1st HFCV-SGS Meeting

# Research Plans for HFCV Rule-making in Korea

**Sept. 20 ~ 21, 2007**

**Ministry of Construction and Transportation**
Republic of Korea

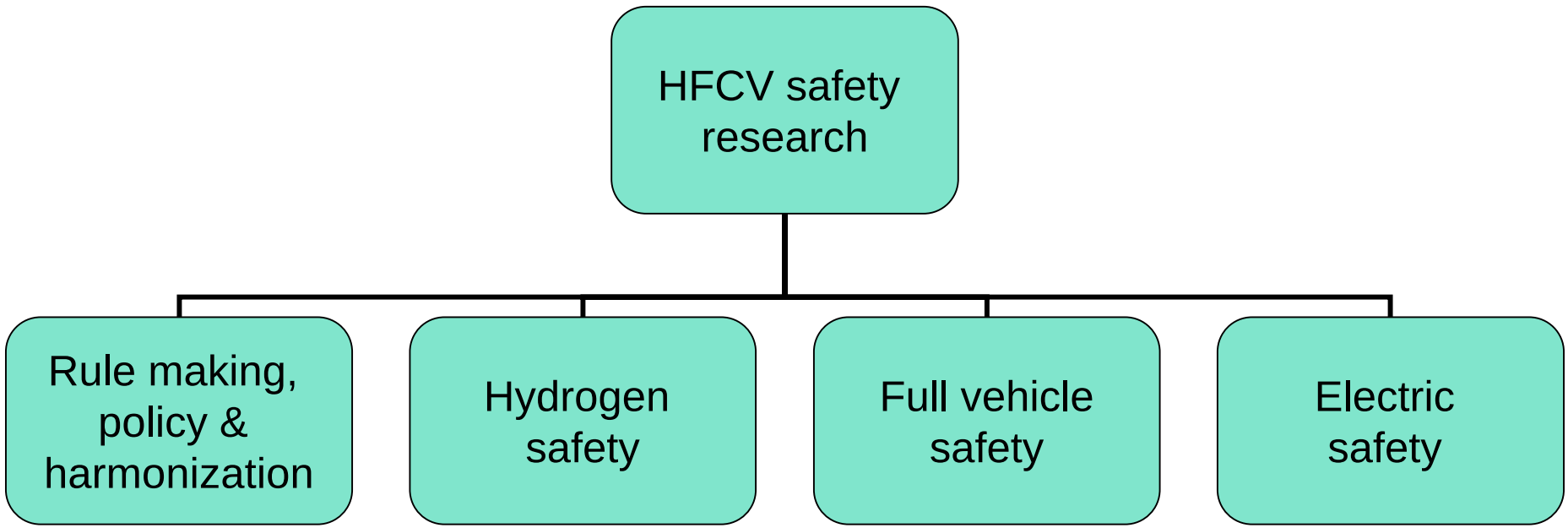
# Objective of Research

- Goal
  - Development of HFCV regulations and safety technologies
- Applications
  - To attain equivalent or higher levels of safety as those for conventional vehicles
  - To develop policy and strategy
  - Participation in the UN/ECE/WP.29 HFCV-SGS & SGE

# Plan for HFCV Rule-Making Activities

- Two stage approach
  - Establish test facilities
    - $50 million, 2007 ~ 2010
  - Research activities
    - Preliminary research : $0.4 million, 2007
    - Rule-making research : $20 million, 2008 ~ 2012

