

# SOLVING STRATEGIC ELECTRIFICATION CHALLENGES

Cities, states and architects engaged in the [2030 Challenge](#) rely on engineers to translate aggressive decarbonization goals into practical mechanical designs for the comfort, health and safety of occupants. This involves consideration of technologies to mitigate the challenges of Strategic Electrification, a movement to reduce carbon emissions and costs by increasing energy efficiency and powering technologies with electricity drawn from sustainable sources.

The Action Plan to Accelerate [Strategic Electrification](#) in the Northeast published by Northeast Energy Efficiency Partnerships (NEEP), identified heat pumps and Variable Refrigerant Flow (VRF) systems as key technologies needed to heat and cool buildings without relying on fossil fuels. Here are two of the ways VRF systems from Mitsubishi Electric Trane HVAC US (METUS) help engineers solve Strategic Electrification's challenges.

## WORKS IN ANY CLIMATE

With VRF systems, fuel switching from oil to support Strategic Electrification is feasible even in cold climates. [CITY MULTI® VRF Systems](#) are available with Hyper-Heating INVERTER® (H2i®) technology and can provide heating at temperatures as low as -31°F with rated performance down to -22°F. VRF systems are also available in [water-source configurations](#) to limit derating and further increase efficiency in cold climates. With a design utilizing heat recovery and a natural gas boiler-heated water loop, here's how a water-source VRF system installed at the AC Marriott Hotel in Dublin, Ohio met the challenge of a 6°F degree day. Mike Machemehl PE, CEM, senior manager, commercial channel strategy, METUS, discussed the [application story](#) on [mitsubishipro.com](#). "When I checked the controls, not one of the boilers was running...from an energy savings and sustainability standpoint, that's a home run to have your boilers off when it's 6 degrees above 0 outside."



## VARIABLE CAPACITY FOR VARIABLE GENERATION

VRF systems mitigate the challenge of [variable generation](#) with variable capacity. By using the precise amount of electricity needed to keep each zone at its set point, VRF systems prove ideal for applications utilizing [non-dispatchable](#) energy sources like wind and sunlight. Through continuous operation VRF outdoor units eliminate the energy-intensive start/stop cycle of conventional HVAC systems and can be up to 40% more energy efficient. To learn more visit [mitsubishipro.com](#).

## DESIGN FOR COLD CLIMATES WITH H2I® TECHNOLOGY

[CITY MULTI® N-GENERATION R2-Series H2i](#) models from METUS are now available for design in Diamond System Builder™. Equipped with Hyper-Heating INVERTER® (H2i®) technology, these high-performance outdoor units provide personalized comfort control during severe cold without compromising energy efficiency. As part of the N-Generation lineup, these units offer up to 295 feet of vertical separation between outdoor and indoor units as well as a footprint reduced by up to 30% compared to the L-Generation.

### BENEFITS

- 100% heating capacity at -4° F, up to 85% heating capacity at -13° F and up to 70% heating capacity at -22° F
- Continuous operation down to -31° F
- 6, 8 and 10-ton single modules, along with 12, 16 and 20-ton twinned modules
- Supports up to 48 indoor units per outdoor unit
- New 4-sided heat exchanger, compressor and fan blade design to improve nominal and seasonal efficiency levels



## METUS ON-DEMAND WEBINAR



### OPTIMIZED VENTILATION FOR HIGH-PERFORMANCE BUILDINGS

This presentation discusses how energy recovery ventilators and dedicated outdoor air systems work in concert with VRF systems to satisfy ventilation codes and standards including ASHRAE 62.1.