ASIA CLEAN ENERGY FORUM 2025

Empowering the Future: Clean Energy Innovations, Regional Cooperation and Integration, and Financing Solutions

2-6 June | ADB Headquarters, Manila



^s Driving the Energy Transition through Carbon Neutral Solutions and Global Collaboration in Floating Solar Projects

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Featured Speaker

1. Introduction of K-water

Status of K-water in the Water Industry

No.1 in Multi-purpose Dam Management, Water Supply, Renewable Energy Generation



2. Global Trends in Carbon Neutrality

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1) Global Commitments and Progress

- Paris Agreement (2015): First legally binding climate treaty with long-term decarbonization goals
- Net-Zero Targets: Over 140 countries—accounting for ~90% of global emissions—have announced net-zero pledges
- COP26 & COP28 Outcomes: Emphasized fossil fuel phase-down and the need for accelerated action through stronger NDCs (Nationally Determined Contributions)

2) Carbon Neutrality Policies of Korea

- Policy Commitment
 - 2050 Carbon Neutrality Declaration: Announced in October 2020
 - Legal Framework: The "Carbon Neutrality and Green Growth Framework Act," enacted in 2021
- Governance: The Presidential Commission on Carbon Neutrality and Green Growth
- Strategic Pillars
- Energy Transition: Phasing out coal-fired power plants and expanding renewable energy sources
- Industrial Innovation: Promoting low-carbon technologies and processes in key industries
- Green Mobility: Advancing electric vehicles and sustainable transportation infrastructure
- Carbon Pricing: Enhancing Korea Emissions Trading Scheme incentivizing emissions reductions

4. K-water Carbon Neutrality Business Portfolio



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Achieving ambitious 2050 Carbon Neutrality and Contributing National Determined Contribution by
1) Carbon Reduction in water infrastructure + Utilizing Carbon Sink in river basins
2) Diversification of Water-based Renewable energy sources and scale-up

Carbon Reduction	Carbon Offset	+ Expansior	Expansion of water-related renewable energy			
Low-carbon water management	Carbon Sink	Floating Solar Power	Hydrothermal energy	Green Hydrogen		
Low-carbon water supply	Eco-friendly carbon	Developing floating solar	Combination between	Producing green hydrogen		
by energy saving in	neutrality by utilizing	PV on the unused water	Inter-regional water supply	by using renewable energy		
whole water supply	Nature based Carbon	surface of large-scale dams	pipelines of K-water and	produced at water energy		
process powered by AI	Sinks	and reservoirs	cooling systems of	facilities of K-water		
based Energy			buildings			
Management System						
				AND		

5. K-water International GHG Mitigation projects

Concept

 Utilizing Korean national funds to support climate crisis response & sustainable development in developing countries, while contributing to the achievement of Nationally Determined Contributions of Korea and hosting countries

Target Area

• Conducting Pre-FS, FS on Mitigation projects & Installation of GHG reduction facility in developing countries

Status of K-water

• Designated as Implementation Agency on behalf of Ministry of Environment of Korea since 2024



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5. K-water International GHG Mitigation projects(Cont'd)

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Dilemma : Tradeoff between Time and Outcome

- Only small amount of ITMO in short time
- Considerable amount of Carbon mitigation only available in the case sufficient time provided

K-water Solution: Two-Track Approach

• Commence Brown field project First, while developing Green field projects in Parallel

Green Field				een Field	Brown field				
Site surveys, identifying, and analyzing feasibility to develop new renewable energy projects			g, and analyzing feasibility to ewable energy projects	Re-habitation of idle or aged renewable energy facilities in hosting countries					
		Category		Project Name	Capacity (MW) Outcome (tCO ₂ eq/year)		Status		
	F/S		Green	Osla I SHPP Development	4.8	10,345	Completed		
	F/S	Cambodia	Green	Osla II SHPP Development	3	6,465	In progress		
F	Pre-F/S		Green	Renewable Energy Development	-	-	In progress		
	F/S		Brown	Alamedin #1-4 SHPP Modernization	8.9	8,879	Expected		
	F/S		Brown	Alamedin #5,6 SHPP Modernization	12.8	5,9723	In progress		
	F/S	Kyrgyzstan	Green	Chon-Kemin SHPP Development	11.6	9,982	Completed		
F	Pre-F/S		Green	Renewable Energy Development	-	-	Expected		
F	Pre-F/S	F/S		Carbon Reducing Urban Development	-	-	In progress		
	F/S	Uzbekieten	Brown	SHPP Modernization	31.4	108,190	Expected		
F	Pre-F/S	UZDEKISIAN	Brown	HPP Modernization	380	Not Determined	Expected		
F	Pre-F/S Laos Green Renewable Energy Development		-	-	Expected				

6. State of Play: K-water Floating Solar PV projects

- Currently operates 6 floating solar PV plants with capacity 58.4 MW
- Developing 5 more plants with capacity 186.7 MW

2012	Site Picture		16년	178				STERE STERE
Operating	Project Name	Hapcheon Pilot	Boryeong Pilot	Chungju Pilot #1	Hapcheo SPC #7	on I	Chungju Pilot #2	Yanggu SPC
	Commercial Operation	`12.9	`16.3	`17.12	`21.11		`22.8	`23.10
2024	Capacity	0.5MW	2 MW	3MW	41.5MW		2.6MW	8.8MW
2025	Site Picture				and the second second			
Under				1.200		S.		J-32
Construction and Planed	Project Name	Imha SPC	Hapcheo SPC #2	on 2 Yongdam SPC		Chungju SPC		Soyang SPC
	Project Period	`22~`25	`21~`25	`23	~`25	ž	22~`26	`21~`27
2030	Capacity	47.2MW	20MW	20	DMW		40MW	59.5MW

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7. Advantages of Floating Solar than other renewable energy



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8. Lessons learned

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Immense importance of community buy-in

- Acceptance of local communities are critical for project commencing especially local residents feel they are excluded from direct/indirect benefit of energy infrastructures
 - Solution of swift project implementation outnumbers the cost of profit sharing with local stakeholders

Detailed Environmental Impact study for community buy-in

- People mind potential side-effect on water quality, eco-diversity
- Extensive environmental Impact study mitigates backlash from local stakeholders
 - Easing public concern about environmental safety is a key to facilitate local community participation

Blended finance for project viability

- Blending public and private capital through Special Purpose Companies is essential for financing large-scale renewable energy projects
 - Potential source to fill financing gap and raise public acceptability on energy projects

9. What we are working on

 Project Title: Enabling Framework for Promoting Investment on Floating Solar Photovoltaic Projects Coupled with Applicable Technical Solution(2 Stage Project)

• Partners

- K-water(Project coordination, technical expertise, stakeholder engagement)
- Ministry of Energy, Philippines(Policy alignment, local facilitation, and stakeholder support)
- Global Green Growth Institute(Project funding, Knowledge dissemination)

Project Objective

- The 1st Phase:

- 1. Policy Framework Development: Create policies to support renewable energy transitions with specific incentives to attract private investment
- 2. Business Model Design: Propose a PPP-optimized model ensuring financial viability and risk-sharing mechanisms
- **3. Local Governance System**: Design profit-sharing and participatory governance structures to increase community support and Sustainability

9. What we are working on

- Project Objective(Cont'd)
- The 2nd Phase:
- 1. Construct 2 or 3 Pilot plants at the places chosen by Philippines government after discussion among partners
- 2. Capacity building program to share operation knowhow of facilities to local communities for sustainable operation
- 3. Providing the guidelines for scale up of pilot plants into commercially viable large-scale plants
- Expected Outcomes
- 1. Comprehensive policy framework enabling the adoption of FPV technologies
- 2. Viable PPP-based business model supported by robust financial and technical data
- 3. Inclusive governance model ensuring community benefits and project acceptability
- 4. Tangible floating solar PV plants enable local communities secure renewable energy for inclusive growth, profit sharing

10. The way forward

Keen to collaborate with Asian neighbors

- (As-Is) All floating solar PV plants of K-water are placed within South Korea
- (To-Be) Disseminating our business model with Asian countries

Contribution for just transition of Korea and Asian developing countries

- Contribute achievement of NDCs of Korea, project partners through mutually beneficial ties
- Open for any collaborations with all developing countries in the world

Seeking synergy with ESG and Climate fund for scale-up

· Seeking ties with ESG, Climate fund for bigger contribution to project scale-up, climate change mitigation



Thank you 감사합니다