Artificial Intelligence, Real Savings

ICF's Approach to Data-Driven Decision Making with AI

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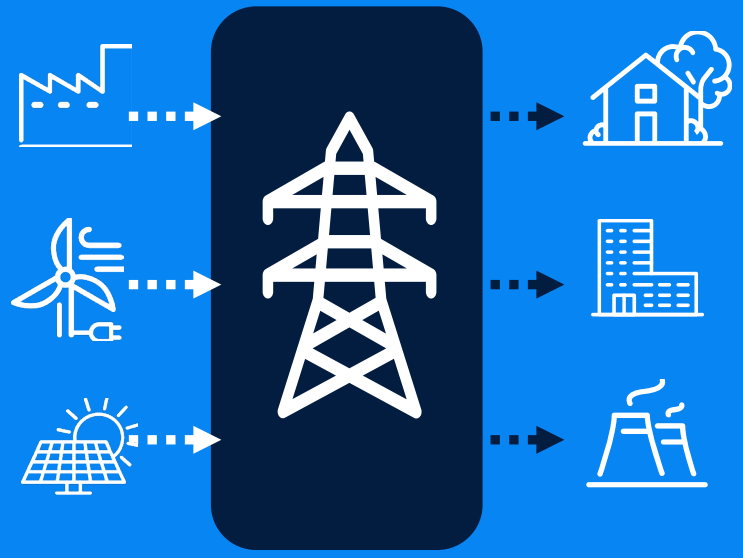
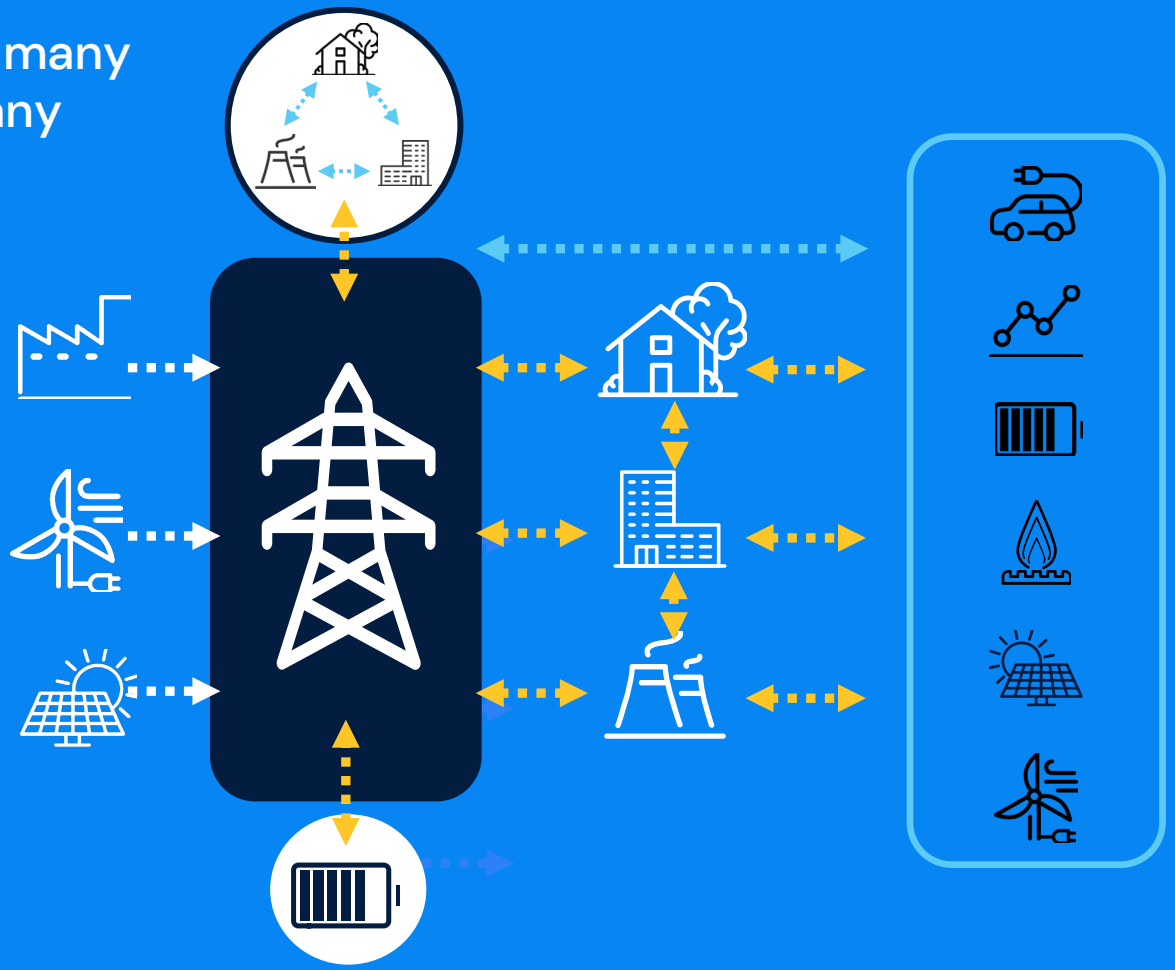
Utility industry is moving to an “Orchestrated Decentralization” Model

