Utilising Data to Support Customers With Options for Sustainable Energy

Elizabeth Hollinger
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An Introduction to Aggreko

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Our Mission


We believe in the positive impact of power and the ability to control temperature. We believe it opens up opportunity and creates potential for individuals, communities, industries and societies all over the world.
Together and over time, we believe our services make a massive difference.

KEY FACTS

10,009 MW
Power in our fleet

£1,365m
2020 revenue

265 locations
Sales and services centres

7,000 employees
Permanent and temporary

100 countries
Where we operate

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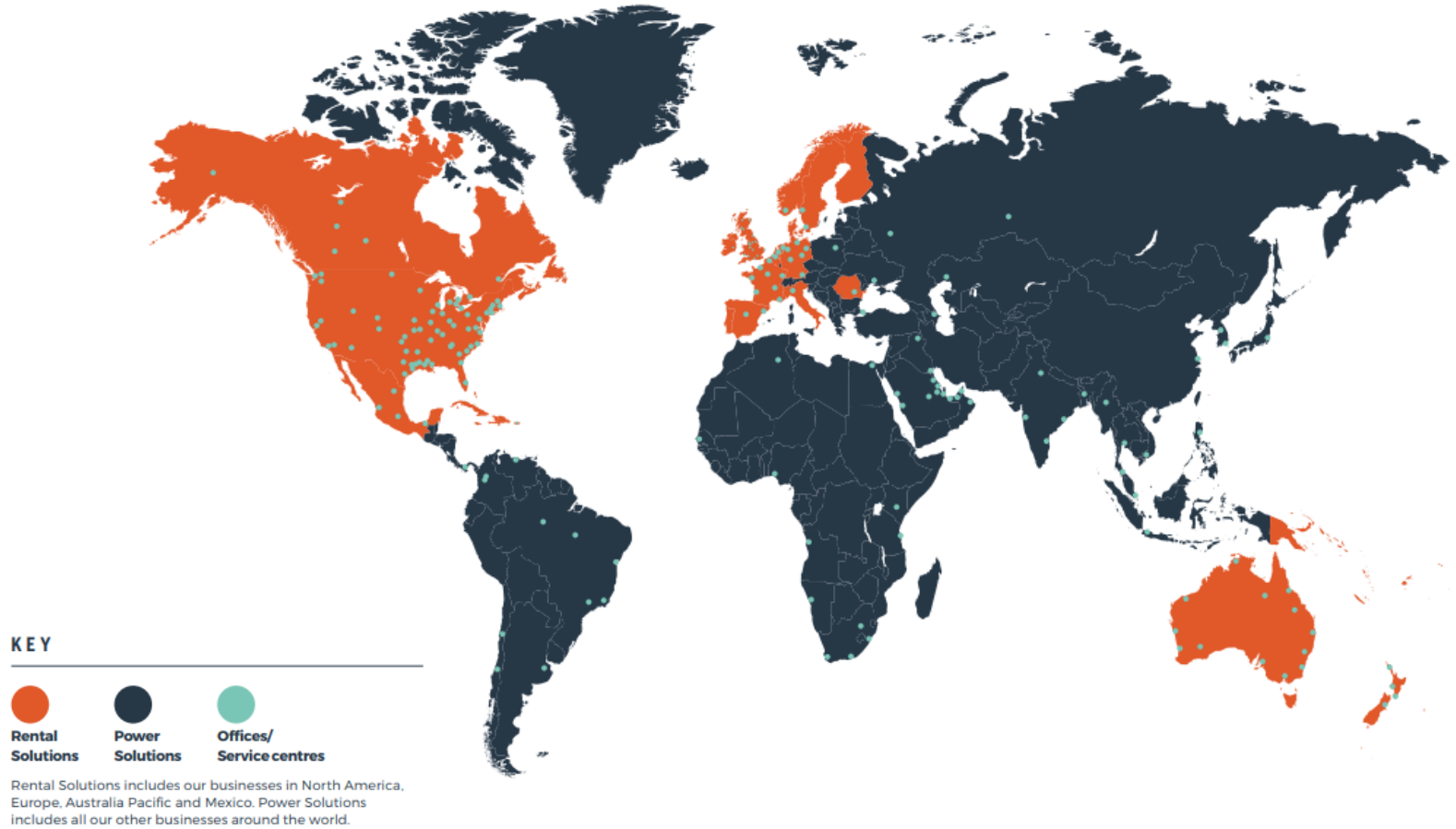

