The Evolution and Future
of the Con Edison Steam System

October 21, 2022

Agenda

- Steam System Overview
  - History
  - Current System
  - Customer Base and Uses
  - Benefits
  - Distribution Overview
- Future Outlook
  - Current Policies and Regulations
  - Clean Energy Commitment
  - Steam LRP Vision
  - Business Trajectory
  - Projected Emissions
  - Technologies and Strategies
- Questions

Steam System Overview

Con Edison Steam – Rich in History

1881

1936

1882

2021
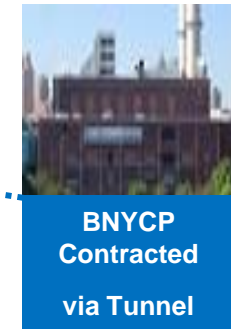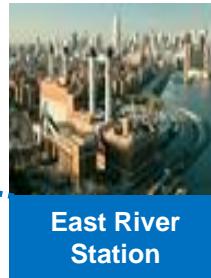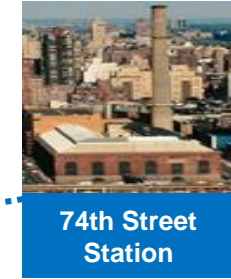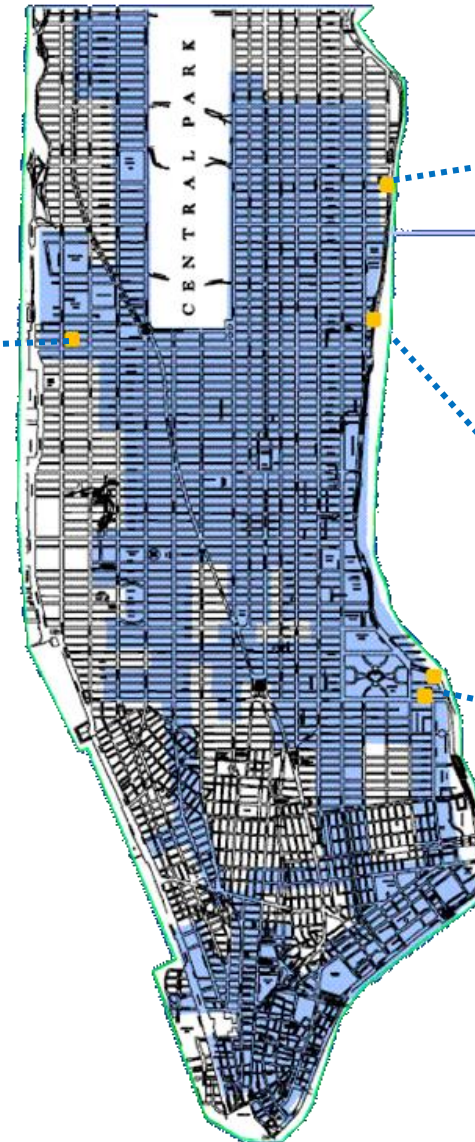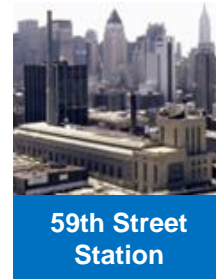
Con Edison Steam System Overview

