

FUTURE POWER FOR THE HUMAN

DCNCA



PROVIDING GREEN ENERGY SOLUTION
DCNCA CO LTD
주식회사 디씨앤씨에이

Introduction

DCNCA Co Ltd when was established in October, 2007 is a leading manufacturer of movable Energy Storage System & Industrial Battery with the providing NRE(New and Renewable Energy) System, PV Module, On/Off Grid Inverter, LED Lamp system, PV power plant system designing and Consulting,

We have a vision to become a global leader in renewable energy sector by providing the most value to our customer and maximizing corporate value though innovation and speedy execution of strategy.

We are confident in our ability to produce highest quality product at highly competitive price for our customers.

ESS POWER N

Powerful Energy Storage System



Strategy

Vision and Goal

Future Power for the Human
Goal Orientation to Customer value Creation



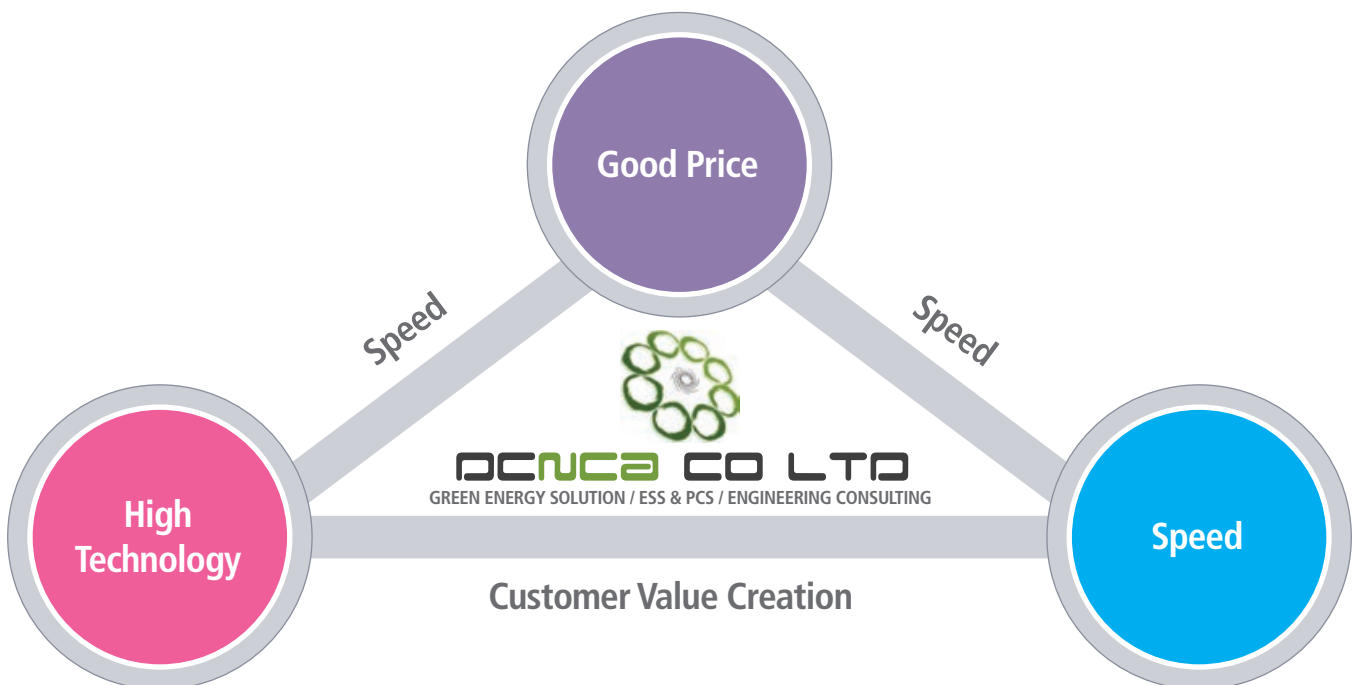
Product Differentiation

DCNCA will archive the highest level of performance and competitiveness in movable ESS and PV system Industry on the new technologies and process improvement. Our, DCNCA Product and system will enable high performance/efficiency to your applications or device.

Integrations

Valuing the integrity and partnership the most, DCNCA is trying its best to establish a solid long term relationships with Application designer, In/Out door Product Provider, and Customers. Our aims to lead the R&D of new technologies through close cooperation and communications with our partners to find more opportunities in the sustainable energy industry.

