30th IPHE Steering Committee Meeting

K O R E A

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Energy Policy Transition by New Government

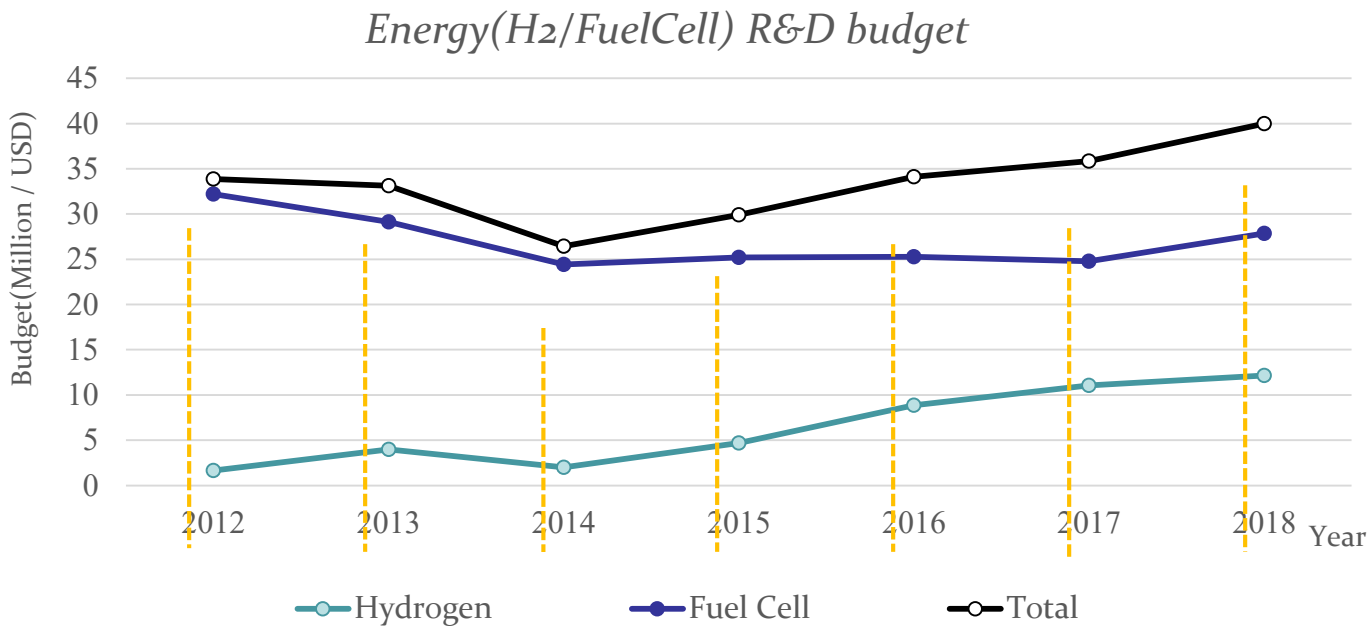
Sustainable KOREA!

Vision: Energy transition 「RE3020」

- Everyone's participation & improving the quality of life -

- Energy Transition from new nuclear power & fossil fuel power generation
- To Increase 20% of renewable energy by 2030 and relevant job creation
- Deploy eco-friendly and low-carbon energy **cultivating new businesses and markets**
- Govern energy system **adapting to the new climate regime**

2018 Energy R&D budget



H2 · Fuelcell R&D budget	2012 Budget (Million / USD)	2013 Budget (Million / USD)	2014 Budget (Million / USD)	2015 Budget (Million / USD)	2016 Budget (Million / USD)	2017 Budget (Million / USD)	2018 Budget (Million / USD)
Hydrogen	1.65	3.99	2.02	4.69	8.85	11.06	12.14
Fuel Cell	32.20	29.13	24.43	25.20	25.27	24.77	27.86
Total	33.85	33.12	26.45	29.89	34.12	35.83	40.00

Government's Policy to Promote FCEV Supply

1. FCEV for long-rang riding and transportation

   -EV for short and mid-range riding

   -(Objective) 350,000 electric cars by 2022, 150,000 FCEV by 2022

   -(National policy support) purchase of electric car and FCEV by government demand,

   the establishment infra for charging station

2. Deregulating permission requirements for hydrogen station sites

   (Ministry of Land, Infrastructure and Transport)

3. Allowing private corporations to participate in HRS installing projects (Ministry of Environment)

   Providing financial support for HRS operation

4. Hydrogen industry product demonstration center establishment

   (Ministry of Trade, Industry and Energy)

