TO TATOU VAI – "OUR WATER"
COOK ISLANDS

TA-10267 -- FINANCIAL/REGULATORY ASSESSMENT AND TARIFF STRUCTURE ALTERNATIVES

FINAL REPORT – June 2024

Avarua, Rarotonga
Updated: June 28 2024

The Asian Development Bank ("ADB") is a regional bank established to promote social and economic development in Asia. It has 68 members, and is managed by a Board of Governors, and is headquartered in Mandaluyong, Metro Manila, Philippines. It is dedicated to reducing poverty in Asia and the Pacific through a combination of environmentally sustainable growth and regional integration. This project and report has been funded by ADB through a TA grant.

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Contents

Executive Summary

The Cook Islands is a nation of 15 islands located in the South Pacific Ocean. The nation has a combined land mass of approximately 236.7 square kilometres, with the most populous island being Rarotonga, home to the capital of Avarua.

To Tatou Vai ("Our Water") is the sole provider of water service in the Cook Islands. TTV was established through the *To Tatou Vai Act 2021* as a not-for-profit statutory corporation under the purview of the Cook Islands Investment Corporation ("CIIC").[1] Prior to the establishment of TTV there had been no official water authority in the Cook Islands. According to TTV's 2023-2027 *Statement of Corporate Intent*, TTV's focus is on ensuring that the system is high performing and that it meets both the quantity needs and the desires of the community for high quality water services. It is not profit-seeking; instead it intends only to recover its operating expenses. It provides water service only at this time.[2] A copy of the enabling legislation is included as **Appendix A** of this report.

TTV has sought the assistance of Asian Development Bank (ADB) in assessing the water regulatory environment, developing current and forecast future water service levels, estimating costs associated with these and presenting a range of tariff structure options to be considered by the Government of the Cook Islands and TTV.[3] The primary goals of the chosen Tariff plan include the following:

- Ensure, either immediately or over an acceptable time period, that revenues from tariffs recover all Operating Expenses and result in the self-sufficiency of the water operation. This will eliminate the need for continued government allocations to TTV to cover basic operating expenses

- To the best extent possible, minimize the impact of any tariff adjustments on all customers, especially those in the lowest income tiers

This assignment also includes the development of a comprehensive financial model to forecast TTV's cost of service[4]. The model contains the ability to forecast for the next decade total customer accounts, usage, revenues and expenses, and to allow the user to test the appropriateness of alternative tariff structures.

Consultations with Stakeholders

During the course of this engagement the project team held a series of meetings, conferences and workshops with various identified stakeholders. These stakeholders represented the business community, tourism council, government agencies and customers through community meetings. The initial meetings took place during the time period April 8-16, 2024, when project team representatives were on site in Rarotonga. The meeting schedule and stakeholders are summarized in **Table 1-2** in Section 1 of this report.

[1] TTV 2023-2027 Statement of Corporate Intent, p. 15
[2] Ibid.
[3] ADB Terms of Reference, TA-10267
[4] Ibid.

Governance and Regulatory Framework

Part 5 of the *To Tatou Vai Act 2021* outlines TTV's general governance structure. Overall control of the authority is vested in a Board Directors, which consists of between 5 and 7 members. The Board appoints a Chief Executive Officer (CEO) who reports to and carries out the Board's directives.

At present the Cook Islands Parliament is reviewing legislation that would grant authority over TTV to the *Competition and Regulatory Authority*. This would result in the activities of TTV being regulated by the Office of the Regulatory model described in detail in Section 2 of this report. This legislation is expected to be considered in the summer of 2024. **The project team recommends that this legislation be adopted**, as the Office of the Regulator model is the most appropriate regulatory model for a utility with the size and resources of TTV. It provides for independent review of TTV tariff proposals by an accomplished professional regulator, while streamlining both effort and expense involved with such reviews.

Current Financial Challenges and Monthly Charge Comparison

TTV does not currently employ a tariff for water service. Instead, customers pay for water service through general taxes, which the Crown uses to allocate a designated portion of tax revenue to TTV. Therefore, water service is not "free" for Cook Island residents; it is funded in an indirect manner through annual tax contributions. The Cook Islands is the only nation in the Pacific that uses this model to fund its water utility. There are several disadvantages to this current system, including:

1) There is no direct relationship between the amount of water a customer uses and the amount that customer pays to support TTV.

2) The largest users of water service are the hotels, and there is no current method of confirming whether the tax revenues paid by hotels and other tourist-related businesses are covering the cost of water provided to tourists.

3) Because customers do not directly pay for water they use, there is no incentive for these customers to conserve water or use water in a more efficient or prudent manner.

4) TTV is entirely dependent on government allocations for its revenues and cash flow. To the extent that government allocations are not sufficient to fund its costs, TTV's operations and quality of service will be adversely affected.

Chart ES-1 presents the financial challenge faced by TTV in graphic form. It shows that **the allocations provided by the Crown over the past two years have not been sufficient to fund all of TTV's operations**. This means that **the current allocation model is not sufficient to fund TTV's operating requirements, and the present trend is financially unsustainable for TTV**. This increases the urgency of implementing a new tariff plan. **Chart ES-2** calculates the average monthly charge for each utility assuming the use of 16 cubic meters for a residential customer. The 16 cubic meter charge is intended to reflect average usage for Rarotonga households after the implementation of a monthly tariff (which incorporates an expected decline in residential monthly usage per account).

Chart ES-1

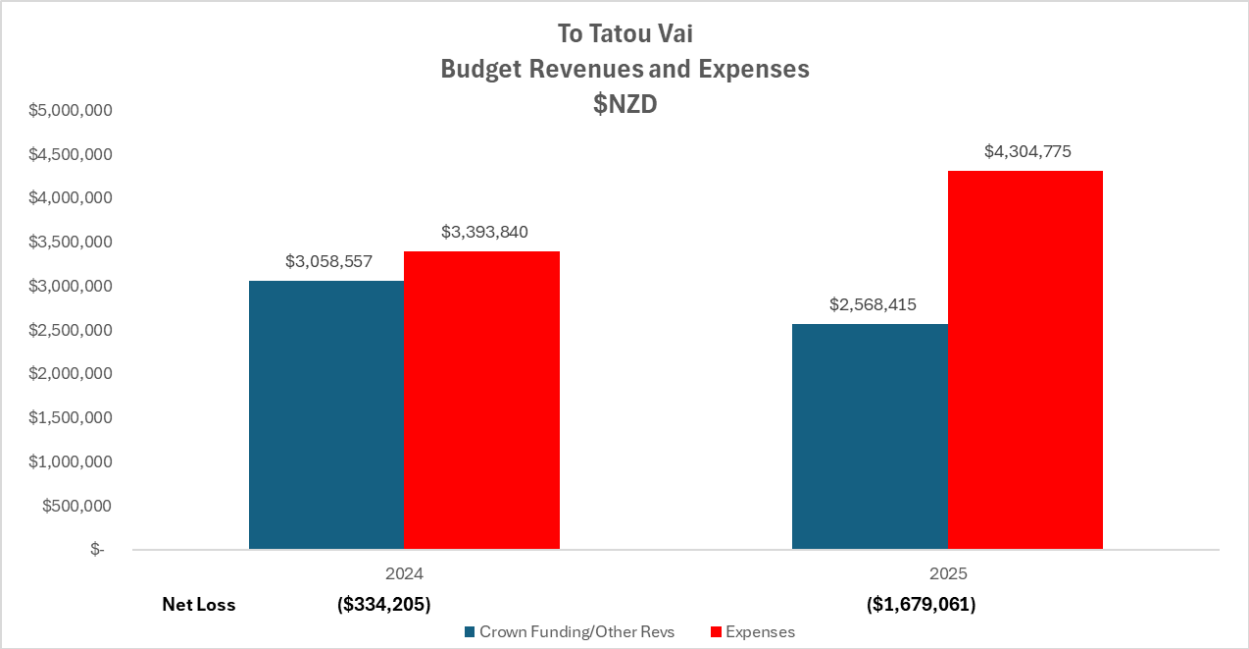
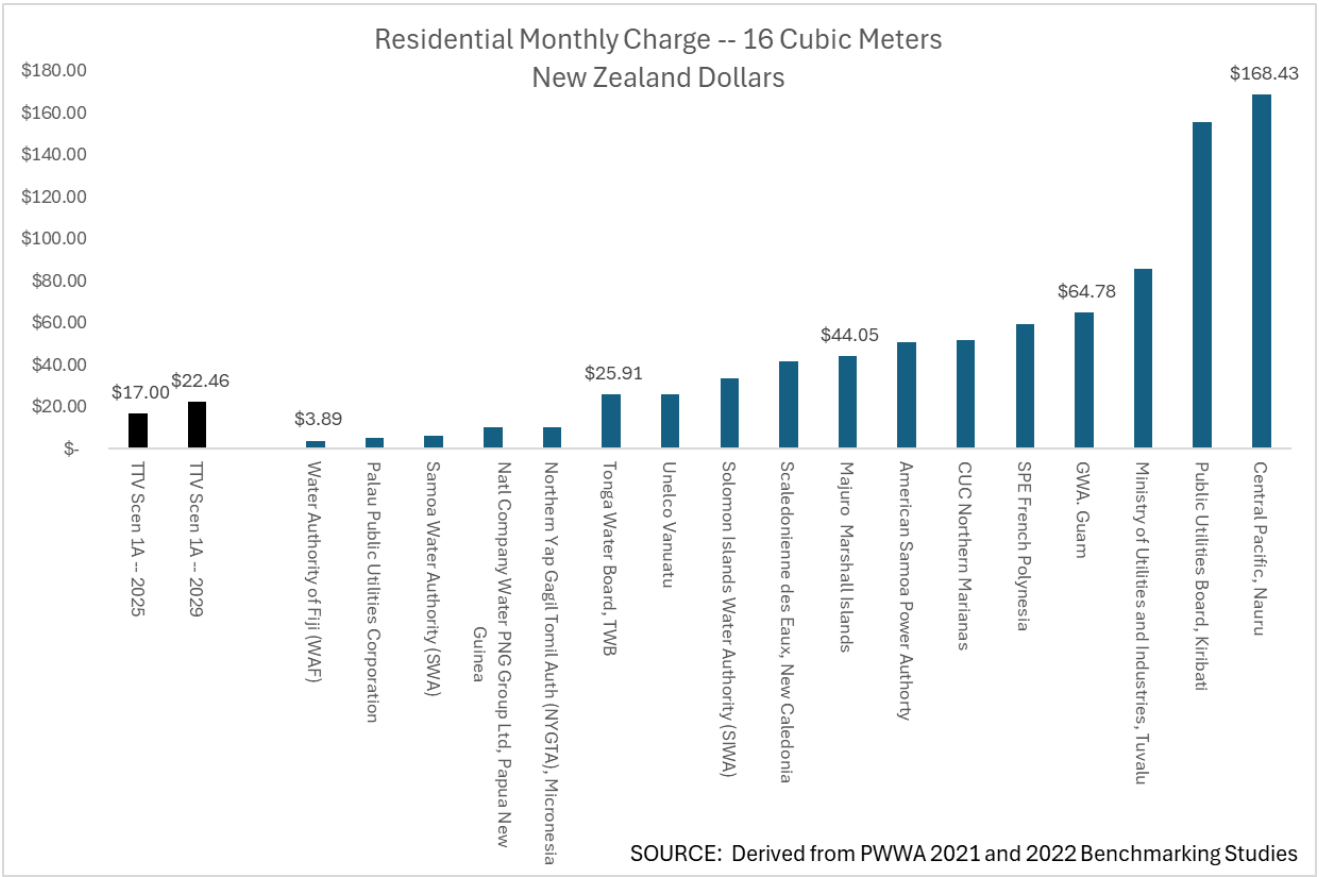


Chart ES-2



SOURCE: Derived from PWWA 2021 and 2022 Benchmarking Studies

Account and Volume Forecast

One of the key inputs into any tariff design is the utility's current and forecast account and consumption data. As stated in Section 2, because many customers remain unmetered at the time of this report, and because TTV does not currently charge for water service, TTV does not maintain precise numbers of accounts at present. However, through the access of alternative data sources described in Section 2, the project team was able to develop an estimate of total customers by designated customer class.

Table ES-3 presents a forecast of total customers by class for the ten-year period 2025 – 2034. As shown, very little additional growth is forecast at this time. This forecast is based on both historical trends, which show a steady and somewhat declining population, and the belief among TTV staff and government officials that there will not be significant forecast growth in the coming years. It should be noted that such a forecast could change significantly, if a major resort or other project is developed in Rarotonga.

Table ES-3

TO TATOU VAI AUTHORITY

ESTIMATED CURRENT AND FORECAST TOTAL ACCOUNTS

WATER Customer Classes

	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
		WATER Total Customers					
Current	-	3,294	915	89	375	86	**4,759**
2025	-	3,299	916	89	375	86	**4,765**
2026	-	3,304	917	89	375	86	**4,771**
2027	-	3,309	918	89	375	86	**4,777**
2028	-	3,314	919	89	375	86	**4,783**
2029	-	3,319	920	89	375	86	**4,789**
2030	-	3,324	921	89	375	86	**4,795**
2031	-	3,329	922	89	375	86	**4,801**
2032	-	3,334	923	89	375	86	**4,807**
2033	-	3,339	924	89	375	86	**4,813**
2034	-	3,344	925	89	375	86	**4,819**

Table ES-4 presents a forecast of water consumption for the period 2025 – 2034. As TTV completes its metering process and begins to accrue real-time consumption data, these forecasts may be subject to revision. This forecast also takes into account the potential negative impact on usage of the implementation of a volume-based charge per cubic meter.

Table ES-4

TO TATOU VAI AUTHORITY

ACTUAL AND FORECAST BILLED CONSUMPTION -- CUBIC METERS

	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
		WATER Forecast Consumed Volume					
Current	395,280	360,577	620,500	182,500	1,679,000	706,640	**3,944,497**
2025	395,880	361,124	621,178	182,500	1,679,000	706,640	**3,946,322**
2026	396,480	361,672	621,856	182,500	1,679,000	706,640	**3,948,148**
2027	397,080	286,404	560,349	164,250	1,511,100	635,976	**3,555,159**
2028	397,680	218,488	504,924	147,825	1,359,990	572,378	**3,201,286**
2029	398,280	218,818	505,474	147,825	1,359,990	572,378	**3,202,765**
2030	398,880	219,147	506,023	147,825	1,359,990	572,378	**3,204,244**
2031	399,480	219,477	506,573	147,825	1,359,990	572,378	**3,205,723**
2032	400,080	219,807	507,122	147,825	1,359,990	572,378	**3,207,202**
2033	400,680	220,136	507,671	147,825	1,359,990	572,378	**3,208,681**
2034	401,280	220,466	508,221	147,825	1,359,990	572,378	**3,210,160**

Ten Year Financial Forecast

Table ES-5 presents a ten-year forecast of OPEX and CAPEX expenses for TTV. This summary schedule is derived from the comprehensive forecast model described in Section 3. A copy of the relevant summary pages from the model is contained in Appendix B and Appendix C. The model forecasts the rate of growth of every line item in TTV budget based on a series of parameters chosen for each expense.

The following is notable about this forecast:

- The expense forecast for 2025-2027 is based entirely on TTV's three year adopted budget. Beyond 2027, the forecast is based on a series of assumptions about inflation and system growth.
- Most expenses are assumed to increase at 3.0% per year, equivalent to the general rate of inflation.
- Depreciation expenses are based on existing asset useful lives.
- It is assumed that no debt will be issued in the next decade to fund capital improvements.
- The forecast assumes that TTV will not add significant numbers of new personnel in the next decade.
- Importantly, **there is no return on equity element calculated for TTV**. This is meant to adhere to Section 26 of the *To Tatou Vai Act 2021*, which states that the Authority must operate the network on a not-for-profit basis. While it can be reasonable to debate whether a return on equity element for a publicly-owned utility constitutes "profit" or is meant to reimburse the utility for capital investment, the Board has taken the conservative approach of not requesting any return on equity element to be added to the cost of service.
- Currently there is no data regarding the percentage of accounts that would qualify as doubtful debt. The project team is using an assumption that 5.0% of revenues will be subject to doubtful debt/uncollectible expense.
- Importantly, no portion of the $100,000,000 Te Mato Vai Water Treatment Plant/Intake and Ring Main project is included in depreciation expenses.

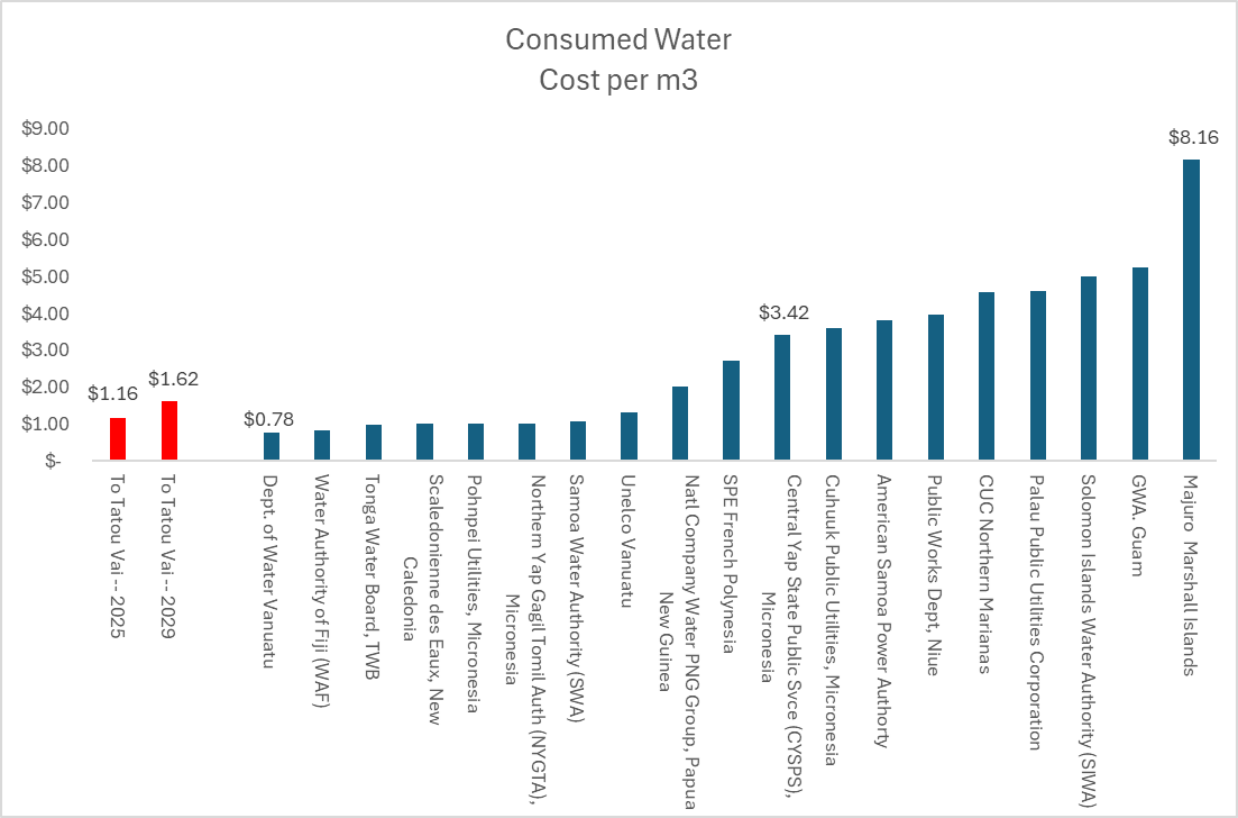
Chart ES-6 compares the cost incurred per cubic meter by TTV with other Pacific utilities. The chart reveals that **TTV's current consumed water cost per cubic meter is among the lowest in the sample**. It shows that TTV's overall costs compare very favourably to other Pacific utilities. This comparison, along with TTV's favourable leakage and employees per population, indicates that from a general financial perspective, TTV's operations are not out of line compared to other Pacific utilities.

Table ES-5

TO TATOU VAI AUTHORITY
WATER SYSTEM COST OF SERVICE
New Zealand Dollar (NZD)

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Water System Cost of Service											
Operating Expenses (OPEX)											
1A	Payroll Expenses	$ 2,256,330	$ 2,256,330	$ 2,256,330	$ 2,324,020	$ 2,393,740	$ 2,465,553	$ 2,539,519	$ 2,615,705	$ 2,694,176	$ 2,775,001
2A	Water Intake Expenses	469,000	484,650	508,565	473,201	487,615	502,469	517,775	533,547	549,799	566,547
2B	Pump Stations	15,000	16,500	18,150	16,888	17,402	17,932	18,479	19,042	19,622	20,219
2C	Water Stations -- COVID 19	14,400	14,400	14,400	13,399	13,807	14,227	14,661	15,107	15,568	16,042
2D	Water Treatment Expenses	466,228	626,378	649,903	604,710	623,131	642,113	661,672	681,828	702,597	723,999
2E	Water Quality	80,000	80,000	80,000	74,437	76,704	79,041	81,449	83,930	86,486	89,121
2F	Network and Distribution	323,996	415,976	423,254	393,822	405,818	418,180	430,919	444,045	457,571	471,509
2G	Admin and General Expenses	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399
2H	Recruitment Costs	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166
2I	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872
2J	Insurance Expenses	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848
2K	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-
2L	Prof Development and Training	-	-	-	-	-	-	-	-	-	-
2M	Directors Fees	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355
2N	Professional Services	90,600	91,200	91,860	94,616	97,454	100,378	103,389	106,491	109,686	112,976
2O	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010
3A	Doubtful Debts	82,946	152,250	250,922	251,988	251,628	256,744	262,045	267,455	272,977	278,613
4A	EBITDA	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses -- OPEX		**4,304,775**	**4,653,959**	**4,825,248**	**4,797,434**	**4,936,902**	**5,086,281**	**5,240,433**	**5,399,438**	**5,563,462**	**5,732,677**
Capital Expenses (CAPEX)											
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
	Debt Service -- Current	-	-	-	-	-	-	-	-	-	-
	Debt Service -- Forecast	-	-	-	-	-	-	-	-	-	-
	Return on Equity	-	-	-	-	-	-	-	-	-	-
Total Capital Expenses -- CAPEX		**279,078**	**277,826**	**261,666**	**247,231**	**241,536**	**99,659**	**34,242**	**34,242**	**22,420**	**20,055**
Total Cost of Service		**4,583,853**	**4,931,785**	**5,086,914**	**5,044,665**	**5,178,438**	**5,185,940**	**5,274,675**	**5,433,680**	**5,585,882**	**5,752,732**
	Less Non-Tariff Revenues	(68,415)	(86,799)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)
Net Revenue Requirement		**4,515,438**	**4,844,986**	**4,975,563**	**4,933,314**	**5,067,087**	**5,074,589**	**5,163,324**	**5,322,329**	**5,474,531**	**5,641,381**

Chart ES-6



Tariff Plan Scenarios -- Introduction

During the course of this engagement, the project team analysed and developed numerous alternative tariff scenarios for TTV management and the Board of Directors to consider. There are many different tariff structures that will result in sufficient revenues for TTV to recover its operating and capital expenses. The key is to develop and approve a tariff plan that is considered by management, the Board of Directors, the government, the community in general and other stakeholders to be the most just, reasonable and fair.

During the course of this engagement the various stakeholders listed several concerns and objectives that should be addressed by the ultimate adopted tariff plan. These goals and objectives are listed in Section 6 of this study.

The revenue forecast in this study assumes that TTV successfully installs all meters on the timeframe it has scheduled, and successfully implements a working billing and collection system. **If the goals and objectives of TTV's billing and collection system are not achieved, the revenue projections contained in this study may be subject to potentially significant revision.**

Free Water Allocation

One of the principal issues raised during the stakeholder meetings was the concept of a free water allocation for TTV's residential customers. A free water allocation is mandated in Section 26 of the *To Tatou Vai Act 2021*, which states that consumers much have a "reasonable" quantity of affordable water. However, the term reasonable is not defined, nor is the amount of free water that would qualify as meeting this standard.

There is no cost-based or scientific approach for determining the appropriate free water allocation for residential customers. However, the Act requires the Crown to fund all free water allocations, so the higher the allocation, the more the Crown is required to fund. Therefore, any decision on free water allocations must balance the desire to minimize the financial impact of a tariff-based system of water charges with the obligation of the crown to financially support TTV through reimbursement of free water charges.

For the purposes of the tariff alternatives in this report, **the project team recommends utilizing a total of 100 litres per person per day for the free water allocation**. The reasoning for this is that this total represents 50.0% of average daily usage per person, and it results in a relatively moderate crown funding contribution. TTV management officials expressed concerns that higher levels of free water would result in excessive dependence on Crown funding, and would limit the ability of the Tariff plan to discourage excessive water use. Based on meetings and feedback, the project team believes that the 100 litres per day total reflects a general (but by no means universal) consensus.

The use of 100 litres per day results in a free water allocation of 10 cubic meters per residential account per month. This is a rounded total based on the following calculation: 100 litres per person X 3.12 persons per household X 30 days per month). The total is rounded to 10 cubic meters. A final decision on how to implement the free water allocation has not been made as of the date of this report.

Tariff Scenario 1A – 3 Year Uniform Residential Volume Charge

The first tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. This means that by FY 2028 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

Table ES-7 summarizes the five-year tariff plan recommended under this scenario. Detailed calculations can be found in **Appendix B.** Volumetric charges are higher for non-residential customers than for residential and agricultural accounts.

Table ES-8 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole. Particularly with the tourism and industrial classes, there can be a wide variation in monthly usage among customer accounts. Therefore the table is intended to provide a general guideline as to the financial impact of these scenarios.

Table ES-7

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

Scenario: 2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform
Currency: New Zealand Dollar (NZD)

	Current	1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
WATER Tariff						
Service Fee						
20 MM	$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
25 MM	-	42.50	42.50	42.50	42.50	42.50
40 MM	-	63.75	63.75	63.75	63.75	63.75
50 MM	-	85.00	85.00	85.00	85.00	85.00
Volume Tariff -- Per Unit/Cubic Meter						
Free Water Allocation						
Residential						
- Above	-	-	-	0.850	0.893	0.910
- -	-	-	-	0.850	0.893	0.910
- -	-	-	-	0.850	0.893	0.910
- -	-	-	-	0.850	0.893	0.910
- -	-	-	-	0.850	0.893	0.910
Commercial/Industrial						
- Above	-	1.000	1.400	1.700	1.785	1.821
Institutional						
- Above	-	1.000	1.400	1.700	1.785	1.821
Agricultural						
- Above	-	-	-	0.850	0.893	0.910
Tourism						
- Above	-	1.000	1.400	1.700	1.785	1.821

Table ES-8

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform
New Zealand Dollar (NZD)

	M3 Total	M3 Net of Free Water		1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
Free Water Allocation (cubic meters		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 22.10	$ 22.36	$ 22.46
Increase -- Dollars				**17.00**	**-**	**5.10**	**0.25**	**0.11**
Increase -- Percent				0.0%	0.0%	30.0%	1.2%	0.5%
Commercial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 113.75	$ 133.75	$ 148.75	$ 153.00	$ 154.79
Increase -- Dollars				**113.75**	**20.00**	**15.00**	**4.25**	**1.79**
Increase -- Percent				0.0%	17.6%	11.2%	2.9%	1.2%
Tourism 50mm -- Water Monthly Charge								
Total Charge	250	250	-	$ 335.00	$ 435.00	$ 510.00	$ 531.25	$ 540.18
Increase -- Dollars				**335.00**	**100.00**	**75.00**	**21.25**	**8.92**
Increase -- Percent				0.0%	29.9%	17.2%	4.2%	1.7%
Total Charge	1,000	1,000	-	$ 1,085.00	$ 1,485.00	$ 1,785.00	$ 1,870.00	$ 1,905.70
Increase -- Dollars				**1,085.00**	**400.00**	**300.00**	**85.00**	**35.70**
Increase -- Percent				0.0%	36.9%	20.2%	4.8%	1.9%

Tariff Scenario 1B – 3 Year Conservation Residential Volume Charge

The second tariff plan scenario also assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

All of the same assumptions as listed for Scenario 1A apply to this scenario. The only difference is that this scenario assumes that TTV implements a conservation-based Inverted Block tariff design for its residential customers. The concept behind this rate design is that as a residential customer uses more water, that customer's unit rate increases. This is intended to provide a financial incentive for the customer to use water in the most prudent manner possible. It also enables TTV to implement a lower unit rate for the first tier of usage, a tier that the majority of customer charges will not exceed.

Table ES-9 summarizes the five-year tariff plan recommended under this scenario. The table reveals that there are three residential tiers – 0-16 m3, 17-30 m3 and 31 and above m3. This means that all water bills up to and including the average monthly usage level of 16 m3 will be charged at the lowest tier. **Table ES-10** presents the impact on monthly customer charges of this scenario.

Table ES-9

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

			Scenario:	2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation				
			Currency:	New Zealand Dollar (NZD)				
			Current	1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
WATER Tariff								
Service Fee								
20 MM			$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
25 MM			-	42.50	42.50	42.50	42.50	42.50
40 MM			-	63.75	63.75	63.75	63.75	63.75
50 MM			-	85.00	85.00	85.00	85.00	85.00
Volume Tariff -- Per Unit/Cubic Meter								
Free Water Allocation								
Residential								
-	16		-	-	-	0.500	0.525	0.536
17	30		-	-	-	1.500	1.575	1.607
31	Above		-	-	-	2.500	2.625	2.678
Commercial/Industrial								
-	Above		-	1.000	1.400	1.700	1.785	1.821
Institutional								
-	Above		-	1.000	1.400	1.700	1.785	1.821
Agricultural								
-	Above		-	-	-	0.850	0.893	0.910
Tourism								
-	Above		-	1.000	1.400	1.700	1.785	1.821

Table ES-10

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

					Scenario:	2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation				
					Currency:	New Zealand Dollar (NZD)				
						1	2	3	4	5
						2025	2026	2027	2028	2029
					Current	Effective Oct-24	Effective Jul-25	Effective Jul-26	Effective Jul-27	Effective Jul-28
	M3 - Total	M3 - Net of Free Water								
Free Water Allocation (cubic meters		10								
Residential -- Water Monthly Charge										
Total Charge	10	-	-	$	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars						**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent						0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$	-	$ 17.00	$ 17.00	$ 20.00	$ 20.15	$ 20.21
Increase -- Dollars						**17.00**	**-**	**3.00**	**0.15**	**0.06**
Increase -- Percent						0.0%	0.0%	17.6%	0.7%	0.3%
Total Charge	30	20	-	$	-	$ 17.00	$ 17.00	$ 47.00	$ 48.50	$ 49.13
Increase -- Dollars						**17.00**	**-**	**30.00**	**1.50**	**0.63**
Increase -- Percent						0.0%	0.0%	176.5%	3.2%	1.3%
Commercial 40mm -- Water Monthly Charge										
Total Charge	50	50	-	$	-	$ 113.75	$ 133.75	$ 148.75	$ 153.00	$ 154.79
Increase -- Dollars						**113.75**	**20.00**	**15.00**	**4.25**	**1.79**
Increase -- Percent						0.0%	17.6%	11.2%	2.9%	1.2%
Total Charge	100	100	-	$	-	$ 163.75	$ 203.75	$ 233.75	$ 242.25	$ 245.82
Increase -- Dollars						**163.75**	**40.00**	**30.00**	**8.50**	**3.57**
Increase -- Percent						0.0%	24.4%	14.7%	3.6%	1.5%
Tourism 50mm -- Water Monthly Charge										
Total Charge	500	500	-	$	-	$ 585.00	$ 785.00	$ 935.00	$ 977.50	$ 995.35
Increase -- Dollars						**585.00**	**200.00**	**150.00**	**42.50**	**17.85**
Increase -- Percent						0.0%	34.2%	19.1%	4.5%	1.8%
Total Charge	1,000	1,000	-	$	-	$ 1,085.00	$ 1,485.00	$ 1,785.00	$ 1,870.00	$ 1,905.70
Increase -- Dollars						**1,085.00**	**400.00**	**300.00**	**85.00**	**35.70**
Increase -- Percent						0.0%	36.9%	20.2%	4.8%	1.9%

Tariff Scenario 2A – 5 Year Uniform Residential Volume Charge

The third tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a five-year period. This means that by FY 2030 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

Table ES-11 summarizes the five-year tariff plan recommended under this scenario. Detailed calculations can be found in **Appendix B.** Volumetric charges are higher for non-residential customers than for residential and agricultural accounts.

Table ES-12 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole.

Table ES-11

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

		Current	1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
Scenario:			2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform				
Currency:			New Zealand Dollar (NZD)				
WATER Tariff							
Service Fee							
20 MM		$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
25 MM		-	42.50	42.50	42.50	42.50	42.50
40 MM		-	63.75	63.75	63.75	63.75	63.75
50 MM		-	85.00	85.00	85.00	85.00	85.00
Volume Tariff -- Per Unit/Cubic Meter							
Free Water Allocation							
Residential							
-	Above	-	-	-	0.600	0.800	0.900
Commercial/Industrial							
-	Above	-	0.900	1.150	1.350	1.650	1.800
Institutional							
-	Above	-	0.900	1.150	1.350	1.650	1.800
Agricultural							
-	Above	-	-	-	0.600	0.800	0.900
Tourism							
-	Above	-	0.900	1.150	1.350	1.650	1.800

Table ES-12

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	M3 - Total	M3 - Net of Free Water		1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
				2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform				
				New Zealand Dollar (NZD)				
Free Water Allocation (cubic meters		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 20.60	$ 21.80	$ 22.40
Increase -- Dollars				**17.00**	**-**	**3.60**	**1.20**	**0.60**
Increase -- Percent				0.0%	0.0%	21.2%	5.8%	2.8%
Total Charge	30	20	-	$ 17.00	$ 17.00	$ 29.00	$ 33.00	$ 35.00
Increase -- Dollars				**17.00**	**-**	**12.00**	**4.00**	**2.00**
Increase -- Percent				0.0%	0.0%	70.6%	13.8%	6.1%
Commercial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 108.75	$ 121.25	$ 131.25	$ 146.25	$ 153.75
Increase -- Dollars				**108.75**	**12.50**	**10.00**	**15.00**	**7.50**
Increase -- Percent				0.0%	11.5%	8.2%	11.4%	5.1%
Total Charge	100	100	-	$ 153.75	$ 178.75	$ 198.75	$ 228.75	$ 243.75
Increase -- Dollars				**153.75**	**25.00**	**20.00**	**30.00**	**15.00**
Increase -- Percent				0.0%	16.3%	11.2%	15.1%	6.6%
Tourism 50mm -- Water Monthly Charge								
Total Charge	500	500	-	$ 535.00	$ 660.00	$ 760.00	$ 910.00	$ 985.00
Increase -- Dollars				**535.00**	**125.00**	**100.00**	**150.00**	**75.00**
Increase -- Percent				0.0%	23.4%	15.2%	19.7%	8.2%
Total Charge	1,000	1,000	-	$ 985.00	$ 1,235.00	$ 1,435.00	$ 1,735.00	$ 1,885.00
Increase -- Dollars				**985.00**	**250.00**	**200.00**	**300.00**	**150.00**
Increase -- Percent				0.0%	25.4%	16.2%	20.9%	8.6%

Tariff Scenario 2B – 5 Year Conservation Residential Volume Charge

The fourth tariff plan scenario also assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

All of the same assumptions as listed for Scenario 2A apply to this scenario. The only difference is that this scenario assumes that TTV implements a conservation-based Inverted Block tariff design for its residential customers. The concept behind this rate design is that as a residential customer uses more water, that customer's unit rate increases. This is intended to provide a financial incentive for the customer to use water in the most prudent manner possible. It also enables TTV to implement a lower unit rate for the first tier of usage, a tier that the majority of customer charges will not exceed.

Table ES-13 summarizes the five-year tariff plan recommended under this scenario. The table reveals that there are three residential tiers – 0-16 m3, 17-30 m3 and 31 and above m3. **Table ES-14** presents the impact on monthly customer charges of this scenario.

Table ES-13

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

			Scenario:	2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation				
			Currency:	New Zealand Dollar (NZD)				
			Current	1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
WATER Tariff								
Service Fee								
20 MM			$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
25 MM			-	42.50	42.50	42.50	42.50	42.50
40 MM			-	63.75	63.75	63.75	63.75	63.75
50 MM			-	85.00	85.00	85.00	85.00	85.00
Volume Tariff -- Per Unit/Cubic Meter								
Free Water Allocation								
Residential								
	-	16	-	-	-	0.350	0.500	0.700
	17	30	-	-	-	1.200	1.400	1.500
	31	Above	-	-	-	2.000	2.100	2.300
Commercial/Industrial								
	-	Above	-	0.900	1.150	1.350	1.650	1.800
Institutional								
	-	Above	-	0.900	1.150	1.350	1.650	1.800
Agricultural								
	-	Above	-	-	-	0.600	0.800	0.900
Tourism								
	-	Above	-	0.900	1.150	1.350	1.650	1.800

Table ES-14

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	M3 - Total	M3 - Net of Free Water		2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation New Zealand Dollar (NZD) 1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
Free Water Allocation (cubic meters		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 19.10	$ 20.00	$ 21.20
Increase -- Dollars				**17.00**	**-**	**2.10**	**0.90**	**1.20**
Increase -- Percent				0.0%	0.0%	12.4%	4.7%	6.0%
Total Charge	30	20	-	$ 17.00	$ 17.00	$ 41.00	$ 45.00	$ 47.00
Increase -- Dollars				**17.00**	**-**	**24.00**	**4.00**	**2.00**
Increase -- Percent				0.0%	0.0%	141.2%	9.8%	4.4%
Industrial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 108.75	$ 121.25	$ 131.25	$ 146.25	$ 153.75
Increase -- Dollars				**108.75**	**12.50**	**10.00**	**15.00**	**7.50**
Increase -- Percent				0.0%	11.5%	8.2%	11.4%	5.1%
Total Charge	100	100	-	$ 153.75	$ 178.75	$ 198.75	$ 228.75	$ 243.75
Increase -- Dollars				**153.75**	**25.00**	**20.00**	**30.00**	**15.00**
Increase -- Percent				0.0%	16.3%	11.2%	15.1%	6.6%
Tourism 50mm -- Water Monthly Charge								
Total Charge	500	500	-	$ 535.00	$ 660.00	$ 760.00	$ 910.00	$ 985.00
Increase -- Dollars				**535.00**	**125.00**	**100.00**	**150.00**	**75.00**
Increase -- Percent				0.0%	23.4%	15.2%	19.7%	8.2%
Total Charge	1,000	1,000	-	$ 985.00	$ 1,235.00	$ 1,435.00	$ 1,735.00	$ 1,885.00
Increase -- Dollars				**985.00**	**250.00**	**200.00**	**300.00**	**150.00**
Increase -- Percent				0.0%	25.4%	16.2%	20.9%	8.6%

Table ES-15 presents a comparison of monthly charges under each of the four scenarios. The table reveals that, as expected, charges are lower under the conservation scenarios for low use and higher for higher levels of usage.

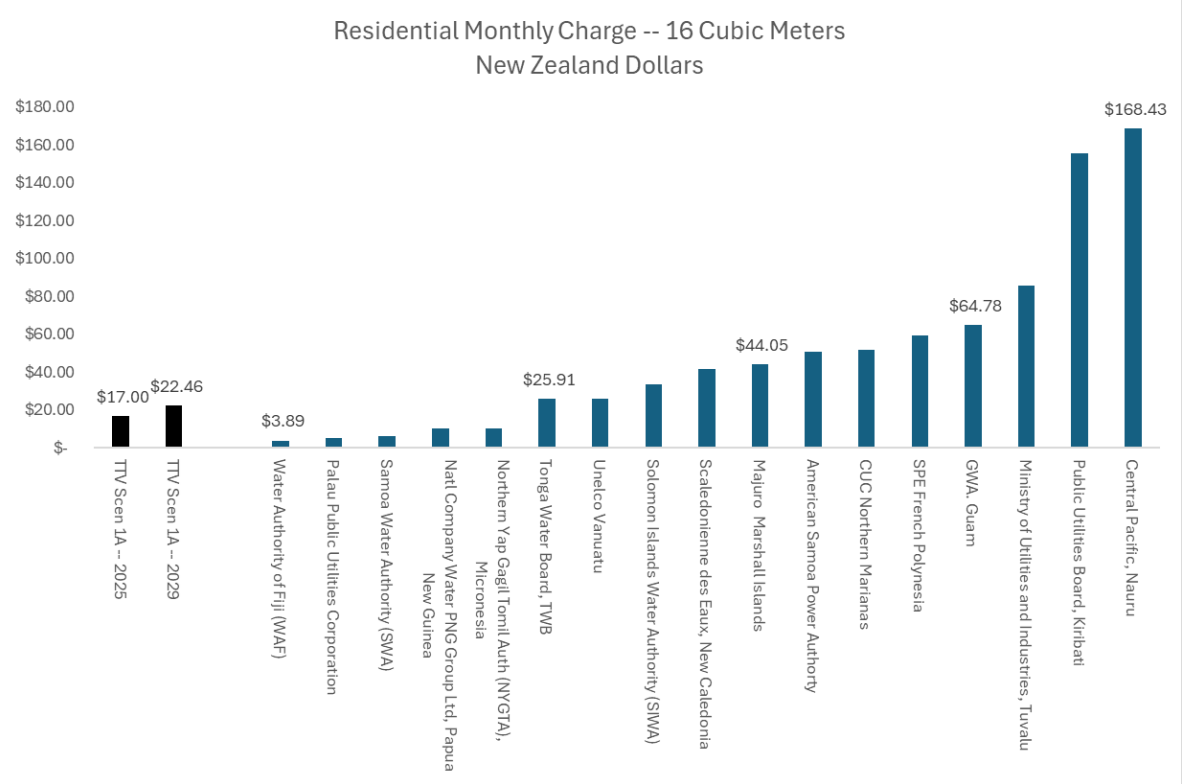
Chart ES-16 compares TTV's proposed charges under Scenario 1A to other Pacific utilities, and to the cost of other necessities in the Cook Islands. The charts reveal that monthly charges under this scenario are lower for TTV than for almost all other Pacific utilities. The chart would be similar for each of the other scenarios.

