



Clean Energy Networks presents:

AEG Decarbonization Building Summit

Thursday, April 11, 2024



Decarbonization (verb)

dee-karb-uh-nuh-ZAY-shuhn

: to remove carbon from (something)

Coined in the 1830s, formed by derivation of “decarbonize”. *Source: Merriam-Webser.com*

About Con Edison

We deliver electricity, gas, and steam to 10 million people.

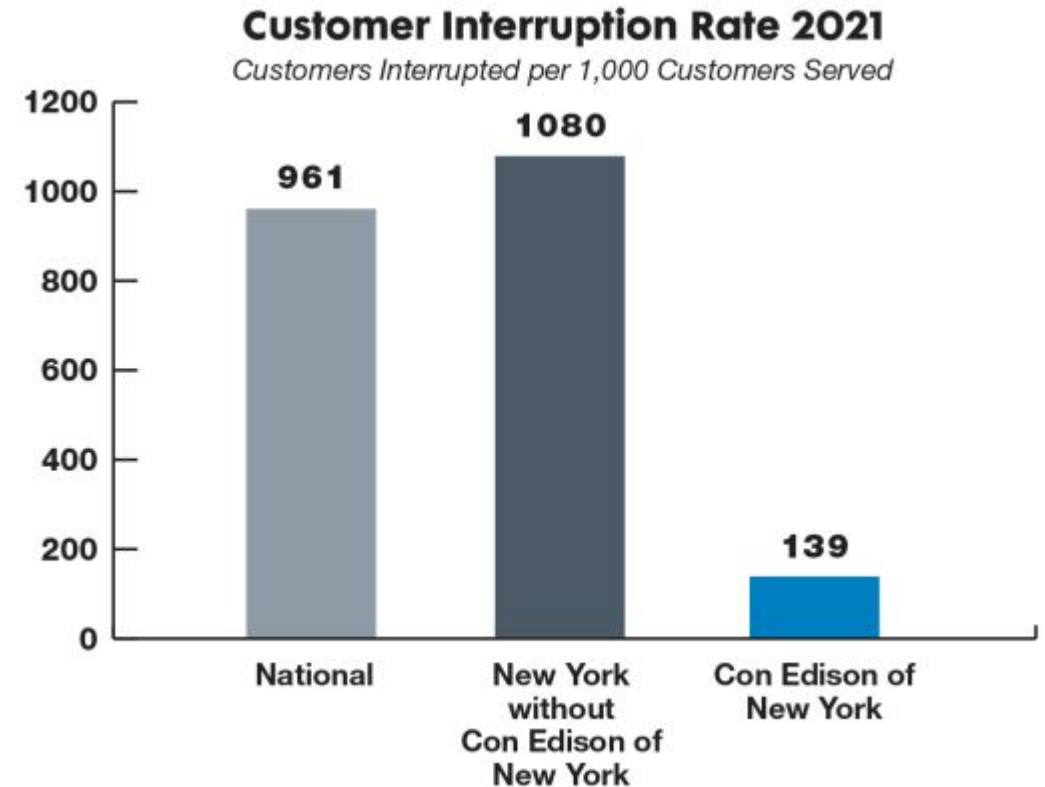
- Con Edison of NY delivers **electricity** to 3.6 million customers, **gas** to 1.1 million customers and **steam** to 1,500 customers.
- O&R delivers electricity to 0.3 million customers and gas to 0.1 million customers.
- That's about 44% of New York State's electricity needs



