Welcome

We're at the forefront of fast charging, creating global networks of electric vehicle chargers that are convenient, reliable, and focused on customer needs—available at workplaces, within communities, and along highways

You'll see some of the best parts of Vehicle Zone in action — and find help on how you can understand our project into your own.

Abstract

Electric vehicles (EVs) emerged around the same time as gasoline-powered vehicles, but it wasn't until the mid-2000s that their technological advancement and commercialization gained significant momentum. With growing global concerns about environmental issues, particularly global warming, many nations have implemented policies to boost the supply and market viability of electric cars. However, this has led to a 2-3 fold increase in power consumption due to EV charging each year. As this trend continues, power suppliers will need to anticipate supply and demand for this market. Experts predict that for every 100 electric cars, 55 charging points will be needed. However, installing new charging facilities has faced challenges due to conflicts among landowners and stakeholders over location and supply issues. These challenges complicate the transition from combustion engine cars to electric cars.

There are two main types of charging points: private-use and public-use. Private-use charging points, located on private property, offer limited accessibility to the general public, leading to under-utilization. Public-use charging points, typically found in parking lots or gas stations, can be difficult to manage due to non-electric vehicles occupying charging spaces or EV owners leaving their cars charging for too long. In Korea and other countries, governments have tried to address these issues through laws and fines. Additionally, locations like apartment complexes, large hotels, and office buildings, which serve both private and public functions, can provide shared access to charging points for owners, residents, visitors, and other permitted users. This approach can meet the needs of EV users in busy city centers. As EV adoption spreads from inner-city areas to outer suburbs, charging points will naturally expand to these regions.

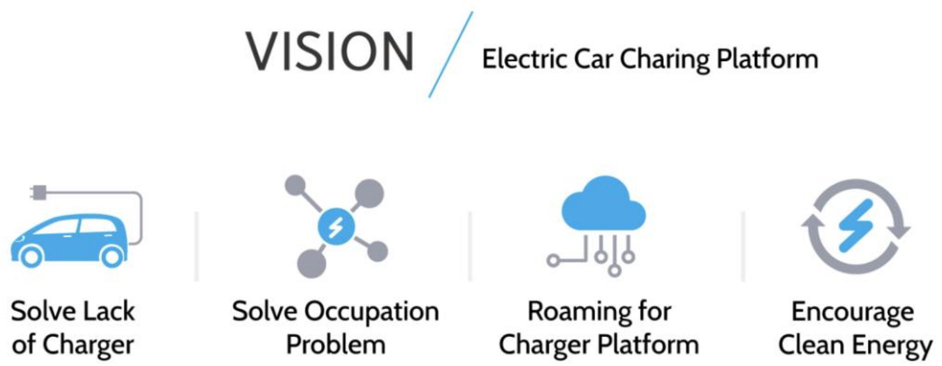
Currently, charging point operators use different methods to provide their services, often requiring users to register as members. Operators also face challenges with installing new equipment for payment processing and communication, leading to increased setup, operating, and maintenance

costs, which in turn raise recharging prices. Manufacturers of EV charging technology have developed their own operating systems, resulting in a variety of competing systems. To address this, manufacturers and service providers are working to develop an industry standard using the Open Charge Point Protocol (OCPP). However, differences in payment processing and additional charges among countries and providers complicate this effort. EV users often face the inconvenience of dealing with incompatible systems and may need to register with multiple services.

To promote the expansion of the EV industry, improving ease of use for EV owners is essential. Charging point businesses should ensure that customers can access all providers through a single registration, requiring the adoption of a "roaming service." This platform should be simple enough for all providers to adopt, optimizing the current infrastructure for smooth and precise data exchange.

Another issue is whether EVs can truly be labeled as environmentally-friendly, emission-free vehicles. This debate arises because their manufacturing and powering involve nuclear and fossil fuels. To address this, the market needs to prioritize producing energy from clean sources like solar, wind, and geothermal power. Managing the supply of clean energy is challenging, so finding ways to ensure a consistent supply is crucial. One solution is storing excess energy when supply exceeds demand. EVs can serve as both transportation and storage batteries, creating a virtuous cycle where building more EVs encourages the generation of green energy, which in turn requires more EVs to store the increased energy supply.

To address these issues and establish eco-friendly EVs as mainstream, blockchain technology can be used to create a linked system. The following section will discuss four visions for the application of the VZ Platform and the VZ token.



Once these steps are completed, anyone can easily install and operate their own charging points, fostering the growth of a voluntary sharing economy. The second vision aims to prevent anti-competitive behavior or system abuse, such as occupying charging points for excessive periods. This can be achieved by developing a token economy that distributes financial rewards or penalties to encourage positive participation in the ecosystem.

The third vision involves creating a platform that allows businesses to offer roaming services to their customers. To achieve this, it is essential to synchronize the systems of various businesses as closely as possible to enhance accessibility.

The fourth vision focuses on using electric vehicles as storage batteries to improve energy efficiency and promote clean energy use. These batteries can function as both chargers and dischargers, being fully charged before peak times and then transmitting energy back to the grid during high usage periods to reduce the load.

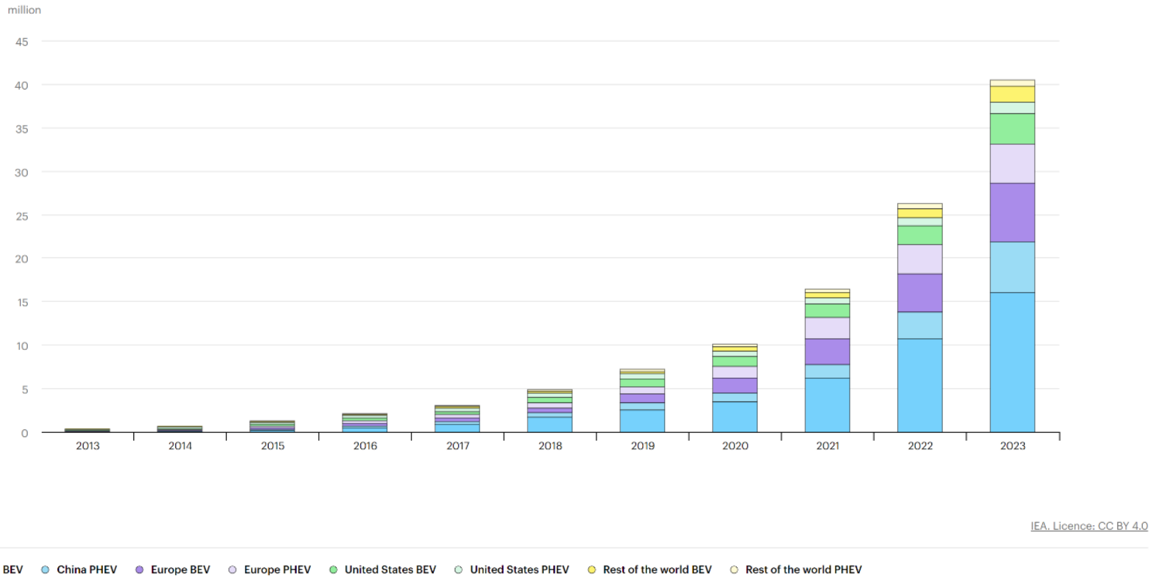
In conclusion, the VZ project aims to increase the utilization of existing infrastructure by enabling the sharing of private-use charging facilities, such as home-based chargers. This approach can address issues like occupying charging stations for too long through verification systems and penalties, thereby improving user convenience. Additionally, users can be encouraged to use green energy and avoid accessing the power grid during peak times. These policies enhance the value of choosing eco-friendly transportation while reducing emissions, directly contributing to environmental preservation.

