REDUCE INDUSTRIAL DEMAND CHARGES WITH CONTINUOUS ONSITE POWER

How continuous onsite microturbine generation helps manufacturers reduce demand charges, lower utility costs, and improve energy resilience.

Understanding the Demand Problem

For many industrial facilities, demand charges have quietly become one of the largest contributors to monthly electricity costs. Yet unlike energy consumption, demand charges are driven by a single 15-minute peak in power usage, meaning a brief production spike can increase costs for an entire month. This whitepaper explores how continuous onsite generation can help reduce those costs while improving reliability and operational efficiency.

30% -70%

30-70% of C&I electric bills driven by demand charges (NREL)

$10 -$22

$10-$22 per kW/ month typical industrial demand charge rate

333 kW

333 kW continuous baseload per Flex Turbine® GT333S unit

15 MIN.

Utility demand measurement window-one spike sets the monthly rate

99% +

Flex Turbine® fleet mechanical availability for continuous baseload

You're Paying a Tax on Your Busiest 15 Minutes

For most North American industrial manufacturers, the electricity bill has two very different components. The first is the consumption charge — what you pay per kWh for every hour of operation. The second, and often the more punishing, is the demand charge — a monthly fee based on the single highest 15-minute average power draw recorded during the billing period, typically charged at $70-$22 per kW. A single morning startup surge, a simultaneous equipment run-up, or a brief production peak can define your demand charge for the entire month.

According to National Renewable Energy Laboratory (NREL), demand charges represent 30-70% of a typical C&I electric bill — meaning the majority of what many manufacturers pay for power is not correlated to how much energy they actually use, but to when they use it. Reducing peak demand is often the single highest impact lever available for cutting total energy spend.

The Microturbine Baseload Advantage

A Constant Offset That Changes the Demand Math

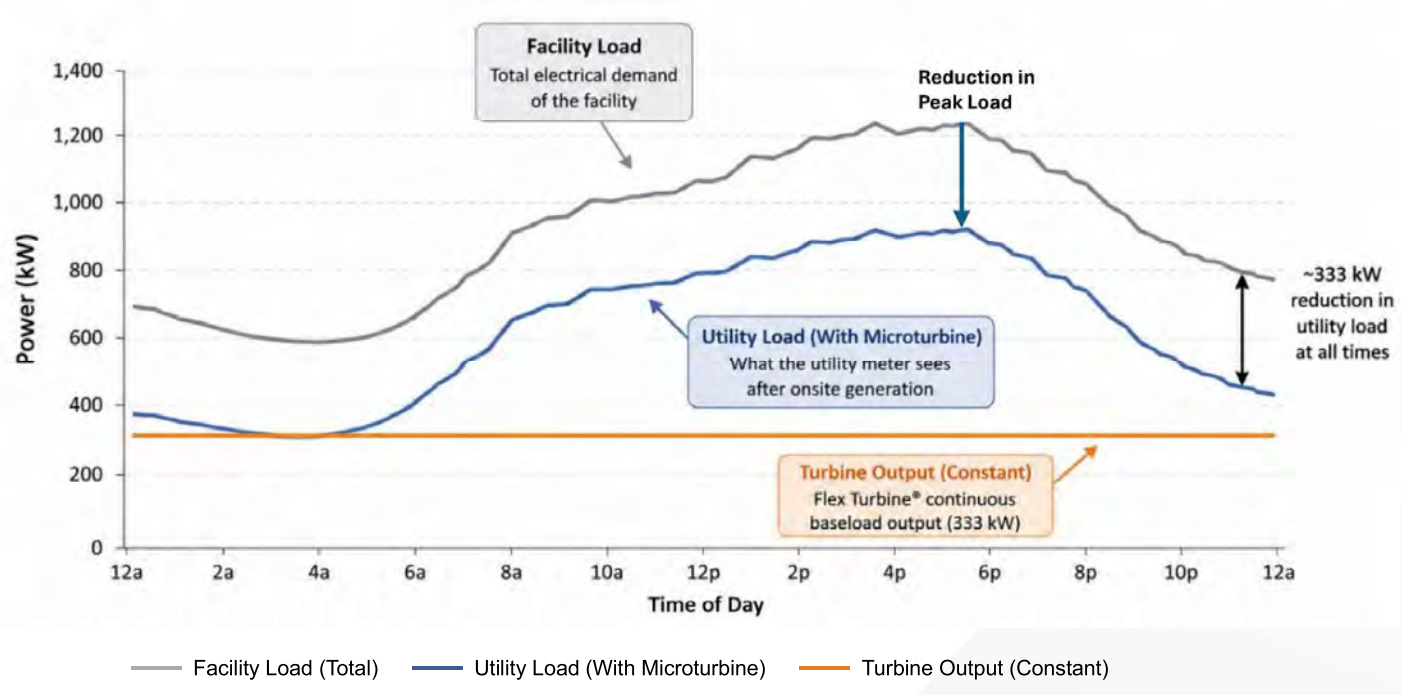
Unlike diesel generators held in reserve or battery systems that require recharging windows, FlexEnergy's Flex Turbine® operates as a continuous on-site baseload generator — running 24 hours a day, 7 days a week. In grid-parallel mode, it dispatches 333 kW of steady electricity directly onto the facility bus, reducing the net load seen at the utility meter in every single 15-minute measurement window.

The mechanism is straightforward: the utility meter sees only what the facility draws from the grid — total facility load minus what the Flex Turbine® is generating onsite. A 333 kW turbine running continuously reduces the metered peak by 333 kW regardless of when that peak occurs. This is load transfer — systematically moving baseload from the utility meter to on-site generation, every hour of every day.