Strategy Map



PRODUCTS

1. Battery Base Energy Storage System
2. Portable Energy Storage System
3. Hybrid Energy Storage System
4. PV String / Hybrid Type Grid Tie INVERTER

Strategy

The Company's Technology

- ✦ Energy Storage System Design & Installation
- ✦ Hybrid ESS Design
- ✦ Power Inverter & PCS Design & Manufacturing
- ✦ Full Digital Control & Bypass Design
- ✦ On/Off Grid Solar home System Design
- ✦ Lead Acid Battery Cell Control System
- ✦ 0.5KW ~ 12KW Wide Range Input Control
- ✦ Solar Power Plant Design
- ✦ Standalone LED Street Light System Design



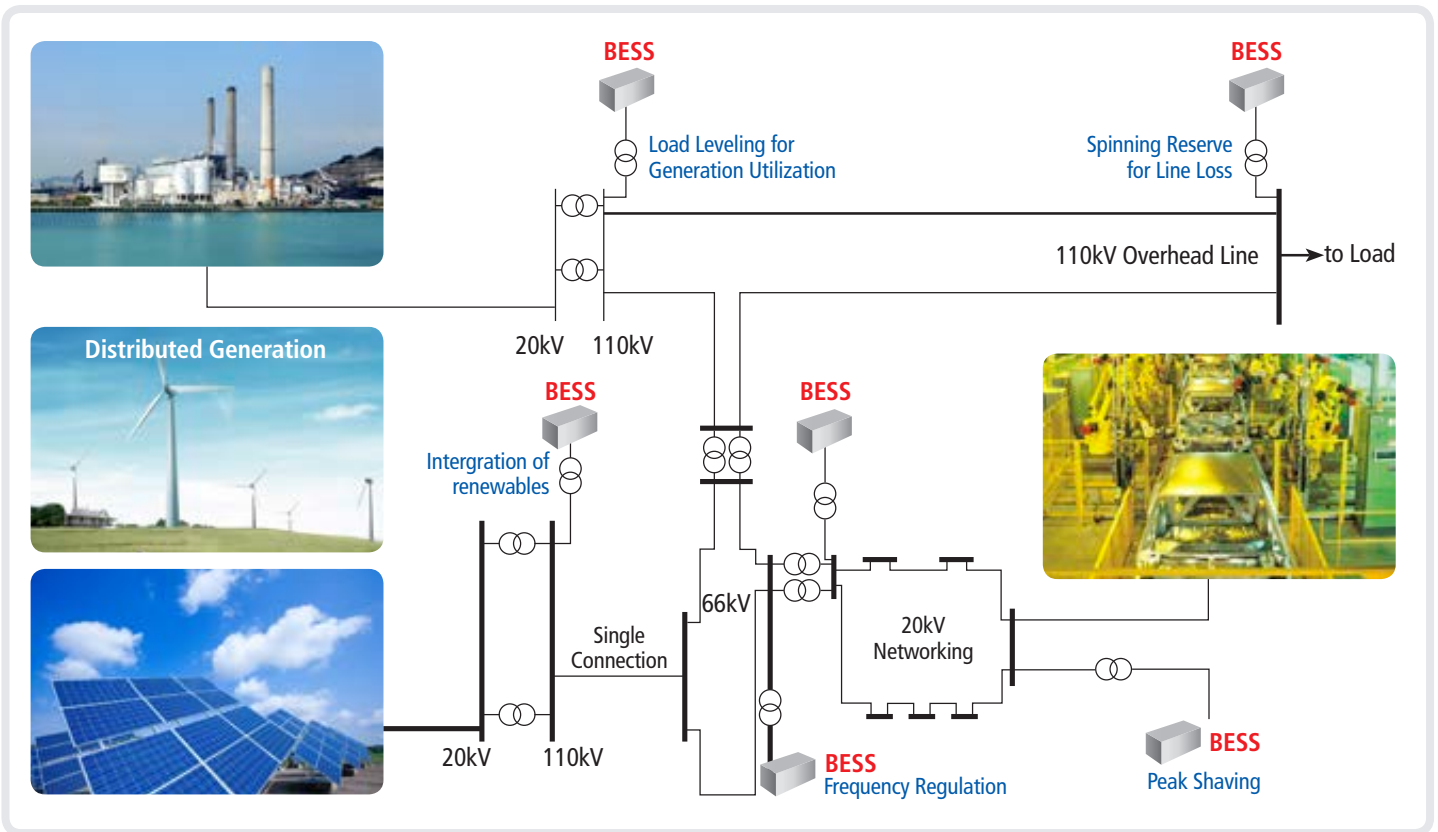
Energy Storage System Providing

Battery Energy Storage System

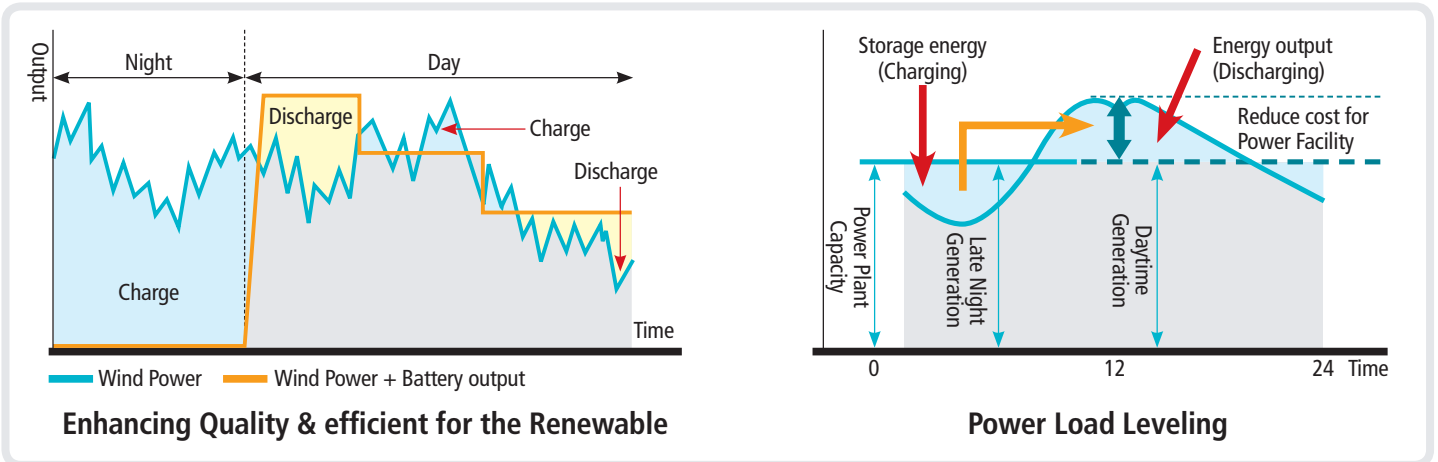