From one to many



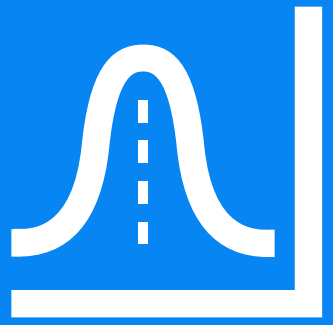
From many to many



This has implications for:

- DER integration & electrification, decarbonization
- Grid modernization
- Reliability & resiliency
- Utility program design
- DER value realization
- Affordability and equity

How can we….



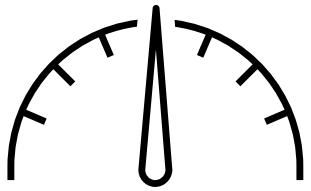
Manage the load growth from building and transportation decarbonization?

Optimize the charging and dispatch schedules of controllable devices?

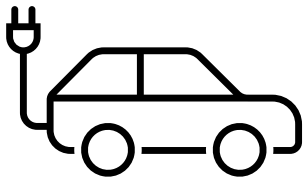
Match customers with the best measures to help the customer and utility?

Stay on top of the constant change that our industry is facing?

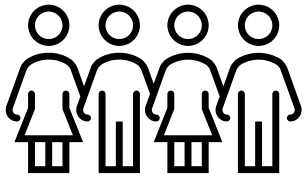
Necessary Ingredients to a Successful AI Implementation



