# Wastewater Reuse Policy Review

## Council Committee of the Whole Meeting

## January 17, 2018

**Jeannine Clancy, Assistant General Manager – Technical Services**

**Deborah Manning, PE, Assistant Manager- Plant Engineering, Technical Services**

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# Meeting Objectives

- To share information about the work of the Wastewater Reuse Policy Task Force
- To review draft options for wastewater reuse-related amendments to the Water Resources Policy Plan



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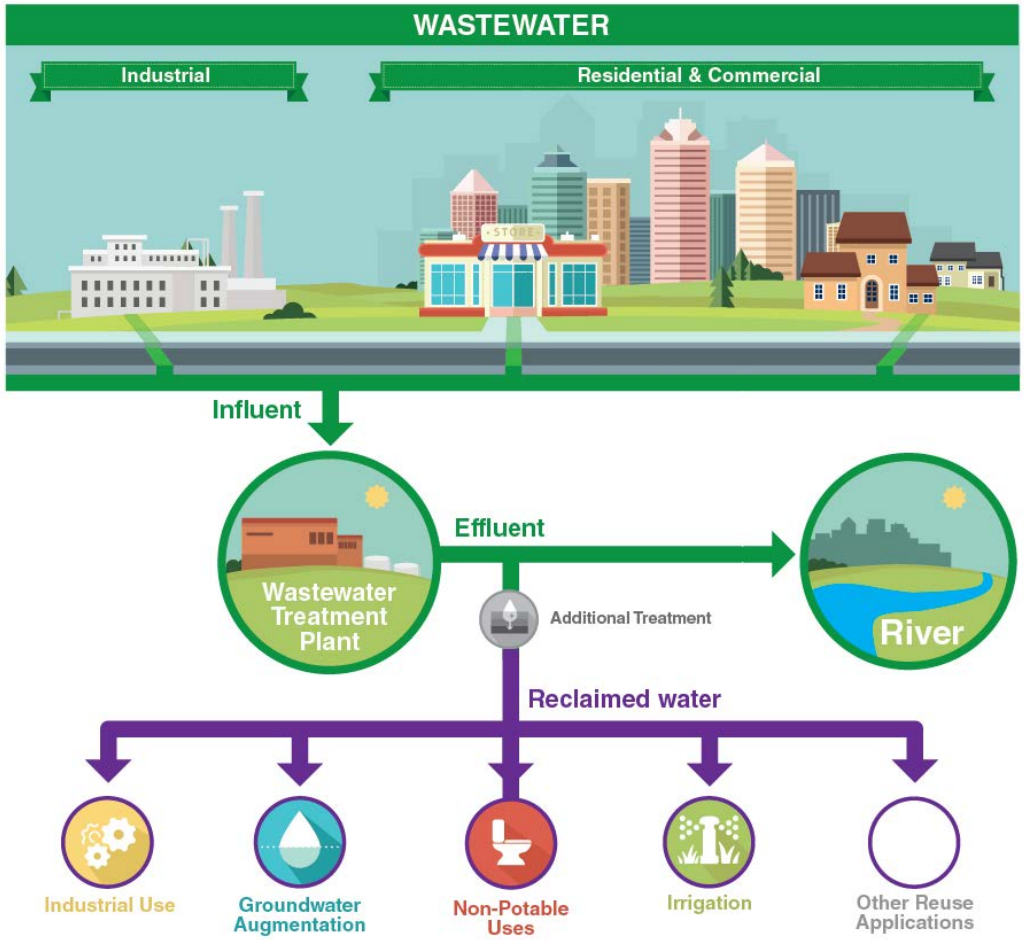
# Wastewater Reuse




Wastewater reuse: practice of treating and reusing wastewater treatment plant (WWTP) effluent for beneficial use before releasing it back into the water cycle.

**Reclaimed water:** Effluent that has received additional treatment to make it suitable for specific reuse applications or beneficial use.

