

Fibre Quality workshop

Performance Measures under ID and Quality Standards under PQ

26 February 2021

Wendy MacLucas, James Mulrennan, John Gandy, David Oxnam



Welcome and opening

- Introductions
- Health & Safety
- Housekeeping
- Remote attendance
- Publication of workshop materials and Q&A



Overview and background



Outline

- Purpose of this workshop
- Workshop agenda
- ID and PQ process outline
- Key terms
- Context:
 - Part 6 purpose
 - ID purpose and scope
 - PQ purpose and scope
 - Key Interactions:
 - RSQ (Part 7)
 - Declared services (ss227-229)
 - UFB contracts

Workshop purpose

- The purpose of this workshop is for interested parties to:
 - inform us of current quality performance measures and statistics;
 - discuss any new measures required for the first regulatory period; and
 - provide feedback on the costs and benefits of requiring such information to be disclosed as part of ID regulation.
- We will also look at whether and how these measures could be implemented as quality standards for Chorus' PQ path.
- Any proposals outlined today are for the purposes of facilitating discussion only, and any discussions represent Commission staff views only.
- We will hold three breakout discussions today:
 - Optional Quality Dimensions that could apply (in addition to mandatory).
 - The Quality performance measures and statistics that should apply for the first regulatory period.
 - The Quality standards that should apply for PQP1.

Today's agenda

Time	Agenda
9:15 am	Arrival – Tea/Coffee
9:30 am	Welcome and opening
9:45 am	Overview and background
10:15 am	Quality Dimensions Breakout discussion
11:00 am	Break - Tea/Coffee
11:15 am	Quality Measures Breakout discussion
1:30 pm	Lunch
2:00 pm	Quality Standards • Chorus presentation Breakout discussion
3.30 pm	Clarification questions
4:00 pm	Wrap up and close

Process outline

- Timeline

Date	Item	Author	
15 Sept 2020	PQID Process & Approach Paper	Commerce Commission	✓
13 Oct 2020	Main Final IM decisions	Commerce Commission	✓
14 Oct 2020	Submissions on Process & Approach Paper	Various	✓
Dec 2020 (Feb 2021)	Expenditure Proposal (publication)	Chorus	✓
26 Feb 2021	Quality Workshop	Commerce Commission	Today
TBC	Draft anchor services and DFAS regulations	MBIE	
May 2021	Draft Decisions and consultation	Commerce Commission	
Q4 2021	Final Decisions	Commerce Commission	

Key terms

Term	Explanation
Quality dimensions	The seven measures encompassing the broad aspects of service quality (Ordering, Provisioning, Switching, Faults, Availability, Performance, Customer Service)
Quality metrics	What is being measured under each dimension (example Fault dimension metric; Time to restore)
Performance measures	How the quality metrics are measured and reported (For Time to restore; The average time taken in minutes to restore faults by Layer 1 and Layer 2 disaggregation)
Quality standards	The levels of quality that must be met by a regulated provider, which must be specified in their PQ path
Quality standard incentives	Additional tools to support quality standards (revenue-linked penalties or rewards, compensation schemes, breach reporting requirements)

Purpose of Part 6

Section 162

The purpose of Part 6 is... “to promote the long-term benefit of end-users in markets for fibre fixed line access services by promoting outcomes that are consistent with outcomes produced in workably competitive markets...”

Section 166

“The Commission... must make the... decision that [it] ... considers best gives, or is likely to best give, effect to:”

- The purpose of Part 6
- The promotion of workable competition in telecommunications markets (where relevant)

Performance areas under Part 6

- Innovation
- Investment
- Efficiency
- Quality
- Pricing
- Profitability
- Competition

The purpose and quality scope of ID

- Section 186 of the Act states that the purpose of ID is to ensure sufficient information is readily available to interested persons to assess whether the Part 6 purpose is being met.
- In the PQID approach paper, we set out our understanding of what the key terms in s 186 of the Act mean;
 - **Interested persons:** We interpret ‘interested persons’ broadly to include, among others, persons who are or may be affected by the way in which regulated FFLAS are provided.
 - **Sufficient information:** Information is sufficient for interested persons to assess whether the Part 6 purpose is being met. Both quantitative and qualitative information is necessary to make this assessment.
 - **Readily available:** The form in which information is disclosed affects interested persons’ ability to use that information to assess performance. We consider that relevant factors in ensuring information is ‘readily available’ are the extent to which information is **consistent, accessible and understandable.**
- Information to be disclosed under ID may include quality performance measures and statistics and plans and forecasts regarding quality and service levels (s188)

Purpose and quality scope of PQ

Section 192 – Purpose of PQ

To regulate the price and quality of fibre fixed line access services provided by regulated fibre service providers.