BESS Stabilizing System for Wind Power Fluctuation and other renewable power

Battery Energy Storage System is able to store energy from renewable energy sources or other sources, regulate power distribution, and improve the power quality of the grid.

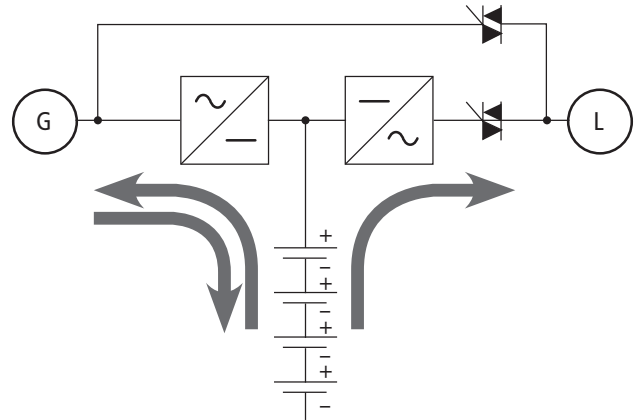
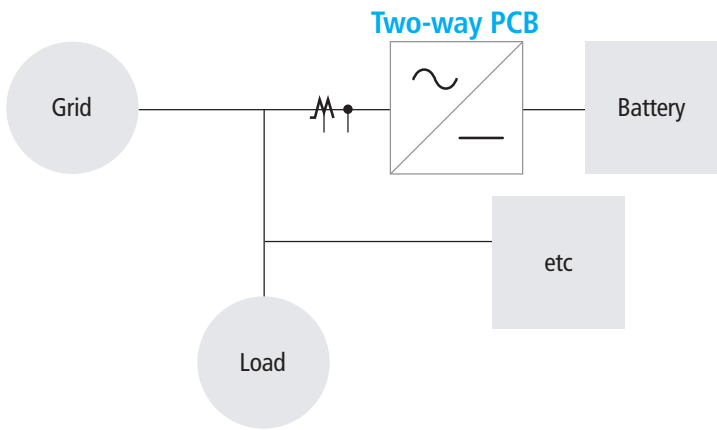
[System Application Layout]



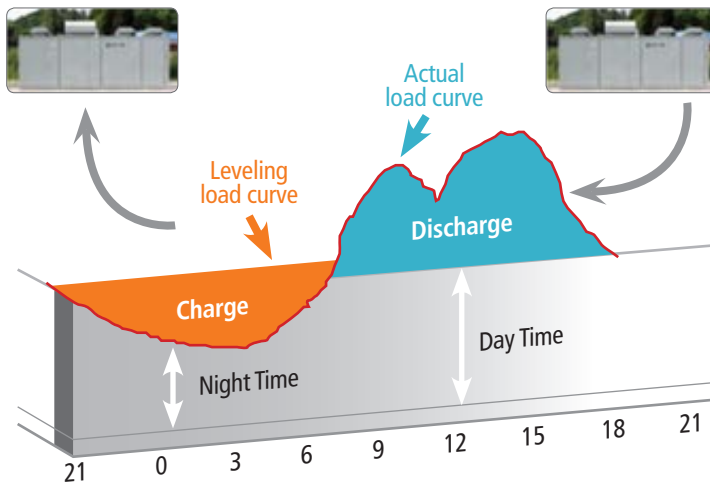
Peak load reduction, Power quality improvement and stabilization for the network connected to renewable energy sources. Improve power quality by smoothing for intermittent output of renewable energy resources. If ESS secures economical efficiency, it is possible to replace Pumped Storage Hydro Generation and could contribute to stabilization of power quality.