# MCES Authority to Provide Reclaimed Water Service

**MN Statute 473.511, sub. 1**

Council has authority to construct, equip, operate and maintain interceptors and treatment works needed to implement the council's comprehensive plan for collection, treatment and disposal of sewage in the metro area.

**Notes:**

- Reusing effluent qualifies as treatment and disposal of sewage
- Reuse is consistent with the Council's comprehensive plan

**Limits:**

- Council does not have statutory authority to provide retail water service
- Council is prohibited from using its funds to give gifts



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# MCES Wastewater Reuse Policies


## Thrive MSP 2040 Plan

**Pursue wastewater reuse where economically feasible as a means to promote sustainable water resources.**


## 2040 Water Resources Policy Plan

**Work with our partners**

**Promote a more sustainable region**

**Maximize regional benefits**

**Provide efficient, high-quality, sustainable wastewater services**



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# Major Wastewater Reuse Steps


**Policy review needed**



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# Wastewater Reuse-Related Amendments to Water Resources Policy Plan

| Timeframe | Activity |
|---|---|
| 3/22/17 | Council authorized Wastewater Reuse Policy Task Force |
| Apr.–Nov., 2017 | Task Force meetings |
| Dec., 2017 | • 12/12/17: Environment Committee recommends Council accept Task Force report; refers policy discussion to Committee of the Whole<br>• 12/13/17: Council accepts Task Force report |
| 1/17/18 | Committee of the Whole Meeting |
| **1/23/18** | **Environment Committee acts on request to authorize public hearing** |
| **2/14/18** | **Council acts on authorization for public hearing** |
| **4/3/18** | **Public hearing on policy options** |
| **4/24/18** | **Environment Committee acts on adoption of amendments** |
| **5/9/18** | **Council acts on adoption of policy amendments** |



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# Task Force Purpose

To review the Council's existing wastewater reuse policies and recommend clarifications needed to respond to opportunities for wastewater reuse.

*Approved by Metropolitan Council, March 22, 2017*



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# Task Force Policy Focus

Do wastewater reuse projects have a regional benefit?

If so, should the region, through MCES' municipal wastewater charge, contribute a regional cost share?

How should MCES partner with local communities or water utilities for wastewater reuse projects?

*Regional cost share: a fraction of the capital and operating cost of the facilities MCES would need to build and operate to provide reclaimed water service



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# Appointed Task Force Members

| Community | Name | Title |
|---|---|---|
| Bloomington | Mary Hurliman | Deputy Director of Public Works |
| Cottage Grove | Jennifer Levitt | Community Development Director/City Engineer |
| Eagan | Jon Eaton | Superintendent of Utilities |
| Hugo | Bryan Bear | City Administrator |
| Lakeville | Chris Petree | Public Works Director |
| Maplewood | Michael Thompson | Public Works Director |
| Ramsey | Kurt Ulrich | City Administrator |
| St. Paul | Beverly Farraher | Public Works Operations Manager |
| St. Louis Park | Debra Heiser | Engineering Director |
| Vadnais Heights | Mark Graham | City Engineer/Public Services Director |
| Metro Cities | Steven Huser | Government Relations Specialist |
| Metropolitan Council | Sandy Rummel | Metropolitan Council District 11 and Chair, Environment Committee |

Other stakeholder input:

