

Initial Period Pricing (Public Version)

Background

FANOC has lodged a special access undertaking (SAU) with the Australian Competition and Consumer Commission (Commission) in relation to the provision of a broadband access services (BAS) over a hybrid fibre twisted pair (HFTP) network.

The purpose of this document is to set out the pricing approach for the initial three year period of the SAU. It should be read in conjunction with the SAU and the Microsoft Excel spreadsheet which determines initial prices. These documents and calculations were prepared on behalf of the fibre access network operating company (FANOC).

This document has all confidential information masked as [C-I-C] and therefore may be disclosed publicly.

FANOC will provide confidential versions of this document and the initial pricing model referred to in this document to interested parties upon those parties signing appropriate confidentiality undertakings, as agreed by FANOC.

The SAU is for 15 years. The pricing model is based on an initial three year period and then four year access periods. In Access Periods subsequent to the first Access Period a pricing formula will apply. This is set out in the Schedule 3 of the SAU and is described in detail in a paper prepared by NERA. The pricing formula could loosely be described as a building block pricing approach to control monopoly pricing, combined with a price cap mechanism to provide incentives for efficient price structures. The formula and construct has similar features to those used in regulating networks in other industries, such as electricity.

In the second and subsequent Access Periods the pricing formula places the risk with respect to achieving expected sales of the BAS on FANOC. The formula also allows FANOC to price based on the actual cost of constructing the network, subject to the budget and other controls it vests in the BAS Manager.

In the first Access Period the forecasts of sales of BAS are inherently less reliable and, consequently, FANOC is not required to absorb risk associated with sales from forecast and the risk associated with the actual cost of constructing the HFTP network. This is because sales will be significantly more uncertain in the first Access Period because penetration rates will be dependent on the rollout and HFTP coverage.

As a solution, prices in the first Access Period are set based on long term forecasts of expenditures and service demand on the HFTP, including long term forecasts of broadband penetration on various network platforms.

This document contains information that is commercial in confidence. This information is contained in square brackets.

Overview of Model Approach

A bottom up costing of the network has been undertaken by FANOC, based upon an initial rollout of the HFTP network to 4 million homes in five capital cities using ADSL2+ technology on fibre to the node architecture via 20,000 nodes. This is largely consistent with the HFTP proposed by Telstra.

The engineering design produces the number of network elements. The total capital expenditure is based on vendor pricing for each modelled network element within categories: Nodes (DSLAM, Street cabinets and power systems); Installation; and Fibre Installation (ducts and trenching). Capital asset lives were provided for each category.

Operating expenditures are based on a network build program that involves a three year build. Operating expenditures allow for maintenance, growth in network to new estates and network management overheads. A contingency is allowed. Cash tax expenditures have also been modelled.

The cost of ULLS sub loop is based on industry cost modelling and previous regulatory decision making.

NERA has provided to FANOC an estimate of the cost of capital (on a post tax weighted average basis) necessary to fund the network consistent with regulatory practice. As recommended by NERA, a competitive process could be used to 'discover' the true cost of capital for the investment.

The pricing for the initial period is based on forecast demand for the basic telephone access services and standard broadband services ranging in speed from 1.5Mbps to 24Mbps. Total demand for broadband services is expected to grow significantly, and demand for high speed services is expected to displace demand for lower speed services over time.

FANOC is assumed to price discriminate on the basis of broadband speed for the standard service. NERA discusses the benefits of this form of price discrimination. The price of the basic telephone access service is capped to grow at inflation, and the average price of broadband services is also forecast to grow at inflation. The model allows FANOC to retain a CAV of [C-I-C] billion at the end of the undertaking period (15 years). This is consistent with a view that the HFTP will continue to be a regulated network.

The modelling inputs and outputs can be depicted as follows.

Revenue and Demand Assumptions	Capital Expenditure and Operating Costs	Bottom up costing
<ul style="list-style-type: none"> ▪ Access charges <ul style="list-style-type: none"> – Basic access charge – Broadband charge ▪ Wireless penetration ▪ Volume (penetration of voice, ULL broadband and FTTN) ▪ Mix of uptake of various services, migration to high speed 	<ul style="list-style-type: none"> ▪ Funding costs ▪ Network operating costs ▪ Expansion capex ▪ Replacement capex ▪ Depreciation (return of capital (closing CAV)) ▪ Management costs ▪ Payments to Telstra a 'pass through' 	<ul style="list-style-type: none"> ▪ 15 year model ▪ Basic access charge price controlled ▪ Average broadband prices increasing at inflation ▪ Closing Capital Asset Value of \$1 billion ▪ Maximum WACC of 9%

The pricing and costing model prepared by FANOC was prepared using Microsoft Excel.

Service	Basic service charge [\$/month]	ULLS (sub-loop) [\$/month]	Broadband component [\$/month]	Total [\$/month]
Basic telephone access service	10	5 – 15*		15 – 25
Standard broadband service + 1.5Mbps	10	5 – 15*	4.23	19 – 29
Standard broadband service + 6Mbps	10	5 – 15*	8.46	23 – 33
Standard broadband service + 12Mbps	10	5 – 15*	16.92	32 – 42
Standard broadband service + 24Mbps	10	5 – 15*	25.38	40 – 50

* Range discussed further below.

