



Unleashing the power  
of self-sufficiency



Enjoy energy independence, Realize cost-benefit balance

# Midea iEasyEnergy Solution

Smart and Flexible Energy Management of  
Air-to-Water Heat Pumps, Energy Storage, and PV Module

2024

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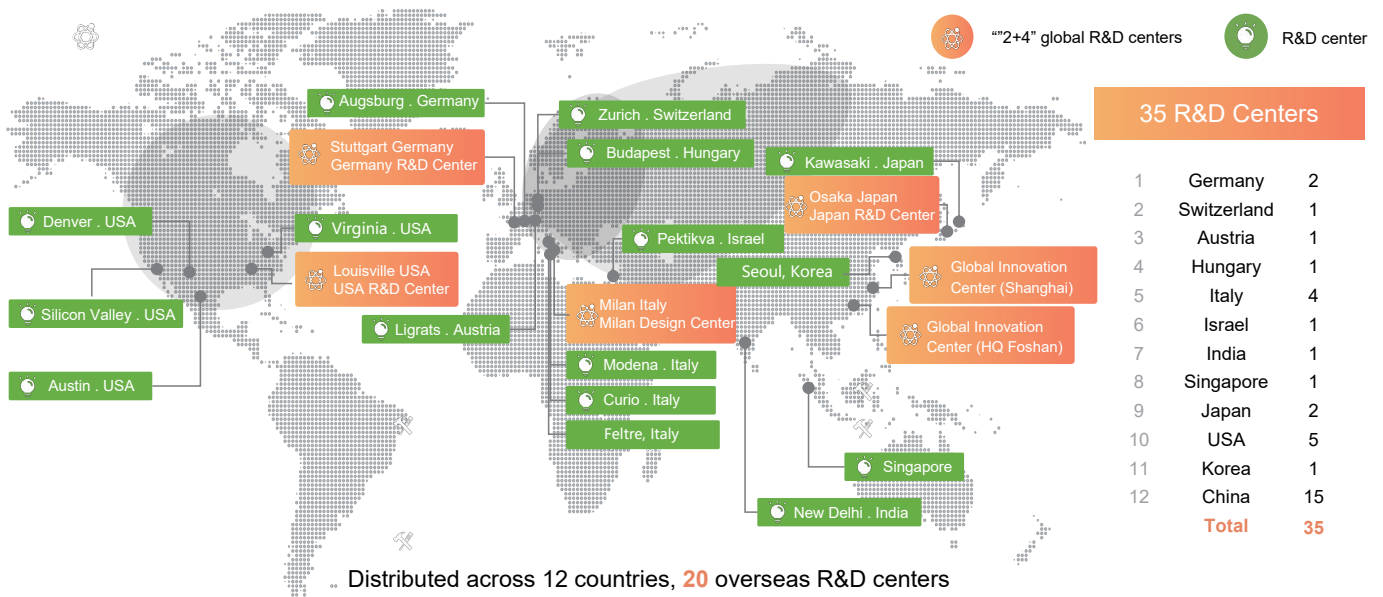


# ABOUT MIDEA BUILDING TECHNOLOGY

## Your Partner of Energy

Midea MBT (Midea Building Technologies) is a key division of the Midea Group, a leading provider of comprehensive solutions for intelligent buildings involving energy sources, elevators, control systems, and heating, ventilation & air conditioning. Midea MBT has continued with the tradition of innovation upon which it was founded and emerged as a global leader in the HVAC and building management industry. A strong drive for advancement has resulted in an extensive R&D department that has placed Midea MBT at the forefront of technology. Through these independent projects and cooperation with other global enterprises, Midea has supplied thousands of innovative solutions to customers worldwide.

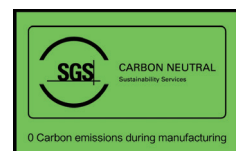
### The “2+4+N” layout of global R&D network



## The pursue of zero-carbon heat pump

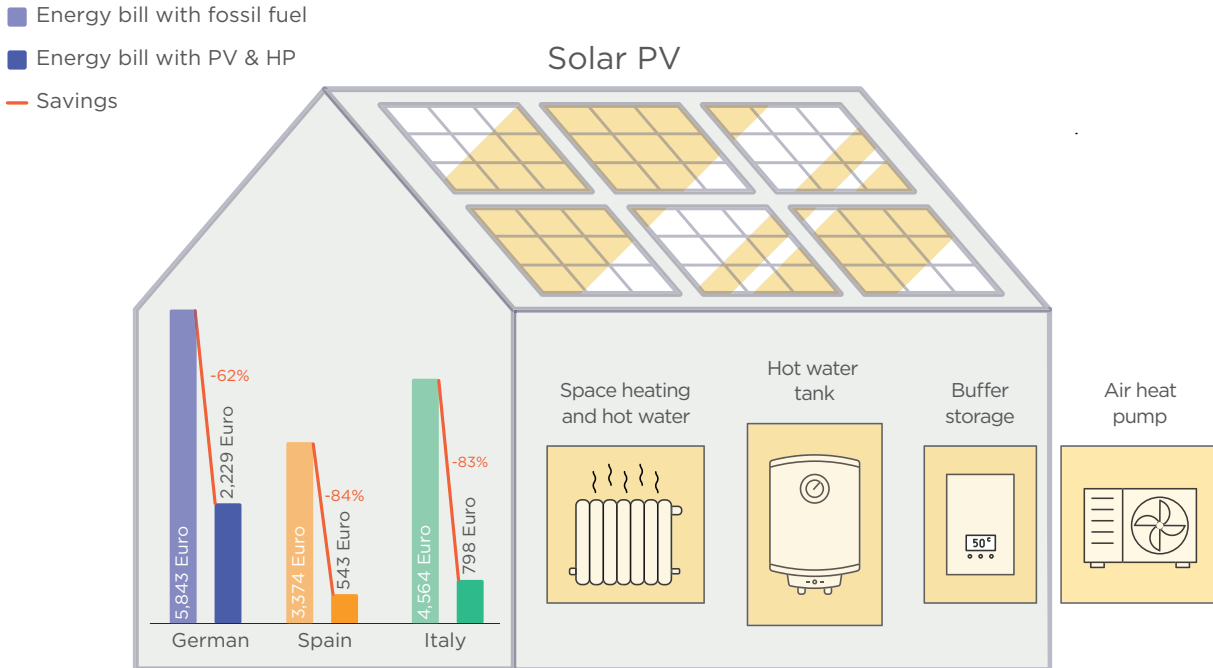
Midea has analysed the carbon footprint of A series products to be imported to Germany in 2023 throughout their life cycle, including MHC-V10W/D2N8-B, MHC-V8W/D2N8-B, MHC-V6W/D2N8-B, and MHC-V4W/D2N8-B. In addition, it has developed the world's first "zero-carbon heat pumps" by purchasing forest carbon credits to offset the carbon emissions from raw material acquisition and processing to installation.

