Accelerating the Construction of Hydrogen Stations to Promote Widespread Use of Fuel Cell Vehicles

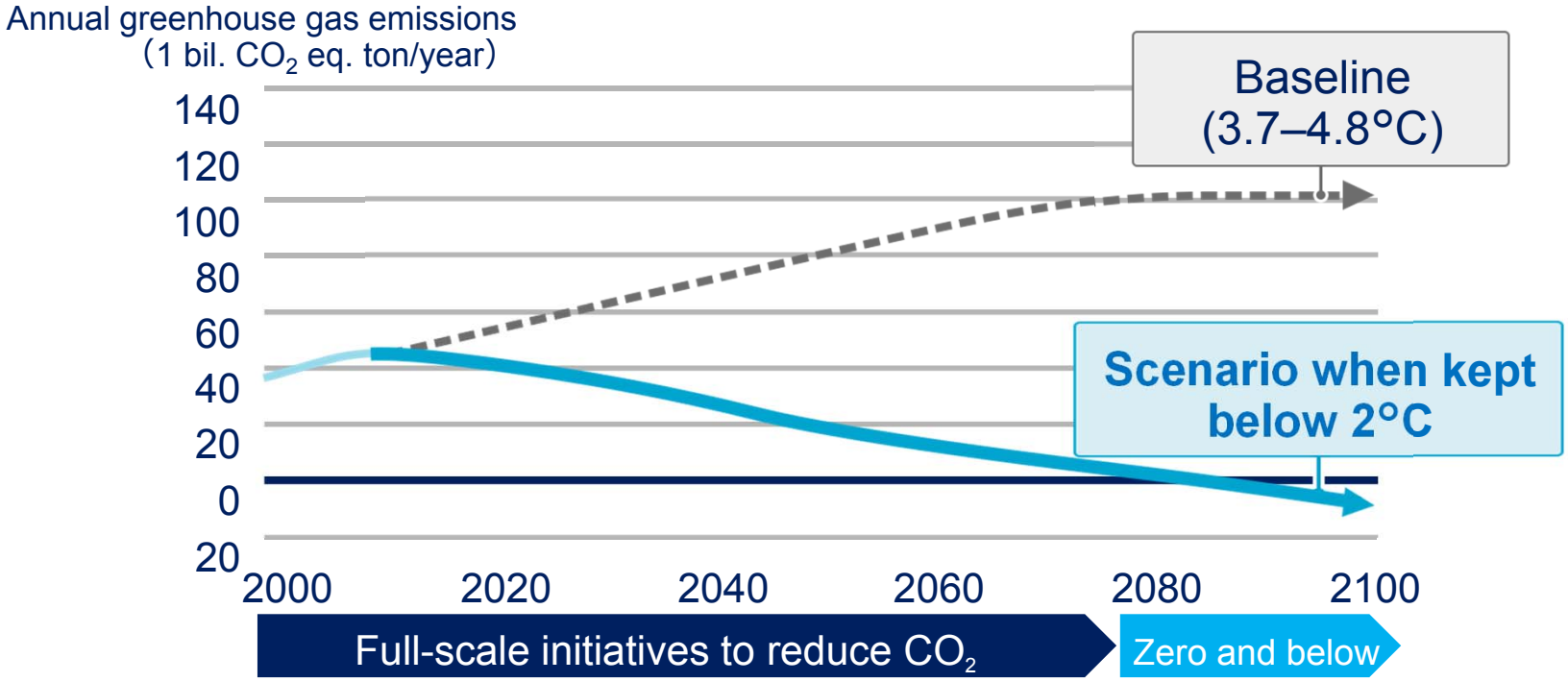
Toward the Creation of a Hydrogen-based Society

May 8, 2018

President, Hideki Sugawara
Japan H_2 Mobility, LLC

Background to Establishment of New Company

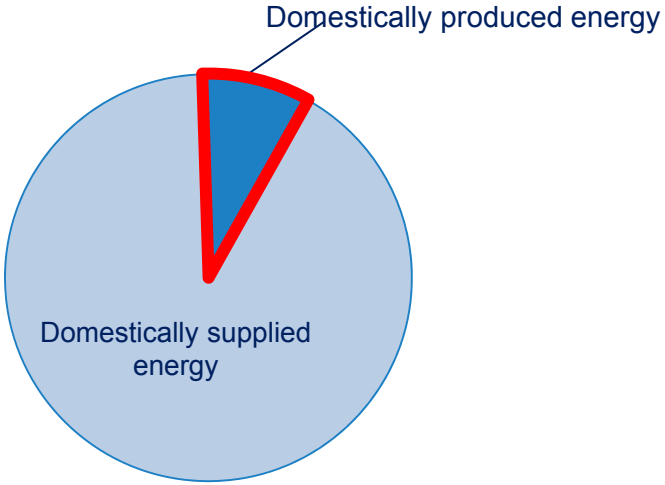
Issue of Global Climate Change

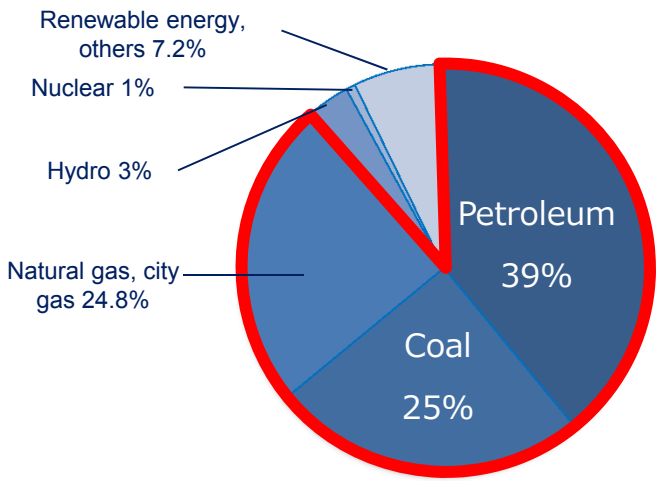


Source: Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014)