Network costs including capital and operating expenditure

FANOC has modelled the cost of a particular configuration of HFTP. HFTP is a particular form of fibre to the node. The model assumes an initial rollout of

the HFTP network to 4 million homes in five capital cities using ADSL2+ technology on fibre to the node architecture via 20,000 nodes. This is largely consistent with the HFTP proposed by Telstra.

Nodes can provide a variety of xDSL cards. The number of ports will vary with the card provisioned. The modelled cost is based on ADSL2+ at the nodes with a distribution fibre ring providing transmission to local access points.

A detailed network description is provided in a separate submission from FANOC.

The total capital expenditure is based on vendor pricing for each modelled network element within categories:

- Nodes (DSLAM, Street cabinets and power systems);
- Installation and Customer Cutover; and
- Fibre Installation (ducts and trenching).

These are considered in turn.

The *Node* elements of the HFTP capital costs are relatively independent of location. These are the DSLAM, Street Cabinet and Power System costs. Utilising Huawei equipment at a conservative level:

- DSLAM with 176 port capacity
- POTS and ADSL2+ combination cards
- Cabinet – ONUF01D200 Assembly (220V, Heat Exchanger, with Heater)
- Power, Battery and Cabling.

DSLAM, Steet Cabinet and Power Systems are [C-I-C].

Installation and Customer Cutover costs include the cost of site preparation, interconnection to the mains power supply, copper cabling to the interconnection pillar and the cutover of each of the customers is:

Node Slab Duct Pit and Civil Works	[C-I-C]
Power Connection	[C-I-C]
Copper Tie Connection and Termination to Pillar	[C-I-C]
Cutover of 200 lines @ \$100 per line	[C-I-C]

Fibre Installation Ducts and Trenches have been modelled based on an average distance to the Node locations of [C-I-C] . This is as a result of assuming that the Exchange Servicing Area for a 12 Mbps ADSL2+ service is [C-I-C] , and the Nodes are on the periphery of the serving area. The costs for an “average” mix of lease and build duct capacity and a 72 Fibre cable are modelled at [C-I-C].

The model estimates a rollout of around 500 nodes per month, meaning 6,000 nodes are built each year for the first 3 years (base case roll-out period). Each node is assumed to cover 200 households, creating the initial target coverage of 4 million households. A total of c. 20,000 nodes are therefore built at a capital expenditure cost of [C-I-C] per node, providing a capital roll-out cost of around \$3.6 billion.

Operating and maintenance costs cover at least equipment vendor support costs, Telstra leased backhaul, Power, TEBA, Duct and Backhaul components and general maintenance and management overhead. Modelled costs are [C-I-C] per customer per annum.

Network planning and operating costs associated with network growth are modelled, as are Network Management costs. Costs are modelled on a headcount basis.

Operating expenditure contingency is allowed. Cash tax expenditures have also been modelled.

Operating costs are summarised on a per customer per annum basis as follows.

TEBA Space Rental	\$	[C-I-C]
Transmission equipment maintenance	\$	[C-I-C]
Local Exchange to Node Duct Lease	\$	[C-I-C]
Node location lease charge	\$	[C-I-C]
Node Power costs	\$	[C-I-C]
Node Maintenance Materials	\$	[C-I-C]
Node Maintenance Labour	\$	[C-I-C]

Additional costs incorporated into the model include:

- Network staff costs (assumed to be [C-I-C] people at a cost of [C-I-C] per person) = [C-I-C] per annum
- Corporate costs = [C-I-C] per annum
- Other operating costs = [C-I-C] per annum
- Operating costs contingency = [C-I-C] per annum.

Coverage, Penetration and Uptake

The model determines coverage and penetration for voice services and for broadband services under the HFTP network. Penetration is forecast for broadband in total and for bandwidths between 1.5Mbps up to 24Mbps.

Coverage

The coverage assumptions are:

- Assumed coverage target of 4m households in the initial build;
- Initial build will take place over a 3 year period; and
- Growth in new estates at [C-I-C] per year.

Penetration and Uptake

- a. Basic Telephone Access Services: assumed 100% penetration for basic telephone access services less assumed penetration for households assumed to be completely wireless (both voice and data).
- b. FTTN broadband services:
 - For <1.5Mbps service, penetration assumed to be consistent with existing market penetration rates. A large proportion of customers are currently being serviced at low bandwidths.
 - For >1.5Mbps service, separate penetration rates are assumed for additional services provided (eg. 6Mbps, 12Mbps, 24Mbps). Take up in high speed broadband services is expected to displace low speed services.

Broadband penetration is expected to reach 72% in three years and plateau at 81% over the SAU period.

The anticipated migration to high speed services is assumed to be modest. In the first year around [C-I-C] of households are estimated to take the 1.5Mbps service. This falls by [C-I-C] annually over the SAU period.

