



Business Plan

FY 2019 – 2023

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Executive Summary

This Belau Submarine Cable Corporation (BSCC) Business Plan focuses on completing the network extension to Airai in 2019, the elimination of further potential single points of failure in BSCCnet, and the further refinement of operational processes.

Forecast expenditure on general expenses for 2019 is \$887K, with another \$361K of specialist operational services. With interest expense of \$486K and \$600K added to reserves, total forecast expenditure is \$2.333M.

In August 2018 BSCC issued bonus capacity to double the speed available to each of the three Retail Service Providers (RSPs) and reduced prices by 30% to reflect the lower unit costs. This action will stimulate growth, but is likely to defer reorder points for each RSP. This plan assumes further sales will be made from 2021 onwards.

BSCC Structure

BSCC was established in 2015 by RPPL9-47 (the BSCC Act), to progress a project initiated by the World Bank and Asian Development Bank (ADB) to provide international submarine fibre optic connectivity for the Republic of Palau (RoP). ADB remains as the sole financier.

BSCC has provisionally applied for a licence to operate a wholesale network in RoP in January 2018 in accordance with RPPL 10-17 of 2017 (the Telecoms Act).

The sole shareholder in BSCC is the Minister of Finance. A Board of Directors is appointed by the ROP government.

Business Objectives

The primary business objective of BSCC is to

Provide ICT Service Providers in Palau with equal access to high quality wholesale capacity at the lowest pricing commensurate with full cost recovery.

The focus of this Business Plan is consolidation of the gains flowing from the newly constructed submarine link providing international connectivity to RoP.

The business issues addressed by this Plan are:

- (a) Construct CAP-A Extension.
- (b) Consolidate operational process to ensure excellent network performance.
- (c) Work with other parties in the RoP telecommunications market to ensure effective market performance.

- (d) Work with relevant authorities to ensure effective disaster planning for international connectivity.
- (e) Develop BSCC capability, including staff recruitment and network resilience.
- (f) Define key operational arrangements including ongoing management, marine maintenance, landing party agreements and Network Operations Center (NOC).
- (g) Establish the expenditures and revenues associated with the development and operations of BSCCnet.
- (h) Set out the financing arrangements to underpin BSCC and the project.
- (i) Analyse risks associated with the company's activities.

Strategic Framework

BSCC's price positioning is defined by the BSCC Act. Accordingly, BSCC will operate pricing regimes that support servicing and repayment of debt and business costs, rather than maximise profits.

BSCC is a wholesale supplier in the RoP telecommunication market. This enables the lowest possible cost structure, as BSCC supplies raw capacity to Retail Service Providers (RSPs), rather than telecommunications services to end-user customers, avoiding the need to invest in complex product support and billing systems, sales and marketing capability and customer support systems. By positioning as a wholesaler, BSCC also avoids the difficult position of having to compete with its own customers, who are much better resourced to develop, supply and support telecommunications services in the retail market.

