DEPARTMENT OF ECOLOGY
State of Washington

FCS GROUP
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Memorandum

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From: Gordon Wilson, Senior Program Manager

RE: Utility Cost Recovery Practices and Implications for Solid Waste Funding in Washington

This memo is part of the Cascadia Consulting Group's study of potential solid waste funding mechanisms, undertaken under contract with the Washington State Department of Ecology. One of the goals of the study is to develop a package of revenue alternatives that can address funding gaps in the provision of solid waste, recycling, and waste reduction services (collectively referred to as "the solid waste system") in Washington. The purpose of this memo is to describe the cost recovery practices of utilities and draw lessons from them that might help address funding gaps in the solid waste system.

We will first make observations about utilities in general and their cost recovery practices, and then focus on individual types of utilities:

- Water utilities
- Sewer utilities
- Stormwater utilities
- Electric utilities
- Solid waste collection utilities

These observations will include some basic information about the nature of each utility business, in order to help explain why certain cost recovery practices make sense for that type of business. After the descriptive part of the memo, we will discuss some potential lessons for the funding of solid waste-related costs that currently are funded—directly or indirectly—through tax mechanisms.

For the sake of clarity and brevity, this memo is organized as a series of brief statements in bullets.

EXISTING UTILITY COST RECOVERY PRACTICES

ALL UTILITIES

- *Utilities rely on user charges* for the services they provide, independent of taxes.
  - The primary user charges are usually characterized simply as "rates," because the charge is applied to customers in proportion to some measurable characteristic of their usage.
  - Rate revenue is offset by smaller non-rate revenues such as:
    - Miscellaneous fees for special services not provided generally to all customers;
    - Grants from some other level of government;
    - Development-related charges; or
    - Interest earnings.

    In addition, sometimes wholesale rate revenue serves as an offset against retail rates.

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- *Utility cost recovery versus tax-supported functions:* Utilities' method of cost recovery is essentially different from that of a tax-supported governmental function.
  - With tax-supported functions, the amount of tax revenue is the constraint, and program managers fit the scale of their services to whatever is allowed by the funding. Utilities work in the opposite direction: program managers determine the cost of providing the service and then set rates at the level needed to generate the "revenue requirement."
  - Taxes are paid by people without a clear understanding of what the money is used for, and broad-based taxes (sales tax, B&O tax, property tax) are used for multiple competing needs. Most utilities have the advantage of providing an identifiable service that is perceived by the customer, which makes it easier to generate support for justifiable cost increases.
- *Utilities are usually capital-intensive,* which is why they tend to be natural monopolies. There is usually a close connection between the service provided to the customer and some kind of capital infrastructure, and ratemaking tends to be dominated by the size and scope of the capital improvement plan (CIP). The justification for the ongoing O&M budget is also closely connected to the existence of physical assets that must be maintained, operated and eventually replaced.
- *Utilities have a defined service area and ongoing customer relationships.* In most types of retail businesses, the customer interaction consists of individual transactions chosen each time by the customer.
  - For example, I may go into a grocery store today but not next week. I am not locked in to a particular store, and the store owner does not have my name and address and a claim on future income from me.
  - In contrast, utilities have an ongoing relationship with their customers, and their main revenue is usually received via regular customer bills—typically monthly or bimonthly.
    - Exception: A solid waste transfer station typically has transaction-based interactions with self-haul customers, not an ongoing relationship.
- *Cost-of-service ratemaking:* A basic principle in utility ratemaking is that rates should be in proportion to the cost of service for each group of customers.
  - Typically, "cost of service" refers to average costs, not marginal costs. Because utilities usually make economic and service commitments over a long time frame, equity among customers is an important policy goal, so any marginal cost pricing would be an exception.
  - There are some exceptions to cost-of-service ratemaking, such as conservation pricing and discounts for senior/disabled/low-income customers. But the general principle still applies.
- *Funding of demand management programs*: One of the appropriate uses of utility rate revenue is for education, planning, or incentives aimed at influencing customer behavior.
  - For *water*, *electricity*, and *solid waste collection*, demand management programs and strategies are designed to reduce the amount of revenue-generating consumption, so they do have an impact on revenues and put upward pressure on utility rates.