Table ES-15

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	Total	Net of Free Water	Current	2025 Effective Oct-24	2026 Effective Jul-25	2027 Effective Jul-26	2028 Effective Jul-27	2029 Effective Jul-28
Free Water Allocation (cubic meters)		10						
Residential -- Water Monthly Charge								
Scen 1A -- 3 Year	16	6	$ -	$ 17.00	$ 17.00	$ 22.10	$ 22.36	$ 22.46
Scen 1B -- 3 Year Conservation			-	17.00	17.00	20.00	20.15	20.21
Scen 2A -- 5 Year			-	17.00	17.00	20.60	21.80	22.40
Scen 2B -- 5 Year Conservation			-	17.00	17.00	19.10	20.00	21.20
Scen 1A -- 3 Year	30	20	$ -	$ 17.00	$ 17.00	$ 34.00	$ 34.85	$ 35.21
Scen 1B -- 3 Year Conservation			-	17.00	17.00	47.00	48.50	49.13
Scen 2A -- 5 Year			-	17.00	17.00	29.00	33.00	35.00
Scen 2B -- 5 Year Conservation			-	17.00	17.00	41.00	45.00	47.00
Commercial 40mm -- Water Monthly Charge								
Scen 1A -- 3 Year	50	50	$ -	$ 209.38	$ 229.38	$ 244.38	$ 248.63	$ 250.41
Scen 1B -- 3 Year Conservation			-	209.38	229.38	244.38	248.63	250.41
Scen 2A -- 5 Year			-	204.38	216.88	226.88	241.88	249.38
Scen 2B -- 5 Year Conservation			-	204.38	216.88	226.88	241.88	249.38
Tourism 50mm -- Water Monthly Charge								
Scen 1A -- 3 Year	500	500	$ -	$ 1,296.88	$ 1,496.88	$ 1,646.88	$ 1,689.38	$ 1,707.23
Scen 1B -- 3 Year Conservation			-	1,296.88	1,496.88	1,646.88	1,689.38	1,707.23
Scen 2A -- 5 Year			-	1,246.88	1,371.88	1,471.88	1,621.88	1,696.88
Scen 2B -- 5 Year Conservation			-	1,246.88	1,371.88	1,471.88	1,621.88	1,696.88

Chart ES-16

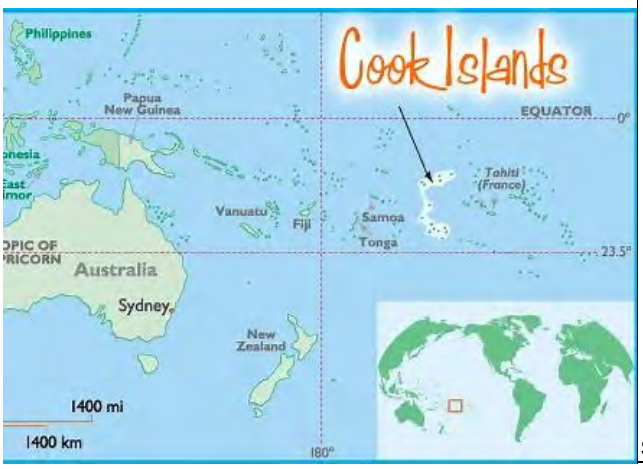


1. Introduction

a. Study Background

The Cook Islands is a nation of 15 islands located in the South Pacific Ocean. The nation has a combined land mass of approximately 236.7 square kilometres, with the most populous island being Rarotonga, home to the capital of Avarua. In addition to Rarotonga, there are seven Northern islands and seven Southern islands. The land area and 2021 population of each is summarized in Table 1-1:

Table 1-1



COOK ISLANDS LAND MASS AND CURRENT POPULATION	km Land Area	2021 Population
Cook Islands	**236.7**	**15,040**
Rarotonga	67.1	10,898
Southern Islands	**145.2**	**3,040**
Aitutaki	18.3	1,782
Mangaia	51.8	471
Atiu	26.9	383
Mauke	18.4	249
Mitiaro	22.3	155
Manuae	6.2	-
Takutea	1.3	-
Northern Islands	**24.4**	**1,105**
Palmerston	2.1	25
Pukapuka	1.3	459
Nassau	1.3	92
Manihiki	5.4	215
Rakahanga	4.1	81
Penrhyn	9.8	233
Suwarrow	0.4	-

SOURCE: CI Govt, 2021 Census of Population and Dwellings

The islands are named after British Captain James Cook, who visited and mapped the islands in the 1770s. At present the nation is self-governing while in free association with New Zealand. While it has its own independent foreign and defence policy, it has no armed forces, and the nation's currency is the New Zealand Dollar. Cook Islanders are also citizens of New Zealand.[5]

[5] Wikipedia, April 2024

The Cook Islands are a representative democracy with a parliamentary system. The head of government is the Prime Minister, who possesses Executive power, while legislative power is invested in the unicameral Parliament of the Cook Islands[6]. The head of state is Charles III, King of Great Britain.

The country's economic base is primarily composed of tourism, which makes up approximately 67.5% of Gross Domestic Product ("GDP"). The country has been attempting to expand its agriculture, mining and fishing sectors, but it also accepts foreign aid, largely from New Zealand but also from other international entities as well. The country possesses beautiful beaches and breathtaking scenery, but it lacks major natural resources, has limited manufacturing and is at risk from occasional natural disasters.[7]

To Tatou Vai ("Our Water") is the sole provider of water service in the Cook Islands. TTV was established through the To **Tatou Vai Act 2021** as a not-for-profit statutory corporation under the purview of the Cook Islands Investment Corporation ("CIIC").[8] Prior to the establishment of TTV there had been no official water authority in the Cook Islands. According to TTV's 2023-2027 Statement of Corporate Intent, TTV's focus is on ensuring that the system is high performing and that it meets both the quantity needs and the desires of the community for high quality water services. It is not profit-seeking; instead it intends only to recover its operating expenses. It provides water service only at this time.[9]

As outlined in the 2021 Act (to be discussed in more detail in Section 2), the statutory functions of TTV are as follows:

1) To collect, treat and reticulate water for public supply in a reliable, efficient and cost-effective way;

2) To operate, build, and maintain systems, facilities and networks, as needed for that purpose;

3) To meet any prescribed water supply and water quality standards;

4) To consult with catchment committees to ensure the preservation and conservation of catchments for the continued supply of water;

5) To recognize the rights and interests of landowners in the valleys through its compliance with the terms of access agreements;

6) To promote public education and awareness of the need to preserve and conserve catchments;

[6] Ibid.
[7] Ibid.
[8] TTV 2023-2027 Statement of Corporate Intent, p. 15
[9] Ibid.

7) To identify new sources of water to meet future anticipated demand and, together with those who have rights in respect of the land over which that water site sits or runs, develop these sources for the public good;

8) To acquire or enter into agreements with CIIC to assume active management of CIGPC's rights to collect water and for the acquisition or use of systems and facilities owned by CIGPC and needed for the reticulation, filtration, and storage of water;

9) Any other functions given to the Authority by the Minister.

Like many Pacific utilities, TTV is facing significant operational and financial challenges both at present and in the coming decades. These challenges include, but are not limited to, the following:

- The challenging terrain and service territory increase the cost and effort involved in the delivery of water service.

- Basic operational expenses like delivery of materials are high compared to utilities in other parts of the world. For example, electricity expenses for Pacific Island utilities are among the highest in the world, primarily due to the dependence of these utilities on diesel fuel generation.

- The water system is aging and is in need of millions of dollars in additional distribution-system related capital improvements over the next decade.

- While the quality of water service has improved significantly after the inception of TTV in 2021 and following the $100 million Te Mato Vai project, water quality standards remain below acceptable levels. Delivered water does not meet potable standards at present.

- TTV is currently undertaking the process of metering its residential and non-residential accounts. This process is expected to be completed by 2027 for residential, and 2025 for non-residential. However, the lack of metered data has complicated TTV's ability to monitor and track customer usage patterns.

- Like many utilities around the world, TTV's capital costs have increased significantly in recent years due to world-wide inflationary pressures.

- Currently the Cook Islands is the only nation in the Pacific region that does not directly charge its customers for water service. Instead, TTV is funded by an annual allocation from the national government, meaning that customer pay indirectly for water service through taxes. **Customers have grown accustomed to not paying directly for water service, and may prove to be resistant to any plan that implements a monthly charge for service.**

- Since customers do not directly pay for water service, **there is no incentive among customers to conserve water usage**. This may lead to increase waste and unnecessary demands for water service on the system.

- The Cook Islands is a small nation, with a population of approximately 15,040. It is therefore difficult for such a small customer base to fund expensive capital projects.

- While the population of the Cook Islands is approximately 15,040, the nation hosts as many as 160,000 tourists per year. This leads to a higher level of demand and the need for additional water system capacity. The current tax-based allocations to TTV from the national government does not assure that the commercial and tourist-based customer classes fully fund the cost of providing service to them.

- TTV is heavily dependent on government approval of sufficient funds to be allocated to meet operating expense requirements. There have been instances where the allocation from the government for TTV has not been equal to the amount requested by TTV management. This has led to significant budgetary and operational challenges.

- Economic conditions are challenging, with a portion of TTV's customer base living in poverty. This will further increase resistance to any proposed plan to implement monthly tariffs.

TTV has sought the assistance of **Asian Development Bank (ADB)** in assessing the water regulatory environment, developing current and forecast future water service levels, estimating costs associated with these and presenting a range of tariff structure options to be considered by the Government of the Cook Islands and TTV.[10] The primary goals of the chosen Tariff plan include the following:

- Ensure, either immediately or over an acceptable time period, that revenues from tariffs recover all Operating Expenses and result in the self-sufficiency of the water operation. This will eliminate the need for continued government allocations to TTV to cover basic operating expenses

- To the best extent possible, minimize the impact of any tariff adjustments on all customers, especially those in the lowest income tiers

As will be shown later in this report, one of the key decisions that must be addressed by TTV management and other stakeholders will be the timing and degree of tariff adjustments. In other words, how quickly and aggressively should tariffs be implemented to accomplish TTV's objectives? What is the proper balance between achieving the financial objective of self-sustainability and limiting the impact of tariff

[10] ADB Terms of Reference, TA-10267

adjustments on TTV's customers? How should tariff adjustments be spread among the various customer classes? To what extent should water conservation be encouraged through any proposed tariff design?

The definition of an "acceptable" balance of these often-competing objectives often varies between utilities. However, it is a fundamental component of the development of a successful tariff plan. To be successfully adopted, a tariff plan must balance the financial needs of the utility with the economic challenges of its customers and the social and political considerations of those regulatory bodies that will ultimately approve or reject the plan.

b. Scope of Work

As indicated in ADB's Terms of Reference, the intent of this study is to provide a financial plan and to implement a long-term tariff plan for TTV. It includes a review of acceptable operating costs required to deliver water services efficiently, and a review of the regulatory framework for price setting. However, any tariff plan must also include consideration for minimum water allocations to vulnerable households; provision of water for and during emergencies; and the consultation of key stakeholders in the development of any potential tariff plan alternatives. Specifically, the scope of services includes the following:

- Review the Cook Islands current regulatory and policy environment and identify issues affecting the introduction/collection of water tariffs and any reforms required for ongoing sustainable service delivery;

- Assess the utility's current and proposed/desired levels of customer service, and the trade-off with cost/price, including the possible risk to proposed customer service levels from possible climate change related impacts;

- Assess the costs of ongoing operation and maintenance expenditures required to deliver the agreed level of service;

- Assess the prudence and efficiency of the utility's proposed operating expenditure over a future period of several years (called a price path);

- Assess the utility's forecast service demand;

- Assess an appropriate level of 'free portion' water available to residential customers;

- Together with TTV, prepare and conduct at least two stakeholder water regulatory and tariff consultation sessions in the Cook Islands with relevant government agencies, regulators, commercial and community sector representatives to gather views and socialize proposed tariff structures and levels;

- Propose multiple tariff structure and level options (at least three) to TTV and stakeholders, giving due consideration to trade-offs between full cost recovery models and rights-based affordability and access issues.[11]

It should be noted that unless specifically identified as otherwise, **all dollar figures quoted in this study represent New Zealand Dollars ($NZD),** the official currency of the Cook Islands.

Financial Model Development

This assignment also includes the development of a comprehensive financial model to forecast TTV's cost of service[12]. The model contains the ability to forecast for the next decade total customer accounts, usage, revenues and expenses, and to allow the user to test the appropriateness of alternative tariff structures.

The model is designed for use in Microsoft Excel, and contains user-friendly input areas for ease of usage in future updates. The model also contains the design flexibility to allow it to be easily adopted in case

[11] ADB Terms of Reference, TA-10267
[12] Ibid.

new expense categories are developed by TTV in coming years. The intention of this model is for it to be used as a tool to develop and administer TTV financial policy for now and in the future.

The model calculates overall revenue requirements for the current year, or "test year", as well as a forecast of revenue requirements for a period ten years into the future. This includes a detailed forecast of personnel and operating expenses. Additionally, the forecast of Revenue Requirements reflects TTV's current policies and practices regarding appropriate levels of fund balance and capital financing (including debt service coverage levels and debt-to-equity ratios). Accordingly, revenue requirements that meet financial performance measures will be determined.

After developing the overall revenue requirements, the proposed tariff plans are intended to recover the overall allocated cost of service. Also provided is the following additional information:

- A detailed delineation of the advantages and disadvantages of the proposed tariff plan
- A calculation of the impact of any proposed "transition period" into the new tariffs
- An estimate of the cost of average water service per household based on the new tariff design (also known as a "bill impact analysis")

c. Consultations with Stakeholders

During the course of this engagement the project team held a series of meetings, conferences and workshops with various identified stakeholders. These stakeholders represented the business community, tourism councils, government agencies and customers through community meetings. The initial meetings took place during the time period April 8-16, 2024, when project team representatives were on site in Rarotonga. The meeting schedule and stakeholders are summarized in **Table 1-2**.

The project team owes a debt of gratitude to the hard work, dedication and professionalism of all stakeholders and meeting attendees, for the time they devoted to offering insight and feedback into the tariff setting process. This feedback has directly led to the development of a more representative and acceptable tariff policy for TTV.

Table 1-2

TO TATOU VAI
STAKEHOLDER MEETINGS -- APRIL 2024

Date		Stakeholder	Attendees	
8-Apr	830 -- 1000	TTV Board of Directors	Brian Mason, Chairman Des Eggleton Sam Napa Snr	Philip Vakatini Ashleigh Steele Charles Carlson
8-Apr	1200 -- 1300	TTV Senior Management	Tereapii Timoti -- CEO William Tuivaga -- Relationship Mgr	Chris Langdale -- Engineer Timothy Teulilo -- CFO Dean Taylor
8-Apr	1400 -- 1500	Ministry of Finance & Economic Management	Garth Henderson	
9-Apr	815 -- 1000	Competition and Regulatory Authority	Bernard Hill, Chairman	
9-Apr	1330 -- 1500	Chamber of Commerce	Steve Anderson, Chairman	
10-Apr	1030 -- 1200	Members of Parliament	Hon. Teariki Heather Hon. Robert Heather Hon. Tim Tunuli	Hon. Vailoti Tupa Hon. Tina Browne Parliament Staff
10-Apr	1300 -- 1430	Cook Islands Tourism Council	Liana Scott Brent Hayden	Betsy Eisler Kristine Tatum
10-Apr	1800 -- 1930	Communicty Meeting -- Vaka Puaikura	TTV Customers -- Approximately 62	
11-Apr	1000 -- 1100	Te Aponga Uira (TAU)	Alistair Newbigging	Tei Nia
11-Apr	1200 -- 1300	House of Akiri	Tuaine Unuia -- Anua Toa Kaumaiti -- Tou Akiri Tinomana Ariki -- Tokerau Munro Vakatini Ariki -- Phillip Vakatini	Karika Ariki -- George Taripo Tupeariki Tamuera Peyroux Napa Dr. Tuaine Unuia Puna Rakanui
11-Apr	1400 -- 1530	Cook Islands Investment Corp (CIIC)	Alan Jenson Arama Wichman	Tairi Hermann Alan Bird
11-Apr	1800 -- 1930	Community Meeting -- Vaka Takitumu	TTV Customers -- Approximately 65	
12-Apr	900 -- 1000	Cook Islands Tourism Corporation	Karla Eggleton	Brad Kirner
12-Apr	1100 -- 1200	Vodaphone	Rob McFadzien -- CFO	Tamati Iro -- VAS Manager
12-Apr	1800 -- 1930	Community Meeting -- Vaka Te Au O Tonga	TTV Customers -- Approximately 75	
15-Apr	1300 -- 1600	TTV Board of Directors	Brian Mason, Chairman Des Eggleton Sam Napa Snr	Philip Vakatini Ashleigh Steele Charles Carlson
16-Apr	1000 -- 1200	Cabinet	Hon Albert Nicholas -- Deputy PM Hon Vaine (Mac) Mokoroa -- Minister Hon George Maggie Angene -- Minister Hon Tingika Elkana -- Minister JJ Harold Browne -- Cabinet Director	Tukaka Ama -- Assoc Minister Akai Puna -- MP Hon Sonny Williams -- MP Ben Ponia -- Chief of Staff

2. Demographic Analysis, Financial Performance Assessment and Regulatory Review

This section of the TTV Financial/Regulatory Assessment and Tariff Structure Alternatives Report begins with a general demographic and income assessment of the Cook Islands. This information is useful in determining the impact on and ability of customers to afford any implemented tariffs. Since TTV at present has no tariff structure in place, current tariffs in place by other Pacific Utilities will be presented.

This section also contains an assessment of the utility's operational and financial performance to date. It is intended to illustrate the need for and impact of implemented tariffs on the utility.

The 2021 legislation establishing TTV will be summarized and assessed with regards to its impact on TTV and its operations. Additionally, the proposed new regulatory framework being considered for TTV will also be reviewed. TTV's past and current financial performance, financial status, assets, liabilities, cost structure, revenues and other pertinent facts will be examined.

a. Demographic and Affordability Assessment

Table 1-1 revealed that at present the population of the Cook Islands is 15,040. Of this total, approximately 10,898 reside in Rarotonga, the only location for water service provided by TTV.

One of the key components to any long-term forecast is the expectation of future growth in the service area. **Chart 2-1** reveals that while the nation experienced steady growth for the first half of the 20th century, population peaked at 21,322 in the 1970s, after which population declined to its current levels. The population of Rarotonga tracked the ebbs and flows of the nation's population as a whole. This chart provides support for the assumption that population growth is not to be forecast as a significant factor in future revenues and expenses.

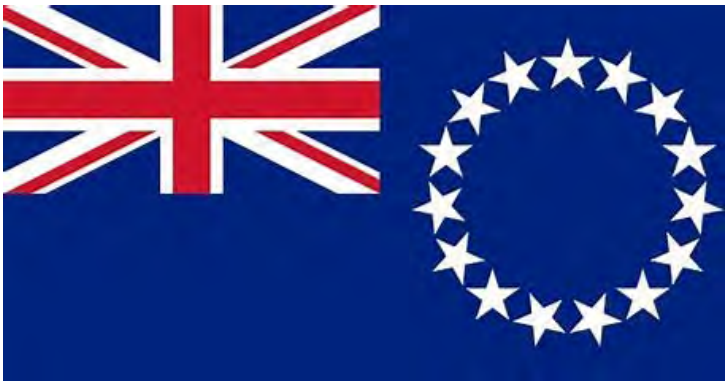
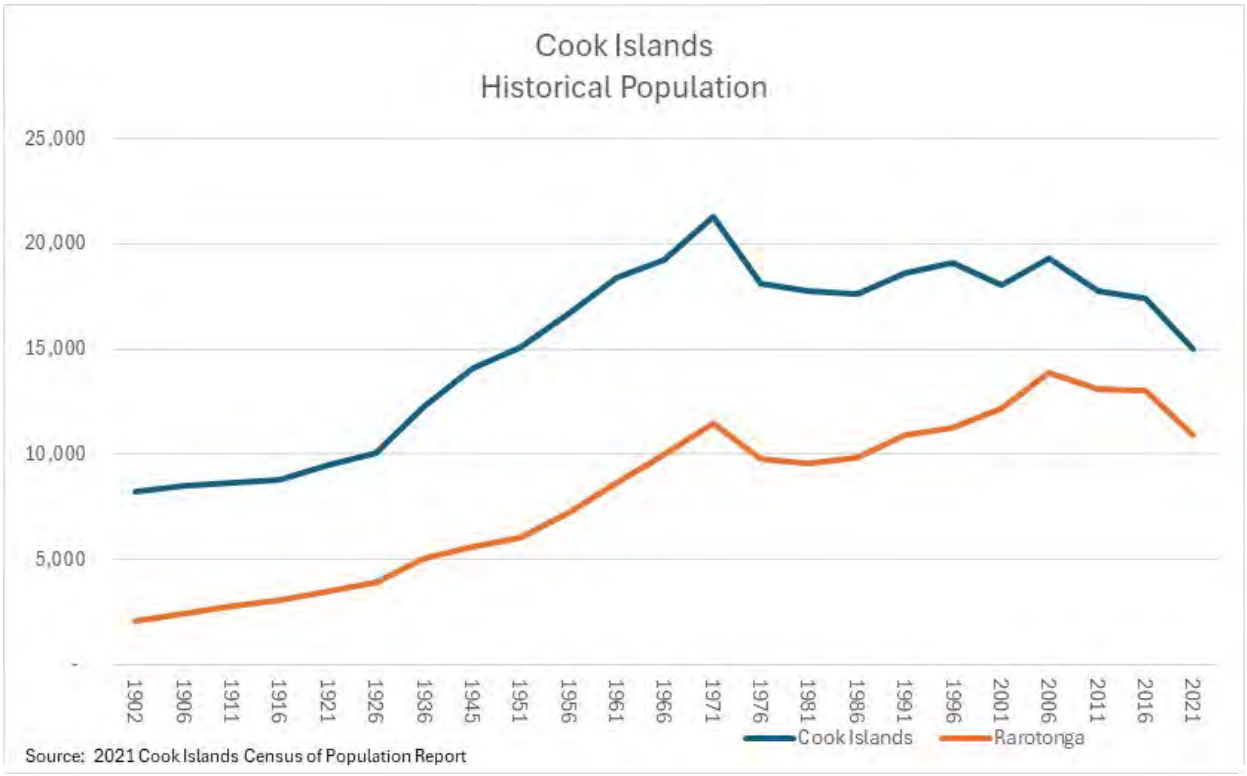


Chart 2-1



The *2021 Cook Islands Census of Population and Households* report provides a wealth of background data on household income and size. Data most relevant for the purposes of this study is summarized in **Table 2-2**. The table reveals that as of 2021, the most recent year of available data, Rarotonga currently maintains a median household income of **$52,516** and an unemployment rate of 1.2%. This is indicative of a relatively healthy economy. Further, Rarotonga household size averages 3.12 persons, an important statistic as will be shown for forecasting water usage.

Table 2-2

COOK ISLANDS HOUSEHOLD DATA

	Cook Islands	Rarotonga
Median Household Income $ -- NZD	$ 46,315	$ 52,516
Unemployment Rate	1.2%	1.2%
Labor Force Participation Rate	68.9%	72.8%
Persons per Household		
Households	4,681	3,467
Persons	14,964	10,829
Persons/Household	3.20	3.12

SOURCE: 2021 Cook Islands Census of Population Report

Table 2-3 and **Chart 2-4** present individual income level by income range. These totals are separate and distinct from household income levels, which tend to be higher due to the typical inclusion of income for more than one person in a household. Nonetheless, the tables reveal that the majority of individuals, both in Rarotonga and the nation as a whole, have annual income levels that range between $10,000 and $40,000. This data will be used later in the report to assess the potential affordability of alternative tariff plans.

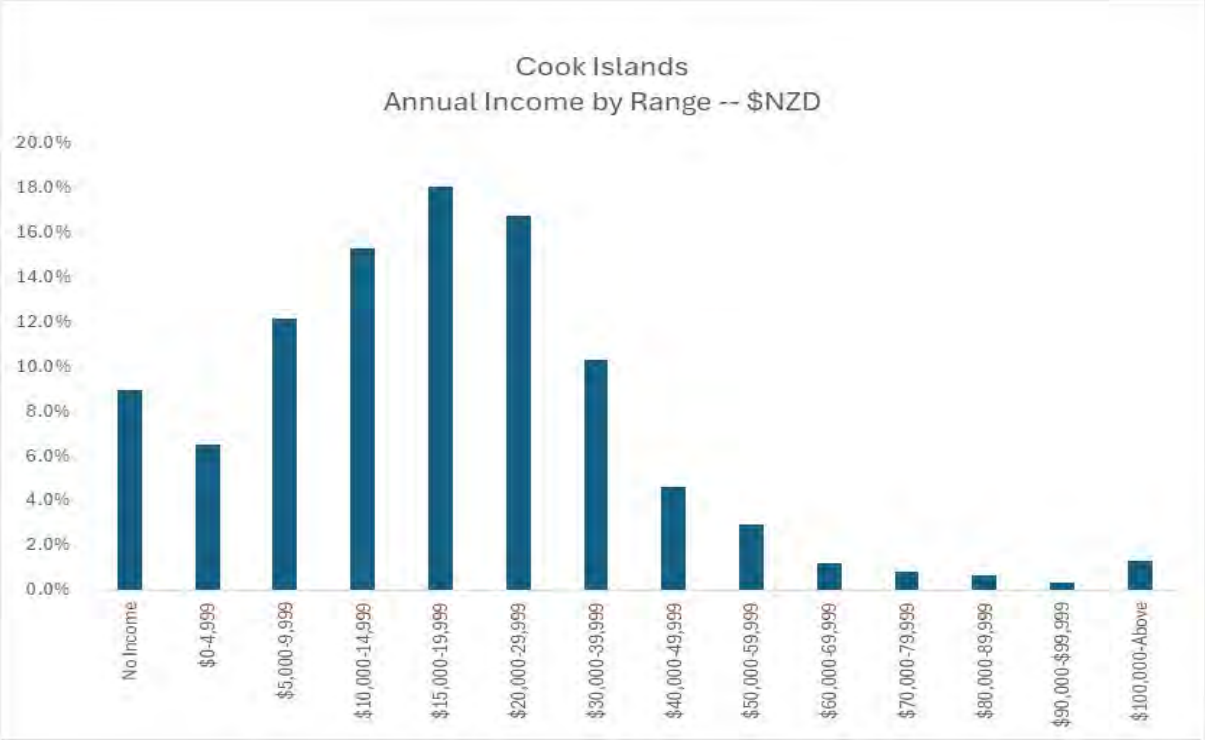
Table 2-3

COOK ISLANDS
RESIDENT POPULATION 15 AND OLDER -- ANNUAL INCOME

		Total		Percent of Total	
		Cook Islands	Rarotonga	Cook Islands	Rarotonga
	No Income	1,098	747	9.8%	9.0%
-	4,999	977	544	8.7%	6.5%
5,000	9,999	1,710	1,011	15.2%	12.1%
10,000	14,999	1,895	1,275	16.9%	15.3%
15,000	19,999	1,925	1,505	17.2%	18.1%
20,000	29,999	1,596	1,398	14.2%	16.8%
30,000	39,999	968	860	8.6%	10.3%
40,000	49,999	416	385	3.7%	4.6%
50,000	59,999	261	246	2.3%	3.0%
60,000	69,999	105	99	0.9%	1.2%
70,000	79,999	68	67	0.6%	0.8%
80,000	89,999	57	54	0.5%	0.6%
90,000	99,999	32	30	0.3%	0.4%
100,000	Above	111	107	1.0%	1.3%
		11,219	**8,328**	**100.0%**	**100.0%**

SOURCE: 2021 Cook Islands Census of Population and Dwellings, p. 110

Chart 2-4



b. Legal and Regulatory Framework

Enabling Legislation

To Tatou Vai was created by an act of Parliament, the *To Tatou Vai Act 2021*. The act was intended to establish TTV as the water service provider for Rarotonga only, accountable to and under the ownership of the CIIC. Prior to this act there was no official water authority. Importantly, page 3 of the act establishes the intent of the legislation was to "provide the Authority with financial independence so it can operate in an economically sustainable way as a non-for-profit utility." A copy of the enabling legislation is included as **Appendix A** of this report.

Page 6 of the act states that TTV possesses the following specific authority:

(a) to collect, treat, and reticulate water for public supply in a reliable, efficient, and cost-effective way:

(b) to operate, build, and maintain systems, facilities and networks, as needed for that purpose:

(c) to meet any prescribed water supply and water quality standards:

(d) to consult with catchment committees to ensure the preservation and conservation of catchments for the continued supply of water:

(e) to recognise the rights and interests of landowners in the valleys through its compliance with the terms of access agreements:

(f) to promote public education and awareness of the need to preserve and conserve catchments:

(g) to identify new sources of water to meet future anticipated demand and, together with those who have rights in respect of the land over which that water sits or runs, develop those sources for the public good:

(h) to acquire or enter into agreements with CIIC to assume active management of CIGPC's rights to collect water and for the acquisition or use of systems and facilities owned by CIGPC and needed for the reticulation, filtration, and storage of water:

(i) any other functions given to the Authority by the Minister.

The Act details the responsibilities of TV regarding the free allocation of water to eligible customers, its catchment committees, the operation of its system, the Board of Directors, managerial responsibilities and its obligations to its customers. For the purposes of this financial/regulatory assessment and tariff structure analysis, the Act proscribes the following provisions in Section 26 on page 11:

1 **The Authority must operate the network on a not-for-profit basis**

2 The Authority may—
   a) **set and charge tariffs to customers for the supply of water**; and
   b) set and impose charges for the connection of a water supply.

3 **The Authority may set tariffs and charges that differentiate between customers** on the basis of-
   a) the amount of water used; and
   b) what the water will be used for.

4 In setting tariffs, the Authority must take account of the need-
   a) **for consumers to have supplies of a reasonable quantity of affordable water**; and

b) **for the Authority to meet its actual and anticipated liabilities as they fall due**; and

c) to maintain the infrastructure on Rarotonga for water supply.

5 The Authority must set charges with a view to-

a) **the costs of ongoing maintenance** (including preventative maintenance), repair, replacement, and provision for upgrade of its waterworks in all aspects of infrastructure and service delivery; and

b) servicing any loans taken out to meet those expenses (but excluding loans used to pay for Te Mato Vai); and

c) prudently managing financial risks; and

d) having regard for any reserves held by the Authority; and

e) allowing for depreciation of any inventory which is, in the normal course, **depreciated to a nil value over a term of 5 years or less**.

6 If the Authority imposes tariffs or charges they must be reviewed in advance on an annual basis. Once set, **tariffs and charges may not be changed until the following year,** except in accordance with section 31.

The highlighted portions of Section 26 are directly addressed in the development of tariff structure options in this report. Importantly, the Act requires TTV to operate on a **non-profit** basis, which means that TTV does not and cannot "profit" from the sale of water to its customers. The Act gives TTV the authority to set tariffs that cover the cost of ongoing maintenance. However, the tariff setting process can take place only once per year. Furthermore, the asset and depreciation base can only include assets that have a lifespan of 5 years or less, which prevents TTV from incorporating its $100,000,000 Te Mato Vai Water Treatment Plant/Intake and Ring Main into its rate base and revenue recovery.

Governance and Regulatory Framework

As stated in Section 1 of this report, the scope of services for this engagement includes a review of the Cook Islands current regulatory and policy environment, with the intent of identifying issues affecting the introduction/collection of water tariffs and any reforms required for ongoing sustainable service delivery. At present, authority over and responsibility for TTV ultimately rest with the Cook Islands Investment Corporation (CIIC), to whom TTV is ultimately accountable.

Part 5 of the *To Tatou Vai Act 2021* outlines TTV's general governance structure. Overall control of the authority is invested in a Board Directors, which consists of no less than 5 and no more than 7 members. Members are appointed by the CIIC board. Board member terms are between 2 and 3 years, and subject to a term limitation of 12 years. The

members must include persons of different genders. Members, including the Chair, must meet a range of criteria outlined in the section.

The act further outlines procedures for meetings, voting and disclosure requirements. It is the project team's opinion that all of these criteria are reasonable and normal for Boards of public utilities.

The Board appoints a Chief Executive Officer (CEO) who reports to the Board and carries out the Board's functions and directives. Consistent with the chain of command exercised by utilities across the Pacific, the CEO makes hiring decisions and delegates responsibility to subordinates, including a Chief Financial Officer, a Human Resource Manager, Relationship Manager, Chief Engineer, Board Secretary and others.

During the April 2024 community meetings, questions were raised regarding the extent to which the current governance and regulatory structure is accountable to the general public and TTV's customers. Based on experience with ten utilities across the Pacific and 200 in North America, the project team has identified three general governance and regulatory structures employed for utilities to ensure such accountability. While there are variations employed in different countries, the general structures are as follows[13]:

1) **Direct Reportage/Self Regulation** – this is the regulatory structure most similar to that currently employed for TTV. Under this model, the utility reports directly to the government, either to the legislative body or a designated Minister or executive authority. The governing body rarely interjects itself into the operations of the utility; instead it acts as a general overseer or self-regulatory and sets overall policy goals for the utility to achieve. The concept is that if the electorate does not agree with or approve of either these general policies or the manner in which the utility is operated, then the electorate may use their democratic powers to elect a government that will operate in a manner more to their liking. This gives the governing body an incentive to ensure that the utility maintains policies and is operated in a manner considered acceptable to the general public.

2) **Office of the Regulator** – this is a model employed by nations such as Samoa and to a lesser extent, Fiji. Under this model, a separate statutory body is established, which acts independently of the government. The utility must submit any tariff proposal to this office, which uses standard regulatory and tariff principles to evaluate and determine the reasonableness of the proposal. The regulatory body makes its recommendations to the elected body, which maintains ultimate authority to approve, modify or reject the tariff request. At present the Cook Islands has a Competition and Regulatory Authority (CRA) that performs this type of function, but this body does not currently have jurisdiction over TTV.

3) **Sector-specific National or State Regulator** – this involves a regulator or agency that is mandated to oversee private and public service providers. Roles and responsibilities the issuance of licenses, setting performance standards, evaluating business plans, building capacity and reporting directly to government authorities. This could also be downloaded to the state level, as shown by the Public Utility Commission alternative presented below.

[13] Source for much of this discussion is the *Regulation of Water Supply and Sanitation in Bank Client Countries*, World Bank, 2018.

4) **Multi-Sector Regulator** – this is a regulatory agency that addresses several different sectors (electricity, water, gas, etc.). It is intended to provide economies of scale, consistent regulatory practices, and knowledge exchange among different sectors.

5) **Public Utility Commission** – this structure is most popular in North America and other western nations. Under this concept, a sizeable regulatory authority composed of professional staff, attorneys and managers is established to exercise comprehensive jurisdiction over the utility. The utility must meet a series of requirements set forth by the Commission, including benchmarks, reports and other items. When a utility submits a tariff plan for approval, the review process takes the form of adversarial litigation. The utility, the Commission staff, and groups representing the customers hire attorneys and experts, prepare prefiled testimony, and conduct lengthy courtroom hearings subject to complex rules of evidence to evaluate the reasonableness of the proposal. These hearings are presided over by an Administrative Law Judge who submits a proposal for decision for review and approval by the appointed commissioners. The process can be lengthy and expensive for all parties.

6) **Regulation by Contract** – this involves the development of a contract between the government and a private entity responsible for monitoring the utility. The "monitoring entity" perfors functions similar to that of a regulator, although often with significantly less professional support staff and discretion.

The Direct Reportage/Self Regulation model is the closest to that which is currently in effect for TTV. This is because the CIIC Board currently acts as a "buffer" between the government of the Cook Islands and TTV. This has led to the assertion during the community meetings that TTV is not directly accountable to the public.

The project team does not recommend adoption of the Public Utility Commission model. This model is designed for much larger utilities with significantly greater resources than those available for TTV, such as Australian or Californian utilities who serve millions of people and submit tariff requests that can encompass billions of dollars.

At present the Cook Islands Parliament is reviewing legislation that would grant authority over TTV to the *Competition and Regulatory Authority* ("CRA"). Currently the CRA has a limited staff and has authority over the Cook Islands Electric Utility. The pending legislation would result in TTV being regulated by the Office of the Regulator model outlined above, and it would mirror the Multi Sector approach also described above. This legislation is expected to be considered in the summer of 2024. **The project team recommends that this legislation be adopted**, as the Office of the Regulator model is the most appropriate regulatory model for a utility with the size and resources of TTV. It provides for independent review of TTV tariff proposals by an accomplished professional regulator, while streamlining both effort and expense involved with such reviews. It would ensure that TTV functions and assesses tariffs in a manner consistent with international tariff policies, and that TTV does not recover more than what is necessary to manage its operations in an efficient manner.

c. Water Operations

Overview

As directed by the *To Tatou Vai Act 2021*, TTV's water operations are limited only to the island of Rarotonga. As shown in **Table 2-5**, the vast majority of households at present (over 93% for Rarotonga) have access to the public water supply. As is typical for Pacific communities, many households supplement their supplies with rainwater from separate tanks, either personally owned or communal.

Table 2-5

COOK ISLANDS
WATER DELIVERY STATISTICS

	Cook Islands	Rarotonga
Household Sources of Water Supply		
Public Water Main	85.2%	93.3%
Public Water Catchment	2.6%	2.5%
Own Rainwater Tank	51.3%	43.0%
Communal Water Tank	1.7%	1.1%
Other Sources	0.5%	0.5%
From Public Water Mains		
Own filtered piped into Dwelling		899
Unfiltered piped into dwelling		333
filtered piped into compound		76
unfiltered piped into compound		19
water stations		1,528
filtered piped to neighbor		19
From Other Sources		
Communal Tank		7
Own tank tap inside dwelling		103
Own tank tap outside dwelling		27
Bought water		433
Other source		23

TTV currently supplies approximately 11 million litres of water per day to the residents and businesses of Rarotonga. This requires the management and maintenance of 11 water intakes and 10 treatment plants, over 260 km of water reticulation (distribution) pipeline, 21 community water stations and a customer

base estimated to be 4,759 accounts. It requires an operational staff of approximately 30 full time equivalent personnel.[14]

At present TTV is in the process of installing meters for all of its customers. Because many customers remain unmetered at the time of this report, and because TTV does not currently charge for water service, TTV does not maintain precise numbers of existing, active accounts. However, through the access of household data, census data and data from other sources such as Te Aponga Uira, the nation's electric utility, the project team in conjunction with TTV staff has prepared an estimate of current accounts. That estimate is presented in **Table 2-6.** The table reveals that TTV has approximately **4,759** customer accounts at present, in the following customer classes:

Residential – homeowners and domestic consumers

Commercial/Industrial – retail and businesses (note: no accounts currently meet the standard definition of industrial

Institutional – local and national government accounts

Agricultural – accounts used for the purpose of providing agricultural water

Tourism – hotels, resorts and guest inns

The table further shows that the vast majority of accounts are residential, 3,299 or 69% at present. It must once again be noted that these numbers are estimates, and that once TTV has completed its comprehensive meter installation program, more definitive customer counts will be available. The project team does not believe that these totals will differ materially from current estimates.

Table 2-6

TO TATOU VAI AUTHORITY
ESTIMATED ACCOUNTS BY CUSTOMER CLASS

	Accounts
Residential	3,299
Commercial/Industrial	916
Institutional	89
Agricultural	375
Tourism	86
Total	**4,759**

[14] TTV 2023-2027 Statement of Corporate Intent, p. 14.

Table 2-7 presents an estimate of total billed consumption for the calendar year 2023. As with accounts, these totals are estimates, as metered data is not yet available for all accounts. However, the New Zealand firm AECOM prepared a comprehensive usage estimate as part of their 2013 Master Plan, and TTV staff and the project team have determined that this data remains highly relevant for the purposes of establishing consumption and billing units. Therefore, in developing these estimates, in consultation with senior TTV staff the project team used the following assumptions:

Residential -- used an estimate of 3.14 persons per household from the 2021 Census and an estimate of 200 litres per person per day from the AECOM Master Plan Report. The usage number is consistent with sample meter testing conducted by TTV staff in early 2024. It means that monthly usage per residential account is estimated to be approximately 18 cubic meters (3.14 * 200 * 30 days).

Commercial/Industrial – used the AECOM estimate of 1,700 cubic meters per day for the class as a whole, as the sample size of installed commercial meters was not sufficient to establish a reasonable trend.

Institutional – used the AECOM estimate of 500 cubic meters per day for the class as a whole. TTV staff had not installed a sufficient number of meters to establish a reliable sample size as of the date of this report.

Agricultural – used AECOM's estimate of 4,600 cubic meters per day for the class as a whole. However, early meter testing by TTV staff indicates that this number may be revised upward in future forecasts.

Tourism – comprehensive analysis, testing and calculations from TTV staff indicate that an average usage of 1,936 cubic meters per day for the class as a whole should be used.

The table shows total production of 5,412,946 cubic meters. Because one cubic meter is the equivalent of 1,000 litres, this total translates to 5,412,946,000 litres. It is estimated that 27.1% of this usage is lost due to leakage or underreporting, with a net consumed water of 3,944,497 cubic meters (3,944,497,000 litres).

Table 2-7

TO TATOU VAI AUTHORITY
ESTIMATED CONSUMED VOLUMES BY CUSTOMER CLASS
CUBIC METERS

	2023	Percent of Total	
	Total	Total Consumed	Net of Leakage
Total Production	5,412,946	100.0%	
Leakage	1,468,449	27.1%	
Net Consumed Water	3,944,497	72.9%	100.0%
Free Water Allocation	395,280	7.3%	10.0%
Residential	360,577	6.7%	9.1%
Commercial/Industrial	620,500	11.5%	15.7%
Institutional	182,500	3.4%	4.6%
Agricultural	1,679,000	31.0%	42.6%
Tourism	706,640	13.1%	17.9%

Chart 2-8 reveals that average residential monthly usage per account is estimated to be 18 cubic meters, which is derived by multiplying the assumed total of 200 litres per day by 3.12 persons per connection and by 30 days. **Chart 2-9** reveals that average the basis for the 18 meters per residential connection is consistent with totals across the Pacific. The chart reveals that TTV average daily usage is approximately in the middle of the average for Pacific utilities.

