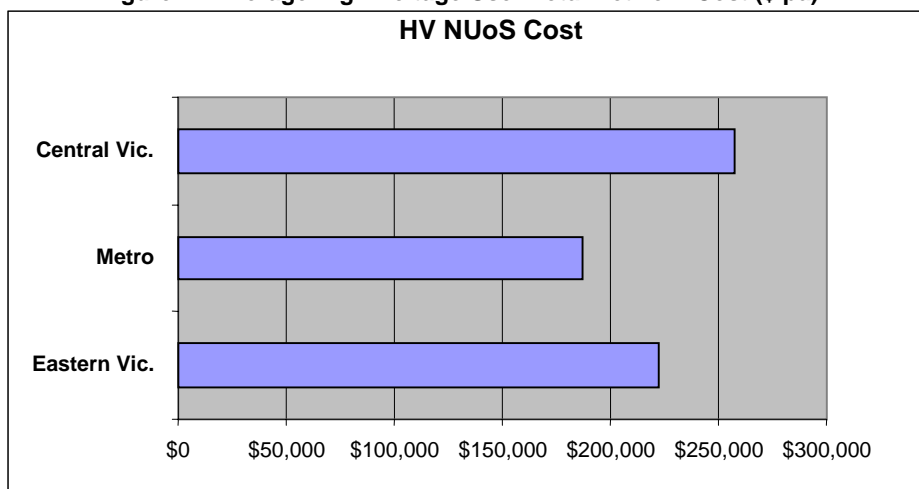
- **Consumers were not knowledgeable about network tariff issues;**
- **Consumers felt they did not have help to deal with such issues; and**
- **Most retailers were not visiting or keeping in regular email or phone contact with participants in the study (except when contracts were up for renewal) to more proactively assist their customers in addressing these issues.**

**2.3.2 Network Tariff Differential between Distribution Regions**

Even if the Central Victorian businesses were applying the correct network tariff to their operations, the Western Victorian region’s regulated network charges mean that Central Victoria business consumers are paying a significant price premium for electricity compared to other regions.

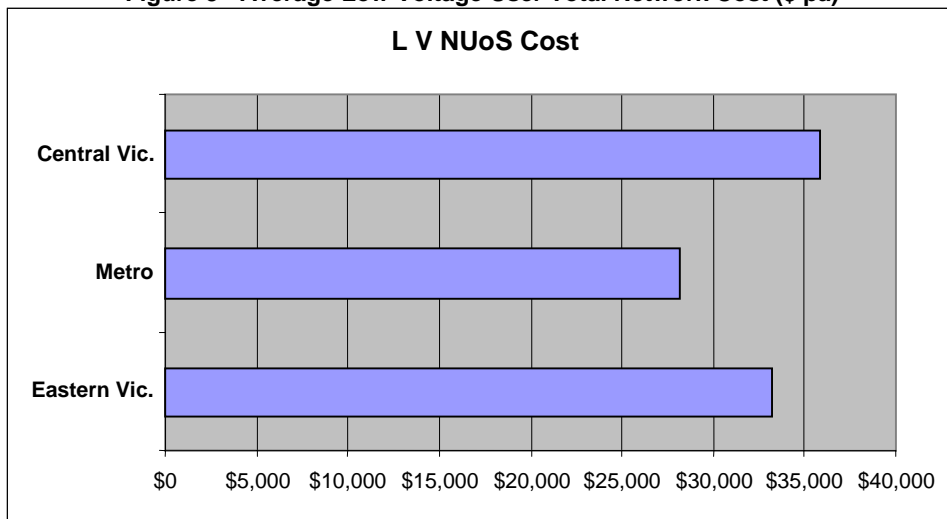
**Figure 2** shows a comparison of the total network cost for a high voltage customer and is typically 14% to 27% above those in Melbourne or Eastern Victoria.

**Figure 2 - Average High Voltage User Total Network Cost (\$ pa)**



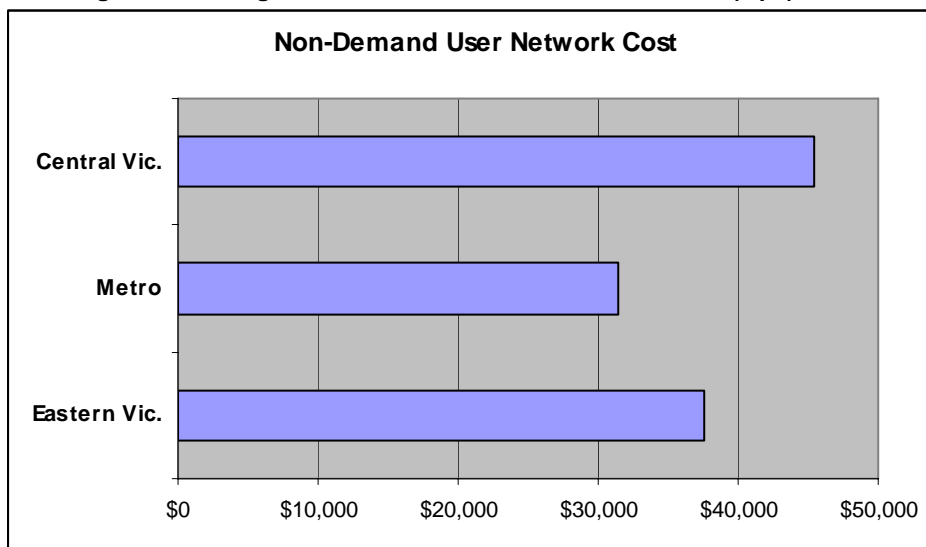
**Figure 3** shows a comparison of total network cost for a low voltage customer and is typically 7% to 21% above those in Melbourne or Eastern Victoria.

**Figure 3 - Average Low Voltage User Total Network Cost (\$ pa)**



**Figure 4** shows a comparison of total network cost for a non-demand customer and is typically 17% to 31% above those in Melbourne or Eastern Victoria.

