Net Zero Power & Transport

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GRIDSERVE® Introduction

GRIDSERVE deliver cutting edge sustainable energy solutions for critical power infrastructure

- We are at the forefront of delivering solutions to profitably transition our energy infrastructure away from fossil fuels and reach net zero carbon emissions as quickly as possible
- We combine the latest advances in solar energy + energy storage + sophisticated controls & operating methods to deliver dependable, clean, low cost energy for the most demanding critical power applications, including:

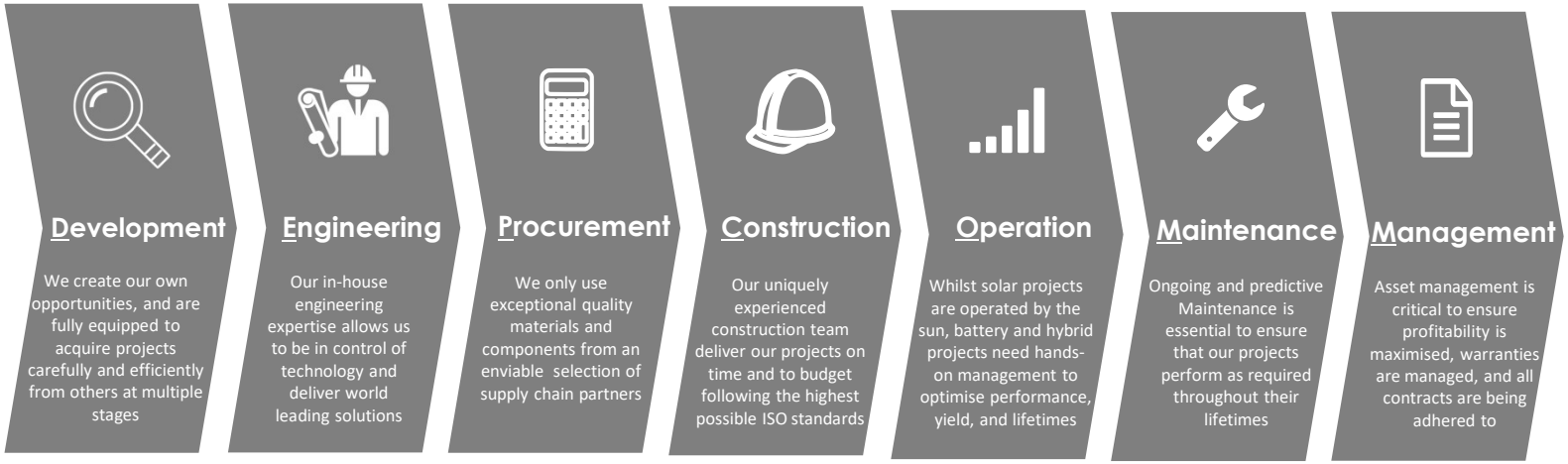
  GRID POWER: We are the 2019 UK market and technology leader for utility-scale hybrid solar farms

  EV POWER: Our new charging network of Electric Forecourts® will revolutionise charging electric vehicles

  REMOTE POWER: Our SolarEnergyCentre® solutions remove reliance on diesel and enable clean, dependable power anywhere

- We are a 50-person, growing, profitable company generating more than £60M of revenues in 2019 from developing, building, owning and operating world class sustainable energy projects
- We are building the business for an IPO on the London Stock Exchange in 3-4 years, and international expansion in multiple territories thereafter

GRIDSERVE: A fully integrated sustainable energy business



The United Nation's Intergovernmental Panel on Climate Change says:

We have just 11 years to make massive and unprecedented changes to global energy infrastructure to limit global warming to moderate levels

Staying at or below 1.5°C requires slashing global greenhouse gas emissions 45 percent below 2010 levels by 2030 and reaching net zero by 2050

How can we deliver Net Zero Power & Transport?

1. Provide all energy from clean, zero carbon energy sources
2. Serve the grid to support additional generation and power requirements
3. Stack the economics in favour of electric vehicles
4. Enable people to charge all types of electric vehicles easily, and without any anxiety
5. Catalyse demand by simplifying messaging and access to information

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GRID POWER

Our hybrid solar farms are the most technically advanced ever to be constructed in the UK and enable the grid to be majority-supplied by intermittent renewable energy sources – this is fundamental to achieving a net zero carbon electrical energy infrastructure

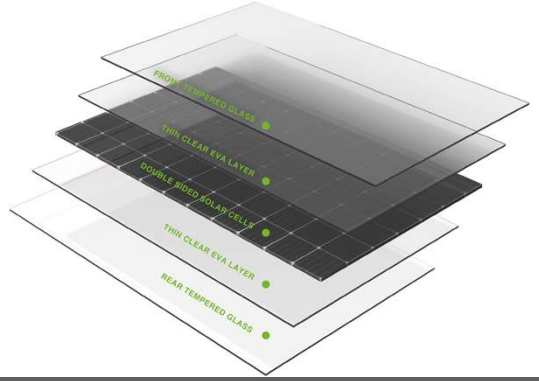
Bifacial Solar Panels + **Horizontal Axis Trackers** + **Batteries**

In 2019 GRIDSERVE became the UK technology and market leader, installing more solar power than any other company in the UK, whilst also delivering multiple ‘UK-first’ technical innovations to maximise yield, income, flexibility, dependability

TECHNOLOGY: BIFACIAL SOLAR MODULES

Generating energy from both sides of the panel

Another UK first delivered by GRIDSERVE is the utilisation of bifacial solar modules that harvest energy from both the front and the underside of the panel. The back of the cells benefit from light bounce (known as Albedo) to further maximise the energy production and optimise energy yield for that given area without proportionally increasing costs