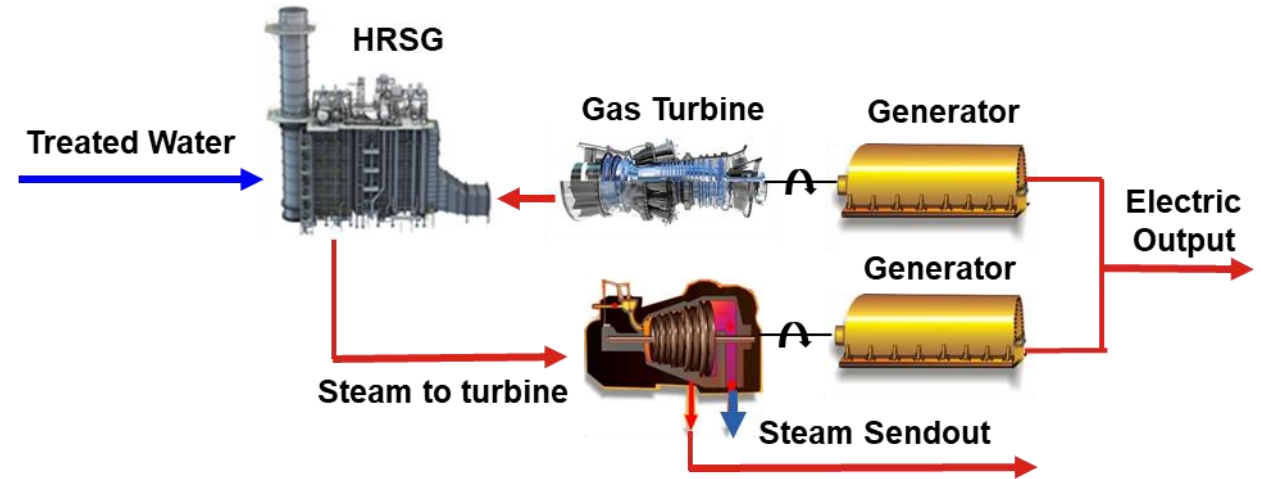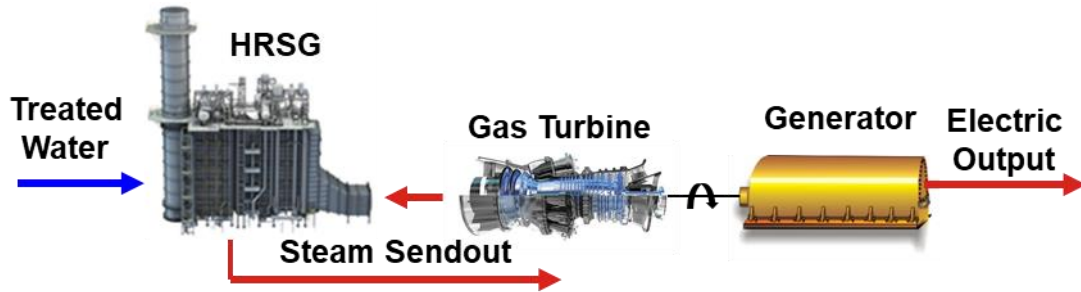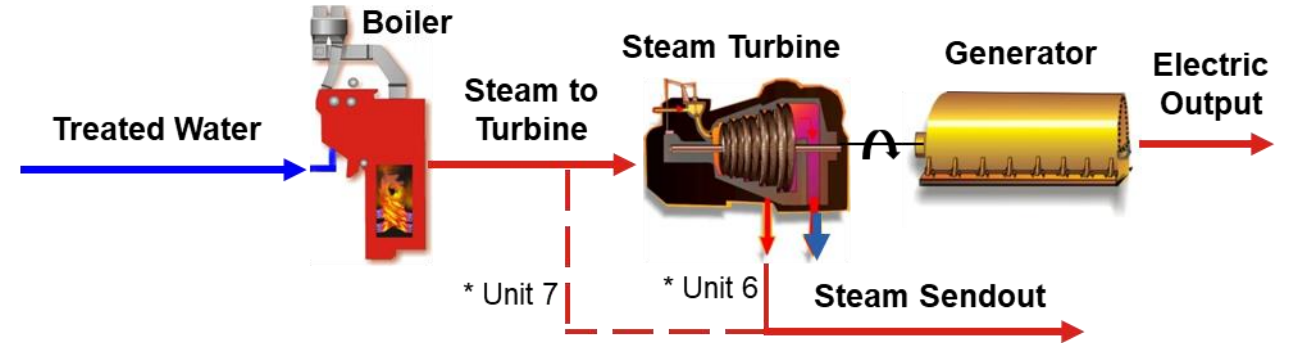- 1600 customers
- 105 Miles of pipe
- 700MW Electric Capacity
- 11.4 million lb/hr Steam Capacity
- 125 psi to 180 psi operating range

59th Street Station

74th Street Station

Ravenswood Station
via Tunnel

60th Street Station

East River Station

BNYCP Contracted
via Tunnel

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Generating Assets
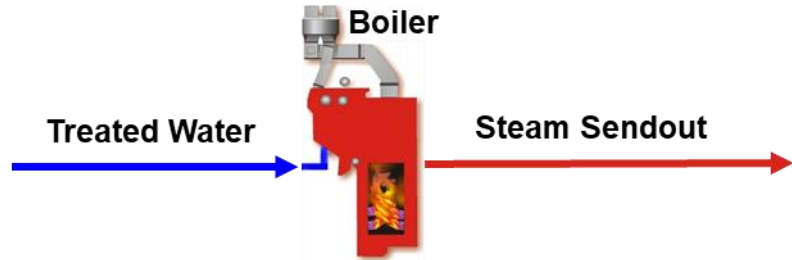
Steam Customer Base