- Regulatory
- MAWSAC-TAC
- Business community



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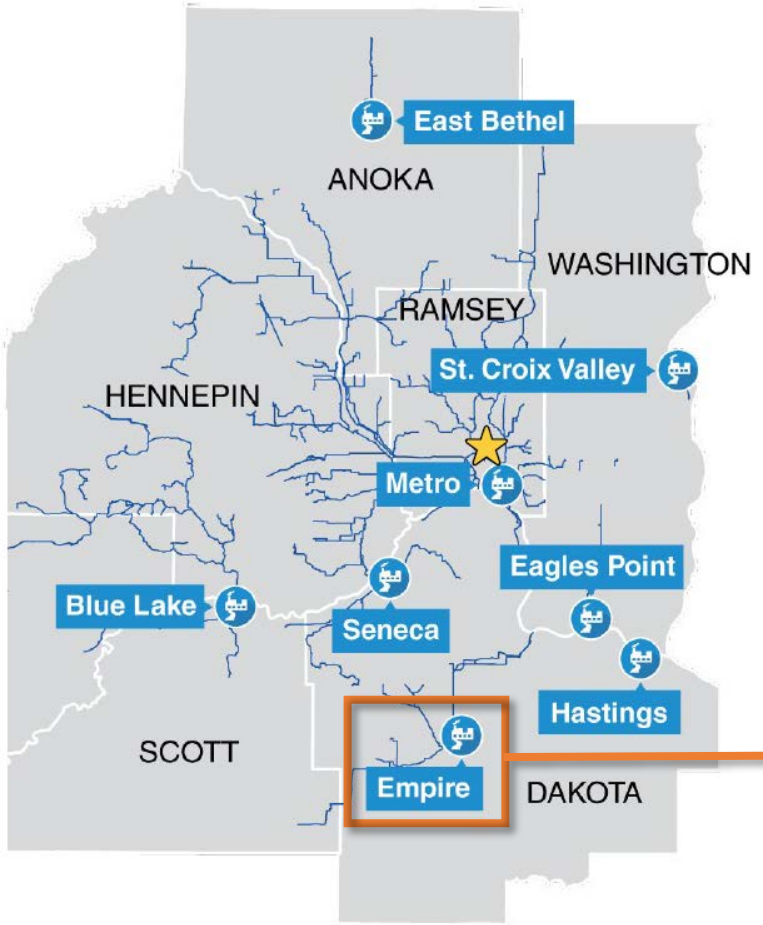
# Wastewater Reuse: Opportunity and Location-Driven




**Potential for cost-effective reuse best when:**

- Industrial area
- Growing area
- Effluent quantity & quality conducive to reuse
- Land available for required additional treatment
- Reclaimed water distribution system piping cost reasonable
- Reuse driver

