29 August 2014

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Dear John McLaren

Draft Decision on Quality Targets and Incentives for 2015-20 Default Price-quality Path

1. Introduction

Wellington Electricity Lines Limited (**WELL**) welcomes the opportunity to make a submission in response to the Commerce Commission's (**Commission**) consultation paper *"Proposed Quality Targets and Incentives for Default Price-Quality Paths from 1 April 2015"* (**Quality paper**) published on 18 July 2014.

WELL's submission covers the following key issues:

- Section 2 – Executive Summary
- Section 3 – Internal consistency;
- Section 4 – Reliability targets;
- Section 5 – Normalisation method;
- Section 6 – Enforcement regime;
- Section 7 – Quality incentive scheme;
- Section 8 – Inter-dependencies between expenditure forecasts and quality regime.

2. Executive Summary

In summary, WELL's submission recommends:

- That given the significant changes the Commission is proposing to make to the quality path for the 2015-20 period, it should retain key features of the current regime which are not necessary to change at this time. Making incremental changes to the regime reduces the risk of unintended consequences. For example, the Commission should retain key features of the regime including the five year historical period for setting the SAIDI and SAIFI targets, Maximum Event Days (**MED**) should continue to be replaced with the boundary value and SAIDI should be normalised by reference to the SAIDI boundary value. Leaving these key features unchanged allows the Commission to focus on the implementations of a new incentive scheme and operationalising a better method for accounting for zero event days when calculating the boundary value.

- The SAIDI and SAIFI targets be set by reference to the most recent five years data from 2009 to 2014. The most recent past, i.e. past five years, provides the best estimate of Electricity Distribution Business' (**EDB**) currently achievable quality standards given current network condition and current expenditure levels required to meet the current level of performance. Using five years of historical data is also consistent with the IEEE recommendations and the Commission approach to deriving the opex and capex forecasts.

- For the purpose of setting the SAIDI and SAIFI targets the raw historical data be normalised using exactly the same normalisation method that will apply for the 2015-20 period. This is necessary to ensure that the targets for the 2015-20 period are consistent with the normalisation method in the 2015-20 period. Undertaking additional normalisations as proposed in the Quality paper results in the targets being too low given the normalisation to be applied and therefore increases the reliability requirements without providing an uplift to the opex and capex forecasts to compensate EDBs for the expenditure required to achieve the higher level of reliability.

- The Commission not undertake additional adjustments to the historical data to penalise EDBs for breaches that occurred in the current regulatory period. Adjusting the new targets to penalise EDBs for past breaches does not afford those EDBs natural justice. By definition, the reliability limits will be exceeded 17 per cent of the time and the Commission has not found those EDBs that exceeded the limit to be at fault due to negligent or deliberate behaviour. Therefore the Commission should not adjust the targets, with the effect of imposing financial penalties retrospectively.

- The SAIDI and SAIFI boundary values be determined using the IEEE method which accounts for zero event days. The IEEE method which accounts for zero event days is developed by independent engineering experts and therefore provides a more appropriate rather than develop an alternative method which is untested.

- The SAIDI boundary be used as the trigger for normalising the SAIDI values and the SAIFI boundary be used as the trigger for normalising the SAIFI values. It is not appropriate to normalise SAIDI based on the SAIFI boundary. Such an approach is inconsistent with the IEEE standard and assumes that SAIFI and SAIDI are closely related for each outage event. This ignores the inverse relationship between time and frequency, therefore creating an anomaly in most situations. WELL and many other EDBs, would have a very low chance of exceeding the proposed SAIFI boundary given the configuration of the network. WELL has never triggered the current SAIFI boundary value over the past 10 years, however it has experienced a number of major events including storms and earthquakes, which have had significant impact on customer outage duration and SAIDI outcomes.

- The Compliance test for quality standards be based on an EDB exceeding the SAIDI or SAIFI cap (mean plus one standard deviation) in both the current year and in one of the two immediately preceding years (as per the status quo). The Commission's proposed quality standard (based on the mean) is not appropriate given the 50 per cent probability of non-compliance simply due to normal variation around a mean compared with the seriousness of the enforcement actions available to the Commission under the *Commerce Act 1986* (**Act**).