Current Situation

Trends in electric cars

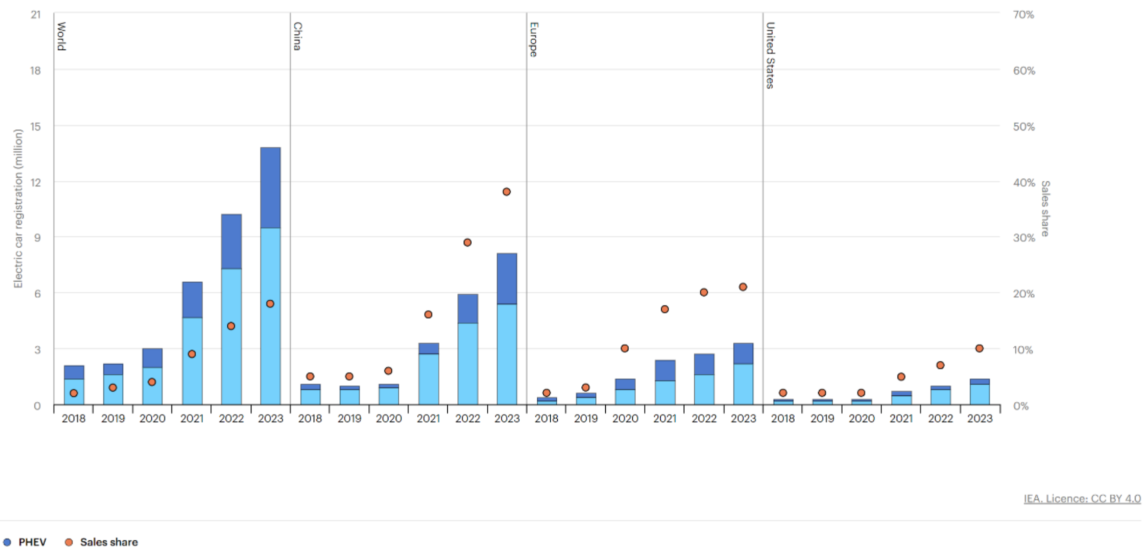
Electric car sales neared 14 million in 2023, 95% of which were in China, Europe and the United States

Almost 14 million new electric cars were registered globally in 2023, bringing their total number on the roads to 40 million, closely tracking the sales forecast from the 2023 edition of the Global EV Outlook (GEVO-2023). Electric car sales in 2023 were 3.5 million higher than in 2022, a 35% year-on-year increase. This is more than six times higher than in 2018, just 5 years earlier. In 2023, there were over 250 000 new registrations per week, which is more than the annual total in 2013, ten years earlier. Electric cars accounted for around 18% of all cars sold in 2023, up from 14% in 2022 and only 2% 5 years earlier, in 2018. These trends indicate that growth remains robust as electric car markets mature. Battery electric cars accounted for 70% of the electric car stock in 2023.



Global electric car stock, 2013-2023, IEA

Electric car sales continued to increase in emerging market and developing economies (EMDEs) outside China in 2023, but they remained low overall. In many cases, personal cars are not the most common means of passenger transport, especially compared with shared vans and minibuses, or two- and three-wheelers (2/3Ws), which are more prevalent and more often electrified, given their relative accessibility and affordability. The electrification of 2/3Ws and public or shared mobility will be key to achieve emissions reductions in such cases (see later sections in this report). While switching from internal combustion engine (ICE) to electric cars is important, the effect on overall emissions differs depending on the mode of transport that is displaced. Replacing 2/3Ws, public and shared mobility or more active forms of transport with personal cars may not be desirable in all cases.



Electric car registrations and sales share in China, United States and Europe, 2018-2023, IEA

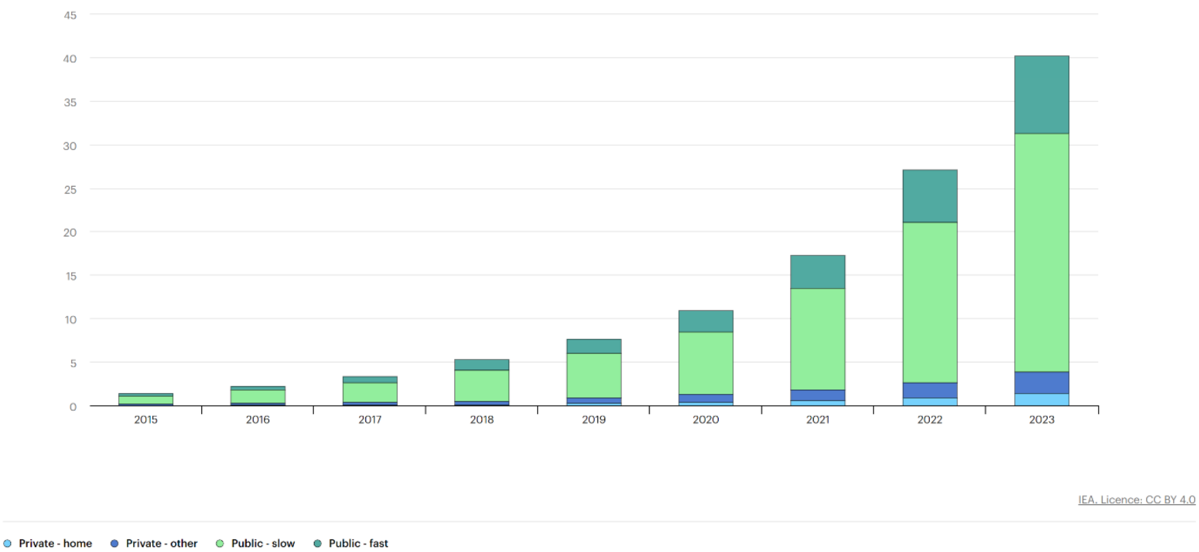
Electric car sales remained strong in the first quarter of 2024, surpassing those of the same period in 2023 by around 25% to reach more than 3 million. This growth rate was similar to the increase observed for the same period in 2023 compared to 2022. The majority of the additional sales came from China, which sold about half a million more electric cars than over the same period in 2023. In relative terms, the most substantial growth was observed outside of the major EV markets, where sales increased by over 50%, suggesting that the transition to electromobility is picking up in an increasing number of countries worldwide.

Trends in electric vehicle charging

There are almost ten times as many private chargers as public ones, with most owners charging at home

Home charging is currently the most common means of charging electric cars. EV owners with access to a private parking space that can be equipped for charging can charge overnight, which is not only convenient but also typically takes advantage of lower electricity prices while demand is relatively low.

The availability of home charging varies substantially between regions and is linked to differences in urban, suburban and rural populations, as well as income bracket. In dense cities, where most people live in multi-unit dwellings, access to home charging is more limited and EV owners rely more heavily on public charging. This is most apparent in Korea, which is one of the world's most densely populated countries and has the highest ratio of public charging capacity to EVs.



Public and private installed light-duty vehicle charging points by power rating and by type, 2015-2023, IEA

Although there are many more private chargers, public charging and the interoperability of its infrastructure is key to enabling more widespread adoption of and more equitable access to EVs. The public charging stock increased by more than 40% in 2023, and the growth of fast chargers – which reached 55% – outpaced that of slow chargers.At the end of 2023, fast chargers represented over 35% of public charging stock.

Governments are strengthening support for public charging infrastructure

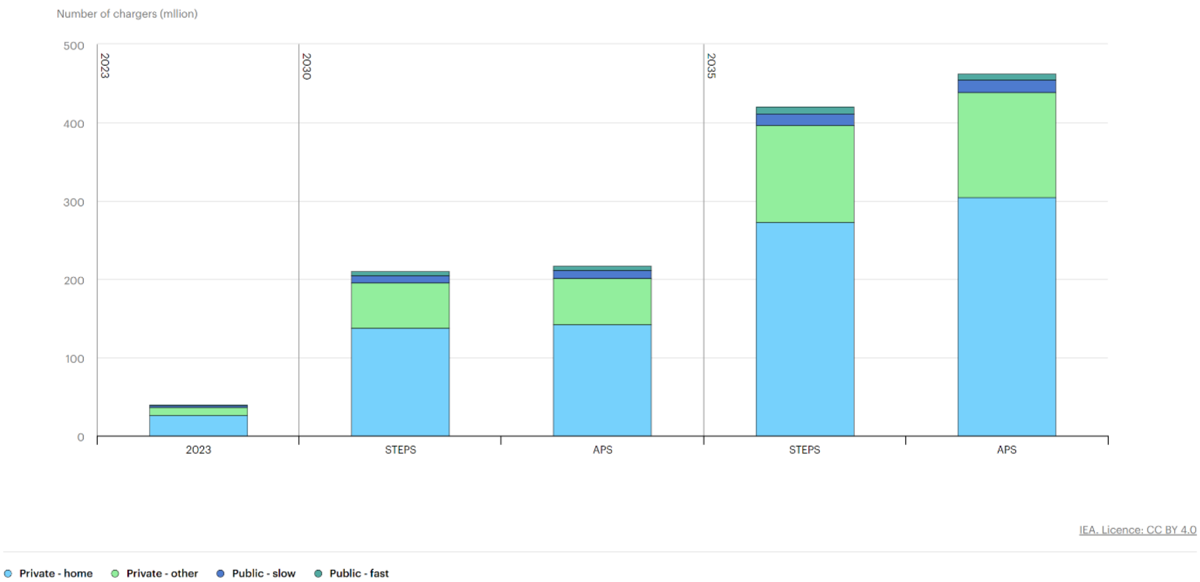
Although there are many more private chargers, public charging and the interoperability of its infrastructure is key to enabling more widespread adoption of and more equitable access to EVs. The public charging stock increased by more than 40% in 2023, and the growth of fast chargers – which reached 55% – outpaced that of slow chargers. At the end of 2023, fast chargers represented over 35% of public charging stock.

