

Economic Analysis of Proposed Changes to Water, Sewer, and Drainage Rates

SECTION 1: INTRODUCTION AND SUMMARY

The City of Portland is considering four candidate rate structures that would more closely link a residence's or business' water and sewer bill to the amount of water they use. The proposals would represent a departure from the current structures, which incorporate fixed charges based on water meter size and billing frequency. Proponents of the changes believe the new structures would improve fairness and promote water conservation.

Preliminary analyses of the candidate structures indicate that most low-water users—especially residential ratepayers—would see a decrease in their annual water and sewer bill. Moreover, analysts predict that—through variable pricing—the new rates would induce customers to conserve up to 1.2 million gallons of water daily.

Somewhat less is known about the impacts on industrial and commercial customers. The City has calculated how much more it would charge commercial and industrial users. These estimates show that small and medium businesses, on average, would see their bills decrease, while most large businesses would experience sharp increases consistent with their heavy use of services. Under one of the proposed structures, analysts estimate that up to 1,000 businesses could experience rate shocks (i.e., >10% increase) in their water, sewer, and drainage bills.

In this study, we consider how the change in pricing would affect the businesses located within the City of Portland's water district. We focus exclusively on changes estimated for commercial and industrial water accounts. Specifically, we estimate a change in employment that could result through a change in water, sewer, and drainage charges.

We outline our key findings below:

- Our study isolates the economic impacts of a single change in local public policy. The effects compare the Portland economy with and without a restructuring of its water-utility rates. We assume all other factors that influence business activity are unchanged. In reality, the City Council—and other governing bodies—will make numerous decisions this year that affect business activity within the City of Portland. Those decisions, combined with numerous changes in economic conditions arising from other sources, will add to or subtract from the estimates we discuss here and help determine the area's overall economic performance.
- Economists generally agree that public-sector taxes or charges that change the cost of doing business in an area will affect the area's economic activity. In today's economy, with relatively low transportation costs, local jurisdictions within

metropolitan areas are close substitutes for one another, offering similar access to markets, suppliers, and labor. Even small changes in costs can alter which local jurisdiction is the lowest cost location. Enactment of one of the rate changes would alter the cost of doing business in the City without significantly changing the level or quality of water, sewer, or drainage service. Therefore, we anticipate a rate change would depress economic activity among firms facing higher charges. The changes would also stimulate economic activity among firms facing lower charges.

- Portland-based businesses spend \$52.8 million annually on water, sewer, and drainage charges, which represents about 0.14% of their total business costs. The relatively minor role of water charges in the cost structures of Portland companies would limit the economic impact of the proposed policies.
- We estimate that enactment of the alternative 3a—which would increase charges by a total \$12.2 million—would result in a *net decrease* in employment of 1.0%. This net effect would represent a loss of about 4,300 jobs out of a base of approximately 430,000. The losses would occur gradually over a number of years and would be comprised of foregone employment growth, as well as the possible elimination of existing positions. Most of these jobs would be reestablished in neighboring jurisdictions within the Portland metropolitan area. This net impact would consist of job losses among high-water-use firms and job gains at low-water-use firms.
- We estimate that enactment of the alternative 2b—which would increase charges by a total \$6.3 million—would result in a *net decrease* in employment of 0.5%. This net effect would represent a loss of about 2,200 jobs out of a base of approximately 430,000. As with alternative 3a, the losses would occur gradually over a number of years and would be comprised of foregone employment growth, as well as the elimination of existing positions. Most of these jobs would be reestablished in neighboring jurisdictions within the Portland metropolitan area.
- Under certain policy alternatives, the total amount of water-related charges to residential customers would fall, which would leave ratepayers with additional discretionary income. They would spend some of that income on local goods and services, which would support local employment. Based on a previous ECONorthwest study, we estimate that each \$1.0 million net reduction in total utility charges to residents would be associated with an increase of about 25 jobs in the region.
- Through a survey of large water users, a majority of responding firms indicated that enactment of alternative 2b would result in little or no change in their Portland-based workforce. One-half of responding firms (13 of 26) predicts no workforce change assuming enactment of alternative 3a. However, six firms foresee either a large workforce reduction or plant relocation if the City were to implement alternative 3a.

Our study proceeds as follows. The next section provides a brief overview of the rate-structure alternatives. Then in Section 3, we consider the economic impacts for the entire class of commercial and industrial customers. Finally, in Section 4, we provide a detailed

analysis of the proposals' impacts on large-water customers, which includes the results of a customer survey.

