PNG DATACO LIMITED RESPONSE TO

DISCUSSION PAPER ON

"Public consultation on draft wholesale pricing principles for broadband capacity services, and international submarine cable services"

August 2020

Introduction

PNG DataCo Limited (**"DataCo"**) is grateful to NICTA for revisiting the December 2019 regulated prices for international transmission capacity in the light of new cost information and modelling. Note 2 to Schedule 1 of the December Determination provided DataCo with the opportunity to charge different prices if they could be cost justified; which led to the current review.

DataCo, as the developer and manager of the National Transmission Network, provides various wholesale transmission services to the PNG ICT market which is a key enabler of retail ICT services.

This DataCo submission to the Public Consultation addresses the key issues raised by NICTA in its Discussion Paper on the review of prices:

A. Single price for all international submarine cable systems;

B. Maximum average price rather than maximum price;

C. Indicative prices;

D. Compliance;

E. Review; and,

F. Commencement Date.

While DataCo will address the key issues highlighted by NICTA, DataCo wishes to comment also on two other key issues of interest which are:

G. Service definitions; and,

H. Cost mark-up.

Since there are references to G and H in B, C and D, it is recommended that G and H are read first.

A Single Price

DataCo agrees that the PNG submarine cables provide mutual redundancy and should be considered as a single system. For example, when a wholesale customer anywhere in PNG accesses the internet, the wholesale internet service could provide international transport via Port Moresby (CS2) or Madang (PPC1) or either of these using the new Kumul cable link between Port Moresby and Madang. It does not matter to the end user seeking, say, international connectivity to Sydney which path is used. Having back-up options provides resilience in the service. If one link fails for any reason, traffic is automatically diverted to a different international path[1].

DataCo wishes to note that international connectivity options for PNG will be further enhanced with extensions of the Kumul system to Jayapura (Indonesia and then Singapore) and to Taro (then Honiara and Sydney). As these options are deployed the corresponding costs and volumes can be added into the international cable system cost models.

[1] Other optional forms of protection are available (e.g. diverse tails) on request.

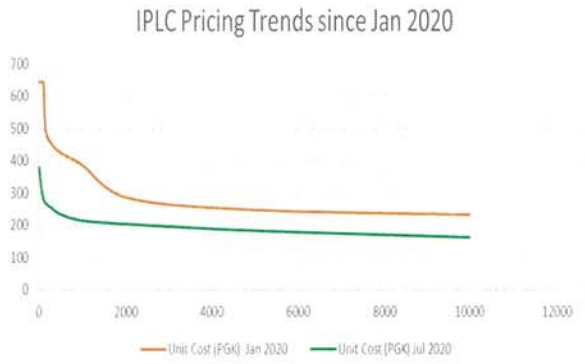
Costs associated with delivering (primarily IPLC) services over the APNG cable to Sydney are not included in the cost models. Most services have been migrated from APNG to other cables and all be removed by the end of December 2020.

To the extent that any fibre cable system is used to carry international traffic, an appropriate share of its costs will be counted as part of the single system providing international connectivity.

B Maximum average price

DataCo welcomes the flexibility to offer commercial rates such that large capacity purchases have a cost per Mbps less than smaller purchases. This is normal in the industry for a wholesale business.

The charts below show how the rates for commercial wholesale international services have moved[2].



As foreshadowed by NICTA, DataCo has prepared a Reference Interconnection offer (RIO) with prices (shown as July 20 above) which should be considered in tandem with the amended Determination.

Since the price per Mbps of large capacity purchases will be lower than the price of small capacity purchases, the maximum average price outcome will depend on the mix of purchases. The mix of purchases affects average revenue but does not affect the unit cost per Mbps. But if the total volume of capacity sold is more (less) than forecast the unit cost will be less (higher) than forecast.

The average revenue per Mbps that is monitored for compliance is the arithmetic mean obtained by dividing revenue by purchased capacity over the regulatory period. The three types of average and the outcomes for capacity purchases observed by DataCo for June 2020 are shown below.

