



FEEDBACK ON DISTRIBUTION SPEND JUSTIFICATIONS

Commercial in Confidence

FINAL DRAFT

15 May 2015

1.1.1. AECOM World Bank Study

Due to the significance of this report a working draft has been submitted for reference but do note that it is still subject to change. The draft report highlights significant amounts of CAPEX will be required to upgrade the network. This includes the fourth feeder and submarine cable and many other significant investment requirements. TPL will need to be a contributor to many of these costs and although the exact amount is not confirmed it is definitely expected that TPL will contribute (at the very least) labour and transport for the initial works. The report paints a compelling picture and based on their estimates which is in NZD it is expected that approx. \$4.5m of investment in the network will be required in order to achieve 50% Renewable Energy Generation penetration.

1.1.2. Subdivisions and Other Developments

The Proposed budgets do not allow for many potential network extensions and TPL is aware of several areas where development CAPEX will likely be required. Unless otherwise stated the CAPEX requirements will be for strengthening existing infrastructure that is a requirement as a result of the proposed development. These include:

Pacific Games:

Although our current endeavours to get closer to the organising committee have yielded little useful information that would help to understand the electrical requirements of the Pacific Games. It is understood that much of the infrastructure to be developed in preparation for the Pacific Games will remain permanent and as a result much of the existing infrastructure will require upgrade and will be a cost to TPL under the precedent that this is a national project and is for all Tongans this will not be optional.

As an example, TPL currently know of 2 major buildings that would be required for the games.

1. New stadium at the Tonga High School Sports Field – this stadium would come with significant electrical load particularly if there is to be flood lighting for night time events at the stadium.
2. New sports facilities at the current police training and development centre at Longolongo. Again a significant load could be established here particularly if flood lighting for night time events are to be employed.

The following map indicates areas of the existing infrastructure that would need upgrading based on these two proposed developments only.

