

False Creek Neighbourhood Energy Utility

IDEA SYSTEM OF THE YEAR 2026 SUBMISSION

System location: Vancouver, British Columbia

Owner: City of Vancouver

Type of ownership: City-owned and operated utility

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Why False Creek NEU is System of the Year

SYSTEM DESCRIPTION

False Creek Neighbourhood Energy Utility (NEU) is a municipally owned and operated district energy system created to deliver low-carbon thermal energy at utility scale in Vancouver, where space and hot water heating in buildings account for over half of citywide carbon emissions.

Developed in Southeast False Creek to serve the Olympic Village for the 2010 Winter Olympic Games, the NEU was created to replace conventional building-by-building gas heating with centralized low-carbon thermal energy. In a region with low-carbon electricity, effective heat decarbonization also requires avoiding unnecessary growth in peak electricity demand. By tapping local waste heat and using highly efficient centralized equipment, **the NEU turns a waste resource into reliable low-carbon thermal energy**, showing how community energy infrastructure can support urban growth and decarbonization.

Launched in 2010, False Creek NEU proved that sewage heat recovery can serve as practical, efficient urban utility infrastructure. Since then, the utility has built on that foundation through reliable operations, municipally accountable oversight, and major low-carbon expansion. Today, False Creek NEU operates as enduring community infrastructure — a proven platform for growth and decarbonization, not a one-time demonstration project.



FIRST IN NORTH AMERICA

False Creek NEU was the first district energy system in North America to recover heat from sewage, pioneering wastewater as a community-scale renewable energy resource.



- **Providing access to local renewable energy:** False Creek NEU delivers low-carbon thermal energy to a growing urban customer base in Vancouver's densest neighbourhoods.
- **Proven renewable energy performance:** at least 70% of annual energy has come from renewable sources since launch, with sewage heat recovery as the primary source.
- **Expanding a proven low-carbon platform:** At the end of 2024, the NEU completed a 6.6 MW sewage heat recovery expansion at the False Creek Energy Centre, adding two new high-efficiency heat pumps to complement the original 3.2 MW system installed in 2010. The expansion increased the NEU's ability to recover local waste heat and strengthened its platform for continued growth and decarbonization.
- **Planning the next phase of decarbonization:** The NEU is developing an *Energy Generation Strategy* to support future growth and transition towards 100% renewable energy by 2030, in support of the City's Climate Emergency Action Plan.

System profile and distinguishing features

SYSTEM DESCRIPTION

False Creek NEU is a municipally owned district energy utility serving the vibrant communities of Southeast False Creek, parts of Mount Pleasant, and the False Creek Flats. Anchored by the False Creek Energy Centre nestled under the Cambie Street Bridge, the system supplies connected buildings with low-carbon thermal energy through a hydronic distribution network, drawing on sewage heat recovery, peaking and backup generation, and additional recovered-energy inputs.

Since beginning operations in 2010, the NEU has expanded from its Olympic Village foundation into a broader urban utility serving residential, institutional, commercial, and employment areas. Major system additions, including the 2021 Mount Pleasant Peaking Plant and the 2024 Sewage Heat Recovery Expansion, have expanded NEU's capacity to support community growth, resilience, and deeper decarbonization. The False Creek Energy Centre serves as both a **learning hub and demonstration asset**, helping share operational lessons on sewage heat recovery and low-carbon district energy with students, delegations, and other thermal energy utilities.

From pioneering platform to lasting utility service:

The pages that follow show how False Creek NEU pairs long-term decarbonization with operational performance, resilience, customer value, and community impact.

FALSE CREEK NEU SYSTEM PROFILE

Ownership / Operating Model

City of Vancouver-owned district energy utility operated on a commercial utility model

Service Area

Southeast False Creek, Mount Pleasant, False Creek Flats, Great Northern Way, Northeast False Creek

Thermal Energy Generation and Key Assets

- **Total system capacity:** 39 MW thermal
 - 10 MW sewage heat recovery
 - 29 MW peaking / backup gas boilers
- **False Creek Energy Centre:** primary low-carbon generation hub, 10 MW sewage heat, 24 MW boilers
- **Mount Pleasant Peaking Plant:** peaking / backup facility, 5 MW gas boilers
- **Additional recovered energy input:** Mountain Equipment Company cooling waste heat (1-2% of annual energy)
- **Renewable energy contribution:** at least 70% of annual energy generated from renewable sources since launch

