THE CHARGING REGIME ADVISORY GROUP

REPORT TO KĀPITI COAST DISTRICT COUNCIL

ON

A RECOMMENDED WATER CHARGING FORMULA

EXECUTIVE SUMMARY

1. The Charging Regime Advisory Group (CRAG) was set up by Council resolution in June 2011 as a community body to advise it on options for charging for water if a decision was made, following public consultation on the Long Term Plan, to proceed with the installation of water meters. CRAG was asked to assess the range of possible charging systems and make a recommendation to Council on what it considered might be the most efficient and equitable system for Kapiti. CRAG was not asked to review the Council's earlier decision in principle to introduce meters as a part of the district's water management strategy, nor was it asked to comment on any of the sensitive political issues surrounding the matter. Essentially CRAG's role is to reflect the various community interests it represents in providing the Council with an independent opinion on a charging system.

2. Between September 2011 and March 2012 CRAG met nine times and considered a comprehensive range of data most of which will be available on the KCDC web-site. In the course of its deliberations CRAG was assisted by Council staff and met with representatives of the Tauranga and Nelson Councils whose experience was thought to be most relevant to Kapiti. All of what follows in this report is derived from data provided to CRAG, it has not generated any of its own nor has it commissioned any additional research. CRAG was provided with an independent modeling resource to enable it to test scenarios. The Group wishes to thank those who helped it with its work but emphasizes that the conclusions are its own.

3. The Group's first task was to understand the current cost of water supply to the district and how that might evolve over the next 20 years. The costings and forward estimates presented to CRAG assume that not only will the cost of maintaining the existing system increase, but growing demand over the next 50 years will require the Council to make further provision for supply as a result of which there will have to be substantial capital investment. In this context, the installation of water meters is seen to be an important tool in enabling the community to spread the costs of new works by managing water consumption, so that any charging regime must be consistent with that objective. Such a regime must also take account of the Council's intention that all water costs must be recoverable directly from users and will be accounted for separately in the Council's management of its finances.

4. The Council has before it three main options to enhance the district's water supply. As set out in the Council's 2011 LTCCP Amendment, Option 1 of water meters and Stage 1 of the River Recharge Projects has a capital cost of $ 22.656 million (as at May 2011). Option 2 full River Recharge only, without water meters, has a capital cost of $24.850 million (as at May 2011). Option 3 of a dam and no water meters has a capital cost of $33.2million (as at May 2011). Council's preference is the least cost option, as it also enables it to achieve a further $36 million of savings in water infrastructure investment over the next 20 years. CRAG's principal finding in respect of costs was that while the district has and will continue to have an adequate supply of water, it is not a free good. In fact the fully recoverable cost of supplying water to the community is estimated to rise, by 2025/26 from the current average cost of $300 per household

to approximately $773 if the dam without water meters is built, to approximately $726 if the full recharge system without water meters is implemented and $620 if the more limited recharge system is combined with the installation of meters. The actual impact of the latter will vary according to household size and consumption, with all households estimated to be likely to pay significantly less than this figure for essential water use.

5. Coupled with the capital works projects the Council has initiated a major conservation programme which is intended to reduce the district's peak demand to 400 litres per person per day, with an additional allowance of 90 liters per day for overall water loss. This drives the design of system capacity and therefore investment costs. An important part of this programme is the reduction in leaks currently estimated at 25-30% of the total supply volume. There has been success in reducing leaks in the public side of the network and this will become more manifest as the programme proceeds. The target is to reduce total network loss (including private leaks) by 5% by 2015/16, assuming introduction of water meters, as this will also bring down water loss on the private side of the network.

6. Evidence shows that the current conservation measures on their own will not reduce demand to the required levels in time to avoid the need to invest in new capacity, and that they will have to be supplemented by other means. Elsewhere the use of water meters has proved to be an effective adjunct to water conservation programmes so that in Kapiti's case it will be necessary to ensure that any charging regime has the support of conservation measures as one of its objectives.

7. CRAG's second task was to agree the critical success factors for any charging regime and from these develop a set of criteria against which any proposed system would be assessed. These are:

    - be affordable as possible for low income households
    - ensure that the water required for essential use is affordable for households
    - result in a meaningful and effective reduction of water use
    - be fair, i.e., similar users should pay the same for similar amounts of water used
    - be transparent and easily understood
    - be simple, i.e. easy to use and operate
    - be future proofed so that it is flexible and able to be adjust as circumstances change over time
    - provide sufficient and stable revenue to run the water activity over time.

8. CRAG then proceeded to look at the possible approaches to tariff structures and concluded that the system most likely to achieve the criteria would be a mix of fixed and variable charges. Eight household types were assessed against six options of fixed and variable charges, ranging from 25/75 at one end of the spectrum to 70/30 at the other. The Group looked at efficient and inefficient users, domestic and commercial users, single and multiple member households, low income users, schools and public institutions, landlord and tenant interests.

9. From all this data the Group concluded that having considered the variety of impacts discussed above, including revenue stability, we believe that a tariff structure of a 50% fixed charge and a 50% variable charge will provide the most fair and equitable outcomes while encouraging reduced demand and more sustainable use of water, and encouraging more efficient use of infrastructure.

10. This structure was acceptable to the whole group because it balances the interests of higher users who benefit from a higher fixed cost proportion with those who benefit from a lower fixed charge. The Council has assured us that policy measures and monitoring will be put in place to assist ratepayers where necessary.

11. One point which illustrates the challenge of achieving a balance of interests was the finding that low-income users who owned their own homes would benefit most from high variable charges while low income users living in rented accommodation would benefit most from high fixed charges which would be payable by their landlord. It was this kind of factor which led the Group ultimately to decide that it would be best to commence any scheme to charge for water on as balanced a basis as possible. It is inevitable that over time adjustments will be needed so that at the outset it is preferable to seek equilibrium between the competing interests.

12. However the Group also felt that equally as important as seeking a balance of interest was the need to consider carefully how any charging regime was introduced and managed. It is essential that the Council should proceed with care and attention, consider all the issues we have identified and prepare a comprehensive and transparent implementation plan. Nor should this be confined to the introductory period. Water is so vital to all of us that we all must be able to contribute to the processes by which this precious commodity is safeguarded and made available to the whole community

RECOMMENDATIONS

We recommend that the Council, if it confirms the introduction of water meters:

1 Adopts a tariff structure of 50% fixed charge and 50% variable charge, in the first instance subject to a review after 2 years of operation;

2 Manages the introduction of charging for water carefully to assist residents to make the transition by providing:

- for a transition period, of 6 months or two billing periods, in which ratepayers can fix leaks and gain experience in measuring water use before they have to pay metered water bills;
- assistance to ratepayers who are unable to afford to fix leaks, for example, allowing the interest free water loans scheme to be used for this purpose.

3 Provides assistance through its Rates Remission – Financial Hardship Policy for low income residents who qualify under that Policy;

4 Provides targeted advice to schools and other public institutions to help them find ways of saving water and reducing costs;

5 Provides targeted advice for businesses to help them find ways of saving water and reducing costs;

6 Provides targeted advice for landlords and tenants on rebates that might be available and to tenants to help them find ways of saving water and reducing costs;

7 Provides assistance to ratepayers to deal with leaks on an on-going basis by:

- Providing advice to ratepayers on identifying and fixing leaks; and
- Allowing a period of 1 month in which a ratepayer can fix a leak before they have to pay a water bill in situations where a ratepayer has received a high water bill caused by a leak.

8 Monitors the effects on tenants and low income households on an on-going basis;

9 Keeps under review the effects of the water charging system on economic development within the Kāpiti District;

10 Continues with its ground breaking water conservation initiatives, for example, interest free water loans and requiring all new households in reticulated water supply catchments to include on-site systems for non-potable water for toilet flushing and outdoor use (Plan Change 75);

11 Continues to account for water costs separately and provides regular information to the community on a fully transparent basis;

12 Adopts an active communications policy including regular consultation with tangata whenua and appropriate community groups such as Grey Power and the Chamber of Commerce.

PURPOSE OF REPORT

1 The purpose of this report to Council is to:

- advise it on the options for a tariff structure for charging for water; and
- recommend the option which would best cover the costs of water services while providing the most fair and equitable outcomes, encouraging reduced water consumption and more sustainable use of water, and encouraging more efficient use of infrastructure.

2 The report does not form an opinion on the merits of introducing water meters or review the Council's decision to introduce water meters.

INTRODUCTION

3 The Council, having earlier decided to introduce new water supply measures, decided it would examine further questions of costs of supply, the various options for charging for water and the incentives for water conservation. It indicated that its preferred approach is to introduce water meters in combination with Stage 1 of the River Recharge Scheme, subject to final consultation after a recommended charging option was provided by CRAG.

4 To enable it to obtain the best possible advice, the Council decided that it would set up an advisory group, similar to the one that assists it to reach decisions on water supply, to work with Council staff. The Council established the Charging Regime Advisory Group (CRAG) to design a fair and equitable charging formula. The CRAG is made up of representatives of Grey Power, Council of Elders, low income households, landlords and tenants, tāngata whenua and commercial water users and is chaired independently by Mr Don Hunn. The Council confirmed the establishment of CRAG and adopted the Terms of Reference for the group (See Appendix 1) on 23 June 2011.[1]

5 The Council also decided that the final decision on water meters would not be made until after it had received advice from the CRAG on the best option for a charging structure. The Council has committed to publicly consulting on the advice before the final decisions on water meters are made.

[1] Report SP-11-255 refers

CRAG ACTIVITIES AND PROGRESS

6 Our role, which is set out in the Terms of Reference, is to develop and recommend a formula or tariff structure for charging for water.

7 This involves evaluating the options and identify a system which is:

- self –funding, i.e. the Council is able to recover the costs of running water services;
- fair and easy to understand;
- encourages reduced demand and more sustainable use of water;
- encourages more efficient use of infrastructure.

8 It is **not** our role to form an opinion on the merits of introducing water meters or review the Council's decision to introduce water meters.

9 The membership of CRAG comprises the following[2]:

- Don Hunn, chairperson
- Jean Chamberlain representing community interests and low income households from the north of the District;
- Don Richards representing community interests and low income households from the south of the District;
- Ross Leggett representing the Chamber of Commerce;
- Bernard Parker representing landlord and tenant interests;
- Charles Lloyd representing Grey Power;
- Jill Stansfield representing the Council of Elders;
- Manaahi Baker for Te Ati Awa;
- Caleb Royal for Ngati Raukawa; and,
- Councillors Tony Lester and Mike Cardiff representing the Council.

10 We have held nine meetings between September 2011 and 30 March 2012.

11 We have reviewed and discussed:

- the current and future costs of water supply and maintenance as set out in the Council's Water Activity Programme;

[2] Report SP-11-255 refers

- the Council's water conservation and leak detection work;
- the range of charging options;
- the criteria for evaluating charging options;
- the range of household types that impacts should be tested against;
- the range of commercial water users that impacts should be tested against;
- the impact on household water costs of a flat charge;
- the range of potential tariff structures;
- the model for assessing the comparative effects of different tariff structures.

12 Summaries of background information provided by the Council to the CRAG are attached in the Appendix 2.

13 We have also investigated the charging formula used by Nelson City Council and Tauranga City Council. These Councils were chosen because they had previously faced water supply issues similar to those currently facing the Kāpiti Coast. That is, increased potable water demand with limited supply capacity requiring large capital investment. Both Councils chose to implement water meters as one of the primary mechanisms to reduce demand and defer significant capital investment (see Appendix 3 for more information about the systems used by these Councils).

BACKGROUND INFORMATION CONSIDERED BY CRAG

The cost of water supply

14 Understanding how much it costs the Council to supply water was a crucial first step in identifying the charging structure because whatever structure is chosen will be required to provide sufficient revenue to cover those costs. The Council has committed to running water services on a not-for-profit basis and under public ownership and control.

