

# Introduction of THOR Smart EV Charger Work Modes

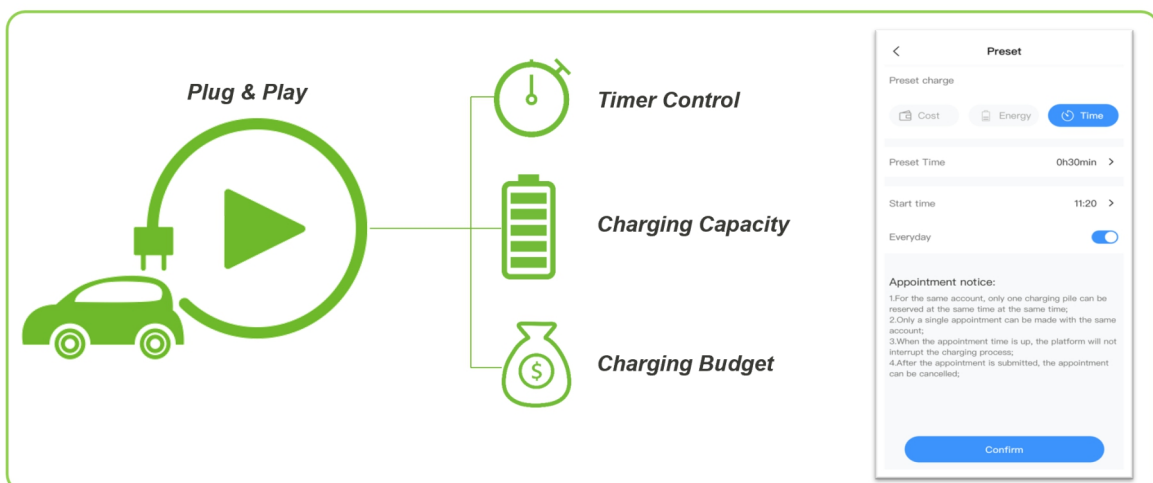
## Background

GROWATT, the global leading manufacturer and supplier of PV inverters and energy storage systems, rolls out our branded new smart EV charger THOR series in order to power green travel with 100% renewable energy. With extensive compatibility, THOR can be used in all branded solar systems and EVs for both residential and commercial scenarios. Besides, the THOR EV Charger developed multiple work modes including fast mode, PV Linkage mode, off-peak mode, load balancing function etc., for different end users' applications



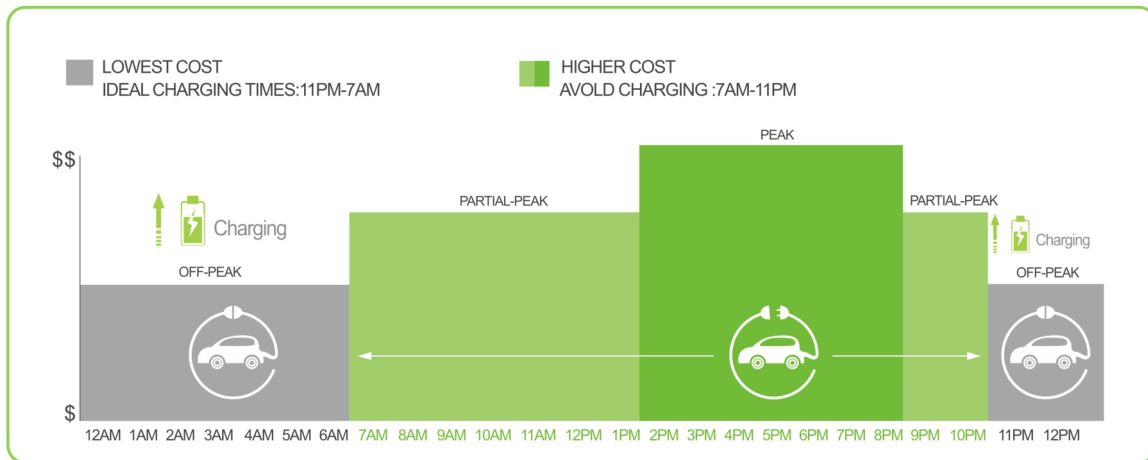
## Fast Mode

The EV will be charged at maximum power coming from a renewable energy source or simply from the grid, especially for quick charging if you're in a hurry, and support multiple control strategies of timer, charging capacity, charging budget