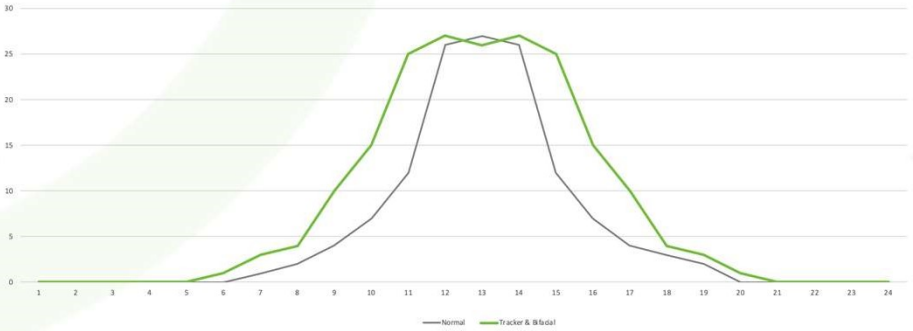


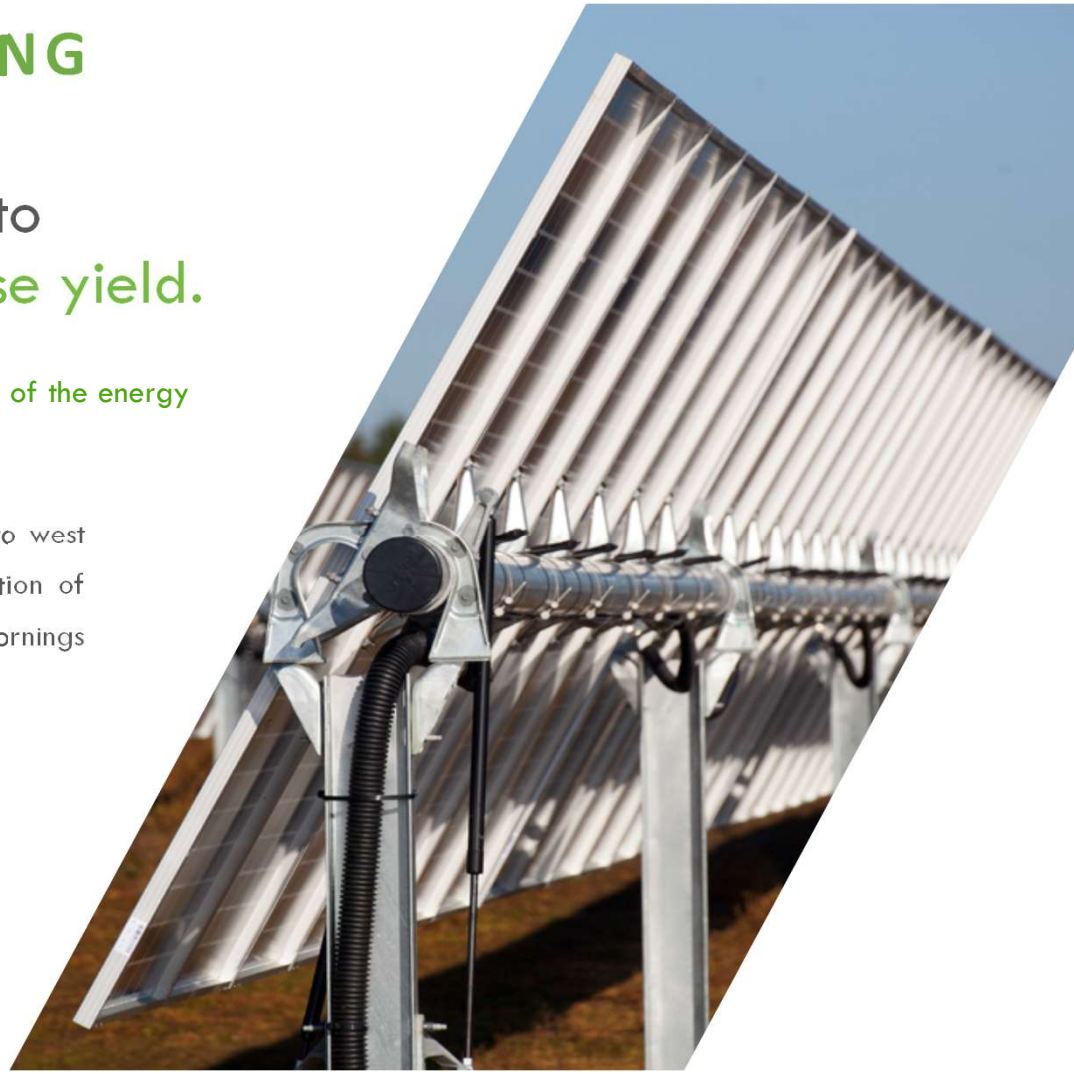
TECHNOLOGY: SOLAR TRACKING

Tracking the sun from dawn until dusk to stabilise power production and optimise yield.

