NORFOLK ISLAND REGIONAL COUNCIL

27 January 2021

Committee Secretary
Joint Standing Committee on the National Capital and External Territories
PO Box 6021
Parliament House
Canberra
ACT

Availability and access to enabling communications infrastructure in Australia's External Territories

Dear Committee Secretary,

On behalf of the Norfolk Island residents, we welcome this opportunity to provide a submission to you. The inquiry into availability and access to enabling communications infrastructure in Australia's external territories is a high priority for us, we thank you for its conduct. We respectfully request that our submission to the Joint Standing Committee on the National Capital and External Territories is given thoughtful consideration.

As an external territory of Australia, located some 1,412 km from the mainland, the island community has a unique understanding of the importance of communications infrastructure. We believe this inquiry comes at a crucial time for the island. Like all parts of the globe, COVID-19 has provided us an important time of reflection about our economic future and the need to urgently improve our communications infrastructure.

Through this document, we seek to address the core aspects of your terms of reference (TOR) [1], while providing both insights and the opportunities that are available within Norfolk Island for the Federal Government.

Executive summary

Norfolk Island and it's two close neighbours, Phillip and Nepean islands, are located 1,412 Km East of the Australian mainland, in the Pacific Ocean. The three islands combined form the Territory of Norfolk Island; only Norfolk Island is inhabited.

Norfolk Island (the island) has a population of 1,748 (ABS 2016), with approximately 20% identifying as having Pitcairn ancestry. The island has a diverse environment and notable historic sites offering a unique heritage seldom found elsewhere within Australia and worldwide. This remote island is also of major biological importance with many native species being unique to the island.[2]

[1] https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/National_Capital_and_External_Territories/ETCommsInfra/Terms_of_Reference

[2] https://www.regional.gov.au/territories/norfolk_island

Connectivity on the island has gone through many changes over the last few decades. The island did have a cable connection to Australia; sadly, this was disconnected with the onset of satellite communications. The island is currently dependant on satellite links (Council operated, National Broadband Network, Federal Government, and a redundancy link), constrained by a range of known factors, including cost, speed, and reliability.

The island connectivity to mainland Australia has been the source of considerable angst for residents. With the growth in data driven and digital services, the island is constrained by the well-known limitations of satellite communication. While connectivity is achieved, the cost and limitations create social and economic barriers for the island residents. Satellite communication, while serving a critical function, is not well suited to the ongoing commercial, public sector and domestic needs of Norfolk Island.

TOR 1 - The availability of, and access to communications technologies and infrastructure in each of the external territories.

The island's history is unique in respect to communications technologies and infrastructure. The island has previously been connected via a submarine cable which has long since been cut, though key assets such as the cable landing station remain.

National Broadband Network (NBN) – Satellite

Sky Muster satellite service is provided to the island as part of the Federal Government NBN plan. The service requires the installation and maintenance of a roof satellite dish. Access is based on a range of commercial plans made available through internet retailers.

According to NBN, speeds that are experienced fluctuate but wholesale speeds peak at 12/1Mbps or 25/5 Mbps depending on the tier chosen[3].

Norfolk Island Regional Council (NIRC) – Satellite

For some time, dating before NBN, NIRC provides telecommunications for domestic and commercial applications on the island. This is operated as a beneficial enterprise; the notable elements related to this are:

- Primary satellite connection, 113 Mbps download and 37 Mbps upload capacity
- A secondary (redundancy) connection is maintained, 20Mbps download and 4Mbps upload
- ~$8 Million (AUD) cost over 5 years[4].

Norfolk Island Regional Council (NIRC) – Fibre and Copper

The island has an extensive underground fibre network (FTTN). This was funded by the Federal Government in 2003 under the Networking the Nation (NTN) program. This network connects all key

[3] https://www.nbnco.com.au/learn/network-technology/sky-muster-explained
[4] GWI - Norfolk Island Regional Council Connectivity – Dated 09 June 2020

locations from the cable landing station, including council buildings, schools, hospital and the airport. All domestic residents on the island are connected to a copper fixed line.

Other Satellite

Several duplicate satellite connections exist on the island; the full cost of these duplicate services is unknown. These satellite services are used by a range of public services that provide state (health and education) and federal government level services. The Australian Government pays for these duplicate services.

Missed Opportunity

In 2016, the island was presented with a highly competitive proposal for a carrier neutral system from Hawaiki Submarine Cable which did not proceed. This comprised of a ~42 Terrabits per second (Tbps) capacity and a guarantee of 100 Megabits per second (Mbps) to Australia.

In return for a (one off) ~$14m (AUD) investment (plus on-going costs), Norfolk Island would have received a branch of approximately 90km long, unrepeated (unpowered) 2 fibre pairs branch with a design capacity of 100 Gigabits per second (Gbps). This opportunity did not proceed, and efforts for improved connectivity have continued ever since. The last proposal was put forward to the island in 2020.

Summary

With the undersea cable opportunity not being exploited in 2016, the island's connectivity (for social and economic outcomes) has become dependent upon NBN Sky Muster and Norfolk Island Telecommunications Satellite Service. Anecdotal evidence suggests a steady uptake of NBN on the island, lowering the revenue and opportunity for the Norfolk Island Telecommunication.

TOR 2 - Future opportunities in enabling communications technologies and infrastructure in each of the external territories including telecommunications services, submarine cables, satellite capabilities.

Ubiquitous, high-speed internet is now a well-recognised as a critical enabler for even third world communities. With many of the neighbouring Pacific Islands (New Caledonia, Vanuatu and Fiji) being connected via undersea cables, the island remains limited by the constraints of satellite service. There is a compelling case for a review of the connectivity of the island.

