



Governor Hochul names finalists in The Clean Fight and NYSERDA's Empire Technology Prize competition

August 27, 2024 - Design / Build

Manhattan, NY Governor Kathy Hochul named seven finalists in the \$10 million Empire Technology Prize, a competitive opportunity for global solution providers launched last October to advance building technologies for low carbon heating system retrofits in tall commercial and multifamily buildings in New York State. The Clean Fight, a climate tech accelerator, which administers the initiative on behalf of the New York State Energy Research and Development Authority (NYSERDA), will now help match finalists with leading New York real estate portfolio owners interested in discussing pilot and demonstration opportunities for the proposed solutions in New York.

An event was held at leading real estate portfolio owner Vornado's PENN 2 office building to introduce the finalists and discuss their solutions for low carbon heating and distribution systems in tall residential and commercial buildings. Finalists are challenged to develop a tested and fully functional prototype of a heating or distribution system that can be installed in a manner that does not displace occupants and works with existing infrastructure in buildings seven stories or taller.

"New York is advancing the latest technology and innovations to reduce emissions and build cleaner, greener buildings," Hochul said. "The partnership and leadership of real estate owners is key to advancing resilient buildings and I commend their commitment to piloting solutions as we work to reduce harmful emissions and combat climate change."

New York State Energy Research and Development Authority president and CEO Doreen Harris said, "Reducing emissions from the buildings sector will only be possible with ingenuity and technology innovation, which are at the center of the Empire Technology Prize Competition. NYSERDA congratulates the seven finalists who will now advance their low-carbon retrofit solutions in the New York State market with the potential to make their mark on the industry through these demonstrations."

Solutions are expected to open new decarbonization pathways for both multi-family and commercial tall buildings in New York and include steam and high temperature hot water heat pumps leveraging both air and water heat sources, a variety of future-proof low Global Warming Potential (GWP) refrigerants, and a distribution solution enabling the adoption of existing low temperature heat pumps.

The selected finalists, hailing from New York to Norway and including startups as well as established multinational original equipment manufacturers are:

Ambient Enterprises, Flow Environmental Systems and Gil-Bar Industries (High temperature hot water heat pump (HTHW HP) using air or water source heat): Based in New York and Minnesota, the team has presented a high-temp hot water solution delivering up to 180°F with a natural refrigerant (CO₂). It offers heating with bonus cooling, domestic hot water, and simultaneous capabilities for efficient, flexible performance. The team proactively showed commitment to the New York market through its joint application with Flow Environmental Systems (Manufacturer) and Gil-Bar (Solution Provider).

AtmosZero (Steam HP using water or air source heat): Based in Fort Collins, Colorado, AtmosZero presented a steam heat pump that utilizes a cascade cycle to output steam and can produce low-to-medium pressure steam using low GWP refrigerants. The technology has been demonstrated for process steam applications at a brewery in Colorado.

Clean Heat Technologies (Steam HP using water source heat): Based in Pittsburgh, Pennsylvania, Clean Heat Technologies is a division of Thar Energy, which has over 30 years of experience developing components and systems using CO₂. Clean Heat Technologies presents an innovative steam heat pump utilizing this natural refrigerant and the team has developed six prototypes to date.

ENERIN AS (Steam and HTHW HP using air or water source heat): Based in Lysaker, Norway, ENERIN has over 100 years of experience with different heat pump solutions. ENERIN's heat pump can produce both steam and high temperature hot water, using a natural refrigerant (Helium). The technology has existing customers and pilot projects in the industrial sectors, as well as a prototype for space heating.

Hydronic Shell Technologies and Cycle Retrotech (Distribution solution): Based in Long Island City, New York, this distribution solution incorporates a complete HVAC distribution system into a modular overclad façade that can be installed quickly, cost-effectively, and non-invasively on the exterior of an existing building, with a process that integrates manufacturing through design, construction, and operation and maintenance. The company is working on a pilot of its solution in Syracuse.

Johnson Controls (JCI) (Steam and HTHW HP using water source heat): Based in Milwaukee, Wisconsin, JCI's solution utilizes a cascaded cycle, centrifugal compressor, and mechanical vapor recompression technology (MVR) as an energy recovery process which can be used to recycle waste heat to improve efficiency and offers cooling as an ancillary benefit.