- That the Commission recognise the interrelationship between the proposed opex and capex expenditure forecasts and the proposed quality standards. Opex, capex and reliability are interrelated such that changing one element will require one of the remaining two elements to change to maintain service equilibrium. The Quality paper proposes increasing the reliability requirements while the Draft DPP Decision proposes to cap capex below the AMP forecasts which are based on maintaining current reliability performance. If the Commission determines that improved reliability performance is required, as proposed in the Draft Decision, it must increase the expenditure allowances and provide a transition period for EDBs to make the necessary investments to achieve improved reliability.

3. Internal consistency

The Quality Paper sets out the Commission's proposals with regards to the reliability targets, normalisation process, enforcement regime and financial incentive scheme. These four aspects make up the quality path aspect of the Default Price-Quality Path (**DPP**).

It is very important that the four aspects of the quality path are internally consistent, that is:

- The targets set for the 2015-20 period must be based on historical data which has been normalised using exactly the same method that will be used to normalise actual reliability outcomes over the 2015-20 period. Failure to set the proposed targets consistent with the normalisation method undermines the statistical accuracy, robustness and repeatability properties of the IEEE methodology. This will lead to unintended consequences, such as insufficient normalisation and unrealistic quality targets.

- The enforcement regime and financial incentive scheme should be consistent. In principle, the purpose of a quality incentives scheme is to create incentives for EDBs to achieve the quality target and invest to improve quality, where this is efficient, and to disincentives EDBs from deliberately failing to meet the quality target. Any enforcement regime is therefore only appropriate once the incentive scheme has lost effect. There should also be a low probability of reaching the enforcement regime trigger point simply due to natural variation. This means that within the bounds of the incentive scheme caps and collars there should not be any non-compliance or risk of potential enforcement action. Only once an EDB is well outside the bounds of the incentive scheme should any non-compliance be possible or any enforcement regime starts to apply. The combination of an enforcement regime and incentive scheme should not have the effect of penalising an EDB twice for the same reliability event.

For the reasons outlined below, WELL does not consider that the proposed quality regime is internally consistent. Specifically:

- It is inconsistent to set the SAIDI targets by normalising the historical SAIDI data using the future SAIDI boundary when normalisation in the 2015-20 period will be based on the future SAIFI boundary. Therefore the SAIDI targets will likely be set too low given the normalisation method to be applied going forward;

- It is inconsistent to normalise the SAIDI and SAIFI targets for past breaches as this distorts the validity of the historical data as it assumes that the outcomes are not simply due to natural variation without any evidence of deliberate or negligent behaviour. As a result the targets are set too low resulting in unreasonable penalties under the financial incentive scheme.

- The enforcement regime applies at the target level of reliability, this provides no allowance at all for natural variation in outcomes around a mean and fails to allow the incentive scheme to be the mechanism that provides the incentive for EDBs to achieve or improve on the quality target. Deeming an event with a 50% probability of occurring as non-compliant creates an administrative burden for EDBs that must provide additional information to the Commission, Directors and Media, even if the Commission takes no action at this point. Additionally there remains a risk of the Commission choosing to take enforcement action under the Act.

- The enforcement regime proposed is stronger than the regime currently in place and effectively undermines the intended benefit of the incentive scheme to incentivise compliance and improvement against the quality target where this would be efficient.

- The proposed enforcement regime would enable an EDB to be penalised twice for the same reliability event as the Commission is not required to take into consideration the penalties that have already been incurred under the incentives scheme. As a result EDBs could pay penalties in excess of the limits specified in section 87 of the Act.

4. Reliability targets

To set the proposed reliability targets the Commission has normalised the raw historical data for:

- Used the past 10 years of historical data;
- Normalised the raw SAIDI historical data based on the SAIDI boundary values even though only the SAIFI boundary is proposed to be used for normalisation over 2015-20 period;
- Breaches of the reliability limits that applied in the current period.

4.1. Historical period

WELL does not support using 10 years of historical data to set the reliability targets. The targets should be set by reference to the most recent five years of historical data because this provides the best estimate of EDBs currently achievable quality standards given current network condition and current expenditure levels required to meet the current level of performance. Using five years of historical data is also consistent with the IEEE recommendations. Annex B.8 of IEEE 1366:2012 states that:

> 'From a statistical point of view, the more data used to calculate a threshold, the better. However, the random process producing the data changes over time as the distribution system is expanded and operating procedures are varied. Using too much historical data would suppress the effects of these changes.'