Distribution Network and Customer Base

- **System configuration:** centralized hot-water district energy network serving connected buildings through energy transfer stations
- **Hydronic distribution network:** 10.4 km of buried pipe
- **Building connections:** 47 across residential, institutional, commercial, and industrial uses, including Olympic Village, Science World, Emily Carr University, Creekside Community Centre, and MEC
- **Floor Area Served:** 670,000 m²
- **Long-term Buildout:** ~2,000,000 m²

System Growth and Milestones

- **2009:** Initial distribution network commissioned
- **2010:** False Creek Energy Centre began operations (3.2 MW sewage heat recovery)
- **2021:** Mount Pleasant Peaking Plant commissioned
- **2024:** 6.6 MW sewage heat recovery expansion at False Creek Energy Centre
- **2024:** Development of the *NEU Decarbonization Roadmap*

From Olympic Legacy to Growing Low-Carbon Utility

SYSTEM DESCRIPTION

False Creek NEU began as part of the City's goal of delivering the world's most sustainable Olympic Games and its vision for Southeast False Creek as a model sustainable neighbourhood. The 2010 Olympic Village formed the original service area, with low-carbon district energy supplying space heating and domestic hot water in place of building-scale gas boilers. Since then, NEU has grown from its Olympic Village launch area into a broader neighbourhood-scale utility serving 47 buildings, supported by major system additions including the Mount Pleasant Peaking Plant in 2021 and the 2024 sewage heat recovery expansion. Continued growth is planned as redevelopment proceeds across the expanding service area.

2010 Launch Area

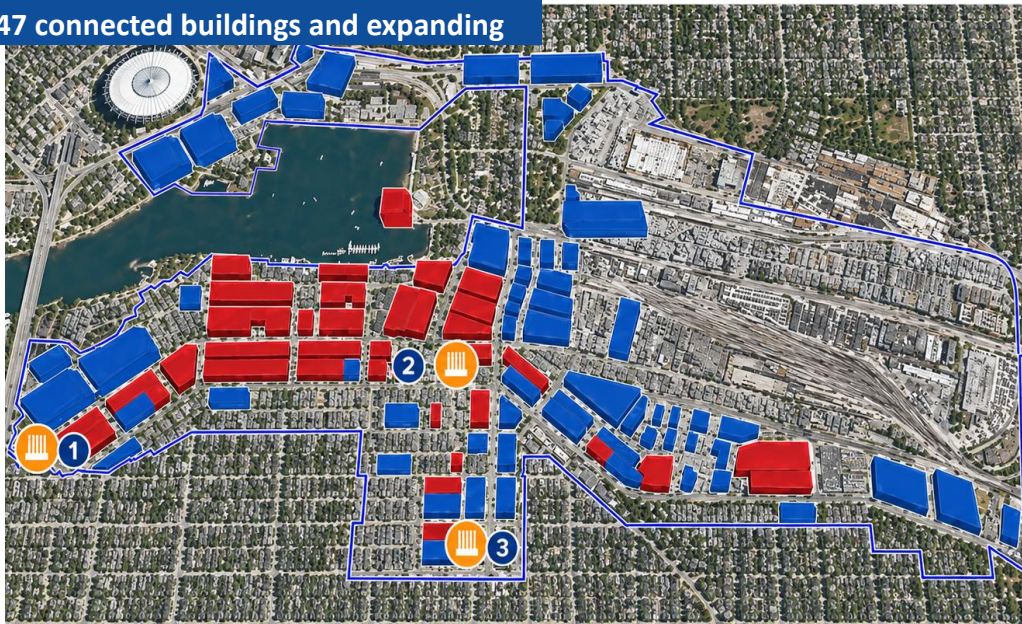
Olympic Village / Southeast False Creek



Original NEU service area: The 2010 Olympic Village was the first phase of NEU service, implementing the Southeast False Creek Official Development Plan vision for low-carbon district energy.

TODAY + FUTURE GROWTH

47 connected buildings and expanding



- Current customers
- Future customers
- NEU Energy Centre
- NEU Service Area Boundary



False Creek Energy Centre



MEC Waste Heat Recovery



Mount Pleasant Peaking Plant

Current and future service area: NEU now serves 47 connected buildings, shown in red, with planned future customers shown in blue as redevelopment continues within the service area. Numbered markers identify major energy assets: the False Creek Energy Centre, MEC waste heat recovery connection, and Mount Pleasant Peaking Plant. The False Creek Energy Centre is the NEU's primary low-carbon generation hub.