This batch of zero-carbon heat pumps have received TÜV SÜD's "Declaration of Carbon Neutrality" which is the first carbon neutrality certificate issued by TÜV SÜD in the heat pump sector.



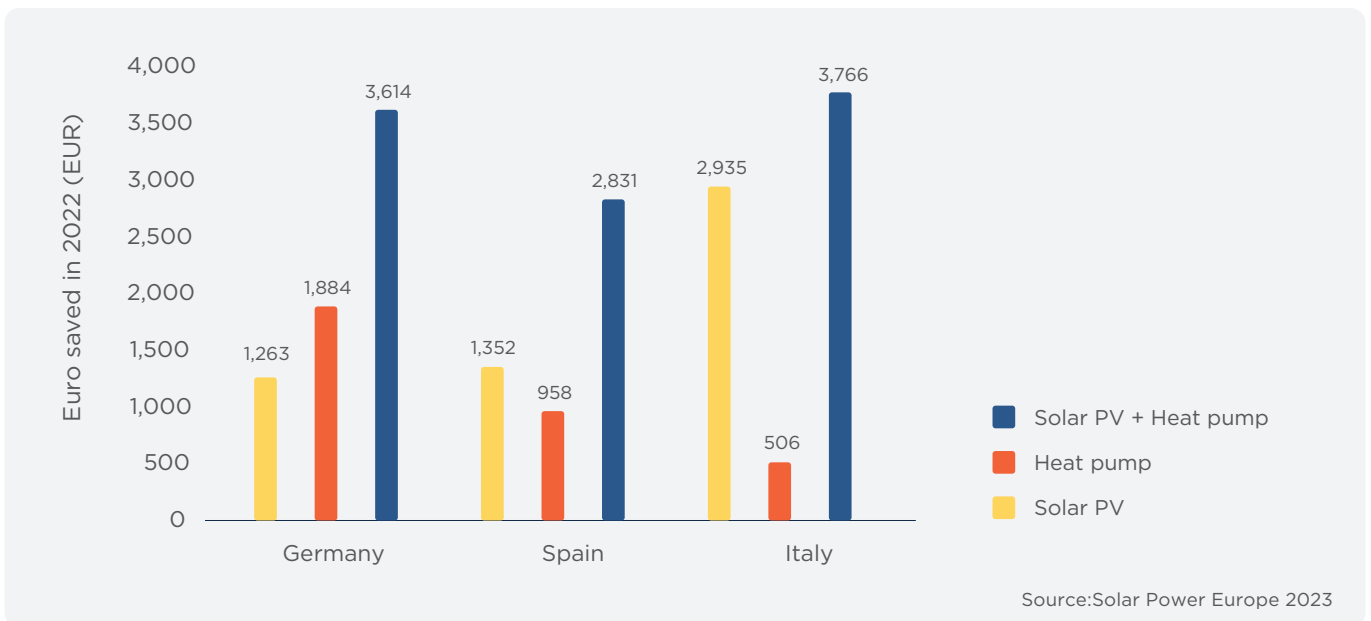
# MARKET TREND IN EUROPE

## Savings Made by Households with Solar PV and Heat Pumps in 2022



Source: Solar Power Europe 2023

## Annual Savings in Euro of Households with Different Power&Heating Technologies in Germany, Spain, and Italy in 2022



Source: Solar Power Europe 2023

Savings for the model homes were as high as 3,766 EUR in Italy, followed by Germany, and Spain.



## Case 1: PV + HP + EV + BESS

### Brandenburg, Germany

The Richter family shows you do not need to build a new house to save money and meet today's energy standards.

Technical information	
Project	PV + HP + EV + BESS for single family household
Living space	326m <sup>2</sup>
Heat pump	12.8 kW
PV capacity	19.3 kW
BESS capacity	>19 kWh
PV production per year	17,250 kWh
Electricity consumption	23,000 kWh
Self-consumption ratio	2 x type undisclosed
Electric vehicle	Type undisclosed

Financial information	
Total costs HP gross (incl. installation)	€36,950
Total public support	€18,475
Estimated savings per year	€3,400 - 4,000

## Case 2: PV + HP

### Vercelli, Italy

How even a small solar PV and heat pump system has a significant positive impact on an Italian family's energy bills.

Technical information	
Project	PV + Heat pump in Italy
Living space	125m <sup>2</sup>
Heat pump	10 kW
PV capacity	3 kW
PV production per year	3,300 kWh
Electricity consumption	11,000 kWh
Self-consumption ratio	+/- 90%

Financial information	
Total PV costs gross (incl. installation) (2011)	€9,500
Total costs HP gross (incl. installation) (2022)	€9,500
Total boiler costs gross (incl. installation)	€2,500
Total public support	€15,000

Source: Solar Powers Heat & EVs 2023 - Case Studies

## Case 3: PV + HP + EVs

### Wuppertal, Germany

The Krüger family built a sustainable home with a compact heat pump installation and electric vehicle charging.

Technical information	
Project	PV + HP for single family household
Living space	220m <sup>2</sup>
Heat pump	7 kW
PV capacity	9 kW
PV production per year	10,130 kWh
Electricity consumption	9,240 kWh
Electric vehicle	2 x type undisclosed

Financial information	
Total PV costs gross (incl. installation) (2020)	€18,000
Total costs HP gross (incl. installation) (2018)	€15,000
Total cost air conditioning gross (incl. installation)	No need, cooling included in HP installation
Total public support	€5,000
Estimated savings per year	€2,000

## Case 4: PV + HP

### Madrid, Spain

Saving money and gas: This Spanish eightperson household no longer needs gas, cutting their energy costs.

Technical information	
Project	PV + HP for the heating of an 8-person household
Living space	-
Heat pump	15 kW
PV capacity	9.66 kW
PV production per year	13,050 kWh
Electricity consumption	37,950 kWh
Self-consumption ratio	79%

Financial information	
Total PV costs gross (incl. installation) (2022)	€13,970
Total HP costs gross (incl. installation) (2022)	€16,299
Total public support	600 €/kW PV = €5,796 HP = €3,000 Total = €8,796
Estimated savings per year (after first two months of use, Jan 23 & Feb 23)	Savings per year =€4,381

Source: Solar Powers Heat & EVs 2023 - Case Studies



Energy Security & independence



“Bi-Energy Storage” System



7% Power self-sufficiency increased



10% self-consumption increased by Intelligent PV power tracking technology

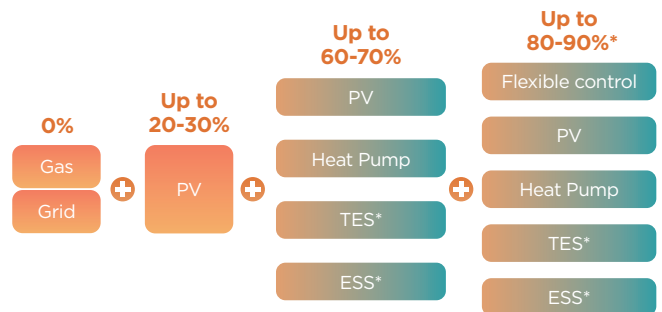
## What is iEasyEnergy?