SECTION 2: OVERVIEW OF RATE STRUCTURE ALTERNATIVES

The Water Bureau and the Bureau of Environmental Services (BES) have identified three service charge alternatives, two of which have Options A and B, for evaluation. The first of the three alternatives is the status quo. We detail the alternatives below:

ALTERNATIVE 1: STATUS QUO

The Water Bureau and BES charge each of its customers a fixed-service charge that is based on the cost of reading water meters, preparing and sending bills, maintaining a customer service operation, processing payments, indirect organizational costs, and utility license fees¹. The Water Bureau distributes its service charges to customers based on meter size and billing frequency, while BES distributes its service charges based on billing frequency. Customer bills under the current rate structure have five line items: water service charge, water volume charge, sewer service charge, sewer volume charge, and drainage fees.

Under the status quo, the City assesses commercial and industrial customers a drainage fee equal to \$4.12 per 1,000 square feet of impervious surface.

ALTERNATIVE 2: SERVICE CHARGES WITH BILLING COST ONLY (OPTIONS A&B)

Alternative 2 would reduce the service charges by moving indirect organizational costs and utility license fees to volume charges. Additionally, the Water Bureau would charge for meter and service-line maintenance on a volume basis. Options A and B within Alternative 2 describe two different ways that costs would be transferred to the volume charges. Option A transfers costs uniformly to volume charges to all customers for water and sewer charges respectively. Option B confines the transfer of costs to volume charges within each of two major groups of customer classes (i.e., residential and commercial/industrial).

Under alternative 2, we assume drainage fees for commercial and industrial customers would increase from \$4.12 to \$6.67 per 1,000 square feet of impervious surface.

ALTERNATIVE 3: NO SERVICE CHARGES (OPTIONS A&B)

Alternative 3 would eliminate all service charges and transfer the related revenue requirements to volume and drainage charges. As in Alternative 2, Option A would recover lost service charges uniformly across all customers while Option B would recover revenues within the customer class.

¹ The Water Bureau also includes the cost of maintaining meters and service lines in its service charges.

Under alternative 3, we assume drainage fees for commercial and industrial customers would increase from \$4.12 to \$7.02 per 1,000 square feet of impervious surface.

The total amount of water and sewer charges to residential, commercial, and industrial users (\$159.7 million) is revenue neutral under all five scenarios: Status Quo, 2a, 2b, 3a, 3b. However, the means by which the Bureaus recoup the fixed service charges has important implications for commercial/industrial users. By design, options 2b and 3b do not change the total amount of water and sewer charges paid by commercial and industrial customers. Rather the options would create winners and losers within the commercial/industrial class, with large-volume customers paying more and small-volume customers paying less. By contrast under options 2a and 3a, total water and sewer charges to commercial/industrial users would increase. Under each of the options (2a, 2b, 3a, 3b), drainage charges would increase relative to the status quo.

In the following sections, we consider the effects of alternatives 2b and 3a. Alternative 2b is the least costly from the perspective of large-volume customers. Alternative 3a is the most costly.

SECTION 3: ECONOMIC IMPACTS FOR ALL COMMERCIAL AND INDUSTRIAL CUSTOMERS

Economists generally agree that public-sector taxes or charges that change the cost of doing business in an area will affect the area's economic activity². In today's economy, with relatively low transportation costs, metropolitan areas are likely to be close substitutes for one another, offering similar access to markets, suppliers, and labor. Even small changes in costs can alter which metropolitan area is the lowest cost location. Not all public-sector charges are necessarily bad for the economy. A charge or tax that improves a public service that is valued by business (e.g., infrastructure, public safety, or fire protection) can stimulate the local economy. For example, the increase in taxes or charges may be more than offset by lower insurance costs (because of improved public safety) or reduced transportation costs (because of road improvements). However, if an increase in public-sector charges does not translate into service improvements, economic activity will be depressed by some amount.

The City's proposed changes to water, sewer, and drainage rates fall into the latter category. That is, enactment of one of the rate changes would alter the cost of doing business in the City without significantly changing the level or quality of water, sewer, or drainage service. Therefore, we anticipate a rate change would depress economic activity by firms facing higher charges. The changes also would stimulate economic activity by firms facing lower charges.

