

## Best Management Practice

# BMP E: Establish Sustainable Rates & Charges

## 1 What, Why and How?

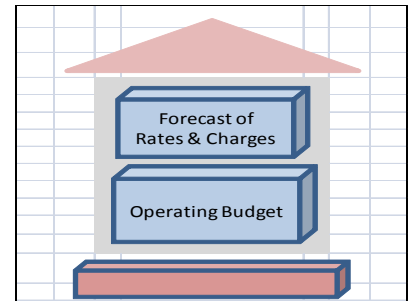
**What are sustainable rates and charges?** “Sustainable” means that the rates and charges you set for your water recover all the costs of supplying water now and in the future, including the costs of renewing your assets when required, and the costs of new projects.

**Why do we need sustainable rates and charges?** If you do not recover the full costs of supplying water you may not be able to operate safely and effectively in the present, and your infrastructure such as pipes and pumps will deteriorate in the future.

**How do we achieve sustainable rates and charges?** Here are the main steps in achieving sustainable rates and charges. These steps are explained further in following sections. For certain steps you create a building block.

- Step 1: Review annual costs and revenues
- Step 2: Work out reserve account requirements
- Step 3: Calculate water rates and charges
- Step 4: Find out more about water rates.

As a water system owner or manager, one of your most important jobs is making sure that your system brings in enough money to cover the full costs of operating, both now and in the future. This means recovering all of your costs for system operation, maintenance, upgrading and renewal through the rates and charges you make to consumers. You can do this through application of this BMP, which will help you work out the full costs of providing a safe and adequate supply of drinking water to your customers and show you how to set water rates that reflect those costs. This BMP will help you to overcome challenges such as those in the following table, and bring you several important benefits as shown.



## 2 Challenges and Benefits

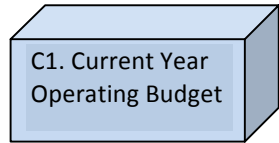
Challenges to Overcome	Benefits
<ul style="list-style-type: none"><li>• Customers do not understand the full costs of providing safe water.</li><li>• Water system assets are “out-of-sight and out-of-mind” and consequently their maintenance and rehabilitation may be inadequate</li><li>• Rate increases may be resisted by customers and are too often postponed.</li><li>• There is no asset management plan and therefore no planning for future costs of renewal.</li><li>• Reserve funds to cover unexpected costs are inadequate.</li></ul>	<ul style="list-style-type: none"><li>• Maintain the financial stability of your system by ensuring a sufficient revenue stream.</li><li>• Collect and reserve the funds needed to cover the costs of future asset rehabilitation and repair projects, security upgrades, and compliance with future regulations, among other things.</li><li>• Plan ahead for reasonable, gradual rate increases when necessary.</li><li>• Deliver fairly priced, high-quality drinking water to your customers now and in the future.</li><li>• Have good factual information on hand to help explain why rate increases are necessary.</li></ul>

## 3 Steps to Follow

Follow the steps outlined below. Create building blocks using the worksheets and other tools provided.

### Step 1: Review Annual Costs and Revenues

The first step in setting rates and charges that reflect the true cost of delivering safe drinking water is to work out how much it costs to operate your system every year. You should divide your costs into two broad categories: Administration and Operations, and Contributions to Reserves. The first category, Administration and Operations, includes things such as treatment costs, utilities, wages and maintenance. The second category covers the contributions you make each year to the one or more reserve accounts, shown in the figure below.



Knowing what your costs are and understanding how they have changed in the past and can change in the future is the key to knowing how much money to collect from customers every year. Refer to the worksheet: Current Year Operating Budget and other worksheets in *BMP C: Create a Five-Year Operating Plan* for further information about operating budgets.

### Step 2: Work out Reserve Account Requirements

#### Virtual Accounts

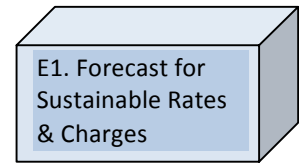
This BMP mentions four different reserve accounts. Smaller water systems may not have four different bank accounts. You can however maintain these accounts in “virtual” form by creating appropriate worksheets for your internal use.

The use of reserve accounts is outlined in other BMPs. The four reserve accounts you might create are shown in the table below. In the case of the Operating Reserve and the Emergency Reserve, you should make annual contributions to these reserves until you have the target amounts shown in the table below. Thereafter, maintain the balance of these accounts at that level. Amounts in the Replacement Reserve and the Construction Reserve are worked out when you implement other BMPs. The amounts that you need to the reserve accounts must be included in the calculation of water rates; they are part of the overall cost of providing service to your customers.

