Annex M

Reliability Incentive

Draft Determination

24 March 2017



About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive leads a management team of directors representing each of the key functional areas in the organisation: Corporate Affairs; Electricity; Gas; Retail and Social; and Water. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

Our Mission	Value and sustainability in energy and water.
Our Vision	We will make a difference for consumers by listening, innovating and leading.

Our Values

Be a best practice regulator: transparent, consistent, proportional, accountable, and targeted

Be a united team

Be collaborative and co-operative

Be professional

Listen and explain

Make a difference

Act with integrity

Abstract

The objective of this annex is to develop a reliability incentive to be introduced during RP6. The reliability incentive will be introduced in the second period of RP6 (2018/19), and has been designed based on regulatory best practice.

Audience

Industry, consumers & statutory bodies.

Consumer impact

If implemented successfully, this reliability incentive should improve the level of reliability received by NIE Networks' customers in a cost-effective way.

Contents

1 Introduction

1.1 The aim of this paper is to explore the options for introducing a reliability incentive mechanism at RP6.

1.2 It is necessary for UR to set reliability standards because it is not feasible for customers to negotiate with their electricity distribution/transmission network operator directly with regards to their preferred level of reliability. In addition, the level of reliability received by customers does not take into account the individual preferences of customers.

1.3 Furthermore, focusing on reliability can help balance other regulatory objectives, most notably low prices for customers. While we expect NIE Networks to be efficient and ensure that prices are no higher than necessary, through regulatory mechanisms such as benchmarking, this may adversely encourage NIE Networks to reduce reliability, which would be at the detriment of customers. For example, as NIE Networks operate under a revenue cap, they may increase profits by reducing costs even if this is to the detriment of reliability. Therefore, by introducing reliability standards and incentives, we, the regulator, can ensure that NIE Networks manage the trade-off between costs and reliability appropriately.

1.4 We also report on changes in NIE Networks' efficiency in annual reports. However, the introduction of a reliability incentive, and the close monitoring of customer reliability levels, will ensure that any improvements in NIE Networks' efficiency gap is the result of true efficiencies and not the result of lower quality of service.

1.5 Reliability standards and incentives have been introduced by many regulators of electricity distribution and transmission, both in the UK and internationally. An example of this is in Great Britain (GB), where Ofgem currently use three main schemes to incentivise GB Distribution Networks Operators (DNOs) to provide an appropriate level of reliability:

i) The interruption Incentive Scheme (IIS) – provides a financial incentive to DNOs to improve reliability based on the number of customer interruptions per 100 customers and the average minutes without power per customer.

ii) Guaranteed Standards – Ofgem set a 12 hour guaranteed standards of service requirement for RIIO-ED1 which DNOs must meet. This tightened from a 18 hour standard in DPCR5. If DNOs fail to meet this standard they are required to make payments to customers.

iii) The Worst Served Customer Fund – A fund to improve reliability for customers who have experienced a large number of interruptions over several years. This scheme is focused on customers for whom the DNOs may not be incentivised to improved their service under the IIS. For example, customers residing in rural areas, where supply interruptions only affect a small number of customers.

1.6 At RP5, we had in place a guaranteed standards of service requirement of 24 hours which NIE Networks must meet. We also proposed a reliability incentive scheme, similar to the IIS, based around customer minutes lost (CML). This was structured as a symmetric incentive and featured a range within which the CML may fluctuate without penalty or reward, i.e. a 'dead band'. However, following the CC's RP5 final determination this was not introduced. Furthermore, we did not implement a worst served customer fund.[1]

1.7 NIE Networks currently operate to restore 100% of customers who lose power supply within 24 hours. By the end of RP6, it is scheduled that NIE Networks will operate to restore 100% of customers who lose power supply within 18 hours. This proposal is in line with Ofgem at DPCR5 but avoids a significant increase to a 12 hour standard set by Ofgem at RIIO-ED1.

1.8 In addition, we propose to introduce a reliability incentive scheme similar to Ofgem's IIS. Reliability incentives in electricity distribution have been implemented by regulators internationally, and we propose to use this precedent to design an incentive that serves best practice; is appropriate in the context of Northern Ireland; and is in the best interest of customers.

1.9 This paper, therefore, explores the options available for the introduction of a reliability incentive, and arrives at a preferred option based on a set of criteria.

1.10 It is worth noting, however, that while NIE Networks are responsible for electricity distribution and transmission, reliability incentives tend to be set in normal conditions (i.e. excluding atypical and one-off extreme events that disrupt electricity supply to customers). We consider that in the event that a transmission outage cause significant customer outages then this would be deemed an exceptional event. As a result, reliability incentives based on metrics such as customer minutes lost and customer interruptions tend to focus on electricity distribution. Taking this into account, the proposals made in this paper are for electricity distribution only, and do not consider the reliability of electricity transmission in Northern Ireland.

1.11 The remainder of this paper is structured as follows:

Section 2 presents a discussion on regulatory precedent in the UK, Europe and Australia, and puts forward a set of best practice guidelines that we use to assess the different options.

Section 3 describes the reliability incentive implemented at RP5, and evaluates its appropriateness based on our findings in section 2.

Section 4 outlines NIE Networks' proposal for a reliability incentive at RP6, and evaluates its appropriateness based on our findings in section 2.

Section 5 puts forward our preferred option for the introduction of a reliability incentive at RP6.

[1] At present, we do not plan to introduce a worst served customer fund at RP6 either.

2 Regulatory precedent

Introduction

2.1 This section presents an overview of how electricity distribution regulators in Great Britain (GB) and internationally have implemented reliability incentives.

2.2 There are three main forms of reliability standards and incentives:

i) Output standards: refer to specific measures of reliability performance that electricity distributors (hereby distributors) have to meet. An example of this would be the guaranteed standard of service requirement.

ii) Output targets: refer to measures of reliability performance that distributors have an incentive to meet. An example of this would be Ofgem's interruption incentive scheme (IIS), as discussed below, and key performance indicators (KPIs).

iii) Input standards: refer to regulators specifying how distributors should plan and implement improvements to their distribution network, with the overall aim of improving performance.

2.3 In this paper, we are mostly concerned with output targets, and in particular in designing a reliability incentive for NIE Networks during RP6.

2.4 The output target measures used most frequently by regulators are:

i) **System Average Interruption Duration Index** (SAIDI): measures the average number of minutes that interruptions last each year. An example of this is Customer Minutes Lost (CML).

ii) **System Average Interruption Frequency Index** (SAIFI): measures the average number of times customers are interrupted in a year. An example of this is Customer Interruptions (CI) per 100 customers per year (i.e. SAIFI x 100).

iii) **Customer Average Interruption Duration Index** (CAIDI): provides a measure of average restoration times per customer interruption. Calculated as SAIDI/SAIFI.

2.5 In the following sub-sections, we present review of distribution reliability output targets implemented by regulators in Great Britain, Europe and Australia.

Ofgem Interruption Incentive Scheme (IIS)

2.6 There are 14 distributors in GB, and the IIS provides distributors with a financial incentive to improve reliability. Each DNO can receive an annual bonus or pay an

annual penalty depending on how they perform relative to the targets set by Ofgem. The rate at which bonuses and penalties accrue has been set for each DNO on the basis of the results of Willingness To Pay (WTP) surveys and value of loss load (VOLL).[2]

2.7 The parameters that are monitored under the IIS are:

i) The number of customers interrupted per 100 customers (CI = 100 x SAIFI).

ii) The average minutes without power per customer (CML = SAIDI).

2.8 As CI and CML are considered separately for each DNO, in theory a DNO could receive a bonus for CI but pay a penalty for CML.

2.9 In DPCR5, Ofgem calculated separate targets for unplanned and planned outages and then combined these targets to produce a single CI target and a single CML target. Unplanned outages on the distribution system and outages caused by distributed generators were given a weighting of 66.66%, and pre-arranged outages on the distribution system had a weighting of 33.33%. However, for RIIO-ED1, Ofgem produced separate targets for planned and unplanned outages.

Unplanned outage target setting

2.10 In setting the unplanned outages target at RIIO-ED1, Ofgem applied a 75:25 ratio between the unplanned outages benchmark target calculated by Ofgem and each DNO's current average performance. Unplanned outages benchmarks for CML and CI are calculated by:

i) Disaggregating the distribution system into sub-systems: low voltage (LV), high voltage (HV), extra high voltage (EHV) and 132kv.

ii) Calculating the benchmark for each of these sub-systems.

iii) Aggregating the benchmarks to produce a single benchmark for each company.

