

# Hydrogen Economy for Low Carbon Society

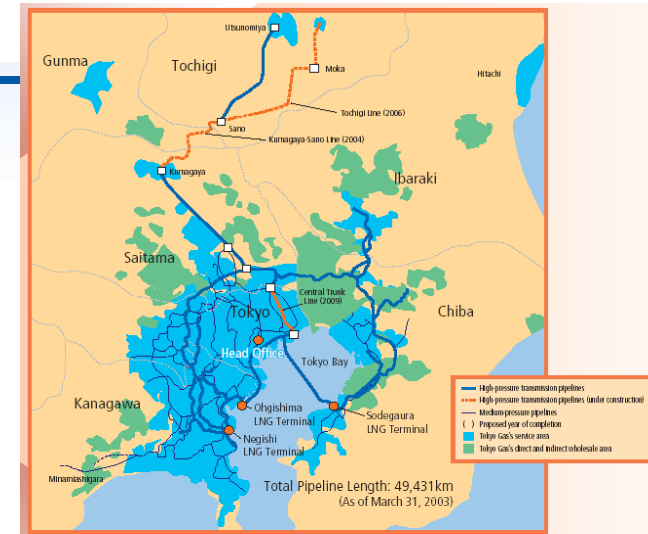


Technology Development Division,  
**Tokyo Gas Co., Ltd.**

13-14 Feb, 2008

# Outline of Tokyo Gas

■ Tokyo Gas LNG Imports



Tokyo Gas service area

## Gas Facts in Japan & Tokyo (FY 2006)

	All Japan	Tokyo Gas
Number of Customers (unit: million)	28.1	10.0
City Gas Sales (unit: billion m <sup>3</sup> , 42MJ/m <sup>3</sup> )	33.8	13.1
Gas Pipeline Length (unit: thousand km)	232.3	51.6

## CO2 Emission from City gas (FY 2006)

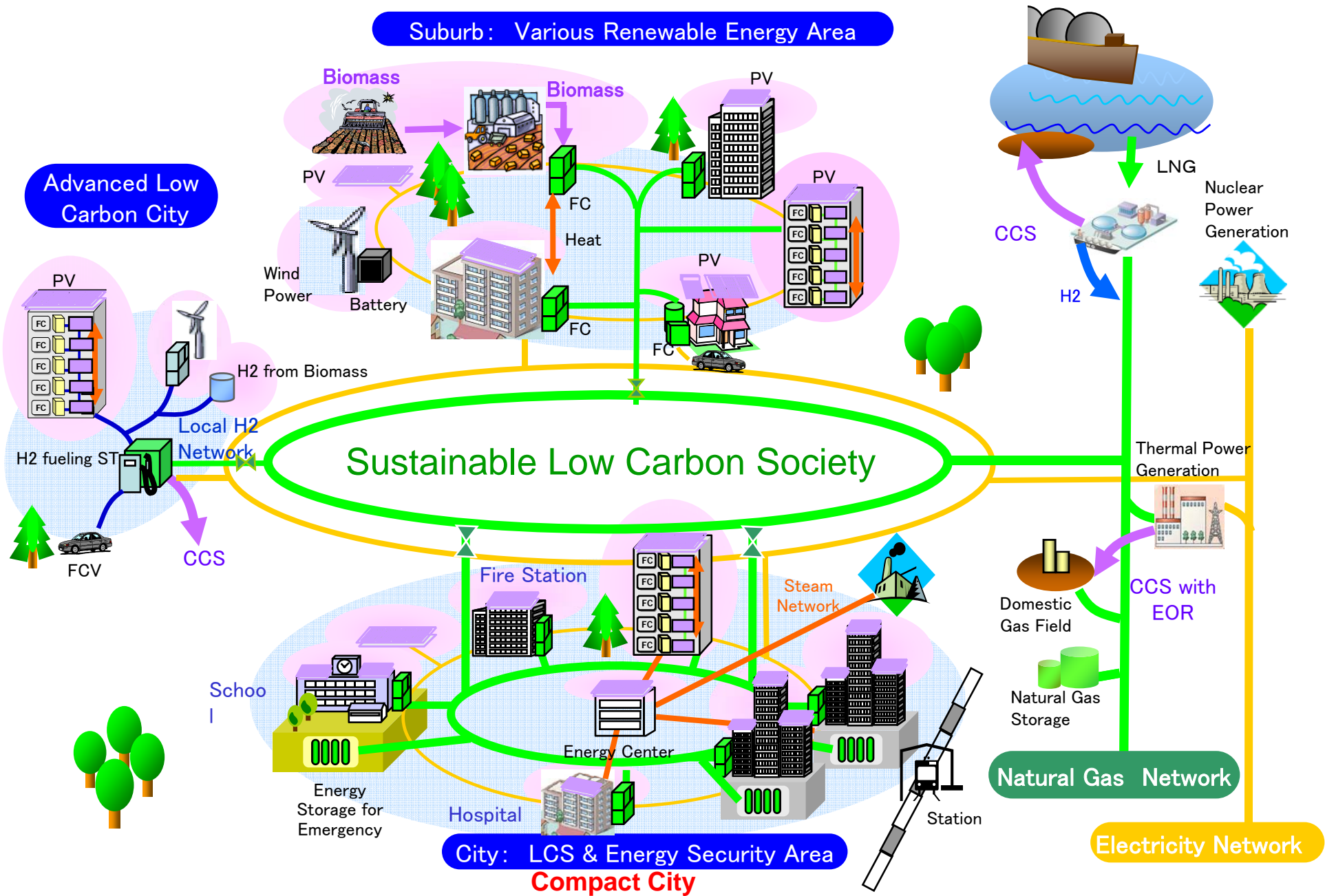
	All Japan	Tokyo Gas
City gas Production	0.071	0.014
City gas User	70	30