Midea iEasyEnergy Solution is the combination of photovoltaics, energy storage system, heat pump system, and flexible control algorithm.

### From 0% to 90%

To realize carbon peaking and carbon neutrality, cope with the energy crisis, achieve energy independence, and facilitate the transformation of buildings from carbon consumption to carbon neutrality, Midea MBT has launched the “iEasyEnergy Solution”, providing one-stop service from design to installation to meet the demands of power consuming devices in house.

The iEasyEnergy solution, based on a LFP battery and thermal storage tank system, increases the energy self-sufficiency from 0% to 90% and improves energy security by working with exclusive iEasyEnergy flexible control.



\*ESS: Energy storage system (LiFePO4 battery).

\*TES: Thermal energy storage (Hot water tank or PCM (phase change material)).

\*Up to 80-90% energy self-sufficiency:e.g. For a 20kWh storage requirement, the most efficient way to maximize ROI is to configure 10kWh ESS + 10kWh PCM (equivalent to 2,000L of heat storage).



M-HP  
(R290/R32 Heat pump)



M-ESS  
(Energy Storage)



M-Master  
(Central Controller)



iEasyEnergy  
(APP)



Super Advisor  
(Selection Software)



M-Charger  
(EV Charger)

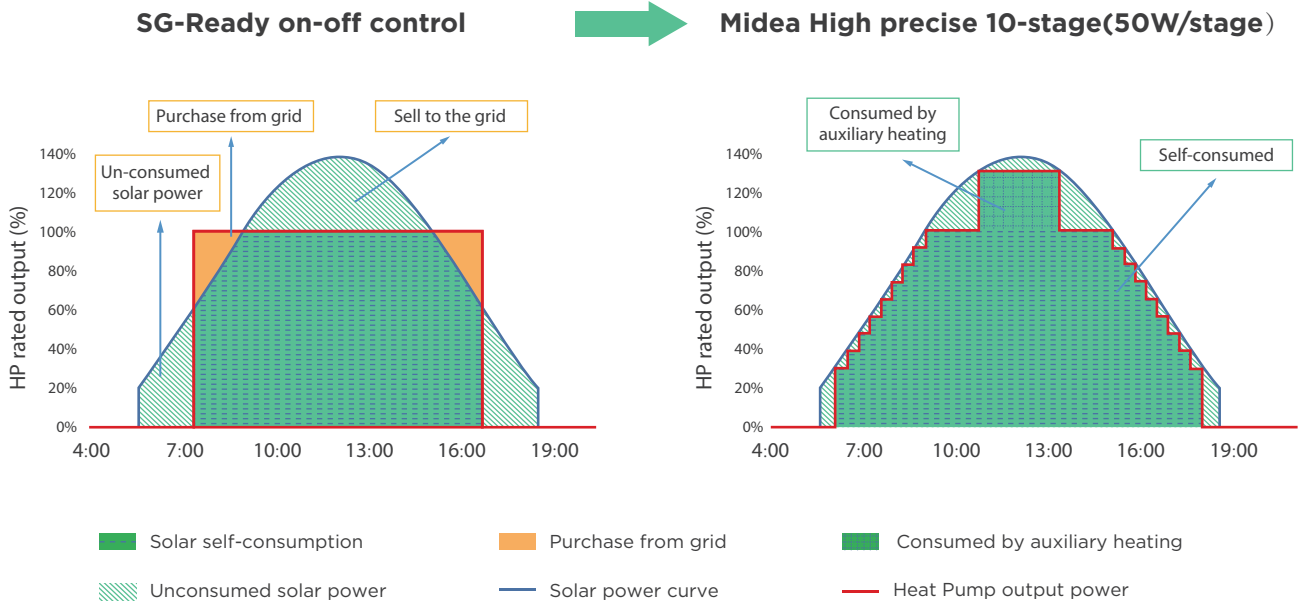


M-TES  
(Thermal Storage Tank)



# SOLUTION BENEFITS

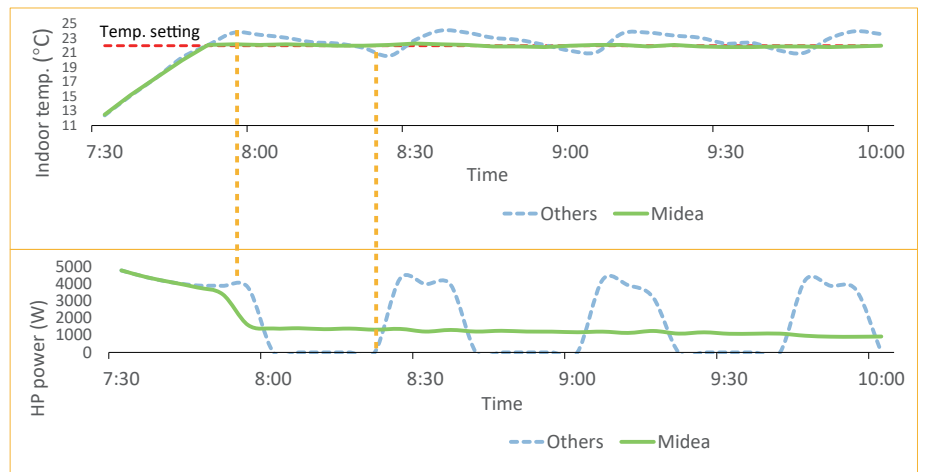
## Leading 10-stage power output regulation increases 10% self-consumption