Building Types	Building Qty	% of Load
Commercial (Offices)	590	45.4%
Residential	551	25.0%
Commercial (Other)	200	9.0%
Hospitals	39	8.2%
Commercial (Hotels)	86	5.9%
Educational Facilities	71	3.7%
Museums	17	2.6%
Religious Facilities	33	0.3%

- Each account has a dedicated Account Manager
- Strong relationship with developers
- Provide customer education and training

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Steam Customer Uses
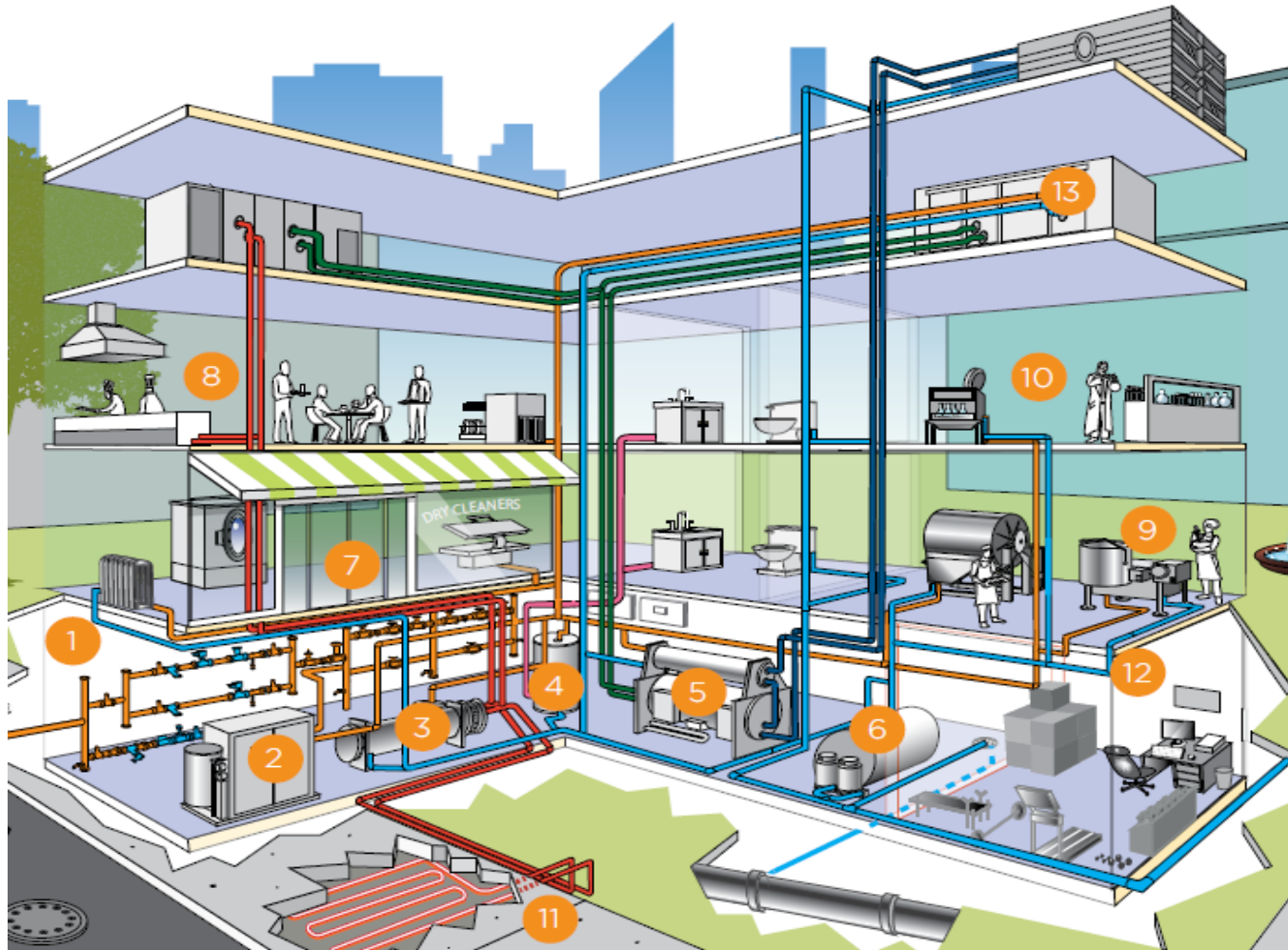
1. Metering/PRV Station
2. Energy Production
3. **Heat/Hot Water Distribution Systems**
4. **Domestic Hot-Water Systems**
5. **Air-Conditioning**
6. Condensate Collection and Reuse
7. Dry Cleaning
8. Cafeteria/Kitchen
9. Food Processing
10. Lab/Hospital
11. Cleaning
12. Recovered Space
13. Humidification