    - However, the rate impact is manageable enough to be acceptable, given that demand management forestalls costly capital improvements to increase capacity.
    - Typically, the erosion of the revenue base leads utilities to shift more cost recovery toward fixed monthly charges or some other more stable basis for the rate.
  - For *sewer* and *stormwater* utilities, demand management programs further the basic purpose of the utility, which is to promote water quality.
    - Sewer utilities are focused on controlling pollution from *point sources*—such as a pipe discharging into a body of water—while stormwater utilities aim to minimize pollution from *non-point sources*—such as runoff from streets and lawns. But both try to influence customer behavior in order to achieve better water quality.
- *Wholesale vs. retail:* Regional partnerships are common for the most capital-intensive facilities: surface water supply (dams), wastewater treatment plants, electricity generators, and landfills.
  - Some regional partnerships are wholesale-only utilities (Cascade Water Alliance, LOTT Clean Water Alliance, Discovery Clean Water Alliance, Three Rivers Regional Wastewater Authority, King County Wastewater Treatment Division, Bonneville Power Administration), while other regional or wholesale providers have a retail customer base (Seattle Public Utilities, Tacoma Public Utilities, Anacortes regional water system, Seattle City Light, Puget Sound Energy).
  - The retail customer base—the people actually receiving the bills—sometimes remains at the most local level, along with the water distribution, sewage collection, and solid waste collection functions. However, with electricity and sometimes with solid waste, there can be large utilities (including private companies and countywide Public Utilities Districts) who own the local facilities and have direct customer accounts.

WATER UTILITIES

- *Conduits:* Water utilities have fixed-conduit infrastructure—a pressurized system of pipes leading from a supply source to individual customers.
- *New development:* Capital investment is required of the property owner in order for the service to be provided; water service extension is a normal part of the land development process.
  - Capital recovery charges on new development are typically used to recover a proportionate share of past and future system investment.
- *Substitute:* The substitute for water service is a private well—which is costly, often yields water of lower quality, and might have legal constraints related to water rights. In land development, service by a common water system is usually something that property owners *want to* have; in contrast, sewer service is more likely to be something that property owners are *required to* have.
- *Conservation:* There is an emphasis on water conservation, which can forestall the need for major capital investments in supply capacity.
  - Direct program expenditures for conservation education and planning are funded by rates.

  - Relying on usage charges for a high percentage of total revenue creates a strong conservation price signal but also more revenue risk.
    - In the past, the typical revenue structure for water utilities has been about 60% of revenue from fixed charges, 40% from usage charges. In recent years utilities have been moving closer to 50%/50% out of concern for revenue stability.
- *Rate design:* Typical rate design consists of a fixed charge per account (varying by meter size, which is a measure of the maximum potential demand for an individual customer), plus a usage charge based on metered use, measured in hundred cubic feet (ccf) or thousand gallons (kgal).
  - Some utilities have a consumption allowance, in which the fixed charge includes a certain amount of water usage.
  - Some utilities have inclining block rates for single-family customers, through which variable rates increase as total usage increases. This creates an incentive for water conservation. We've seen block rate designs with as few as two or as many as seven rate tiers.
  - With water utilities, sometimes the rate design is the same for all customer classes (single family residential, multi-family, commercial, industrial).
- *Peaking:* Ratemaking emphasizes the relationship between peak demand and average demand.
  - Some customers (and customer classes) have a lot of seasonal variability in their demand. Because the utility has to be able to serve customers whenever they turn on the tap, the utility has to design facilities for the peak season but only generates a proportionate level of revenue during a few months of the year.
  - The peak season is a *coincident peak*. That is, almost all customers peak individually in the same approximate season as the system peak—during the summertime.
- *Storage:* Water can be stored near where the customer demand is located. This helps attenuate peaking, especially within a day. However, storage generates costs that need to be recovered.
- *Cost-of-service functions:* Typical categories in a water cost of service study include customer costs, peak demand costs, base (or average) demand costs, fire protection costs, and the cost of meters and service lines. Typically, over 80% of costs are driven by either base or peak demand.

SEWER UTILITIES

- *Nomenclature:* "sewer utilities" are the same as "wastewater utilities." The sewer is the pipe; wastewater (or "sewage") is what flows through the pipe.
  - *Sanitary sewers* carry flows from indoor drains and toilets. *Storm* sewers convey rainwater directly to streams without treatment. Since about the 1960s, there have typically been two sets of pipes built to carry stormwater and sanitary sewage separately. Older systems have *combined sewers* that mix sanitary sewage and stormwater. Combined sewers fall within the purview of a wastewater utility.