<p><b>SG-Ready control</b></p> <ul style="list-style-type: none"> <li>⊗ on-off control</li> <li>⊗ Extra purchase from grid</li> <li>⊗ Low solar power remain un-consumed</li> </ul>	VS	<p><b>Midea advanced flexibility control</b></p> <ul style="list-style-type: none"> <li>👍 High precise 10-stage control</li> <li>👍 Take the full advantage of PV power</li> <li>👍 solar self-consumption rate increases 10%</li> </ul>
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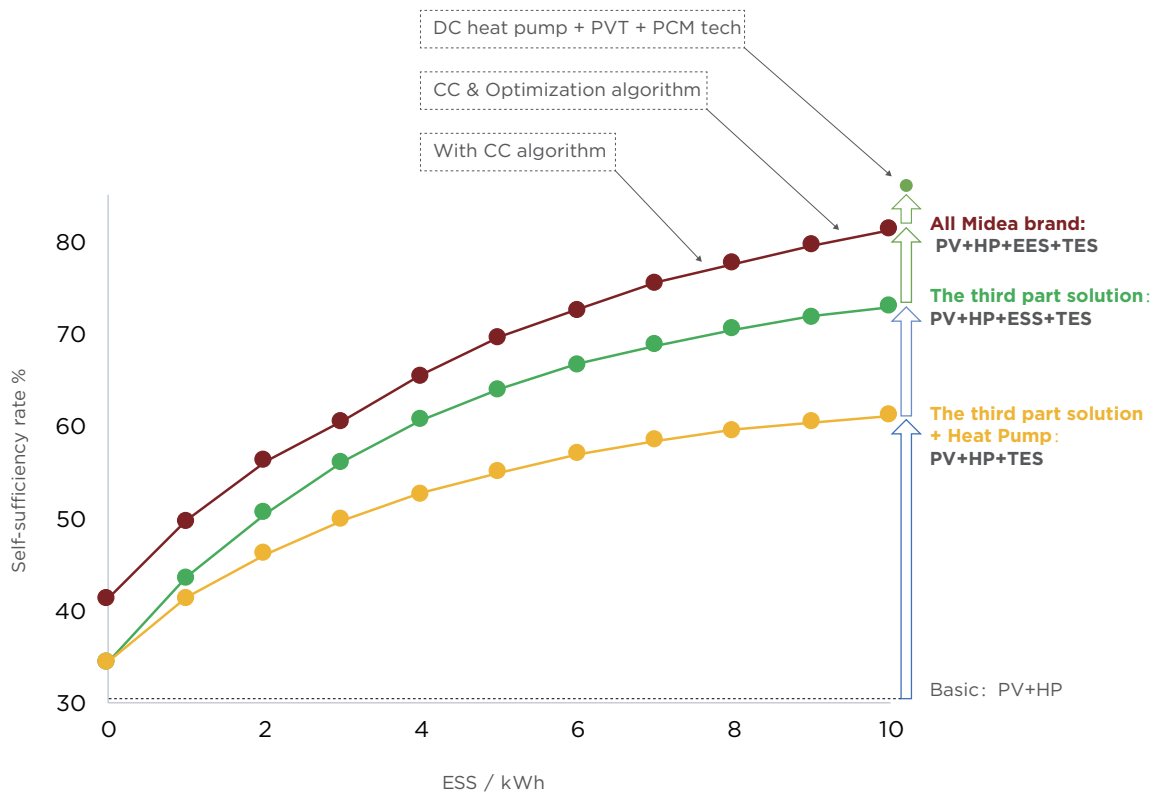
## Advanced CC algorithm minimizes power consumption

Midea heat pump could optimize the power output to fit the temperature setting, less energy consumption, less PV and battery requirement, and more thermal storage.

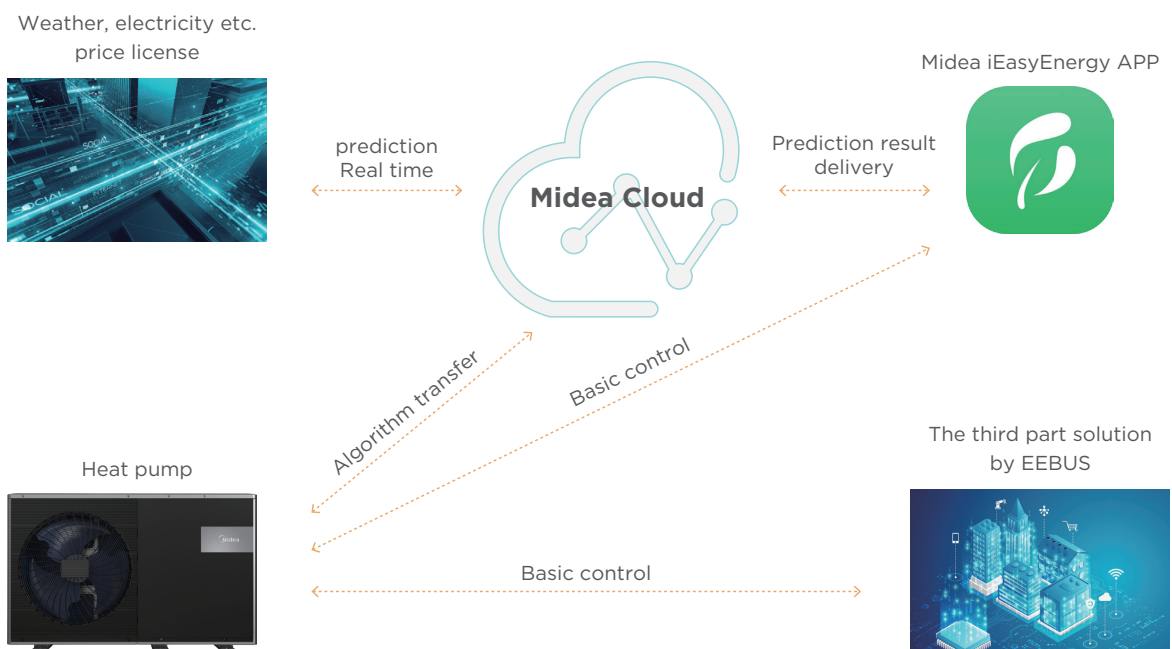


# Midea's PSS solution is 7% higher than third-party's

Building thermal feature recognition based on CC (Compressor Curve) Algorithm.



# Midea's intelligent algorithm framework can be compatible with third-party devices via EEBUS

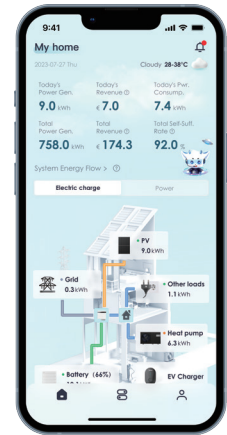
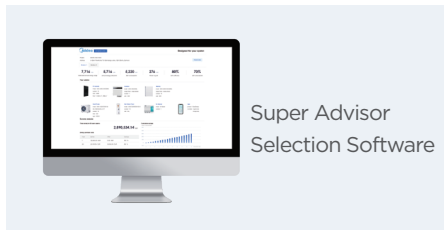


# INTELLIGENT CONTROL SYSTEM

## 1. Product Portfolio

Midea offers complete smart building control solutions that include Super-Advisor Selection software, central controller M-Master, and intelligent app iEasyEnergy.

They combine a competitive edge through which to measure, improve and summarize energy efficiency using a user-friendly interface.



APP

## 2. Key Advantages



Bi-Energy Storage Potential

Based built-in flexible algorithm, the local consumption of renewable energy will be maximized.



Various Household Scenarios

Based on the forecast meteorological information, adjust the Bi-Energy Storage strategy, and automatically match the energy demand in different household scenarios.



Optimization of Energy Bill

Based on the forecast electricity price information, the quantitative prediction of the energy bill optimization effect is completed by flexible algorithm.



Customized Demand

Fully respond to the living habits and comfort need, customize the priority of energy according to the energy consumption.

## 3. Widely recognized by various certifications, reliable and trustworthy

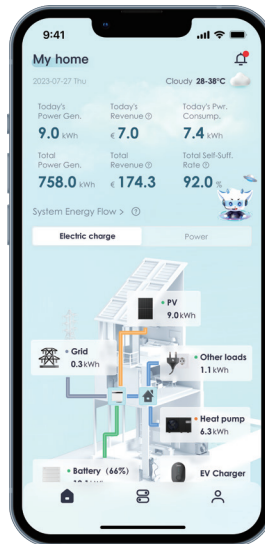


## 4. Support mainstream communication protocols, Easy to integrate



## Analyze whether your home energy is safe Perform visible energy management automatically

iEasyEnergy is an intelligent energy management APP that integrates heat pumps, photovoltaic modules, energy storage devices, hybrid inverters, and other equipment into a flexible and efficient system. It enhances the energy independence of your home and opens up a new era of home energy management.