CO_2 reduction is a pressing global issue

Japan's Energy Situation





Japan's self-sufficiency in energy

8.4% (2016)

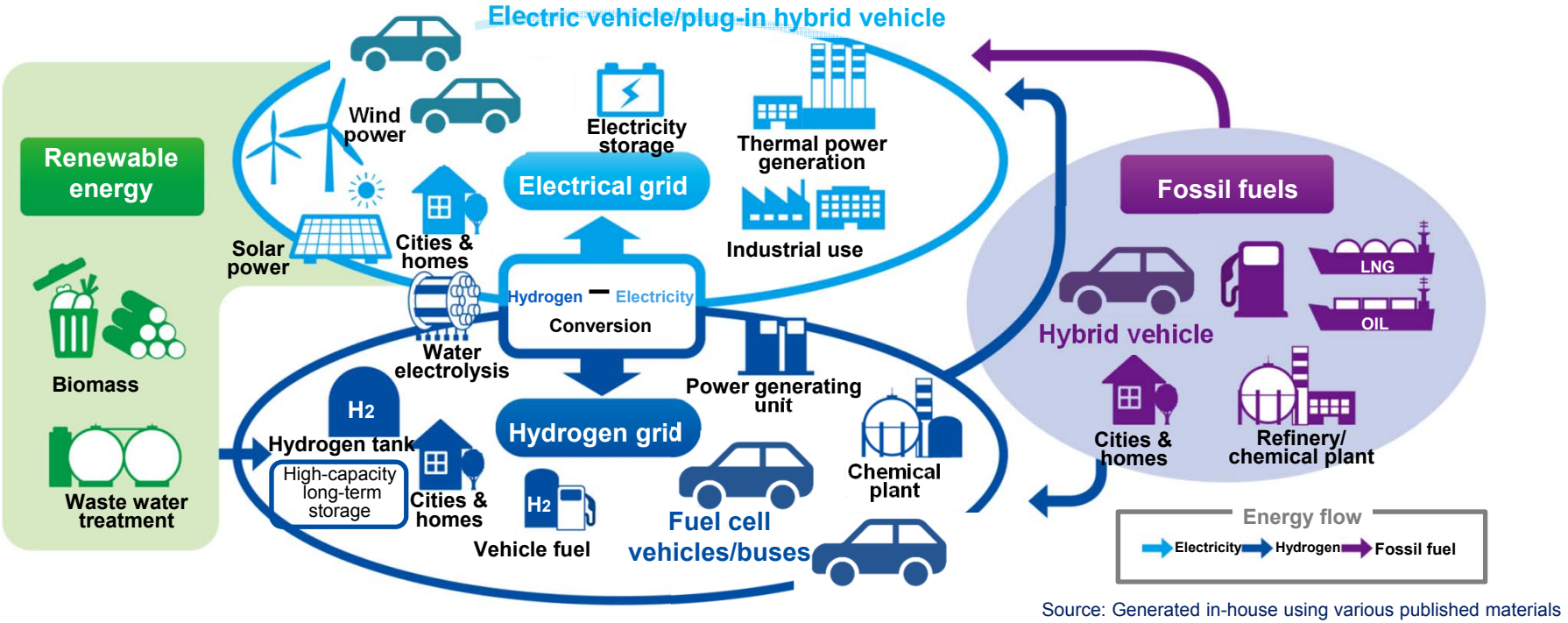
Japan's reliance on fossil fuel energy

88.8% (2016)

Source: Generated in-house using materials from Agency for Natural Resources and Energy

