

离并网储能系统方案-2

On & Off-Grid ESS

Project 2

文件编号	HM- LB-LESS--B	生效日期	2015.03.21
版本	A01	页数	10
批准	审核		拟制



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此方案主要针对客户已有光伏并网系统而提出的解决方法。此方案增加离网储能系统。

This project is aimed to user that already have on-grid system at their hand, and only add off-grid system.

1. 概述 Overview

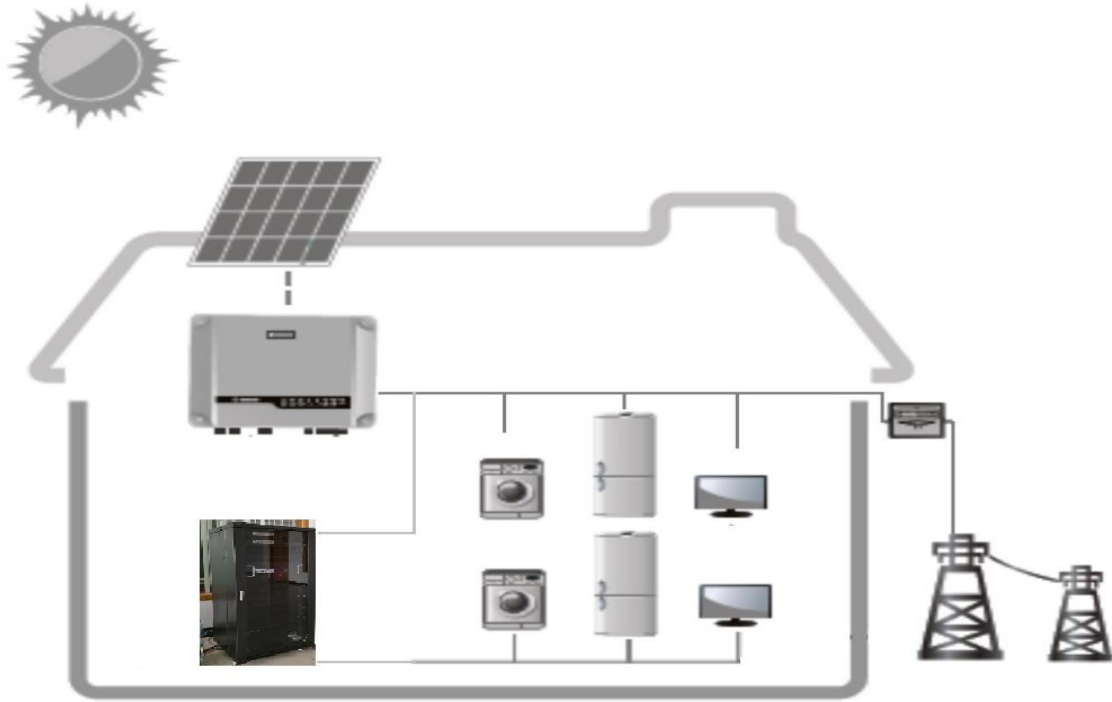
本方案不改动客户光伏及光伏并网逆变器，增加离网充电系统、储能电池系统、离网逆变器系统。

离网系统连接到光伏并网系统并网输出处电表前。离网储能系统设置时间段充电，可设置2段时间即白天10点到15点和晚上0点到6点。白天光伏并网发电，一部分供负载使用，多余并到电网卖电。此时离网系统从光伏多余电量取部分对电池系统进行充电，晚上利用电网低谷时段对电池系统进行充电。离网系统后面接家庭部分负载，利用多余光伏及低谷电量对负载进行供电。当电池系统电量不足无法满足负载时，离网系统从市电取电供给负载。

