To heat buildings, the Power Plant burns natural gas to create steam which travels to buildings through the 7 miles of tunnels on campus. For cooling, the plant chills water in a process that consumes electricity and water. This type of centralized heating and cooling system can be much more efficient and more effectively monitored than numerous individual building systems. (Watch for big changes in the next few years. Some of the oldest components are aging and will be replaced with new, more efficient ones.)
WASTEWATER 7 miles away

Making our um... waste useful

Wastewater from Gould travels about seven miles through enormous pipes to the West Point Wastewater Treatment Plant in Discovery Park where it is cleaned and turned into fertilizer, fuel and water. It isn’t perfect. Some of the waste ends up being hauled to the landfill in Oregon and some unpleasant byproducts end up in Puget Sound.

Trash such as “flushable” wipes and gravel is screened out and sent to the landfill in Oregon.

Biosolids are disinfected, dried, and sold as fertilizer.

The natural processes used to treat wastewater don’t break down man-made chemicals found in many cleaning, bathing and cosmetic products. They also can’t break down most medicines or products such as paints and pesticides.

The liquid component is disinfected and discharged into the Sound.

The plant consumes 6-7 MW of electricity on average. Peak consumption is over 10 MW. About 4.6 MW of this is generated from burning gas (methane) which is created from the waste.

The waste is treated in huge tanks and then sent to the generator to create electricity.
World class water supply

We get our water from the Cedar River Watershed, an area owned by Seattle which is 1.7x larger than the city itself. The water drains into Chester Morse Lake (which you see in the photo above). The surrounding forest filters the rainwater, keeping it pure. We have some of the cleanest and best-protected water in the world.

<table>
<thead>
<tr>
<th>DISINFECTION</th>
<th>TESTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteria, viruses and other pathogens are removed.</td>
<td>Every day, over 50 samples are tested before and after treatment.</td>
</tr>
</tbody>
</table>

78% of the water flows to the Puget Sound in rivers and streams where salmon spawn.

22% of the water flows to Seattle in pipes for use in our homes and businesses.

+ BENEFITS
In addition to filtering the water we drink, the watershed provides a protected home for animals like the northern flying squirrel, amphibians like the rough-skinned newt, birds like the marbled murrelet, fish like the shorthead sculpin, insects like the very rare Beller's ground beetle, and plants like the pyramidal spirea.

SOURCES:
http://www.cedarriver.org/the-watershed

Carbon-neutral electricity

Our electricity comes from the first electric utility in the country to achieve zero net greenhouse gas emissions. Seattle City Light (SCL) is owned by us, the residents of Seattle. SCL generates approximately 1/2 of what the city consumes and buys the remainder. Some of the purchased electricity comes from non-renewable sources and is offset by purchasing Renewable Energy Credits.

- **6%** Non-renewable, offset by purchasing renewable energy credits
  - 4.7% nuclear
  - 0.7% coal
  - 0.6% other (natural gas, petroleum, etc.)
- **4%** renewables
  - 3.4% wind
  - 0.5% landfill gases
- **90%** Hydro
  - No emissions (once the dam is built)
  - But the ecology of the river is profoundly altered

**ELECTRICITY**

**DISTRIBUTION LINES**

**SUBSTATION**
Reduces voltage

**TRANSMISSION LINES** (high voltage)

**SOURCE:** http://www.seattle.gov/light/fuelmix/
WE ARE HERE
NATURAL GAS PROCESSING PLANT

At the gate station, odorant is added to enable us to detect leaks (natural gas is odorless).

COMPRESSOR STATIONS
800–1000 miles away GATE STATION

At the gate station, odorant is added to enable us to detect leaks (natural gas is odorless).

Stations every 50-60 miles maintain gas pressure

HALF OF OUR CARBON EMISSIONS

At the UW, we track greenhouse gas emissions generated by the operation of the University. This includes emissions from commuting, emissions associated with the electricity we consume and emissions generated by burning fuels on campus.

Of our total emissions, approximately half come from burning natural gas in the Power Plant to heat buildings.

GATHERING PIPELINES
Gathering lines bring raw natural gas from wells

PROCESsing plant
Various impurities are removed at the plant

TRANSMISSION PIPELINES
Transmission lines carry natural gas for thousands of miles at high pressure

DISTRIBUTION PIPELINES
Local distribution lines carry natural gas to its final destination