GRIDSERVE are obsessed with maximising both energy yields and the value of the energy produced…

Solar trackers allow the panels to follow the sun on its journey from east to west each day. Whilst a fixed position panel will collect a majority proportion of energy around midday – significant power is also available in the early mornings and late afternoons, and this can be harnessed by solar trackers





TECHNOLOGY: ENERGY STORAGE

GRIDSERVE's battery storage solutions are at the front line of modern grid infrastructure needs. As well as using batteries to shift solar energy to more valuable periods, batteries provide services that help the National Grid to balance supply and demand and support growth of renewables and electric vehicles

Frequency Response

- Enhanced Frequency Response (EFR)
- Firm Frequency Response (dynamic)
- Firm Frequency Response (static)
- Firm Frequency Response (bridging)
- Frequency Control by Demand Management
- Fast Start
- BM Startup / BM Actions
- Trades

Reserve Products

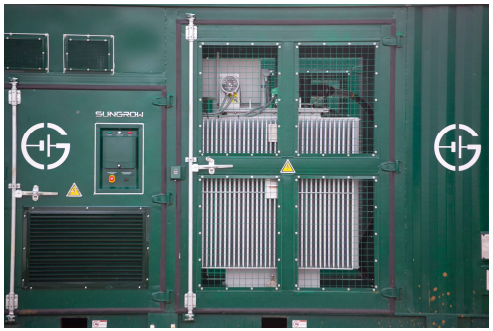
- Fast Reserve
- Demand Turn-Up
- Short Term Operating Reserve
- Short Term Operating Runway
- Super SEL
- Fast Start
- BM Startup
- BM Actions
- Trades

Voltage Control

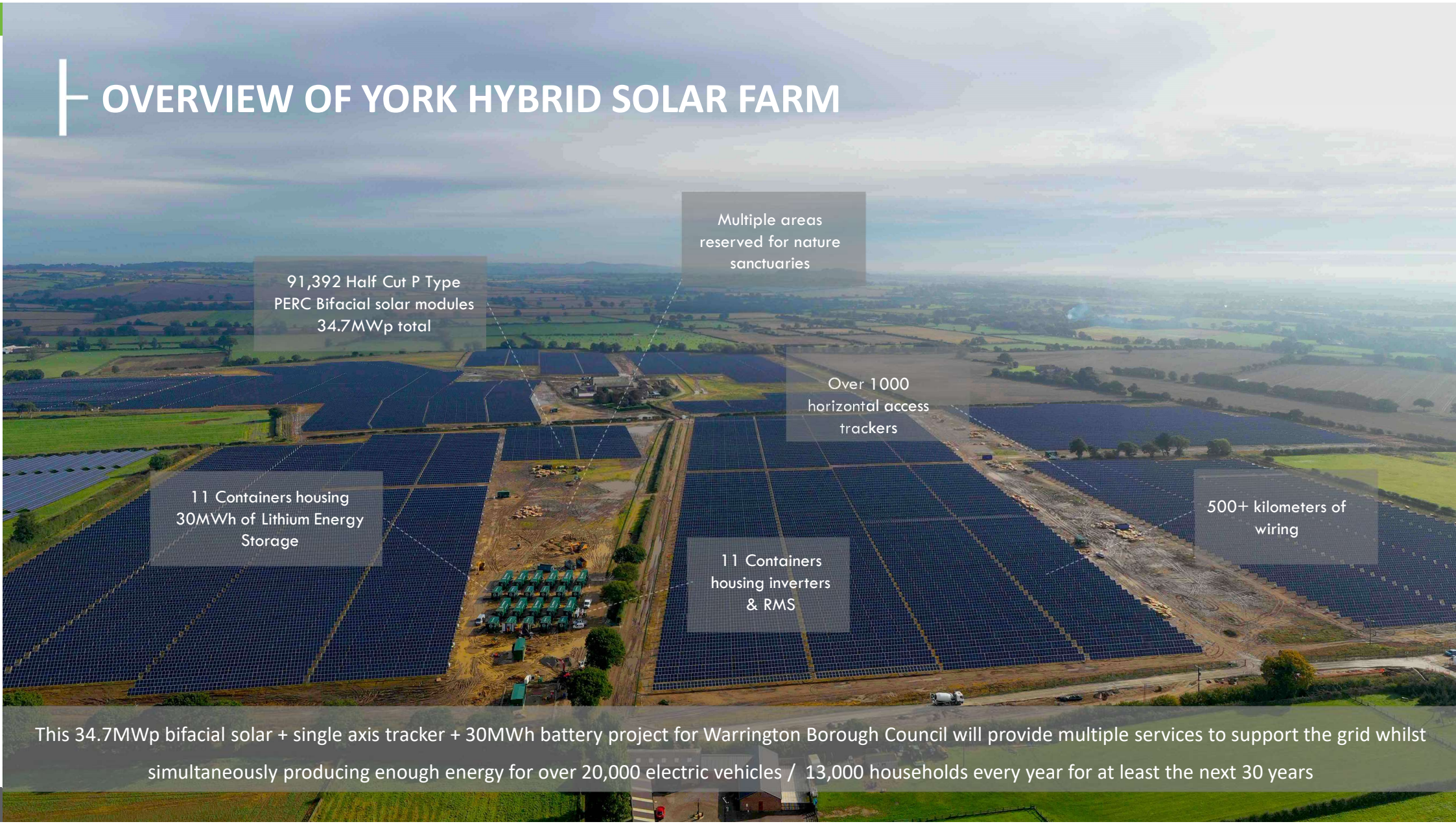
- Mandatory Reactive Power
- Enhance Reactive Power
- Constraint Management (Voltage)

System Security

- Black Start
- Max Gen
- Intertrips
- Trip to House Load
- Constraint Management



OVERVIEW OF YORK HYBRID SOLAR FARM



This 34.7MWp bifacial solar + single axis tracker + 30MWh battery project for Warrington Borough Council will provide multiple services to support the grid whilst simultaneously producing enough energy for over 20,000 electric vehicles / 13,000 households every year for at least the next 30 years