BESS

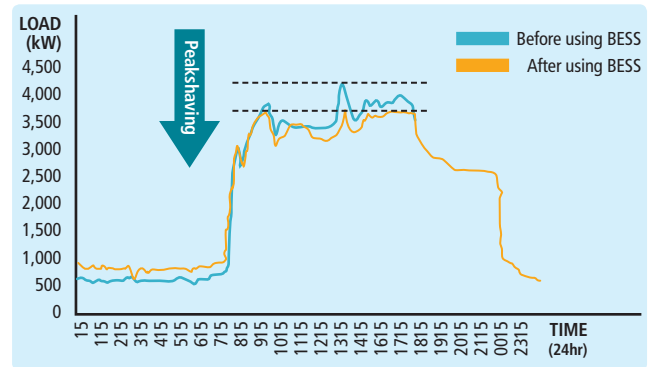


[Basic Algorithm]



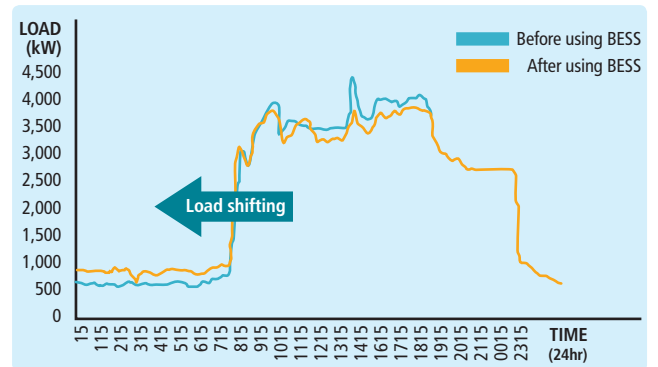
[Peak Shaving]

Operating mode-peak Shaving: Reduce Basic Rate

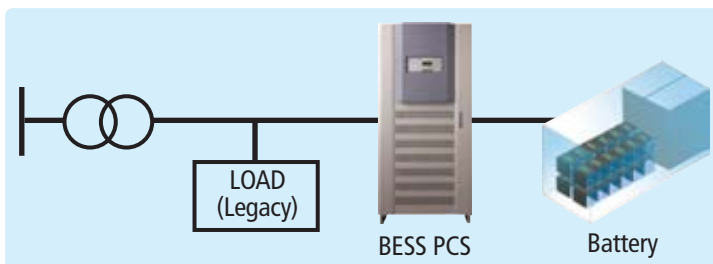


[Peak Shaving]

Operating mode-peak Shaving: Reduce Basic Rate



[Simple Topology System]



Hot Stand-by Function

duplex transmission Charge / Discharge + PCS/Inverter

Load Leveling

>>Load Shifting

Shift charging load from peak hours to off-peak hours(midnight)

