



Review of the electricity market in Jersey

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*Guernsey Competition and Regulatory Authority
Suites B1 & B2, Hirzel Court,
St Peter Port, Guernsey, GY1 2NH
Tel: +44 (0)1481 711120
Web: www.cicra.gg*

*Jersey Competition Regulatory Authority
2nd Floor Salisbury House,
1-9 Union Street, St Helier, Jersey, JE2 3RF
Tel: +44 (0)1534 514990
Web: www.cicra.je*

Contents

EXECUTIVE SUMMARY	3
1 Background to the Review	5
1.1 Terms of Reference	5
1.2 Previous reviews	5
1.3 Information sources	6
2 Jersey's electricity market	7
2.1 Background	7
2.2 Demand	7
2.3 Supply	8
2.4 Financial information	8
3 Electricity prices in Jersey	10
3.1 Tariff Trends	10
3.2 Benchmarking against other jurisdictions	10
4 Efficiency of JEC	14
5 Rates of return	16
6 Capital expenditure	17
7 Quality of service provision	19
7.1 Customer Minutes Lost	19
7.2 Transmission and distribution losses	19
8 Cross-subsidies between core and non-core businesses	20
9 Areas for future consideration	21
9.1 Self-generation	21
9.2 Utilising existing capacity on the Island	21
9.3 New connections	22
10 Conclusions	23
Appendix A – Customer Minutes Lost in 2011	24

EXECUTIVE SUMMARY

This review of the Jersey electricity market was initiated by the Channel Islands Competition and Regulatory Authorities (*CICRA*) in response to concerns expressed by consumers and the media at the rising cost of electricity. An assessment of whether prices in Jersey represent fair value for money has therefore been undertaken together with an evaluation of the efficiency of the core electricity business of Jersey Electricity plc (*JEC*). The extent to which cross-subsidies exist between different parts of the JEC business that may disadvantage customers and whether there are potential barriers to competition in the electricity market were also considered as part of this review.

As a small island, Jersey does not benefit from the economies of scale available in larger jurisdictions and this has an influence on the cost of supplying electricity to the island, though JEC aims to set tariffs within 10 per cent of the average of electricity tariffs within the European Union (*EU*) and generally achieves this target. From 1st January 2013, for households on the standard tariff, the average electricity bill will be around £970 a year. The benchmarking carried out by CICRA indicates that tariffs in Jersey compare favourably with other island economies such as Guernsey, Isle of Man and Malta and are lower than those of certain larger European countries.

There are, however, significant differences in the amount of electricity consumed by the average Jersey household compared to jurisdictions such as the UK. Average electricity consumption of a Jersey household on the standard tariff is around 6,400 Kwh compared to 3,300Kwh for the average UK household, for example. There are several reasons for this, one of those being the use of natural gas rather than electricity to provide the main form of heating in 86% of UK households. As a consequence, the impact changes to unit electricity tariffs is that much greater for the average Jersey household.

Taking account of the range of factors in Jersey that play a role in contributing to total household electricity bills, this review concludes that electricity prices in Jersey nevertheless broadly represent fair value.

Given CICRA's conclusion on price levels, if JEC were inefficient, this would manifest itself in lower levels of return or poor service quality. While CICRA's review considered several key performance indicators of efficiency, the assessment of efficiency of JEC's business has therefore primarily focussed on two areas; namely, the level of return of the business and quality of service provision.

Since JEC is a relatively asset intensive business requiring investment in undersea cables, a distribution network and on-island generation capacity, for the purpose of benchmarking an appropriate measure is the return on assets of the business. JEC has achieved a return on assets in the range of 4.5 to 5.3 per cent over the period 2003 to 2011. This is comparable to utilities in the United Kingdom (*UK*), whose returns generally range between 4 and 5 per cent. On this evidence, JEC's returns would not be considered too low, with positive implications for future capital investment funding programmes.

Quality of service is influenced by levels of capital expenditure, with transmission and distribution losses¹, as well total customer minutes lost², providing key indicators of performance quality for such a business. Based on our experience in other jurisdictions, the level of transmission and distribution losses are in line with expectations. JEC's record of total customer minutes lost over the medium term also compares favourably with other island jurisdictions such as Guernsey and the Isle of Man, and considerably outperforms UK providers in this area, notwithstanding the events of the past 15 months given problems with the undersea electricity cables linking Jersey and France. On the basis of these findings, CICRA concludes that the business provides a reasonable level of service to customers. On the evidence of quality of service and level of return, the risk of material inefficiency by the business appears low.

The review also considered whether cross-subsidies exist within the JEC Group that might disadvantage electricity customers³. JEC has an approach to cost allocation that seeks to allocate the costs of the business across the Group. CICRA is satisfied that on the evidence of the areas it has considered, the treatment of costs between JEC's core electricity business and the remaining business does not disadvantage electricity customers.

