



# City of Portland Green Purchasing Case Study

## Solar-Powered Parking Meters

### Purchasing Green

In 2002, the Portland Bureau of Transportation (PBOT) began replacing the city's 7,100 single-space parking meters with multi-space, solar-powered SmartMeters. SmartMeters are located in the middle of blocks, and each meter serves an average of six to seven parking spaces. The user can pay with coins, debit or credit cards, pre-paid Smart Cards, or by using Portland's payment app, Parking Kitty.

The city now has 1,890 active SmartMeters. Portland was one of the first large cities in North America to switch the majority of its meters to this technology.

### Benefits

Each six-foot SmartMeter features a 10-watt solar panel that recharges the meter's sealed lead acid batteries. This technology requires ambient light only, allowing meters to operate efficiently even on cloudy, rainy days.

Unlike traditional coin meters, whose 9-volt alkaline batteries need to be replaced annually, the batteries in SmartMeters are rechargeable and last 5-7 years. PBOT recycles both kinds of batteries, but since SmartMeters' batteries last significantly longer and serve multiple spaces, using SmartMeters reduces the City's overall disposal costs and environmental impact.

The wireless technology employed by SmartMeters makes maintaining and operating the parking meters more efficient. The old meters filled up quickly and were constantly jamming. Often there was a long lag time between a meter being out-of-service and PBOT becoming aware of the situation. SmartMeters allow proactive rather than reactive maintenance, immediately notifying PBOT of technical problems. PBOT formerly averaged about four calls per space annually due to money jams; now it's less than one. Additionally, SmartMeters are easily upgradeable and require limited tools when being serviced.

While most of the time SmartMeters print a paper receipt to display in the vehicle's curbside window as proof of payment, PBOT is exploring new technologies that eliminate the need for paper receipts. Pay by Plate meters allow people to purchase parking time at a meter by entering their license plate number. The Pay by Plate meters sync with Parking Enforcement handheld devices so officers can verify payments. Similarly, Parking Kitty app payments can be viewed electronically through Parking Enforcement handheld devices. In both instances, paper receipts are not required, reducing paper waste and printer maintenance costs.



*SmartMeters use solar panels specially designed to work in cloudy, rainy climates.*

### At a glance –

#### *Who –*

- Portland Bureau of Transportation

#### *Product –*

- Solar-powered parking meters

#### *Cost –*

- \$4,900 per meter
- Decreases maintenance costs
- FY17-18 revenue 94% higher than FY02

#### *Benefits –*

- Solar-powered
- Simplifies & reduces maintenance
- Reduces coin collections, saving gas

*“The City of Portland continues to maintain all bankcard security standards by participating in annual security reviews. This helps to insure that all customer transaction data is protected.”*

Doug Siemens,  
Pay Station System Analyst,  
City of Portland Bureau of  
Transportation

## Cost

As of June 2016, each SmartMeter costs \$4,900, compared to \$650 for a new single-space meter. Although this may seem like a big price difference, the fact that SmartMeters serve an entire block of parking spaces, increase collection revenue, and reduce maintenance costs means they are extremely cost competitive with a block of single space meters.

Meter revenues have risen dramatically since the installation of the SmartMeters. In FY17-18, the meters generated about \$36 million, a 94 percent increase in revenue compared to 2002, the last year the City used the old meters exclusively. PBOT attributes this increase in part to the SmartMeters' ability to accommodate credit/debit cards. In fact, credit/debit cards account for 78 percent of transactions, which greatly reduces trips to collect coins, saving gas in the process.

## Performance

PBOT has experienced no major failures with the SmartMeters. Besides Portland, other U.S. cities using similar technology include Chicago, IL; Denver, CO; Seattle, WA; and Washington DC.

## Lessons Learned

PBOT devoted a lot of resources to employee and public education, an investment that led to a smooth transition to the new technology. Employees were trained in how to maintain and service the SmartMeters. To assist the public, PBOT distributed brochures and stationed “Meter Greeters” at new installation sites.

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## About Portland Bureau of Transportation (PBOT)

*The Bureau of Transportation maintains the \$13 billion investments in infrastructure facilities from streets and structures to traffic signals and street lights. PBOT is a community partner in shaping a livable city. We plan, build, manage and maintain an effective and safe transportation system that provides people and businesses access and mobility. We keep Portland moving.*

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