

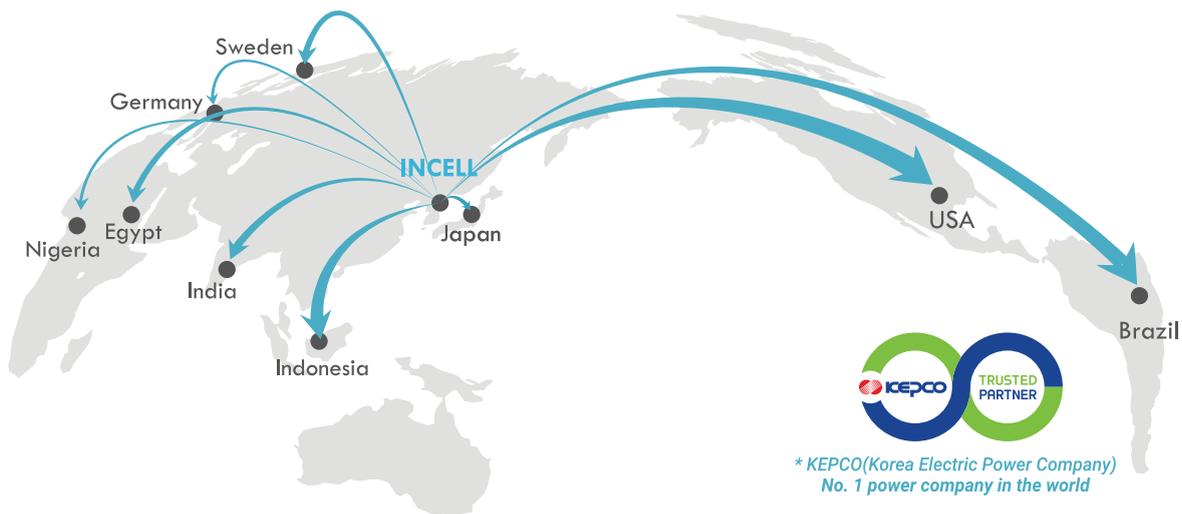
Leader  
Of BoT



Energy Storage System  
Solution & Product Guide

# INCELL

INCELL develops and produces ESS (Energy Storage System) based on excellent energy & battery solution technology to solve the energy and environmental problems of the earth. As a member of KEPCO Trust Partnership (KTP), KEPCO is doing its best to develop into a global enterprise in the ESS field from the energy valley led by KEPCO.

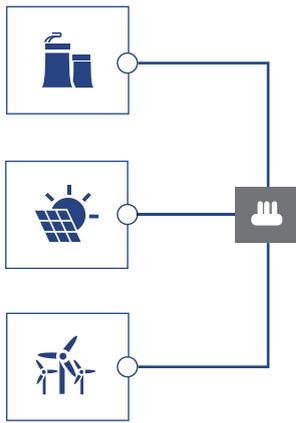


## History

- 2018**
  - Exported to Germany and Thailand
  - Supplied 95MWh LIB system as a ESS in domestic
- 2017**
  - .10 Supply of Lithium battery for Doosan Forklift
  - .12 Installation of solar connection ESS50MWh
  - .12 Investment of POSCO CAPITAL Co., Ltd.
- 2016**
  - .04 Contracted the export of US\$ 270 million and signed KEPCO MOU
  - .05 Mass production of lithium battery for KEPCO substation
  - .11 Mass production of lithium battery for Samsung Electronics medical equipment
  - .11 Installed ESS of Shinsung Solar Power Plant
  - .11 Passed lithium battery standard test for nuclear plant
  - .11 Certified KEPCO KTP
- 2015**
  - .06 Exported Telecom ESS to Egypt
  - .07 Installed 10 site ESS of KEPCO SG station
  - .12 Installed 3MWh of smart grid distribution business
  - .12 Installed ESS for KEPCO frequency Regulation (24MW)
- 2014**
  - .03 Exported Lithium battery for ESS to Japan (3 companies)
  - .06 Supplied ESS for Micro-Grid system to Sam-ma Island
  - .06 Supplied lithium battery to Dong-seo Power data center
- 2014**
  - .08 Exported industrial lithium battery to Germany, USA
  - .10 Telecommunication lithium battery export to Indonesia
  - .12 Installed SG project 3MWh in Korea
- 2013**
  - .02 Exported Lithium battery for solar street lamp to Japan.
  - .04 Installed "lithium ion battery" in KEPCO Seoul Headquarters
  - .04 Exporting ESS monitoring and control equipment for Mozambique solar PV
- 2012**
  - .07 Exported 2MWh solar street ramp to Nigeria
  - .08 Exported lithium battery system for communication to India
  - .12 Installed the first SG project in Korea
- 2011**
  - .02 Certified CE, ISO 9001/14001
  - .07 Development of Lithium battery for AGV (Samsung Electronics)
- 2010**
  - .01 Installed the first ESS with solar power plant of KEPCO in Korea
  - .03 Installed ESS of KHNP
- 2009**
  - .07 Exported ESS to Japan
- 2008**
  - .06 Joint development of KPX
- 2007**
  - .07 Developed BMS
- 2006**
  - .01 Established R & D Center
- 2004**
  - .01 Established company