### Advanced Highlights

- 3-in-1 one-stop management
- Freely customize daily/weekly Schedules
- Automatic fault notification push and analysis
- Energy bill savings and costs by daily/ monthly/yearly analysis

## EE, the smart assistant, is always guarding your home.

Hello, I'm EE, an AI assistant of the iEasyEnergy app

### What can EE do for you?

- Fault push notification
- Data calculation and display
- Flexible algorithm notification
- Interesting Q&A



## Benefits



Energy Efficient

Dynamic optimization of energy use based on the Bi-Energy Storage System can increase the energy self-sufficiency.



Remote Control

Visualized energy use and consumption Integrated control of all household appliances, device data sharing, and remote monitoring.



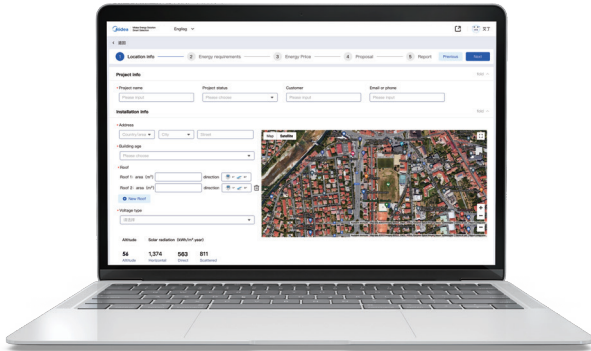
Cost Effective

Flexible adjustment of control modes and parameters of devices to reduce the system operating costs.

# iEasyEnergy Super Advisor

## Just Four Steps To Get Your Professional Energy Solution Proposal

With Heat Pump + PV + Battery



Midea Energy Super Advisor helps installers complete the selection of energy system and automatically generate analysis reports.

<https://ieasyenergy.mideaibp.com/>



**Efficient**

Free of site survey and integrate database with global solar irradiation.



**Professional**

Multi-scheme comparison to achieve different self-sufficient requirements.



**Customizable**

Customize system and proposal report fully integrated financing.



Basic info. for solar



Basic info. for HP



Historical energy

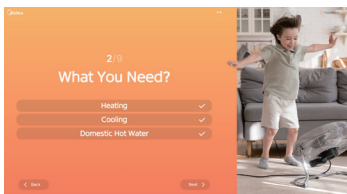


consumption  
Hardware proposal

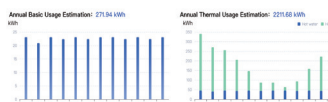
## Features & Advantages



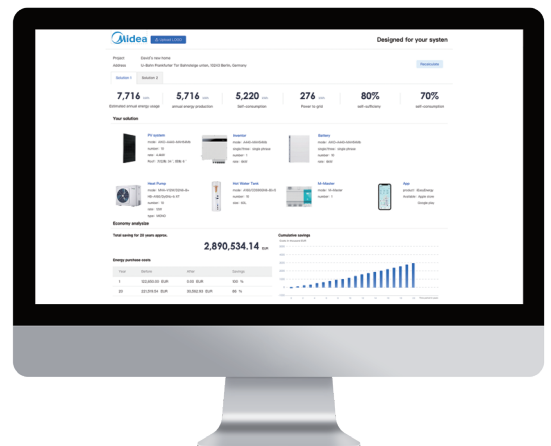
Integrates solar design selection function



"Heating, domestic hot water,cooling" modes for your needs



Economic and environmental analysis



iEasyEnergy Super Advisor

# PRODUCT PORTFOLIO

## About Midea



Purchase a product



Enjoy one-stop service

Midea MBT, with rich experience in manufacturing HVAC including the heat pump, energy products including the inverter and energy storage with strong EMS ability, has many patents in the field of devices and software algorithms integrated in the iBuilding platform.



1



M Thermal Series Heat Pump (Arctic/ Power Series)

2



Energy Storage System (Midea Residential ESS Series)

3



Domestic thermal storage tank (190L/270L)

4



APP (iEasyEnergy)

5



Super Advisor (Selection Software)

6



Central Controller (M-Master)

7



EV charger (7/11/22kW)

8







Air ventilation system (Fan coil unit(MKT Series))



# MIDEA ATW HEAT PUMP

## R290 M thermal Arctic Mono Heat Pump

-  R290 GWP =3
-  Min OAT -25°C
-  Max LWT 75°C
-  Energy Efficiency Level A+++/A++



### Features & Advantages

M thermal offers a year-round environmentally-friendly solution that integrates space heating, space cooling and domestic hot water supply, eliminating reliance on conventional gas- or oil-fired boilers. It can also work with them.

- Compatible with a variety of terminals such as floor heating pipes, FCUs and thermal storage tanks.
- Energy and cost saving.
- Flexible design and easy installation .
- Energy-saving and environmentally-friendly when using clean energy.

### Benefits



#### Comfort

The heat pump system works stably and ensures comfort, with working temperature as low as -25°C, and domestic hot water output temperature as high as 75°C.



#### Convenient

The heat pump system can be remotely controlled by the SmartHome APP and iEasyEenergy APP.

# MIDEA ATW HEAT PUMP

## 1 Product Portfolio

Midea provides a complete product line of M thermal heat pumps. The pumps use new environmentally-friendly R32 and R290 refrigerants and cover the Arctic and Power series. At the same time, Midea provides Hybrid IDUs that match the M thermal heat pumps to meet customer needs.

R290 Arctic HT series



R32 Arctic Mono Series



R32 Arctic Split Series



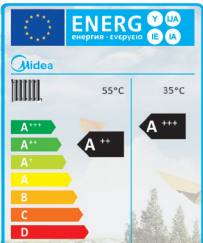
R32 Power series



Hybrid IDU



## 2 Energy-efficient



**ERP Directive\***

ns. Seasonal space heating energy efficiency

ns average up to **A+++** at 35°C

ns average up to **A++** at 55°C

With the benefit of Midea technology, M thermal heat pumps reach the EU Energy Efficiency to ensure users get a better experience.

## 4 Environmentally-friendly

- Much lower GWP value to meet EU carbon neutrality.
- No ozone depletion potential.
- Excellent thermodynamic performance.
- Great thermal efficiency for most conditions.
- Reduced charge than most refrigerant in the market.
- A safe bet for the long term solution.



## 3 Comprehensive certifications



# MIDEA RESIDENTIAL ESS

## 1 Product Portfolio

Midea offers a wide variety of products, such as hybrid inverter, EMS, BMS, battery module, pack, rack, and container that allow our customers to source total battery solutions.



