

# Global Energy Solutions Provider



## RE Invest Indonesia Invest Forum

2021 April



## Hanwha

- Hanwha Group, founded in 1952, is **the Top 7<sup>th</sup> business enterprises** in South Korea and the one of a “FORTUNE Global 500” company.
- With more than 65 years track record of industrial leadership, Hanwha Group has grown and actively engaged in 6 business area as below.



### Aerospace & Mechatronics

From here on earth to the skies above, Hanwha is developing world-class products in aerospace and mechatronics to help corporations and governments meet their future needs in manufacturing, commerce, security, and travel.



### Chemicals & Materials

More than half a century, Hanwha has committed itself to creating these vital foundations for life and industry and emerged as Korea's No.1 and one of the world's top-tier petrochemical companies.



### Construction

From breathtaking performance venues to cutting-edge manufacturing facilities to affordable housing that brings families and communities together, Hanwha is helping to enrich the lives of millions of people around the globe.



### Finance

We create value for individual and institutional customers by continuously adapting to today's rapidly changing financial landscapes and providing financial solutions that give customers the freedom to pursue their dreams.



### Services & Leisure

From first-class shopping experiences to luxury hotels and resorts, Hanwha is dedicated to helping our customers enjoy richer and more fulfilling lives.



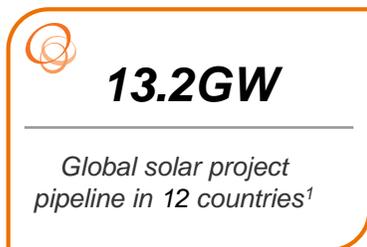
### Solar power

With global-level capacity and top-quality photovoltaic products and services, Hanwha has rapidly become one of the most trusted names in the photovoltaic power industry worldwide.

## 2 HANWHA ENERGY AT GLANCE

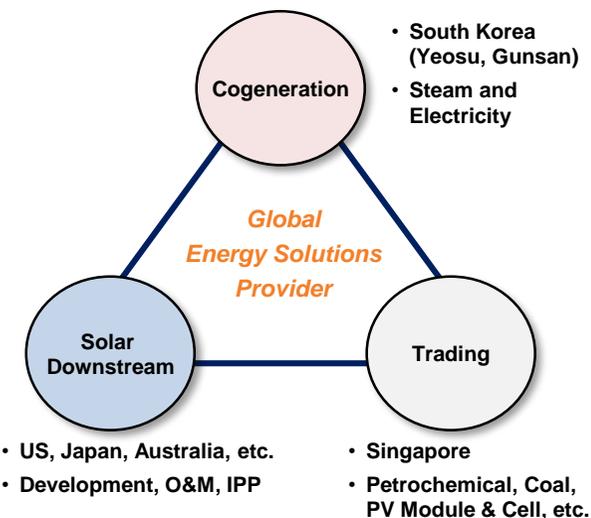
Hanwha Energy Corporation (HEC), as a member of Hanwha Group, started as a cogeneration (CHP) company and has diversified into solar downstream, trading and ESS Solution businesses

### Hanwha Energy by the numbers

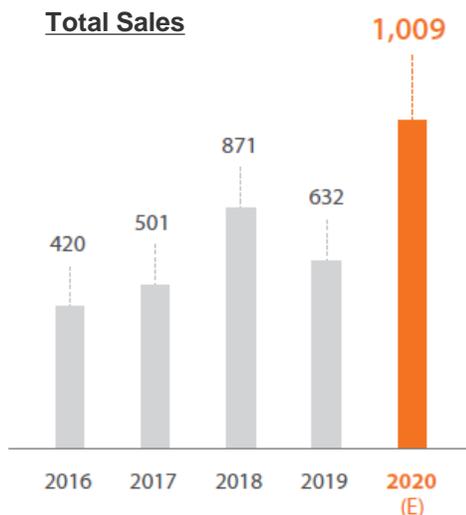
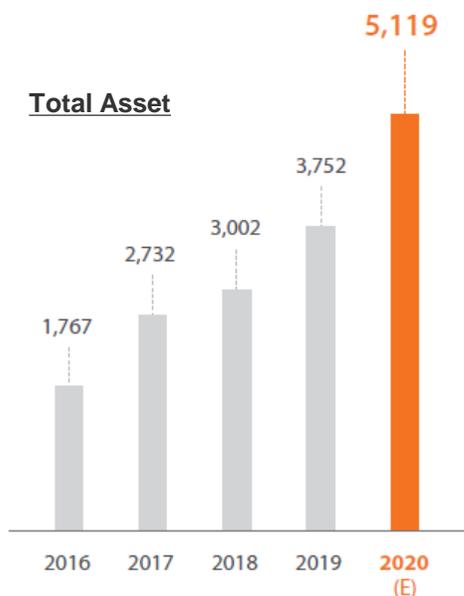


