



Memorandum

To: Maddie Koewler – NASEO (mkoewler@naseo.org)
From: Hal Nelson, Ph.D. – Res-Intel (Hal.Nelson@Res-Intel.com). 909.660.0109
Date: 18 May 2023
Subject: NASEO Request for Information (RFI) – Implementation Options for Home Energy Performance-Based Whole-House Rebate Program and High-Efficiency Electric Home Rebate Program

1. Res-Intel’s DEIA Initiatives

Residential Energy and Water Intelligence (Res-Intel) an energy-equity software company based in Portland, Oregon. The goal of our work is to help enable access to affordable and clean energy to all individuals, regardless of their socioeconomic background, race, gender, or physical abilities. Our work started with the underserved multifamily (MF) sector which is the most housing and energy insecure (Drehobl et al., 2020). Yet, as a society we know nothing about MF energy use. If you subscribe to the *Measure->Manage->Mitigate* truism, then it is only after we understand and have measured energy equity gaps can we then manage and mitigate them. Otherwise, unintended consequences and/or ineffective programs will be the result. Res-Intel’s mission cannot succeed without the input of diverse voices; and our approach of utilizing mass-scale analytics to help reduce carbon emissions and lower energy burdens only works with participation from the communities most affected. Dr. Hal T. Nelson, Res-Intel’s CEO, is pushing the boundaries of energy equity with his survey research on tenant displacement from building energy retrofits¹ as well as his survey research to Households of Color on what energy services they value.² Dr. Nelson, in his role as a professor at Portland State University includes his Anti-Racist Policy Professional module in his classes. This module identifies institutional racism and provides managerial tools to mitigate it. More on our organizational DEIA practices can be found in our Category 2 response.³

2. Multifamily Whole Building Retrofit Program Planning and Implementation in California

This year, Res-Intel will benchmark more MF properties’ energy use (~100,000) than the EPA’s Portfolio Manager. We are able to do this because Res-Intel is working with all electric investor-owned utilities (IOUs) in California to improve the effectiveness and efficiency of their new Multifamily Whole Building (MFWB) retrofit program.⁴ The program offers “end-to-end treatment of the entire building by developing treatment plans that combine in-unit, common area, and whole building measures”. The program targets low-income customers in disadvantaged communities as well as other customer segments including medical baseline, “hard-to-reach”, disadvantaged, rural, tribal areas, and others.

3. Company Summary

Through our collaboration with California utilities, Res-Intel has developed the Residential Characterization Tool that integrates public property data with utility energy data to automate energy analytics at the property-level.⁵ It enables low-income programs to “get to know” every residential property in a city/county/state, revealing information that is otherwise nearly impossible to obtain. The Tool is part of Res-Intel’s Benchmark.AI software that performs building energy benchmarking, energy disaggregation, and customized energy efficiency (EE) recommendations that are used to identify and target high-priority properties for resilience, electrification, and EE retrofits. We use utility billing data to

¹ Nelson, H., Brey, A., Ahrens, P. (2022). Nothing For Us Without Us: Affordability Covenants and Resident Preferences for Energy Efficiency Retrofit Programs. Paper presented at the 2022 Summer Study on Energy Efficiency in Buildings. 21-26 Aug. ACEEE.

² https://bit.ly/Tenant_Displacement

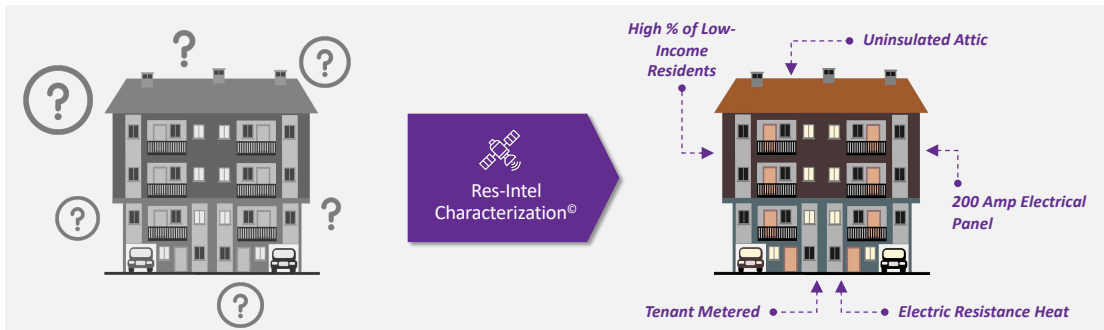
³ https://bit.ly/Households_of_color

⁴ https://bit.ly/Res-Intel_NASEO


⁵ <https://mcp.customerapplication.com/>

⁵ <https://res-intel.com/solutions/>

estimate actual energy-use (preferred), or if that is not available, then we can use public ResStock end-use load profiles matched to each residential property.⁶



- Unlike other providers that focus only on detached single-family properties, our Tool covers 2-4 unit and 5+ unit multifamily sectors. We can focus on naturally occurring affordable housing (NOAH) because deed-restricted low-income housing is newer, more efficient, and has existing retrofit programs.⁷
- Res-Intel can perform mass-scale building energy benchmarking that can be used for low-cost compliance with benchmarking and building performance standards programs by NOAH property owners.
- Res-Intel provides MF property and building inventories as part of analytics. Due to flaws in the US Census methodology⁸ (and duplicative CoStar and county assessor property records), no one knows how many MF properties are in any given jurisdiction. Occupied building inventories using building footprints are further needed to accurately stratify MF properties for EE stock assessments
- Our analytics include: 1) Energy disaggregation into heating, cooling, and baseload energy use, 2) Annual rooftop solar photovoltaic kWh generation potential for Net-Zero property retrofits, 3) Predictions of electrical panel size (amps), 4) Properties where electrical panel upgrade deferrals are possible using EE retrofits and solar PV, 5) Predictions of existing equipment such as central air conditioning, attic insulation and other energy end-uses, 6) Customized EE, electrification, resilience, and demand response measures for each residential property, 7) Low-cost electrical vehicle charger installations.
- A program administration and implementation dashboard that visualizes all of the above planning data for program stakeholders to perform remote audits without having to roll a truck.
- A public dashboard without any personally identifiable information to be used by community-based organizations and contractors to reach out to the highest energy users in disadvantaged communities, including: best customer contact information gleaned from property databases, lead lists of properties that are in need of electrification and weatherization that can be disseminated to trade allies.
- A community-based social marketing tool that integrates with the dashboard.⁹

Res-Intel authorizes NASEO to publish and distribute this response to the NASEO RFI on its website and through other means to the states and general public. We have included no confidential or proprietary information in our response.  Hal T. Nelson, CEO of Res-Intel, 18 May 2023

⁶ <https://resstock.nrel.gov/>

⁷ https://bit.ly/Res-Intel_MF_EE

⁸ https://www.census.gov/content/dam/Census/programs-surveys/ahs/tech-documentation/2017/AHS_2017_Structure_Type_Estimates.pdf

⁹ <https://res-intel.com/wp-content/uploads/Res-Intel-Energize-Overview.pdf>