Need for energy diversification

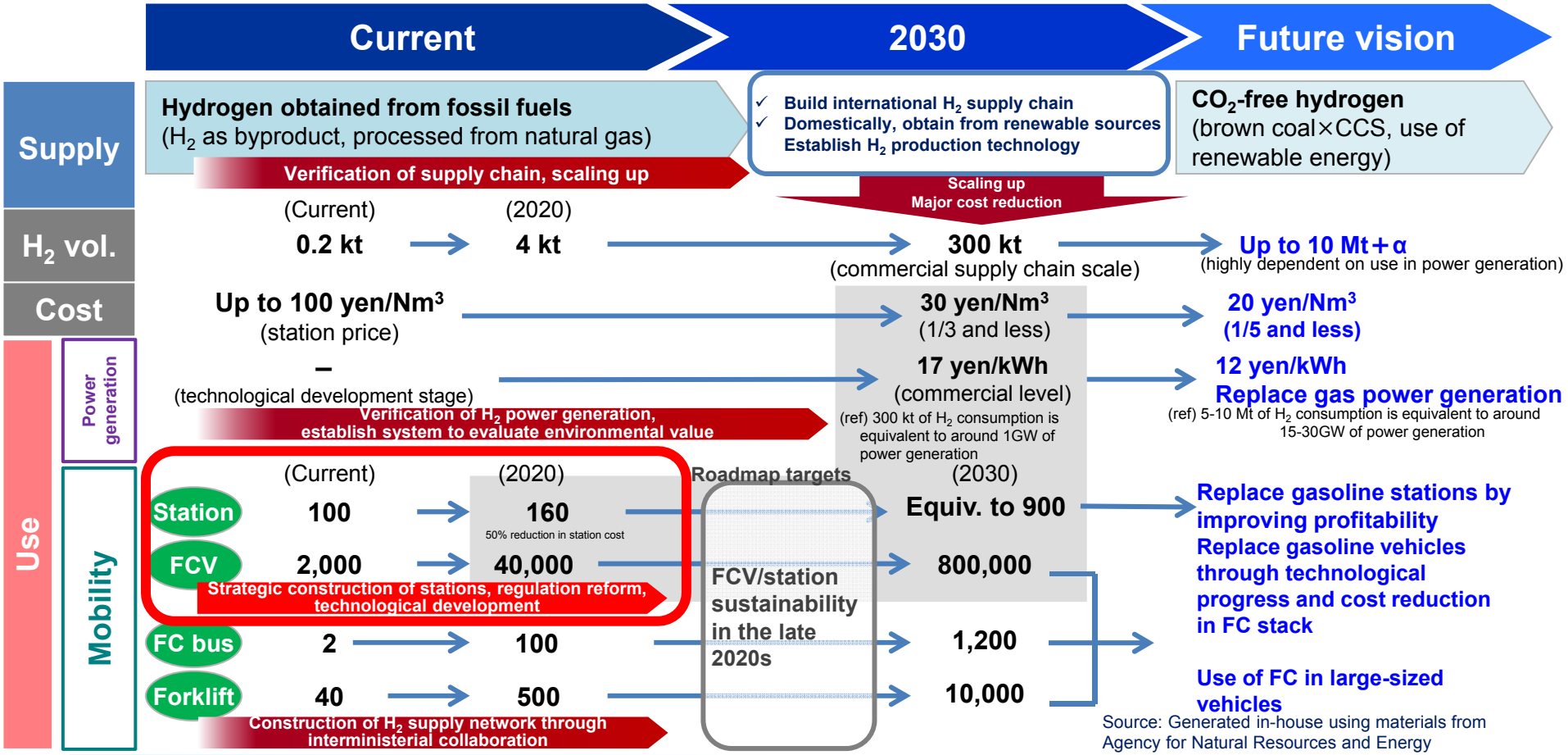
Energy Use Supporting a Sustainable Transportation Society



Source: Generated in-house using various published materials

Use electricity and hydrogen to realize a society built on energy diversity

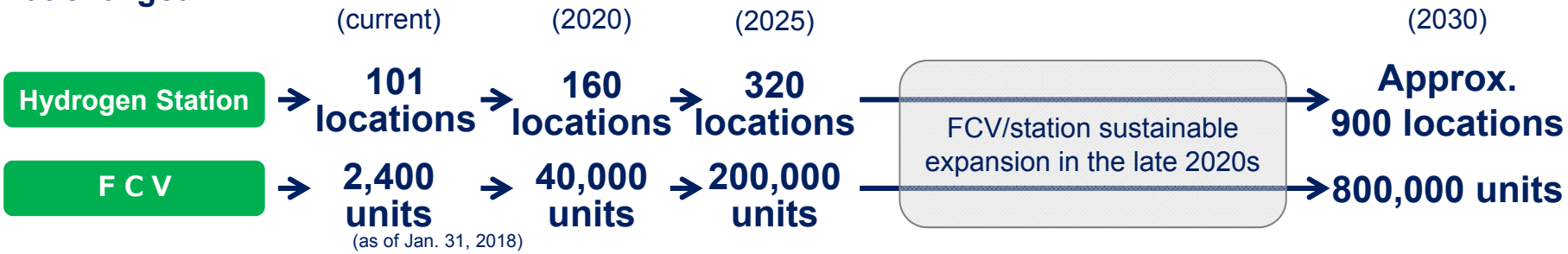
Position of Hydrogen in National Policy



Source: Generated in-house using materials from Agency for Natural Resources and Energy

National Policies and Status of Fuel Cell Vehicles (FCV)

National goal



Source: Strategic Road Map for Hydrogen and Fuel Cells, Agency for Natural Resources and Energy

