



MEDIA PACK

London, 22nd April 2022

ZipCharge announces the GoHub, the next transformative product that has the power to reshape public EV charging for every community while providing local energy democracy and grid resiliency. This represents the second phase of ZipCharge's strategic plan to provide convenient, low-cost access to energy for everyone.

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1. TOP LINE MESSAGES

The ZipCharge GoHub – powering communities with a new type of infrastructure

Energy democracy and local resiliency. The GoHub is an innovative form of public infrastructure that combines charging, portable power and energy storage that pushes the envelope with a mixture of technology, design, and collaboration. The outcome is EV charging infrastructure that works in any location, rural and urban, being three times cheaper than equivalent fixed chargers and can be deployed three times faster improving on financial returns. Thanks to its integrated battery storage, the GoHub will ‘power communities’ to make EV charging and access to energy more inclusive, accessible, and sustainable.

#EnergyasaService: ZipCharge will become an "energy point operator" with the public provision of portable energy as part of ZipCharge's longer term ambition to deliver "energy as a service" as the world moves to decentralised energy networks [@ZipCharge](#)

#PoweringCommunities: the GoHub is a unique type of public infrastructure that integrates charging, energy, and mobility to make EV charging and access to energy more inclusive and sustainable [@ZipCharge](#)

#EnergyDemocracy: the GoHub makes EV charging and energy more accessible at a lower cost, particularly for disadvantaged and underrepresented communities [@ZipCharge](#)

#UniversalCharging: the GoHub is an integrated energy hub that works anywhere, in the largest metropolitan areas and the most rural communities, to accelerate the deployment of public infrastructure [@ZipCharge](#)

#EVChargingInfrastructure: shared access to Go powerbanks from GoHubs on-street in residential areas or off-street in private locations such as supermarkets, shopping centres and destination hubs [@ZipCharge](#)

#UniqueInfrastructure: the GoHub is multi-use, multi-purpose, and multi-function, providing a host of community benefits and services that encourages everyone to [@ZipCharge](#)

#AcceleratedDeployment: The GoHub can concentrate ten Go portable powerbanks in a single location allowing them to be rolled out faster and increase charge point density due to a reduced time and complexity of installation [@ZipCharge](#)

#Modularity: the GoHub can be adapted and reconfigured for different environments and locations - urban, suburban and rural, with a range of renewable energy options

#EnergyStorage: the GoHub features over 100kWh of second-life battery energy storage to store clean, cheap power off-peak and recharge the Go powerbanks at peak times making charging cheaper [@ZipCharge](#)

#DynamicCharging: smart energy management and dynamic pricing will make energy access from the GoHub significantly cheaper than other AC public EV charging solutions [@ZipCharge](#)

#LowerInvestment: A fully installed GoHub with ten Go portable powerbanks will cost approximately one third of the total cost (hardware and installation) of ten equivalent fixed public AC chargers [@ZipCharge](#)

#ImprovedPayback: the GoHub decouples the charge point from the parking space increases the utilisation of the charger. It makes one charger available to more people more the time significantly reducing the payback period of AC public charging [@ZipCharge](#)

#ReducedObsolescence: The GoHub is a standard solution that can manage obsolescence, upgrading the Go chargers inside as they reach end of life and as battery energy density improves [@ZipCharge](#)

#ReducedImpact: the GoHub reduces impact on the streetscape concentrating the chargers in a single location compared to installing an equivalent number of fixed AC charge points at every charging space [@ZipCharge](#)

#GrazeDon'tGorge: the Go powerbanks provide sufficient range for daily driving needs and encourage a behaviour of charging little, but often. GoHub charging encourages charging behaviour where drivers 'graze' helping the grid and everyone who uses it [@ZipCharge](#)

#LocalResiliency: integrated battery storage provides resiliency and a buffer to the local grid, allowing Go powerbanks to be charged at peak times without drawing power from the grid. This reduces peak demand on local substations and need for grid upgrades [@ZipCharge](#)

#GridServices: GoHubs can be pooled to form a Virtual Power Plant (VPP) to provide balancing and demand side response services to the grid [@ZipCharge](#)

#GlobalDeployment: ZipCharge plans to deploy at least 100,000 GoHubs around the world by 2030 to support EV charging, local grid resiliency and energy democracy [@ZipCharge](#)

2. INTRODUCTION

In the last six months, the US, UK, and European Union have announced ambitious plans to develop national charging infrastructure to support the adoption of electric vehicles. The Biden-Harris Electric Vehicle Charging Action Plan set a goal of deploying 500,000 chargers by 2030 backed by a \$7.5 billion investment for EV infrastructure. In March, the UK government released its electric vehicle infrastructure strategy which set a target of 300,000 public charge points by 2030, a ten-fold growth over today. The British government will provide £1.6bn of public funding for charge points, including £450 million to boost on-street charging for those without driveways.

Providing equitable EV charging infrastructure

As electric vehicles sales continue at pace around the world, more public charging infrastructure is required to provide a “universal right to charge” for mass EV adoption. Mike Hawes, The Society of Motor Manufacturers and Traders (SMMT) Chief Executive believes “all drivers, wherever they live, wherever they travel and whatever their needs” should have equal access to charging.

While infrastructure is growing, the rate is well below the uptake of plug-in vehicles. This is leading to the creation of “charging deserts” in underserved, underrepresented and rural communities as charge point installation is concentrated in dense, urban areas and on major road network corridors where utilisation is higher. Analysis by [McKinsey](#) shows current charger installations in the United States “tend to be located in higher-income areas, following the location of early EV sales”. In the UK, London has the highest concentration of infrastructure with one public charger for every nine cars compared with one for every 55 in the north-west of England. Manchester, the UK’s second city, has fewer than a quarter of the charging stations in London.

Identifying the scale of the challenge

Analysis by the SMMT and Frost and Sullivan indicates the the UK will need 2.5 million on-street chargers by 2035 for a complete transition at a total cost of £16.7bn – significantly above UK government plans. Hawes believes “more investment in standard public charging” is required so drivers can access “the right chargers, in the right places, ahead of time.” This is supported by the fact that the UK now has 32 electric vehicles to every public charger which well behind other countries such as the Netherlands with 5 electric vehicles to every public charge point.

In the US, [McKinsey](#) estimates “the country would need almost 20 times more chargers than it has now”, some 1.8 million public EV chargers based on half of all vehicles being ZEVs, at a cost of \$97 billion across all locations including the home. And in Europe, The Electric Vehicle Charging Infrastructure Masterplan published by ACEA suggests up to 6.8 million public charge points are required by 2030 to realise the EU’s ‘Fit for 55’ CO2 reduction targets for passenger cars. The ACEA estimates this will require a total investment of €280bn for charge points, grid upgrades, and building capacity for renewable energy production.

Improving financial returns for on-street charging

Governments are potentially underestimating both the scale of the challenge and how targets will be achieved. It is expected that an increase in the number of charge points can be achieved without adequately addressing the issues associated with equitable and profitable deployment of EV charging infrastructure. [EY research](#) shows “the business case (of public charging) needs rethinking to support predicted EV growth ... poor cashflow and returns are jeopardizing the case for investment in public charging infrastructure.” The Competition and Markets Authority published its [Electric Vehicle Charging market study](#) in 2021 which stated:

“Based on our review of charge point operator business plans and financial models, we found that currently the revenues from on-street charge points generally do not cover running costs or the upfront costs to install the infrastructure. The time it takes to breakeven is currently estimated to be at least seven to nine years but this is uncertain as it depends on the rate of EV uptake during this period.