Given the above conclusions, CICRA is not minded to recommend modification of arrangements for regulation of the electricity sector in Jersey.

There are, however, certain aspects of the electricity market that may require future review depending on the pace of development and policy priorities. Firstly, the extent to which the current approach inhibits the development of self-generated electricity, such as micro renewables, has been identified as an area worth future consideration, given wider environmental benefits and the contribution this can make to energy resilience. Secondly, some businesses in Jersey have back-up capacity of their own and maintain they could contribute to security of supply of the Island if more suitable arrangements were in place with the JEC. Thirdly, JEC's approach to setting new connection charges was criticised by some customers for making new development alternatives more expensive than necessary or even prohibitive. These three areas may be factors for consideration in any future review of energy, environmental and planning policy for Jersey.

Given JEC is a monopoly business and the key importance of this sector to Jersey society as well as the wider economy, it may be appropriate for CICRA to carry out similar reviews of JEC and its tariffs on a regular basis in the future, depending on the extent of changes to JEC's costs or prices, or concerns from consumers, that may arise over coming years.

¹ Transmission and distribution losses are the differences between the estimated volume of electricity entering and exiting the transmission and distribution systems respectively

² That is, the average number of minutes of lost supply per customer. This is usually measured over a year.

³ i.e. whether the parts of JEC's business where it faces no competition (e.g. electricity supply) subsidise JEC's activities in markets where it faces competition (e.g. electrical contracting, or its Foreshore data centre business)

1 Background to the Review

In July 2012, CICRA announced it would carry out a study of the electricity market in Jersey. This was prompted in part by concerns expressed by consumers and the press about the rising cost of electricity and follows on from CICRA's 2011 reviews into motor fuel and heating oil. CICRA intends to complete its review of energy markets in Jersey with a review of the gas market.

1.1 Terms of Reference

The terms of reference for the study were to consider whether:

- electricity customers in Jersey are receiving fair value from electricity prices;
- JEC is a reasonably efficient operator, having regard to the burden it bears with respect to security of supply;
- there are unreasonable cross-subsidies between JEC's core and non-core businesses;
- the electricity market in Jersey is sufficiently open, or whether there are barriers to competition, having regard to current and potential future investment in renewables; and whether
- it is appropriate to modify the arrangements for regulation of the electricity sector in Jersey.

1.2 Previous reviews

On 8 September 2009, the Minister for Economic Development presented to the States a report on electricity tariffs. This stemmed from the Report and Proposition of Senator A. Breckon (P.41/2009) lodged on 24 March 2009 tasking the Minister to:

“exercise his powers under Article 35 of the Electricity (Jersey) Law 1937 to safeguard the public interest by bringing forward for approval without delay Regulations under Article 22 of the Law to determine the tariffs to be made by the Jersey Electricity Company in respect of electricity which it supplies at rates which are at a reduction of 20 per cent from the present tariffs, with the reduction to take effect no later than 1st October 2009 and with no further increase in tariffs during 2010”.

The reason for this review followed the JEC's then proposed 24 per cent increase in electricity prices, due to a 40 per cent increase in the wholesale price of imported electricity.

The 2009 review concluded that in relation to electricity tariffs elsewhere in the British Isles, over the period 2005-2009, JEC's tariffs were about 6 per cent less than those of Centrica in the UK, and 12 per cent less than Isle of Man customers paid for their electricity. The review also stated that JEC sought to deliver a return from its energy business of between 6 per cent

and 7 per cent on its investment in infrastructure assets and that this compared reasonably with typical returns on investment by electricity utilities in Europe.

Finally, it concluded that the 2009 tariff rise of 24 per cent was justified in order that the company could finance its current operations as well as help finance its long-term capital programme of replacing out-dated assets.

1.3 Information sources

The majority of the company-specific information cited in this report has been obtained directly from the JEC in response to information requests. CICRA has also used the published reports and accounts of the company and publicly available information from other electricity providers, regulators and economic research material.

We have not required formal powers to collect information for this review, and we are grateful to the JEC for the co-operation and transparency shown in providing all of the information requested on a voluntary basis.

2 Jersey's electricity market

2.1 Background

In 2011, total final energy consumption in Jersey was in the order of 1,950 gigawatt hours (*GWh*). As the table below shows, electricity accounted for a large proportion of the Island's total energy consumption relative to road fuel, kerosene for heating, aviation fuel, gas oil and gas.