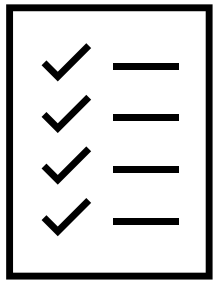
AMI



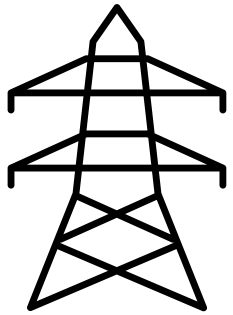
Telemetry



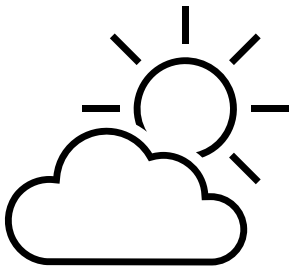
CIS



Participation

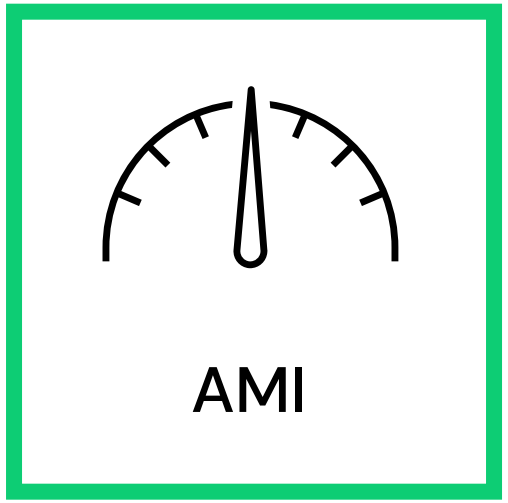


Topology



Weather

Large Amounts of Data



35,040

Data Points per Meter/Year

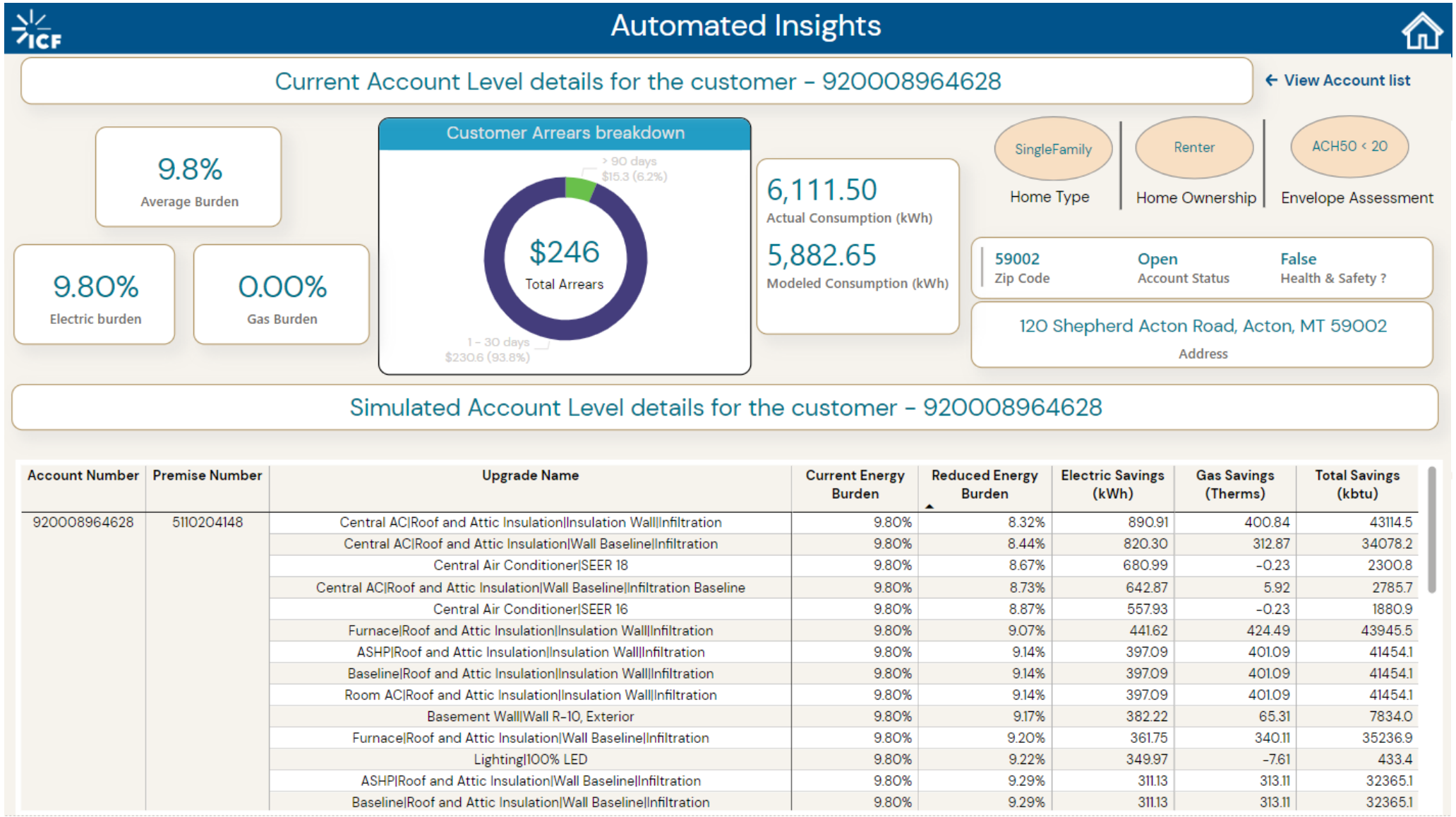