To no surprise, Chart 2-8 reveals that tourism accounts represent the highest per account wage. As will be shown in the next section, as a volume charge per cubic meter is implemented, the total monthly usage per residential meter is expected to decline to 16 cubic meters.

Chart 2-8

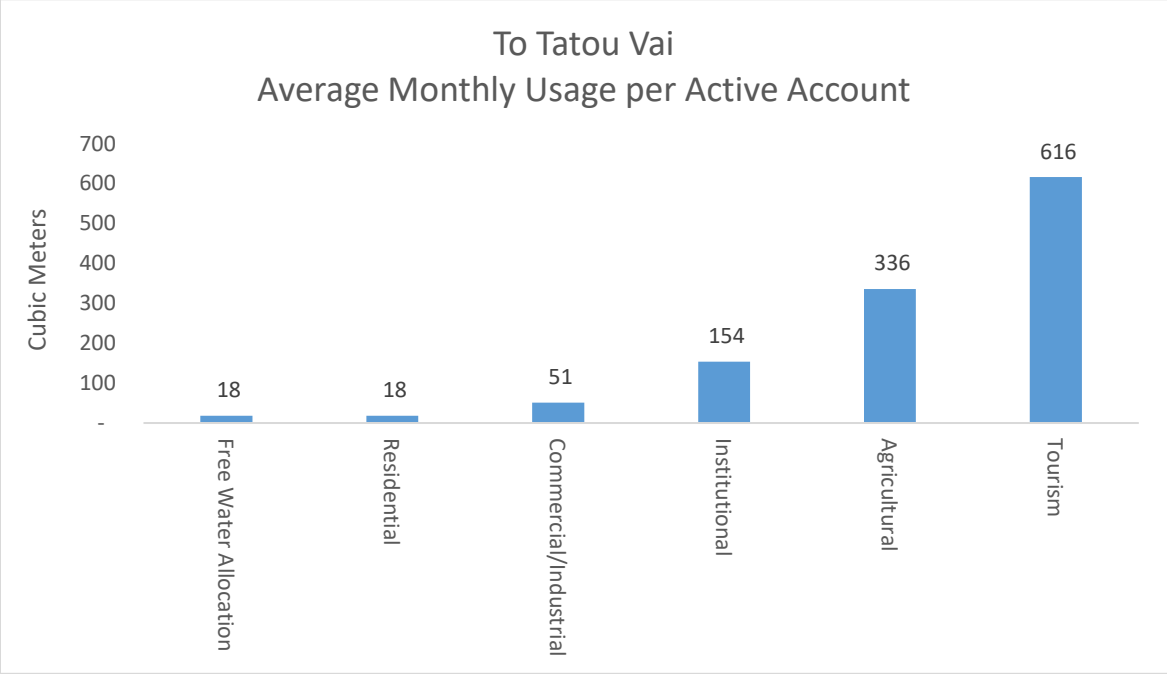
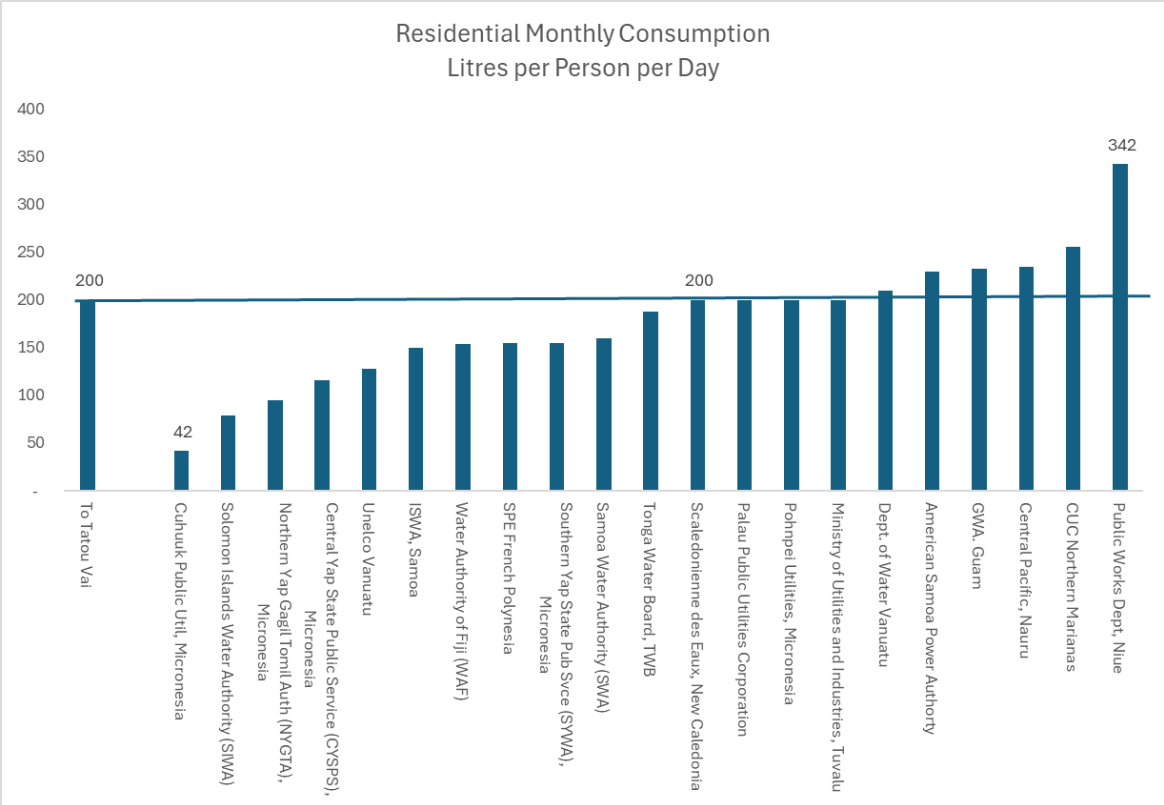


Chart 2-9



c. Financial Statement Analysis

Balance Sheet -- Historical

Table 2-10 presents a summary of TTV's audited balance sheet for the period FY 2021 through FY 2022. TTV was organized in 2021, and as of the time of this writing audited financial data was available only through FY 2022.

Table 2-10

TO TATOU VAI AUTHORITY
HISTORICAL BALANCE SHEETS
New Zealand Dollars ($NZD)

	2021 Balance Sheet	2022 Balance Sheet
Assets		
Current Assets		
Cash and Equivalents	$ (12,467)	$ 1,405
Trade and Other Receivables	99,604	107,972
Related Party Receivables	14,003	40,190
Prepayments	490,235	211,075
Inventories	329,662	481,979
Total	921,037	842,621
Non-Current Assets		
Property, Pland and Equipment	1,143,935	1,657,028
Intangible Assets	13,559	12,809
Total	1,157,494	1,669,837
Total Assets	**2,078,531**	**2,512,458**
Liabilities		
Current Liabilities		
Trade and Other Payables	103,817	95,027
Income Tax Payable	263,347	263,347
Related Party Payables	110,602	120,107
Related Party Payables	-	-
Total	477,766	478,481
Long Term Debt	-	-
Total Liabilities	**477,766**	**478,481**
Net Assets		
Owner Contributions	533,141	1,050,180
Accumulated Revenue	1,067,624	983,797
Total Net Assets	**1,600,765**	**2,033,977**
Total Liabilities and Net Assets	**2,078,531**	**2,512,458**

The following is notable about TTV's balance sheet:

- Current asset levels, including cash and receivables, are currently sufficient to meet current liabilities. The current ratio (Current Assets/Current Liabilities) for FY 2022 is 1.76, which has declined from the 2021 total of 1.93.

- The balance sheet is assisted by the fact that TTV currently carries no long-term debt.

- The $100 million Te Mato Vai Water Treatment Plant/Intake and Ring Main project is not to be included on the cost of service or tariff plan in future years, as directed by the *To Tatou Vai Act 2021*, which prohibits the inclusion of assets with a depreciable lifespan of more than 5 years.

- Net assets are approximately 81% of total assets as of FY 2022.

Historical and Current Budgets

While the balance sheet presents a fairly stable financial portrait of TTV, historical and current budgets paint a different picture. **Table 2-11** presents a summary of TTV's budgets for the two most recent years, FY 2024 and FY 2025.

Table 2-11

TO TATOU VAI AUTHORITY
HISTORICAL AND CURRENT BUDGETS
New Zealand Dollars ($NZD)

		2024 Budget	2025 Budget
Income			
	Crown Funding	$ 3,000,000	$ 2,500,000
	Trading Revenue	58,557	68,415
		3,058,557	**2,568,415**
Operating Expenses (OPEX)			
1A	Payroll Expenses	1,931,299	2,256,330
2A	Water Intake Expenses	134,282	469,000
2B	Pump Stations	5,559	15,000
2C	Water Stations -- COVID 19	14,474	14,400
2D	Water Treatment Expenses	265,932	466,228
2E	Water Quality	90,192	80,000
2F	Network and Distribution	39,846	323,996
2G	Admin and General Expenses	15,753	92,274
2H	Recruitment Costs	10,822	1,761
2I	Motor Vehicle Expenses	117,693	86,154
2J	Insurance Expenses	46,210	46,086
2K	Repairs and Maintenance	-	-
2L	Prof Development and Training	20,500	-
2M	Directors Fees	122,172	119,000
2N	Professional Services	73,900	90,600
2O	Office Expenses	169,922	161,000
Total Operating Expenses -- OPEX		**3,058,556**	**4,221,829**
Other Income			
	Interest Income	539	-
Other Expenses			
	Doubtful Debts	-	82,946
	Interest Expense	-	-
	Other Expense	-	-
	MFEM MOU Expense	-	-
EBITDA		**540**	**(1,736,360)**
Depreciation and Amortization		334,745	-
Earnings before Interest and Tax		**(334,205)**	**(1,736,360)**

The following is notable about this table:

- Because TTV at present does not charge tariffs for water service, its primary source of income is an annual assessment from the Crown. However, this assessment has declined from $3,000,000 in FY 2024 to a projected $2,500,000 in FY 2025. $2,500,000 in FY 2026, and $2,500,000 in FY 2027.

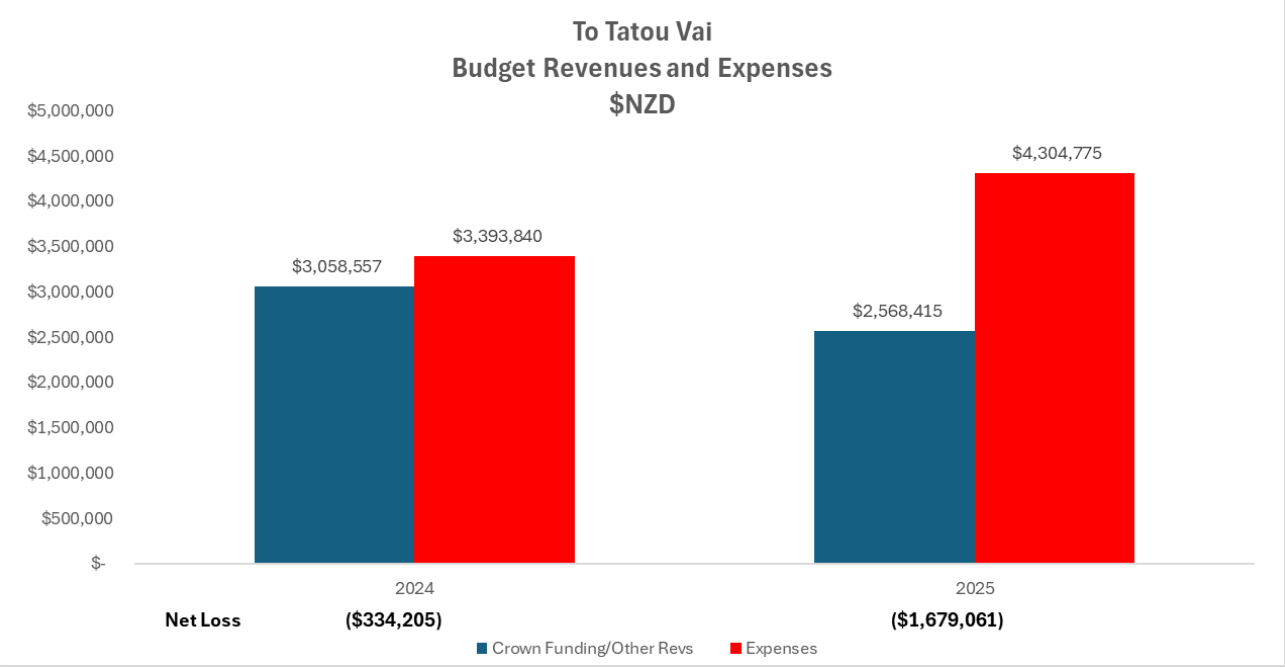
- While the Crown assessment has declined by approximately 20%, TTV's operating expenses are forecast to increase from $3,058,556 in FY 2024 to $4,221,829 in FY 2025.

- Total expenses in FY 2025 do not include depreciation, which further underrepresents the total financial obligations of TTV. Applicable depreciation will be added to TTV's cost of service for the purpose of Tariff calculation.

- While revenues were budgeted to be $334,205 less than expenses in FY 2024, this shortfall is expected to increase to $1,736,360 in FY 2025.

Chart 2-12 presents the financial challenge faced by TTV in graphic form. It shows that **the allocations provided by the Crown have not been sufficient to fund all of TTV's operations**. Further, the situation has worsened in 2025, with the allocation forecast to be approximately 41% less than TTV's budget. This means that **the current allocation model is not sufficient to fund TTV's operating requirements, and the present trend is financially unsustainable for TTV**. This increases the urgency of implementing a new tariff plan.

Chart 2-12



e. Current Tariffs and Monthly Charge Comparison

This is normally the section of the report that provides background data on the utility's current tariff structure. As has been mentioned earlier in this report, TTV does not currently employ a tariff for water service for any of its customers. Instead, customers pay for water service through general taxes, which the Crown uses to allocate a designated portion of tax revenue to TTV. Therefore, water service is not "free" for Cook Island residents; it is funded in an indirect manner through annual tax contributions. The Cook Islands is the only nation in the Pacific that uses this model to fund its water utility.

There are several disadvantages to this current system, including but not limited to:

1) There is no direct relationship between the amount of water a customer uses and the amount that customer pays to support TTV.

2) The largest users of water service are the hotels, and there is no current method of confirming whether the tax revenues paid by hotels and other tourist-related businesses are covering the cost of water provided to tourists.

3) Because customers do not directly pay for water they use, there is no incentive for these customers to conserve water or use water in a more efficient or prudent manner.

4) TTV is entirely dependent on government allocations for its revenues and cash flow. To the extent that government allocations are not sufficient to fund its costs, TTV's operations and quality of service will be adversely affected. As shown in the previous section, this has been happening the past two years.

For these reasons, the project team will be recommending the implementation of a monthly and usage-based tariff schedule.

In determining the reasonableness of any proposed tariff schedule, it is often useful to assess general affordability standards and to compare potential charges to those in other similar jurisdictions. This is not meant to be the only criteria to be assessed in determining the overall reasonableness of a recommended tariff schedule. However, it does provide a practical benchmark to assist decision-makers in determining the extent to which any proposed tariff is financially burdensome to customers.

Several organizations throughout the world dedicated to the provision of water service have developed affordability standards for judging the relative burden of water tariffs on their customers. These organizations include:

- The North American Development Bank (NADBank), an organization that provides grant and low-interest financing to impoverished communities in the United States – Mexico border region. NADBank defines water charges of 2.0% of household income as being within its standards of affordability.

- The United Nations Development Program sets affordability standards for monthly water and wastewater charges at 3.0% of household income.

- The World Bank sets its standard at 3.0% -- 5.0% of household income.

As shown in Table 2-2, median Household Income for households in Rarotonga is approximately $52,516. Using a standard of 2.0% of household income outlined by the international agencies as described above, a monthly charge of water service would have to be **$87.53** or above to meet the standard of "burdensome". As will be shown in Section 6, none of the recommended tariff alternatives result in residential monthly charges anywhere near this magnitude. This total is simply included for illustrative purposes and to assist decision makers in assessing an appropriate monthly charge.

The *Pacific Water and Wastewater Association* has conducted a comprehensive survey of tariffs in place for Pacific utilities.[15] Presenting such comparisons can be a challenge, as tariff structures can differ widely among utilities. For example, some utilities favor high monthly charges while others prefer low monthly charges and high volumetric rates. Certain utilities prefer conservation-based tariff designs, whereby the per unit charge increases as usage increases. Finally, some utilities charge based on gallons while others use litres or cubic meters. PWWA addressed these discrepancies by calculating an average tariff per cubic meter. This is not necessarily the actual tariff charged; instead it is intended to reflect an average cost incurred for service. The results of PPWA's 2021 survey are presented in **Table 2-13.**

Chart 2-14 calculates the average monthly charge for each utility assuming the use of 16 cubic meters for a residential customer. The 16 cubic meter charge is intended to reflect average usage for Rarotonga households after the implementation of a monthly tariff (which incorporates an expected decline in residential monthly usage per account to 16 cubic meters). The chart reveals that monthly charges are as low as $3.89 for Water Authority of Fiji to a high of $168.43 for Nauru.

Finally, it must be noted that tariff comparisons between utilities are subject to many qualifications. For example, costs among utilities can differ due to natural conditions – some utilities have more plentiful water sources or less challenging terrain over which to construct a distribution system. Further, some utilities seek to maintain low tariffs through minimizing necessary capital expenditures – a strategy that may result in short term benefit and much higher costs for deferred maintenance in future years. Finally, tariffs may not be set to recover all costs of running a water service. Many utilities depend on government subsidies in addition to tariff revenues, meaning that tariffs are set at below the cost of providing service. For all these reasons, tariff comparisons present only a limited benefit and should not be used as the sole basis for setting a long-term tariff.

[15] PWWA Annual Benchmarking Report, 2021

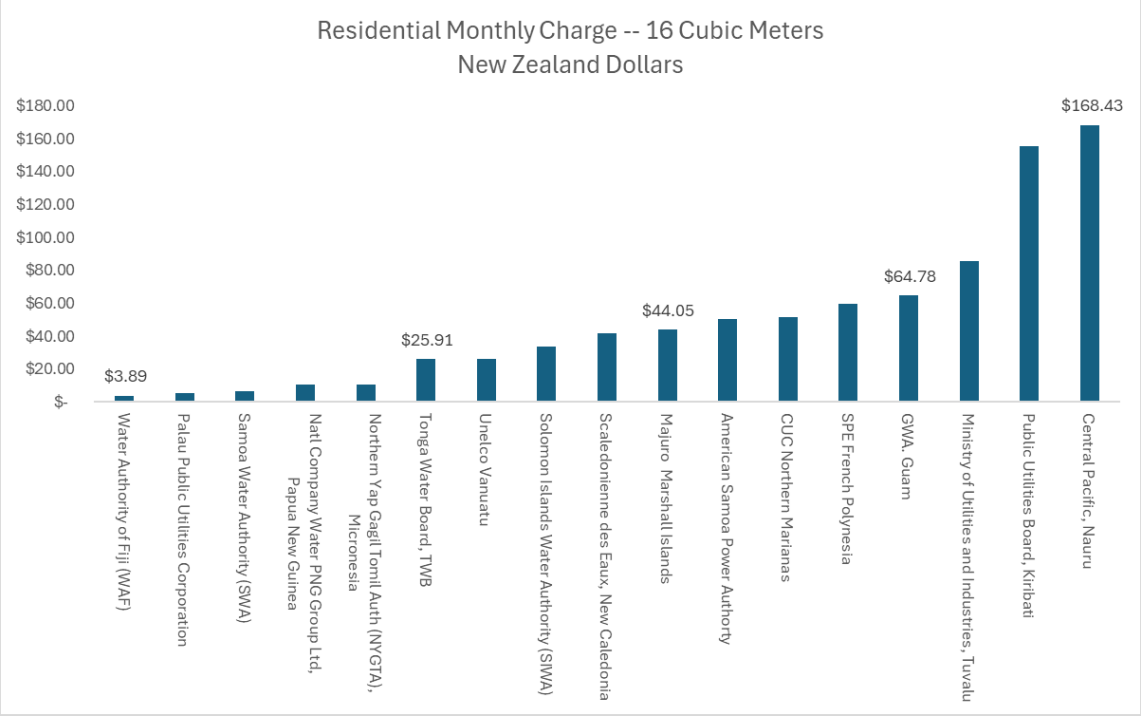
Table 2-13

PACIFIC WATER AND WASTEWATER ASSOCIATION
2021/2022 BENCHMARKING STUDY -- CRITICAL DATA

	Residential Tariff per m3 -- USD	Residential Tariff per m3 -- NZD
Exchange Rate		1.6195
Water Authority of Fiji (WAF)	$ 0.15	$ 0.24
Palau Public Utilities Corporation	0.20	0.32
Samoa Water Authority (SWA)	0.25	0.40
Natl Company Water PNG Group Ltd, Papua New Guinea	0.40	0.65
Northern Yap Gagil Tomil Auth (NYGTA), Micronesia	0.40	0.65
Tonga Water Board, TWB	1.00	1.62
Unelco Vanuatu	1.00	1.62
Solomon Islands Water Authority (SIWA)	1.30	2.11
Scaledonienne des Eaux, New Caledonia	1.60	2.59
Majuro Marshall Islands	1.70	2.75
American Samoa Power Authorty	1.95	3.16
CUC Northern Marianas	2.00	3.24
SPE French Polynesia	2.30	3.72
GWA. Guam	2.50	4.05
Ministry of Utilities and Industries, Tuvalu	3.30	5.34
Public Utilities Board, Kiribati	6.00	9.72
Central Pacific, Nauru	6.50	10.53

SOURCE: PWWA 2021 and 2022 Benchmarking Studies

Chart 2-14



3. Financial Model Development

One of the key deliverables produced by the project team during the course of this engagement was the development of a comprehensive tariff forecast model. This model was developed in Microsoft Excel and is intended to be used as a tool for future TTV financial analysis and tariff development.

Using a set of standard inputs, including accounts, consumption and budget data, the model forecasts revenues and expenses for a "test year" (defined as the current budget year) and a ten-year forecast period. The forecast is based on key assumptions input by the user, including inflation rates, rate of growth in accounts and consumption, and the impact of "extraordinary" increases in certain expenses (insurance, energy costs, etc.). Manual inputs are designed to be entered into a limited number of designated input spreadsheets, which then impact the calculations throughout the remaining spreadsheets. The summary spreadsheets for the model under the proposed tariff plan are presented in **Appendix B** and **Appendix C** of this report.

The model estimates and forecasts the annual expense over the next decade for every line item in TTV's budget. Additionally, should TTV have the need to self-fund capital improvements in future years, the model contains a module that will allow for the input of the capital improvement plan in order to assess the impact of CIP spending on total expenses and proposed tariffs.

The model's key design element is a "dashboard" page, a single spreadsheet that allows the user to analyse the impact of changes in tariffs on key financial indicators – net income, total revenues, forecast volumes, and impact on quarterly domestic charges. As changes are made to proposed tariffs, the user can instantaneously observe the impact of these changes on income, revenues and user charges over a five or ten-year period.

The model also retains the ability to calculate the impact on TTV of changes to tariffs under both GAAP-based accounting standards (i.e. net income) and utility tariff design-based cash basis cost of service standards (i.e. net revenues for contingency). While tariff design principles will be the focus of the remainder of this report, it will be important for TTV to ensure that future tariff charges are designed to allow the development of a healthy and acceptable income statement.

While the model also calculates net asset levels and forecast depreciation on an annual basis, the central purpose of the model is to calculate the impact of tariff proposals on cash flows and net income. In the project team's experience, these are the most appropriate benchmarks on which utilities base tariff decisions.

The prototype model was shared with TTV staff, who found it to be user friendly and highly informative.

4. Account, Volume and Financial Forecast

While previous sections of this report have evaluated TTV's current financial condition, this section of the report uses the tariff forecast model outlined in Section 3 to provide a forecast of accounts, usage and the total costs for TTV. The project team has used this model to prepare alternative tariff scenarios for TTV's board to consider. Several of these alternatives were outlined during the project team's visit to Rarotonga in April 2024, as well as through tele-conferences that took place in the weeks following that visit. After extensive discussions with TTV officials and other stakeholders, the tariff plan alternatives presented in this report represent the final agreed-upon alternatives. The plan adopted will reflect the decision-makers ultimate balancing of the desire to recover sufficient revenue to cover costs with sensitivity to the burdens a new tariff structure would place on TTV's customers.

a. Account and Volume Forecast

One of the key inputs into any tariff design is the utility's current and forecast account and consumption data. As stated in Section 2, because many customers remain unmetered at the time of this report, and because TTV does not currently charge for water service, TTV does not maintain precise numbers of accounts at present. However, through the access of alternative data sources described in Section 2, the project team was able to develop an estimate of total customers by designated customer class.

Table 4-1 and **Chart 4-2** present a forecast of total customers by class for the ten-year period 2025 – 2034. As shown, very little additional growth is forecast at this time. This forecast is based on both historical trends, which show a steady and somewhat declining population, and the belief among TTV staff and government officials that there will not be significant forecast growth in the coming years. It should be noted that such a forecast could change significantly, if a major resort or other project is developed in Rarotonga. Because there is no certainty that will happen, such an assumption has been excluded from this report. However, should it happen, these forecasts should be reassessed.

Table 4-1

TO TATOU VAI AUTHORITY

ESTIMATED CURRENT AND FORECAST TOTAL ACCOUNTS

WATER Customer Classes

	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
WATER Total Customers							
Current	-	3,294	915	89	375	86	**4,759**
2025	-	3,299	916	89	375	86	**4,765**
2026	-	3,304	917	89	375	86	**4,771**
2027	-	3,309	918	89	375	86	**4,777**
2028	-	3,314	919	89	375	86	**4,783**
2029	-	3,319	920	89	375	86	**4,789**
2030	-	3,324	921	89	375	86	**4,795**
2031	-	3,329	922	89	375	86	**4,801**
2032	-	3,334	923	89	375	86	**4,807**
2033	-	3,339	924	89	375	86	**4,813**
2034	-	3,344	925	89	375	86	**4,819**
WATER Annual New Customers							
2026	-	5	1	-	-	-	**6**
2027	-	5	1	-	-	-	**6**
2028	-	5	1	-	-	-	**6**
2029	-	5	1	-	-	-	**6**
2030	-	5	1	-	-	-	**6**
2031	-	5	1	-	-	-	**6**
2032	-	5	1	-	-	-	**6**
2033	-	5	1	-	-	-	**6**
2034	-	5	1	-	-	-	**6**

Chart 4-2

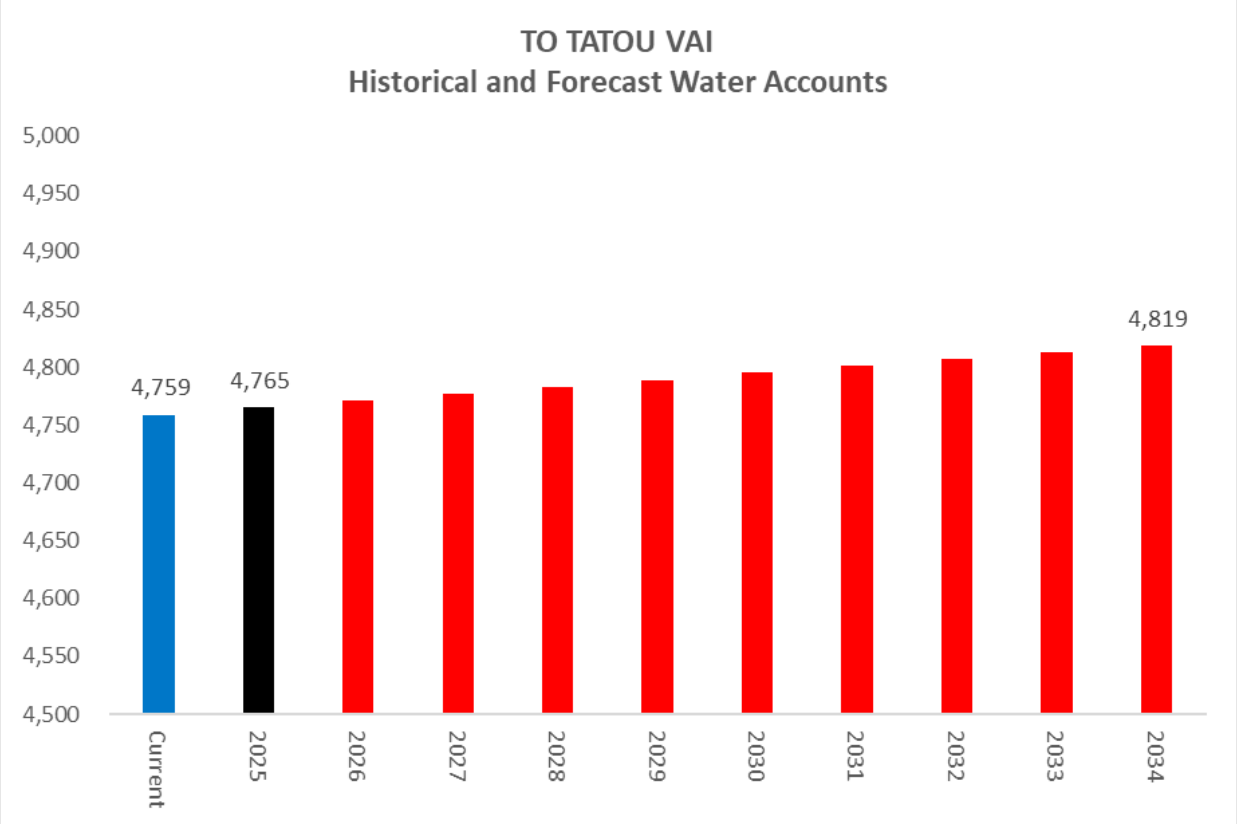


Table 4-3 and **Chart 4-4** present a forecast of water consumption for the period 2025 – 2034. As with accounts, current year consumption is based on a series of assumptions as well as data developed by TTV staff and AECOM in their comprehensive study (outlined in detail in the previous section). As TTV completes its metering process and begins to accrue real-time consumption data, these forecasts may be subject to revision.

Further, one of the key variables that must be taken into account is the potential impact on usage of the implementation of a volume-based charge per cubic meter. The Cook Islands is unique among Pacific utilities, in that it does not currently implement a usage charge for water service, instead recovering the cost of water service through taxes. This results in little incentive for customers to use water prudently or conserve this natural resource.

It is reasonable to assume for the purposes of this study that once a per unit volume charge is implemented, usage will decline as customers will become more sensitive to the impact of prudent water usage on monthly bills. There have been several studies conducted on the impact of installing and charging for metered water usage in different parts of the world. These include:

> **San Jose State University, Impact of Metering on Residential Water Use in California** – this study found that water usage in newly metered residences declined by as much as 21% in Bakersfield, California and 17% in Visalia, California. The rural California region is one of the last regions in the USA that had large numbers of unmetered water usage.
>
> **Office of the Rail Regulator, United Kingdom** – conducted a study in 2009 that determined that British households with newly installed meters used between 10% and 15% less water than those without meters
>
> **Alliance for Water Efficiency** – engaged Don Schlenger and Associates to measure the impact of installed meters, finding that North American consumption can be reduced by as much as 15% to 30% with the installation of meters.

While these studies are by no means definitive, it is reasonable to infer that usage will decline overall as meters are installed and the volume charge is fully implemented. For the purposes of this section, the project team is assuming that a three-year tariff implementation plan is adopted. Therefore, the project team is forecasting that usage will decline initially approximately 15-20% over the 2025 – 2027 period. Once the meters are fully installed and the charge is fully implemented, it is expected that usage will flatten out as customers get used to the new system. Therefore, an overall decline in water usage is expected, and is reflected in the forecast water consumption tables. If a five-year timeframe is implemented, volume numbers will be nominally revised.

Finally, the development of a new resort or other major project would lead to adjustments and revisions in this forecast.

Table 4-3

TO TATOU VAI AUTHORITY

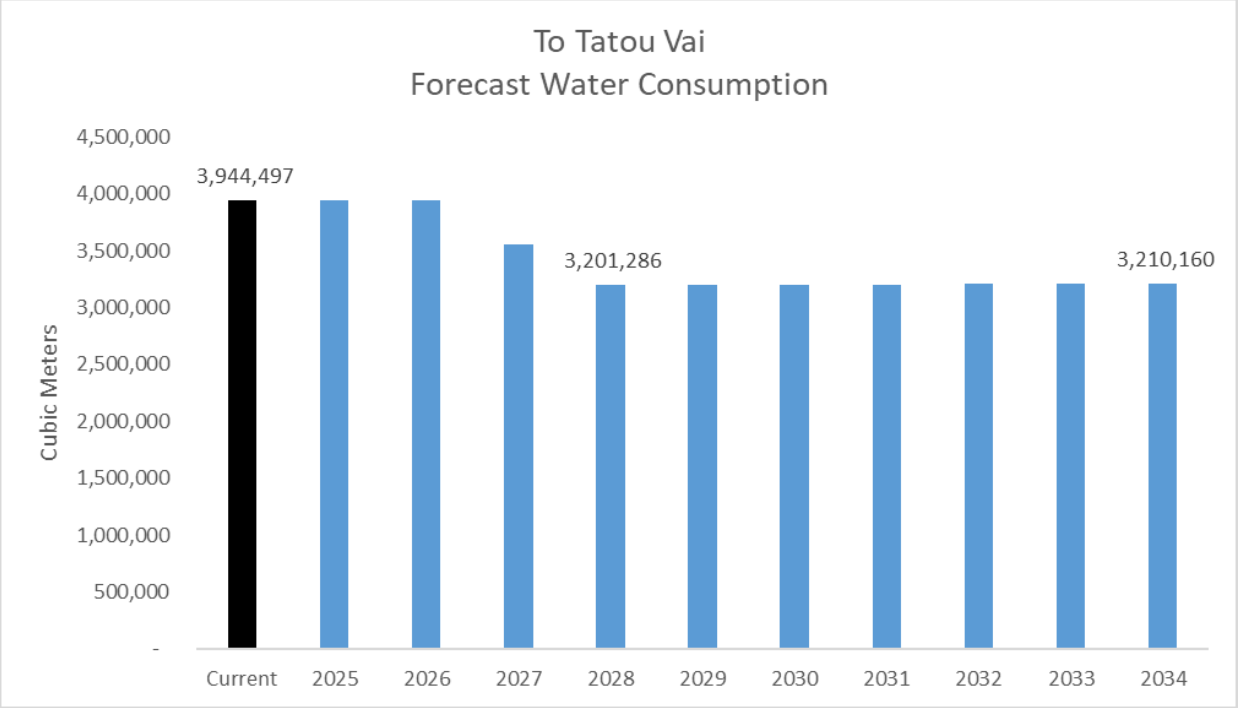
ACTUAL AND FORECAST BILLED CONSUMPTION -- CUBIC METERS

	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
	WATER Forecast Consumed Volume						
Current	395,280	360,577	620,500	182,500	1,679,000	706,640	**3,944,497**
2025	395,880	361,124	621,178	182,500	1,679,000	706,640	**3,946,322**
2026	396,480	361,672	621,856	182,500	1,679,000	706,640	**3,948,148**
2027	397,080	286,404	560,349	164,250	1,511,100	635,976	**3,555,159**
2028	397,680	218,488	504,924	147,825	1,359,990	572,378	**3,201,286**
2029	398,280	218,818	505,474	147,825	1,359,990	572,378	**3,202,765**
2030	398,880	219,147	506,023	147,825	1,359,990	572,378	**3,204,244**
2031	399,480	219,477	506,573	147,825	1,359,990	572,378	**3,205,723**
2032	400,080	219,807	507,122	147,825	1,359,990	572,378	**3,207,202**
2033	400,680	220,136	507,671	147,825	1,359,990	572,378	**3,208,681**
2034	401,280	220,466	508,221	147,825	1,359,990	572,378	**3,210,160**

INCREMENTAL CONSUMPTION -- CUBIC METERS

	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
	WATER Annual Forecast Volumes						
2025	600	547	678	-	-	-	1,825
2026	600	547	678	-	-	-	1,825
2027	600	(75,268)	(61,507)	(18,250)	(167,900)	(70,664)	(392,989)
2028	600	(67,916)	(55,424)	(16,425)	(151,110)	(63,598)	(353,873)
2029	600	330	549	-	-	-	1,479
2030	600	330	549	-	-	-	1,479
2031	600	330	549	-	-	-	1,479
2032	600	330	549	-	-	-	1,479
2033	600	330	549	-	-	-	1,479
2034	600	330	549	-	-	-	1,479

Chart 4-4



b. Financial Forecast

This section examines TTV's current year and forecast overall total cost of providing water service. The calculation confirms to the Utility Basis of ratemaking, a methodology employed to calculate tariffs for utilities throughout the world. Under the utility basis, as defined by the American Water Works Association **Manual M-1**, system revenue requirements consist of operating expenses ("OPEX"), which are day to day expenses incurred in the management and maintenance of the system, and capital expenses ("CAPEX") which are designed to recover capital costs and allow the utility to earn a return on equity.

The current and forecast cost of service outlined on the following pages is in conformance with international ratemaking standards.

Current Year Budget

Table 4-5 presents TTV's 2025 operating expense budget. TTV's 2025 budget year is defined as the period July 1 2024 through June 30 2025. The following is notable about this budget:

- Payroll expenses include salaries and benefits for all of TTV's approximately 35 employees.
- The second largest expenditure after payroll is water intake expenses, for TTV's ten intake systems.
- Treatment expenses represent the third largest expenditure.
- An allowance for doubtful debts has been added to the budget in anticipation of the implementation of a tariff in FY 2025.
- The only CAPEX expense for the 2025 budget is depreciation expense. The model calculates a rate base as well.
- TTV currently carries no long-term debt, so there are no debt-related expenses.
- Importantly, **there is no return on equity element calculated for TTV**. This is meant to adhere to Section 26 of the *To Tatou Vai Act 2021*, which states that the Authority must operate the network on a not-for-profit basis. While it can be reasonable to debate whether a return on equity element for a publicly-owned utility constitutes "profit" or is meant to reimburse the utility for capital investment, the Board has taken the conservative approach of not requesting any return on equity element to be added to the cost of service.
- Currently there is no data regarding the percentage of accounts that would qualify as doubtful debt. The project team is using an assumption that 5.0% of revenues will be subject to doubtful debt/uncollectible expense. This is higher than the doubtful debt percentages the project team has observed from other utilities, but it is considered reasonable since the imposition of a monthly charge is a new process for both TTV and its customers.

Table 4-5

TO TATOU VAI AUTHORITY BUDGET AND COST OF SERVICE New Zealand Dollar (NZD)			2025 Budget
Operating Expenses (OPEX)			
1A	Payroll Expenses	$	2,256,330
2A	Water Intake Expenses		469,000
2B	Pump Stations		15,000
2C	Water Stations -- COVID 19		14,400
2D	Water Treatment Expenses		466,228
2E	Water Quality		80,000
2F	Network and Distribution		323,996
2G	Admin and General Expenses		92,274
2H	Recruitment Costs		1,761
2I	Motor Vehicle Expenses		86,154
2J	Insurance Expenses		46,086
2M	Directors Fees		119,000
2N	Professional Services		90,600
2O	Office Expenses		161,000
3A	Doubtful Debts		82,946
4A	EBITDA		-
Total Operating Expenses -- OPEX			**4,304,775**
Capital Expenses (CAPEX)			
	Depreciation and Amortization		279,078
	Debt Service -- Current		-
	Debt Service -- Forecast		-
	Return on Equity		-
Total Capital Expenses -- CAPEX			**279,078**
Total Cost of Service			**4,583,853**

Ten Year Forecast

Table 4-6 presents a ten-year forecast of OPEX and CAPEX expenses for TTV. This summary schedule is derived from the comprehensive forecast model described in Section 3. A copy of the relevant summary pages from the model is contained in Appendix B and Appendix C. The model forecasts the rate of growth of every line item in TTV budget based on a series of parameters chosen for each expense.

The following is notable about this forecast:

- The expense forecast for 2025-2027 is based entirely on TTV's three year adopted budget. Beyond 2027, the forecast is based on a series of assumptions about inflation and system growth.

- Most expenses are assumed to increase at 3.0% per year, which is equivalent to the general rate of inflation.

- Certain expenses, like chemicals and insurance, are forecast to increase at higher rates.
- Certain other expenses are forecast to increase as the system grows and accounts are added.
- Certain expenses are forecast to decline nominally as consumption is reduced after implementation of the volume charge.
- Depreciation expenses are based on existing asset useful lives.
- It is assumed that no debt will be issued in the next decade to fund capital improvements.
- The forecast assumes that TTV will not add significant numbers of new personnel in the next decade.

Importantly, no portion of the $100,000,000 Te Mato Vai Water Treatment Plant/Intake and Ring Main project is included in depreciation expenses. According to the To Tatou Vai Act 2021, depreciation is limited to assets/inventory with a useful life of 5 years or less. It must be noted that **this provision may severely limit TTV's authority to finance capital replacement of system assets in the coming years.**

The project team and staff consider this expense forecast to be a reasonable and appropriate estimate of the TTV's future operational and financial obligations.

The total cost of service is reduced by forecast non-tariff revenues. This represents revenues accrued by TTV from sources other than the established tariffs. It includes such revenues as pressure testing, new water connection changes, and branch expansions. This total is forecast to not change over the ten-year period. The remainder is the net revenue that must be recovered from tariffs.