Source: Company filings, company data

Note: 1. S. Korea, US, Mexico, Australia, Japan, India, Vietnam, Singapore, Malaysia, Turkey, Spain, Guam, Under Construction, In-development; 2. Credit rating from Korea Ratings Corporation, Korea Investors Service, and NICE Information Service



### Financial Highlights (USD Millions)

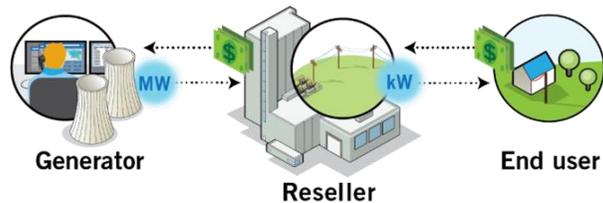


HEC aspires to be a company to provide comprehensive energy solutions to the globe. Our vision is to become a **“Global energy solutions provider”**.



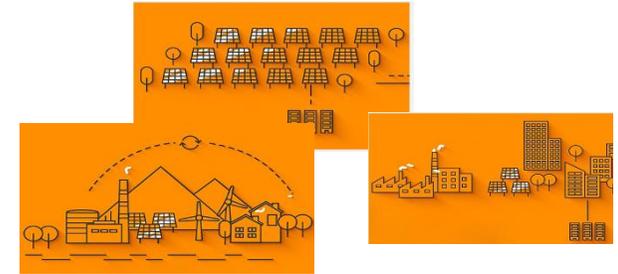
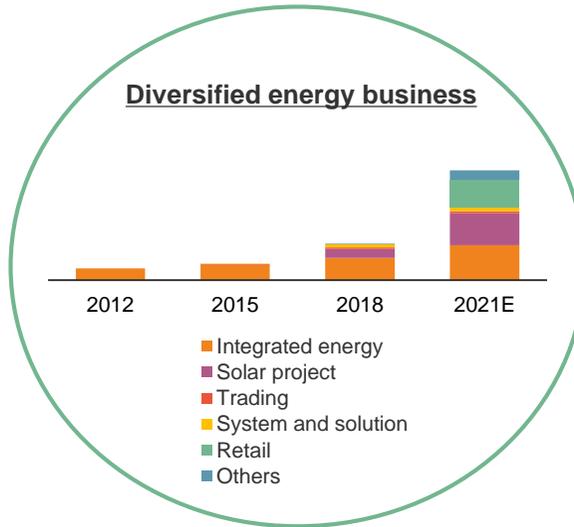
### Integrated energy

Contribute to the enhancement of competitiveness of the companies in the industrial complex by stably supplying high quality steam and electricity at low prices.



### Retail electricity

Purchases power from the wholesale market and resells to customers, effectively making Hanwha Energy a “Gentailor” in complement to its power generation capability



### ESS solution

Construct and supply the most efficient system possible by analyzing the data of ESS applications, such as power generation and energy use



### Solar projects/hydrogen fuel cell

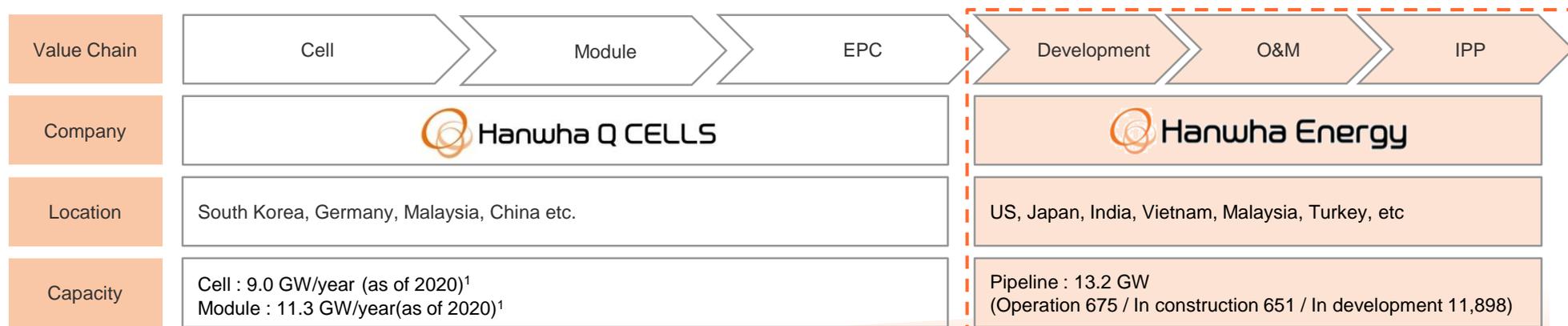
Extension of solar energy business footprint across the globe, hydrogen fuel cell from by-product hydrogen sourced from adjacent petrochemical complex and electricity generated through chemical reaction with no harmful emission