Telephone exchanges were the data centres of their day. They provided a central location for all communication of the time (phone, fax, and even dial-up internet). With the rise of 'digital everything' the analogue phones and networks of yesteryear have been replaced with the internet, mobile network-connected devices, and the internet of things (IoT).

Investing in a Submarine Cable Network will allow the island to directly transmit and receive substantial volumes of internet, video, voice, and mobile data globally without the latency challenges of a satellite connection.

With this reliable direct global access, the island will be positioned to broaden and build resilience into its current economic model, something that is urgently needed. With the rising demand for internet-

based products and services - a fast, scalable, reliable, and cost-effective internet connection for Norfolk Island must be prioritised. Such a project will be a defining legacy admired in decades to come like the airport and port.

TOR 3 - Opportunities and barriers arising from current and potential future communications infrastructure in each of the external territories.

Barrier

Low-cost internet connections, like all products, lower in price based on demand. The island does not have the population density to provide the immediate economies of scale of the investment needed. Examining cost alone, the investment required would not be attractive. In 2016, even the most basic of an opportunity to create an undersea cable branching unit (BU) 90 km from the island (a break in the cable for future connectivity) was not taken. Due to this decision, all future investments in a submarine cable will require a greater capital investment as the nearest BU is now some 200km away, near New Caledonia.

Opportunity

The island has gone through several years of challenges relating to the administration and governance of the territory. Ongoing support is required from mainland Australia given the constraints faced by the island location. The global situation of COVID-19 has further compounded matters as tourism is a significant island industry, supporting many direct and indirect jobs.

An undersea cable represents a vital asset for the island to continue a pathway to self-sufficiency. A reliable and fast internet connection would allow the island to fully participate in the global digital economy. Given the legacy assets already in place (cable landing station, fibre network, copper network), the island is well placed to maximise an undersea cable connection.

Many of the public services on the island are critical functions. From education, health, law enforcement and public administration, all of these require internet connectivity. Many of these functions have invested in their own satellite communication infrastructure, given the important nature of their work. All of these are funded by the Australian Government and thus represent a significant opportunity for savings by aggregating demand into an underseas cable.

Given the islands geographically isolated position in the Pacific Ocean and established assets already in place, investment in a submarine cable can provide the Australian Government with a geo-political advantage in the region. The island, as an asset of Australia, represents a platform to achieve a range of policy objectives, from agriculture, defence, space exploration and wider research and development given the unique environment.

TOR 4 - Examining the economic benefits of improving the availability of, and access to, communications infrastructure in each of the external territories.

The Norfolk Island Regional Council (NIRC) and the wider community understand the potential of leveraging the increased creation and use of data in a modern economy. The island has an opportunity towards self-sufficiency through organisational efficiencies and economic growth with a more usable internet connection.

Implicit in a modern economy is access to high-speed internet. At a city / region / island level this must be more than a domestic connection. In the same way an airport can connect an island directly to the world; a robust internet connection is now a critical enabler for social and economic growth.

A submarine cable for the island represents a fast, scalable, reliable, and cost-effective internet connection. Satellite connections, while extremely valuable, are a shared and a limited resource. Bandwidth usage on satellites is relatively expensive and latency is higher than with a submarine connection, making these connections of limited value for some services.

With the growth of data production and use global internet-based services, the limitations of the current island internet are unsustainable. The lack of an ubiquitous high speed and resilient internet connection to mainland Australia and in the surrounding Pacific Islands will continue to hinder the island's economic prosperity.

With tourism, a significant economic enabler of the island, existing arrangements for short term internet access are limited and expensive. The current internet solution has proven to be a point of frustration for many tourists and visitors.

The investment in a suitable submarine cable is a powerful economic multiplier given the explosive growth in data use now and in the coming years. With countless global case studies available to demonstrate the validity of the internet as an economic enabler, action is needed. The island's economic benefits would include:

- Supporting new jobs, industries, and the focal point for new island services
- Localised storage of data for local industry growth and economic development
- High levels of security, redundancy and resilience for core business systems and data
- Increased local government revenue from new businesses and residents
- More significant social opportunities through a vibrant economy
- Increased tourism opportunities
- Investment attraction for businesses that consume, use, or create vast amounts of data storage and compute capacity in a secure location
- The ability to build local innovation and industry hubs around the capability provided in the island, with optional start-up incubator models taking advantage of services delivered digitally.

TOR 5 - Recommendations for any future communications technologies and infrastructure for each of the external territories.

The premier global market intelligence firm International Data Corporation (IDC) has stated that by 2025, worldwide data will grow by 61% to 175 zettabytes (currently ~ 50ZB). Growth has not been, and

will not be, linear but will be exponential. Data creation and consumption has grown so rapidly that 90% of the world's data was created in the last 2 years.

Much of this data will reside in data centres, known as the cloud. First and even third world economies are investing in the critical infrastructure to leverage the social and economic opportunities of this data growth. While traditional infrastructure such as roads, rail, bridges and housing have an indispensable role, there is a need to evolve to meet future economic demands.

To achieve sustained economic growth and remain competitive, Norfolk Island must invest in the capacity and capability to access, store and trade vast amounts of data needed in a modern economy.

With the onset of fifth generation mobile technology (5G) in mainland Australia, consumer and business data needs will only grow. For the island to grow, it requires investment in communications technologies and infrastructure.

On behalf of the island community, we urge the Joint Standing Committee to recommend the immediate planning for an undersea cable.

Yours faithfully,

Andrew Roach
General Manager