While providing more public money for infrastructure will help, much more needs to be done to facilitate the deployment of EV charge points. This includes reducing permitting times and addressing soft costs associated with fixed EV charging infrastructure as outlined by a report from the [Rocky Mountain Institute](#) in the US. This highlights the extensive costs of permitting delays, utility interconnection requests and compliance with regulations.

Rethinking EV charging to deliver stated goals

At the launch of the UK EV charging infrastructure strategy, Grant Shapps, the UK government Transport Secretary said: “No matter where you live – be that a city centre or rural village, the north, south, east or west of the country – we’re powering up the switch to electric and ensuring no one gets left behind in the process”. ZipCharge believes this stated

ambition requires a major rethink about the role of EV charging and the deployment of infrastructure that is more equitable, sustainable, lower cost and supports the energy network.

The GoHub from ZipCharge is our response to the global need to accelerate equitable EV charging infrastructure where it's needed most: a new type of infrastructure that rethinks the role and purpose of public EV charging to provide a universal right to charge while accelerating the roll-out at a lower cost. With the GoHub, ZipCharge will “power communities” providing more equitable access to charging and energy for everyone and every type of community. The GoHub is affordable, sustainable, and resilient to help governments meet their stated ambition to accelerate deployment of EV charging infrastructure.

Accelerating technology to support climate action

The announcement of the GoHub represents the second major product from ZipCharge following the launch of the Go in November 2021 at COP26 - the climate conference that coordinates the collective efforts of global nations to deliver climate action and support. However, since then it's become clear that more urgent action is required, and that the global efforts to date are not enough. At the beginning of April, the UN's Intergovernmental Panel on Climate Change (IPCC) released its climate report, commissioned, and endorsed by 195 governments, warning that it's 'now or never' to limit global warming to 1.5 degrees. Coupled with recent geo-political events, society is facing an unprecedented energy crisis as wholesale energy prices reached new highs.

At ZipCharge we believe more radical action and technology innovation, backed by enabling policy, is required if the world is to collectively address climate change. Technology is needed to accelerate energy transition from fossil-based to zero-carbon and support the shift to renewable energy generation. In turn this will require a transformation of the energy system with generation and management becoming more decentralised at individual and community levels. This will require significant investment in grid infrastructure with the International Energy Agency (IEA) warning that grid spending is at risk of falling short. “Global grid spending would need to rise by some 50% over the next decade to meet long-term sustainability goals,” it said in its World Energy Investment 2020 report.

Local grid resiliency to enable the energy transition

There is a need for more flexible assets to store, balance and distribute energy at a local level of we are to avoid billions of dollars of additional investment in grid infrastructure. The

ZipCharge GoHub is a unique solution that combines charging and energy to support the global energy transition and acceleration of renewable energy generation. The GoHub showcases how infrastructure can manage energy in a smarter, more efficient, and sustainable way, while making it more accessible to support energy democratisation to drive social value.

The GoHub highlights a unique technology and infrastructure concept that balances a wide set of needs, providing charging, energy, and mobility to address the inequality with our climate crisis and show how ZipCharge aims to deliver a positive impact for everyone - citizens, cities, and society - and above all our planet.

3. VISION

Our mission at ZipCharge is to democratise access to energy so we can collectively overcome the inequalities associated with the need for green, low-cost energy wherever people need it and no matter what they need it for - in the home, for the car, or away from home. The ZipCharge Go is more than a battery on wheels; it's a smart energy storage device that can store your solar energy at home, power your trip away, or charge your vehicle wherever you park. As a connected device, the opportunities the Go opens are numerous at the intersection of electric mobility and energy. The GoHub is the next extension of the ZipCharge mission, to further democratise energy access and enable personal distributed energy management.

The GoHub: the next chapter in the ZipCharge journey

ZipCharge is announcing the world's first portable EV charging infrastructure for shared, public use. The GoHub is a game-changer in public charging provision, providing a community-based solution that can be installed anywhere, at a much lower cost and at a much faster rate, while turning any parking space into a charging spot. The ability to deploy EV charging at speed is essential to allow national and local governments to deploy infrastructure at a faster rate where it is needed the most to support mass EV adoption.

The GoHub as a component of a net zero energy system

A unique hybrid charging and energy solution that is big, bold, and ambitious to deliver net zero at scale. The GoHub addresses three converging vectors to deliver a feasible and sustainable solution; increased accessibility and deployment of charge points at the lowest cost, the ability to effectively influence charging behaviour (charge little but often) to balance energy needs particularly at peak times and improve resiliency for the grid network where EV charging infrastructure both augments the grid with a range of balancing services while also providing the possibility to store and distribute energy to the grid

Creating the world's first portable energy infrastructure

The GoHub will be deployed as a global solution that enables local energy management in a wide variety of geographical locations, including rural and urban environments. ZipCharge intends to build a network of GoHubs with sufficient density will make the ZipCharge Go easily accessible for EV charging and to support local energy management, while providing grid services and energy resilience. This will require a high density of infrastructure near homes, at work, at the supermarket, shopping centre etc. and will only be achieved through public and private enterprise partnerships to provide better

Establishing the world's first vertically integrated 'energy point operator'

With the launch of the GoHub, ZipCharge is creating an all-new category of infrastructure: 'the energy point operator'. This term recognises that the Go and the GoHub enable the storage of clean energy, which can then be distributed for a multitude of uses from charging an EV to powering equipment. As an energy point operator, the GoHub acts a node in a wider distributed system in a network of GoHubs that are also connected to the grid to provide a range of energy services. ZipCharge intends to be vertically integrated, providing an energy platform, hardware, and energy point operations to support a wider range of services for a broad range of customers and stakeholders.

Enabling 'portable energy as a service'

The GoHub showcases the journey of ZipCharge from a hardware manufacturer of an innovative portable powerbank for EV charging into an energy as a service company that integrates hardware, software and services that allows anyone to store and access their personal energy in a smarter, more sustainable way and at a lower cost. The ZipCharge platform will be the enabler for everyone to manage and share their personal energy so they can provide power for anything be it a car, home, or device.

4. CONCEPT

The GoHub hosts multiple ZipCharge Go powerbanks to address the need for convenient, flexible, and low-cost energy. It is a secure way of housing, recharging, and providing access to the ZipCharge Go so that anyone can access a portable powerbank at the lowest cost. The GoHub is modular and flexible in size, suitable for a diverse number of locations, including on-street, in car parks, at work and in private environments. They can be intelligently reconfigured at minimal investment depending on the location. The GoHub fits in a standard parking bay but can be sited on the pavement or anywhere there is access to power. All GoHubs are networked and feature integrated battery storage, re-using end-of-life batteries from Go portable powerbanks.

Rethinking the role of public EV charging infrastructure

We have once-in-a-generation opportunity to rethink infrastructure, its role and purpose. EV charging infrastructure today does not consider its relationship and engagement with non-EV owners and the wider community. The GoHub therefore aims to rethink that relationship and how public EV charging infrastructure can be seen as a “public good” by everyone. With the GoHub we believe EV charging needs to be more inclusive and democratic, more equitable to more people. The GoHub creates benefits for everyone, regardless of what they drive and how they move.