**Empire WWTP service area = high reuse potential**



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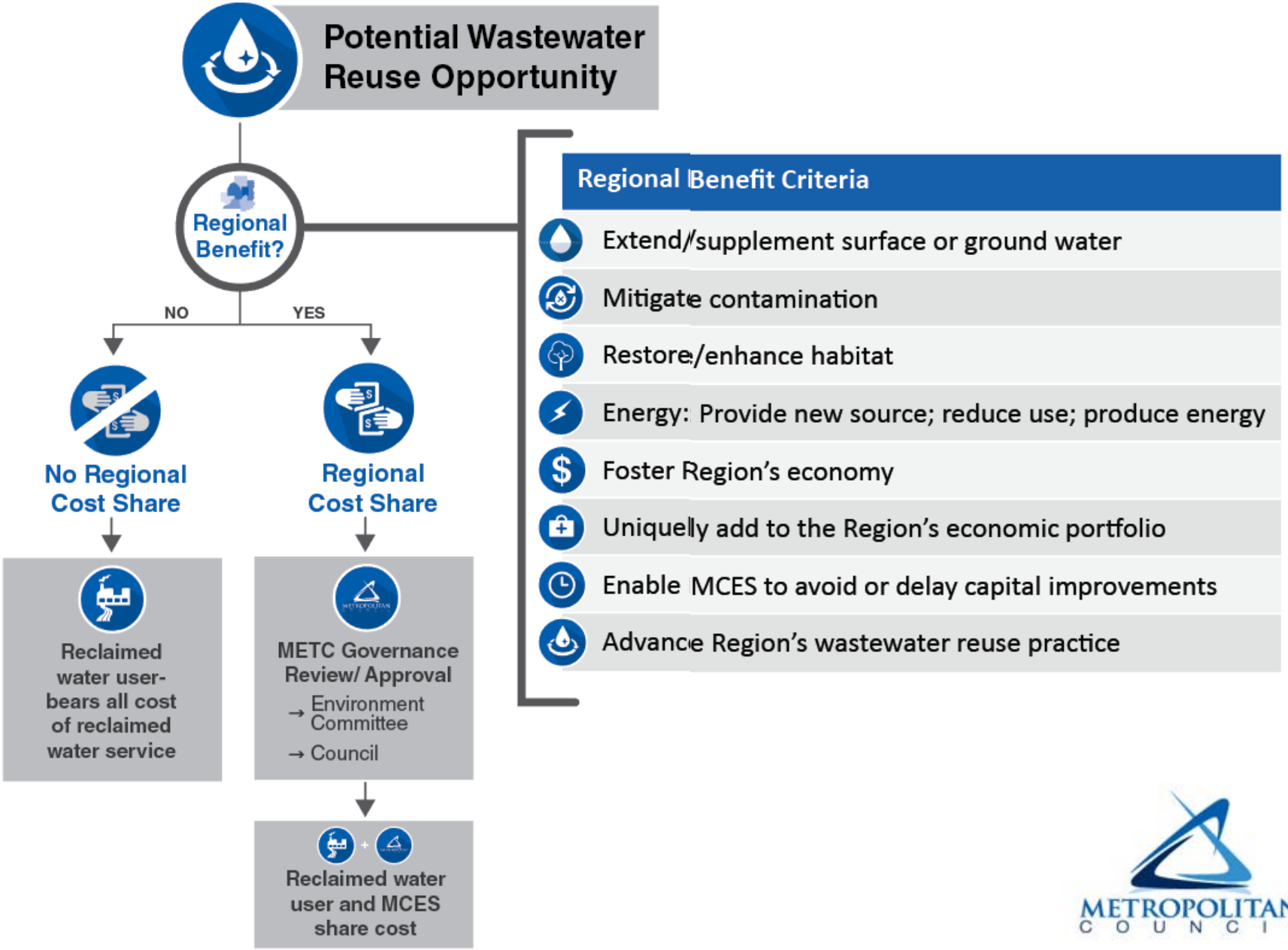
# Wastewater Reuse Opportunity Assessment Methodology

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# SKB-E Water Source Decision


## SKB-E WATER SOURCE DECISION

**Water used for:** Process & cooling for waste-to-energy products process

**Amount needed: 1.6 mgd** (equivalent of **4,500 households**)

**Comparison** (avg. use)

- **Inver Grove Heights** (2003-2007) **2.8 mgd**
- **Rosemount** (2003-2006) **2.0 mgd**
- **Lakeville** (2003-2005) **5.8 mgd**
- **Elko New Market** (2003-2008) **0.3 mgd**