unit: million t-CO<sub>2</sub>

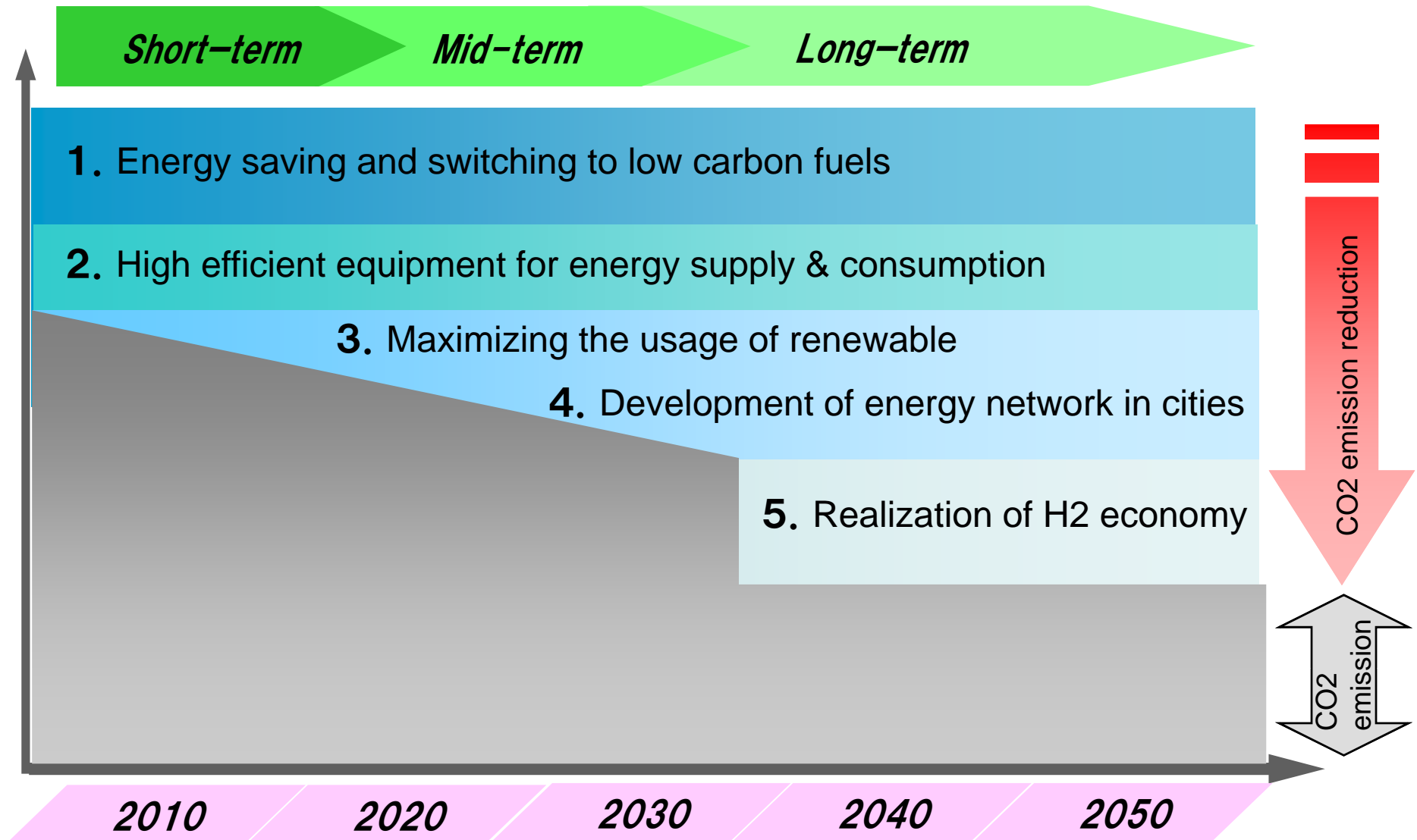
CO<sub>2</sub> Emission from Japan : 1,275 million t-CO<sub>2</sub>