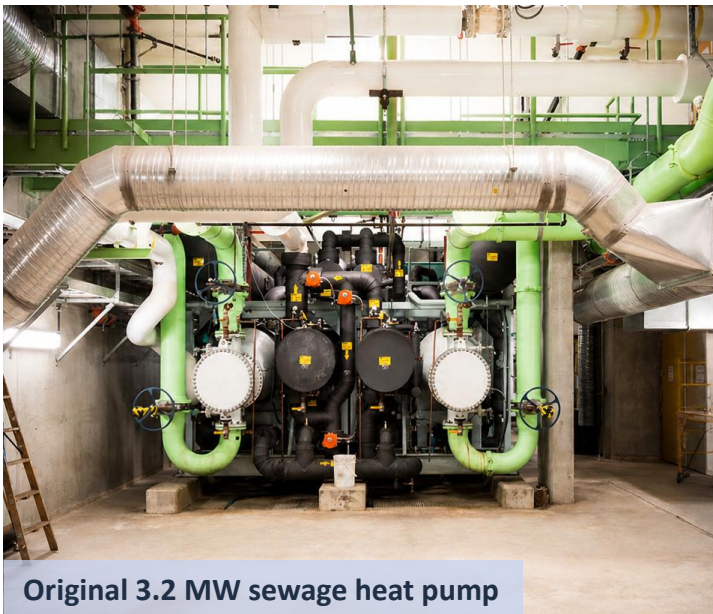
High-Efficiency Sewage Heat Recovery at Utility Scale

DEMONSTRATED EFFICIENCY

NEU efficiency is summarized for 2024 and 2025 using recognized industry metrics, including heat pump coefficient of performance (COP), boiler efficiency, and overall system efficiency. Detailed input/output calculations are provided in the supporting worksheet, including electricity, sewage heat, renewable natural gas, conventional natural gas, useful thermal output, distribution losses, and energy delivered to customers.

Relying on High-Efficiency Sewage Heat Recovery

Sewage provides a stable, year-round heat source recovered through heat pumps at efficiencies well above conventional combustion-based heating. This is especially important for a heating utility: even during cold outdoor conditions, sewage remains warm enough to support strong heat pump performance, with gas boilers supplementing peak conditions.



The 2024 expansion tripled sewage heat recovery capacity and improved measured system efficiency.

- **High COP and efficient use of electricity:** In 2025, following completion of expansion commissioning, the sewage heat recovery system reached a COP of 3.6, delivering 3.6 units of thermal energy for each unit of heat-pump electricity consumed. By recovering local waste heat instead of relying on direct electric heating, NEU makes efficient use of limited electrical capacity.
- **Improved system efficiency:** Overall efficiency increased from 103% in 2024 to 148% in 2025, reflecting the increased contribution and performance of the expanded heat pump system.
- **Full energy-balance reporting:** Overall system efficiency is shown excluding sewage heat to highlight the efficiency benefit of recovering and using local waste heat that would otherwise be released through wastewater treatment and disposal.

Efficiency Performance Summary

Year	Heat Pump COP	Boiler Efficiency	Overall Efficiency
2024	3.0	82%	103%
2025	3.6	81%	148%

Reliable Service Through Redundancy and Central Operations

DEMONSTRATED AVAILABILITY/RELIABILITY

False Creek NEU's centralized operating model supports dependable heating service across 47 connected buildings. With a 16-year operating track record since service began in 2010, the utility maintains service continuity through remote monitoring, redundant production capacity, planned maintenance, and coordinated troubleshooting. Formal availability and reliability data are provided in the Appendix using the application's Availability/Reliability worksheet and formulas.



Skilled operators and centralized monitoring support dependable service through system oversight, issue identification, maintenance coordination, and timely response.

- **Reliable service as a core operating priority:** Safe centralized operations, planned maintenance, responsive vendor and controls support, and an experienced Operations team support dependable service.
- **Equipment redundancy and fuel flexibility:** Multiple generation assets and fuel sources, including capacity at the False Creek Energy Centre and Mount Pleasant Peaking Plant, allow equipment to be taken out of service for planned maintenance, repair, or replacement while maintaining service to connected buildings.
- **Customer service reliability:** Connected buildings are remotely monitored, allowing the NEU team to identify issues, coordinate response, and support troubleshooting across both utility-side and customer-building systems.
- **Commissioning issues resolved through active management:** During commissioning of the new heat pumps in early 2025, the NEU experienced increased equipment downtime as the new equipment was integrated into the existing system. The team worked closely with equipment vendors and controls contractors to resolve integration issues, with full uptime achieved in Q1 2026.