GRIDSERVE
sustainable energy

‘Nature Sanctuary Network’

The World Wildlife Fund for Nature estimates we have lost 50% the worlds wildlife in the last 40 years. We need to take urgent action now to protect nature. After construction our hybrid solar farms will also serve as part of a network of permanent sanctuaries to protect multiple species & pollinators

We engage with local communities, and cooperate to support sustainability education, awareness, and progress on multiple fronts. The pictures above are real examples from previous projects our team have delivered

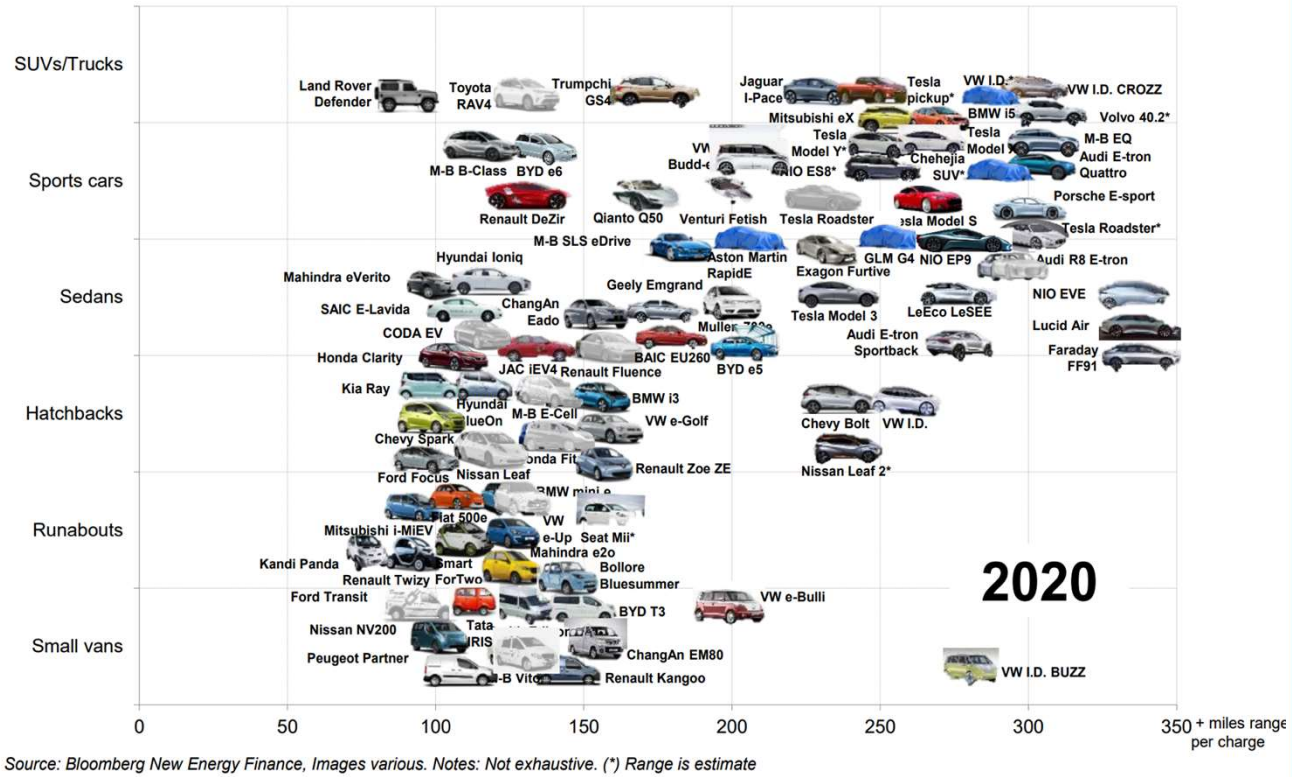
Britain has outlawed the sale of all diesel and petrol cars and vans from 2040 (with 2035 now being considered)

The Labour party pledges to ban sale of non-electric cars by 2030

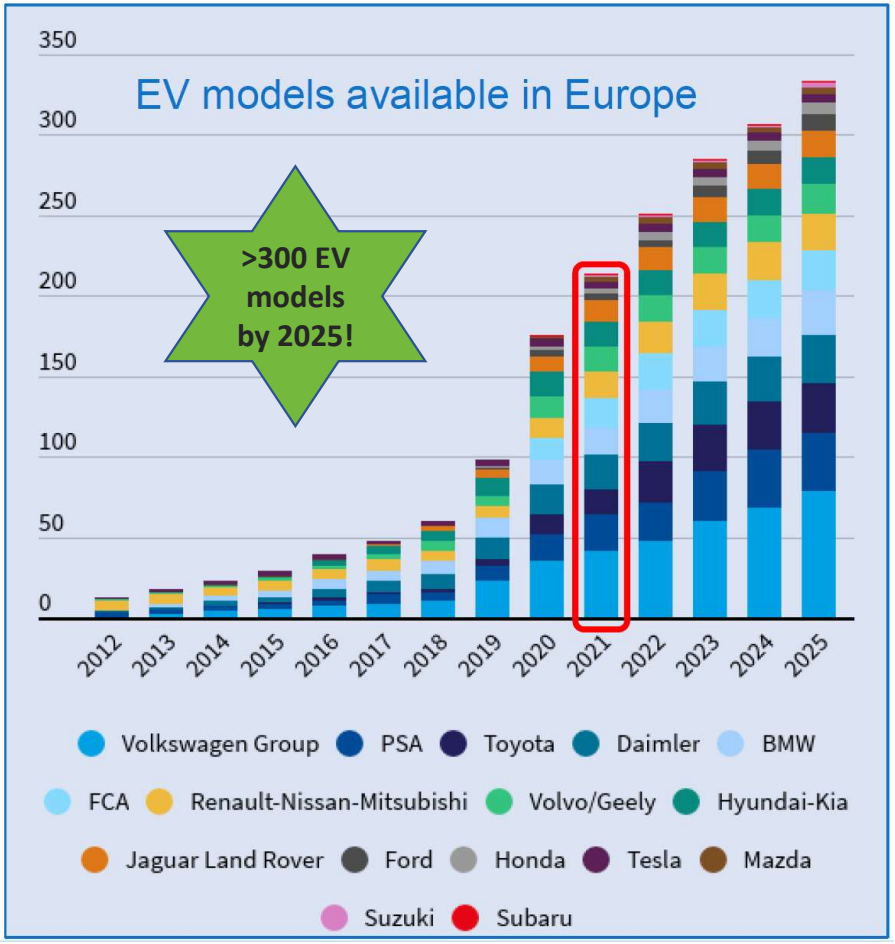
How can we deliver Net Zero Power & Transport?

1. Provide all transportation energy from clean, zero carbon energy sources
2. Serve the grid to support additional generation and power requirements
3. Stack the economics in favour of electric vehicles
4. **Enable people to charge all types of electric vehicles easily, and without any anxiety**
5. **Catalyse demand by simplifying messaging and access to information**

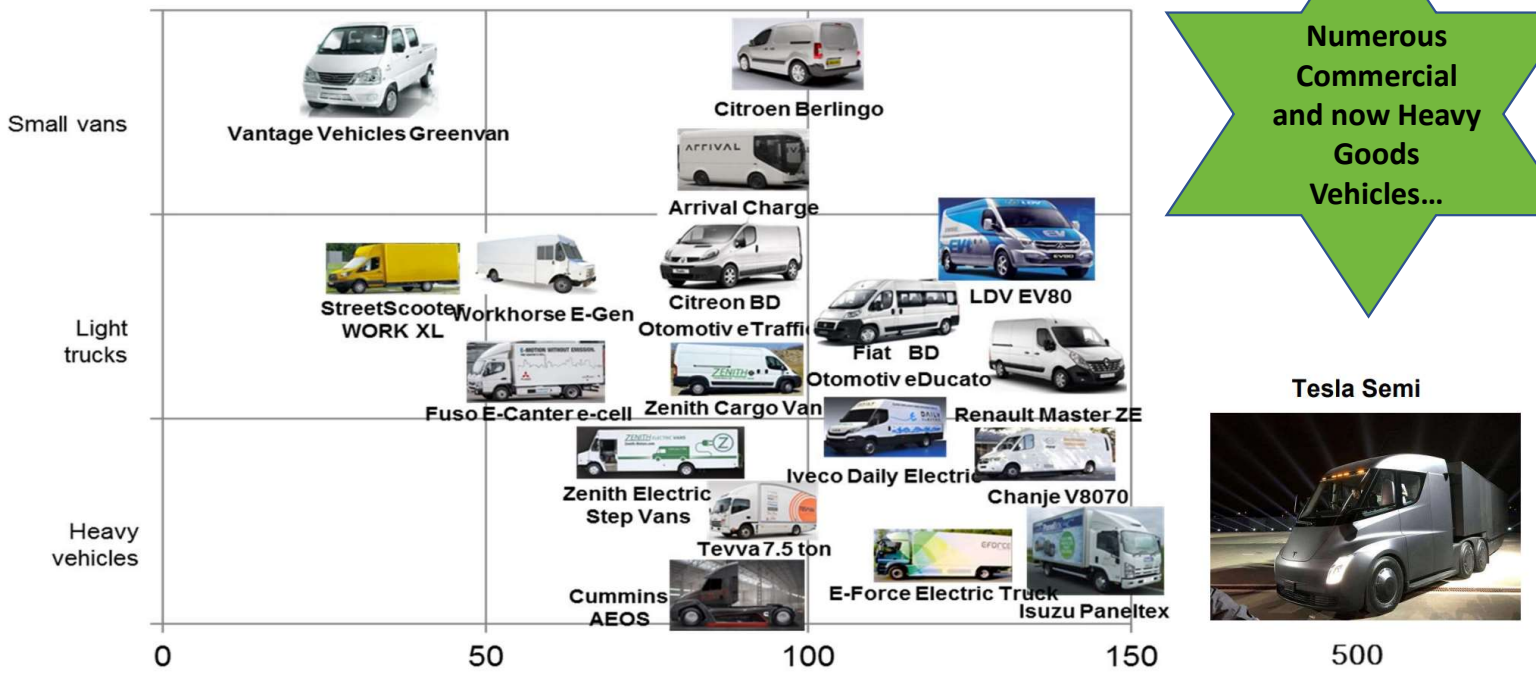
It’s now unstoppable… the future of road transport is electric…



Source: Bloomberg New Energy Finance, Images various. Notes: Not exhaustive. (*) Range is estimate



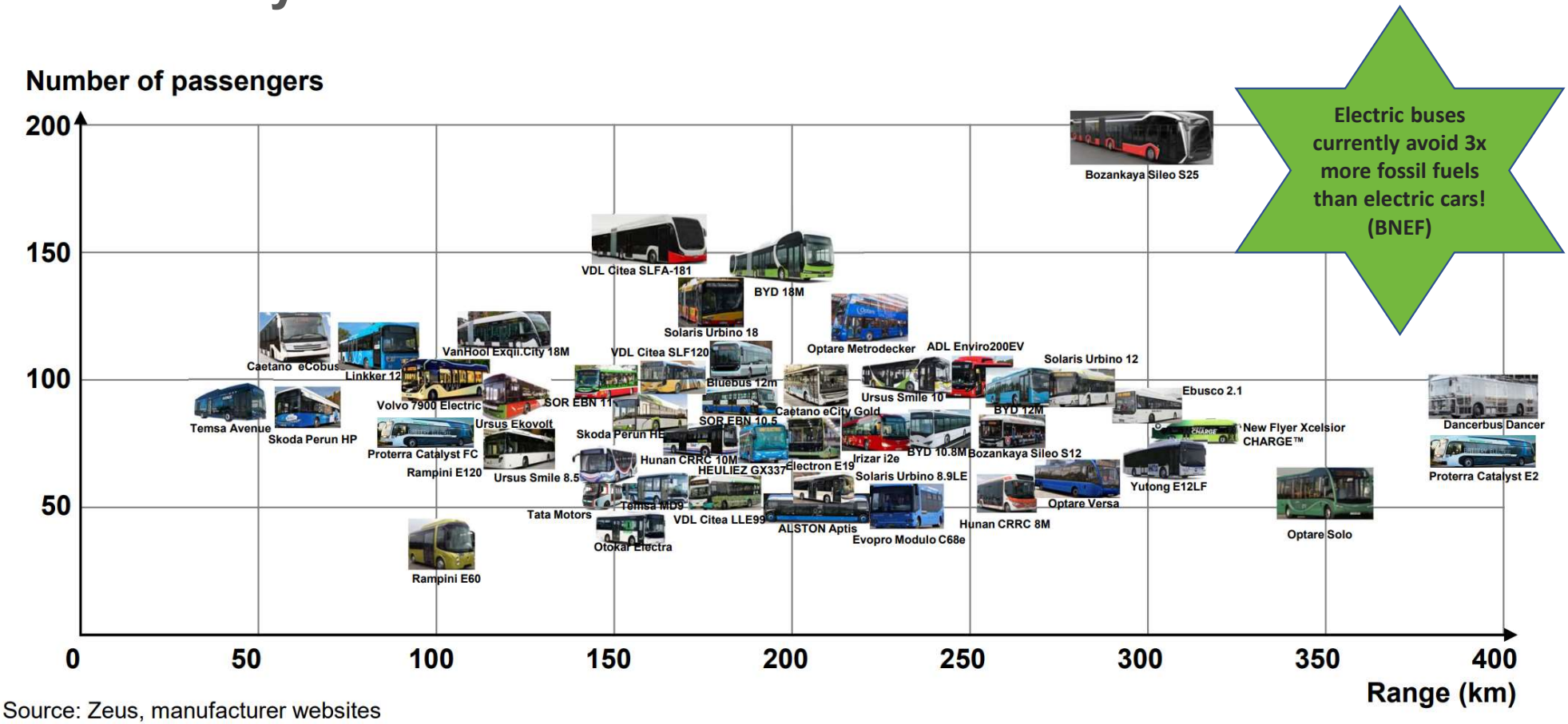
Whilst cars get the limelight, numerous new commercial EVs are also here or on the immediate horizon…



Numerous Commercial and now Heavy Goods Vehicles…

Source: @mliebreich

And China already has more than 400,000 pure electric buses in operation today…



Source: Zeus, manufacturer websites

Where do people need to charge electric vehicles?

Home Charging

i.e. Overnight charging for several hours, however 30-40% of UK households have no off-street parking to charge electric vehicles. Often not viable for commercial vehicles, AND huge numbers of low voltage circuits across the country would need to be upgraded to accommodate mass EV charging at home

Destination Charging

i.e. workplace / car parks / supermarkets. The chargers in these locations should be optimised for the length of time in the location, which typically means charge times of more than 30 mins up to several hours. Currently a very poorly served area of the market.

Public Charging

i.e. Charging hubs providing < 30 mins charging times, for multiple vehicles simultaneously

GRIDSERVE®

GRIDSERVE® will radically transform the public charging experience of using electric vehicles, by delivering a UK-wide, sustainable energy powered, affordable, network of ultra-convenient, customer-focussed Electric Forecourts® that allow rapid charging for all types of electric vehicles and deliver a superior customer experience

Can we just convert existing petrol stations?

It’s not as straightforward as it might seem to simply convert existing petrol stations into electric vehicle charging stations and to deliver an **awesome customer experience**…

Issues include:

- Number of chargers
- Queuing
- Waiting areas
- Power capacity
- Decontamination
- Etc!

GRIDSERVE Electric Forecourt® (concept v.2)

The ultimate electric vehicle charging experience, powered by low cost clean energy that supports the grid

The next version of the Electric Forecourt® was re-designed for the best electric vehicle customer experience

GRIDSERVE Electric Forecourt® (concept v.2)

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The new design allows rapid charging for up to 24-vehicles at a time and an optimized queuing system

GRIDSERVE Electric Forecourt® (concept v.2)

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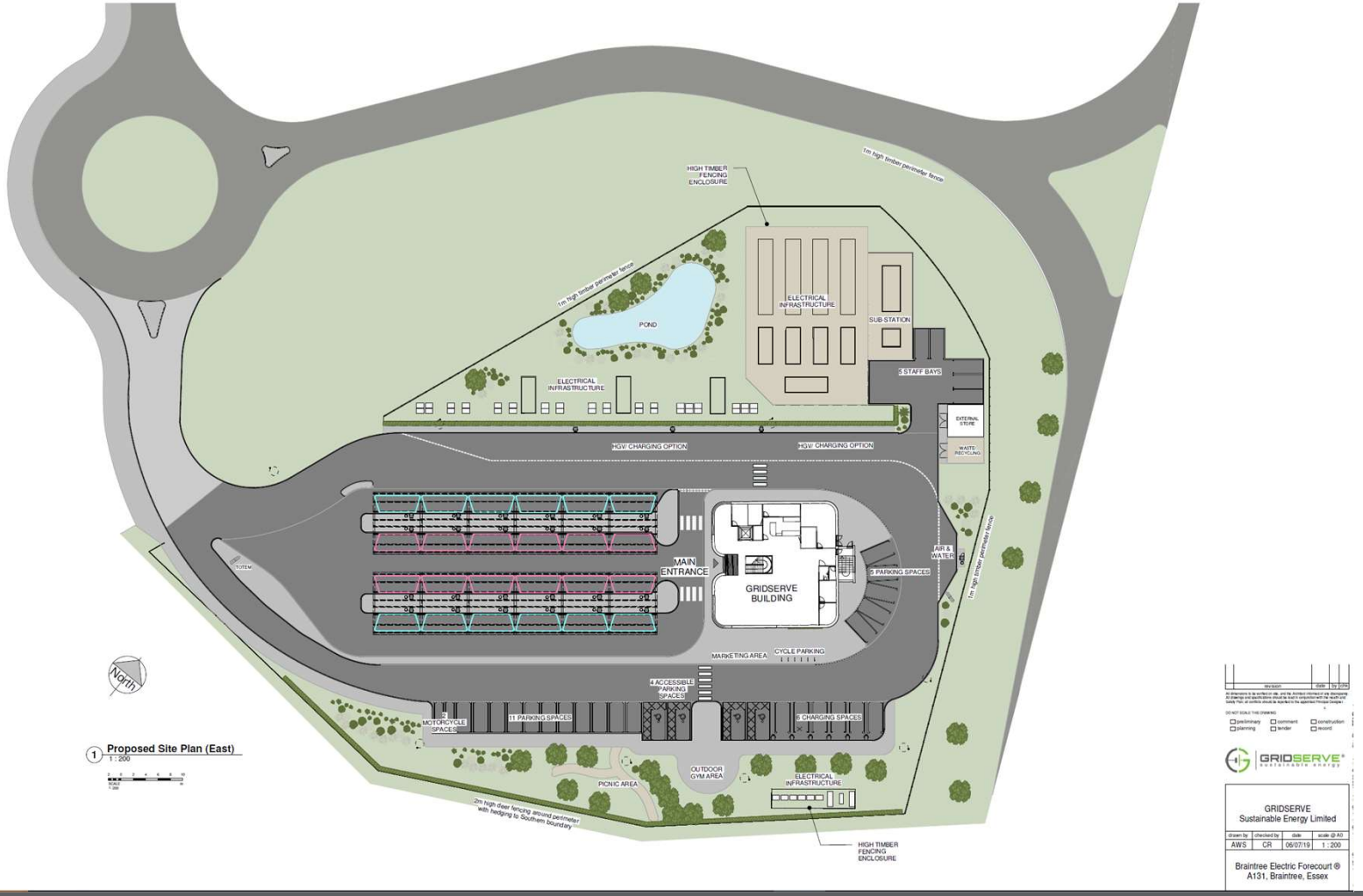
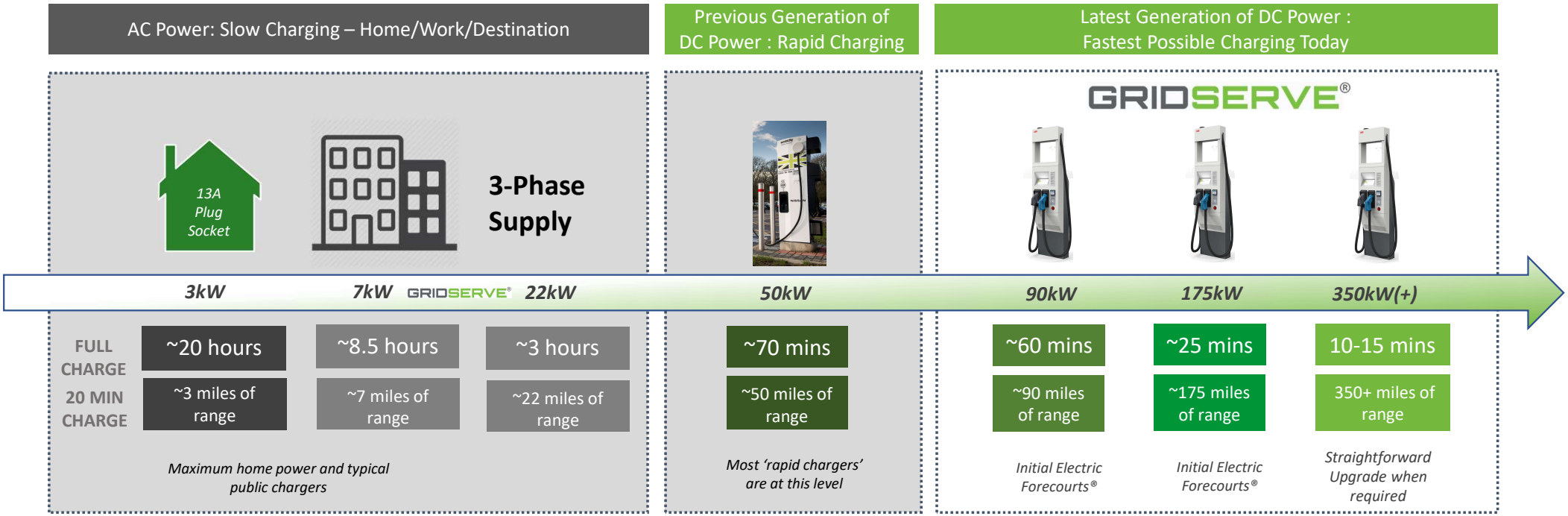
Our Electric Forecourt® network will help to provide the confidence to transition to electric vehicles