- *Conduits:* Sewer utilities have fixed-conduit infrastructure—wastewater is conveyed through pipes from customers to a central treatment plant. In order to minimize pumping costs, most pipes are designed for gravity flow.
- *New development:* Capital investment is required of the property owner in order for service to be provided; sewer service extension is a normal part of the land development process.
  - Capital recovery charges on new development are typically used to recover a proportionate share of past and future system investment.
- *Substitute:* The substitute for sewer service is a septic system—which can cost $15,000-$25,000.
- *Measurement:* Measuring the flow of individual customers is a challenge for sewer utilities. Customers rarely have sewage flow meters, so sewer utilities have to rely on metered water consumption. Often (particularly for single family customers), utilities focus on *winter average* consumption in order to avoid the impact of irrigation water, which flows through the meter but does not end up in the sewer system.
- *Rate design* usually varies between single family, multi-family, and commercial customers.
  - *Single family:* usually a flat monthly charge per customer, sometimes also a volume charge.
    - The winter average metered water use across all single family customers is referred to as an "equivalent residential unit" or "ERU." Many rate designs for multi-family and commercial customers depend on a defined ERU—a certain number of gallons per day per ERU.
  - *Multi-family: either* a per-dwelling unit charge based on average apartment usage in relation to average single family usage (multi-family units typically range from 0.6 to .85 ERUs), *or* a base charge per customer equal to the single family flat rate, along with a volume charge for usage above 1 ERU.
  - *Commercial:* Usually some kind of fixed charge plus a volume charge. The fixed charge might be tied to the single family flat rate, but it might be different if the cost of higher strength sewage is built into the fixed charge. Some utilities have strength surcharges or separate classes for groups of customers (such as restaurants) with different sewage characteristics.
- *Peaking:* Sewer systems peak in the winter, when stormwater enters the sanitary sewer pipes from infiltration and inflow (I&I). In a typical mature sewer system, 50-60% of total flow to a treatment plant during winter months consists of I&I. I&I is hard to attribute to individual properties, so in cost allocations, it is often treated as a kind of system overhead.
- *Cost-of-service functions:* Typical functional categories are flow-related costs (from which I&I may be broken out), customer costs, and costs related to two measures of sewage strength: Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS).
- *Funding of water quality education and planning:* Sewer rate revenue is used for education and planning related to water quality. The management of pretreatment programs—which are intended to minimize high-strength sewage from commercial and industrial customers—is funded either by regular rates or by pretreatment fees paid specifically by high-strength customers.

STORMWATER UTILITIES

- *Purpose:* In addition to their traditional function of preventing flooding, stormwater utilities are increasingly focused on promoting water quality by keeping runoff from roadways and lawns from polluting natural streams.
- *Conduits:* Stormwater utilities rely on a system of pipes which carry stormwater away from streets and developed properties to a stream or other surface water, without passing through a treatment plant.
  - Storm sewers usually have an intake point near a piece of developed property. In addition, a building may have downspouts that channel rainwater directly from the roof to the storm sewer. In recent years, stormwater utilities have been encouraging the disconnection of downspouts.
- *Substitute:* If property owners invest in on-site detention facilities or water quality swales, then more rainwater enters the ground at the site, and the system needs less pipe to convey stormwater.
- *New development:* Increasingly, capital investment by the property owner is either optional or required for new development, which can substitute for system investment.
  - Some cities have a stormwater capital recovery charge on new development. However, in other cities the requirement for on-site improvements takes the place of such a charge.
- *Rate design.* Ongoing charges are applied to each developed parcel. Because property characteristics do not change very often, stormwater utility revenue is very stable.
  - For single family properties, it is a flat charge per parcel.
    - Stormwater utilities are typically smaller than water or sewer utilities, with lower monthly charges, so $7-10 per month per single family lot is not uncommon.
  - For non-single family properties, the charge is based on *impervious surface area* (ISA)—roofs, driveways, parking lots. ISA is converted into an *equivalent service unit* (ESU), which represents the average ISA of a single-family lot. The per-ESU charge equals the flat single family charge.
    - In some communities, data is not available on the ISA of particular lots, but there is a data base with total square footage and a "density tier," representing the percentage of total lot area that is impervious. There might 8 or 9 tiers, ranging from "very low density" to "very high density," each with a corresponding rate per total square foot. The higher the density of development, the higher the charge per total square foot.
  - Several jurisdictions offer *credits* on stormwater utility bills to property owners who have invested in on-site detention, water quality, or other stormwater treatment facilities, thus reducing the impact of stormwater from these properties on the city or county's system. It is important to take into account the impact of these credits on utility revenue when designing stormwater rates.
    - Even properties with on-site detention facilities benefit from the network of stormwater drains and pipes; if there is a really big flood, those properties will be protected along with everyone else. However, those properties put less *demand* on that network because of their on-site investment, which justifies a credit against their stormwater bill.

- *Billing:* Some jurisdictions calculate the stormwater charge as an annual amount and attach it to the property tax bill. Most cities, however, include it with the water and sewer bill.
- *Funding of customer education and demand management programs:* Because stormwater utilities are focused on controlling pollution from non-point sources, customer education is a major component of their program effort. Customer education and incentives are funded by rates.