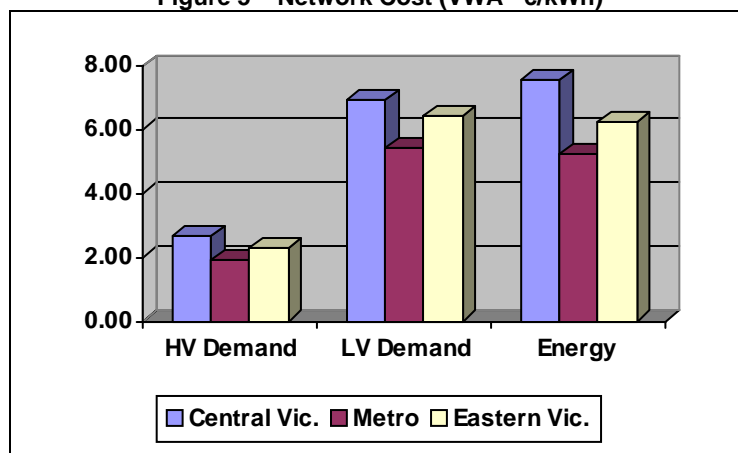
**Figure 4 - Average Non Demand User Total Network Cost (\$ pa)**



The predominantly rural Distributors have a much higher cost structure than their metropolitan counterparts partly as a result of a lower number of customers per kilometre of distribution asset (poles and wire) and the lack of equalisation assistance.

The regulated network charges are primarily responsible for the significant difference in the delivered electricity cost for businesses in Central Victoria. **Figure 5** below shows the cost differences in cents per kWh as applied to the three typical customers for the designated Distribution Regions.

**Figure 5 – Network Cost (VWA - c/kWh)**



The Victorian Government abolished the smelter levy charges on retailers under the National Electricity Code on 1 July 2004 and replaced it with a Land Tax on transmission easements. This has resulted in a marked increase in Transmission Use of System (TUoS) charges levied by SP AusNet and VenCorp to all 5-distribution businesses during 2005. The impact of the Land Tax on the TUoS charges commenced from 1 July 2004, however, the price controls only provide for an adjustment to network tariffs on a calendar year basis. Therefore, the Land Tax recovery in 2005 will be for the period 1 July 2004 to 31 December 2004 of \$9.5M and 1 January 2005 to 31 December 2005 of \$19.6M (ie. for 18 months). As a result, consumer's TUoS electricity component of their network bill will increase in 2005 in proportion to the original smelter reduction levy. At present it is understood that the land tax will be imposed until 2016, in line with the date the original smelter reduction levy was to cease.

The overall cost differential in total network charges between metro based and rural based Distribution Regions had been recognised by the Victorian Government with the introduction of a Transmission Equalisation Adjustment (TEA) payment. (Refer Section 3) This payment partly alleviates this cost differential issue, however the TEA was introduced on a sliding scale, with the most recent reduction to this payment occurring on 1 July 2005.

Even with this payment, consumers in Central Victoria continue to experience higher electricity costs than their counterparts throughout Victoria. The primary reason for this cost difference is the higher Network Tariff fees.

**The ESC's Draft Determination on regulated Distribution Network fees for 2006 to 2010 for Powercor's area has recommended a 25.5% reduction in Powercor's proposed charges. Such a reduction, together with the full TEA payment, would significantly contribute to addressing the inequity in network costs in Central Victoria, provided that the reduction is equitably reflected in tariffs across the Western Victorian Region.**

**However, electricity deregulation without the retention of some form of equalisation (such as an enhanced TEA payment) will not deliver the same level of savings to rural consumers as it does to metropolitan consumers.**

## 2.4 MARKET FEES

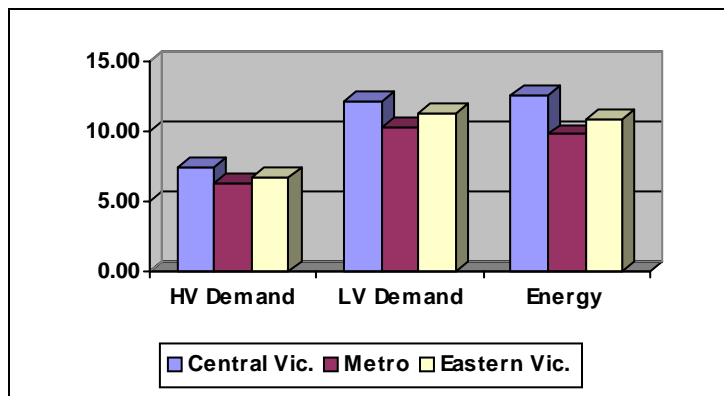
Market fees are a relatively minor cost component. Typically these fees represent about 2.5% of the total delivered electricity cost.

These fees recover the cost of managing the electricity market and providing ancillary services. They are largely regulated (ancillary services operate as a 'spot market') and they are uniform across Victoria.

## 2.5 TOTAL DELIVERED ELECTRICITY COSTS

Figure 6 demonstrates the total Volume Weighted Average (VWA) cost of delivered electricity for the 3 consumer categories in each region. The group in question varied from 6.8 cents/kWh to 22.9 cents/kWh.

Figure 6 – Total Delivered Electricity Cost (VWA - c/kWh)



In general, total delivered electricity costs were about 7% to 22% more than other Metropolitan Melbourne and Eastern Regions. This reflects the higher negotiated rates, along with the cost of line losses, and the relatively high cost of Network charges in Central Victoria.

**The study has highlighted how important it is that business consumers are proactive with their energy contract negotiations as well as ensuring that they are on the correct network tariff. Failure to do this will result in further electricity cost penalties for business consumers that are already paying a network electricity price premium due to their location in the State.**

## 2.6 ACCOUNT RECONSTRUCTION AND RECONCILIATION

A reconstruction and reconciliation of participants' published electricity bills over the 2004 calendar year revealed no significant billing errors.

