POLARKON

SOLAR CARPORTS

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Why POLARKON

- With 30 years of international design and engineering experience, POLARKON is a global leader in steel structures solutions. Established in 1995 and headquartered in Ankara, Türkiye with offices in Düsseldorf, Germany and Chicago, USA, POLARKON has successfully completed over 600 large-scale “design-build” megastructure projects worldwide.

- POLARKON offers structural design, engineering, steel fabrications and installation services. The company’s designs comply with European, British and American standards, delivering high-end quality and workmanship across a wide range of sectors — including airport terminals, sports arenas, stadiums, logistics centers, warehouses, industrial buildings and production facilities.

Why Solar Carports

- Easy to implement for open parking areas
- Minimum investment and construction costs
- Reduction in carbon footprints
- Provides energy storage at night
- Generates revenue by selling electricity to the grid
- Environmental-friendly

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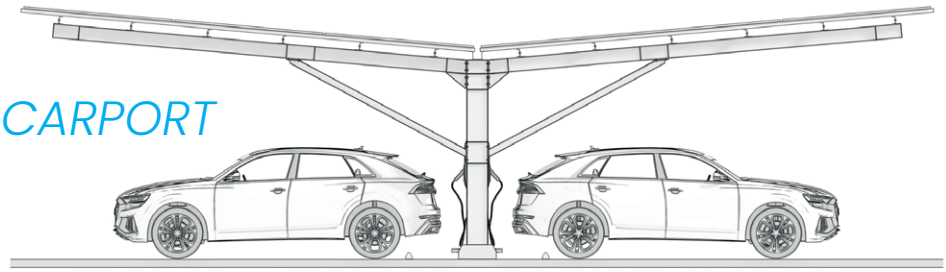

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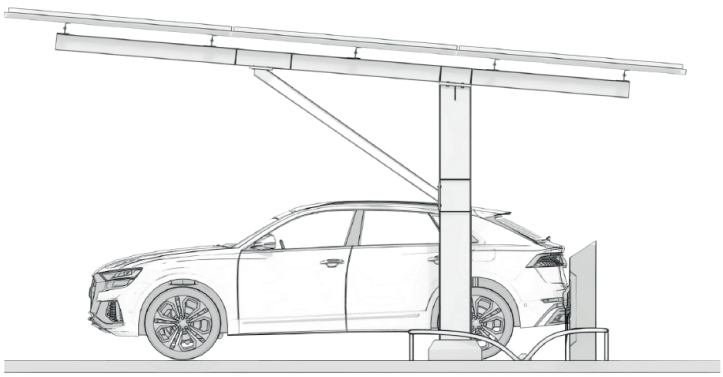

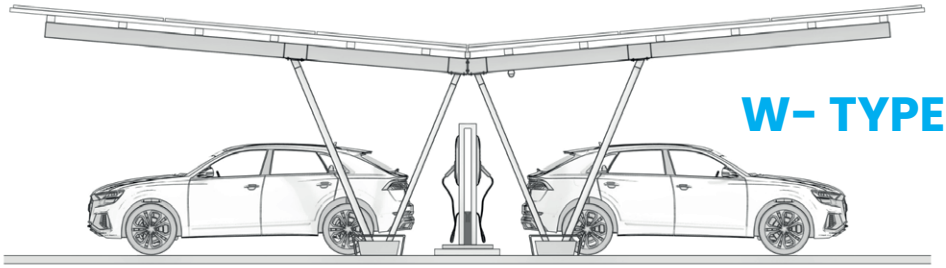

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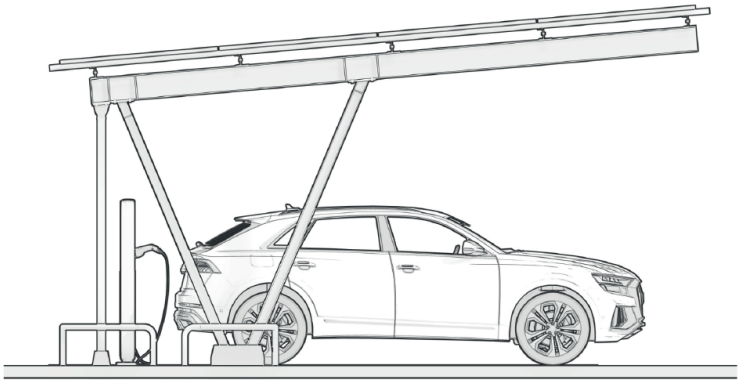