> And

> 'The consensus of the Design Working Group members was that five years was the appropriate amount of data to collect. The group felt that the distribution system would change enough to invalidate any extra accuracy from more than five years of data.'

The proposed opex and capex allowances in the Draft Decision are derived from each EDB's recent years' expenditure levels. Recent expenditure reflects the level required to maintain the current level of underlying reliability performance of the network. By applying a 10 year historical average to set reliability targets, the proposed expenditure allowances are inconsistent with the reliability requirements.

WELL therefore recommends that the Commission use the past five years of historical data to set the reliability targets.

If the 10 year historical period is implemented, WELL submits that penalties should only apply from the cap as the 10 year historical average value does not reflect WELL's current network capability or expenditure allowances and therefore additional investment will be required to meet the lower targets. A transition period is required to enable investments to be planned and implemented before the Commission can reasonably expect that the lower target value will be achieved.

4.2. Normalisation of historical data

WELL considers that the reliability targets should be based on the raw historical data normalised using the exact same normalisation method that will be applied during the 2015-20 period. Such an approach ensures consistency between targets and the normalisation method used for assessing compliance and applying financial rewards/penalties under the quality incentive scheme.

A consistent approach is also necessary to prevent a situation where EDBs are set unfairly and unrealistically low targets and are unduly punished for reliability outcomes caused by past events beyond their control.

Importantly, WELL considers it to be unreasonable of the Commission to adjust the reliability targets to penalise EDBs for exceeding the reliability limits in the current period, such an approach:

- Assumes that the original limits were the efficient reliability levels. A limit based on a non-random five year historical period does not necessarily provide any reflection of an efficient level of reliability. For the Wellington Network the 2005-2009 period had unusually benign weather patterns and as a result the SAIDI and SAIFI values were very low. Notably the 2004 year was a considerably higher SAIDI year but this year is excluded from the calculation of the current targets. The four years from 2010 to 2014 presented much more adverse weather conditions and natural events including two earthquakes, four major storms and four days of snow. The major storm on 20 June 2013 was described by National Institute of Water and Atmospheric Research as the worst storm in 37 years and snow in the Wellington Region is exceptionally rare.

- Assumes that the current normalisation process is appropriate when clearly it is not appropriate for networks with many zero event days. The current boundary values for some networks are a very large proportion of the target value, WELL's SAIDI boundary value is currently 24 per cent of the current SAIDI limit. Consequently the normalisation process is ineffective for these EDBs leading to increased likelihood of breaching the limit.

- Does not afford natural justice to EDBs that have exceeded the quality limits. The proposed process financially penalises EDBs in the next regulatory period for exceeding the limits in the current DPP regulatory period despite the Commission not determining any fault for which it sought compensation for. This approach effectively applies retrospective penalties for events that occurred in the prior DPP period without ascertaining deliberate or negligent fault.

- Completely ignores the fact that given the normal distribution of outcomes around the mean value, there is a 17% probability of any EDB exceeding the limit simply due to natural variation.

- Furthermore, the process the Commission has used to undertake the normalisation of prior years that exceeded the limit has the effect of reducing the annual values used to calculate the target to less than the current limit, thereby further penalising EDBs that exceeded the limits. This means that, all else equal, an EDB that came close to or reached the limit receives a higher value for calculating the target than an EDB that exceeded the limit, irrespective of the factors that contributed to the limit being exceeded.

Additionally, WELL notes that the Commission has normalised the raw SAIDI data used to set the targets by applying the SAIDI boundary value. However this means that the SAIDI target is not set consistently with the proposed normalisation method which is based on the SAIFI boundary value. As a result, the statistical properties associated with the IEEE method are lost as the probability of exceeding the SAIDI target and target plus one standard deviation become significantly greater than anticipated and the probability distribution no longer reflects a normal distribution.

WELL recommends that, to ensure consistency between the target and the normalisation method, the Commission normalise the historical dataset used to calculate the targets based on exactly the same normalisation method that will be applied in the 2015-20 DPP period.