### 3. TRANSMISSION EQUALISATION ADJUSTMENT (TEA)

To some extent, the State Government has attempted to alleviate the inequity in network costs by introducing a Transmission Equalisation Adjustment payment.

In accordance with the National Electricity Code, Chapter 9.8.4(a) part (3), the ACCC must ensure that each Distributor is to have the benefit or burden of an equalisation adjustment for each year Fiscal Year equal to the amount of the adjustment [fees or (subsidies)] specified for that Distributor in the column headed "Equalisation Adjustment" in **Table 5**.

**Table 5 - Transmission Equalisation Adjustment Allowance**

Distribution Region	Equalisation Adjustment (\$'000)
SPAusNet	(4,939)
Powercor	(19,011)
AGL	5,171
CitiPower Pty	5,920
United Energy Ltd.	12,859

To determine the actual level of adjustment in any one fiscal year, the allowance in **Table 5** is multiplied by the relevant factor indicated in **Table 6**.

**Table 6 - Relevant Factor applied to 'Equalisation Adjustment'**

Fiscal Year	Relevant factor
1 January 2001 – 30 June 2001	40%
1 July 2001 – 30 June 2005	80%
1 July 2005 – 30 June 2010	60%
1 July 2010 – 30 June 2015	40%
1 July 2015 – 30 June 2020	20%
Thereafter	0%

In Central Victoria, the TEA was set at \$19.01M per annum. In July 2005 the payment was reduced by a further 20% to 60%. This reduction will have an additional annual network cost of about 2% to consumers.

## 4. COST REDUCTION STRATEGIES

Several strategies can be used to reduce electricity costs.

The majority of the site electricity accounts reviewed was not 'best practice' with respect to the minimisation of their electricity costs. More than 60% of the accounts reviewed had negotiated retail electricity rates that were higher than the benchmark rates based on the consultant's experiences in negotiating three year average contract rates from 2002 to 2005 for other customers. This comparison has shown that if the group had negotiated more competitive rates, savings of about \$900,000 per annum or 7% of the total electricity spend for the group would have been possible.

Furthermore, 23% of the sites reviewed were on the wrong network tariff and over 50% of the sites had an inappropriate contract demand. Correcting these anomalies could reduce the total electricity cost for the cohort by \$530,000. This represents almost 5% of the total electricity spend for the group.

In addition to this, several sites visited were using their energy in a 'sub optimal' fashion. Based on the consultant's experience, more efficient energy use practices could save a further 10% of total energy use with a pay back of about three years or less.

### 4.1 RETAIL RATES

60% of the sites reviewed were on retail electricity rates that were higher than benchmarks for a similar period. It was also noted that some of these sites were not on an electricity contract. Furthermore, some of these retail rates were in excess of 50% higher than the benchmark.

A rigorous electricity contract negotiating strategy that involves all licensed retailers and takes into consideration market timing, commercial terms and value adding services can rectify this situation (Refer Appendix D). It may be possible to lever further benefit by aggregating several of the relatively small customers. This will provide increased market leverage and share the cost of contract negotiations.

It was estimated that about \$900,000 could be saved annually if consumers adopted rigorous electricity contract negotiations.

### 4.2 NETWORK TARIFF OPTIMISATION

In the first instance, all consumers should make sure that they are on the most cost effective network tariff and, where applicable, that contract demand figures are appropriate. This can be organised through a consumer's existing retailer, however during the study it became apparent that many retailers weren't in regular contact with participant consumers or offered such a service.

Over 20% of the sites reviewed in this study were not on the most cost effective tariff. Tariff changes will save this cohort an estimated \$171,200 per annum usually at little or no upfront cost to the consumer.

Furthermore, over 50% of the sites had inappropriate contract demands. Resetting the contract demand figure will save this cohort an estimated \$357,600 per annum.

It was noted that the contract demand levels for businesses were calculated on 15 minute intervals. This historic practice provides little flexibility for business consumers and contributes to higher network costs. A more practical and flexible approach is to calculate contract demand by allowing for an average over a thirty minute period.

It was noted that the daily peak demand is between 7am to 9am and 4pm to 7pm. The provision of a capacity for business to exceed contract demand outside these periods without penalty would provide further flexibility for Central Victorian businesses to operate.

The current off-peak period is also contributing to higher network costs. Businesses that conduct a 24 hours/5 days a week operation could effectively reduce their network costs if an extension to the off-peak hours from 10pm to 7am was established as per the National Electricity Market. These hours should be consistent throughout the year including adjustment for Eastern Australian Daylight Summer Time.

In all cases, the sites concerned have been contacted and given appropriate advice on the relevant tariff change; demand reset and expected savings by the consultant. Possible delays with the demand reset were also explained as Powercor requires twelve month notice to reset the contract demand.

#### 4.3 ACCOUNT RECONSTRUCTION AND RECONCILIATION

An important part of the project was to undertake a reconstruction and reconciliation of participants' published electricity bills over the 2004 calendar year.

Data for the review was sourced from electricity accounts provided by participants, along with the basic load profile data provided by the retailer. Two parameters were used to cross check the billing accuracy.

Firstly, a financial verification of the bills was done by ensuring that the billing elements, such as loss factors and retail rates, were correct and then applying these various elements to recalculate the individual monthly accounts for each site.

Retail costs as invoiced, including Line Losses, metering and GST were compared to the recalculated values. Any billing discrepancies were then reported to the participant for their site(s).

Secondly, an energy use reconstruction was undertaken by comparing billed energy use quantities against half hourly interval meter data (load profile data) provided by the retailer.

The results of this reconstruction and reconciliation exercise by the consultant did not identify any significant billing errors for participants.

