



International Partnership
for Hydrogen and Fuel Cells
in the Economy

Republic of Korea Update

32nd IPHE Steering Committee Meeting

23 – 24 October 2019

Seoul, Republic of Korea

Announcements and/or New Initiatives *Republic of Korea*



Please include only recent announcements or new initiatives since the last IPHE meeting that are related to the following topics. If there are no announcements under a specific topic, please say N/A.

- **Investments/Funding/Policies/Initiatives**

- **Hydrogen Economy Roadmap Korea: National Vision and Goals are announced to promote hydrogen economy with full commitment of multiple ministries**
- **The 3rd Master Plan of National Energy: Hydrogen is included in National Energy Mix for the first time**
- **Deregulation in progress: “Development Restriction Zone Act” and enforcement decree will be revised to accelerate and ease HRS installation (economy ministers meeting)**
- **KOGAS announced 4.7T KRW (4.1B US\$) investment plan to develop domestic hydrogen supply chain and to build up industrial ecosystem**
- **MOLIT announced Hydrogen Model City Project covering production, delivery, and use**



Announcements and/or New Initiatives *Republic of Korea*



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- **New Research & Development, Demonstration and/or Deployment Activities**
 - National RD&D Roadmap is under final review for its announcement by December
 - 2020 Budget (draft) allocated 500T KRW (≈420M US\$) to Hydrogen-related projects of multiple ministries
- **Key Collaborations**
- **Other**
 - KGS made a strong commitment to Hydrogen safety with internal task force
 - KATS started to increase standards and certification activity for both efficient deployment and improved safety control



Examples of Lessons Learned and Impact *Republic of Korea*



Please include up to 3 examples of policies, regulations or mandates that have been used in your country to deploy sustainable energy technologies. Please include a lesson learned for each example (i.e. if you had to do it all over again, what would you do different? Or what worked well?)

Program initiative, policy, regulation or mandate	Lessons Learned/Outcomes
Renewable Portfolio Standard (RPS)	<ul style="list-style-type: none"> • Variation of REC (renewable energy certificate), SMP (system marginal price of electricity), and gas price • LTSA (long term service agreement) cost issues
Regulatory barriers to HRS installation	<ul style="list-style-type: none"> • Considerable number of HRS projects has been delayed due to regulatory barriers (24 installed out of 110) • Great efforts must be made for deregulation in combination with strong safety measures
FCs for Residential and Building applications	<ul style="list-style-type: none"> • Substantial number of FC units are not in operation • Operation incentive system needs to be designed to reactivate those FCs and to increase deployment



Republic of Korea – Profile October 2019

Status of Deployments	Leading Government Initiatives	Goals or Focus Areas
<ul style="list-style-type: none"> ✓ Stationary FC: >350MW ✓ FCEV: 3216 (5467*) ✓ FC Bus: 7 (37*) ✓ HRS: 24 (111*) 	<p>Hydrogen Economy Roadmap Korea</p> <p>to be backed up by</p> <p>Legal framework before National Assembly on “Hydrogen Economy Promotion” and “Hydrogen Safety”</p>	<ul style="list-style-type: none"> ✓ Expansion of H infrastructure by easing regulatory barriers ✓ Deployment of FCH technologies ✓ Establishment of H safety control system ✓ Full cycle technology RD&D ✓ RD&D for Clean H production
	<p>Deployment Goals (2022)</p> <ul style="list-style-type: none"> ✓ Stationary FC: 1.5GW ✓ FCEV: 81,000 units ✓ HRS: 310 sites ✓ H price: 6,000 KRW 	<p>Funding</p> <ul style="list-style-type: none"> ✓ 2020: 500B KRW (424M US\$) ✓ RD&D (10 yrs): 2T KRW (17B US\$)

* Planned in fiscal year 2019



Thank you



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Highlight to Include in IPHE Newsletter *Republic of Korea*



Hydrogen Economy Roadmap Announced

South Korean government announced on Jan. 17, 2019 that it would diversify the hydrogen supply chain, increase the supply volume to 5.26 million tons per year in the next 20 years with price target of 3,000 kRW/kg. The Korean government's rather drastic hydrogen economy plans lies in the strong potential of hydrogen to create new jobs and revive sluggish manufacturing businesses. Korea's shift toward hydrogen is also based on hopes of decarbonizing the country's transportation fleet and reducing its heavy reliance on imported oil.



President Moon Jae-in looks at a model of FCEV Nexso during a visit to Hyundai Motor facility in Ulsan



Highlight to Include in IPHE Newsletter *Republic of Korea*



A HRS opens at National Assembly

The first hydrogen refueling station opened on Sept. 10, 2019, taking a major step forward in South Korea's vision of creating a hydrogen economy. It is the first commercial hydrogen facility in Central Seoul, and the first case of the regulatory sandbox that lifted administrative hurdles. HyNet, a special company, will be in charge of operating the station by May, 2021 when the benefits under the regulatory sandbox expire.



National Assembly Speaker Moon Hee-sang and Prime Minister Lee Nak-yeon recharge a FCEV taxi at the HRS located in National Assembly



Status of Applications and Goals *Republic of Korea*

Application	Status (As of Sept., 2019)	Goal (For 2022)
1) H₂ Applications		
a. Energy Storage (e.g. MW, GW of capacity)		
b. Electrolyzers		
c. Other (e.g., Steel, Marine, Fertilizer, etc.)		
2) Transportation		
a. Light Duty Vehicles	3216	81,000
b. Medium and Heavy Duty Vehicles		
c. Buses	7	2,000
d. Trains		
e. Forklifts		
3) Stationary		
a. Residential (incl. Building)	7MW	50MW
b. Commercial	350MW	1,560MW
c. Back Up Power		
<i>4) Other (applicable to your country and not covered in the categories listed above)</i>		