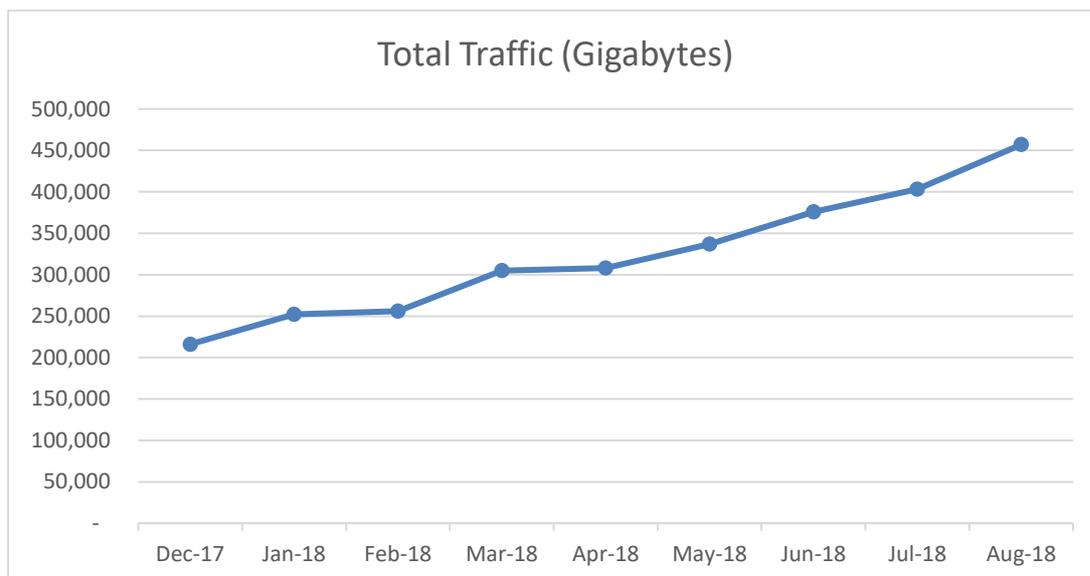
BSCC offers the same capacity products, pricing, payment options and terms and conditions to all eligible customers (ie licensed RSPs).

Because BSCCnet will be relatively small in terms of capacity in service compared to other intercontinental submarine networks, and is likely to have relatively few customers (perhaps no more than four in the medium term), its operational needs will not justify extensive full-time roles. Accordingly, BSCC outsources the majority of its business functions in network operations and management, finance, IT and legal.

Marketing

Capacity

Pre-BSCCnet, total satellite capacity use for RoP was estimated at 400 Mbps. There was an immediate increase to 1,000 MBPs by March 2018. In the next six months since Ready for Service, BSCCnet traffic doubled again to 2,000 Mbps. Total download volumes have been growing at about 10% per month.



BSCC's previous 2018 - 2022 Business Plan revenue forecasts for 2018 were \$2.7M and for 2019 \$3.3M. If one customer were to reorder one additional 1 Gbit / sec, the most likely case if the price schedule was unchanged, revenue would increase to \$4.5M pa, 50% above plan, and another reorder very likely within 12 months. Further, the 2018 - 2022 BP uses very conservative capacity growth rates. With two customers close to reorder point already, further sales would jeopardise the "full cost recovery" objective, with revenues outstripping expenditures by a considerable margin. It was clear that BSCC must address pricing immediately

Scenarios investigated ranged from (i) a rebalancing of the pricing table to reflect the higher than expected start point and the current growth rate; to (ii) issuing bonus capacity for free on a pro-rata basis to all three Retail Service Providers (RSPs).

Modelling showed that a price decrease would not make a strong impact in the market, while issuing bonus capacity might make RSPs suspicious that BSCC was trying to boost its re-order revenue. BSCC wanted to make the greatest possible impact on retail product quality and pricing, to boost the economy and maximise benefits to the Republic of Palau.

BSCC adopted a solution that combines both approaches: the issue of matching bonus capacity, that would double the speed available to each RSP, plus a 30% price reduction to align pricing to the new effective unit cost. This was implemented in September 2018 and underpins this Business Plan.

Modelling indicates the bonus capacity will defer re-orders for two years.

This Plan assumes 58% growth in 2021, 32% in 2022 and 36% in 2023, but no further capacity sales in 2019 and 2020.

Pricing

All pricing is in USD, which is industry standard.

BSCC reduced prices by 30% in September 2018.

Mbit /sec				
From	To	3 Year Lease	Prev early bird price	Prev list price
50	199	190	270	330
200	399	140	200	250
400	999	105	150	188
1000	1999	79	112	140
2000	4999	60	85	110
5000	9999	45	64	80
10000	19999	34	48	60

BSCC pricing is intended to support a virtuous cycle, where higher volume purchases attract lower unit prices, which in turn allow retail price reductions by customers, which in turn generate higher volumes.

