

# Metro Transit Sustainability



## Transportation Committee

June 22, 2015

Presented by

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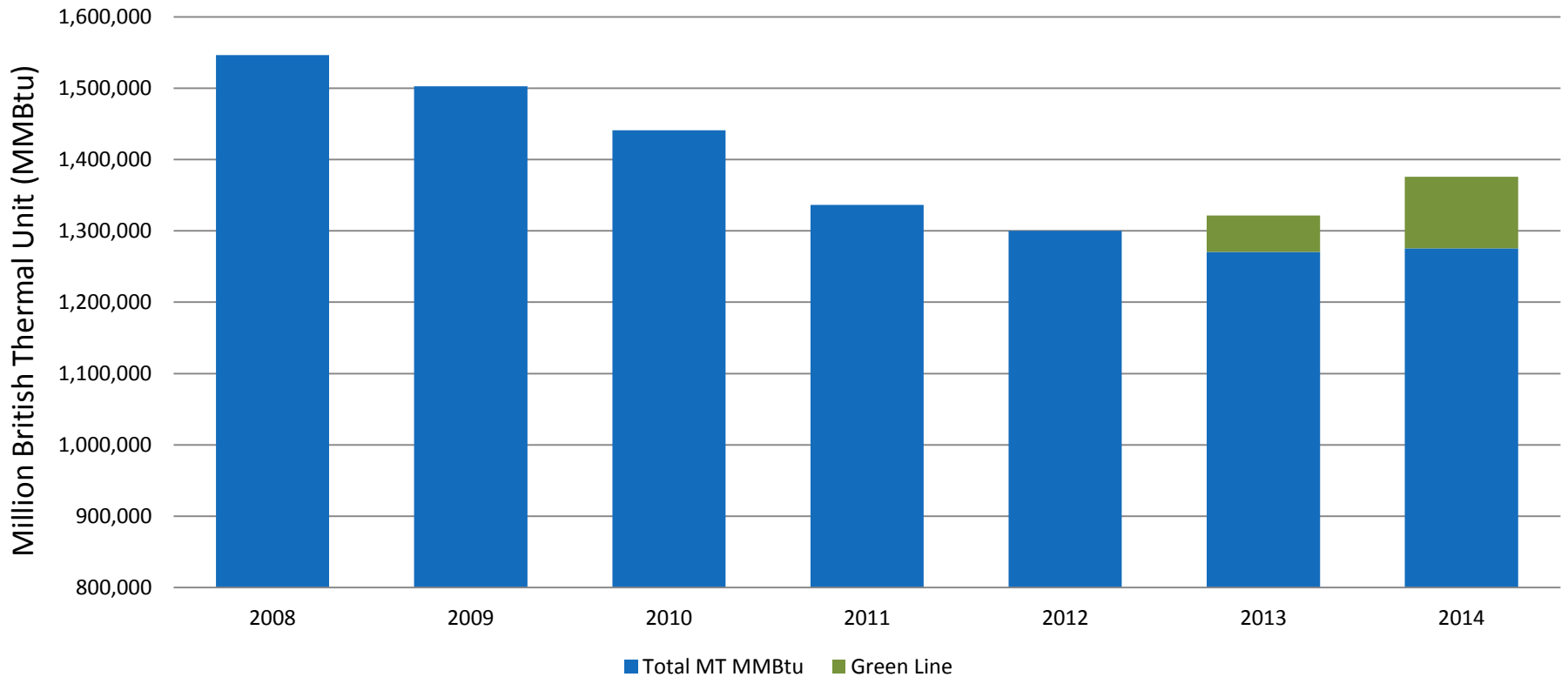
Metro Transit, Engineering and Facilities

# Thrive Outcomes: Sustainability

- **Operating the region's wastewater treatment and transit systems sustainably**
  - Increase energy efficiency.
  - Use of renewable energy sources.
  - Reduce greenhouse gas emissions from Council operations.
  - Conserve and protect water resources.
  - Reduce solid waste generation.
  - Reuse and recycle materials.