Outlook for electric vehicle charging

Light-duty vehicle charging

Public charging could increase sixfold by 2035, helping mass-market consumers switch to electric

Large-scale adoption of EVs hinges on the simultaneous roll-out of accessible and affordable charging. The early adopters of electric cars have tended to live in single-family detached homes with affordable and convenient access to home charging. As a result, most charging to date has been private (at home and other private locations). At the same time, public chargers have tended to be installed in urban areas, where utilization rates are likely to be higher. Looking forward, however, chargers must also be installed outside of urban areas to enable continued adoption beyond cities and suburbs.



Light-duty vehicle charger stock, 2023-2035, IEA

Policies focused on charging infrastructure play an important role in increasing the number of charging points per EV. Specifically, the EU Alternative Fuels Infrastructure Regulation (AFIR) requires member states to ensure publicly accessible charging stations offer in aggregate at least 1.3 kW of power output per BEV and 0.8 kW per PHEV. The capacity requirements can be relaxed once 15% battery electric stock share has been reached. In the APS, the average charging capacity per EV is close to 1 kW, despite over 80% of electric LDVs being battery electric, given that battery electric LDVs reach a 30% stock share. The AFIR regulation also requires that from 2025 onward, DC fast charging (at least 150 kW) be installed every 60 km along the EU Trans-European Transport Network (TEN-T). As such, the share of fast chargers is set to increase from the 2023 share of approximately 15%.

The share of public charging is expected to grow in the next decade, though most charging will still take place at home

Statistics on the availability of home chargers are scattered, and our analysis therefore assumes that access to home charging covers 50-80% of the electric LDV fleet, based on various surveys, depending on the share of population residing in dense urban areas.[1] We estimate that globally there were 27 million home chargers in operation in 2023, or 150 GW of charging capacity and 1.6 electric LDVs per home charger. The stock grows more than tenfold by 2035 in the STEPS to reach over 270 million. In the APS, the home charger stock reaches around 300 million in 2035.

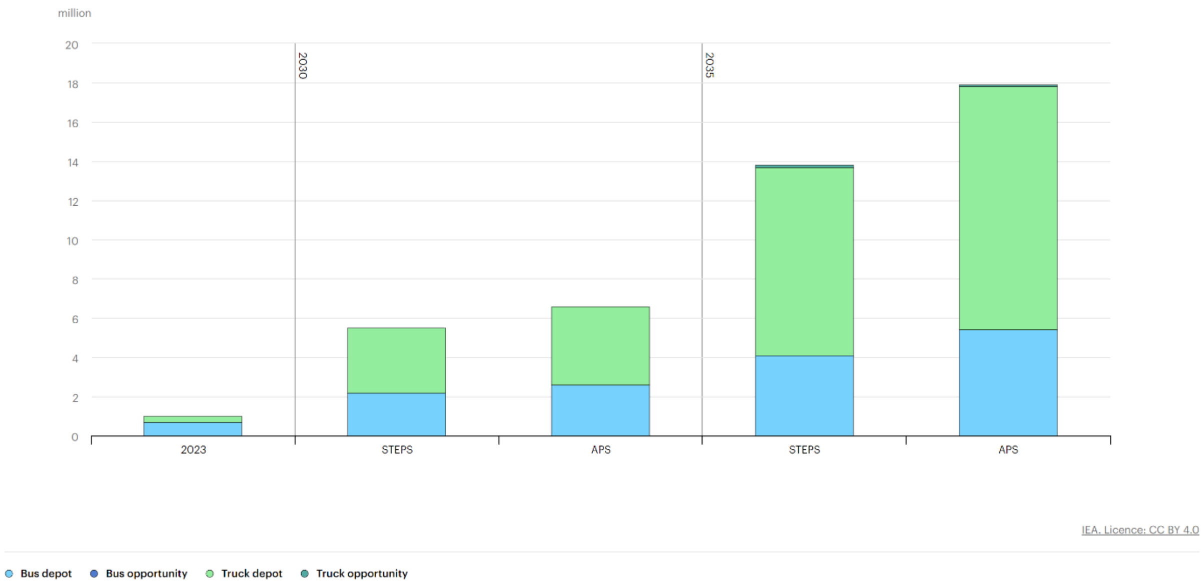
Heavy-duty vehicle charging

As more and more buses and trucks are electrified, charging capacity is set to grow twenty-fold by 2035

For commercial vehicle operators, similarly to owners of personal EVs, overnight charging of electric HDVs at depots offers a convenient way to charge stationary vehicles. Charging overnight also has the benefit of being able to charge at relatively low power rates given the amount of time available. This kind of charging strategy requires a close to one-to-one ratio of depot charger per electric HDV.

In the near term, it is expected that electrification of HDVs will proceed most quickly for segments with relatively short (under 200 km/day), predictable daily routes, such as city buses, urban and even some regional delivery services. Overnight depot charging could likely meet most of the needs of these fleets.

In addition, there will also be a role for opportunity chargers. Opportunity chargers can be at the end of a bus line or at a truck loading dock, where vehicles can take advantage of waiting time to charge without disrupting typical operations. Opportunity chargers also include public chargers along motorways that allow for en-route charging. For some HDVs, such as intercity buses and long-haul trucks, en-route fast charging may be needed to supplement depot charging in order to enable long-distance driving. While these segments could be slower to electrify, their relatively high share of activity today – and thus emissions – mean they will be important to decarbonise.

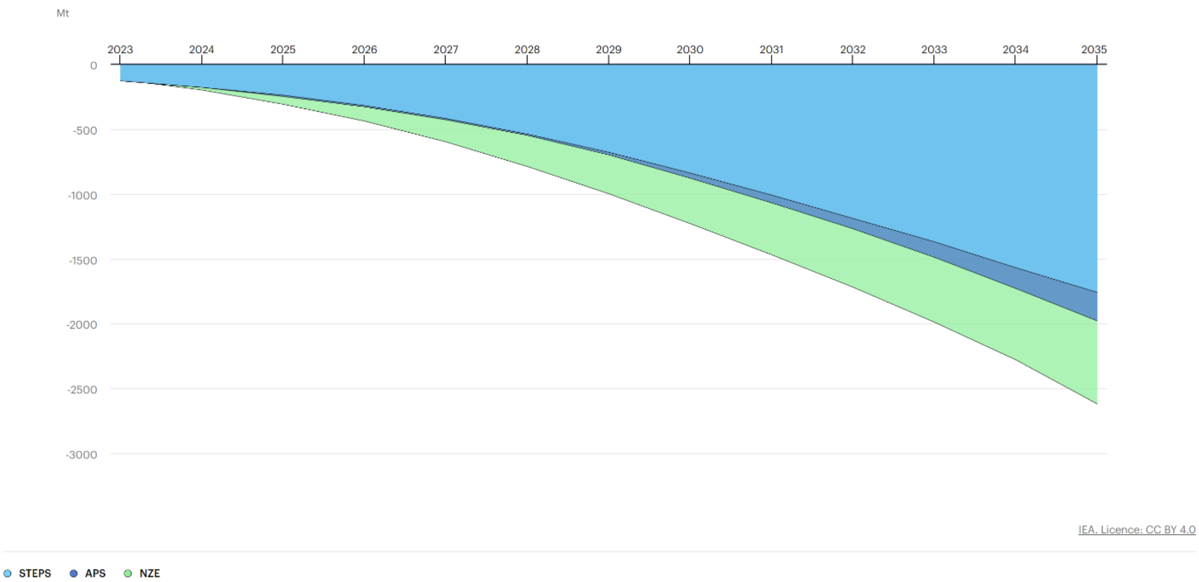


Heavy-duty vehicle charger stock in the Stated Policies and Announced Pledges Scenarios, 2023-2035, IEA

Outlook for emissions reductions

Government electrification ambitions would avoid 2 Gt CO2 in 2035 on a well-to-wheels basis

Road transport electrification at the global scale is expected to unlock substantial emission reductions in the coming decades. While it will be important to keep in check any additional emissions coming from electricity generation for EVs, these emissions will be more than outweighed by the emissions reductions resulting from a switch to electric. In the STEPS, the emissions avoided by using EVs rather than ICE equivalents (alongside continued improvements to ICE fuel economy) reach over 2 Gt of CO2 equivalent (CO2-eq) in 2035. Additional emissions from electricity generation for EVs are far smaller, at over 380 Mt CO2-eq, meaning there is a net saving of 1.8 Gt CO2-eq in 2035 in the STEPS. Sustained decarbonisation of power generation helps deliver even more emission reductions in the APS, in which net emissions avoided by switching to electric reach around 2 Gt CO2-eq in 2035.