Resilience Through Distributed Capacity and Future Planning

DEMONSTRATED RESILIENCY

The NEU builds resilience through a layered operating model: planned capacity, distributed generation, proactive maintenance, skilled operators, original equipment manufacturer service agreements, and a formal *Business Continuity Plan*. Together, these measures help maintain uninterrupted heating service through system growth, extreme weather, equipment outages, and other disruptive events.

Capacity planned for growth and redundancy

Capital investments are guided by long-term demand forecasting so the NEU can add capacity and redundancy while avoiding overbuilding and stranded assets. This approach is exemplified by the False Creek Energy Centre, which was constructed in 2010 with dedicated expansion space; boilers were added in 2017; and new heat pumps were installed in 2024. In 2021, the Mount Pleasant Peaking Plant added satellite generation at the opposite end of the distribution network, strengthening resiliency across both heat generation and distribution.

Operational resiliency through asset management

Operational resiliency is reinforced through disciplined asset management, skilled oversight, and maintenance planning. NEU's certified Power Engineers are responsible for daily system operation and planned maintenance. Assets are registered and managed through the Hansen asset management system, supporting activity tracking, preventive maintenance scheduling, long-term maintenance planning, and reliable performance over time.

Life-cycle support for specialized equipment

For specialized equipment, including sewage heat pumps and sewage screening systems, the NEU maintains multi-year original manufacturer service agreements. These agreements support planned and unplanned maintenance, response times, downtime limits, return-to-service requirements, and full asset-life performance.

Business continuity and extreme-event readiness

To prepare for emergency events and other major disruptions, the NEU's *Business Continuity Plan* is reviewed and updated annually. The plan supports effective emergency response by identifying critical staff, essential services, required resources, and critical assets; prioritizing staff, customer, and public safety; and guiding decision-making, internal coordination, and customer communications as operating conditions evolve.

Resilience proven in real events

Since beginning operations in 2010, the NEU has maintained continuity of service through winter cold snaps as low as -11°C , below Vancouver's ASHRAE heating design temperature; summer heat waves; and partial flooding from a one-in-25-year rainfall event. Lessons from these events have been incorporated into system upgrades and operating procedures, strengthening readiness for future disruptions.



Cold snaps to -11°C



Summer heat waves



Flooding from one-in-25-year rainfall



No customer service interruption



The Mount Pleasant Peaking Plant adds satellite generation capacity at the opposite end of the distribution network, strengthening heat generation and distribution resiliency.

Transforming Waste Heat into Lasting Climate Benefit

ENVIRONMENTAL BENEFITS

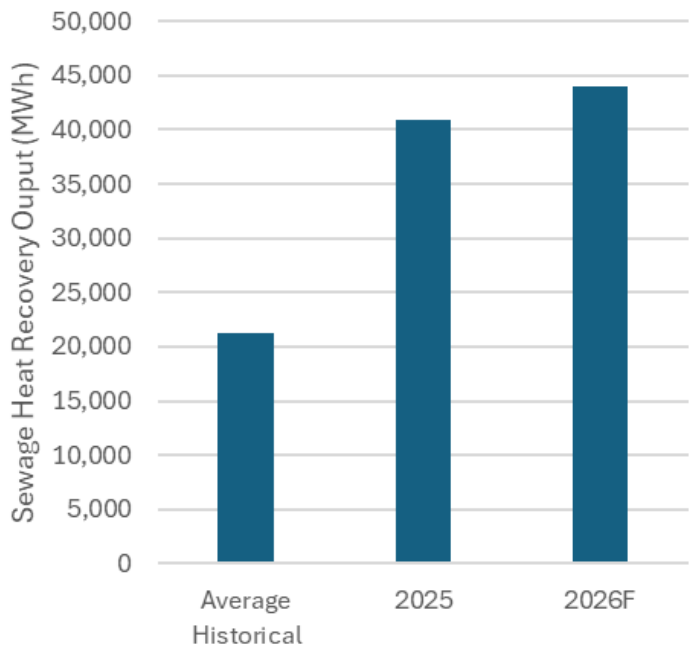
False Creek NEU reduces emissions by replacing conventional building-by-building gas heating with centralized low-carbon thermal energy. Its primary renewable energy source is sewage heat recovery, delivered through a shared neighbourhood-scale system.