2.11 Ofgem's approach to calculating DNOs current average performance and benchmarks for CI and CML differs by sub-systems:

i) EHV and 132kv

- *Benchmark:* There are relatively few incidents each year at the EHV and 132kv voltages, which can lead to significant volatility over time and across distributors.
- As a result, Ofgem based the CI EHV/132kv benchmark on each distributor's actual performance averaged across the past 10 years.

[2] The average willingness of electricity consumers to pay to avoid an additional period without power.

- For the CML EHV/132kv benchmark target, Ofgem used each DNO's own "CML per CI" (measure of average restoration time) multiplied by each DNO's own 10 year historic CI average.

- *DNO's current average performance:* based on 10 years of performance.

ii) HV

- *Benchmark:* Ofgem set the CI benchmark using the four year average performance for each DNO. The CML benchmark target was calculated as the CI four year average multiplied by the upper quartile "CML per CI" across DNOs.

- *DNO's current average performance:* based on four years of performance.

iii) LV

- *Benchmark:* Ofgem set the CI benchmark using the four year average performance for each DNO. The CML target is set as the four year average level of CI multiplied by the average "CML per CI" across DNOs.

- *DNO's current average performance:* based on four years of performance.

2.12 Once the unplanned and planned CI and CML targets have been set for each DNO, Ofgem set annual targets over a glide path through RIIO-ED1. An example is presented below for SSEH's unplanned CML target for RIIO-ED1:[3] As the table shows, SSEH's unplanned CML target becomes more and more challenging throughout the RIIO-ED1 period, decreasing from 62.8 in 2012/13 to 48.1 in 2022/23.

Table 2.1: SSEH unplanned CML target during RIIO-ED1

DNO	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
SSEH	62.8	58.6	57.3	56.0	54.8	53.6	52.4	51.3	50.2	49.1	48.1

Planned outage target setting

2.13 As the level of planned outages are more predictable and to some extent caused by the level of capital expenditure during the price control period, Ofgem take a different approach to setting a planned outage target compared to an unplanned outage target.

2.14 This approach involves deriving allowances for each distributor for the number and duration of interruptions due to planned interruptions. Ofgem derived these allowances from the forecast of the work that needs to be undertaken by distributors and the impact that different types of work has on the number of interruptions.

[3] Ofgem (2013). Strategy decision for the RIIO-ED1 electricity distribution price control. Reliability and Safety.

2.15 Ofgem categorised the work undertaken by DNOs into: Load; non-load; inspections and maintenance; and tree-cutting, and spread the allowance for planned outages equally across each year of the price control period.

Inclusions/Exceptions from CI and CML numbers

2.16 Outages of more than 3 minutes are included in the IIS. This is different from NIE Networks where CI and CMl numbers are recorded after 1 minute. In the long term it may be beneficial to align NIE Networks with GB DNOs as this will improve the comparison of power outage data between GB DNOs and NIE Networks. This will require NIE Networks to record and produce data on outages of more than 3 minutes in addition to outages of more than 1 minute.

2.17 Ofgem have two severe weather categories: (i) 8 times the mean HV and above daily average incident rate (category 1); and (ii) 13 times the mean HV and above daily average incident rate (category 2). Severe weather events that cause the daily higher voltage fault rate to go beyond the category 1 threshold of eight times each DNO's daily average higher voltage fault rate are excluded from IIS.[4] Furthermore, exceptional events that effect 25,000 or more customers and/or cause 2 million or more customer minutes lost are also excluded from IIS.

Incentive rates for CI and CML

2.18 At DPCR5, there was a limit on their revenue exposure to IIS penalties, which was in terms of a limit on the reduction of the allowed return on regulatory equity (RORE). For CI the limit is 7.4 basis points per year and for CML the limit is set to 20.4 basis points per year. Hence, a maximum of 139 RORE basis points over the course of the 5 year price control across CI and CML.

2.19 However, there was no limit on the amount that can be earned by distributors for outperforming the targets. This would not be advised on the first price control of introducing a reliability incentive. This has since been changed at RIIO-ED1 to reintroduce a reward cap.

2.20 At RIIO-ED1, the overall revenue exposure to the IIS is 250 RORE basis points, meaning that 250 RORE bps will be the maximum reward or penalty available in each year of RIIO-ED1. This is equivalent to 1.2 per cent of revenue for CI and 1.8 per cent of revenue for CML.

2.21 Interestingly, responses from Ofgem's WTP studies found that customers are keener to receive compensation for receiving a poorer service than they are for paying more for receiving a better quality service. This result suggests that an option may be to have asymmetric incentive rates with higher rates when companies perform below the target.

2.22 This is reflected in the Consumer Engagement Advisory Panel (CEAP) authored report ahead of RP6 that sought the views of households and businesses on the aspects of

[4] The average higher voltage fault rate at RIIO-ED1 was calculated using 10 years of historic data between 2002-2003 to 2011-2012.

electricity network services that matter most to them.[5] As part of this report, CEAP aimed to establish whether consumers are willing to pay for service improvements over and above those which are necessary to maintain present levels of service. Different approaches were undertaken to understand the WTP for domestic consumers and non-domestic consumers:

i) Non-domestic consumers: 66% stated they would not be willing to pay anything extra to make improvements to deal with power cuts; or to improve network resilience to extreme weather. However, non-domestic consumers were not asked to put a price on their WTP for improvements in reliability.

ii) Domestic consumers: were asked whether they would choose to maintain current levels of service or choose to invest further in the network to: reduce the number and duration of power cuts; reduce the risk from extreme weather; and develop the network for future consumers. In all three cases, approximately 50% of respondents chose to remain at current standards. Domestic consumers were also asked how much they would be WTP for the highest level of investment to the network. There was a WTP an increase of up to £7 per annum but 28% of respondents were not WTP anything for the highest levels of improvement.

2.23 Overall, the CEAP report highlights that it is likely that customers are keener to receive compensation for receiving a poorer service than they are for paying more for receiving a better quality service.

2.24 However, we have to be cautious before introducing an asymmetric reliability incentive with higher rates when companies perform below the target as this may cause a cliff edge effect. This is where, in the absence of a bonus payment, the company may be reluctant to invest in improving reliability if they are on course to reach its CML and CI targets under current spending levels, even if it is value for money to do so.

CI and CML targets for unplanned outages

2.25 In the tables below we present Ofgem's indicative unplanned CI and CML targets for each DNO over the course of RIIO-ED1. Ofgem have set a glide path towards the CI and CML target for each DNO over the course of the price control period.[6]

2.26 For CML, as Ofgem use relative benchmarking to determine the target, some DNOs' targets are greater than their current average CML.

[5] Consumer Engagement Advisory Panel (2016). Empowering Consumers.
[6] Ofgem, 2013. Strategy decision for the RIIO-ED1 electricity distribution price control. Reliability and Safety. Supplementary annex to RIIO-ED1 overview paper.

Performance [7]

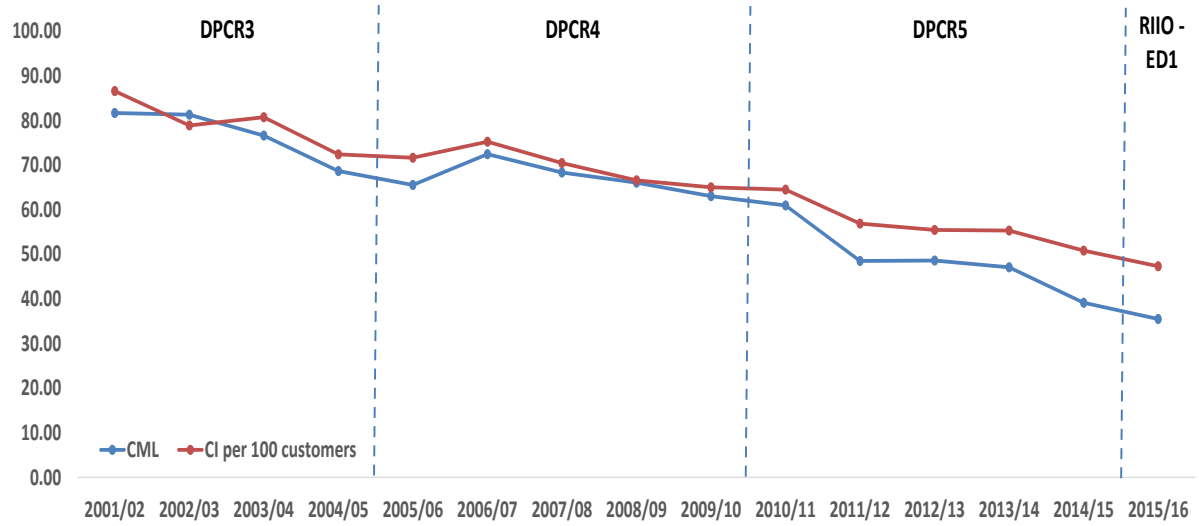
2.27 Since the IIS was introduced in 2001/02, the average GB DNO CI and CML performance has significantly improved:

i) Average GB DNO CML has fallen from 81.66 minutes to 35.51 minutes, which is a decrease of approximately 56.5%.

ii) Average GB DNO CI per 100 customers has decreased from 86.6 in 2001/02 to 47.3 in 2015/16, which is a decrease of approximately 45.4%.