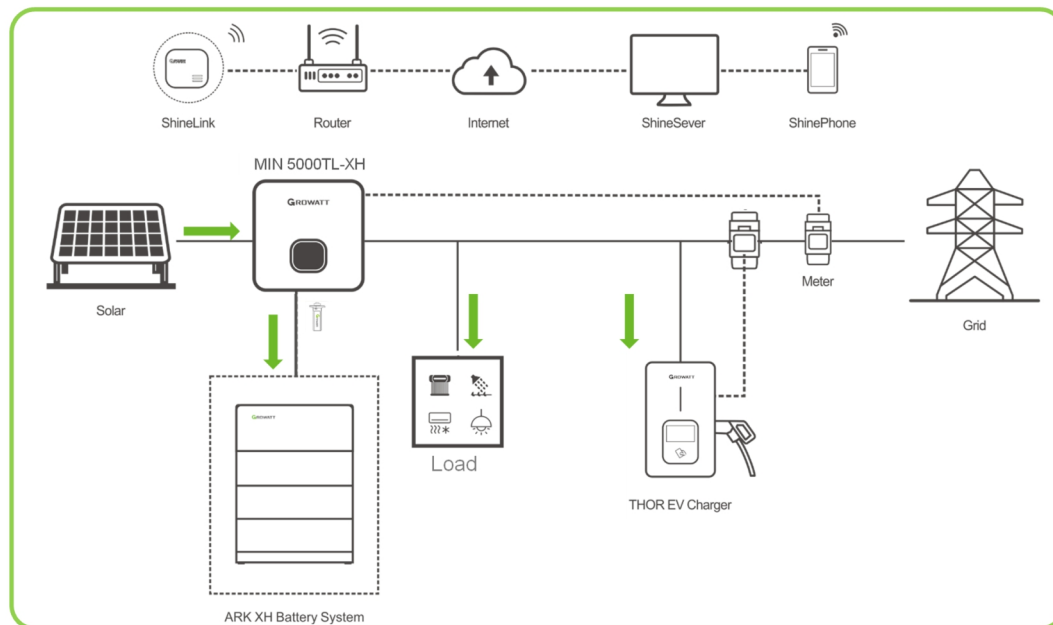
## Off-peak Mode

The Off-Peak mode is used for the market which has multiple-step electricity price. Once enabled the Off-Peak mode, the EV charger will automatically charge the EV when it's off-peak, and stop charging at partial-peak or peak time to reduce the electricity bills intelligently.



## PV Linkage Mode

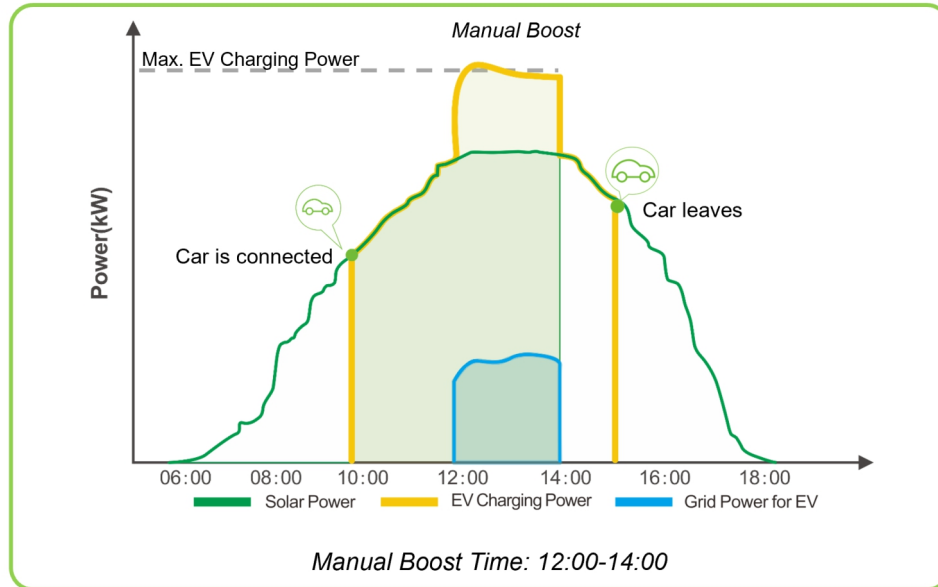
PV linkage mode is a creative and important mode with an intelligent algorithm to allow us to combine solar and EV. So once users enable the PV-Linkage mode, when the solar power is sufficient, it will provide power to the loads, and charge the energy storage battery. If the battery is fully charged, the THOR EV charger will automatically turn on and use the surplus solar power to charge the EV.