#### 4.4 ENERGY MANAGEMENT

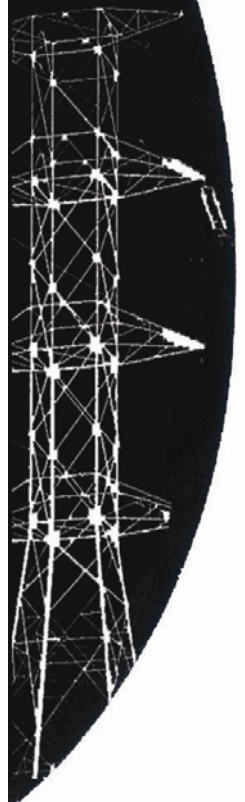
During the consultant's site visits to participating businesses, a number of energy savings opportunities were identified, including excessive off-peak energy use, opportunities for fuel substitution, better use of natural lighting and more effective use of compressed air.

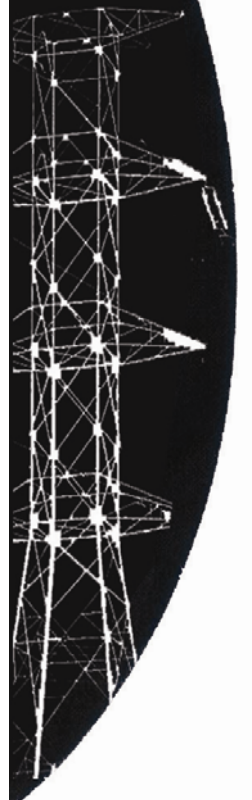
Many of these 'good house-keeping' opportunities were informally discussed with the relevant site representatives. The adoption of more rigorous energy management practices could cut energy use and energy cost by 10% and be implemented for little or no cost.

## 4.5 RETENTION OF THE TRANSMISSION EQUALISATION

In Central Victoria, the TEA was originally set at \$19.01M per annum. In July 2005 the payment was reduced from 80% to 60% - ie a further \$3.8 million to \$11.4 million annually for the period 1 July 2005 to 30 June 2010. This reduction has resulted in an additional annual network cost of about 2% to consumers for the next five years with more increases planned to follow as the scheme winds down.

The retention and upgrade of an equalisation scheme such as the TEA is essential for Western Victorian consumers to partly offset the current inequities in network costs in Central Victoria.





## 5. IDENTIFIED CUSTOMER SAVINGS

A summary of the estimated electricity cost savings is included in **Table 7**.

**Table 7 - Cost Saving Opportunities**

<b>Opportunity</b>	<b>Number of Sites</b>	<b>Estimated Savings \$ pa</b>	<b>Savings %' of Total Cost of Electricity</b>
More Competitive Retail Rates	21	\$990,173	17%
Tariff Change	7	\$171,200	9.2%
Demand Reset	16	\$357,600	4%
<b>Total</b>		<b>\$1,518,973</b>	<b>12%</b>

A total of 27 businesses were involved in the project conducted between May 2005 and September 2005, covering some 30 sites in Central Victoria, with a total annual electricity spend of over \$12,300,000.

## 6. CONCLUSION

Despite the fact that no significant billing anomalies were identified, there are significant cost saving opportunities available to the cohort of 30 accounts reviewed by the consultants.

Nearly \$1m of savings could be achieved if all members of the cohort were on more competitive retail electricity supply contracts. Unfortunately many of the participants are already contracted and are unable to avail themselves of this opportunity in the medium term. However, these businesses should now begin to prepare and plan a rigorous, timely, electricity contracting process that provides adequate lead time to achieve a more competitive outcome for their site(s).

Over \$500,000 pa of savings is estimated to be achieved by:

- Selecting the most appropriate network tariff (\$171,000). (23% of accounts reviewed were not on the most cost effective tariff).
- Selecting the most cost effective contract demand (\$357,000). (Over 50% of the accounts reviewed were not on the most cost effective contract demand).

In most cases the above initiatives can be implemented with minimal cost.

The cost savings identified, could be a reflection of a significant 'knowledge' asymmetry that exists between members of the cohort and electricity suppliers. Anecdotal evidence from previous studies plus data analysis indicated that as many as 60% of the participating businesses were under resourced and/or skilled to undertake vigorous energy contract negotiations. In addition, many of these businesses were also ill equipped to review tariffs and regulated charges.

In some respects these problems may have been exacerbated by the location and lack of ready access to competing energy retailers. During the customer visits it became apparent that some retailers weren't visiting their major customers in the area.

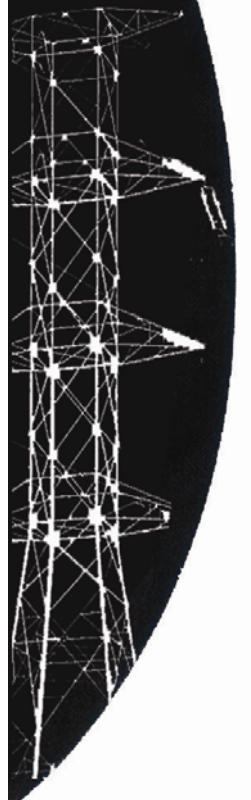
Even if the participants were on the right network tariff, consumers in the Central Victorian area still pay relatively high network charges compared to other areas of Victoria. On average these high fees are increasing delivered electricity costs by about 15% for High Voltage consumers, 16% for Low Voltage consumers and 22% for non-demand business consumers when compared to similar customers in the Metropolitan area.<sup>2</sup>

Moreover, the reduction of the TEA will exacerbate the already high network cost inequity and increase cost by about 2% from 1 July 2005

The consultants also identified opportunities for the adoption of more rigorous energy management practices, which could cut energy use, and also energy costs by 10%, with many of these opportunities being implemented for little or no cost.

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<sup>2</sup> The inner metropolitan area is CitiPower distribution, which is owned by the same company that owns Powercor.