2.28 This is shown in the chart below, which presents average GB CI and CML performance between 2001/02 and 2015/16.

Figure 2.1: Average GB DNO CI and CML performance between 2001/02 to 2015/16



2.29 Furthermore, Ofgem have recently published GB DNO performance in terms of CI and CML for the first year of RIIO-ED1 (2015/16).[8] From this data we can compare each DNOs CI and CML target with what they actually achieved.

2.30 Every DNO in 2015/16 outperformed their individual CI and CML targets, which raises questions on whether the targets were challenging enough.

2.31 A number of DNOs have significantly beaten their CI and CML targets for 2015/16. For example, West Midlands have beaten their CI target by 24 and also beaten their CML target by 24 minutes.

[7] Ofgem, 2017. RIIO electricity distribution annual report 2015-16; Ofgem, 2015. Electricity Distribution Company Performance 2010 to 2015. Performance Report.
[8] Ofgem, 2017. RIIO electricity distribution annual report 2015-16.

Figure 2.2: Customer interruptions (CI) per 100 customers – 2015/16 target versus achieved

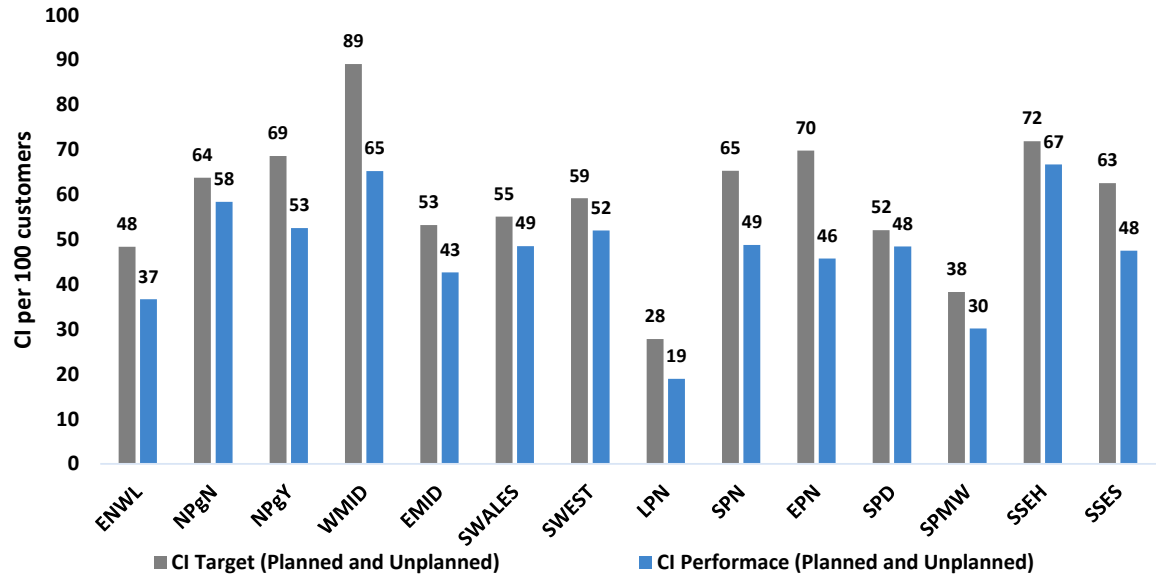


Figure 2.3: Customer minutes lost (CML) – 2015/16 target versus achieved

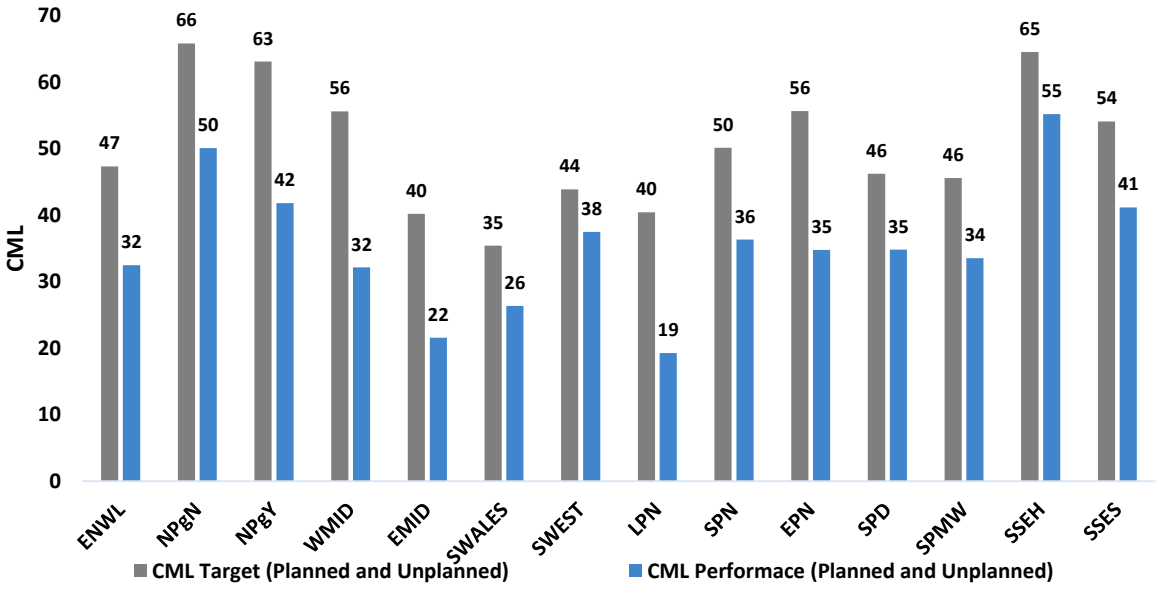


Table 2.2: RIIO-ED1 indicative targets for unplanned customer interruptions (CI)

DNO	Current Average	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	%Δ RIIO-ED1
ENWL	48.1	47.9	47.6	47.4	47.2	46.9	46.7	46.5	46.2	46.0	45.8	45.5	-5.0%
NPgN	63.2	62.3	61.3	60.4	60.1	59.8	59.5	59.2	58.9	58.6	58.3	58.1	-6.7%
NPgY	70.3	69.2	68.2	67.2	66.2	65.2	64.2	63.2	62.3	61.3	60.4	59.5	-14.0%
WMID	93.6	92.2	90.9	89.5	88.2	86.8	85.5	84.2	83.0	81.7	80.5	79.3	-14.0%
EMID	59.2	58.3	57.4	56.6	55.7	54.9	54.1	53.8	53.5	53.2	53.0	52.7	-9.6%
SWALES	55.6	55.3	55.0	54.7	54.4	54.2	53.9	53.6	53.4	53.1	52.8	52.6	-4.9%
SWEST	57.3	57.0	56.7	56.5	56.2	55.9	55.6	55.3	55.1	54.8	54.5	54.2	-4.9%
LPN	29.3	29.1	29.0	28.8	28.7	28.5	28.4	28.3	28.1	28.0	27.8	27.7	-4.8%
SPN	73.2	72.1	71.0	69.9	68.9	67.8	66.8	65.8	65.5	65.2	64.8	64.5	-10.5%
EPN	75	73.9	72.8	71.7	70.6	69.6	69.2	68.9	68.5	68.2	67.9	67.5	-8.7%
SPD	51.8	51.5	51.3	51.0	50.8	50.5	50.3	50.0	49.8	49.5	49.3	49.0	-4.9%
SPMW	37.6	37.4	37.2	37.0	36.9	36.7	36.5	36.3	36.1	35.9	35.8	35.6	-4.8%
SSEH	69.0	68.6	68.3	67.9	67.6	67.3	66.9	66.6	66.3	65.9	65.6	65.3	-4.8%
SSES	64.8	63.9	62.9	62.0	61.0	60.7	60.4	60.1	59.8	59.5	59.2	58.9	-7.8%