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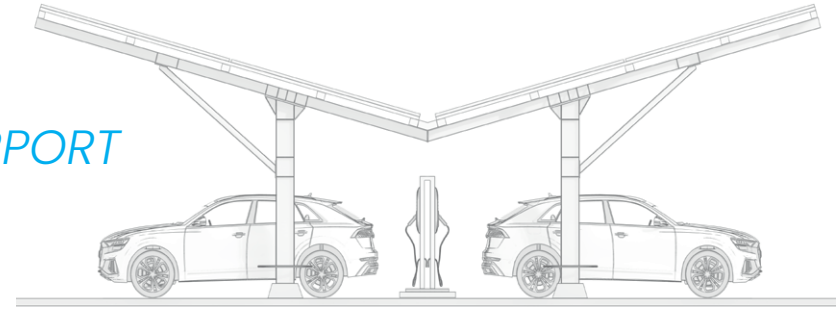
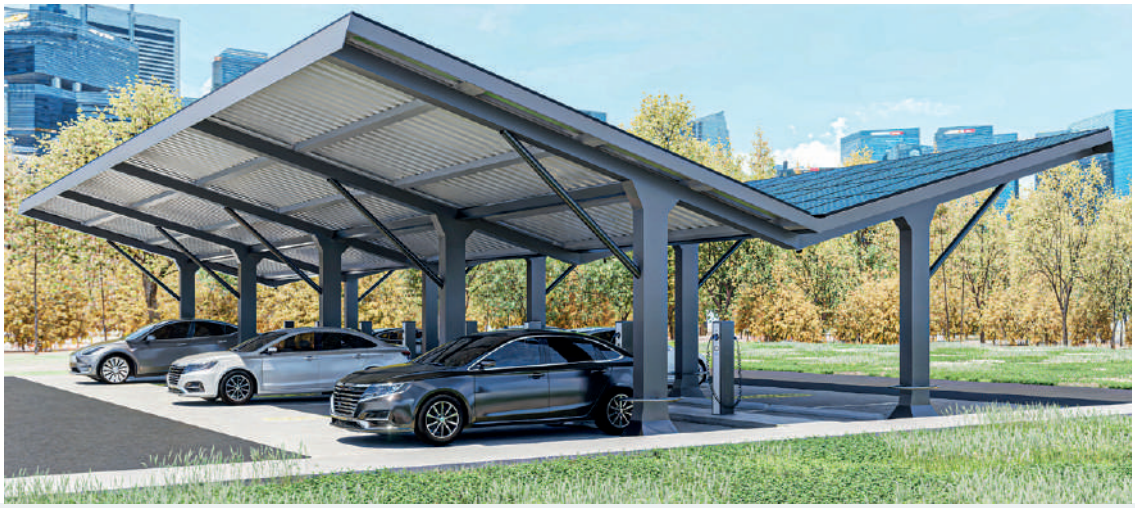




Space Frame Solutions

- Lightweight solution for substantially greater parking areas, mostly used for vehicle storage,
- Provides storage and protection for LKWs, trucks and VANs with adjustable column heights,
- Optimum solutions in areas which have less amount of columns,
- Adaptable for reinforced concrete foundations,
- Fast track system design with computer-aided engineering,
- Reduced carbon footprint due to low material usage.