Table 4-6

TO TATOU VAI AUTHORITY
WATER SYSTEM COST OF SERVICE
New Zealand Dollar (NZD)

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Water System Cost of Service											
Operating Expenses (OPEX)											
1A	Payroll Expenses	$ 2,256,330	$ 2,256,330	$ 2,256,330	$ 2,324,020	$ 2,393,740	$ 2,465,553	$ 2,539,519	$ 2,615,705	$ 2,694,176	$ 2,775,001
2A	Water Intake Expenses	469,000	484,650	508,565	473,201	487,615	502,469	517,775	533,547	549,799	566,547
2B	Pump Stations	15,000	16,500	18,150	16,888	17,402	17,932	18,479	19,042	19,622	20,219
2C	Water Stations -- COVID 19	14,400	14,400	14,400	13,399	13,807	14,227	14,661	15,107	15,568	16,042
2D	Water Treatment Expenses	466,228	626,378	649,903	604,710	623,131	642,113	661,672	681,828	702,597	723,999
2E	Water Quality	80,000	80,000	80,000	74,437	76,704	79,041	81,449	83,930	86,486	89,121
2F	Network and Distribution	323,996	415,976	423,254	393,822	405,818	418,180	430,919	444,045	457,571	471,509
2G	Admin and General Expenses	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399
2H	Recruitment Costs	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166
2I	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872
2J	Insurance Expenses	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848
2K	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-
2L	Prof Development and Training	-	-	-	-	-	-	-	-	-	-
2M	Directors Fees	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355
2N	Professional Services	90,600	91,200	91,860	94,616	97,454	100,378	103,389	106,491	109,686	112,976
2O	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010
3A	Doubtful Debts	82,946	152,250	250,922	251,988	251,628	256,744	262,045	267,455	272,977	278,613
4A	EBITDA	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses -- OPEX		**4,304,775**	**4,653,959**	**4,825,248**	**4,797,434**	**4,936,902**	**5,086,281**	**5,240,433**	**5,399,438**	**5,563,462**	**5,732,677**
Capital Expenses (CAPEX)											
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
	Debt Service -- Current	-	-	-	-	-	-	-	-	-	-
	Debt Service -- Forecast	-	-	-	-	-	-	-	-	-	-
	Return on Equity	-	-	-	-	-	-	-	-	-	-
Total Capital Expenses -- CAPEX		**279,078**	**277,826**	**261,666**	**247,231**	**241,536**	**99,659**	**34,242**	**34,242**	**22,420**	**20,055**
Total Cost of Service		**4,583,853**	**4,931,785**	**5,086,914**	**5,044,665**	**5,178,438**	**5,185,940**	**5,274,675**	**5,433,680**	**5,585,882**	**5,752,732**
	Less Non-Tariff Revenues	(68,415)	(86,799)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)	(111,351)
Net Revenue Requirement		**4,515,438**	**4,844,986**	**4,975,563**	**4,933,314**	**5,067,087**	**5,074,589**	**5,163,324**	**5,322,329**	**5,474,531**	**5,641,381**

Cost Functionalization

Once the total water system costs have been identified, the next step is to isolate the costs associated with each system function. Some of these expenditures are a function of base water demand; others are based on the peak demands placed on the system. Certain costs are associated with serving customers regardless of the volume of water use. The basic steps used to allocate the Utility's water revenue requirements include the following:

- Each system's costs (revenue requirements) are categorized by utility function (i.e. treatment, distribution, administrative, customer). This process is known as **functionalization.**
- Functionalized costs are classified based on the service characteristics or the types of demand served by the utility (base and maximum day). This process is known as **classification.**
- Costs by service characteristic are allocated to customer classes in proportion to the service demands demonstrated by each class. This process is known as **allocation.**

The approaches described in this section follow standard industry practices. Water system costs are allocated to the following functions:

Treatment – the process by which raw water is converted to potable water

Distribution – the lines that carry water to individual customers' properties

Administration – miscellaneous overhead and other non-operating costs

Customer Billing – the processes involved in billing and providing other services to customers

The project team allocated operating budget line-item expenses individually to system functions based on general guidelines, specific research and input from TTV staff. The results of the functionalization process for the test year are summarized in **Table 4-7**.

Table 4-7

TO TATOU VAI AUTHORITY
TEST YEAR WATER COST FUNCTIONALIZATION
New Zealand Dollar (NZD)

Function	2025 Cost of Service	2025 Revenue Requirement	Percent
Treatment	$ 1,891,389	$ 1,863,160	41.3%
Distribution	1,369,933	1,349,486	29.9%
Administration	1,073,830	1,057,802	23.4%
Customer	248,702	244,990	5.4%
Total	**4,583,853**	**4,515,438**	**100.0%**

Cost Classification

The allocation of functionalized water system costs to service characteristics follows the base-extra capacity cost allocation method recommended by the American Water Works Association (AWWA), used by utilities throughout the world. Using this method, costs are segregated into the following categories:

Base costs – capital costs and O&M expenses associated with service to customers under average demand conditions. This category does not include any costs attributable to variations in water use resulting from peaks in demand. Base costs tend to vary directly with the total quantity of water used.

Maximum Day/Maximum Hour/Extra Capacity costs – costs attributable to facilities that are designed to meet peaking requirements. These costs include capital and operating charges for additional plant and system capacity beyond that required for average usage.

Customer Billing costs – costs associated with any aspect of customer service, including billing, accounting, and meter services. These costs are independent of the amount of water used and the size of the customer's meter, and are not subject to peaking factors.

According to AWWA *Manual M-1*, in the base-extra capacity method, care must be taken in separating costs between those devoted to base capacity and those devoted to extra capacity. The peak to average factor is calculated by dividing the volume on the peak day and the peak hour of the year by the average daily volume. Facilities designed to meet maximum-day requirements, such as the treatment and distribution functions, are allocated to base, and extra capacity based on these factors. All customer service-related costs are allocated 100% to customer billing. Administration costs are generally not directly assignable to individual classifications. Therefore, it is standard rate-making practice to allocate these costs on an indirect basis to service characteristics.

The system-wide costs by service characteristic are shown in **Table 4-8**. As with cost functionalization, these percentages are not expected to change significantly in the forecast period.

Table 4-8

TO TATOU VAI AUTHORITY
TEST YEAR WATER COST CLASSIFICATION
New Zealand Dollar (NZD)

Function	2025 Cost of Service	2025 Revenue Requirement	Percent
Base	$ 2,864,390	$ 2,821,638	62.49%
Maximum Day	464,097	457,171	10.12%
Maximum Hour	929,251	915,382	20.27%
Customer	326,114	321,247	7.11%
Total	**4,583,853**	**4,515,438**	**100.0%**

Cost Allocation

Allocation of costs by service characteristic to customer classes is based on the proportionate use levels of each characteristic by each class. The total water utility costs by customer class for the test year are summarized in **Table 4-9** and **Chart 4-10**, and for the ten-year forecast period in **Table 4-11**.

These tables show the relative cost of providing service to each of TTV's customer classes. Due to the higher demand characteristics of the commercial and tourism classes, the cost of service is proportionately higher for each of these classes.

Table 4-9

TO TATOU VAI AUTHORITY

TEST YEAR WATER COST ALLOCATION

New Zealand Dollar (NZD)

Function		2025 Revenue Requirement	Percent
Free Water Allocation	$	352,972	7.8%
Residential		544,395	12.1%
Commercial/Industrial		931,662	20.6%
Institutional		168,720	3.7%
Agricultural		1,522,301	33.7%
Tourism		995,388	22.0%
Other		-	0.0%
Other		-	0.0%
Total		**4,515,438**	**100.0%**

Chart 4-10

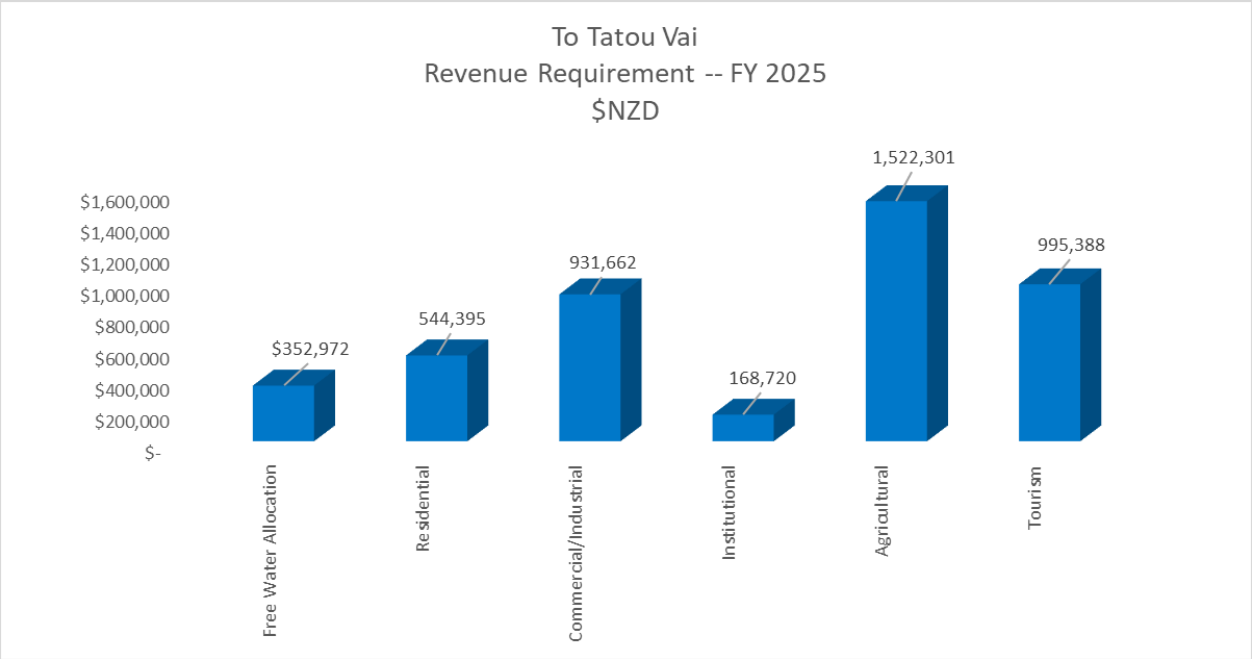


Table 4-11

TO TATOU VAI AUTHORITY

FORECAST WATER COST ALLOCATION

New Zealand Dollar (NZD)

Year	Free Water Allocation	Residential	Commercial/Industrial	Institutional	Agricultural	Tourism	Total
	Net Revenue Requirement Raised from Tariffs						
2025	$ 352,972	$ 544,395	$ 931,662	$ 168,720	$ 1,522,301	$ 995,388	**$ 4,515,438**
2026	379,130	584,550	1,000,223	180,944	1,632,618	1,067,522	**4,844,986**
2027	433,038	557,541	1,027,825	185,719	1,675,728	1,095,712	**4,975,563**
2028	477,541	505,546	1,019,737	184,042	1,660,617	1,085,831	**4,933,314**
2029	491,001	519,598	1,047,977	188,939	1,704,829	1,114,742	**5,067,087**
2030	492,239	520,712	1,050,119	189,125	1,706,535	1,115,859	**5,074,589**
2031	501,366	530,167	1,069,081	192,337	1,735,544	1,134,829	**5,163,324**
2032	517,341	546,853	1,102,620	198,162	1,788,134	1,169,218	**5,322,329**
2033	532,685	562,862	1,134,786	203,728	1,838,389	1,202,081	**5,474,531**
2034	549,486	580,397	1,170,025	209,834	1,893,512	1,238,126	**5,641,381**

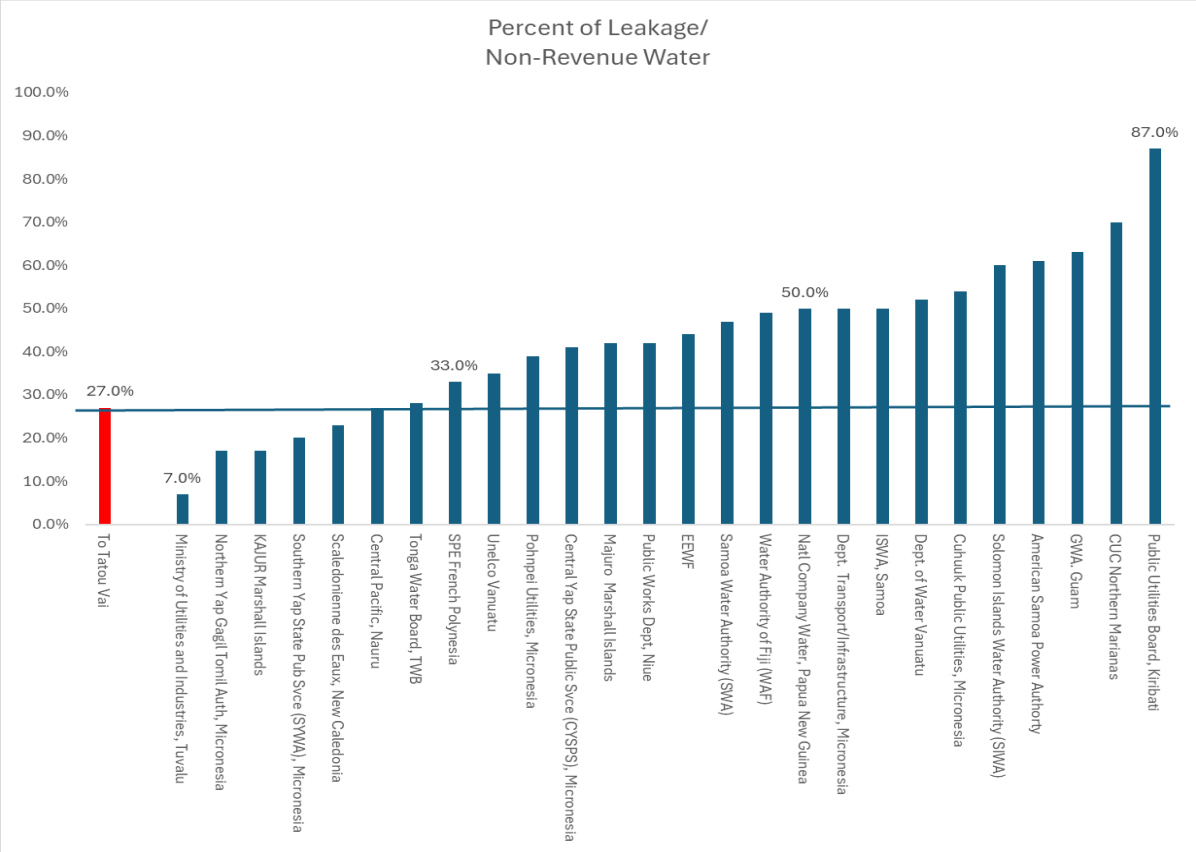
5. Operations Benchmark Review

One of the objectives of the scope of service (outlined in Section 1) is to "assess the costs of ongoing operation and maintenance expenditure require to deliver the agreed level of service". While this does not meet the objectives of a full operations review, it is useful to analyse from a financial standpoint TTV's cost of providing water service and how it compares to other Pacific utilities. This will assist in determining the degree to which TTV is operating efficiently and effectively. The project team is limiting this analysis to Pacific utilities because comparisons to North American, European and Asian utilities would have only limited informational value.

One of the key benchmarks in comparing the cost and quality of service is to examine leakage, or non-revenue water. This is a common challenge for Pacific utilities, due to such factors as terrain, climate, system age and availability of resources for capital investment.

Chart 5-1 compares Non-revenue water, or leakage, at TTV to 26 other Pacific utilities. The data was derived from the 2021 and 2022 *Pacific Water and Wastewater Association Benchmarking Reports.* The chart reveals that TTV's leakage levels of approximately 27.0% is lower than all but 6 of the 26 utilities in the comparison. This is evidence that the system's overall condition and level of service is comparable to other Pacific utilities.

Chart 5-1



Another useful indicator of efficiency levels is to evaluate the utility's staffing levels. This is provided in **Table 5-2** and **Chart 5-3.** These tables compare the number of population served in each nation per utility employee. This comparison does have limitations, particularly given that certain Pacific utilities are spread over many islands, thus requiring additional staff for each island. With this caveat, the data indicates that TTV employs one person per 426 population, which places TTV in approximately the middle of the sample. This is evidence that TTV's employment levels are not excessive compared to other Pacific utilities.

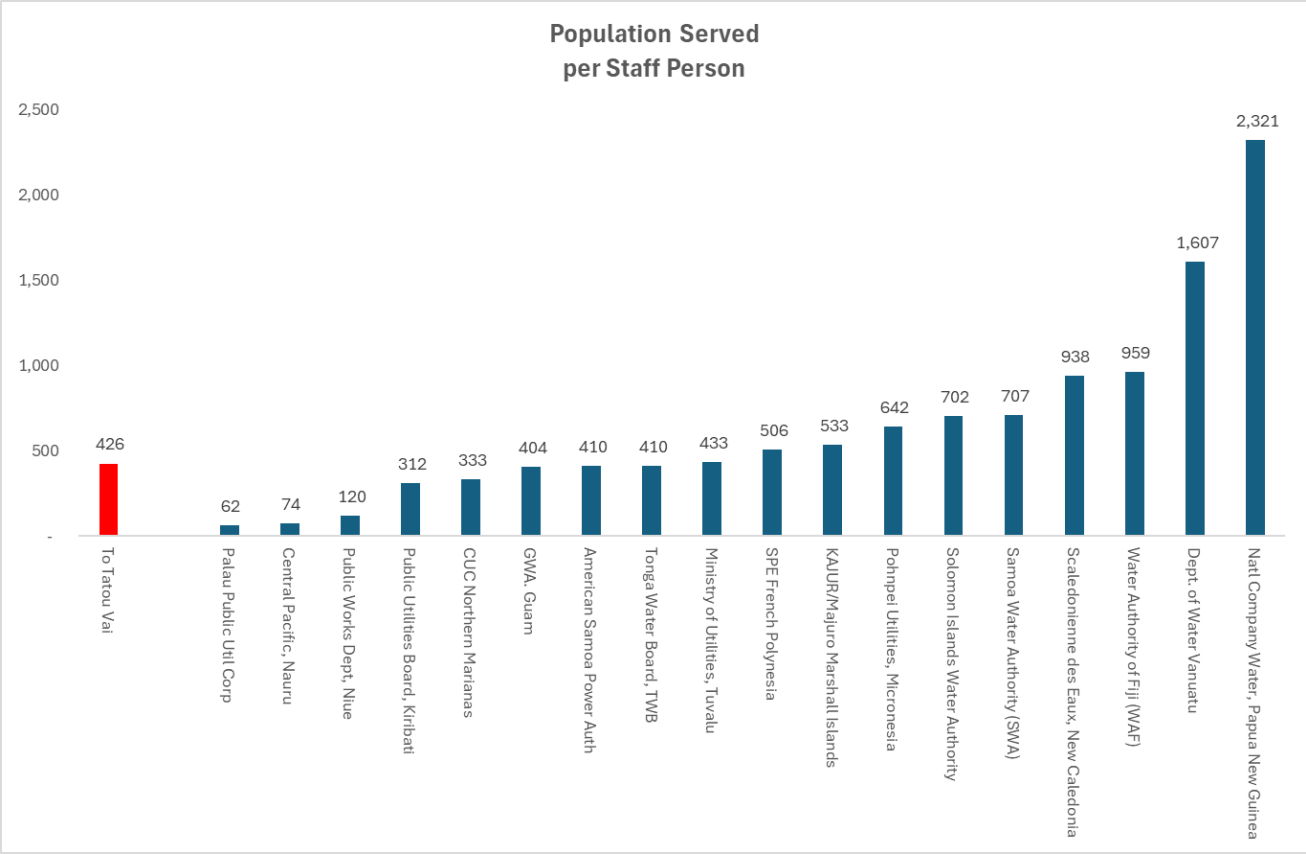
Table 5-2

PACIFIC WATER AND WASTEWATER ASSOCIATION
2021 AND 2022 BENCHMARKING STUDY -- CRITICAL DATA

	Population Served	Total Staff	Population Served per Staff Person
To Tatou Vai	14,898	35	426
Palau Public Util Corp	18,055	290	62
Central Pacific, Nauru	12,550	169	74
Public Works Dept, Niue	1,796	15	120
Public Utilities Board, Kiribati	47,697	153	312
CUC Northern Marianas	53,900	162	333
GWA. Guam	153,836	381	404
American Samoa Power Auth	44,273	108	410
Tonga Water Board, TWB	45,124	110	410
Ministry of Utilities, Tuvalu	5,200	12	433
SPE French Polynesia	94,124	186	506
KAJUR/Majuro Marshall Islands	33,581	63	533
Pohnpei Utilities, Micronesia	49,410	77	642
Solomon Islands Water Authority	120,069	171	702
Samoa Water Authority (SWA)	212,733	301	707
Scaledonienne des Eaux, New Caledonia	215,812	230	938
Water Authority of Fiji (WAF)	897,935	936	959
Dept. of Water Vanuatu	70,728	44	1,607
Natl Company Water, Papua New Guinea	1,634,068	704	2,321

SOURCE: PWWA 2021 and 2022 Benchmarking Studies
NOTE: TTV represents current estimates, not 2021 as reported in studies

Chart 5-3


Population Served
per Staff Person
2,500
2,000
1,500
1,000
500
-
426
62
74
120
312
333
404
410
410
433
506
533
642
702
707
938
959
1,607
2,321
To Tatou Vai
Palau Public Util Corp
Central Pacific, Nauru
Public Works Dept, Niue
Public Utilities Board, Kiribati
CUC Northern Marianas
GWA. Guam
American Samoa Power Auth
Tonga Water Board, TWB
Ministry of Utilities, Tuvalu
SPE French Polynesia
KAJUR/Majuro Marshall Islands
Pohnpei Utilities, Micronesia
Solomon Islands Water Authority
Samoa Water Authority (SWA)
Scaledonienne des Eaux, New Caledonia
Water Authority of Fiji (WAF)
Dept. of Water Vanuatu
Natl Company Water, Papua New Guinea

A third data point is to compare the cost of produced and consumed water per cubic meter at TTV with these other Pacific utilities. Produced water is that water derived from TTV's intakes and pumped into the system, while consumed water is that which is delivered to the customer. The difference between the two totals is primarily due to the estimated lost water rate of 27.2%.

Chart 5-4 presents the cost TTV is forecast to incur over the next decade per cubic meter for water produced and water consumed. **Table 5-5** presents these totals in more detail, along with the data used in the calculation. The cost is further broken down into production and non-production costs, as well as OPEX and CAPEX elements.

Chart 5-4

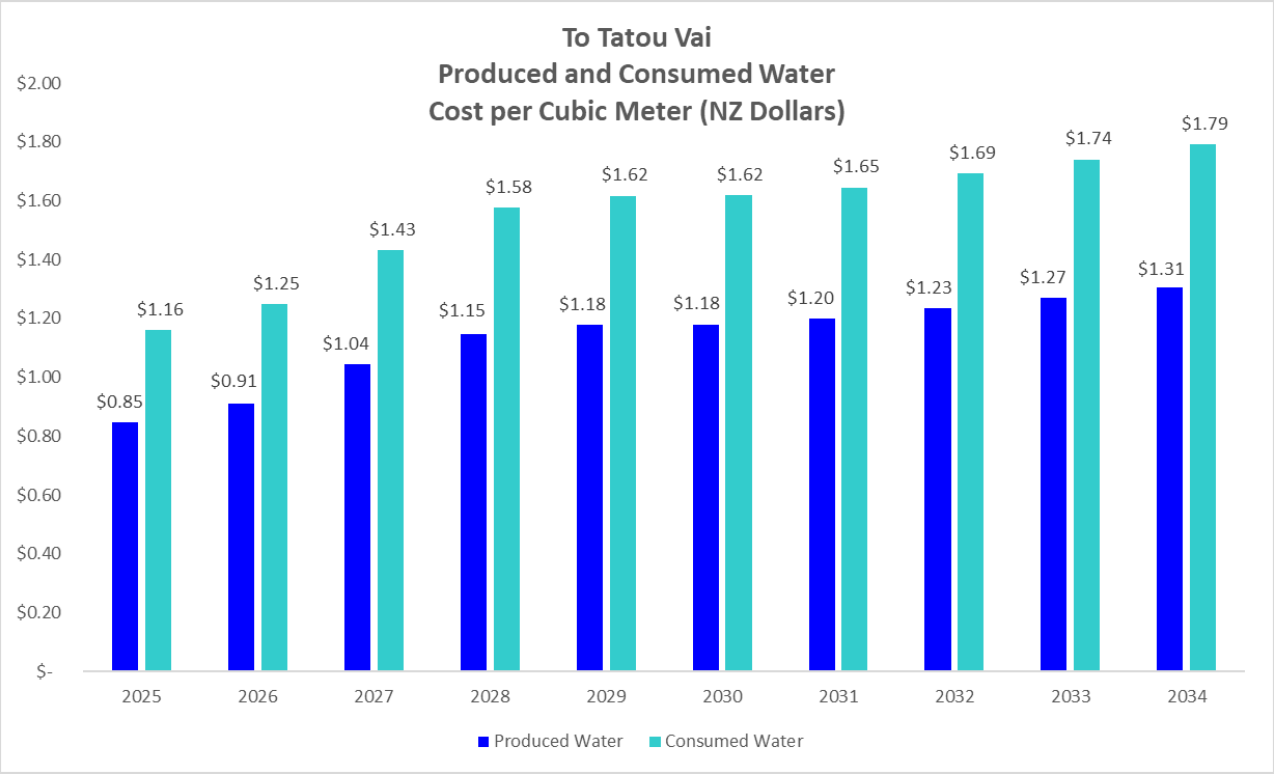


Table 5-5

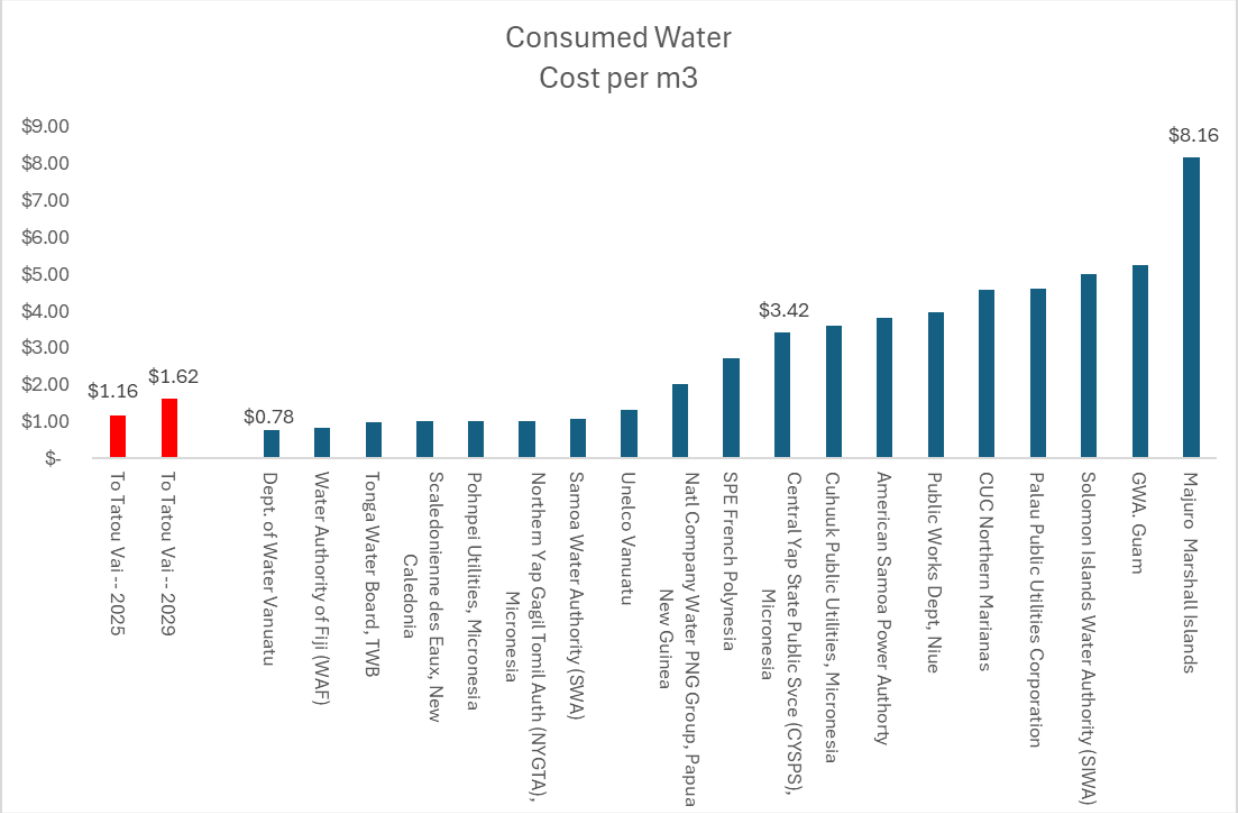
TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL
New Zealand Dollar (NZD)

	Test Year 2025	Forecast 2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Cost/m3 -- Production Water										
Total Produced Water	5,415,451	5,417,956	4,878,665	4,393,053	4,395,083	4,397,113	4,399,143	4,401,172	4,403,202	4,405,232
Production/Non-Production Cost										
Production Cost										
Treatment	$ 1,891,389	$ 2,068,439	$ 2,117,254	$ 2,055,550	$ 2,110,107	$ 2,130,400	$ 2,194,354	$ 2,260,243	$ 2,316,305	$ 2,383,878
Distribution	1,369,933	1,467,163	1,480,216	1,474,387	1,513,948	1,467,065	1,451,291	1,494,539	1,539,092	1,584,987
Total	3,261,322	3,535,602	3,597,470	3,529,937	3,624,055	3,597,465	3,645,645	3,754,783	3,855,397	3,968,865
Non-Production Cost										
Administration	1,073,830	1,146,231	1,238,117	1,255,862	1,287,751	1,313,844	1,346,160	1,387,541	1,430,388	1,474,767
Customer	248,702	249,952	251,327	258,866	266,632	274,631	282,870	291,356	300,097	309,100
Total	1,322,531	1,396,183	1,489,444	1,514,728	1,554,383	1,588,475	1,629,030	1,678,897	1,730,485	1,783,867
Total Cost of Service	4,583,853	4,931,785	5,086,914	5,044,665	5,178,438	5,185,940	5,274,675	5,433,680	5,585,882	5,752,732
Cost/m3										
Production Cost	$ 0.602	$ 0.653	$ 0.737	$ 0.804	$ 0.825	$ 0.818	$ 0.829	$ 0.853	$ 0.876	$ 0.901
Non-Production Cost	0.244	0.258	0.305	0.345	0.354	0.361	0.370	0.381	0.393	0.405
Total Cost	**$ 0.846**	**$ 0.910**	**$ 1.043**	**$ 1.148**	**$ 1.178**	**$ 1.179**	**$ 1.199**	**$ 1.235**	**$ 1.269**	**$ 1.306**
OPEX/CAPEX Cost										
OPEX Cost	$ 4,304,775	$ 4,653,959	$ 4,825,248	$ 4,797,434	$ 4,936,902	$ 5,086,281	$ 5,240,433	$ 5,399,438	$ 5,563,462	$ 5,732,677
CAPEX Cost	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
Total	4,583,853	4,931,785	5,086,914	5,044,665	5,178,438	5,185,940	5,274,675	5,433,680	5,585,882	5,752,732
Cost/m3										
OPEX Cost	$ 0.795	$ 0.859	$ 0.989	$ 1.092	$ 1.123	$ 1.157	$ 1.191	$ 1.227	$ 1.264	$ 1.301
CAPEX Cost	0.052	0.051	0.054	0.056	0.055	0.023	0.008	0.008	0.005	0.005
Total Cost	**$ 0.846**	**$ 0.910**	**$ 1.043**	**$ 1.148**	**$ 1.178**	**$ 1.179**	**$ 1.199**	**$ 1.235**	**$ 1.269**	**$ 1.306**
Total Cost/m3 -- Consumed Water										
Total Consumed Water	3,946,322	3,948,148	3,555,159	3,201,286	3,202,765	3,204,244	3,205,723	3,207,202	3,208,681	3,210,160
Production/Non-Production Cost										
Treatment	$ 1,891,389	$ 2,068,439	$ 2,117,254	$ 2,055,550	$ 2,110,107	$ 2,130,400	$ 2,194,354	$ 2,260,243	$ 2,316,305	$ 2,383,878
Distribution	1,369,933	1,467,163	1,480,216	1,474,387	1,513,948	1,467,065	1,451,291	1,494,539	1,539,092	1,584,987
Total	3,261,322	3,535,602	3,597,470	3,529,937	3,624,055	3,597,465	3,645,645	3,754,783	3,855,397	3,968,865
Non-Production Cost										
Administration	1,073,830	1,146,231	1,238,117	1,255,862	1,287,751	1,313,844	1,346,160	1,387,541	1,430,388	1,474,767
Customer	248,702	249,952	251,327	258,866	266,632	274,631	282,870	291,356	300,097	309,100
Total	1,322,531	1,396,183	1,489,444	1,514,728	1,554,383	1,588,475	1,629,030	1,678,897	1,730,485	1,783,867
Total Cost of Service	4,583,853	4,931,785	5,086,914	5,044,665	5,178,438	5,185,940	5,274,675	5,433,680	5,585,882	5,752,732
Cost/m3										
Production Cost	$ 0.826	$ 0.896	$ 1.012	$ 1.103	$ 1.132	$ 1.123	$ 1.137	$ 1.171	$ 1.202	$ 1.236
Non-Production Cost	0.335	0.354	0.419	0.473	0.485	0.496	0.508	0.523	0.539	0.556
Total Cost	**$ 1.162**	**$ 1.249**	**$ 1.431**	**$ 1.576**	**$ 1.617**	**$ 1.618**	**$ 1.645**	**$ 1.694**	**$ 1.741**	**$ 1.792**
OPEX/CAPEX Cost										
OPEX Cost	$ 4,304,775	$ 4,653,959	$ 4,825,248	$ 4,797,434	$ 4,936,902	$ 5,086,281	$ 5,240,433	$ 5,399,438	$ 5,563,462	$ 5,732,677
CAPEX Cost	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
Total	4,583,853	4,931,785	5,086,914	5,044,665	5,178,438	5,185,940	5,274,675	5,433,680	5,585,882	5,752,732
Cost/m3										
OPEX Cost	$ 1.091	$ 1.179	$ 1.357	$ 1.499	$ 1.541	$ 1.587	$ 1.635	$ 1.684	$ 1.734	$ 1.786
CAPEX Cost	0.071	0.070	0.074	0.077	0.075	0.031	0.011	0.011	0.007	0.006
Total Cost	**$ 1.162**	**$ 1.249**	**$ 1.431**	**$ 1.576**	**$ 1.617**	**$ 1.618**	**$ 1.645**	**$ 1.694**	**$ 1.741**	**$ 1.792**

Chart 5-6 compares the cost incurred per cubic meter by TTV with other Pacific utilities. Once again, this kind of comparison can be subject to caveats, most notably the amount of capital financing the utility is required to expend and the source of this financing (debt, grants, etc.). Utilities with significant availability of grant funds for capital investment will generally compare more favourably in this kind of analysis.

That being said, **TTV's current consumed water cost of $1.00 per cubic meter is among the lowest in the sample**. It shows that TTV's overall costs compare very favourably to other Pacific utilities. This comparison, along with TTV's favourable leakage and employees per population, indicates that from a general financial perspective, TTV's operations are not out of line compared to other Pacific utilities.

Chart 5-6



Finally, **Table 5-7** presents more detailed data on this operational analysis and comparison, as taken from the 2021 and 2023 Pacific Water and Wastewater Association Benchmarking Study.

In summary, the most significant challenge faced by TTV in the coming years is to improve the quality of water delivered to its customers. TTV staff and the Board have recognized this challenge during meetings and discussions with the project team. Alternatives and processes for achieving this objective is outside the scope of this tariff study.

Table 5-7

PACIFIC WATER AND WASTEWATER ASSOCIATION
2021/2022 BENCHMARKING STUDY -- CRITICAL DATA

	Population Served	Percent of Population Covered	Residential Consumption -- lpcd	Non-Revenue Water Percent	Cost per m3 -- USD	Cost per m3 -- NZD	Total Staff	Residential Tariff per m3 -- USD	Residential Tariff per m3 -- NZD
						1.6195			1.6195
To Tatou Vai	14,898		200	27.0%	$ 0.72	$ 1.16	30	$ 0.72	$ 1.16
American Samoa Power Authority	44,273	97.0%	230	61.0%	2.35	3.81	108	1.95	3.16
SPE French Polynesia	94,124	100.0%	155	33.0%	1.68	2.72	186	2.30	3.72
GWA. Guam	153,836	100.0%	233	63.0%	3.24	5.25	381	2.50	4.05
Scaledonienne des Eaux, New Caledonia	215,812	64.0%	200	23.0%	0.62	1.00	230	1.60	2.59
CUC Northern Marianas	53,900	118.0%	255	70.0%	2.83	4.58	162	2.00	3.24
Cuhuuk Public Utilities, Micronesia	49,410	116.0%	42	54.0%	2.23	3.61	77	0.40	0.65
Water Authority of Fiji (WAF)	897,935	96.0%	154	49.0%	0.52	0.84	936	0.15	0.24
Palau Public Utilities Corporation	18,055	106.0%	200	4.0%	2.85	4.62	290	0.20	0.32
Solomon Islands Water Authority (SIWA)	120,069	96.0%	79	60.0%	3.09	5.00	171	1.30	2.11
Tonga Water Board, TWB	45,124	98.0%	188	28.0%	0.61	0.99	110	1.00	1.62
Unelco Vanuatu	70,728	95.0%	128	35.0%	0.81	1.31	44	1.00	1.62
Public Utilities Board, Kiribati	47,697	36.0%		87.0%			153	6.00	9.72
Samoa Water Authority (SWA)	212,733	69.0%	160	47.0%	0.67	1.09	301	0.25	0.40
Central Yap State Public Service (CYSPS), Micronesia	49,410	98.0%	116	41.0%	2.11	3.42	77	0.40	0.65
Southern Yap State Public Service (SYWA), Micronesia	49,410		155	20.0%	-	-	77	0.40	0.65
Natl Company Water PNG Group Ltd, Papua New Guinea	1,634,068	100.0%		50.0%	1.24	2.01	704	0.40	0.65
Pohnpei Utilities, Micronesia	49,410	25.0%	200	39.0%	0.62	1.00	77	0.40	0.65
Dept. Transportation/Infrastructure, Kosrae Micronesia	49,410	32.0%		50.0%			77	0.40	0.65
Northern Yap Gagil Tomil Auth (NYGTA), Micronesia	49,410	100.0%		17.0%	0.62	1.00	77	0.40	0.65
Majuro Marshall Islands	33,581	62.0%		42.0%	5.04	8.16	63	1.70	2.75
KAJUR Marshall Islands	33,581			17.0%	-	-	63		-
ISWA, Samoa	212,733		150	50.0%	-	-	301		-
Dept. of Water Vanuatu	70,728	79.0%		52.0%	0.48	0.78	44		-
Central Pacific, Nauru	12,550	90.0%	235	27.0%			169	6.50	10.53
EEWF		100.0%		44.0%	-	-			-
Public Works Dept, Niue	1,796		342	42.0%	2.45	3.97	15		-
Ministry of Utilities and Industries, Tuvalu	5,200		200	7.0%	-	-	12	3.30	5.34

SOURCE: PWWA 2021 and 2022 Benchmarking Studies

6. Tariff Plan Scenarios

Introduction

During the course of this engagement, the project team analysed and developed numerous alternative tariff scenarios for TTV management and the Board of Directors to consider. There are many different tariff structures that will result in sufficient revenues for TTV to recover its operating and capital expenses. The key is to develop and approve a tariff plan that is considered by management, the Board of Directors, the government, the community in general and other stakeholders to be the most just, reasonable and fair.

During the course of this engagement the various stakeholders listed several concerns and objectives that should be addressed by the ultimate adopted tariff plan. These goals and objectives include the following:

1) Ensure that revenues, either immediately or after an approved period of time, recover revenues sufficient to cover operating expenses (OPEX) and capital expenditures (CAPEX)

2) Eliminate the need for TTV to remain dependent on crown allocations to fund its operating expenses. This length of time for phasing out crown allocations is a key variable among the different tariff alternatives presented in this section

3) Enable TTV to acquire the ability, either immediately over a designated period of time, to begin self-funding capital improvement projects

4) Develop a reasonable and appropriate allocation of free water to residential customers to minimize the impact of charging for water service

5) Encourage the conservation of water resources and discourage excessive use of water

6) Design a tariff plan that is straightforward, not overly complex and easy to understand and implement

7) Follow the guidelines of the *To Tatou Vai Act 2021*, which mandates a 0% return on equity and limits tariff increases to once per year

8) Implement an agriculture rate that encourages agricultural development, even if it requires limited support/subsidies from other customer classes

9) Enable TTV to begin accumulating water financial resources in order to improve the quality of water service

10) To the best extent possible minimize the impact of tariff adjustments on customers in all identified classes

11) Ensure that the tariff model and recommendations are consistent with tariff design policy and will meet the approval of the Regulatory Authority

12) Ensure that water service remains available to the lowest income customers

13) Ensure to the best of ability that water service remains affordable for customers

Several additional issues were openly discussed during the stakeholder meetings. The first involved deferring the implementation of a residential volume charge until all residential meters are installed. This would avoid the appearance of unfairness to customers whose meters were installed before others, and thus subject to an earlier volume charge.

The second issue involves the development of separate, and higher, tariffs for commercial and tourism-based customers. It is common for tariffs to differ among customer classes. This is because costs are allocated to customer classes based on the demand each class places on the system. As shown by the data in Section 4, due to higher demand factors the unit cost incurred by TTV for commercial and tourism customers is higher than for residential customers. Thus, from a cost of service standpoint, it is reasonable and appropriate to assign a different tariff to commercial and tourism customers than to residential customers.