# 2008-2014 MT Total MMBTU

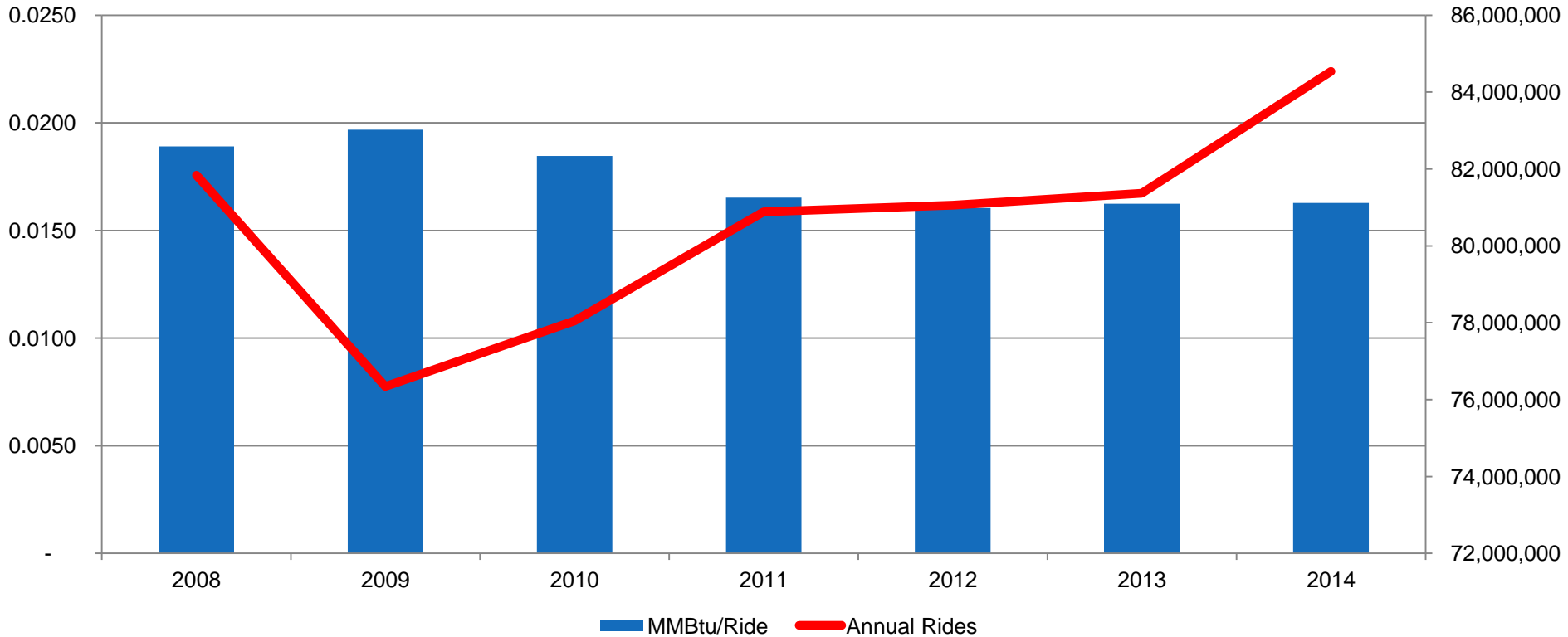
## Metro Transit Total MMBtu



\*Weather Normalized Facility Data

# 2008-2014 MT Total MMBTU

## MMBtu/Ride & Annual Rides



\*Weather Normalized Facility Data

# Main Factors affecting 2014

## Increases in consumption

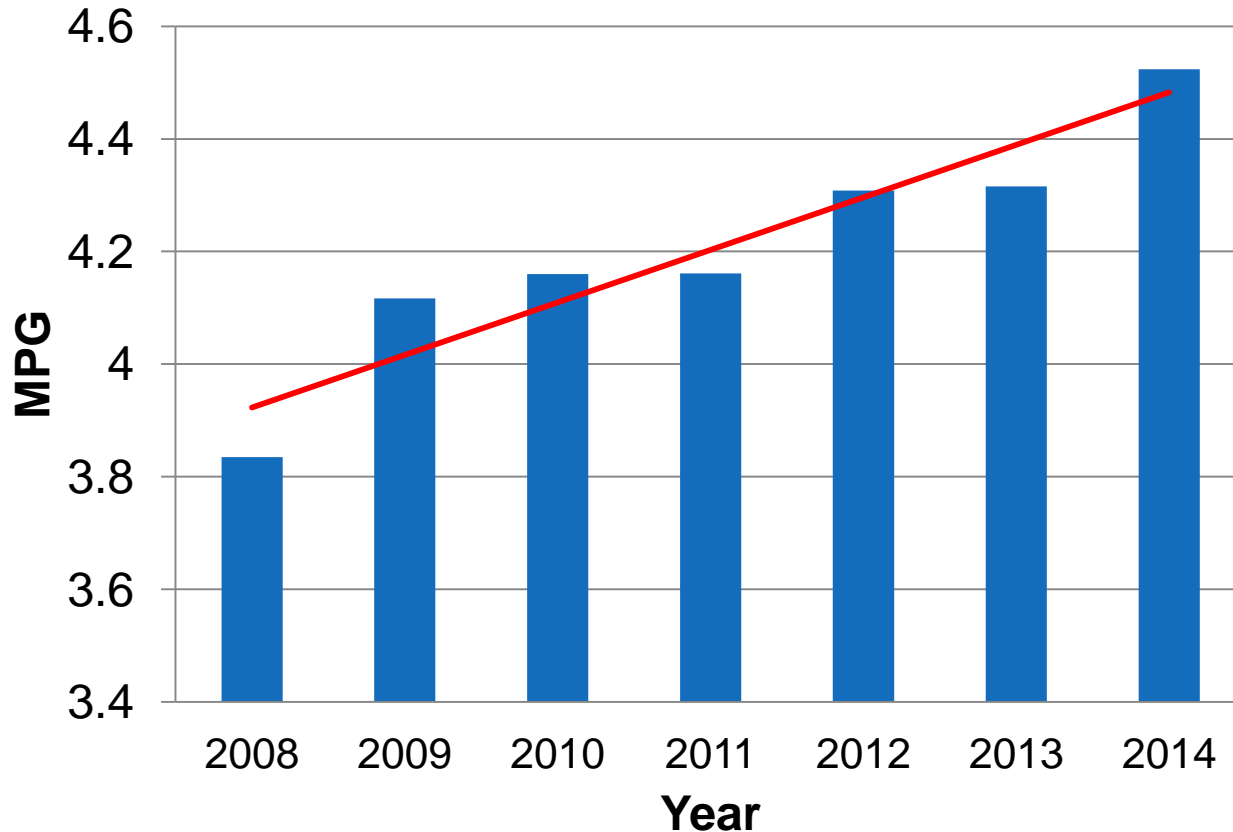
- ↑ Green Line energy for operations
- ↑ Increase in square footage