Table 1

Final energy consumption by fuel type	Percentage
Electricity	38%
Road fuel	26%
Kerosene	16%
Gas oil	9%
Aviation	5%
Gas, including LPG	5%
Total	100%

Source: States Statistics Unit (2012), *Jersey Energy Trends Report, 2012*

While electricity consumption will vary each year, JEC typically supplies around 650 GWh of electricity per year, with about 45 per cent of consumption by households, 44 per cent by commercial & industrial customers, and States departments accounting for the remaining 11 per cent⁴.

2.2 Demand

Electricity consumption will vary between seasons and from year to year depending on factors such as changes in economic activity and weather, but the long-term trend in Jersey has been upward with household consumption increasing on average by about 2.2 per cent a year over the past twenty years⁵. Peak demand for electricity can be more volatile than total consumption, and has risen from around 117MW in 1992 to 154MW in 2011.

Growth in consumption is in part attributed to growth in the number of electricity customers of around 1 per cent each year over recent years. The number of electronic devices in homes, and a trend toward using electricity as the main form of heating in Jersey homes, further contribute to this rise. For example, an additional 1,800 homes use electricity as their main form of heating following recent new housing development in Jersey⁶. Such changes are drivers of growth in electricity consumed on the Island as well as the rate of increase in peak demand, with the latter heavily influenced by cold periods when heating systems are called upon. Table 2 sets out units sold, maximum demand and average units consumed by customer type.

⁴ States Statistics Unit (2012), *Jersey Energy Trends Report, 2012*

⁵ States Statistics Unit (2012), *Jersey Energy Trends Report, 2012*

⁶ JEC won over 90 per cent of heating load contracts for new housing developments in Jersey and there is wider evidence of customers switching from oil and gas to electricity for spatial and water heating.

Table 2 – Jersey Electricity Demand 2003-2011

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Units sold (GWh)	581	595	603	624	608	639	642	645	651
Max demand (MW)	150	133	142	142	142	156	153	158	154
Average units per Domestic customer (kWh) ⁷	7,113	7,202	7,213	7,308	7,041	7,363	7,322	7,291	7,300
Average units per Commercial customer (kWh)	15,800	16,200	16,400	17,000	16,600	17,500	17,600	17,700	17,900
Average units per Maximum Demand customer (kWh)	313,800	320,600	324,900	336,200	327,600	344,300	345,900	347,500	350,700
Source: JEC									

2.3 Supply

Prior to the mid-1980s, the Island generated all of its electricity requirements from the oil-fired La Collette power station. Since the mid-1980s, a growing proportion of the Island's electricity has been imported from France via two undersea cables, known as EdF1 and EdF2. Over the last 10 years, the proportion of Jersey's electricity that has been imported via these cables has been at least 90%. To ensure security of supply, JEC also maintains sufficient on-Island generation capability in the event of power cuts from France. The La Collette power station is therefore designed to supply power in a scenario when the largest capacity component is lost (referred to as the N-1 standard⁸). To cater for a complete loss of French power, the La Collette plant is designed to maintain local fast-start generating capacity capable of meeting at least 75% of peak winter demand for a continuous 48 hour period.

2.4 Financial information

The table below sets out key financial performance information for JEC, as reported in its annual report and accounts.

⁷ This is a blended rate comprising 6,400 units for a standard tariff domestic customer and 8,800 units for an Economy 7 domestic customer.

⁸ An N-1 situation means that the system is designed to lose the largest plant item without a loss of supply. N-1 does not guarantee uninterrupted supplies but the restoration process involves switching to the backup generation sources rather than repair.

Table 3 – JEC Group: Key Financials 2009-2011

	2009	2010	2011
	(£m)	(£m)	(£m)
Revenue	93.6	98.9	100.5
Cost of sales	66.9	69.1	70.0
Gross profit	26.7	29.8	30.5
Operating expenses	17.8	18.0	19.6
Operating profit	8.9	14.2	10.8
Profit after tax	7.2	12.4	8.6

3 Electricity prices in Jersey

3.1 Tariff Trends

The JEC's standard unit tariff increased from about 7p per kWh in 2003 to just over 13p per kWh in 2012 and inclusive of GST will rise to 14.29p per kWh from 1st January 2013. The main reasons given for the rise over this period were higher wholesale costs, the introduction in 2008 of Jersey's General Sales Tax (GST) at 3 per cent, which then increased to 5 per cent in 2011, and more recently the failure of the off-island cable to France. Inclusive of standing charges and GST, the average Jersey household effectively pays 13.8p per kWh at present, rising to 15.07p per kWh from the beginning of 2013.

3.2 Benchmarking against other jurisdictions

CICRA benchmarked JEC's prices with a number of other island electricity suppliers, as well as UK and continental European electricity supply companies. In drawing these comparisons, the difference in average electricity usage between countries is a consideration. In the UK, for example, the majority of customers use natural gas for water and spatial heating rather than electricity. This is one of the reasons UK households use on average around 3,300 kWh of electricity per household per year, compared to 6,400 kWh for Jersey households.