In 2025, the NEU delivered 73% of its energy from renewable sources, including sewage heat recovery, renewable natural gas, and customer waste heat. This reduced GHG emissions by 7,070 tonnes CO₂ compared with a 2007 baseline.

The **2024 sewage heat recovery expansion** reinforces this environmental performance by increasing total sewage heat recovery capacity to 9.8 MW, offering a highly efficient renewable energy backbone for the system. It also advances the NEU’s broader *Decarbonization Roadmap* and *Energy Generation Strategy*, which are guiding feasibility work on local waste heat opportunities to support system growth, resilience, affordability, and the transition to 100% renewable energy by 2030.

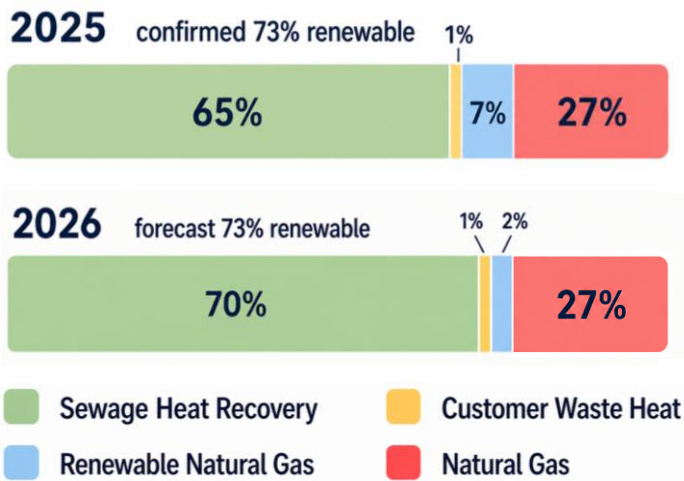
- **Environmental benefit above conventional heating:** The NEU reduces reliance on distributed gas boilers and fossil combustion by serving buildings through centralized renewable energy. This supports local air-quality objectives by reducing combustion-related pollutants such as NO_x, SO₂, and particulate matter.
- **Lower-emissions system performance:** The confirmed 2025 energy mix and Standard Green Heat emissions factor show how centralized renewable energy service can reduce emissions while continuing to serve dense, mixed-use urban growth.

Annual Sewage Heat Recovery Increased Following 2024 Expansion



Following the 2024 expansion, annual sewage heat recovery increased to nearly double the historical average, demonstrating the expansion’s contribution to renewable energy delivery.

System Environmental Performance



- **Energy Mix:** 73% renewable in 2025
- **Standard Green Heat emissions factor:** 70 kg CO₂ /MWh

Sustainable Growth Through Resource Stewardship

SUSTAINABILITY EFFORTS

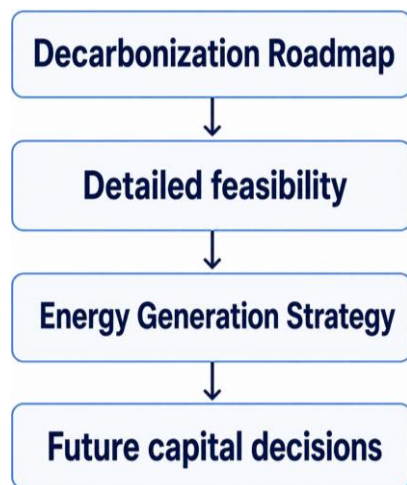
False Creek NEU's sustainability efforts extend beyond system efficiency and GHG reduction. As the utility grows, the City is pairing long-term renewable energy planning with practical operational improvements that reduce resource use, improve maintainability, and support reliable low-carbon service.

Long-term sustainability planning

Completed in 2024, the NEU's *Decarbonization Roadmap* identified the next renewable energy resources needed to support system growth, resilience, affordability, and the transition to 100% renewable energy. Building from the proven sewage heat recovery platform, the roadmap shortlisted opportunities for further evaluation, including local waste heat from data centres/industry, major sewers, geothermal, biomass, thermal energy storage, RNG, and electric technologies.

This work is now moving from screening into implementation planning through detailed feasibility studies and development of an *Energy Generation Strategy*, helping the City sequence future investments and maintain strong renewable energy performance as the utility grows.