ELECTRIC UTILITIES

- *Conduits:* Electric utilities also have fixed-conduit infrastructure. However, it can consist of overhead wires, which is much less expensive than underground conduits.
- *New development:* Little or no capital investment is required of the property owner in order for service to be provided. It is typically funded by the utility and recovered in rates.
- *Substitutes:* One substitute for electrical service would be an on-site generator. Generators are sometimes used for backup, but ongoing reliance on them would be much more expensive than typical electrical service. Solar energy can be used to replace much of the demand for system electricity, but it requires a backup also. Virtually all developed properties need and have access to the electrical grid.
- *Conservation:* There is an emphasis on energy conservation, which can forestall the need for major capital investments in supply capacity.
    - Direct expenditures for conservation education and planning are funded by rates. If a conservation program is directly funded by a wholesale generator (such as the Bonneville Power Administration), those costs are recovered through wholesale rates and then passed on to retail customers.
- *Storage:* The main distinguishing feature of electric utilities is that the product cannot be stored. You can store coal, natural gas, or water in a reservoir, but once it is converted into electricity, it must be transmitted (sometimes over long distances) and consumed. As a result, there is a minute-to-minute requirement to *balance* demand and supply.
- *Peaking:* Even more than water utilities, electric utilities are concerned with peaking—they measure daily peaking patterns at half-hour intervals and sometimes use time-of-day pricing. Electric utility ratemaking takes into account the *coincident peak* (the peak demand for the overall system, along with the percentage of that peak attributable to each customer class) and the *non-coincident peak* (the peak rate of energy consumption for any particular customer or customer class).
- *Measurement:* Peak demand is measured in kilowatts (kW), and the total amount of energy consumed is measured in kilowatt hours (kWh). Residential meters usually only measure kWh, but most commercial ("general service") customers have *demand meters*, which measure both the total energy consumed and also the peak over a given period of time.
- *Rate design* varies by type of customer and whether the customer has a demand meter.
    - *Residential:* Fixed *customer charge* (expressed either as a monthly or daily rate) plus *energy charge* on total KWh used during the billing period.

  - *General service:* Smaller general service customers without demand meters pay a customer charge plus an energy charge. Those with demand meters pay a customer charge, energy charge, and a *demand charge* based on their peak usage during the period.
    - *Energy charge:* Most common type of energy charge is a flat rate per kWh, but there can be seasonal rates or block rates to create conservation incentives or respond to system peaks.

- *Response to Alternative Energy:* Increasingly, buildings are being developed with heavy reliance on solar energy or other alternative sources, so they can spend a large percentage of their time without drawing electricity from the grid. However, such buildings are not truly "off the grid" unless public power service is not even a backup option. The system still has to incur major costs to develop and maintain backbone infrastructure in order for that customer to be served—even once in a while.
  - This is essentially the same peaking issue that water utilities face—customers that peak heavily in the summer irrigation season are demanding capacity at a high level but only paying for that level of usage during two or three months of the year.
  - In response, electricity utilities in recent years have been increasing their customer charge, so it recovers not only customer billing costs but also much of the cost of the fixed plant that is required for a customer to ever receive any amount of power.
    - For general service customers with demand meters, the peaking issue can be addressed through the demand charge. But for residential and small general service customers without demand meters, the customer charge is the vehicle for ensuring revenue stability.

SOLID WASTE COLLECTION UTILITIES

- *Conduits:* There are no fixed conduits—solid waste is carried to transfer stations or landfills on public roads.
- *New development:* There is no physical connection to a system and no up-front capital investment or capital recovery charge required of the property owner.
- *Both public and private utilities:* Most solid waste collection customers in Washington are served by private utilities, regulated by either cities or the State Utilities and Transportation Commission (UTC). Usually, the private utilities pick up the solid waste and also send out the customer bills. Some cities have solid waste collection utilities with customer accounts, but the actual collection service is contracted to a private hauler. In a few cases, the city maintains customer accounts and city crews pick up the solid waste.
  - Note: there are also many regulated private utilities providing electricity and water. All stormwater and nearly all sewer utilities are publicly owned.
  - Even when the same city or company owns both the disposal site and the collection utility, *collection* and *disposal* tend to be considered separate lines of business, with separate rates.
- *Moderate Capital Investment:* Because public roadways are the conduit, solid waste collection is not as capital-intensive as other types of utilities, including solid waste transfer and disposal utilities. Collection trucks are the main type of capital investment, and they have lower up-front costs and shorter life spans than the pipes and pumps that convey water and wastewater.