Island electricity providers

CICRA compared JEC's tariffs to those of Guernsey Electricity, Manx Electricity, Enemalta and Electric Ireland. Three of these jurisdictions (Guernsey, Isle of Man and Malta) are comparable small island jurisdictions, which do not benefit from the economies of scale of larger jurisdictions. The Republic of Ireland offers a further useful comparator of a neighbouring economy, which is relatively small and may not enjoy the economies of scale in electricity generation available to larger jurisdictions.

CICRA's research indicates that JEC's current tariffs are generally the lowest for this group. Inclusive of GST and other indirect taxes (VAT), the standard unit rate in Jersey as from 1st January 2013 will be 14.29p per kWh, the lowest in this group, while the standing charge of £4.72 per month is the median for this group. On an overall basis, inclusive of standing charges and GST/VAT, the JEC standard rate (15.18p) is the lowest, compared to Guernsey (18.80p), Isle of Man (16.28p), Malta (18.54p) and Ireland (16.98p). Similar results are evident when comparing the economy tariffs of these suppliers as shown in Table 4 below.

Table 4 - Comparison of tariffs between Island Electricity Operators

Tariffs	JEC		Guernsey Electricity	Manx Electricity	Enemalta	Electric Ireland
	2012	2013	2012	2012	2012	2012
Standard Tariff	-					
Standing Charge per month	£4.59	£4.72	£5.99	£3.50	£4.36	£10.57
General Rate	13.05	14.29	17.68	15.62	17.74	15.00
Total Rate	13.91	15.18	18.8	16.28	18.54	16.98
Super Economy/Economy 7	-					
Standing Charge per month	£5.18	£5.59	£5.99	£3.89	n/a	£10.57
Low Rate Units	6.87	7.52	7.66	8.59	n/a	8.00
Normal Rate Units	13.69	14.99	18.48	15.99	n/a	15.00
Total Rate	11.33	12.39	14.43	13.19	n/a	13.29

Notes:

- 1) Calculations are based on annual consumption of 6,400 Kwh for a standard rate domestic customer.
- 2) For Economy customers, we have assumed a useage of 8,800 Kwh per annum, with 45% being used at the night rate and 55% used at the day rate.
- 2) Malta and Ireland rates based on average euro - pound exchange rate Aug-Oct 2012 of GBP/EUR 1.24.
- 3) All tariffs include GST/VAT where applicable and expressed in pence per unit (Kwh).
- 4) For 2013, JEC increased the 2012 general tariffs by 9.5% and the standing charge by 3%.

UK operators

CICRA also compared JEC’s tariffs with those of the six largest⁹ UK energy suppliers. Seven UK cities or towns¹⁰ were chosen and compared using the uSwitch price comparison website, taking both standard and economy tariff rates on 27th November 2012. Table 5 sets out the amount paid in unit and standing charges, and a calculation of the average unit rate, for a household consuming 6,400kWh (i.e. the average annual electricity consumption of Jersey households for a standard tariff customer and 8,800 Kwh for customers on Economy 7) and using the lowest bill of the six suppliers in that location. The annual charge and average rate for the same supply in Jersey, Guernsey and the Isle of Man is also listed.

⁹ British Gas, Edf Energy, E.On, npower, SSE and Scottish Power.

¹⁰ Birmingham, Cardiff, St Austell, Edinburgh, London, Belfast, and Southampton.

Table 5 – Comparison of annual charges and average rates for both Standard Tariff and Economy 7 Tariff

	Standard Tariff 2012		Economy 7 Tariff 2012	
	Annual Charge 6,400 Kwh	Average rate/Kwh	Annual Charge 8,800 Kwh	Average rate/Kwh
Birmingham	£830.21	£0.130	£994.54	£0.113
Cardiff	£899.61	£0.141	£952.94	£0.108
Cornwall	£918.46	£0.144	£988.64	£0.112
Edinburgh	£867.71	£0.136	£937.03	£0.106
Guernsey	£1,203.40	£0.1880	£1,269.65	£0.1443
IOM	£1,041.68	£0.1628	£1,160.76	£0.1319
Jersey	£890.28	£0.1391	£996.81	£0.1133
London	£862.47	£0.135	£950.81	£0.108
Southampton	£832.23	£0.130	£916.66	£0.104

Source: U Switch.com and Company websites

1) For the UK Big Six Providers, Economy 7 tariffs are calculated as 45% of consumption at the high rate and 55% of consumption is charged on the low rate. This is based on Ofgem's 2011 survey of consumer reactions to varying tariffs.

2) For Jersey and Guernsey electricity providers, the Economy 7 tariffs are calculated as 55% of the units being the high rate and 45% of units are charged on the low rate.