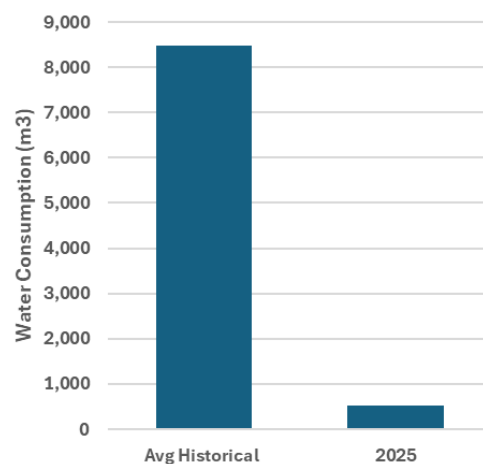
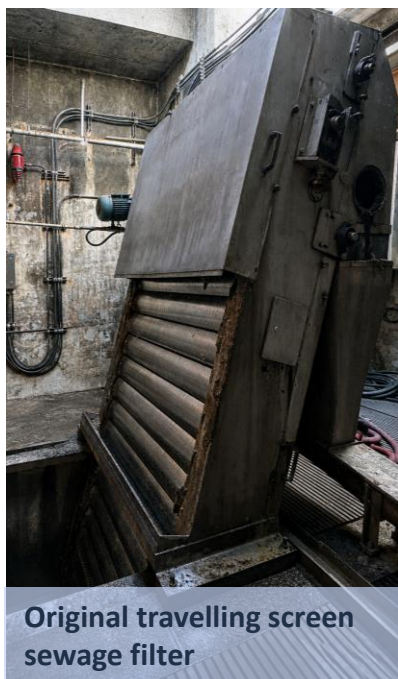
From roadmap to investment



Operational resource stewardship

Sustainability is also embedded in day-to-day operations as demonstrated by the recent modernization of the NEU's sewage screening system. At the False Creek Energy Centre, sewage must be screened before heat recovery to remove material that could clog downstream heat pumps. The original travelling screen sewage filter, installed in 2010, was effective but consumed significant potable water.

After piloting an inline "water-free" sewage screening process with local vendor **SHARC Energy** in 2017-2019, NEU replaced the original screening system as part of the 2024 expansion, substantially reducing potable water use while improving maintainability and uptime.



Resource stewardship in practice: The SHARC screening upgrade reduced potable water use, lowered maintenance requirements, and supports more reliable sewage heat recovery.

Safety Culture in Practice: Zero Reportable Accidents

WORKPLACE SAFETY / EMPLOYEE TRAINING

Safety is the False Creek NEU's top priority, with leadership commitment integrated into planning, decision-making, and daily service delivery. This reflects the City of Vancouver's expectation that all employees take personal responsibility for safety, look out for co-workers and the public, and report unsafe conditions when they arise. At the False Creek Energy Centre, this safety culture is applied through site-specific procedures for plant access, confined-space work, contractor coordination, maintenance, and emergency response.

- **Strong safety results:** Over the 2024–2025 reporting period, NEU maintained a safe operating environment with **zero reportable workplace accidents** and **zero lost-time incidents**. *Regular safety meetings, briefings, procedure reviews, compliance audits, and Business Continuity Plan updates support prevention, accountability, and continuous improvement.*
- **Training is matched to real utility risks:** Staff training covers site readiness, confined-space entry, hazard identification, workplace inspections, incident investigation, crane operations, and business continuity response. *This ensures operators are prepared for the practical safety risks associated with district energy utility service.*
- **Shared responsibility is reinforced in daily practice:** Safety is reinforced through visible leadership, routine briefings, employee involvement in hazard identification, and clear expectations to report and address unsafe conditions. *Rather than relying on a stand-alone incentive program, NEU reinforces safety through daily accountability and continuous improvement.*

This reflects the strength of the NEU team: experienced operators, clear roles, and a shared commitment to protecting one another, the public, and reliable service delivery.