A global company, listed on the London Stock Exchange

Local expertise to help our customers make their difference

Our Products

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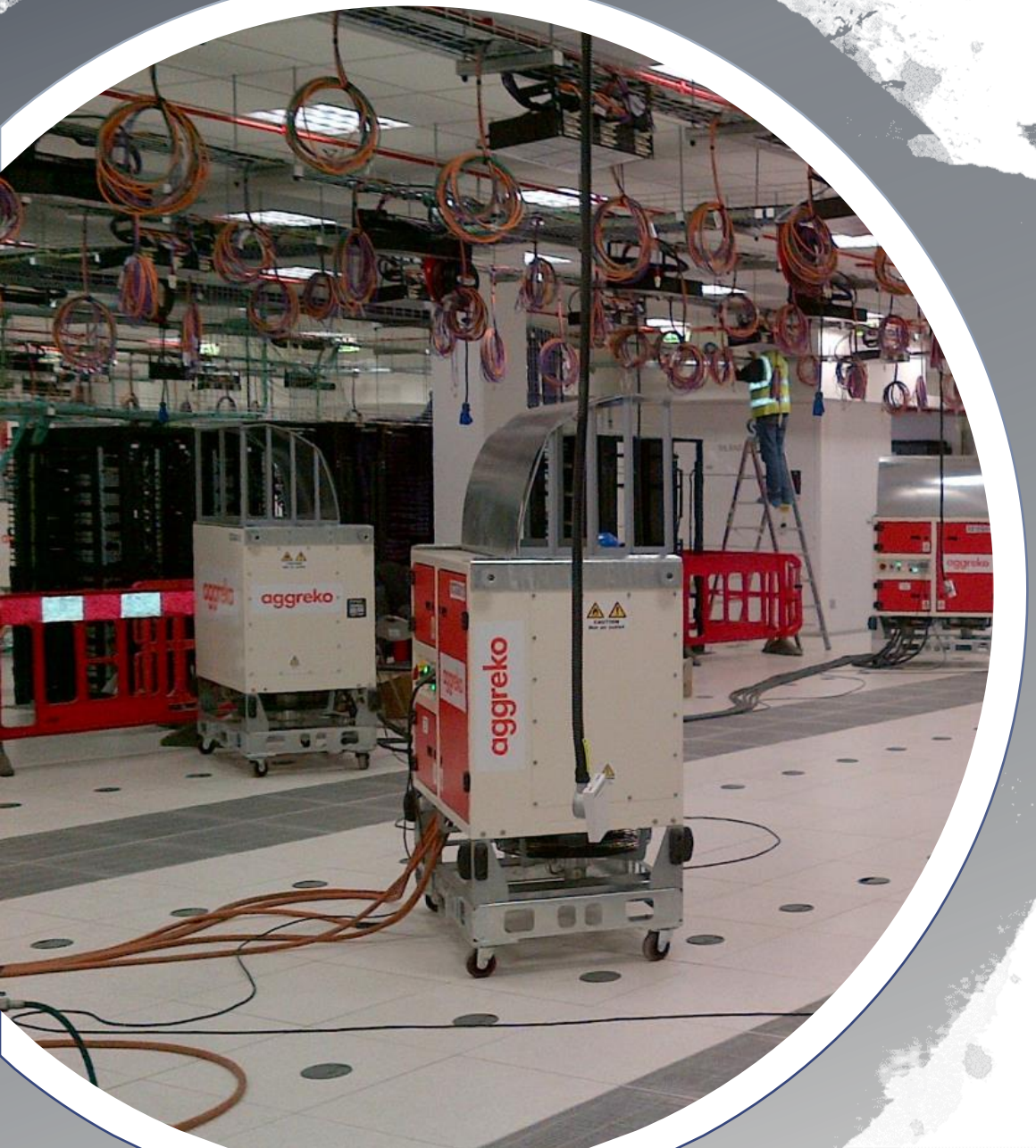
Our Strategy



We will provide trusted insight to our business to enable insight-driven decision making