Section 194 – Scope of PQ

- Must specify... the quality standards that must be met by a regulated fibre service provider
- May include incentives for quality, including:
 - Revenue-linked penalties or rewards
 - Compensation schemes
 - Reporting requirements

Other Interactions

Retail Service Quality (Part 7)

- While Part 6 sets out the requirements for regulating wholesale fibre quality, we also have powers to regulate retail fibre quality, and telecommunications consumer matters more broadly, via Part 7.
- We will need to ensure that our powers under Part 6 and Part 7 are applied in a consistent and complementary manner and do not over-burden industry participants

Declared Fibre Services (ss227-229)

- An Anchor service, Direct Fibre Access Service (DFAS), and an unbundled fibre service, may be declared in regulations made by the Governor-General under ss 227 to 229 of the Act.
- Regulations will specify the requirements of the declared services in detail, including by prescribing the terms of contractual arrangements that must be offered by PQ regulated providers to access seekers.

Other Interactions

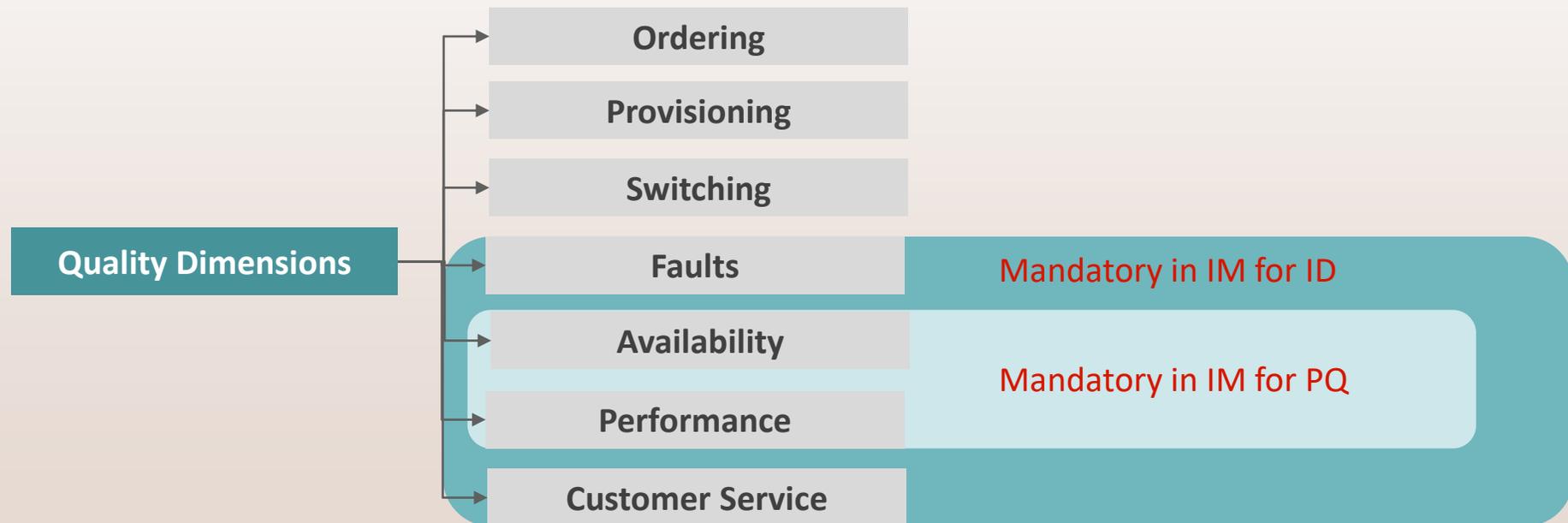
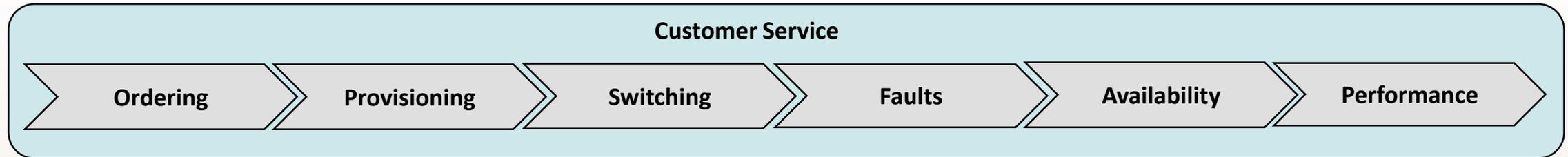
UFB Contracts