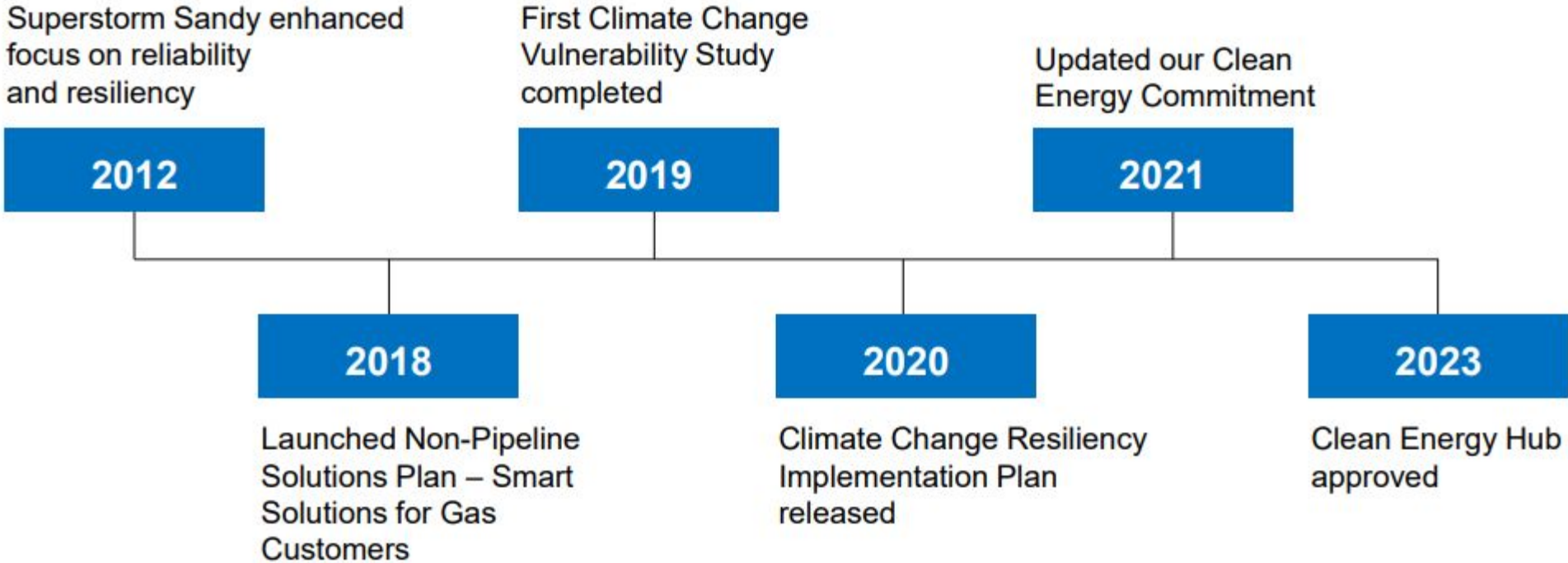
Con Edison Operates the Most Reliable Electric System in the U.S.

Our customers have significantly fewer service interruptions:

- Our electric delivery systems are seven times more reliable than the national average.
- That world-class reliability is critical. Maintaining it is crucial as we move to electrifying transportation and heating.



The Last 10 Years of Our Sustainability Journey



Con Edison's Clean Energy Commitment



Build the Grid of the Future

Build a resilient, 22nd century electric grid that delivers 100% clean energy by 2040.



Empower All of our Customers to Meet their Climate Goals

Accelerate energy efficiency with deep retrofits, aim to electrify the majority of building heating systems by 2050, and all-in on electric vehicles.



Reimagine the Gas System

Decarbonize and reduce the utilization of fossil natural gas, and explore new ways to use our existing, resilient gas infrastructure to serve our customers' future needs.



Lead by Reducing our Company's Carbon Footprint

Aim for net zero emissions (Scope 1) by 2040, focusing on decarbonizing our steam system and other company operations.



Partner with our Stakeholders

Enhance our collaboration with our customers and stakeholders to improve the quality of life of the neighborhoods we serve and live in, focusing on disadvantaged communities.

Policy Drivers (nouns)

pa-le-se-dri-vers

: a process by which groups of people make collective decisions.

New York State's Climate Leadership & Community Protection Act is a Leader in Clean Energy Policy

- **2025** 6 GW of distributed solar deployment
- **2030** 70% renewable electricity, 40% carbon emissions reductions, 6 GW of energy storage
- **2035** 9 GW of offshore wind
- **2040** 100% carbon-free power
- **2050** 85% carbon emissions reductions



New York Greenhouse Gas Emissions Reduction Laws

- **Assembly Bill A3006C**: State ban of fossil fuel use in new small buildings* starting in 2026, and in new large buildings starting in 2029
- **NYC Local Law 154**: Bans use of fossil fuels for new small buildings* by 2024 and for new large buildings by 2027
- **NYC Local Law 97**: Energy efficiency and greenhouse gas emissions limits
- **PlaNYC**: Getting Sustainability Done: NYC Mayor Adams' strategies to reduce emissions in buildings and transportation