## Potential Sources

### Inver Grove Heights City Water

Cost/1,000 gallons: **$3.20**

**Additional treatment by SKB-E:**
None or minimal

**City water source:**
mainly Jordan aquifer

**Average water use**:
2.8 mgd

**Total current well capacity:**
10 mgd

### MCES Reclaimed Water

Cost/1,000 gallons: **$2.00-2.80**

**Additional treatment by SKB-E**:
Required

**New groundwater use/appropriation:** None

**Empire WWTP average flow:**
10 mgd

**Current discharge to:**
Mississippi River

**Permitting Process:**
Known MPCA permitting process

### Groundwater

Cost/1,000 gallons: **likely <$1.0**

**Additional treatment by SKB-E:**
None or minimal

**New groundwater use/appropriation:** Yes

**Permitting Process:**
DNR's position: permitting complex; reliability of supply uncertain due to priority of use



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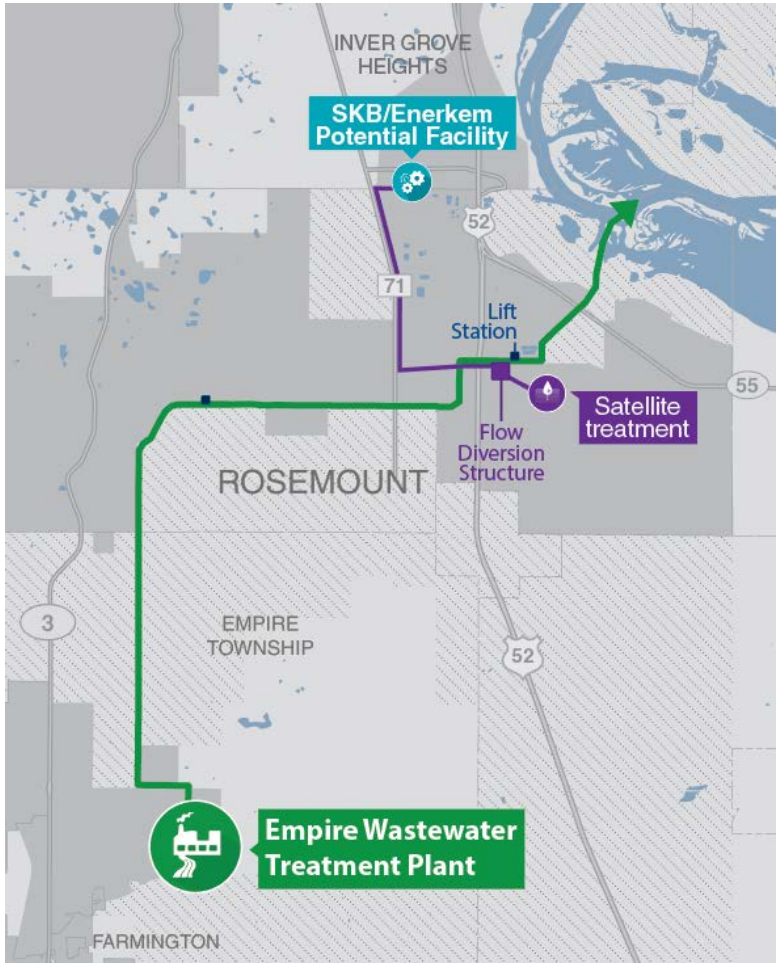
# SKB-E Reclaimed Water Service Concept




**Reclaimed water:**
Effluent that has received additional treatment to make it suitable for specific reuse applications or beneficial use.

- Effluent (Existing)
- Proposed
- Current Empire Service Area
- Future Empire Service Area



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# SKB-E Case Study: Non-Economic Factors

| | Potential Impact of Using Reclaimed Water vs. Groundwater | Local Impact | Regional Impact |
|---|---|---|---|
| Water Supply | No 1.6 mgd groundwater appropriation<br>No demand on IGH water infrastructure | + | Likely + NA |
| Groundwater | No increase in projected 2040 aquifer drawdown | + | Likely + |
| Surface Water | No adverse impact on surface waters due to additional GW pumping | + | ? |
| Wastewater | Advances Region's wastewater reuse practice | + | + |
| Stormwater | No difference with or without reclaimed water | NA | NA |

**+ Positive impact** **- Negative impact** **NA Not applicable**



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# SKB-E Case Study: Non-Economic Factors

| | Potential Impact of Project with or without Wastewater Reuse | Local Impact | Regional Impact |
|---|---|---|---|
| Waste | Reduction of landfilled MSW in the Region | + | + |
| Visual | Expansion of industrial base visually consistent with surrounding area | + | + |
| Energy | Production of biofuels and renewable chemicals | Likely+ | Likely+ |
| Air pollution | Potential increase in stationary emissions<br>Potential increase in vehicular emissions & dust & odor<br>Potential reduction in GHGs using ethanol vs. gasoline | TBD | TBD |
| Noise | Potential increase in noise in heavily industrial area | Likely- | NA |
| Traffic | Traffic during construction will increase<br>Traffic during operation will increase | -<br>- | ?<br>? |