- From the implementation date:
 - the regulated providers' supply of services currently governed by the UFB contracts (including pricing of those services) will become subject to regulation under Part 6 and the supply obligations under the UFB contracts will, for the most part, cease.
 - we will regulate FFLAS quality in accordance with the provisions of Part 6. We will do this by setting performance measures under ID and quality standards under PQ, with these regulatory tools underpinned by the quality IM.
- The quality requirements in the UFB contracts assisted us in setting the quality IM dimensions and example metrics and we anticipate that they will provide a useful starting point for PQ and ID regulation, at least for the first regulatory period.

Quality Dimensions



Lifecycle and Customer Service



Relevant considerations for optional dimensions

- Current and historical performance
- Regulated provider incentives
- Importance to access seekers and end-users

Breakout - Dimensions



Breakout Discussion starter - Dimensions

Dimension	Example metrics in IM	IM Decision
Ordering	May include the time to accept or reject a request.	May be specified
Provisioning	May include the time to provision FFLAS and the time to disconnect from one FFLAS and connect to another.	May be specified
Switching	May include the time to disconnect FFLAS from a losing access seeker and connect to a gaining access seeker.	May be specified
Faults	May include incidence of faults and time to restore FFLAS.	Mandatory ID
Availability	May include maximum downtime, average downtime, and notification to access seekers of outages.	Mandatory ID, PQ
Performance	May include frame delay, frame loss ratio, frame delay variation, and port utilisation.	Mandatory ID, PQ
Customer Service	May include end-user connection satisfaction, missed appointments, and the time to establish an access seeker.	Mandatory ID

- Discussion Question:
 - Should Performance Measures and/or Quality Standards be specified for any optional dimensions in the first regulatory period?
 - Are there other relevant considerations?

Quality Measures



Quality Measures

- Principles:
 - **relevant:** to ensure FFLAS service quality reflects end-user demands;
 - **measurable:** able to be measured by regulated providers;
 - **verifiable:** able to be checked or demonstrated to be true or accurate;
 - **controllable:** able to be controlled (at least to some extent) by regulated providers; and
 - **proportionate:** the benefits to access seekers or end-users justify the costs to regulated providers.
- Existing service levels in UFB contracts as a starting point for first regulatory period.
- Enhancements required.
- Disaggregation (geography, type of FFLAS etc.).
- Reporting frequency (monthly, quarterly, annually).

Current and historical performance

- We previously indicated that we would consider factors such as current and historical performance. We have looked at historical quality performance from UFB reporting information we received from regulated providers via an information request and present summary views for each dimension later in this pack.
- Our general observations from this information are that in some cases:
 - Different information is presented by each regulated provider;
 - Information is presented in different formats, including charts published as an image;
 - Information is presented in different ways, often without the source data, which makes aggregated comparisons and further analysis difficult;
 - Regulated providers may use different performance measures and statistics;
 - The same measure may be calculated in different ways.
- Our observations highlight the need to have common formats, clear and detailed definitions and to be prescriptive in terms of how measures are calculated.

Part 4 lessons

- In our final Fibre IM Reasons Paper, we said that “We will use a greater level of prescription when setting PQ and ID, applying the best regulatory practice principles, and also looking at learnings from Part 4 quality regulation”.
- When we discuss measures under each dimension, we can explore how these lessons can be incorporated.
- We received submissions under the following headings on our draft Fibre IM Reasons Paper;
 - Service quality should distinguish between planned and unplanned outages.
 - Extreme event service standard should be set.
 - There should be no deterioration in service quality.
 - Service quality should improve over time.
 - Service quality that directly reflects end-user impacts is important.
 - There should be robust self-reporting requirements that are triggered by a contravention of any quality standard.
 - Revenue-service quality links should not be introduced for the first regulatory period.