Electrification (noun)

uh-LECK-truh-fe-ka-shen

: an act or process of electrifying

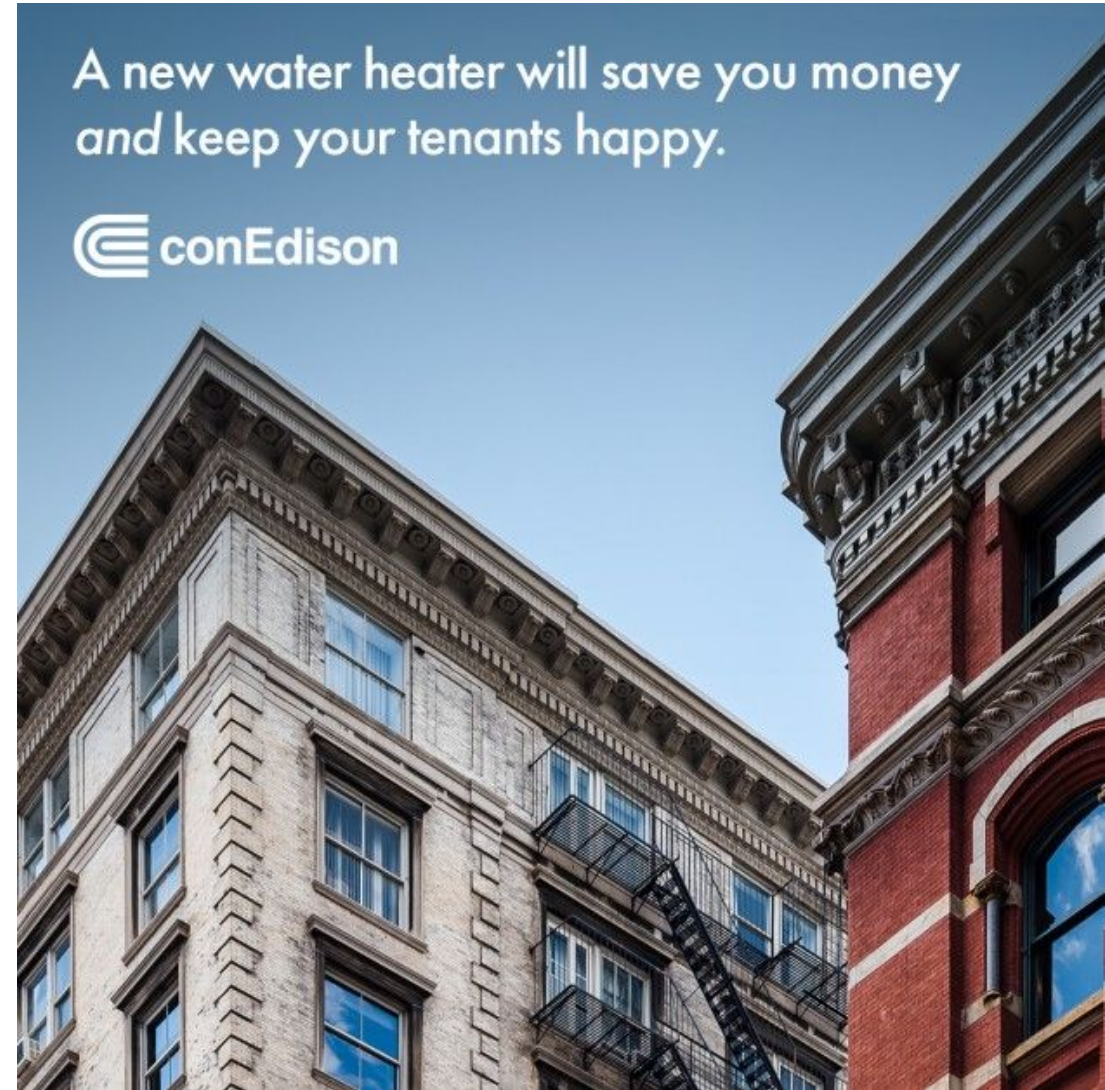
Coined in the 1740s, formed by derivation of “electrify”. *Source: Merriam-Webster.com*

Empowering Customers with Energy Efficiency Upgrades

The company will invest **\$5 billion** in building energy efficiency and electrification programs this decade:

- \$2.2 billion from 2020-2025
- Regulatory proceeding underway for \$2.5 billion more 2026-2030

A new water heater will save you money
and keep your tenants happy.



