



HEAT PUMP ELECTRIFICATION SOLUTION BRIEF

As utilities increasingly plan for beneficial electrification—the process of migrating traditionally fossil fuel-intensive activities to greener electric power sources—as part of their grid decarbonization strategies, EVs are receiving much of the attention.

But energy use in building operations contributes approximately 27% of global CO₂ emissions—much of which results from heating and cooling. Transitioning more heating and cooling systems to efficient electric appliances presents a significant opportunity for energy providers to advance their beneficial electrification goals.

Heat pumps, long considered to be effective only in warmer climates, have advanced significantly in recent years, becoming viable even in all but the coldest of climates.

Under the right conditions, modern heat pumps can transfer approximately 300% more energy than they consume by moving heat energy between ambient outside air and the interior of a home. This level of efficiency is significantly higher than gas furnaces, which deliver only 95% of the energy they consume as heat through burning fuel.

Yet according to the [IEA](#), although heat pump sales are increasing significantly, “heat pumps still meet only around 10% of the global heating need in buildings.”

Heat pumps present a significant efficiency and electrification opportunity for today’s energy providers, but upgrading an HVAC system to a heat pump is a significant commitment for consumers. Utilities must effectively engage, educate, and incentivize customers in order to reap the benefits of heat pumps for their beneficial electrification programs.

Bidgely’s UtilityAI™ analytics—backed by 17 energy-specific data science patents—and our portfolio of modern energy customer engagement tools can equip utilities to find inefficient heating appliances on their grids, develop high-value target groups of customers for outreach, and then engage those customers with hyper-personalized insights and incentives to help inspire them to make the switch.

300%

Efficiency of modern heat pumps vs. 95% efficiency of gas furnaces

Heat pumps are important tech in utility decarb toolkits

HVAC Analytics: Finding Inefficiency Among Your Customers

Bidgely's HVAC analytics give utilities behind-the-meter visibility into the heating and cooling profile of each residence, based on 18 HVAC-specific disaggregation factors, to accurately detect the following heating and cooling appliance types:

HEATING

- Central furnace
- Baseboard
- Packaged Terminal Air Conditioner (PTAC)
- Air Source Heat Pump
- Mini-Split
- Boiler
- Wood Furnace
- Ground-Coupled Heat Pump (GCHP)

COOLING

- Packaged Direct Expansion
- Mini-Split
- Split Direct Expansion
- Packaged Terminal Air Conditioner (PTAC)
- Air Source Heat Pump
- Ground-Coupled Heat Pump (GCHP)

Bidgely's latest HVAC model has been tested with 91% accuracy in predicting heating classes and 80% accuracy in predicting cooling classes—which enhances the value of heat pump program targeting and messaging to the customer.