3) Tariffs are calculated on the option of payment on receipt of bill, as opposed to monthly direct debit.

4) Tariffs include standing charge but and include 5% VAT & 5% GST and were taken on 27 November 2012

Following the increase of more than 9% on 1st January 2012 Jersey customers on the **standard tariff** will on average pay an annual electricity bill of just over £970. Tariff changes may however still take place in other jurisdictions over the coming months and comparisons are therefore made on the basis of tariffs at the time of writing this report.

As can be seen from Table 5, JEC's standard rate prices are 35 per cent less than Guernsey, 17 per cent less than the Isle of Man but 11 per cent higher than in London, or example, for the same volume of electricity. The economy tariffs show JEC's prices at around 16 per cent less than Guernsey, 6 per cent less than Manx Electricity and almost 5 per cent higher than those for the London tariff selected.

European countries

Based on May 2012 EU published figures¹¹, the average tariff for electricity providers in the 27 EU Member States was estimated at approximately 17 euro cents per kWh. These figures give the following average rates per kWh: Malta - 20 euro cents, Ireland - 21 euro cents and France - 14 euro cents. Electricity tariffs in Denmark, Cyprus and Germany are in the range of 25 to 30 euro cents per kWh. The JEC average tariff at that time of approximately 18 euro cents per unit means that JEC was within its internal target of keeping tariffs within 10% of the EU average. While JEC has since increased its tariffs, indications are that increases in EU countries have taken place since the time these figures were compiled and published in May 2012 but a more up to date set of comparisons was not available at the time of writing.

¹¹ Source: Europe's Energy Portal (www.energy.eu/)

4 Efficiency of JEC

The two largest cost components for JEC are energy input costs (electricity & oil) and staff costs. These represent over 70 per cent and 20 per cent of the company's total costs respectively.

In order to provide greater pricing certainty, the company's policy is to hedge future power purchases from its French electricity supplier, EDF, between 1-3 years ahead on a rolling basis. JEC hedges against both the power price of electricity quoted on the French power exchange, as well as the pound-euro exchange rate exposure. For both of these variables, JEC is presently hedged around 90 per cent for 2012, 80 per cent for 2014 and 50 per cent for 2015. This enables JEC to set customer tariffs with relative certainty a year in advance despite short-term fluctuations in major components of its input costs.

An efficiency initiative recently undertaken by JEC is the Smart Meter project, the aim of which is to read electricity meters accurately and remotely, thereby removing the need for estimate readings. By 2011, JEC had installed 4,500 Smart Meters as a pilot and has agreed to progress the project as a precursor to a Smart Grid. The project aims to save JEC consumers £800,000 per year. Additionally, JEC informed CICRA that it is in the process of migrating customers from paper bills to e-bills, and dispatches the remaining paper bills from the UK in order to save internal resources and reduce postal charges.

The number of JEC employees has remained relatively constant since 2003. Given the growth in underlying demand over that period, the number of units of electricity sold per employee in JEC's energy business has therefore increased by an average of 1.4 per cent a year and the number of customers per energy employee has also grown by on average 1 per cent each year over the period.

Table 6 – Manpower

	2003	2004	2005	2006	2007	2008	2009	2010	2011
FTE's									
Energy	190	188	179	183	185	192	187	192	191
Other	122	107	105	117	133	145	145	136	136
Trainees	12	5	6	3	4	4	7	5	10
Total	324	300	290	303	322	341	339	333	337
Units sold per energy employee (MWh)	3,057	3,164	3,368	3,414	3,286	3,328	3,436	3,359	3,408
Number of customers per energy employee	231	236	251	251	251	243	252	247	251
Total units sold (GWh)	581	595	603	624	608	639	642	645	651

Source: JEC

CICRA has also benchmarked JEC's key performance indicators with other island operators. Whereas Jersey and Guernsey import nuclear power from France, the Isle of Man and Ireland

import gas from the UK and Malta imports oil to generate electricity¹². Providing a like-for-like comparison therefore presents challenges, given that staffing levels will vary significantly depending on the generation mix of the operators.

With this caveat, the comparison in Table 7 below indicates that JEC has a higher number of customers per energy employee than Guernsey or Malta. JEC's number of employees per GWh sold is also the lowest of those compared.

Table 7 – Comparison of key performance indicators

	JEC	Guernsey Electricity	Manx Electricity	Enemalta	Electric Ireland
	2011	2011	2011	2010	2010
Number of staff	337	222	256	1,500	6,911
Number of energy employees	191	222	256	n/a	n/a
Employees per GWh	0.49	0.58	0.52	0.57	0.81
Number of customers per energy employee	251	132	185	n/a	n/a

Source: Electricity operators' company accounts

¹² A 95km submarine cable is planned between Sicily and Malta.