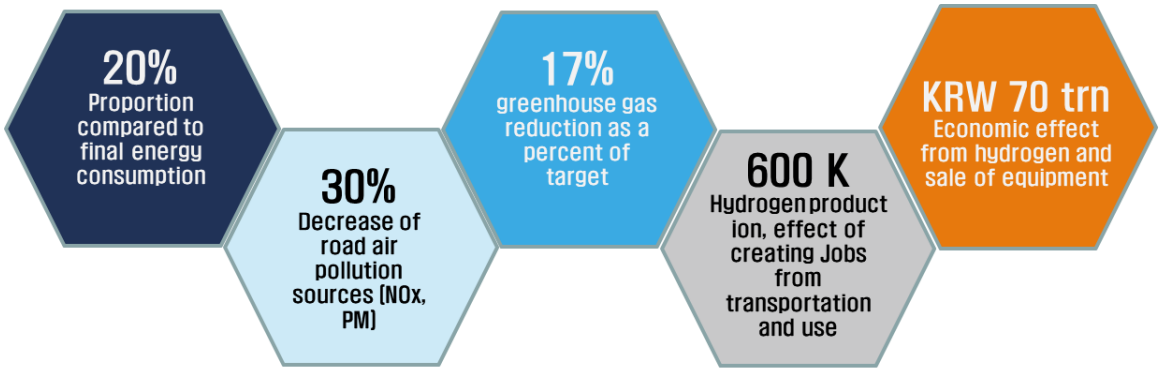
Policy : 2030 Fuel Cell Vehicle Plan (Draft)

◆ *「2030, Fuel Cell Vehicle 10% Era」* (10% of new car sales, 0.18M/1.67M)

Vision (Strategy)	- Realization of Hydrogen-based economy - FCV is expected to become viable without financial support

H2・Fuelcell R&D budget	2018	2019	2020	2021	2022
FCEV	900	2000	5000	9000	15000
HRS	39	80	130	200	310

* The government plans to implement 15,000 hydrogen vehicles and 310 HRS by 2022.



Hydrogen Vision of Korea in 2050

New Policy Initiatives on Hydrogen and Fuel Cells

- ✓ **Establishment of Mid-long term roadmap**
- ✓ **Enactment of Hydrogen Economy Legislation**

Direction of hydrogen society in 2030

Infrastructure Construction (~2025) → Securing Profitability (~2030) → Entry into the Hydrogen Society (2030~)

		Infrastructure Construction (~2025)	Securing Profitability (~2030)	Entry into the Hydrogen Society (2030~)
Main Characteristics		Government Supported Infrastructure	market growth	Rapid growth Globalization
Hydrogen Utilization	Hydrogen Station	200 units	High capacity, localization, Standardization - Reduced construction cost, 520 units	Spread nationwide supply
	Hydrogen Electric Car	100,000 cars	10% of car market	Motorization
	Electricity production	Technology development and demonstration	Renewable energy generation 10%	Expansion of distributed generation
Hydrogen Production		by-product hydrogen Water electrolysis	Expansion of reforming production facilities Enlargement of water electrolysis production	Growth with focusing on water electrolysis (CO_2 Free hydrogen)
Hydrogen Storage		Hydrogen ESS technology demonstration	Enlargement of hydrogen ESS 15,000 ton up to	Establishment of nationwide supply base

Ministry of trade, industry and energy, Launch of roadmap for activating hydrogen economy

The *"Roadmap for the Revitalization of the Hydrogen Economy"*, will be announced in *December 2018*.

FC bus demonstration in 6 cities (2019-2020)

- 30 hydrogen buses in 6 cities (Seoul : 7 buses, / Gwangju: 6 buses / Ulsan : 3 buses / Changwon : 5 buses / Asan : 4 buses / Seosan : 5 buses)
- (Demonstration project period) 2019~2020 (2 years) by Ministry of Environment.

8 HRS installment in highway rest area

- In order to expand H2 vehicles, 8 additional HRSs will be installed in major highways along with 80 additional EV recharging facilities

Private-government joins efforts for full scale implementation of HRS

- Business agreement aimed for installing HRS and establishing management SPC (the special purpose corporation, named HyNet) within the year has been signed

울산의 수소 산업 및 성장 여건

▣ 친환경 전지융합 실증화 단지 구축사업

연료전지 실증 플랫폼
(수소배관, 테스트베드)