Benefits of the Steam System

Enhances Building Market Value

Saves building real-estate space

Avoids need of tall stacks

Assists with LEED/Energy Star's Portfolio Manager ratings

Provides Cleaner Energy

No local emissions for customer building

Uses cogeneration (approx. 60%)

Predominately uses natural gas (approx. 97%)

Uses environmental controls uneconomic for individual buildings

Efficiency of a Centralized System

Maintains a stable year-round efficiency by aggregating loads

Capable of integrating various emerging technologies

Centralized investments benefit all customers uniformly

Recently Added Customers

Steam System Future Outlook
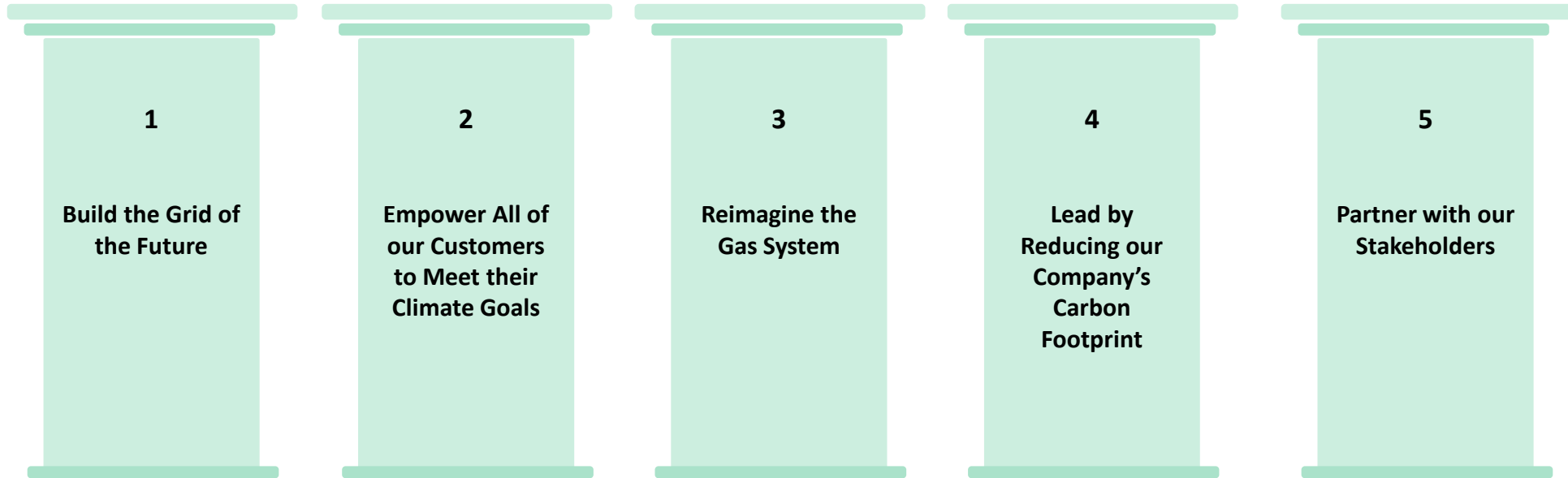
Current Policies and Regulations

NY State Climate Leadership & Community Protection Act (CLCPA)

- Reduce statewide GHG emissions 85% by 2050 from 1990 level across all sectors and achieve net zero emissions
- Achieve a zero emissions electric system by 2040

NYC Local Law 97

- Requires all city buildings greater than 25,000 sq. ft. to meet occupancy code specific greenhouse gas emission rates
- Subject to annual penalty if out of compliance