• Hybrid Inverter



• Split-block



• Mono-block

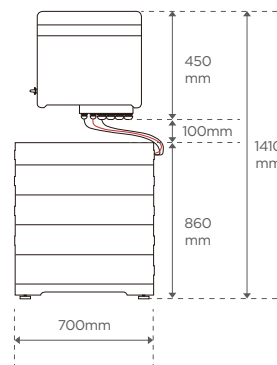
Smart Low/High Voltage Energy Storage

Coming soon

## 2 Flexible and Space-saving

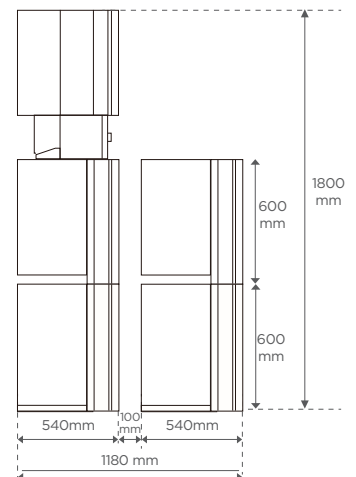
- Midea's split-block stacking solutions can stack up to 30 kWh of electricity in a single height space.
- When the capacity is between 5 kWh and 30 kWh, the solution requires no additional space if installed in a storeroom, attic or garage.

\*5-30kWh (single phase with Low voltage battery)  
10-25kWh(Three phase with High voltage battery)



Wall space: 0.969mm<sup>3</sup>

Midea 20kWh ESS



Wall Space:1.718mm<sup>3</sup>

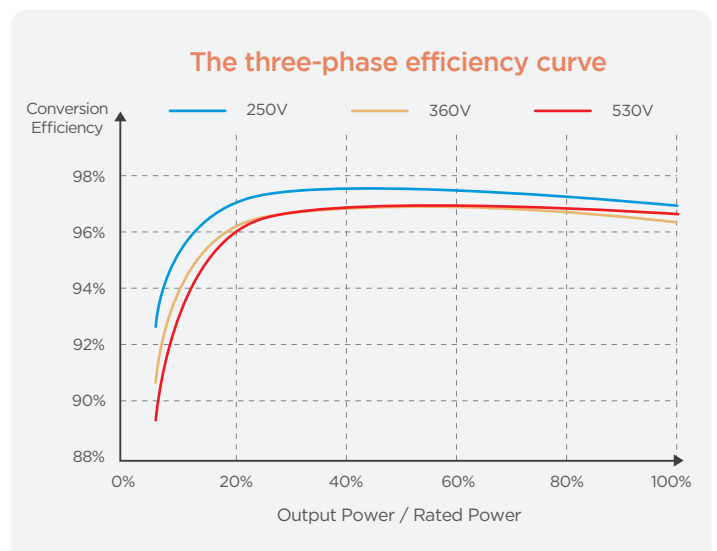
Other 20kWh Mono-block

## 3 Safe and Efficient

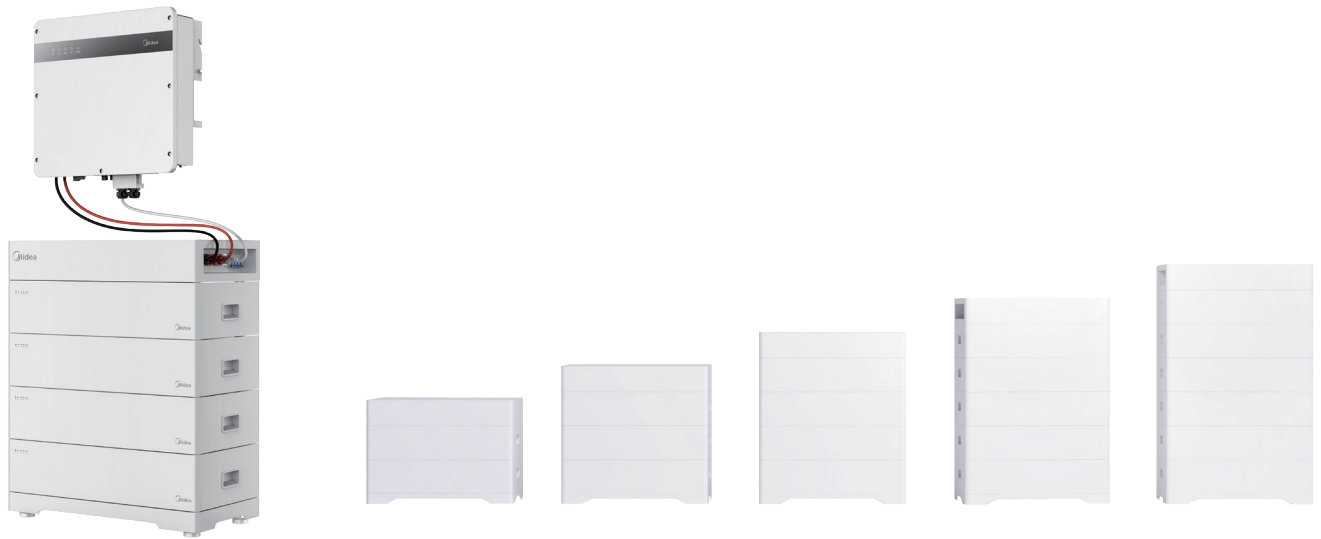
Energy storage and flexible control are the core of the Midea iEasyEnergy solution to ensure efficient energy utilization and safe operation .

- Max. 97.9% efficiency.
- Max. 96.6% battery efficiency.
- Typical 10ms fast transition to backup mode during power outage.
- Support diesel generator access.
- 90% energy self-sufficiency with Midea iEasyEnergy solution.

\*Notes:  
1. For different models, the data above may differ.  
2.Only certain models support diesel generator access.  
Please refer to manuals for specific information.



# MIDEA RESIDENTIAL ESS



## Features & Advantages

### Advantages of Midea Energy Solution

The Energy Storage System is the core of Midea's well-designed safe, reliable, stackable, and easy expandable solution.



#### Independence

- Be maximum independent from external power utilities.
- Fully utilize every ounce of energy to protect your home from power failure.



#### Sustainability

- Enable to use green energy to the greatest extent.
- Bring flexibility and sustainability to your home.



#### Longer Service Life

Based on the full understanding of battery cells, Midea's patented charging and discharging technology can extend the service life of the batteries and improve the number of battery cycles despite long-term operation.



#### Friendly Installation

The EV-class hard connection makes it possible for batteries to be installed by 1 person within 10 minutes.



#### Flexible Capacity Expansion

Up to 30 kWh of electricity can be stacked in a space with a smaller height, and the capacity can be expanded to up to 90 kWh.