5 Rates of return

JEC's policy is to achieve a return on assets of 6.5 per cent. Over the past 3 years, the pre-tax rate of return on assets has in fact been in the range of 4.5 to 5.3 per cent, which is within the average allowed return for regulated UK utilities of 4.0 to 5.0 per cent (see Tables 8 & 9 below).

Table 8 - JEC Return on Assets (pre-tax)¹³

Return on Assets										
Y/e 30 Sept	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012 (6 months)
	4.6	4.8	6.9	4.7	5.1	5.8	5.3	7.8	4.5	3.2

Table 9 - Sector Rate of Return on Assets

Sector	Regulator	Pre-tax Returns	Date
Rail	ORR	6.0%	Oct-10
Water and Sewerage	Ofwat	5.0%	2012
Electricity transmission	Ofgem	4.40%	Mar-12
Electricity distribution	Ofgem	4.70%	Dec-09
Gas transmission	Ofgem	4.84%	Dec-06
Gas distribution	Ofgem	4.94%	Dec-07
Airports	CAA	4.20%	Mar-12
Post	Ofcom	6.50%	Mar-12
Telecoms (Jersey)	CICRA	11.60%	Nov-08

Source: UK Regulators and CICRA

¹³ Source: JEC Report and Accounts 2011 and 2012 (half yearly)

6 Capital expenditure

Each year, JEC reviews and updates the schedule of anticipated capital expenditure projects for the next 15 years, with the main focus on Years 1-5. Business cases for the larger projects are produced and approved by the JEC Board.

JEC's capital expenditure was £11.7m in 2011, and the company has a sizeable capital expenditure program for the period 2012-2016, including, in particular, its investment in the Normandie 3 cable. By way of reference, Guernsey Electricity's capital expenditure for 2010/11 was £5.4m and £6.2m in 2011/12, while Manx Electricity spent £20.9m on capital projects in 2011 and has budgeted £12.2m for 2012. Due to the long-term nature of asset investment in the electricity sector, capital expenditure is heavily cyclical and its timing can vary substantially between different electricity companies, depending on their stage in the investment cycle.

Major capital projects planned by JEC over the next 5 years include the laying of the third undersea cable, installing a 90KW sub-station, and rolling out smart meters to every household in Jersey. A major component of JEC's capital asset base is its capacity.

In 2005 EdF1 was moving towards the end of its design life given it was installed in 1984. This issue as well as the risk of shortage in availability of heavy fuel oil on which half of the generating plant depends, informed JEC's assessment that a new cable was required. Forecast shortages in the number of specialist small ships able to transport heavy fuel oil to the Channel Islands also continue to play a role in informing the investment plans of the business. Based on the above considerations, the company decided to invest in a third undersea cable (Normandie 3) to France. This third undersea cable will be connected to a different section of the French electricity grid than EdF2, further improving resilience. It is envisaged this new cable will replace EdF1 at an estimated cost of over £60m, and will be operational in 2015.

A recent high profile issue is the failure of the undersea cables supplying the Island. EdF1 is the older undersea cable. A fault in this cable on 17 June 2012 meant the entire import load was transferred to EdF2, which then also failed. In the recent 17 June 2012 incident, the fault with the EdF2 cable was repaired within 23 hours, and supply reconnected within 24 hours. During such outages, the three gas turbines at the La Collette plant and Queens Road are able to reach their full load of 75MW within 15 minutes, whilst the two 11MW diesel units take one hour to reach full load. The 55MW EdF1 cable, which had been capable of providing some 35 per cent of the Island's peak demand, is now considered beyond economic repair.

Excluding capital costs, the running costs of on-Island generation plant at La Collette when 90 per cent of power is imported from France is in the order of £7m per year. With EdF1 now redundant, there is a need to generate the shortfall of 55MW of power from La Collette's diesel units and gas turbines. The additional annual costs are estimated at about £8m for which the company is recovering £6m through the tariff rise of over 9 per cent. The JEC has not indicated whether further increases will be needed over subsequent years.

JEC has informed CICRA that it is taking further steps to ensure improved security of supply. New diesel units are due to come on stream in 2013 providing 22 MW of capacity, and in 2015, the Normandie 3 subsea cable is expected to come into service, providing up to 100MW of capacity, at which point the company will then be able to decommission 85MW of boiler plant capacity at La Collette. JEC also has plans for a fourth cable installation

(‘Normandie 4’) around the year 2024 that would supply up to an additional 100MW of power.

CICRA has not assessed JEC’s capital expenditure investment programme, nor whether it is adequate to ensure security of supply of electricity to meet the stated N-1 security standard, as this was outside the scope of the current investigation. However, the company has itself carried out a number of studies to support the investment programme.