Breakout - Provisioning

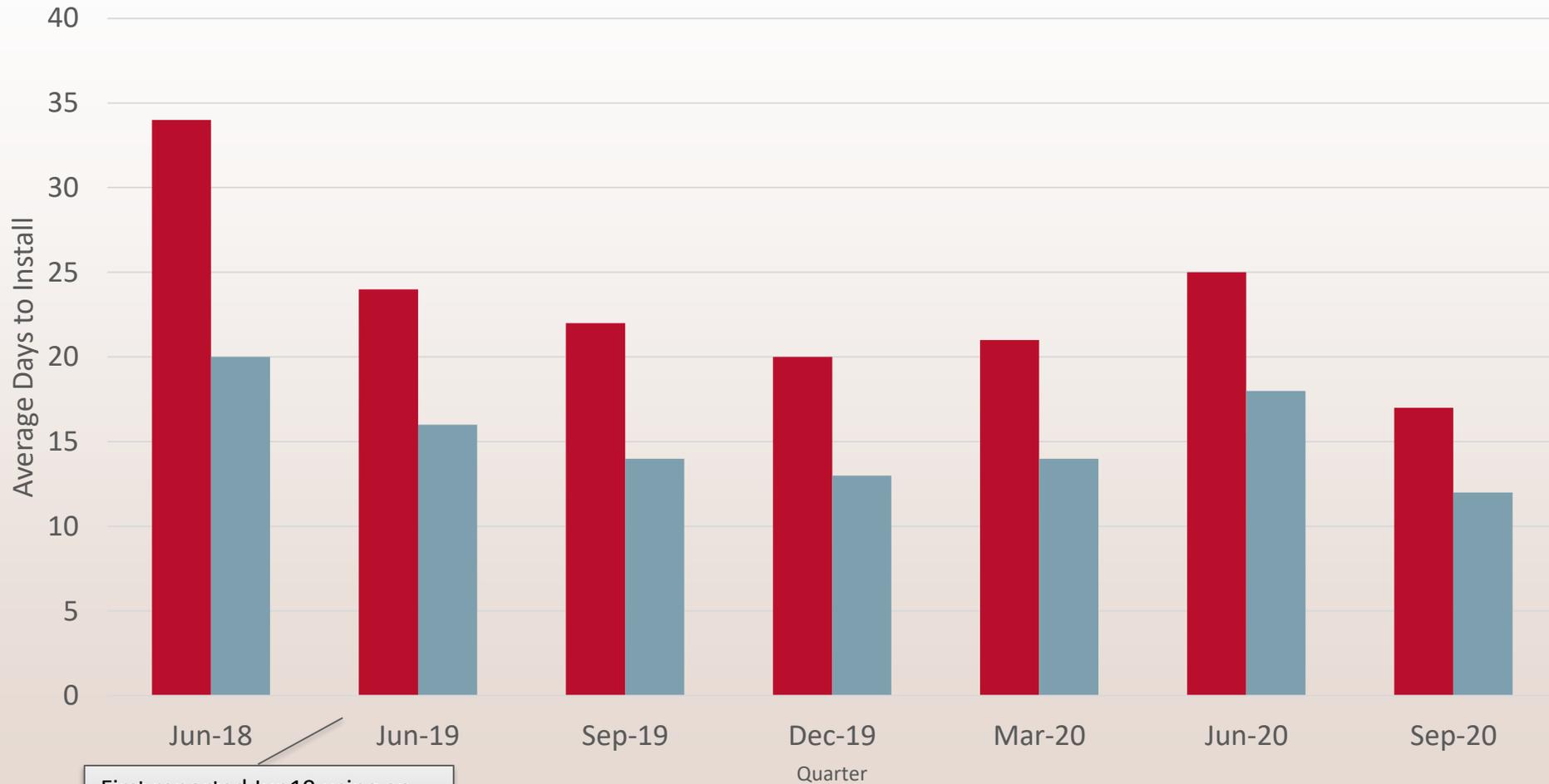


Provisioning - Observations from Historical and Current Information

- All regulated providers have performed at 90% or above compared to the 75% NIPA threshold. This threshold has been missed on the rare occasion due to complex connections with extended cycle times.
- Crown Infrastructure Partners publish metrics on UFB installs as part of its Quarterly Connectivity Update report, summarised on the next slide. This shows that the time to install is reducing over time.
- When we analysed information provided, we found that there were inconsistencies in terms of the levels of reporting; we received both aggregated and disaggregated results. We also had incomplete information and were therefore unable to calculate an aggregated result across regulated providers.