Democratising access to portable energy

The GoHub makes accessing a Go more affordable and easier for everyone. ZipCharge intends to make charging available at a lower cost to charge when compared to comparable level 2 on-street and public fixed charging infrastructure. We also recognise that many people live in accommodation and property with access restrictions. We want to make sure no-one is left out in the transition to electric mobility regardless of how or where they live, and if they have off-street parking. A [Resolution Foundation](#) study in the UK claims 76% of the richest households have access to off-street parking compared to 56% of the poorest fifth of households.

EV charging infrastructure that is low investment, simple and fast to install

Analysis by [Connected Kerb](#) in the UK states: “widespread availability of slower, lower cost 7kW chargers could be a better way of solving the UK’s charging infrastructure shortcomings vs installing a smaller number of more powerful rapid chargers”. The purpose of the GoHub is to provide maximum access to multiple charge points for more people, at the lowest possible charging cost to the end user. In semi-private residential locations (like condos,

multi-unit dwellings etc.) where there is often off-street parking (designated or undesignated) it can be very difficult to install charge points due to homeowner association rules, common metering in public areas and difficulty in providing sufficient power that makes installation of individual charge point installation either impossible or prohibitively expensive.

The GoHub fits inside a standard parking space

The concept for the GoHub was to minimise its physical footprint while delivering maximum concentration of available portable powerbanks. In many cities and locations, space is at a premium. As more and more space in the built environment is being reallocated for shared use, it's important that EV charging infrastructure is conceived in a way that is both sympathetic to and a functional part of the living infrastructure.

Rethinking infrastructure by decoupling the parking spot and charge point

The GoHub allows Go powerbanks to decouple the charge point from the parking space. This enables EV charging wherever the vehicle is parked with a true one-to-many relationship between the car, charger, and parking space. The GoHub also increases convenience and certainty to charge. For example, it makes ICEing (when an ICE occupies the space for an EV to charge) or having to move an EV when there are time limits on parking, a thing of the past. These are key concerns expressed by non-EV drivers without off-street parking in Department for Transport [research](#).

Improving utilisation and the financial returns for public AC charging

The portable nature of shared Go charger increases flexibility and utilisation. The Go can be used to power anything, it's not only limited to charging an EV. In addition, its limited capacity suits multiple, shorter charging events. The GoHub will be three times cheaper and three times faster to install versus fixed on street fast chargers, transforming the payback period for AC public charging from 8-10 years (according to [research from EY](#)) to less than 2. This would allow the government and public funding support to get more chargers in more places. They can also be placed where the grid can best cope with the extra load, as well as being far less disruptive to the streetscape.

Integrated energy storage and intelligent energy management

The GoHubs re-use end-of-life batteries from our portable chargers as integrated energy storage. This presents a genuine circular approach to extending battery life and usability, while also lowering the cost. The integrated storage enables the GoHub to take advantage of Time of Use (ToU) rates and provide an energy storage buffer. It also means the GoHubs

can provide resiliency to the local grid with stored energy charging the Go chargers at times of peak grid demand.

Grid balancing and demand side response services

In a decentralised energy system of tomorrow, the GoHub can provide services to the grid to better support renewable energy generation and its local distribution in a more efficient and sustainable manner. The GoHubs and Go chargers they host can be pooled to form virtual power plants that are connected via data centres and encrypted VPN connection. These pools of distributed energy storage can participate in grid balancing mechanisms to provide demand side response services, such as Frequency Containment Reserves (FCR), and participate in the capacity market.

GoHub deployment in phases working in collaboration with stakeholders

The first generation GoHub will contain only 4kWh Go units and not feature integrated energy storage. This will provide ZipCharge with the flexibility to assess different locations and application while understanding customer needs and optimising user interaction. The second generation will be a fully modular GoHub with integrated storage and a full range of 4-8kWh units available to rent. This iterative approach to the development and deployment of the GoHub will allow ZipCharge to refine engineering, design, and operational considerations in close collaboration with a range of stakeholders including cities and municipalities.

5. FUNCTIONALITY

The GoHub makes the ZipCharge Go portable chargers more accessible to more people. The mission of ZipCharge is to democratise access to energy and address the inequality that exists around EV charging. With the GoHub, our portable powerbanks will be available for anyone to rent, making them even more accessible to more people. Consumer will now have the choice to purchase the Go outright, on subscription or rent through the GoHub. These access pathways are not mutually exclusive and ZipCharge will provide customers who own a Go at home with additional benefits if they access a Go through a GoHub. This is part of our broader strategy to make access to energy more affordable, more convenient, and lower cost for everyone.

Intelligent control through the ZipCharge app

ZipCharge has developed an integrated software solution that provides access to and control of the Go regardless of if the customer has a Go powerbank at home or accesses one through the GoHub. All functions are in a single app which provides access authentication, usage history and energy consumption no matter where a Go is used and how it is accessed. This provides transparency and a unified record of access to the ZipCharge energy platform.

Prebook and reserve Go powerbanks ahead of time

Certain access to EV charging is a key customer concern, with many wanting an ability to reserve a charge point for when they need it. Adopting learnings from other mobility providers (such as car sharing operators), ZipCharge will allow customers to check availability and charge status of the Go powerbanks in a GoHub in real time and then reserve one for a limited period to ensure its available when they arrive. Alternatively, the user can access a Go powerbank immediately when at the GoHub.

EV charging that's easy to access and simple to use

The GoHub will provide drivers with easy to access, affordable and convenient charging no matter where they park. All drivers will be able to pay with contactless payment via the integrated terminal, and the GoHub will support a range of payment providers. ZipCharge will promote interoperability of its GoHub network to ensure open accessibility to public charge points. However, customers will still need to use the app to authenticate their phone to the Go powerbank and use the app to control charging.

Take the charge to the vehicle wherever you park

Through the GoHub, ZipCharge Go powerbanks will be available to rent 24 hours a day, 365 days per year, within a five-minute walk from where the user needs one. [Department for Transport research](#) in the UK shows that almost four in five (79%) car owners who park on-street reported their walking time (from car to home) to typically be less than two minutes, and almost all (95%) reported a walk of 10 minutes or less. Having pre-reserved or selected a Go in the app, the correct bay door of the GoHub automatically opens as the user approaches. They then easily pull out the charger from its dock inside the GoHub, wheel it to the vehicle and plug-it in. Once finished, the user is notified on app, they collect the Go and return it to the bay allocated via the app. The door will open, so the powerbank can return to its 'home' GoHub.

Transparent pricing to charge for daily driving needs

[McKinsey](#) estimates in the future “drivers might end up paying between five and ten times more per kilowatt-hour than those who charge their EVs at home.” A recent study by the [Resolution Foundation](#) in the UK states “Drivers with no off-street parking must use public charging and miss £950 in savings”. ZipCharge wants to address this with the GoHub by making charging in public comparable to the cost of charging at home. Anytime access will allow anyone to use a Go powerbank for a simple to understand fee: £1, €1 or \$1 for a 4kWh charge and £2, €2 or \$2 for an 8kWh charge (equivalent to 25p or 25c/kWh). This simple and transparent pricing allows everyone to know what their daily driving will cost, based on a Go providing enough charge for the typical average daily miles travelled. There will also be no connection charge to use a Go powerbank, but access will be time limited to encourage a timely return and increase utilisation. ZipCharge aims to provide lower prices per kWh compared to fixed AC charging given the integrated energy storage in the GoHub allows ZipCharge to take cleaner, cheaper electricity overnight.

Dynamic pricing options based on energy mix and local generation

ZipCharge aims to pioneer dynamic pricing to better manage energy efficiently and incentivise access to greener energy. ZipCharge also believes this needs to be delivered at a local level, particularly as countries start to evaluate local energy pricing as the UK has announced. Depending on the GoHub location, the supply and cost of renewable energy stored at off-peak times, then ZipCharge will vary pricing at a local level and at different times during the day at prices cheaper than the Anytime access. This will be managed by the intelligent back-end software development by ZipCharge and working in close cooperation with energy suppliers and DSOs.

Enhanced benefits for ZipCharge Go owners and GoHub network members

ZipCharge will provide value added services for customers who own a Go at home, with preferential pricing when renting from a GoHub. Separately, users of the GoHub network will have the option to become members of the ZipCharge energy platform for a small monthly fee. This will provide lower GoHub pricing when compared to anytime access and unlock dynamic pricing to incentivise charging at different times of the day, based on demand and renewable energy generation. This will allow customers to take advantage of energy optimised pricing so they can access the cleanest and cheapest energy for their needs.

6. DESIGN

The design of the GoHub is modern, inspirational, and sustainable, respecting form and function in balance. With its rising canopy, the GoHub is a modern architectural design that makes the most of sustainable, natural materials and is built to last. The GoHub has also been designed with a broad range of users in mind, respecting safety, and protection of individuals, alongside superior functionality, and simplicity. The GoHub also provides a level of intelligence and connectivity not experienced with EV charging infrastructure to date.

Automotive, mobility and architectural design experience combined

The design team behind the Go and the GoHub have decades of experience across the automotive and transportation industry. The Go and initial concept work for the GoHub was styled by Tony Pettman, a former designer from McLaren who was heavily involved in the MP4-12C super-car. The A-surface development of the Go and the concept design work for the GoHub has been undertaken by Guy Colborne, an Automotive and Transportation Designer and lecturer on the Intelligent Mobility Design course at the Royal College of Art. A specialist in both Design and 3D CAD, Guy has designed the Apex Ap0 and worked for Elemental, Ford, and Opel among others. Both Tony and Guy are alumni of the Vehicle Design program at the RCA.

The GoHub makes a virtue of natural materials

Designed to be sympathetic to its environment no matter where it is sited, the GoHub has been designed to respect any location be it in a rural or urban environment. It creates a warm, welcoming, and natural stance, using natural materials to create organic shapes that are appealing and present a modern way forward for electric vehicle charging infrastructure. The simplicity of the design is reflected in how lightweight materials are employed throughout to cut the carbon footprint considerably and increase service life and recyclability.

Form and function, balancing design with operational requirements

Street furniture needs to be robust, functional, and built to last. However, this does not have to be at the expense of an appealing and attractive form. For example, the arching canopy creates a sense of space while providing shelter against the elements. The use of engineered exposed wood enhances the visual aesthetic while also providing the structural support for a range of renewable roof options. The structure opens the ability to create new features such as the integrated bench within the form of the wooden frame at the rear of the GoHub.

Appealing and modern street furniture designed for all

Today's streets are increasingly populated with a range of street furniture that provides little benefit to people for whom its use is not intended. The design of this furniture often isn't appealing or harmonious to its surroundings. ZipCharge design the GoHub so that it engenders positivity from all residents and communities, regardless of personal ownership of an electric vehicle. Increasing EV adoption requires winning the hearts and minds of everyone, and ZipCharge believes EV charging infrastructure needs to play its part. The GoHub is designed to be the antithesis of current street furniture in the urban landscape

Robust design for safety, serviceability, and upgradeability

Reliability of EV charging infrastructure is important to maintain public trust and confidence. The GoHub has been designed for ease of service and maintenance, providing seamless access to the internals through the side door and pull-out racking. This allows the internal power electronics and batteries to be easily maintained, replaced, and upgraded. Similarly, the concept for the housing of the Go powerbanks has considered how they can be upgraded, without making the GoHub redundant. The design philosophy was 'plug n play', to allow any future Go variant to fit seamlessly into the GoHub. As such ZipCharge expects the GoHub to have a long service life that far exceeds the life of the Go powerbanks it will house.

User-focused experienced with enhanced intelligence and connectivity

The GoHub designers have adapted learnings from the latest production cars to use lighting and connectivity in intelligent ways that also enhance operation and the user-experience. For example, near-field sensors detect when the pre-booked user approaches the correct door of the GoHub opens automatically. This is accompanied by lighting integrated into the canopy roof and within the bay itself, that illuminate the correct collection point. The lighting together and the integrated CCTV provide reassurance for all users no matter the location and time of day. In the event of an emergency, users also have the option of sounding an alarm via the app, which triggers the alarm integrated into every Go powerbank and alerts the system operators monitoring the CCTV.

7. TECHNOLOGY

The ZipCharge team have used their extensive automotive industry experience to develop the engineering concept and technology platform for the GoHub. The ZipCharge team now totals 18 engineers and technical specialists across power electronics, hardware engineering, battery systems and software development. The teams are split between Warwick, UK for hardware development in the heart of the UK automotive sector and the software engineering team based in Krakow, Poland who deliver eMobility back-end and front-end services for charge point operators and mobility service providers.

An automotive platform approach to EV charging infrastructure

Electric vehicles enable a whole new approach to vehicle platform design. The so-called skateboard chassis is a cost-effective, modular platform that allows OEMs to lower production costs and spread investment across a range of vehicles by maximising common technologies including batteries. ZipCharge has followed the same approach with the GoHub, developing a modular architecture to house core technologies in a single platform, including power electronics and the second-life battery. These technologies sit in a spine in the centre of the GoHub and around which the Go powerbanks are located. This approach reduces design and development costs while providing a flexible architecture.

Maximum platform commonality with community and location-based personalisation

Customers want choice, and the auto industry has perfected its industrialisation process to maximise standardisation of production with controlled variability of optional features. ZipCharge has employed this philosophy to great effect with optional technologies that can be specified in the GoHub that are incorporated into the core platform engineering. The range of optional features, including different roof options, communications etc. allows ZipCharge to tailor the GoHub to the needs of a particular community and its environment, appreciating the differences between rural vs urban environment. This approach also allows ZipCharge to respond more rapidly to changing customer expectations while developing a cost-effective and mass-producible solution.

Integrated power electronics for safety and energy optimisation

The GoHub is design with safety as the number one priority. It has been engineered to all critical standards and safety guidelines for energy storage systems, including IEC and UL requirements for batteries, circuit breakers, inverters, and battery management systems. The GoHub features bespoke electronic controller hardware and software with remote monitoring via the cloud and 4G connectivity to the ZipCharge platform. The controller monitors the

GoHub and Go powerbanks for faults, communicating status and issues, shutting down power in the event of a hazard based on a strict safety protocol safe. Control software also optimises the charging profile of the individual Go powerbanks from the integrated storage, the grid (or both) based on anticipated demand.

Active fire detection and suppression system

In addition to partitioning the battery system in a solid enclosure the GoHub features active systems to monitor and detect potential thermal events before they occur, so systems can be deactivated. The GoHub also has an integrated suppression system to contain and prevent propagation. This consists of smoke and heat detection sensors integrated with an aerosol extinguishing system that features automatic activation.

Remote monitoring and preventative maintenance to improve safety

Every GoHub and Go powerbank is connected to the cloud and constantly informing ZipCharge of their status and state of health. ZipCharge has a dedicated back-end platform with integrated machine learning to evaluate GoHub operating performance, functionality and safety to that faults and issues can be identified. This is coupled with a clear preventative maintenance program that includes manual inspection and record system.

8a. ELECTROMOBILITY

One of the primary goals of the GoHub is to accelerate the availability of public EV charging by deploying portable Go chargers for shared use. Consumers need confidence to make the switch and infrastructure needs to be installed in locations in anticipation of people making the switch to EVs. However, this isn't financially appealing for private investment due to low utilisation and lack of attractive business case. Solving this chicken and egg conundrum requires innovative thinking and alternative technology so EV charging infrastructure can be deployed at a faster, more effective way at a lower cost. The ZipCharge GoHub is an innovative solution that provides flexibility and higher utilisation with a much-improved business case that means EV charging infrastructure can grow in lockstep with EV sales.

Sufficient charging for everyday range needs

Recently released [Department for Transport research](#) into car owners without off-street parking reveal some important data relating driving patterns and charging behaviour of EV drivers. Firstly, the research indicates outlines that “current BEV drivers regularly top up their vehicle in addition to fully charging once a week and before any long trip”. They follow a ‘grazing’ approach to charging. The survey also asked non-EV drivers without access to off-street parking the typical distance travelled when undertaking different types of journeys. Respondents drive shorter distances (under 20 miles) for journeys they undertake frequently such as driving to/from the supermarket (91% of respondents). The capacity of the ZipCharge Go, providing between 20 to 40 miles of range, is well suited to everyday driving needs and the ‘grazing’ behaviour that existing EV owners without off-street parking exhibit.

Universal accommodation for any combination of Go powerbanks

The GoHub is a universal design that a customised combination of Go powerbanks of different capacity (4, 6 or 8 kWh). This ‘mix and match’ approach allows for the optimum combination of units to be determined depending on the location of the GoHub. For example, a GoHub with more 4kWh Go powerbanks would suit a location with a short dwell time of 30 minutes. Where the dwell time is longer, the GoHub will feature more 8kWh powerbanks. Other locations may have a combination of different capacities and the intention is for ZipCharge to work with the local community to provide against their needs.

Flexibility to change the mix of Go powerbanks in the GoHub over time

The combination of Go powerbanks in any GoHub can be varied over time. ZipCharge can flex the range of Go powerbanks to meet demand as charging behaviour and preferences evolve. As a new type of charging infrastructure ZipCharge needs to understand and plan for

flexibility to meet the ongoing needs of customers. This dynamic approach to provision and availability ensures the GoHub maintains relevance and applicability as the electric vehicle market matures and preferences shift.

Managing obsolescence and improving charger uptime

The unique integrated design of the GoHub results in Go powerbanks being easily replaced in case of fault or planned maintenance. This will improve charger uptime and make it easier to keep the GoHub operational as the Go powerbank can simply be replaced with another functioning unit. Similarly, ZipCharge plans to manage infrastructure obsolescence by upgrading GoHubs with new variants of the Go powerbank when they are developed and come to market. This helps prolong the maximum working life of the GoHub while improving the range and service ZipCharge offers customers.

A new type of infrastructure that's complimentary to fixed chargers

The GoHub is entirely complementary to fixed infrastructure and can augment charging provision, depending on location. If it's not possible to install fixed infrastructure, the GoHub can provide a unique solution with a centralised hub for access to personal power. Conversely, in locations where fixed charging is available, the GoHub can provide demand-side flexibility at a significantly lower cost compared to electrical system changes or local upgrades through the DNO.

Levelling up infrastructure by addressing rural EV charging inequality

The GoHub is a solution that can level up in rural locations and underrepresented communities. Approximately a fifth of the UK population live in rural areas and little progress has been made to deploy EV charging. In rural locations the GoHub can be sited in the car parks of community centres, village shops and pubs, places where the local community would otherwise congregate. Many rural locations also rely on tourism, and the provision of EV charging can encourage EV-driving tourists from outside the rural area to visit.

DC ultra-fast EV charging depending on site suitability and location

An optional DC fast charger can be integrated into the GoHub, available as a 100kW or 150kW charger. The charger can charge two vehicles simultaneously when the GoHub is sited in a suitable car park or location so two vehicles can park safely and easily access the charger connectors. This optional integration minimises installation complexity and maximise integration with the power electronics and battery energy storage, allowing DC fast charging to be delivered with a low-voltage and low-power grid connection that feeds the GoHub. Currently, the cost associated with adding extra capacity to the grid is a postcode lottery, with

the electricity distribution network operators (DNOs) reporting that it can cost anywhere between £60,000 and £2 million to connect new rapid and fast-charging stations. [McKinsey](#) claims that “upgrading grids will be costly: for a single public direct-current fast-charging (DCFC) station consisting of four DC 150-kW chargers, the cost of upgrading the grid and the site could be more than \$150,000”.

8b. SUSTAINABILITY

ZipCharge has a clear commitment to sustainability and delivering a net zero energy platform by 2030. This commitment includes the Go powerbank and GoHubs, aiming for our products and all materials we use to be net zero carbon. We want to enable everyone to access clean energy so they can play their part in helping the climate and to improve the health of our planet. In the development GoHub we have focused on lowering its environmental footprint using recycled materials, designing for long life operation and recyclability. The use of wood and natural materials ensures the GoHub is sympathetic to its environment and the role the GoHub plays for the environment. Just like today's modern EVs, the main structure of the GoHub is a hybrid: a combination of 100% recycled steel from ICE vehicles and lightweight composite materials. The automotive sector is pioneering the integration of mixed materials to save weight, increase sustainability and lower cost.

Eco-construction using natural wood from FSC certified sources

The exterior of the GoHub and the structural roof is constructed from glued laminated timber (glulam) which is a natural alternative to steel or concrete. The extensive use of wood in the GoHub supports sustainability and recyclability and is made from FSC certified sources to maintain a healthy balance in the world's forests. The advantages of glulam are numerous. It uses much less energy to produce and transport than steel and it can be easily reused or recycled. Glulam also withstands aggressive environments better than other construction materials and is now commonly found in other street furniture.

Steel from recycled (ICE) car bodies making end-of-life more sustainable

Whereas the steel used in car bodies is approximately 25 percent recycled steel, ZipCharge will use 100 percent recycled steel sourced from scrapped ICE vehicles in the central structure of the GoHub – a way to reduce the lifecycle emissions of the legacy auto parc. More than 14m tonnes of steel from end-of-life vehicles – equivalent to nearly 13.5m cars – is recycled every year, according to The Steel Recycling Institute. The use of second life steel saves up to 74% of the energy to make steel from virgin materials.

Adoption of carbon-free 'green steel' after 2025

Carbon Brief research shows that just 553 conventional steel plants worldwide are responsible for 9% of global carbon dioxide emissions, owing to the large quantities of fossil fuels used. These emissions are expected to increase as the IEA forecasts steel production will grow by a third through to 2050. The steel industry, led by SSAB with its HYBRIT carbon-free steel, is pioneering the replacement of fossil fuels in the production of the iron

pellets by replacing carbon and coke with green hydrogen. ZipCharge will adopt carbon-free steel in its future GoHub infrastructure.

Composite materials for the next generation of public infrastructure

ZipCharge is designing the GoHub to be lighter, more durable, and fully recyclable by integrating the use of composite materials into the structure. This makes the GoHub less expensive and consume less energy in its manufacture and transportation. The automotive industry, led by the likes of Arrival, are developing composites that are 50% lighter than steel, yet durable and resistant to damage – particularly suitable for public infrastructure. ZipCharge will develop the use of plant-based composites that have a lower density than carbon fibre and a higher stiffness-to-weight ratio

Lowering the carbon footprint of EV charging infrastructure

The carbon intensity of producing and installing EV charging infrastructure is a topic that requires greater understanding and analysis. While there are studies that have considered the full lifecycle impact of an electric vehicle, there are no equivalent studies for charging infrastructure. ZipCharge has estimated that the installation of a single GoHub has a 50% lower CO2 footprint compared to the installation of an equivalent number of separate AC chargers. This is due to the groundworks required during installation to dig up pavements and lay new cables which required the use of diesel generators.

8c. MODULARITY

The GoHub is modular and expandable, providing configuration flexibility for different environments and locations. It is a universal solution that can be adapted for maximum integration and suitability for all environments - urban, suburban, and rural. ZipCharge wants to deploy inclusive infrastructure, allowing municipalities, cities and private companies with the flexibility and choice to adapt the GoHub to their needs – respecting the divergent requirements of users, locations and use cases. That's why the GoHub is available with a variety of options to enhance the Hub. All GoHubs can be intelligently reconfigured, expanded and connected at minimal investment, growing in tandem with the adoption of electric vehicles.

The GoHub as a building block for infrastructure expansion

In its base form, the GoHub comes in two variants; a single sided unit that houses five ZipCharge Go portable powerbanks, or a double-sided GoHub with ten. The single GoHub can be sited up against a wall (on pavement for example) or free standing. The double GoHub allows access from both sides and is well suited for installation in a car park (in a supermarket/grocery store for example). GoHubs can be placed side by side, and interconnected to each other, so they operate as a single unit.

A compact footprint that fits inside a standard car parking space

The GoHub is the size of a standard car parking space. This compact footprint maximises the quantity of Go powerbanks available to serve multiple parking spaces. The dimensions of the GoHub respect the need to integrate with existing infrastructure and locations where it will deliver the greatest use and utility. It provides flexibility to be installed in a variety of locations and car parks, minimising the impact, particularly where space is at a premium. The GoHub can also be sited on the pavement and close to where power already exists.

A universal solution that minimises complexity

The GoHub can be placed where the grid supply already exists and where the grid can best cope, minimising groundworks, and complexity, without needing to lay more high-voltage cables, dig up the street and the associated impact that causes. The Competition and Markets Authority [Electric Vehicle Charging market study](#) states: "A charge point operator told us that the upfront cost of digging up streets to install below the ground infrastructure is ... 50% or more of its costs goes into digging the streets." The Go powerbank is secured in place inside the GoHub and recharged via a docking unit that fits inside the Hub. This is a universal solution that will work for any Go charger, today and in the future.

Flexible infrastructure that grows and adapts over time

The GoHub capacity can be added over time in a low-cost way, as EV adoption increases. Additional expansion units have been designed to connect to the main GoHub unit, providing additional capacity of three Go portable powerbanks. These are 'dumb' units without power electronics or integrated battery storage, which significantly lowers the overall cost. The expansion units are "plug and play", connecting into the primary functions of the host GoHub

The GoHub can be relocated to help infrastructure adapt to changing needs

GoHubs can be easily relocated. They are modular in terms of assembly, and this allows ZipCharge to decommission them and redeploy lockers if demand is higher elsewhere. This allows optimisation of the charging network, which is constantly evolving and needs to be dynamic as more people adopt EVs. There is a significant sunk cost to fixed infrastructure that is no longer fit for purpose if it's in the wrong location. This is a major advantage over fixed infrastructure, as it provides enhanced flexibility to the network

8d. EFFICIENCY

The GoHub has been engineered to be highly efficient to minimise energy use and cost of operation. It is energy neutral when connected to integrated renewable sources that generate sufficient energy to serve its operational needs. A range of optional renewable energy sources can be mounted on the roof, including solar and wind power. Like the modularity of the Hub, these can be combined in different configurations optimising the GoHub according to its geographical location (urban vs rural) and the local climate. Wind or solar options have been integrated to work along, or the two system together, harnessing the natural opposite energy patterns of these two renewable energy sources.

Renewable power supports an energy neutral operation

The GoHub is energy neutral in its operations with sufficient energy generated by the renewable sources. This helps to reduce energy costs and additional load on the grid.

The renewable energy generated is used to operate the power electronics and ancillary services such as the communication module. Renewable energy can be stored in the integrated second life batteries which can then also be used to provide free power for anyone to charge their devices and mobile phones via the community charging hub.

Solar panels with conversion efficiencies of 25%

ZipCharge will integrate the latest high power and high efficiency solar panels on the roof of the GoHub. Tandem solar cells composed of silicon and perovskite enhance the performance of silicon-based photovoltaics to achieve conversion efficiencies of 25%. Tandem solar cells contain a pair of semiconductors with varying bandgaps to deliver more power per square metre than standard silicon cells.

Quiet, environmentally friendly, highly efficient, and beautiful wind turbines

ZipCharge has collaborate with [Flower Turbines](#) in the Netherlands to integrate their unique urban wind turbines into the GoHub. Flower turbines are ideal for urban environments due to their design and technology. They can operate at low wind speeds and do not need to turn towards the wind to maximize their power output. They also generate no noise and pose no danger to birds and other wildlife given their safe design. The Flower Turbines are also highly efficient. Close coupling, as positioned on the roof of the GoHub, increases overall efficiency as a set compared to the sum of the power generated from individual turbines. In urban environments, the turbines can harvest airflow from passing vehicles if sited next to a roadway, as well as the urban canyon effect in large dense cities. In rural environments, in windy areas, the turbines can produce more power per square metre than solar panels.

Promoting biodiversity and conservation of resources

The GoHub can be specified with an optional green living roof. Containing wildflowers and sedum the roof supports biodiversity, encourages pollination and is friendly for insects. More needs to be done to combat the decline in bee population and GoHub can help cities reduce habitat loss and support the greening of the urban environment. A green roof also reduces the urban heat island effect, capturing particulates from the air. Finally, a green roof can support biodiversity by absorbing rainwater.

Rainwater harvesting to better manage local water run-off

The GoHub features an optional rainwater harvesting system. Rainwater is collected directly or filtered through the green roof into a tank. This water can then be used by residents or municipalities as a clean source of water for non-potable uses such as irrigation, washing cars etc. Not only does this conserve water as a precious resource to minimise environmental impact it also helps to reduce run-offs during heavy rainfall, reducing soil erosion and to support local drainage. The GoHub rainwater system features a small pump that is used to irrigate the living roof so it can be automatically watered when required.