15 We noted that the baseline costs of water supply will continue to increase because pipes need maintaining and systems need upgrading. Detailed information was provided to us on expected expenditure over the 20 years; a summary of those costs is shown in Appendix 3 of this report.

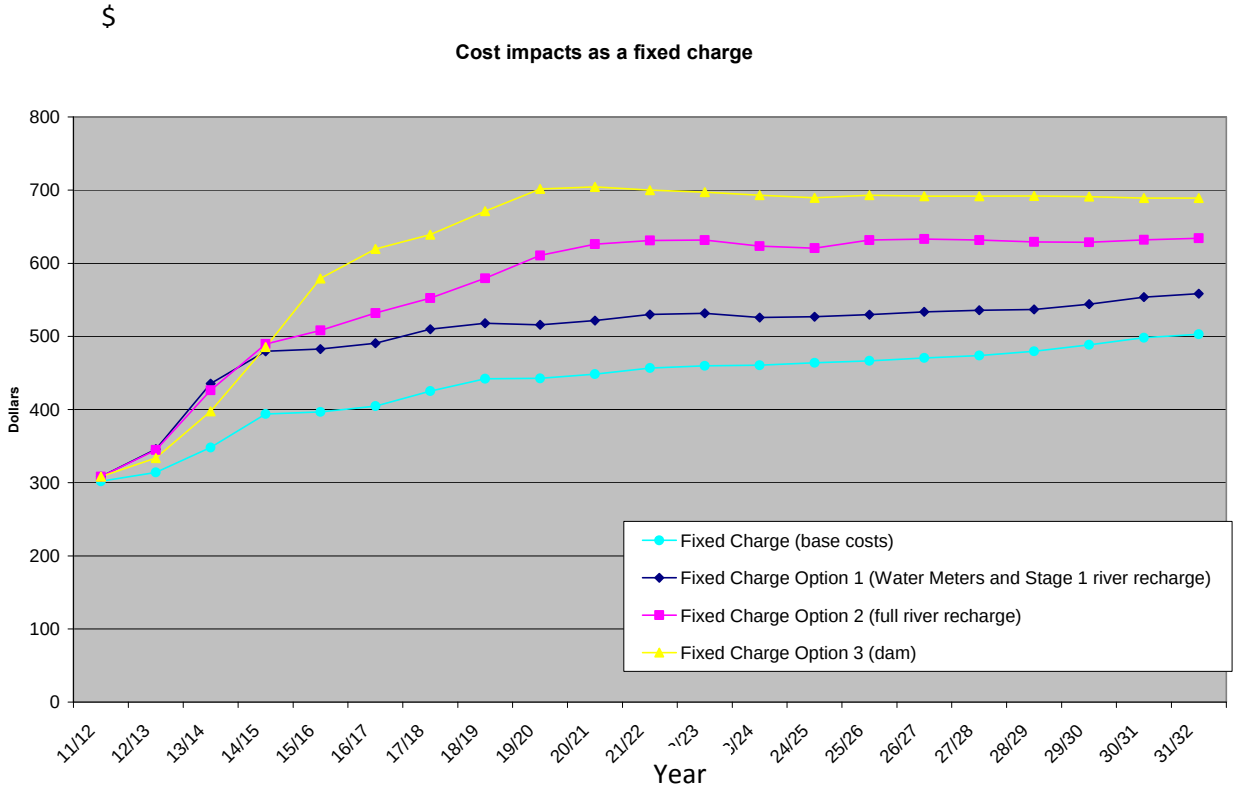
16 In addition, new water supply infrastructure is required for Waikanae, Paraparaumu and Raumati. It was also important for us to understand the three most recent water supply options considered by Council for this latter area, which were:

- Option 1 – Stage One of the Waikanae river recharge scheme with water meters (Council's preferred option) - $22.656 million (as at July 2011).
- Option 2 – the full river recharge scheme and no meters - $24.850 million (as at July 2011)
- Option 3 - the dam and no water meters. - $33.2 million (as at July 2011).

17 We noted the relative cost of these three water supply options for ratepayers under the three options as set out in Figure 1 below.[3]

18 This graph shows the relative costs of each option *as if each option is a flat charge*. It does not include GST which would be charged as per normal practice. It is important to note the line which is titled 'base costs'. This is the cost of running the water supply activity irrespective of any additional supply options which are shown as Options 1,2 and 3. These base costs are projected to rise for a range of reasons including projected cost of energy, increased extent of the network and replacement of existing assets as they age. These figures are not adjusted for GST.

Figure 1: Cost of Water Supply Options Expressed as an Annual Fixed Charge per Residential Property (excl. GST)



19 Apart from the difference in cost for the actual capital works themselves, the differences between Options 1 and Options 2 and 3 are also explained by the estimated saving of a further $36million of system capacity investment which can be deferred as a result of introducing water meters. Additional improvements to capacity would be needed under Options 2 and 3 within the 20 year period to cater for demand, at an estimated cost of $36million .

[3] These figures represent costs as at May 2011 when Council consulted on the amendment to the Long Term Council Community Plan.

20 Table 1 below shows the graphed information with GST included and mapped over the three comparison years used by CRAG for assessing tariff options .

Table 1: Costs of Water Supply Options Expressed as an Annual Fixed Charge with GST

Options	2012/13	2015/16	2020/21	25/26
(1) Water meters and Stage One of the Waikanae River Recharge scheme	$396	$532	$555	$620
(2) No water meters and the full Waikanae River Recharge scheme	$396	$584	$719	$726
(3) No water meters and the dam	$383	$655	$782	$773

21 The cost of installing water meters is $8 million and is included in Option1. The detailed breakdown of how this cost is derived is provided in Appendix 2.

22 Having familiarised ourselves with the costs of water services under each option, we decided to use the cost of building the dam without water meters as the comparator in terms of exploring the impacts of the charging structures. This was because a great deal of community feedback focused on this option.

23 It should be noted that we have based our analysis on information provided by the Council. We have not audited Council's financial data given that the Council is subject to an independent annual financial audit.

Water conservation including the leak detection programme

24 We familiarised ourselves with Council's current Water Conservation Programme which has seven aspects, including:

- regulation – e.g. water services by-law and what is known as Plan Change 75 which requires rainwater or greywater systems for new houses
- leak detection. We understand that under best practice a network will always have a level of leakage and Council has a programme to drive leakage to this best practice level. Current water loss is estimated at 25-30%. This programme consists of a dedicated water leak detection unit and the standard programme of network replacement and upgrade. We also noted that a recent study of Ōtaki water loss identified a significant level of leakage on the private side of the network and that water meters are intended to provide the information and incentive to people to repair these leaks. We identified CRAG's interest in finding ways for people to spread the impact of cost of any repairs.
- Education. This ranges from general education, to Enviroschools and advisors such as the green plumber and green gardener.

A summary of this plan is included in Appendix 7.

The relationship between a charging regime and conservation performance

25 CRAG also familiarised itself with the difference between peak demand and average demand and the standard Council has set for reducing peak demand as it relates to design and investment in water infrastructure. It is peak consumption that drives the size of the water asset. We identified that Council has a target of achieving 400 litres per person per day peak consumption and that there is an allowance of 90 litres per person for water loss from the network. Council's introduction of water meters is expected to reduce current peak water consumption by 25% and water leakage by 5%.

26 Average consumption relates to the total amount of water consumed over a year. Council expects that the projected 25% reduction in peak demand and the reduction in water losses after introduction of water meters will see a reduction in average consumption by domestic consumers of 15%. The average consumption of water by un-metered non-domestic users once water meters are introduced is assumed to drop by 5%.[4] The target is to achieve the latter by 2015/16.

27 CRAG adopted these as assumptions when testing a range of scenarios for their social, economic and revenue impacts. (See below)

DEVELOPING A TARIFF STRUCTURE

28 Having familiarised ourselves with the underpinning programme and costs, CRAG then addressed the matter of identifying a recommended charging formula.

Critical success factors

29 We consider that the tariff structure will need to:

- be affordable as possible for low income households
- ensure that the water required for essential use is affordable for households
- result in a meaningful and effective reduction of water use
- be fair, i.e., similar users should pay the same for similar amounts of water used
- be transparent and easily understood
- be simple, i.e. easy to use and operate

These considerations were converted into a formal table for analysis of options.

- be future proofed so that it is flexible and able to be adjust as circumstances change over time

[4] A 15% drop in average water consumption is conservative and has been used in order to thoroughly test the potential impacts. The 15% has been extrapolated from the experience of other Councils such as Tauranga and Nelson.

- provide sufficient and stable revenue to run water supply over time.

Options for tariff structures

30 We identified the following potential tariff structures:

- *Volumetric Charge with no fixed component*: this method charges for very unit of water as it is used, i.e., volume used x$/unit used.
- *Fixed charge plus a variable charge for consumption*: this method comprises a fixed charge to reflect the cost of providing reticulated water supply plus volumetric unit charging. It seeks to deliver on operation, maintenance and security of supply as well as consumption.
- *Fixed and volumetric charging with an initial allocated volume*: this method provides an allocation of water with the fixed charge. The allocation can be all or a large component of essential use. Discretionary water use can be more aggressively priced.
- *Stepped Charge (Increasing Block rate)*: increasing block rates charge more per unit of water as consumption increases past a defined level. It can be supplemented by a fixed charge and designed to provide for seasonal or peak loads.
- *Stepped Charge (Decreasing Block rate)*: the unit rate of the initial block is high and decreases at the next block as consumption increases. This is generally used for bulk water users.

Diagrammatic representations of these different models are attached at Appendix 8.

Pricing model for testing tariff structures

31 The Council commissioned the development of a pricing model to test the impacts of alternative tariff structures on water demand, revenue and the rates paid by different types of consumers. It has been developed by Dialogue Consultants Limited. Dialogue Consultants is experienced at developing these sorts of models. Previous work includes a similar model for Tauranga City Council.

32 The model has been built using the data from:

- the 2006 Census;
- the projections of population and dwellings prepared for the District Plan review and asset plans, and audited as part of the latter process;
- other District Plan Review documents;
- Council's financial projections on the future cost of water services prepared for the 2012 Draft Kāpiti Long Term Plan;
- Council's Annual Report 2011;
- water asset schedules;
- metering records;

- CH2M Beca Limited work on Benchmarking the Water Loss Estimate for Waikanae, Paraparaumu-Raumati Water Supply 2010;
- water production records from Water Treatment Plant.

33 The following assumptions underpin the model:

- the assumptions are based on actual water consumption data for those users who are presently metered and on estimates for those users who are presently un-metered – a much greater number of users are not metered;
- average consumption of water by domestic consumers once water meters are introduced is assumed to drop by 15%;
- average consumption of water by un-metered non-domestic users once water meters are introduced is assumed to drop by 5%;[5]
- the consumption quantities include losses beyond the meter/toby but do not include losses in the Council system;
- losses in the Council system, including unaccounted for usage, are assumed to be 15% of total supply;
- the provision of the level of revenue that Council's expenditure projections on the future cost of water services require in order to run a closed account for water services.

34 The model has been designed to identify the water charges that users could expect to pay if water meters are introduced. It is also able to assess the implications of changes over time from 2015/16 to 2025/26. The model can and will need to be recalibrated over time.

Evaluating the options

35 In order to evaluate the various charging options, we developed a set of criteria based on the key success factors we had identified. We then developed a series of scenarios and ran them though the charging model to see which option best met the criteria.

36 The scenarios were built on various combinations of household sizes, different levels of water use ranging from efficient to inefficient, indoor use only and all water use, and different charging structures so we could examine pricing impacts on small and large households and on households which use relatively little water versus those that use a lot of water.

37 The model has been set so that any scenario will produce the level of revenue that Council has estimated it needs to run the water services activity. This is intended to provide a reliable comparison of the impacts.

[5] Some non-domestic users are already metered.