# TEAM ENERGY : Energy System in 2030

Suburb: Various Renewable Energy Area



# Transition to Low Carbon Society



# High efficient equipment for energy supply

## Short-term solution = FC

### Japan is using FC for Residential CHP



Prime Minister's Residential Area  
(April 8, 2005)



PEFC

Electric efficiency 37%

CO<sub>2</sub> reduction 45%

(LHV)

### Increase of FC's Electric Efficiency



SOFC

Residential 45%  
Industrial 67%

(Combined Cycle System)  
(LHV)



Grid Power  
Average 41%  
Highest 54% (LHV)

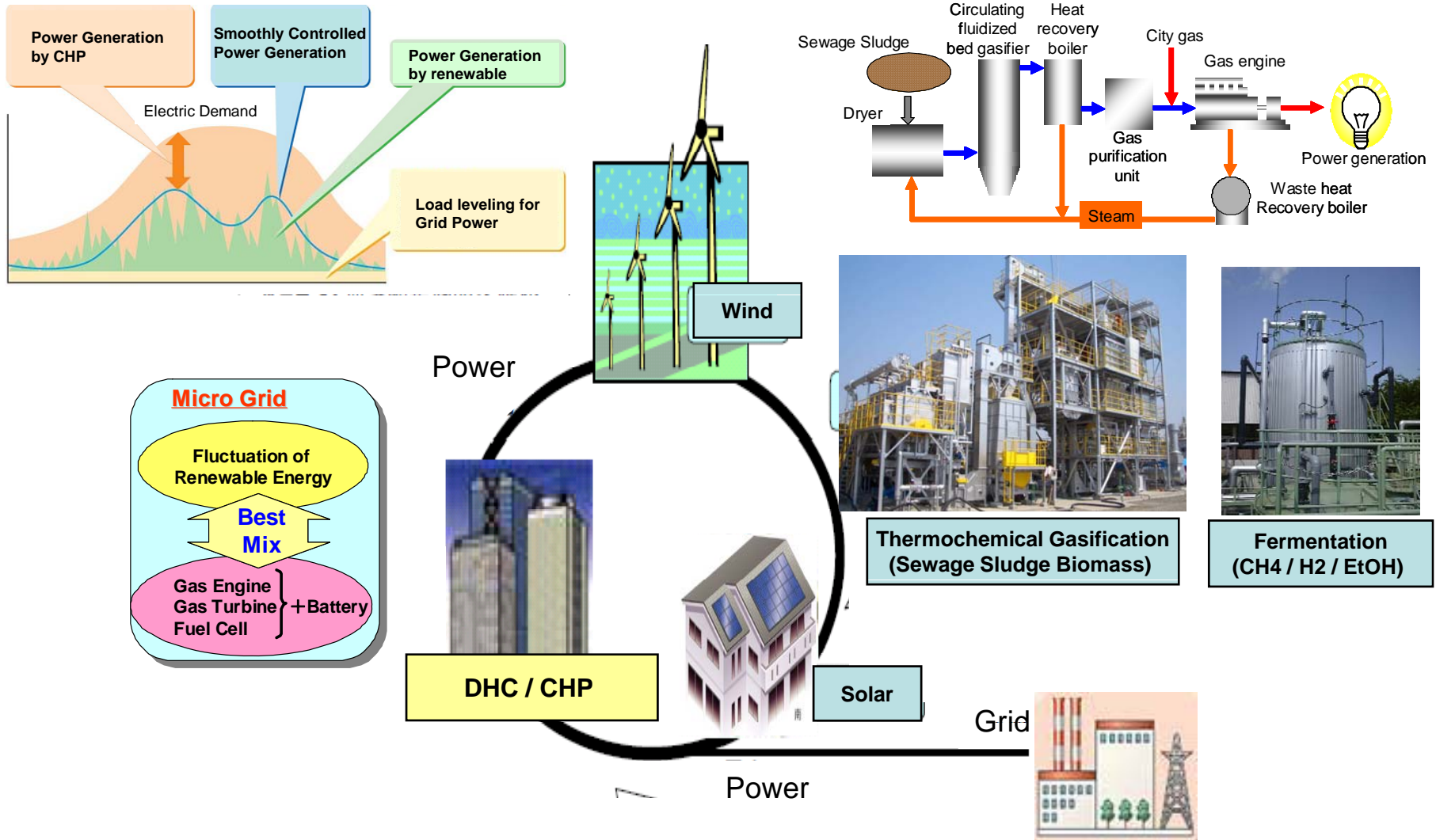
“Large-Scale Stationary Fuel Cell  
Demonstration Project” (05~08)

