



International Partnership  
for Hydrogen and Fuel Cells  
in the Economy

# Republic of Korea Update

34<sup>th</sup> IPHE Steering Committee Meeting

1 – 4 December 2020

Virtual Meeting

# Announcements and/or New Initiatives

## Republic of Korea



- **Investments/Funding/Policies/Initiatives**
  - **Hydrogen Energy Portfolio Standard (HPS) to be introduced in 2022**
    - **Separating fuel cell power generation out of RPS**
  - **“Hydrogen City Construction and Management Law” to be proposed in 2021**
  - **“Future Mobility Market Strategy” by relevant Ministries (October)**
- **New Research & Development, Demonstration and/or Deployment Activities**
  - **MOU for SPC (Kohygen) specialized in commercial vehicle HRS infrastructure (October)**
  - **RD&D project for green hydrogen production and storage (12 million USD)**
- **Key Collaborations: n/a**



# Examples of Lessons Learned and Impact

## Republic of Korea



Program initiative, policy, regulation or mandate	Lessons Learned/Outcomes
Renewable Portfolio Standard (RPS)	<ul style="list-style-type: none"> <li>• Hedging Risks from Sales deriving from fluctuation of REC (Renewable Energy Certificate), SMP (system marginal price of electricity)</li> <li>• Utilization of Natural Gas instead of Green H<sub>2</sub></li> <li>• LTSA (long term service agreement) cost issues</li> </ul>
HRS installation promotion	<ul style="list-style-type: none"> <li>• Considerable number of HRS projects has been delayed due to opposition of local communities.</li> </ul>
FCs for Residential and Building applications	<ul style="list-style-type: none"> <li>• Operation incentive system needs to be designed to increase deployment</li> </ul>



# Republic of Korea – Profile October 2020

## Status of Deployments

- ✓ Stationary FC: **556MW**
- ✓ FCEV: **10,041**
- ✓ FC Bus: **27**
- ✓ HRS: **52**

## Leading Government Initiatives

Hydrogen Economy Roadmap of Korea (Jan. '19)  
backed by  
Hydrogen Economy Promotion and Hydrogen  
Safety Management Law (Feb. '20)

## Deployment Goals

	2022	2040
FCEV Production	81,000	6.2 million
HRS	310	1,200
Power Gen FC (dom.)	1GW	8GW
H2 Supply	0.47MMt	5.26MMt

## Goals or Focus Areas

- Expansion of infrastructure by easing regulatory barriers
- FCH technology deployment
- Establishment of safety management system
- Full cycle technology RD&D
- Clean H<sub>2</sub> production RD&D

## Funding

- **2020: 2.6T KRW (2.16B USD)**
  - Passenger cars: 2.3T KRW
  - HRS: 95.1B KRW
- **RD&D ('20-'29): 1.7B USD**

# Thank you



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# Highlight to Include in IPHE Newsletter – Republic of Korea



The first shipment of non-vehicle hydrogen fuel cell systems by Hyundai Motors was made in September. They were sold to a Swiss-based hydrogen storage technology company and a start-up company in the EU region. Hyundai, which leads the global FCEV market by its Nexo and Xcient Fuel Cell truck, aims to expand their hydrogen-related portfolio into stationary fuel cell markets. The buyers will utilize Hyundai's fuel cell system to manufacture emergency power supply generator and eco-friendly mobile generator.



Image of Hyundai's Hydrogen Fuel Cell System



# Status of Applications and Goals – Republic of Korea

Application	Status (As of October 2020)	Goal (For 2040)
<b>1) H<sub>2</sub> Applications</b>		
a. Energy Storage (e.g. MW, GW of capacity)	-	-
b. Electrolyzers	-	-
c. Other (e.g., Steel, Marine, Fertilizer, etc.)	-	-
<b>2) Transportation</b>		
a. Light Duty Vehicles	10,041	2.9 million
b. Medium and Heavy Duty Vehicles	1	30 thousand
c. Buses	27	40 thousand
d. Trains	-	-
e. Forklifts	-	-
<b>3) Stationary</b>		
a. Residential	11MW (all sectors other than power generation)	2.1GW (residential, commercial combined)
b. Commercial	11MW (all sectors other than power generation)	2.1GW (residential, commercial combined)
e. Back Up Power Power Generation	556MW	8GW
<b>4) Hydrogen Refueling stations</b>	52	1,200

