



# International District Energy Association    IDEA

## Data Monitoring and Visualization at CUNY

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# About City University of New York

## Largest urban university system in the U.S.



- Senior, community, honors , graduate, and professional colleges
  - Over 500,000 students
  - 36,000 faculty and support staff
  - 300 buildings
  - 26.3 million gross square feet
- 
- Annual CUNY energy cost = \$84M
    - ▶ Approx 1% of NYC energy load
  - Decentralized governance
  - Average building age of 52 years

# Drivers / Goals / Commitments

PlaNYC –

30% GHG/per  
GSF reduction  
in by 2017



**BuildSmart**NY

Build Smart NY –  
20% EUI kBtu/GSF  
reduction by 2020

## Sustainable CUNY – seven key pillar areas



Energy

Water

Transportation

Waste and  
Recycling

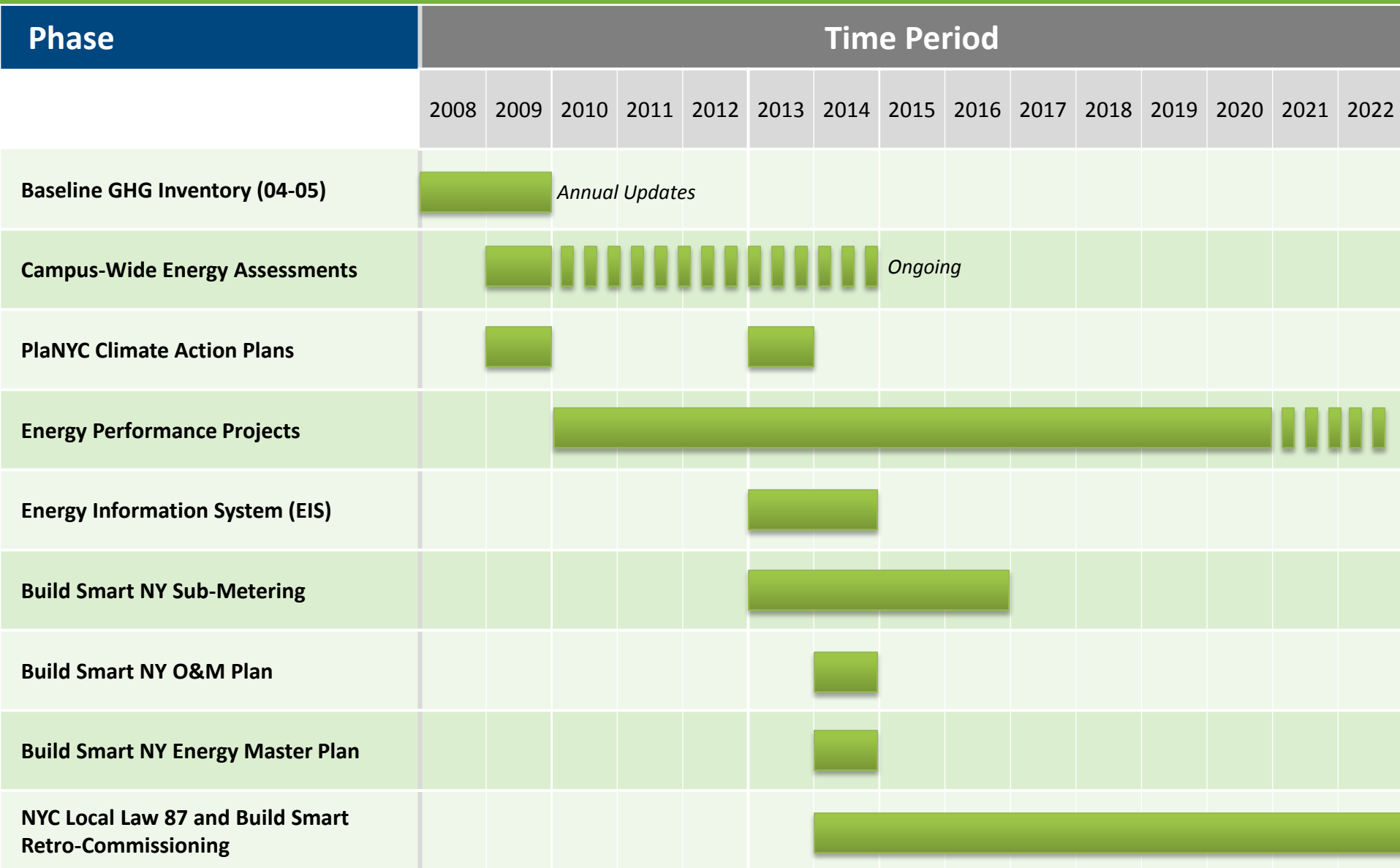
Procurement

Sustainable  
Dining

Education  
and  
Outreach



# Implementation Timeline



# Accountability and Measurement Go Hand-in-Hand



## CUNY System

*One budget – limited accountability Global Reporting*

## Campus Level

*Prioritization*

## Building / Account Level

Performance Metrics

## System Level

Strategic Targeting

*If you cannot measure it, you cannot improve it ~ Lord Kelvin*  
But also contemporaries like Drucker, Deming, Buffet