SAFETY PERFORMANCE HIGHLIGHTS

(2024-2025)

Safety Outcomes

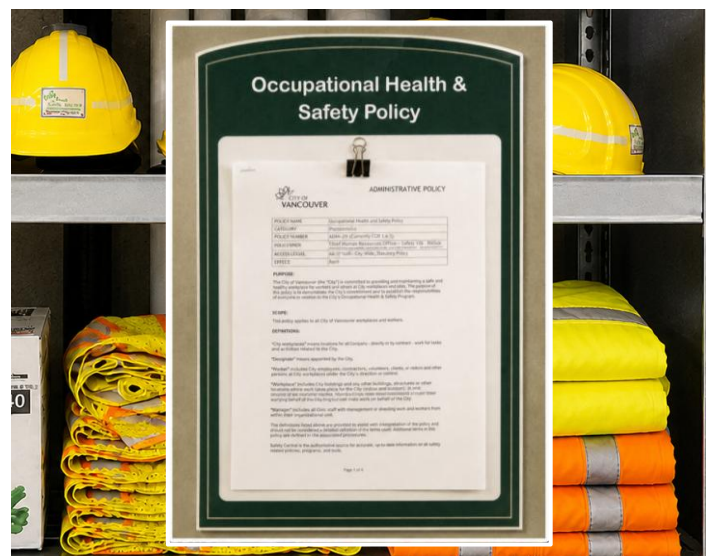
- 0 Reportable workplace accidents
- 0 Lost-time incidents

Safety Activity

- 8 Occupational Health & Safety meetings
- 24 Safety briefings
- 52 SOPs reviewed
- 2 Business Continuity Plan updates
- 2 Technical Safety BC compliance audits

Staff Safety Training Completed

- **Site / access:** Site Ready BC, Confined Space Entry
- **Hazard management:** Hazard Identification & Risk Assessment, Workplace Safety Inspections, Incident Investigation
- **Operational readiness:** MSD Reduction Techniques, Business Continuity Recovery Team, Crane Operations
- **Workplace culture:** Respect in the Workplace, Reconciliation and Decolonization Learning



Visible safety boards keep procedures, hazards, training, emergency contacts, and daily reminders front-of-mind for operators and visitors.

Responsive Service, Practical Solutions, Customer Value

CUSTOMER RELATIONS STRATEGY

False Creek NEU's customer relations approach is grounded in responsive service, practical building-specific solutions, and long-term customer value. As a municipally owned utility, **NEU works with each customer building to support efficient low-carbon service** while refining requirements and offerings as customer needs evolve.

Dependable service and public accountability

NEU's customer relationship is built on dependable utility service and clear public accountability. Customer inquiries and service requests are managed through the City's 3-1-1 system, **helping connected buildings troubleshoot issues across both utility and customer building systems**. NEU's responsiveness is backed by strong operational reliability, reinforcing customer confidence in the utility as a dependable essential service. As a municipally owned utility, NEU also provides public reporting on performance, renewable energy supply, GHG performance, capital planning, financial performance, and rate changes.

- **Remote Monitoring:** All buildings are remotely monitored enabling a proactive response to building issues
- **Responsive Service:** Service calls receive a response in under 1 hour, reinforcing customer confidence in NEU as a dependable utility service
- **Public Accountability:** Annual rate reporting shows how the utility is performing and how rates are set.

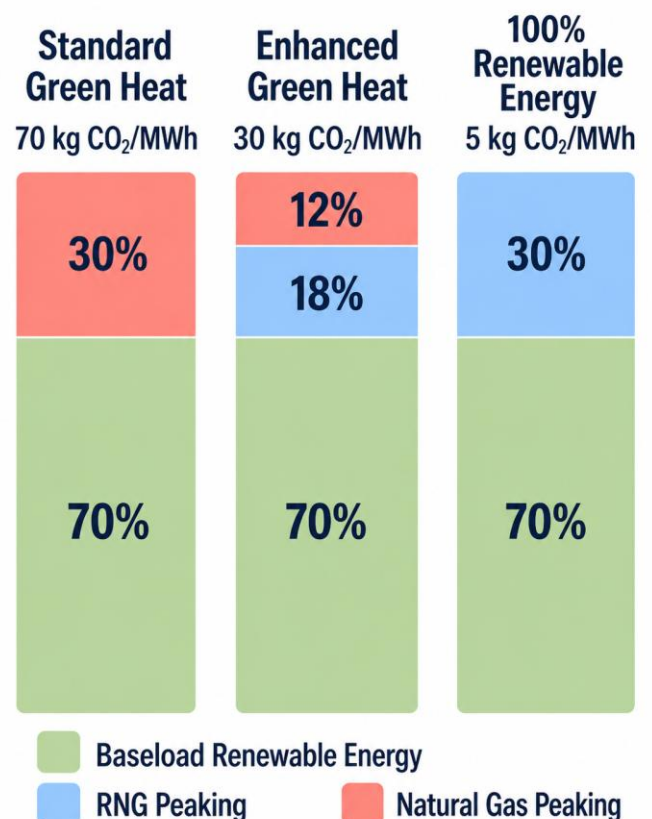
Practical, efficient solutions for each building

