29 July, 2014

Lord Dalgety
Electricity Commission
Tu‘atakilangi
Nuku’alofa

Dear Lord Dalgety

Re: Monthly Compliance Report - July 2014

In accordance with the reporting requirements of the Electricity Concession Contract and in response to your request for additional information as specified in the suggested MOU dated May, 2012, TPL submits the following reports for the month of June, 2014.

1. System Loss Report
2. Fuel Efficiency Report
3. Reliability Measures Report
4. Monthly Outage Events Report

The above report items are described in detail below.

1. **System Loss Report, May 2014**

The following graphs illustrate the 12 months Moving Average (smoothed) Systems Losses for all four islands for the years 2012/13 and 2013/14. The 12 months moving average losses are used because of the variability of monthly Real Time Systems Losses due to the impact of the number of days and fall of the weekends in respect to meter reading cycle. In addition, system loss report is always one month late as last month consumption data (i.e. meter readings) will only be read this month and available to report next month. Hence July EC Report contains only May system loss data.
For the month of May, 2014, all island moving average system losses have slightly increased from 12.05% (April, 2014) to 12.59% (May, 2014) achieving the regulatory target 13%.

The individual island group’s system losses are shown below.

The graph above shows that Tongatapu systems losses have increased from 11.96% (April) to 12.60% (May).
Vava’u losses have been steady since March, 2014 to May, 2014 at 12.8%.

Ha’apai system losses have always been below target until January, 2014. Since January, system losses have increased due to Cyclone Ian effect.
Eua systems losses are trending downwards, and fall below 13% target in May.

2. Fuel Efficiency Report, May 2013

It is important to note that fuel efficiencies calculated here include both diesel and solar generation. Hence the following fuel efficiencies are somewhat higher than the diesel only generation. Targets in the Concession Contract have been stipulated for diesel generation only.

Tongatapu fuel efficiency ratios have been erratic, but most of the time above the target.
Vava’u fuel efficiency ratios have been well above the target due to the two new 600KW generators commissioned in May, 2010 and the introduction of Vava’u solar farm which was commissioned in November 2013.

Mostly, fuel efficiency ratios have been under achieved in Haapai but increased to a record high in March and May, 2014.
Mostly, fuel efficiency ratios have been under achieved in Eua.

Overall, all island fuel efficiency ratios have been above weighted average target of 4.17 KWh/L.
3. Reliability Measures, June 2014

Reliability Measures

<table>
<thead>
<tr>
<th>Reliability Measures</th>
<th>SAIDI Monthly Performance (Minutes)</th>
<th>CAIDI Monthly Performance (Minutes)</th>
<th>SAIFI Monthly Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul</td>
<td>7.74</td>
<td>4.74</td>
<td>21.21</td>
</tr>
<tr>
<td>Aug</td>
<td>935.29</td>
<td>4.51</td>
<td>37.88</td>
</tr>
<tr>
<td>Sep</td>
<td>933.55</td>
<td>59.19</td>
<td>2.93</td>
</tr>
<tr>
<td>Oct</td>
<td>9.35</td>
<td>253.89</td>
<td>32.02</td>
</tr>
<tr>
<td>Nov</td>
<td>4.35</td>
<td>25.49</td>
<td>138.22</td>
</tr>
<tr>
<td>Dec</td>
<td>20.42</td>
<td>115.19</td>
<td>72.61</td>
</tr>
<tr>
<td>Jan</td>
<td>984.8</td>
<td>622.62</td>
<td>153.97</td>
</tr>
<tr>
<td>Feb</td>
<td>162.32</td>
<td>3010.76</td>
<td>189.06</td>
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<tr>
<td>Mar</td>
<td>296.37</td>
<td>23.32</td>
<td>146.48</td>
</tr>
<tr>
<td>Apr</td>
<td>157.89</td>
<td>336.9</td>
<td>286.17</td>
</tr>
<tr>
<td>May</td>
<td>8.22</td>
<td>294.55</td>
<td>100.64</td>
</tr>
<tr>
<td>Jun</td>
<td>62.22</td>
<td>14.72</td>
<td>7.26</td>
</tr>
</tbody>
</table>

Report Date | No of Customers Off | Fault Description | Repair Comment
05/06/2014 4,106 Power off | 08:15 - switch on from Part of Vani to Malapo and also Fofaha
14/06/2014 2,000 Power shut down from Tatakamotonga to Nuitsua | Planned to shut down from Tatakamotonga to Nuitsua at 10:00 and it will be on at 17:00
28/06/2014 1,500 Plan to shut down for burnt HV pole | Shut down haveluliku, fatumu and haasini to replace pole so they turn back on
24/06/2014 906 H.V. crossarm loose from pole | Loose H.V. crossarm from pole between Talafo’ou and Nautoka. caused by crossarm bolt rusty.
25/06/2014 350 Shut Down | Power on 15:53PM
13/06/2014 180 Power shut down | 14:00 switch on, teekiu - masilamea
18/06/2014 180 On power line | Power shut down for part of Havelu include Vaile Hospital.
24/06/2014 50 Power off | Test before PN A 244 Load current A 34 PE B 244 NE C 241 went back after the job at Talafo’ou time: 13:00 - 16:24
04/06/2014 35 Partly off | Partly off due to loose tailor so they fix it and connect power line
23/06/2014 24 Partly off | Partly off due to LV conductor broken causes by a tree branch on line. Test result : 242V Material uses: cobba m7, Insulation tape
REQUEST NEED TO CLEAR AND CUT DOWN BRANCH NEAR TO THE LINE

SAIDI minutes (measuring average total duration of interruption per connected customer) for the month of June, 2014 have significantly increased from 37.85 (May, 2014) to 87.19 (June, 2014) minutes (see the table above). Some of the major HV faults contributed to the SAIDI minutes for the month of June are described below.

Cumulative SAIDI YTD is showing on target below:
CAIDI minutes (measuring average total duration of interruption per interrupted customer) for the month of June 2014 also have increased from 97.39 minutes (May, 2014) to 145.14 minutes (June, 2013).

Cumulative CAIDI YTD is showing above target below:
SAIFI (measuring average number of interruptions per customer) has also increased from 0.39 to (May, 2014) to 0.60 (June, 2014).

Cumulative SAIFI YTD is showing on target below:

4. Monthly Outage Events, June 2014

There were total of 490 planned & unplanned fault events for the month of June, 2014 affecting 9,819 customers (it is possible that several outages would have struck the same customer more than once). As per the table above, the number of fault events has slightly decreased from 514 in May, 2014 to 490 events in June, 2014. HV/LV lines/transformer faults have increased decreased from the last month. Whilst customer premises faults decreased and service line faults have increased. Most of the customer services faults included fuses at the service line tap off point for a premise. Street lights faults however have increased. In total, the number of faults has decreased significantly in 2013/14 year from 2012/13 year. There is no correlation between the 2013 and 2014 figures.

Should you have any queries with the information provided, please do not hesitate to contact me.

Yours Faithfully,
Ajith Fernando
Risk & Compliance Manager
Tonga Power Limited