# Who Will Systems Serve?

**Administration**

Sustainability Reporting & Climate Goals

**Finance  
& Accounting**

Capital Planning, ROI and Budgets

**Central Utility Plant**

District Level Management

**Facility Managers**

Maintenance, System & Building Performance

**Campus Community**

Engagement & Feedback

# Solution Deployment Visualization

## Design Considerations

Leverage existing meters and infrastructure

Low long term cost of ownership and licensing

Mobile accessibility

Developed in phases

Cyber Security

Data store and forward capabilities

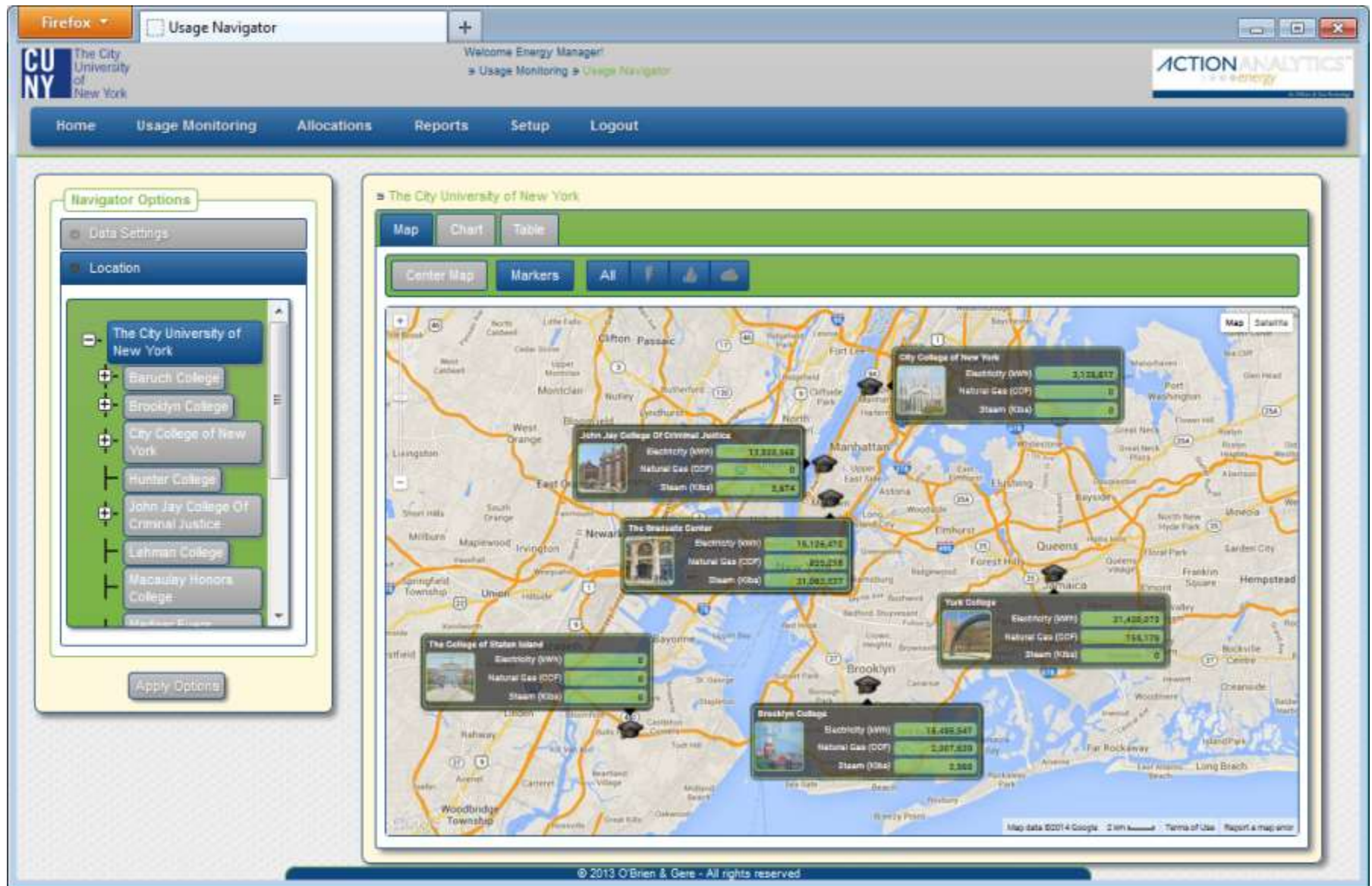
Monitoring as well as control



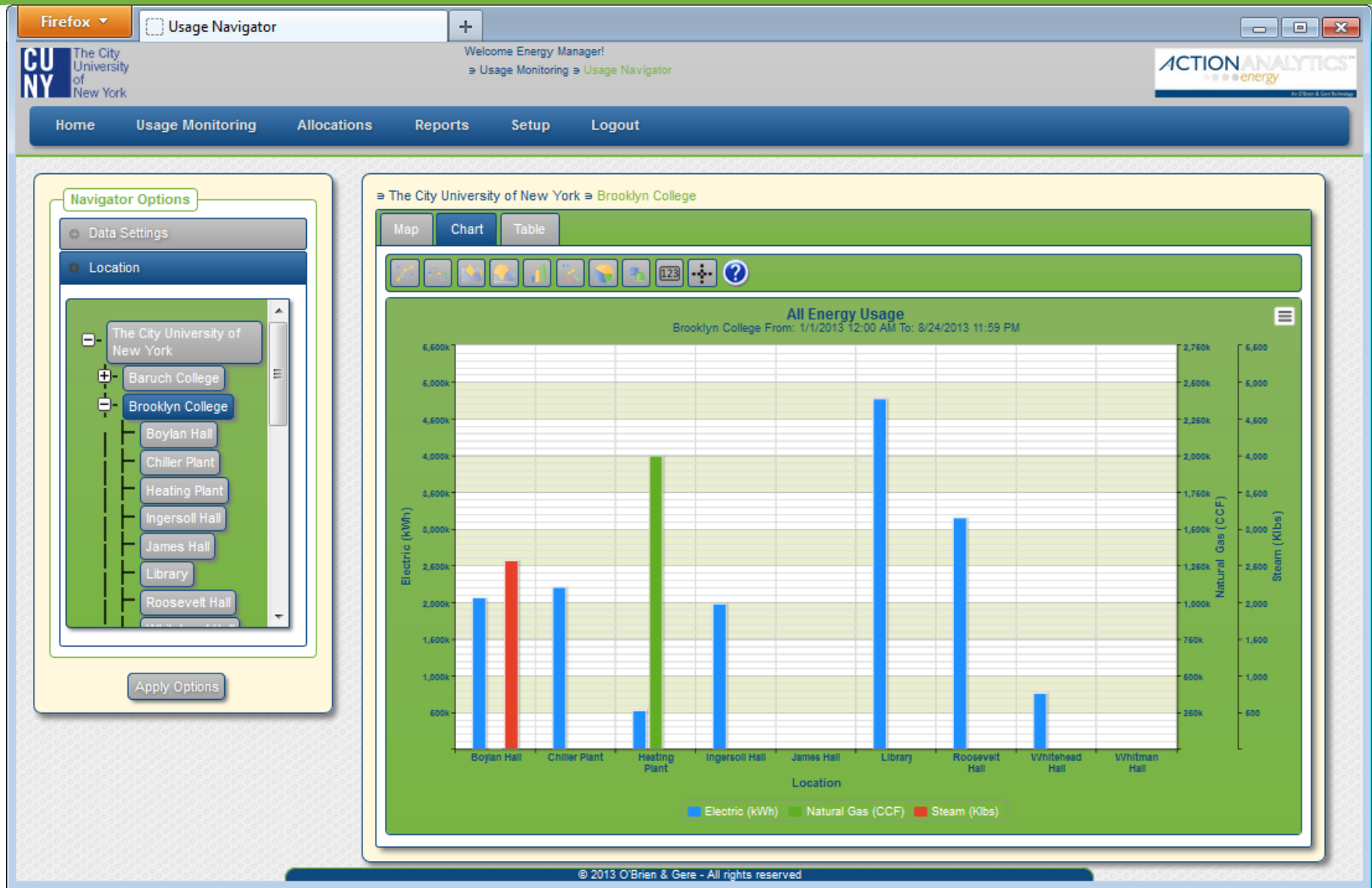
# Conceptual Overview



# CUNY System

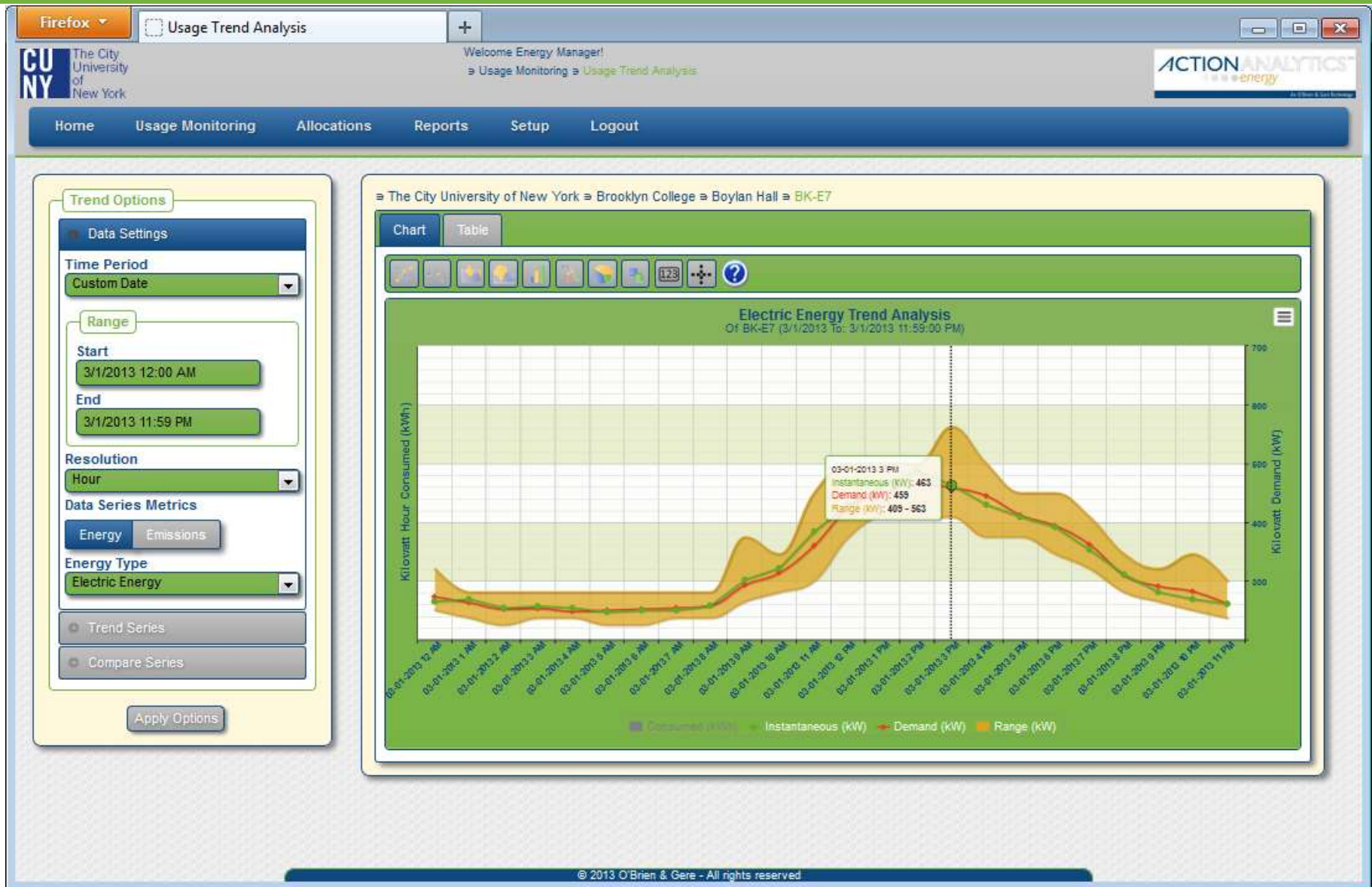


# Campus Level

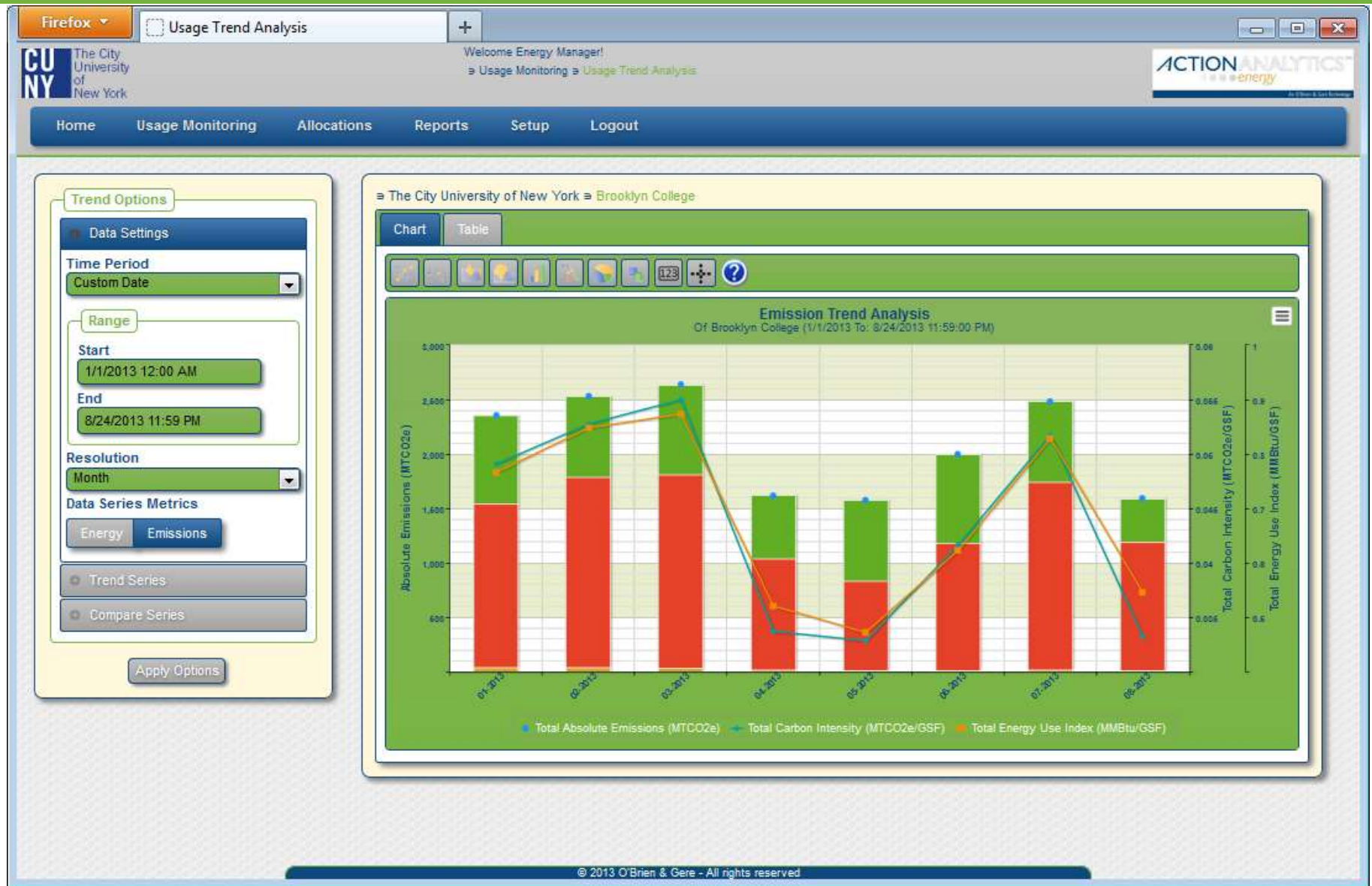




# Trend Analysis



# Sustainability Reporting – Climate Goals



# Standardized Reporting

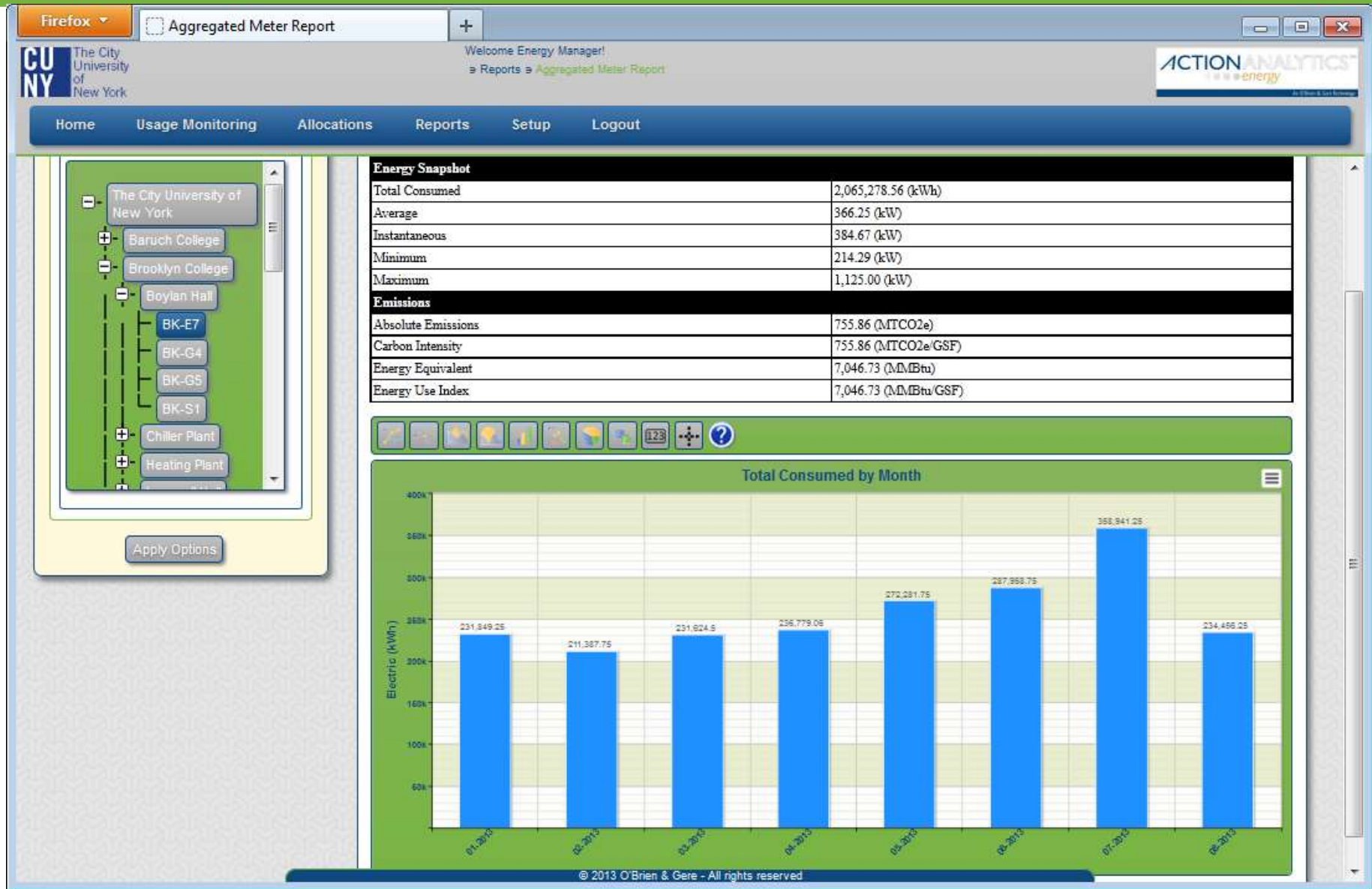
The screenshot shows a web browser window with the title "NYS Governor's Report". The browser's address bar shows "The City University of New York". The page has a navigation bar with links: Home, Usage Monitoring, Allocations, Reports, Setup, and Logout. The main content area is titled "NYS Governor's Report" and "The City University of New York". On the left, there is a "Report Options" sidebar with a tree view showing the hierarchy of locations: The City University of New York, Baruch College, Brooklyn College, City College of New York, Hunter College, John Jay College Of Criminal Justice, Lehman College, Macaulay Honors College, and Madras College. An "Apply Options" button is at the bottom of the sidebar. The main content area displays a table with energy and emissions data for the period from January 01, 2013 0:00 AM to August 24, 2013 23:59 PM. The table is divided into sections: Energy Snapshot, Energy Equivalent, and Emissions.