Market and Regulatory

The Palau telecommunications market is competitive, regulated by the Bureau of Communications established under RPPL 10-17 of 2017 (the Telecoms Act).

Regulation remains in its infancy, with significant uncertainty. It is expected a Regulator will be appointed in 2019.

The RoP telecommunications market is still largely dominated by the incumbent provider, Palau National Communications Corporation (PNCC). The main competitor is Palau Telecom, which has operated a Wi-Fi network and is expanding into mobile and possibly fixed line customer access. Palau Wi-Fi continues to operate a small operation focused on tourist hotels. The Telecoms Act (2017) provides for a moratorium on new market entrants until January 1st 2020, with provision for a further extension of up to three years.

RoP is the world's first all-IP network. RSPs agreed to establish an open interconnection regime in August 2018. BSCC will cooperate with the RSPs to implement open interconnection by 2019. BSCC supports minimum regulatory complexity consistent with orderly allocation of public resources such as spectrum and numbering.

BSCC Positioning

BSCC positions as a carriers' carrier, providing wholesale capacity on its network to licensed RSPs. Irrespective of scale, BSCC will not sell capacity directly to retail customers. This "wholesale only" positioning has three features:

- BSCC is able to focus on capacity products, avoiding the need to maintain costly billing, customer management and sales infrastructure
- BSCC avoids competing with its own customers, who are better resourced to service retail markets

- BSCC supports ROP government's objective of fostering the development of healthy competition in the retail service provision market

BSCC offers CAP-N (capacity access point at Ngeremlengui Cable Landing Station) to CAP-G (Tata at Piti, Guam) connectivity, and will further offer CAP-A (Airai, at the airport site) connections in late 2019.

BSCC can offer minimum space for customer equipment at the Ngeremlengui cable station, but more extensive co-location space will be available on reasonable terms at CAP-A for all BSCC customers.

In order to meet the different cash flow goals of the different players in a developing capacity market, BSCC currently offers Lease products, although Indefeasible Rights of Use (IRU) will be available if customers express interest. To date customers have indicated interest only in leases.

BSCC Products

The core product offered by BSCC on the cable is leased capacity between the BSCC Capacity Access Point (CAP) at the Cable Landing Station (CLS) at Ngeremlengui, Palau (CAP-N), and CAP-G at Tata Piti in Guam.

The minimum capacity offered is 50 Mbit / sec.

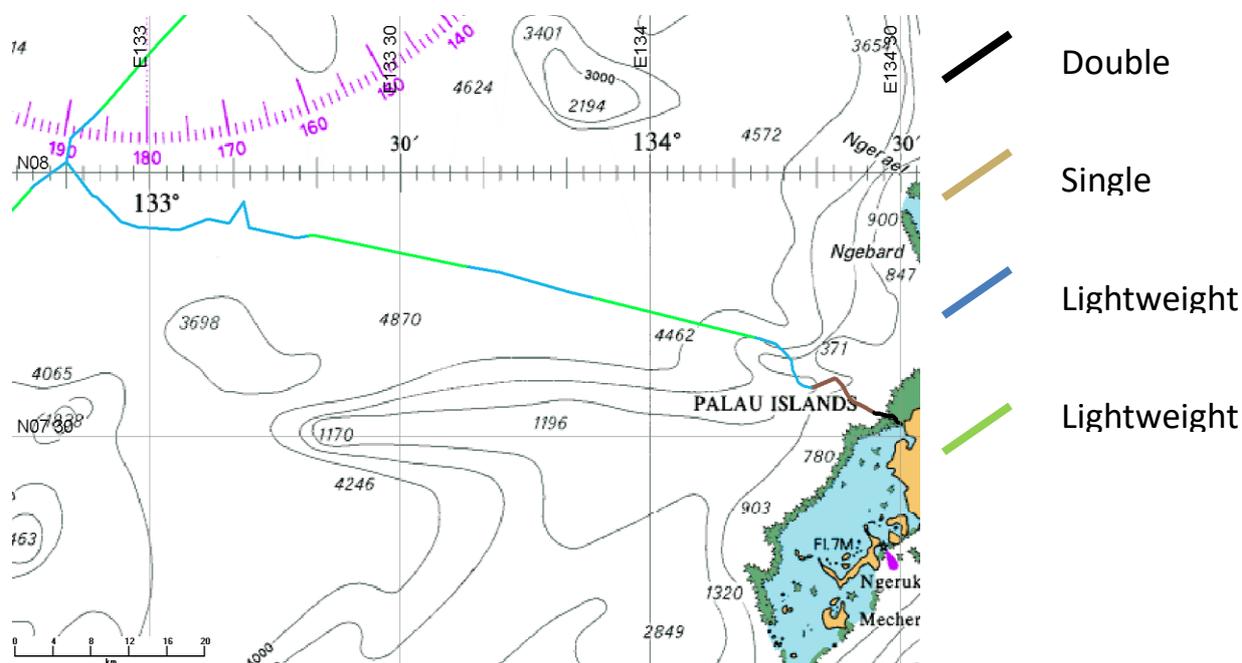
Leases are available on one or three-year terms.