## Positives 2014

- ↓ Bus fuel usage
- ↑ Increase in ridership
- ↓ Existing facilities performed well



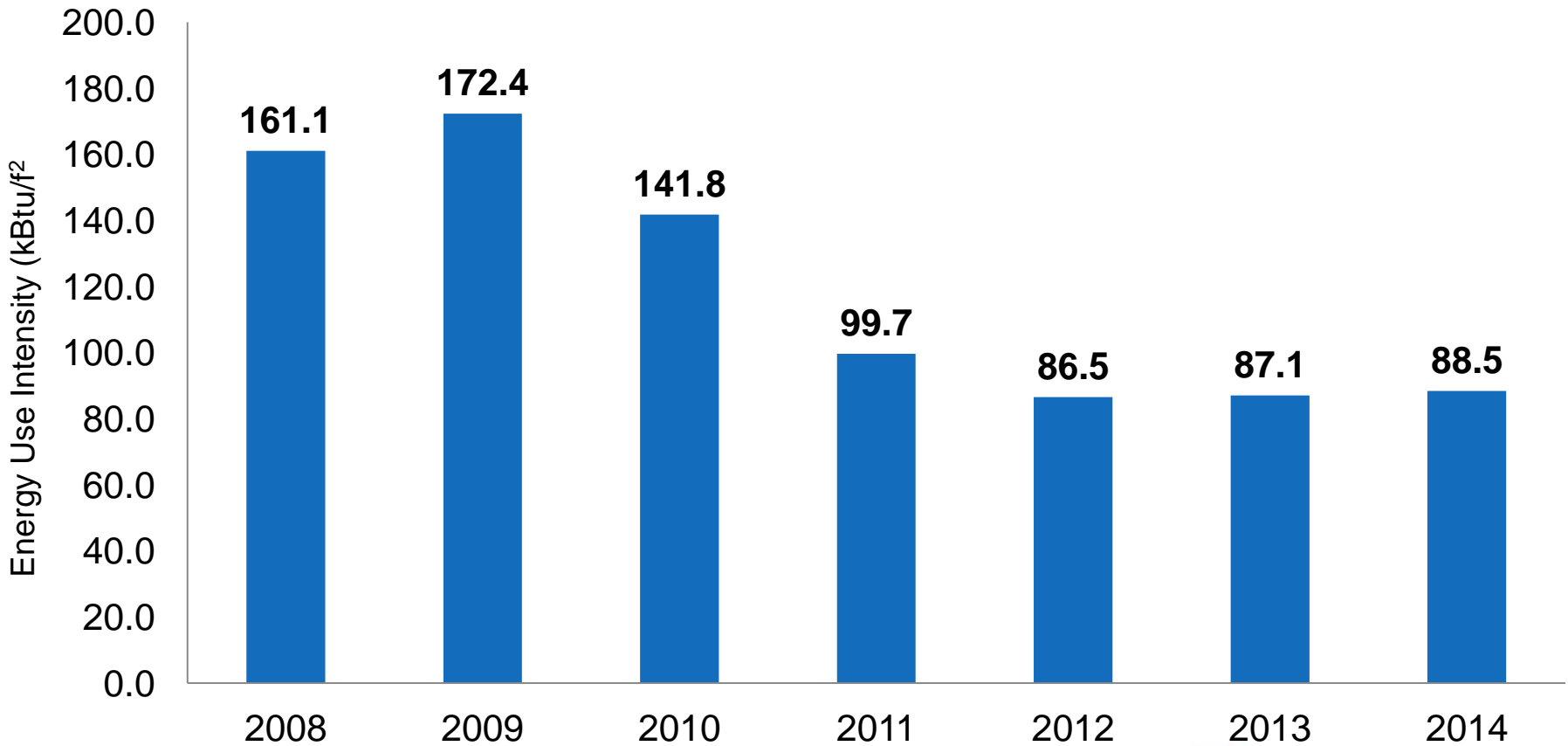
## Bus Fleet MPG Increasing (Revenue)



- A 2/10<sup>th</sup> (4.82%) improvement in miles per gallon for the fleet in 2014 reduced the fuel used for the year by 342,928 gallons
- That is a savings of \$1,021,445