Table 2.3: RIIO-ED1 indicative targets for unplanned customer minutes lost (CML)

DNO	Current Average	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	%Δ RIIO-ED1
ENWL	43.4	44.3	43.6	42.8	41.9	41.1	40.3	39.5	38.7	37.9	37.2	36.5	-17.6%
NPgN	62.8	57.6	56.5	55.3	54.3	53.2	52.2	51.2	50.2	49.2	48.3	47.4	-17.7%
NPgY	63.2	62.7	61.5	60.2	59.0	57.8	56.7	55.6	54.5	53.4	52.4	51.3	-18.2%
WMID	67.3	65.7	64.2	62.8	61.5	60.1	58.8	57.6	56.3	55.1	53.9	52.8	-19.6%
EMID	45.5	45.3	44.3	43.3	42.3	41.4	40.4	39.5	38.7	37.8	37	36.2	-20.1%
SWALES	28.7	41.6	41.6	41.6	41.6	41.6	40.7	39.8	38.8	37.9	37.1	36.2	-13.0%
SWEST	35.0	49.5	49.5	49.5	49.5	49.5	48.6	47.6	46.6	45.6	44.6	43.6	-11.9%
LPN	41.4	42.2	41.8	41.2	40.5	39.9	39.3	38.7	38.2	37.6	37	36.5	-13.5%
SPN	70.3	54.6	53.3	52.1	51.0	49.8	48.7	47.6	46.6	45.5	44.6	43.6	-20.1%
EPN	64.7	55.6	54.3	53.1	51.9	50.8	49.7	48.6	47.5	46.5	45.5	44.5	-20.0%
SPD	47.8	46.7	45.8	44.8	43.9	43.0	42.2	41.3	40.5	39.7	38.9	38.1	-18.4%
SPMW	41.0	40.0	39.1	38.2	37.3	36.4	35.6	34.8	34	33.2	32.5	31.8	-20.5%
SSEH	62.8	59.9	58.6	57.3	56.0	54.8	53.6	52.4	51.3	50.2	49.1	48.1	-19.7%
SSES	59.4	53.3	52.2	51.1	50.1	49.1	48.1	47.2	46.2	45.3	44.5	43.6	-18.2%

Australia [9]

2.32 There are 15 distribution systems in Australia with the majority of states only having one distributor. The distribution systems differ significantly in terms of customer density and network length.

2.33 Regulation relating to distribution reliability is national and contained within the National Electricity Rules (NER).

2.34 In particular, the NER contain a reliability incentive mechanism called the Service Target Performance Incentive Scheme (STPIS)). Through this scheme, reliability is measured using SAIDI and SAIFI, and distributors receive a financial bonus for exceeding reliability targets or are penalised if they miss the targets.

STPIS Methodology

2.35 Depending on performance, each distributor may receive a bonus or pay a penalty of up to 7% of its total regulated revenue in a year through STPIS. The STPIS has four elements: reliability of supply; quality of supply; customer service; and guaranteed service levels.

2.36 While the Australian Energy Regulator (AER) have proposed a set of parameters to measure the reliability of distributors, individual distributors may propose different parameters.

2.37 The reliability of supply element of STPIS is similar to the IIS implemented in GB by Ofgem but less complex. SAIDI, SAIFI and Momentary Average Interruption Duration Index (MAIFI) are measured, and the distributor receives a bonus or pays a penalty if its performance in a given year is above or below the target set by the regulator. The target is based on each distributor's average performance over the past 5 years. This target excludes atypical events that are outside of the distributor's control, and the regulator has the power to tighten the target to reflect the impacts of system investment planned in the forthcoming regulatory period.

2.38 The rate used to calculate reliability incentive bonus/penalty is based on the "value of customer reliability" expressed as a value per unsupplied MWh. This is set at $97,500/MWh for central business district customers and half this value for all other customers, which have been derived through WTP studies. These values are then used to calculate separate incentive parameters for SAIDI, SAIFI and MAIFI.

2.39 However, it is important to note that while the same methodology for measuring reliability is not used across Australian jurisdictions. As a result, one has to be cautious when comparing reliability performance across Australian states.

[9] Source: The Brattle Group, 2012. Approaches to setting electric distribution reliability standards and outcomes.

Italy [10]

2.40 There are approximately 170 distributors in Italy, with the size of the distributors varying significantly. Enel is the largest distributor and distributes approximately 80% of electricity. There are three other large distributors who serve more than 500,000 customers each, and the remaining distributors only serve a very small number of customers (i.e. less than a 100 customers).

2.41 The Italian Regulatory Authority for Electricity and Gas (AEEG) is responsible for ensuring service quality standards across electricity distributors in Italy.

2.42 The AEEG sets SAIDI (CML) and SAIFI (CI) targets for distributors. If they exceed these targets they receive a bonus and if they fail to meet these targets they are forced to pay a penalty. The SAIDI target applies to outages that last between 3 minutes and 8 hours, whereas the SAIFI target applies to outages shorter than 8 hours that occur on a LV system. Outages caused by exceptional weather events and/or not contributable to the distribution system are excluded.

2.43 The AEEG sets three baseline targets for both SAIDI and SAIFI, which depend on the size of the population in an individual district:

i) Low – Less than 5,000 customers (rural)

ii) Medium – Between 5,000 and 50,000 consumers (semi-urban)

iii) High – More than 50,000 consumers (urban)

2.44 SAIFI baseline targets for the period 2008-11 were set somewhere between the 20th and 33rd percentile range of actual SAIFI performance in 2006. For the same period, SAIDI baseline targets for rural and semi-urban areas were set to the first decile of actual SAIDI performance by the distributors prior to the start of the regulatory period 2004-07. The corresponding SAIDI baseline targets for urban areas were set to the third decile.

2.45 While AEEG set baseline targets it does not expect every distributor to meet these targets by the end of the regulatory period. Moreover, distributors are able to propose alternative targets that are more generous and the AEEG then decides whether or not to except their proposal.

2.46 Each distributor's annual SAIDI and SAIFI target is either the baseline target or its actual performance in the previous year reduced by the expected improvement factor, whichever is higher. The improvement factor is equivalent to the annual rate required to reach the baseline target in 8 years for SAIDI and 12 years for SAIFI.

2.47 If a distributor misses its SAIFI or SAIDI target by more than 5% it will pay a penalty, whereas if the distributor beats its SAIFI or SAIDI target by more than 5% it will receive

[10] Source: The Brattle Group, 2012. Approaches to setting electric distribution reliability standards and outcomes.

a bonus payment. The magnitude of the bonus/payment was determined by a WTP survey.

2.48 The Table below presents both the baseline targets and the actual targets applied to distributors for rural, semi-rural and urban districts in Italy. This table shows that the actual targets applied to distributors for supply to LV connected customers vary significantly, and are much higher than the baseline targets. This implies that only a very small number of distributors are delivering at the baseline target.

Table 2.4: AEEG baseline targets

District type	*Baseline Targets (excluding external causes)*		*CML Actual Targets applied to Distributors*			*CI Actual Targets applied to Distributors*		
	CML	*CI*	*Min*	*Average*	*Max*	*Min*	*Average*	*Max*
Rural	*60*	*4*	*4.0*	*6.9*	*24.1*	*60*	*74.5*	*154*
Semi-rural	*40*	*2*	*2.0*	*4.4*	*13.1*	*40*	*52.6*	*90*
Urban	*25*	*1*	*1.0*	*2.9*	*27.9*	*25*	*35.0*	*101*

2.49 There is a cap and collar set on the total size of the penalties/bonuses that distributors can receive through the incentive. Bonuses cannot be greater than the product of the number of LV customers and a bonus parameter set by AEEG. Similarly, penalties cannot be greater than the product of the number of LV customers and a penalty parameter set by AEEG. These are shown in the table below.