Household types

38 The household types and the amounts of water they were assumed to use are set out below. CRAG noted that from a water supply perspective the design assumption for designing supply systems used by Council is peak demand of 400 litres consumed per person per day plus an amount identified for water loss. From a water charging perspective, in order to calculate real impact on households and to assess impacts on revenue, it is important to note that there will be efficiencies based on household size. For example, a five person household will not use five times as much water to wash dishes or wash a floor, compared with a one-person household. The estimated amounts below are based on data from communities using water meters. It also shows average water use per day and per year as it is that drives overall revenue.

Table 2: Estimated Average Water Consumption by Household Size for Use in Testing Impacts.

Household type	**All water use (indoor and outdoor)**	**Indoor or essential water use only**
Efficient water users	**Litres per day / cubic meters per year**	**Litres per day / cubic meters per year**
a single pensioner in a unit with pot plants	192 / 70	178 / 65
couple with small hand watered garden using	438 / 160	301 / 110
family of three with small garden	685 / 250	411 / 150
Couple with large efficiently watered garden	959 / 350	301 / 110
family of five with a large efficiently watered garden	1096 / 400	548 / 200
Inefficient water users		
family of three with a small garden and a dribbling tap	1644 / 600	411 / 150
family of five with an over watered garden	2740 / 1000	548 / 200
Family of five with a seriously leaking pipe	5479 / 2000	548 / 200

Business / commercial users

39 In addition, we examined scenarios which showed the impacts on commercial users ranging from businesses which use relatively little water such as shops through to some industrial users which use a lot of water:

- shop using 603 litres per day or 220 cubic metres a year;
- light industry using 822 litres per day or 300 cubic metres a year;
- restaurant using 3014 litres per day or 1100 cubic metres a year;

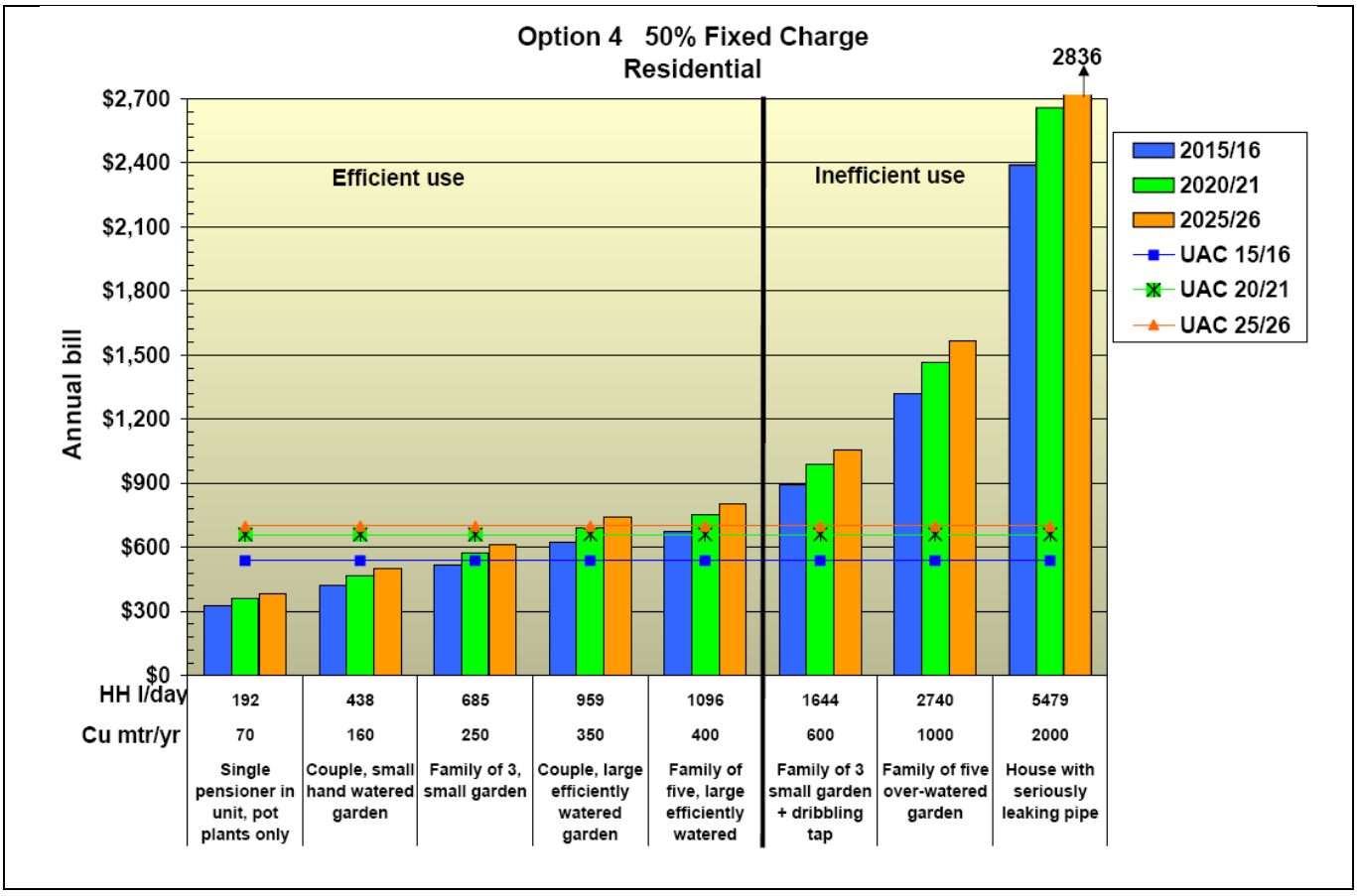
- school using 3562 litres per day or 1300 cubic metres a year;
- motor camp using 10411 litres per day or 3800 cubic metres a year.
- supermarket using 1300 cubic metres per year.

Output from pricing model

40 Using the assumptions set out in paragraphs 38 and 39 the pricing model produced a number of graphs, see the examples below. These graphs are structured to show the estimated cost of water under each household type or business, and compare this with the expected cost of water under the dam option. This is shown as a line across the graph which represents the fixed charge which would be used, also known as the Uniform Annual Charge. These figures do include the full charge with GST.

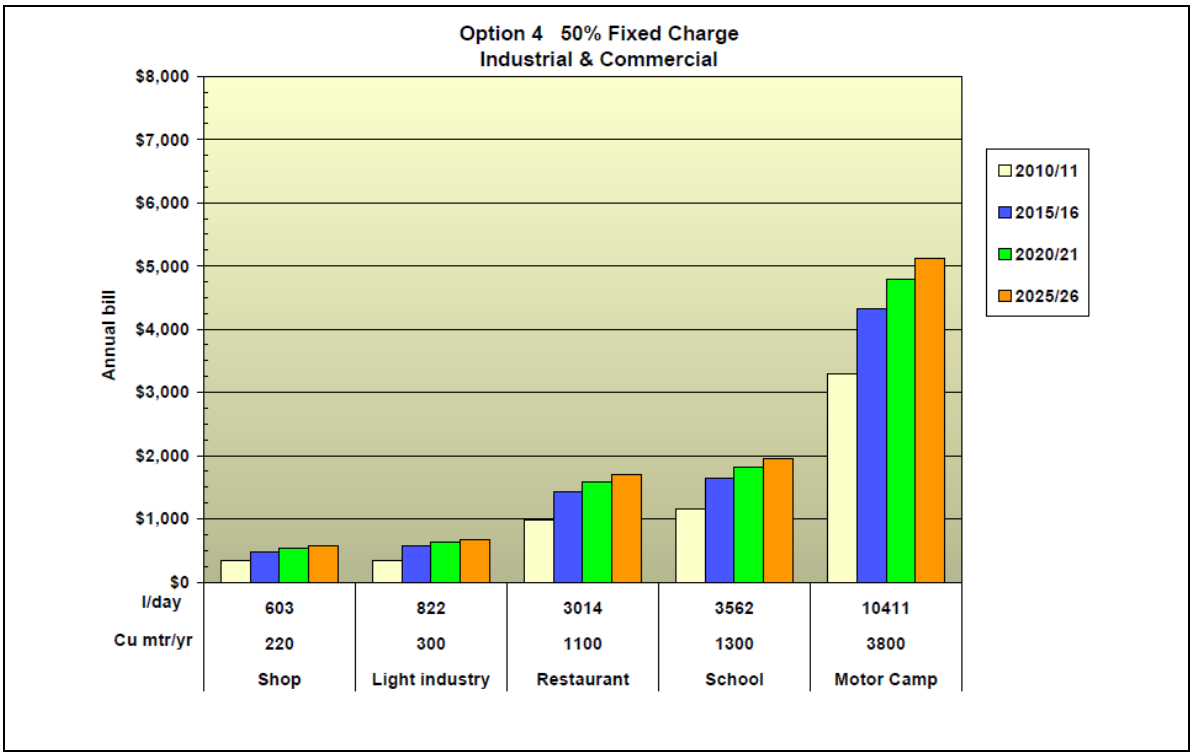
41 The first graph shows the estimated annual bill in dollars (left axis) for the household types at 2015/16, 2020/21 and 2025/26. It shows the output for a scenario of a 50% fixed and 50% variable charge. For comparison purposes, it also includes what the uniform annual charge (fixed charge) would be in 2015/16, 2020/21 and 2025/26 if water meters are not installed and the dam is built instead. It makes the distinction between households that use a reasonable level of water and more inefficient households, for example with an unfixed leaking tap.

Figure 2: Example of output from pricing model for residential users



42 The second graph shows the forecast annual bill in dollars on the left axis for industrial and commercial users at 2010/11, 2015/16, 2020/21 and 2025/26.

Figure 3: Example of output from pricing model for industrial and commercial users



NOTE: UAC means Uniform Annual Charge. Charges are GST inclusive

Figure 4 below shows a number of fixed / variable scenarios for indoor use only as they affect a single person household.

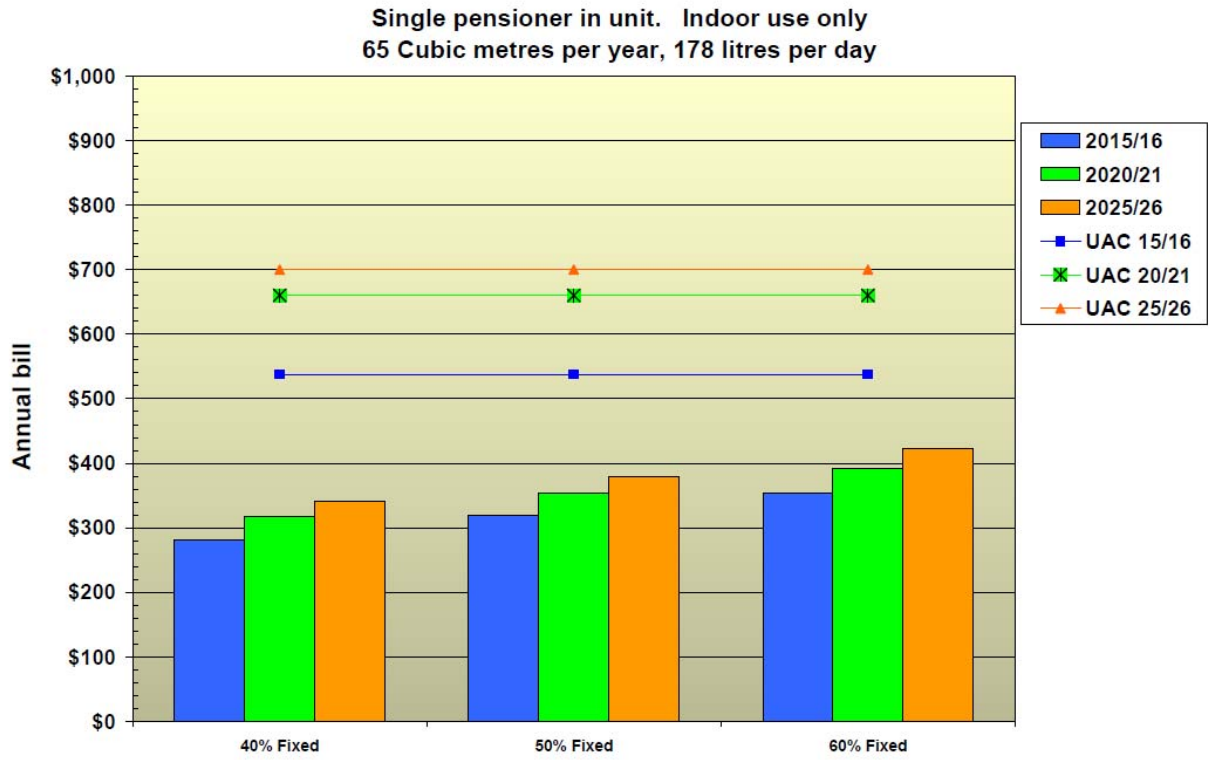


Figure 4: Example of output from a pricing model for essential (indoor) household use.