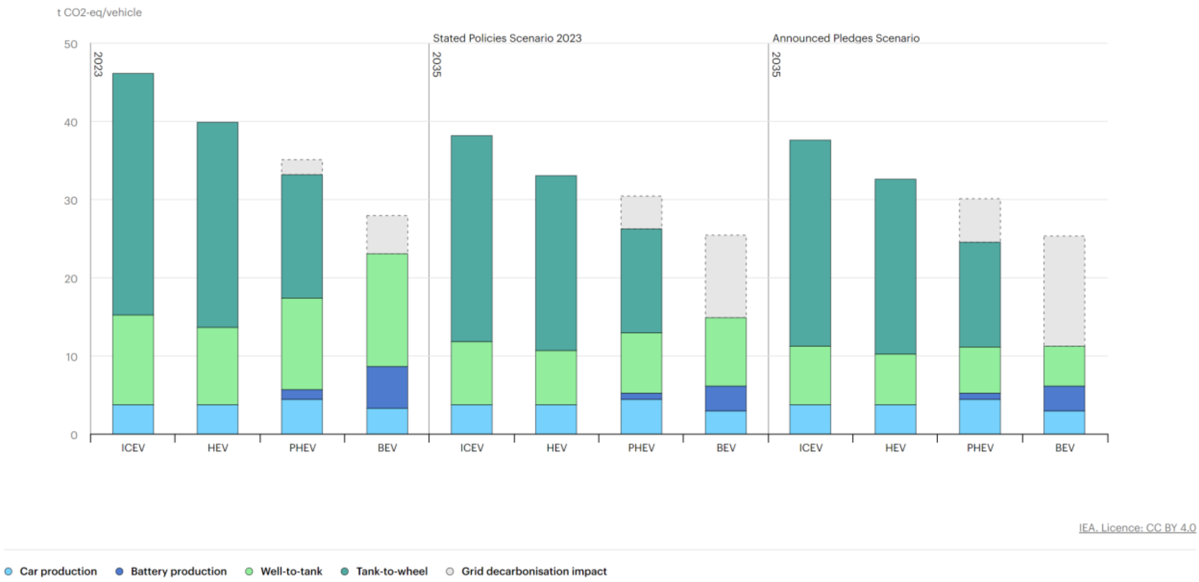


Net avoided well-to-wheel greenhouse gas emissions from electric vehicle deployment, 2023-2035, IEA

A battery electric car sold in 2023 will emit half as much as conventional equivalents over its lifetime

Today, there are already substantial emissions benefits to switching to EVs when emissions are considered on a lifecycle basis, which includes the emissions associated with the production of the vehicle as well as the well-to-wheel emissions (i.e. well-to-tank and tank-to-wheel emissions). In both the STEPS and APS these benefits increase over time as the electricity mix is decarbonised further.

Globally, in the STEPS, the lifecycle emissions of a medium-size battery electric car are about half of those of an equivalent ICEV that is running on oil-based fuels, more than 40% lower than for an equivalent HEV, and about 30% lower than for a PHEV over 15 years of operation, or around 200 000 km. These emissions savings increase by around 5 percentage points in the APS, as the grid decarbonises more quickly than in the STEPS. When comparing vehicles purchased in 2035, an ICE car produces almost two-and-a-half times the emissions of a battery electric car in the STEPS, and over three times as many in the APS, over the vehicle lifetime. For a medium-sized car, this equates to 38 t CO2-eq over the ICE car lifetime compared to 15 t CO2-eq for a BEV.



Comparison of global average lifecycle emissions by powertrain in the Stated Policies and Announced Pledges Scenarios, 2023-2035, IEA

Why Blockchain?

The increasing adoption of electric vehicles (EVs) is driven by the need for sustainable transportation. As more EVs are used, the demand for efficient and secure charging infrastructure grows. Traditional charging systems face challenges like security vulnerabilities, lack of transparency, and complex billing processes. Blockchain technology offers a potential solution to these issues, potentially transforming the electric car charging industry.

Understanding Blockchain Technology

Blockchain is a decentralized and distributed ledger that records transactions across multiple computers. It is known for its transparency, immutability, and security. By removing the need for intermediaries, blockchain ensures trust and efficiency in various sectors, including finance, supply chain, and healthcare.

Enhancing Security in Electric Car Charging

Traditional charging systems are prone to security risks such as data breaches and unauthorized access. Blockchain can mitigate these risks by providing a secure framework for charging transactions. Charging data stored on blockchain is distributed across multiple nodes, making it nearly tamper-proof. Decentralized identity verification ensures that only authorized users can initiate charging sessions, reducing the risk of fraud.

Improving Transparency in Charging Transactions

Traditional electric car charging systems face security risks, which concern both service providers and EV owners. These risks include data breaches, unauthorized access, and potential data manipulation. Blockchain technology offers a robust solution to these security challenges, creating a secure environment for electric car charging.

Centralized databases and intermediaries in traditional systems are vulnerable to hacking, exposing sensitive user information and transaction data. Blockchain operates on a decentralized network, making it difficult for malicious actors to compromise the system. The distributed nature of blockchain ensures that charging data is stored across multiple nodes, reducing the risk of data breaches.

Blockchain's immutability enhances security in electric car charging. Once a transaction is recorded on the blockchain, it cannot be altered, ensuring the integrity and authenticity of charging data. Decentralized identity verification allows users to control their identities and securely authenticate themselves for charging transactions without relying on a central authority, reducing the risk of unauthorized access.

Smart contracts, another feature of blockchain, are self-executing agreements that automatically trigger predefined actions when conditions are met. In electric car charging, smart contracts can automate and enforce the charging process, reducing the potential for human error or malicious manipulation.

Blockchain also facilitates secure and private peer-to-peer transactions in the electric car charging ecosystem. EV owners can directly transact with each other, securely sharing access to charging infrastructure and settling payments, eliminating the need for centralized networks and reducing security vulnerabilities.

Overall, blockchain technology offers significant advancements in security for electric car charging systems. Its decentralized nature, immutability, decentralized identity verification, smart contracts, and peer-to-peer capabilities provide a secure and trustworthy environment for charging transactions. By leveraging blockchain's security features, the electric car charging industry can build confidence among stakeholders and accelerate the adoption of electric vehicles.

Increasing Efficiency in Billing Processes

Billing for electric car charging can be complicated due to the involvement of multiple stakeholders and varied pricing structures. Blockchain technology simplifies this by providing real-time, accurate billing on the blockchain. Charging data is automatically recorded and easily accessible to relevant parties, streamlining reconciliation and reducing administrative overhead. Additionally, blockchain integration with smart grids allows for dynamic pricing, optimizing charging based on demand and supply.

Case Studies and Pilot Projects

Several organizations and governments have launched pilot projects to explore blockchain applications in electric car charging. For instance, the e-Mobility project in Singapore uses blockchain to enable peer-to-peer charging transactions, allowing EV owners to transact directly with each other. Similarly, the Share&Charge project in Germany creates a blockchain-based platform for sharing and monetizing private EV charging stations. These initiatives demonstrate the feasibility and potential of blockchain technology in transforming the electric car charging industry.

Overcoming Challenges and Adoption Hurdles

Despite its promise, blockchain faces challenges for widespread adoption. Scalability and performance issues need to be addressed to handle the increasing number of charging transactions. Efforts in interoperability and standardization are necessary to ensure compatibility among different charging networks and blockchain platforms. Additionally, regulatory and legal frameworks must be established to govern blockchain-based charging systems and protect stakeholders' rights. Collaborative efforts between industry players, governments, and technology providers are essential to overcome these hurdles.

Future Directions and Potential Applications

The future of blockchain in electric car charging looks promising. Blockchain can play a crucial role in vehicle-to-grid (V2G) integration, enabling EVs to store and share energy with the power grid. Peer-to-peer charging networks can use blockchain to facilitate seamless transactions between EV owners. Furthermore, blockchain's integration with renewable energy sources can promote the efficient use of clean energy for charging. As technology advances, innovative applications of blockchain in the electric car charging ecosystem are expected to emerge.

Conclusion

Blockchain technology has the potential to revolutionize the electric car charging industry by enhancing security, transparency, and efficiency in charging transactions and billing processes. Its decentralized and immutable nature addresses the limitations of traditional charging systems, ensuring secure transactions and accurate billing. Collaborative efforts among stakeholders are crucial to overcoming challenges and driving widespread adoption of blockchain in the electric car charging ecosystem. With blockchain technology, a sustainable future powered by electric vehicles is within reach.