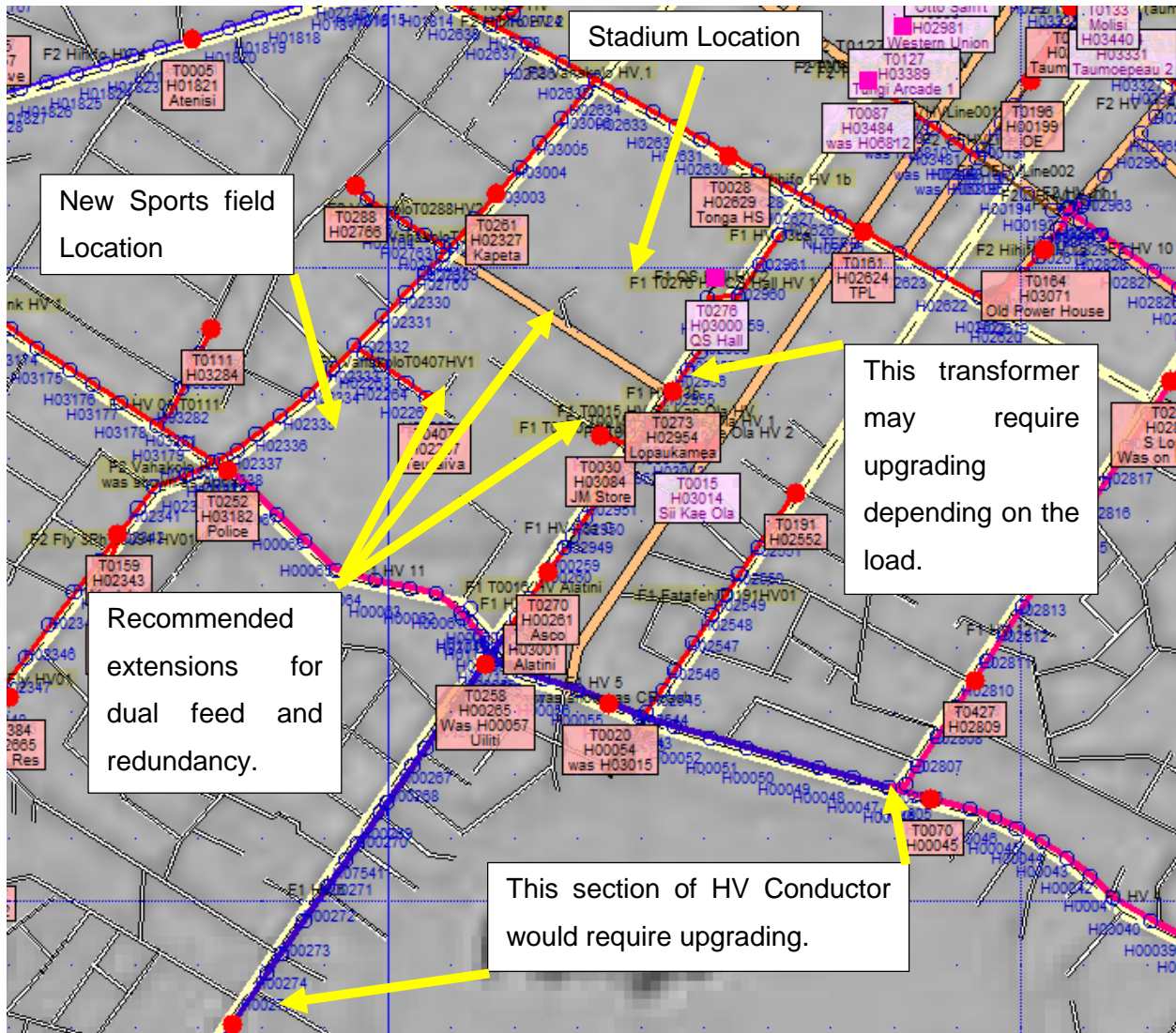


Figure 1 The CBD area showing Teufaiva and proposed locations of new stadia and sports fields.

Water Board Project:

Rehabilitation and Extension of Mataki'eua and Tongamai Projects.

This ADB funded project has been under development for many years now. Discussions with the project team have indicated that grant funding requirements (financial and legal) restrict the project from funding the construction of infrastructure on the road reserve. The project can only fund construction of electricity infrastructure in the immediate agreed land allocated for the project. At the same time TPL has also categorized this area as a potential area of high growth

in electrical demand given it's proximity to the CBD and the fact that most private land allotments have be sub-divided and are being sold. The infrastructure will also serve as a key 'ring' in the future structure of the electricity network giving the water board (an essential service) additional redundancy from a electricity supply perspective. This could cost upwards of \$500,000.