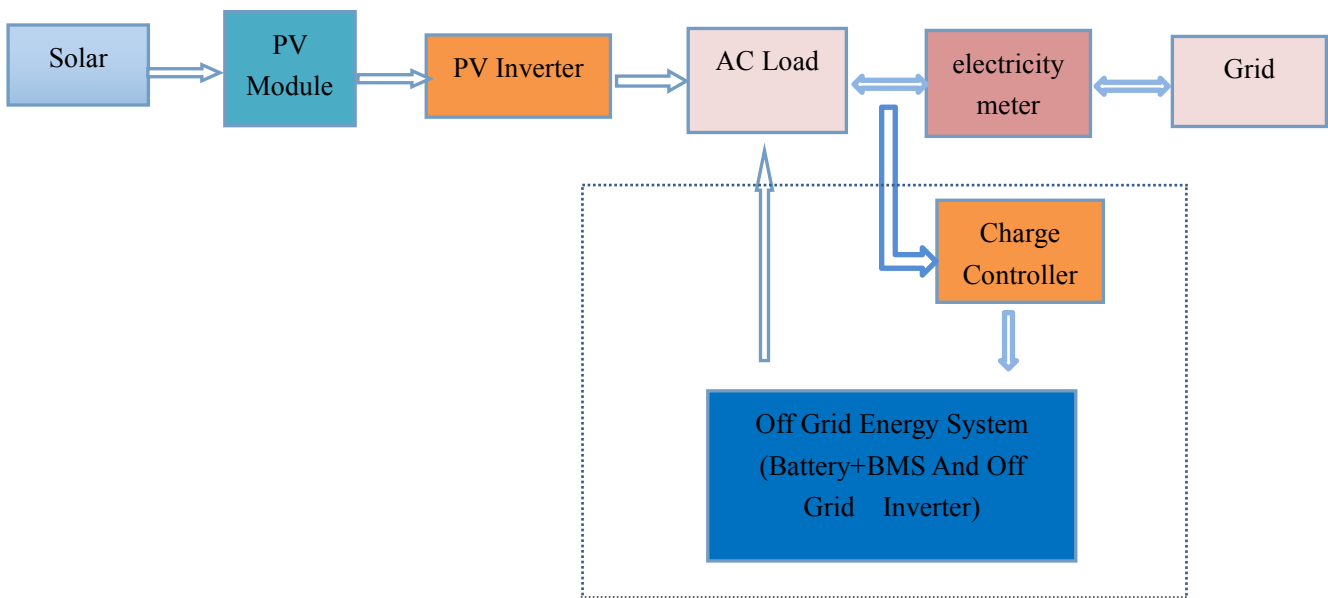
This system adds off-grid charging system, lithium ion battery system, and off-grid inverter system without changing the user's PV and PV on-grid inverter system.

Off-grid system connects the port (electricity meter) of output to PV on-grid system. The off-grid system setting allows the system to set fixed time periods when charging, such as 10:00 clock to 15:00 clock daytime, 0:00 to 6:00 clock night time. During daytime, PV on-grid supply power to load directly, and surplus energy will be sold to grid. Off-grid system will be charging the battery from the surplus energy of the PV, meanwhile battery system can be charged with valley energy during night time. Off-grid system connects the load which accept power by surplus PV energy or during valley. Off-grid system will supply power from grid to load when battery system does not have enough energy to supply load.