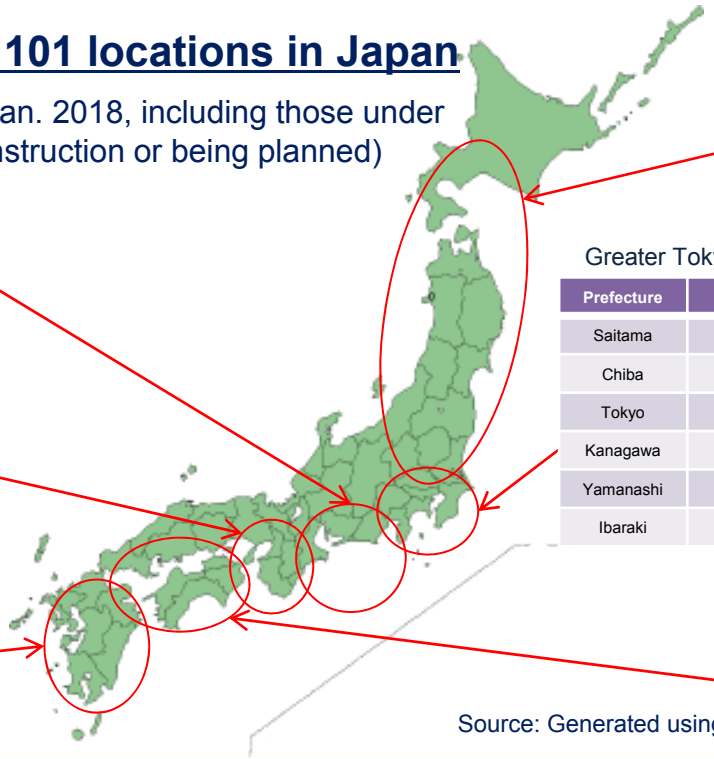
Initiatives of automakers

Toyota	・Launched fuel cell vehicle Mirai (2014) ・Launched fuel cell bus SORA(2018) ・Aim to sell well in excess of 10,000 FCVs per year around or after 2020
Nissan	・Started joint development of a fuel cell system with Daimler and Ford (2013) ・Continuing with technological development for commercialization
Honda	・Launched fuel cell vehicle Clarity Fuel Cell (2016) ・Established joint venture company Fuel Cell System Manufacturing, LLC with GM, with mass production of fuel cell systems expected to begin around 2020 (2017)

Spread of Hydrogen Stations

Total: 101 locations in Japan

(As of Jan. 2018, including those under construction or being planned)



Chukyo Area: 26 locations

Prefecture	All	Mobile
Aichi	17	4
Shizuoka	2	1
Mie	2	2
Gifu	5	4

Kinki Area: 12 locations

Prefecture	All	Mobile
Shiga	1	-
Kyoto	2	1
Osaka	7	1
Hyogo	2	-

Kyushu Area: 11 locations

Prefecture	All	Mobile
Fukuoka	9	1
Saga	1	-
Oita	1	1

Hokkaido & Tohoku Area: 4 locations

Prefecture	All	Mobile
Hokkaido	1	1
Miyagi	1	-
Fukushima	2	2

Greater Tokyo Area: 40 locations

Prefecture	All	Mobile
Saitama	8	3
Chiba	3	-
Tokyo	14	4
Kanagawa	13	7
Yamanashi	1	-
Ibaraki	1	1

Chugoku & Shikoku Area: 8 locations

Prefecture	All	Mobile
Yamaguchi	1	-
Okayama	1	-
Hiroshima	3	3
Tokushima	2	2
Kagawa	1	1

Source: Generated using various published materials (taking mobile stations being operated in several locations into consideration)

Necessity to accelerate the construction of hydrogen stations to spread the use of FCVs

Overview and Initiatives of New Company

Hopes of the New Company

Founding Companies

JXTG Nippon Oil & Energy
IDEMITSU
Iwatani
エネルギー・フロンティア TOKYO GAS
東邦ガス
Air Liquide creative oxygen

TOYOTA
NISSAN
HONDA

JAPAN H₂ MOBILITY
JHyM

TOYOTA TSUSHO
DBJ
日本政策投資銀行

World's first initiative for construction of hydrogen stations jointly funded by infrastructure companies, automakers, investors, etc.