Electrifying Our Fleet

- We're committed to electrifying our fleet of light-duty vehicles by 2035 with an interim goal of 80% by 2030.
- Our R&D teams are evaluating solutions for medium- and heavy-duty fleet vehicles, including innovative EV bucket truck prototypes.



Class 8 Prototype due Q2 2023

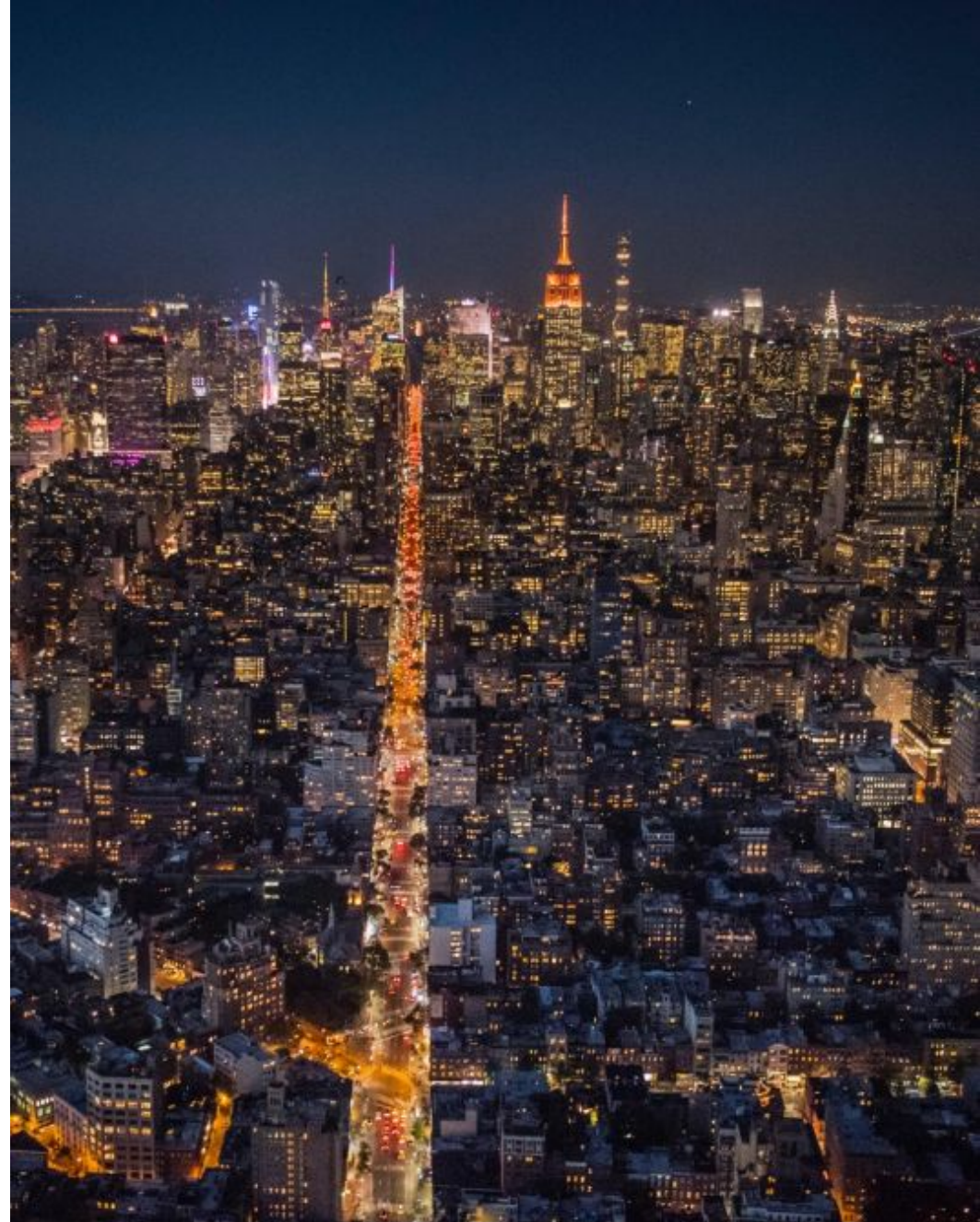
Electrifying Our Fleet – Actual All-Electric Bucket Truck



Electric Peak Demand Will Grow

Our system peak demand is anticipated to **increase by 2050:**

- Customer investments in electric building heating and electric vehicles will drastically increase electricity use.
- Demand on our electric system will shift to a winter peak by 2040 due to electrification.