Account	Purpose	Target Amount \$
Operating Reserve	For unexpected operational expenditures, such as a large increase in pumping costs.	X% of annual operating budget
Replacement Reserve	For systematic renewal of assets such as reservoirs and pipes.	Refer to your asset management plan
Emergency Reserve	For emergency events such as damage of intake works by flood.	Y% of annual operating budget
Construction Reserve	For major upgrading of the system such as installation of filtration.	Refer to your long-range plan

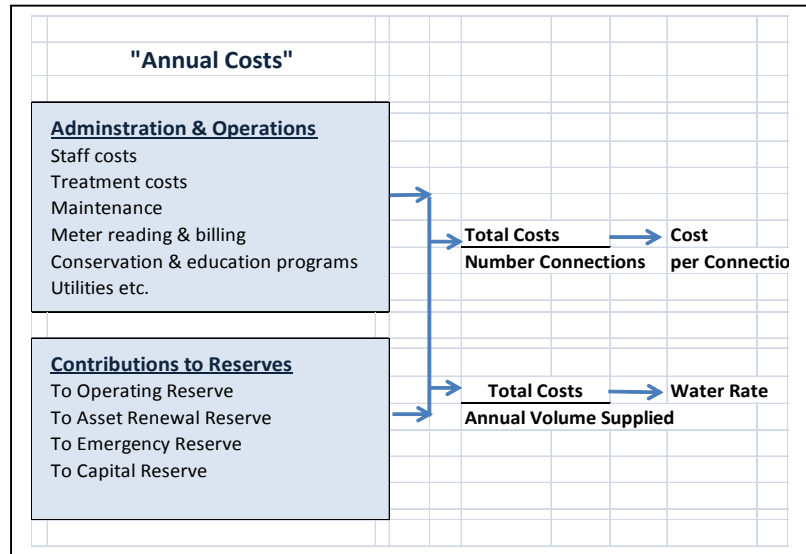
### Step 3: Calculate Rates & Charges

A straightforward approach to working out charges to your customers is to calculate total annual costs and divide this equally among your customers to get the charge per connection. If you do not have water meters, this may be your only practical option.



If you have water meters, then consider charging each customer for the water actually used. In this case, the simplest approach to working out the rate to charge (\$ / cubic metre supplied) is to take the total annual cost and divide by the annual amount of water supplied.

Total costs are a combination of administration and operating costs (e.g. staff costs, treatment costs, maintenance, administration) and contributions to reserve funds. The schematic opposite gives an illustration of the rate calculation. It's important to note that in setting rates, many water systems have in the past **not** allowed for sufficient contributions to the reserve accounts.



You can use the worksheet “Forecast for Sustainable Rates & Charges” to find out how much money to contribute from your operating account to the reserve accounts in the future to maintain a positive balance in each of these accounts. With this information, this you can set your rates and charges accordingly.



Setting rates and charges for sustainable operation involves not only your annual administration and operations costs but also the contributions to reserves. You may find that as you calculate the reserve contributions needed, particularly those for asset renewal and capital reserves, large increases in water rates are required in order to operate sustainably. To avoid “rate shock”, which is the name given to the reaction

**Allocation of Revenues**  
Your water system may include industrial, commercial or institutional customers. If so, you may want to use the concept of Single Family Residential Equivalents (SFRE) when working out how much you will charge for water. See references for further information.

of customers when they are faced with sudden large hikes in water charges, you may have to introduce rate increases over time. This approach is used by many water systems when they need a large increase in revenue, which in turn implies a large increase in rates. The important thing is to work through your forecasts and have a systematic plan in place for moving towards sustainable operations.

**Step 4: Find Out More about Water Rates**

For larger water systems, setting water rates can be complex. There are various rate structures that can be used. For example, if you want to discourage high water use for summer irrigation you might use an “inclined block rate”. Your water system may supply users in several categories; examples are: domestic, institutional, commercial, industrial and agricultural, all of which may require different water rates.

You may set out to recover the full costs of operating your water system, but also need to keep in mind those customers who may suffer hardship from increased charges. (For example: In the United Kingdom, a household spending more than 3% of income on water is considered to be suffering hardship). In British Columbia, the water charges are typically lower than in many other areas of Canada, and Canada has some of the lowest rates among industrialized nations.

**Comparison of Water Rates**  
 Follow this link to see a comparison of water rates:  
<http://www.waterbc.ca/community/programs/long-term-financial-planning/water-pricing-plan/>

When you have found out more about water rates, you may want to revisit the rates and charges you calculated for your water system. There is a simplified worksheet that may help you to work out rates and charges:

E2. Projected Cash Flow Statements

**4 How long will this take?**

The table below shows a typical timeframe to prepare this Best Management Practice for implementation. This includes communication time to discuss details with key people, bring together individuals who can contribute to the process, and administrative time to assemble the information needed for the individual building blocks. Preparation of each building block, perhaps in the form of a worksheet or checklist, may only require one or two hours, once you are familiar with the process.

Expect to revisit your calculations of sustainable rates and charges at least annually to update information. This review and update will take less time than the initial planning process, and is important for good financial decision-making.

	Building Block	Weeks >	1	2	3	4	5	6	7	8
1	Statement of Income & Expenditure									
2	Asset Replacement Schedule									
3	Annual Costs & Charges									
4	Water Rate Structures									

## 5 More Information

More information on the topic of this Best Management Practice is available from the following:

Drinking Water Health Authority Contacts:

[http://www.health.gov.bc.ca/protect/dw\\_ha\\_contacts.html](http://www.health.gov.bc.ca/protect/dw_ha_contacts.html)

Drinking Water Resources and Associations:

<http://www.health.gov.bc.ca/protect/dwresources.html>

Design Guidelines for Rural Residential Community Water Systems:

[http://www.env.gov.bc.ca/wsd/water\\_rights/water\\_utilities/cabinet/design\\_guidelines\\_final\\_mar2012.pdf](http://www.env.gov.bc.ca/wsd/water_rights/water_utilities/cabinet/design_guidelines_final_mar2012.pdf)

WaterBC:

<http://www.waterbc.ca/resources/best-management-practices/>

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