Name of New Company

Japan H_2 Mobility, LLC

Abbreviation: JHyM

Note: derived from **J**apan **Hy**drogen **M**obility

JAPAN H_2 MOBILITY

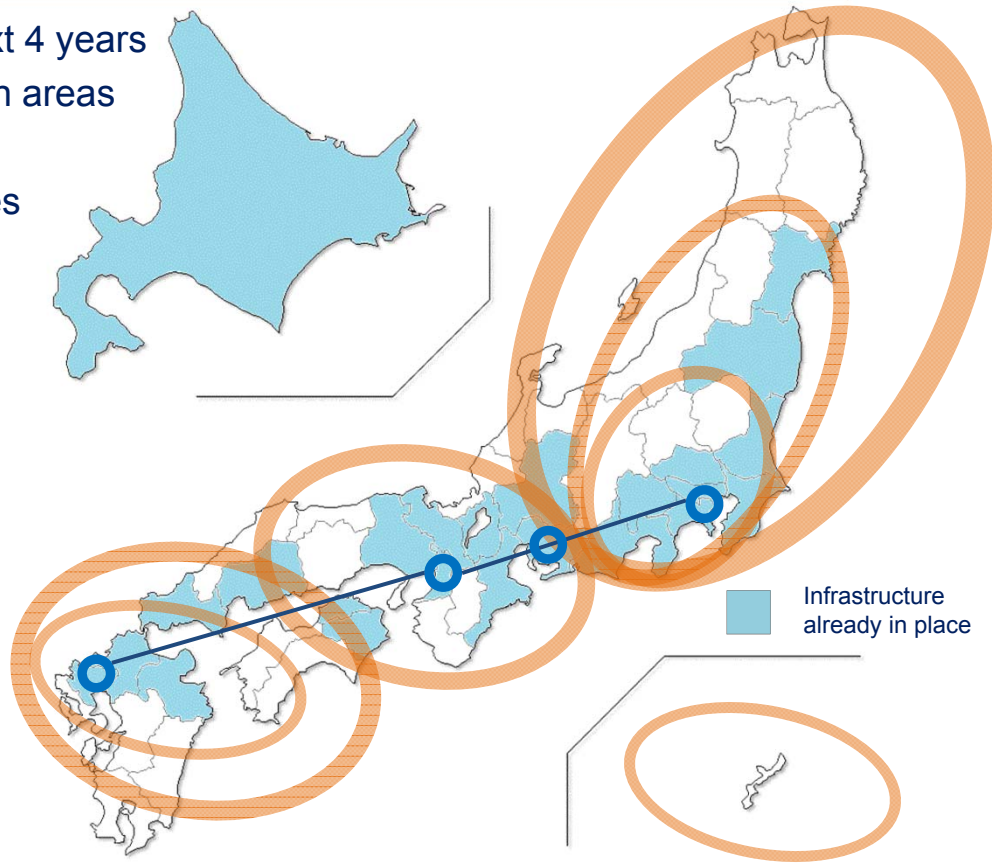
JHyM

Overview of New Company

Company name	Japan H_2 Mobility, LLC (abbreviation: JHyM)
Representative (President)	Hideki Sugawara
Location	Toyota Kudan Building, 2-3-18 Kudan Minami, Chiyoda-ku, Tokyo
Participating companies ★…Executive members (As of April 1, 2018)	Toyota Motor★, Nissan Motor, Honda Motor★, JXTG Nippon Oil & Energy★, Idemitsu Kosan, Iwatani Corporation★, Tokyo Gas, Toho Gas, Air Liquide Japan★, Toyota Tsusho, Development Bank of Japan★, JA Mitsui Leasing, Sompo Japan Nipponkoa, Sumitomo Mitsui Finance and Leasing Company, NEC Capital Solutions, Mirai Creation Fund
Businesses	・Strategic construction of hydrogen stations ・Contribution to efficient operation of hydrogen stations
Business period	Expected to be 10 years (FY2018 to FY2027)

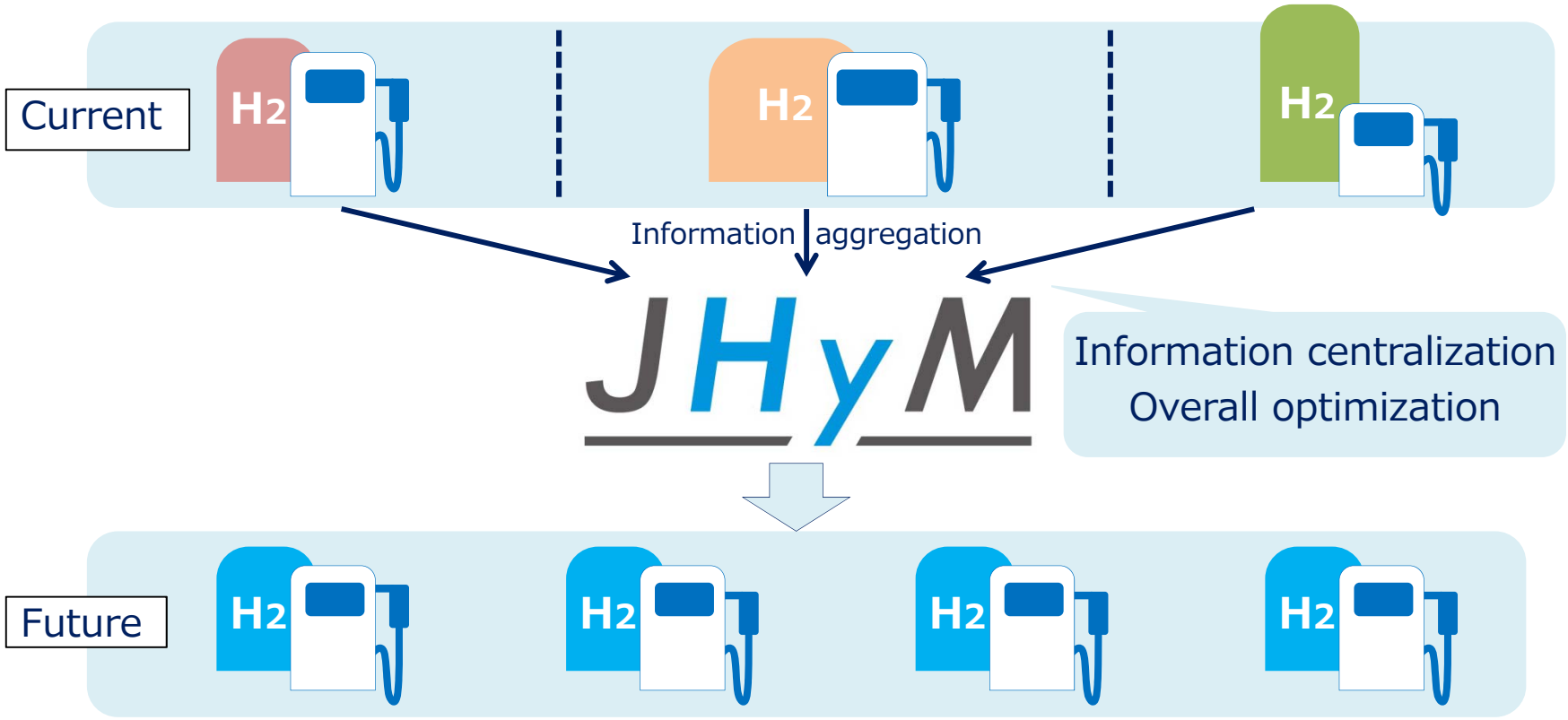
About the Business: Strategic construction of hydrogen stations