BSCC is service provider neutral. Key elements of the product offering will support this stance:

- BSCC will offer the same product set and pricing to all customers.
- BSCC will ensure that CAP-A space is available on fair terms to all BSCC customers.
- BSCC will ensure that low volume products remain available to encourage new market entrants.
- BSCC will ensure that distribution of customer information is limited to necessary operational purposes.
- BSCC will ensure that a process is defined to enable customers to raise and resolve concerns related to equal access and confidentiality.

Network

The international route is a repeatered connection from Ngeremlengui Cable Landing Station (CLS) to a Branching Unit on the SEA-US main cable, with onward transport on SEA-US to the GTA CLS in Guam.



BSCC will construct a network extension to the airport site and establish a new Capacity Access Point there.

The procurement process is ongoing at the time of writing of this Business Plan. In the absence of definitive pricing for this work, the Plan assumes that BSCC will draw down the full \$25M loan available.

Technology

The network technology deployed for BSCCnet is identical to that used for the main SEA-US cable, based on the latest available commercial technology, utilising 100 gbit / sec wavelengths, supplied by NEC.

BSCC has currently lit one of five 100 gbit/sec wavelengths over which it holds an IRU with Globe Telecom of Philippines. The link between the GTA CLS and CAP-G, provided by GTA of Guam, is currently configured at 10 gbit/sec. This potential bottleneck and single point of failure will be addressed by provision of a diverse link in 2019.

The core submarine network is augmented by twin Ciena network routers in both CAP-N and CAP-G to facilitate resilient and flexible management of customer access. The same standard interface will be available to BSCC’s RSP customers at CAP-A.

BSCC can support up to 10 gbit/sec on current network configuration.

Operations

BSCC outsources the following business functions:

- Marine maintenance and Guam spares storage (TE Subcom)
- Network Operations Center (NOC) management (Globe Telecom)
- Customer Service Center (CSC) management (Docomo Pacific)
- Guam interconnection (GTA)
- Diesel generator and air-conditioning maintenance (Surangel)
- Financial accounting (nem and Deloitte)
- Legal (Office of the President)

In the course of 2019, BSCC will complete projects designed to achieve operational excellence:

CAP-A

Extend the network to a new CAP at Airai, allowing high speed fiber access for all RSPs on a non-discriminatory basis.

Home Base

Establish a secure, widely accessible (geographically) core BSCC data and communications system, consisting of a backed-up or mirrored drive PC holding:

- Network Management System (NMS) and Facilities Management System (FMS) backups
- Access to NMS and FMS for real-time reporting
- All BSCC documentation, organised by Activity
- Access via VPN to the public internet through Palau RSP

BSCC's Home Base would be accessible only through carefully managed controls, designed for and identifying all users for systems logs. BSCC will maintain interchangeable standard access devices, with one spare.