Why RWA(Real World Asset)?

1. Digitization of physical assets

The VZ project represents the physical assets of electric vehicle charging infrastructure and energy usage data as digital assets on the blockchain. It is an RWA that digitizes physical assets to divide ownership and make them tradable, as it is a utilization asset that trades or compensates by tokenizing energy data of charger usage history.

2. Increased asset liquidity

The VZ project improves the efficiency and convenience of charging infrastructure by sharing chargers during idle time and being rewarded with VZ tokens, and increases liquidity by converting illiquid assets (e.g. real estate, bonds) characterized by RWA into tradable digital tokens.

3. Decentralized transactions

The VZ project enables peer-to-peer transactions that directly connect charger owners and EV users, and RWA similarly trades ownership of assets on a decentralized platform without a central authority.

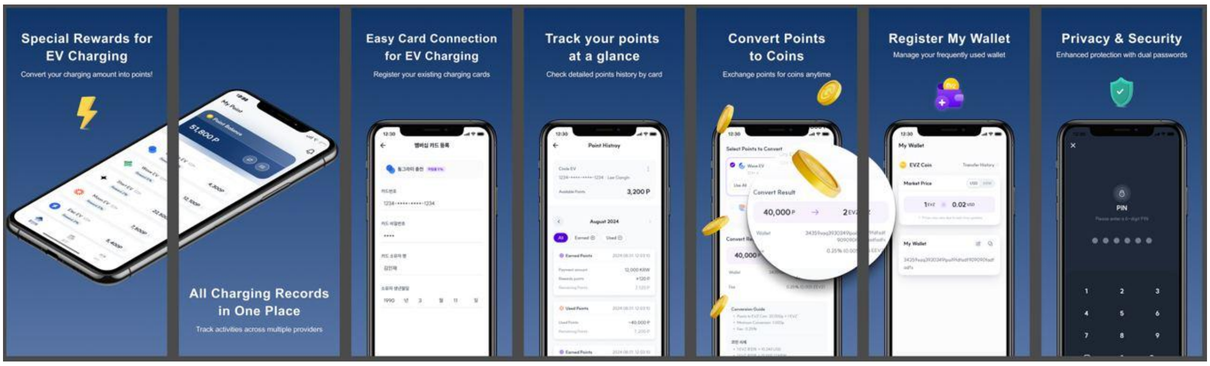
4. Transparency and reliability

The VZ project ensures transparency by recording recharge data and token transaction history on the blockchain. RWA similarly ensures trust by storing asset transaction and ownership records on the blockchain.

5. Conclusion

The VZ project demonstrates the characteristics of RWA by digitizing a physical asset - an eco-friendly electric vehicle charging infrastructure - but can also be understood as an industry-specific use case. It is a prime example of the application of the RWA concept to support innovation in the mobility and green energy sectors.

VZ Point App



1. Use electric vehicle charging - pay points (WATT) as compensation

Use-Reward Points (WATT) payment is a system that provides points as a reward for users when they use a particular service or perform an activity. This function is intended to encourage user engagement, motivate activities, and promote continuous use of services

1. Points Payment Terms

Use the service: Activities such as APP download, login, charging electric vehicles, etc.

Participate in certain events: advertising, campaigns, surveys, etc.

2. Point payment method

Real-time payment: accumulated points (WATT) immediately after completion of charging activities for electric vehicles.

3. How to use points

Used for electric vehicle charging and electric vehicle charging priority. => VZP (WATT) can be converted into coins

4. User Benefits

Improve user satisfaction by providing additional benefits.

Increase loyalty as a reward for service use.

2. Coin → point conversion → use

Coin → Point conversion → use is a system that converts coins held by users into points at a specific rate and then allows them to be used for various purposes. This feature combines digital assets and point systems to increase user convenience and promote user engagement.

Key Flows:

1. Coin → Point conversion

Set conversion ratio: Clearly define how many points are converted per coin.

Example: 1EVZ = 10WATT.

Conversion conditions: Set minimum convertible amount, fee, etc.

Example: at least 10 coins can be converted.

Conversion process: convert coins held by users into points through the Conversion menu.

2.Using Points

Usage

Provide services for rechargeable goods or convenience

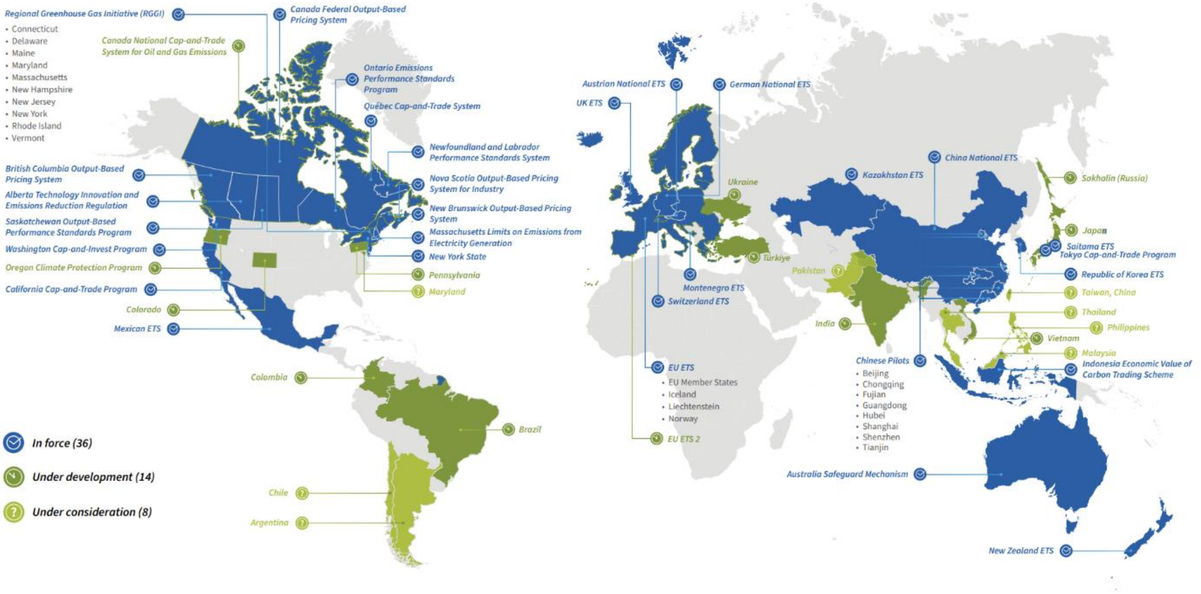
3.User Benefits

Provides opportunities to make real use of digital assets.

Various service experiences with converted points.

Carbon Credit

Basic of Carbon Credit



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The Kyoto Protocol of 1997 and the Paris Agreement of 2015 are international agreements that set global CO2 emissions targets. With nearly all countries ratifying the Paris Agreement, these accords have led to national emissions targets and supporting regulations. As these regulations take effect, businesses face increasing pressure to reduce their carbon footprints, often turning to carbon markets as an interim solution.

Carbon markets commodify CO2 emissions by assigning them a price. Emissions are categorized into carbon credits or carbon offsets, both of which can be traded. Despite forming two distinct markets, the basic unit traded is the same: one ton of carbon emissions, or CO2e.

To put it in perspective, the average American generates 16 tons of CO2e annually through everyday activities like driving, shopping, and using household energy. For example, driving a 22 mpg car from New York to Las Vegas would produce one ton of CO2e.

Carbon credits are issued by national or international governmental bodies, with the Kyoto and Paris agreements establishing the first international carbon markets.

Carbon Credit Benefits

High credibility

Voluntary carbon credits are audited by international institutions and registered with global registries, adhering to strict global protocols.