- Construct hydrogen stations at 80 locations in the next 4 years
- Expand infrastructure from the four major metropolitan areas and the areas linking them
- Aim to establish hydrogen stations in all 47 prefectures



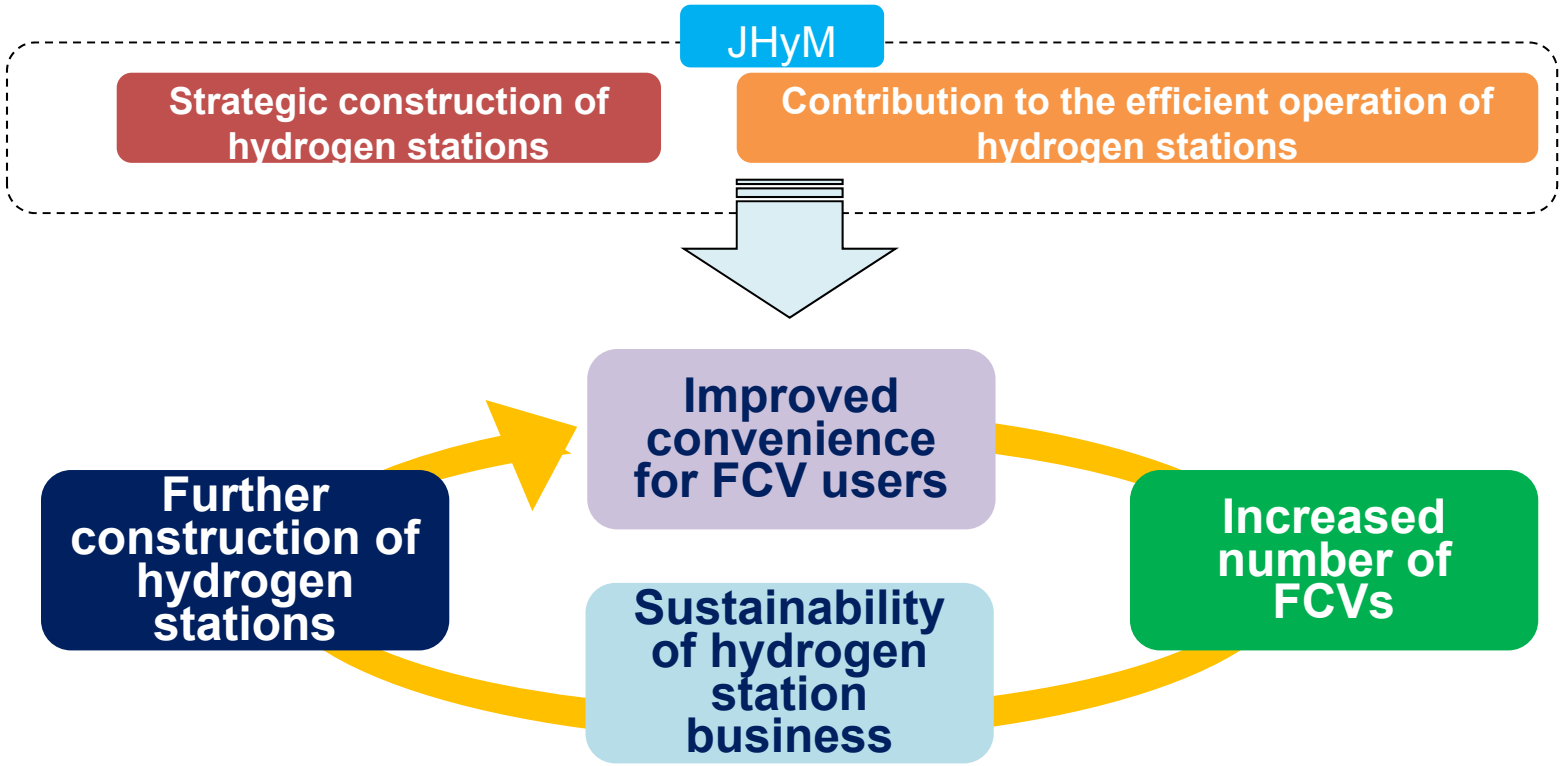
Concept for Construction/Operation of Hydrogen Stations