2.50 The bonus and penalty parameters imply an asymmetric reliability incentive, meaning that total potential bonuses are greater than total potential penalties across urban, semi-urban and rural districts. Moreover, both bonus and penalty parameters increase in magnitude as the density of the district increases.

Table 2.5: AEEG bonus and penalty parameters (LV)

	Bonus parameter	Penalty parameter
Urban	4.0	3.0
Semi-Urban	6.0	4.5
Rural	10.0	6.0

The Netherlands [11]

2.51 In the Netherlands, there are 8 distributors, made up of three large distributors and five smaller distributors. Evidence suggests there are relatively high levels of distribution system reliability in the Netherlands, due to the fact that the systems are relatively small in extent and without any very rural regions.

2.52 The Authority of Consumer and Markets (ACM), formerly the Netherlands Competition Authority (NMa), has the responsibility of regulating energy markets among many other responsibilities.

[11] Source: The Brattle Group, 2012. Approaches to setting electric distribution reliability standards and outcomes.

2.53 The ACM include service quality in its yardstick regulation through the q-factor, meaning that distributors that perform better on average on service quality have increased revenue allowances whilst those that perform worse than average have reduced revenue allowances. This approach means that distributors are not rewarded for efficiency improvements that compromise service quality.

2.54 For the regulatory period from 2011 to 2013, both SAIFI and CAIDI were used to determine the q-factor, where CAIDI is calculated as SAIDI / SAIFI and reflects average restoration time per customer interruption.

2.55 A formula was developed to obtain the estimated cost of the inconvenience of interruptions for customers as a function of both SAIFI and CAIDI, which provides an indication of the amount the average customer will pay for a certain level of quality. A separate formula was developed for both domestic and non-domestic customers.

2.56 The revenue adjustment for each distributor is calculated from the difference between the quality performance of the distributor and the average quality performance, multiplied by the number of customers the distributor services.

2.57 The cap and floor is set at 5% of a distributor's revenue allowance. The ACM chose symmetric limits to reflect its impartiality between the financial implications for customers and distributors. In reality, for the fifth price control (2011-2013) the q-factor revenue adjustment across distributors ranged from -0.1% to +1.4%.

2.58 The calculation of the q-factor includes most outages, including incidents that are outside of the direct control of the distributor. Only unplanned outages are included in measurements of SAIFI and CAIDI used to calculate the q-factor.

Best practice

2.59 Based on our review of regulatory precedent we have come to a set of "best practices" that we use to develop our proposed reliability incentive:

i) Reliability incentive design

- NIE Networks already reports on its performance in terms of CML and CI. Ongoing performance reporting should be complemented with an incentive scheme with financial implications (i.e. bonuses / payments).
- While it is useful to report performance at a disaggregated level (i.e. by LV, HV and EV sub-systems), performance targets should be set a more aggregate level.

ii) Target setting

- Targets should provide distributors with a challenge but at the same time should be realistic and achievable.

- Regulators tend to set targets based on benchmarking distributors with one another and historical averages. The weighting applied to benchmarking and historical averages can differ across sub-systems.

- It is important that we set reliability targets in a transparent manor so that NIE Networks are provided with a degree of long term certainty regarding what targets they will be asked to achieve.

iii) Willingness to pay studies (WTP)

- Reliability targets and incentive rates should be set using WTP studies where available. These studies will provide an indication of the value customers put on reliability.

iv) Two-sided symmetric incentive

- A two-sided symmetric incentive ensures that there is no cliff-edge effect. This is where NIE Networks may not invest in reliability when they are performing close to the target, even if it could lead to an increase in reliability, if they are not able to recover the costs of the investment through an incentive reward.

- This approach also offers impartiality between the financial implications for customers and distributors.

v) Revenue exposure

- Revenue exposure tends to fall in the region of 1.5% to 7% across the case-studies studies explored.

- 1.8% of revenue was exposed at RIIO-ED1 for CML.

3 Reliability incentive at RP5

3.1 Within NIE Networks' RP5 final determination we proposed a network performance incentive similar to the reliability incentives described above. The incentive was based on unplanned distribution outages only (excluding severe weather).

3.2 The incentive was structured as a symmetric incentive, which featured a range within which the CML may fluctuate without penalty or reward (i.e. 'dead band'). The dead band was incorporated into the design to allow for any 'natural fluctuations' that may occur over the regulatory period. The proposed dead band was 10% either side of the target CML.

3.3 If the CML goes beyond the dead band, we proposed to use the same rate as agreed by Ofgem for SSE Hydro, under the rationale that this is the most comparable DNO to GB. This incentive rate was £0.18 million per CML outside of the +/- 10% threshold.

3.4 The CML target proposed was 56, meaning that if CML goes above the upper range threshold of 61.60, a penalty of £0.18 million per CML above the limit would have been applied. Conversely, if CML falls below the lower threshold of 50.40 a reward of £0.18 million per CML below the limit would have been applied. A cap and collar of five times the annual incentive rate (£0.9 million) would have been applied to any reward or penalty.

3.5 We also proposed a CI reliability incentive with an incentive rate of £0.03 million, and a cap and collar of five times the incentive rate (£0.15 million).

3.6 While this design provides a good starting point for a reliability incentive it can potentially be improved based on reliability incentive best practices:

i) The CML and CI targets remains the same throughout the RP5 period, with no decreasing trend and/or adjustments to the target throughout the regulatory period.

ii) The target has been set using historical averages alone, with no attempt at benchmarking with other GB DNOs. Furthermore, targets have only been set on an aggregate level on not on a sub-system level (i.e. LV, HV and EHV).

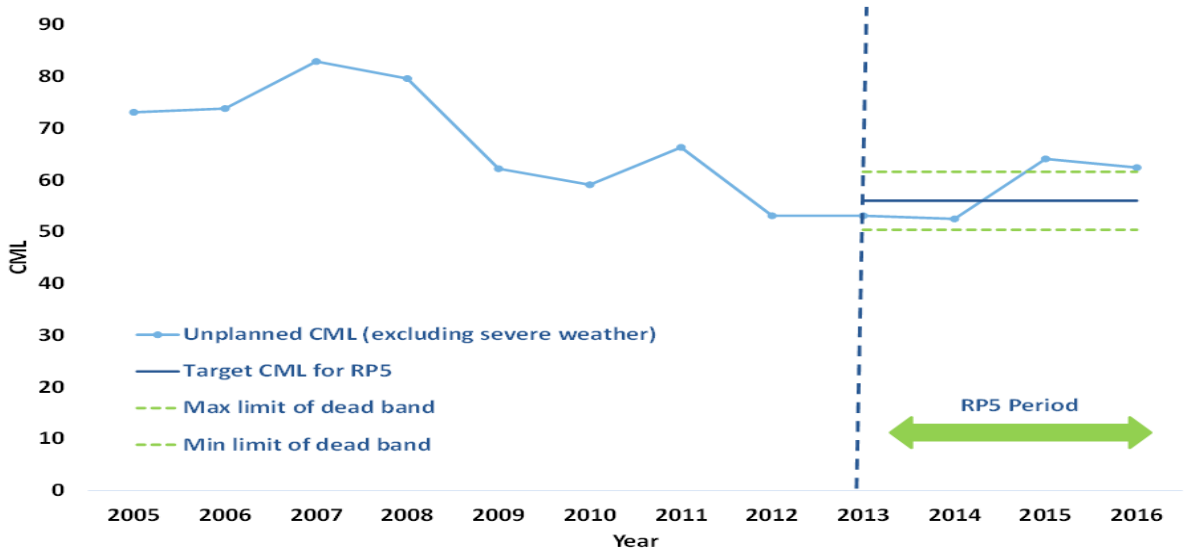
iii) While WTP studies have implicitly been used with the application of Ofgem's SSE Hydro incentive rate, we may improve the relevance of the incentive rate by using an estimate of customer's WTP in Northern Ireland.

iv) By only focusing on unplanned faults, NIE Networks may be incentivised to inefficiently increase the amount of planned outages in order to decrease the probability of unplanned outages. We can avoid this by setting a combined unplanned and planned CML target. Customers WTP tends to be less for planned outages. As a result, it is common to apply a lesser weight to planned outages within the target.

3.7 We reflect these suggestions in our proposed reliability incentive in the section below.

3.8 In the chart below we present the CML set as part of our proposal alongside NIE Networks' actual unplanned CML performance during RP5. This shows that NIE Networks unplanned CML performance fell outside of the dead band in 2014/15 and 2015/16. As a result, if our proposal had been implemented in RP5, NIE Networks would have been required to pay a penalty of £0.45 million in 2014/15 and £0.14 million in 2015/16.