Optional solar-powered water purification for remote locations

For locations where drinking water is scarce, the GoHub can feature an optional solar power water purification system that provides drinking water anywhere. The system filters 99.9% of pathogens from harvested water to provide access to clean, safe drinking water which remains a challenge throughout the globe. While many water purification and filtration systems require additional energy or resources, the system in the GoHub uses gravity-based filtration and waste heat from solar panels to distil and purify the water.

8e. RESILIENCY

The GoHub is a solution that combines charging and energy to support the global energy transition and increase in renewable energy generation. It's a new type of EV charging infrastructure that features intelligent and distributed battery storage to provide grid resiliency and support local energy networks. The intention with the GoHub is to create social ownership of energy and promote energy democracy for communities, while improving the energy equation for the Energy System Operator (ESO) and Distribution Network Operators (DNOs). ZipCharge will deploy second life batteries from electric vehicles, working in partnership with car manufacturers, and its own Go powerbanks as the energy storage. The ESS provides multiple resiliency functions; to store clean energy off-peak, recharge Go powerbanks at peak times, provide local stabilisation services and to provide demand side response services to the grid as part of a balancing mechanism.

Local resiliency in the event of power outages

Climate-related extreme weather events are increasingly leading to power disruption and local blackouts. The average American experienced more than 8 hours of power interruption in 2020 and the [US has more power outages than any other developed country](#). According to analysis by Climate Central, major outages (affecting more than 50,000 homes or businesses) grew ten times more common from the mid-1980s to 2012. In 2022, storms Arwen, Malik and Corrie resulted in many thousands of homes in Scotland being without power for long periods. At a local level, and particularly in rural areas, the GoHub could provide temporary power for homes as well as emergency relief for storm shelters and rescue centres after widespread power outages.

The GoHub features second life battery cells as local ESS

EV batteries can live a second life when they no longer meet performance requirements, typically when it can no longer maintain 80 percent of total usable capacity. ZipCharge intends to give these batteries a second life in the GoHub, working in partnership with select car manufacturers. Over time, ZipCharge will increase the deployment of second life cells from Go powerbanks once, like an EV, they have reached the end of its life. Their application as stationary energy storage in the GoHub provides a circular and sustainable supply route for battery cells, lowering cost and to reduce our environmental footprint. McKinsey estimates that by 2025 “second-life batteries may be 30 to 70 percent less expensive than new ones, tying up significantly less capital per cycle.”

Energy storage is recharged at night, taking clean, cheap energy when generated

The GoHub features control software to store energy off-peak and use it to charge the Go charges during the day. This enables ZipCharge to arbitrage energy prices between peak and off-peak, thereby lowering the cost to charge and improving payback period. This also reduces the load on the grid.

Renewable energy storage at times of peak generation

The EV energy task force report [Charging the Future: Drivers for Success 2035](#) outlines the challenge with the energy transition: “Higher penetration of decentralised, weather-dependent (and, therefore, intermittent) renewable energy (particularly wind power) will drive changes to the electricity system.” ZipCharge will work directly with the energy sector, including energy providers, to participate in the capacity storage market. Our software will take advantage of the evolving energy market to trade electricity with the grid. The GoHub can be charged when excess renewable power generated and give power back to the grid when it's not needed.

IoT enabled and intelligent back-end control to create virtual power plants

Every GoHub is networked to the ZipCharge cloud and backend so they can be aggregated into pools. Control software communicates with a backend server that connects batteries digitally to form a large virtual battery or virtual power plant (VPP). Connections are encrypted and secure via data centres. The centrally controlled, back-end server automates charging and discharging of the energy storage across the pooled GoHubs to respond to energy supply and demand.

Participation in grid balancing mechanism with distributed energy resources

The virtual power plant can provide a range of services for the ZipCharge GoHub network and to the grid. ZipCharge can take advantage of peak shaving and energy price arbitrage (peak to off-peak prices). GoHub pools can also participate in the control power market by providing grid stabilisation services such as Frequency Containment Reserves (FCR). This helps to stabilize frequency and voltage, and balance variations in supply and demand. These services will allow ZipCharge to lower the cost of energy accessed from the GoHub, enabling energy democracy.

Protect against overloading and eliminate the need for LV network upgrades

[EY and Eurelectric analysis](#) claims that “charging demand to surge in the evenings, when drivers return from work, causing potential increases in peak load of 86%” in urban, residential areas. GoHubs can support the grid to avoid overloading 11kV networks during

peak demand (during all seasons) through smart charging and use of integrated energy storage to better manage loads and avoid breaching network operational limits. A single GoHub can reduce complexity and strain on low voltage networks by providing a more flexible, lower investment solution versus expensive upgrades. In the UK it's estimated that local upgrades can cost anywhere between £60,000 and £2 million to connect new rapid and fast-charging stations.

Encourage charging behaviour of 'little, but often' to reduce peak energy demands

The deployment of shared Go powerbanks can help influence charging behaviour to reduce grid impacts. The Go provides sufficient range for daily driving needs and encourages a behaviour of charging little, but often. This 'grazing' approach limits people to charging for daily use, reducing peak demand on the grid and prevent a potential breach of network operational limits. This is supported by the UK Government House of Commons Transport Committee, which stated in its [First Report of Session 2021–22](#): *"Unless the National Grid gains more capacity, consumer behaviour will have to alter so that charging takes place when supply can meet the additional demand. The alternative will be blackouts in parts of the country. The Government must ... move consumer behaviour away from conventional refuelling habits towards 'a little but often' approach."*

8f. COMMUNITY

The GoHub is a new type of charging infrastructure for communities. It has been designed to be multi-use, multi-purpose, and multi-function, using technology to help positively engage communities. It provides a wider benefit to those communities, not just for EV drivers, through several key features. At ZipCharge we believe charging infrastructure needs to be more democratic and inclusive, recognising the interests and needs of wider society, particularly those people who don't have access to EVs. This is very important during the transition from ICE to EV to engage so non-EV drivers see new infrastructure as a positive and an acceptance of change, not something that creates division and increases inequality. With the design of the GoHub, ZipCharge has considered the broader interests of a wide group of stakeholders, while making the GoHub safe for everyone to use, especially women.

Inclusive features to enhance the community

Our infrastructure has been conceived to provide benefits for every member of the community. The glulam exterior can be formed into different shapes that can create integrated structures into the GoHub that can be used for different purposes. For example, ZipCharge has integrated a seat to the rear of the GoHub with the bench profile designed into the wooden structure as a single piece. It's also possible to integrate planters, canopies and additional lighting that can be powered, watered, and supported by the GoHub.

Technology to connect and promote the community

The GoHub should inspire confidence and empower communities to be more sustainable, efficient, and resilient. Given every GoHub is connected, ZipCharge will provide a local WIFI hotspot for the community to use and access. The side of the GoHub is customisable with different features including a recharge point that allows anyone to access clean energy for charging their phone or device. The sides of the GoHub also feature digital panels which can be used to advertise local small businesses or to promote community services.

Supporting disadvantaged and underrepresented communities

According to the U.S. Energy Information Administration nearly a third of U.S. households struggle to afford their energy bills, with one in five cutting back on food or medicine to pay for electricity and heat. In the UK, recent research from Citizens Advice predicts the rise in domestic energy could mean one in four adults - equivalent to 14.5 million people - will be unable to afford their bill. There is a growing divide in energy affordability and accessibility in the home, for mobility and transportation. ZipCharge wants to be part of a solution to address this. The GoHub is democratic and is intended to support disadvantaged,

low-income and underrepresented communities, including social housing. The technology in the GoHub can provide resiliency and low-cost access to energy as part of an integrated solution. The GoHub can be part of community microgrids when fed from shared solar panels and other local energy generation such as wind or biomass heat and power (CHP).