A third concern expressed repeatedly by stakeholders was whether the magnitude of adjustments would be considered acceptable to the government or community. That is a common issue that must always be taken into consideration when presenting tariff alternatives. Tariff adjustments are more than just mathematical calculations; they must balance the utility's need for additional revenues with the customers' willingness to pay and the designated authority's willingness to approve. There is no empirical method of determining willingness to pay; it often depends on the combined professional judgement of the staff, Boards, government representatives and other stakeholders.

The various tariff alternatives were evaluated extensively during the course of this engagement. Dozens of alternative tariff plans could potentially be presented, all of which will enable TTV to recover sufficient revenues to fund operations and capital requirements. The final tariff plan scenarios were arrived at after analysing numerous alternatives.

After a series of meetings with TTV staff, the Board, government representatives, and numerous stakeholder groups as listed in Section I, the project team narrowed down the numerous alternative tariff proposals it had previously prepared to the four scenario tariff plans presented in this study.

Billing and Collection

As stated earlier in this report, TTV is in the process of installing meters for all of its customer accounts. TTV anticipates completing non-residential meter installation by December 2024 and residential installation by the end of FY 2026. As it completes its meter installations, TTV faces the additional challenge of setting up a customer billing system to charge for water service. This is a complex task involving the identification of customers by name and address, and the development of a process for sending bills and ensuring payment. Further, since there is no direct charge for water service at the present time, there is no reliable data regarding the percentage of "doubtful debt" or non-payment of monthly bills.

The revenue forecast in this study assumes that TTV successfully installs all meters on the timeframe it has scheduled, and successfully implements a working billing and collection system. **If the goals and objectives of TTV's billing and collection system are not achieved, the revenue projections contained in this study may be subject to potentially significant revision.**

Climate Change Impacts

Another issue requested in the scope of services was an assessment of the potential risk to customer service levels from possible climate change related impacts. While climate change impacts should always be treated with serious consideration, the impacts of climate change on tariff design and financial forecasts for TTV is fairly limited.

The ten-year financial forecast contained in this study represents TTV staff and the project team's combined assessment of the financial resources required to provide an acceptable level of customer service over the next decade. TTV staff has outlined its goals and objectives as it prepares the three-year budget on which the forecast is based, and the project team's analysis in the previous section indicates that these expenditures are not out of proportion to those investments undertaken by other utilities. These goals include operating and capital investments to secure water resources and to combat climate change.

From a tariff standpoint, the most effective tariff policy to counter the effects of climate change is one that encourages the prudent use of water resources and discourages excessive or wasteful usage. The project team asserts that all of the tariff alternatives presented in this study meet these goals. Assessing a price for service will inherently result in the prudent use of that service, as a general economic principle is that raising the price of a commodity will result in less use (and more prudent use) of that commodity. Because all scenarios result in a charge for water service, this goal will be met, though the conservation-based alternatives are likely to result in a greater level of deferred usage.

It is the project team's conclusion that the conservation of water resources as encouraged by the tariff plan scenarios contained in this study meets the goals outlined above and contributes to the deference of climate change impacts to the best extent possible.

Free Water Allocation

One of the principal issues raised during the stakeholder meetings was the concept of a free water allocation for TTV's residential customers. A free water allocation is mandated in Section 26 of the *To Tatou Vai Act 2021*, which states that consumers much have a "reasonable" quantity of affordable water. However, the term reasonable is not defined, nor is the amount of free water that would qualify as meeting this standard.

There is no cost-based or scientific approach for determining the appropriate free water allocation for residential customers. However, the Act requires the Crown to fund all free water allocations, so the higher the allocation, the more the Crown is required to fund. Therefore, any decision on free water allocations must balance the desire to minimize the financial impact of a tariff-based system of water charges with the obligation of the crown to financially support TTV through reimbursement of free water

charges. During the April meetings, stakeholders proffered several alternative free water allocation totals per person. There was no general consensus on the free water allocation totals.

Table 6-1 presents the alternative free water allocation totals, along with their impact on total residential consumption and the approximate crown funding required to sustain them. These various totals are based on suggested levels offered by various stakeholders during the April 2024 public and community meetings. The table presents a range of between 50 litres per day per person to 400 litres per day per person.

For the purposes of the tariff alternatives in this report, **the project team recommends utilizing a total of 100 litres per person per day for the free water allocation**. The reasoning for this is that this total represents 50.0% of average daily usage per person, and it results in a relatively moderate crown funding contribution. TTV management officials expressed concerns that higher levels of free water would result in excessive dependence on Crown funding, and would limit the ability of the Tariff plan to discourage excessive water use. Based on meetings and feedback, the project team believes that the 100 litres per day total reflects a general (but by no means universal) consensus.

The use of 100 litres per day results in a free water allocation of 10 cubic meters per residential account per month. This is a rounded total based on the following calculation: 100 litres per person X 3.12 persons per household X 30 days per month). The total is rounded to 10 cubic meters. A final decision on how to implement the free water allocation has not been made as of the date of this report.

It must be noted that this total is chosen only for the purposes of illustrating the impact on monthly residential charges of the chosen tariff plan. While this total will be used in the comparison of tariff impacts on residential charges, **any change in the free water allocation will not impact the tariff recommendations in this study** – it will only impact the amount of crown funding required to support the chosen allocation.

Table 6-1

TO TATOU VAI AUTHORITY
FREE WATER ALLOCATION ALTERNATIVES

Average Litres/Day/Person	200
Persons/Account	3.12
Average Litres/Day/Account	624
Average Usage Per Month/Account	
Litres	18,720
Cubic Meters	18.72

Free Water Allocation

Litres/Day/Person	**50**	**100**	**200**	**300**	**400**
Percent of Average Litres/Day/Person	25.0%	50.0%	100.0%	150.0%	200.0%
Litres/Day/Account	156	312	624	936	1,248
Rounded Total Free Water Allocation Per Month/Account					
Litres	5,000	10,000	18,000	28,000	38,000
Cubic Meters	5.00	10.00	18.00	28.00	38.00
Percent of Total Residential Consumption	26.1%	52.3%	94.1%	146.4%	198.7%
Approximate Annual Crown Funding	$ 227,286	$ 454,572	$ 818,230	$ 1,272,802	$ 1,727,374

Meter Equivalencies

Under all tariff scenarios, the tariff design for each customer class is composed of a monthly charge for service and a volume rate per cubic meter (1,000 litres). It is common in the industry to implement a monthly charge that is not related to the specific usage of the individual account.

The majority of costs a utility incurs are related not to the water itself, but to the system and infrastructure required to make water available to each end user. These costs are typically fixed, and the utility must cover those costs regardless of the amount of water it sells. Therefore utilities implement a fixed monthly charge to help cover these costs. Further, a fixed monthly charge requires customers to reimburse the utility for a valuable service it provides – the availability of water service. Finally, fixed charges reduce the financial risk to the utility, as it represents a guaranteed source of revenue. If a utility recovered all of its costs through a volume charge per cubic meter, then in years where usage is low, due to factors beyond the utility's control such as weather conditions, the utility could be faced with revenue shortfalls.

The project team perceived a general consensus during the April stakeholder meetings that a monthly charge would be acceptable. However, one issue raised was whether it was appropriate to charge the same monthly charge to all users, despite the fact that there can be significant varying levels of usage among customers. The industry typically addresses such concerns by implementing increasing monthly

charges by meter size, using the standards of "meter equivalencies". The concept is that a 40 mm meter provides the approximate same amount of flow/capacity as five 20 mm meters. Therefore the monthly charge for a customer with a 40 mm meter should be five times that of a 20 mm meter. The advantage of this is twofold – it ensures that larger users pay a higher base charge, and it provides users a financial incentive to install a meter that is no larger than what they will actually need.

Table 6-2 presents the engineering-based meter equivalencies for each of the meter sizes used in TTV's system. While this data is specifically based on data derived from Jiangbei Manufacturing, similar data for imperial measurements (the "English system") can be found in the American Water Works Association *Manual M-1*. These are the equivalencies on which the monthly charges will be based.

Table 6-2

TO TATOU VAI AUTHORITY
METER EQUIVALENCIES

Meter Size		
MM	**Inches**	**20 MM Equivalency**
20	3/4"	1.00
25	1"	2.50
32	1 1/4"	3.75
40	1 1/2"	5.00

SOURE: Jiangbei Manufacturing

a. Tariff Scenario 1A – 3 Year Uniform Residential Volume Charge

The first tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. This means that by FY 2028 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

Table 6-3 summarizes the five-year tariff plan recommended under this scenario. Detailed calculations can be found in **Appendix B.** The following is notable about this scenario:

- Under this scenario, an initial monthly charge to residential customers of $17.00 is implemented in October 2024. Meter equivalency monthly charges for higher meters are implemented.
- Residential volume charges are not implemented until after all residential meters are installed. This is estimated to be by the end of 2026.
- Commercial, institutional and tourism accounts are forecast to be fully metered before the end of 2024. Therefore the project team recommends implementing a volumetric charge per cubic meter beginning in October 2024.
- Subsequent annual adjustments take place in July, the beginning of each fiscal year.
- Volume charges are increased in each year of the forecast. Larger increases are forecast for the first three years in order to enable TTV to reach self-sufficiency by the end of FY 2027.
- After the end of FY 2027, it is forecast under this scenario that TTV will no longer require crown allocations in order to fund operating and capital expenditures.
- This plan assumes no return on equity and no new debt to fund capital improvements.
- Volumetric charges are higher for non-residential customers than for residential and agricultural accounts.

Table 6-4 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole. Particularly with the tourism and industrial classes, there can be a wide variation in monthly usage among customer accounts. Therefore the table is intended to provide a general guideline as to the financial impact of these scenarios.

Table 6-5 presents a calculation of household income required to fund the proposed tariff plan. Section 1 outlined how international agencies have generally defined "burdensome" tariffs as those exceeding 2.0% of household income. This chart reveals that only those households earning less than $10,000 per year would meet the definition of burdensome under this scenario.

Table 6-6 presents forecasts revenues and costs for each customer class under this scenario. Once again it shows that by FY 2028 TTV is forecast to recover sufficient revenues from each customer class to fund all costs without the need for Crown allocations.

Table 6-3

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

Scenario:			**2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**							
Currency:			**New Zealand Dollar (NZD)**							
		Current	**1 2025 Effective Oct-24**		**2 2026 Effective Jul-25**		**3 2027 Effective Jul-26**		**4 2028 Effective Jul-27**	**5 2029 Effective Jul-28**
WATER Tariff										
Service Fee										
20 MM		$ -	$	17.00	$	17.00	$	17.00	$ 17.00	$ 17.00
25 MM		-		42.50		42.50		42.50	42.50	42.50
40 MM		-		63.75		63.75		63.75	63.75	63.75
50 MM		-		85.00		85.00		85.00	85.00	85.00
Volume Tariff -- Per Unit/Cubic Meter										
Free Water Allocation										
Residential										
-	Above	-		-		-		0.850	0.893	0.910
-	-	-		-		-		0.850	0.893	0.910
-	-	-		-		-		0.850	0.893	0.910
-	-	-		-		-		0.850	0.893	0.910
-	-	-		-		-		0.850	0.893	0.910
Commercial/Industrial										
-	Above	-		1.000		1.400		1.700	1.785	1.821
Institutional										
-	Above	-		1.000		1.400		1.700	1.785	1.821
Agricultural										
-	Above	-		-		-		0.850	0.893	0.910
Tourism										
-	Above	-		1.000		1.400		1.700	1.785	1.821

Table 6-4

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	M3 Total	M3 Net of Free Water		2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform New Zealand Dollar (NZD) 1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
Free Water Allocation (cubic meters		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 22.10	$ 22.36	$ 22.46
Increase -- Dollars				**17.00**	**-**	**5.10**	**0.25**	**0.11**
Increase -- Percent				0.0%	0.0%	30.0%	1.2%	0.5%
Commercial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 113.75	$ 133.75	$ 148.75	$ 153.00	$ 154.79
Increase -- Dollars				**113.75**	**20.00**	**15.00**	**4.25**	**1.79**
Increase -- Percent				0.0%	17.6%	11.2%	2.9%	1.2%
Tourism 50mm -- Water Monthly Charge								
Total Charge	250	250	-	$ 335.00	$ 435.00	$ 510.00	$ 531.25	$ 540.18
Increase -- Dollars				**335.00**	**100.00**	**75.00**	**21.25**	**8.92**
Increase -- Percent				0.0%	29.9%	17.2%	4.2%	1.7%
Total Charge	1,000	1,000	-	$ 1,085.00	$ 1,485.00	$ 1,785.00	$ 1,870.00	$ 1,905.70
Increase -- Dollars				**1,085.00**	**400.00**	**300.00**	**85.00**	**35.70**
Increase -- Percent				0.0%	36.9%	20.2%	4.8%	1.9%

Table 6-5

TO TATOU VAI AUTHORITY
PERCENT OF HOUSEHOLD INCOME REQUIRED TO FUND WATER CHARGES

				Scenario: Currency:	2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform New Zealand Dollar (NZD) 1 2025	2 2026	3 2027	4 2028	5 2029
Residential Charges -- 16 m3 (net 6 m3)									
Monthly					$ 17.00	$ 17.00	$ 22.10	$ 22.36	$ 22.46
Annual					204.00	204.00	265.20	268.26	269.55
					Percent of Household Income Required to Fund Water Charges				
		No Income	9.0%						
2,500	-	4,999	6.5%		8.2%	8.2%	10.6%	10.7%	10.8%
7,500	5,000	9,999	12.1%		2.7%	2.7%	3.5%	3.6%	3.6%
12,500	10,000	14,999	15.3%		1.6%	1.6%	2.1%	2.1%	2.2%
17,500	15,000	19,999	18.1%		1.2%	1.2%	1.5%	1.5%	1.5%
25,000	20,000	29,999	16.8%		0.8%	0.8%	1.1%	1.1%	1.1%
35,000	30,000	39,999	10.3%		0.6%	0.6%	0.8%	0.8%	0.8%
45,000	40,000	49,999	4.6%		0.5%	0.5%	0.6%	0.6%	0.6%
55,000	50,000	59,999	3.0%		0.4%	0.4%	0.5%	0.5%	0.5%
65,000	60,000	69,999	1.2%		0.3%	0.3%	0.4%	0.4%	0.4%
75,000	70,000	79,999	0.8%		0.3%	0.3%	0.4%	0.4%	0.4%
85,000	80,000	89,999	0.6%		0.2%	0.2%	0.3%	0.3%	0.3%
95,000	90,000	99,999	0.4%		0.2%	0.2%	0.3%	0.3%	0.3%
125,000	100,000	Above	1.3%		0.2%	0.2%	0.2%	0.2%	0.2%
			100.0%						

Table 6-6

TO TATOU VAI AUTHORITY
REVENUES AND COSTS BY CUSTOMER CLASS

	Scenario:	2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform			
	Currency:	New Zealand Dollar (NZD)			
	1	2	3	4	5
	2025 Effective	2026 Effective	2027 Effective	2028 Effective	2029 Effective
	Oct-24	Jul-25	Jul-26	Jul-27	Jul-28
WATER Utility					
Free Water Allocation					
Revenues	$ -	$ -	$ 418,589	$ 478,293	$ 489,740
Cost of Service	352,972	379,130	433,038	477,541	491,001
Net Revenues	(352,972)	(379,130)	(14,450)	752	(1,261)
Residential					
Revenues	448,664	674,016	837,331	867,961	874,975
Cost of Service	544,395	584,550	557,541	505,546	519,598
Net Revenues	(95,731)	89,466	279,791	362,416	355,377
Commercial/Industrial					
Revenues	539,909	1,039,440	1,128,361	1,087,697	1,109,002
Cost of Service	931,662	1,000,223	1,027,825	1,019,737	1,047,977
Net Revenues	(391,754)	39,217	100,536	67,960	61,025
Institutional					
Revenues	133,771	267,573	293,275	280,977	286,861
Cost of Service	168,720	180,944	185,719	184,042	188,939
Net Revenues	(34,949)	86,629	107,556	96,935	97,922
Agricultural					
Revenues	51,000	76,500	1,253,899	1,285,474	1,312,544
Cost of Service	1,522,301	1,632,618	1,675,728	1,660,617	1,704,829
Net Revenues	(1,471,301)	(1,556,118)	(421,830)	(375,143)	(392,285)
Tourism					
Revenues	485,577	987,467	1,086,986	1,039,367	1,062,153
Cost of Service	995,388	1,067,522	1,095,712	1,085,831	1,114,742
Net Revenues	(509,810)	(80,055)	(8,726)	(46,464)	(52,590)
Total					
Revenues	1,658,921	3,044,996	5,018,440	5,039,769	5,135,275
Cost of Service	4,515,438	4,844,986	4,975,563	4,933,314	5,067,087
Net Revenues	**(2,856,517)**	**(1,799,990)**	**42,877**	**106,455**	**68,188**
	-172.2%	-59.1%	0.9%	2.1%	1.3%

b. Tariff Scenario 1B – 3 Year Conservation Residential Volume Charge

The second tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. This means that by FY 2028 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

All of the same assumptions as listed for Scenario 1A apply to this scenario. The only difference is that this scenario assumes that TTV implements a conservation-based Inverted Block tariff design for its residential customers. The concept behind this rate design is that as a residential customer uses more water, that customer's unit rate increases. This is intended to provide a financial incentive for the customer to use water in the most prudent manner possible. It also enables TTV to implement a lower unit rate for the first tier of usage, a tier that the majority of customer charges will not exceed.

Table 6-7 summarizes the five-year tariff plan recommended under this scenario. The table reveals that there are three residential tiers – 0-16 m3, 17-30 m3 and 31 and above m3. This means that all water bills up to and including the average monthly usage level of 16 m3 will be charged at the lowest tier. It is only customers whose usage is above the national average who pay the higher tiered charges.

The volumetric and base charges are the same for all other customer classes.

Table 6-8 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole. Particularly with the tourism and industrial classes, there can be a wide variation in monthly usage among customer accounts. Therefore the table is intended to provide a general guideline as to the financial impact of these scenarios.

Table 6-9 presents a calculation of household income required to fund the proposed tariff plan. Section 1 outlined how international agencies have generally defined "burdensome" tariffs as those exceeding 2.0% of household income.

Table 6-10 presents forecasts revenues and costs for each customer class under this scenario. Once again it shows that by FY 2028 TTV is forecast to recover sufficient revenues from each customer class to fund all costs without the need for Crown allocations.

Table 6-7

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

Scenario:			**2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation**						
Currency:			**New Zealand Dollar (NZD)**						
		Current	**1 2025 Effective Oct-24**	**2 2026 Effective Jul-25**	**3 2027 Effective Jul-26**	**4 2028 Effective Jul-27**	**5 2029 Effective Jul-28**		
WATER Tariff									
Service Fee									
20 MM		$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00		
25 MM		-	42.50	42.50	42.50	42.50	42.50		
40 MM		-	63.75	63.75	63.75	63.75	63.75		
50 MM		-	85.00	85.00	85.00	85.00	85.00		
Volume Tariff -- Per Unit/Cubic Meter									
Free Water Allocation									
Residential									
-	16	-	-	-	0.500	0.525	0.536		
17	30	-	-	-	1.500	1.575	1.607		
31	Above	-	-	-	2.500	2.625	2.678		
Commercial/Industrial									
-	Above	-	1.000	1.400	1.700	1.785	1.821		
Institutional									
-	Above	-	1.000	1.400	1.700	1.785	1.821		
Agricultural									
-	Above	-	-	-	0.850	0.893	0.910		
Tourism									
-	Above	-	1.000	1.400	1.700	1.785	1.821		

Table 6-8

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

					Scenario:	2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation				
					Currency:	New Zealand Dollar (NZD)				
						1	2	3	4	5
						2025	2026	2027	2028	2029
					Current	Effective	Effective	Effective	Effective	Effective
	M3 - Total	M3 - Net of Free Water				Oct-24	Jul-25	Jul-26	Jul-27	Jul-28
Free Water Allocation (cubic meters		10								
Residential -- Water Monthly Charge										
Total Charge	10	-	-	$	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars						**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent						0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$	-	$ 17.00	$ 17.00	$ 20.00	$ 20.15	$ 20.21
Increase -- Dollars						**17.00**	**-**	**3.00**	**0.15**	**0.06**
Increase -- Percent						0.0%	0.0%	17.6%	0.7%	0.3%
Total Charge	30	20	-	$	-	$ 17.00	$ 17.00	$ 47.00	$ 48.50	$ 49.13
Increase -- Dollars						**17.00**	**-**	**30.00**	**1.50**	**0.63**
Increase -- Percent						0.0%	0.0%	176.5%	3.2%	1.3%
Commercial 40mm -- Water Monthly Charge										
Total Charge	50	50	-	$	-	$ 113.75	$ 133.75	$ 148.75	$ 153.00	$ 154.79
Increase -- Dollars						**113.75**	**20.00**	**15.00**	**4.25**	**1.79**
Increase -- Percent						0.0%	17.6%	11.2%	2.9%	1.2%
Total Charge	100	100	-	$	-	$ 163.75	$ 203.75	$ 233.75	$ 242.25	$ 245.82
Increase -- Dollars						**163.75**	**40.00**	**30.00**	**8.50**	**3.57**
Increase -- Percent						0.0%	24.4%	14.7%	3.6%	1.5%
Tourism 50mm -- Water Monthly Charge										
Total Charge	500	500	-	$	-	$ 585.00	$ 785.00	$ 935.00	$ 977.50	$ 995.35
Increase -- Dollars						**585.00**	**200.00**	**150.00**	**42.50**	**17.85**
Increase -- Percent						0.0%	34.2%	19.1%	4.5%	1.8%
Total Charge	1,000	1,000	-	$	-	$ 1,085.00	$ 1,485.00	$ 1,785.00	$ 1,870.00	$ 1,905.70
Increase -- Dollars						**1,085.00**	**400.00**	**300.00**	**85.00**	**35.70**
Increase -- Percent						0.0%	36.9%	20.2%	4.8%	1.9%

Table 6-9

TO TATOU VAI AUTHORITY
PERCENT OF HOUSEHOLD INCOME REQUIRED TO FUND WATER CHARGES

				Scenario:	2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation				
				Currency:	New Zealand Dollar (NZD)				
					1	2	3	4	5
					2025	2026	2027	2028	2029
Residential Charges -- 16 m3 (net 6 m3)									
Monthly					$ 17.00	$ 17.00	$ 20.00	$ 20.15	$ 20.21
Annual					204.00	204.00	240.00	241.80	242.56
					Percent of Household Income Required to Fund Water Charges				
		No Income	9.0%						
2,500	-	4,999	6.5%		8.2%	8.2%	9.6%	9.7%	9.7%
7,500	5,000	9,999	12.1%		2.7%	2.7%	3.2%	3.2%	3.2%
12,500	10,000	14,999	15.3%		1.6%	1.6%	1.9%	1.9%	1.9%
17,500	15,000	19,999	18.1%		1.2%	1.2%	1.4%	1.4%	1.4%
25,000	20,000	29,999	16.8%		0.8%	0.8%	1.0%	1.0%	1.0%
35,000	30,000	39,999	10.3%		0.6%	0.6%	0.7%	0.7%	0.7%
45,000	40,000	49,999	4.6%		0.5%	0.5%	0.5%	0.5%	0.5%
55,000	50,000	59,999	3.0%		0.4%	0.4%	0.4%	0.4%	0.4%
65,000	60,000	69,999	1.2%		0.3%	0.3%	0.4%	0.4%	0.4%
75,000	70,000	79,999	0.8%		0.3%	0.3%	0.3%	0.3%	0.3%
85,000	80,000	89,999	0.6%		0.2%	0.2%	0.3%	0.3%	0.3%
95,000	90,000	99,999	0.4%		0.2%	0.2%	0.3%	0.3%	0.3%
125,000	100,000	Above	1.3%		0.2%	0.2%	0.2%	0.2%	0.2%
			100.0%						

Table 6-10

TO TATOU VAI AUTHORITY
REVENUES AND COSTS BY CUSTOMER CLASS

	Scenario:	2024 06 05 TTV Tariff Scenario 1B -- 3 Year Conservation			
	Currency:	New Zealand Dollar (NZD)			
	1	2	3	4	5
	2025 Effective Oct-24	2026 Effective Jul-25	2027 Effective Jul-26	2028 Effective Jul-27	2029 Effective Jul-28
WATER Utility					
Free Water Allocation					
Revenues	$ -	$ -	$ 418,589	$ 478,293	$ 489,740
Cost of Service	352,972	379,130	432,997	477,487	490,946
Net Revenues	(352,972)	(379,130)	(14,408)	807	(1,206)
Residential					
Revenues	448,664	674,016	827,785	856,673	863,334
Cost of Service	544,395	584,550	557,487	505,488	519,540
Net Revenues	(95,731)	89,466	270,297	351,185	343,794
Commercial/Industrial					
Revenues	539,909	1,039,440	1,128,361	1,087,697	1,109,002
Cost of Service	931,662	1,000,223	1,027,726	1,019,620	1,047,859
Net Revenues	(391,754)	39,217	100,634	68,077	61,143
Institutional					
Revenues	133,771	267,573	293,275	280,977	286,861
Cost of Service	168,720	180,944	185,701	184,021	188,917
Net Revenues	(34,949)	86,629	107,574	96,956	97,944
Agricultural					
Revenues	51,000	76,500	1,253,899	1,285,474	1,312,544
Cost of Service	1,522,301	1,632,618	1,675,568	1,660,427	1,704,637
Net Revenues	(1,471,301)	(1,556,118)	(421,669)	(374,953)	(392,094)
Tourism					
Revenues	485,577	987,467	1,086,986	1,039,367	1,062,153
Cost of Service	995,388	1,067,522	1,095,606	1,085,707	1,114,617
Net Revenues	(509,810)	(80,055)	(8,621)	(46,340)	(52,464)
Total					
Revenues	1,658,921	3,044,996	5,008,893	5,028,481	5,123,634
Cost of Service	4,515,438	4,844,986	4,975,086	4,932,749	5,066,517
Net Revenues	**(2,856,517)**	**(1,799,990)**	**33,808**	**95,731**	**57,117**
	-172.2%	-59.1%	0.7%	1.9%	1.1%

c. Tariff Scenario 2A – 5 Year Uniform Residential Volume Charge

The third tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. This means that by FY 2030 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

Table 6-11 summarizes the five-year tariff plan recommended under this scenario. Detailed calculations can be found in **Appendix C.** The following is notable about this scenario:

- Under this scenario, an initial monthly charge to residential customers of $17.00 is implemented in October 2024. Meter equivalency monthly charges for higher meters are implemented.
- Residential volume charges are not implemented until after all residential meters are installed. This is estimated to be by the end of 2026.
- Commercial, institutional and tourism accounts are forecast to be fully metered before the end of 2024. Therefore the project team recommends implementing a volumetric charge per cubic meter beginning in October 2024
- Annual adjustments take place in July, the beginning of each fiscal year.
- Volume charges are increased in each year of the forecast. This plan enables TTV to reach self-sufficiency by the end of FY 2029.
- After the end of FY 2029, it is forecast under this scenario that TTV will no longer require crown allocations in order to fund operating and capital expenditures.
- This plan assumes no return on equity and no new debt to fund capital improvements.
- Volumetric charges are higher for non-residential customers than for residential and agricultural accounts.

Table 6-12 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole. Particularly with the tourism and industrial classes, there can be a wide variation in monthly usage among customer accounts. Therefore the table is intended to provide a general guideline as to the financial impact of these scenarios.

Table 6-13 presents a calculation of household income required to fund the proposed tariff plan. Section 1 outlined how international agencies have generally defined "burdensome" tariffs as those exceeding 2.0% of household income. This chart reveals that only those households earning less than $10,000 per year would meet the definition of burdensome under this scenario.

Table 6-14 presents forecasts revenues and costs for each customer class under this scenario. Once again it shows that by FY 2030 TTV is forecast to recover sufficient revenues from each customer class to fund all costs without the need for Crown allocations.

Table 6-11

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

Scenario:		**2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**						
Currency:		**New Zealand Dollar (NZD)**						
		Current	**1 2025 Effective Oct-24**	**2 2026 Effective Jul-25**	**3 2027 Effective Jul-26**	**4 2028 Effective Jul-27**	**5 2029 Effective Jul-28**	
WATER Tariff								
Service Fee								
20 MM		$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00	
25 MM		-	42.50	42.50	42.50	42.50	42.50	
40 MM		-	63.75	63.75	63.75	63.75	63.75	
50 MM		-	85.00	85.00	85.00	85.00	85.00	
Volume Tariff -- Per Unit/Cubic Meter								
Free Water Allocation								
Residential								
-	Above	-	-	-	0.600	0.800	0.900	
Commercial/Industrial								
-	Above	-	0.900	1.150	1.350	1.650	1.800	
Institutional								
-	Above	-	0.900	1.150	1.350	1.650	1.800	
Agricultural								
-	Above	-	-	-	0.600	0.800	0.900	
Tourism								
-	Above	-	0.900	1.150	1.350	1.650	1.800	

Table 6-12

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

				2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform New Zealand Dollar (NZD)				
				1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
	M3 - Total	M3 - Net of Free Water						
Free Water Allocation (cubic meters		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 20.60	$ 21.80	$ 22.40
Increase -- Dollars				**17.00**	**-**	**3.60**	**1.20**	**0.60**
Increase -- Percent				0.0%	0.0%	21.2%	5.8%	2.8%
Total Charge	30	20	-	$ 17.00	$ 17.00	$ 29.00	$ 33.00	$ 35.00
Increase -- Dollars				**17.00**	**-**	**12.00**	**4.00**	**2.00**
Increase -- Percent				0.0%	0.0%	70.6%	13.8%	6.1%
Commercial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 108.75	$ 121.25	$ 131.25	$ 146.25	$ 153.75
Increase -- Dollars				**108.75**	**12.50**	**10.00**	**15.00**	**7.50**
Increase -- Percent				0.0%	11.5%	8.2%	11.4%	5.1%
Total Charge	100	100	-	$ 153.75	$ 178.75	$ 198.75	$ 228.75	$ 243.75
Increase -- Dollars				**153.75**	**25.00**	**20.00**	**30.00**	**15.00**
Increase -- Percent				0.0%	16.3%	11.2%	15.1%	6.6%
Tourism 50mm -- Water Monthly Charge								
Total Charge	500	500	-	$ 535.00	$ 660.00	$ 760.00	$ 910.00	$ 985.00
Increase -- Dollars				**535.00**	**125.00**	**100.00**	**150.00**	**75.00**
Increase -- Percent				0.0%	23.4%	15.2%	19.7%	8.2%
Total Charge	1,000	1,000	-	$ 985.00	$ 1,235.00	$ 1,435.00	$ 1,735.00	$ 1,885.00
Increase -- Dollars				**985.00**	**250.00**	**200.00**	**300.00**	**150.00**
Increase -- Percent				0.0%	25.4%	16.2%	20.9%	8.6%

Table 6-13

TO TATOU VAI AUTHORITY
PERCENT OF HOUSEHOLD INCOME REQUIRED TO FUND WATER CHARGES

				Scenario:	2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform				
				Currency:	New Zealand Dollar (NZD)				
					1 2025	2 2026	3 2027	4 2028	5 2029
Residential Charges -- 16 m3 (net 6 m3)									
Monthly					$ 17.00	$ 17.00	$ 20.60	$ 21.80	$ 22.40
Annual					204.00	204.00	247.20	261.60	268.80
					Percent of Household Income Required to Fund Water Charges				
		No Income	9.0%						
2,500	-	4,999	6.5%		8.2%	8.2%	9.9%	10.5%	10.8%
7,500	5,000	9,999	12.1%		2.7%	2.7%	3.3%	3.5%	3.6%
12,500	10,000	14,999	15.3%		1.6%	1.6%	2.0%	2.1%	2.2%
17,500	15,000	19,999	18.1%		1.2%	1.2%	1.4%	1.5%	1.5%
25,000	20,000	29,999	16.8%		0.8%	0.8%	1.0%	1.0%	1.1%
35,000	30,000	39,999	10.3%		0.6%	0.6%	0.7%	0.7%	0.8%
45,000	40,000	49,999	4.6%		0.5%	0.5%	0.5%	0.6%	0.6%
55,000	50,000	59,999	3.0%		0.4%	0.4%	0.4%	0.5%	0.5%
65,000	60,000	69,999	1.2%		0.3%	0.3%	0.4%	0.4%	0.4%
75,000	70,000	79,999	0.8%		0.3%	0.3%	0.3%	0.3%	0.4%
85,000	80,000	89,999	0.6%		0.2%	0.2%	0.3%	0.3%	0.3%
95,000	90,000	99,999	0.4%		0.2%	0.2%	0.3%	0.3%	0.3%
125,000	100,000	Above	1.3%		0.2%	0.2%	0.2%	0.2%	0.2%
			100.0%						

Table 6-14

TO TATOU VAI AUTHORITY
REVENUES AND COSTS BY CUSTOMER CLASS

	Scenario:	2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform			
	Currency:	New Zealand Dollar (NZD)			
	1	2	3	4	5
	2025 Effective Oct-24	2026 Effective Jul-25	2027 Effective Jul-26	2028 Effective Jul-27	2029 Effective Jul-28
WATER Utility					
Free Water Allocation					
Revenues	$ -	$ -	$ 218,394	$ 384,424	$ 480,425
Cost of Service	352,583	377,730	406,565	435,742	464,961
Net Revenues	(352,583)	(377,730)	(188,171)	(51,318)	15,464
Residential					
Revenues	448,664	674,016	804,761	887,793	897,943
Cost of Service	543,777	582,372	575,032	563,567	547,911
Net Revenues	(95,113)	91,644	229,729	324,226	350,032
Commercial/Industrial					
Revenues	498,542	891,749	978,365	1,104,068	1,146,503
Cost of Service	930,617	996,511	1,018,518	1,036,589	1,050,349
Net Revenues	(432,075)	(104,761)	(40,153)	67,479	96,154
Institutional					
Revenues	121,604	224,229	249,323	285,804	297,848
Cost of Service	168,533	180,275	184,051	187,109	189,382
Net Revenues	(46,929)	43,954	65,271	98,695	108,466
Agricultural					
Revenues	51,000	76,500	953,778	1,263,483	1,360,083
Cost of Service	1,520,621	1,626,589	1,660,686	1,688,297	1,708,833
Net Revenues	(1,469,621)	(1,550,089)	(706,908)	(424,814)	(348,750)
Tourism					
Revenues	438,468	819,640	916,803	1,058,058	1,104,693
Cost of Service	994,275	1,063,565	1,085,861	1,103,916	1,117,345
Net Revenues	(555,807)	(243,925)	(169,057)	(45,858)	(12,652)
Total					
Revenues	1,558,278	2,686,134	4,121,423	4,983,629	5,287,495
Cost of Service	4,510,406	4,827,043	4,930,712	5,015,220	5,078,781
Net Revenues	**(2,952,128)**	**(2,140,908)**	**(809,289)**	**(31,591)**	**208,714**
	-189.4%	-79.7%	-19.6%	-0.6%	3.9%

d. Tariff Scenario 2B – 5 Year Conservation Residential Volume Charge

The fourth tariff plan scenario assumes that TTV implements a tariff plan designed to ensure full cost recovery over a three-year period. This means that by FY 2028 revenues are forecast to be sufficient to cover TTV's cost of service, and a crown allocation will no longer be necessary. However, the crown would still be required to reimburse TTV for the cost of the free water allocation under this scenario.

All of the same assumptions as listed for Scenario 2A apply to this scenario. The only difference is that this scenario assumes that TTV implements a conservation-based Inverted Block tariff design for its residential customers. The concept behind this rate design is that as a residential customer uses more water, that customer's unit rate increases. This is intended to provide a financial incentive for the customer to use water in the most prudent manner possible. It also enables TTV to implement a lower unit rate for the first tier of usage, a tier that the majority of customer charges will not exceed.

Table 6-15 summarizes the five-year tariff plan recommended under this scenario. The table reveals that there are three residential tiers – 0-16 m3, 17-30 m3 and 31 and above m3. This means that all water bills up to and including the average monthly usage level of 16 m3 will be charged at the lowest tier. It is only customers whose usage is above the national average who pay the higher tiered charges.

The volumetric and base charges are the same for all other customer classes.

Table 6-16 presents the impact on monthly customer charges of this scenario. The usage levels are based on averages for the customer class as a whole. Particularly with the tourism and industrial classes, there can be a wide variation in monthly usage among customer accounts. Therefore the table is intended to provide a general guideline as to the financial impact of these scenarios.

Table 6-17 presents a calculation of household income required to fund the proposed tariff plan. Section 1 outlined how international agencies have generally defined "burdensome" tariffs as those exceeding 2.0% of household income.

Table 6-18 presents forecasts revenues and costs for each customer class under this scenario. Once again it shows that by FY 2028 TTV is forecast to recover sufficient revenues from each customer class to fund all costs without the need for Crown allocations.

Table 6-15

TO TATOU VAI AUTHORITY
PROPOSED TARIFF PLAN

Scenario:			**2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation**						
Currency:			**New Zealand Dollar (NZD)**						
		Current	**1 2025 Effective Oct-24**	**2 2026 Effective Jul-25**	**3 2027 Effective Jul-26**	**4 2028 Effective Jul-27**	**5 2029 Effective Jul-28**		
WATER Tariff									
Service Fee									
20 MM		$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00		
25 MM		-	42.50	42.50	42.50	42.50	42.50		
40 MM		-	63.75	63.75	63.75	63.75	63.75		
50 MM		-	85.00	85.00	85.00	85.00	85.00		
Volume Tariff -- Per Unit/Cubic Meter									
Free Water Allocation									
Residential									
-	16	-	-	-	0.350	0.500	0.700		
17	30	-	-	-	1.200	1.400	1.500		
31	Above	-	-	-	2.000	2.100	2.300		
Commercial/Industrial									
-	Above	-	0.900	1.150	1.350	1.650	1.800		
Institutional									
-	Above	-	0.900	1.150	1.350	1.650	1.800		
Agricultural									
-	Above	-	-	-	0.600	0.800	0.900		
Tourism									
-	Above	-	0.900	1.150	1.350	1.650	1.800		

Table 6-16

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	M3 - Total	M3 - Net of Free Water		2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation New Zealand Dollar (NZD) 1 2025 Effective Oct-24	2 2026 Effective Jul-25	3 2027 Effective Jul-26	4 2028 Effective Jul-27	5 2029 Effective Jul-28
Free Water Allocation (cubic meters)		10						
Residential -- Water Monthly Charge								
Total Charge	10	-	-	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00
Increase -- Dollars				**17.00**	**-**	**-**	**-**	**-**
Increase -- Percent				0.0%	0.0%	0.0%	0.0%	0.0%
Total Charge	16	6	-	$ 17.00	$ 17.00	$ 19.10	$ 20.00	$ 21.20
Increase -- Dollars				**17.00**	**-**	**2.10**	**0.90**	**1.20**
Increase -- Percent				0.0%	0.0%	12.4%	4.7%	6.0%
Total Charge	30	20	-	$ 17.00	$ 17.00	$ 41.00	$ 45.00	$ 47.00
Increase -- Dollars				**17.00**	**-**	**24.00**	**4.00**	**2.00**
Increase -- Percent				0.0%	0.0%	141.2%	9.8%	4.4%
Industrial 40mm -- Water Monthly Charge								
Total Charge	50	50	-	$ 108.75	$ 121.25	$ 131.25	$ 146.25	$ 153.75
Increase -- Dollars				**108.75**	**12.50**	**10.00**	**15.00**	**7.50**
Increase -- Percent				0.0%	11.5%	8.2%	11.4%	5.1%
Total Charge	100	100	-	$ 153.75	$ 178.75	$ 198.75	$ 228.75	$ 243.75
Increase -- Dollars				**153.75**	**25.00**	**20.00**	**30.00**	**15.00**
Increase -- Percent				0.0%	16.3%	11.2%	15.1%	6.6%
Tourism 50mm -- Water Monthly Charge								
Total Charge	500	500	-	$ 535.00	$ 660.00	$ 760.00	$ 910.00	$ 985.00
Increase -- Dollars				**535.00**	**125.00**	**100.00**	**150.00**	**75.00**
Increase -- Percent				0.0%	23.4%	15.2%	19.7%	8.2%
Total Charge	1,000	1,000	-	$ 985.00	$ 1,235.00	$ 1,435.00	$ 1,735.00	$ 1,885.00
Increase -- Dollars				**985.00**	**250.00**	**200.00**	**300.00**	**150.00**
Increase -- Percent				0.0%	25.4%	16.2%	20.9%	8.6%

Table 6-17

TO TATOU VAI AUTHORITY
PERCENT OF HOUSEHOLD INCOME REQUIRED TO FUND WATER CHARGES

				Scenario: Currency:	2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation New Zealand Dollar (NZD) 1 2025	2 2026	3 2027	4 2028	5 2029
Residential Charges -- 16 m3 (net 6 m3)									
Monthly					$ 17.00	$ 17.00	$ 19.10	$ 20.00	$ 21.20
Annual					204.00	204.00	229.20	240.00	254.40
				Percent of Household Income Required to Fund Water Charges					
		No Income	9.0%						
2,500	-	4,999	6.5%		8.2%	8.2%	9.2%	9.6%	10.2%
7,500	5,000	9,999	12.1%		2.7%	2.7%	3.1%	3.2%	3.4%
12,500	10,000	14,999	15.3%		1.6%	1.6%	1.8%	1.9%	2.0%
17,500	15,000	19,999	18.1%		1.2%	1.2%	1.3%	1.4%	1.5%
25,000	20,000	29,999	16.8%		0.8%	0.8%	0.9%	1.0%	1.0%
35,000	30,000	39,999	10.3%		0.6%	0.6%	0.7%	0.7%	0.7%
45,000	40,000	49,999	4.6%		0.5%	0.5%	0.5%	0.5%	0.6%
55,000	50,000	59,999	3.0%		0.4%	0.4%	0.4%	0.4%	0.5%
65,000	60,000	69,999	1.2%		0.3%	0.3%	0.4%	0.4%	0.4%
75,000	70,000	79,999	0.8%		0.3%	0.3%	0.3%	0.3%	0.3%
85,000	80,000	89,999	0.6%		0.2%	0.2%	0.3%	0.3%	0.3%
95,000	90,000	99,999	0.4%		0.2%	0.2%	0.2%	0.3%	0.3%
125,000	100,000	Above	1.3%		0.2%	0.2%	0.2%	0.2%	0.2%
			100.0%						

Table 6-18

TO TATOU VAI AUTHORITY
REVENUES AND COSTS BY CUSTOMER CLASS

	Scenario:	2024 06 05 TTV Tariff Scenario 2B -- 5 Year Conservation			
	Currency:	New Zealand Dollar (NZD)			
	1	2	3	4	5
	2025 Effective Oct-24	2026 Effective Jul-25	2027 Effective Jul-26	2028 Effective Jul-27	2029 Effective Jul-28
WATER Utility					
Free Water Allocation					
Revenues	$ -	$ -	$ 218,394	$ 384,424	$ 480,425
Cost of Service	352,583	377,730	406,605	435,765	465,024
Net Revenues	(352,583)	(377,730)	(188,211)	(51,341)	15,402
Residential					
Revenues	448,664	674,016	814,490	893,086	911,960
Cost of Service	543,777	582,372	575,089	563,597	547,986
Net Revenues	(95,113)	91,644	239,401	329,489	363,974
Commercial/Industrial					
Revenues	498,542	891,749	978,365	1,104,068	1,146,503
Cost of Service	930,617	996,511	1,018,618	1,036,644	1,050,491
Net Revenues	(432,075)	(104,761)	(40,253)	67,424	96,012
Institutional					
Revenues	121,604	224,229	249,323	285,804	297,848
Cost of Service	168,533	180,275	184,070	187,119	189,408
Net Revenues	(46,929)	43,954	65,253	98,685	108,440
Agricultural					
Revenues	51,000	76,500	953,778	1,263,483	1,360,083
Cost of Service	1,520,621	1,626,589	1,660,850	1,688,387	1,709,064
Net Revenues	(1,469,621)	(1,550,089)	(707,072)	(424,904)	(348,981)
Tourism					
Revenues	438,468	819,640	916,803	1,058,058	1,104,693
Cost of Service	994,275	1,063,565	1,085,968	1,103,974	1,117,496
Net Revenues	(555,807)	(243,925)	(169,164)	(45,916)	(12,803)
Total					
Revenues	1,558,278	2,686,134	4,131,153	4,988,923	5,301,512
Cost of Service	4,510,406	4,827,043	4,931,199	5,015,485	5,079,468
Net Revenues	**(2,952,128)**	**(2,140,908)**	**(800,046)**	**(26,562)**	**222,043**
	-189.4%	-79.7%	-19.4%	-0.5%	4.2%

Table 6-19 presents a comparison of monthly charges under each of the four scenarios. The table reveals that, as expected, charges are lower under the conservation scenarios for low use and higher for higher levels of usage.