Figure 3.1: Unplanned CML target and performance during RP5



4 NIE Network's reliability incentive proposal

4.1 NIE Networks have proposed a reliability incentive based on CML, where 1.25% of annual distribution revenue is exposed. The company focuses on CML as they believe the duration of an interruption has the greatest impact on their customer service.

4.2 Individual targets are set for planned and unplanned CML and then combined into one CML target by applying a 100% to unplanned CML and a 50% weight to planned CML. The rationale for this is that customers place less value on outages when they are notified in advance. The targets have been set based on a 10-year historical average.

4.3 The incentive rate has been calculated based on the Value of Loss Load (VOLL), which provides a proxy for the average willingness of electricity consumers to pay to avoid an additional period without power. This is often used by regulators, including Ofgem, when designing a reliability incentive. The VOLL used by NIE Networks is £17.50 per KWh, which is an estimate of VOLL for domestic customers from an ESRI report.[12] This estimate does not take into account how the VOLL can differ across different customers (i.e. domestic versus non-domestic). NIE Networks have also used data on total electricity consumption in Northern Ireland provided by the Department for the Environment and Climate Change (DECC).[13]

4.4 Perhaps sensibly, NIE Networks have suggested that the incentive scheme would not apply to the first half year of RP6 as CML associated with winter weather would be disproportionate with annual averages.

4.5 The unplanned CML target is set at 61.4 and the planned CML target is set at 58.The company have not included a dead band within their design but suggest that the use of a 10-year average target mitigates for any year-on-year fluctuations. NIE Networks' calculated CML incentive rate is approximately £0.28 million for unplanned CML and £0.14 million for planned CML. Based on 1.25% of annual distribution revenue, which NIE Networks have estimated to be £2.4 million, this equates to +/- 6 CML either side of their target for both unplanned and planned CML.

4.6 NIE Networks' proposal for unplanned and planned CML is presented in the charts below. As the charts show, both unplanned and planned targets are set at a constant rate over the RP6 period. Our review of regulatory precedent highlighted that there are a number of areas where NIE Networks' reliability incentive is not in accordance with best practice, and can therefore me improved upon:

i) The CML target set by NIE Networks uses a 10-year average, which we feel is overly cautious. While we agree that a 10-year average may be appropriate for

[12] Tol, R.S.J et al. (2010). An Estimate of the Value of Lost Load for Ireland.
[13] DECC. Northern Ireland sub-national domestic electricity consumption 2008-2014.

EHV outages, given they incur less frequently than LV and HV outages, we do not believe a 10-year average is appropriate for LV and HV faults. Regulatory precedent suggests that a 4 year average is more than sufficient to capture year-on-year volatility.

ii) Furthermore, the unplanned CML target has been set using historical averages alone, with no attempt at benchmarking with other GB DNOs. Regulatory precedent highlights that a combination of individual company historical averages and benchmarking with other distributors is the most appropriate approach to take when designing a reliability incentive.

iii) A dead band zone has not been included within the design. Given RP6 will be the first regulatory period a reliability incentive has been introduced in Northern Ireland, a dead band zone where no penalties or bonuses are served eliminates any unnecessary risk on NIE Networks and customers.

iv) The 2013/14 numbers on total electricity consumption and meters in Northern Ireland provided by the Department for the Environment and Climate Change (DECC), which are used to calculate the incentive rate, is out of date. 2014/15 data has since been released by the Department for Business, Energy & Industrial Strategy (BEIS).

Figure 4.1: NIE Networks' unplanned CML proposal

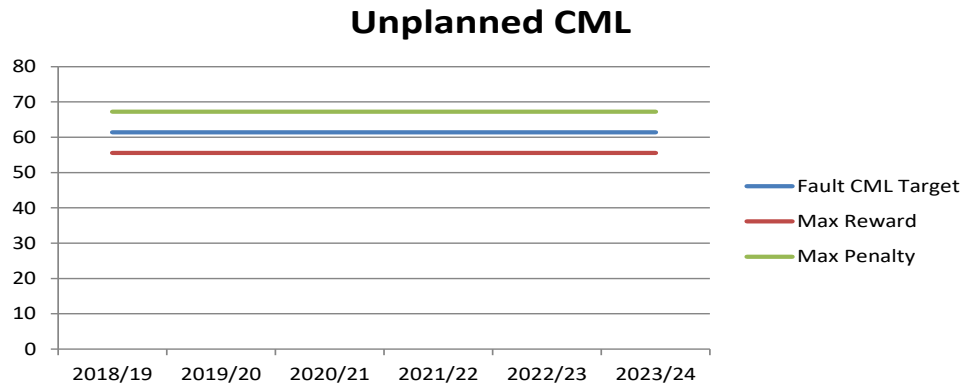
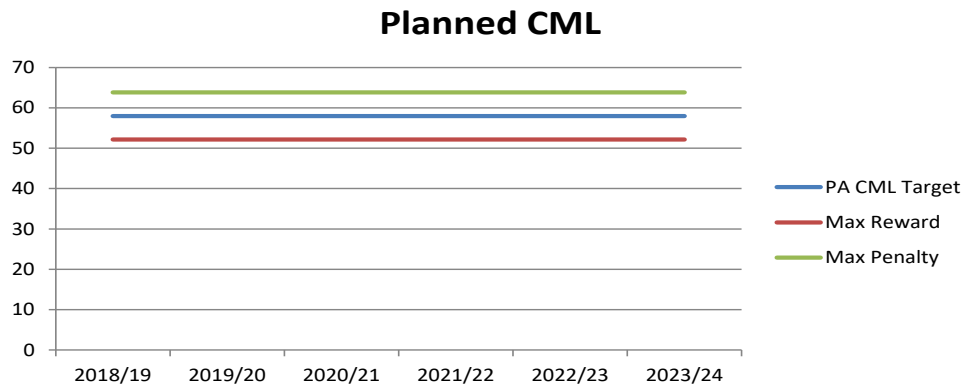


Figure 4.2: NIE Networks' planned CML proposal



5 UR's reliability incentive proposal

5.1 We have designed a reliability incentive that we believe in transparent, offers a challenging yet realistic target for NIE Networks over the course of RP6, and is in accordance with best practice.

5.2 It is necessary for us to set reliability standards for two main reasons:

i) It is not feasible for customers to negotiate with their electricity distribution/transmission network operator directly with regards to their preferred level of reliability. In addition, the level of reliability received by customers does not take into account the individual preferences of customers.

ii) Focusing on reliability can help balance other regulatory objectives, most notably low prices for customers. While we expect NIE Networks to be efficient and ensure that prices are no higher than necessary this may adversely encourage NIE Networks to reduce reliability, which would be at the detriment of customers. Therefore, by introducing reliability standards and incentives we can ensure that NIE Networks manage the trade-off between costs and reliability appropriately.

5.3 We have calculated separate unplanned and planned CML targets, which in line with Ofgem's approach at RIIO-ED1. Severe weather events have been excluded from CML as these events are outside the control of NIE Networks. An event is classified as a severe weather event when a minimum, verified, number of incidents affecting the distribution high voltage network linked to severe weather conditions has occurred within a 24 hour period. In Northern Ireland, the "commencement threshold number" means 13 times the average daily fault rate experienced by NIE Networks' distribution high voltage network. Whereas, in GB, severe weather events that cause the daily higher voltage fault rate to go beyond the category 1 threshold of eight times each DNO's daily average higher voltage fault rate are excluded from CML and CI figures. As a result, there is a slight divergence between the definition of a severe weather event in GB and Northern Ireland. We mitigate for this by moving the benchmark from the upper quartile company, as used by Ofgem at RIIO-ED1, to the average performing company (as discussed below).

5.4 Transmission outages have also been omitted from CML as we consider transmission outages that cause significant customer outages to be an exceptional event. This also assists with the comparability of network reliability data with GB DNOs.

