## NASEO RFI - Implementation Options for HOMES and HEEHR

Radiant Labs (in partnership with Snugg Home) 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.

Áðam Stenftenagel CEO





## **Category 2: Program Elements**

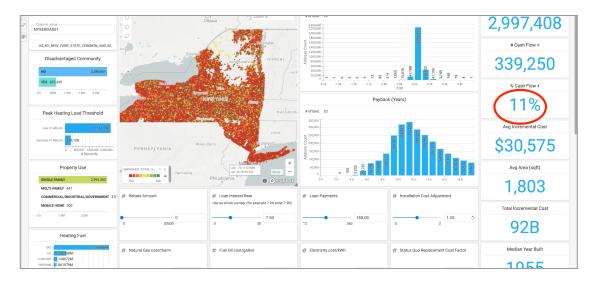
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Radiant Labs builds large scale analysis of entire cities and states to help with program design and customer targeting as well as consumer facing tools for customer education and engagement. We've deployed our platform for cities such as Boulder, Berkeley and San Francisco as well as the state of NY for NYSERDA. Our platform helps programs understand the impacts of rebates, financing, contractor education, workforce development, and energy prices on the economics of home energy upgrades.

We build hourly energy models of all homes in a community, state, or utility territory and can do so with as little information as an address. Our analytics dashboard allows a state agency or consultant to filter by hundreds of data points such as income, disadvantaged communities, and building types. In addition the platform can be used for customer targeting down to the individual address level, highlighting the best homes for various improvement packages. In many areas, we have historical building permits that allow us to forecast equipment replacements, such as furnaces, on a home-by-home basis. This allows agencies to target homes proactively to minimize emergency replacements. These emergency replacements often result in poorer economics and the homeowner burning fossil fuels for another 15 years. If utility bills are obtained in bulk, models can be calibrated. Otherwise, the platform is fully virtual, with no observed data necessary.

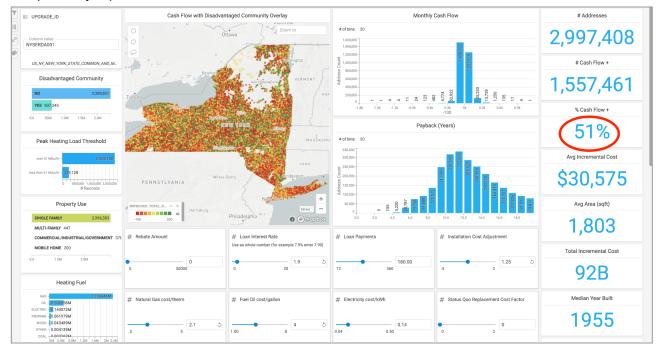
The following are screenshots of our analytics platform. Monthly cash flow is the focus of these charts. Cash Flow Positive means the monthly payments on the loan for the improvements are less than the average monthly savings on the utility bills. The improvement package modeled here includes attic insulation, air sealing, heat pumps for space heating and cooling, and a heat pump water heater.

This first screenshot shows all 3 million single family homes in the state of New York and only 11% of them as cash flow positive when there are \$0 rebates and 7.5% interest financing.

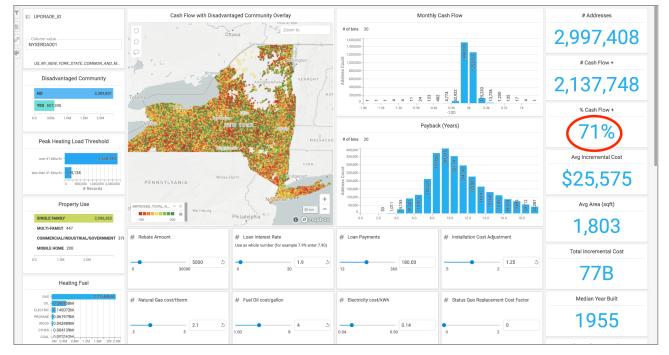




Here is the same scenario but with 1.9% interest financing. Notice that the percentage of homes that are cash flow positive jumps from 11% to 51%.

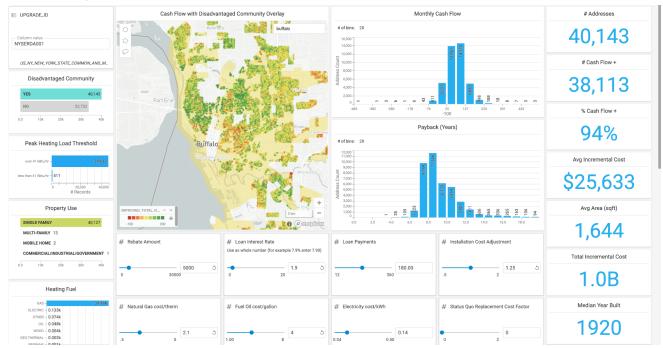


Next we add a \$5,000 rebate. 71% of the homes in the state would be cash flow positive in this scenario.