NOTE: UAC means Uniform Annual Charge. Charges are GST inclusive

Analysis

43 As noted earlier, we decided that the benchmark for comparisons would be the uniform annual charges that would apply in 2015/16, 2020/21, and 2025/26 (to meet the costs of planned service upgrades and maintenance (including the dam) if water meters are not introduced and the dam is built. Please see the earlier discussion on the costs of water supply for more information on this.

First set of scenarios

44 We reviewed and discussed in detail an initial set of seven water charging scenarios:

1 70% fixed charge which includes allocation of 100 cubic meters per year and a variable charge for additional usage above the 100 cubic meters per year;

2 55% fixed charge with a 45% variable charge for all usage;

3 70% fixed charge and 30% variable charge for all usage;

4 100% variable charge for all usage;

5 60% fixed charge and 40% variable charge for all usage;

6 60% fixed charge with 50% variable charge for all usage;

7 stepped charges with a 40% fixed charge.

It should be noted that CRAG considered the possibility of a seasonal charge at the outset but was of the view that such a charge was too complex and too unreliable in terms of revenue stability with the risk.

45 The CRAG concluded that it wished to set aside the following from consideration:

Scenario 1: 70% fixed charge with allocation of 100 cubic meters per year and a variable charge for additional usage above the 100 cubic meters per year. This was found to be affordable for low users who would generally pay less than that projected uniform annual charge. However, the approach will be unfair on low water users who would have to pay for water they do not use, when their use is less than the fixed allocation. The modelling showed that many smaller households are likely to fall into this category. This scenario could also be complex to administer; for example, the Nelson experience was that some people requested a refund when they did not use the fixed allocation. We decided that this scenario therefore failed the fairness and simplicity criteria and should not be investigated further at this stage. It was agreed that other approaches showed more potential to deliver against all criteria.

Scenario 4: 100% variable charge for all usage. The modelling showed that this model is likely to be very affordable for low water users and also in reducing water use for high water users because the charges would be very high at the top end. However this scenario would provide little incentive for low water users to conserve water. It would also be unfair because the extreme variation between low and high water users would result in low water users not paying their fair share of the cost of water supply while high water users would be required to pay a punitive share. Using a variable charge only would also fail to deliver revenue stability; i.e. revenue would be volatile because it would depend entirely on water usage which would be likely to result in a significant imbalance between revenue and expenditure. We decided that this scenario therefore failed the fairness and revenue stability criteria and should not be investigated further at this stage because other approaches showed more potential to deliver against all criteria.

Scenario 6: 60% fixed charge with 50% variable charge for all usage. Modelling showed that this approach would fail the revenue stability criterion because it would over-collect revenue making it inconsistent with principle that the water supply activity is not a money making business. We decided that this scenario should not be investigated further at this stage.

Scenario 7: stepped charges with a 40% fixed charge. This approach would affordable for low water users and very effective in reducing water use for high water users due to the very high potential charges for high water use. However stepped charges are complex for rate payers to understand and can also be complex to administer resulting in increased administration charges. We decided that this scenario failed the simplicity stability criterion and should not be investigated further at this stage because other approaches showed more potential to deliver against all criteria.

46 In conclusion, Scenarios 1, 4, 6, and 7 were discounted for the reasons outlined above. Scenarios 2, 3 and 4 were selected for further investigation in order to examine the implications of various combinations of fixed charges and variable charges. Appendix 8 summarises the analysis of these options against criteria. CRAG also asked for information on a wider range of fixed and variable charges.

Second set of scenarios

47 We then reviewed and discussed in detail six further water charging scenarios which were various combinations of fixed and variable charges:

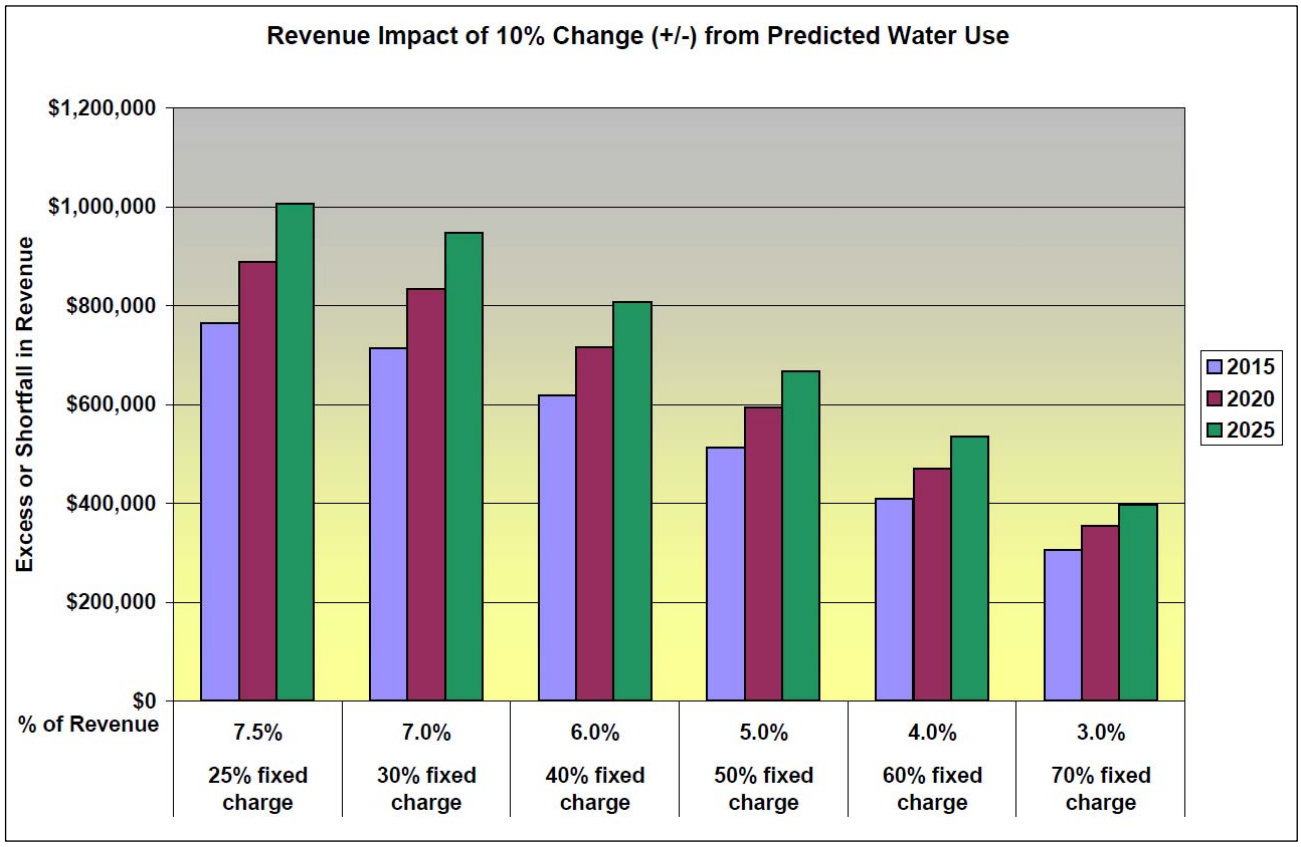
1. 25% fixed charge 75% variable charge
2. 30% fixed charge 70% variable charge
3. 40% fixed charge 60% variable charge.
4. 50% fixed charge 50% variable charge
5. 60% fixed charge 40% variable charge
6. 70% fixed charge 30% variable charge

48 It became clear during discussions that the factor which really distinguished between low and high domestic water users was outdoor water use rather than the size of the household. So we decided that the second set of household scenarios should also demonstrate the impacts on households with indoor or essential water use only.

49 In addition to reviewing the graphs provided from the charging model, we also reviewed actual data in dollar terms of the annual charges which would apply in respect of the six scenarios outlined above.

50 Overall we concluded that with respect to:

- Affordability - a lower fixed charge favours low water users, for example, single person households because they are unlikely to use more than what would be covered in a fixed charge regime;
- Affordability - a lower fixed charge favours landlords because they will pay the fixed charge only and pass the variable charge onto tenants;
- Affordability - a higher fixed charge favours tenants because tenants have only paid for water indirectly through rent previously, so a variable charge will be a new cost for them, and, this will potentially have greater impact on tenants who have a low income;
- Affordability - a higher fixed charge favours large water users such as commercial and industrial users because they will pay less in variable charges. See Appendix 6 for a graph which sets this out;
- Effectiveness - a lower fixed charge provides more incentive to save water because the variable charges will impact more;
- Future proof - a lower fixed charge provides more flexibility for adapting the tariff structure later if circumstances require;
- Net revenue stability - a higher fixed charge provides greater revenue stability for the Council because it is less affected by unpredicted changing patterns in water use. See the graph below which shows the impact on revenue of the six scenarios. It shows that, at a 25% fixed charge (i.e. 25% of revenue coming via the fixed portion of the charge) the variation in revenue could be plus or minus $760,000 in 2015 while at 70% fixed



NOTE: Charges are GST inclusive

51. On the scenarios, we reached the following conclusions:

Scenario 1 - 25% fixed charge 75% variable charge. This scenario does not provide for sufficient balance. There is too much variation in the impacts across users. For example, low water users are strongly advantaged while the impact on large water users is punitive. It also provided less revenue stability for the Council. In fact this scenario has similar impacts to the variable charge only scenario which we had already discounted. We decided that this scenario failed the fairness and revenue stability criteria. It was agreed that other scenarios showed more potential to deliver against all criteria.

Scenario 2 - 30% fixed charge 70% variable charge. This scenario is only slightly more balanced than Scenario 1. Again there is too much variation in the impacts across users. We decided that this scenario also failed the fairness and revenue stability criteria. It was agreed that other scenarios showed more potential to deliver against all criteria.

Scenario 3 - 40% fixed charge 60% variable charge. This scenario provided sufficient balance in the impacts across users. It also provides more incentive to save water than the scenarios with higher fixed charges. It provides an acceptable level of revenue stability for Council. It

would tend to favour landlords rather than tenants. We decided that this scenario warranted more detailed investigation and requested that further information be provided.

Scenario 4 - 50% fixed charge 50% variable charge. This scenario provided the most balance between the impacts across users. It also provides more incentive to save water than the scenarios with higher fixed charges. It provides an acceptable level of revenue stability for Council. We decided that this scenario warranted more detailed investigation and requested that further information be provided.

Scenario 5 - 60% fixed charge 40% variable charge. This scenario provided sufficient balance in the impacts across users. It provides less incentive to save water than the scenarios with lower fixed charges but should still deliver a satisfactory level of savings. It provides an acceptable level of revenue stability for Council. It would tend to favour landlords more than tenants. We decided that this scenario warranted more detailed investigation and requested that further information be provided.

Scenario 6 - 70% fixed charge 30% variable charge. This scenario does not provide for sufficient balance. There is too much variation in the impacts across users. High water users such as commercial users are advantaged compared to low water users. The incentives to save water are reduced. However, it provides more revenue stability for the Council. We decided that this scenario failed the fairness criteria. It was agreed that other scenarios showed more potential to deliver against all criteria.