Average Capacity Purchased from DataCo, June 2020

Mbps	WIS	IPLC	Comment
Mean	REDACTED		Arithmetic mean
Median			Same no. above/below
Mode			Most common sale

[2] All revenues and prices referenced in this paper exclude GST.

CIC .....**CIC**. In June 2020, WIS accounted for **CIC**.....**CIC** of all international transmission capacity sold and international transmission revenues respectively.

In the same month, **CIC** ..... **CIC.**

The above suggests that **CIC** ..... **CIC** in the RIO price schedule for WIS and IPLCs are likely to be close to the measured average revenue per Mbps for all international transmission capacity (refer to D below on compliance).

C Indicative prices

Regulatory periods are calendar years. The first regulatory period may be the six months to 31st December 2020[3] or a shorter period to 31st December. NICTA has indicated in the current consultation that the revised Determination may apply from 1st September 2020.

As noted in the NICTA Discussion Paper, the maximum average prices in the revised draft Determination are subject to forecasts of demand (and subject to G and H below).

As noted in B, the RIO has commercial prices for Wholesale Internet (WIS) and IPLC services effective from 1st July 2020. These are calibrated to be consistent with the expected maximum average price of the regulated transmission service. In early 2021, updated costs and revised forecasts of demand may lead NICTA to revise the regulated maximum average price indicated for 2021. Revised commercial prices are likely to be offered from 1st July 2021 subject to the same regulatory constraint.

It is not possible to commit to future prices because of uncertainty of demand. But, now that the major cable investments have been made and with growing data volumes, it can reasonably be expected that unit costs and prices will fall continuously over time.

D Compliance

The revised draft Determination says that the average price per Mbps measured over the period of regulation must be less than or equal to the maximum average price authorised for that period.

The average price per Mbps for commercial international transmission services is measured as the sum of revenues (excluding GST) for wholesale internet services (WIS) plus international leased lines (IPLCs) divided by the corresponding sum of sold capacity in Mbps. The term "*weighted*" at 3(2)(b) and 6(3) in the amended draft Determination seems redundant.

Revenues for WIS include bundled IP Transit and domestic transmission. IPLC revenues may include domestic transmission, international extensions and value add like MPLS or protection. The adjustments needed to measure for compliance with the regulated international transmission service are discussed at G and H below.

As noted in the NICTA Discussion Paper (p3): "*both NICTA and the service provider will be in a position to assess progressive average levels throughout the relevant time period*". This does not mean that the maximum average price has to be observed in each and every month. Monitoring monthly means that this helps DataCo to meet the average price compliance test

[3] DataCo wishes to note that the pricing offered in its RIO have been offered to Digicel with effect from 1st July 2020. Any commercially agreed commencement date is not relevant to the RIO (effective from the date it is accepted by NICTA) nor the commencement date of the revised Determination.

over the regulatory period by talking action. For example, if it is tracking to exceed the compliance test it can try to stimulate sales of higher capacities and/or lower prices.

Some regulatory forbearance will be needed in the first regulatory period as it will take time to migrate contracts to the new RIO prices.

NICTA is silent on what should happen if the maximum average price is exceeded in a regulatory period. The difference between the actual and the permitted average multiplied by capacity sold represents excess revenues. What normally happens then in other jurisdictions is that the surplus (or deficit) is carried forwarded into the determination of the maximum average price for the next regulatory period (see boxes below for examples). The process in PNG could be similar.

NICTA uses the cost-based models to determine unit cost per Mbps given forecast sales, D. It can then make adjustments for definition and mark-up (see G and H below) to identify the average maximum revenue per Mbps, X, it expects to observe given how international transmission capacity is actually sold. That is, the expected revenue, R, is the product of the adjusted maximum average revenue and forecast sales ($R = X * D$). However, if too much (or not enough) revenue was collected over the previous regulatory period, then the expected revenues for the current regulatory period should be reduced (increased) to $R_{adjusted}$ to then get $X_{adjusted} = R_{adjusted} / D$.

Telstra Retail Price Controls

The (CPI-x) price controls were removed in 2015. But while the caps applied, Telstra had to meet them by the end of the three-year period:

In the case of Telstra, the government has generally adopted a three-year period since the cap was first introduced in 1989. However, the price cap currently in use is only for two years.