## Manual Boost Function

The manual Boost function is only available based on PV Linkage Mode and it's useful if users arrive home with an almost empty battery and want a quick charge to the EV to ensure enough energy for a short trip. Once enabling the Manual Boost function, the THOR will charge the EV at Max. power (Fast Mode) for a set period with solar and grid power. After that, it will turn back to PV linkage mode.

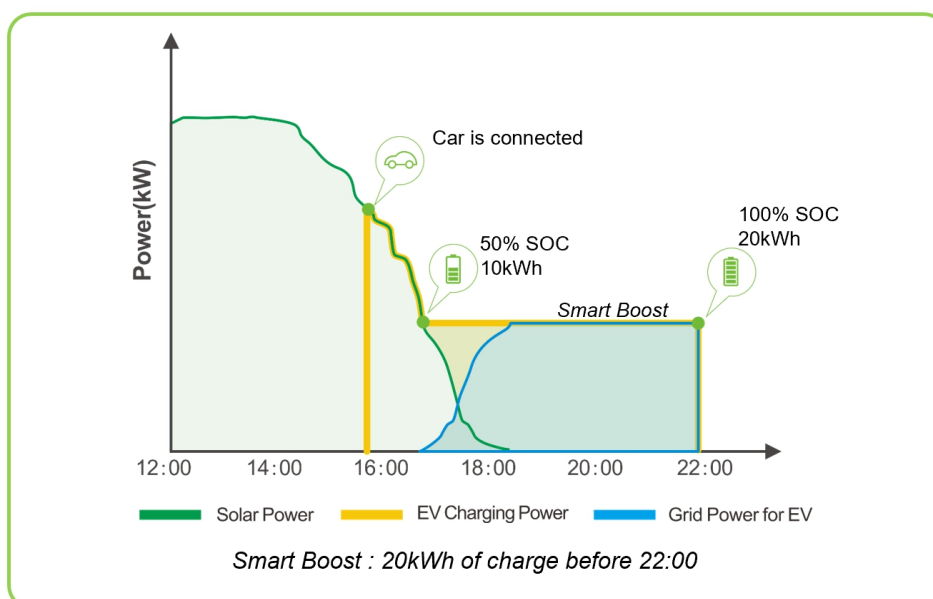
For example, if users get back to their house at 10 am. Once the car is connected, during the PV Linkage mode, the EV charger will start to charge the EV with surplus solar power. However, solar power is so weak that the charging power is small. At this moment, users could enable the Manual Boost function from 12 AM to 2 PM. After that, the EV will be charged at max. EV Charging power with solar and grid power. And turn back to the normal PV linkage mode when it finishes



## Smart Boost Function

The smart boost is only available based on PV Linkage mode and Off-peak mode, and it guarantees EV's battery capacity before a set time even if the solar energy is insufficient or off-peak time is short.

For example, users wish to ensure there is enough charge (20kWh) in the EV to go out at 10 pm, and the EV has been charged by surplus solar energy during PV Linkage mode with only 10kWh of charge accumulated. Because you activated the smart boost, then the THOR EV Charger will automatically boost the charge from the grid to the required 20kWh by 10 pm, make sure you have enough energy for a trip.



## Smart Load Balancing

The load balancing function is designed for users' houses that have the fuse inside the main panel with limited current drawing from the grid. The EV charger will adjust its charging power dynamically according to limited home power, and always charge your car at the maximum charging speed without triggering the power limitation.



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