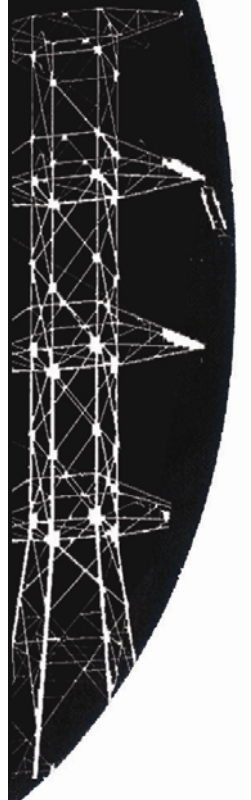


## 7. RECOMMENDATIONS

In order to assist electricity consumers across the Central Victoria area to achieve the lowest possible electricity costs, it is recommended that the Bendigo Manufacturing Group:

1. Lobby for the permanent retention and increase in the level of the Transmission Equalisation Adjustment (TEA). Reduction of the TEA at 1 July 2005 has increased total network electricity cost by about 2% and contributed further to the inequity between rural and metro based businesses.
2. Vigorously support the Essential Services Commission (ESC) Draft Determination on Distribution Charges for 2006 to 2010. However, this support is conditional on the clear and unequivocal understanding that regional areas, such as Central Victoria, will have a demonstrable tariff reduction that ensures parity across the Powercor Region and not continue to favour customers in areas close to metropolitan Melbourne. In the absence of support for the Draft Determination, there is an increased likelihood that the ESC will bow to pressure from the network providers to reduce the proposed fee reductions.
3. In order to reduce the high transaction costs, provide local businesses with more information on the electricity market, network tariff structures, etc. In particular this could include:
  - Training workshops to more fully explain the operation of the deregulated electricity market and best practice techniques for negotiating retail electricity supply contracts plus account management and reconciliation processes.
  - Provision of information on local network tariffs and rules of thumb on how these tariffs can be minimised. Again, this could be done via workshops.
  - Facilitation of groups of SMEs who can jointly negotiate their retail electricity contracts. This will increase negotiating leverage and reduce negotiating overheads.
  - Basic 'energy management' information that will help local consumers more wisely use energy, monitor monthly accounts and further reduce costs provided as a standing resource by the regulator or government.
4. Establish mechanisms to provide local businesses with cost effective on-going support and professional advice including:
  - Approaching industry organisations to inform them of this report and assist in the facilitation of targeted workshops.
  - The ESC mandate that all Distributors are to regularly (at least annually) liaise with their business customers, to ensure that businesses are on the most appropriate network tariff.

5. Lobby for changes to the setting and management of demand-based tariffs including:
  - Automatic monthly reset of a company's 'Maximum Demand' to the contract rate, rather than 12 months from the date of a written request by a consumer. This change should also incorporate an ability, with notice and agreement, to exceed the contract demand level without incurring ongoing financial penalties and subsequently be charged only for the incurred excess demand consumption on that day.
  - Change the time interval for the 'Maximum Demand' calculation from the current 15 minutes to 30 minutes.
6. Lobby for the extension of the Off-peak period from 11.00pm – 7.00am EST to 10.00pm to 7.00am EST on weekdays. The Off-Peak period should change automatically to correspond with both EST and EDST.
7. A similar study should be undertaken of gas costs for consumers in the Central Victorian area. Based on the consultant's experience with the electricity accounts reviewed there is every possibility that similar cost related problems would be identified.



**BENDIGO MANUFACTURING GROUP AND CITY OF GREATER BENDIGO ENERGY  
MANAGEMENT PROJECT**

**Electricity Use Survey Form**

**CVDTE  
Project**

**electricity**

**1. Company Information**

Company Name ..... Nominated Site Address .....

Operating Hours .....

Nominated Contact ..... Phone .....

Fax.....

Email.....

**2. Electricity Contract** *(Only needs to be completed if a copy of the contract is not attached)*

Retailer ..... Account Mgr.....

Account Mgr Ph .....

Contract Start Date ..... Contract End Date .....

Energy rates (exc GST, Losses & RECs) ..... Peak (\$/MWh).....

Off Peak (\$/MWh).....

Renewable Energy Certificates.....

Metering.....

**3. Contract Negotiation**

The contract was negotiated: ..... 'In House" ..... Y/N

Corporate Head Office..... Y/N

Consultant ..... Y/N

Broker ..... Y/N

Contract negotiation process: ..... Open Tender - All Retailers ..... Y/N

RFQ / Negotiation – all Retailers ..... Y/N

Negotiation - Consultant ..... Y/N

Broker ..... Y/N

Please complete, attach copies of all invoices for the 2004 calendar year, a copy of your letterhead and post to Key Energy & Resources, POB 275 South Caulfield 3162 attention Charlie Galea. Charlie can be contacted on (03) 9885-2633

## HOW ELECTRICITY IS DELIVERED TO YOU<sup>3</sup>

### COMPETITIVE SECTOR



#### Retail

Retailers buy the electricity in bulk from generators and sell it to you. They develop packages and services to meet your needs.

This is where you have choice.

Retailers manage aspects of your electricity supply such as connections, billing, and customer service. They also act on your behalf with the other companies in the electricity industry.

Your retailer should usually be your first point of contact.

### NON-COMPETITIVE REGULATED NETWORK CHARGES



#### Transmission

The transmission network transports electricity from the generator to the major distribution points in Victoria.



#### Distribution

Distributors own and manage the poles and wires in the street to deliver electricity to your home/business.

**If you switch retailer, your distributor does not change. The quality and reliability of your supply will not change and you do not need a new meter.**

Powercor is the licensed electricity distributor responsible for the Western geographic region of Victoria and delivers electricity to the businesses involved in this Study.