UFB Average Days to Install

Source: CIP Quarterly Connectivity Update



First reported Jun19 using an annual comparative, moving to a quarterly comparative

■ Avg Days to Install Overall ■ Avg Days to Install SDU

Breakout Discussion starter - Provisioning

Dimension	Example metrics in IM	Existing UFB measures	Example existing service level attribute	Disaggregation
Provisioning	May include the time to provision FFLAS and the time to disconnect from one FFLAS and connect to another.	<ul style="list-style-type: none"> • Intact connections • New Connection - Single Dwelling Unit - Multiple Dwelling Unit - Right of Way - NBAP 	<ul style="list-style-type: none"> • Number met agreed provisioning time and date 	<ul style="list-style-type: none"> • LFC • Layer 1, Layer 2 • POI Area • Enterprise, Residential

- Discussion Questions
 - Provisioning where there is an intact connection is now important as the fibre network roll out has reached maturity. Are the existing measures and statistics sufficient?
 - Is geography important?
 - Do we need measures such as change plan?
 - How could we include Co-location and Backhaul services?

Breakout – Faults, Availability and Performance



Interrelated quality dimensions and metrics

Availability is the extent to which FFLAS is not subject to downtime

A planned outage is a scheduled outage that has been notified to access seekers (as opposed to an unplanned outage)

Downtime is the length of time FFLAS is subject to outages

A fault is an unplanned outage or a reduction in the performance of FFLAS below specified levels

An outage is a cessation in the supply of FFLAS

Performance is the technical functioning of FFLAS

Observations from Historical and Current Information

Faults

- Fault rates have been on a downward trend over the past three years.
- The IM defines faults as cessation of service. At least one regulated provider includes deterioration of service in their reporting of faults.
- When we analysed information provided, we found that there were differences in how information was reported.
 - Faults were analysed by different categories, based on root cause and/or source. However, regulated providers did report “Service Affecting” or “Network Issue” faults as a separate category.
 - One provider included No Fault Found in unplanned faults.

Availability

- All regulated providers appear to be operating within the NIPA thresholds for average downtime per end user, being 120 minutes at Layer 1 and 30 minutes at Layer 2.

Observations...

Availability

- When we analysed information provided around availability, we had incomplete information and found regulated providers report on different metrics. Providers all report on average downtime although there are inconsistencies in how this is calculated:
 - Downtime may be sanitised where this is out of the regulated provider's control. This includes customer availability/access issues, lack of information provided by the RSP, ONT failure and/or faults caused by the customer or the customer's agent. No fault found, and self-generated proactive work are also excluded in one case.
 - One regulated provider stated that they include planned work to upgrade and maintain the network but notes this should not be included. Another excludes this outage if the work is completed within the time and parameters given to the RSP.

Performance

Not all regulated providers report on Port Utilisation and Traffic Performance to CIP. At this stage, not all regulated providers are required to.

Breakout Discussion starter - Faults

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Faults	May include incidence of faults and time to restore FFLAS.	<ul style="list-style-type: none">Faults reported by categoryFaults per 100 connections	<ul style="list-style-type: none">Number met agreed restore time and date	<ul style="list-style-type: none">LFCLayer 1, Layer 2Enterprise, Residential

- Discussion Questions
 - Important information about problems that may lie in areas such as the end-user, access seeker or regulated provider.
 - What categories should faults be reported in (eg: Layer 1, Layer 2, ONT, Customer, Access Seeker, NFF)? Is geography important?

Breakout Discussion starter - Availability

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Availability	May include maximum downtime, average downtime, and notification to access seekers of outages.	<ul style="list-style-type: none">Average downtime	<ul style="list-style-type: none">Average minutes of downtime per month	<ul style="list-style-type: none">LFCLayer 1, Layer 2Candidate Area, POI Area

- Discussion Questions
 - Discuss how downtime is measured and calculated.
 - Should planned outages and traffic performance be included in the calculation?
 - How do we deal with extreme events such as Earthquakes?
 - Should maximum downtime be included or another measure of restore time?

Breakout Discussion starter - Performance

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Performance	May include frame delay, frame loss ratio, frame delay variation, and port utilisation.	<ul style="list-style-type: none"> Port utilisation 	<ul style="list-style-type: none"> Number of 5-minute intervals measured above 95% 	<ul style="list-style-type: none"> LFC Uplink Inter-nodal
		Traffic performance; <ul style="list-style-type: none"> Frame delay Frame delay variation Frame loss ratio 	<ul style="list-style-type: none"> Number of 5-minute intervals measured outside each target measure 	<ul style="list-style-type: none"> LFC

- Discussion Questions
 - Discuss the appropriate measures and statistics and level of disaggregation for port utilisation
 - Should the measures for traffic performance be retained?

