

## **Decentralized "Green" Systems**

---

**Focus Area:** Environment & Public Health  
**Strategic Objective:** Anticipate, adapt to change  
**Owner:** Nancy Ahern, Utility Systems Management Branch

### **Summary of proposed action**

Evaluate the challenges and opportunities created by the increasing availability of- and interest in- emerging, decentralized alternatives to SPU-provided services (e.g., onsite rain capture and treatment in lieu of centralized water and sewer systems). Develop policies to respond to the growing interest in decentralized utility systems.

### **Description of the problem this action solves**

Traditionally, utility services have been provided through centralized systems that distribute water via a city-wide treatment and distribution network of pipes, or collect sewage and drainage via a sewer network that carries wastewater to a central treatment plant. Today, traditional utilities such as SPU are faced with responding to growing interest in smaller, decentralized or distributed approaches to providing the same services, at a building or neighborhood scale. Recent examples of decentralized systems proposed by Seattle developers include:

- The Bullitt Foundation's "*Bullitt Center*" is the first commercial building to meet the Living Building Challenge; it seeks to capture rainwater for tenants' use and treats most sewage and rainwater runoff on site.
- Amazon.com Inc.'s proposed downtown campus includes potential water reuse for non-potable use.
- Gates Foundation Headquarters harvests rainwater for non-potable uses.
- Yesler Terrace Redevelopment is considering storm water harvesting and reuse.

Most decentralized or distributed approaches seek to replace or augment centrally provided services with site-scale facilities – in some cases, seeking to go completely "off the grid." While still a tiny piece of the utility pie, these decentralized systems could, over time, have far-reaching effects on the provision of utility services.

SPU has participated in the projects described above, but currently lacks a good understanding of the potential long-term impacts of decentralized systems on our customers, the environment, and utility services. We have not yet developed comprehensive policies relating to private development involving decentralized systems or included them in system planning. Important policy questions raised by the increasing interest in decentralized systems include:

- What type of infrastructure and service delivery will best serve SPU's customers 20-30 years from now?
- Could rainwater harvesting help reduce flooding or mitigate reduced drinking water supplies due to climate change?
- What are the impacts of increased infiltration on groundwater?
- How can system costs be fairly allocated if some users reduce or eliminate their regular consumption?
- Who will ensure decentralized drinking water systems are properly operated and/or take them over when they fail?

### **More detailed description of the proposed action**

SPU would form a cross-Branch Team to develop a proactive utility approach to decentralized systems, assess the potential pros and cons of different decentralized systems, and develop recommended policies to serve the long-term interests of our customers. The Team will:

## Decentralized "Green" Systems

- Gather information about technology, codes, regulations and other issues/benefits associated with decentralized/distributed systems.
- Organize a workshop that would bring experts from other utilities, industry associations, and research/non-profits to Seattle to help inform SPU how other organizations are tackling these issues.
- Develop a Decentralized System Strategy Report within 18 months that:
  - ✓ Defines the regulatory responsibilities related to decentralized systems.
  - ✓ Benchmarks what is being done on this topic in other places and institutions.
  - ✓ Describes how decentralized systems specifically affect each Line of Business.
  - ✓ Projects the likely pace and extent of demand or adoption of different decentralized technologies.
  - ✓ Identifies and prioritizes policy issues.
  - ✓ Recommends how the utility can best take advantage of the opportunities and manage the challenges from decentralized systems while continuing to provide high quality utility services.
  - ✓ Allows us to develop new policies on the decentralized approach when we have sufficient information.
  - ✓ Recommends next steps, including areas of focus, staff and resource levels, information-gathering, and policy development.

Beyond 2016, work will be guided by the report, and will likely include policy development and code revisions.

### Implementation plan and timeline

	2015	2016	2017	2018	2019	2020
Gather information, benchmark other places	x					
Workshop	x					
Decentralized Systems Strategy Report		x				
Next Steps		x	x	x	x	x

### Budget and FTE Changes (in \$000s)

Fund: Multiple Funds

	2015	2016	2017	2018	2019	2020	Total
O&M Labor							\$0
O&M Non-Labor	50	30	30	30	30	30	\$200
<b>O&amp;M Subtotal</b>	<b>50</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>\$200</b>
CIP							\$0
<b>Total O&amp;M and CIP</b>	<b>\$50</b>	<b>\$30</b>	<b>\$30</b>	<b>\$30</b>	<b>\$30</b>	<b>\$30</b>	<b>\$200</b>
FTE	0	0	0	0	0	0	

### Plan for evaluating success or progress

TBD