### COMPETITIVE SECTOR



#### Generation

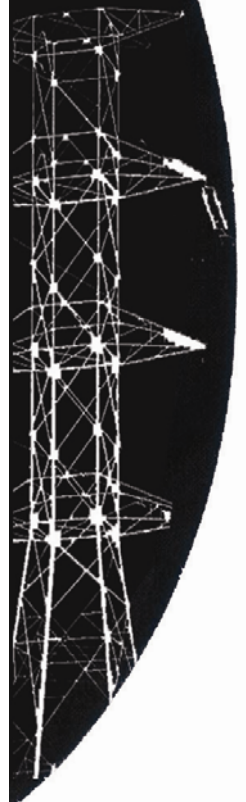
Generators produce electricity and compete to sell what they produce into a National Electricity Market that covers Victoria, New South Wales, the ACT, Queensland and South Australia.

<sup>3</sup> Modified from an information sheet taken from the Essential Services Commission Website at [http://www.esc.vic.gov.au/apps/page/user/pdf/PBL\\_EnergyFactsHowEnergyDeliveredToYou.pdf](http://www.esc.vic.gov.au/apps/page/user/pdf/PBL_EnergyFactsHowEnergyDeliveredToYou.pdf)

**Summary of participating Businesses Annual Electricity Use Data**

<b>Business ID</b>	<b>Peak Electricity Usage (KWh)</b>	<b>Off Peak Electricity Usage (KWh)</b>
1	489,000	400,000
2	540,000	364,000
3	1,485,000	1,991,000
4	459,000	433,000
5	531,000	384,000
6	4,004,000	4,288,000
7	390,000	130,000
8	17,850,000	22,465,000
9	3,474,000	3,675,000
10	1,678,000	442,000
11	2,110,000	881,000
12	704,000	332,000
13	682,000	537,000
14	898,000	857,000
15	3,887,000	2,741,000
16	688,000	582,000
17	5,573,000	4,190,000
18	7,079,000	4,848,000
19	4,047,000	3,233,000
20	4,371,000	3,856,000
21	1,616,000	491,000
22	235,000	69,000
23	110,000	34,000
24	394,000	209,000
25	363,000	82,000
26	390,000	197,000
27	835,000	942,000
28	1,906,000	1,122,000
29	1,497,000	960,000
30	1,231,000	925,000
<b>Total</b>	<b>69,516,000</b>	<b>61,660,000</b>

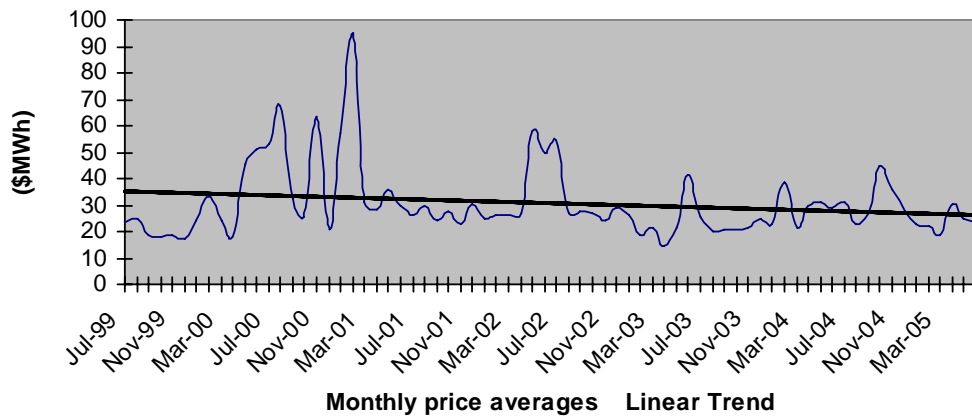
**electricity**



TIPS FOR TENDERING COMPETITIVE ELECTRICITY CONTRACTS AND ACCOUNT MANAGEMENT<sup>4</sup>

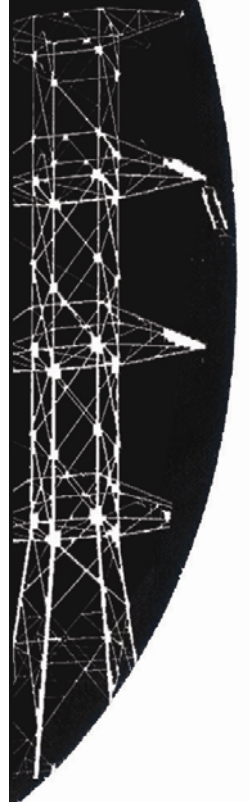
- Start preparing about 2-3 month before you need to go out to tender, if necessary, negotiate a short term extension to an existing contract to ensure sufficient time for the tender process.
- Note the times of the year that conditions are more favourable for achieving the best electricity price in the tender process, normally this is spring or autumn when electricity demand is low compared to the other seasons. The table below provides the monthly average electricity prices over the last six years as a guide.

Table 8 - Regional Reference Prices – Victoria, July 1999 to June 2005



- Collate all relevant key data when preparing tender documents. Relevant data over a 12 month period should include:
  - electricity consumption (with a breakdown of peak and off-peak electricity for each month).
  - electrical demand profile data (the maximum rate at which electricity is used), if known.
- Decide on any value added account management services to be included in a tender document which an energy supplier might be able to provide. These could include:
  - customised billing, such as on a set day each month, presenting information useful for your financial accounting, consolidated billing with other sites, etc.
  - energy efficiency advice or services.
  - lease or hire-purchase of energy efficient equipment.
  - energy services contracting (energy efficiency services on a performance payment basis).
  - using green electricity (electricity from environmentally friendly sources such as solar, wind, and small hydro) for all or a portion of your electricity requirements.

<sup>4</sup> The following is taken from discussions and information provided by the Consultants, Key Energy and Resources, as well as information taken from the following website provided by Genesis Automation ([http://www.genesisauto.com.au/html/purchase\\_energy.html](http://www.genesisauto.com.au/html/purchase_energy.html)).