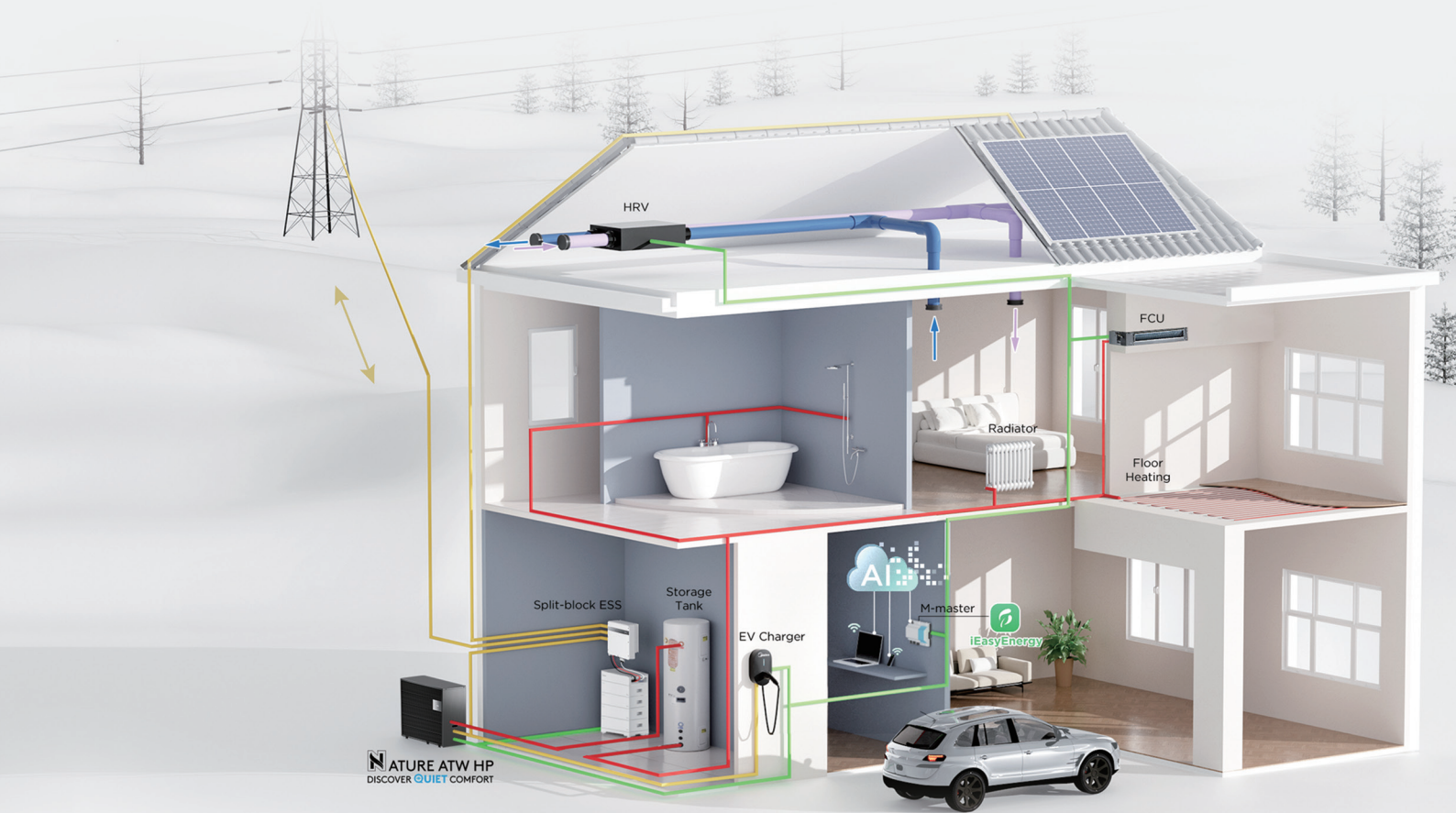
#### Battery Recycling

At the end of the battery life cycle (10 years), Midea offers battery recycling service, which is environment-friendly and brings additional revenue.



# iEasyEnergy CENTRAL CONTROLLER M-MASTER

Compatible with Midea Wallbox "EV Charger



NATURE ATW HP  
DISCOVER QUIET COMFORT



Supports Access to  
a Variety of Devices

- Support hot standby access to Midea.
- Support access to Midea inverter.



Multiple Installation  
Methods

- Support rail installation.
- Support wall-mounted installation.



Software-Driven  
Hardware

- Simplified distribution network, ultra-fast OTA remote.
- Online upgrade and version management.



# 7/11/22kW Wallbox



## Enhanced Safety

Integrated 30mA Type A + 6mA DC RCD;  
Automatically stop charging on full battery.



## Integrated Intelligence

App/RFID authentication;  
OCPP compliance.



## Future Proof

11/22kW adjustable;  
Rich features for future extension.



## Professional EV Charger Relay

Outstanding Short-Circuit Breaking Capacity  
Conform to IEC62955/IEC62752.



## Low Standby Power Consumption

Less than 2W Standby Power;  
Less than 18kWh Standby Power Consumption in a Year.



Community/Property



Office building/Zone



Commercial complex/municipal agency

# COMPREHENSIVE SERVICES

## Main challenges in the market

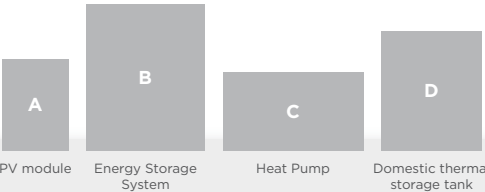
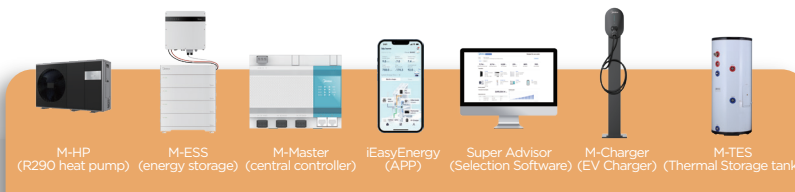
### Question comes from installers

How to do the PV+ESS selection in thermal channel?  
 How to do the Heat pump selection in PV channel?  
 Complex system connection.  
 Complex installation.

### Question comes from wholesalers

Devices management: HP+ESS+Controller+FCU+EV charger...  
 Complex aftersales...

## Midea one-stop Solution

Market	Midea iEasyEnergy Solution
 <p>A PV module    B Energy Storage System    C Heat Pump    D Domestic thermal storage tank</p>	 <p>M-HP (R290 heat pump)    M-ESS (energy storage)    M-Master (central controller)    iEasyEnergy (APP)    Super Advisor (Selection Software)    M-Charger (EV Charger)    M-TES (Thermal Storage tank)</p>
<ul style="list-style-type: none"> <li> <p>× <b>Multiple supplier</b></p> <p>One system solution combined with products from different brands.</p> </li> <hr/> <li> <p>× <b>Buck-passing of after-sales service</b></p> <p>Among different providers when error occurs.</p> </li> <hr/> <li> <p>× <b>Time-consuming and complicated</b></p> <p>It's troublesome to consult with multiple suppliers to obtain products of common protocol.</p> </li> <hr/> <li> <p>× <b>No flexible control and multiple APPs</b></p> <p>The system that consists of products from different brands is nothing but a simple connection.</p> </li> </ul>	<ul style="list-style-type: none"> <li> <p>✓ <b>One-stop solution Supplier</b></p> <p>Midea has a wide range of professional product portfolios, enabling you to provide your customers with one-stop solutions.</p> </li> <hr/> <li> <p>✓ <b>Comprehensive after-sales service</b></p> <p>Midea ensure warranty and will always be responsible for issue that may occur.</p> </li> <hr/> <li> <p>✓ <b>Time-saving and reassured</b></p> <p>The common protocol for all products to realize maximum performance.</p> </li> <hr/> <li> <p>✓ <b>Flexible control by 3-in-1 app</b></p> <p>Achieving higher energy self-sufficiency by precise and smart flexibility control of each product in the system.</p> </li> </ul>

## Features & Advantages



Home Energy Assessment

To prepare for your installation, we will assess best cost-effectiveness for Midea iEasyEnergy Solution and determine the appropriate supporting hardware.