51 With respect to commercial users, we identified that Scenarios 1 - 5 will result in increased charges and that the lower the fixed charge the greater that increase is likely to be. A higher fixed charge is therefore more beneficial for commercial users especially those who use a lot of water. Scenario 6 would in fact result in a reduced charge for water for very high water users. It was noted that high variable charges might create a disincentive for businesses to operate in Kāpiti. However, it was also noted that commercial users have more opportunities to make changes that reduce consumption than residential households usually do.

52 Please see Appendix 4 for more information on the evaluation of these scenarios.

53 In summary, Scenarios 4, 5 and 6 (with a fixed charge range of 40% - 60%) were selected for further consideration because this range provides for balanced outcomes across the criteria. We confirmed we were all comfortable looking at this range (i.e. between 40% and 60% fixed charge). All members of CRAG were interested in achieving the best balance across both social and economic concerns because there was a net benefit in achieving both for the community. All agreed that further information was required before a final decision could be made on the preferred charging structure.

Future information

54 Before we made a final decision on a recommended tariff structure, we identified that we wanted more information on the impacts on large water users such as schools, large institutions, supermarkets and retirement villages.

55 We noted these sorts of large water users have opportunities for reducing water consumption and suggested that the Council should consider providing information and assistance to them to help them identify these opportunities.

Third set of scenarios

56 We selected Scenarios 4, 5 and 6 (with a fixed charge range of 40% - 60%) for further consideration. We weighed the range against the criteria to establish which percentage met each criterion most strongly for residential users and industrial/commercial users. Table 3 sets this out. For example, a 40% fixed charge is more affordable for residential users provided they don't use much water while a 60% fixed charge is more affordable for commercial users. We assessed the impacts on residential and commercial users separately because the model indicates the impacts are different.

Table 3: Fixed charge range of 40 - 60% weighed against the criteria to identify which percentage meets the criteria most strongly

Criteria	Residential users (% fixed charge)	Commercial users (% fixed charge)
Affordability *Is it affordable for low income households?*	40% More affordable	60% More affordable
Effectiveness *How effective is it in reducing water use (while providing choice)?*	40% More effective	40% More effective
Fairness *Do similar users pay the same for similar amounts of water used?*	40-60% all fair	40-60% all fair
Transparency *Is it easy to understand?*	40-60% all transparent	40-60% all transparent
Simplicity *Is it easy to use and operate?*	40-60% all easy to use	40-60% all easy to use
Future proof *Is it flexible and able to be adjusted?*	40% More flexible	40% More flexible
Net revenue stability *Does it deliver sufficient and stable revenue?*	60% More stable	60% More stable

57 We discussed at length the impacts on different groups of consumers, particularly older people and low income households. Nearly 55% of all older people living on the Kāpiti Coast own their home without a mortgage. Around 108 older persons are paying a mortgage. A lower fixed charge (i.e. 40%) is more favourable for smaller households because they tend to use relatively little water.

58 However, low–income families that rent will have to pay the variable component of a water bill for the first time. A higher fixed charge (i.e. 60%) is more favourable for this group because the corresponding variable charge will be lower. We noted there are about 1896 low income families that rent in Kāpiti and about 597 older persons who rent. The largest number of

households living at or below the relative poverty line on the Kāpiti Coast are those with dependent children but that there is also a small number of older person households who rent .[6]

59 The pricing model shows that, for large water consumers such as schools, institutions and business, a higher fixed charge (60%) is more favourable.

60 Overall, we decided we needed to choose a tariff structure which works for the bulk of households and supports economic development that will produce local jobs and opportunities, with additional measures to assist those with special needs.

PREFERRED TARIFF STRUCTURE

61 In the end, having considered the variety of impacts discussed above, we believe that a tariff structure of a 50% fixed charge and a 50% variable charge will provide the most fair and equitable outcomes while encouraging reduced demand and more sustainable use of water, and encouraging more efficient use of infrastructure.

62 The low income representatives, while preferring a 40% / 60% fixed/variable split, accept the majority CRAG 50%/50% decision. This compromise was acceptable because:

- it only marginally increases the water charge to low users compared with the 40%/60% split;
- the low users' water charge will be substantially less than Council's projected water charge without meters; and
- the Council has assured us that policy measures and monitoring will be put in place to assist ratepayers where necessary.

63 However, given the variability of impacts across groups, we consider it critical that the Council addresses the related policy issues we identify below to ensure that impacts are minimised overall.

RELATED POLICY ISSUES

64 During the course of our discussions, we identified a number of related matters which could be addressed by the Council. These were:

- having a transition period so people can repair leaks before actual charging commences;
- providing back-up or additional assistance to low- income households experiencing general hardship ;
- finding ways to help people to manage the one-off costs associated with repairing leaks;

[6] P24 of the 2012 Affordability Impacts Review

- undertaking an active communication programme that enables people to understand progress on conservation and directly engages with stakeholders.

Further support for low-income households

65 Affordability for low income households has been a key focus for the CRAG. We have concluded that our preferred tariff structure will usually result in lower charges for low income households which make reasonable use of water.

66 Low income households which use more water continued to be an issue though it should be noted that under all the scenarios CRAG has considered essential water use will cost less than what would be paid by a household if a water supply solution such as the dam or river recharge was built. We consider that the Council should use the Rates Rebate Scheme and the Rates Remission - Financial Hardship Policy to assist these households providing they are eligible for assistance under those policies.

67 Low–income households that rent may also need additional assistance. The Rates Remission - Financial Hardship Policy makes provision for tenants to access some assistance provided they meet eligibility criteria. We consider that the Council should also provided targeted advice to tenants to assist them to identify ways in which they can reduce water consumption.

68 We consider that the Council should make a special effort to ensure older persons know about the Rates Rebate Scheme and the Rates Remission - Financial Hardship Policy. Older persons are known to be reluctant to seek assistance so we think the Council should take steps to help them access these schemes.

A transition period and on-going provision of advice

69 We consider that there are a number of actions Council could take to assist the community to manage the initial impact of adapting to water meters. These include providing:

- a transition period of 6 months, in which people can fix leaks before they have to pay water bills;
- assistance to people who are unable to afford to fix leaks, for example, allowing the interest free water loans scheme to be used for this purpose;
- targeted assistance public institutions to help them find ways of saving water and reducing costs (these services are already available to householders through the Green Plumber, Green Gardener and Eco-design advisor);
- targeted assistance for businesses to help them find ways of saving water and reducing costs.

Billing

70 We are of the view that billing should happen quarterly. This allows people to manage their finances more easily and to address water losses quickly. Council has indicated that it would provide people with information when their water bill may seem high, (perhaps indicating a leak), with a grace period to repair the leak. If addressed in this period, the ratepayer would not be required to pay the unusual water use. We support this and also consider that the Council should establish an appeal process for households and businesses that want to challenge a bill.

Communication, education and monitoring

71 We think that there is a need for on-going monitoring of the economic and social effects of the introduction of water meters, as well as overall conservation performance and revenue stability. It is important that Council and CRAG which is intended to have an on-going monitoring role have a good understanding of these effects. We are of the view that there should be a formal review of the charging formula two years from the first actual charging begins. This would be in addition to the six months transition period before actual charging commences on 1 July 2014.

72 Linked to the question of monitoring is the need for a high level and quality of information being made available to the community about progress, water conservation opportunities, and how to reduce water consumption and water costs. Council should also have an active programme to communicate its various support programmes to businesses, households and other public institutions. We support Council's education programme and are of the view that this should be maintained and enhanced so people understand the issues surrounding water consumption and the need for water conservation.

CONCLUSION

73 Social impacts were an important consideration. CRAG was also very conscious of economic development needs, as well as projected increasing population over the next 20 years. CRAG wanted to achieve a charging system that did not constrain sensible economic development while also managing social impacts on groups who were affected in varying ways by different models. Water will need constant management and on-going monitoring of the charging system to balance supply, demand and costs, within a transparent environment.

RECOMMENDATIONS

We recommend that the Council, if it confirms the introduction of water meters:

1. Adopts a tariff structure of 50% fixed charge and 50% variable charge, in the first instance subject to a review after 2 years of operation;
2. Manages the introduction of charging for water carefully to assist residents to make the transition by providing:
    - for a transition period, of 6 months or two billing periods, in which ratepayers can fix leaks and gain experience in measuring water use before they have to pay metered water bills;
    - assistance to ratepayers who are unable to afford to fix leaks, for example, allowing the interest free water loans scheme to be used for this purpose.
3. Provides assistance through its Rates Remission – Financial Hardship Policy for low income residents who qualify under that Policy;
4. Provides targeted advice to schools and other public institutions to help them find ways of saving water and reducing costs;
5. Provides targeted advice for businesses to help them find ways of saving water and reducing costs;
6. Provides targeted advice for landlords and tenants on rebates that might be available and to tenants to help them find ways of saving water and reducing costs;
7. Provides assistance to ratepayers to deal with leaks on an on-going basis by:
    - Providing advice to ratepayers on identifying and fixing leaks; and
    - Allowing a period of 1 month in which a ratepayer can fix a leak before they have to pay a water bill in situations where a ratepayer has received a high water bill caused by a leak.
8. Monitors the effects on tenants and low income households on an on-going basis;
9. Keeps under review the effects of the water charging system on economic development within the Kāpiti District;
10. Continues with its ground breaking water conservation initiatives, for example, interest free water loans and requiring all new households in reticulated water supply catchments to include on-site systems for non-potable water for toilet flushing and outdoor use (Plan Change 75);
11. Continues to account for water costs separately and provides regular information to the community on a fully transparent basis;
12. Adopts an active communications policy including regular consultation with tangata whenua and appropriate community groups such as Grey Power and the Chamber of Commerce.

APPENDIX 1: TERMS OF REFERENCE: CHARGING REGIME ADVISORY GROUP

Background:

The Council has approved, in principle, the introduction of water meters and volumetric charging as a water conservation tool, as a way to avoid risks of breaching resource consents, as a way to avoid unnecessary investment in water supply infrastructure and to achieve a greater equity in what people pay for water services.

During 2011/12 Council will, based on the advice of the Charging Regime Advisory Group as to what would be the best system, develop the charging formula to be used. It will also develop the detailed project plan for the installation of water meters. A final decision to proceed with water meters will be made in June 2012, with the intent to introduce actual charging in July 2014.

Purpose of the Charging Regime Advisory Group:

1. To develop and recommend a draft volumetric water charging formula for introduction in conjunction with residential water meters;

2. To undertake on-going monitoring of the pricing and charging for water by Kāpiti Coast District Council.

Scope:

CRAG will have the responsibility to develop a draft volumetric charging formula for water which can be applied to both residential and non-residential properties using the following reticulated water supply.

It is proposed that volumetric charging will commence on the 1 July 2014. From 1 July 2014 a monitoring and evaluation system will be in place to enable CRAG to report formally to Council on at least and annual basis. The first annual report would be due on the 30th June 2015.

CRAG will be provided with technical support to gather data, explore, develop and test any charging model or formula, prior to recommendation to Council. This will include the provision of independent external expert advice commissioned for the Group on charging systems, or any other necessary analysis. There will be opportunities for members of the community to provide ideas on charging regimes into the work programme.

Framework for Development of Volumetric Charging Formulae

In discussing and arriving at any advice on a draft formula the CRAG will work within the following framework:

- water charges must provide revenue for all existing and new costs of the water service activity (Note: this does not and cannot include any costs associated with wastewater services);

- in finding a balance between fixed (if any) and volumetric charges, there is sufficient incentive available from volumetric changing to effect behaviour change;

- impacts on small and larger households, in terms of fairness (horizontal equity) and social impacts (vertical equity) are considered and explicitly addressed;
- the charging regime must be capable of being applied across all geographic communities on reticulated supply and all sectors (e.g. residential and commercial)
- fairness of impacts on reasonable and high users of potable water are to be explicitly addressed
- that particular characteristics of the Kāpiti Coast are provided for in the design of the charging system, in particular:
    - special interest of communities in gardening;
    - large older population;
    - relatively high number of low income households;
    - retirement homes;
    - unit titles;
    - holiday homes;
    - marae.
- be capable of annual adjustments to charging to address fluctuations in consumption;
- links to the water by-law in terms of landowner responsibilities and to the rating policy in terms of hardship provisions;
- satisfy Council's annual cash-flow requirements;
- not impose unreasonable administration costs.

