

MARKET OPPORTUNITY

Korea



OVERVIEW

- The Moon Administration's energy policy will see further movement towards green and renewable energy. Renewable energy, currently less than 5% of total power generation, is to increase to 20% by 2030 according to the Renewable Energy 3020 Plan announced in December 2017.
- 92 trillion Korean Won (approx. € 7.2 billion) will be invested into the renewable energy sector until 2030.
- Renewable Energy 3020 focuses on decreasing demand rather than increasing supply, through changes in consumer behaviour and increasing favour towards Demand Response, Electric Vehicles, etc.
- The Moon Administration plans to reallocate the current coal and nuclear energy subsidies into the renewable energy industry, as well as impose high taxes on coal and nuclear power, increasing prospects for natural gas and renewable energy producers.

Top Business Opportunities for EU companies

1. Specialising in **Low-carbon Power Generation**: energy storage systems (ESS), ultra-supercritical (USC) generation systems, mega gas turbines, carbon capture and storage (CCS), ultra high-voltage direct current (HVDCs) and low-voltage direct current (micro-grids)
2. Offering technologies and solutions for **Energy Prosumers**: smart grids, zero-energy buildings, eco-friendly energy towns and household photovoltaics (PVs)
3. With systems-based **Convergence Technology**: building energy management systems (BEMS), factory energy management systems (FEMS), home energy management systems (HEMS) and advanced metering infrastructure (AMI)
4. Specialising in **Environmentally-Friendly Refrigerants**
5. Offering cost-reduction for **Self-Sustaining Power Generation**: offshore wind power, solar PV, energy-efficient electric grid(lines) and intelligent power systems (ICT)
6. Open to collaboration with domestic companies on **Demand Response Market** or **Virtual Power Plants**
7. Offering technologies in **Waste-to-Energy**, including waste energy recycling

Sector Characteristics

- Renewable Portfolio Standard (RPS) is the overarching policy requiring power generators above 500 MW in scale to generate a portion of electricity from green energy sources.
 - Year-on-year requirements: 5% (2018), 6% (2019), 7% (2020), 8% (2021), 9% (2022), 10% (2023).
 - Renewable Energy Certificate (REC) multiples for waste and biomass combustion to reduce to zero in the coming years.
- Plans to foster a Renewable Energy Industry comprise of demand response, energy prosumers, electric vehicles, solar and wind power.
- Installation capacity of solar photovoltaic and wind power energy to increase by 30.8 GW and 16.5 GW respectively from 2018 to 2030.
- Demand for offshore wind projects is expected to increase.
- Renewable Energy Industry has increased demand for ESS products and solutions and there are strong business opportunities for ESS in Korea.



Seoul
(10.4 mn)

Investment by 2020
€ 35 billion



Job creation
14,000

5th largest renewable energy powerhouse by 2035

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Drivers

- Public concerns over air pollution and nuclear safety, coupled with a clear commitment from President Moon's newly inaugurated government to cut carbon emissions and move to clean energy
- Increasingly favourable investment climate for renewables and natural gas include increased subsidies, plans to shut down/halt coal-fired and nuclear plants and impose higher taxes on coal and nuclear
- Need to ensure energy security will open receptiveness to new solutions and technologies for affordable electricity
- Plans to transform renewable energy market from "government-led" to "private public partnership"-led model will enhance the marketability of renewable energies (technology level driven market competition)

Barriers

- Importance of base load energy, which are coal and nuclear power plants, still needs to be clearly addressed
- Relatively low price for the electricity produced from conventional energy sources
- Government roadmap for the new energy policy is still being concretised (at the time of publication) – regulations must clearly and realistically ensure energy security and the assure affordable energy
- Uncertainty in existing regulations on new and renewable energies
- Cultural customs and norms that are unique to doing business in Korea

	Technology	Key Players	Core competence	Possible Needs
1	Solar Photovoltaic (PV)	 Hanwha	Vertical value chain integration	<ul style="list-style-type: none"> - Lack of effective technologies for O&M in the solar PV industry - High quality construction technology - Power generation forecast, construction evaluation - Partnership with overseas companies to win overseas projects - From 2017, new businesses for constructing 2.3 GW scale solar and off-shore wind energy plants will be implemented
		 OCI	Polysilicon, BOS	
		 S-Energy	Operations & Maintenance (O&M), PV module	
2	Wind Energy	 UNISON	Turbines, O&M, EPC	<ul style="list-style-type: none"> - Lack of competitiveness in the domestic wind energy related technologies - Lack of effective technologies for operating and maintaining wind industry
3	Waste-to-Energy	 (주)천일에너지	Wood Chips	<ul style="list-style-type: none"> - High demand for biomass energy in IPP and GENCOs to respond to RPS - Lack of price competitiveness (expensive) in Korean biomass energies
4	Energy Storage Systems (ESS)	 LG Chem	LiB battery (ESS)	<ul style="list-style-type: none"> - Lack of competitiveness in large scale ESS technologies in Korea - More Renewable Energy Certificates will be given to solar energies which apply ESS - Energy stored in ESS is permitted to be sold in the general consumer market
		 SAMSUNG SDI	Mid to large sized batteries	
5	Energy Management	 KEPCO	Smart grids, virtual power plants	<ul style="list-style-type: none"> - Advanced metering infrastructure - Smart meters - Energy efficiency management in buildings