- Prepare a tender document with your commercial terms. The document should contain:
  - Business background and operating times.
  - Consumption details, monthly peak and off-peak consumption over the last two years (12 months minimum).
  - Maximum demand details over the last two years (load profile if available).
  - Expected business forecast related to energy consumption
  - Required format for presentation of tender response.
  - Details on any value added services. A priority should be given indicating whether these are essential, desirable or optional.
  - Firm price or exposure to pool prices, length of contract required (should ask for several scenarios) payment terms and any special billing conditions.
  - Contract conditions.
  - Any special conditions of supply.
  
- Send tender documents to all licensed retailers to get the best deal. Minimise the time you spend communicating with electricity retailer sales representatives by inviting them to respond to your invitation to tender. This will result in much more efficient use of your time than receiving proposals of varying formats and pricing structures from many retailers. Businesses should be in control of the tender process so that you can analyse the total response (price, terms & conditions and value added services). Also consider interviewing a short-listed number of retailers to confirm their offerings.

If you can't prepare a tender or don't have the time, then you may wish to employ a consultant, who has arranged supply contracts for other businesses. Alternatively, consider becoming part of a buying group. A buying group has the potential to achieve the double benefit of lower electricity prices (because of volume buying) with the benefit of lower administrative effort (by spreading the load over many contracts). The buying group could be based on geographical area, industry type, association or any combination of businesses to give the best outcomes.

**Account Management**

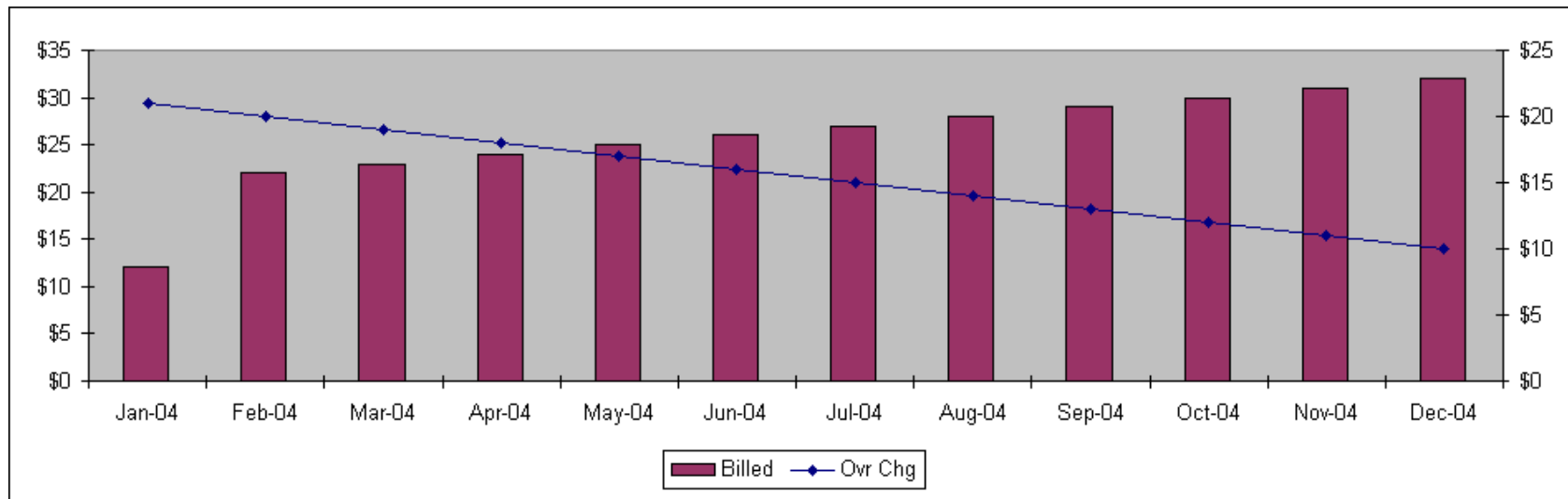
Once a contract is established the billing accounts should be checked for accuracy and adherence to the contract conditions. This can be done on a simple spreadsheet. Your retailer is the first point of contact should any discrepancies arise. The retailer should act on your behalf with the other companies in the electricity industry, especially in regard to connections and ensuring you are on the correct network tariff.

The next page contains a sample bill reconstruction spreadsheet which consumers can use to review their electricity bills. The City of Greater Bendigo would like to thank Key Energy and Resources for the use of this spreadsheet which can be obtained by contacting Jeff Bothe (ph: (03) 5434 6197) or John Pollock (ph: (03) 5434 6226).

## Sample Bill Reconstruction

Site	Losses	Rates	Total Billed	\$309	VWA	#DIV/0!	Operating hr	7am -1.30am 5 days, 7am-6am 2days	
NMI	DLF	Peak	Total Calculated	\$0	\$ Error	\$309	Off Peak %	#DIV/0!	Cal O P
Tariff	MLF	Off Peak			% Error	100.00%			
Retailer									

Month	Energy Consumption (kWh/ kW)							Retail Charge		Market Charges		NUoS Charge		Total		Ovr Chg
	R.Pk	R.Off-Pk	N.Pk	N.Off-PK	C. Dmd	M. Dmd	Days	Billed	Calc.	Billed	Calc.	Billed	Calc.	Billed	Calc.	
Jan-04							31							\$12		\$21
Feb-04							29							\$22		\$20
Mar-04							31							\$23		\$19
Apr-04							30							\$24		\$18
May-04							31							\$25		\$17
Jun-04							30							\$26		\$16
Jul-04							31							\$27		\$15
Aug-04							31							\$28		\$14
Sep-04							30							\$29		\$13
Oct-04							31							\$30		\$12
Nov-04							30							\$31		\$11
Dec-04							31							\$32		\$10
<b>Total/Max</b>	0	0	0	0	0	0	366	\$0	\$0	\$0	\$0	\$0	\$0	\$309	\$0	\$186



## MEMBERS OF PROJECT STEERING GROUP

**Mr Barry Ellis (Chairman)**

*Chief Executive Officer*  
Keech Castings P/L  
30 - 46 Powell Street  
Bendigo

**Mr John Pollock**

*Ecological Sustainable Development Officer*  
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**Mr Jeff Bothe**