Demand Curve: Before and After Microturbine Baseload

How Continuous Onsite Power Reduces Utility Demand

Continuous onsite generation lowers your metered demand in every JS-minute interval.



- **The microturbine's constant output permanently lowers the metered demand.**
- **Every 15-minute interval. Every shift. Every day.**

Turn Peak Demand Into Long-Term Savings

The example below illustrates how a single 333 kW Flex Turbine® can reduce a facility's metered peak demand and create recurring annual savings. Actual results will vary based on utility tariff, operating profile, and site load.

Illustrative Annual Savings Model	
Facility peak demand (metered)	1,000 kW
Flex Turbine® baseload offset	333 kW
New metered peak demand	667 kW
Demand charge rate	$15/kW/mo
Monthly demand charge savings	$4,995/kW/mo
Annual demand charge savings	**~$60K/yr**
+ TOU energy cost savings	**Additional**
+ Boiler fuel offset (CHP heat)	**Additional**

Illustrative example only. Actual savings depend on local tariff structure, load profile, and operating hours. Contact FlexEnergy for a site-specific analysis.

How Load Transfer Works

Without Onsite Generation

Your utility meter sees 100% of your facility's electrical demand. The highest 15-minute average demand recorded during the billing period sets your monthly demand charge. Even a brief production surge can increase costs for the entire month.

With Continuous Onsite Generation

A Flex Turbine® operating in grid-parallel mode continuously supplies 333 kW of onsite power. Because the turbine serves part of the facility's electrical load, the utility meter records only the remaining demand. Every 15-minute measurement window starts 333 kW lower, reducing peak demand charges without changing production schedules or shifting loads.

Where CHP Adds Even More Value

Demand charge reduction alone often justifies onsite generation. When Combined Heat and Power (CHP) is added, facilities unlock a second layer of savings by converting exhaust heat into useful thermal energy for process heating, hot water, steam, or absorption chilling.

Where the Savings Come From: Three Overlapping Cost Reduction Mechanisms

Savings Lever	Charge Type	Typical Rate	Microturbine Impact
Demand Charge Reduction	$/kW/month	$70-$22/kW	**Each kW shaved saves $120-$264/yr; 333 kW unit = $40K-$88K/yr potential**
TOU Peak-Hour Avoidance	¢/kWh premium	2x-3x off-peak rate	**On-site baseload generation eliminates highest-cost kWh purchases during daytime peak windows**
Coincident Peak Avoidance	$/kW/year	Significant in some tariffs	**Grid-parallel microturbine lowers metered demand at utility measurement intervals (15-min windows)**
Thermal Offset (CHP)	$/MMBtu	Boiler fuel cost	**Up to 545 kW of recovered exhaust heat displaces boiler fuel - a third savings stream layered on top of demand savings**

Demand charge savings based on $70-$22/kW/month rates across North American industrial tariffs. CHP thermal offset adds a fourth savings stream not captured in demand charge calculations alone.

Ideal Candidate Profile

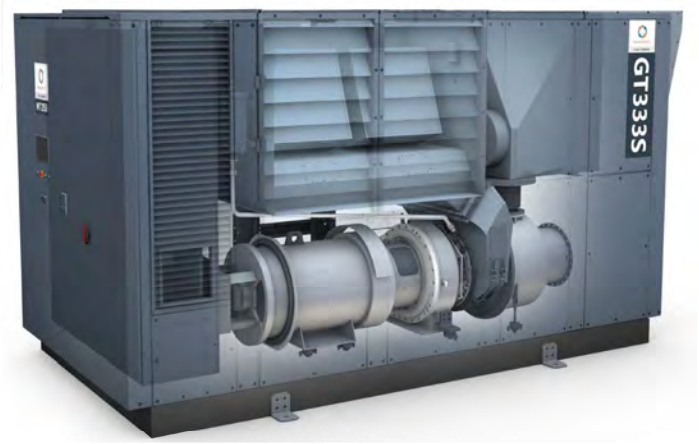
When Microturbine Peak Shaving Delivers Maximum Value

- Demand charges represent more than 20% of monthly electric bill
- Facility operates two or more production shifts (5,000+ hours/year)
- Coincident peak charges apply (utility bills based on system-wide peak contribution)
- TOU tariff with daytime on-peak and overnight off-peak pricing windows
- Process loads cannot be easily shifted to off-peak hours
- Active thermal loads (boilers, heating, chilling) that can absorb recovered exhaust heat.

Contact FlexEnergy at **(720) 573-7664** to evaluate your facility's load profile and identify potential savings.

Every facility has demand peaks. The question isn't whether they occur, it's whether you're paying the utility to supply them or generating that power yourself.

Peak demand charges are often the largest avoidable portion of an industrial electric bill. By continuously offsetting facility baseload with onsite microturbine generation, manufacturers can reduce demand charges, avoid expensive peak-hour energy purchases, and recover useful thermal energy-all without disrupting production.



THE FLEX TURBINE® GT333S

Electric Output	333 kW (continuous)
Thermal Recovery	Up to 545 kW hot water
Availability	99%+ fleet average
Maintenance	lx annual/ 8 hrs only
Operation Mode	Grid-parallel or island
Fuel	Nat. gas/biogas/associated gas
Emissions	CARB certified
Dispatch	Continuous baseload

99+%
UPTIME
PROVEN OVER 4 MILLION RUNTIME HOURS

24/7
AVAILABILITY
OF OUR EXTENSIVELY TRAINED TECHNICIANS

80,000
HOURS
OF DESIGN LIFE WITH STANDARD OVERHAULS

FLEXENERGY SOLUTIONS

Reliable, Clean, Power On Demand.

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