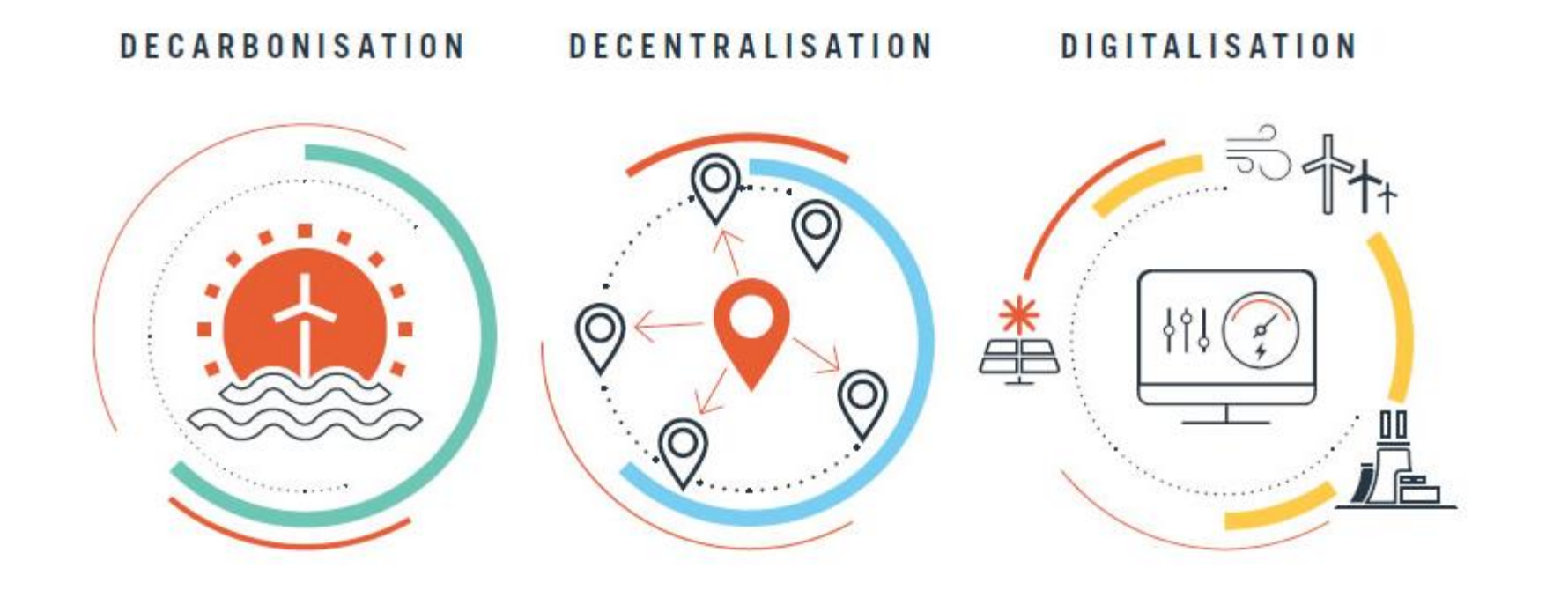
We will innovate, harnessing the pace at which new technology becomes available to provide interactive and visual insights

We will provide the right information for the right person at the right time, and through the right medium