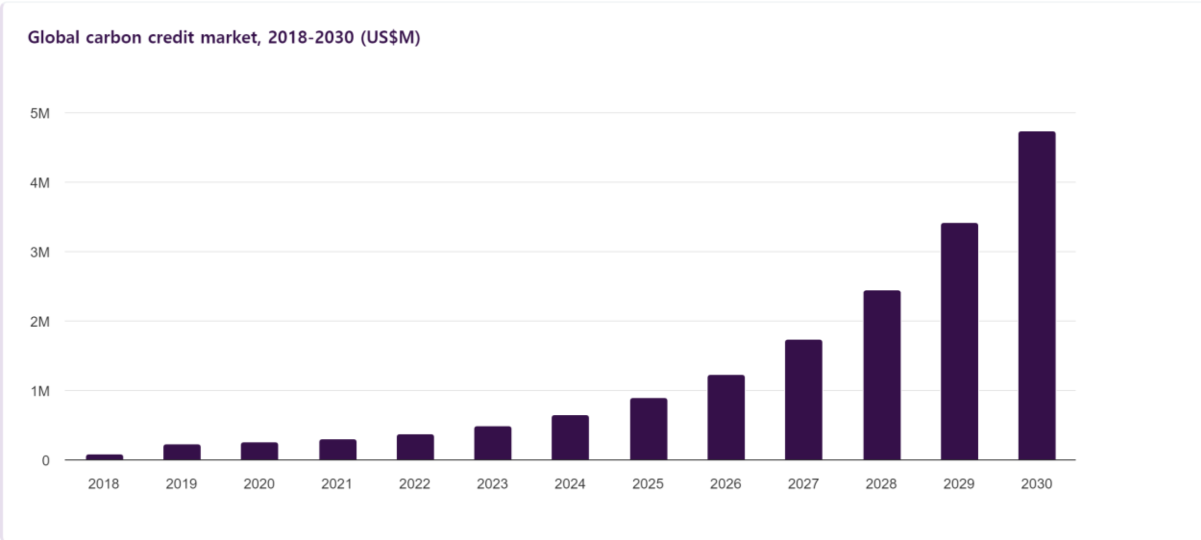
Eternal (until consumed)

Certified carbon credits do not expire until they are used or canceled by an entity aiming to offset its GHG emissions.

Digital and dollarized

Carbon credits are intangible assets, similar to mileage points or brands, and are traded as digital certificates, usually in US dollars.

Carbon Credit Market



Global Carbon Credit Market Size & Outlook, 2023-2030, Horizon

The global carbon credit market was valued at USD 479.41 billion in 2023 and is projected to grow at a CAGR of 39.4% from 2024 to 2030. The increasing demand for carbon credits is driven by government policies and regulations aimed at reducing GHG emissions. For instance, India's Energy Conservation Bill, 2022, facilitates the establishment of carbon credit markets. The market's growth is fueled by a mix of state-level programs and voluntary markets.

How to participate in the carbon credit market

Alongside regulated markets, a voluntary global market exists with internationally recognized protocols. Companies and individuals voluntarily buy carbon credits to offset their emissions, often to enhance their corporate image. Consumers in affluent countries are increasingly aware of climate change and expect companies to act against global warming. Consequently, many companies have pledged to neutralize their carbon footprints.

Ordinary individuals can participate in this market through numerous digital platforms offering personal emissions calculators. These platforms calculate a user's carbon footprint and provide services to sell and cancel the necessary credits to offset it, effectively creating a donation system for environmental or clean energy projects. Users contribute financially to these projects and gain the satisfaction of helping reduce global GHG emissions.

Token Economy

Inside the VZ Platform, two kinds of payment and incentive systems will be established, namely: VZ point (WATT) and VZ token (VZT). VZP may be acquired from the VZ Platform through the performance of qualifying activities. VZP and VZT will play a primary role in inducing electric vehicle charging demand for EV charging in VZ platform ecosystem.

VZ

Equivalent to real currency within the VZ Platform. 1 VZP will have a fixed value of US$0.1 (1 cent) – the value of VZP may be denominated in other real currency such as KRW. VZP may only be used as payment for charging on the VZ platform, and will not be listed or tradable on the market. Any person who wishes to obtain VZ may do so by purchasing VZP with credit card or cash. For the avoidance of doubt, none of the VZ token carry any right to obtain EVP or any other right other than as a means of payment on the VZ Platform. Accordingly, VZP cannot be obtained by converting/exchanging VZ token.

VZ token (VZT)

A ERC-20 token standard cryptocurrency operating in the system as an alternative means to pay for services. It can be used in any cryptocurrency marketplace that accepts payment with VZ and its value will be determined based on market forces. A limited quantity of VZ may be issued to users as a reward for qualifying transactions and activities on the VZ Platform. For example, when a user makes payment with VZP on the VZ Platform, such user will be eligible for a certain amount of VZ as reward for carrying out the payment transaction. In instances where a private owner shares their charging station, such private owner will be eligible for a certain amount of VZ as a reward for sharing in addition to any other usage payment. When a user pays for the usage of a electric vehicle charger with VZ instead of VZP, further incentives will be offered to help create demand for the use of VZ.

- Purchase and Possession of VZT by Local Host demand.

As the electric vehicle market continues to grow, related infrastructure is also expected to expand. A portion of the funds raised from the token sale of the VZ tokens will be set aside to support activities of the VZ Platform including, for example, providing any newly established electric vehicle charging business (Local Host) with the required charging station infrastructure free of charge and supporting the VZ reward system to encourage expansion of the infrastructure. If a Local Host wishes to expand their operation due to increased demand and does not have sufficient VZ to meet the staking requirement of the VZ Platform, they will need to acquire more VZ, which will be stored in their private wallet on the EVZ Platform. The VZ Platform will require businesses to maintain and stake a certain amount of VZ in order to participate in the Platform. In the event that a business fails to comply with the relevant terms and conditions in respect of its participation in the Platform, VZ that are staked by such business may be burnt. Operators will be able to accept either VZ or cash as payment for their services.

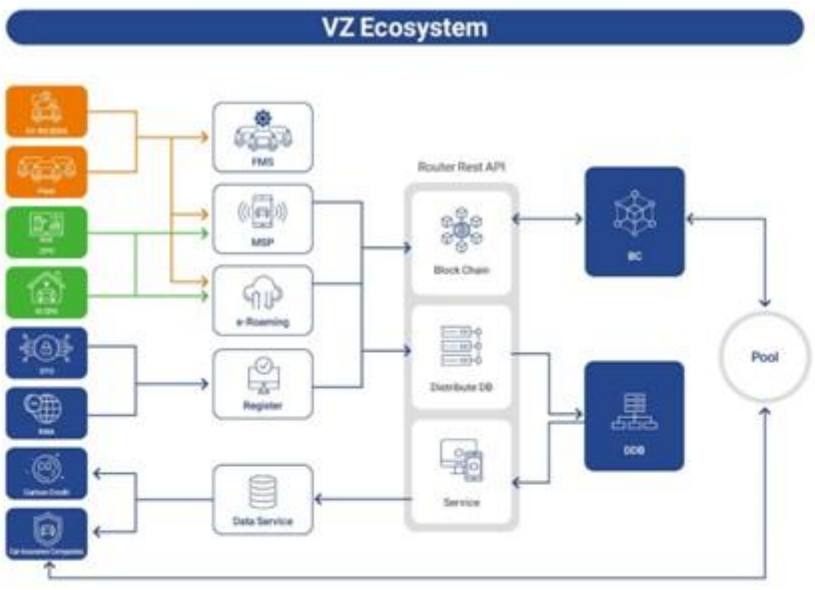
- Participant Rewards

As well as Local Hosts, private users who install the VZ Platform on their charging systems will also be able to earn VZT. Whenever customers pay them via VZP, 1% of the payment amount will be accrued as VZT. When provided energy stored from alternative or renewable energy sources, the operator will instead accrue 2% of the transaction in VZT. By placing a value on charging at different times of day depending on supply and demand, participants will be able to earn more rewards.

- Priority Charging Permission

While infrastructure continues to increase in areas of high demand for electric vehicle charging system, it is a reality that limitations in availability still exist. In highdensity areas, demand for charging stations is rising dramatically, which raises questions about priority access. In these situations, customers who intend to pay for charging via VZT rather than VZP will be given priority.

Ecosystem



Application Layer

- This is the layer where services for each participant are implemented.

- The VZ platform provides interfaces to interlock with service components according to the participants' applications.

- In the case of EV individual drivers or fleets, it interfaces with the vehicle manufacturer service server or provides an interface to the fleet's self-operated application to receive driving records to the FMS.

- CPOs or non-CPOs can access charging information and use charging through the interface provided by each operating platform and e-Roaming.

- STO, RWA provides the Register server interface to register STO's information on the VZ platform.

- Provide external interfaces to provide information to carbon offsets, insurance companies, government research organizations, etc.

Service & Component Layer

- Provides actual services related to each participant.

- It stores the information received from each participant in the blockchain and distributed DB in the core layer.

FMS (Fleet Management System)

- It interfaces with the service provided by the vehicle manufacturer or interfaces with the vehicle control service owned by the logistics company itself to receive operation information data and store it in the blockchain and distributed DB in the core layer.

MSP (Mobility Service Provider)

- Provides charging services to electric vehicle drivers and helps each participant CPO and non-CPO to generate revenue to expand charging infrastructure.