In practice it is difficult for a regulated carrier to judge exactly the price changes necessary to satisfy the CPI – X per cent price cap requirement, and both under and over shooting are possible. …. The price caps applied to Telstra, AGL gas companies, GPU PowerNet and privatised airports all have an adjustment factor. In the UK, the airports, gas companies and the National Grid Company have a correction factor while British Telecom does not have a correction factor. (p64)

The Commission considers it appropriate to continue with the correction factor built into the price cap formula. This will be consistent with incentive regulation and will provide greater certainty to Telstra. However, the Commission considers that the under-recovered amount of one three-year cap period should not be carried forward to the next three-year period.

ACCC, Review of Price Control Arrangements, February 2001

Australia's government-owned national broadband network (NBN) has large investment costs which mean it operates at a loss. While its revenue is below the permitted revenue in any year, the unrecovered cost is carried forward in the "initial cost recovery account". In the year to June 2019, that amount was A$4,846,872 bringing the ICRA to A$25,458,678 which grows with interest as well as any further carry forward.

The Australian National Broadband Network

"NBN Co must submit a report signed by its CFO (or approved delegate) that certifies in respect of that Financial Year: prices for the supply of NBN Offer and or Other Charge did not exceed at any point during the period the Maximum Regulated Price (MRP), and that prices complied with the requirements of Schedule 1C (NBN Offers and Other Charges)."

NBN Price compliance reporting 2018-19, May 2020

DataCo accepts that its commercial offers for international transmission capacity services should be non-discriminatory; available to all access seekers. DataCo's Reference Interconnection Offer (RIO) for such services has been provided to NICTA for industry comment.

DataCo is happy to allow NICTA to inspect customer agreements to ensure that they are compliant with the RIO (once accepted by NICTA) and non-discriminatory. This should mean only that they reflect the same price and non-price terms as in the RIO. It cannot be expected that the average price per Mbps is the same for large and small wholesale customers of DataCo because of volume discounts. Clauses 6(3)(a) and (c) in the draft Determination should be deleted.

The following chart shows how average revenues per Mbps (excluding GST) have been tracking in the first six months of 2020. The averages will drop with migration to the RIO prices.

Average revenue per Mbps for International Services

REDACTED CHART

While volumes and costs of APNG-2 are not included in the cost models and revenues and capacity sales over APNG-2 are included in the chart above, customers and services (mainly IPLCs) are actively being migrated to the new cables and the associated new prices. This process will be completed by the end of this year.

E Review

DataCo agrees that the "*indicative*" price in Schedule 1 to the price Determination will need to be reset for 2021 based on outcomes for 2020 and forecasts of demand and unit costs.

F Commencement date

The Discussion Paper suggests that the commencement date for the amended determination arising out of the current consultation may be 1st September 2020 subject to suggestions of a preferred date with reasons.

As NICTA says in the covering letter to the Discussion paper, NICTA now has better information on cost and demand than was available to it in 2019 when it gazetted prices in December 2019.

It would be inappropriate to backdate the Determination to, say, 1st January 2020. Unit cost is sensitive to the level of demand. The average maximum price in the NICTA Discussion Paper and the prices in DataCo's RIO are based on volumes at the end of the year which are more than double those in January **CIC(.....)CIC.**

DataCo may have the power to amend or revoke the existing December 2019 Determination under Clause 133(1) of the NICTA Act. The grounds for this are found in Clause 126 (a and b) and Clause 124(2)(b and c).

G Service definitions

Currently, no wholesale customer purchases any of the following declared services:

(a) the international submarine cable transmission capacity service;
(b) the international submarine cable gateway access service; and,
(c) the international submarine cable duct access service.

Current commercial international transmission services (WIS and IPLCs) combine all three of the above and more:

- In the case of the wholesale internet service (WIS), this includes access to the global internet (IP Transit) and domestic transmission services (delivering access to the internet at the same price across PNG).
- In the case of IPLCs the commercial service may include MPLS, domestic tails and international extensions beyond Sydney or Guam. But, as NICTA says at 3.11 in its 19th August Discussion Paper on the RIO, it is very close to the declared service.