To thoroughly understand how the increased charges would affect business activity in the Portland area, we would have to delve into the detailed financial documents for each of the

² See for example, Bartik, Timothy J. "The Effects of State and Local Taxes on Economic Development: A Review of Recent Research." *Economic Development Quarterly*. Volume 6 Number 1, February 1992. 102-110.

affected firms. Needless to say, such an analysis is not possible here. Rather we base our estimates on a body of literature that evaluates how changes in business costs—induced by public-sector taxes or charges—affect business activity. To undertake the analysis, we need two pieces of information:

- Water-related charges as a percent of total business costs. The more important water-related charges are in a business' overall cost structure, the more likely that rate restructuring would impact the business. Moreover, once we know how water charges relate to business costs, we can calculate the percentage by which business costs would increase under rate restructuring.
- Elasticity of economic activity with respect to a change in business costs. To estimate how an increase in business costs would affect economic activity, we review studies that estimate the relationship between public-sector charges and local economic growth.

We estimate the importance of water-related charges on business costs by comparing the total business costs for all Portland-based firms to the Bureaus' estimates of status quo bills for commercial customers. Our estimate proceeds as follows. Using data from the Bureau of Economic Analysis, we estimate that Portland-based businesses generate about \$39.9 billion in output (or, sales) annually. We subtract the businesses' estimated net income—or profits—of \$2.1 billion to arrive at total business costs of \$37.9 billion. The Water Bureau and BES estimate that—under the status quo—commercial and industrial customers pay about \$52.8 million annually in water, sewer, and drainage charges. That implies that the water-related charges represent about 0.14% of business costs when averaged across all Portland-based companies. Assuming enactment of alternative 3a—the most costly from business' perspective—total charges would increase by \$12.2 million, which would represent a 0.032% net increase in business costs *averaged across all firms*. Enactment of alternative 2b would increase total charges by \$6.3 million, which would represent a 0.017% increase in business costs.

To determine how that increase in business costs would translate into a change in business activity, we turn to existing research. We found an abundance of studies that estimate how a change in state and local taxes affects business activity (i.e., employment). Using data from the most-commonly-cited work in the area, we estimate a relationship between a change in business costs and local employment. Specifically, we calculate that a 0.1% increase in business costs—resulting from a change in public-sector charges—yields a 3% decrease in employment in the long-run³. These studies show that most of the jobs would be reestablished in neighboring jurisdictions within the same metropolitan area.

³ We derive this relationship as follows. From previously-published studies, Bartik (Reference below) estimates that a 1% increase in state and local taxes yields a 1.5% decrease in business activity (or, employment). We estimate that state and local taxes, in turn, equal 5% of business costs and calculate that a 1% increase in state and local taxes represents a 0.05% increase in business costs. Therefore, these relationships imply that a 0.05% increase in business costs yields a 1.5% decrease in employment. Assuming a constant elasticity, a 0.1% increase in business costs yields a 3% decrease in employment. See Bartik, Timothy. *Who Benefits from State and Local Economic Development Policies?*. WE Upjohn Institute for Employment Research. 1991. Page 43.

Applying this relationship to the estimated increase in business costs associated with alternative 3a, we calculate that enactment of the alternative would result in a *net decrease* in employment of 1.0%. This net effect would represent a loss of about 4,300 jobs out of a base of approximately 430,000. The losses would occur gradually over a number of years and would be comprised of foregone employment growth, as well as the possible elimination of existing positions. We estimate enactment of alternative 2b would result in a 0.5% reduction in employment or about 2,200 jobs. As with alternative 3a, the impact of alternative 2b would evolve gradually. Under each of the alternatives, most of the lost jobs would be reestablished in neighboring jurisdictions within the Portland metropolitan area. The net impacts would consist of job losses among high-water-use firms and job gains by low-water-use firms.

To this point, our estimates have ignored the job impacts associated with a potential change in spending by residential customers. Under certain policy alternatives, the total amount of water-related charges to residential customers would fall, which would leave ratepayers with additional discretionary income. They would spend some of that income on local goods and services, which would support local employment. Based on a previous study that we conducted for the Oregon University System⁴, we estimate that each \$1.0 million net reduction in total utility charges to residents would be associated with an increase of about 25 jobs in the region.

⁴ See ECONorthwest. 1999 *Economic Impacts of Expenditures Associated with the Oregon University System*. Oregon University System. Eugene, OR.