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Our Clean Energy Commitment

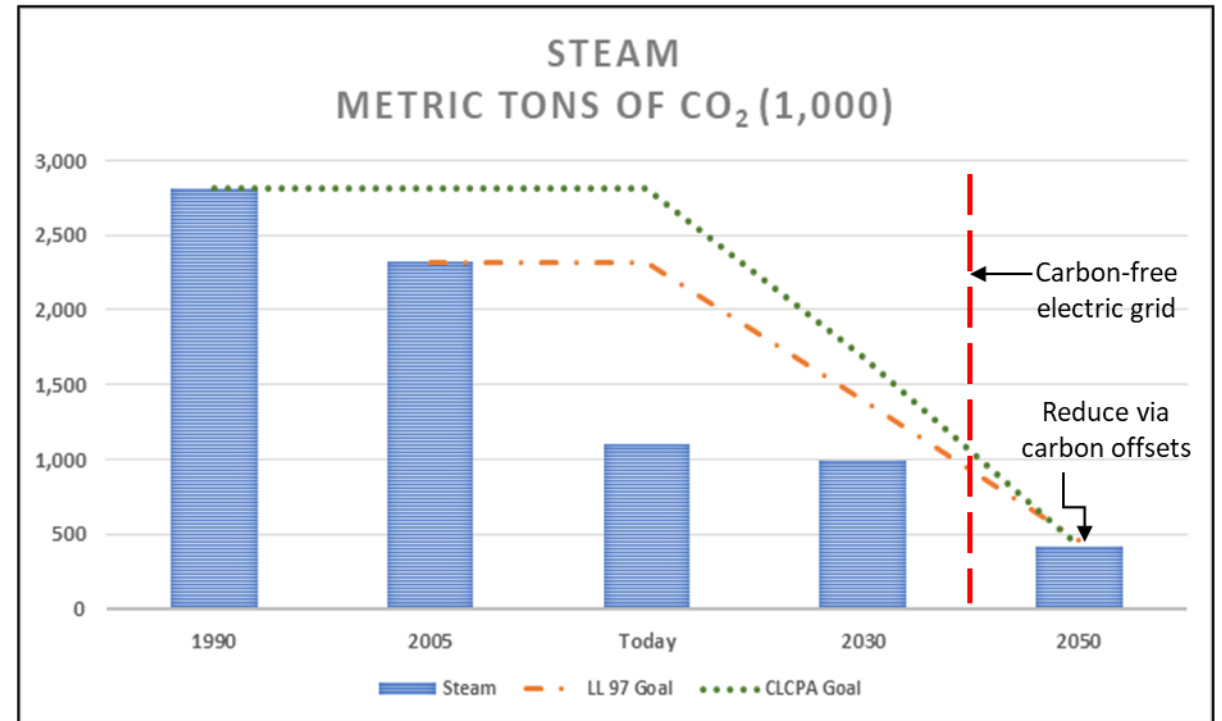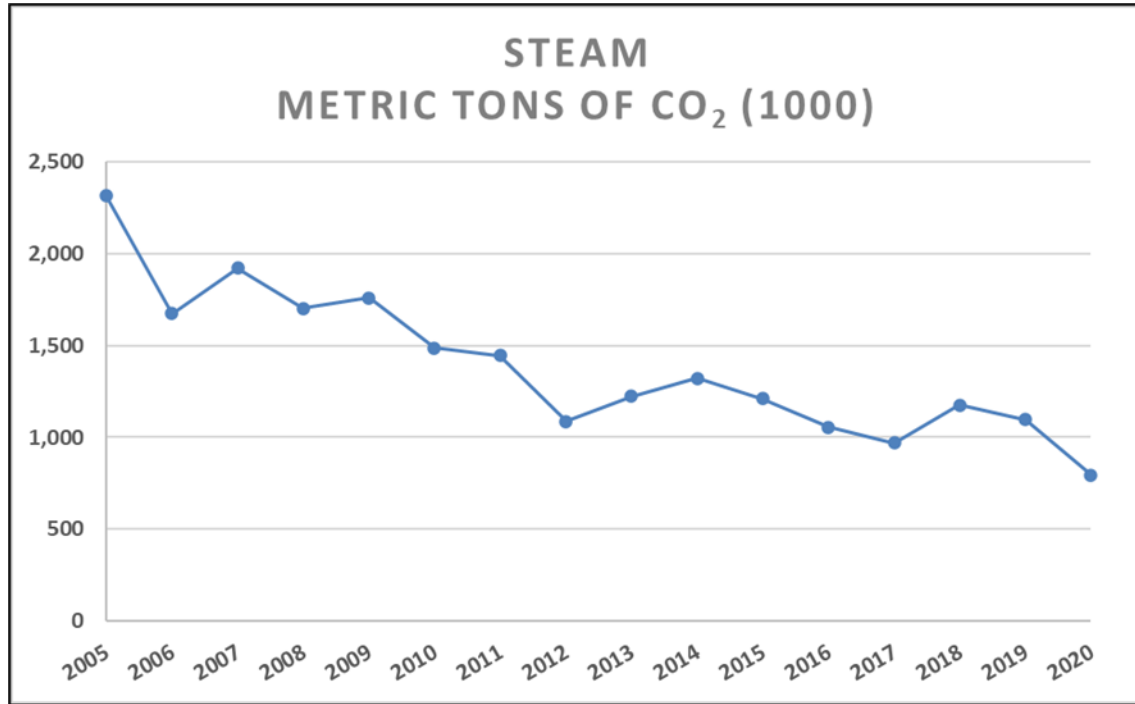| 1	2	3	4	5
Build the Grid of the Future	**Empower All of our Customers to Meet their Climate Goals**	**Reimagine the Gas System**	**Lead by Reducing our Company's Carbon Footprint**	**Partner with our Stakeholders**