This slide zooms in to Buffalo, NY and shows the disadvantaged communities (DAC) layer in light yellow overlayed with the homes and only DAC homes selected.

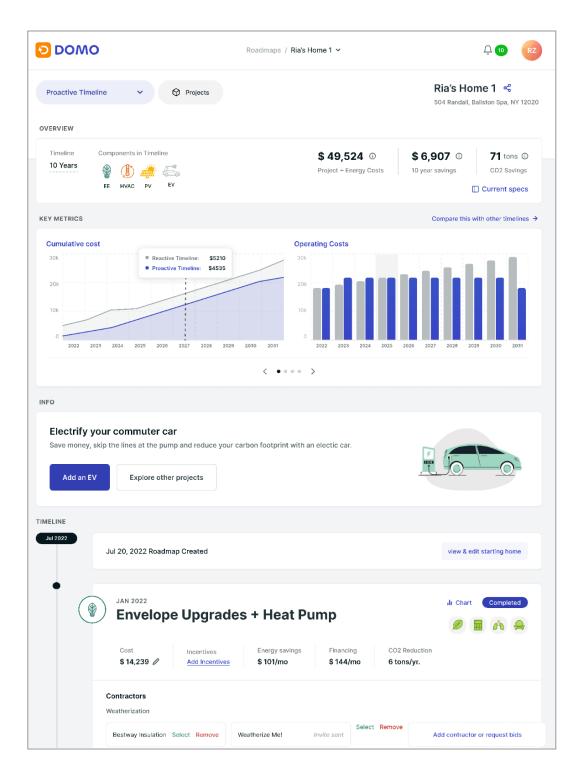


The final screenshot shows the customer targeting. We've selected only the homes that have a payback of less than 8 years. (We've blurred the customer names and addresses for privacy):

0.0 5.0k 10k 15k 20k				-100	% Cash Flow +
Peak Heating Load Threshold over 41 kBluevr  were 41 kBluevr  property Use SINCLE FAMELY 22,476 22,475			Payback (Years)		100% Avg Incremental Cost \$26,386 Avg Area (sqft) 1,890
MULTI-FAMILY 9 COMMERCIAL/INDUSTRIAL/GOVERNMENT 1	# Rebate Amount	# Loan Interest Rate	# Loan Payments	# Installation Cost Adjustment	1,090
MOBILE HOME 1	0 30000 5	Use as whole number (for example 7.9% enter 7.90) 0 0 20 1.9 5 5 5 5 5 5 5 5 5	• 180.00 12 360	.5 2 1.25 Č	Total Incremental Cost
Heating Fuel					
GAS - 22.319k ELECTRIC - 0.12k OIL - 0.046k	# Natural Gas cost/therm	# Fuel Oil cost/gallon	# Electricity cost/kWh	# Status Quo Replacement Cost Factor	Median Year Built
OTHER - 0.003k PROPANE - 0.001k 0k 4k 8k 12k 16k 20k 24k	.5 5 2.1 5	1.00 8 4 5	0.04 0.50 0.14	0 2	
					Owner Occupancy %
Year Built	Target Customers           OCCUPANT_NAME_FIRST         OCCUPANT_NAME_LAST         PROPERTY_ADDRESS_FULL         21mproved Cash Flow         HVAC_HEATING_FUEL           Buffalo NY 14206-1408         151.7         GAS         CASH				78%
1950s - <mark>1.308k</mark> 1960s - <mark>0.133k</mark>	NI NI	B	8uffalo NY 14214-2729 145.29 ffalo NY 14210-2121 157.53	GAS GAS	Total Assessed Value (\$)
1980s - 0.036k 1990s - 0.033k		Buffalo	NY 14206-2033 75.23 lo NY 14214-1109 115.56	GAS GAS	1.1B
1970s - 0.02k 2000s - 0.012k	100 100	Buffalo Buffalo NY	NY 14220-1402 76.41 14207-2827 83.32	GAS GAS	
2010s - 0.002k	47 100	Buffalc	NY 14211-2531 90.41	GAS	Avg Assessed Value (\$)
0k 4k 8k 12k 16k 20k	NUM UNI DAMAN NUM	Buffalo	lo NY 14210-1633 154.49 NY 14206-3223 104.51	GAS GAS	\$50,175
State + County	MIL MIL	Buffalo N	IY 14207-2142 74.93	GAS	



This is a view of our consumer facing tool called Domo. It is a DIY interface for homeowners that provides a detailed long term cash flow analysis for home energy retrofits and will include all potential rebates and incentives available through HOMES and HEERH as well as any available utility or local rebates. A Domo roadmap can be deployed for every targeted home in our analytics platform and we can push those leads to contractors.





## **Category 3: Indication of Vendor Interest**

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## Services available to aid in the execution of HOMES and HEEHRA:

- Hourly energy modeling of every address in a state deployed through our data analytics dashboard that assists in program design and customer targeting.
- Model multiple SEO defined improvement packages for all addresses in the state
- Consumer education and engagement through our virtual audit tool Domo