About the Business: Contribution to efficient operation of hydrogen stations



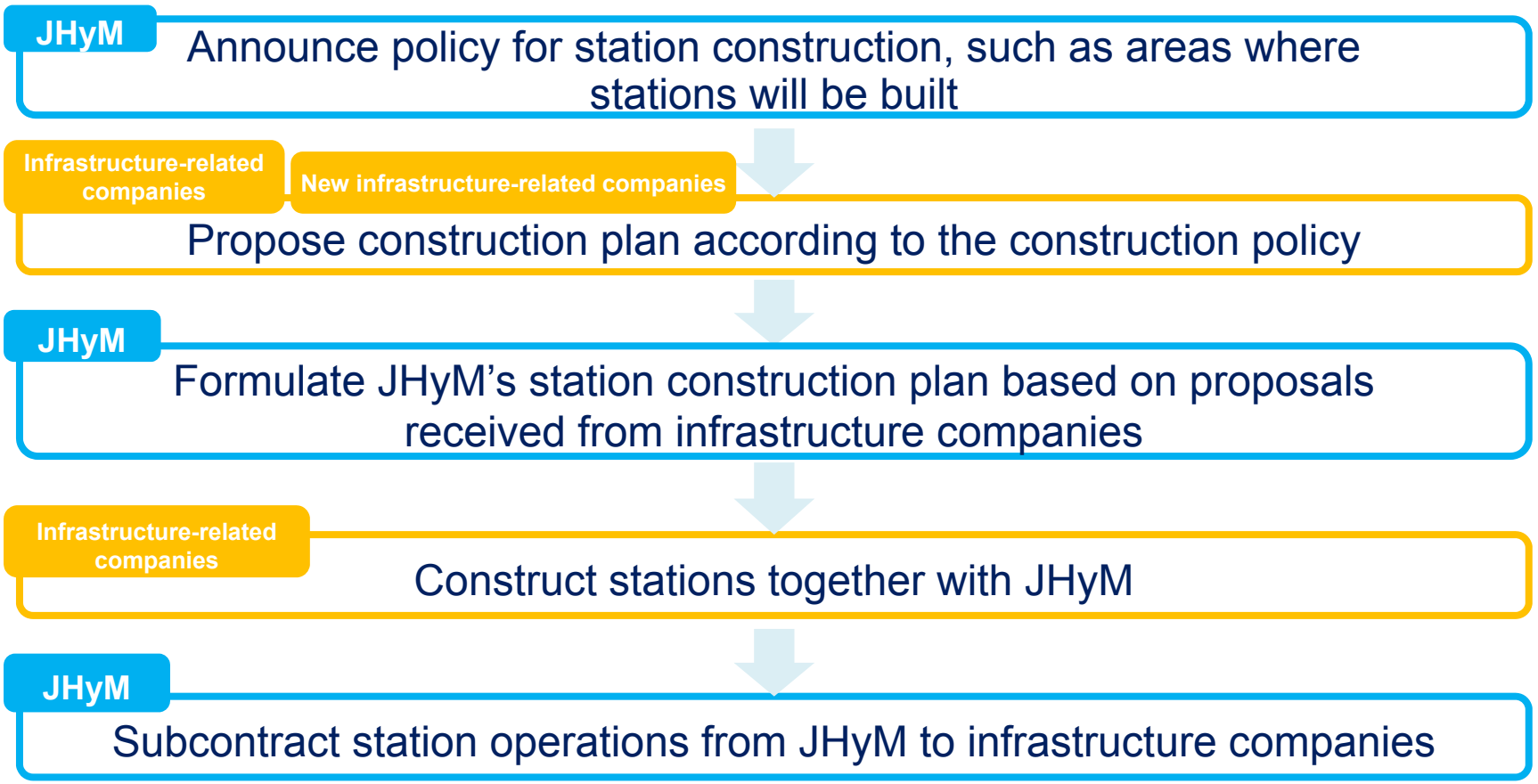
- To realize cost reduction of stations by reviewing regulations and standardizing equipment
- To improve convenience for FCV users by reviewing expansion of operating times