# Research Scopes

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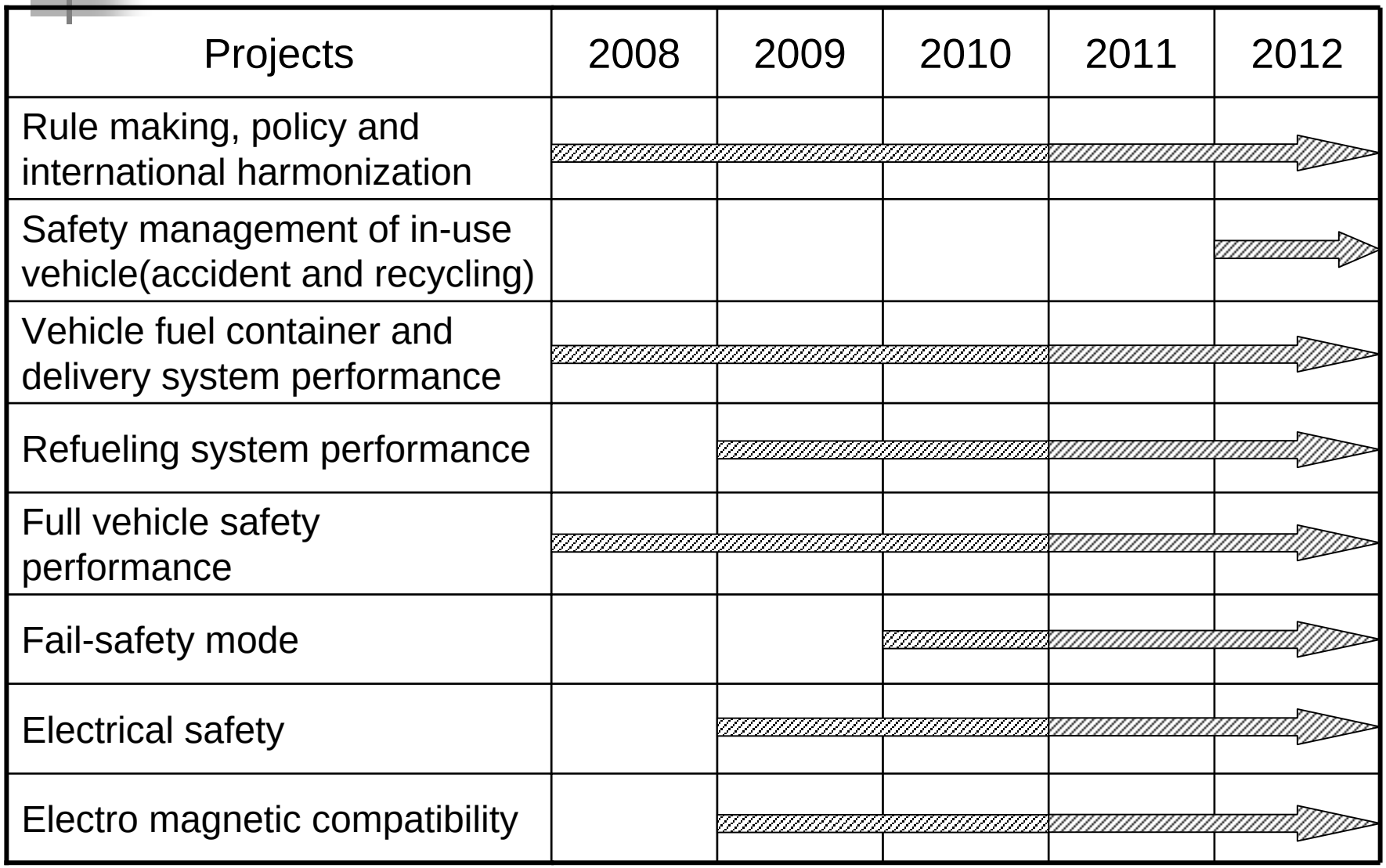
# Detailed Research Projects

| | Projects |
|---|---|
| Rule making, policy and harmonization | Rule making, policy and international harmonization |
| | Safety management of in-use vehicle(accident and recycling) |
| Hydrogen safety | Vehicle fuel container and delivery system performance |
| | Refueling system performance |
| Full vehicle safety | Full vehicle safety performance |
| | Fail-safety mode |
| Electric safety | Electrical safety |
| | Electro magnetic compatibility |

# Research Timeline



# Harmonization Activities

- Join International Harmonization
  - Strengthen MOCT(Korea) International Activities
  - Exchanges Government based Information
  - Contribute technical Information in HFCV Safety Fields
- Participations
  - UN/ECE/WP.29 HFCV-SGS & SGE
  - UN/ECE/WP.29 GRSP & GRPE(Since 2003)

# Vehicle Fuel System Integrity

| | | Conventional Gasoline and Electrical /Hybrid | | | | Hydrogen- / Fuel Cell- Vehicle | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Japan | EU | US | Korea | Japan | EU | US | Korea |
| Fuel Integrity Crash Test | Full Frontal | 50km/h | N | 48km/h | 48km/h | 50km/h | N | N | N |
| | Offset Frontal | N | N | N | N | N | N | N | N |
| | Side | 50km/h | N | 53km/h | 50km/h | 50km/h | N | N | N |
| | Rear | 50km/h | N | 80km/h | 48km/h | 50km/h | N | N | N |
| | Rollover | N | N | Static Rollover | Static Rollover | N | N | N | N |

Source : UN/ECE/TRANS/WP.29/AC.3/17

# Vehicle Fuel System Integrity(Continue)

| | | Conventional Gasoline and Electrical /Hybrid | | | | Hydrogen- / Fuel Cell- Vehicle | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Japan | EU | US | Korea | Japan | EU | US | Korea |
| Integrate System Safety and System Requirements | Fuel tank and underride protection | | Y | N | Y | | Y | N | N |
| | Fuel lines | | Y | N | Y | Y | Y | N | N |
| | Detection of leakage | N | N | N | N | Y | N | N | N |
| | Purge gas | | | | N | Y | N | N | N |
| | Blow off | N/A | N/A | N/A | N/A | N | Y | N | N |
| | Container assembly | N/A | N/A | N/A | N/A | Y | Y | N | N |
| | Fault strategy / safety management system | N | N | N | N | N | Y | N | N |
| | Prevention of misfueling | N/A | N/A | N/A | N/A | | Y | N | N |
| | