



# ASIA CLEAN ENERGY FORUM 2026

Beyond Transition: Building Secure, Resilient, Inclusive, and Intelligent Energy Systems

8-11 June | ADB Headquarters, Metro Manila, Philippines



## Policy Foundations for AI-Enabled Clean Energy Transition: Korea's Renewable Energy Roadmap and Enabling Conditions

9 June 2026 | 2–3:30 p.m. (GMT+8)

In cooperation with





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## Today's Message & Workshop Framing

*"Korea's clean energy transition is shifting from capacity expansion alone to a system-wide transformation, powered by distributed renewables, AI-enabled grids, and innovative business models."*

Three policy questions this workshop addresses:

1

How can renewable energy be deployed at scale while creating local value?

→ *Agrivoltaics (ENVELOPS)*

2

How can distributed energy resources be operated efficiently and flexibly?

→ *AI-Enabled VPP (Korea East-West Power)*

3

How can large-scale clean energy projects be made bankable?

→ *Offshore Wind EPC (Daewoo E&C)*

**My role today** is to set the policy stage: Korea's renewable energy roadmap, the enabling conditions that make these solutions possible, and what this means for Asia and the Pacific.



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## Policy Direction and Strategic Objectives

*"Korea is accelerating a **renewable energy-centered transition** as part of its broader decarbonization strategy."*

Three Strategic Goals	Key Policy Priorities
<p><b>Expanding renewable energy deployment</b></p> <p><b>Building a smarter and more flexible power system</b></p> <p><b>Strengthening industrial competitiveness in the renewable energy sector</b></p> <p><i>Renewable energy as a driver of:</i> <b>economic growth · regional development · energy system modernization</b></p>	<ul style="list-style-type: none"><li>▪ Large-scale expansion of solar and wind</li><li>▪ Strengthening of grid infrastructure and flexibility</li><li>▪ Promotion of distributed energy systems</li><li>▪ Improvement of market and tariff mechanisms</li><li>▪ Support for next-generation technologies and domestic industries</li></ul>

### POLICY UPDATE (Nov–Dec 2025)

Korea's **2035 NDC** was confirmed in November 2025 (**53–61% reduction vs. 2018**), and a comprehensive **100 GW renewable energy target by 2030** has been set as the central pillar of implementation.



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## Solar Expansion Strategy - Diversifying Beyond Conventional Sites

### Expansion Direction

- Diversify solar deployment beyond conventional sites
- Expand public-site and community-based solar
- Promote agrivoltaics and underutilized spaces
- Link solar expansion with local income creation

### Support Framework

- Expanded financing and fund support
- ESS linkage in grid-constrained areas
- Tailored consulting and business model support
- Early commercialization of tandem solar modules

### Key Measures (2026)

**400 schools** targeted for solar deployment  
**~1,500 public parking lots** (1.1 GW)  
 Pilot deployment in 50–100 traditional markets  
 More than 500 "**Solar Income Villages**" per year across 38,000 rural villages

### UPDATE — Enabling Regulation

*Three reforms removing the biggest barriers to rural solar:*

**Separation-distance regulation reform** (Q1 2026)

**Agrivoltaics Special Act** (H1 2026)

**Border-zone deregulation** (H2 2026)

→ *Links to next session: Sung Yoon (ENVELOPS) — How AI-enabled agrivoltaics create triple value on one piece of land*



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## Wind Power Expansion - Onshore and Offshore as Twin Pillars

*"Korea is scaling up both onshore and offshore wind as major pillars of renewable energy expansion."*

### Deployment Targets

#### ONSHORE WIND

2.0 GW → **6.0 GW** (2030) → **12.0 GW** (2035)

#### OFFSHORE WIND

0.35 GW → **10.5 GW** (2030) → **25.0 GW** (2035)

### Policy Support

- Regulatory rationalization and permitting improvement
- Whole-of-government one-stop support system (launched Dec 2025)
- Closer support for project development and approvals
- Better use of KMA wind data in lieu of on-site measurement

### Industrial Foundation

- Ports, logistics bases, and installation vessels (15 MW-class)
- Public finance, guarantees, investment support — including the new National Growth Fund
- Stronger competitiveness in turbines, towers, substructures, and cables
- Next-generation development including 20 MW+ turbines



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## Building the Energy Highway for the Renewable Era

*"From one-way central transmission to a flexible, AI-enabled distributed grid."*

### Distributed Grid Development — "Local Production, Local Consumption"

- Promote local production and local consumption within regions
- Expand microgrids for industrial and public sites
- Use Distributed Energy Special Zones — simplified grid impact assessment, distributed-energy incentives, direct power trading
- Attract large-scale demand (AI data centers) to renewable-rich regions

### Smart and Flexible Operation

- **AI-based forecasting and control**
- Integrated renewable forecasting and management center (new)
- Next-generation AI distribution management systems
- ESS deployment target: **2.3 GW by 2029**; VPP activation; pumped hydro reconsideration

### FIVE COMPONENTS OF The Energy Highway

- 1 **West Coast HVDC Offshore Grid**
- 2 **Grid Stabilization Infrastructure**
- 3 **ESS for Grid Congestion**
- 4 **Interregional Transmission Links**
- 5 **Distributed Energy for Local Production & Consumption**



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## Market and Tariff Reform - Making Renewables Economic

*"Renewables must move from policy-dependent to market-competitive."*

### Cost Reduction through Market Competition

RPS reform: shift to **competitive bidding** (H1 2026)  
 Planned-site siting, permit streamlining, expanded guarantees and loans

#### LCOE Targets by 2030 (KRW/kWh, auction basis)

Offshore wind	330s	→	<b>below 250</b>
Onshore wind	180s	→	<b>below 150</b>
Solar PV	150s	→	<b>below 100</b>

### Improving Grid and Market Acceptance

New **"Semi-Central Dispatch System for Renewables"** (March 2026) — compensation for spring/autumn curtailment under prior agreement

Activation of **demand-side flexibility**: heat pumps, ESS, V2G  
 Industrial Time-of-Use restructuring (lower weekend-daytime, higher weekday-evening prices)

**Regional electricity pricing** under review (H2 2026)

#### WHY THIS MATTERS

Lower LCOE + flexible market design + demand-side participation = the foundation that makes **AI-enabled VPPs, agrivoltaics, and bankable offshore wind** economically viable at scale.



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## Leading Models - Living Testbeds for the Transition

### Gapado Island

*Carbon-Neutral Island Model (2026–27)*

- Optimal mix of wind, solar, ESS, EMS
- AI-based demand management within a distributed micro-grid
- Replicable model for islands and remote communities across Asia

### Jeju Island

*National Testbed for Renewable Integration*

- V2G business and heat-pump demand response market expansion
- Renewable bidding market and long-duration BESS
- Demonstration of vertical solar and floating wind
- Grid-forming and system-stabilization technology testing

### Public Sector Leadership

*Public Institutions Driving Deployment*

- All 88 public institutions joining K-RE100
- New Saemangeum Tidal Power (224 MW) under planning
- BIPV expansion on public rooftops, parking lots, buildings

**Why these matter for ASEAN:** *they demonstrate how distributed renewables, AI, and innovative business models can be integrated and scaled in real-world settings — not just on paper.*



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## Industrial Ecosystem and Technology Development

### Industrial Support

- Expanded tax incentives for renewable investment (production tax credit under review - modeled on US IRA)
- Stronger policy finance: National Growth Fund, Future Energy Fund, green-finance package (KRW 1.5 trillion in 2026)
- Larger budget support for deployment, loans, and R&D
- Industrial policy linked with market expansion

### Industrial Competitiveness

- Foster core infrastructure industries (inverters, AMI, VPP)
- Build domestic capabilities in renewable equipment
- Support standards, certification, and human resources
- Promote export opportunities - "Team Korea" approach combining public finance (KIND, K-SURE, KEXIM) with private supply

### Technology Priorities

#### Solar

tandem modules and commercialization support

#### Wind

larger turbines and offshore supply chains

#### Flexibility

ESS and VPP

#### Grid

AMI, smart control, and digital energy solutions



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## Conclusion - Relevance for ASEAN and the Pacific

*"Korea's experience suggests that renewable energy transition requires not only more capacity, but also stronger infrastructure, smarter market design, and practical implementation models."*

### Transferable Features

- Rapid expansion of solar and wind backed by clear targets and regulation
- Stronger grid and transmission infrastructure planned alongside generation
- Market reform and flexibility mechanisms to make renewables economic
- Distributed and community-linked deployment models that create local value

### Key Enablers (Cross-cutting)

- Smarter grid operation and AI-enabled flexibility
- Better market design and price signals
- Industrial and supply-chain competitiveness
- Technology innovation in generation, storage, and control

### BRIDGE TO THE WORKSHOP — Building Blocks of a Scalable Transition

#### ENVELOPS

*How agrivoltaics turn one piece of land into triple value*

#### EWP

*How AI-enabled VPPs orchestrate distributed resources*

#### Daewoo E&C

*How integrated EPC and finance make offshore wind bankable*



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# THANK YOU

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**Minyoung Seo, Ph.D.**

*Research Fellow, Korea Energy Economics Institute*

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