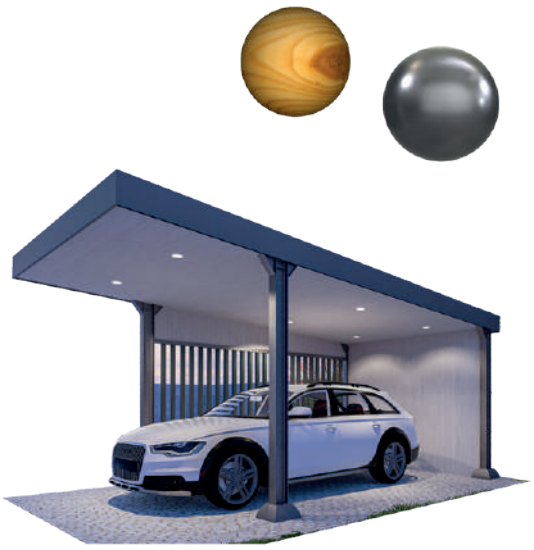
Customized Carport Solutions

POLARKON provides customer specific designs and models for their clients' own projects.

During design phase, POLARKON offers unique and aesthetical models with respect to customers requirements and needs.

Material Alternatives

The flexible nature of the solar carports leaves room for different matterial options such as **timber** or **aluminium** to be used as the core material of the solar carports.

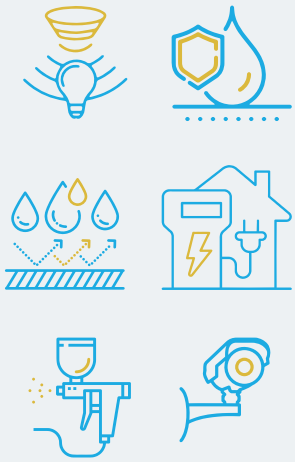


Section Alternatives

POLARKON offers various material and section options for solar carport projects. With its flexible and adaptive structure, it provides tailored cross-section solutions to meet specific project needs.

Additional Features & Accessories

With the design and build strategy of POLARKON, solar carports are designed to accommodate many additional features such as;



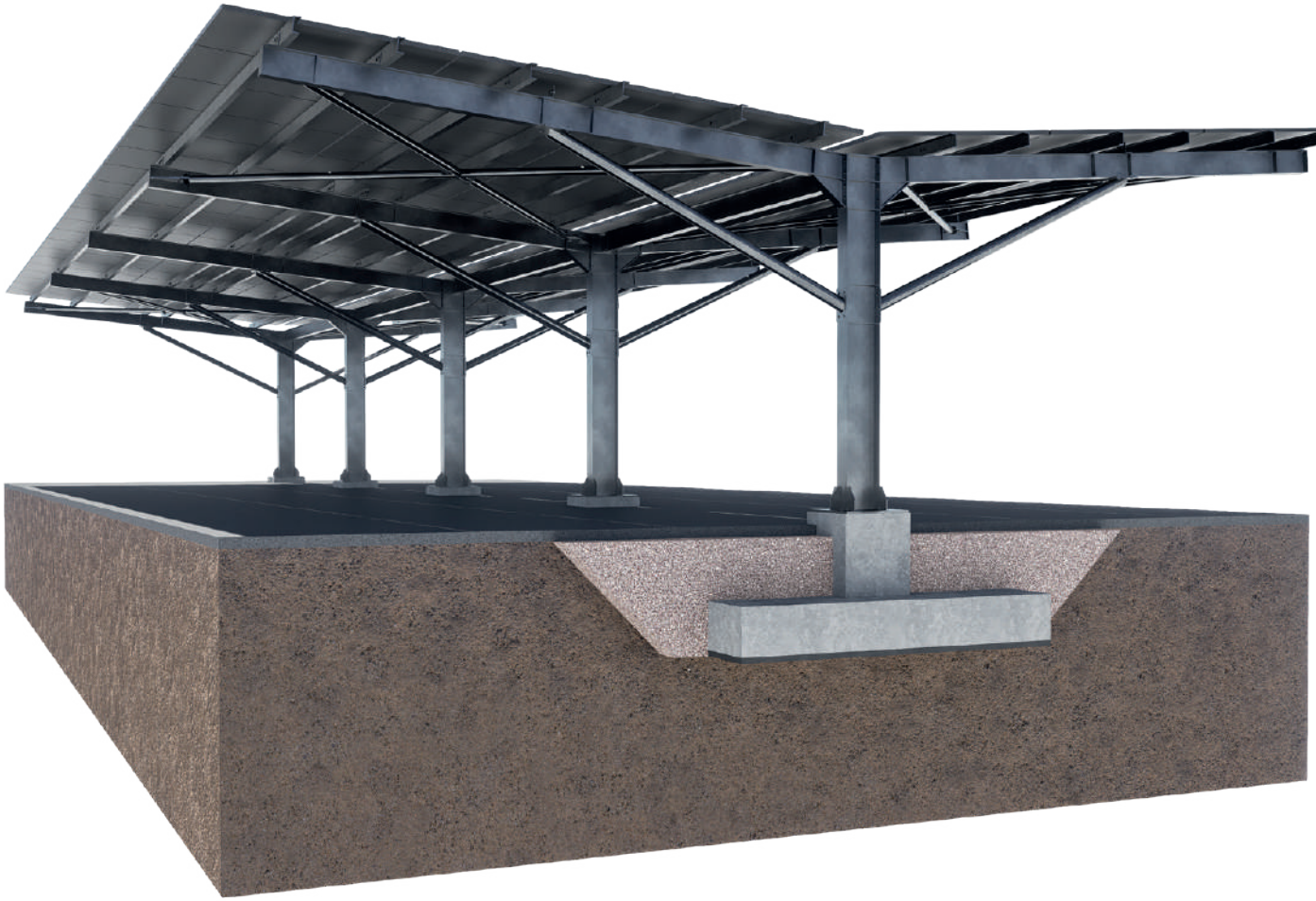
- Custom powder and protective paint jobs,
- EV-Charging stations,
- CCTV and camera installation,
- Waterproofing and water expulsion systems,
- Exterior lighting and sensor systems.