Start Date	January 01, 2013 0:00 AM
End Date	August 24, 2013 23:59 PM
<b>Energy Snapshot</b>	
Electricity	102,186,688.26 (kWh)
Natural Gas	3,280,091.95 (CCF)
Steam	31,078,416.20 (Klbs)
<b>Energy Equivalent</b>	<b>37,794,373.20 (MMBtu)</b>
<b>Emissions</b>	
Absolute Emissions	1,970,679.79 (MTCO <sub>2</sub> e)
Carbon Intensity	7.320015 (MTCO <sub>2</sub> e/GSF)
Energy Use Index	140.385759 (MMBtu/GSF)

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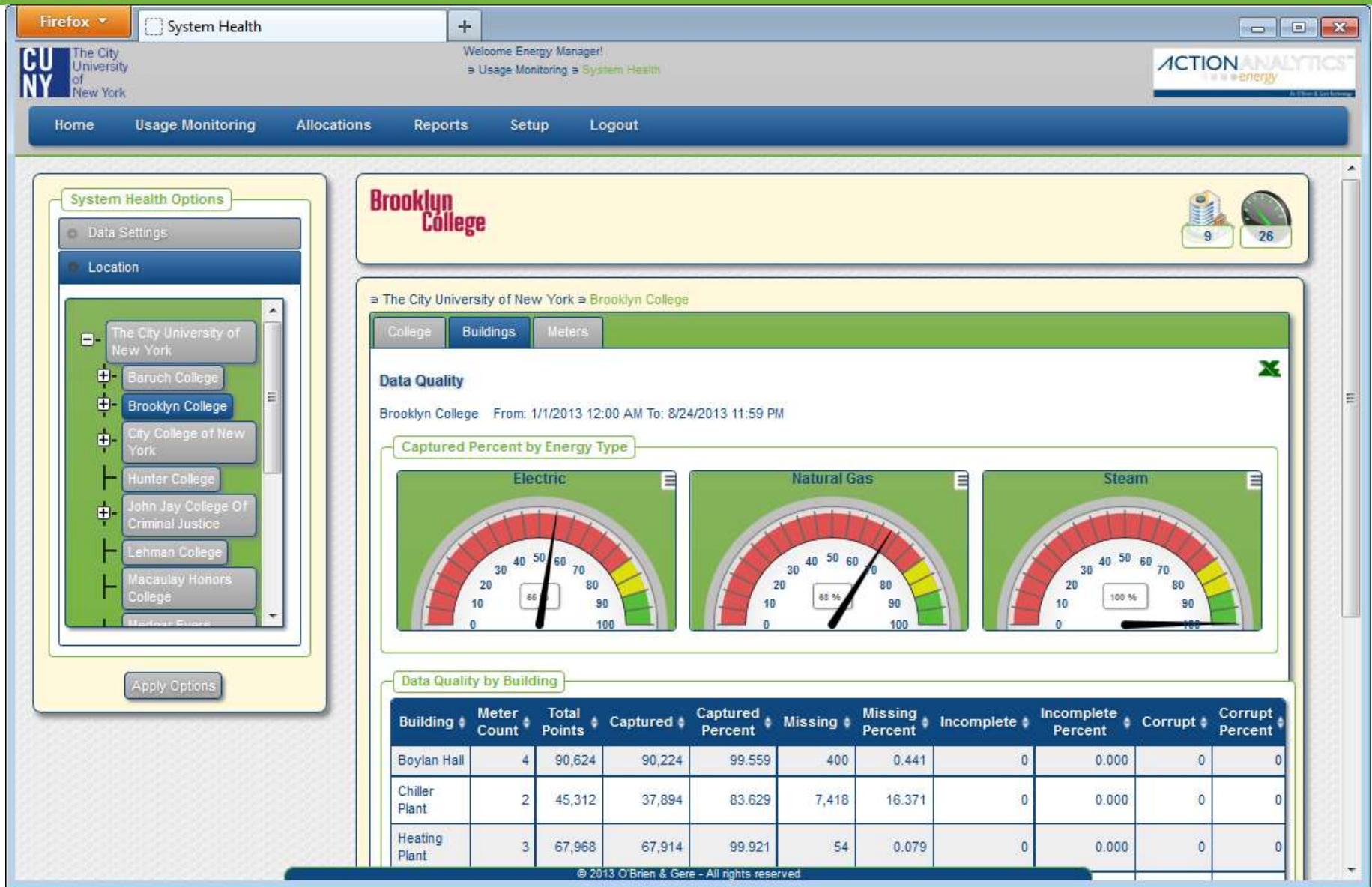
# Sub-meter Level Detail