**+ Positive impact - Negative impact NA Not applicable**



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# SKB-E Case Study: Annual Economic Impacts

| DIRECT IMPACTS (activity at the new site) | REVENUE | | 1 |
|---|---|---|---|
| **114** FT JOBS; **$6.4M** PAYROLL | INCOME TAXES | **$450,000** | **$330,000** |
| **25M** GALLONS BIOFUEL PRODUCTION | EXCISE TAXES | **$7.1M** | **$4.4M** [2] |
| **$11M** TAXABLE PROPERTY VALUE | FISCAL DISPARITIES CONTRIBUTION | **$130,000** | **$130,000** |
| | STATE GENERAL LEVY | **$100,000** | **$75,000** |
| **TOTAL DIRECT IMPACTS** | | **$7.8M** | **$5.0M** |

1. Metro area receives approx. 73.8¢ on each dollar it pays in State revenues.
2. Metro area receives approx. 61.5¢ on each dollar paid in State transportation revenues.



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# SKB-E Case Study: Annual Economic Impacts

| | REVENUE | | [1] |
|---|---|---|---|
| **DIRECT IMPACTS** | | $7.8M | $5.0M |
| **INDIRECT IMPACTS** (activity from supporting businesses) | | | |
| 297 FT JOBS; $10M PAYROLL; $12.5M PURCHASES | INCOME TAXES | $700,000 | $520,000 |
| | LARGELY EXEMPT FROM SALES TAX | ~$0 | ~$0 |
| **INDUCED IMPACTS** (consumer spending by workers and families) | | | |
| 411 TOTAL JOBS; $16.4M TOTAL PAYROLL; $4.9M TAXABLE SPENDING | SALES TAXES | $300,000 | $225,000 |
| **TOTAL IMPACTS** | | $8.8M | $5.7M |

1. Metro area receives approx. 73.8¢ on each dollar it pays in State revenues..



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# Who Benefits from SKB-E Potential Project?

**WASTEWATER REUSE USER**

But for wastewater reuse, project would not proceed (in TCMA)

**WASTEWATER CUSTOMERS**

Build wastewater reuse capability

Potentially offloads effluent nutrient load

**POTABLE WATER CUSTOMERS**

Reserves high-quality groundwater for higher use

Build technical capacity for direct/ indirect potable reuse


**SOLID WASTE CUSTOMERS**

Meet regional recycling goals

Avoid costly landfills

**ENERGY CUSTOMERS**

New energy source diversifies energy portfolio

Builds technical capacity for waste-to-fuel energy

**COMMUNITIES**

Supports growth (industrial base, potable water reserved for growth)

Financial impact: $5.7M/year



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# Concept-Level Costs for Reclaimed Water Service to SKB-E

| | |
|---|---|
| **Capital, $M** | 20-25 |
| **Annual O&M, $M** | 0.3 |
| **$/1,000 gallons** | 2.00 – 2.80 |