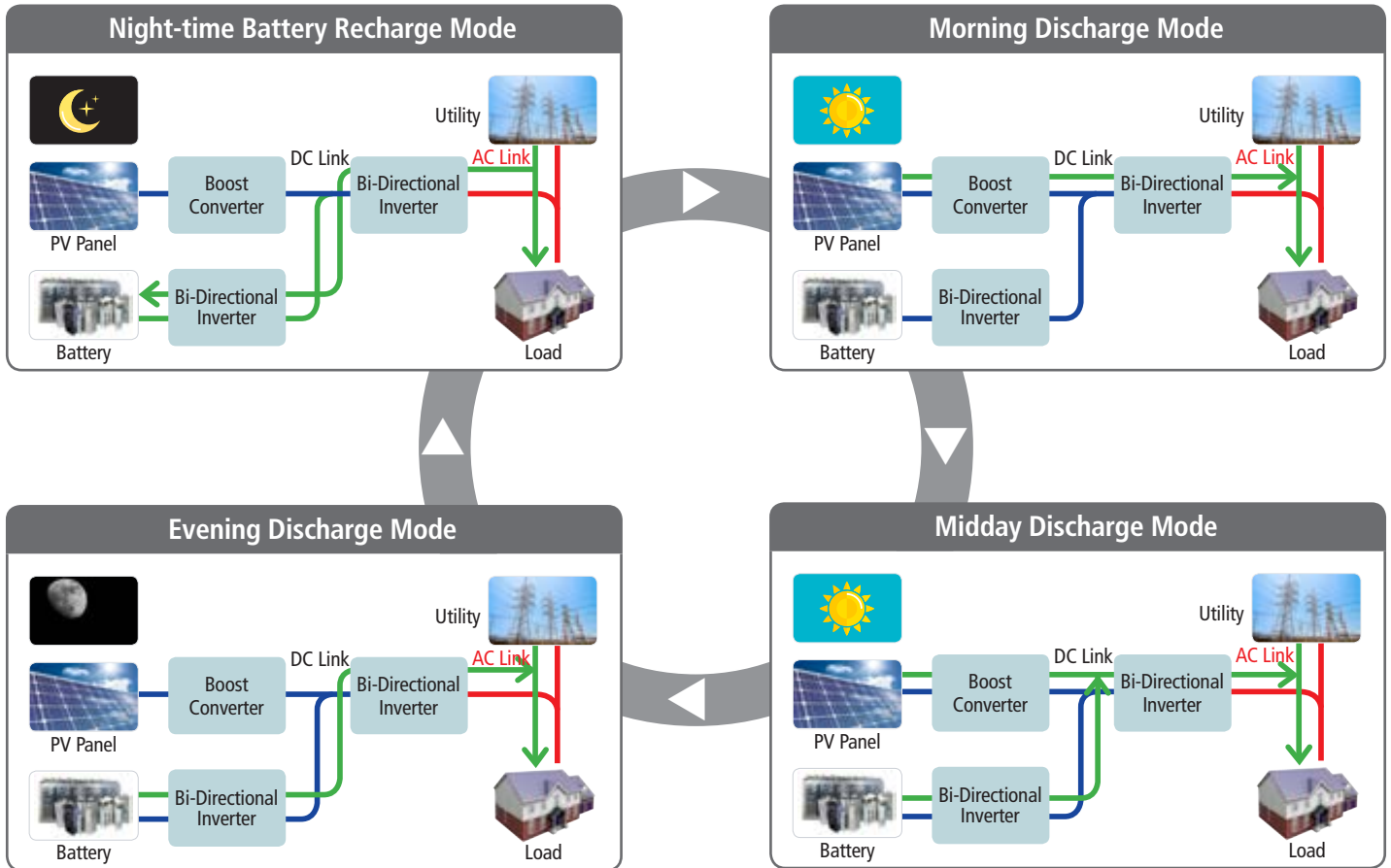
>>Peak Shaving

Discharging at peak hours

Energy Storage System (Solar, Battery, Grid Connection)

Stand alone & Hybrid

ESS and ESS Hybrid bi-directional energy-storage inverter is applicable to both on-grid and off-grid PV systems. It can control the flow of energy intelligently. During the daytime, the PV plant generates electricity which can be provided to the loads.



- Future conception for Solar
- Charge controller and inverter integrated
- Intelligent battery management function
- Capable of being grid-interactive or grid-independent
- Compatible with both Lead-acid and Li-Ion battery
- More security & performance for same costs
- IP65 dust-proof and water-proof rating
- 45°C full-load output
- Monitoring inverters freely via computers or mobile phones
- Fanless low-noise design