7 Quality of service provision

7.1 Customer Minutes Lost

Customer minutes lost (that is, the average number of minutes of lost supply per customer) is a standard measure of quality of service in the electricity sector. While customer minutes lost in Jersey has varied from year to year, and in certain years other island jurisdictions performed better than Jersey, on average JEC's record of ensuring security of supply compares favourably with Guernsey, the Isle of Man and the UK. Table 10 shows that over the past ten years, customer minutes lost in Jersey has averaged about 23 minutes per year, compared to the UK average of 80 minutes, and 31 and 33 minutes respectively for Guernsey and the Isle of Man.

Table 10 – Customer Minutes Lost 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
JEC	10	27	12	11	39	58	5	9	10	45	23
Guernsey Electricity	34	68	53	15	12	34	37	19	23	10	31
Manx Electricity	29	87	87	21	21	21	17	10	24	12	33
UK Average											80

Source: Company Accounts and Ofgem

7.2 Transmission and distribution losses

The conveyance of electricity by means of transmission and distribution networks leads to losses, and the practical implication is that a greater quantity of electricity needs to be generated or imported than is consumed. The higher voltage transmission networks, which include the undersea cables, average about 3 per cent losses while the distribution networks that convey electricity within local networks at lower voltages average losses of about 4.4 per cent. CICRA has assessed the extent of the transmission and distribution losses experienced by JEC. Based on our industry knowledge, the losses experienced by JEC appear to be standard for transmission and distribution networks of this nature.

8 Cross-subsidies between core and non-core businesses

A further aspect of this review was to determine whether there are any unfair cross-subsidies between the core and non-core businesses of JEC. The concern in the case of a monopoly electricity business involved in activities outside of electricity provision is that electricity customers who have no choice of provider bear an unfair portion of the common/overhead costs incurred by JEC where it engages in these other, competitive, activities. This has adverse consequences for electricity customers, as well as for other businesses attempting to compete against JEC in these other market activities. JEC has three key trading units - Core Energy, Retail (principally retail outlets at its Powerhouse Headquarters in Queens Road, and an online trading business) and Building Services (a commercial contracting business, undertaking mechanical and electrical maintenance, and installation and repairs of small works, air conditioning and public lighting) - which together generate some 95 per cent of Group revenue. In addition, JEC has several subsidiaries and joint ventures, including Foreshore, a provider of managed computer hosting facilities.

Consideration was given to breaking up the Group into individual companies when the ‘zero-ten’ tax legislation was created in 2008, since JEC, as a utility, pays a corporate tax rate of 20%, but would be eligible to pay 0% in respect of non-utility activities if those activities were conducted by a separate company. However, the existing model was retained, as the up-front legal costs of performing a re-organization and the ongoing costs outweighed the potential tax benefits.

JEC does, however, maintain an accounting system that allocates both direct and overhead costs to each of the Group’s companies. JEC explained that where external costs are posted directly to a business unit, they are apportioned based on reasoned assumptions. For example, in the case of the Retail business unit over 2011, the cost of sales for the purchase of washing machines, computers, toys etc. was £11.9m and this was recharged to Retail. Similarly, in the same year, £2.2m and £0.4m of staff costs and rent charges were recharged to the Retail business. Any direct capital expenditure, such as re-fitting of shops, is charged to Retail and subsequent depreciation costs charged directly to that business unit.

JEC also allocates costs within Head Office to the non-core business units, and the core business is therefore not charged with the total Head Office costs. For example, in the Purchasing Department, 50 per cent and 60 per cent of the costs of two staff that support the non-core business units are allocated to those business units. Other examples include Human Resources, where the cost of the departmental manager is allocated based on the number of employees in each unit, while IT system support is allocated on the basis of the number of PCs. These costs are reviewed annually for ‘reasonableness’ during the annual budget process.

CICRA has not undertaken an extensive audit of the accounting treatments and so we cannot comment on whether the basis of all inter-company charges are true or fair in accordance with standard regulatory practice. Having considered the above approaches, the competitive level of JEC’s tariffs compared with other island jurisdictions and the favourable comparisons with other jurisdictions on measures of quality, the case for a more rigorous examination of accounting treatment by JEC between its core energy business and non-core aspects of its business would not seem proportionate to the scale of any potential concern.

9 Areas for future consideration

There are three areas identified during the course of the review that may require consideration at some future stage:

- a) support for micro-renewables and other self-generation facilities on the Island;
- b) utilising the contribution of existing back-up capacity held by businesses and the States to support wider energy resilience; and
- c) the cost of new connections and the impact this has on location choices for new business sites in Jersey.

9.1 Self-generation

There are two wind turbines on Jersey: they generate enough electricity for the owners' needs, and the surplus is sold to JEC. In 2009/10 and 2010/11, JEC bought back 2,400 and 3,200 kWh (units) respectively from these turbines, and paid rates of 6.43p for day units and 3.86p for night units.