Identifying Opportunities for Data to Add Value

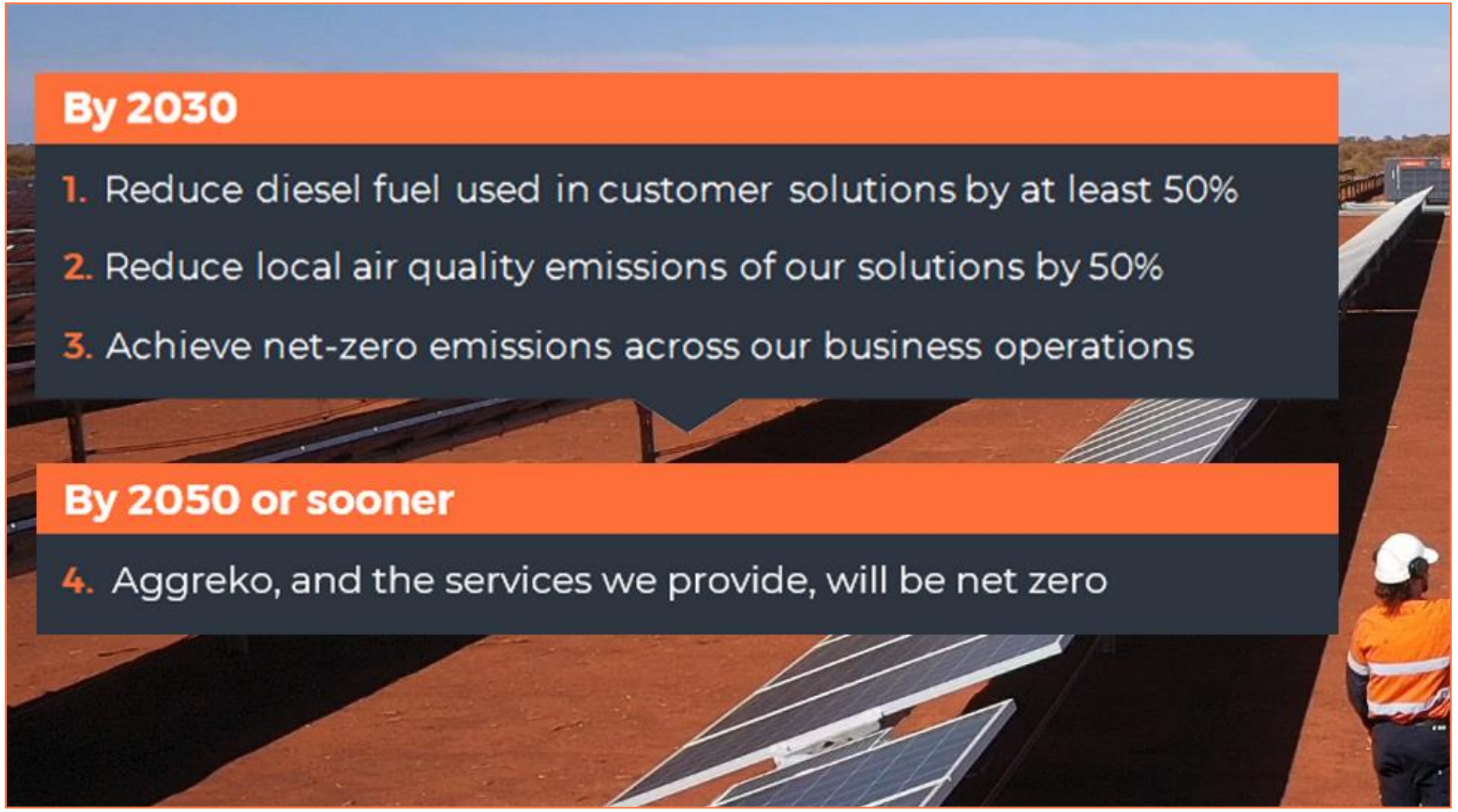
Supporting the energy transition

Globally, the energy sector is going through a major transition; the challenge is to find the optimal way to **secure energy supplies, affordably and sustainably.**



We are positioning ourselves for this future through the introduction of solar-diesel hybrid technology, next generation gas engines, increasing the overall efficiency of our engines and through the acquisition of energy storage integration specialist Younicos which will allow us to compete in the energy market of the future.

Our Strategy for Net-Zero



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Utilising Data to Positively Influence Emissions

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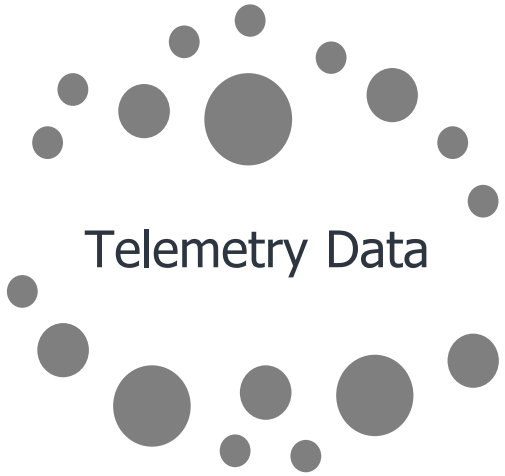
Improving our Understanding of Emissions



Data from our telemetry enabled assets streams to the Data Lake…

…where our bespoke algorithms analyse the data in real time…

…and provide deeper understanding of our emissions

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Estimating our Local Emissions

The Ask

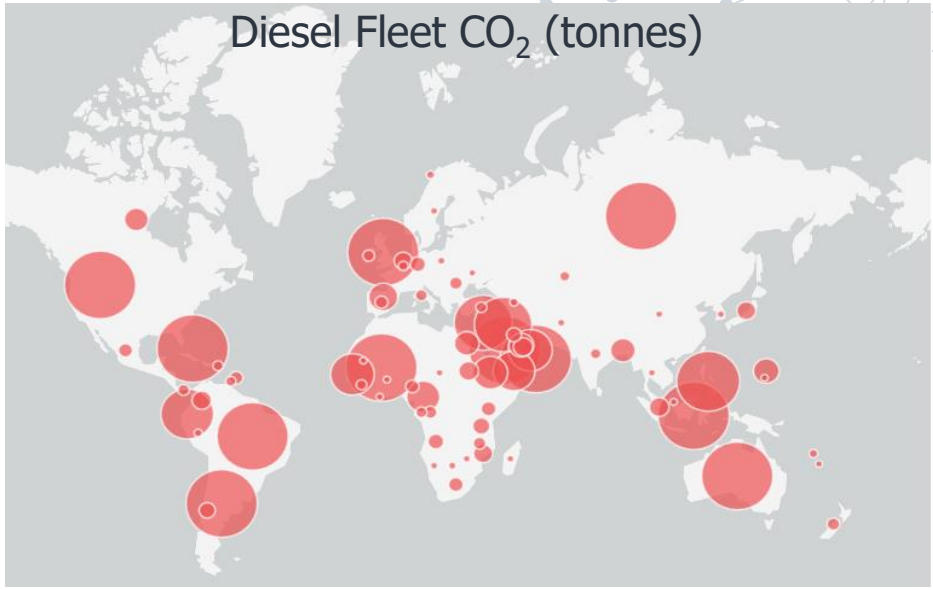
- Understanding Aggreko's emission profile is essential for meeting internally and externally set environmental targets
- This project aimed to develop a robust, standardised methodology for estimating greenhouse gas and local fleet emissions