5.5 Based on regulatory best practice, the reliability incentive we propose is designed as follows:

i) **A symmetric incentive around a set target.** The reliability incentive is structured as a symmetric incentive. A 'dead band' zone has been included whereby no reward is received or no penalty is paid. This is set at 5% either side of the target for unplanned and planned CML. This should remove any

excessive risk from customers and NIE Networks, which is important given this will be the first time a reliability incentive has been introduced in an electricity distribution and transmission price control in Northern Ireland.

ii) **The unplanned CML target has been set based on historical average and benchmarking with GB DNOs.** We have taken the approach Ofgem have taken at RIIO-ED1 by applying a 75% weight to the benchmark CML target and 25% to the historical average. Given customer WTP for unplanned outages is greater than planned outages, we have allocated two thirds (2/3) of total distribution revenue exposure to unplanned CML. Our approach to calculating historical averages and benchmarking is discussed below.

- **Historical averages.** The historical averages have been calculated based on the approach taken by Ofgem at RIIO-ED1. For LV and HV we take a four year historical average, and for EHV we take a 10 year historical average. A 10 year average is chosen for EHV faults to reflect the fact that there are relatively few incidents each year at the 132kv and EHV voltages, which can lead to greater volatility relative to HV and LV faults.

- **Benchmarking.** Ofgem consider that CML per CI offers a good metric for benchmarking as this provides an average restoration time for each CI, which DNOs can influence. Ofgem calculate a separate CML per CI benchmark for HV, LV and EHV. For HV they choose the upper quartile; for LV they choose the average; and for EHV they choose the lower of each DNO's own CML per CI and the industry average CML per CI. For this draft determination we have not gained access to disaggregated unplanned CML data for GB DNOs by sub-system from Ofgem, but this something we we ask Ofgem for going forward into RP6. As a result, we have opted to assess CML per CI on an aggregate basis, and use the average distributor performance as the benchmark.[14] Given HV outages are the largest contributor to CML and CI we believe this is a fair way to calculate the benchmark given that Ofgem use the upper quartile benchmark for HV. Furthemore, by using the average benchmark instead of the upper quartile benchmark we also mitigate for any slight differences in reporting across distributors. In particular, the fact that faults are recorded after 1 minute of a power outage in Northern Ireland and three minutes in GB, and the difference in the definition of a severe weather event between GB and Northern Ireland. Following on, to calculate the final CML benchmark target for NIE Networks we multiply the average CML per CI across distributors by NIE Networks' 5-year average CI. The use of a 5-year average CML per CI, and CI, is to reflect the differences in our approach to historical averaging (discussed above) across different distribution sub-systems - HV (4 year average), LV (4 year average) and EHV (10 year average).

[14] We use the 5-year average CML per CI for each distributor over the period 2011/12 to 2015/16 to derive the benchmark.

iii) **Planned CML target has been based on a 5 year historical average.** Given planned CML will be correlated with the level of capital investment, which will vary across distributors, benchmarking with GB DNOs would not be appropriate in this instance. We have chosen a 5 year historical average to reflect the differences in our approach to historical averaging across different distribution sub-systems - HV (4 year average), LV (4 year average) and EHV (10 year average). Given customer WTP for planned outages is less than unplanned outages, we have allocated one third (1/3) of total distribution revenue exposure to planned CML.

iv) **Target.** Both planned and unplanned CML targets are challenging but also realistic and achievable. We have also attempted to subvert any unnecessary risk away from NIE Networks and customers by including a dead band zone. We have applied the target over a glide path rather than as a P^0 adjustment to reflect the fact that there is likely to be a lag between the implementation of the reliability incentive and improvements in CML. This approach is in accordance with regulatory precedent.

v) **VOLL based on WTP studies.** We have set the VOLL, used to derive the cost of CML, using the most recently published estimate of VOLL of domestic customers in Northern Ireland of £14 per kWh.[15]

vi) **Revenue exposure and risk.** Given the reliability incentive will be implemented for the first time in Northern Ireland during RP6 we have set the annual distribution revenue exposure to 1.5%, which is towards the lower end of the range identified in our regulatory review. Furthermore, to manage uncertainty for both NIE Networks and customers we have set a dead weight zone where no fines or penalties will be served.

5.6 NIE Networks' unplanned and planned CML targets are displayed in the table below. As mentioned, we propose to introduce the reliability incentive in 2018/19 to avoid any seasonal effects. The unplanned CML target decreases by approximately 8% from the company's current average CML, which we believe is both challenging yet realistic and achievable. This target is significantly less challenging than many of the CML targets set by Ofgem at RIIO-ED1. For example, SPN's CML target at the end of the RIIO-ED1 period is approximately 38% less than their current average.

5.7 We will consider the need to review CML targets at RP6 before final determination, and will seek the views of stakeholders on this issue.

[15] Reckon, 2012. Desktop review and analysis of information on Value of Lost Load for RIIO-ED1 and associated work.

Table 5.1: NIE Networks' unplanned and planned CML targets during RP6

DNO	Current Average	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Unplanned CML target	58.31	57.54	56.77	56.00	55.23	54.46	53.70
Planned CML target	56.76	56.76	56.76	56.76	56.76	56.76	56.76

5.8 To calculate the incentive rate we have used WTP studies to arrive at an estimate of average VOLL across Northern Ireland electricity customers. VOLL can be used as an indicator of the average willingness of electricity consumers to pay to avoid an additional period without power. Three potential WTP/VOLL estimates have been identified:

i) NIE Networks' proposed VOLL of £17.5 per KWh based on an ESRI report. This is an estimate for domestic customers only and does not take into account the varied WTP/VOLL across different types of customers (i.e. domestic versus non-domestic). Furthermore, this is an error as the figure reported is in €/kWh and not £/kWh and therefore needed to be converted into pound sterling before being used.

ii) Reckon advised Ofgem at RIIO-ED1 on VOLL by conducting a desk-top review of information on the VOLL.[16] This study reviewed a paper by Tol et al. (2010), which produced an estimate of the VOLL for the Republic of Ireland and Northern Ireland, and is the same source used by NIE Networks (see above). Reckon converted Tol et al.'s estimate into pound sterling and found the VOLL for residential customers to be £14 per KWh; for commercial customers was £10.10 per KWh; and for industrial customers was £3.1 KWh.

iii) Ofgem used a single WTP/VOLL measure for all DNOs and transmission companies at RIIO-ED1 and RIIO-T1 of £16 per KWh. This is based on a number of WTP studies and learning over time given the IIS in GB has been in place for many years.

5.9 Based on these estimates of VOLL we propose to take the Reckon VOLL estimate of £14 per KWh to derive CML incentive rates. This estimate provides the most recent estimate of VOLL in Northern Ireland. This estimate falls below the estimate of WTP/VOLL used by Ofgem at RIIO-ED1 and RIIO-T1, which recognises that the WTP by customers in Northern Ireland for increased reliability is less than in GB.

5.10 We have used this estimate of VOLL to arrive at a cost estimate for unplanned CML of approximately £208,311. The cost estimate of planned CML is 50% of this amount at £104,156 to reflect the fact that customers assign less value to pre-arranged outages.

[16] Reckon, 2012. Desktop review and analysis of information on Value of Lost Load for RIIO-ED1 and associated work.

5.11 Using these figures and total annual exposed revenue we calculate the CML cap and floor of approximately +/- 11.4 CML either side of the unplanned and planned CML targets.

5.12 The assumptions and calculations we have used to arrive at these estimates are presented in the table below:

Table 5.2*: Input assumptions and calculations used to calculate the CML incentive rate*

Input Assumptions		
Variable name	Figure / Calculation	Source
Annual electricity consumption	7,820,605,400 kWh (2014/15)	Department for Business, Energy & Industrial Strategy, 2016.
Number of meters installed	837,710 (2014/15)	Department for Business, Energy & Industrial Strategy, 2016.
Customer numbers	855,575 (2014/15 for consistency)	NIE Networks Benchmarking Submission
Value of lost load (VOLL)	£14 per kWh	Reckon RIIO-ED1 review report [17]
% of total distribution revenue exposed	1.5% = £2.66 million	Based on average annual distribution revenue over the RP6 period, in 2015/16 prices) [18]

Calculations		
Variable name	Calculation	Details
Average consumption per customer per hour	1.04 kWh	Annual electricity consumption / customer numbers / total hours in a year
Cost per hour per customer	£14.61 per kWh	VOLL * Average consumption per customer per hour
Cost of customer hour lost	£12,498,684	Customer numbers * cost per hour per customer
Cost of customer minute lost (unplanned)	£208,311	Cost of customer hour lost / 60
Cost of customer minute lost (planned)	£104,156	Cost of unplanned CML * 0.5
Unplanned CML cap/floor	11.39 CML	(i) Unplanned CML revenue exposed = total exposed revenue * 2/3 = £1.77 million (ii) Unplanned CML cap/floor = (unplanned CML revenue exposed / cost of unplanned CML) + (difference between unplanned CML target and dead band)
Planned CML cap/floor	11.35 CML	(i) Planned CML revenue exposed = total exposed revenue * 1/3 = £0.89 million

[17] Reckon, 2012. Desktop review and analysis of information on Value of Lost Load for RIIO-ED1 and associated work.
[18] Provisional figure which be updated for final determination. As a result, CML cap/floor will also be updated for final determination.