*Industry Development Officer*  
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## PROJECT CONSULTANTS

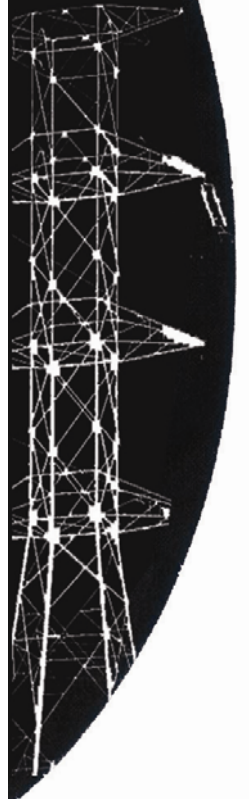
**Mr Mark Searle**

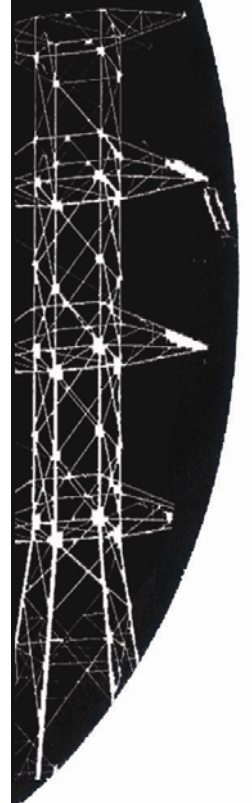
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**Mr Charlie Galea**

*Executive Consultant*  
Key Energy and Resources  
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Glen Iris  
Ph: 03 9885 2633

electricity





## **GLOSSARY**

### **Ancillary Services**

*Services used by NEMMCO, which are essential for:*

- *Managing power system security;*
- *Facilitating orderly trading; and*
- *Ensuring electricity supplies are of an acceptable quality. This includes standards for frequency, voltage, network loading and system re-start processes.*

### **Central Victoria**

*Incorporates the Shires of Campaspe, Loddon, Mount Alexander and the City of Greater Bendigo.*

### **Demand**

*Means the active power or apparent power consumed by a customer in respect of an electrical installation integrated over a fifteen or thirty minute period.*

### **Distributor**

*Means a person who holds a distribution licence under the Electricity Act or in respect of those obligations under the Distribution Code, which are not excluded under clause 1.3.5 of the distribution code, a person who is exempt from holding a distribution licence under the Act.*

### **Distribution Loss Factor (DLF)**

*Means electrical energy losses incurred in distributing electricity over a distribution system.*

### **DUoS**

*Distribution Use of System means the local network distribution system (poles and wires).*

### **EDST**

*Eastern Daylight Saving Time*

### **EST**

*Eastern Standard Time*

### **Force Majeure**

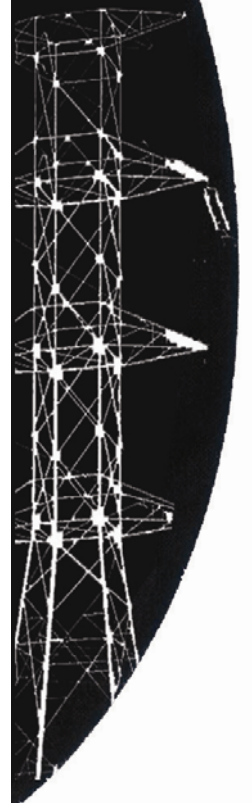
*Means a circumstance that is beyond the reasonable control of the party claiming relief from its obligation under this agreement. These circumstances may include, but are not limited to, Acts of God, fire, flood, war, civil insurrection, embargo, all forms of industrial action, government action, a network failure, a failure in software or equipment caused by the inability of such software or equipment to correctly recognise, process or calculate dates or periods of time, before, on, or after 1 January 2000, or compliance in good faith with any law, regulation or direction by any federal, state or local government having jurisdiction over the party concerned.*

### **Land Tax**

*New government tax Started on 1 July 2005.*

### **Load factor**

*Means the ratio of maximum demand to average demand.*



**LNSP**

*Local Network System Provider, Distribution Company, means the area in which a Distributor is licensed, or exempt from the requirement to hold a licence, to distribute and supply electricity under the Act.*

**Marginal Loss Factor (MLF)**

*Means electrical energy losses incurred in Transmitting electricity over a transmission system (formally TLF).*

**Market Fees**

*Means the fees that NEMMCO charge to manage the electrical system.*

**NEM**

*Means the National Electricity Market*

**NEMMCO**

*National Electricity Market Management Company: Administers and operates the wholesale NEM; manages the security of the power system and continually improves the efficiency of the NEM. It has a dual role of Market Operator and System Operator.*

**NUoS**

*Network Use of System, means the distribution (DUoS) and the transmission (TUoS) systems.*

**REC**

*Means Renewable Electricity Certificate, which is Mandatory to retailer and pass on to customers as per the Renewable Energy (Electricity) Act 2000.*

**Regional Reference Prices**

*Regional Reference Prices (RRP) for each half hour trading interval are determined by averaging the six embedded dispatch interval prices immediately after those dispatch prices are published. RRP data is available from [http://www.nemmco.com.au/data/avg\\_price/averageprice\\_main.shtml#AveMonthPrice](http://www.nemmco.com.au/data/avg_price/averageprice_main.shtml#AveMonthPrice)*

**SME**

*Small and medium enterprise*

**Smelter level**

*Charge on Victorian customers to reduce the level to supply the Portland smelter (this was stopped on 30 June 2005).*

**Total Delivered Cost**

*Means the total cost that includes Retail, Network and Market charges.*

**TUoS**

*Transmission Use of System means the extra high voltage transmission system.*

**VoLL**

*Value of Lost Load*

**VWA**

*Volume Weighted Average (total electricity cost (retail, network and market) divided by total consumption (peak + off peak))*