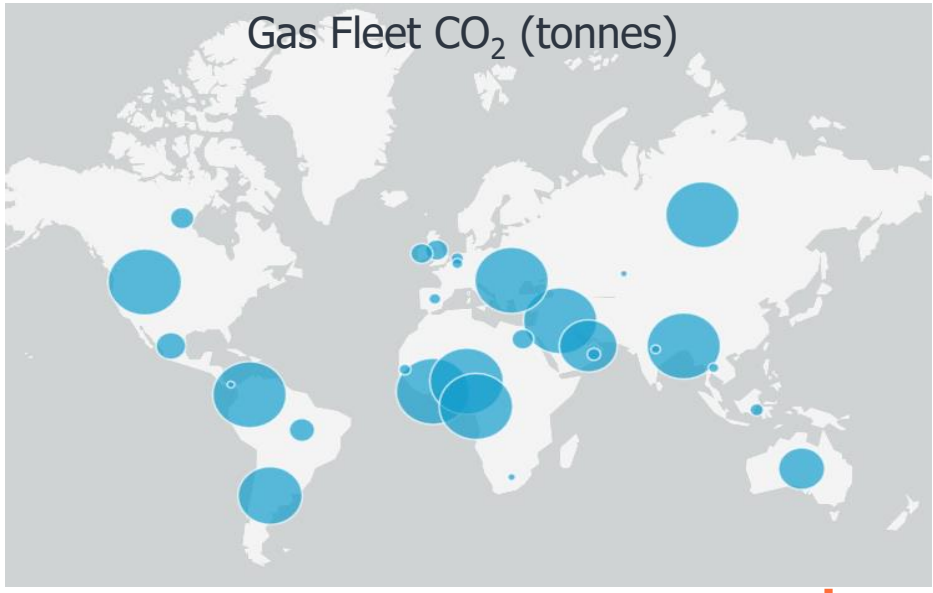
The Methodology

- The Aggreko Global Emissions Method (AGEM) takes existing internal and external emissions models, and builds on them to give more accurate models which can be used to estimate CO_2 and local emissions for all operational thermal assets
  - 17.7k diesel generators
  - 2.4K gas generators
- The developed methodology allows emissions to be estimated per day per asset by utilising our IoT data from our connected assets

Usage

- The applied methodology provides the annual baseline fuel consumption and emissions for Aggreko's energy transition strategy, which can be used for reporting purposes
- The methodology can be used to understand the impact a change to our fleet composition would have on our annual fuel consumption and emissions, which can help facilitate conversations about our future fleet
- The emission models have been integrated into another project to support our customers when deciding on the solution they would like to adopt





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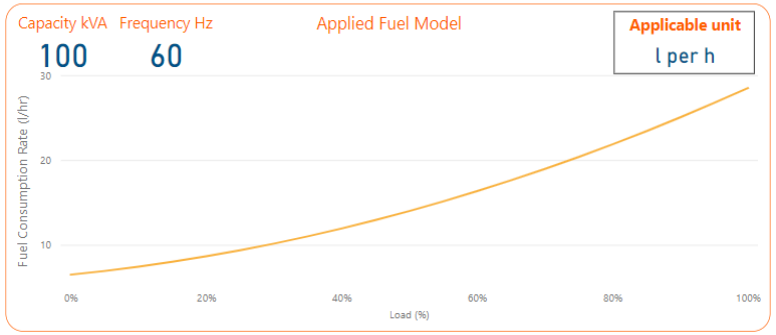
Estimating our Local Emissions



Fuel Model for 100kVA asset operating at 60 Hz

Asset ID	Date	Load %	Total Run Hours
A1	01/01/21	50%	10
…	…	…	…
A1	31/12/21	60%	5

Aggregated IoT Data

CO2 Emission Factors

fuel_type	life_cycle	g_per_MJ	kg_per_l	kg_per_kWh_input	CO2_emission_factor_source
Diesel	TTW	74.1	2.676		IPCC
Diesel	WTT	16.0	0.580		EN16258
Diesel	WTW	90.1	3.256		IPCC/EN16258

Industry Standard Emission Factors

Absolute Emissions = Emission Factor (EF) x Amount of Fuel

$$m_{CO2e,\ fuel}\ [tCO_{2e}] = (EF_{fuel,\ WTT} + EF_{fuel,\ TTW}) \times \text{amount of fuel}$$
$$= EF_{fuel,\ WTW} \times \text{amount of fuel}$$