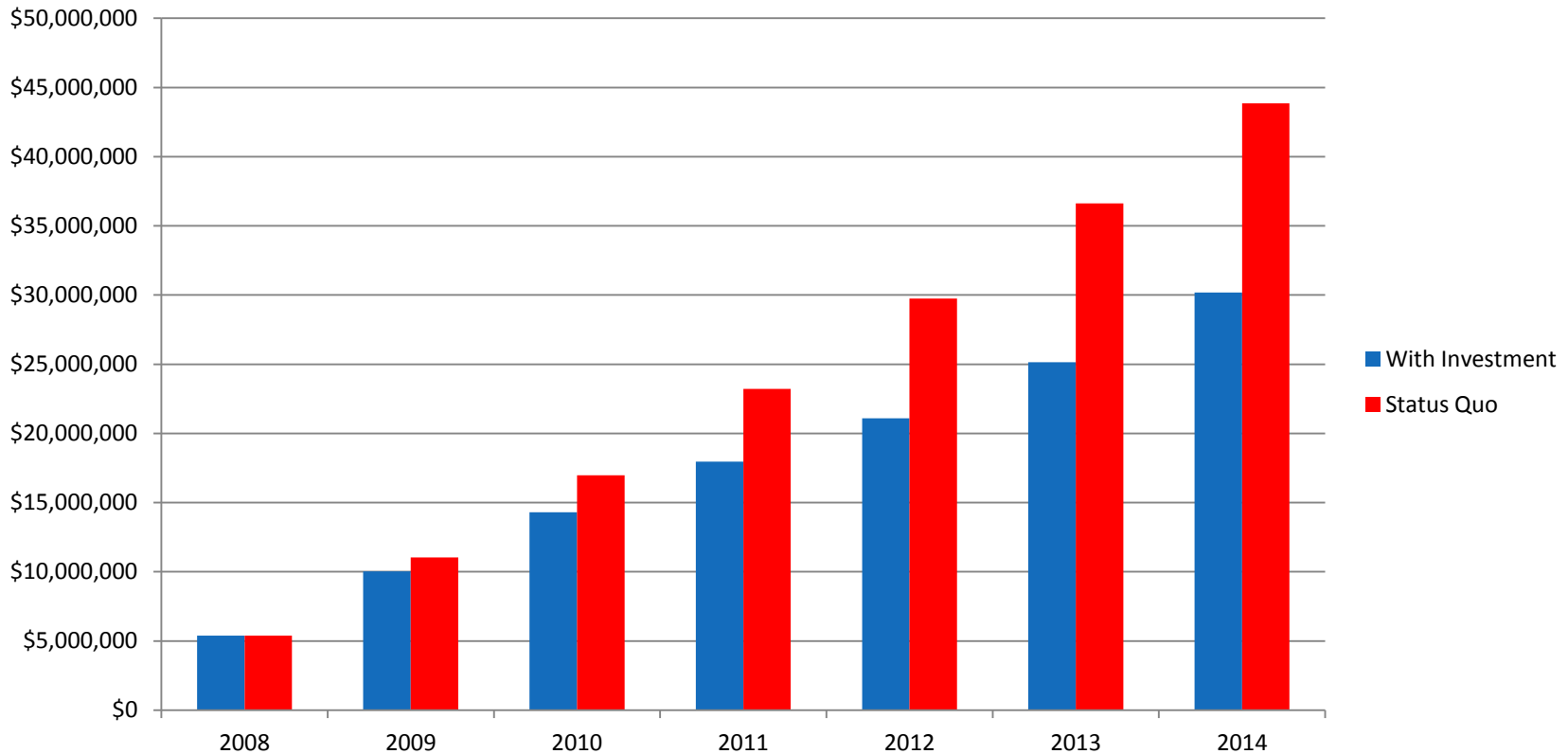
# 2008-2014 Average Energy Use Intensity

Average EUI



\*Weather Normalized Facility Data 7

# Facilities Payback



- Invested total of \$9.0M to date
- Cumulative savings out \$13.6M to date



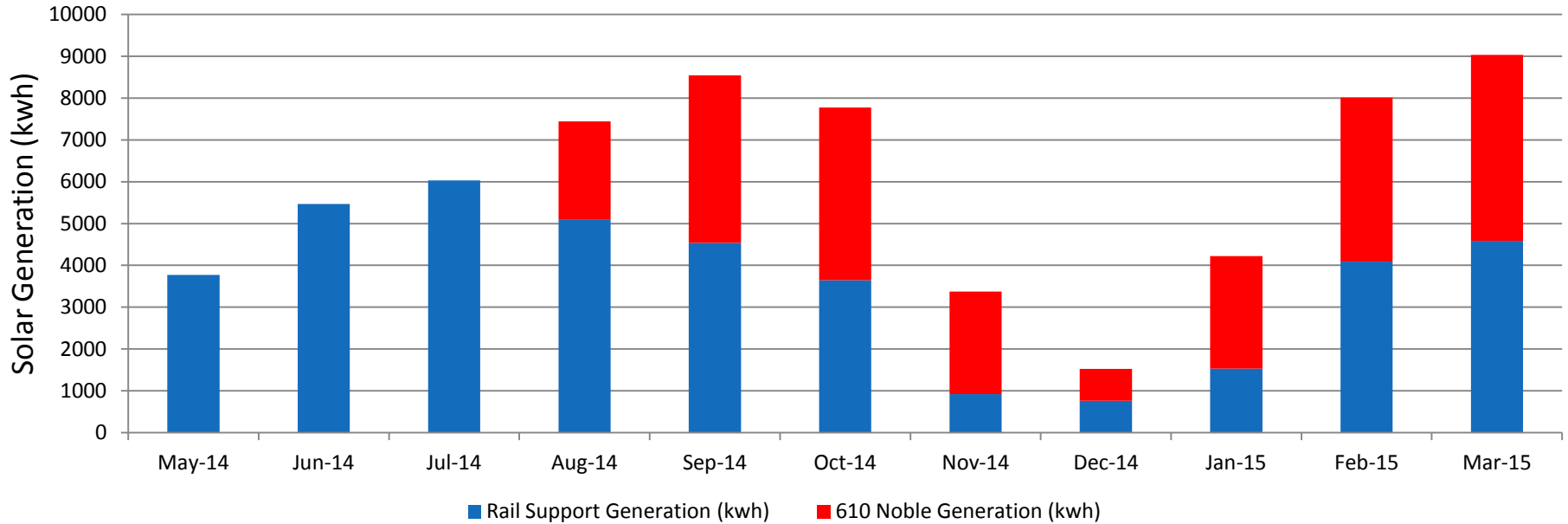
# Solar Power



- 610 and Noble P&R produces - 25% total use
- Solar Portfolio – 3MW at 6 facilities