Since neither commercial international transmission service is exactly like the regulated international submarine cable transmission service, NICTA can either:

A. Try and make the commercial service look more the like regulated service. But stripping, say, IP Transit and domestic transmission from WIS leaves no service worth having.

or

B. Use commercial services to monitor compliance with the regulated service. This is a more suitable approach. The top-down model allocates some domestic transmission costs to both WIS and IPLC costs (e.g. to link POM to MDG through the Kumul cable to deliver international transmission services). Since the maximum average revenue per Mbps in the revised draft Determination for declared international transmission services (subject to H below) is based on the top-down model, this provides a sound basis for testing whether commercial international revenue (i.e. WIS plus IPLCs) per Mbps are cost-based prices consistent with the revised Final Determination.

H The cost mark-up

The top-down model is based on fully allocated costs only. It includes actual interest costs but there is no allowance for the return to capital. Once interest costs are excluded, the required mark-up can be derived from the WACC.

In the UK, Ofcom has a top-down model for declared copper services which shows how the mark-up to costs can be done. Details are at Annex 1 to this submission. The Annex shows the WACC is applied to the current cost of fixed assets (plus current assets in the UK) as part of total costs.

NICTA can also apply a WACC to the opening asset base to add the return to capital to top-down costs. First, subtract interest (FIN) from the top-down cost model so that debt costs are not double counted. Second, multiply the WACC **CIC** ..... **CIC** which, of course, can be

varied by the value of assets at the start of each year[4] to get the cost of capital. Third, add the cost of capital to the amount after step 1 and divide that sum by step 1 to get the mark-up.

The resulting mark-ups to the top-down cost of international transmission for 2020 and 2021 are **CIC** .....**CIC** as shown in the table below.

Calculating the mark-up from imputation of the WACC

	2020	2021	2022	2023	2024
Opening RAB					
WACC					
Return to capital					
A - Top-down intl.		REDACTED			
Less FIN					
Equals					
B - Add WACC return					
Mark-up B/C					
Demand					
Revenue/Mbps/pm					

Summary

Continuing to offer commercial international services under normal wholesale pricing arrangements that are subject to the regulated maximum average price per Mbps is practical and benefits all customers. The services and prices described in DataCo's RIO are offered to all licensed operators on a non-exclusive and non-discriminatory basis.

Treating all submarine capacity as part of a holistic system provides a resilient system that will continue to improve with planned international extensions.

DataCo believes that the proposed changes to the regulated pricing of international transmission services are in the interests of our wholesale customers. '

PAUL KOMBOI
Chief Executive Officer

[4] Note that PPC1 is not included in the asset base as it is rented from TPNG and appears as part of DataCo's OPEX. Kumul and CS2 are both new so the current cost and the actual cost are the same. In the bottom-up model, the Kumul cable's asset value was inferred from the depreciation charge in the Parcus Top-Down model (discounted by 75% to remove domestic traffic and then by 50% in 2020 since it was not in operation the whole year).