2. 系统框图 Diagram



系统工作流程图 Work Model



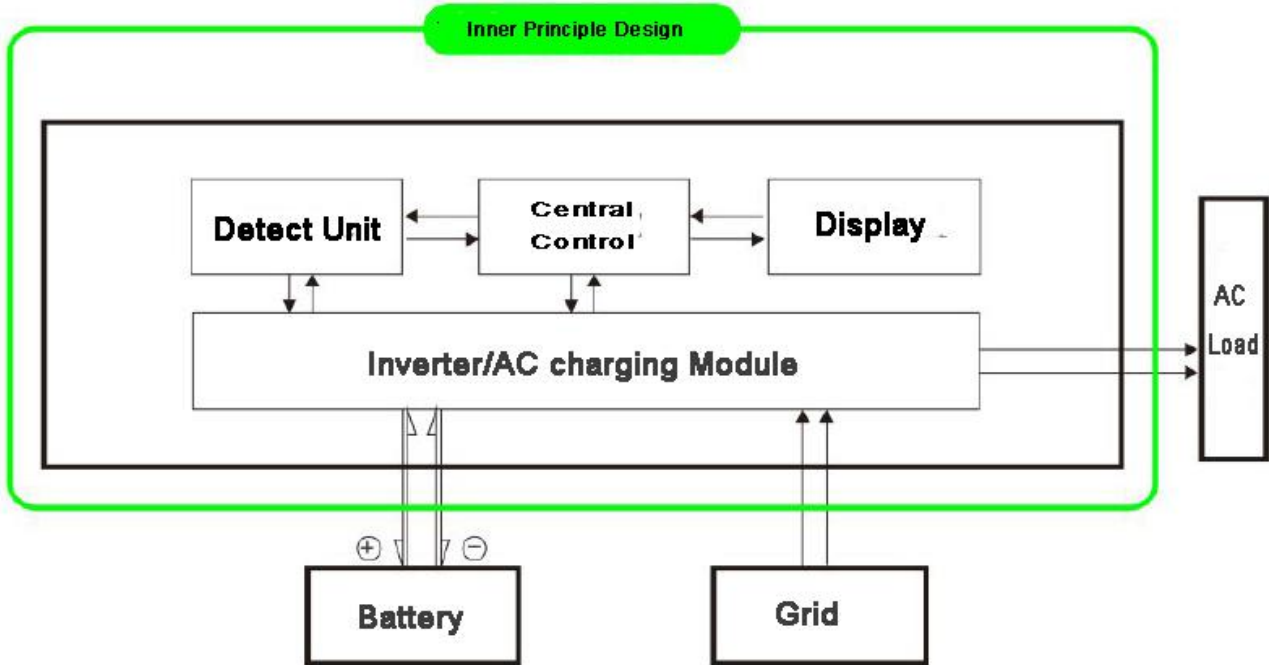
3. 电池系统 Battery system

电池系统由电池组、电池箱及 BMS 系统组成。此系统可将逆变器集成到此储能柜中，电池系统在上层，逆变器放置下层。电池系统可以做 5kWh, 7.5kWh 具体根据客户需求生产。

Battery system consists of lithium ion battery, battery case and BMS, they are compacted into one cabinet with inverter. We can make 5kWh, 7.5kWh battery for battery system, this system is also customizable.



4. 离网逆变器参数 Off-grid inverter Spec.



5. 产品参数 Production Parameter

技术参数\型号 Model	YMES4-48
额定输出功率 Rated Output Power	3kW
蓄电池输入 Lithium Ion Battery Input	
额定电压 Rated Voltage	51.2V
浮充电压 Flat Charge Voltage	54.0V
最大充电电压 Max. Charge Voltage	58.0V
市电输入 Grid Input	
输入电压范围 Voltage Range	110±15% VDC
输入频率 Frequency	60±3% HZ
切换时间 Swift Time	≤15MS
充电电流 (A) Charge Current	5A
交流输出 AC Output	
输出波形 Wave	纯正弦波 Pure Sine Wave
输出电压 Output Voltage	110VAC±1% (other voltage optional)
输出频率 Output Frequency	60±1% HZ
输出波形失真率 Output Wave Distortion Rate	≤2% (线性负载 liner load)
逆变效率(80% 阻性负载) Efficiency	≥88%
电流峰值系数 Current Peak Factor	3:1
过载能力 Filter Capacity	105-110%, 600S; 110-125%, 60S; >125% 1S。
显示及保护 Display & Protect	
显示方式 Display	LCD/LED
保护功能 Protect Function (need restart when protection)	Input protection: reverse connection, voltage shortage Output Protection: over-load, short-circuit Over-heat
通讯功能 Telcom Function	RS485(optional)
工作环境、机械尺寸 Work Environment	
防护等级 IP Level	IP31
使用海拔 Usage Altitude	≤4000 (Reduce 1% per 100m above 1000m)
环境温度 Environment Temp.	-20~+45℃
噪音 (1米) Noise	≤60dB



体积和重量 Mechanical Size & Weight	
宽*深*高 (mm) W*D*H	TBD
重量 (Kg) Weight	≤32 KGS