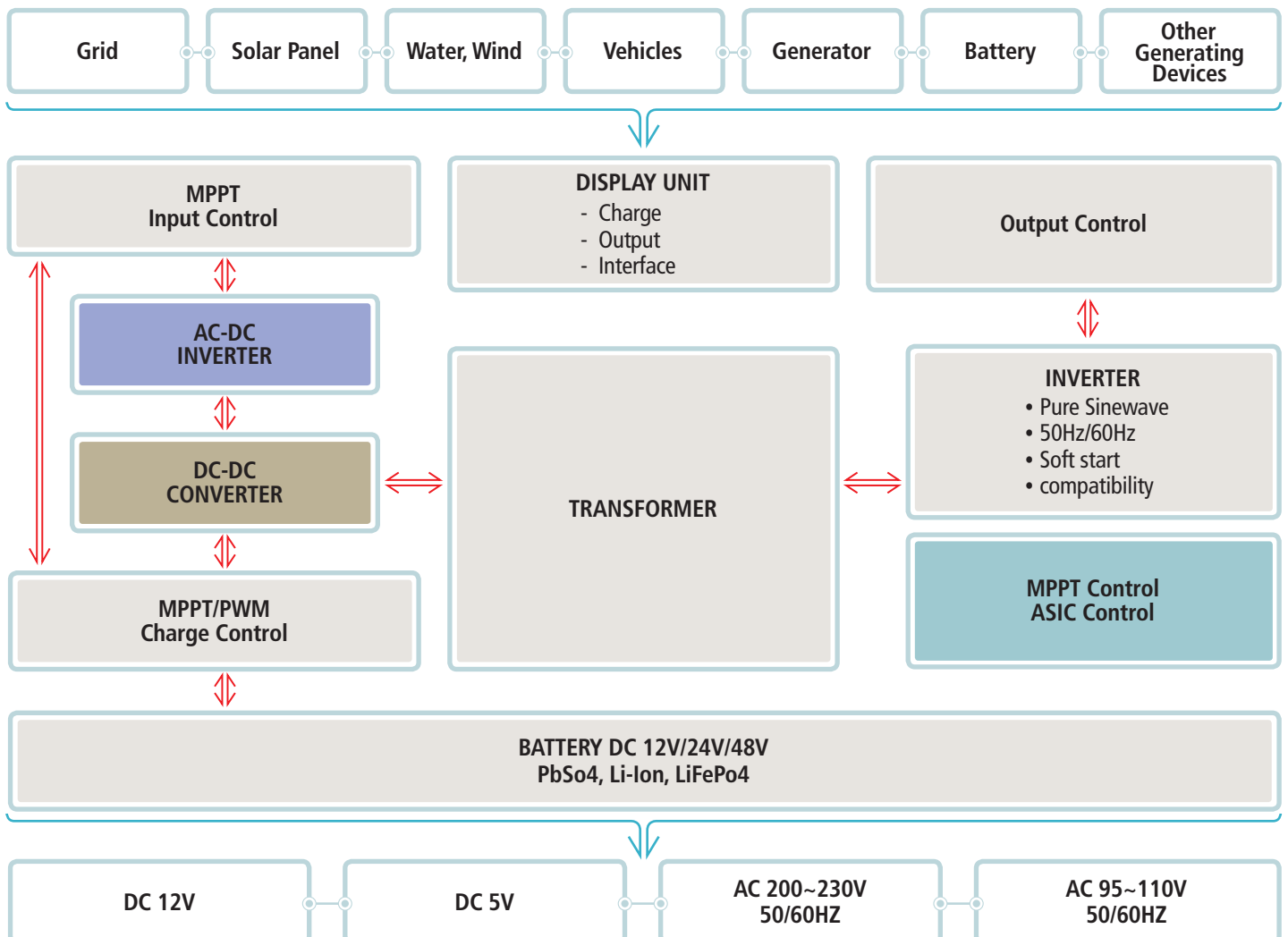


Portable & Standalone ESS System



- Portable and Standalone Interface
- 0.5KW ~ 1.2KW Power Out
- Future conception for Solar
- Charge controller and inverter integrated
- Intelligent battery management function
- Compatible with both Lead-acid and Li-Ion, LiFePo4 battery
- Two(2) type display Model LED & LCD
- Pure Sine Wave
- Max. 1.2KW DC Source Input (Max. 60V, 20A)

Multi-Charging Technology-Energy Storage System (E.S.S)



On-Grid Inverter Providing

Three Phase Series –Smart DT/DT



GW17K-DT



GW4000-SS



DT Series(Dual-MPPT, Three-Phase)

DCNCA(GoodWe) DT series inverter adopts cutting-edge technology in photovoltaic fields. Higher conversion efficiency and lower energy losses are guaranteed to maximize customer satisfaction. With its reliable power grid support management and high protective class, the DT series is compatible with different types of branded solar panels and is also ideal for commercial rooftop systems. This safe and reliable series is the first choice for residential, commercial installations and power plants.

- Maximum Efficiency up to 98.2%
- European Efficiency up to 97.5%
- MPPT Efficiency over 99.5%
- DC switch
- IP65 dust-proof and water-proof rating
- 45°C full-load output
- Super large 5-inch LCD
- 30% lighter than similar products
- Multiple monitoring and communication
- up to 80 pieces can be integrated in one system

Technical Data	GW10K-DT	GW12K-DT	GW15K-DT	GW17K-DT	GW20-DT	GW25-DT	GW30K-DT
DC Input Data							
Max. Recommended PV Power[W]	13000	15600	19500	22100	26000	32500	40300
Norminal. DC power[W]	10200	12300	15400	17500	20500	25800	31900
Max. DC voltage[V]	1000	1000	1000	1000	1000	1000	1000
MPPT voltage range [V]	260~850	260~850	260~850	260~850	260~850	260~850	260~850
Starting voltage	250	250	250	250	250	250	250
Max.DC current[A]	22/11	22/11	22/22	22/22	22/22	27/27	27/27
AC Output Data							
Norminal AC power[W]	10000	12000	15000	17000	20000	25000	31000
Max.AC power[W]	10000	12000	15000	17000	20000	25000	31000
Max.AC voltage[A]	17	19	25	25	30	37	37.3
AC Output range	45~55Hz/55~65Hz; 310~480Vac						45~55Hz/55~65Hz; 422~528Vac
THDi	<1.5%						<1.5%
Grid connection	3W/N/PE						3W/PE
Efficiency							
Max. efficiency	98.0%	98.0%	98.2%	98.2%	98.4%	98.4%	98.5%
Euro efficiency	>97.7%	>97.7%	>97.7%	>97.7%	>98.1%	>98.1%	>98.2%
MPPT adaptation efficiency	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
General Data							
Dimensions(WxHxD)	'516*650*230mm						
Weight[kg]	'39						41
Topology	Transformerless						

Hybrid ES Series



OEM
Original Equipment Manufacturing

ES Series

DCNCA(GoodWe) ES series bi-directional energy-storage inverter is applicable to both on-grid and off-grid PV systems. It can control the flow of energy intelligently. During the daytime, the PV plant generates electricity which can be provided to the loads, fed into the grid or charge the battery. The electricity stored can be released when the loads require it during the night. Additionally, the power grid can also charge the storage devices via the inverter.