Membership:

- Chair: Mr Don Hunn
    - Grey Power: 1 member
    - Council of Elders: 1 member
    - background in financial skills: 1 member
    - community interests and low income households: 2 members
    - Chamber of Commerce: 1 member
    - Landlord interest: 1 member
    - Council: 2 Councillors
    - Iwi: up to 3 representatives

All members shall be ratepayers or residents of the Kāpiti Coast District.

Processes and Support:

- the CRAG will:
    - meet regularly with meeting times structured to enable the Group to provide timely comment and advice to Council at each stage;
    - be provided with all reports and technical data within timeframes that allow robust advice to be provided to Council staff and Council;
- Council will:
    - reimburse members' travel costs arising from participation in the CRAG;
    - provide all secretarial support;
    - provide a project management support to advance necessary technical work and follow-up between meetings actions;
    - commission any independent expert advice on behalf of the Group, including peer review processes. The latter may include seeking input from other Councils with experience in water meters and volumetric charging.

Communication:

- any public statements about CRAG business will be made by the Council or the Chair in consultation with each other;
- final versions of all papers provided to the CRAG will be made publicly available.

Appendix 2: Summary Information

Cost of Water Activity Expressed as Total Revenue Need 2012/13-2031/32.

	YR 1 Sum of Bud 12/13	YR 2 Sum of Bud 13/14	YR 3 Sum of Bud 14/15	YR 4 Sum of Bud 15/16	YR 5 Sum of Bud 16/17	YR 6 Sum of Bud 17/18	YR 7 Sum of Bud 18/19	YR 8 Sum of Bud 19/20	YR 9 Sum of Bud 20/21	YR 10 Sum of Bud 21/22
Depreciation	1,925,200	1,719,035	2,178,813	2,382,419	2,399,709	2,423,900	2,485,430	2,520,138	2,549,385	2,579,836
Remaining Water Rates Surplus	-225,287	33,669	-20,000							
Loan Capital	2,757	13,401	19,382	22,347	237,582	517,407	483,021	572,113	649,568	906,250
Loan Servicing	1,623,729	2,392,675	2,671,566	2,602,606	2,542,773	2,580,894	2,644,710	2,602,520	2,517,564	2,442,661
Opex Projects	5,000	20,780	21,507	5,603	34,748	11,980	12,400		13,412	48,818
Other Direct Costs	2,911,733	3,383,643	3,553,991	3,783,910	3,960,886	4,141,316	4,315,216	4,530,121	4,756,464	5,003,007
Overheads Allocation	785,907	825,985	873,283	907,552	949,112	990,043	1,015,235	1,046,832	1,078,833	1,109,383
Total Revenue Need	**7,029,039**	**8,389,188**	**9,298,542**	**9,704,437**	**10,124,810**	**10,665,540**	**10,956,012**	**11,271,724**	**11,565,226**	**12,089,955**

	YR 11 Sum of Bud 22/23	YR 12 Sum of Bud 23/24	YR 13 Sum of Bud 24/25	YR 14 Sum of Bud 25/26	YR 15 Sum of Bud 26/27	YR 16 Sum of Bud 27/28	YR 17 Sum of Bud 28/29	YR 18 Sum of Bud 29/30	YR 19 Sum of Bud 30/31	YR 20 Sum of Bud 31/32
Depreciation	2,626,594	2,694,543	2,843,399	2,900,734	2,954,426	2,699,998	2,480,627	2,568,899	2,650,367	2,644,616
Remaining water rates surplus										
Loan Capital	1,193,750	1,306,250	1,618,750	2,368,750	3,206,260	4,244,157	5,307,171	6,195,309	7,571,077	8,721,987
Loan Servicing	2,446,492	2,791,476	3,088,286	3,002,494	2,749,709	2,481,455	2,320,457	2,177,895	1,724,011	1,019,152
Opex Projects	14,520		7,875	24,578	59,681		9,248	19,236	26,640	52,115
Other Direct Costs	5,245,634	5,527,535	5,802,895	6,104,933	6,403,668	6,746,658	7,086,915	7,459,748	7,824,775	8,245,234
Overheads Allocation	1,145,210	1,173,739	1,206,746	1,244,587	1,282,533	1,318,000	1,359,352	1,400,126	1,435,196	1,471,680
Total Revenue Need	**12,672,200**	**13,493,543**	**14,567,951**	**15,646,076**	**16,656,277**	**17,490,268**	**18,563,770**	**19,821,213**	**21,232,066**	**22,154,784**

Notes:

(1) these figures present the total cost of the water service expressed as total revenue need for 20 years. They are derived from the Water Asset Plan and are indexed for inflation. They are not adjusted for GST. They form the basis for all other calculations in this report in relation to impacts on households and commercial user

Notes: contd

(2) description of each line:

- Depreciation is the amount of money that must be set aside each year in order to fund the replacement or renewal of assets as they age.
- Remaining water rates surplus refers to an historical level of rates surplus.
- Loan capital relates to the repayment of the principal of loans that Council raises over time to fund capital works.
- Loan servicing relates to the repayment of interest on loans raised to fund capital works over time.
- Opex projects relate to particular projects which are not capital projects. For example, there may be a project to improve a monitoring process or commission research into a water management matter.
- Other Direct Costs relates to the direct cost f running the service. This includes such things as energy costs, chemicals for treatment of water, maintenance of the water network. This figure increases over time as the network increases in size or the need for more treatment because of increased demand.
- Overhead allocation relates to payment of the general management and staff overheads relating to the overall management of Council business. For example, it funds the water asset managers, IT systems.

Number of Properties Connected and Receiving Full Potable Water Services Via Reticulated Network (not including Hautere Rural Supply)	
Residential	20,566
Non-residential	2,968
Number Properties where Treated Water Available but not Connected. (Charged 50% of current fixed charge)	
Residential	838
Non-residential	130

Summary of Revenue Sources: (est. for 2012/13 as per Long Term Plan)		
Standard (Residential) Users*	$6,724,039	96%
Extraordinary Water Users**	$305,000	4%

* Standard (Residential) Users: comprises residential users only.

**Extraordinary Water Users: are primarily comprised of commercial users but can include residential properties with swimming pools 10cm or greater in size. Note: in reality, some non-residential properties are not metered but even if all were metered the proportion of Extraordinary Users to Standard (Residential) Users is unlikely to be significantly higher.

Water Meters Installation Cost

Current Manifolds installed across the district **7000**
Total number of connections **19601**

Properties with a manifold requiring meter only **7000**
Properties requiring full manifold and meter installation **12601**

Materials		**Estimate 2011/12**	**Basis**
Water meter box		$21.16	2011 Actual supply costs
Acuflo base		$5.60	2011 Actual supply costs
Acuflo manifold		$94.20	2011 Actual supply costs
20mm screw on meter		$96.20	2011 Actual supply costs
25OD MDPE adaptor		$5.77	2011 Actual supply costs
Total		**$ 222.93**	

Installation Estimates

Materials full installation (inc 10% cont)		$245.22	13,000	$	3,187,899.00
Materials meter only		$96.20	7,000	$	673,400.00
				$	**3,861,299.00**
Reinstatement (AC)	$ 50.00		13,000	$	487,500.00
Labour/Plant full installation	$ 175.00		13,000	$	2,275,000.00
Labour/Plant meter only	$ 17.50		7000	$	122,500.00
				$	**2,885,000.00**
Cost full installation		**$457.72**	13,000	$	5,950,399.00
Cost meter only		**$113.70**	7000	$	795,900.00
			Estimate	**$**	**6,746,299.00**
			Less 10% on bulk contract saving	$	674,629.90

Estimate	**$**	**6,071,669.10**

Ward	Connections	%	Install (1) inc 10% bulk saving	Install (2) Assume no bulk savings
Otaki	3059	16%	$ 947,565.73	$ 1,052,850.81
Waikanae	5346	27%	$ 1,655,994.24	$ 1,839,993.59
Paraparaumu	10490	54%	$ 3,249,416.30	$ 3,610,462.55
Paekakariki	706	4%	$ 218,692.84	$ 242,992.05
Total	**19601**	**100%**	**$ 6,072,000.00**	**$ 6,747,000.00**

	$	**6,072,000.00**	**$**	**6,747,000.00**

Plus 10% Contingency	$	6,679,200.00	$ 7,421,700.00

Total Estimate allows for uncertainty in number of connections	**$**	**8,000,000.00**

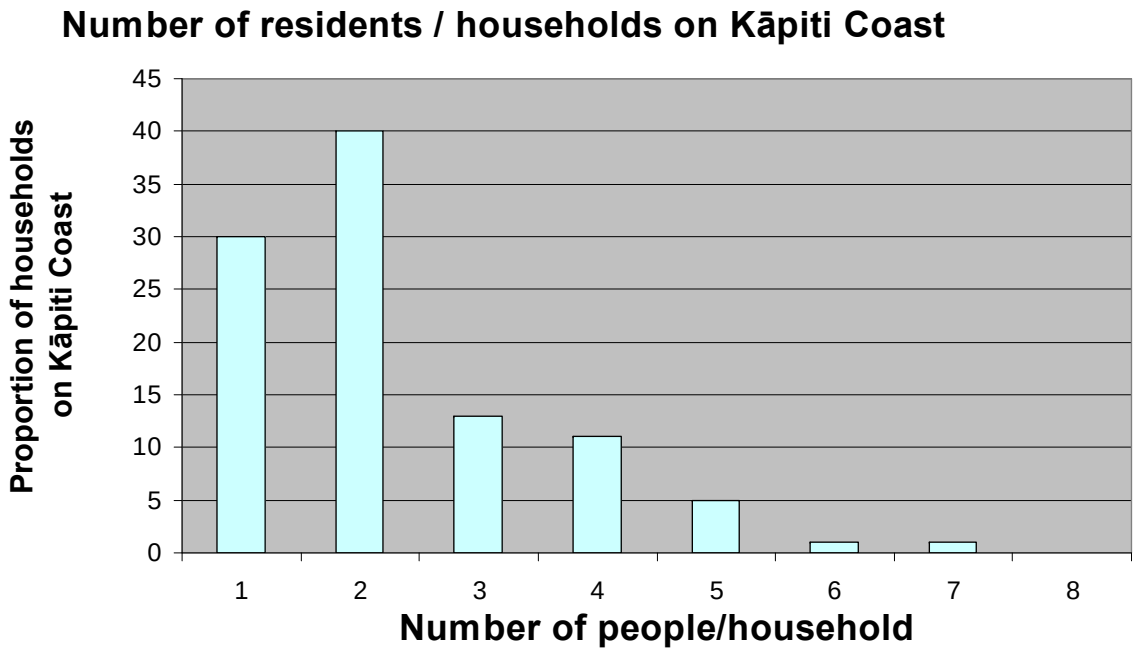
APPENDIX 3: SYSTEMS USED BY NELSON CITY COUNCIL AND TAURANGA CITY COUNCIL

Tariff Descriptions		Nelson City Council	Tauranga City Council
Drivers	*What were the drivers that caused Council to adopt water metering?*	a) Trunk main into city nearing capacity on peak days – faced with costly upgrades b) Had to show under the RMA were managing water sustainably	a) Reduce water use so wouldn't have to build a bigger and more expensive water supply b) Fairness and equity – consumers pay for what they use (amalgamating two areas – one with meters one without) c) Had to show under the RMA that managing water sustainably d) Mechanism to measure and manage demand
Water Use	*What was peak consumption before metering implemented?*	42,300 m^3/day (1997/1998)	54,000m^3/day (1997/1998) – 80,000 people
	How has peak consumption changed since metering	35,000 $m^{3/}$day (2000)	53,700m^3/day (2007/2008) – 108,600 people
Customers	*How many customers are residential?*	17,000 connections (1999)	35,000 connections (2002)
	What proportion is their water use	60% of total water consumed is residential	80% of water consumed by residential users

Tariff Descriptions		Nelson City Council		Tauranga City Council	
	How many are commercial/industrial?	1,000 connections		4,000 connections (2002)	
	What proportion is their water use?	40% of total water consumed is commercial (although this has reduced with economic conditions)		20% of water consumed by commercial/industrial users	
Tariff type	*How was the water rates structured for residential customers?*	<u>Fixed line charge</u> (with an allocation of water) **Fixed charge generated 50% of revenue** <u>Volumetric Charge</u> **Volumetric charge generated 50% of revenue**	<u>Fixed line charge</u> **Fixed charge generated 30% of revenue** <u>Volumetric Charge</u> **Volumetric charge generated 70% of revenue**	<u>Fixed line charge</u> <u>Volumetric Charge</u>	<u>Fixed line charge –</u> **Fixed charge generated 10% of revenue** *Notice reduced the fixed line charge* <u>Volumetric Charge –</u> **Volumetric charge generated 90% of revenue** *Notice increased the volumetric charge*
	How was the water rate structured for commercial/industrial users?	Same fixed line charge and allocation as residential customers	Same fixed line charge as residential customers	The fixed line charge increases with the manifold size.	The fixed line charge increases with the manifold size.