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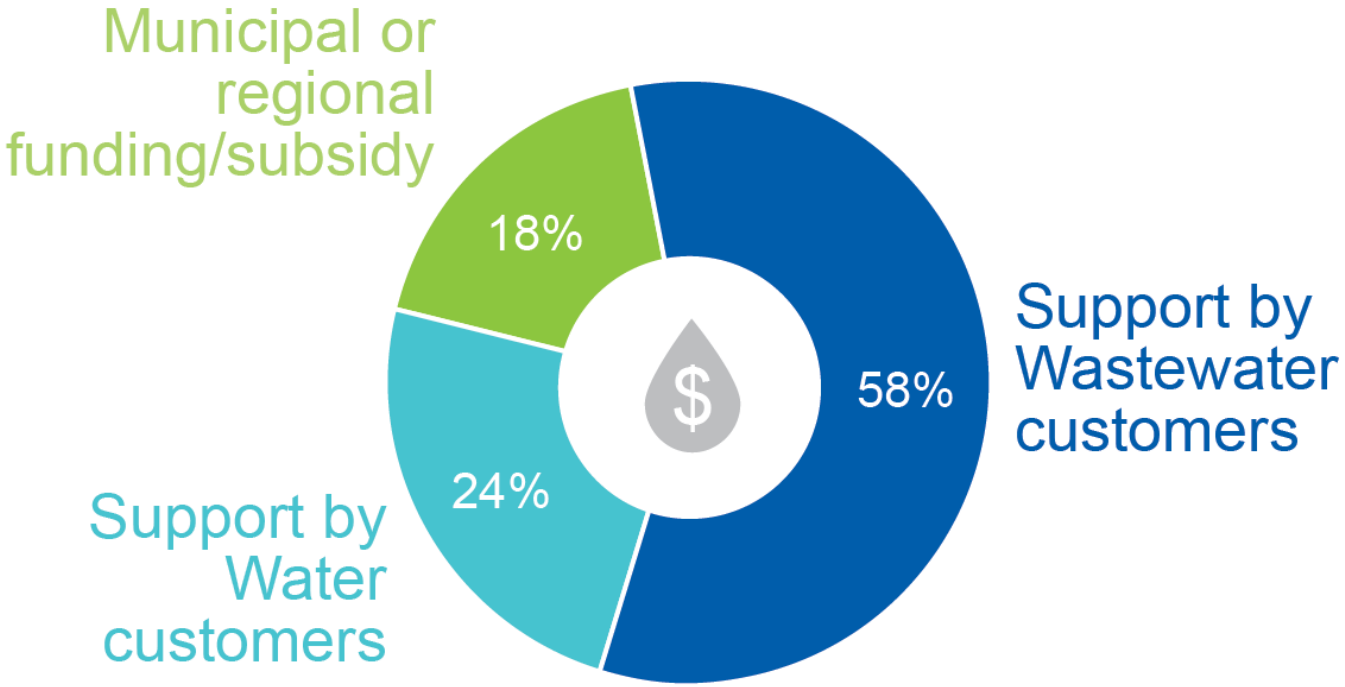
# 2007 AWWA Survey: Reclaimed Water Rates

## Revenue to Meet Operating Costs




**Source:** *Water Reuse Rates and Charges, 2000 and 2007 Survey Results*, American Water Works Association, June 2008



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# SKB-E Case Study:
# Hypothetical Regional Cost Share & Impact

| | |
|---|---|
| **Regional cost share of MCES reclaimed water operating costs** (capital & O&M) | 25% |
| **Increase in MCES' annual wastewater customer rate** | $0.18 - 0.21/yr/REC |