- *Substitutes:* The substitutes for solid waste collection service are either self-haul transportation to a transfer station or illegal dumping.
  - Cities can require solid waste collection service as a condition of receiving water or sewer service (e.g., Renton), but many cities and counties have not made it a requirement.
  - In unincorporated or low density areas, self-hauling might be considered an acceptable substitute for a collection service account, and the costs and risks assumed by someone engaged in illegal dumping might be too low to serve as an effective deterrent if the competing cost of solid waste collection service is too high.
- *Conservation:* There is an emphasis on minimizing *municipal solid waste* (MSW), the undifferentiated garbage that ends up in the landfill. This effort extends the useful life of existing landfills and promotes environmental stewardship.
  - This emphasis is largely carried out by creating and promoting separate waste streams for recyclable materials and organics; making their collection convenient for customers; and embedding the net cost of recycling and organics collection in the rate charged for MSW collection.
    - To customers in many cities, recycling and organics collection appears as a free service.
    - Where recycling and organics service does show up on the customer bill, it is often a flat charge. Recycling/organics collection is often an automatic part of solid waste service.
  - If a disposal utility incurs direct costs for planning and education programs that promote recycling, the cost of those expenditures can be recovered from solid waste haulers through disposal charges (most commonly: weight-based tipping fees). Solid waste haulers then pass on this cost to their retail customers through solid waste rates.
    - Solid waste haulers also incur direct expenditures for public education and recycling promotion. To the degree this occurs, these costs are recovered through solid waste rates.
- *Service levels:* With solid waste collection, the level of service varies widely, particularly for commercial customers.
  - Container size varies from 10 gallons to 40 cubic yards (CY). A cubic yard is just over 200 gallons, so a 96-gallon cart is roughly a quarter of a cubic yard.
  - The frequency of scheduled pickups ranges from monthly to daily. In addition, some containers are compactors, which affects the weight of the solid waste.
  - Instead of scheduled service, many commercial accounts have *on-call* service, which means that the container is collected only when the customer calls for a pickup.
  - Most on-call accounts are for "rolloff" containers of 10 cubic yards or more—so called because the container is rolled on and off the truck. Only one rolloff container fits on a truck, so it is taken directly to the transfer station, where its weight is measured.
- *Rate design:* Retail rates for MSW mainly consist of a monthly fixed charge for each service level, with higher fixed charges for larger containers or more frequent collection.

- For scheduled service, the charge is based on *container volume*, which is a function of container size, frequency of collection, whether the solid waste is compacted or not, and the number of containers at a given site.
  - Disposal charges for MSW are typically based on tonnage—the trucks are weighed upon entering and exiting the transfer station. In creating retail rates, per-ton disposal costs are typically converted to container volume through an assumed *density factor*, which represents the average weight for a given size container.
  - Other collection costs vary by distance, the time required to serve a given route, or other factors. Haulers measure the number of *stops* and *lifts* and use that data to assign costs to various service levels.
- For on-call customers, there is a "haul charge" based on the number of pickups.
- For rolloff customers, the per-ton cost of disposal at a transfer station is passed through directly to the customer, with or without a markup percentage. The haul fee only recovers the cost of transporting the container, along with applicable indirect costs.
- There can also be separate charges for container rental, for special conditions (such as locked gates or wildlife-resistant containers), or for occasional extra containers or extra pickups beyond the scheduled level of service.

- *Revenue stability:* A sizeable percentage of MSW volume (about 20% in King County, for example) comes from commercial rolloff customers, nearly all of which have on-call service. So even though residential revenue is quite stable, total revenue does fluctuate with the business cycle.

POTENTIAL LESSONS

SOLID WASTE FUNDING GAPS

- According to Cascadia Consulting Group's survey of solid waste stakeholders in Washington State, some of the most noticeable funding gaps across the State are in the following areas:
  - Closed landfills.
  - Recycling education and outreach.
  - Efforts to restrain illegal dumping.
  - Moderate risk waste programs, including education, handling, and disposal.
- Many counties and cities rely on State grants for these types of costs, but the adequacy of the revenue source is uneven across the state. There is a need for a package of model revenues, with some controlled by local authorities and others by the State.
- One of the key lessons from examining the funding structure of utilities is that to the degree a program can reasonably be connected to an existing utility—with ongoing customer bills—the more likely it is to be adequately funded in comparison with tax-supported functions.
  - However, it order to fund a program with an existing utility, there has to be a logical nexus—some benefit or responsibility of the utility that is addressed by the program. There must also be

an emphasis on measuring the demand equitably and allocating fees using cost-of-service principles.

  - Utilities are a local source—the money comes from ratepayers in the area served—so decisions about the appropriate level of utility funding come from local authorities.