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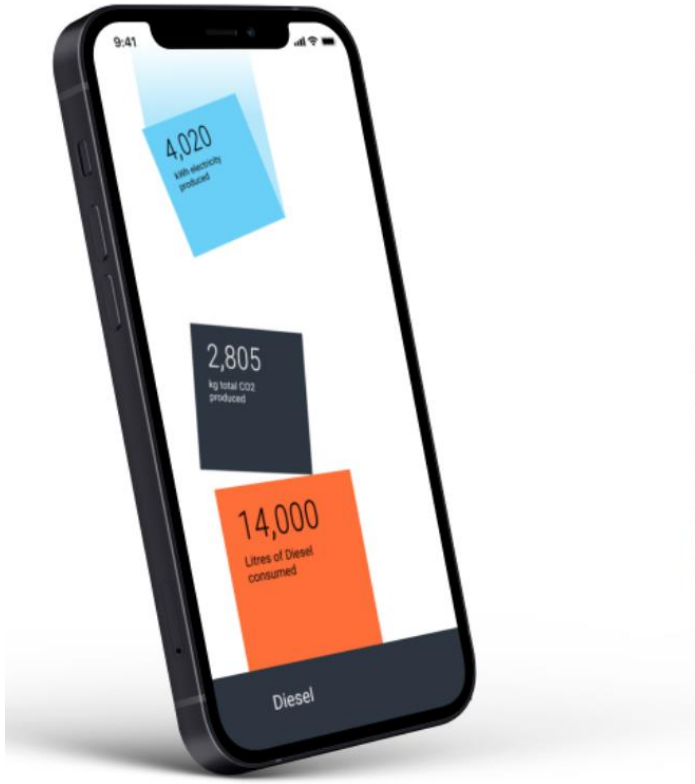
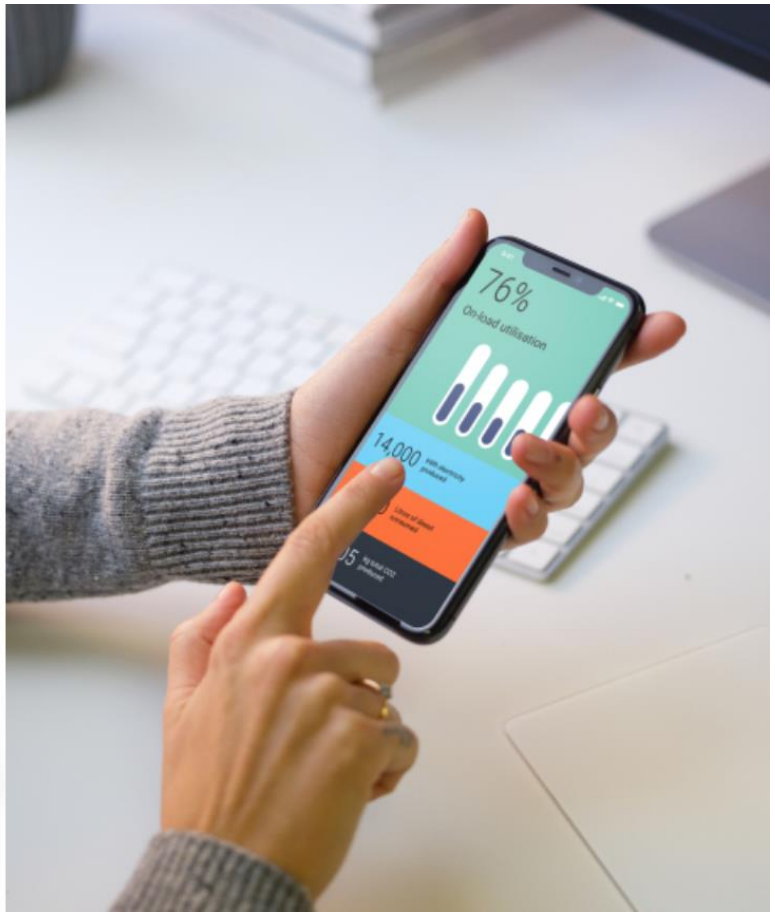
Utilising the AGEM Model: Energy Transition Calculator

The ET Calculator is a tool to showcase the asset rental options available to customers, enabling customers to make smarter and greener decisions.





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ET Calculator: Landing Page

Solution task list

Complete the steps below to generate solutions for your Customer's project needs

Tell us about your Customer's project

nicky 1 | project nicky | 12 Weeks

Import or create a power load profile

Type: TODO | Max power: 125kW | Avg power: 47kW

Specify fuel pricing and additional charges

Diesel: 5 GBP per litre | 0 additional charges

Compare solutions and generate report

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ET Calculator: Entering the Load Profile

Load profile information

Provide power requirements, either manually or through a file import. We will use this information to generate plant solutions.

How do you want to supply the load profile?