In small islands where electricity is expensive, there is evidence of households investing in self-generation. In Jamaica, for example, it was recently reported¹⁴ that the cost of electricity from the national provider (Jamaica Public Service) had risen by 20 per cent in the past 12 months to 40 US cents per kWh, and at this level, electricity had become a major proportion of many Jamaicans' disposable income. A number of households have therefore installed photovoltaic cells (solar panels) that can generate electricity at 18–22 cents per kWh and appropriate regulations have been introduced to allow this to happen.

The economics of self-generated electricity installations in Jersey will depend on a range of factors, including the cost of the technology, payback period and planning permission. The payback period for households generating electricity using their own micro-renewables is heavily influenced by their ability to sell electricity that is excess to requirements back onto a network. In addition to the benefits accruing to individual customers, there are potential benefits in terms of reduced network costs and demand from distributed generation which may in the long run reduce some elements of network investment by JEC.

To the extent that wider environmental and energy policy considerations in Jersey might place a priority on growth in self-generation capacity, this may require a review of the factors that inform the level of these payments to self-generation sources by JEC.

9.2 Utilising existing capacity on the Island

In addition to the two wind turbines, the third alternative provider of electricity on the Island is the new Energy from Waste plant, commissioned in 2011 and owned by the States Transport and Technical Services Department (TTS). This plant burns the Island's waste and has generating capacity of about 8 MW (about 7 per cent of Island demand at full capacity). The electricity is sold to JEC, who pays TTS a negotiated price per kWh, based on the avoided cost of imported power from EdF. Also, businesses in Jersey will in some cases invest in back-up capacity due to a need for resilience by their customers.

¹⁴ The Gleaner, *First steps towards a competitive electricity market*, 1 April 2012

Such businesses could, however, also contribute to the overall resilience of Jersey's electricity supply for periods of time when JEC's capability is stretched, such as the recent cable outages. Reciprocal arrangements may be necessary to achieve this and where this is desirable from a wider States policy perspective and the commercial incentives on JEC are inadequate, the need for development of policy in this area may arise in future.

9.3 New connections

Some parties consider the level of new connection charges by JEC to be excessive, suggesting that this restricts location choices, making new business development alternatives more expensive than necessary or even prohibitive. New connection charging is substantially influenced by assumptions around future demand at a given location and the manner in which large upfront costs are allocated on the basis of current and forecast demand at these locations. This may be a matter for future policy consideration in the context of business location and planning development within Jersey.

10 Conclusions

The evidence available to CICRA suggests electricity prices in Jersey are broadly fair. While there will be scope for further efficiencies by JEC, on the basis of comparisons with other jurisdictions, this review finds no compelling evidence of material inefficiency in the JEC business. The approach to allocation of costs by JEC between the various business units within its corporate group were sampled during this review and the evidence indicates a system is in operation that looks to allocate costs fairly. On the basis of these findings, CICRA does not propose changes to the existing regulatory framework for electricity in Jersey.

However, it must be recognised that JEC is a monopoly supplier of electricity to Jersey. It remains of key importance to Jersey consumers, as well as the wider economy, that JEC's prices are fair value, and reflect high levels of efficiency. As such, it may be appropriate for CICRA to carry out similar reviews of JEC and its tariffs on a regular basis in the future, depending on the extent of changes to JEC's costs or prices, or concerns from consumers, that may arise over coming years.

Section 9 above raises several areas identified during the course of this review that might inform future policy in the areas of environmental, energy and planning policy. At the time of finalising this report the States of Jersey issued a consultation on a Draft Energy Plan. It is CICRA's intention to respond to the Energy Plan consultation and these areas will be raised and developed further as part of that process.

Appendix A – Customer Minutes Lost in 2011

The customer minutes lost is calculated by JEC as:

Customer minutes lost = Duration of interruption X Number of customers affected / Total number of customer connected to system.

On the 26th September JEC experienced an all island power outage starting at 19:28 the restoration times JEC uses in calculations are the times recorded for the closing of each circuit breaker that restores power to its customers. Customers began coming back on line at 19:54 and continued until 20:10. The total duration of this incident was 42 minutes.

On the 28th September JEC experienced an all island power outage starting at 20:04 with the majority of the islands customers (39,226) restored within 20 seconds. The rest of the islands' customers (8,268) were restored in two stages with the last being restored at 20:17. The total duration for this incident was 13 minutes.

Prior to the two incidents the CML figure for 1.10.10-25.9.11 stood at	9.999
26th September resulted in a total CML of	32.242
28th September resulted in a total CML of	2.449

being 45 minutes for the full financial year.