# GoodWe MicroGrid Solution

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WHAT IS MICROGRID?

A microgrid is a decentralized group of electricity sources and loads that normally operates connected to and synchronous with the traditional wide area synchronous grid (microgrid), but is able to disconnect from the interconnected grid and to function autonomously in "island mode" as technical or economic conditions dictate.

MICROGRID SYSTEM DIAGRAM
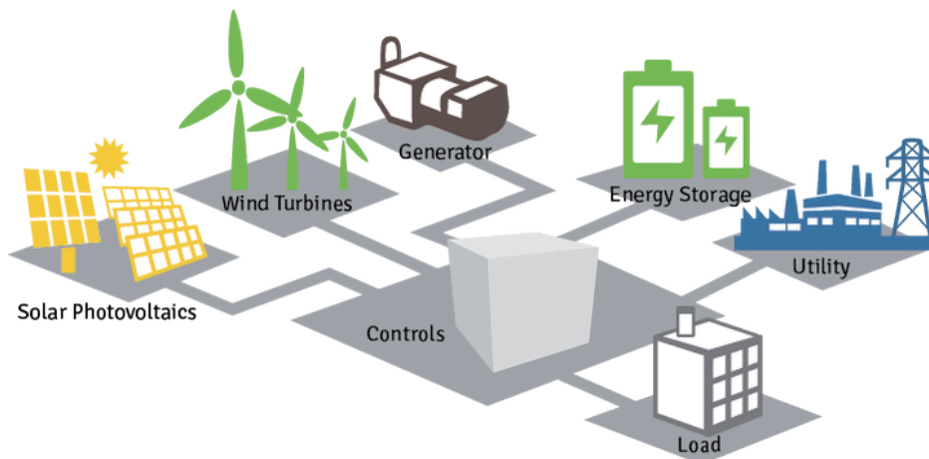
## ADVANTAGE OF MICROGRID IN PV + STORAGE SYSTEM

Without Microgrid function, the PV power is wasted if grid is outage because the grid-tied inverter can't work without grid.
In Microgrid system , when the grid fails, the grid-tied inverter still working under the microgrid provided by inverter off grid output or the generator.

GOODWE MICROGRID SOLUTION

1.GoodWe AC coupled inverter(A-BP) with grid-tied inverter (US Market)

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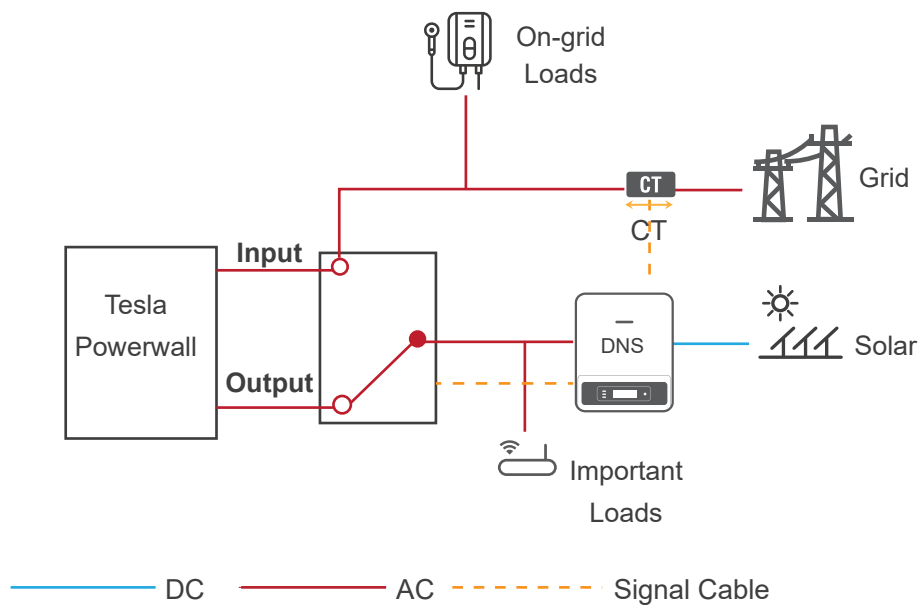
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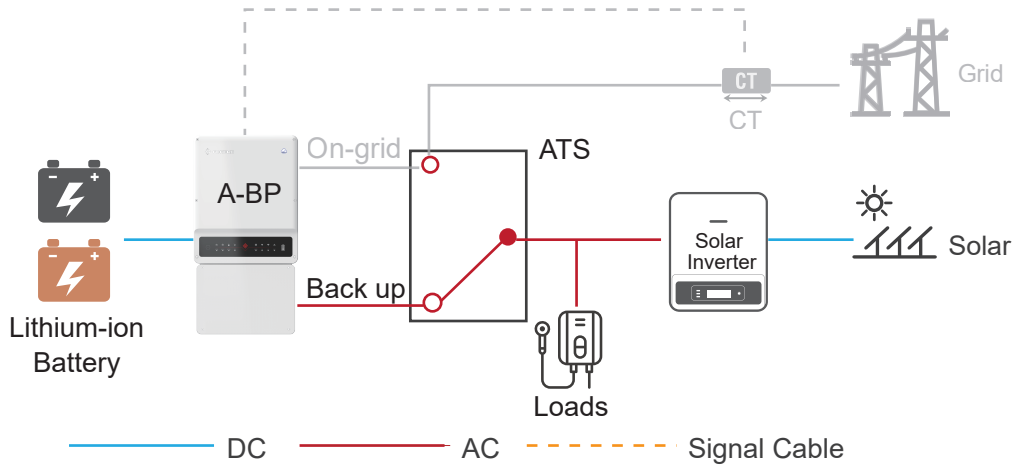
When grid is available, grid-tied inverter AC output connect to the on-grid port of ABP through ATS. Solar power of the system will support loads first then charge battery, and the exceed power will be able to export to grid which could be limited. If the solar power is not enough to support loads, battery will discharge.

When grid power fails, grid-tied inverter AC output connect to the back-up port of ABP through ATS. The grid-tied inverter continues to work to support loads and charge the battery.

2.GoodWe grid-tied inverter(DNS series) with third-party AC coupled inverter (EU Market) Take Tesla Powerwall as an example

● **System diagram**

GOODWE
YOUR SOLAR ENGINE

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● Working logic

a.When grid is available: PV power support the home load first, then charge the battery through Tesla Powerwall, the surplus power will be able to export to grid which could be limited. If PV power is not enough to support the home loads, battery will discharge.
b.When grid is outage: Tesla Powerwall still have the off-grid output, connect the DNS AC output to Tesla Powerwall off-grid output terminal. Then PV will support the home load first then charge the battery.
c.Tesla Powerwall have the frequency shifting function. So if the battery is full, Tesla will change the AC output frequency to limit the DNS output.

> **Note:**
> 1.DNS must choose the same safety country as Tesla Powerwall.
> 2.DNS must upgrade the DSP and ARM firmware to the latest test version. If not upgrade the firmware, DNS do not have AC output when grid is failure in spite of the Tesla have off-grid output. Because the CT of DNS connect to the on-grid side, when grid failure, the current of CT is zero, DNS can't have the output.
> 3.The system should have a signal to notice DNS that the AC is grid or micro-grid now. We use the remote shutdown terminal(Dred terminal) ,when the port is in short circuit, it is grid connected; when the port is open circuit, it is micro-grid connected.
> 4.If using micro-grid function, the DNS do not have remote shutdown function.

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