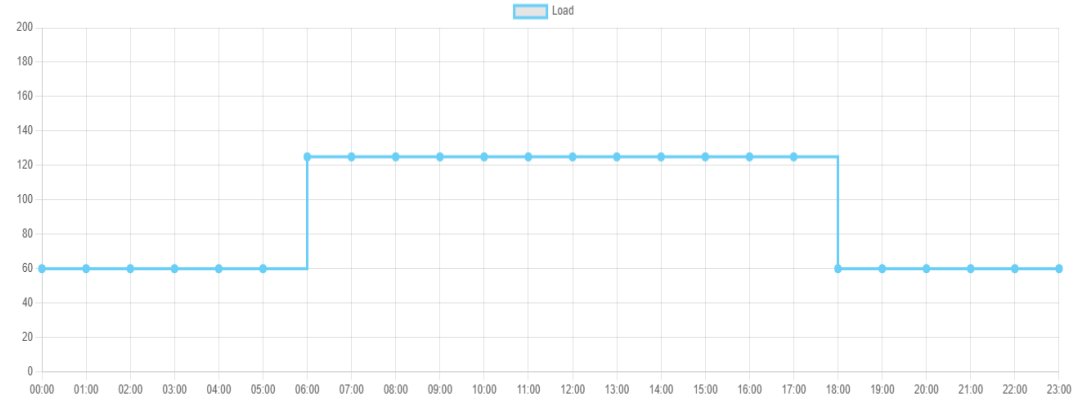
Enter manually (pattern)