### O&M solution

Hanwha Energy Integrated System provides comprehensive asset management services tailored to the needs of the business and the characteristics of the facility

From cell to power plants, Hanwha has fully integrated PV value chains and can offers customized service based on a seamless end-to-end experience and synergy under collaboration between sister companies



## Hanwha Energy –Solar energy business

### Solar power generation

#### Project development

- Site identification
- Permitting
- Environmental studies
- Contracting – PPA, EPC and others
- Project financing

#### Power plant operation

- Steady and stable cash generation
- Operation & maintenance

### Energy solution (PV+ESS)

#### ESS for renewables integration

- To ensure more stable power, Hanwha Energy link ESS to less stable renewable power grids such as solar and wind

#### Commercial and industrial ESS

- Provides an ESS system for facilities with time-of-use (“TOU”) that harnesses low-cost night time power during high cost peak hours

### Operation & Maintenance

- Monitoring
- Performance management
- Replacing consumables
- Performance reporting

#### Asset management

- Electricity trading agency
- Accounting and tax management
- Withdrawal and redemption management
- Warranty management

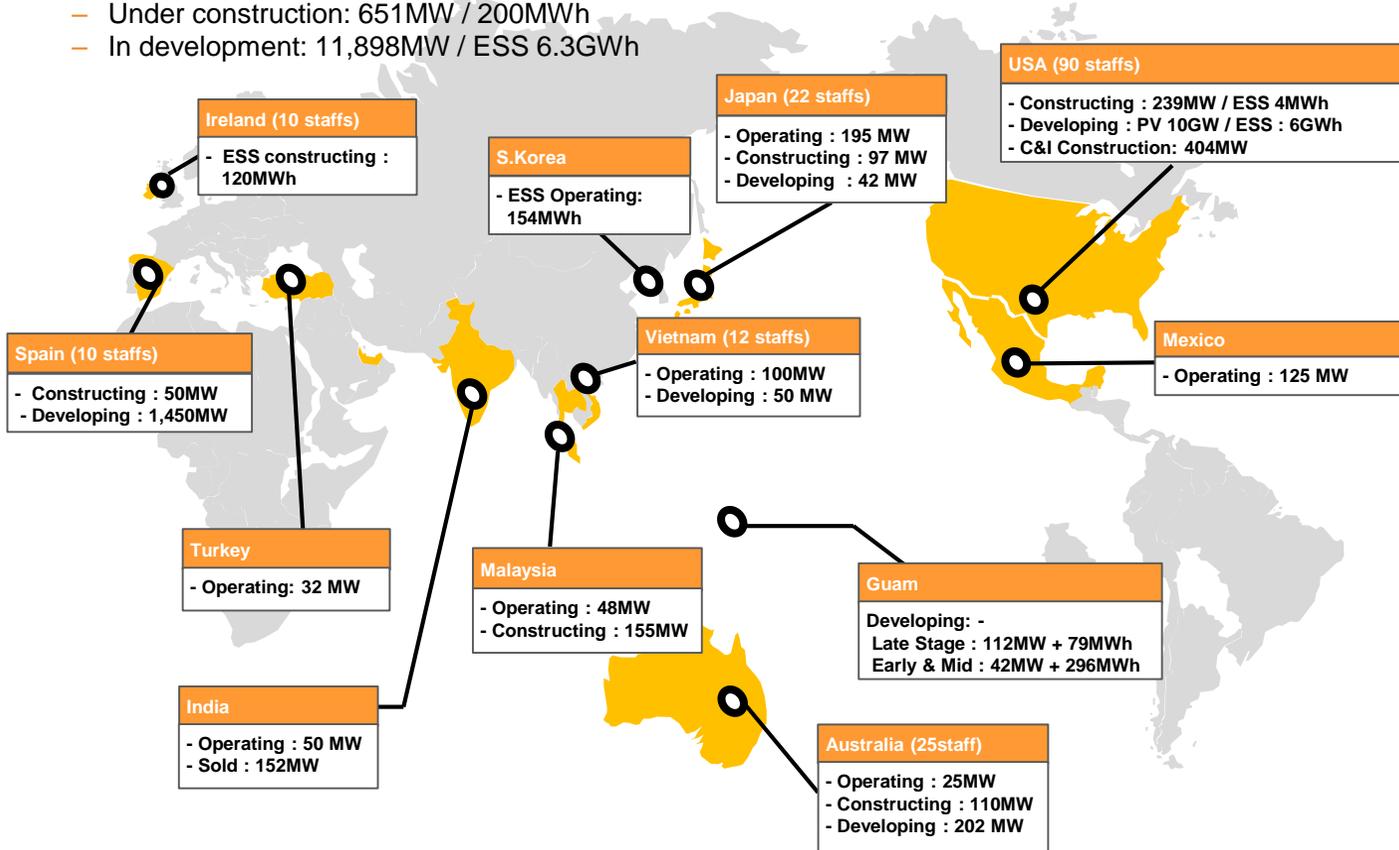
Source: Company data

Note: 1. Hanwha Q-cell 2020 Product Catalogue

HEC has global solar pipelines in strategically important PV markets.