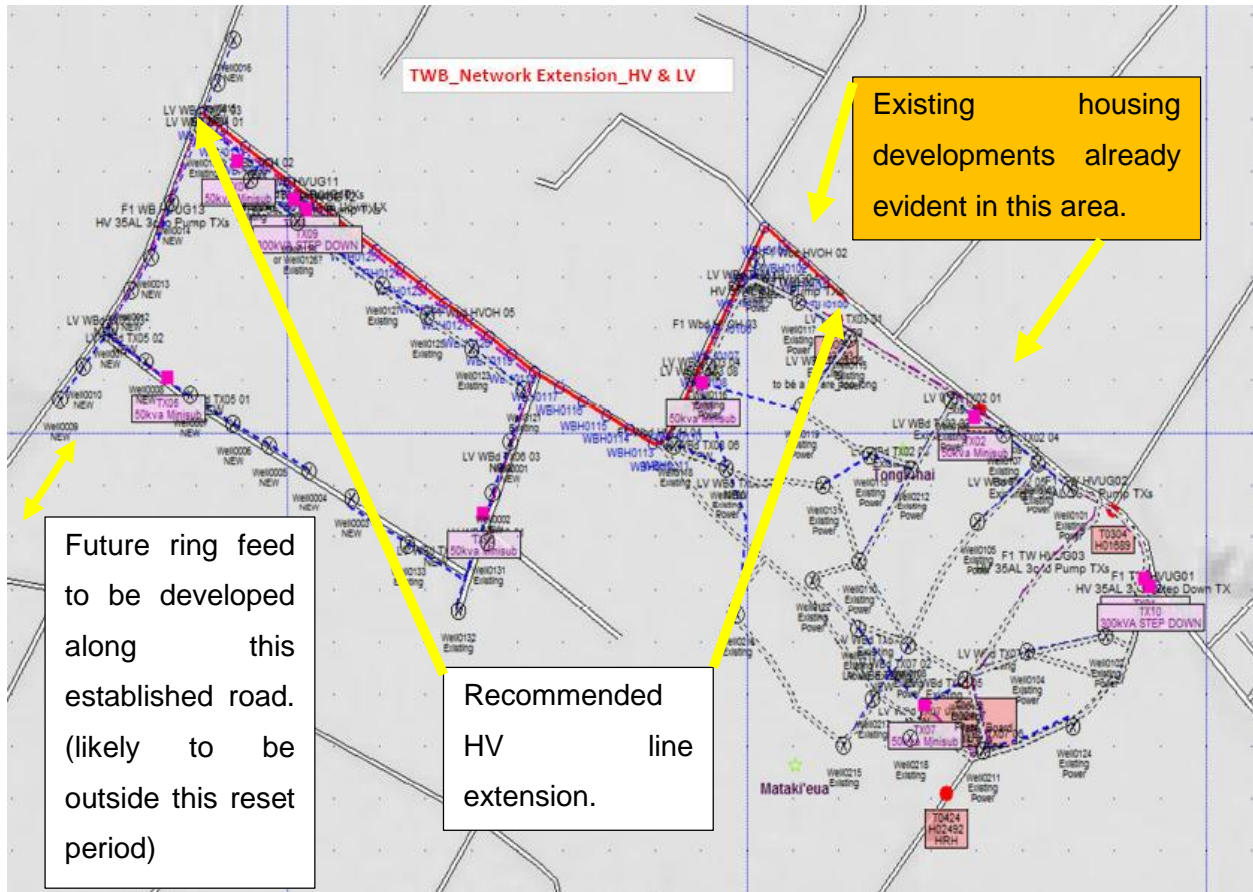


Figure 2 Preliminary design showing the existing network and planned extension to the existing water pumping farm.

Sub Division Patangata

The existing land allotment is now being converted to a subdivision by the Government. TPL has provided Government with a quote to carry out the works but TPLs expectation is that the company will be required to carry these out with minimal if any contribution from Government. The extension will be approximately 600m of High Voltage and is likely to proceed within the next 12 months. This project is conservatively estimated at \$400,000. It must be made clear that the estimated value mentioned here is only for the High Voltage and Low Voltage backbone line construction. For individual connections of households to the infrastructure provide this will need

to be funded by the household itself. There are about 50 existing households in total in the subdivided area that will require electricity supply.



Figure 3 Preliminary Design of the Patangata reticulation.

Fua'amotu Resort

This project could be upwards of \$1.5m and documentation is commercially sensitive but TPL has seen preliminary designs and note load expectations could be upwards of 2MW. This innovation is being heavily supported by the Ministry of Tourism and we understand the land issues have now been resolved. A considerable amount of backbone upgrade will be required for this investment, which TPL is anticipating having to fund at a greater level than would be typical as the customer has indicated a strong desire for a Government incentive. Note that the actual connection of the resort to the existing infrastructure is expected to be a project cost and this has already been communicated to the developers, this includes new lines, transformers etc. Also do note some of the backbone upgrade here is also identified in the aforementioned AECOM report. The developer's objective is to have this project completed well before the Pacific Games.