- Provides charging payment to the VZ platform and stores information on charging usage history and payment through the core layer to reward VZP for charging users.

What is e-Roaming?

e-Roaming is a technology and service concept that enables electric vehicle (EV) users to seamlessly utilize different charging networks. It facilitates infrastructure expansion by connecting participating CPOs and non-CPOs with MSPs, allowing users to use multiple CPOs.

It ensures compatibility and integration among charging station networks through interconnection and data exchange between EV charging station operators and service providers.

Register

STO and RWA investment information is stored in the blockchain and distributed DB on the core layer through Register.

The blockchain stores information on each STO, RWA basic information, and operating revenue, and the distributed DB stores information on each charging record and revenue.

Data Service

A data service is a piece of software or system that is responsible for providing, managing, and processing data. It acts as an intermediate layer that allows different applications or systems to interact with data. Data services are an important concept in many areas and contribute to making data more accessible and efficient, such as providing an external interface when providing information to external entities such as carbon neutrality or insurance companies.

Core Layer

- It stores information managed by the VZ platform.

- Basic information such as user personal information, STO, RWA, and contractual relationships are stored on the blockchain using smart contractors.

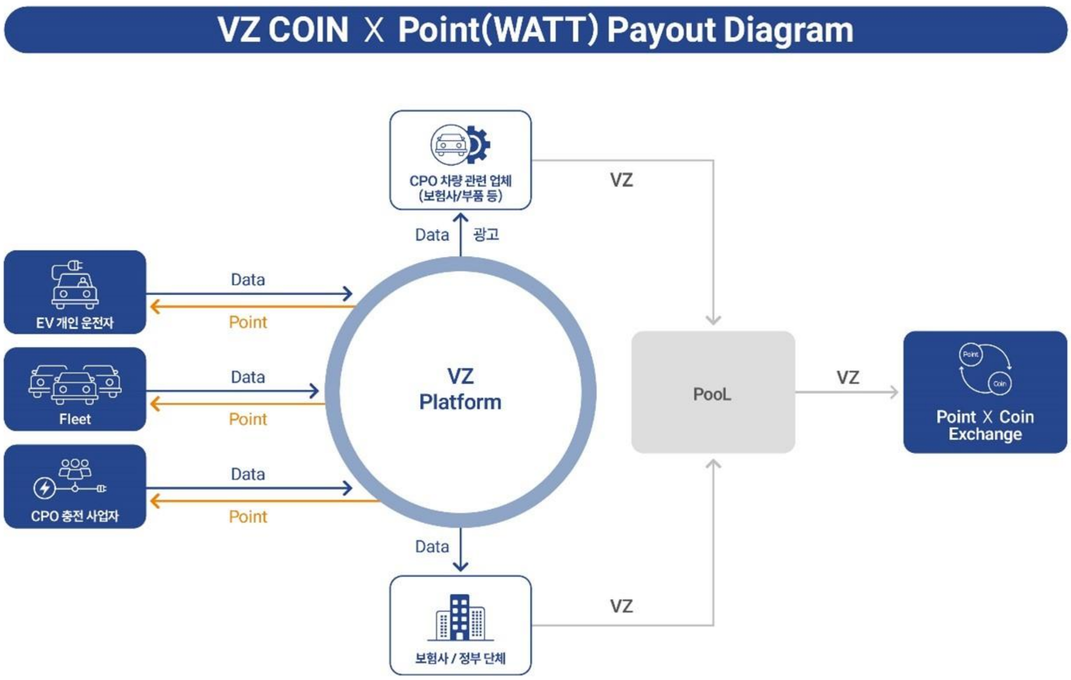
- Auxiliary data related to each participant, such as driver's driving information, driver's and CPO's charger usage, etc. are stored in the distributed DB.

- The data stored in the distributed DB can be provided externally by the insurer or country as needed for policy or business purposes with the participant's permission.

Distributed Database (DDB)

DDB stands for **Distributed Database** and refers to a database system in which data is stored distributed across multiple computer systems. These systems store and manage data on servers or nodes that are distributed across multiple geographic locations over a network. Distributed databases are commonly used to improve the availability, performance, scalability, and fault tolerance of data.

VZ COIN×Point(WATT) Payout Diagram



Coin(VZ)->Points(WATT): In order to give points to charging users, such as CPO (Charge Point Operator) or as a promotion to activate non-CPO charging, you need to purchase coins for those points.

Once the coins are purchased, they are converted into points through the pool and the charging user is rewarded with points when charging.

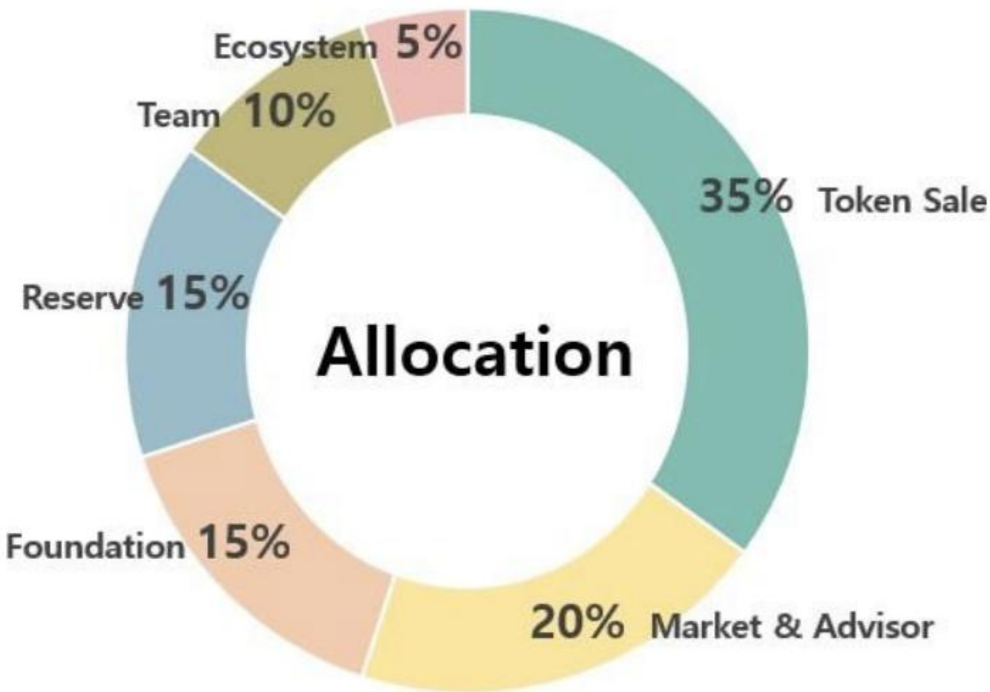
Another one is to pay for user information, such as insurance companies and vehicle-related companies, to purchase coins, which are converted to points through the pool and then give points to the person who provided the information.

Points (Watt) -> Coins (VZ) When a user earns a certain amount of points, they can be converted into coins.

VZ APP pays points when users watch advertisements for a certain amount of time, and advertisers buy coins and convert them into points like an insurance company.

Token Distribution

Token Allocation



EVZ Token Specs Name & Contracts EVZ(ERC20):0x7a939bb714fd2a48ebeb1e495aa9aaa74ba9fa68 Circulation Total Circulation : 10,000,000,000 EVZ Max Circulation : 8,304,504,456 EVZ (1,695,495,544

EVZ Burned)

Coinmarketcap Coinmarketcap: https://coinmarketcap.com/currencies/electric-vehicle-zone/

The total supply of VZ tokens will be distributed as follows:

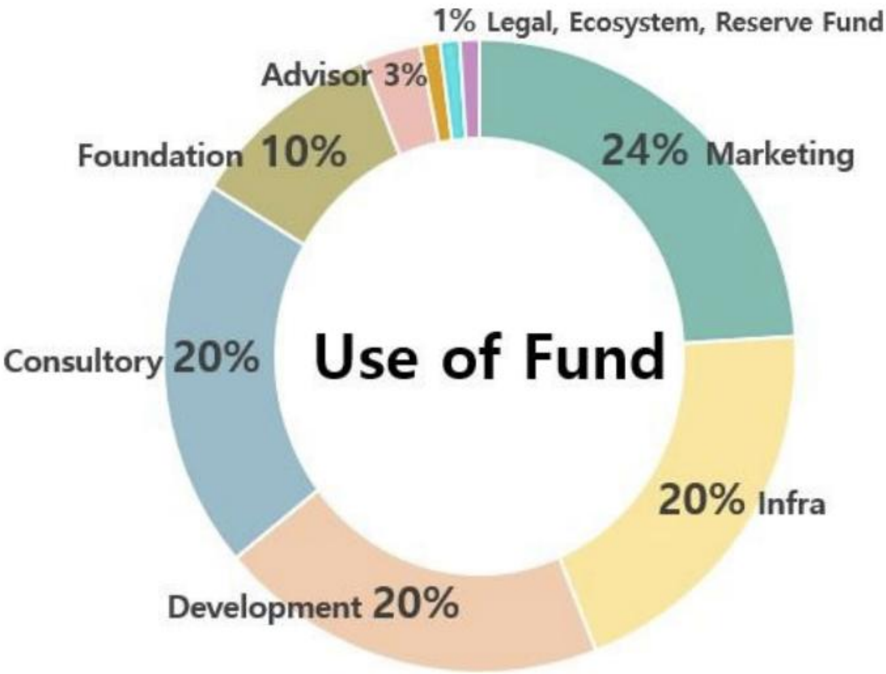
- 35% of the total supply of VZ tokens will be offered for sale during a token sale, out of which, 33% will be sold privately to investors and other organizations and 2% will be sold to the public. The proceeds from these sales will be set aside to generate the initial fund.
- 20% of the total supply of VZ tokens will be set aside for the market and advisors.
- 15% of the total supply of VZ tokens will be set aside by VZ Foundation Ltd. for use at its discretion.
- 15% of the total supply of VZ tokens will be kept in reserve for emergency situations.
- 10% of the total supply of VZ tokens will be set aside for the VZ team
- 5% of the total supply of VZ tokens will be made available in the ecosystem. Notes: The above token distribution and distribution of proceeds are subject to change without notice.
- Policy of Token Burning

If a business fails to properly manage a electric vehicle charger that was installed, the VZ tokens that was staked by the business will be burned. Recently the management of electric vehicle charger has fallen into neglect, and the system does not run smoothly. In the event that, even after securing many charging point operators to participate, the system does not run normally, the VZ Platform can lose credibility. In order to prevent these kinds of problems any businesses that participate in the platform and deal with their tokens in an unsatisfactory way will have their staked tokens burned. Any parties that cause damage to a charging point will have a 168 hour (7 days) grace period to rectify the problem, after which every 12 hours a certain amount of staked token will be burned and after all staked tokens are exhausted, they will be banned from the VZ ecosystem.

- Securing an Incentive Pool:

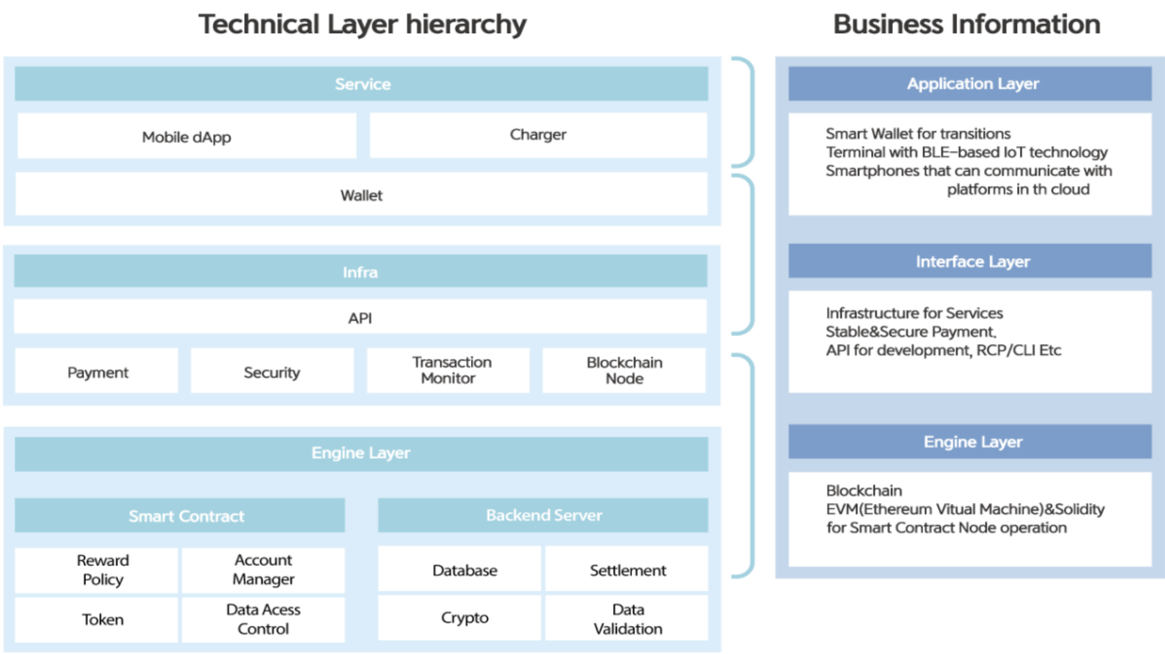
In the interest of signing up businesses to the platform, VZ offers their products as rentals. Businesses can pay off their infrastructure installation fees in installments. To provide further incentive, the VZ team will place 10% of profits from rentals into an incentive pool.

Use of Fund



Of the total raised funds, 24% will be dedicated to marketing and business fees, 20% will be invested in development, 20% spent on infrastructure, 20% will go towards blockchain and business consulting fees, 10% for team foundation and management costs, 3% for advisors, 1% put aside for any potential legal expenses, 1% as a minimum funds for maintaining the token management ecosystem and finally 1% to be kept in reserve in case of emergencies.

Blockchain Structure



Service Layer

The service layer is the VZ Platform's end point, that can be accessed by users or external systems. Users can find charging services and can process payments. They can use services made available through the infrastructure or blockchain and can access their wallets, which can also be accessed as a separate standalone feature. This layer has security features that prevent data breaches.

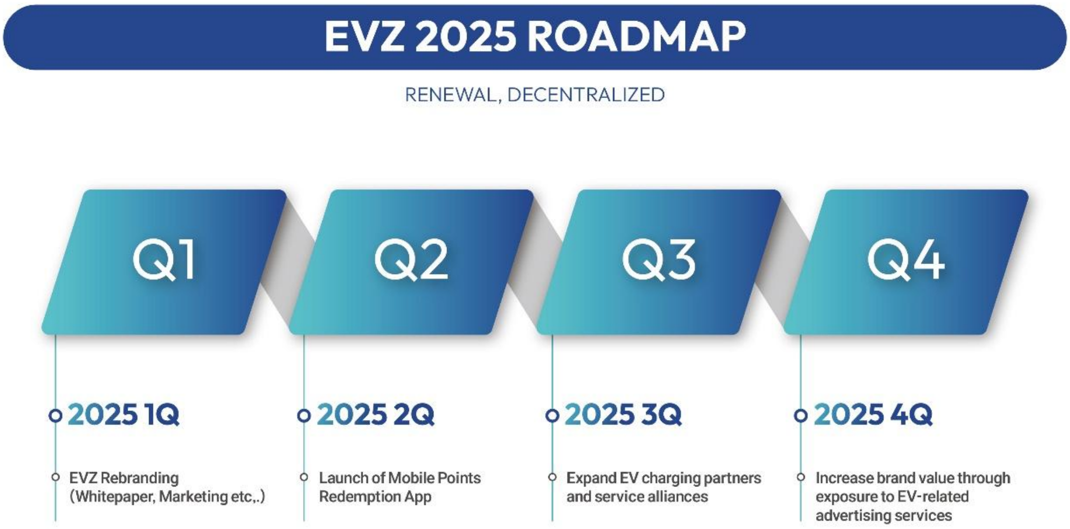
Infrastructure Layer

The infrastructure layer manages and processes all requests from the service layer. It connects the platform with Ethereum, and records all transactions between the VZ Platform and the Ethereum node. It supports the payment service, roaming service and data security and ensures all data is recorded securely to the database and blockchain.

Engine Layer

The engine layer operates the core functions of the VZ Platform. It stores all payment and reward information on the blockchain, as well as managing smart contracts and access to user's personal data, as well as securing private and sensitive data in the database using the encryption system. It verifies all stored data in the database and blockchain. It also manages various charging and payment processes.

Roadmap



About Us

Team & Adviser

CEO Anne (Anne Yoo) Han

Global Energy Transition Consultant

Experienced EV, Oil & Gas Industry

Technical Project Management

Business Development & Sales Management

MBA University of Illinois at Urbana-Champaign

Adviser Giorgio Rizzoni

Ohio State University Automotive Responsibility Professor

Electrical and Computer Engineering Professor

Ford Motor Company Chair in ElectroMechanical

Partnership

HUBJECT

AMO

ICONLOOP

TEK & LAW