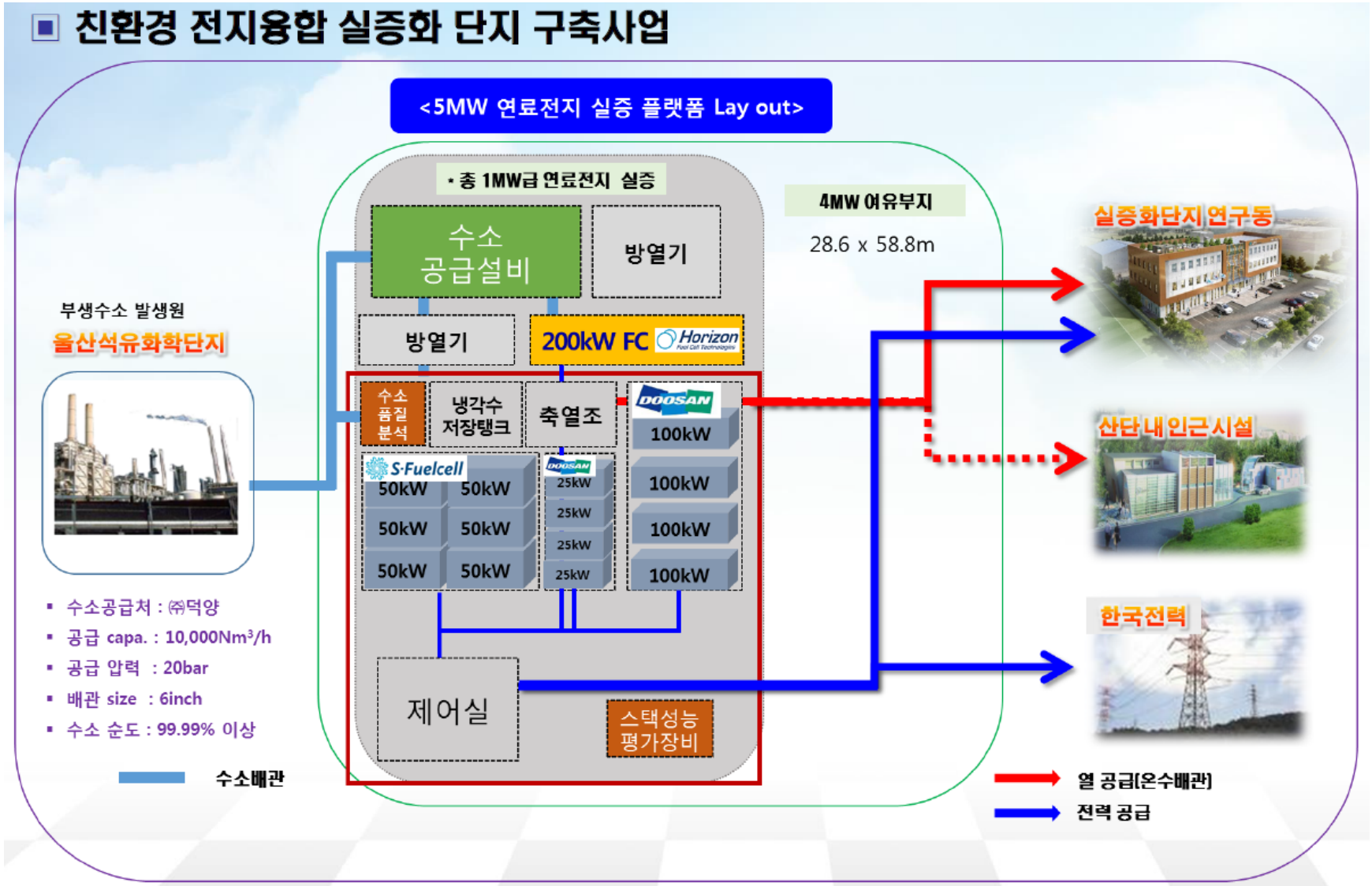
수소연료전지연구센터
(연료전지 제작/평가)

수소품질 시험센터
(수소품질 시험/분석)

○ 건물용/발전용 연료전지 실증을 통한 상용화 가속화를 위한 실증 테스트 베드 구축

○ 수소연료전지 연구센터, 수소품질 시험센터 운영을 통한 기술 사업화 지원

울산의 부생수소 활용 방안



전국 최대 부생수소 생산 : 연간 90만톤

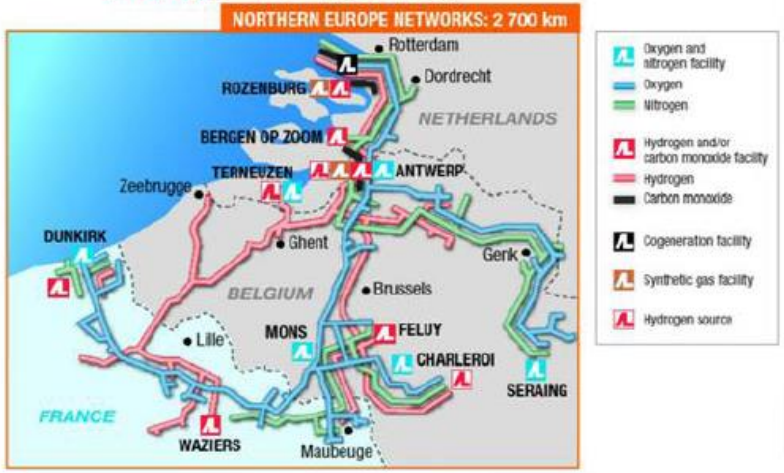
수소 에너지산업 성장 가능성

■ 부생수소 공급 인프라 구축

○ 수소 배관망 구축 추진 (약 30km)

- 석유화학 공단으로 부터 도심지역으로 부생수소 직접 공급
- 수소차 4,000대 보급을 위한 배관망 연계 도심형 수소충전소 구축 추진
- 중장기적으로 울산-포항간 에너지 교환망 구축, 수소 배관망 부산 지역 연장 추진

벨기에-네덜란드의 수소배관 구축 현황



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Thank You