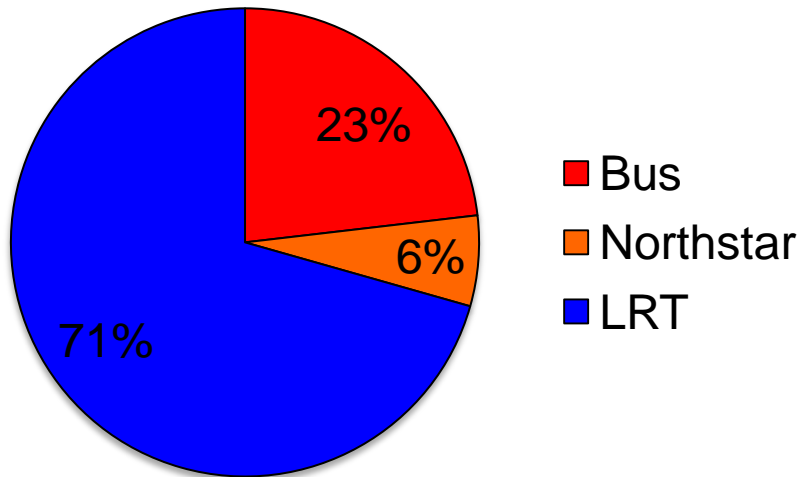
# Monthly Solar Power Generation

## Monthly Solar Generation

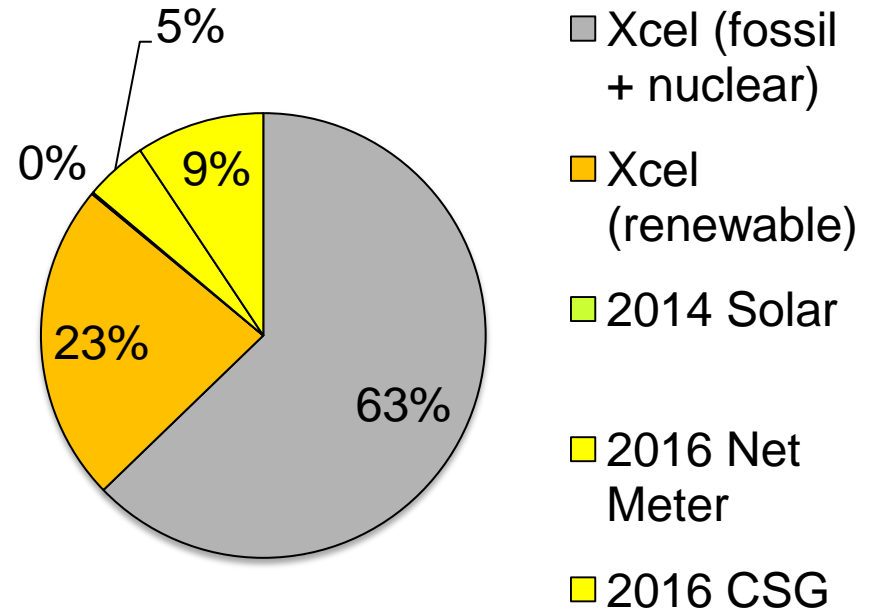


# 2016 Electrical Profile Metro Transit

**Electric