Telecommunications Association of Palau

BSCC lead the Telecommunications Association of Palau (TAP), initiatives on open interconnect and on a shared approach to satellite redundancy. TAP will be a key forum for the solution of telecommunications problems in Palau until a regulator is appointed, and likely beyond.

Finance

Key Parameters

Key assumptions underpinning the financial analysis are:

- No further customer sales until 2021 while the bonus capacity is absorbed into customer networks
- ADB loan back-to-back with RoP
- O&M cost is included in lease pricing
- LIBOR for ordinary loan 1.5% ie LIBOR + 1% = 2.5%, Special Loan 2% fixed
- Cable design life 25 year

Tax

BSCC remains exempt from all taxes except those related to payroll – WHT, SSA and Health.

Equity

The Minister of Finance holds the only share, in accordance with the BSCC Act.

Debt

The final level of BSCC's debt is yet to be determined, as further project scope extension for CAP-A has commenced through the approval and planning phases. While BSCC is under budget, and has not utilised any project contingency, current ADB funding limits the planning horizon. This plan assumes BSCC draws down the full \$25M.

Dividends

In accordance with the BSCC Act, no dividends are expected to be paid. Operating surpluses, after full debt service provisioning in the Debt Service Reserve Account (DSRA) and funding of the Marine Maintenance Reserve Account (MMRA), are reflected in price reductions, effectively a general dividend.

Outcomes

Detailed financial data are provided in an associated spreadsheet, which is confidential to preserve customer information.

In summary, the FY 2019 forecast is:

	USD M
Revenue	3.000
General Expenses	0.887
Network Operating	0.361
Interest	0.486
Capex*	5.000

*Remaining payments for network construction, incl CAP-A

Base Model

The model is based on actual expenditures to 31 July 2018, forecasts to 30 September 2018, and business plan assumptions for successive years. As BSCC develops historical data on demand growth, and a better understanding of market dynamics, further refinement of out-year forecasts will be possible. The outlook for 2019 features:

- Cash positive.
- Substantial DSRA and MMRA will be accumulated.
- RSPs will be working through their bonus capacity through 2019 and 2020.

Risk Analysis

Refer to Risk Matrix following for a risk assessment and mitigation strategy.

The main categories of risk faced by BSCC are:

- Technological Risk
- Operational & Environmental Risk
- Financial Risk
- Sovereign Risk
- Regulatory Risk
- Resourcing Risk
- Project Management Risk

Technological Risk

This is the risk of BSCC Net not being planned, designed, built and laid (installed) and/or operated correctly, leading to its failure. Given the maturity of the submarine cable industry, which has been successfully installing international communication cables for the last 150 years, such risks can be considered low. Nevertheless, risks always exist and they are offset by factors including:

- ✓ Use of appropriate and proven technologies.
- ✓ Selection of an optimal cable route on the sea bed.
- ✓ Turn-key supplier NEC, a long-time industry heavyweight with a well-established track record.
- ✓ Professionally managed procurement and acceptance testing to ensure compliance with specifications.
- ✓ Ensuring the availability of spares for the life time of the system.
- ✓ Supplier guarantees.
- ✓ Ensuring that the management of the BSCCnet has the skills and resources to enable trouble-free commercial and technical operation.