• FY05:480units FY06:777units FY07:930units

“SOFC Demonstration Project” (07~)

# Energy Network for Maximize Renewable Usage

## Mid-term solution = biomass & microgrid





# H2 fueling for Low Carbon Society

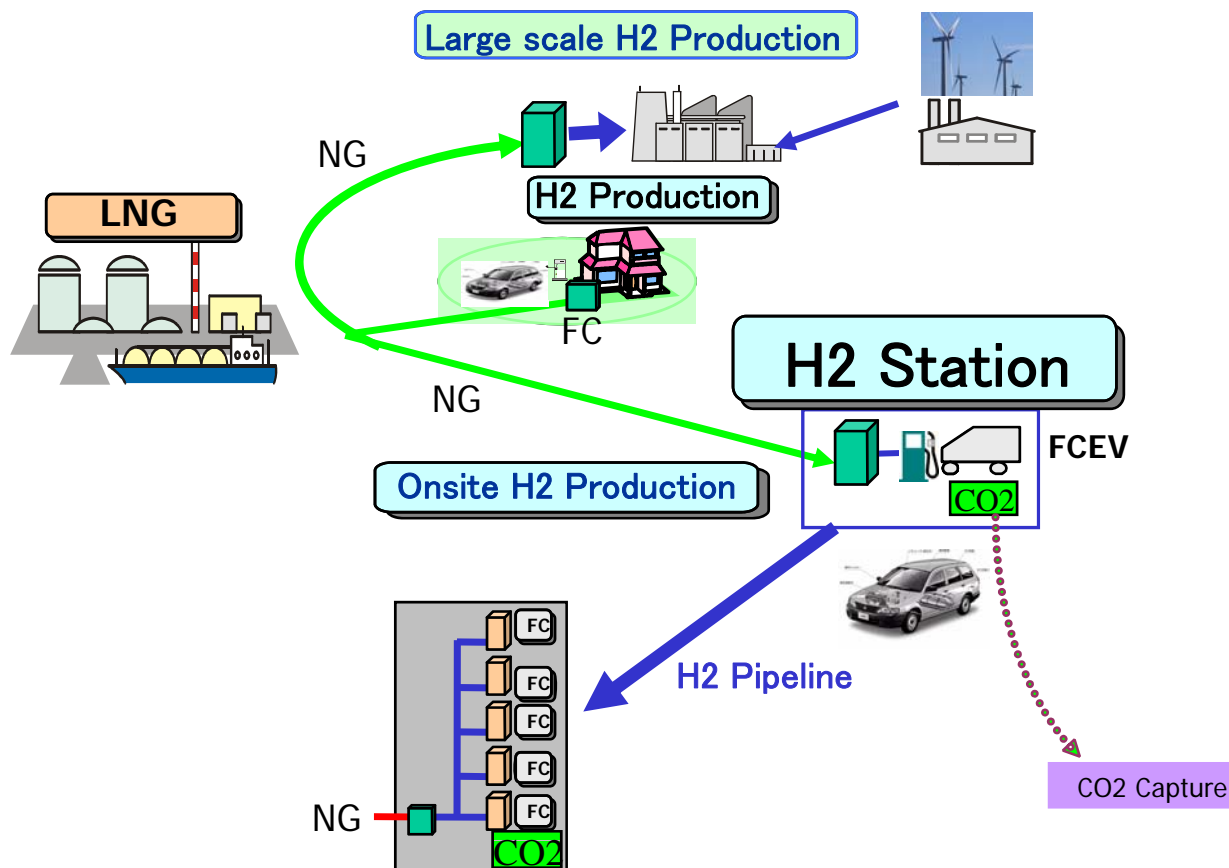
Using H<sub>2</sub> for fuel, there are no CO<sub>2</sub> in the exhaust !

## Hydrogen Fueling Station for FCV



# Local H2 Economy with Distributed CCS

Long-term solution = H2 Economy



## Key Issues

- Roll-out of H2-FCV*
- Investment on H2 infrastructure*
- CO2 management (including CCS)*