- Following are some suggestions about how closed landfills, recycling education and outreach, efforts to counter illegal dumping, and moderate risk programs might or might not logically be supported by utility revenue.
- We will then describe an example of a regional solid waste utility fee that addresses more than one of the above functions.

CLOSED LANDFILLS

- The first funding gap—dealing with closed landfills—is a type of cost for which it makes sense to continue relying on the State taxing authority and State grants to the degree that cost recovery from responsible land owners is inadequate.
- Under the "polluter pays" principle, the entity who owned and received revenue from the landfill should be the first recourse for payment of post-closure expenses. This can include entities who still own and receive revenue from other landfills or disposal-related services serving the same area.
- But when the past owner no longer exists or for some reason the recovery of costs from land owners is inadequate, statewide tax revenue is a reasonable fallback source. Taxes are a particularly appropriate revenue vehicle when the expenditure is intended for broad public benefits, and environmental protection is a public benefit.
- There is an existing funding vehicle. The Hazardous Substances Tax, authorized by the Model Toxics Control Act (MTCA), is a tax on the first possession of hazardous substances in Washington.
  - The current rate is 0.7% of the wholesale value of hazardous substances. The majority of the revenue comes from the import of crude oil into the State.
- The practical drawback of MTCA funding is the same drawback that exists with any tax funding: competing needs that draw on the same limited set of funds.
- However, the Hazardous Substances Tax was not originally intended to be a broad-based tax but a narrow-based tax with a specific purpose. The primary purpose of the MTCA when it was first adopted by voters in March 1989 was to regulate and fund the cleanup of contaminated sites. Closed landfills are an example of contaminated sites.
- To the degree that the monitoring of closed landfills is being funded inadequately by existing revenue sources, MTCA funding is the most logical source to draw on.

RECYCLING EDUCATION AND OUTREACH

- Recycling education and outreach efforts can appropriately be funded as part of the revenue requirement of a solid waste collection utility.
- Paying for conservation efforts has ample precedent with other utilities that are concerned with resource conservation: water and electricity.

- Minimizing MSW disposal extends the useful life of existing disposal capacity, thus forestalling future capital investment or more expensive long-haul contracts for disposal. This creates an economic justification for programs aimed at customer behavior, including recycling and waste prevention.
- An example of embedding recycling education and outreach programs in utility rates is King County, which operates a disposal utility with a landfill and transfer stations. The County includes recycling and waste prevention programs within the revenue requirement for its tipping fee, which is then paid by the solid waste collection utilities and self-haulers who use the transfer stations.
  - According to a recent analysis, about 8% of County tipping fee revenue goes to recycling-related programs. According to haulers in the County, disposal represents roughly 35% of residential and 50% of commercial retail costs, so the impact of recycling programs on retail rates and self-hauler costs is about 3-4%.
- In the King County example, implementation is relatively straightforward, because the County is not only the provider of disposal services; it is also the agency with responsibility for solid waste planning and recycling programs. So the same agency both receives and spends the money.
- In other parts of the State, counties or cities might have responsibility for recycling programs, but the owner of the transfer stations and landfills might be another jurisdiction or a private company.
  - In those cases, there would need to be some level of government—presumably the counties—authorized to establish a fee for the support of recycling and waste prevention programs.
  - The fee could be charged directly to the commercial haulers operating within the county, based on the number of accounts or the total monthly volume of their retail customer base.
  - A comparable fee charged to self-haulers could be based on weight with a minimum per vehicle, and it could be collected by transfer stations or landfills.
  - The revenue generated by the fee would be distributed to the agencies with responsibility for waste reduction programs, in proportion to either population or customer base—some measure of the number of people whose behavior they are trying to influence.
- There might be variability in how much money would be generated from a given fee, based on either per capita or total monthly volume. In some counties, the amount generated might not be enough to sustain a meaningful program to promote recycling. How can the State even out the differences in revenue productivity?
  - One approach could be for State grants to supplement the revenue from this local fee after the rate meets a certain level. For instance, if 5% of rate revenue is considered to be the upper limit for a reasonable "local effort," and the State determines a minimum level of funding needed for effective recycling programs, then in any given county, State funds can be distributed for minimum program costs in excess of the local effort share.
- Our point is that the more the funding approach is based on cost-of-service principles and measures of demand, and the more the determination of need and distribution of funds can address differing circumstances with an emphasis on equitable treatment, the more sustainable over time the funding approach will be.

  - The overall solid waste system—including waste prevention programs—is not as capital-intensive as other kinds of utilities, but reducing the cost of waste collection, processing and disposal, and preserving capacity in existing landfills are legitimate policy objectives that can be incorporated into the retail revenue requirement of solid waste collection utilities wherever that is not already occurring.