Tariff Descriptions		Nelson City Council		Tauranga City Council	
		Volumetric charge broken into decreasing steps, i.e. the more you use the less you pay for each cubic meter – (aimed to minimise running costs on major employers) The metering targeted residential properties that were causing the peak day pressures	Decreasing block rate for com/industrial users with constant water use. Introduced a summer tariff on commercial customers with high summer water use to encourage practices that reduce peak use	Commercial and industrial customers paid the same volumetric charge as residential customers	Commercial and industrial customers paid the same volumetric charge as residential customers

APPENDIX 4: HOUSEHOLDS SIZES ON THE KAPITI COAST



Residents per household	1	2	3	4	5	6	7	8	Total
Number of households	5151	6981	2193	1926	843	219	90	30	17433
% of total households	30	40	13	11	5	1	1	0	100

APPENDIX 5: DATA FROM THE CHARGING MODEL THAT CRAG USED TO ANALYSE THE VARIOUS CHARGING SCENARIOS

Tariff components over 20 years for Households

Option		2010/11	2015/16	2020/21	2025/26	2030/31
25% Fixed	Fixed	$333	$125	$140	$152	$179
	Per cubic metre	$0.86	$1.66	$1.86	$2.02	$2.39
	Single pensioner in unit, pot plants only	$333	$241	$270	$293	$347
	Couple, small hand watered garden	$333	$390	$437	$475	$562
	Family of 3, small garden	$333	$540	$605	$657	$777
	Couple, large efficiently watered garden	$333	$706	$791	$859	$1,016
	Family of five, large efficiently watered garden	$333	$789	$884	$960	$1,135
30% Fixed	Fixed	$333	$148	$166	$180	$212
	Per cubic metre	$1	$1.54	$1.73	$1.88	$2.21
	Single pensioner in unit, pot plants only	$333	$255.64	$287.18	$312.08	$366.86
	Couple, small hand watered garden	$333	$394.24	$442.88	$481.28	$565.76
	Family of 3, small garden	$333	$532.84	$598.58	$650.48	$764.66
	Couple, large efficiently watered garden	$333	$686.84	$771.58	$838.48	$985.66
	Family of five, large efficiently watered garden	$333	$763.84	$858.08	$932.48	$1,096.16
40% Fixed	Fixed	$333	$198	$222	$239	$280
	Per cubic metre	$1	$1.30	$1.46	$1.57	$1.84
	Single pensioner in unit, pot plants only	$333	$288.60	$324.12	$348.54	$408.48
	Couple, small hand watered garden	$333	$405.60	$455.52	$489.84	$574.08
	Family of 3, small garden	$333	$522.60	$586.92	$631.14	$739.68
	Couple, large efficiently watered garden	$333	$652.60	$732.92	$788.14	$923.68
	Family of five, large efficiently watered garden	$333	$717.60	$805.92	$866.64	$1,015.68
50% Fixed	Fixed	$333	$249	$277	$296	$350
	Per cubic metre	$1	$1.07	$1.19	$1.27	$1.50
	Single pensioner in unit, pot plants only	$333	$324.21	$360.57	$384.81	$454.50
	Couple, small hand watered garden	$333	$420.51	$467.67	$499.11	$589.50
	Family of 3, small garden	$333	$516.81	$574.77	$613.41	$724.50
	Couple, large efficiently watered garden	$333	$623.81	$693.77	$740.41	$874.50
	Family of five, large efficiently watered garden	$333	$677.31	$753.27	$803.91	$949.50

60% Fixed	Fixed	$333	$300	$332	$357	$418
	Per cubic metre	$1	$0.84	$0.93	$1.00	$1.17
	Single pensioner in unit, pot plants only	$333	$358.68	$397.11	$427.00	$499.59
	Couple, small hand watered garden	$333	$434.28	$480.81	$517.00	$604.89
	Family of 3, small garden	$333	$509.88	$564.51	$607.00	$710.19
	Couple, large efficiently watered garden	$333	$593.88	$657.51	$707.00	$827.19
	Family of five, large efficiently watered garden	$333	$635.88	$704.01	$757.00	$885.69
70% Fixed	Fixed	$333	$348	$388	$417	$485
	Per cubic metre	$0.86	$0.61	$0.68	$0.73	$0.85
	Single pensioner in unit, pot plants only	$333	$391.01	$435.88	$467.93	$544.85
	Couple, small hand watered garden	$333	$445.91	$497.08	$533.63	$621.35
	Family of 3, small garden	$333	$500.81	$558.28	$599.33	$697.85
	Couple, large efficiently watered garden	$333	$561.81	$626.28	$672.33	$782.85
	Family of five, large efficiently watered garden	$333	$592.31	$660.28	$708.83	$825.35

NOTE: Prices include GST

Appendix 6: Evaluation of scenarios

Criteria	**Scenario 1** *Fixed charge with allocation of 100 cubic meters per year plus charge for excess usage*	**Scenario 2** *Fixed charge with variable charge for all usage (no allocation)*	**Scenario 3** *High fixed charge and lower variable charge*	**Scenario 4** *Variable charge only*	**Scenario 5** *Fixed charge close to present UAC*	**Scenario 6** *Fixed charge close to present UAC with higher variable charge*	**Scenario 7** *Stepped charges*
Affordability *Is it affordable for low income households?*	affordable for low water users - will generally pay less than the projected UAC	Potentially	Potentially	affordable for low water users - will result in very low charges for low water users	Potentially	Potentially	affordable for low water users - will generally pay less than the projected UAC
Effectiveness *How effective is it in reducing water use (while providing choice)?*	Yes/adequate/ acceptable???	Potentially	Potentially	Will be very effective in reducing water use for high water users because charges are very high at the top end but provides little incentive for low water users to improve	Potentially	Potentially	Will be very effective in reducing water use for high water users because the charges are very high at the top end
Fairness *Do similar users pay the same for similar amounts of water used?*	Unfair, i.e., some low water users will pay for water they do not use, ie, they will use less than the fixed allocation	Potentially	Potentially	Unfair, i.e., results in extreme variation between low and high water users, i.e., low water users do not pay the cost of water supply to them and is punitive for high water users.	Potentially	Potentially	Yes
Transparency *Is it easy to*	Yes/adequate/ acceptable???	Potentially	Potentially	Yes	Potentially	Potentially	

Criteria	**Scenario 1** *Fixed charge with allocation of 100 cubic meters per year plus charge for excess usage*	**Scenario 2** *Fixed charge with variable charge for all usage (no allocation)*	**Scenario 3** *High fixed charge and lower variable charge*	**Scenario 4** *Variable charge only*	**Scenario 5** *Fixed charge close to present UAC*	**Scenario 6** *Fixed charge close to present UAC with higher variable charge*	**Scenario 7** *Stepped charges*
understand?							
Simplicity *Is it easy to use and operate?*	Can be complex to administer, for example, the Nelson experience was that some people wanted a refund when they did not use the fixed allocation	Potentially	Potentially	Yes	Potentially	Potentially	Complex for ratepayers to understand, can also be complex to administer and as a result administration charges increase
Future proof *Is it flexible and able to be adjusted?*	Yes/adequate/ acceptable???	Potentially	Potentially	Yes	Potentially	Potentially	Yes
Net revenue stability *Does it deliver sufficient and stable revenue?*	Yes/adequate/ acceptable???	Potentially	Potentially	Revenue volatile because depends entirely on water usage. Water supply is largely a fixed cost business so Council could end up with an imbalance between revenue and expenditure as has happened in Tauranga City.	Potentially	Over collects on revenue so it is inconsistent with the principle that the water supply business is not a money making business	Yes

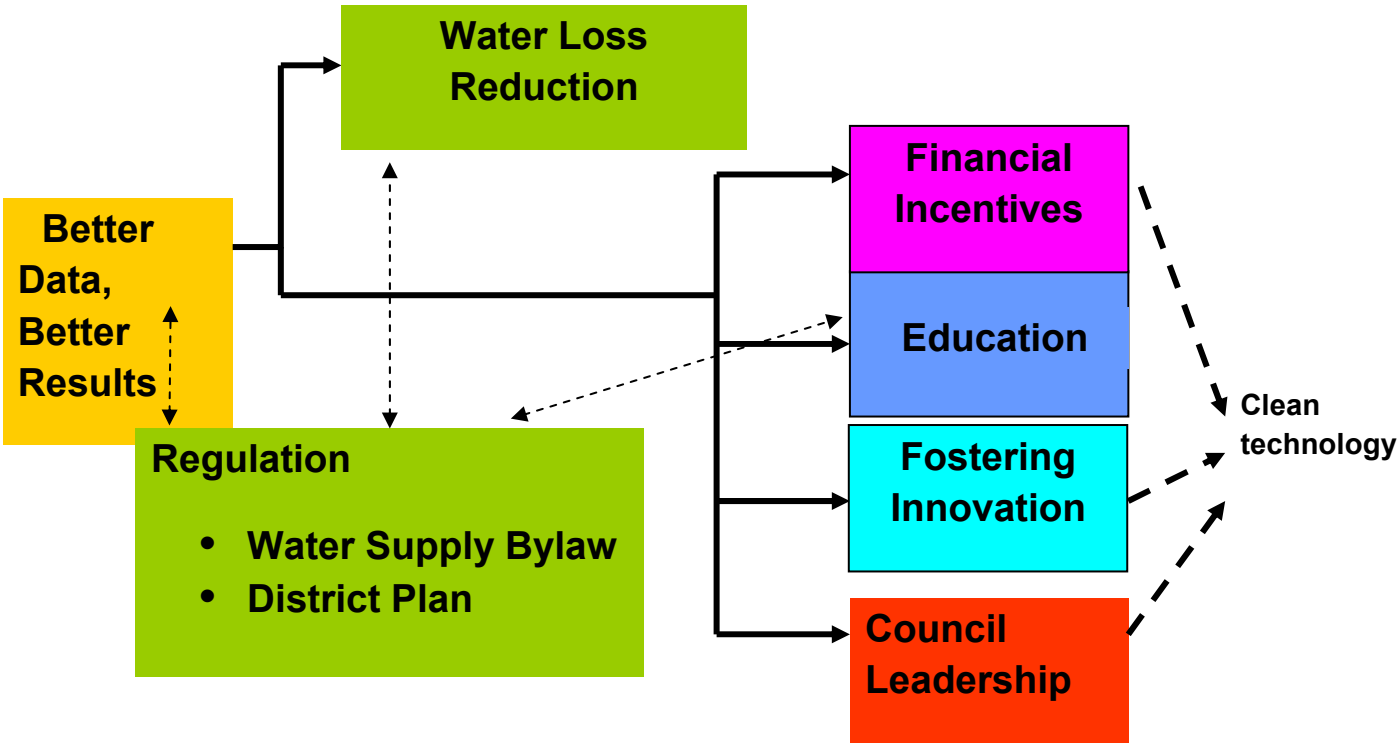
Criteria	**Scenario 1** *Fixed charge with allocation of 100 cubic meters per year plus charge for excess usage*	**Scenario 2** *Fixed charge with variable charge for all usage (no allocation)*	**Scenario 3** *High fixed charge and lower variable charge*	**Scenario 4** *Variable charge only*	**Scenario 5** *Fixed charge close to present UAC*	**Scenario 6** *Fixed charge close to present UAC with higher variable charge*	**Scenario 7** *Stepped charges*
Yes / No	**No** **Fails fairness criteria**	**Selected for detailed investigation**	**Selected for detailed investigation**	**No** **Fails fairness and revenue criteria**	**Selected for detailed investigation**	**No** **Fails revenue criteria**	**No** **Fails simplicity criteria**