FOUNDATION SOLUTIONS
Reinforced Concrete (R/C)

With the help of its 30-year experience in design and engineering, POLARKON is also capable of executing the application of the foundation works as Reinforced Concrete (R/C) for its solar carport projects.

- Unique solutions for different snow loads in the World,
- Agile construction and project management,
- Often a better alternative to apply on uncultivated lands,
- Offers better solutions for structures having greater base loads,
- Useful for solar carports having a smaller number of columns in total,
- Provides greater advantage for rocky and gravelly soils.

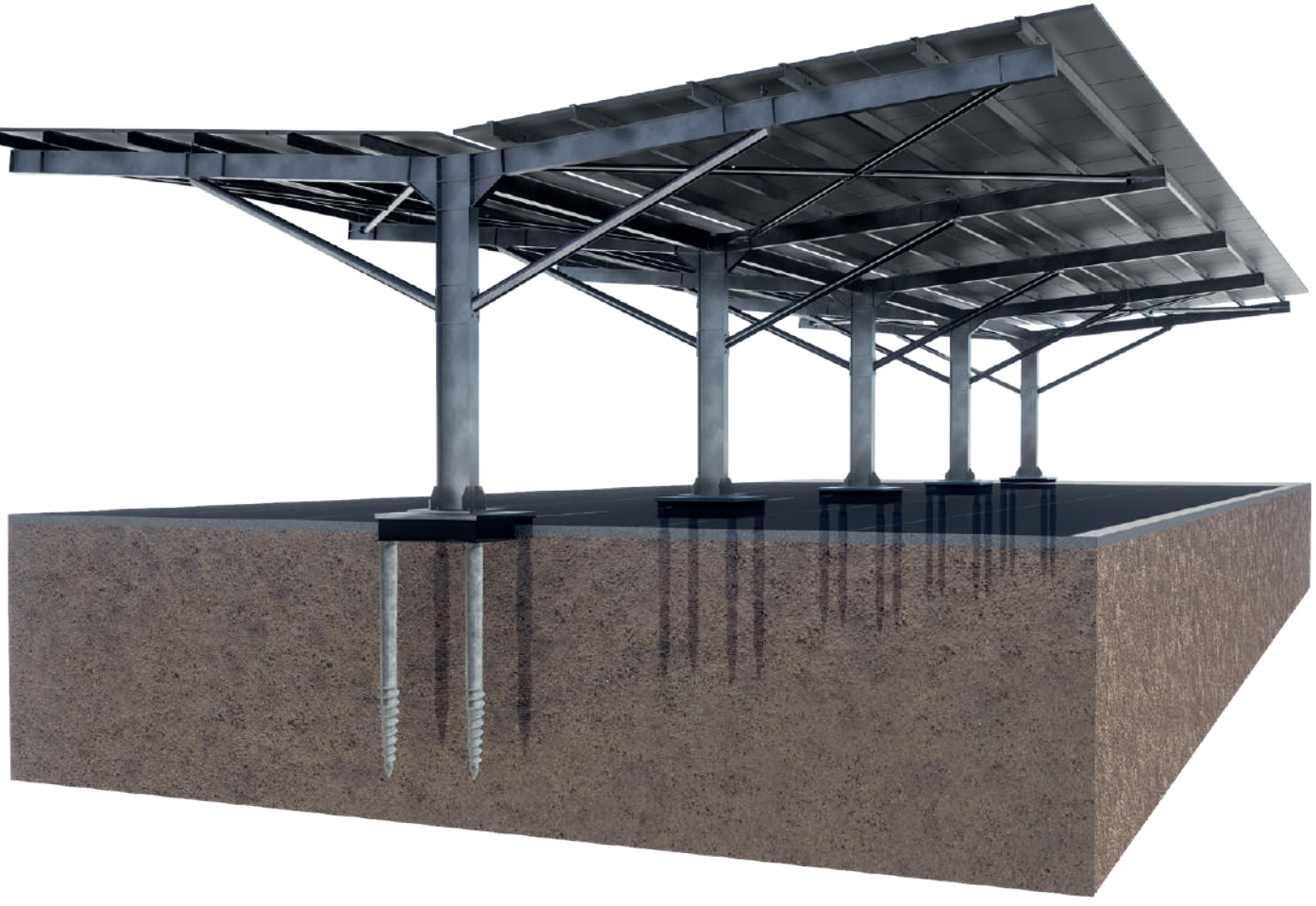
All the foundation designs and engineering works are carried out in accordance with EN 1990, EN 1991, EN 1992 and EN 1997, while all the materials such as concrete, reinforcement bars and other essential elements are designed and used according to the necessary DIN EN 1045-2 and DIN EN 1045-1000 norms.



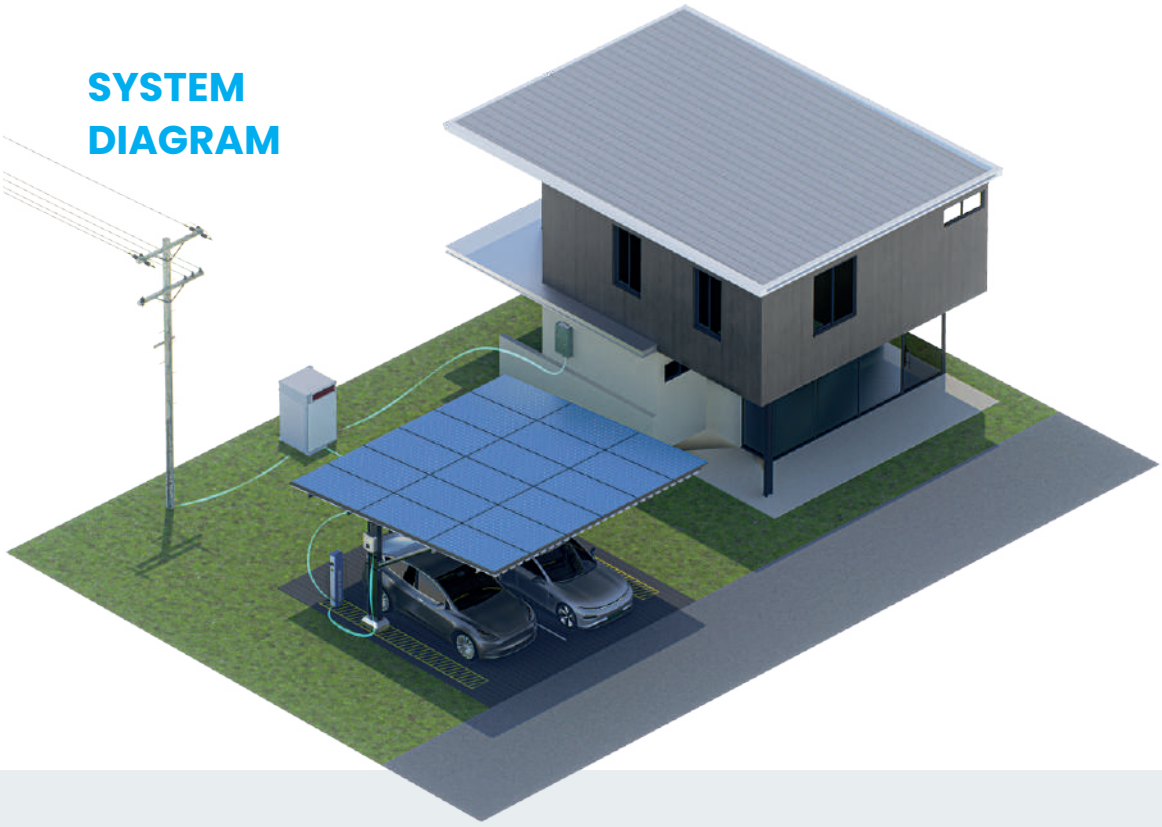
FOUNDATION SOLUTIONS
Screw Piling (FS)