5. Normalisation method

5.1. Method for determining the boundary value

WELL supports the principle that the method for calculating the SAIDI and SAIFI boundary values should be improved to better account for the presence of a large number of zero days in the historical dataset.

While the Commission has developed a method for accounting for zero event days, the IEEE standard already contains such a method. The IEEE method is developed by independent engineering experts and therefore WELL considers that it would be more appropriate to follow this method rather than develop an alternative method which is untested.

WELL therefore recommends that the IEEE method which accounts for zero event days should be used to calculate the boundary values.

5.2. Trigger for normalisation

WELL does not support the method proposed in the Quality Paper to normalise for SAIDI major event days using the SAIFI boundary value. This approach incorrectly assumes that SAIDI and SAIFI are closely related for every outage event. This ignores the inverse relationship between time and frequency, therefore creating an anomaly in most situations. For example, while a substation outage may produce a high SAIDI and SAIFI, a weather event which damages a number of 11kV feeders from separate substations (a more common occurrence) would incur a large SAIDI but relatively smaller SAIFI. In the last 10 years the daily SAIFI on the Wellington network has not exceeded the current SAIFI boundary value. However, over the same period the network has experienced some major SAIDI events, for example major storms, some of which have significantly exceeded the current SAIDI boundary.

As an example, if SAIFI was the normalisation trigger in the current regulatory period then WELL's 2014 raw SAIDI value of 190 minutes (more than 4 times the SAIDI limit), including 132 minutes accrued over a two day period, would have had no normalisation applied. Applying the current SAIDI normalisation, the raw value is normalised down to 78 minutes. This demonstrates that SAIDI and SAIFI are not highly correlated, particularly in dense meshed networks.

WELL has a low likelihood of exceeding the SAIFI boundary because the configuration of its network is such that there are too few customers supplied from each substation to reach the SAIFI boundary based on a single event. The proposed SAIFI boundary of 0.11 corresponds to an outage affecting 18,000 customers on the WELL network, however WELL's largest zone substation supplies only 11,000 customers, therefore given the configuration of WELL's 33kV network using transformer feeders, it is not possible for a single event to ever exceed the SAIFI boundary value and trigger a SAIDI normalisation, no matter how catastrophic. For example, the Wainuiomata Zone Substation supplies approximately 6,500 customers. A slip on the Wainuiomata Hill affecting both 33kV lines would lead to approximately 0.04 SAIFI, but would accrue SAIDI at a rate of approximately 2.4 SAIDI per hour until supply could be restored. The SAIDI boundary value would be breached in less than three hours, yet none of this SAIDI would be normalised if SAIFI was the trigger for SAIDI normalisation.

In addition, using SAIFI to normalise SAIDI does not achieve the Commission's assumption that the expected probability of a MED occurring is 2.3 time per year. WELL has only exceeded the proposed new SAIFI boundary of 0.11 twice over the past 10 years resulting in a probability of only 0.2 MEDs per year rather than 2.3. Therefore the combination of the proposed method for calculating the boundary values and the application of the SAIFI trigger does not result in achieving the Commission's objective.

The IEEE method for normalisation relies on SAIDI rather than SAIFI as the normalisation. Annex B of IEEE 1366:2012 states that:

'Daily SAIDI values are preferred to daily SAIFI values because SAIDI values are a better measure of the total cost of reliability events, including utility repair costs and customer losses.'

And

'Duration-related costs of outages are higher than initial costs, especially for major events, which typically have long duration outages. Thus, a duration-related index will be a better indicator of total costs than a frequency-related index like SAIFI or MAIFI. Because CAIDI is a value per customer, it does not reflect the size of outage events. Therefore, SAIDI best reflects the customer cost of unreliability, and is the index used to identify MEDs. SAIDI in minutes/day is the random variable used for MED identification.'

The IEEE method defines a major event as:

'An event that exceeds reasonable design and or operational limits of the electric power system'

This definition does not require that a large number of customers be affected for a major event to have occurred, rather a major event is defined relative to reasonable network capability. Consequently, a major event could involve a substantial impact on a smaller number of customers.