System Installation Guide

Provide one-stop selection software and clear system installation instructions by video and brochure.



Ongoing Support

Midea iEasyEnergy Solution provides a whole system warranty. We will support you with any questions during that time. You can reach us via the hotline or contact a local support specialist.



## For installers



### Easy installation

- M-master helps to connect multiple devices and control.
- Monobloc installation is friendly to non-professional workers.
- Clear iEasyEnergy system installation instruction by video and brochure guide.



### Whole-process software enabling

- Super advisor enable one-stop solution selection automatically for installers.
- Letslink APP realize after-sales operation and maintenance remotely.



## For householders



### Home energy independence and avoid the risk of energy crisis

- Bring safe, sustainable and green, no worries about power failure or heating failure.
- Energy optimization can be achieved through iEasyEnergy APP, and energy bills monitored by daily/monthly/yearly.



### Intelligent and pleasant energy experience

- Real 3-in-1 APP can save time and save the trouble of switching between apps.
- Centralized management optimizes your energy consumption habits.



## For partners



### One-stop solution provider

- A wide range of professional product portfolios.
- Reduce your management costs, and maximize the economic benefits of all partners.



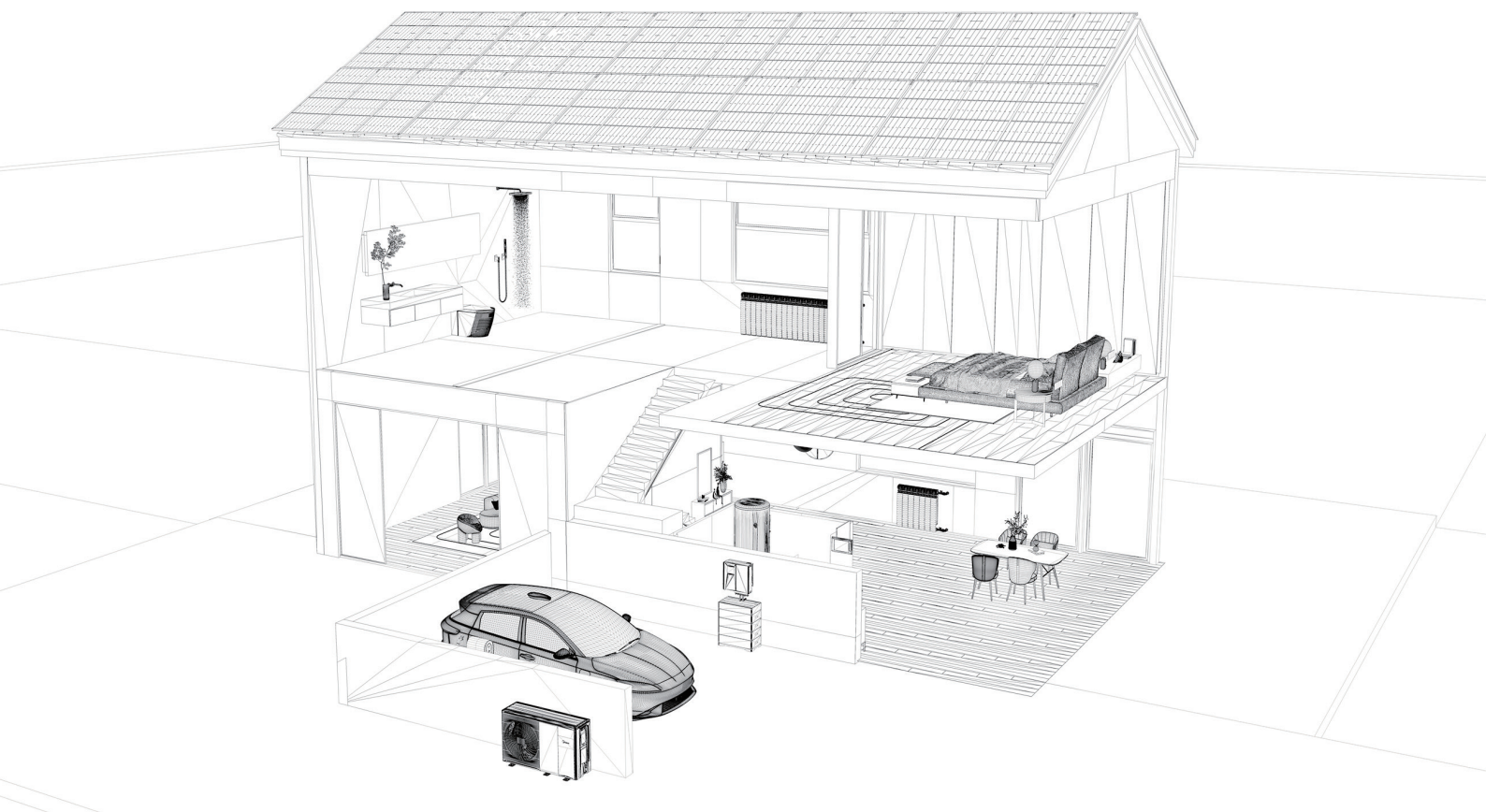
### Continuous support

- All-round technical support and partner training.
- Ensure stable supplies and up-to-date products.
- Reassured after-sales O&M quality assurance system.





With a history of over 50 years, Midea is one of the TOP 5 white goods manufacturers in the world, ranking the 245th in the Fortune Global 500, and providing one-stop service for users. Midea has set up R&D centers around the globe to ensure Reliable quality guarantee and efficient after-sales service. Midea is the power behind your mission and business.



## Midea Building Technologies Division

### Midea Group

**B-MES202401V1**

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Postal code: 528311

[mbt.midea.com](http://mbt.midea.com)    [www.midea-group.com](http://www.midea-group.com)    [tsp.midea.com](http://tsp.midea.com)

Midea reserves the right to change the specifications of the product, and to withdraw or replace products without prior notification or public announcement. Midea is constantly developing and improving its products.

Check ongoing validity of certificate: [www.eurovent-certification.com](http://www.eurovent-certification.com)

Please note that all the pictures in the document are for reference only. Actual products may vary.