Pillar 4

Initiative 1: Reduce the carbon footprint of our steam system (about 85% of our Scope 1 emissions) via energy efficiency; low-carbon fuels; electrification of boilers with clean energy; carbon capture and sequestration; carbon offsets; among other methods.

Steam Long Range Plan Vision
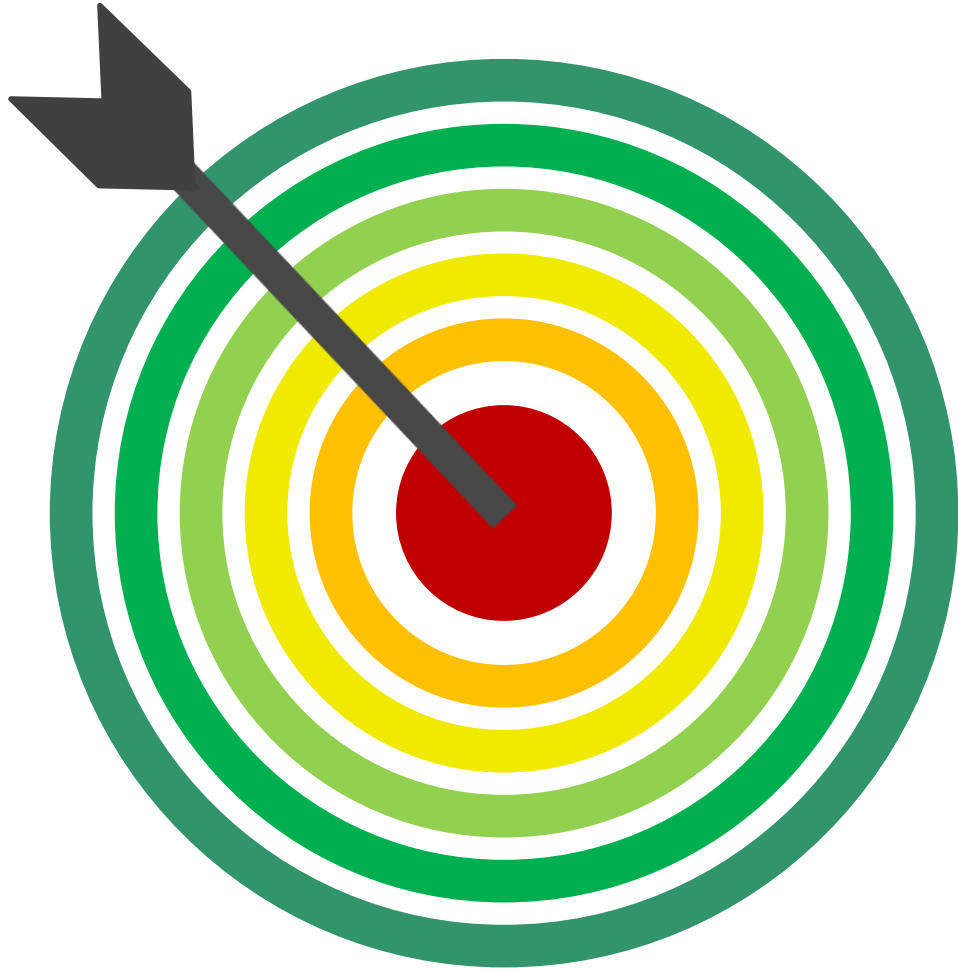
1 **Continue to strengthen** NYC's energy resiliency