Chart 6-20 and **Chart 6-21** compare TTV's proposed charges under Scenario 1A to other Pacific utilities, and to the cost of other necessities in the Cook Islands. The charts reveal that monthly charges under this scenario are lower for TTV than for almost all other Pacific utilities.

Table 6-19

TO TATOU VAI AUTHORITY
IMPACT ON MONTHLY CUSTOMER CHARGES

	Total	Net of Free Water	Current	2025 Effective Oct-24	2026 Effective Jul-25	2027 Effective Jul-26	2028 Effective Jul-27	2029 Effective Jul-28
Free Water Allocation (cubic meters)		10						
Residential -- Water Monthly Charge								
Scen 1A -- 3 Year	16	6	$ -	$ 17.00	$ 17.00	$ 22.10	$ 22.36	$ 22.46
Scen 1B -- 3 Year Conservation			-	17.00	17.00	20.00	20.15	20.21
Scen 2A -- 5 Year			-	17.00	17.00	20.60	21.80	22.40
Scen 2B -- 5 Year Conservation			-	17.00	17.00	19.10	20.00	21.20
Scen 1A -- 3 Year	30	20	$ -	$ 17.00	$ 17.00	$ 34.00	$ 34.85	$ 35.21
Scen 1B -- 3 Year Conservation			-	17.00	17.00	47.00	48.50	49.13
Scen 2A -- 5 Year			-	17.00	17.00	29.00	33.00	35.00
Scen 2B -- 5 Year Conservation			-	17.00	17.00	41.00	45.00	47.00
Commercial 40mm -- Water Monthly Charge								
Scen 1A -- 3 Year	50	50	$ -	$ 209.38	$ 229.38	$ 244.38	$ 248.63	$ 250.41
Scen 1B -- 3 Year Conservation			-	209.38	229.38	244.38	248.63	250.41
Scen 2A -- 5 Year			-	204.38	216.88	226.88	241.88	249.38
Scen 2B -- 5 Year Conservation			-	204.38	216.88	226.88	241.88	249.38
Tourism 50mm -- Water Monthly Charge								
Scen 1A -- 3 Year	500	500	$ -	$ 1,296.88	$ 1,496.88	$ 1,646.88	$ 1,689.38	$ 1,707.23
Scen 1B -- 3 Year Conservation			-	1,296.88	1,496.88	1,646.88	1,689.38	1,707.23
Scen 2A -- 5 Year			-	1,246.88	1,371.88	1,471.88	1,621.88	1,696.88
Scen 2B -- 5 Year Conservation			-	1,246.88	1,371.88	1,471.88	1,621.88	1,696.88

Chart 6-20

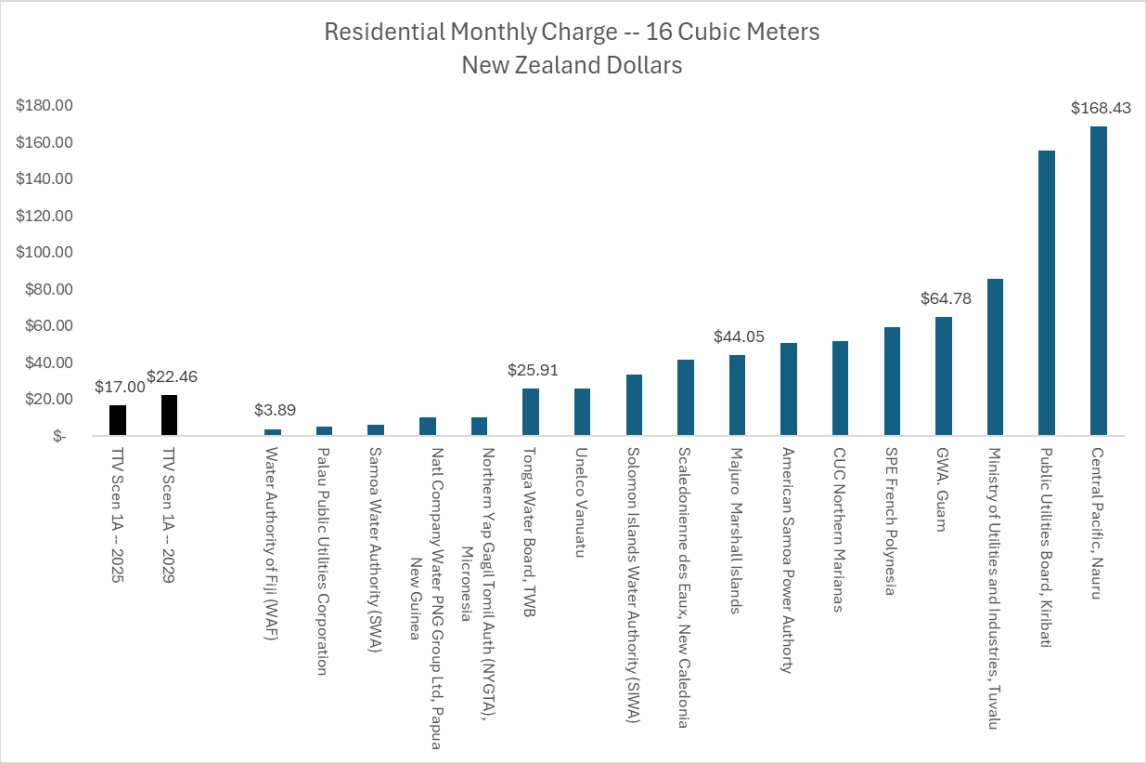
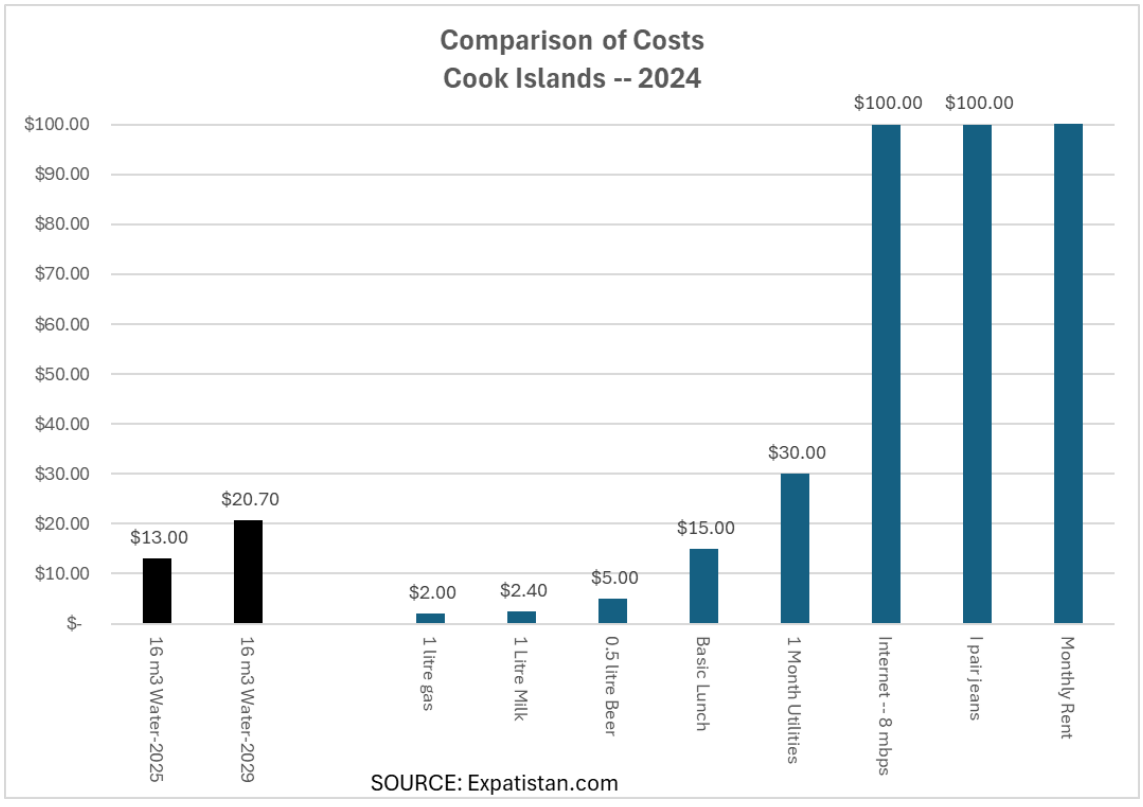


Chart 6-21



APPENDIX A

Contents

An Act to establish To Tatou Vai Authority.

(24 November 2021

The Parliament of the Cook Islands enacts as follows—

1 Title
This Act is the To Tatou Vai Act 2021.

2 Commencement
This Act comes into force on the day after the date it is assented to by the Queen's Representative.

3 Application
This Act applies only to Rarotonga.

Part 1
Preliminary matters

4 Purpose
The purposes of this Act are to—

(a) establish the To Tatou Vai Authority to provide water as a public service for the people of Rarotonga; and

(b) recognise the Government's social responsibility in the supply of water; and

(c) provide the Authority with financial independence so it can operate in an economically sustainable way as a not-for-profit utility; and

(d) recognise and embrace the ongoing role played by landowners of the Rarotonga catchments in making sure those areas provide clean, unpolluted water; and

(e) encourage informed management and decision-making that reconciles the Authority's need to be financially sustainable with the public need for water supplies to be affordable; and

(f) maintain the water distribution network for the island of Rarotonga with standards of reliability that will underpin economic growth and increase the resilience of the Rarotonga communities to disasters and the impacts of climate change; and

(g) require the Authority to be accountable to the CIIC.

5 Interpretation

In this Act, unless the context otherwise requires,—

access agreement means any agreement relating to the management of roads, water, sewage, or any combination of them in a valley entered into, whether before or after the commencement of this Act, by the landowners in the valley—

(a) under section 8 of the Infrastructure Act 2019; or

(b) with the Crown or CIGPC

Authority means To Tatou Vai Authority

Board means the Board of the Authority established by section 33

boil-water notice means a notice advising the reader that the water is not fit for drinking and should be boiled first

catchment committees means the committees established under Part 3

catchments mean the lands or parts of those lands, including the subsurface, from which water is collected in the wells, dams, intakes, galleries and other collection points used by the Authority to gather water in Rarotonga as more particularly set out and identified by crossed lines on the plans in Schedule 2

CEO means the Chief Executive Officer of the Authority appointed under section 47(1)

chairperson means the chairperson of the Board, appointed under section 33

CIGPC means the Cook Islands Government Property Corporation established under the Cook Islands Government Property Corporation Act 1969

CIIC means the Cook Islands Investment Corporation established under the Cook Islands Investment Corporation Act 1998

community water station means any place where the general public is invited to draw water from the network for the purposes of consumption

consumer means a person, whether or not a customer, who consumes or uses water that is supplied by the Authority

Crown land has the same meaning as in section 2(1) of the Cook Islands Act 1915

customary land has the same meaning as in section 2(1) of the Cook Islands Act 1915

customer means—

(a) a person who receives from the Authority,—

(i) water; or

(ii) any other service; or

(b) a person who is named (and has agreed, in writing, to be named) as the holder of a water connection of any sort to the network; or

(c) in the case of any vessel that receives water or any other service from the Authority,—

(i) for any supply provided on credit, the person who has, in writing, agreed to the terms of that supply on credit; and

(ii) for any supply paid for in advance or on delivery to the vessel, the master of the vessel

digital format has the same meaning as in section 3 of the Digital Registers Act 2011

emergency means any event that requires an emergency response from the Authority, whether by way of construction, rehabilitation, or repair, to avoid or prevent the threat of—

(a) contamination to the water supply; or

(b) loss of water to an extent that it may materially disrupt the service or the public; or

(c) the destruction of property or loss of life, arising from that event

full service zone means all areas of an island that are situated at an elevation that is less than 30 metres above the mean high water mark

hard copy format has the same meaning as in section 3 of the Digital Registers Act 2011

landowner means a person with an interest in native freehold land

mean high water mark has the same meaning as in section 2 of the Environment Act 2003

Minister means the Minister responsible for CIIC

native custom has the same meaning as in section 2(1) of the Cook Islands Act 1915

native freehold land has the same meaning as in section 2(1) of the Cook Islands Act 1915

network means the network of dams, intakes, galleries, other collection points, water mains, and associated infrastructure used by the Authority to collect and distribute water on the island of Rarotonga

potable has the same meaning as in section 3(1) of the Public Health Act 2004

recording officer means the recording officer appointed under section 46 of the Land (Facilitation of Dealings) Act 1970

Te Mato Vai means the comprehensive programme of works to upgrade the Rarotonga intakes, treatment facilities, and water mains, commenced in 2014

title, in relation to a catchment, means the lands in that catchment identified by order on investigation of title or order of partition made by the Land Court under the Cook Islands Act 1915, and set out in Schedule 3

uninvestigated land means customary land and, where land is not customary land, Crown land

valley is an area between peaks on Rarotonga that naturally cause water to flow into that area (as shown in Schedule 2)

works, in the case of activities carried out by the Authority, means waterworks and associated works, whether or not forming part of the network, that—

(a) are controlled and managed by the Authority under this Act; or

(b) the Authority may undertake in the future, either itself or by using contractors of the Authority; or

(c) may be acquired by the Authority in the future.

6 Act binds the Crown

This Act binds the Crown.

Part 2
To Tatou Vai Authority

7 Authority established

(1) The Authority is established as a body corporate with perpetual succession and a common seal.

(2) The functions of the Authority are, except where this Act specifies otherwise, limited to the island of Rarotonga.

8 Functions of Authority

The Authority has the following general functions:

(a) to collect, treat, and reticulate water for public supply in a reliable, efficient, and cost-effective way:

(b) to operate, build, and maintain systems, facilities and networks, as needed for that purpose:

(c) to meet any prescribed water supply and water quality standards:

(d) to consult with catchment committees to ensure the preservation and conservation of catchments for the continued supply of water:

(e) to recognise the rights and interests of landowners in the valleys through its compliance with the terms of access agreements:

(f) to promote public education and awareness of the need to preserve and conserve catchments:

(g) to identify new sources of water to meet future anticipated demand and, together with those who have rights in respect of the land over which that water sits or runs, develop those sources for the public good:

(h) to acquire or enter into agreements with CIIC to assume active management of CIGPC's rights to collect water and for the acquisition or use of systems and facilities owned by CIGPC and needed for the reticulation, filtration, and storage of water:

(i) any other functions given to the Authority by the Minister.

9 Powers of Authority

(1) Subject to the provisions of this Act and any other Act, the Authority has the powers of a natural person.

(2) The Authority has the power to enter into agreements with landowners in valleys.

(3) The powers of the Authority must be used only to perform its functions under this Act.

10 Power to borrow and charge property

The Authority may, in the manner provided in, and subject to, sections 53 and 59 of the Ministry of Finance and Economic Management Act 1995-96,—

(a) enter into, execute, and be bound by contracts to borrow money; and

(b) grant security of any sort over all or any of its undertakings (except a security over any fixture that is located on or in the subsoil of native land) where that is needed to secure money borrowed or obligations lawfully entered into or owed by the Authority.

Part 3
Landowners

Landowners and catchment committees

11 Relationship with landowners

(1) The Authority may enter into agreements with each catchment committee for the better preservation and conservation of the environment of that catchment, and to better secure the co-operation of those landowners in ensuring the continued supply of water.

(2) The Authority must comply with the terms of any agreement entered into with a catchment committee under this section.

Catchment committees

12 Purpose of catchment committees

(1) Catchment committees are established for the primary purpose of ensuring that no future structure, building, development, or other activity within each catchment adversely affects the water quality or the water supply operations of the Authority.

(2) Catchment committees are expected to achieve this purpose by—

(a) monitoring the catchment and maintaining oversight of activities within their catchment; and

(b) considering applications for activity within the catchment in accordance with sections 24 and 25.

13 Catchment committees and their members

(1) There must be a catchment committee for each catchment.

(2) The landowners on each title, all or part of which is included in a catchment, may, during the required period, appoint the number of members that appears next to the title in Schedule 3 to represent their interests on the catchment committee for that catchment.

(3) Appointments to catchment committees must follow the procedure set out in the Land Facilitation of Dealings) Act 1970 but—

(a) a notice of meeting of assembled owners need only state it is for the purpose of electing members to the catchment committee; and

(b) at any meeting of assembled owners the recording officer must take nominations from the floor; and

(c) the recording officer must record as elected those persons who receive the highest number of votes until the allocation of members for that title on the catchment committee is complete.

(4) In this section, **required period** means—

(a) in the case of a catchment committee in Rarotonga, the period ending 24 months after this Act comes into force:

(b) in the case of a vacancy in any catchment committee, a period of 9 months after the vacancy occurs.

(5) Where any catchment includes uninvestigated land, the persons who are, under native custom, entitled to occupation or ownership of that land may by majority decision elect 1 or more members (as provided in Schedule 3) to the catchment committee to represent the persons who are owners under native custom.

(6) Subject to sections 71 and 72, if the landowners on a title fail to appoint a person to be a member of a catchment committee within the required period, the Authority may appoint a person to the catchment committee to represent the interests of those landowners but the person appointed must be a landowner on that title.

(7) In the event of the partition of any title after the commencement of this Act the landowners of the partitioned title must continue to make appointments to the catchment committee after the partition, as if no partition had occurred.

14 Eligibility for appointment to catchment committee

Any person is eligible to be appointed as a member of a catchment committee.

15 Role of CEO

The CEO is a non-voting member of each catchment committee.

16 Term of voting members of catchment committee

(1) The voting members of every catchment committee hold office for a term of three years.

(2) Any member of a catchment committee is eligible for reappointment to the catchment committee on the expiry of their term of appointment.

(3) A vacancy that occurs before the end of a member's term of appointment continues until the expiry of the term unless the catchment committee resolves to hold a meeting of assembled owners to fill that vacancy.

(4) If a vacancy is filled in accordance with subsection (2) the term of the person appointed is the balance of the term remaining had the person they replaced been able to complete their term.

(5) If any person is absent without good cause from three successive meetings of the catchment committee that person is deemed to have resigned.

17 Other provisions about membership

(1) All members of a catchment committee appointed to fill vacancies caused by the retirement or resignation of any member must be appointed for a term of 3 years.

(2) Any member who vacates office under this section is eligible for re-election by the landowners on the title that the person represents.

(3) Despite anything to the contrary in section 16 or this section, every member of a catchment committee continues in office until a successor is appointed.

18 Calling meetings and payment of fees and various costs

(1) The Authority must pay the members of catchment committees (other than the CEO) the prescribed fees and allowances due to them.

(2) It is the responsibility of the Authority to call meetings of assembled landowners to elect members to catchment committees.

(3) The costs of and incidental to holding a meeting of assembled landowners to elect the members of a catchment committee must be met by the Authority.

19 No personal liability

A member of a catchment committee is not personally liable for the following:

(a) anything done (or not done) in good faith in the performance or exercise, or intended performance or exercise, of a function or power under this Act:

(b) anything done (or not done) in reliance on advice from the CEO:

(c) any action or omission to act by the Authority.

20 Meetings of catchment committees

(1) A catchment committee must at its first meeting appoint a member as chairperson who holds office as chairperson for that member's term of appointment.

(2) A catchment committee must meet if the chairperson or any 2 catchment committee members give to the other members of the catchment committee present in the Cook Islands not less than 7 days' notice.

(3) Any member of the catchment committee may call a meeting after 6 months has elapsed since the last meeting.

21 Quorums, etc

(1) The quorum for a meeting of the catchment committee is a majority of the voting members of the committee.

(2) If it is impracticable for a member of a catchment committee to attend a meeting of that catchment committee in person, that member is to be treated as in attendance at the meeting while that member can by telecommunication hear all words spoken by other members in attendance and all other members in attendance are able to hear anything that member says.

(3) Subject to the provisions of this section and section 24(2), each catchment committee must regulate its own procedure as it sees fit.

22 Minutes

(1) Minutes must be taken at all meetings of a catchment committee.

(2) Minutes may be stored in digital format as long as hard copy format can be easily produced from digital format.

23 Functions of catchment committees

A catchment committee has the following functions:

(a) to consider and determine applications made under section 24(1):

(b) to decide whether to approve the undertaking of works under sections 24(1) and 25(1):

(c) any functions delegated to that committee by the Authority.

24 Approval required of catchment committee

(1) No person may undertake any improvement, place any structure, construct any building, undertake horticultural or pastoral farming, or undertake any other activity on or over any land within a catchment that may adversely affect the water quality or water supply operations of the Authority without applying to the catchment committee and obtaining its approval to proceed with that activity.

(2) Approval for the purposes of subsection (1) or section 25(1) requires the consent of both of the following:

(a) a majority of the members of a catchment committee attending a meeting:

(b) a majority of the persons representing the landowners on the title where the activity is proposed to be undertaken.

(3) However consent must not be unreasonably withheld.

(4) No decision on an application made under subsection (1) or section 25(1) may be made before the CEO has been given an opportunity to give advice to the catchment committee.

(5) The CEO must ensure that all members of the catchment committee are provided in a timely manner with all information necessary to make an informed decision on any application.

25 Works undertaken by Authority

(1) The Authority may not carry out works that go beyond routine maintenance in any catchment without prior consultation with, and the approval of, the relevant catchment committee, except in the case of an emergency.

(2) In the event of an emergency, the Authority must notify all members of the catchment committee as soon as is reasonably practicable of what measures have been taken or will be taken in response to that emergency.

(3) If any works intended to be carried out by the Authority, other than works that are subject to the Infrastructure Act 2019, require the occupation of native freehold land, or any part of such land,—

(a) the prior consent of the majority of landowners of that land residing on Rarotonga must be obtained by the Authority; and

(b) if the works are to be carried out in a catchment, the prior approval of the catchment committee must be obtained by the Authority.

(4) The landowners may ask for compensation as a condition of any such approval.

Part 4
Operations

26 Tariffs and not-for-profit

(1) The Authority must operate the network on a not-for-profit basis.

(2) The Authority may—

(a) set and charge tariffs to customers for the supply of water; and

(b) set and impose charges for the connection of a water supply.

(3) The Authority may set tariffs and charges that differentiate between customers on the basis of—

(a) the amount of water used; and

(b) what the water will be used for.

(4) In setting tariffs, the Authority must take account of the need—

(a) for consumers to have supplies of a reasonable quantity of affordable water; and

(b) for the Authority to meet its actual and anticipated liabilities as they fall due; and

(c) to maintain the infrastructure on Rarotonga for water supply.

(5) The Authority must set charges with a view to—

(a) the costs of ongoing maintenance (including preventative maintenance), repair, replacement, and provision for upgrade of its waterworks in all aspects of infrastructure and service delivery; and

(b) servicing any loans taken out to meet those expenses (but excluding loans used to pay for Te Mato Vai); and

(c) prudently managing financial risks; and

(d) having regard for any reserves held by the Authority; and

(e) allowing for depreciation of any inventory which is, in the normal course, depreciated to a nil value over a term of 5 years or less.

(6) If the Authority imposes tariffs or charges they must be reviewed in advance on an annual basis. Once set, tariffs and charges may not be changed until the following year, except in accordance with section 31.

(7) Any funds received that are allocated to depreciation must be held in a reserve account established under the Ministry of Finance and Economic Management Act 1995-96 and any withdrawal from that account—

(a) requires—

(i) the signature of the Financial Secretary; and

(ii) the prior approval of Cabinet; and

(b) may only be used to carry out the objectives of this Act.

(8) The funds of the Authority are derived from—

(a) charges for water connections:

(b) tariffs:

(c) the Crown:

(d) advances or capital contributions from CIIC:

(e) income from the performance of contracts related to water supply.

27 Limitation of water supply

(1) The Authority may limit the supply of water to any customer if the customer fails to pay any sum to the Authority by the time it falls due for payment.

(2) The Authority may not limit the supply of water to less than the prescribed amount.

(3) The Authority must not restrict the water supply to a customer unless—

(a) the Authority has given to that customer, either by personal delivery or by leaving it in a prominent place on the relevant land to which the connection relates, a notice stating that payment is overdue and giving the customer not less than 1 month's notice to pay; and

(b) the invoice remains unpaid after that 1-month period expires.

(4) The Authority may only suspend the supply of water to any person where the Authority reasonably believes the supply of water to that person may—

(a) compromise the quality of the water in the network or any part of it; or

(b) damage the network or any part of it; or

(c) cause too much water to be removed from the network.

28 No transfer of Authority reserves

(1) No reserves of the Authority may be transferred to any government bank account, other than to carry out the objectives of this Act or where the payment is made to meet an obligation that the Authority has to pay money to the Crown.

(2) The Authority has no obligation to the Crown to meet all or any part of the costs of Te Mato Vai.

29 Customer connection

(1) Any owner may apply to the Authority for a connection to the network.

(2) Where the connection to the network lies within the full service zone the Authority must on the request of the owner supply a connection to the network.

(3) The Authority may on the request of the owner establish 1 or more connections to any land or building.

(4) If 2 or more connections are established, the Authority must separately meter those connections and may charge rates that reflect any differing use of each connection.

(5) In this section, **owner** means, in respect of—

(a) Crown land, CIIC:

(b) native freehold land that is neither leased nor the subject of an occupation right, each adult person who actually occupies the building on that land:

(c) leased land, each of the lessees named in the lease or, if that lease has been assigned, each of the assignees named in the most recent deed of assignment:

(d) an occupation right having 5 registered landowners or fewer, each of those landowners:

(e) an occupation right having 6 or more registered landowners, each of those landowners who resides in the Cook Islands, or, if no registered landowner resides in the Cook Islands, each adult who occupies the building on that land.

30 Obligation to manage fair allocation of available water

(1) The Authority must not abuse its dominant position in the marketplace in the supply of water.

(2) The Authority must make sure its supplies of water are made available to its customers on a fair basis.

(3) No person has the right to draw unlimited amounts of water from the Authority's network.

(4) The Authority may restrict the flow of water to—

(a) any connection where other uses, in the reasonable opinion of the Authority, take priority:

(b) any other connection that is, in the reasonable opinion of the Authority,—

(i) taking amounts of water that are unfair in relation to the needs of consumers as a whole; or

(ii) taking amounts of water that are adversely affecting other consumers in the vicinity of that connection.

(5) The Authority may, if it has reasonable grounds to believe that any customer has wasted a significant amount of water, terminate or limit the supply of water to that customer, on 24 hours' notice.

(6) The Authority may, if drought or other circumstances warrant it, impose restrictions on the use of water.

31 Obligation to supply free allocation of water for domestic use

(1) Despite **section 26(2)** the Authority must supply to all eligible customers with an eligible connection a free allocation of water up to the maximum amount specified in regulations for their domestic use.

(2) The sums that would have been payable to the Authority but for the supply of water without charge under **subsection (1)** are—

(a) a debt due to the Authority by the Crown; and

(b) payable to the Authority on the date that charge would have been payable by customers but for the requirement in **subsection (1)** to supply free water.

(3) In this section,—

domestic use means the non-commercial consumption and use of water in any occupied dwelling by the occupants of that dwelling

eligible connection means the registered connection that a person uses for the person's own domestic use

eligible customer means a person who has a registered connection with the Authority for that person's own domestic use.

Part 5
Governance

Policy setting

32 Authority's strategic plan

(1) The Board must set and adopt a strategic plan not less than once every 2 years.

(2) In developing its strategic plan, the Board must—

(a) publish, on an Internet site maintained by or on behalf of the Authority and in any other way it considers appropriate, a draft strategic plan for public comment, allowing in every case no less than 21 days for written submissions to be made; and

(b) deliver to the chairperson of each catchment committee a draft strategic plan for comment, and allow each catchment committee no less than 42 days for written submissions to be made; and

(c) consider the written submissions received, before deciding the final form of the policies and plans included in the strategic plan.

(3) The final version of each strategic plan prepared under this section must be published on an Internet site maintained by or on behalf of the Authority and in any other way it considers appropriate, and copies must be made available for public inspection at the head office of the Authority.

Membership and procedures of Board

33 Board of directors of Authority

(1) The Board has—

(a) overall control of the Authority; and

(b) exercises the powers and performs the functions of the Authority.

(2) The Board consists of not less than 5 nor more than 7 members (directors) who are appointed, subject to subsection (7), by the board of the CIIC.

(3) One of the members of the Board who satisfies the criteria in section 37 must be appointed as chairperson by the board of the Corporation.

(4) The members of the Board may at any time choose 1 person to be vice-chairperson and that person may perform all the functions of the chairperson in the chairperson's absence.

(5) The members of the Board must include persons of different gender.

(6) The Board must have directors who collectively satisfy all the criteria listed in section 35(3).

(7) The board of the CIIC must, if the Minister recommends the appointment of a person (other than a public servant) with the area of expertise specified in section 35(3)(d) (socio-economic expertise) as a director, appoint that person as a director.

(8) Subsections (2), (3) and (7) are subject to sections 35, 36, and 37.

34 Term of office of directors

(1) On the first appointment at least 2 directors must be appointed for terms of 2 years and at least 3 directors must be appointed for terms of 3 years.

(2) All appointments after the first appointments must be for a term not exceeding 3 years.

(3) However, no person may serve for more than 12 successive years as a director of the Board.

(4) A director whose term of office expires continues in office until—

(a) his or her successor is appointed; or

(b) he or she is given notice in writing from the Chairperson of the board of the CIIC that he or she will not be reappointed.

(5) A director is not entitled to compensation, severance, or other benefits on, or because of, ceasing to be a director for any reason.

35 Qualification for appointment as director

(1) A person must be at least 21 years old before he or she can be appointed as a director of the Board.

(2) A person must be registered on a database maintained by the CIIC under a profile that makes the person suitable for appointment as a director of the Board before he or she can be appointed as a director.

(3) Each director of the Board should preferably satisfy at least one of the following principles:

(a) knowledge and experience in either the management of a—

(i) sewerage reticulation network; or

(ii) water supply network:

(b) experience in governing organisations or policy expertise, and preferably in an organisation that performs public reticulation services:

(c) a degree with a major in accounting or finance:

(d) former or current experience as a lawyer, preferably with knowledge and experience in commercial law:

(e) former or current experience as the owner of 1 or more private sector businesses, with a track record of successfully operating those businesses:

(f) a good understanding of relevant socio-economic matters such as land tenure in the Cook Islands and social impacts on Cook Islanders.

(4) At least one director must be a landowner who has an interest in native freehold land in a valley.

36 Disqualifications for appointment as director

A person must not be appointed as a director of the Board if the person—

(a) has a medical or other condition that impairs his or her judgment, skills, or intellectual capacity:

(b) is a member of Parliament:

(c) has been convicted of an offence committed in any country punishable by a maximum term of imprisonment of 2 years or more:

(d) has a history of failing to repay debts on time to statutory entity:

(e) he or she has had more than a 30% shareholding or has been a director or manager of a company at the time when it entered into receivership or liquidation:

(f) is a shareholder, director, or manager of company or other business that—

(i) conducts similar activities to the business of the Authority; and

(ii) is likely to involve the person in recurring conflicts of interest.

37 Qualification for appointment as chairperson of the Board

A person must not be appointed as a chairperson of the Authority unless, in addition to satisfying at least one of the criteria in section 35, the person—

(a) has at least 2 years' experience as a director of a statutory corporation or a state owned enterprise; and

(b) has their primary place of residence in the Cook Islands.

38 Extraordinary vacancies

(1) Any director of the Authority, including the chairperson, may at any time be removed from office by the Chairperson of the board of the CIIC for disability, bankruptcy, neglect of duty, or misconduct, proved to the satisfaction of the Chairperson.

(2) The Chairperson must not remove any Director under subsection (1) without first consulting the Minister.

(3) A director ceases to hold office by operation of law if—

(a) he or she is elected as a member of Parliament:

(b) he or she is convicted of an offence in any country punishable by a maximum term of imprisonment of 2 years or more:

(c) he or she has more than a 30% shareholding or is a director or manager of a company that enters into receivership or liquidation:

(d) he or she becomes a shareholder, director or manager of a company or other business and is informed by the Chairperson of the board of the CIIC that—

(i) the company or other business conducts similar activities to those of the Authority; and

(ii) the director's involvement in that business is likely to lead to recurring conflicts of interest with his or her duties as a director of the Board.

(4) A director may at any time resign from office by giving written notice to the Chairperson of the board of the CIIC.

(5) If a director dies, resigns, is removed from office, or ceases to hold office by operation of law, the vacancy created is an extraordinary vacancy.

(6) An extraordinary vacancy must be filled in the same manner as the appointment of the vacating member.

(7) Every person appointed to fill an extraordinary vacancy must be appointed for the balance of the term for which that vacating member was appointed.

(8) For the purposes of subsection (1), misconduct includes, without limitation, conduct by a director that brings the Authority into disrepute.

39 Authority not affected by vacancies in membership

The powers of the Authority are not affected by a vacancy in the membership of its Board.

40 Meetings of Board

(1) Meetings of the Board may be held at times and places that the Board or the chairperson appoints.

(2) However,—

(a) the Board must meet at least once every 3 months; and

(b) the Board must meet more often if the directors think that is necessary to make sure the Board has proper oversight and control of the Authority.

(3) A special meeting must be called by the chairperson whenever 2 or more directors, in writing, request a meeting.

(4) A Board meeting may only be held if a quorum of the directors is present at the time and place appointed for the meeting.

(5) The quorum for a meeting of directors is 3 persons present in person, but those quorum requirements are deemed to be satisfied if 3 directors can simultaneously hear and speak to each other although they may not all be in the same place.

(6) A resolution signed by all directors, whether on 1 or more copies of that resolution, is deemed to be a resolution duly passed at a meeting.

41 Procedures at meeting

(1) At any Board meeting—

(a) decisions may be made by a simple majority of directors present and voting on the matter; and

(b) the chairperson of that meeting has a deliberative vote and a casting vote; and

(c) proper minutes must be kept of proceedings.

(2) The Board may regulate its procedure as it thinks fit, subject to—

(a) the provisions of this Act and other applicable laws; and

(b) written directives issued by the board of CIIC under section 23 of the Cook Islands Investment Corporation Act 1998.

(3) A copy of those written directives may be in either or both of the following:

(a) digital format:

(b) hard copy format.

42 Disclosure of interests

(1) This section applies to—

(a) each director of the Board; and

(b) the CEO; and

(c) the secretary of the Board; and

(d) every officer and employee of the Authority or CIIC who attends a Board meeting.

(2) A person to whom this section applies must keep information discussed by the Board confidential unless—

(a) the Board has authorised the disclosure of that information; or

(b) that information is disclosed under any applicable law; or

(c) it is in the commercial interests of the Authority for that information to be disclosed; or

(d) a court orders that information be disclosed; or

(e) there is an obligation to disclose that information under the Official Information Act 2008.

(3) The directors must maintain an interests register setting out all other interests, including all directorships and shareholding interests held in the Cook Islands.

(4) A person must disclose to a Board meeting any conflict of interest (direct or indirect) in matters discussed, or resolutions put, at that Board meeting.

(5) A disclosure must be recorded in the Board minutes and, unless all directors present decide otherwise, the person making that disclosure must leave the meeting while the Board discusses the matter.

(6) That absence does not affect the quorum of the Board.

43 Remuneration of directors

(1) The board of the CIIC must determine the remuneration to be paid for services as a director of the Board.

(2) Directors are also entitled to reimbursement of actual and reasonable travelling and other expenses where those have been incurred in performing functions and duties as a director.

(3) That remuneration and reimbursement must be paid from the operating budget of the Authority.

(4) Despite subsection (1), if a director of the Board is a public servant—

(a) his or her service as a director is not private sector work or service for the Government under sections 37 and 38 of the Public Service Act 2009; but

(b) his or her remuneration for services as a director must be determined under that Act.

44 Personal liability

(1) A director is not personally liable for any act or default done or made or omitted by him or her or by the Board or by any director in the course of the operations of the Board or the Authority, unless the director acted in bad faith or without reasonable care.

(2) Each director must be indemnified by the Authority—

(a) for costs or damages for any civil liability arising from any action brought by a third party, if the director was acting in good faith and with reasonable care in the course of operations of the Board or the Authority; and

(b) for costs arising from any successfully defended criminal prosecution, if the prosecution arose in the course of the operations of the Board or the Authority.

45 Secretary

(1) The CEO must arrange for an appropriately qualified employee to act as secretary to the Board.

(2) The secretary must keep full and accurate—

(a) minutes of all Board meetings (including a record of attendance); and

(b) details of resolutions passed; and

(c) details of voting on resolutions.

(3) The CEO must make sure copies of minutes are available to all directors within 7 days after a meeting.

(4) The secretary has care of the Authority's common seal, which must—

(a) be used only as directed by a Board resolution; and

(b) when used, be accompanied by the signatures of 2 directors.

46 Directors' general duties

A director must, when acting for the Authority, do so in a way that—

(a) is consistent with this Act and all other relevant laws; and

(b) takes into account directions that are properly given by CIIC; and

(c) otherwise advances the best interests of the Authority.

47 Human resources of Authority

(1) The Board must appoint a CEO of the Authority to carry out, under the supervision of the Board, the Authority's functions and exercise the Authority's powers.

(2) The CEO may—

(a) employ personnel; and

(b) contract on behalf of the Authority with independent contractors.

(3) The CEO must approve policies and procedures, not inconsistent with all applicable laws, to make sure—

(a) that he or she acts in all respects as a good employer; and

(b) that he or she uses independent contractors in an open, transparent, and fair way; and

(c) that the Authority's human resources policies are efficient and cost-effective.

48 Delegations

(1) The Board may delegate any of the functions or the powers of the Authority to the following (subject to any conditions that it thinks fit):

(a) the CEO:

(b) a catchment committee.

(2) The CEO may delegate any of his or her functions or powers (including any functions or powers delegated to the CEO under subsection (1)) to another employee of, or a contractor to, the Authority, subject to any conditions the CEO thinks fit.

(3) The Board may at any time revoke a delegation under subsection (1).

(4) The CEO may at any time revoke a delegation under subsection (2).

(5) The powers of the Board and the CEO to delegate under this section may not be delegated.

Financial reporting

49 Statement of corporate intent

(1) No later than 1 month before the start of each financial year, the Board must deliver the Authority's statement of corporate intent to CIIC and to each catchment committee for its consideration and approval.

(2) The Authority must not implement its statement of corporate intent until—

(a) each catchment committee has had a reasonable opportunity to comment on the statement (or any amended version of it); and

(b) the statement (or any amended version of it) has been approved by the board of CIIC.

(3) The Board must amend a statement if—

(a) CIIC requests an amendment; and

(b) that request is not contrary to this Act or any other law; and

(c) CIIC has given the Board an opportunity to explain why the amendment should not be made and, having done so, has confirmed its request.

(4) Each statement of corporate intent must adopt CIIC's policies that are set out in CIIC's own, current, statement of corporate intent.

(5) Each statement of corporate intent must specify, in respect of the next financial year and each of the 2 immediately following financial years,—

(a) the Authority's objectives; and

(b) the nature and scope of its activities; and

(c) measurable targets by which the Authority's performance can be assessed; and

(d) the Authority's intentions regarding the sale and purchase of assets; and

(e) what appropriation by Parliament (if any) is required; and

(f) any other matters that CIIC and the Authority have agreed should form part of a statement of corporate intent.