NEU has refined its design guidelines and connection approach to support workable pathways for customer buildings. This includes options such as on-site heat recovery, hybrid distribution systems, and other measures that help manage capacity demand. These adjustments reflect a practical, customer-focused approach: **NEU's goal is not to maximize heat sales, but to deliver the most practical, efficient, and low-carbon solution for each building, while supporting the system as a whole.**

Evolving offerings

NEU's customer strategy includes new offerings that respond to changing customer, market, and policy needs. A key example is the **Enhanced Green Heat Program**, which gives connected buildings practical options to pursue deeper decarbonization while remaining part of the centralized NEU system.

Standard Green Heat provides the baseline service for all customers. *Enhanced Green Heat* and *100% Renewable Energy* provide opt-in pathways for customers with more ambitious emissions targets or regulatory requirements. These offerings give customers choice without requiring each building to develop its own separate low-carbon heating solution.



The Enhanced Green Heat Program's optional lower-emissions offerings allow customers to increase renewable energy content while continuing to rely on the NEU's shared infrastructure, operations, and public accountability.

Activating the False Creek Energy Centre as a Community Learning Hub

COMMUNITY INVOLVEMENT

The False Creek Energy Centre is more than a utility plant. It was intentionally designed as a visible, welcoming part of the neighbourhood — with community garden space, table tennis, picnic tables, portals that provide a peek into the depths of the energy centre, and iconic stacks that change colour based on the community's collective energy demand. Together, these features turn normally hidden utility infrastructure into a public-facing place of curiosity, helping residents and visitors connect everyday energy use with local climate action.



Colour-changing stacks, viewing portals, and community garden space make the False Creek Energy Centre a visible, interactive, and memorable part of the neighbourhood.

NEU staff build on this public-facing design by regularly hosting plant tours for high school and university classes, municipal staff, utilities, designers, elected officials, and other decision-makers. These tours bring classroom learning, infrastructure planning, and climate policy to life by showing sewage heat recovery in real-world operation. For students, the experience helps connect sustainability concepts to tangible career pathways and local climate solutions, inspiring the next generation of innovators; for professionals and decision-makers, the False Creek Energy Centre provides a working reference case that helps them make their own confident investments in low-carbon district energy.



Staff-led tours connect students, professionals, elected officials, and decision-makers with the people, equipment, and operational choices behind low-carbon district energy.

Extending Community Impact Across the Region – and Beyond

COMMUNITY INVOLVEMENT

The False Creek NEU has helped shift sewage heat recovery from an emerging idea to a proven model for urban decarbonization. Since launching in 2010, it has shown that wastewater heat can be recovered, integrated into a growing district energy system, and delivered as reliable neighbourhood-scale utility service. That operating track record has helped give other communities the confidence to explore similar low-carbon district energy solutions — while media attention has carried the story of waste heat recovery to audiences well beyond Vancouver.



Communities across Metro Vancouver and beyond are exploring, advancing, or selecting sewage and wastewater heat recovery as part of their own low-carbon district energy strategies.

* Indicates sewage heat recovery has been selected as the primary source of energy.

Reframing waste as a resource – beyond Vancouver



Regional, national, and international media coverage has amplified the NEU's role as a working reference case for sewage heat recovery. Together with tours and technical visits, this coverage has helped reframe wastewater from something to dispose of into a resource that cities around the world can consider in their own climate strategies.

Leading with Partnership, Performance, and Public Purpose

FALSE CREEK NEIGHBOURHOOD ENERGY UTILITY

False Creek NEU shows what municipally owned low-carbon utility infrastructure can achieve when long-term public purpose is paired with practical operational excellence. From pioneering neighbourhood-scale sewage heat recovery to recent expansion, decarbonization planning, customer-focused service, and community learning, the NEU has grown into a reliable and evolving system that creates value for Vancouver and serves as a working model for turning local waste heat into lasting community benefit.



At the False Creek Energy Centre, Federal MP Hedy Fry, Vancouver Mayor Ken Sim, City of Vancouver Council members and Engineering staff, and representatives from supporting vendors and consultants marked a major low-carbon expansion milestone. The photo reflects the collaboration behind a municipally owned utility system that continues to grow in performance, resilience, and community value.

Photo credit for 2024 Expansion Project images: City of Vancouver / Brett Hitchins