Select a load profile pattern

Constant Mixed

aggreko Energy Transition Assistant

Home / Task list / Load profile information



Peak load: 125 kW

Off-peak load: 60 kW

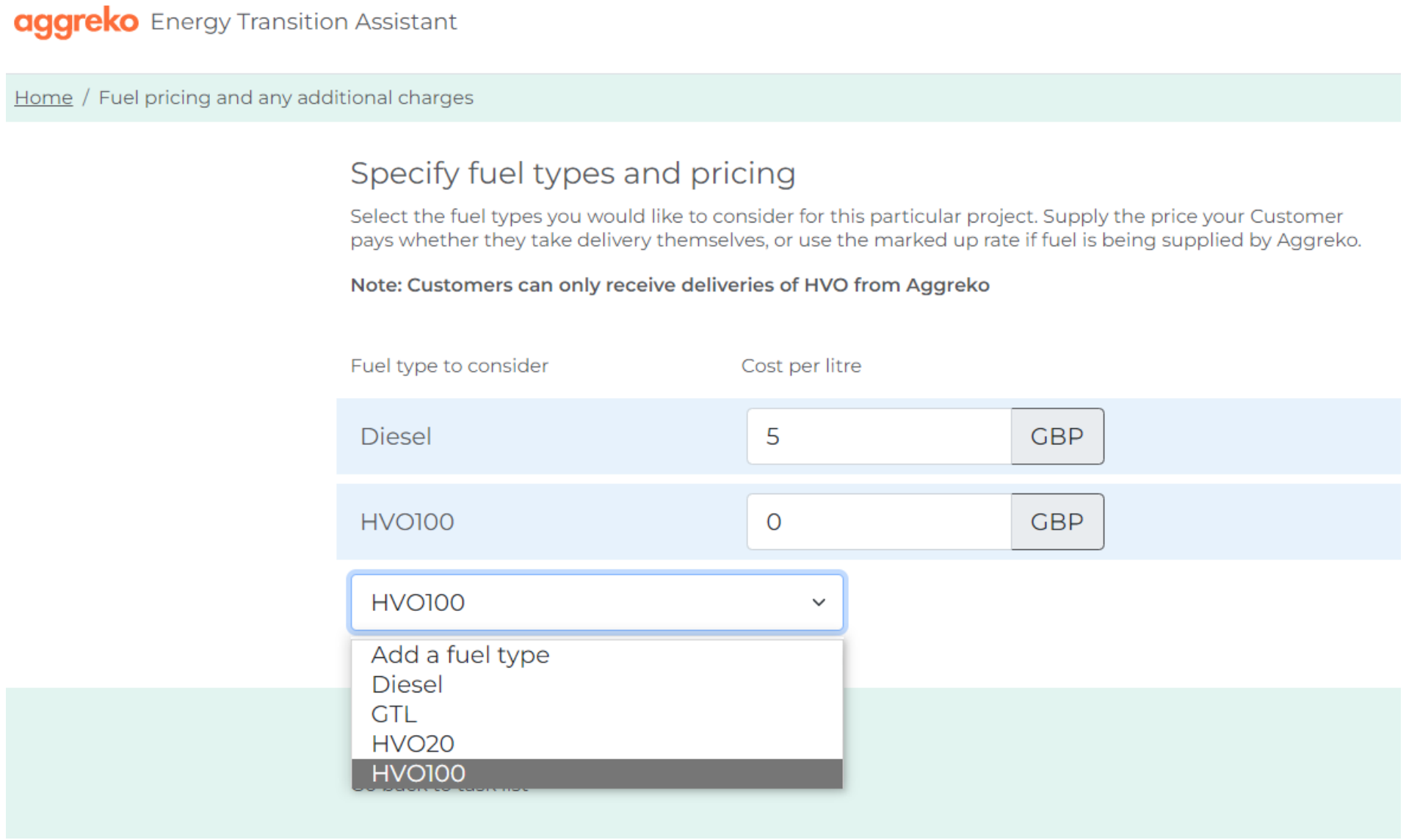
Peak hours start: 6:00 AM

Peak hours end: 5:00 PM

Working pattern: 5 days

Previous Next

ET Calculator: Entering the Fuel Type



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ET Calculator: Solution Optimiser

	Costs per week *	Efficiency	Environmental Impact
Solution #1 (Single asset) 320 kVA Diesel	2,200.00 GBP Rental costs 700.00 GBP Fuel costs 1,500.00 GBP	0.76 litres / kWh	965 kg CO2
Solution #2 (Load-on-demand) 160 kVA 160 kVA HVO20	2,800.00 GBP Rental costs 1,500.00 GBP Fuel costs 1,300.00 GBP 24% more expensive	0.46 litres / kWh 49% less fuel used	450 kg CO2 72% less impact
Solution #3 (Hybrid) 160 kVA 160 kVA Diesel POWR2 45/55 Flybrid 200	3,900.00 GBP Rental costs 2,800.00 GBP Fuel costs 1,100.00 GBP 56% more expensive	0.49 litres / kWh 43% less fuel used	120 kg CO2 704% less impact

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ET Calculator: Report Generation

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Portakabin UK Limited
Birds Marsh View, Chippenham
A-123456

We understand everything we do comes with the responsibility to take care of the people and places we do business with.

Aggreko has developed its own programme of change for the next decade. Together with our clients, employees and partners, the business will reduce the amount of diesel fuel used in its fleet by at least 50%.

This will be done by offering customers cleaner technologies and alternative fuels that guarantee similar or better levels of performance. Aggreko will also look to reduce local air quality emissions from its equipment by 50% and aim for carbon neutrality across all business operations by 2050.

By investing in our own fleet and processes, we can u greener, more-efficient technologies. We have made

BY 2030

Cut the amount of diesel fuel used in our fleet by at least
50% *

Reduce local air quality emissions from equipment by
50%

* This will be done by offering customers low-impact technologies and alternative fuels that maintain or improve on current levels of performance.

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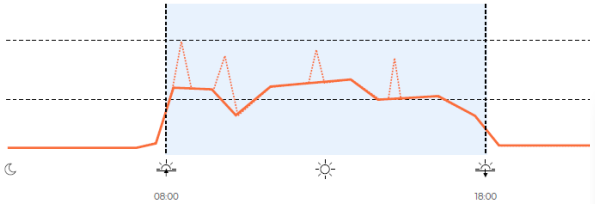
A Greener Approach

Load profile analysis

Contract duration
8 weeks

Operating pattern
5 day week



Tower crane power

Cranes supplied by on-site temporary power. Power requirements sit within range of 200 - 310 kVA at 800 amps. Most work is done in daylight due to local regulations. This same grid will also provide supplemental power for some small plant machinery, lighting and security during non-operational hours.

* The load profile used here is indicative and subject to variation in actual circumstances when applied in deployed assets.

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A-123456

A Greener Approach

Proposed Solutions

Max power req
310 kVA

Industry Sector
Construction

Solution 1

320 kVA Diesel Canopy Generator

Diesel

Solution 2 — LOAD ON DEMAND

2 × 200 kVA Diesel Canopy Generator

HVO 100

This solution could deliver up to*

- 12% reduction in fuel consumption
- 90% reduction in CO2 emissions
- 15% reduction in local emissions

Solution 3 — HYBRID

200 kVA Diesel Canopy Generator

POWR2 45/55 Battery Energy Storage

2 × Flybrid Punch 200 Flywheel

Diesel

This solution could deliver up to*

- 27% reduction in fuel consumption
- 50% reduction in CO2 emissions
- 50% reduction in local emissions
- Significantly reduced dBA when running from battery

* All figures are indicative. Comparison using Solution 1 as a benchmark

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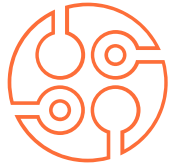
Utilising our Output to Enhance Decision Making

Utilising efficiency predictions to support our customers to make improved right-sizing decisions.



Ability to extend support in our Hybrid Product sites and optimise for green energy to minimise environmental impact

Emissions estimates to help sales people, solutions and product development engineers make the right choices

Embed this insight in our CRM system to automatically suggest greener products and packages to support our sales people.

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Q&A