17.52B

Data Points per Year for a Utility with 500,000 Customers

Necessity of Cloud Computing

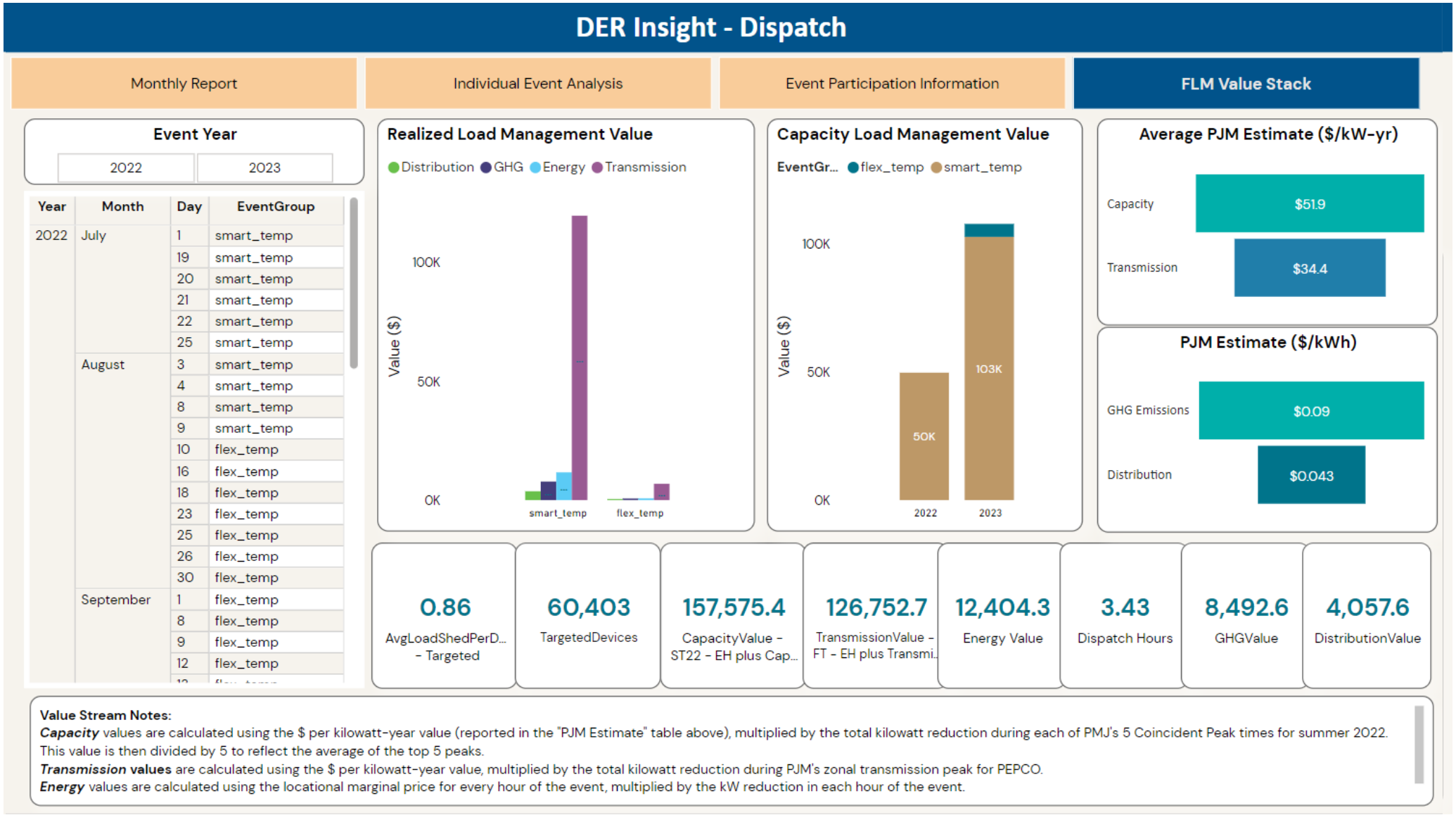
How does ICF use this data to build platforms that help utilities make decisions?

All of the following slides are demonstrations that do not contain PII or client data.