Usage (by Mode)**  
75,000,000 kWh total

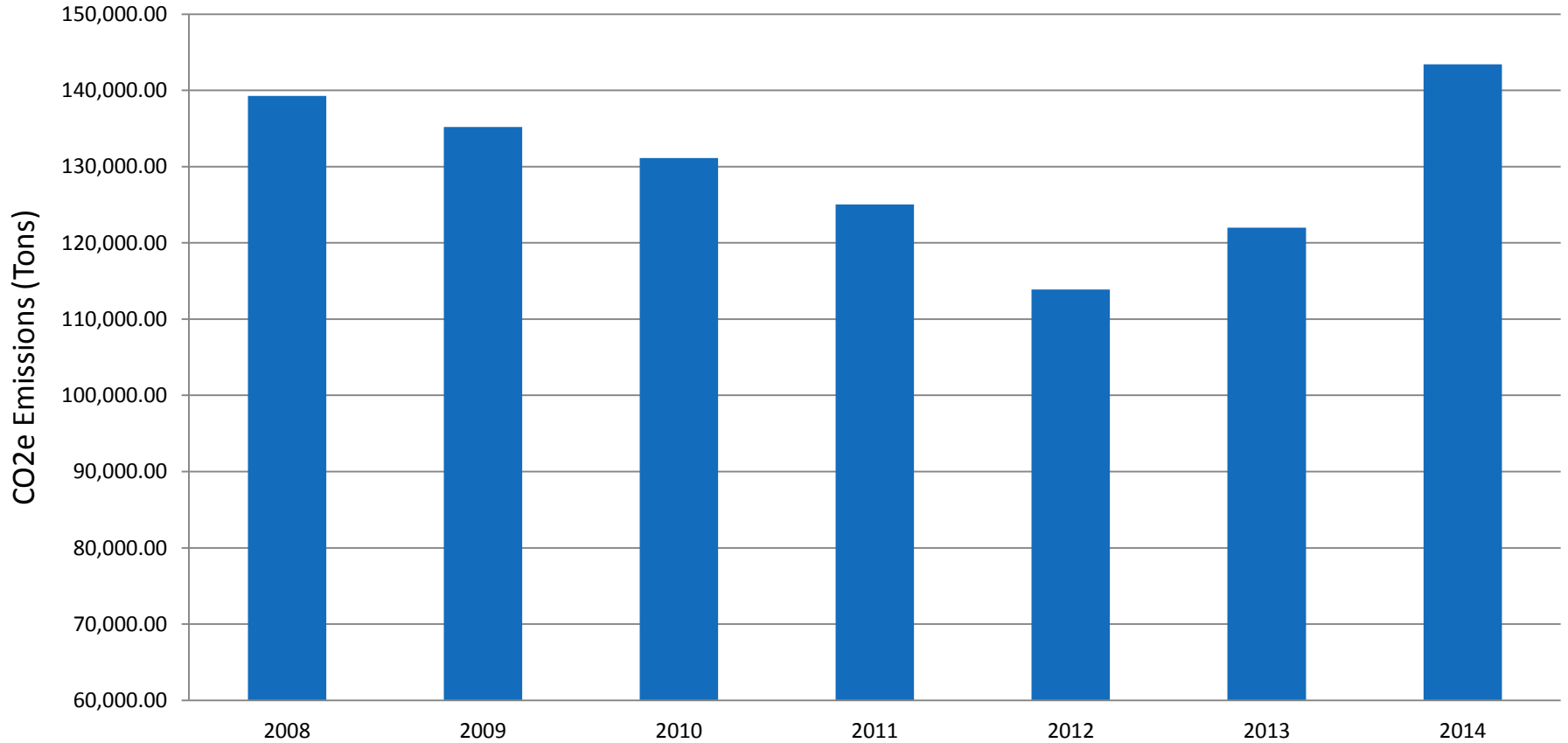


**Electricity (by Source)**  
Total -75,000,000 kWh  
Solar-10,500,000 kWh



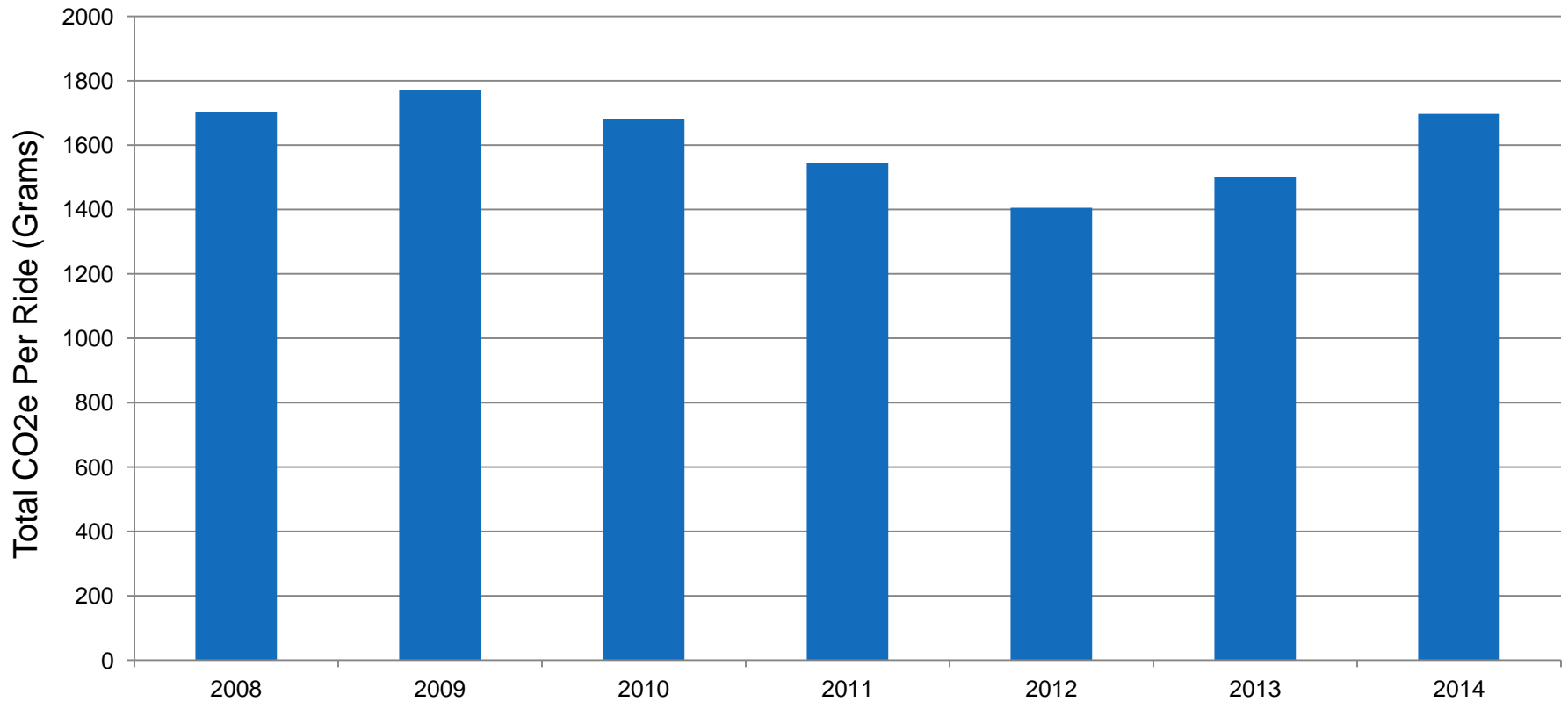