50 Annual report

(1) No later than 3 months after the end of each financial year, the Board must deliver to CIIC and each catchment committee a report of the Authority's operations during that financial year.

(2) That report must include—

(a) statements, current to the end of that financial year, of—

(i) financial position; and

(ii) financial performance; and

(iii) cashflows; and

(iv) borrowings; and

(v) other financial commitments; and

(b) the auditor's report on those statements; and

(c) an assessment of specific fiscal risks identified by the Board; and

(d) a comparison of the Authority's performance with the statement of corporate intent applicable to the reporting period.

51 Bank accounts

(1) The Authority may open and maintain bank accounts, in accordance with, and subject to, section 43 of the Ministry of Finance and Economic Management Act 1995-96, for the purposes of its operations.

(2) Every officer and employee of the Authority who receives money for the Authority must pay that money into one of those accounts as soon as practicable after receiving it.

(3) Without limiting subsection (2),—

(a) the Board, by resolution, may authorise any 2 of its officers, jointly, to operate any account; and

(b) at any time, and without the need for a resolution, the CEO and the chairman of the Board, jointly, may operate any account.

52 Financial reporting disciplines

(1) This section applies to—

(a) the financial data and forecasting that the Authority may choose to include in any statement of corporate intent; and

(b) each annual report.

(2) The Authority must make sure that when it provides financial data and forecasting, that information is accurate, full, and transparent.

(3) Without limiting subsection (2), each statement and report must—

(a) be prepared using generally accepted accounting practices and presented in a form that is consistent with those practices; and

(b) give full details of those practices and any related policies of the Authority; and

(c) include full and detailed estimates of—

(i) the value of the Authority's assets; and

(ii) the amount of the Authority's liabilities (actual and contingent); and

(iii) the value of CIGPC's investment in the Authority; and

(d) give full details of the way those estimates are assessed; and

(e) demonstrate compliance with the provisions of section 26; and

(f) separately identify payments received and charged under section 31; and

(g) so far as practicable, identify any other costs to the Authority in recognising the Government's social policy in its provision of water.

53 Risk management reports

(1) The Board must deliver quarterly risk management reports to the CIIC as soon as practicable after they are prepared.

(2) Each risk management report must—

(a) outline significant events occurring in the quarter covered by the report that may or will have a significant financial impact; and

(b) assess the nature and degree of risk caused by these events; and

(c) include advice on how these risks may be mitigated.

(3) The Board must immediately advise the CIIC of any event likely to create a significant financial risk for the Authority.

54 Accounts and records

The Authority must—

(a) keep proper accounts and records; and

(b) make sure payments are correctly made and properly authorised; and

(c) keep proper control of both its assets (and assets of others held by it) and its liabilities; and

(d) retain all records for a period of not less than 7 years.

55 Audit

(1) The accounts and records of the Authority must be audited annually by auditors appointed under Article 71 of the Constitution of the Cook Islands.

(2) The auditors must supply a report of the audit to—

(a) the Authority; and

(b) CIIC; and

(c) the Minister; and

(d) each catchment committee.

Part 6
Offences

56 Wasting water

(1) A person commits an offence if the person intentionally or recklessly wastes water under the control of the Authority or supplied by the Authority to the person.

(2) A person who commits an offence under subsection (1) is liable on conviction,—

(a) in the case of an individual, to a fine not exceeding $10,000, or to imprisonment for a term not exceeding 12 months, or both; or

(b) in any other case, to a fine not exceeding $50,000.

57 Fraudulent dealings with Authority

A person who, by false pretence or representation, defrauds the Authority of any charge, rental, or fee properly payable to the Authority for goods supplied or services rendered by the Authority commits an offence and is liable on conviction,—

(a) in the case of an individual, to a fine not exceeding $10,000, or to imprisonment for a term not exceeding 12 months, or both; or

(b) in any other case, to a fine not exceeding $50,000

58 Additional order by Court

The Court may also order that a person convicted under section 57 pay to the Authority an amount equivalent to the amount the Authority should have received had the fraud not been committed or any lesser sum that the Court decides.

59 Failure to obtain consent

Any person who carries out or causes to be carried out any activity that requires the consent of a catchment committee without obtaining that consent is liable on conviction,—

(a) in the case of an individual, to a fine not exceeding $100,000 or to imprisonment for a term not exceeding 5 years, or both; or

(b) in any other case, to a fine not exceeding $300,000.

60 Resale of water prohibited

(1) A customer must not resell any water received by that customer from the Authority.

(2) A customer must not supply any water received by that customer from the Authority to any third party if the customer knows, or suspects, that the third party is reselling that water.

(3) Subsections (1) and (2) do not apply to a customer who has received the prior written permission of the Authority to undertake reselling activity.

(4) The Authority may give or withhold permission in its discretion and if permission is granted, may impose conditions (including tariffs and charges) on that permission.

(5) A person commits an offence punishable on conviction by a fine not exceeding $5,000, if the person acts—

(a) contrary to this section:

(b) contrary to the terms of any permission granted.

Part 7
Water quality

61 Testing water

The Authority must, not less than monthly, test the water—

(a) it supplies to the public; and

(b) at any community water station.

62 Public notice

If at any time the quality of the water tested is not potable, the Authority must—

(a) in the case of a public supply, ensure that a boil-water notice in respect of the area or areas affected is published not less than once a month in a newspaper available for purchase on Rarotonga; and

(b) in the case of a community water station, place a boil-water notice in a prominent place at the community water station.

Part 8
General and miscellaneous provisions

Liability of employees, officers, Authority, and landowners is limited

63 Personal liability

(1) An officer and any other employee of the Authority is not personally liable for any act or default done or made or omitted by him or her in the course of their employment with the Authority unless that officer or employee has acted in bad faith.

(2) Each officer and any other employee of the Authority must be indemnified by the Authority—

(a) for costs or damages for any civil liability arising from any action brought by a third party, if the person was acting in good faith in the course of operations of the Board or the Authority; and

(b) for costs arising from any successfully defended criminal prosecution, if the prosecution arose in the course of his or her employment.

64 Liability of Authority limited

(1) The Authority must use its best efforts to provide a continuous service but is not liable for any interruption in service, or damage which any customer sustains because of the failure or partial failure of the network.

(2) Nothing in subsection (1) limits the Authority's liability under section 54 of the Infrastructure Act 2019.

65 Liability of Landowners limited

No landowner in any valley is liable for any loss, damage, cost, expense, liability, or debt because of damage to any property or injury to any person arising from the placement on, or the operation of, any works on that landowner's land where that loss, damage, cost, expense, liability, or debt did not arise from—

(a) any action that landowner undertook or caused to be undertaken; or

(b) any omission of the landowner to take some action that landowner was required to take at law.

66 Exemption from taxation

(1) The Authority is exempt from all taxes, duties, and levies (except VAT) and any other fees.

(2) To avoid doubt, subsection (1) does not apply to or in relation to any remuneration, benefits or expenses paid out of the funds of the Authority to a member of the Authority.

67 Subsidiary of CIIC

The Authority is a statutory corporation to which section 8 of the Cook Islands Investment Corporation Act 1998 applies.

Regulations

68 Regulations

The Queen's Representative may, by Order in Executive Council on the recommendation of the Minister, make regulations for 1 or more of the following purposes:

(a) to amend schedule 2, and where applicable schedule 3, to allow a title which is wholly or partly in a catchment or valley, but has been omitted, to be included:

(b) to require the Authority to provide advisory services to any persons within or outside of Rarotonga:

(c) to regulate the installation and use of any well, artesian water supply, desalination plant, underground water table, water tank, river, or stream, where rules are reasonably needed to protect the network:

(d) to regulate the volumes and quality of the water which passes through the network:

(e) to prescribe the maximum amount of water which over any specified period or periods of time must be supplied by the Authority at no cost under section 31(1):

(f) to prescribe the maximum reduction in supply permitted by the Authority under section 27(2):

(g) to prescribe fines for the breach of any regulations not exceeding $5,000, and for an ongoing offence not exceeding $1,000 per day:

(h) to prescribe the fees and allowances of members of each catchment committee and an annual operating budget for each catchment committee:

(i) to provide guidance and regulation in any matter that is properly a function or power of the Authority under this Act:

(j) to provide for any other matters contemplated by this Act, necessary for its full administration, or necessary for giving it full effect.

69 Amendments to other enactments

The enactments listed in Schedule 1 are amended as set out in that schedule.

Transitional and savings provisions

70 Transfers from To Tatou Vai Limited to Authority

On the date this Act comes into force,—

(a) the assets and liabilities of To Tatou Vai Limited, a company incorporated under the Companies Act 1970-71 and re-registered under the Companies Act 2017, become the assets and liabilities of the Authority; and

(b) the chief executive of To Tatou Vai Limited is deemed to be appointed as CEO of the Authority under section 47(1); and

(c) the staff and other officers of To Tatou Vai Limited are deemed to be employees of the Authority; and

(d) the Authority becomes a party to any contract or deed that To Tatou Vai Limited was a party to, in place of To Tatou Vai Limited; and

(e) To Tatou Vai Limited is deemed to be dissolved under section 92 of the Companies Act 1970-71.

71 Takuvaine Management Committee

(1) Until the landowners of each title in the catchment of Takuvaine appoints a member to represent them on the catchment committee the catchment committee is to be the management committee established under regulation 4 of the Environment (Takuvaine Water Catchment Management Plan) Regulations 2006.

(2) On and after the date landowners of all eligible titles have appointed a person to represent them on the catchment committee in Takuvaine that catchment committee is deemed to be the management committee established by the Environment (Takuvaine Water Catchment Management Plan) Regulations 2006.

72 Ngatoe Catchment Committee

Until the number of persons required to be appointed are appointed under section 13(5) to the catchment committee for Ngatoe, the following mataiapo are the catchment committee:

(a) Kaimarama:

(b) Tiotekai:

(c) Maiurau:

(d) Tui:

(e) Mataatau:

(f) Taoro:

(g) Pota.

Schedule 1
Amendments to other enactments

Cook Islands Investment Corporation Act 1998 (1998 No 3)

In section 2(1), definition of **statutory corporation**, insert after paragraph (e):

"(f) To Tatou Vai Authority established under the To Tatou Vai Act 2021:"

Environment (Takuvaine Water Catchment Management Plan) Regulations 2006)

In regulation 3, replace the definition of "area" with:

"**area** means the catchment for Takuvaine defined in Schedule 2 of the To Tatou Vai Act 2021:"

Revoke regulations 4, 6, 7, 8, 9 and 12.

Infrastructure Act 2019

In section 6, insert in its appropriate alphabetical order:

"**access agreement** has the same meaning as in section 5 of the To Tatou Vai Act 2021:"

After section 8, insert:

"**8A Compliance with access agreements**

Every infrastructure manager must comply with the terms and not do anything, or fail to do anything, in breach of any access agreement:"

Public Health Act 2004 (2004 No 13)

Replace sections 21 and 22 with:

"**21 Sampling and analysis of swimming pools**

"(1) A health inspector may at any time take a sample of water for analysis from any pool or place used for public swimming.

"(2) The Secretary may make arrangements for any employee of the Ministry of Health to forward that sample to an approved analyst for analysis.

"(3) On receiving the results of the analysis, the employee receiving them must immediately forward those results to the Secretary. If the pool or place is privately owned, the Secretary must give prompt written notice of the results to that owner.

"**22 Monitoring of reticulated water networks**

"(1) The Secretary must establish procedures for health inspectors—

(a) to take samples of water from any network of reticulated water; and

(b) to inspect water reticulation infrastructure for contamination risks that may be presented—

"(i) by that infrastructure:

"(ii) by the action or inaction of any person.

"(2) The Secretary must make sure those procedures provide monitoring and oversight of public health risks in a way that is both—

(a) regular and routine, and of a scale and extent that appropriately reflect the risks of contamination from intakes and other sources and from treatment plants and other infrastructure; and

(b) random, of a sort that is designed to defeat the efforts of any person to hide or disguise contamination or any failure of or non-compliance with appropriate procedures.

"**22A Sampling and analysis of reticulated water**

"(1) A health inspector may at any time take a sample of water for analysis from any part of a reticulated water supply.

"(2) The Secretary may make arrangements for any employee of the Ministry of Health to forward that sample to an approved analyst for analysis.

"(3) On receiving the results of the analysis, the employee receiving them must immediately forward those results to the Secretary. The Secretary must give prompt written notice of the results to the manager of that reticulated water supply.

"**22B Verification of samples**

"(1) A health inspector who takes a sample must, at the time of taking the sample or as soon afterwards as is practicable, make a written record of the date, time, and place at which the sample was taken. That record may take the form of 1 or more images stamped with date and time.

"(2) Every employee of the Ministry of Health and every analyst who has custody of the sample must keep a record with details that are sufficient to establish the chain of custody of the sample.

"**22C Publication of results and enforcement**

The Secretary must publish in a newspaper that is published not less than weekly and available for purchase by the general public in Rarotonga the results of any analysis, indicating whether or not, on the basis of the sample taken, the water is potable."

Land (Facilitation of Dealings) Act 1970 (1970 No 7)

After section 26, insert:

"**26A Body corporate to appoint members to catchment committees**

A body corporate under this part of this Act may appoint members to catchment committees established under the To Tatou Vai Act 2021."

After section 51(1)(h), insert:

"(i) That the owners of the land establish and/or appoint a member to a catchment committee pursuant to the To Tatou Vai Act 2021."

Replace section 51(2) with:

"(2) Other than a resolution passed under subsection (1)(i), a resolution passed by the assembled owners pursuant to this section does not have

any force or effect unless it is confirmed by the Court in accordance with this Act.

"(3) A resolution passed under subsection (1)(i) does not have any force or effect unless a copy of it is endorsed by the Registrar as conforming to the provisions of this Act."

Rarotonga Waterworks Ordinance 1960 (1960 No 11)
Repeal sections 6, 7, 8, 8A, and 10.

APPENDIX B

To Tatou Vai Authority

Tariff Analysis and Pro Forma Financial Forecast

Utility System

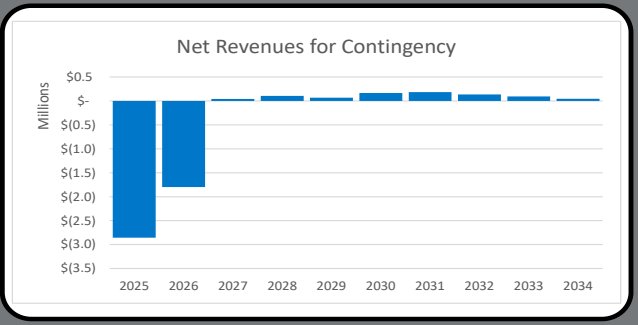
Total
Water
Sewer

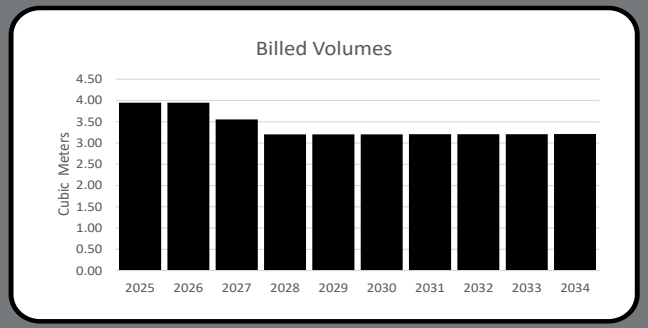
Dashboard

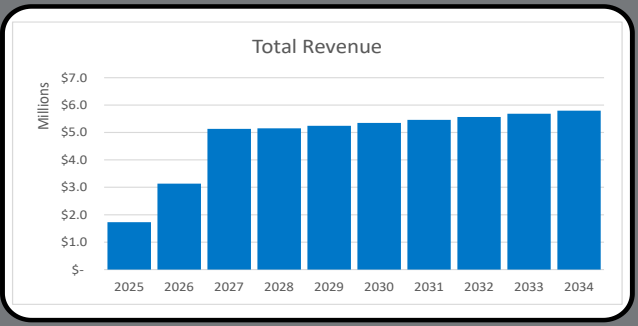
Cash Basis COS
GAAP Accounting

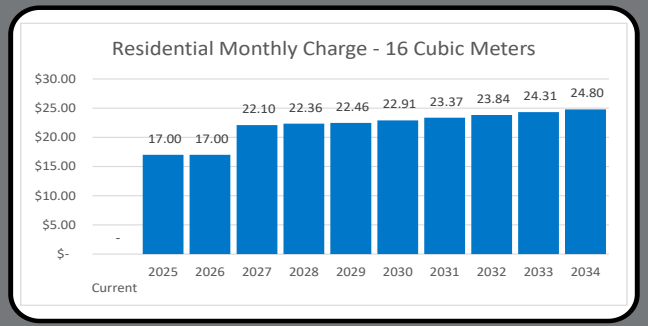
Years

10
5









Water Sewer

Cash Basis COS

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Proposed Tariff Plan
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

WATER Tariff

			Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Service Fee													
20 MM			$ -	**$ 17.00**	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
25 MM			-	**42.50**	42.50	42.50	42.50	42.50	43.35	44.22	45.10	46.00	46.92
40 MM			-	**63.75**	63.75	63.75	63.75	63.75	65.03	66.33	67.65	69.01	70.39
50 MM			-	**85.00**	85.00	85.00	85.00	85.00	86.70	88.43	90.20	92.01	93.85
Volume Tariff -- Per Unit/Cubic Meter													
Free Water Allocation													
-	Above		-	**-**	-	1.150	1.208	1.232	1.256	1.281	1.307	1.333	1.360
Residential													
-	Above		-	**-**	-	0.850	0.893	0.910	0.929	0.947	0.966	0.985	1.005
Commercial/Industrial													
-	Above		-	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010
Institutional													
-	Above		-	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010
Agricultural													
-	Above		-	**-**	-	0.850	0.893	0.910	0.929	0.947	0.966	0.985	1.005
Tourism													
-	Above		-	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Forecast Income Statement -- GAAP Accounting
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

Water -- Summary

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue										
Funding from Crown	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trading Revenue	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351
Other Revenue	-	-	-	-	-	-	-	-	-	-
Water -- Free Water Allocation	-	-	418,589	478,293	489,740	500,287	511,061	522,065	533,305	544,785
Water -- Customer Charges	1,658,921	3,044,996	4,599,851	4,561,476	4,645,535	4,739,378	4,836,789	4,936,201	5,037,654	5,141,191
Total Revenue	**1,727,336**	**3,131,795**	**5,129,791**	**5,151,120**	**5,246,626**	**5,351,016**	**5,459,201**	**5,569,616**	**5,682,310**	**5,797,328**
Expenditure										
Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
Personnel Costs	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
Operating Expenses	2,048,445	2,397,629	2,568,918	2,473,414	2,543,162	2,620,728	2,700,913	2,783,733	2,869,286	2,957,676
Debt Interest	-	-	-	-	-	-	-	-	-	-
EBITDA	-	-	-	-	-	-	-	-	-	-
Total Expenditure	**4,583,853**	**4,931,785**	**5,086,914**	**5,044,665**	**5,178,438**	**5,185,940**	**5,274,675**	**5,433,680**	**5,585,882**	**5,752,732**
Profit before Income Tax	(2,856,517)	(1,799,990)	42,877	106,455	68,188	165,076	184,526	135,937	96,428	44,595
Income Tax Expense	-	-	-	-	-	-	-	-	-	-
Profit/(Loss) for the year	**(2,856,517)**	**(1,799,990)**	**42,877**	**106,455**	**68,188**	**165,076**	**184,526**	**135,937**	**96,428**	**44,595**

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Forecast Income Statement -- GAAP Accounting
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

Water --Detail

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	Revenues										
R1	Funding from Crown	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
R2	Trading Revenue	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351
R3	Other Revenue	-	-	-	-	-	-	-	-	-	-
R4	Water -- Free Water Allocation	-	-	418,589	478,293	489,740	500,287	511,061	522,065	533,305	544,785
R5	Water -- Customer Charges	1,658,921	3,044,996	4,599,851	4,561,476	4,645,535	4,739,378	4,836,789	4,936,201	5,037,654	5,141,191
	Total Revenues	**1,727,336**	**3,131,795**	**5,129,791**	**5,151,120**	**5,246,626**	**5,351,016**	**5,459,201**	**5,569,616**	**5,682,310**	**5,797,328**
	Operating Expenses										
E1	Consultancy, Legal and Professional	27,200	27,800	28,460	29,314	30,193	31,099	32,032	32,993	33,983	35,002
E2	Bad and Doubtful Debts	82,946	152,250	250,922	251,988	251,628	256,744	262,045	267,455	272,977	278,613
E3	Directors Fees and Expenses	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355
E4	Fees Paid to Auditor	25,000	25,000	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747
E5	General	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399
E6	Insurance	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848
E7	Laboratory	118,400	118,400	118,400	113,989	117,443	121,002	124,668	128,446	132,338	136,348
E8	MFEM MCU Tater Stations	498,400	515,550	541,115	503,487	518,824	534,629	550,914	567,696	584,989	602,808
E9	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872
E10	Network Operations	323,996	415,976	423,254	393,822	405,818	418,180	430,919	444,045	457,571	471,509
E11	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010
E12	Rental and Operating Lease Costs	-	-	-	-	-	-	-	-	-	-
E13	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-
E14	Staff Training and Recruitment	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166
E15	Treatment Operations	466,228	626,378	649,903	604,710	623,131	642,113	661,672	681,828	702,597	723,999
E16	Other Operating	-	-	-	-	-	-	-	-	-	-
	Sub-Total	2,048,445	2,397,629	2,568,918	2,473,414	2,543,162	2,620,728	2,700,913	2,783,733	2,869,286	2,957,676
	Personnel Expenses										
E17	Salaries and Wages	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
E18	Defined Contribution Plan	-	-	-	-	-	-	-	-	-	-
E19	Accrued Salaries and Wages	-	-	-	-	-	-	-	-	-	-
E20	Annual Leave	-	-	-	-	-	-	-	-	-	-
E21	Other Allowances	-	-	-	-	-	-	-	-	-	-
	Sub-Total	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
	Total operating expenses	**4,304,775**	**4,653,959**	**4,825,248**	**4,797,434**	**4,936,902**	**5,086,281**	**5,240,433**	**5,399,438**	**5,563,462**	**5,732,677**
		-	-	-	-	-	-	-	-	-	-
	Net Revenues for CAPEX	**(2,577,439)**	**(1,522,164)**	**304,543**	**353,686**	**309,724**	**264,735**	**218,768**	**170,179**	**118,848**	**64,650**
	CAPEX Expenses										
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
	Debt Interest -- Current	-	-	-	-	-	-	-	-	-	-
	Debt Interest --Forecast	-	-	-	-	-	-	-	-	-	-
	EBITDA	-	-	-	-	-	-	-	-	-	-
	Return on Equity	-	-	-	-	-	-	-	-	-	-
	Total CAPEX Expenses	**279,078**	**277,826**	**261,666**	**247,231**	**241,536**	**99,659**	**34,242**	**34,242**	**22,420**	**20,055**
	Total Expenditure	4,583,853	4,931,785	5,086,914	5,044,665	5,178,438	5,185,940	5,274,675	5,433,680	5,585,882	5,752,732
	Net income (loss) before capital contributions	**(2,856,517)**	**(1,799,990)**	**42,877**	**106,455**	**68,188**	**165,076**	**184,526**	**135,937**	**96,428**	**44,595**
		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary -- COS by Customer Class

Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**

Currency: New Zealand Dollar (NZD)

WATER Utility -- Total Revenues

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Free Water Allocation	$ -	$ -	$ 418,589	$ 478,293	$ 489,740	$ 500,287	$ 511,061	$ 522,065	$ 533,305	$ 544,785
Residential	448,664	674,016	837,331	867,961	874,975	892,689	911,912	931,547	951,603	972,089
Commercial/Industrial	539,909	1,039,440	1,128,361	1,087,697	1,109,002	1,132,094	1,155,990	1,180,389	1,205,301	1,230,738
Institutional	133,771	267,573	293,275	280,977	286,861	292,568	298,420	304,388	310,476	316,685
Agricultural	51,000	76,500	1,253,899	1,285,474	1,312,544	1,338,667	1,365,441	1,392,749	1,420,604	1,449,017
Tourism	485,577	987,467	1,086,986	1,039,367	1,062,153	1,083,359	1,105,027	1,127,127	1,149,670	1,172,663
Total	**1,658,921**	**3,044,996**	**5,018,440**	**5,039,769**	**5,135,275**	**5,239,665**	**5,347,850**	**5,458,265**	**5,570,959**	**5,685,977**

WATER Utility -- Revenue Increase

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Free Water Allocation		$ -	$ 418,589	$ 59,705	$ 11,447	$ 10,547	$ 10,773	$ 11,004	$ 11,240	$ 11,481
Residential		225,352	163,315	30,630	7,013	17,714	19,223	19,635	20,056	20,486
Commercial/Industrial		499,531	88,921	(40,664)	21,306	23,092	23,896	24,399	24,912	25,437
Institutional		133,802	25,702	(12,298)	5,885	5,707	5,851	5,968	6,088	6,210
Agricultural		25,500	1,177,399	31,576	27,069	26,123	26,773	27,309	27,855	28,412
Tourism		501,890	99,518	(47,619)	22,785	21,207	21,667	22,101	22,543	22,993
Total		**1,386,075**	**1,873,926**	**68,948**	**72,720**	**83,184**	**86,517**	**88,315**	**90,151**	**92,024**

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary-- WATER Utility

Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**

Currency: New Zealand Dollar (NZD)

		Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
5	**Water System Revenues and Cost of Service**											
	Beginning Cash Accumulation	$ 10,000	$ (2,846,517)	$ (4,646,507)	$ (4,603,630)	$ (4,497,175)	$ (4,428,987)	$ (4,263,911)	$ (4,079,385)	$ (3,943,448)	$ (3,847,020)	
	Water Tariff Revenues											
	Free Water Allocation	$ -	$ -	$ 418,589	$ 478,293	$ 489,740	$ 500,287	$ 511,061	$ 522,065	$ 533,305	$ 544,785	
	Residential	448,664	674,016	837,331	867,961	874,975	892,689	911,912	931,547	951,603	972,089	
	Commercial/Industrial	539,909	1,039,440	1,128,361	1,087,697	1,109,002	1,132,094	1,155,990	1,180,389	1,205,301	1,230,738	
	Institutional	133,771	267,573	293,275	280,977	286,861	292,568	298,420	304,388	310,476	316,685	
	Agricultural	51,000	76,500	1,253,899	1,285,474	1,312,544	1,338,667	1,365,441	1,392,749	1,420,604	1,449,017	
	Tourism	485,577	987,467	1,086,986	1,039,367	1,062,153	1,083,359	1,105,027	1,127,127	1,149,670	1,172,663	
	Other 12	-	-	-	-	-	-	-	-	-	-	
	Sub-Total	1,658,921	3,044,996	5,018,440	5,039,769	5,135,275	5,239,665	5,347,850	5,458,265	5,570,959	5,685,977	
	Water Non-Tariff Revenues	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351	
	Total Water Revenues	**1,727,336**	**3,131,795**	**5,129,791**	**5,151,120**	**5,246,626**	**5,351,016**	**5,459,201**	**5,569,616**	**5,682,310**	**5,797,328**	
	Operating Expenses (OPEX)											
1A	Payroll Expenses	$ 2,256,330	$ 2,256,330	$ 2,256,330	$ 2,324,020	$ 2,393,740	$ 2,465,553	$ 2,539,519	$ 2,615,705	$ 2,694,176	$ 2,775,001	
2A	Water Intake Expenses	469,000	484,650	508,565	473,201	487,615	502,469	517,775	533,547	549,799	566,547	
2B	Pump Stations	15,000	16,500	18,150	16,888	17,402	17,932	18,479	19,042	19,622	20,219	
2C	Water Stations -- COVID 19	14,400	14,400	14,400	13,399	13,807	14,227	14,661	15,107	15,568	16,042	
2D	Water Treatment Expenses	466,228	626,378	649,903	604,710	623,131	642,113	661,672	681,828	702,597	723,999	
2E	Water Quality	80,000	80,000	80,000	74,437	76,704	79,041	81,449	83,930	86,486	89,121	
2F	Network and Distribution	323,996	415,976	423,254	393,822	405,818	418,180	430,919	444,045	457,571	471,509	
2G	Admin and General Expenses	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399	
2H	Recruitment Costs	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166	
2I	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872	
2J	Insurance Expenses	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848	
2K	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-	
2L	Prof Development and Training	-	-	-	-	-	-	-	-	-	-	
2M	Directors Fees	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355	
2N	Professional Services	90,600	91,200	91,860	94,616	97,454	100,378	103,389	106,491	109,686	112,976	
2O	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010	
3A	Doubtful Debts	82,946	152,250	250,922	251,988	251,628	256,744	262,045	267,455	272,977	278,613	
4A	EBITDA	-	-	-	-	-	-	-	-	-	-	
	Total Operating Expenses -- OPEX	4,304,775	4,653,959	4,825,248	4,797,434	4,936,902	5,086,281	5,240,433	5,399,438	5,563,462	5,732,677	
	Net Revenues Available for Debt and CAPEX	**(2,577,439)**	**(1,522,164)**	**304,543**	**353,686**	**309,724**	**264,735**	**218,768**	**170,179**	**118,848**	**64,650**	
	Capital Expenses (CAPEX)											
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055	
	Debt Service -- Current	-	-	-	-	-	-	-	-	-	-	
	Debt Service -- Forecast	-	-	-	-	-	-	-	-	-	-	
	Return on Equity	-	-	-	-	-	-	-	-	-	-	
	Total Capital Expenses -- CAPEX	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055	
	Total Cost of Service	**4,583,853**	**4,931,785**	**5,086,914**	**5,044,665**	**5,178,438**	**5,185,940**	**5,274,675**	**5,433,680**	**5,585,882**	**5,752,732**	
	Net Revenues for Contingency	**(2,856,517)**	**(1,799,990)**	**42,877**	**106,455**	**68,188**	**165,076**	**184,526**	**135,937**	**96,428**	**44,595**	
	Percent of Revenues	-165.4%	-57.5%	0.8%	2.1%	1.3%	3.1%	3.4%	2.4%	1.7%	0.8%	
	Ending Cash Accumulation	**(2,846,517)**	**(4,646,507)**	**(4,603,630)**	**(4,497,175)**	**(4,428,987)**	**(4,263,911)**	**(4,079,385)**	**(3,943,448)**	**(3,847,020)**	**(3,802,425)**	
	Financial Ratios											
	Debt Coverage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
	Cash Accum -- Days of Operating Expenses	(241)	(364)	(348)	(342)	(327)	(306)	(284)	(267)	(252)	(242)	
	Effective Cost Per Cubic Meter	$ 1.16	$ 1.25	$ 1.43	$ 1.58	$ 1.62	$ 1.62	$ 1.65	$ 1.69	$ 1.74	$ 1.79	

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary -- COS by Customer Class
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
WATER Utility										
Free Water Allocation										
Revenues	$ -	$ -	$ 418,589	$ 478,293	$ 489,740	$ 500,287	$ 511,061	$ 522,065	$ 533,305	$ 544,785
Cost of Service	352,972	379,130	433,038	477,541	491,001	492,239	501,366	517,341	532,685	549,486
Net Revenues	(352,972)	(379,130)	(14,450)	752	(1,261)	8,048	9,694	4,724	620	(4,701)
Residential										
Revenues	448,664	674,016	837,331	867,961	874,975	892,689	911,912	931,547	951,603	972,089
Cost of Service	544,395	584,550	557,541	505,546	519,598	520,712	530,167	546,853	562,862	580,397
Net Revenues	(95,731)	89,466	279,791	362,416	355,377	371,977	381,745	384,694	388,742	391,692
Commercial/Industrial										
Revenues	539,909	1,039,440	1,128,361	1,087,697	1,109,002	1,132,094	1,155,990	1,180,389	1,205,301	1,230,738
Cost of Service	931,662	1,000,223	1,027,825	1,019,737	1,047,977	1,050,119	1,069,081	1,102,620	1,134,786	1,170,025
Net Revenues	(391,754)	39,217	100,536	67,960	61,025	81,976	86,910	77,769	70,515	60,713
Institutional										
Revenues	133,771	267,573	293,275	280,977	286,861	292,568	298,420	304,388	310,476	316,685
Cost of Service	168,720	180,944	185,719	184,042	188,939	189,125	192,337	198,162	203,728	209,834
Net Revenues	(34,949)	86,629	107,556	96,935	97,922	103,443	106,083	106,226	106,747	106,851
Agricultural										
Revenues	51,000	76,500	1,253,899	1,285,474	1,312,544	1,338,667	1,365,441	1,392,749	1,420,604	1,449,017
Cost of Service	1,522,301	1,632,618	1,675,728	1,660,617	1,704,829	1,706,535	1,735,544	1,788,134	1,838,389	1,893,512
Net Revenues	(1,471,301)	(1,556,118)	(421,830)	(375,143)	(392,285)	(367,868)	(370,103)	(395,384)	(417,784)	(444,496)
Tourism										
Revenues	485,577	987,467	1,086,986	1,039,367	1,062,153	1,083,359	1,105,027	1,127,127	1,149,670	1,172,663
Cost of Service	995,388	1,067,522	1,095,712	1,085,831	1,114,742	1,115,859	1,134,829	1,169,218	1,202,081	1,238,126
Net Revenues	(509,810)	(80,055)	(8,726)	(46,464)	(52,590)	(32,500)	(29,803)	(42,091)	(52,411)	(65,463)
Total										
Revenues	1,658,921	3,044,996	5,018,440	5,039,769	5,135,275	5,239,665	5,347,850	5,458,265	5,570,959	5,685,977
Cost of Service	4,515,438	4,844,986	4,975,563	4,933,314	5,067,087	5,074,589	5,163,324	5,322,329	5,474,531	5,641,381
Net Revenues	**(2,856,517)**	**(1,799,990)**	**42,877**	**106,455**	**68,188**	**165,076**	**184,526**	**135,937**	**96,428**	**44,595**
	-172.2%	-59.1%	0.9%	2.1%	1.3%	3.2%	3.5%	2.5%	1.7%	0.8%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

WATER Tariff

		Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Service Fee												
15 MM		$ -	**$ 17.00**	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
20 MM		-	**17.00**	17.00	17.00	17.00	17.00	17.34	17.69	18.04	18.40	18.77
25 MM		-	**42.50**	42.50	42.50	42.50	42.50	43.35	44.22	45.10	46.00	46.92
40 MM		-	**63.75**	63.75	63.75	63.75	63.75	65.03	66.33	67.65	69.01	70.39
50 MM		-	**85.00**	85.00	85.00	85.00	85.00	86.70	88.43	90.20	92.01	93.85
Volume Tariff -- Per Cubic Meters												
Free Water Allocation												
-	Above	-	**-**	-	1.150	1.208	1.232	1.256	1.281	1.307	1.333	1.360
Residential												
-	Above	-	**-**	-	0.850	0.893	0.910	0.929	0.947	0.966	0.985	1.005
Commercial/Industrial												
-	Above	-	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010
Institutional												
-	Above	**-**	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010
Agricultural												
-	Above	-	**-**	-	0.850	0.893	0.910	0.929	0.947	0.966	0.985	1.005
Tourism												
-	Above	-	**1.000**	1.400	1.700	1.785	1.821	1.857	1.894	1.932	1.971	2.010

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

	Gallons -- Total	Total	Net of Free Water	Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	Free Water Allocation (cubic meters):		10											
Residential -- Water Monthly Charge														
Total Charge	2,642	10	-	$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
Increase -- Dollars					**17.00**	**-**	**-**	**-**	**-**	**0.34**	**0.35**	**0.35**	**0.36**	**0.37**
Increase -- Percent					0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	4,227	16	6	-	17.00	17.00	22.10	22.36	22.46	22.91	23.37	23.84	24.31	24.80
Increase -- Dollars					**17.00**	**-**	**5.10**	**0.25**	**0.11**	**0.45**	**0.46**	**0.47**	**0.48**	**0.49**
Increase -- Percent					0.0%	0.0%	30.0%	1.2%	0.5%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	7,925	30	20	-	17.00	17.00	34.00	34.85	35.21	35.91	36.63	37.36	38.11	38.87
Increase -- Dollars					**17.00**	**-**	**17.00**	**0.85**	**0.36**	**0.70**	**0.72**	**0.73**	**0.75**	**0.76**
Increase -- Percent					0.0%	0.0%	100.0%	2.5%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	13,209	50	40	-	17.00	17.00	51.00	52.70	53.41	54.48	55.57	56.68	57.82	58.97
Increase -- Dollars					**17.00**	**-**	**34.00**	**1.70**	**0.71**	**1.07**	**1.09**	**1.11**	**1.13**	**1.16**
Increase -- Percent					0.0%	0.0%	200.0%	3.3%	1.4%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	26,417	100	90	-	17.00	17.00	93.50	97.33	98.93	100.91	102.93	104.99	107.09	109.23
Increase -- Dollars					**17.00**	**-**	**76.50**	**3.83**	**1.61**	**1.98**	**2.02**	**2.06**	**2.10**	**2.14**
Increase -- Percent					0.0%	0.0%	450.0%	4.1%	1.7%	2.0%	2.0%	2.0%	2.0%	2.0%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact

Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**

Currency: New Zealand Dollar (NZD)

					Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Industrial 40mm -- Water Monthly Charge															
Total Charge	2,642	10	10		-	73.75	77.75	80.75	81.60	81.96	83.60	85.27	86.97	88.71	90.49
Increase -- Dollars						**73.75**	**4.00**	**3.00**	**0.85**	**0.36**	**1.64**	**1.67**	**1.71**	**1.74**	**1.77**
Increase -- Percent						0.0%	5.4%	3.9%	1.1%	0.4%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	13,209	50	50		-	113.75	133.75	148.75	153.00	154.79	157.88	161.04	164.26	167.54	170.90
Increase -- Dollars						**113.75**	**20.00**	**15.00**	**4.25**	**1.79**	**3.10**	**3.16**	**3.22**	**3.29**	**3.35**
Increase -- Percent						0.0%	17.6%	11.2%	2.9%	1.2%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	26,417	100	100		-	163.75	203.75	233.75	242.25	245.82	250.74	255.75	260.87	266.08	271.41
Increase -- Dollars						**163.75**	**40.00**	**30.00**	**8.50**	**3.57**	**4.92**	**5.01**	**5.12**	**5.22**	**5.32**
Increase -- Percent						0.0%	24.4%	14.7%	3.6%	1.5%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	66,043	250	250		-	313.75	413.75	488.75	510.00	518.93	529.30	539.89	550.69	561.70	572.94
Increase -- Dollars						**313.75**	**100.00**	**75.00**	**21.25**	**8.92**	**10.38**	**10.59**	**10.80**	**11.01**	**11.23**
Increase -- Percent						0.0%	31.9%	18.1%	4.3%	1.7%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	132,086	500	500		-	563.75	763.75	913.75	956.25	974.10	993.58	1,013.45	1,033.72	1,054.40	1,075.49
Increase -- Dollars						**563.75**	**200.00**	**150.00**	**42.50**	**17.85**	**19.48**	**19.87**	**20.27**	**20.67**	**21.09**
Increase -- Percent						0.0%	35.5%	19.6%	4.7%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**
Currency: New Zealand Dollar (NZD)

					Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tourism 50mm -- Water Monthly Charge															
Total Charge	26,417	100	100		-	185.00	225.00	255.00	263.50	267.07	272.41	277.86	283.42	289.09	294.87
Increase -- Dollars						**185.00**	**40.00**	**30.00**	**8.50**	**3.57**	**5.34**	**5.45**	**5.56**	**5.67**	**5.78**
Increase -- Percent						0.0%	21.6%	13.3%	3.3%	1.4%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	66,043	250	250		-	335.00	435.00	510.00	531.25	540.18	550.98	562.00	573.24	584.70	596.40
Increase -- Dollars						**335.00**	**100.00**	**75.00**	**21.25**	**8.92**	**10.80**	**11.02**	**11.24**	**11.46**	**11.69**
Increase -- Percent						0.0%	29.9%	17.2%	4.2%	1.7%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	264,172	1,000	1,000		-	1,085.00	1,485.00	1,785.00	1,870.00	1,905.70	1,943.81	1,982.69	2,022.34	2,062.79	2,104.05
Increase -- Dollars						**1,085.00**	**400.00**	**300.00**	**85.00**	**35.70**	**38.11**	**38.88**	**39.65**	**40.45**	**41.26**
Increase -- Percent						0.0%	36.9%	20.2%	4.8%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	528,344	2,000	2,000		-	2,085.00	2,885.00	3,485.00	3,655.00	3,726.40	3,800.93	3,876.95	3,954.49	4,033.58	4,114.25
Increase -- Dollars						**2,085.00**	**800.00**	**600.00**	**170.00**	**71.40**	**74.53**	**76.02**	**77.54**	**79.09**	**80.67**
Increase -- Percent						0.0%	38.4%	20.8%	4.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	792,516	3,000	3,000		-	3,085.00	4,285.00	5,185.00	5,440.00	5,547.10	5,658.04	5,771.20	5,886.63	6,004.36	6,124.45
Increase -- Dollars						**3,085.00**	**1,200.00**	**900.00**	**255.00**	**107.10**	**110.94**	**113.16**	**115.42**	**117.73**	**120.09**
Increase -- Percent						0.0%	38.9%	21.0%	4.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Forecast Period
2025 -- 2034