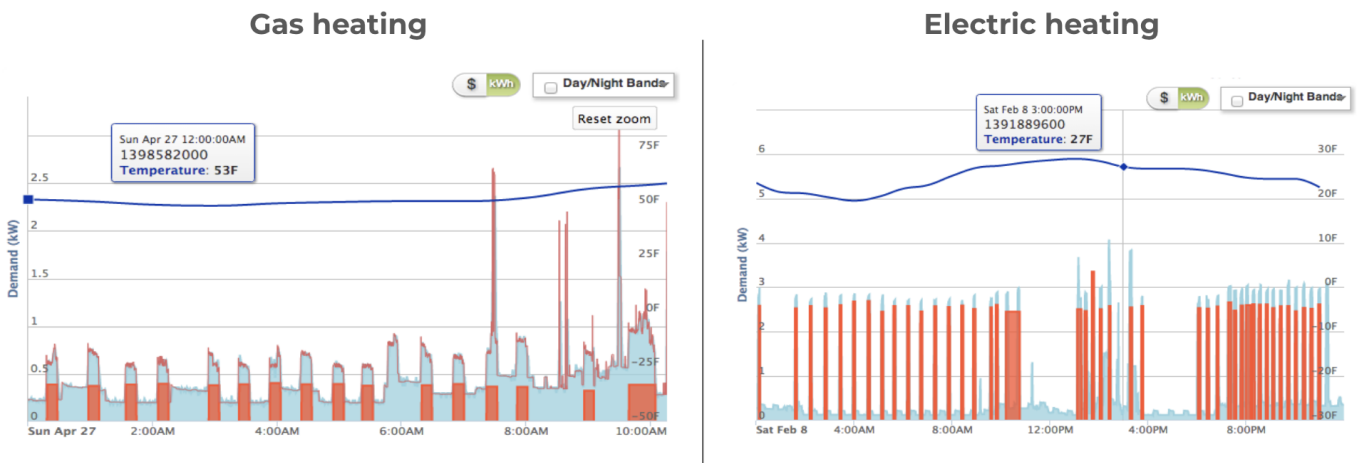
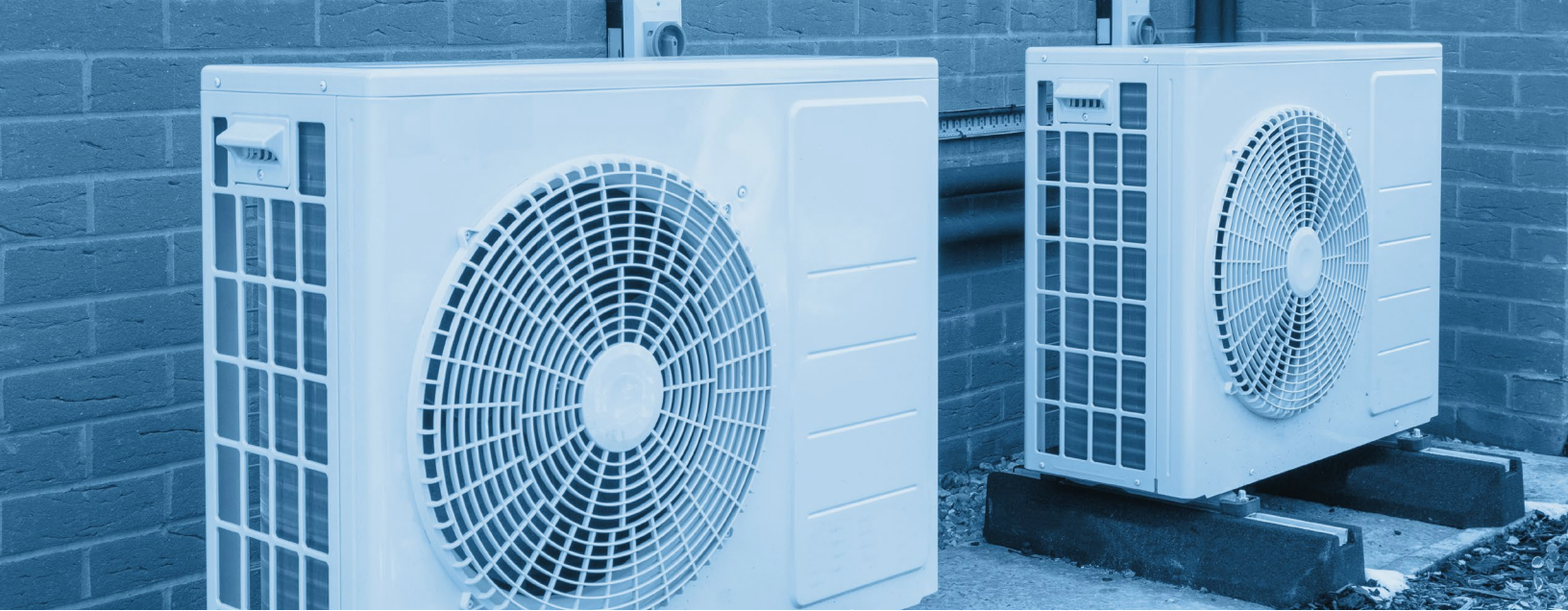


Figure 1: Bidgely's UtilityAI™ technology can distinguish appliance-level patterns to understand the heating profile of each customer.



Beyond appliance type, our solution is able to measure HVAC efficiency based on duty-cycle changes over time by capturing how frequently an HVAC compressor switches on and off in order to regulate the home's temperature.

To learn more about how the data science behind our HVAC solution works, read our R&D technical brief entitled [HVAC Type and Fuel Type Classification With AMI Data](#).



These insights are then delivered to utility staff through our Analytics Workbench tool, enabling them to segment, target, and tailor heat pump promotions to customers based on their unique needs and motivations.

This ability to pinpoint a degrading HVAC enables utilities to begin earlier informing and incentivizing customers to upgrade and then continue engaging them throughout the appliance-buying journey.

Engage Customers With Hyper-Personalization

Having a clear picture of each customer's heating and cooling activities and HVAC appliances, utilities can then promote the right products, services, and incentives to upgrade or switch to an efficient heat pump.

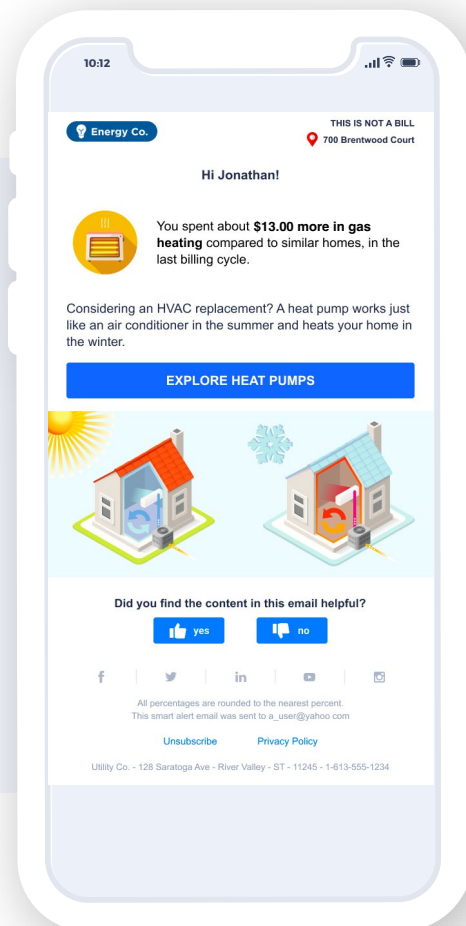
Bigdely's suite of modern customer engagement tools enables utilities to educate customers about heat pumps: how they work, potential cost savings, environmental benefits, incentives available, and more.