Miller Proctor Nickolas (MPN) (Steam and HTHW HP using water source heat): Based in Sleepy Hollow, New York, MPN, bringing over 100 years of experience in the space heating industry, will be using Finnish manufacturer Oilon's ChillHeat Technology to create a solution that generates both high temperature hot water and steam. MPN is developing a prototype system to be packaged as a mobile unit in order to allow for on-site demonstration purposes.

Each selected team of equipment manufacturers and entrepreneurs will receive an initial \$250,000

award with the potential for up to an additional \$750,000 as they achieve milestones in progressing their solutions over the next year. In addition to the \$1 million potential award, a total of \$2 million will be available to help finalists offset the costs of installing solutions such as pilot programs or demonstration projects in eligible tall buildings in the New York market. At the end of the one-year prize program, beginning July 2024 and ending June 2025, one winner will be awarded an additional \$1 million grand prize, based on the solution with the greatest potential cumulative carbon emissions reduction by 2040 in the New York market, with a goal of facilitating the further development and deployment of the solution in New York's tall buildings.

The Clean Fight Managing Director Kate Frucher said, "We are incredibly excited by the caliber, innovation, and dedication of the seven finalists to develop easier-to-adopt clean heating solutions that will help all of New York State's tall building owners decarbonize their properties. In addition, the support of our demonstration partners CBRE IM, Columbia University, ESRT, Fairstead, L+M Development Partners, NYCHA, Rudin, Tishman Speyer, and Vornado, to provide feedback to the finalists as they develop their solutions will ensure this new class of technologies centers the unique needs of New York's tall building stock."

Wells Fargo Sustainable Finance & Advisory Managing Director Kelly Souza said, "Wells Fargo's sponsorship of the Empire Technology Prize aligns with our ongoing efforts to support advancing innovative technologies. We congratulate the seven finalist companies recognized today and look forward to seeing how they work with the Prize's demonstration partners to showcase their new product solutions."

The \$2 million demonstration funding will prioritize solutions in/for buildings located in disadvantaged communities (DACs), as defined by the Climate Justice Working Group. DAC groups will be engaged to provide insight and feedback to finalists to ensure that the solutions being developed meet the needs of the communities they are designed to serve. With approximately 1.5 billion square feet of existing buildings that use steam to provide heating to occupants, many of which are low- to moderate-income, proposed solutions are expected to focus on adoption of centralized building heat pumps into existing building systems.

The Clean Fight was selected as the program administrator for the Empire Technology Prize in September 2022 and has successfully operated a cohort-based, growth-stage accelerator program for the past four years. Rocky Mountain Institute (RMI), an independent nonprofit dedicated to transforming global energy systems through market-driven solutions, is providing technical, prize design, and program support.

Wells Fargo's involvement aligns with the company's ongoing work in affordability in New York and its work to support its business, customers and communities transition to a resilient, equitable and sustainable future. In addition to philanthropic efforts, Wells Fargo has a goal to deploy \$500 billion in sustainable finance by 2030 and is the largest affordable housing lender in New York State.

Buildings are one of the leading generators of greenhouse gas emissions in the State and 70 percent of buildings in New York State were constructed before the energy code and will need to be

upgraded in order to advance progress toward the State's Climate Leadership and Community Protection Act goals. The Empire Technology Prize continues NYSERDA's leadership in advancing carbon-neutrality in existing buildings and will draw on lessons learned from projects supported through the State's \$50 million Empire Building Challenge, a partnership between NYSERDA and leading commercial real estate owners to elevate new design approaches for low-carbon retrofits in New York's high-rise buildings.

Today's announcement builds on New York State's investments in research, development, and commercialization to support innovators that are accelerating the low emissions and carbon sequestering technologies needed to meet the State's goal for economy-wide carbon neutrality. NYSERDA's Innovation program is deploying \$800 million over 10 years as direct investments via grants and wrap-around commercialization support. More than \$680 million in private investments and \$200 million in project finance capital have been enabled, and more than 450 innovative clean energy products have been commercialized as a result of NYSERDA's technology and business development investments, including LED lighting systems, home appliances, longer-lasting batteries, and more efficient heating-and-cooling systems.

Funding for this initiative comes from the State's 10-year, \$6 billion Clean Energy Fund and Wells Fargo as a program co-sponsor with implementation support from The Clean Fight and technical support from the Rocky Mountain Institute.

New York Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540