

14<sup>th</sup> October, 2020

## **IPG's Flameless Ceramic Turbine: a solution for clean, off-grid power in UK EV charging**

**Intelligent Power Generation (IPG) set to demonstrate the impact of their breakthrough turbine technology in UK electric vehicle (EV) charging infrastructure, following a £1m contract from Highways England.**

IPG secured £1m as part of the Highways England (HE) and Innovate UK's £20m 'Innovation call' to invest in projects that can help improve air quality and operation of England's roads.

Completing in Early 2021, IPG's project will demonstrate the role of their Flameless Ceramic Turbine technology in bringing EV charging to high-use and remote locations through clean, cheap, grid-independent power generation.

### **Clean, efficient, off-grid EV charging**

In efforts to scale EV charging infrastructure to support the expected rise of electric vehicles on the road, the UK government is set to increase the number of high-powered rapid chargepoints in England from 809 (as of 1 January 2020) to 6,000 by 2035.<sup>1</sup> This growth will require high megawatt capacities across England's road networks. But, in many high-use areas and remote locations, upgrading grid connections to meet future charging demand is not practical or commercially viable.<sup>2</sup>

As Toby Gill, recently appointed CEO of IPG, describes, "in those locations that cannot acquire the power they need from the National Grid, on-site wind and solar is not always viable, leaving polluting diesel and gas generators as the only option.

"IPG's Flameless Ceramic Turbine is essential in those instances. Through high efficiencies and breakthrough flameless combustion, our technology provides the benefits of fuel-based power without the harmful pollutants - the elimination of which is a key driver in the government-backed switch to electric vehicles."

Brian Cull, Senior Intelligent Transport Systems Engineer, Highways England, says "grid access and capacity issues, as well as the infeasibility of on-site solar and wind, is a barrier for EV charging in many locations. Highways England is funding this project to assess how IPG's turbine technology could present a solution for delivering power at a competitive cost while improving air quality, that would alleviate grid stress in high-use areas, as well as enabling remote locations to facilitate EV charging."

### **How it works**

IPG's Flameless Ceramic Turbine is a 100kW modular generator, delivering cleaner, cheaper, grid-independent power for the net-zero future. Up to 8 turbines fit in a 20ft shipping container, forming a deployable power solution for EV charging companies that can be scaled to match demand in any location.

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<sup>1</sup> UK Government (May 2020), Government vision for the rapid chargepoint network in England, available at: [www.gov.uk](http://www.gov.uk)

<sup>2</sup> Ibid.

# INTELLIGENT POWER GENERATION

In bringing power plant efficiencies to the microscale through high-temperature ceramics, IPG's turbine delivers a 51% fuel efficiency, reduces CO<sub>2</sub> emissions by 43% and fuel costs by up to 76%.<sup>3</sup>

Breakthrough flameless combustion eliminates all pollutant emissions such as NO<sub>x</sub>, CO, and PM, and enables the fuel-flexibility that is crucial in creating demand for clean alternative fuels, accelerating the transition to a net-zero carbon economy.

As Toby Gill explains, "Not only can IPG's technology deliver low-emission, pollutant-free energy on today's cleaner fuels. It also enables EV charging service providers to transition to truly net-zero fuel-based power, as biofuels and hydrogen become more available, supporting the Government's efforts to tackle climate change."

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## Intelligent Power Generation (IPG)

IPG is a British climate-tech company and developers of the Flameless Ceramic Turbine – a cleaner, cheaper, grid-independent power solution for the renewable future.

Through breakthrough in flameless combustion and high-temperature ceramics, IPG is reinventing fuel-based power by making it clean, flameless and able to operate on any fuel.

In partnership with leading universities, government agencies and commercial development partners, IPG is delivering an economically viable solution that can help to unlock the roadmap to renewable fuels.

IPG is the first company to commercialise fuel-flexible flameless combustion in small-scale power generation, enabling businesses to reduce emissions and improve air quality, without compromising business-as-usual.

### For more information, please contact:

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<sup>3</sup> When compared to incumbent technologies.