		(ii) Planned CML cap/floor = (planned CML revenue exposed / cost of planned CML) + (difference between planned CML target and dead band)

5.13 Our proposal is summarised in the two charts below for unplanned and planned CML. It is important to note that the tram lines either side of the target may potentially move after the draft determination as they are determined based on total RP6 distribution revenue which will only be finalised at final determination.

5.14 In accordance with NIE Networks, we propose that the reliability incentive scheme commences in 2018/19 to avoid any seasonal effects:

i) The dead band zone are shown by the dotted green lines.

ii) The cap and floor are illustrated by the solid green lines.

iii) The solid blue line shows historical outturn CML up until the end of 2015/16, and target CML through the RP6 period.

Figure 5.1: UR's unplanned CML reliability incentive

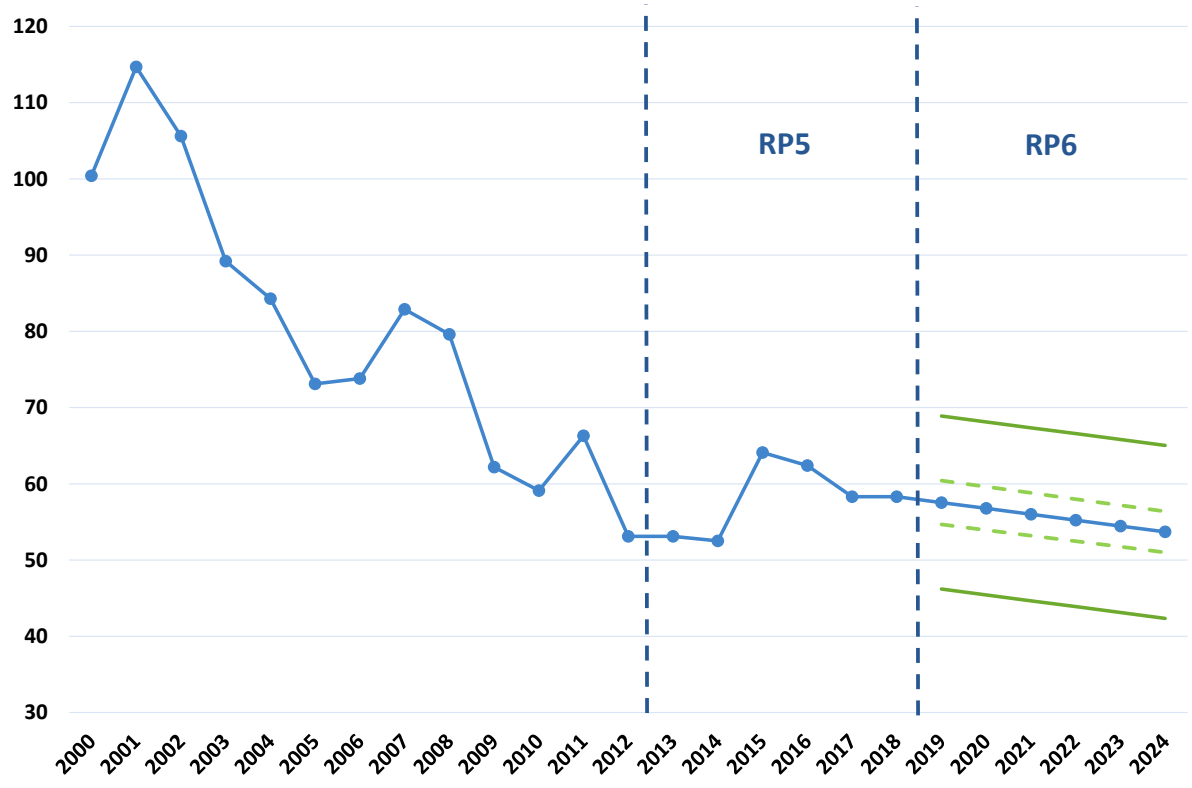
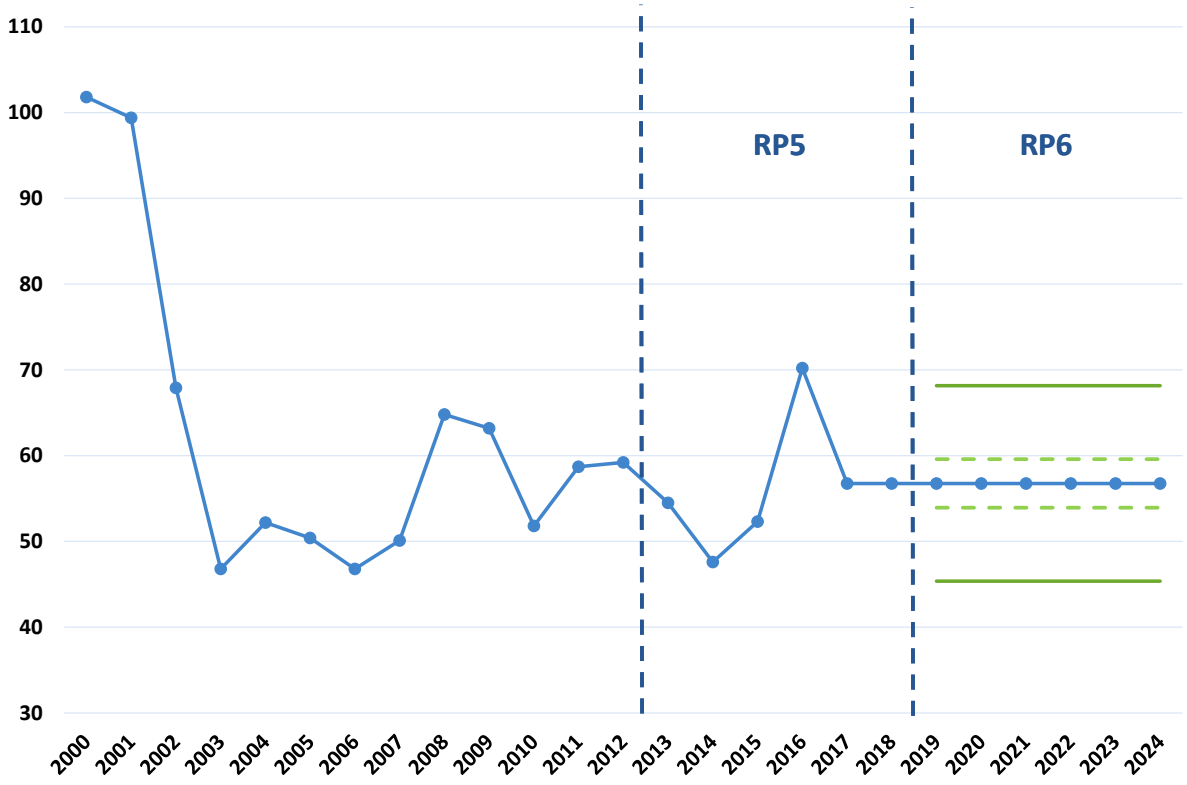


Figure 5.2: UR's planned CML reliability incentive



6 Next Steps

6.1 As mentioned previously, the reliability incentive we propose will be not be introduced until 2018/19 to avoid any seasonal effects caused by the initial 6 month period.

6.2 We will monitor NIE Networks progress towards their target on an annual basis, which we will present in the annual performance report. Part of this process will involve assessing whether the forthcoming planned and unplanned CML targets remain appropriate given what we have learned. This is important given this is the first electricity distribution and transmission regulatory period a reliability incentive has been introduced in Northern Ireland. As a result, the level of uncertainty is perhaps greater than in GB where the IIS has been in place for many years.

6.3 The design of the reliability incentive mechanism we present in this Annex will be formerly added as a modification to NIE Networks' licence in advance of the final determination.

6.4 We will consider the need to review CML targets at RP6 before final determination, and will seek the views of stakeholders on this issue.