

FREQUENTLY ASKED QUESTIONS

1. What is edgeGEN™?

edgeGEN™ is a Distributed Energy Resource (DER) platform that enables energy retailers, municipal utilities and large C&I Customers to achieve faster ROIs on Cummins generators by adding Tangent AMP™, a Distributed Energy Resource Management System (DERMS) that predicts and dispatches generation in response to high prices and other economic opportunities on the energy grid.

2. What are DER and DERMS?

Energy industry analysts and trade publications have documented a number of factors that are shifting the center of gravity on the energy grid from centralized generation to distributed generation, or as they refer to it, the “Grid Edge.” Large C&I energy systems are being targeted for their ability to provide both distributed generation and demand management contributions to the energy grid –in other words, Distributed Energy Resources (DERs). The technology that manages the communication, optimization and monetization of DERs is called a Distributed Energy Resource Management System (DERMS).

3. How does this work?

Tangent DERMS software monitors grid, facility and generator signals to predict when grid economic conditions support generation dispatch. When conditions are right, Tangent signals the generator to operate for a pre-determined period of time Tangent then monetizes the result through the C&I customer’s energy retailer or municipal utility. C&I customers see higher savings in their energy bill, retailers and municipal utilities realize lower costs and Tangent and Cummins share a new revenue stream.

4. Isn’t that the same as Demand Response?

No. edgeGEN™ is more lucrative, less disruptive and less risky than Demand Response. By targeting only the highest value hours, customers typically are dispatched for about 15 hours per year in one hour increments vs. 60 hours or more in up to six hour increments for traditional demand response. Moreover, by monetizing activity through established transaction partners like energy retailers and municipal utilities, customers see the economic results in a format they know and trust. Finally, by avoiding ISO/RTO capacity markets, Tangent does not have the same issues with uncertainty from regulatory rule changes that are currently creating headaches for demand response customers.

5. Why will this work?

Approximately 20% to 30% of energy user costs are driven by fewer than 20 hours of energy consumption. These high value hours determine the embedded cost of capacity and transmission in an energy user's bill. By utilizing Tangent's predictive software and control capability, new or existing Cummins generator sets can be dispatched to reduce load to the grid during the premium hours. This reduction in load is directly reflected in the customer's energy bill in the following year.

6. Where and when is this happening?

The edgeGEN™ program kicked off with a press release at the end of February, 2015 and hit in full force during March. Targeted markets for the initial rollout include the following states: ME, VT, NH, MA, CT, RI, PA, NJ, DE, MD OH, VA, WVA, and KY.

7. Why do this now?

Price increases and the industry response to coal generation plant retirements and vulnerabilities exposed by the polar vortex have created unprecedented economic opportunities for customer dispatch of generation.

In specific regions of ISO-NE and PJM the cost of capacity and the cost of transmission has skyrocketed. In some regions capacity costs have increased from \$40k per MW year to \$180k per MW year. Similar increases are occurring in transmission charges. Meanwhile, the polar vortex prompted power pools to re-think how customers get paid to help the grid during times of emergency. Energy users that were paid to respond only in summer months by reducing HVAC load are now expected to be available year-round. While HVAC load reduction is not practical in mid-January, on-site generation is perfect. The combination of the new rules and increases in the cost of capacity and transmission will drive new or re-purposed engines behind the customer meters.

8. How do Municipal Utilities Benefit from edgeGEN™?

edgeGEN™ provides utilities and their customers with the traditional benefits of Cummins generation plus the economic benefits of a DERMS guided dispatch.

edgeGEN™ provides municipal utilities with the reliability benefits of Cummins generation with the added benefit of a technology that dispatches generation during periods high energy prices and other high value opportunities.

edgeGEN™ empowers municipal utility C&I customers with the ability to reduce grid-sourced energy usage ahead of critical peaks contributing to lower system-wide capacity charges.

9. Why Cummins generators?

Cummins lean-burn gas fuelled generator sets form the heart of our Energy Solutions Business (ESB). We offer 2 engine platforms (QSK60 and QSV91) from 1MW – 2MW power output. Our generators are capable of running on natural gas and alternative gaseous fuels, delivering renowned Cummins reliability along with extended maintenance intervals and high fuel efficiency.

Cummins offers turnkey implementation, aftermarket support, robustness and comprehensive warranty and performance guarantee programs. We provide unmatched controls capability including system paralleling, remote operation and monitoring, and generator inherent protection capability. Cummins builds and assembles every part of the generator in house, resulting in one reliable point of contact for customers.

10. What edgeGEN™ offerings are available?

The complete edgeGEN™ package equipped with a Cummins generator and Tangent AMP™ Software is the best solution for Municipal Utilities and C&I customers who are seeking the capability to both predict and monetize high value hours. Whether Tangent AMP™ is pre-installed on a new lean-burn gas generator or retrofitted to an existing clean diesel generator, edgeGEN™ is the answer.

Due to particular circumstances, the complete edgeGEN™ package may not be viable for all Municipal Utilities or C&I customers. In these cases, Cummins generators may be installed without the Tangent AMP™ Software. This option is particularly suitable in regions with relatively low capacity costs, or those that have a separate contract with an alternative service provider. On the other hand, the Tangent AMP™ Software may be installed without Cummins generators.

11. What do Municipal Utilities need to do?

For more information contact:

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12. Who is Tangent Energy Solutions?

Tangent is a Distributed Energy Resources (DER) company that provides C&I customers with the technology, assets and managed services needed to identify and capitalize on economic opportunities on the energy grid without disrupting normal operations.

Tangent's Distributed Energy Resource Management System (DERMS), named [Tangent AMP™](#), monitors grid, facility and on-site generation assets, and alerts customers ahead of high-value economic opportunities. [Demand Design™](#) and [Demand Design PLUS™](#) build on Tangent AMP™ to actively manage customer demand and integrate generation assets in response to these opportunities.

By uniquely building out a DER solution from the customer side of the meter, and monetizing it through exclusive relationships with energy retailers, municipal utilities and other Load Serving Entities (LSEs), Tangent motivates and empowers customers to become price makers on the energy grid while making it easier for the energy industry to access and integrate distributed energy resources.

13. Who is Cummins Power Generation?

[Cummins Power Generation](#), a subsidiary of Cummins Inc. (NYSE: CMI), is a global leader dedicated to increasing the availability and reliability of electric power around the world. With more than 90 years of experience, its global network of distributors in more than 190 countries delivers innovative solutions for any power need - commercial, industrial, recreational, emergency and residential. Products include alternators, generator-drive engines and pre-integrated power systems, combining generator sets with power control and transfer technologies.

[Cummins Energy Solutions Business](#) (ESB) goes beyond the product. We partner with customers to design, install and operate complete energy solutions. We bring together Cummins products, in particular natural gas powered gensets, and our technical expertise. We provide innovative, economically sound and environmentally sustainable solutions for customers around the globe. The Gas Business is an innovative, growing business with entrepreneurial spirit.