NEXT-GEN HERS

Personalized home energy reports show customers how current heating/cooling appliances and activities are impacting their monthly utility bills.

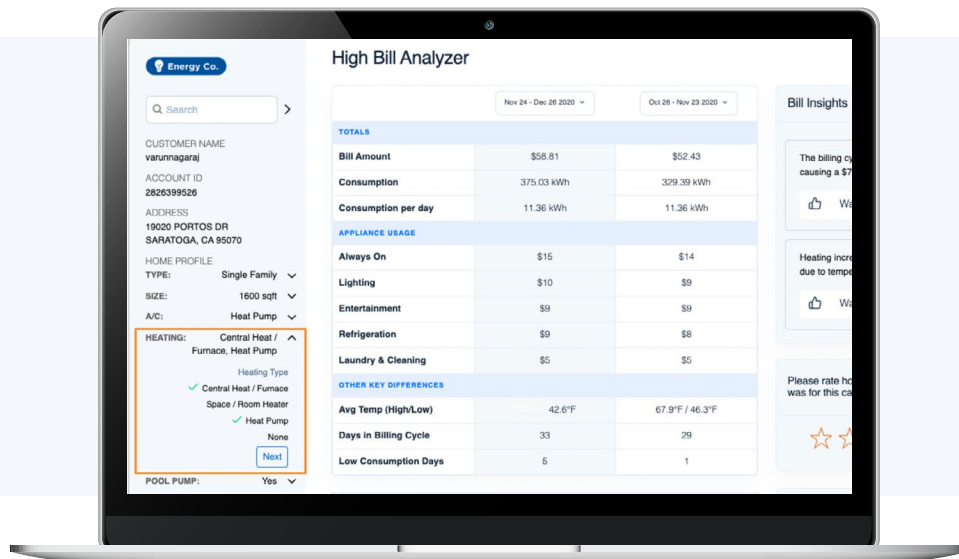
HEATING/COOLING SMART ALERTS

Send the right message at the right time as the seasons change or extreme temperatures impact customer bills. Include the right insights and incentives to drive action.



CALL CENTER AGENTS *Advisors*

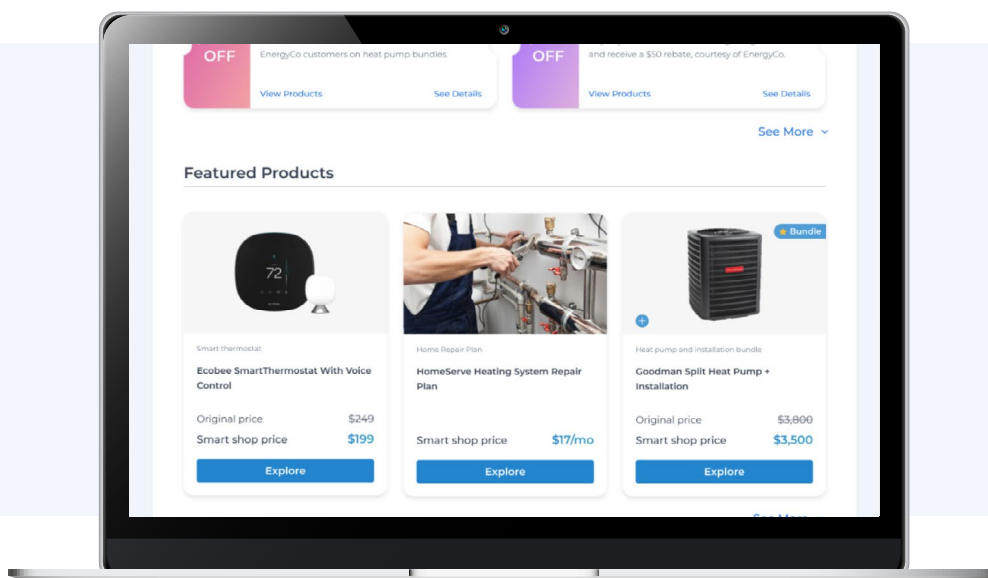
Give call center agents the information they need to become energy advisors when customers reach out with concerns about energy costs or inquire about promotions.



Win-Win-Win With Beneficial Electrification

Electrification of heating through heat pump adoption is a winning opportunity for consumers, utilities, and the planet. Consumers can reduce their carbon footprint while avoiding today's volatile gas prices. Utilities are able to increase decarbonization and grid reliability. And the energy burden of heating homes can be shifted away from fossil-fuel intense sources to greener options for electricity generation.

With our UtilityAI™ technology, Bidgely is providing the energy intelligence and customer engagement tools needed to help utilities deliver these results.



[Learn more](#) about Bidgely's UtilityAI™ Heat Pump Adoption and Beneficial Electrification Strategy.

[Learn more](#) about Bidgely's UtilityAI Powered Decarbonization strategy.