## Global pipeline

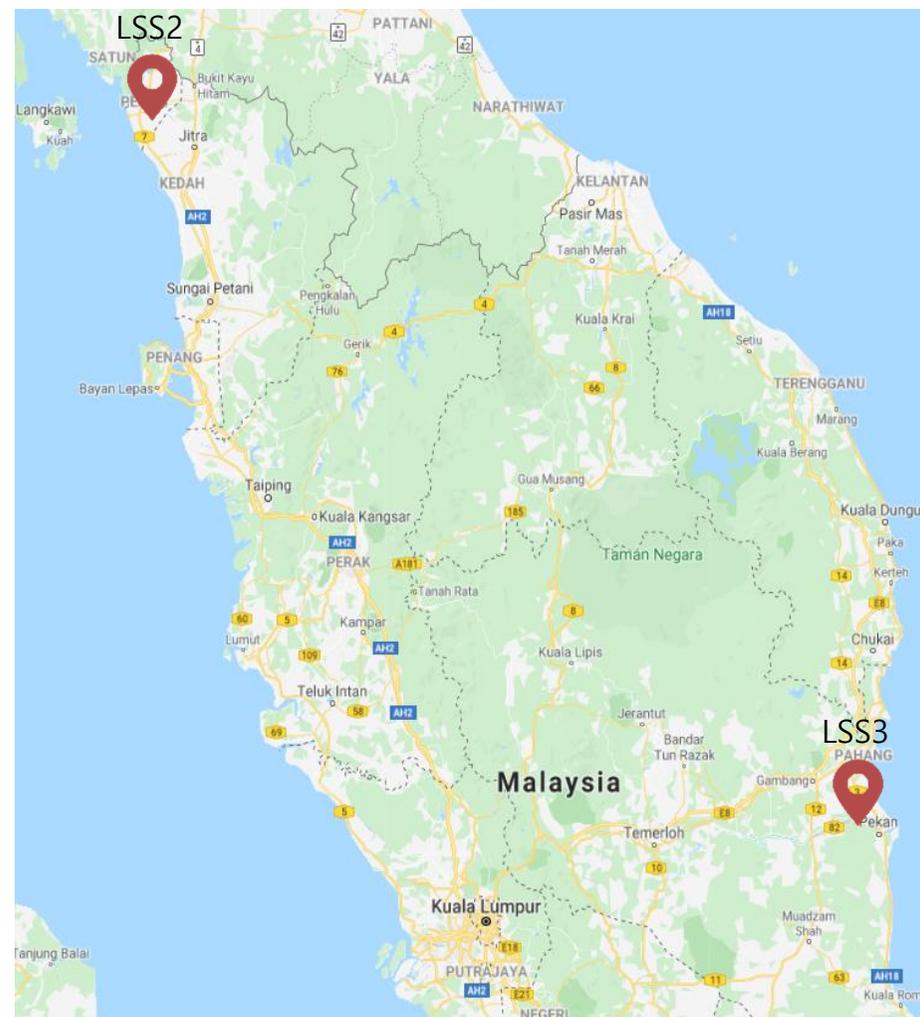
- Total pipeline: 13,224MW / 6,654MWh
  - Operating: 675MW / 154MWh
  - Under construction: 651MW / 200MWh
  - In development: 11,898MW / ESS 6.3GWh



## Our Strategy

- Secure pipelines and selective project sales to reinvestment the capitals
- Diversify the portfolio from utility scale to retail markets by enhancing C&I roof top and Floating solar sectors
- Operate local entity for investment and manage operating solar assets

	Large Scale Solar 2	Large Scale solar 3
<b>Capacity</b>	48MWp(30MWac)	155MWp(100MWac)
<b>Location</b>	Chuping in Perlis State	Pekan in Pahang State
<b>Land</b>	120 Acre	420 Acre
<b>PPA</b>	21 years	21 years
<b>Off-taker</b>	TNB <sup>1)</sup>	TNB
<b>COD</b>	Dec, 2020	Dec, 2021



1) Tenaga Nasional Berhad : National Electricity Company in Malaysia

**Thank you**

# Combined Heat & Power Plant

We operate cogeneration plants  
that provide a stable supply of high-quality electricity  
and ultra-high-pressure steam to companies.

Hanwha Energy  
Gunsan Cogeneration plant, Korea

# Solar Power Generation

Our expansion into the solar power generation business to produce electricity using solar energy is matched only by our commitment to develop infinite clean energy.