- As noted in the next section, the purpose of this fee charged to local utilities could be broadened to include enforcement efforts targeted at illegal dumping, without significantly changing the appropriate methods of calculating the fee or distributing the revenue.

PROGRAMS TO RESTRAIN ILLEGAL DUMPING

- In some parts of the State, illegal dumping might be a significant issue, and upward pressure on solid waste collection rates can exacerbate the problem.
- In terms of its basic purpose, a program of inspections and penalties fits both broad environmental goals and also the economic interest of a solid waste collection utility. On the one hand, a repeatedly used dump site becomes an unpermitted landfill with consequent environmental risks and damage. On the other hand, efforts to restrain illegal dumping supports the revenue base of the collection utility by channeling all the waste through existing authorized collection utilities.
- Therefore, a program of inspections and penalties could logically be funded either as an additional component of solid waste collection rates, as a recipient of State revenues such as Hazardous Substance Tax funding, or with landfill permit fees.
- The key question might be which revenue source has more capacity, either at the statewide level or the local level. A statewide tax-supported source faces competition from other environmental needs, but incorporating enforcement efforts into a utility revenue requirement could—depending on the existing level of rates—push more customers to defy the regulations and create illegal dumping sites.
- For counties in which illegal dumping is identified by local authorities as a problem, it might be reasonable to match both sources of funding, through which counties that create a strengthened enforcement program using local resources could be eligible to receive a matching grant from a State tax source, subject to the "supplement, not supplant" requirement that is typical of grant programs.
  - For this type of grant program, the local share could come from a fee chargeable to local solid waste collection utilities, similar to what was described for recycling education and outreach programs.
- The "50% match" approach to distributing State funds is different from the approach described above for recycling programs.
  - With the recycling programs, the underlying assumption would be that it is primarily a local responsibility but that some counties do not have very much of a customer base for their solid waste utilities. The purpose of any State distribution would simply be to ensure that each county can achieve a minimum effective level of recycling program funding without undue burden on ratepayers. With this approach, the primary recipient of State funding would be "poorer" counties.

- With the illegal dumping enforcement efforts, the underlying assumption is that the purpose is more of a shared responsibility, because protection of the environment and protection of the utility revenue stream are equally important rationales. In that case, even "richer" counties could qualify for an increased level of enforcement if they perceived a need for it and were willing to commit to creating or increasing a local fee on their collection utilities.

MODERATE RISK WASTE PROGRAMS

- Moderate risk waste programs are intended to create separate pathways for the disposal of certain types of products that could be hazardous to dispose of with regular municipal solid waste. The program costs include education, handling and proper disposal of these hazardous products.
- Extracting hazardous wastes from the general waste stream benefits the MSW disposal function by preventing potentially toxic substances from entering landfills. Whereas recycling and composting programs emphasize removing from the general waste stream products that could be *marketable* or *reusable*, hazardous waste programs emphasize removing products that could be *harmful*—either to the humans who handle the material or to the environment. (Some moderate risk waste is also recyclable, such as motor oil or other petroleum products.) Both types of programs preserve landfill capacity, but moderate risk waste programs are more focused on materials that could cause problems if they are *not* removed from the general waste stream.
  - Note that some kinds of moderate risk waste efforts provide analogous benefits to wastewater treatment plants, such as programs to recover expired pharmaceutical products or certain liquid chemicals. Therefore, the fees discussed here for solid waste collection and disposal utilities could also be applied to wastewater utilities. There might be less benefit and therefore a lower fee for wastewater utilities—if the particular group of hazardous materials collected are less likely to be flushed down a toilet than thrown in the garbage—but there is still a nexus between wastewater disposal and hazardous waste programs.
- Moderate risk waste programs could be funded at the local level by a fee charged to local solid waste collection and disposal utilities.
- Again, an example of this type of fee comes from King County, which has a multi-jurisdictional partnership called the Local Hazardous Waste Management Program (LHWMP). LHWMP is responsible for the moderate risk waste program in behalf of all the cities, the County Health Department, and the County solid waste disposal utility. Here is how the LHWMP funding works:
  - LHWMP is funded by a fee on all private haulers or cities who send out solid waste bills to customer accounts, another fee on self-haulers at County transfer stations, and a smaller fee on wastewater treatment plants operating in the County. The fees are legally authorized by the County Board of Health.
  - The fee on solid waste collection utilities is a flat fee ($.84 per month) for single family accounts and three-tiered fee for commercial (including multi-family) service units.
    - $1.46 per month per service unit for carts and cans of 96 gallons or less.
    - $12.01 per month per service unit for dumpsters between 1 and 8 cubic yards.
    - $46.15 per month per service unit for rolloff containers of 10 cubic yards or more.

