



Tribal Housing Development:

Flexible Interconnection Unlocks Capacity Years Earlier

Project Name:

Speed-to-Power Capacity Bridge

Developer:

BoxPower Inc.

Project Status:

In Development

Contact:

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The Problem

A voltage-constrained feeder serving a reservation in Northern California is standing between the Tribe and a new housing development. The site is prone to grid outages and the conventional fix, a feeder upgrade, is a five-year plus, capital-intensive utility project.

The default fallback, temporary rental generators, doesn't solve the issue either: they're expensive to run for years, come with their own local permitting friction, polluting, and there's no return on the Tribe's investment when the lease ends.

Under Pacific Gas & Electric's (PG&E) new flexible interconnection program called Flex Connect, PG&E will connect a new load ahead of the feeder upgrade, but only against a capacity ceiling that moves with grid conditions. The customer must prove, minute by minute, that they're under that limit. The conventional way to stay beneath a moving ceiling is to throttle the load. For a housing development, that means rationing residents' power whenever the grid is tight, which defeats the reason for connecting in the first place.

The Solution

Instead of making the development flexible, BoxPower makes its *draw on the feeder* flexible. The homes run at full demand around the clock; onsite solar and storage absorb the difference between what the development needs and what the feeder is allowed to deliver at that moment. PG&E sees a load that always respects its limit, and residents see a normal grid. Under PG&E's program, BoxPower can accelerate this project by 5+ years.

The system is a 500 kW solar array paired with a 963 kW / 1,927 kWh battery, dispatched by BoxPower's dynamic operating envelope (DOE)-capable controller. The same system does three jobs at once: it bridges the interconnection gap, backs up an outage-prone site, and offsets energy cost as an asset the Tribe still owns long after a conventional feeder upgrade would have arrived.

- ★ PG&E issues a day-ahead schedule of hourly capacity limits and can tighten them in real time as grid conditions change.
- ★ The controller reads each limit, compares it against live site demand, and dispatches solar and battery to hold net feeder import below the ceiling automatically, with no load shed and no operator in the loop.
- ★ When demand sits below the limit, the battery recharges from solar and off-peak grid, staged for the next peak window.
- ★ If the feeder drops, the system islands and keeps the development powered through the outages the site is otherwise prone to.

Staying inside the operating envelope is PG&E's *condition of connection*: a sustained breach puts the interconnection at risk. The key project deliverable is that BoxPower operates to that compliance standard continuously, and carries the risk, under a turnkey contract spanning EPC through long-term O&M.

Why This Model Travels

Interconnection queues are jammed because utilities typically only approve connections sized to worst-case peak-hour capacity.

Flexible interconnection changes that equation, but only if the customer can demonstrate real-time compliance with the utility's operating envelope. Typically, that has meant scaling back operations when the feeder tightens, which solves the connection problem at the cost of the operations it was supposed to serve.

BoxPower's model avoids that trade-off. The utility gets the real-time compliance it needs; the customer doesn't sacrifice throughput to get it due to BoxPower's controller and ability to respond to utility signals. That pattern holds whether the load is a new housing development or a data center that can't tolerate years of delay before going live.



Modeling the economics at scale

An illustrative 20 MW inference data center shows the same pattern at scale: a ~\$29M battery bridge captures roughly \$37M/yr of otherwise stranded compute profit, about \$100M in NPV, with payback in less than a year.

\$100M
NPV

<1 year
Payback Period

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