Criteria	Scenario 1 *25% fixed charge 75% variable charge*	Scenario 2 *30% fixed charge 70% variable charge*	Scenario 3 *40% fixed charge 60% variable charge*	Scenario 4 *50% fixed charge 50% variable charge*	Scenario 5 *60% fixed charge 40% variable charge*	Scenario 6 *70% fixed charge 30% variable charge*
Affordability *Is it affordable for low income households?*	Most affordable scenario for low water users and some low income groups such as retired people who are often low water users. Least affordable scenario for high water users. Favours landlords because they will pay the low fixed charge but will disadvantage tenants who will the higher variable charge. Tenants have only paid for water indirectly through rent previously. Will have greater impact on tenants who are also low income.	Scenario 2 is only slightly more balanced than Scenario 1 so the same comments apply.	Adequately balances the affordability impacts on low and high users	Adequately balances the affordability impacts on low and high users	Adequately balances the affordability impacts on low and high users	Least affordable scenario for low water users and some low income groups such as retired people who are often low water users. Most affordable scenario for high water users including commercial users. However, the model still indicates that under this scenario low water users will pay less than the projected UAC. Disadvantages landlords because they will pay the fixed charge but will advantage tenants who will pay the variable charge.
Effectiveness *How effective is it in reducing water use (while providing choice)?*	Most effective scenario because the low fixed/high variable structure provides the most incentives to save water.	Scenario 2 is only slightly more balanced than Scenario 1 so the same comments apply.	More effective in providing incentives for saving water because the fixed charge is lower than the variable charge.	Effective in providing incentives for saving water	Effective in providing incentives for saving water	Least effective scenario because the low variable charge provides least incentives to save water. However, even so the model indicates this scenario provides reasonable incentives to save water compared to

Criteria	Scenario 1 *25% fixed charge* *75% variable charge*	Scenario 2 *30% fixed charge* *70% variable charge*	Scenario 3 *40% fixed charge* *60% variable charge*	Scenario 4 *50% fixed charge* *50% variable charge*	Scenario 5 *60% fixed charge 40% variable charge*	Scenario 6 *70% fixed charge 30% variable charge*
						the current situation.
Fairness *Do similar users pay the same for similar amounts of water used?*	Least fair scenario because there is too much variation across users. Low water users are strongly advantaged while the impact on large water users is punitive. Scenario has similar impacts to the variable charge only scenario which we discounted at our meeting of 19 February.	Scenario 2 is only slightly more balanced than Scenario 1 so the same comments apply.	Fairer scenario because the variation across users is reduced by having a more balanced fix/variable charge structure.	Most fair scenario because the variation across users is reduced by having a balanced fix/variable charge structure.	Fairer scenario because the variation across users is reduced by having a more balanced fix/variable charge structure.	Least fair scenario because there is too much variation across users. High water users are strongly advantaged while low water users will pay for water they are not necessarily using.
Transparency *Is it easy to understand?*	Yes	Yes	Yes	Yes	Yes	Yes
Simplicity *Is it easy to use and operate?*	Yes	Yes	Yes	Yes	Yes	Yes
Future proof *Is it flexible and able to be adjusted?*	Most able to be adjusted scenario because a lower fixed charge provides more flexibility for adapting and changing the tariff	Scenario 2 is only slightly more balanced than Scenario 1 so the same comments apply.	Yes	Yes	Yes	Least able to be adjusted scenario because will not be able to move to a higher fixed charge thus providing less flexibility for adapting and

Criteria	**Scenario 1** *25% fixed charge* *75% variable charge*	**Scenario 2** *30% fixed charge* *70% variable charge*	**Scenario 3** *40% fixed charge* *60% variable charge*	**Scenario 4** *50% fixed charge* *50% variable charge*	**Scenario 5** *60% fixed charge 40% variable charge*	**Scenario 6** *70% fixed charge 30% variable charge*
	structure later if circumstances require.					changing the tariff structure later if circumstances require.
Net revenue stability *Does it deliver sufficient and stable revenue?*	Least revenue stable scenario because the variable charge proportion is high.	Scenario 2 is only slightly more balanced than Scenario 1 so the same comments apply.	Yes	Yes	Yes	Most revenue stable scenario because the variable charge proportion is low.
Yes / No	**No** **Fails fairness and revenue criteria**	**No** **Fails fairness and revenue criteria**	**Yes** **Selected for further consideration**	**Yes** **Selected for further consideration**	**Yes** **Selected for further consideration**	**No** **Fails fairness and revenue criteria**

Appendix 7: Water Conservation Plan Action Areas



1. Better Data, Better Results:
With an improved understanding of how water is used in each water supply area, the Council and the community can target conservation measures and more effectively assess progress towards the consumption targets.

Reaching the 400 lpd target will require first identifying where savings can be made through understanding water use in each network. Continued data collection will enable assessment of the cost effectiveness of programmes to reduce water use.

2. Regulation
Council uses the Water Supply Bylaw and the District Plan to ensure:

- water use in high demand periods stay within consented daily limits
- leaks on private connections are resolved in a timely manner
- extraordinary users use water efficiently
- future development uses water sustainably

3. Water Loss Reduction
Minimise water supply losses in the network to environmentally and economically sustainable levels in line with New Zealand best water management practice

4. Financial Incentives
Use financial incentives to encourage homeowners to purchase and install water saving devices on their property

5. Education
The Council has implemented a Water Education Strategy to ensure residents, businesses and schools have opportunities to improve knowledge of the importance of local water supplies and actions they can take.

6. Fostering Innovation
Provide funding and support to companies to develop cost effective, water saving products for local households.

7. Council Leadership:
Council will coordinate of measures to reach the 400 lpd target, inform and educate the community as to how it can play its part, and be a model best practice in its own water use.

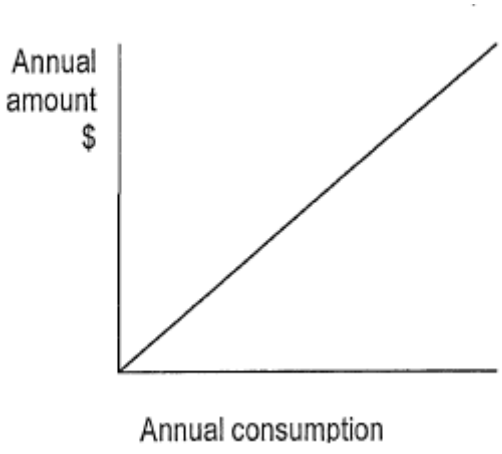
Appendix 8: Summary of Tariff Models

This is an indicative range of metering options. No assessment of the impacts or merits of these options have been done.

Options Described:

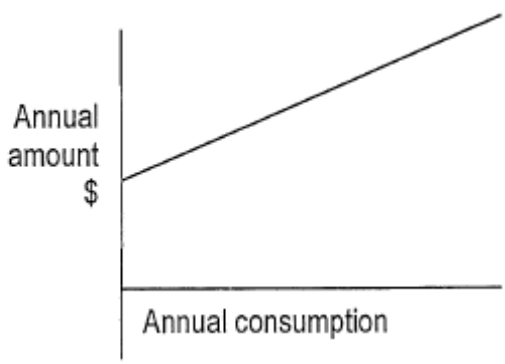
- **Volumetric or variable charging with no fixed component**
- **Fixed service charge plus volumetric charging**
- **Fixed and variable charging with an initial allocated volume**
- **Stepped Charging**
- **Seasonal Rates**

Volumetric or variable charging with no fixed component



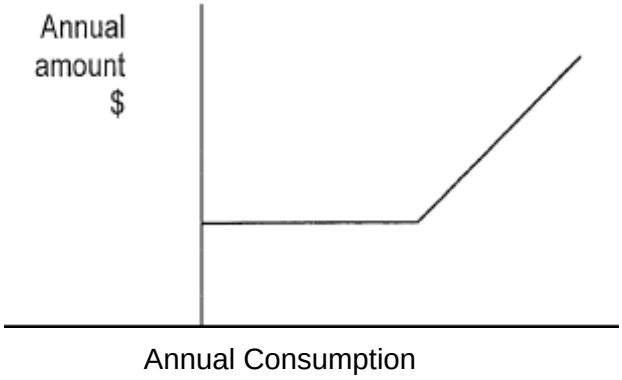
This method charges for every unit of water as it is used i.e. volume used x $/unit used.

Fixed service charge and volumetric or variable unit charging



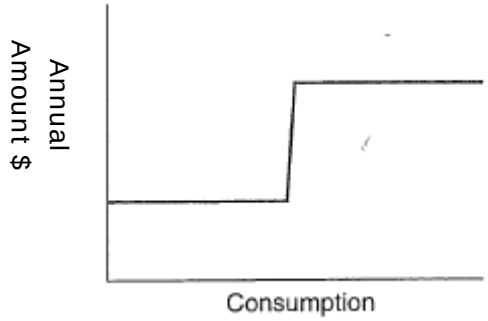
This option is used in Auckland, Tauranga, Nelson and Tasman. It comprises a fixed service charge to reflect the cost of providing reticulated water supply plus volumetric unit charging. Every household pays a fixed charge and so contributes to the fixed charges of operating a water supply system. It has similar characteristics to the first option except the volumetric rate is less because it is offset by the fixed charge. This option is very similar to many electricity pricing options that have a mixture of fixed line charges and variable unit charges to reflect the amount of electricity used.

Fixed and volumetric charging with an initial allocated volume



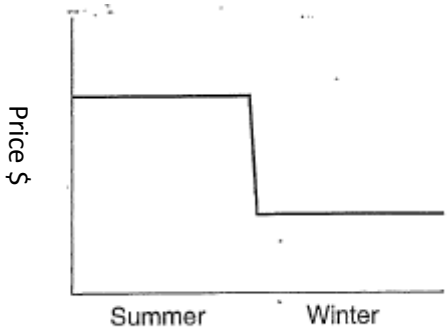
This model provides an allocation of water together with the fixed charge. The allocation of water is all or a large component of essential use. Discretionary water use can be more aggressively priced, as reflected in the steeper curve of the diagram above.

Stepped Charging



This model charges more per unit of water as consumption increases past a defined level. Not currently used as a charging method in New Zealand. The increasing block rate can be supplemented by a fixed or service charge. Th can also have a decreasing stepped charging with a high initial block and a decreasing charge per additional blocks.

Seasonal Rates



Seasonal rates establish a higher price for water consumed during the peak demand season. Seasonal rates aim to match price and revenue with demand patterns, as well as provide a pricing signal to reduce consumption during peak use periods. The seasonal rate attempts to pass on costs to those that are creating the higher demand.

Within this option there is the option to:

- set a winter and summer rate or
- excess use approach, where water consumed above a certain threshold in the summer period is charged at a higher rate.