

Author: Hal Nelson, Res-Intel

Presentation Title: Just Transitions in the Multifamily Residential Sector: Improving Program Outcomes with Artificial Intelligence

Abstract: Many state and local jurisdictions in the US and Canada are leaping ahead with aggressive greenhouse gas emission reductions targets. Other regions will have to act soon in order to avert the looming climate disaster. Yet, these climate policies will create winners and losers. Low-income and historically marginalized households are the most vulnerable to both global warming and the adverse impacts from stringent climate policies. These vulnerabilities are potentially magnified among the multifamily residents because of the inconsistencies that exist between landlord and tenant incentives. In this presentation, we show how artificial intelligence (AI) is used to enhance equity and efficiency for a clean energy future. Making this leap will require improving outcomes for the multifamily residential (MFR) customer segment, though even the most advanced utilities only recognize only a fraction of their MFR customers. We present the MFR characterization for a California utility's entire service territory, created using our Benchmark.AI tool. Benchmark.AI creates intelligent predictions of MFR building energy use intensity and efficiency by integrating climate data, utility-supplied meter readings, parcel and property databases, aerial imagery and street-view digital photography. These data-sources combine to create a complete customer description, which can be used to enhance targeting of energy efficiency programs and marketing. With access to interval consumption data, we build on previous research that highlights the hourly electricity load shapes of customers in disadvantaged communities. Our analysis gives clearer program implications as load shapes are benchmarked against other MF complexes while controlling for building size and other attributes. We show how hourly energy benchmarking provides clear signals for a range of programmatic interventions targeting specific appliances, building envelope, and space conditioning equipment. Our panel presentation will include the Slido website for fun, interactive audience engagement. Consultants, utility representatives, academics, and local government specialists will benefit from our presentation.