- Future conception for Solar
- Charge controller and inverter integrated
- Intelligent battery management function
- Capable of being grid-interactive or grid-independent
- Compatible with both Lead-acid and Li-Ion battery
- More security & performance for same costs
- IP65 dust-proof and water-proof rating
- 45°C full-load output
- Monitoring inverters freely via computers or mobile phones
- Fanless low-noise design

	Technical Data ES Series	GW5048D-ES	GW3648D-ES
Solar	Max. DC power [W]	5400	4200
	Max. DC voltage [V]		580
	MPPT voltage range [V]		125~550
Battery	Battery type		Lead-acid or Li-Ion
	Nominal Voltage [V]		48
	Max Discharge power [W]		4600
AC Output Data	Nominal AC power [W]		4600
	AC output	230Vac ±2%, 50Hz (60Hz optional) ±0.2%, THDv<3% (linear load)	
	Grid connection	Single phase	
Efficiency	Max. efficiency	97.6%	
	MPPT adaptation efficiency	99.9%	
General Data	Dimensions (WxHxD)	5116*440*184mm	
	Weight [kg]	30	28
	Mounting	Wall bracket	
	Relative humidity	0~95%	
	Max. operating altitude	3000m	
	Protection degree	IP65	
	Communication	USB2.0: WiFi	

PV System Service Reference



1.0MW | Kwangye Solar Power plant | South Korea



500KW | HongSung SFC Co., Ltd. | South Korea | Roof Top Type

90KW
Busan Water Pressure Control Center
South Korea
Roof Top Type



Module Install Team
Electric System Design
Land Construction Design



100KW | Daegu ENG Co. Ltd. | South Korea | Roof Top Type

90KW
Busan Metropolitan
City Office of Education
South Korea
Roof Top Type



And Over 10MW Volume Solar Plant Installation & System Service Reference every year

ESS System Install

BESS System Case Study

Operating picoGrid 3kW PV+ESS

Set MicroGrid up among PicoGrid

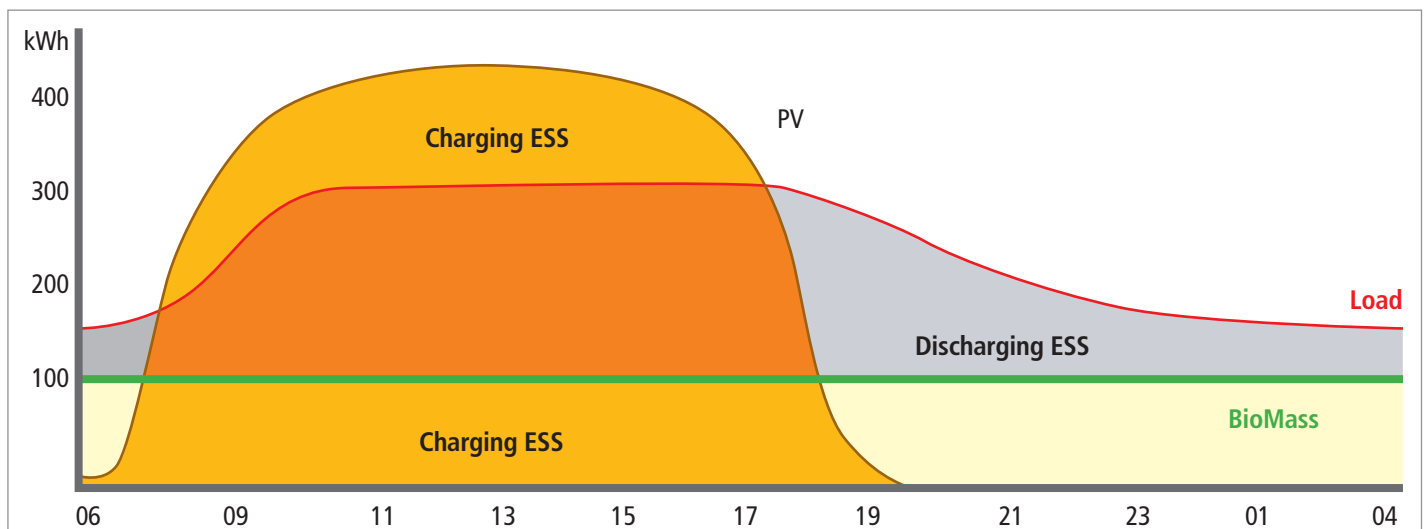
- Grid Connecting 3kW System
- Remote Solar Power Plant and power usage monitoring system
- Remote ESS operational setting and System control
- Applications for the wide range of smart appliances as Web-based EMS
- A stable supply of electricity by solar power plant run 24 hour



Design of Standalone type hybrid Powerplant 400kW PV + 100kW Bio-mass + 100kW BESS(6h)

Non-interrupting model for 24 hours continues load with demand of Day time 300kWh, Night time 150kWh

Normally, the cost of electricity which uses Poultry farm or Manufacturing facilities with automation equipment is too big burden. But, Hybrid renewable generation can reduce the cost of electricity burden. Also, BESS have functions as non-interrupting electric. So, there is not necessity to install UPS with separate way. Though that is the Stand alone type, this system is available to used backup power with the Grid-connected system.