A newer and more practical alternative for Reinforced Concrete (R/C), screw piling foundations come with significant number of advantages and practices.

- Often a better alternative to apply on asphalt or paving stone grounds,
- Useful for solar carports having large amounts of parking bays in large areas,
- Lower construction costs due to no need for excavation and backfilling works,
- Fast track implementation for large projects,
- As there is no concrete casting, construction can continue immediately after the screw piles are driven without losing time which was the case with concrete setting,
- Ideal for use in cold climates as concrete is eliminated,
- In case dismantling is required for a structure where FS solution has been used as foundation without any residue.



SYSTEM DIAGRAM



Off-Grid Systems

Off-Grid systems are the solar photovoltaic systems that generate electricity and store that power in solar batteries and run independently from the power grid at all times.

These systems give off-grid sites the ability to generate energy without grid connection.

OFF-GRID systems solely rely on the batteries for their energy storage to provide electricity since they do not have access to a continuous power supply, such as electric grid.

On-Grid Systems

On-Grid systems are electricity generating photovoltaics systems that are connected to the utility grid. These systems consist of PV panels, one or several inverters, a power conditioning unit and grid connection equipment.

When conditions are right, On-Grid systems supply the excess power, beyond consumption by the connected load, to the utility grid.

In other words, customers of the on-grid systems are then compensated or credited for their generated power which they do not use and fed to the grid.

SYSTEM COMPONENTS

Photovoltaic (PV) Panels, also known as solar panels, are devices that convert sunlight into electricity. PV panels are a key component of photovoltaic systems, which are increasingly used to generate electricity for residential, commercial, and industrial purposes.

Inverters convert the direct current (DC) electricity generated by the photovoltaic panels into alternating current (AC) electricity, which is the standard form of electricity used in homes, businesses, and the power grid.

Connection cables are the type of cables specifically designed for use in solar energy systems, which are typically UV-resistant and capable of withstanding outdoor environmental conditions. PV cables are used to connect solar panels to each other, as well as to other system components.

Connectors are the components used to facilitate the electrical connections between solar panels, inverters, wiring, and other system components.

Storage Batteries are the devices used to store excess electricity generated by solar panels during periods of sunlight for later use. These batteries enable PV system owners to store energy when it's abundant and use it when needed, even when solar generation is not available, such as during nighttime or cloudy weather.

Utility Grid is a network of interconnected power generation and distribution system within the infrastructure.

Utility Meter is a device used to measure and record the electricity usage of the system.

EV-Charging Stations are the infrastructure facilities designed to recharge electric vehicles. These stations provide the necessary electrical connection for EVs to recharge their batteries, allowing drivers to replenish their vehicle's energy while parked.

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