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

VOLUMES and CUSTOMERS by Class

Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**

Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Customer Classes -- Base Annual Volume -- m3										
Free Water Allocation	395,880	396,480	397,080	397,680	398,280	398,880	399,480	400,080	400,680	401,280
Residential	361,124	361,672	286,404	218,488	218,818	219,147	219,477	219,807	220,136	220,466
Commercial/Industrial	621,178	621,856	560,349	504,924	505,474	506,023	506,573	507,122	507,671	508,221
Institutional	182,500	182,500	164,250	147,825	147,825	147,825	147,825	147,825	147,825	147,825
Agricultural	1,679,000	1,679,000	1,511,100	1,359,990	1,359,990	1,359,990	1,359,990	1,359,990	1,359,990	1,359,990
Tourism	706,640	706,640	635,976	572,378	572,378	572,378	572,378	572,378	572,378	572,378
Total System	3,946,322	3,948,148	3,555,159	3,201,286	3,202,765	3,204,244	3,205,723	3,207,202	3,208,681	3,210,160
Annual Percent Increase/(Decrease)		0.05%	-9.95%	-9.95%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%
Percent of Total										
Free Water Allocation	10.03%	10.04%	11.17%	12.42%	12.44%	12.45%	12.46%	12.47%	12.49%	12.50%
Residential	9.15%	9.16%	8.06%	6.83%	6.83%	6.84%	6.85%	6.85%	6.86%	6.87%
Commercial/Industrial	15.74%	15.75%	15.76%	15.77%	15.78%	15.79%	15.80%	15.81%	15.82%	15.83%
Institutional	4.62%	4.62%	4.62%	4.62%	4.62%	4.61%	4.61%	4.61%	4.61%	4.60%
Agricultural	42.55%	42.53%	42.50%	42.48%	42.46%	42.44%	42.42%	42.40%	42.38%	42.37%
Tourism	17.91%	17.90%	17.89%	17.88%	17.87%	17.86%	17.85%	17.85%	17.84%	17.83%
Total System	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Customer Classes -- Annual Volume Increase -- m3										
Free Water Allocation		600	600	600	600	600	600	600	600	600
Residential		547	(75,268)	(67,916)	330	330	330	330	330	330
Commercial/Industrial		678	(61,507)	(55,424)	549	549	549	549	549	549
Institutional		-	(18,250)	(16,425)	-	-	-	-	-	-
Agricultural		-	(167,900)	(151,110)	-	-	-	-	-	-
Tourism		-	(70,664)	(63,598)	-	-	-	-	-	-
Total System		1,825	(392,989)	(353,873)	1,479	1,479	1,479	1,479	1,479	1,479
Annual Percent Increase/(Decrease)										

Forecast Period
2025 -- 2034

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

VOLUMES and CUSTOMERS by Class

Scenario: **2024 06 05 TTV Tariff Scenario 1A -- 3 Year Uniform**

Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Accounts										
Free Water Allocation	-	-	-	-	-	-	-	-	-	-
Residential	3,299	3,304	3,309	3,314	3,319	3,324	3,329	3,334	3,339	3,344
Commercial/Industrial	916	917	918	919	920	921	922	923	924	925
Institutional	89	89	89	89	89	89	89	89	89	89
Agricultural	375	375	375	375	375	375	375	375	375	375
Tourism	86	86	86	86	86	86	86	86	86	86
Total	4,765	4,771	4,777	4,783	4,789	4,795	4,801	4,807	4,813	4,819
New Accounts		6	6	6	6	6	6	6	6	6
Annual Percent Increase/(Decrease)		0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.12%	0.12%	0.12%
Percent of Total Bills										
Free Water Allocation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Residential	69.23%	69.25%	69.27%	69.29%	69.30%	69.32%	69.34%	69.36%	69.37%	69.39%
Commercial/Industrial	19.22%	19.22%	19.22%	19.21%	19.21%	19.21%	19.20%	19.20%	19.20%	19.19%
Institutional	1.87%	1.87%	1.86%	1.86%	1.86%	1.86%	1.85%	1.85%	1.85%	1.85%
Agricultural	7.87%	7.86%	7.85%	7.84%	7.83%	7.82%	7.81%	7.80%	7.79%	7.78%
Tourism	1.80%	1.80%	1.80%	1.80%	1.80%	1.79%	1.79%	1.79%	1.79%	1.78%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Annual Increase										
Free Water Allocation		-	-	-	-	-	-	-	-	-
Residential		5	5	5	5	5	5	5	5	5
Commercial/Industrial		1	1	1	1	1	1	1	1	1
Institutional		-	-	-	-	-	-	-	-	-
Agricultural		-	-	-	-	-	-	-	-	-
Tourism		-	-	-	-	-	-	-	-	-
Total		6	6	6	6	6	6	6	6	6
Usage Per Account Per Month -- m3										
Free Water Allocation	19.12	19.12	17.21	15.49	15.49	15.49	15.49	15.49	15.49	15.49
Residential	19.12	19.12	17.21	15.49	15.49	15.49	15.49	15.49	15.49	15.49
Commercial/Industrial	56.51	56.51	50.87	45.79	45.79	45.79	45.79	45.79	45.79	45.79
Institutional	170.88	170.88	153.79	138.41	138.41	138.41	138.41	138.41	138.41	138.41
Agricultural	373.11	373.11	335.80	302.22	302.22	302.22	302.22	302.22	302.22	302.22
Tourism	684.73	684.73	616.26	554.63	554.63	554.63	554.63	554.63	554.63	554.63
Total System	69.02	68.96	62.02	55.78	55.73	55.69	55.64	55.60	55.56	55.51
Usage Per Account Per Month -- Gallons	264									
Free Water Allocation	5,052	5,052	4,547	4,093	4,093	4,093	4,093	4,093	4,093	4,093
Residential	5,052	5,052	4,547	4,093	4,093	4,093	4,093	4,093	4,093	4,093
Commercial/Industrial	14,929	14,929	13,438	12,095	12,095	12,095	12,095	12,095	12,095	12,095
Institutional	45,142	45,142	40,628	36,565	36,565	36,565	36,565	36,565	36,565	36,565
Agricultural	98,566	98,566	88,709	79,838	79,838	79,838	79,838	79,838	79,838	79,838
Tourism	180,886	180,886	162,798	146,518	146,518	146,518	146,518	146,518	146,518	146,518
Total System	18,232	18,218	16,384	14,734	14,723	14,711	14,699	14,688	14,676	14,665

APPENDIX C

To Tatou Vai Authority

Tariff Analysis and Pro Forma Financial Forecast

Utility System

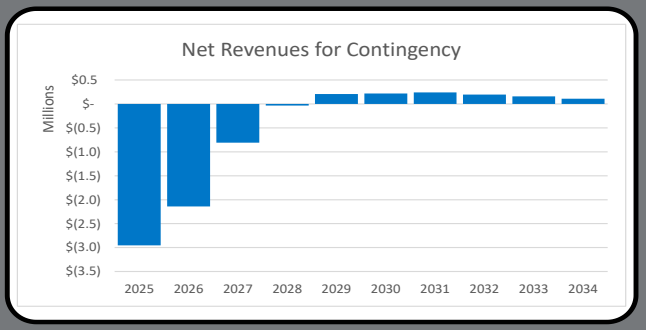
Total
Water
Sewer

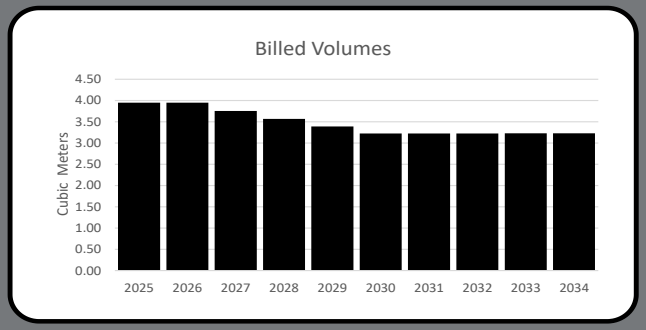
Dashboard

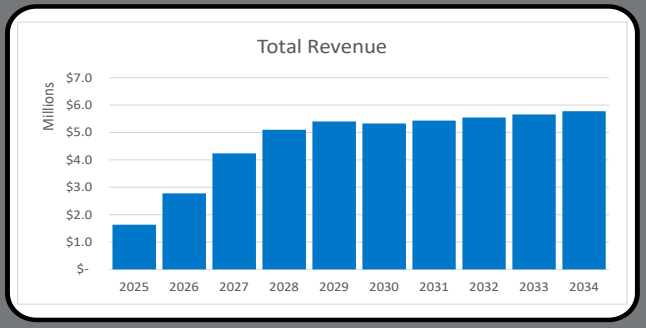
Cash Basis COS
GAAP Accounting

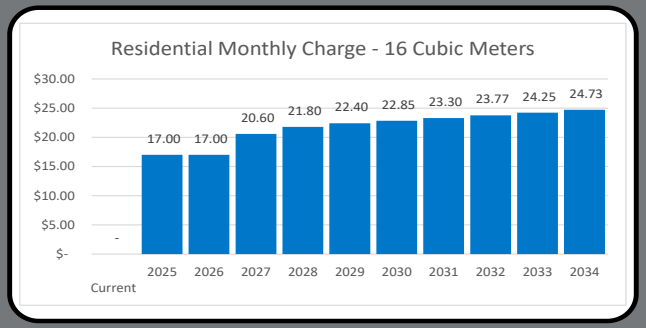
Years

10
5









Water Sewer

Cash Basis COS

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Proposed Tariff Plan
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

WATER Tariff

		Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Service Fee												
20 MM		$ -	**$ 17.00**	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
25 MM		-	**42.50**	42.50	42.50	42.50	42.50	43.35	44.22	45.10	46.00	46.92
40 MM		-	**63.75**	63.75	63.75	63.75	63.75	65.03	66.33	67.65	69.01	70.39
50 MM		-	**85.00**	85.00	85.00	85.00	85.00	86.70	88.43	90.20	92.01	93.85
80 MM		-	**-**	-	-	-	-	-	-	-	-	-
100 MM		-	**-**	-	-	-	-	-	-	-	-	-
150 MM		-	**-**	-	-	-	-	-	-	-	-	-
200 MM		-	**-**	-	-	-	-	-	-	-	-	-
300 MM		-	**-**	-	-	-	-	-	-	-	-	-
Volume Tariff -- Per Unit/Cubic Meter												
Free Water Allocation												
-	Above	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
Residential												
-	Above	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
Commercial/Industrial												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
Institutional												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
Agricultural												
-	Above	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
Tourism												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Forecast Income Statement -- GAAP Accounting
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

Water -- Summary

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue										
Funding from Crown	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trading Revenue	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351
Other Revenue	-	-	-	-	-	-	-	-	-	-
Water -- Free Water Allocation	-	-	218,394	384,424	480,425	497,586	508,301	519,246	530,425	541,844
Water -- Customer Charges	1,558,278	2,686,134	3,903,029	4,599,205	4,807,070	4,719,449	4,816,457	4,915,457	5,016,490	5,119,599
Total Revenue	**1,626,693**	**2,772,933**	**4,232,774**	**5,094,980**	**5,398,846**	**5,328,386**	**5,436,109**	**5,546,054**	**5,658,267**	**5,772,794**
Expenditure										
Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
Personnel Costs	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
Operating Expenses	2,043,413	2,379,686	2,524,067	2,555,321	2,554,856	2,542,548	2,620,363	2,700,740	2,783,777	2,869,574
Debt Interest	-	-	-	-	-	-	-	-	-	-
EBITDA	-	-	-	-	-	-	-	-	-	-
Total Expenditure	**4,578,821**	**4,913,842**	**5,042,063**	**5,126,571**	**5,190,132**	**5,107,760**	**5,194,124**	**5,350,687**	**5,500,373**	**5,664,630**
Profit before Income Tax	(2,952,128)	(2,140,908)	(809,289)	(31,591)	208,714	220,627	241,985	195,367	157,894	108,164
Income Tax Expense	-	-	-	-	-	-	-	-	-	-
Profit/(Loss) for the year	**(2,952,128)**	**(2,140,908)**	**(809,289)**	**(31,591)**	**208,714**	**220,627**	**241,985**	**195,367**	**157,894**	**108,164**

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Forecast Income Statement -- GAAP Accounting
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

Water --Detail

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
	Revenues										
R1	Funding from Crown	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
R2	Trading Revenue	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351
R3	Other Revenue	-	-	-	-	-	-	-	-	-	-
R4	Water -- Free Water Allocation	-	-	218,394	384,424	480,425	497,586	508,301	519,246	530,425	541,844
R5	Water -- Customer Charges	1,558,278	2,686,134	3,903,029	4,599,205	4,807,070	4,719,449	4,816,457	4,915,457	5,016,490	5,119,599
	Total Revenues	**1,626,693**	**2,772,933**	**4,232,774**	**5,094,980**	**5,398,846**	**5,328,386**	**5,436,109**	**5,546,054**	**5,658,267**	**5,772,794**
	Operating Expenses										
E1	Consultancy, Legal and Professional	27,200	27,800	28,460	29,314	30,193	31,099	32,032	32,993	33,983	35,002
E2	Bad and Doubtful Debts	77,914	134,307	206,071	249,181	259,087	255,635	260,913	266,300	271,799	277,411
E3	Directors Fees and Expenses	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355
E4	Fees Paid to Auditor	25,000	25,000	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747
E5	General	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399
E6	Insurance	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848
E7	Laboratory	118,400	118,400	118,400	117,989	117,643	117,363	120,918	124,582	128,356	132,245
E8	MFEM MCU Tater Stations	498,400	515,550	541,115	530,543	520,177	510,014	525,550	541,558	558,055	575,054
E9	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872
E10	Network Operations	323,996	415,976	423,254	414,985	406,877	398,927	411,079	423,601	436,504	449,801
E11	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010
E12	Rental and Operating Lease Costs	-	-	-	-	-	-	-	-	-	-
E13	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-
E14	Staff Training and Recruitment	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166
E15	Treatment Operations	466,228	626,378	649,903	637,205	624,756	612,549	631,208	650,436	670,249	690,665
E16	Other Operating	-	-	-	-	-	-	-	-	-	-
	Sub-Total	2,043,413	2,379,686	2,524,067	2,555,321	2,554,856	2,542,548	2,620,363	2,700,740	2,783,777	2,869,574
	Personnel Expenses										
E17	Salaries and Wages	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
E18	Defined Contribution Plan	-	-	-	-	-	-	-	-	-	-
E19	Accrued Salaries and Wages	-	-	-	-	-	-	-	-	-	-
E20	Annual Leave	-	-	-	-	-	-	-	-	-	-
E21	Other Allowances	-	-	-	-	-	-	-	-	-	-
	Sub-Total	2,256,330	2,256,330	2,256,330	2,324,020	2,393,740	2,465,553	2,539,519	2,615,705	2,694,176	2,775,001
	Total operating expenses	**4,299,743**	**4,636,016**	**4,780,397**	**4,879,340**	**4,948,596**	**5,008,101**	**5,159,882**	**5,316,445**	**5,477,953**	**5,644,575**
		-	-	-	-	-	-	-	-	-	-
	Net Revenues for CAPEX	**(2,673,050)**	**(1,863,082)**	**(547,623)**	**215,640**	**450,250**	**320,286**	**276,227**	**229,609**	**180,314**	**128,219**
	CAPEX Expenses										
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055
	Debt Interest -- Current	-	-	-	-	-	-	-	-	-	-
	Debt Interest --Forecast	-	-	-	-	-	-	-	-	-	-
	EBITDA	-	-	-	-	-	-	-	-	-	-
	Return on Equity	-	-	-	-	-	-	-	-	-	-
	Total CAPEX Expenses	**279,078**	**277,826**	**261,666**	**247,231**	**241,536**	**99,659**	**34,242**	**34,242**	**22,420**	**20,055**
	Total Expenditure	4,578,821	4,913,842	5,042,063	5,126,571	5,190,132	5,107,760	5,194,124	5,350,687	5,500,373	5,664,630
	Net income (loss) before capital contributions	**(2,952,128)**	**(2,140,908)**	**(809,289)**	**(31,591)**	**208,714**	**220,627**	**241,985**	**195,367**	**157,894**	**108,164**
		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary -- COS by Customer Class

Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**

Currency: New Zealand Dollar (NZD)

WATER Utility -- Total Revenues

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Free Water Allocation	$ -	$ -	$ 218,394	$ 384,424	$ 480,425	$ 497,586	$ 508,301	$ 519,246	$ 530,425	$ 541,844
Residential	448,664	674,016	804,761	887,793	897,943	893,516	912,757	932,410	952,485	972,989
Commercial/Industrial	498,542	891,749	978,365	1,104,068	1,146,503	1,126,576	1,150,355	1,174,635	1,199,425	1,224,738
Institutional	121,604	224,229	249,323	285,804	297,848	290,960	296,779	302,714	308,769	314,944
Agricultural	51,000	76,500	953,778	1,263,483	1,360,083	1,331,268	1,357,893	1,385,051	1,412,752	1,441,007
Tourism	438,468	819,640	916,803	1,058,058	1,104,693	1,077,131	1,098,673	1,120,647	1,143,060	1,165,921
Total	**1,558,278**	**2,686,134**	**4,121,423**	**4,983,629**	**5,287,495**	**5,217,035**	**5,324,758**	**5,434,703**	**5,546,916**	**5,661,443**

WATER Utility -- Revenue Increase

		2026	2027	2028	2029	2030	2031	2032	2033	2034
Free Water Allocation		$ -	$ 218,394	$ 166,030	$ 96,001	$ 17,161	$ 10,715	$ 10,945	$ 11,179	$ 11,419
Residential		225,352	130,745	83,032	10,151	(4,428)	19,241	19,653	20,075	20,505
Commercial/Industrial		393,207	86,616	125,703	42,435	(19,927)	23,779	24,280	24,791	25,313
Institutional		102,625	25,094	36,481	12,044	(6,888)	5,819	5,936	6,054	6,175
Agricultural		25,500	877,278	309,706	96,600	(28,816)	26,625	27,158	27,701	28,255
Tourism		381,172	97,163	141,254	46,635	(27,562)	21,543	21,973	22,413	22,861
Total		**1,127,856**	**1,338,126**	**720,952**	**257,231**	**(42,898)**	**86,180**	**87,971**	**89,800**	**91,666**

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary-- WATER Utility

Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**

Currency: New Zealand Dollar (NZD)

		Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
5	**Water System Revenues and Cost of Service**											
	Beginning Cash Accumulation	$ 10,000	$ (2,942,128)	$ (5,083,036)	$ (5,892,325)	$ (5,923,916)	$ (5,715,203)	$ (5,494,576)	$ (5,252,591)	$ (5,057,224)	$ (4,899,330)	
	Water Tariff Revenues											
	Free Water Allocation	$ -	$ -	$ 218,394	$ 384,424	$ 480,425	$ 497,586	$ 508,301	$ 519,246	$ 530,425	$ 541,844	
	Residential	448,664	674,016	804,761	887,793	897,943	893,516	912,757	932,410	952,485	972,989	
	Commercial/Industrial	498,542	891,749	978,365	1,104,068	1,146,503	1,126,576	1,150,355	1,174,635	1,199,425	1,224,738	
	Institutional	121,604	224,229	249,323	285,804	297,848	290,960	296,779	302,714	308,769	314,944	
	Agricultural	51,000	76,500	953,778	1,263,483	1,360,083	1,331,268	1,357,893	1,385,051	1,412,752	1,441,007	
	Tourism	438,468	819,640	916,803	1,058,058	1,104,693	1,077,131	1,098,673	1,120,647	1,143,060	1,165,921	
	Other 12	-	-	-	-	-	-	-	-	-	-	
	Sub-Total	1,558,278	2,686,134	4,121,423	4,983,629	5,287,495	5,217,035	5,324,758	5,434,703	5,546,916	5,661,443	
	Water Non-Tariff Revenues	68,415	86,799	111,351	111,351	111,351	111,351	111,351	111,351	111,351	111,351	
	Total Water Revenues	**1,626,693**	**2,772,933**	**4,232,774**	**5,094,980**	**5,398,846**	**5,328,386**	**5,436,109**	**5,546,054**	**5,658,267**	**5,772,794**	
	Operating Expenses (OPEX)											
1A	Payroll Expenses	$ 2,256,330	$ 2,256,330	$ 2,256,330	$ 2,324,020	$ 2,393,740	$ 2,465,553	$ 2,539,519	$ 2,615,705	$ 2,694,176	$ 2,775,001	
2A	Water Intake Expenses	469,000	484,650	508,565	498,629	488,887	479,335	493,936	508,982	524,486	540,462	
2B	Pump Stations	15,000	16,500	18,150	17,795	17,448	17,107	17,628	18,165	18,718	19,288	
2C	Water Stations -- COVID 19	14,400	14,400	14,400	14,119	13,843	13,572	13,986	14,412	14,851	15,303	
2D	Water Treatment Expenses	466,228	626,378	649,903	637,205	624,756	612,549	631,208	650,436	670,249	690,665	
2E	Water Quality	80,000	80,000	80,000	78,437	76,904	75,402	77,699	80,066	82,504	85,018	
2F	Network and Distribution	323,996	415,976	423,254	414,985	406,877	398,927	411,079	423,601	436,504	449,801	
2G	Admin and General Expenses	92,274	97,274	102,774	105,857	109,033	112,304	115,673	119,143	122,718	126,399	
2H	Recruitment Costs	1,761	1,761	1,761	1,814	1,868	1,924	1,982	2,041	2,103	2,166	
2I	Motor Vehicle Expenses	86,154	91,154	96,654	99,554	102,540	105,616	108,785	112,048	115,410	118,872	
2J	Insurance Expenses	46,086	46,086	50,675	54,729	59,107	63,836	68,943	74,458	80,415	86,848	
2K	Repairs and Maintenance	-	-	-	-	-	-	-	-	-	-	
2L	Prof Development and Training	-	-	-	-	-	-	-	-	-	-	
2M	Directors Fees	119,000	119,000	119,000	122,570	126,247	130,035	133,936	137,954	142,092	146,355	
2N	Professional Services	90,600	91,200	91,860	94,616	97,454	100,378	103,389	106,491	109,686	112,976	
2O	Office Expenses	161,000	161,000	161,000	165,830	170,805	175,929	181,207	186,643	192,242	198,010	
3A	Doubtful Debts	77,914	134,307	206,071	249,181	259,087	255,635	260,913	266,300	271,799	277,411	
4A	EBITDA	-	-	-	-	-	-	-	-	-	-	
	Total Operating Expenses -- OPEX	4,299,743	4,636,016	4,780,397	4,879,340	4,948,596	5,008,101	5,159,882	5,316,445	5,477,953	5,644,575	
	Net Revenues Available for Debt and CAPEX	**(2,673,050)**	**(1,863,082)**	**(547,623)**	**215,640**	**450,250**	**320,286**	**276,227**	**229,609**	**180,314**	**128,219**	
	Capital Expenses (CAPEX)											
	Depreciation and Amortization	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055	
	Debt Service -- Current	-	-	-	-	-	-	-	-	-	-	
	Debt Service -- Forecast	-	-	-	-	-	-	-	-	-	-	
	Return on Equity	-	-	-	-	-	-	-	-	-	-	
	Total Capital Expenses -- CAPEX	279,078	277,826	261,666	247,231	241,536	99,659	34,242	34,242	22,420	20,055	
	Total Cost of Service	**4,578,821**	**4,913,842**	**5,042,063**	**5,126,571**	**5,190,132**	**5,107,760**	**5,194,124**	**5,350,687**	**5,500,373**	**5,664,630**	
	Net Revenues for Contingency	**(2,952,128)**	**(2,140,908)**	**(809,289)**	**(31,591)**	**208,714**	**220,627**	**241,985**	**195,367**	**157,894**	**108,164**	
	Percent of Revenues	-181.5%	-77.2%	-19.1%	-0.6%	3.9%	4.1%	4.5%	3.5%	2.8%	1.9%	
	Ending Cash Accumulation	**(2,942,128)**	**(5,083,036)**	**(5,892,325)**	**(5,923,916)**	**(5,715,203)**	**(5,494,576)**	**(5,252,591)**	**(5,057,224)**	**(4,899,330)**	**(4,791,166)**	
	Financial Ratios											
	Debt Coverage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
	Cash Accum -- Days of Operating Expenses	(250)	(400)	(450)	(443)	(422)	(400)	(372)	(347)	(326)	(310)	
	Effective Cost Per Cubic Meter	$ 1.16	$ 1.24	$ 1.34	$ 1.44	$ 1.53	$ 1.59	$ 1.61	$ 1.66	$ 1.70	$ 1.75	

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Cost of Service Forecast Summary -- COS by Customer Class
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
WATER Utility										
Free Water Allocation										
Revenues	$ -	$ -	$ 218,394	$ 384,424	$ 480,425	$ 497,586	$ 508,301	$ 519,246	$ 530,425	$ 541,844
Cost of Service	352,583	377,730	406,565	435,742	464,961	481,983	490,823	506,465	521,473	537,922
Net Revenues	(352,583)	(377,730)	(188,171)	(51,318)	15,464	15,603	17,478	12,781	8,952	3,922
Residential										
Revenues	448,664	674,016	804,761	887,793	897,943	893,516	912,757	932,410	952,485	972,989
Cost of Service	543,777	582,372	575,032	563,567	547,911	515,345	524,600	541,116	556,943	574,296
Net Revenues	(95,113)	91,644	229,729	324,226	350,032	378,171	388,157	391,294	395,542	398,693
Commercial/Industrial										
Revenues	498,542	891,749	978,365	1,104,068	1,146,503	1,126,576	1,150,355	1,174,635	1,199,425	1,224,738
Cost of Service	930,617	996,511	1,018,518	1,036,589	1,050,349	1,033,925	1,052,387	1,085,411	1,117,045	1,151,736
Net Revenues	(432,075)	(104,761)	(40,153)	67,479	96,154	92,650	97,968	89,224	82,380	73,002
Institutional										
Revenues	121,604	224,229	249,323	285,804	297,848	290,960	296,779	302,714	308,769	314,944
Cost of Service	168,533	180,275	184,051	187,109	189,382	186,214	189,339	195,075	200,549	206,560
Net Revenues	(46,929)	43,954	65,271	98,695	108,466	104,745	107,439	107,639	108,219	108,384
Agricultural										
Revenues	51,000	76,500	953,778	1,263,483	1,360,083	1,331,268	1,357,893	1,385,051	1,412,752	1,441,007
Cost of Service	1,520,621	1,626,589	1,660,686	1,688,297	1,708,833	1,680,272	1,708,497	1,760,280	1,809,704	1,863,972
Net Revenues	(1,469,621)	(1,550,089)	(706,908)	(424,814)	(348,750)	(349,004)	(350,604)	(375,229)	(396,952)	(422,965)
Tourism										
Revenues	438,468	819,640	916,803	1,058,058	1,104,693	1,077,131	1,098,673	1,120,647	1,143,060	1,165,921
Cost of Service	994,275	1,063,565	1,085,861	1,103,916	1,117,345	1,098,670	1,117,128	1,150,988	1,183,307	1,218,793
Net Revenues	(555,807)	(243,925)	(169,057)	(45,858)	(12,652)	(21,540)	(18,454)	(30,342)	(40,247)	(52,872)
Total										
Revenues	1,558,278	2,686,134	4,121,423	4,983,629	5,287,495	5,217,035	5,324,758	5,434,703	5,546,916	5,661,443
Cost of Service	4,510,406	4,827,043	4,930,712	5,015,220	5,078,781	4,996,409	5,082,773	5,239,336	5,389,022	5,553,279
Net Revenues	**(2,952,128)**	**(2,140,908)**	**(809,289)**	**(31,591)**	**208,714**	**220,627**	**241,985**	**195,367**	**157,894**	**108,164**
	-189.4%	-79.7%	-19.6%	-0.6%	3.9%	4.2%	4.5%	3.6%	2.8%	1.9%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

WATER Tariff

		Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Service Fee												
15 MM		$ -	**$ 17.00**	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
20 MM		-	**17.00**	17.00	17.00	17.00	17.00	17.34	17.69	18.04	18.40	18.77
25 MM		-	**42.50**	42.50	42.50	42.50	42.50	43.35	44.22	45.10	46.00	46.92
40 MM		-	**63.75**	63.75	63.75	63.75	63.75	65.03	66.33	67.65	69.01	70.39
50 MM		-	**85.00**	85.00	85.00	85.00	85.00	86.70	88.43	90.20	92.01	93.85
80 MM		-	**-**	-	-	-	-	-	-	-	-	-
100 MM		-	**-**	-	-	-	-	-	-	-	-	-
150 MM		-	**-**	-	-	-	-	-	-	-	-	-
200 MM		-	**-**	-	-	-	-	-	-	-	-	-
300 MM		-	**-**	-	-	-	-	-	-	-	-	-
Volume Tariff -- Per Cubic Meters												
Free Water Allocation												
-	Above	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
-	-	-	**-**	-	0.600	1.000	1.225	1.250	1.274	1.300	1.326	1.352
Residential												
-	Above	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
Commercial/Industrial												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
Institutional												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
Agricultural												
-	Above	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
-	-	-	**-**	-	0.600	0.800	0.900	0.918	0.936	0.955	0.974	0.994
Tourism												
-	Above	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987
-	-	-	**0.900**	1.150	1.350	1.650	1.800	1.836	1.873	1.910	1.948	1.987

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

	Gallons -- Total	Total	Net of Free Water	Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Free Water Allocation (cubic meters):			10											
Residential -- Water Monthly Charge														
Total Charge	2,642	10	-	$ -	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.00	$ 17.34	$ 17.69	$ 18.04	$ 18.40	$ 18.77
Increase -- Dollars					**17.00**	**-**	**-**	**-**	**-**	**0.34**	**0.35**	**0.35**	**0.36**	**0.37**
Increase -- Percent					0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	4,227	16	6	-	17.00	17.00	20.60	21.80	22.40	22.85	23.30	23.77	24.25	24.73
Increase -- Dollars					**17.00**	**-**	**3.60**	**1.20**	**0.60**	**0.45**	**0.46**	**0.47**	**0.48**	**0.48**
Increase -- Percent					0.0%	0.0%	21.2%	5.8%	2.8%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	7,925	30	20	-	17.00	17.00	29.00	33.00	35.00	35.70	36.41	37.14	37.89	38.64
Increase -- Dollars					**17.00**	**-**	**12.00**	**4.00**	**2.00**	**0.70**	**0.71**	**0.73**	**0.74**	**0.76**
Increase -- Percent					0.0%	0.0%	70.6%	13.8%	6.1%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	13,209	50	40	-	17.00	17.00	41.00	49.00	53.00	54.06	55.14	56.24	57.37	58.52
Increase -- Dollars					**17.00**	**-**	**24.00**	**8.00**	**4.00**	**1.06**	**1.08**	**1.10**	**1.12**	**1.15**
Increase -- Percent					0.0%	0.0%	141.2%	19.5%	8.2%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	26,417	100	90	-	17.00	17.00	71.00	89.00	98.00	99.96	101.96	104.00	106.08	108.20
Increase -- Dollars					**17.00**	**-**	**54.00**	**18.00**	**9.00**	**1.96**	**2.00**	**2.04**	**2.08**	**2.12**
Increase -- Percent					0.0%	0.0%	317.6%	25.4%	10.1%	2.0%	2.0%	2.0%	2.0%	2.0%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact

Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**

Currency: New Zealand Dollar (NZD)

					Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Industrial 40mm -- Water Monthly Charge															
Total Charge	2,642	10	10	-		72.75	75.25	77.25	80.25	81.75	83.39	85.05	86.75	88.49	90.26
Increase -- Dollars						**72.75**	**2.50**	**2.00**	**3.00**	**1.50**	**1.64**	**1.67**	**1.70**	**1.74**	**1.77**
Increase -- Percent						0.0%	3.4%	2.7%	3.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	13,209	50	50	-		108.75	121.25	131.25	146.25	153.75	156.83	159.96	163.16	166.42	169.75
Increase -- Dollars						**108.75**	**12.50**	**10.00**	**15.00**	**7.50**	**3.07**	**3.14**	**3.20**	**3.26**	**3.33**
Increase -- Percent						0.0%	11.5%	8.2%	11.4%	5.1%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	26,417	100	100	-		153.75	178.75	198.75	228.75	243.75	248.63	253.60	258.67	263.84	269.12
Increase -- Dollars						**153.75**	**25.00**	**20.00**	**30.00**	**15.00**	**4.88**	**4.97**	**5.07**	**5.17**	**5.28**
Increase -- Percent						0.0%	16.3%	11.2%	15.1%	6.6%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	66,043	250	250	-		288.75	351.25	401.25	476.25	513.75	524.03	534.51	545.20	556.10	567.22
Increase -- Dollars						**288.75**	**62.50**	**50.00**	**75.00**	**37.50**	**10.28**	**10.48**	**10.69**	**10.90**	**11.12**
Increase -- Percent						0.0%	21.6%	14.2%	18.7%	7.9%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	132,086	500	500	-		513.75	638.75	738.75	888.75	963.75	983.03	1,002.69	1,022.74	1,043.19	1,064.06
Increase -- Dollars						**513.75**	**125.00**	**100.00**	**150.00**	**75.00**	**19.28**	**19.66**	**20.05**	**20.45**	**20.86**
Increase -- Percent						0.0%	24.3%	15.7%	20.3%	8.4%	2.0%	2.0%	2.0%	2.0%	2.0%

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

Monthly Charge Impact
Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**
Currency: New Zealand Dollar (NZD)

					Current	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tourism 50mm -- Water Monthly Charge															
Total Charge	26,417	100	100		-	175.00	200.00	220.00	250.00	265.00	270.30	275.71	281.22	286.84	292.58
Increase -- Dollars						**175.00**	**25.00**	**20.00**	**30.00**	**15.00**	**5.30**	**5.41**	**5.51**	**5.62**	**5.74**
Increase -- Percent						0.0%	14.3%	10.0%	13.6%	6.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	132,086	500	500		-	535.00	660.00	760.00	910.00	985.00	1,004.70	1,024.79	1,045.29	1,066.20	1,087.52
Increase -- Dollars						**535.00**	**125.00**	**100.00**	**150.00**	**75.00**	**19.70**	**20.09**	**20.50**	**20.91**	**21.32**
Increase -- Percent						0.0%	23.4%	15.2%	19.7%	8.2%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	264,172	1,000	1,000		-	985.00	1,235.00	1,435.00	1,735.00	1,885.00	1,922.70	1,961.15	2,000.38	2,040.38	2,081.19
Increase -- Dollars						**985.00**	**250.00**	**200.00**	**300.00**	**150.00**	**37.70**	**38.45**	**39.22**	**40.01**	**40.81**
Increase -- Percent						0.0%	25.4%	16.2%	20.9%	8.6%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	528,344	2,000	2,000		-	1,885.00	2,385.00	2,785.00	3,385.00	3,685.00	3,758.70	3,833.87	3,910.55	3,988.76	4,068.54
Increase -- Dollars						**1,885.00**	**500.00**	**400.00**	**600.00**	**300.00**	**73.70**	**75.17**	**76.68**	**78.21**	**79.78**
Increase -- Percent						0.0%	26.5%	16.8%	21.5%	8.9%	2.0%	2.0%	2.0%	2.0%	2.0%
Total Charge	792,516	3,000	3,000		-	2,785.00	3,535.00	4,135.00	5,035.00	5,485.00	5,594.70	5,706.59	5,820.73	5,937.14	6,055.88
Increase -- Dollars						**2,785.00**	**750.00**	**600.00**	**900.00**	**450.00**	**109.70**	**111.89**	**114.13**	**116.41**	**118.74**
Increase -- Percent						0.0%	26.9%	17.0%	21.8%	8.9%	2.0%	2.0%	2.0%	2.0%	2.0%

Forecast Period
2025 -- 2034

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

VOLUMES and CUSTOMERS by Class

Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**

Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Customer Classes -- Base Annual Volume -- m3										
Free Water Allocation	395,880	396,480	397,080	397,680	398,280	398,880	399,480	400,080	400,680	401,280
Residential	361,124	361,672	324,311	288,732	254,847	222,574	222,909	223,244	223,579	223,914
Commercial/Industrial	621,178	621,856	591,442	562,514	535,000	508,832	509,384	509,937	510,489	511,042
Institutional	182,500	182,500	173,375	164,706	156,471	148,647	148,647	148,647	148,647	148,647
Agricultural	1,679,000	1,679,000	1,595,050	1,515,298	1,439,533	1,367,556	1,367,556	1,367,556	1,367,556	1,367,556
Tourism	706,640	706,640	671,308	637,743	605,855	575,563	575,563	575,563	575,563	575,563
Total System	3,946,322	3,948,148	3,752,566	3,566,672	3,389,986	3,222,052	3,223,540	3,225,027	3,226,514	3,228,001
Annual Percent Increase/(Decrease)		0.05%	-4.95%	-4.95%	-4.95%	-4.95%	0.05%	0.05%	0.05%	0.05%
Percent of Total										
Free Water Allocation	10.03%	10.04%	10.58%	11.15%	11.75%	12.38%	12.39%	12.41%	12.42%	12.43%
Residential	9.15%	9.16%	8.64%	8.10%	7.52%	6.91%	6.92%	6.92%	6.93%	6.94%
Commercial/Industrial	15.74%	15.75%	15.76%	15.77%	15.78%	15.79%	15.80%	15.81%	15.82%	15.83%
Institutional	4.62%	4.62%	4.62%	4.62%	4.62%	4.61%	4.61%	4.61%	4.61%	4.60%
Agricultural	42.55%	42.53%	42.51%	42.48%	42.46%	42.44%	42.42%	42.40%	42.38%	42.37%
Tourism	17.91%	17.90%	17.89%	17.88%	17.87%	17.86%	17.85%	17.85%	17.84%	17.83%
Total System	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Customer Classes -- Annual Volume Increase -- m3										
Free Water Allocation		600	600	600	600	600	600	600	600	600
Residential		547	(37,360)	(35,580)	(33,885)	(32,272)	335	335	335	335
Commercial/Industrial		678	(30,415)	(28,928)	(27,514)	(26,168)	552	552	552	552
Institutional		-	(9,125)	(8,669)	(8,235)	(7,824)	-	-	-	-
Agricultural		-	(83,950)	(79,753)	(75,765)	(71,977)	-	-	-	-
Tourism		-	(35,332)	(33,565)	(31,887)	(30,293)	-	-	-	-
Total System		1,825	(195,582)	(185,894)	(176,686)	(167,934)	1,487	1,487	1,487	1,487
Annual Percent Increase/(Decrease)										

Forecast Period
2025 -- 2034

TO TATOU VAI AUTHORITY
WATER TARIFF AND COS MODEL

VOLUMES and CUSTOMERS by Class

Scenario: **2024 06 05 TTV Tariff Scenario 2A -- 5 Year Uniform**

Currency: New Zealand Dollar (NZD)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Accounts										
Free Water Allocation	-	-	-	-	-	-	-	-	-	-
Residential	3,299	3,304	3,309	3,314	3,319	3,324	3,329	3,334	3,339	3,344
Commercial/Industrial	916	917	918	919	920	921	922	923	924	925
Institutional	89	89	89	89	89	89	89	89	89	89
Agricultural	375	375	375	375	375	375	375	375	375	375
Tourism	86	86	86	86	86	86	86	86	86	86
Total	4,765	4,771	4,777	4,783	4,789	4,795	4,801	4,807	4,813	4,819
New Accounts		6	6	6	6	6	6	6	6	6
Annual Percent Increase/(Decrease)		0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.12%	0.12%	0.12%
Percent of Total Bills										
Free Water Allocation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Residential	69.23%	69.25%	69.27%	69.29%	69.30%	69.32%	69.34%	69.36%	69.37%	69.39%
Commercial/Industrial	19.22%	19.22%	19.22%	19.21%	19.21%	19.21%	19.20%	19.20%	19.20%	19.19%
Institutional	1.87%	1.87%	1.86%	1.86%	1.86%	1.86%	1.85%	1.85%	1.85%	1.85%
Agricultural	7.87%	7.86%	7.85%	7.84%	7.83%	7.82%	7.81%	7.80%	7.79%	7.78%
Tourism	1.80%	1.80%	1.80%	1.80%	1.80%	1.79%	1.79%	1.79%	1.79%	1.78%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Annual Increase										
Free Water Allocation		-	-	-	-	-	-	-	-	-
Residential		5	5	5	5	5	5	5	5	5
Commercial/Industrial		1	1	1	1	1	1	1	1	1
Institutional		-	-	-	-	-	-	-	-	-
Agricultural		-	-	-	-	-	-	-	-	-
Tourism		-	-	-	-	-	-	-	-	-
Total		6	6	6	6	6	6	6	6	6
Usage Per Account Per Month -- m3										
Free Water Allocation	19.12	19.12	18.17	17.26	16.40	15.58	15.58	15.58	15.58	15.58
Residential	19.12	19.12	18.17	17.26	16.40	15.58	15.58	15.58	15.58	15.58
Commercial/Industrial	56.51	56.51	53.69	51.01	48.46	46.04	46.04	46.04	46.04	46.04
Institutional	170.88	170.88	162.34	154.22	146.51	139.18	139.18	139.18	139.18	139.18
Agricultural	373.11	373.11	354.46	336.73	319.90	303.90	303.90	303.90	303.90	303.90
Tourism	684.73	684.73	650.49	617.97	587.07	557.72	557.72	557.72	557.72	557.72
Total System	69.02	68.96	65.46	62.14	58.99	56.00	55.95	55.91	55.86	55.82
Usage Per Account Per Month -- Gallons	264									
Free Water Allocation	5,052	5,052	4,799	4,560	4,332	4,116	4,116	4,116	4,116	4,116
Residential	5,052	5,052	4,799	4,560	4,332	4,116	4,116	4,116	4,116	4,116
Commercial/Industrial	14,929	14,929	14,183	13,475	12,802	12,162	12,162	12,162	12,162	12,162
Institutional	45,142	45,142	42,885	40,740	38,703	36,768	36,768	36,768	36,768	36,768
Agricultural	98,566	98,566	93,637	88,955	84,508	80,282	80,282	80,282	80,282	80,282
Tourism	180,886	180,886	171,842	163,250	155,087	147,333	147,333	147,333	147,333	147,333
Total System	18,232	18,218	17,293	16,416	15,583	14,793	14,781	14,769	14,758	14,746