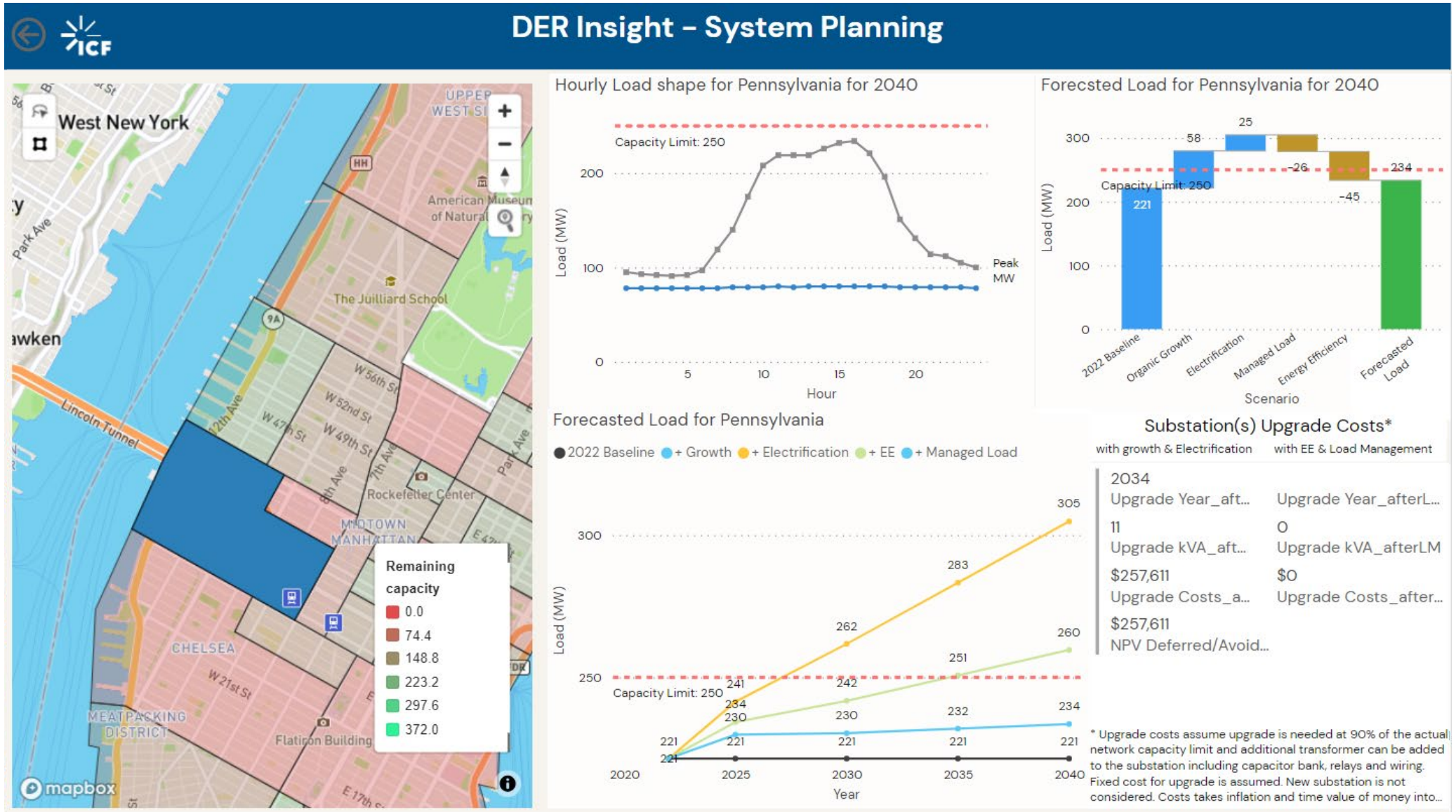


Account Number	Premise Number	Upgrade Name	Current Energy Burden	Reduced Energy Burden	Electric Savings (kWh)	Gas Savings (Therms)	Total Savings (kbtu)
920008964628	5110204148	Central AC|Roof and Attic Insulation|Insulation Wall|Infiltration	9.80%	8.32%	890.91	400.84	43114.5
		Central AC|Roof and Attic Insulation|Wall Baseline|Infiltration	9.80%	8.44%	820.30	312.87	34078.2
		Central Air Conditioner|SEER 18	9.80%	8.67%	680.99	-0.23	2300.8
		Central AC|Roof and Attic Insulation|Wall Baseline|Infiltration Baseline	9.80%	8.73%	642.87	5.92	2785.7
		Central Air Conditioner|SEER 16	9.80%	8.87%	557.93	-0.23	1880.9
		Furnace|Roof and Attic Insulation|Insulation Wall|Infiltration	9.80%	9.07%	441.62	424.49	43945.5
		ASHP|Roof and Attic Insulation|Insulation Wall|Infiltration	9.80%	9.14%	397.09	401.09	41454.1
		Baseline|Roof and Attic Insulation|Insulation Wall|Infiltration	9.80%	9.14%	397.09	401.09	41454.1
		Room AC|Roof and Attic Insulation|Insulation Wall|Infiltration	9.80%	9.14%	397.09	401.09	41454.1
		Basement Wall|Wall R-10, Exterior	9.80%	9.17%	382.22	65.31	7834.0
		Furnace|Roof and Attic Insulation|Wall Baseline|Infiltration	9.80%	9.20%	361.75	340.11	35236.9
		Lighting|100% LED	9.80%	9.22%	349.97	-7.61	433.4
		ASHP|Roof and Attic Insulation|Wall Baseline|Infiltration	9.80%	9.29%	311.13	313.11	32365.1
		Baseline|Roof and Attic Insulation|Wall Baseline|Infiltration	9.80%	9.29%	311.13	313.11	32365.1

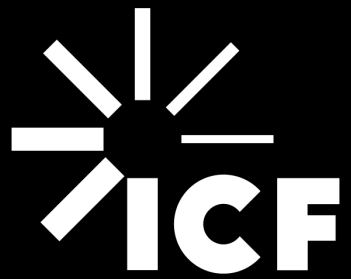
Recommendation Engine: Optimize Customer Programs



Continuous Learning: DER Dispatch Optimization



Forecasting: DER/EE Adoption and Optimization



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