Initial period price calculation

NERA has provided to FANOC an estimate of the cost of capital (on a post tax weighted average basis) necessary to fund the network consistent with regulatory practice.

NERA recommend that a competitive process could be used to 'discover' the true cost of capital for the investment. A 9% weighted average cost of capital is used to model initial prices. The inputs to this calculation are as follows.

Risk Free Rate	5.88%
Market Risk Premium	6.00%
Equity Beta	1.00
Target Gearing (Debt to Debt + Equity)	60.00%
Debt Margin	1.20%

Cost of debt	7.1%
Cost of equity	11.9%

Post tax nominal WACC	9.00%
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A 15 year timeframe is used to model prices. The pricing for the initial period is based on forecast demand for the basic telephone access services and standard broadband services ranging in speed from 1.5Mbps to 24Mbps as described above and as set out in the model.

Total demand for broadband services is expected to grow significantly, and demand for high speed services is expected to displace demand for lower speed services over time.

The price of the basic telephone access service is capped to remain constant in nominal terms (or grow at (CPI – 0)). This is consistent with the retail price control on line rentals¹ and will allow access seekers (including Telstra) to comply with any likely retail price control measure in relation to the residential telephony service for which the basic telephone access service is an input.

The average price of broadband services is forecast to grow at inflation (CPI).

FANOC is assumed to price discriminate on the basis of broadband speed for the standard service. The relativities between the price of the 1.5Mbps service and the other services (6Mbps, 12Mbps and 24Mbps) are set at [C-I-C] respectively. NERA discusses the benefits of such forms of price discrimination. Alternative forms of price discrimination may increase usage of the network and are allowed within the framework of the SAU.²

Based on these assumptions an initial average wholesale charge for broadband service is calculated (or solved for) such that FANOC is assumed to retain a capital asset value of \$1 billion at the end of the undertaking period (15 years). This is consistent with a view that the HFTP will continue to be a regulated network and it will set a long term balance of capital expenditure and capital recovery.

The initial average wholesale charge for broadband services is calculated to be [C-I-C] per month.

ULLS (sub loop) ‘pass through’

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<http://www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrumentCompilation1.nsf/all/search/9F787253A0F8B4E5CA2571300082591E>

² Limits are place on the ability to price discriminate for the basic access service. Whilst it may increase efficiency, regulatory and social obligations discourage such pricing structures and are not allowed within the SAU. Specifically, the price of the basic access service is capped to grow at CPI-CPI.

Sub loop charges are a 'pass through' cost for access seekers to the BAS.

The principal assumption with respect to basic telephone access services charges is that access seekers will pay a 'pass through' cost based on the unconditioned local loop (ULL) charge or access to the copper consumer access network (CAN). FANOC takes no risk with respect to this amount.

This current charge for the ULLS is set at \$17.70 per month by way of Interim Determination by the Commission. The \$17.70 per month figure is based on two components:

- A network cost component; and
- A specific cost component.

The specific cost component is a component claimed by Telstra to cover its costs associated with providing a service to manage, order and provision of the ULLS on a customer by customer basis. This service will not be required with a redefined ULLS allowing for 'pillar migration' and no cost is ascribed in the model. We note that the Commission is currently undertaking an inquiry into the service description of the ULLS to allow interconnection at a pillar³ and FANOC has proposed modest legislative amendments to allow for pillar migration.

The network cost component remains controversial. FANOC is seeking access to the last half mile of copper in Band 2 areas. Current pricing for the ULLS is based on access to the full length of copper from the exchange to the network boundary at the customer premise, rather than from the network boundary to the node (the sub-loop).

Based on its PIE II model, Telstra has claimed network costs of around \$14.89 for the current ULL service description and the ACCC has indicated its view that the upper bound of network costs is \$12.⁴ As FANOC is seeking access to only the last ½ mile, its regulatory costing of this network component estimates a cost of slightly less than \$5.

The Australian Competition Tribunal has rejected the PIE II model. It concluded:

We are also not satisfied that the PIE II model can be relied upon to estimate the Telstra' efficient network costs having regard to the issue in relation to the alternation of price trends referred to above in par [347]. The issues we have raised in relation to the PIE II model and the deficiencies and short comings to which we have referred, individually and

³ <http://www.accc.gov.au/content/index.phtml/itemId/785114>

⁴ ACCC, Draft Decision on Telstra's ULLS, LCS and PSTN OTA undertakings, August 2005.

cumulatively, lead us to the conclusion that we cannot be confident, nor can we be satisfied, that the PIE II model can be relied upon accurately to estimate Telstra's network costs of supplying the ULLS for the periods covered by the undertakings.⁵

On balance, FANOC considers that it is appropriate to indicate a range for this 'pass through' charge on the basis that a final amount will be negotiated with Telstra or subject to the arbitration provisions under Part XIC of the TPA or related determinations or decisions.

⁵ Telstra Corporation Ltd (No 3) [2007] ACompT3 para 366