Actual design - Braintree Electric Forecourt®



GRIDSERVE® super-fast chargers will initially charge electric vehicles in <30 mins and <15 mins in the near future…



Source: GRIDSERVE, Assumes a 60kWh ~ 200-mile battery

GRIDSERVE Electric Forecourt® (actual design)

The ultimate electric vehicle charging experience, powered by low cost clean energy that supports the grid

Overview of **Braintree Electric Forecourt®** for which scheduled to be operational by May 2020

GRIDSERVE Electric Forecourt®

The ultimate electric vehicle charging experience, powered by low cost clean energy that supports the grid

Overview of Braintree Electric Forecourt® including the multi-MW battery storage system in the green containers

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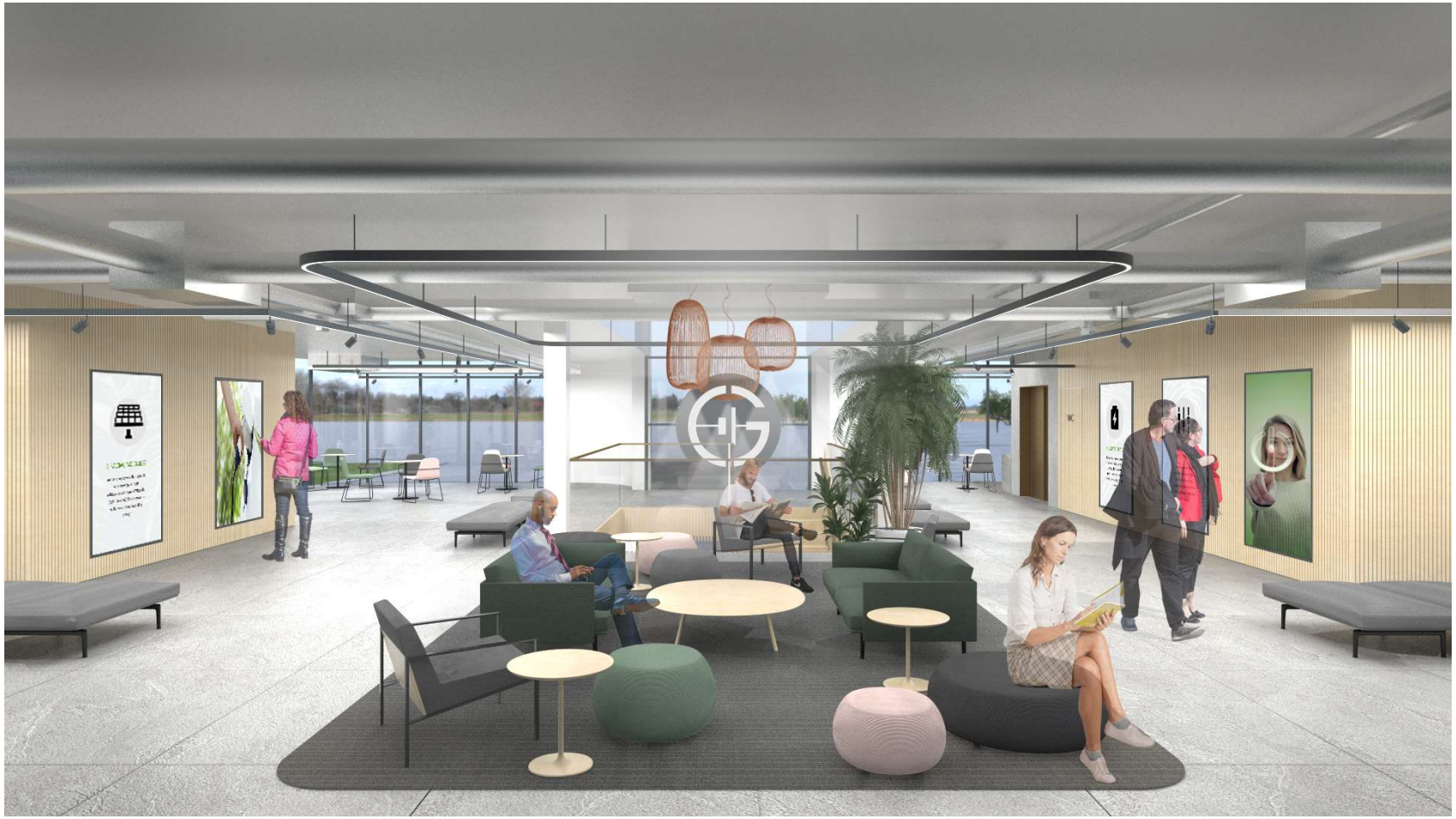

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