Breakout – Customer Service



Observations from Historical and Current Information

- Crown Infrastructure Partners publish customer metrics on UFB installs as part of their Quarterly Connectivity Update report, summarised on the following slide. This shows install satisfaction is trending upwards whilst residential appointments met remains stable hovering in the mid-90s since June 2019.
- When we analysed information provided around customer service we found:
 - All regulated providers regularly measure and report on customer service although not all are required to report. Customer satisfaction is measured in different ways. These include Net Promoter Score and customer satisfaction surveys carried out on a monthly or quarterly basis.
 - We need to be alert to and cautious about how we interpret the data when small sample sizes are used.
 - Inconsistencies in the information provided meant we were unable to calculate an aggregated result across regulated providers.

UFB Install Customer Measures

Source: CIP Quarterly Connectivity Update



First reported Jun19 using an annual comparative, moving to a quarterly comparative

— Appointments met (Residential)
— Install Satisfaction

Breakout Discussion starter - Customer Service

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Customer Service	May include end-user connection satisfaction, missed appointments, and the time to establish an access seeker.	<ul style="list-style-type: none"> End user survey 	<ul style="list-style-type: none"> Score for each measure for a new installation 	<ul style="list-style-type: none"> LFC
		<ul style="list-style-type: none"> Time to establish an access seeker 	<ul style="list-style-type: none"> Number of days 	<ul style="list-style-type: none"> LFC

- Discussion Questions
 - Is the current end user survey sufficient?
 - In what ways could it be changed that meets the principles?
 - How best could we measure regulated provider responsiveness?
 - Do we need to measure missed appointments (provisioning and restore)?

Quality Standards



Quality standards - background

- Quality standards help to:
 - create incentives for suppliers to deliver services at a quality that reflects consumer demand
 - counteract incentives to underinvest seeking to maximise profitability under a revenue/price cap
- Approach taken in Part 4:
 - What aspects of performance are the most important to consumers?
 - Does the current regulatory and commercial environment incentivise this performance?
 - What regulatory tool is most appropriate to fill any gap?
 - Do the advantages outweigh the compliance cost?

Quality standards – lessons from Part 4

Sector/Business	Example measure	Basis for standard	Notes
Electricity distribution DPP3	System average interruption duration System average interruption frequency Major interruption standard	Normalised historic average	Incentives aligned to value of lost load. Planned and unplanned treated separately
Wellington Electricity CPP	Earthquake resilience outputs (strengthening, network spares)	Delivery of project as proposed in the CPP application	Reflects reasons for the CPP
Powerco CPP	System average interruption duration System average interruption frequency	Improvement path over the CPP period	Standards and incentives reflect expected improvements due to renewal investment
Transpower IPP3	Grid performance measures Asset performance measures	Transpower IPP3 proposal	Revenue-linked incentives “pooled” across multiple grid output measures
Gas distribution DPP	Response times to emergencies	Fixed response time based on industry standards	Strong existing (health and safety) incentives for reliability
Gas transmission DPP	Major interruption standard	Critical contingency scheme	Focus on high-impact, low-probability risks. Linked to targeted reporting requirements.

Chorus proposal



Breakout Discussion starter - Availability

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Availability	May include maximum downtime, average downtime, and notification to access seekers of outages.	<ul style="list-style-type: none">Average downtime	<ul style="list-style-type: none">Average minutes of downtime per month	<ul style="list-style-type: none">Layer 1, Layer 2Candidate Area, POI Area

- Discussion Questions
 - What should a standard for availability (average downtime?) be?

Breakout Discussion starter - Performance

Dimension	Example metric in IM	Existing UFB measure	Example existing service level attribute	Disaggregation
Performance	May include frame delay, frame loss ratio, frame delay variation, and port utilisation.	<ul style="list-style-type: none"> Port utilisation 	<ul style="list-style-type: none"> Number of 5-minute intervals measured above 95% 	<ul style="list-style-type: none"> Uplink Inter-nodal
		Traffic performance; <ul style="list-style-type: none"> Frame delay Frame delay variation Frame loss ratio 	<ul style="list-style-type: none"> Number of 5-minute intervals measured outside each target measure 	

- Discussion Questions
 - What should a standard for performance (port utilisation?) be?

Clarification Questions



Next steps