        - Note: "service unit" is the denominator for commercial accounts because some accounts have more than one kind of service at the site. A "service unit" is one or more containers of the same size and collection frequency, either all compacted or all uncompacted. So if a customer has multiple containers, as long as they all have the same type of service, the customer pays only one monthly charge.
    - How much are these charges as a percentage of the solid waste bill? Because the LHWMP fee is a flat charge for each type of container and there is a wide range of solid waste charges (for example, dumpsters range from 1 cubic yard weekly service to 8 cubic yards daily service), the answer varies by the type of service. However, an analysis done for LHWMP in 2013 showed that for most customers, the hazardous waste charge represents 2-5% of the total solid waste bill.
  - The LHWMP fee on self-haulers is $1.81 per visit for passenger cars and $4.73 per ton for other self-haul vehicles. The revenue generated by the self-hauler fee represents about 3.5% of total tipping fee revenue.
- Moderate risk waste programs can be considered mainly as a local responsibility, which is why their cost can be recovered through the solid waste collection bills and transfer station self-haul charges.
- However, as we noted above in discussing recycling programs, counties vary in the size of their collection customer base, and the State does have an interest in ensuring that hazardous materials are separated from the general waste stream and kept out of landfills. If the State can identify a suitable revenue source, it would be reasonable to take the approach of ensuring that counties can at least achieve a minimum effective level of moderate risk waste program by paying for costs over 5% (or some other threshold) of local utility revenues.

EXAMPLE OF A REGIONAL SOLID WASTE FEE

- Metro is a regional government covering part or all of three counties around Portland, Oregon. Within its boundaries, it provides a variety of services, including planning and managing the solid waste disposal system and working with cities and private haulers to manage solid waste collection.
- Metro's solid waste planning responsibility and waste reduction services are similar to those offered by counties in Washington. Metro itself owns and operates two transfer stations, and there are many other transfer stations, landfills, and mass burners in the Metro service area.
- Metro has established a "regional system fee" that applies to all solid waste that is generated in the region and ultimately disposed. It is collected at all landfills, transfer stations, and mass burners serving the region, including the two transfer stations owned by Metro itself.
- The Metro regional system fee is an example of a utility charge that is used to address all of the areas identified above as funding gaps in the Washington solid waste system:
  - Closed landfills.
  - Recycling education and outreach.
  - Efforts to restrain illegal dumping.
  - Moderate risk waste programs, including education, handling, and disposal.

- The regional system fee is based on tonnage; in 2015 it was $18.41 per ton. As of 2015, the regional system fee represented about 19% of the total $94.91 per ton tipping fee charged at Metro's own transfer stations.
- Because the revenue base is broader than just the tonnage at Metro's own facilities, the regional system fee generates 36% of the total revenue brought in by the Metro solid waste disposal utility.
- Revenue from the regional system fee is dedicated to Metro's solid waste programs and services that are regional in scope: household hazardous waste, waste reduction planning and programs (including waste reduction education), post-closure activities for the St. Johns Landfill in Portland, solid waste facility regulation, and illegal dumpsite monitoring and cleanup. Revenue from this fee does not cover any of Metro's disposal and processing operations costs.
- Because the regional system fee is incorporated into the per-ton disposal rates charged by all disposal site operators in the Portland region, it is ultimately paid by self-haulers and by solid waste customers through their collection rates.
- Because Metro is a regional government, it has the legal authority to establish a fee for the entire region. In order for Washington local governments to replicate this type of combination fee successfully, it is most likely that the level of government initiating the fee should be the counties, possibly through their health departments. Relying on individual cities or towns to take the initiative could lead to uneven results.
  - With agreement of constituent cities, counties could establish a solid waste disposal district with an excise tax similar to the Metro regional system fee. The Whatcom County Disposal District is one example; its "excise privilege tax" is set by County Council ordinance, not to exceed $8.50 per ton without approval of all cities in the County. (Whatcom County Code 8.13.030) Multiple counties could potentially establish cooperative agreements to create a more regional system.
  - Alternatively, local boards of health are authorized to establish and enforce regulations that protect public health and to establish fee schedules for services provided (RCW 70.05.060).The Local Hazardous Waste Management Program in King County (with a fee authorized by the County Board of Health), provides a model approach. Multiple counties can establish cooperative agreements to create a more regional system; one example is the Chelan-Douglas Health District, a partnership between Chelan and Douglas counties.
- Because a regional system fee would be a locally controlled funding source attached to existing utilities, its implementation could lead to reduced reliance on state grants to fill in funding gaps in the solid waste system.