PARTNERS

DCNCA Partners

- +** JAPAN : SAMHWA TELECOM Co. Ltd.
- +** PAPA NEW GUINEA : SUNGWOON INT'L
- +** SAUDI ARABIA : GHIRASS ENERGY Co. Ltd.
- +** GHANA : FAMILY LINK
- +** SOUTH AFRICA: PURELUX
- +** VIETNAM: SIMEX
- +** PHILIPPINES : ALLTECH
- +** U.S.A : DEI TECH.
- +** INDONESIA : NAMKOG ENERGY
- +** KENYA : FINE DIGITAL
- +** CAMBODIA : E-FARM
- +** BRAZIL : BR SOLAR
- +** KYRGYZSTAN : NANOMIX
- +** UZBEKISTAN

DCNCA Marketing

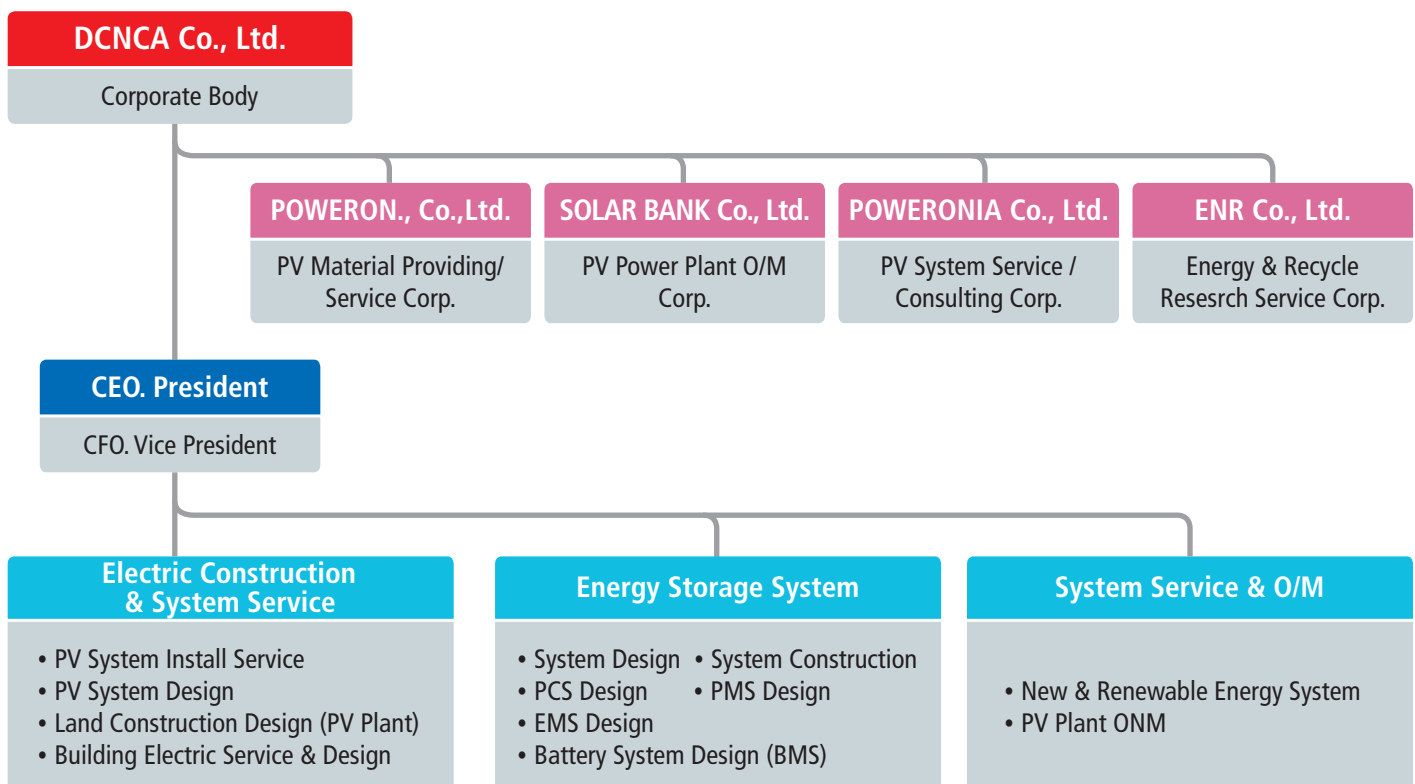


About Company

General Information of Corporation

Name of Company	DCNCA Co., Ltd.
Business Register No.	119-86-02515
Address	(Sangdaewon-dong, Seongnam Woolim Lions Valley 2Cha) A-806, 14, Sagimakgol-ro 45beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-807, Korea
Contact :	TEL : +82-2-2051-1855 FAX: +82-31-703-1854
CEO. President	Ma., Sung Jun
CFO. Vice President	Kim, Gun Jae (Managing/Coordinating Director)
Central Business	Energy Storage system, Solar Charge Control System, Solar Module, System Consulting, Eco-energy ESCO Business, Electricity, Tele-communication, IT,
The motto of the company	Leading technology, meaningful company With Goal Orientation, Passion, Speed, Autonomy & Creativity
Date of Establishment	25 th /10/2007
Capital	KRW 300,000,000 (About USD 300,000)

Organization of Corporation





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주식회사 디씨엔씨에이

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