2 **Maintain utilization** of system through decarbonization and customer education

3 Fully **support** city and state and work with stakeholders to reach emissions goals

4 Assess and invest in decarbonization technologies that are **cost effective**

5 Committed to **core investments** to continue delivering clean, safe and reliable service

6 Support voluntary **electrification** and develop **energy efficiency** programs

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Steam Operations Projected Emissions

STEAM
METRIC TONS OF CO_2 (1000)

STEAM
METRIC TONS OF CO_2 (1,000)

Carbon-free electric grid

Reduce via carbon offsets

Steam — · LL 97 Goal ···· CLCPA Goal

Potential Technologies and Strategies

Steam can enable a clean energy future by using low carbon fuels, integrating innovative technologies, and supporting customer energy efficiency

Short-Term Efforts

Variance Reduction

No 2. Oil Conversion

Station Pressure Reduction

Energy Efficiency Programs

Mid-Term Efforts

Hot Water Systems

Low Carbon Fuels

Industrial Heat Pumps

Waste Heat Recovery Sources

Geothermal

Carbon Offsets

Long-Term Efforts

Electric Boilers

Energy Storage

Carbon Capture

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Main Technologies – Low Carbon Fuels

|	Opportunities	Challenges	Pilot Project
Low Carbon Fuels	• Focus on Green Hydrogen • All current units able to burn hydrogen with modifications	• Robust safety measures • NOx emission rate higher compared to NG • Contract opportunities • Infrastructure & fuel costs	• Developing potential NYC H_2 hub concepts • Potential electrolysis pilot at one site

Main Technologies – Electric Boilers

|	Opportunities	Challenges	Pilot Project
Electric Boilers	• Readily available • Established technology	• 50 MW per 150 Mlb/hr unit • Green electric supply	• One or more units at two potential sites
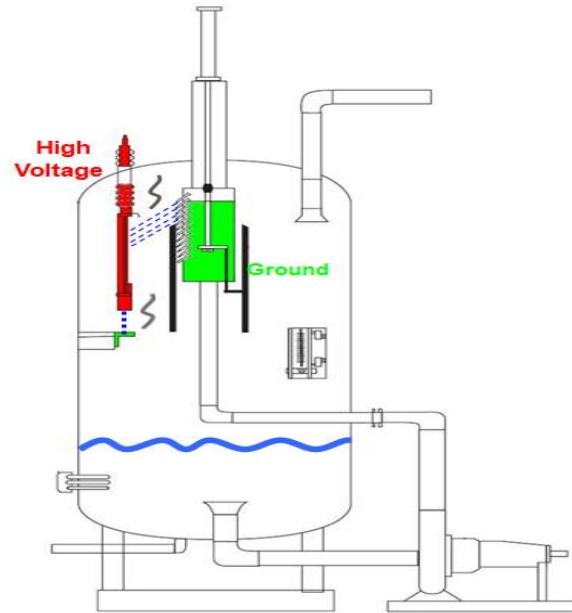
Main Technologies – Industrial Heat Pumps