Protection and safe access to energy for all community users

When designing the GoHub we have considered the personal safety of all users, particularly females, who have genuine concerns when using public EV charging points. Ginny Buckley at Electrifying.com, which offers consumers advice on switching to EVs, and TV presenter and EV advocate Maddie Moate, have publicly expressed issues around intimidating locations and lack of lighting that results in women feeling vulnerable when travelling and charging alone. ZipCharge has followed the four-point plan set out by Electrifying.com and WalkSafe in designing the GoHub which has several safety-enhancing features to provide reassurance and make it more accessible. This includes CCTV that monitors surroundings, motion sensing lighting and additional roof mounted spotlights to provide 360° lighting. There is also an alarm to provide alerts and immediate assistance.

8g. MICROMOBILITY

Micromobility is a changing how we move, transforming urban mobility and providing more sustainable transportation options. The rise of e-scooter and e-bikes demonstrates citizens want fast, reliable, and green modes of transportation, while others have discovered the health benefits of cycling. The challenge with Micromobility, both owned and as a shared service, is the need for recharging and secure and safe storage. The GoHub has been designed to support a range of mobility modes. ZipCharge believes infrastructure in cities needs to be more integrated, to reduce street clutter and provide a better service to users. That's why the GoHub can support all forms of electric mobility, not just EVs, with energy as a service. In urban environments we envision the GoHub as a new form of street furniture that provides access and power for personal mobility and shared mobility services.

Integrated bike racks for everyday and overnight stowage

The GoHub can be specified with a range of bike loops, racks and lockable covers that are built into the structure of the unit, removing the need for additional anchoring or ground works. These provide safe and secure stowage for people to store their bikes, be it for an hour or overnight, utilising the CCTV and additional lighting already integrated into the GoHub. Communities need better and safer ways to store bicycles if cities are going to promote sustainable transport. This includes better ways than chaining bikes to lamp posts, railings, or other fixed furniture.

Powering multiple mobility solutions with 'energy as a service'

Cities and local governments want to promote and support all types of zero-emissions mobility to encourage more people out of their vehicles. Cities also need intelligent infrastructure that addressed the rapid growth of electric scooters and e-bikes. The GoHub can provide energy to power a scooter or bicycle through its recharge point. ZipCharge wants to support the scaling of EV adoption and shared mobility to make communities healthier and increasing equitable access to transportation. The GoHub provides the community with the possibility to charge anything - cars, bikes, or scooters near to where we live, shop, study, or work.

An integrated docking station to charge and organise micromobility services

The GoHub will help better organize public spaces, increase safety and security, and provide more sustainable solutions for Micromobility. ZipCharge has developed an optional docking station that will secure and recharge scooters and bicycles with a universal connector for any brand or operator. The GoHub, in parallel to EV charging, can act as a network of hubs for

smart docking and recharging. This allows cities and operators to balance free-floating and docking based solutions, by combining advantages of both. For operators the GoHub can help reduce costs and allow expansion to suburbs or less populated zones, reducing operating, maintenance, and balancing requirements. For local authorities and cities infrastructure integration reduces investment and street clutter, coordinating services for residents so it is more sustainable, accessible, and efficient.

9. LOCATIONS

The GoHub has been developed to be installed and used in a variety of locations. ZipCharge has taken a universal approach to the GoHub to ensure it is suitable for urban, suburban, and rural environments without compromise and dependency on utilisation only as an EV charger for the business model to work. This means the GoHub is equally suitable for, and can serve, a diverse set of geographical locations: a rural countryside community, a small town by the sea with high seasonal demand in the summer, and a major urban conurbation with a high population density. The GoHub can be placed in any location where people live, work or visit, and is particularly well matched where there is a dwell time of 30 minutes to 2 hours, including a range of destinations.

Accelerate the provision of residential charging on-street and off-street

The GoHub can accelerate the provision of on-street and off-street charging for residents. The GoHub can help cities, local authorities and municipalities accelerate the number of charge points available on-street for residents. It's also a flexible solution for multi-unit dwellings, condos and apartment blocks that have off-street parking in communal parking lots and garages. Many of these properties face challenges to install shared charge points due to regulations, electrical infrastructure, and metering challenges in shared areas. The GoHub is a solution that allows residents to charge and be billed for their energy use.

Public charging in rural locations that is unattractive to fixed charging infrastructure

Rural locations, where population density and EV adoption are low, remain underserved by EV charging networks. Rural locations are also less resilient in the event of emergency or blackout. In rural locations it can be difficult for local authorities or private companies to justify the investment given the low utilisation. In rural locations the GoHub can be sited in the car parks of community centres, village shops and pubs, places where the local community would otherwise congregate, to access charging. Many rural locations also rely on tourism, and the provision of EV charging could also encourage EV-driving tourists from outside the rural area to visit.

Flexible destination charging that turns any parking space into a charging spot

In large car parks at in cities and destinations including supermarkets/grocery stores, shopping centres, cinemas, hotels etc. provision of fixed EV charging will require significant capital investment to meet demand as the adoption of electric vehicles increases. Large car parks are typically underserved by access to power from the grid. The GoHub provides

increased flexibility, turning any parking space into a charging spot. This applies to any public or private car park, including multi-storey and underground car parks, where distributed, flexible charging is required for undesignated parking.

Energy resiliency for businesses while providing flexible charging

Many businesses want to provide EV charging and need a solution that is lower cost, faster to deploy and provides more flexible charging so they can attract customers and increase the level of convenience. The GoHub also can improve attractiveness for many businesses by providing microgrid storage when connected with renewable power generation and energy resiliency for critical business infrastructure. Supermarkets/grocery stores could install the GoHub connected to roof solar to generate clean energy. This can be used for EV charging and as an onsite back up to power critical elements of the store (refrigerators, freezers etc.) in the event of a power disruption.

Workplace charging and depot fleets in addition to fixed charging infrastructure

It's a challenge for businesses of all sizes to plan fixed charging infrastructure without understanding time-based utilisation. Then the challenge shifts to determining the density and type of charging required, and if charging should be sized for peak requirements or steady-state demand. The former will result in high capital investment and a longer payback, and the latter resulting in charging bottlenecks at peak times during the day. The ZipCharge GoHub and Go portable chargers can provide flexible charging at the workplace for employees and at depots for fleet vehicles. For companies with large staff parking areas, it's difficult to deliver fixed infrastructure cost-effectively and flexibly - that's what the GoHub can solve for. Similarly for fleets, the GoHub can provide flexible access to charging at peak times and for multiple vehicles, allowing fleets to right-size their fixed charging investment

A flexible charging buffer at dedicated EV charging hubs

The GoHub can provide dedicated EV charging hubs with energy flexibility, to lower operating costs due to high utility rates. The integrated energy storage of the GoHub can provide peak-shaving and load shifting capabilities at certain periods. At the same time, the GoHub could provide complementary portable charging for drivers at hubs when they are waiting for a fast charger. As the pace of EV adoption accelerates, and proprietary networks open to all EV owners, drivers are increasingly having to wait at dedicated charging hubs during peak (and even off-peak) times.