**REC**
Residential Equivalent Connection



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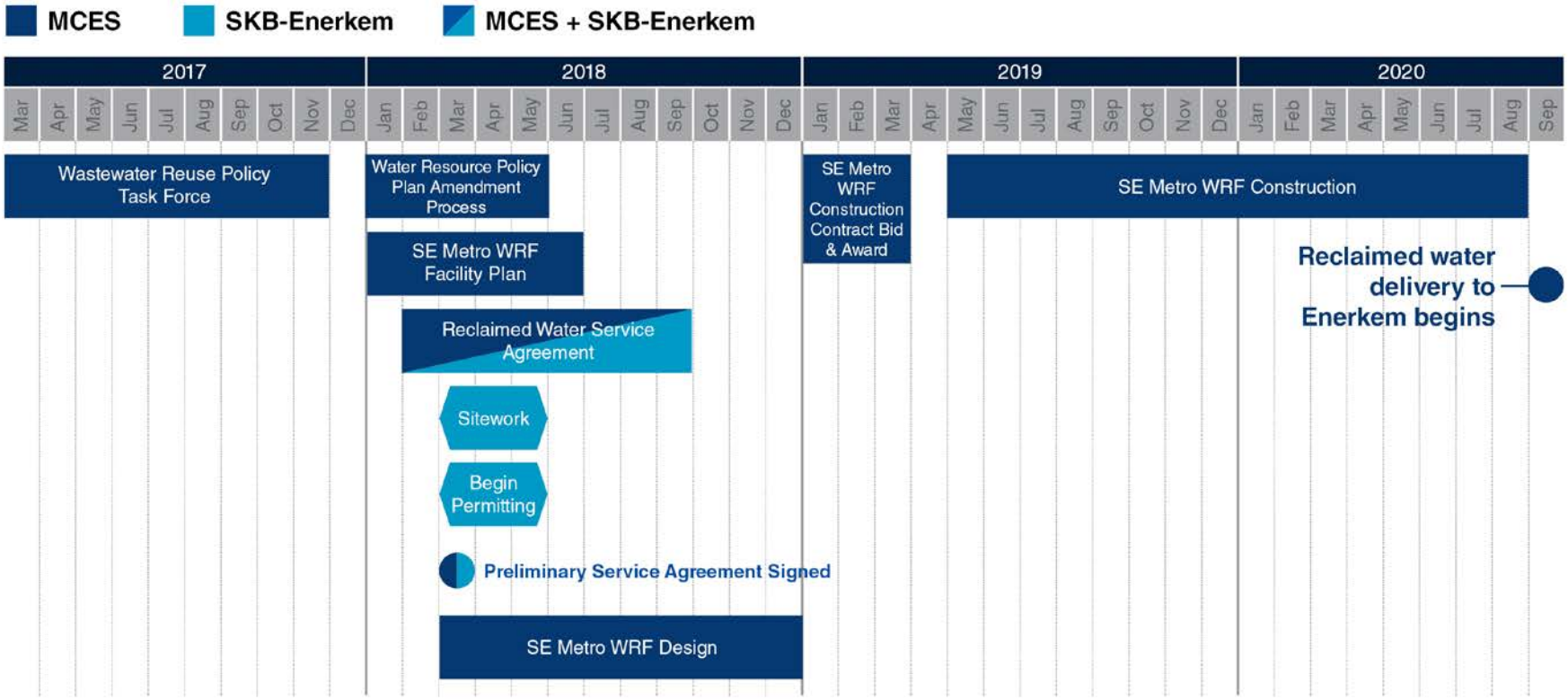
# SE Metro Water Reclamation Facility Schedule

**Spring 2016: Initial meeting with SKB-E**
**March 1, 2017: Enerkem letter of interest in reclaimed water service**



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# Task Force Findings

## Consensus Items:

- ✓ Reasons for wastewater reuse program
- ✓ Responsive approach
- ✓ Cooperation and partnership rather than competition
- ✓ Cost-of-service basis for reclaimed water rate
- ✓ Regional benefit evaluation
- ✓ Funding from non-Council funds

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- ✓ If Council moves ahead with regional cost share, implement a pilot wastewater reuse program with: caps on cost share, user agreement, public input process, Council decision making

## Non-Consensus Items:

- ✓ Regional cost share



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# Draft Policy Options

See handout



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# Next Steps: Wastewater Reuse-Related Amendments to Water Resources Policy Plan

| Action | Timeframe |
|---|---|
| Committee of the Whole Meeting reach consensus on public hearing | 1/17/18 |
| Environment Committee acts on request to authorize public hearing | 1/23/18 |
| Council acts on authorization for public hearing | 2/14/18 |
| Public hearing on policy options | 4/3/18 |
| Environment Committee acts on adoption of amendments | 4/24/18 |
| Council acts on adoption of policy amendments | 5/9/18 |



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# THANK YOU!



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