Theory of Change (methodology)

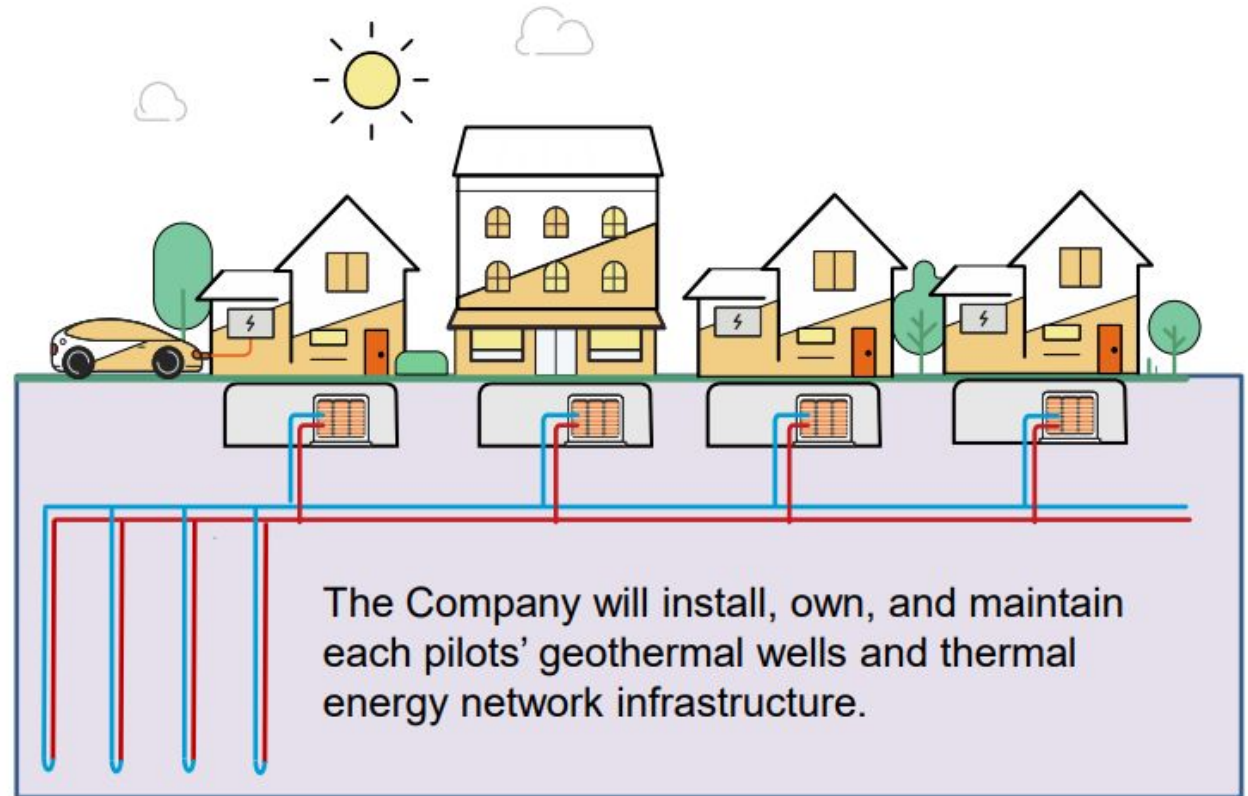
: a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context.

Coined in the late 1950s, formed by derivation of “Theory of Exchange”. *Source: Center for Theory of Change*

Utility Thermal Energy Network Pilots

Unlock opportunities to use thermal energy resources to cost effectively electrify buildings at scale.

This just in!! Three of our UTEN pilot projects have been approved to move into full design and customer agreements (Stage 2).



Committed to Environmental Justice

Making sure every New Yorker shares the benefits of a cleaner, more sustainable grid.