Annex 1 – Ofcom bottom-Up Cost Model and WACC

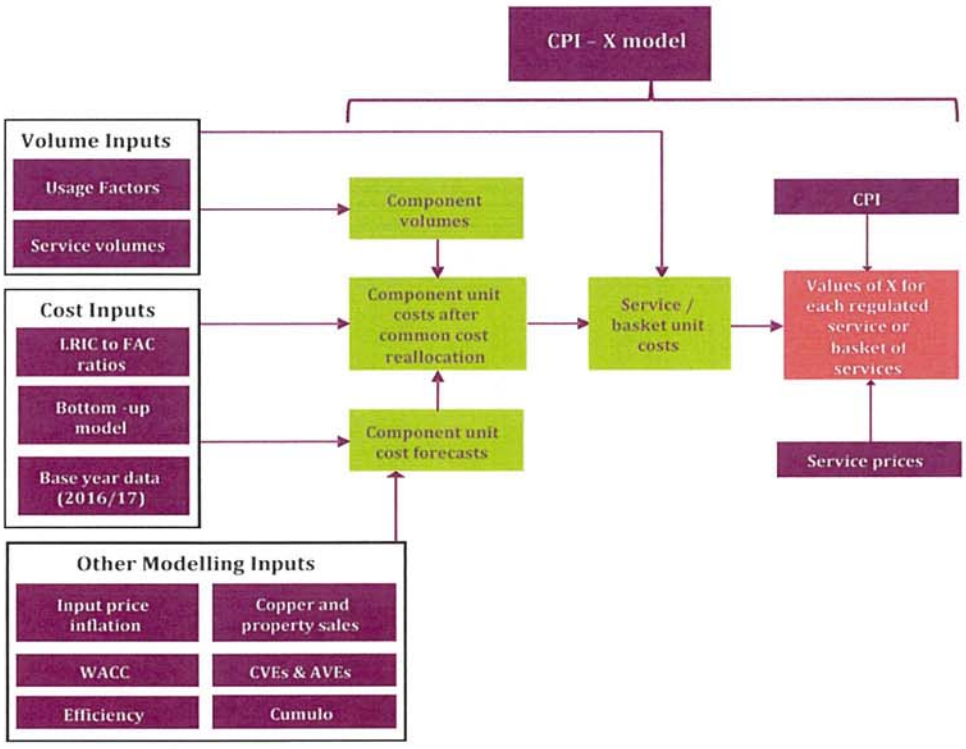
Extracts from: Wholesale Local Access Market Review: Statement – Volume 2 and Annex 11, 28 March 2018

Top-down model: based on total network cost data (usually derived from accounting cost data such as BT's Regulatory Financial Statements (RFS). In this type of model we forecast the costs based on asset volume elasticities (AVEs) and cost volume elasticities (CVEs) applied to our forecast of component volumes. The model then allocates costs to services based on usage factors.

We consider a top-down model forms the best basis for estimating the cost of MPF (metallic path or copper) services. We have an established model that can reliably be used to estimate the cost of these services and our approach is well understood by stakeholders. BT has reported cost data on copper access services in the RFS for a number of years, meaning we have some confidence in the data and the cost volume relationships that underpin it.

We consider a bottom-up model is preferable to a top-down model for estimating the costs of GEA (Generic Ethernet Access or fibre) services because it allows us to more accurately calculate cost-volume relationships. Understanding these relationships in a top-down model can be difficult for new services and services that are seeing rapid volume changes.

Figure 4.3: Structure of the top-down model



Source: Ofcom

When setting a charge control, we are concerned with estimating the weighted average cost of capital (WACC) on a forward-looking basis. For Openreach copper access the pre-tax nominal WACC is 8.1% in 2019/20 and 7.9% in 2020/21 applied to WLA copper and passive access services.

There are various other inputs to the top-down model which include:

• **Asset price inflation:** We have adopted asset price change assumptions which ensure that duct and copper assets are valued consistently with how they are revalued for CCA (Current Cost Accounting) purposes in BT's RFS (Regulatory Financial Statement).

Annex 11 on top down model

As set out in Section 2, we have decided to use the Current Cost Accounting, Fully Allocated Cost (CCA FAC) cost standard for calculating the total Wholesale Line Access (WLA) market level cost. We adopt the Financial Capital Maintenance (FCM) approach to CCA for establishing the allowed capital costs for BT.

The FCM approach seeks to maintain the financial capital of the firm, and hence the firm's ability to continue financing its functions. For modelling purposes, this involves including an allowance within the capital costs for the holding gains or losses (HGL) associated with changes over the year in the value of the assets held by the firm. This is in addition to an allowance to undertake the capital expenditure (capex) required to retain the output capability of the firm's assets.

Return on capital

Return on capital (t) = [NRC(t) + NCA(t) + HGL(t)] * pre-tax nominal WACC

NRC is Net Replacement Cost of fixed assets

NCA is Net Current Assets

HGL is the holding gain or loss

IPC is the input price change HGL(t) = - [Total NRC(t-1) * IPC(t)]