

Hilltop+ Layered Energy Modeling

The illustration represents the multi-layered approach used in the Hilltop+ platform to model and simulate distributed energy systems, enabling informed, economically sound decisions for utilities, planners, and policymakers. Each layer builds upon the next, creating a full-stack view of how the electric grid interacts with users, technologies, and future scenarios.

1. Grid Infrastructure

“Can this grid support added demand or generation?”

This foundational layer represents the physical utility grid:

- **Poles and wires, transformers, power plants, and substations**
- These assets define the capacity, connectivity, and operational constraints of the distribution system

Hilltop+ uses this layer to map realworld electric infrastructure and serve as the anchor for all simulations.

2. Electricity User Profiles

“What does my current load landscape look like, and how flexible is it?”

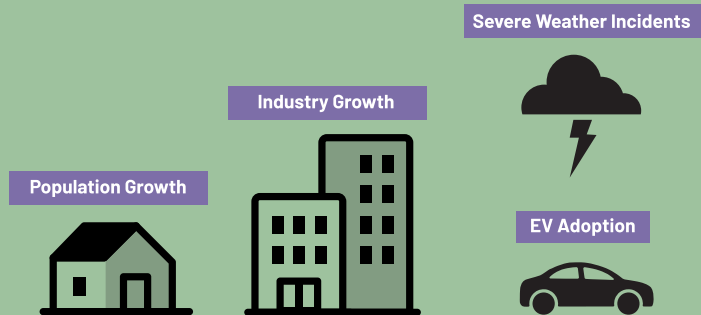
Sitting on top of the infrastructure layer is how energy is consumed:

- **Homes, businesses, industries, data centers, EV chargers, and lighting**
- Each user type has a distinct **load profile** based on behavior, appliance usage, and operational patterns

Hilltop+ allows utilities to input or simulate customer types and usage curves.



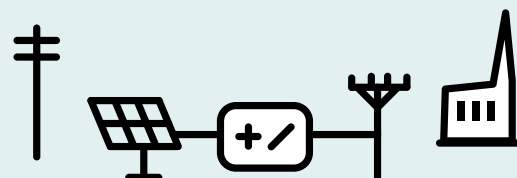
4 AI Generated Energy Profiles



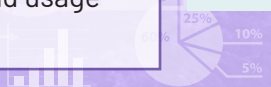
3 Distributed Energy Resources



2 Electricity User Profiles



1 Grid Infrastructure



3. Distributed Energy Resources

“Where can we place DERs for resilience or savings?”

This layer introduces the DERs:

- **Solar panels, wind turbines, generators, battery storage, and microgrids**
- These resources can offset local demand, store energy, or feed it back into the grid

Hilltop+ allows you to **insert, size, and place DERs** to simulate how they perform on specific circuits or in specific communities.

4. Artificial Intelligence-Generated Energy Profiles

“How would my grid handle a surge in EVs, a winter storm, or a new Amazon facility?”

At the top layer, we introduce forecasting and hypothetical modeling:

- **Simulate EV adoption, severe weather incidents, industrial expansion, or population growth**
- AI-generated data augments reality to help **plan for 5, 10, or 20 years out**

Hilltop+ can inject artificial datasets to forecast load, generation, and stress scenarios.

Hilltop+: A Simulation Engine for Smart Decision-Making

The true power of Hilltop+ lies in how these layers interact:

- It enables **visualization** and **simulation** of complex energy systems
- Helps utilities and planners **test real-world deployments before they spend a dollar**
- Informs **strategic investments, rate design, resiliency upgrades, and grid modernization**

With Hilltop+, you don't just plan for tomorrow—you model it today, with confidence.



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