- We're working with environmental justice advocates to build bridges within disadvantaged communities.
- We're enhancing our efforts to provide equitable distribution of benefits when designing programs and implementing projects.
- We're investing in workforce development and training for green jobs.



WILLDAN
CLEAN ENERGY ACADEMY

ANY QUESTIONS?
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PROGRAM OVERVIEW
This is a free 60 hour energy efficiency technical training, combined with an Online Dynamic Learning Management System delivery method. The program focuses on energy efficiency, outreach, education and implementation assistance initiatives for small commercial properties.

LEARN

- Real-world application of sustainability policies & standards
- Use of software tools and energy audit processes

BUILD YOUR PORTFOLIO

- Create energy audit reports and analysis
- Prepare for industry recognized certifications

PROFESSIONAL DEVELOPMENT

- Resume writing and cover letter writing support services
- Internship and job placement assistance services

This program is open to everyone, regardless of age or background.
To be considered for participation in this program, please apply using the following link: <https://tinyurl.com/winwinapp>
Applicants will undergo interviews, evaluations and a screening/selection process

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Energy Conservation & Supply
Kawi Energy Group
USL Tech
Spring Bank

Heatpumpification (adverb)

heet-PUUUMP-eff-ehh-fehh-kaa-shen

: achieving the greatest reduction in energy consumption (from fossil fuels) without compromising the performance of a service or device

Coined in the 2020s, formed by derivation of “awesomeness”. *Source: Unconfirmed*

Heatpumpification (adverb)

heet-PUUUMP-eff-ehh-fehh-kaa-shen

Compressor	Condenser
$\dot{B}_{in} = \dot{B}_{out} + \delta\dot{B}_{COMP}$ $\dot{B}_{in} = N_{COMP} + \dot{B}_1$ $\dot{B}_{out} = \dot{B}_2$ $\delta\dot{B}_{COMP} = \dot{B}_1 + N_{COMP} - \dot{B}_2$ $\delta\dot{B}_{COMP} = \dot{m} \cdot (h_1 - h_2 - T_o \cdot (s_1 - s_2)) + N_{COMP}$ $N_{COMP} = \frac{N_{COMP,i}}{\eta_{COMP,em}}$	$\dot{B}_{in} = \dot{B}_{out} + \delta\dot{B}_{COND}$ $\dot{B}_{in} = \dot{B}_2 + \dot{B}_{w,1}$ $\dot{B}_{out} = \dot{B}_3 + \dot{B}_{w,2}$ $\delta\dot{B}_{COND} = \dot{B}_2 - \dot{B}_3 + \dot{B}_{w,1} - \dot{B}_{w,2}$ $\delta\dot{B}_{COND} = \dot{m} \cdot (h_2 - h_3 - T_o \cdot (s_2 - s_3))$ $+ \dot{m}_w \cdot c_w \cdot (T_{w,1} - T_{w,2} - T_o \cdot \ln \frac{T_{w,1}}{T_{w,2}})$
Expansion Valve	Evaporator
$\dot{B}_{in} = \dot{B}_{out} + \delta\dot{B}_{EXV}$ $\dot{B}_{in} = \dot{B}_3$ $\dot{B}_{out} = \dot{B}_4$ $\delta\dot{B}_{EXV} = \dot{B}_3 - \dot{B}_4$ $\delta\dot{B}_{EXV} = \dot{m} \cdot (h_3 - h_4 - T_o \cdot (s_3 - s_4))$	$\dot{B}_{in} + \Delta\dot{B}_{HS} = \dot{B}_{out} + \delta\dot{B}_{EVAP}$ $\dot{B}_{in} = \dot{B}_4$ $\dot{B}_{out} = \dot{B}_1$ $\delta\dot{B}_{EVAP} = \dot{B}_4 - \dot{B}_1 + \Delta\dot{B}_{HS}$ $\delta\dot{B}_{EVAP} = \dot{m} \cdot (h_4 - h_1 - T_o \cdot (s_4 - s_1)) + (1 -$

x 1000000 (**in Engineering terms)

Coined in the 2020s, formed by derivation of “awesomeness”. Source: Unconfirmed

Thank You!

For more information,
please contact:

“Plan for the future, because that’s where you’re
going to spend the rest of your life” – Mark Twain

Shaun Hoyte

Head of Clean Energy Networks