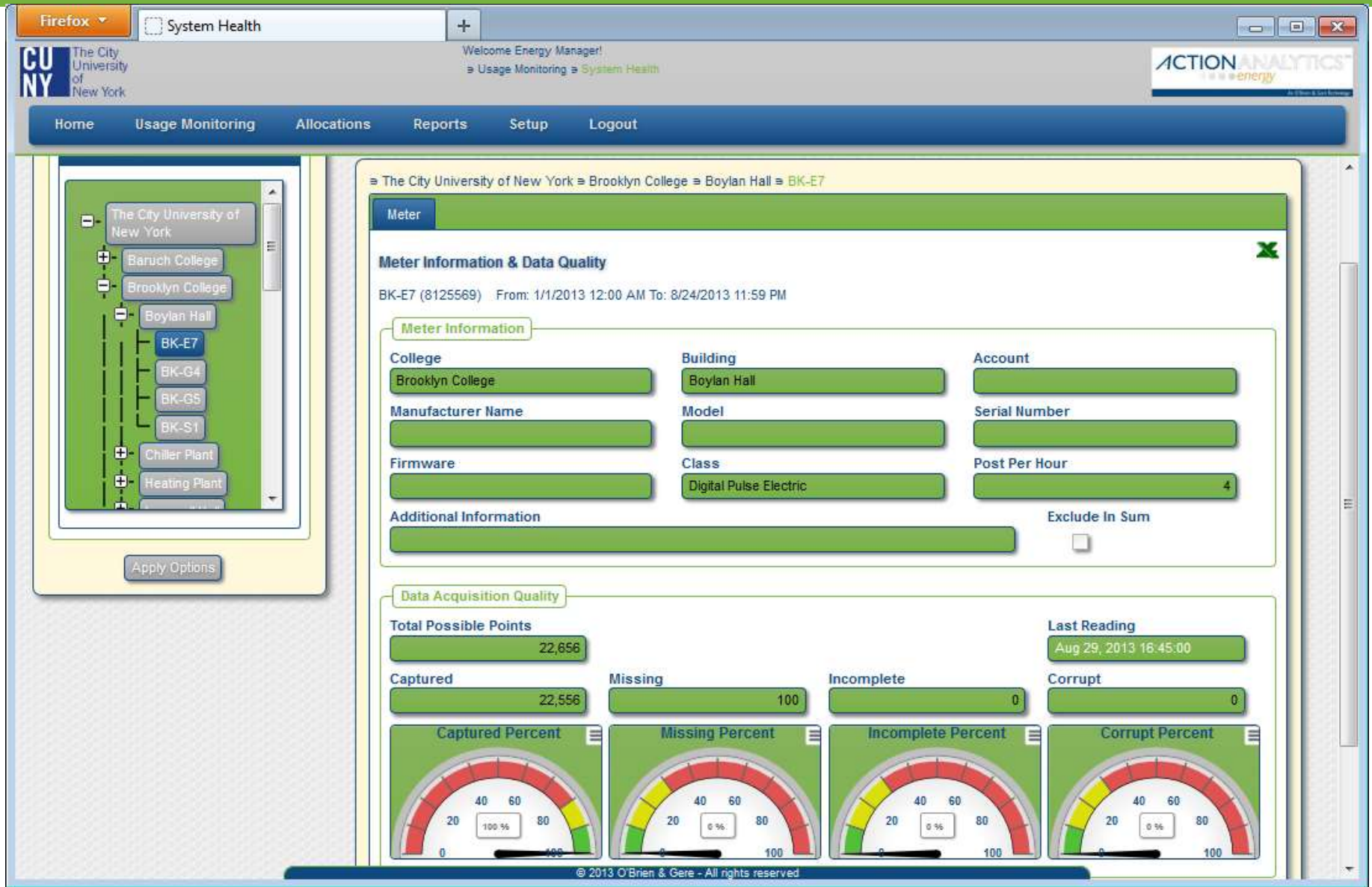
# Quick Dashboards



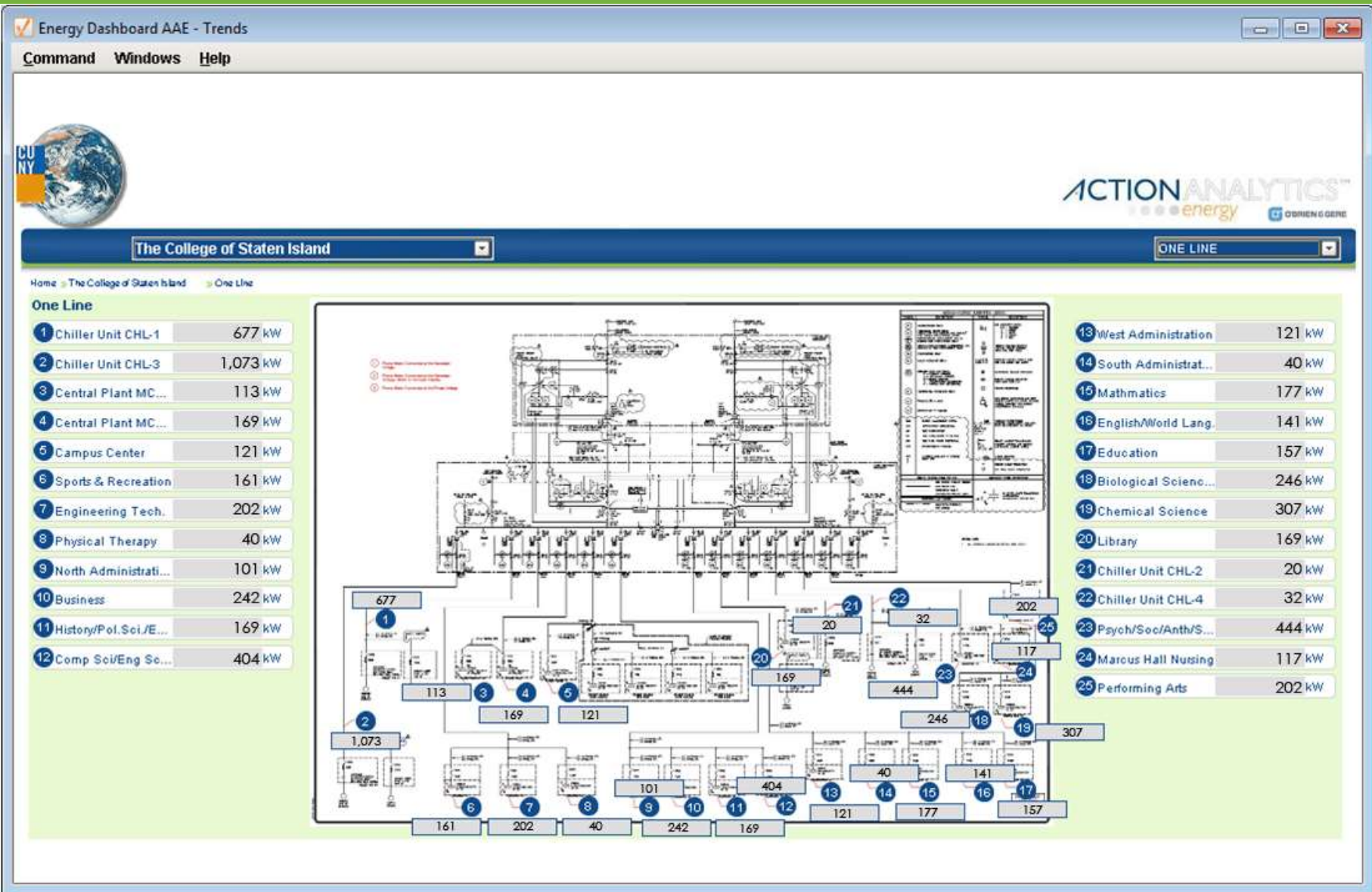
# Quick Dashboards







# Facilities Engineer Perspective



# THANK YOU

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