The Commission has stated that its reason for using SAIFI as the normalisation trigger for SAIDI is to mitigate its concern that EDBs would deliberately allow SAIDI to accrue to the SAIDI boundary before commencing restoration work. This type of statement demonstrates a fundamental misunderstanding of EDB's primary objectives as suppliers of electricity distribution systems to produce a safe and reliable supply of electricity to its customers. The Commission's suggestion is also impracticable as EDBs do not know at the time an outage occurs whether or not the outage will qualify for normalisation. The objective of field crew is to restore supply as quickly, and safely as possible, with a large emphasis on crew safety.

Furthermore, the Commission's proposal is contrary to the objective of an electricity distribution business to prioritise safety of crew working in dangerous or hazardous conditions and is inconsistent with the new WorkSafe NZ legislation which aims to ensure employee and contractor safety takes precedence. This is because SAIDI normalisation will not be triggered unless there is an event affecting many parts of the network, consequently SAIDI could become extremely large during major events.

This is demonstrated by the three day storm event in 2013/14 where WELL could not commence restoration immediately due to ongoing storm conditions making it too dangerous to send in field staff. WELL was not willing to risk the safety of lines workers by sending them into hazardous conditions in-order to minimise regulatory outcomes. As a consequence, WELL incurred 132 SAIDI minutes (over three times the current limit). If SAIFI was applied as the normalisation, WELL would have received no normalisation at all for this major event The Commission's proposal to normalise SAIDI based on SAIFI therefore effectively penalise EDBs that rightly place crew safety ahead of supply restoration. The Commission should recognise safety drivers and acknowledge the impact on outage.

Additionally, the Quality Paper also proposes that when the daily SAIDI or SAIFI boundary value is exceeded the raw data is replaced with the boundary value. This is the same approach as applied in the current quality regime. WELL supports retaining the current approach, subject to SAIDI and SAIFI being normalised independently as recommended in section 5.2. As noted in section 2, the Commission should focus on making incremental improvements to the quality regime rather than changing every aspect of the regime which increases risk of unforeseen or unintended consequences.

For all the reasons noted above, WELL therefore recommends that:

- SAIDI MEDs are identified using the SAIDI boundary;
- SAIFI MEDs are identified using the SAIFI boundary;
- The boundary values continue to replace actual daily values when the respective SAIDI and SAIFI boundary values are exceeded.

6. Enforcement criteria

The Commission has proposed that in addition to the financial incentive scheme, it will still investigate and potentially take enforcement action in situations where in any one year an EDB exceeds it reliability target by more than one standard deviation above the mean. This proposed enforcement criterion is much stricter than the current regime where enforcement action is only possible if an EDB exceeds one standard deviation above the mean in the current year and in one of the two immediately preceding years.

Given a normal distribution of variation around a mean value, the probability of an EDB hitting the new proposed enforcement criteria is now 17% or approximately once in the five year regulatory period. The proposed approach will therefore make it even more difficult for the Commission to identify breaches resulting from natural variation or uncontrollable, unintentional adverse events as opposed to deliberate actions taken by management to reduce network performance.

WELL does not consider it necessary for the Commission to apply such strict enforcement criteria in addition to the financial incentive scheme which will result in automatic financial penalties to EDBs that exceed the quality target. The proposed financial incentive scheme provides an automatic deterrent to EDBs and is therefore a stronger mechanism than the current situation where there is uncertainty regarding the Commission's enforcement approach.

The Commission should revise the enforcement criteria such that it will only investigate if an EDB exceeds the SAIDI or SAIFI cap (mean plus one standard deviation) in both the current year and one of the two the immediately preceding years (as per the status quo).

In addition, the Commission has proposed that any financial penalties it imposes under its enforcement proceedings would be additional to the financial penalties already incurred by an EDB under the incentive scheme. WELL considers that this is highly inappropriate as it is effectively double punishment for the same reliability event(s). WELL recommends that the Commission explicitly provide for financial penalties incurred under the incentive scheme to be counted toward any financial penalty incurred under subsequent enforcement action relating to the same reliability event(s).

Furthermore, as noted above any financial incentive scheme and approach to enforcement must be cognisant of the relationship between reliability and the capex and opex allowances.