|	Opportunities	Challenges	Pilot Project
Industrial Heat Pumps	• Opportunities at all stations • Supports electric transmission cooling needs • Potential expansion to customer cooling and thermal energy storage	• Green electric supply	• Pilot for feedwater preheating at one site
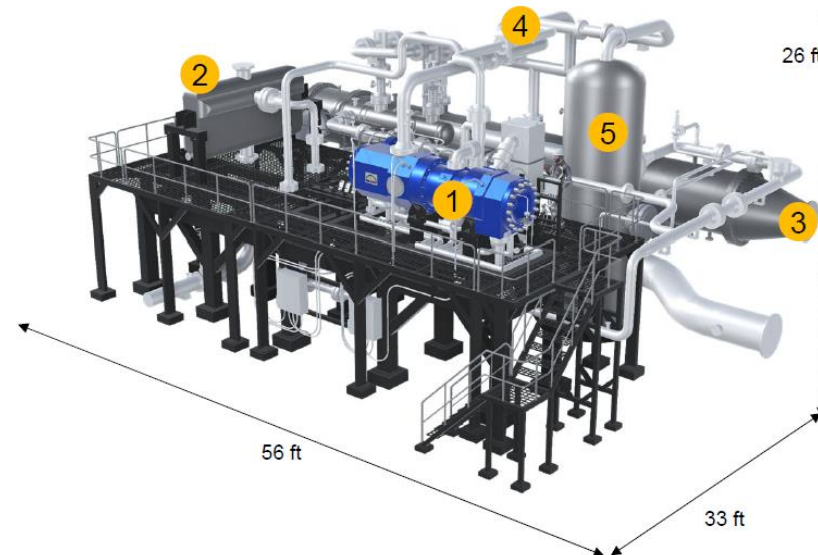
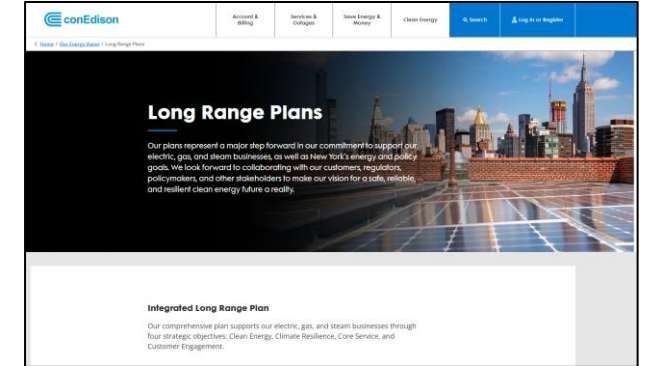# Recent Steam Communications
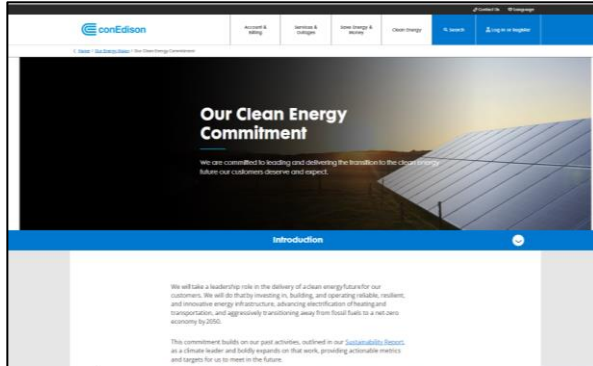
Con Edison Clean Energy Commitment
Our Clean Energy Commitment | Con Edison
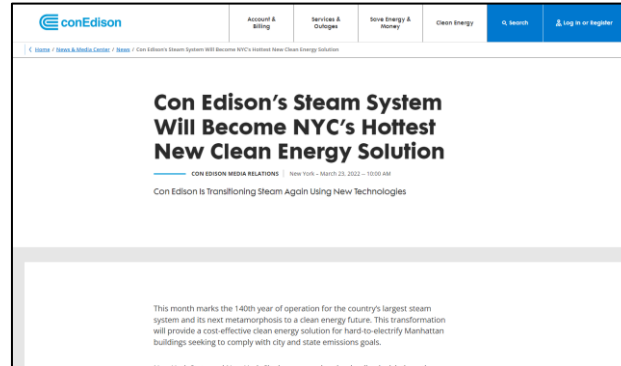
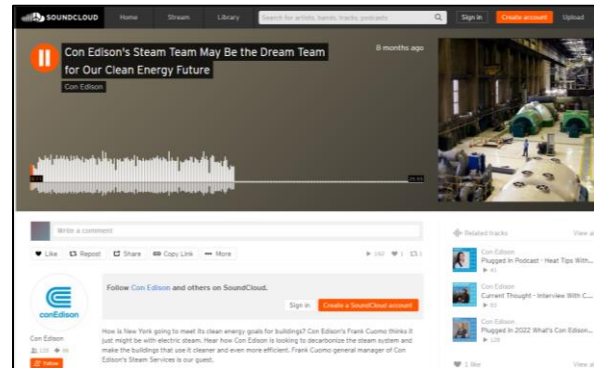
Con Edison Steam Press Release
Press Release 2022

Con Edison Long Range Plans
Long Range Plans | Con Edison

NY1 Report on the future of Con Edison Steam
NY1 Report: Future of Con Edison Steam

Con Edison Podcast on future of the Steam System
Stream Con Edison's Steam Team May Be the Dream Team for Our Clean Energy Future by Con Edison

Bowery Boys Podcast on NY Steam System
Steam Heat: The Gilded Age miracle that keeps New York warm - The Bowery Boys

Brief video description of NY Steam System
Steam Benefits | Con Edison