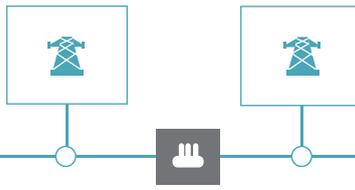
# Energy Storage System Application

## Generation



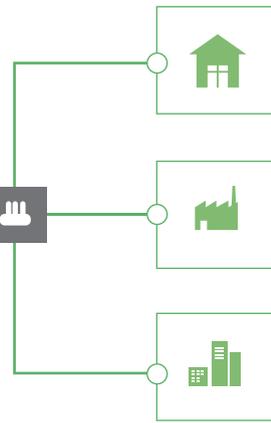
**Generation**  
Renewable energy  
Peak Shifting

## Grid



**Transmission & Distribution**  
Frequency Regulation  
Peak Shifting

## Consumption



**Consumption**  
Peak Shifting  
Backup



# Energy Storage System

## Total Solution

Incell manufactures all components, including Lithium battery, which is the core of ESS, and can offer than 15years of economic and stability required for ESS by carrying out from feasibility analysis, design, construction and after-management.

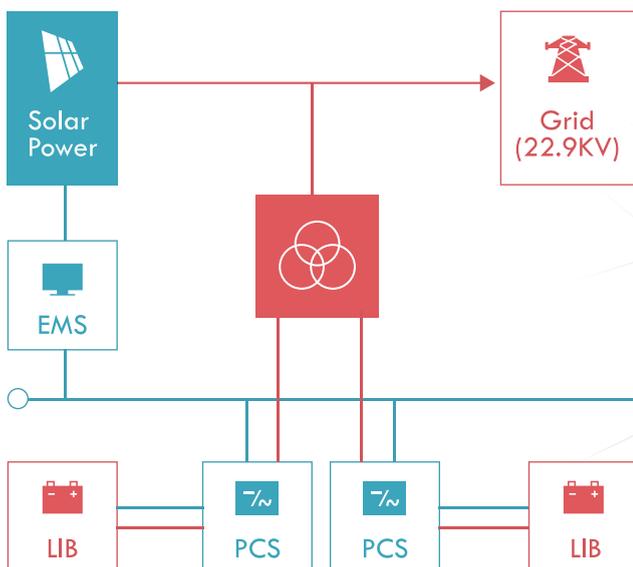
- Solar Power Plant
- Wind Power Plant
- Frequency Regulation
- Emergency Generator
- Building and Factory Power Demand Control



**Provide Total Solution Including Battery - PCS - PMS /EMS**



### Solar-linked ESS scheme



# Lithium Battery System

## for Utility / Industrial

Incell's lithium batteries are manufactured in the same way as Tesla, the world's leading electric vehicle and ESS leader, by applying Samsung SDI's high performance cell, ensuring high efficiency and long life.

- High safety and energy density
- High efficiency and long life
- Easy maintenance
- Precise SOC algorithm
- Easy to expand voltage and capacity
- Communication and monitoring possible
- 19-inch rack-mountable design

### Battery Module



Model	SP44-29E-114	SP44-33-195	SP44-41-235
Voltage	43.8Vdc	43.68Vdc	43.68Vdc
Energy	4.99kWh	8.51kWh	10.27kWh
Capacity	114Ah	195Ah	235.2Ah
Size(WHD)mm	430x88x600	460x90x900	460x90x900
Weight	About 35kg	About 65kg	About 65kg

\* Specifications are subject to change without notice.

### Battery Rack



Model	LIB-R-04	LIB-R-06	LIB-R-07
Voltage	876Vdc	873.6Vdc	873.6Vdc
Energy	99.86kWh	170.35kWh	205.47kWh
Capacity	114Ah	195Ah	235.2Ah
Voltage Range		756 ~ 996Vdc	
Size(WHD)mm	520x2100x680	545x2200x965	545x2200x965
Weight	About 810kg	About 1500kg	About 1500kg

Model	LIB-R-04-1	LIB-R-06-1	LIB-R-07-1
Voltage	744.6Vdc	742.56Vdc	742.56Vdc
Energy	84.88kWh	144.79kWh	174.65kWh
Capacity	114Ah	195Ah	235.2Ah
Voltage Range		642 ~ 846Vdc	
Size(WHD)mm	520x1820x680	545x1900x965	545x1900x965
Weight	About 720kg	About 1300kg	About 1300kg

\* Specifications are subject to change without notice.

# All in One Type ESS



## Key Components

- Battery / PCS
- AC / DC distribution box
- Air conditioning system
- Fire Fighting System
- UPS

NO	PV(kW)	PCS(kW)	Battery(kWh)	Size(WHD)
1	100	80, 95	278	1400x3500x1400
2	250	200 or 250	1200~1500	3300x6096x2900
3	500	400 or 500	1200~1500	3300x9200x2900
4	1000	800 or 1000	2500~3000	3300x12200x2900
5	1500	1250	3000~3500	3300x12200x2900
6	2000	1600 or 2000	4000~6000	3300x24400x2900
7	3000	2000 or 2500	6000~7500	3300x24400x2900

\* Specifications are subject to change without notice.





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