Finally, WELL is very concerned that the Quality paper proposes that any reliability outcomes above the mean would be deemed non-compliant even though enforcement action would not occur, except in exceptional circumstances, until the mean plus one standard deviation is exceeded.

It is highly inappropriate for the Commission to deem an outcome with a 50 percent probability of occurring as non-compliance with the rules and amounts to very heavy handed regulation. The proposal creates considerable uncertainty as the Commission still retains the ability to take enforcement action under the Act for reliability outcomes between the target and the cap. The pecuniary penalties and criminal sanctions available to the Commission under the Act are not compatible with a 50 per cent probability of non-compliance simply due to natural variation. WELL does not see any benefit to the regulatory regime in deeming an outcome above the mean value as non-compliant, particularly when no action is to be taken.

The proposal also significantly increases the risk of reputational damage to EDBs and increases the costs to EDBs of managing internal and external stakeholders. This includes providing additional information to the Commission and explaining to media and Board Directors that a non-compliance is not really a breach of the requirements, most likely has no risk of enforcement action and should be expected every two years on average.

WELL's submission on the DPP Determination and Compliance paper provides more detail on WELL's concerns with the proposed quality standard. WELL's expectation is that both submissions will be taken into account when the Commission makes its final decision on this matter.

7. Quality incentive scheme

WELL only supports the introduction of the proposed financial incentive scheme on the basis that, for the final decision, the Commission:

- Recalculate the target values without adjusting the raw data for past years where annual actual values exceeded the DPP limit;

- Normalise the raw historical data to establish the target based on the same normalisation method that is to be applied for the 2015-20 period;

- Provide for SAIFI and SAIDI to be normalised independently;

- Change the criteria for potential enforcement action such that an investigation only occurs if an EDB exceeds the mean plus one standard deviation in the current year and one of the two immediately preceding years (as per the status quo).

- Remove the classification of outcomes that exceed the target as 'non-compliant' as this serves no purpose and provides no value to the regulatory regime.

WELL does not support introducing an incentive scheme if the targets and normalisation method are not set consistently and are deliberately set to financially penalise EDBs that have breached the quality path in the past, despite no evidence of deliberate fault on the EDB's part.

8. Inter-dependencies between expenditure forecasts and quality regime

It is important that the Commission recognise the relationships between the quality regime it sets and its proposed capex and opex forecasts. WELL's capex forecasts are based on maintaining the current level of reliability performance as that experienced over the past five years.

However, the Commission's Draft Decision on the DPP reset proposes capping the capex forecasts below AMP forecasts and setting opex allowances on an unusually low base, whilst the Quality Paper proposes increasing the expected level of reliability performance and introducing financial penalties if the increased reliability performance is not achieved. This inconsistent outcome highlights the risks of reviewing inter-related components of the DPP in isolation from each other. Each component needs to be carefully considered in their collective totality to ensure an appropriate outcome is achieved.

To be consistent with the purpose of Part 4 of the Act to promote the long term benefits of consumers by promoting incentives for EDBs to invest and innovate and provide service quality that reflects consumer demands, it is necessary for the Commission to consider the trade-offs between expenditure allowances and quality regime. If the Commission intends to impose tighter quality targets and introduce an incentive scheme which penalises EDBs for not achieving the tougher reliability targets then it must provide higher expenditure allowances such that EDBs are funded to make the requisite investments to achieve the reliability targets and provide a reasonable time period is provided to complete the additional investment to meet the lower quality targets.

9. Closing

WELL appreciates the opportunity to provide a submission on the Commission's Quality Paper for the 2015-20 DPP and would welcome the opportunity to discuss with the Commission any of the matters raised in this submission.

WELL has also responded on this topic in its submission on the DPP Draft Decision dated 15 August 2014 and its submission on the DPP Determination and Compliance paper dated 29 August 2014. Given that many issues are covered, to varying degrees, across a number of the Commission's consultation papers at this time, WELL's expectation is that the Commission will consider all of WELL's submissions in relation to each issue, both individually and collectively as appropriate.

Please do not hesitate to contact Megan Willcox, Senior Regulatory Economist, on MWillcox@welectricity.co.nz if you have any queries.

Yours faithfully

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