JHyM's Vision

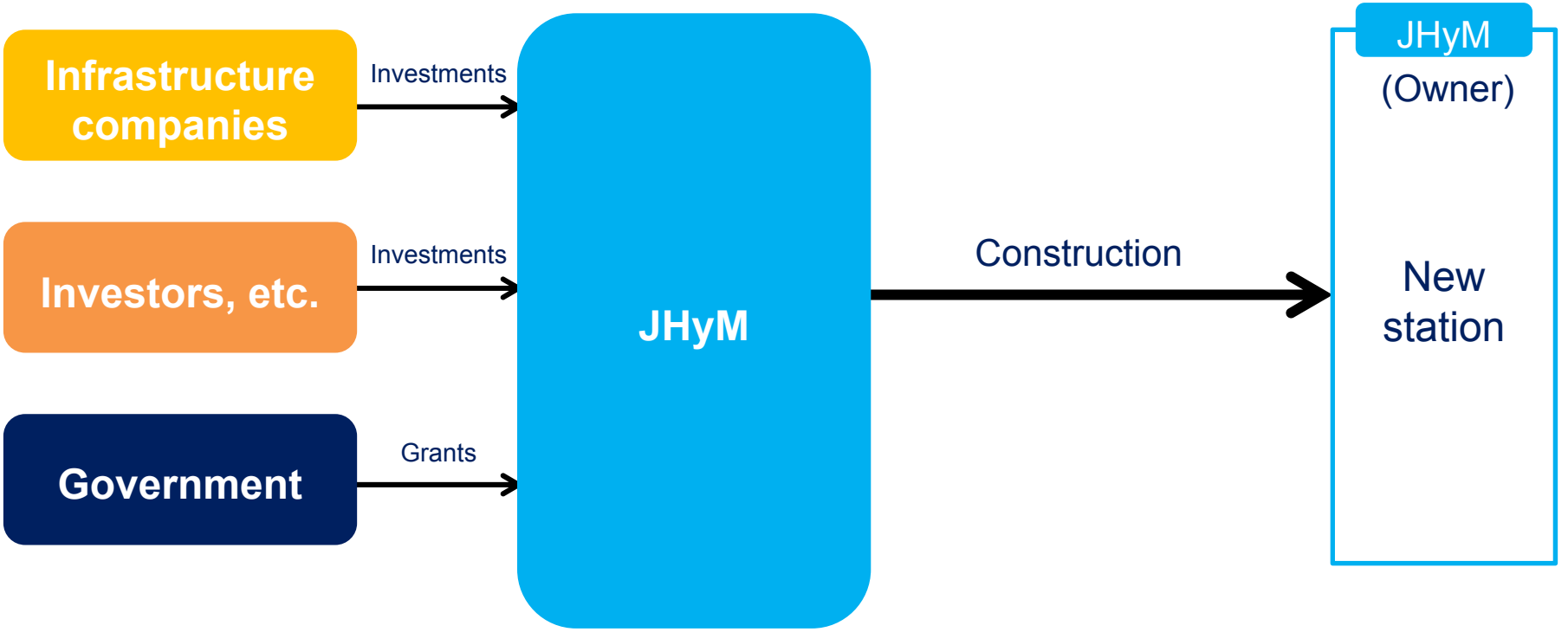


Create virtuous cycle between FCVs and hydrogen stations

Flow of JHyM's Operations

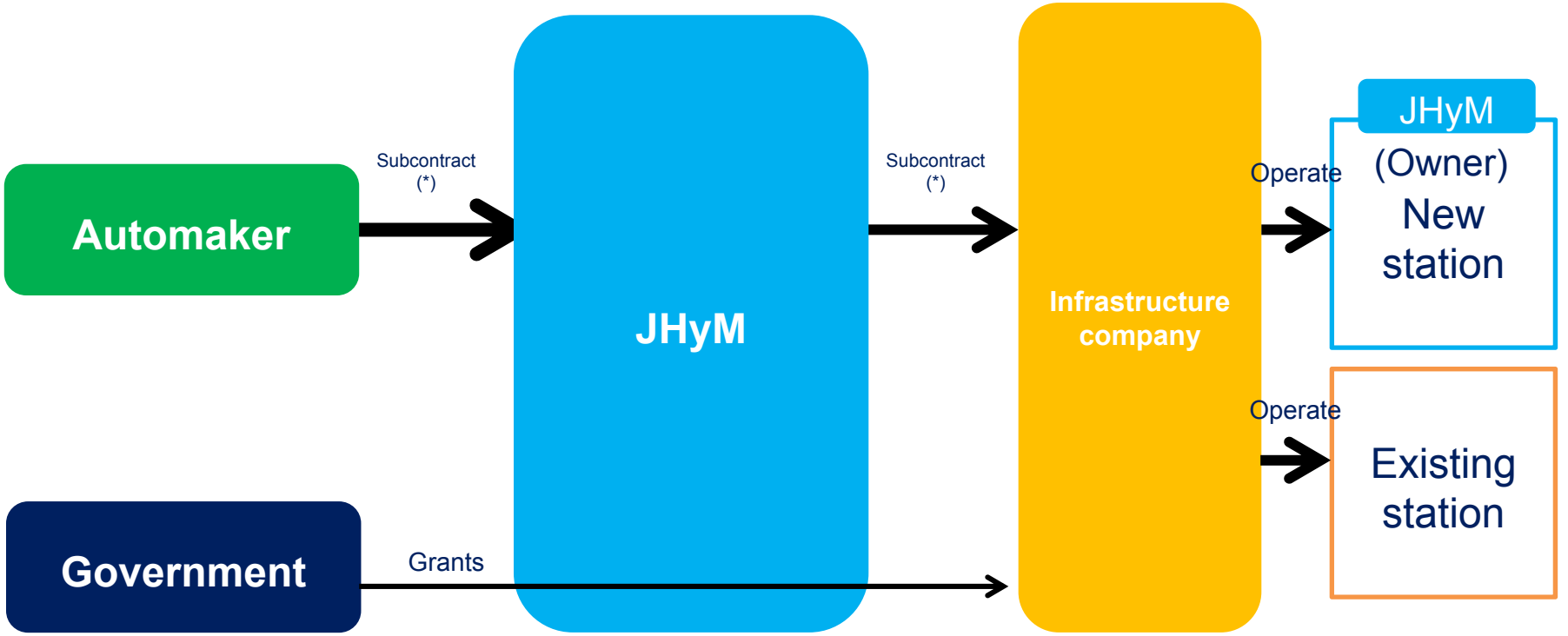


Map of Businesses Related to Hydrogen Station Construction (conceptual)



Reduce initial investments from infrastructure companies and use investments from investors

Map of Businesses Related to Hydrogen Station Operation (conceptual)



*…Subcontracting related to maximizing FCV demand

Through subcontracting, JHyM provides infrastructure companies with a stable, long-term environment for operating hydrogen stations

Summary

JAPAN H_2 MOBILITY

JHyM

- New company JHyM

  A Japan-wide initiative to promote construction of hydrogen Stations.

- JHyM's activities and features
  - Aim to rapidly place stations across all of Japan to maximize FCV demand.

    Construct stations at 80 locations in the next 4 years.
  - Through information collected by JHyM, conduct activities to improve convenience for drivers and establish the sustainability of businesses (such as through cost reduction and suggestions for deregulation).
  - Reduce initial investments from infrastructure companies using funds from investors and other sources.

- Future efforts
  - In the future, look widely for participation from other companies to support the sustainability of the hydrogen station business and the spread of FCV use, and eventually contribute to the realization of a hydrogen-based society.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