# Total Emissions CO2e

## Total CO2e Emissions



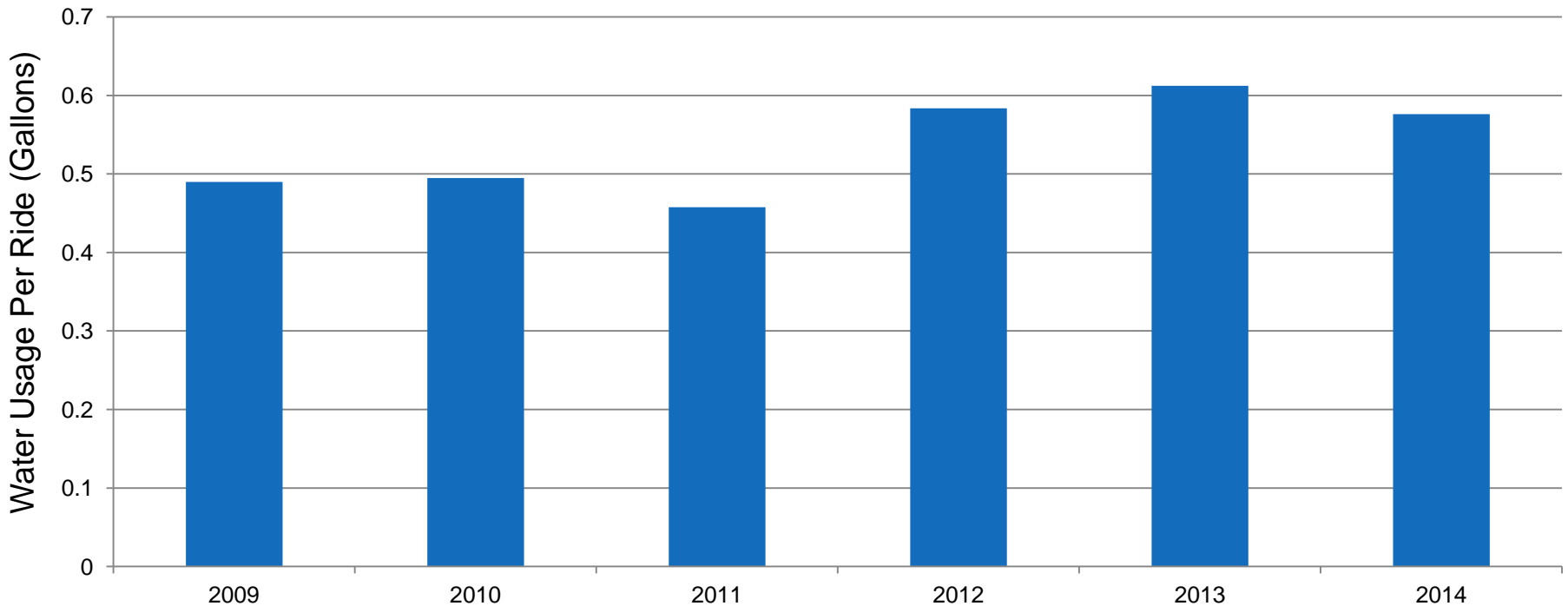
# Total Emissions CO<sub>2</sub>e / Ride

Total Emission CO<sub>2</sub>e / Ride (gram)