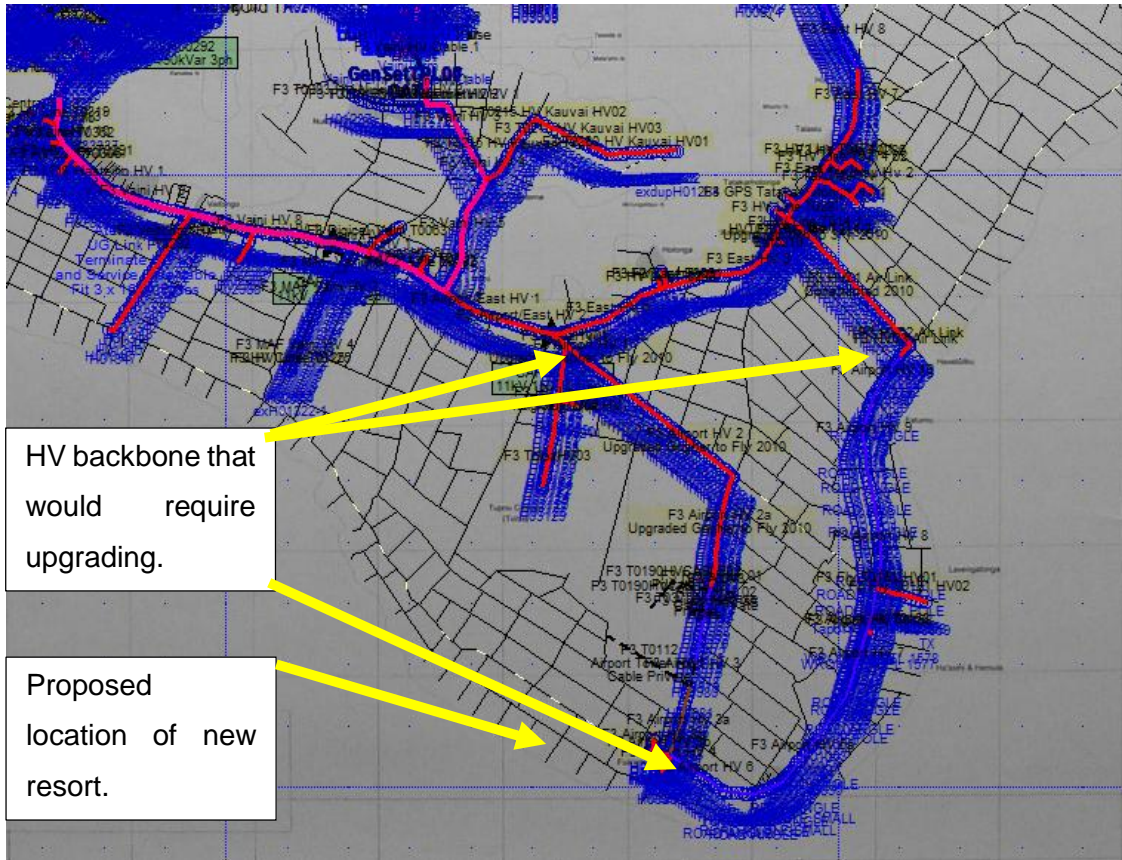


Figure 4 Proposed location of the new resort and the current electrical infrastructure situation.

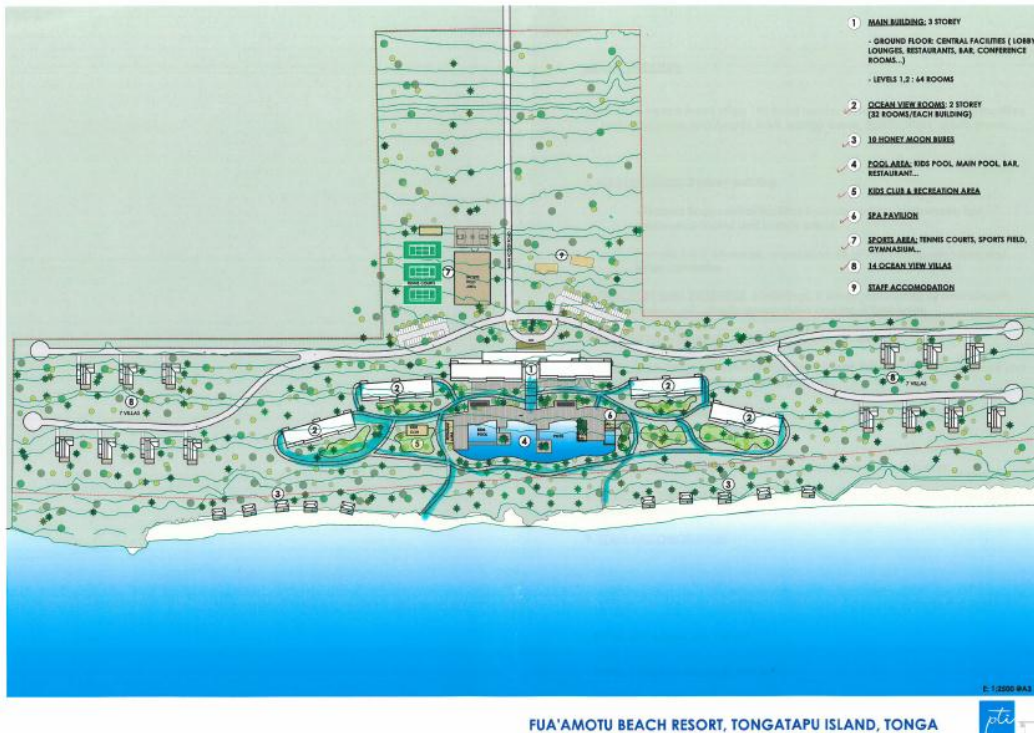


Figure 5 Preliminary design received from the developers of the Fua'amotu Beach Resort.