Operational & Environmental Risk

Despite all the care taken with design and installation, it is always possible that there could be a cable system interruption. Environmental risk can be created by man-made or natural hazards. Examples of man-made hazards are ships' anchors, dredging activities, busy ports, certain types of fishing, under-sea mining etc. Risk can also be created by natural events such as sub-sea earthquakes, tsunamis, sub-sea volcanic eruptions, turbidity and even damage from large marine creatures such as sharks. The principal protection against environmental risk is by careful selection of a cable route and landing points which, while seeking the shortest path, will always be routed to avoid such hazards. Additional measures and tools designed to minimize this type of risk are:

- ✓ Notifying and obtaining the cooperation of local authorities.
- ✓ Creating prohibited anchorage zones where necessary.
- ✓ Burial of cable in shallow waters deemed vulnerable.
- ✓ Heavy armouring of cables where risk of physical damage may exist

Notwithstanding all these measures, failures can occur. In the event of a failure, a cable repair ship is needed. With a standard full maintenance contract in force, then repair should occur within 10-14 days. During this period, vital communications can be maintained on satellite but

the quality of normal communications will be degraded. The cost of a repair under a maintenance contract is around \$30K per day including the time for the ship to return to base. The cost of a repair might be over \$500K, plus the cost of replacement of any spares consumed.

Fortunately, the Pacific is a relatively benign subsea environment and this, combined with highly professional route design, has seen minimal deep-water interruptions from external aggression in the past 20 years across all the installed cables. The probability of a failure can be considered finite but low.

BSCC will establish a Maintenance Reserve Account with a minimum running balance of \$2M.

BSCC also mitigates operating risk by contracting the experienced carriers, Globe Telecom and Docomo Pacific, to provide Network Operating Center and Customer Service Center services which including network administration and customer service and assurance management.

Financial Risk

A potential investor or lender assessing a submarine cable project proposal will typically wish to evaluate the financial risk arising from issues such as:

- The project not being completed and their investment cost not being recoverable.
- Not achieving the expected Rate of Return

As with technological risk this is mitigated by careful selection of technology and project management and supplier resources.

Typically, in submarine cable projects the primary factor likely to contribute to the risk of return expectations not being met would be a lower than expected demand for its capacity. A lower than expected demand for wholesale broadband would likely be caused by either a falling off in end-user demand or by competition from a second cable system or by a new competitor entering the Palau market with disruptive technology. None of these scenarios is likely.

To date, sales have exceeded the forecasts, and the initial growth surge was 100%.

Interest rate risk is also an issue, particularly given the record low interest rate environment currently existing in the US. Given the tighter cashflow period during the initial years post RFS, the impact of increasing interest rates could have major cashflow implications.

Sovereign Risk

Sovereign Risk exposure is considered low.

Regulatory Risk

A regulatory framework exists for RoP but no executive capacity as yet.

BSCC will work cooperatively with the industry and government to encourage development along the lines envisaged in the TAP papers.

Currency Risk (including Transferability and Convertibility Risk)

Currently all outgoings and earnings are USD.

Resourcing Risk

As a small company with only three core staff, BSCC is unable to replace personnel from within its own resources. The CEO and Head of Engineering can provide backup for each other for short term absences and temporary support can be engaged eg while recruitment is undertaken for permanent replacements or BSCC staff are unavailable.

Project Management Risk

Project management continuity will be ensured by contracting McCann Consulting International as Project Consultant. MCI has been contracted by BSCC as technical advisor and has been instrumental in driving the project to its current level.

Risk	Impact	Probability	Mitigation Strategy
Construction delays	medium	low	CAP-A contracts to place construction risk with suppliers. Ensure adequate liquidated damages provisions are in place.
Construction delays (force majeure)	medium	low	Self-insure, with adequate contingencies.
Environmental damage	low	low	EIA completed. EIA for CAP-A completed.
Sovereign risk	medium	low	No action.
Regulation	high	high	Active participation in market change to promote demand growth through TAP.
Technology	high	low	BSCC uses established, well understood technologies. Suppliers with well-established track records are used, offering industry standard warranty periods. Comprehensive acceptance regime applied before acceptance.
Financing	high	low	No action
Project Management	high	low	BSCC has contracted capable, experienced consultants to support financing, technical and legal functions.
Timing	high	low	The main risk is encountered early in the project. BSCC has successfully navigated most of this risk.