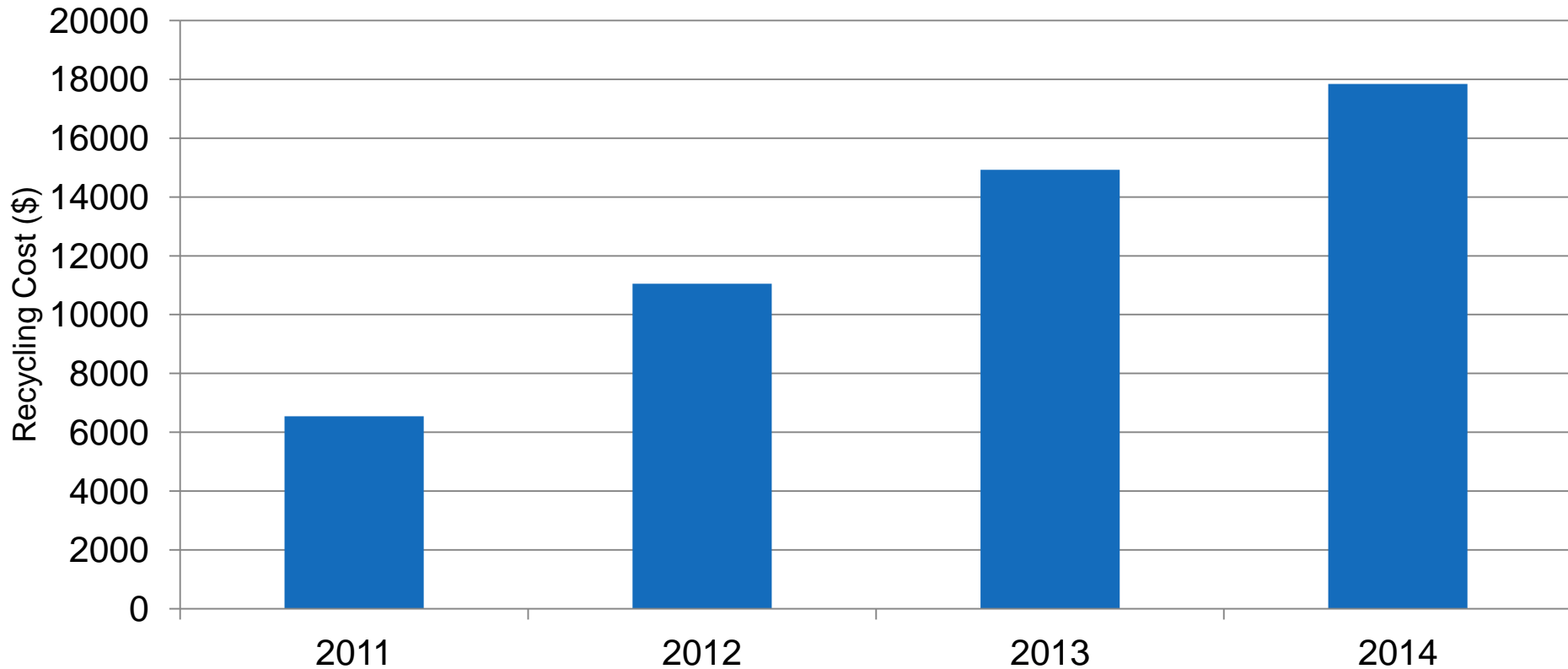
# Water Use

## Water Usage Per Ride (Gallons)



# Solid Waste

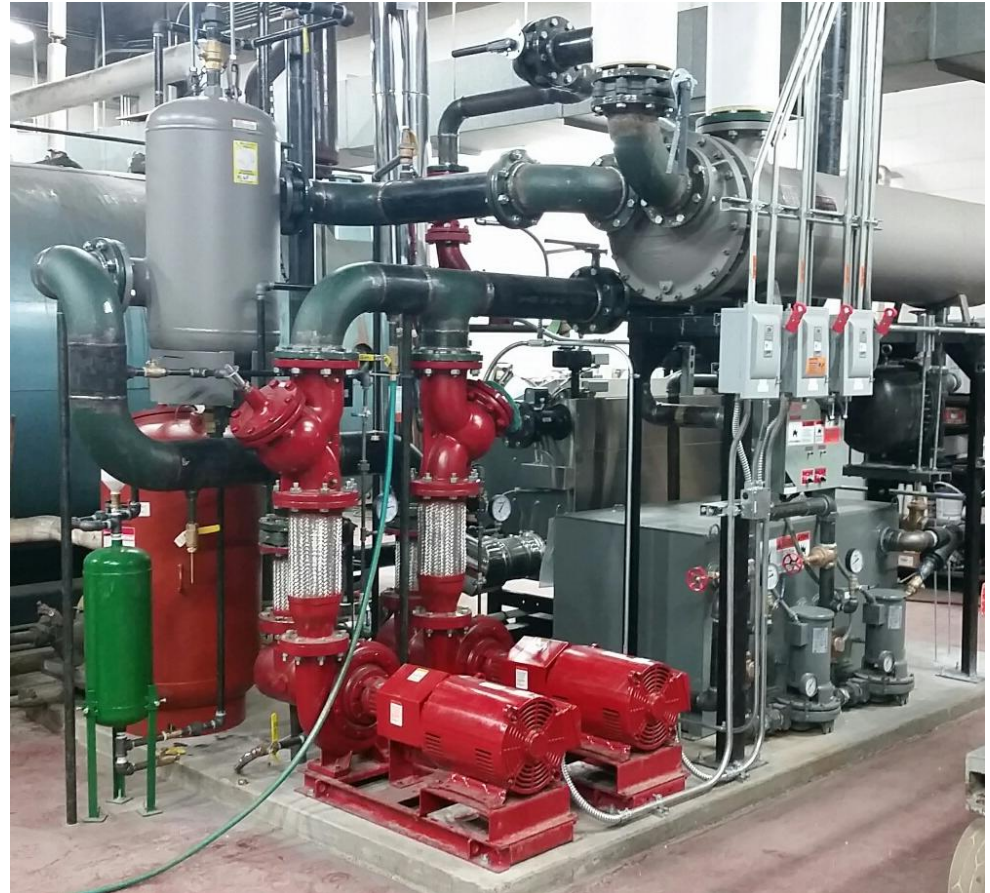
## Annual Recycling Cost (\$)





## 2014 Highlights

- OHB Heating System
- Exterior lighting retrofit at EMTF and FTH
- FTH façade improvements
- Testing of EV charging stations





## 2015/2016 Projects

- Traction Power - Energy Storage Equipment
- Lighting – Continue exterior light conversion to LED
- Studies – Electric Bus, District Energy, Water Usage, Hazardous Waste, Solid Waste, Electric non-revenue fleet
- Thrive WG on Sustainability & Climate Change



## 2015-2016 Energy Goals

- Average EUI of 85 kbtu/sf/yr.
- 2015-2016 larger solar installations at support facilities, approximately 3 mega watts
- Traction Power - Energy Storage Equipment
- Measure the CO<sub>2</sub>e that transit offsets in the region
- Continue lighting retrofits at facilities
- Continue increase in fleet fuel economy

# Questions?



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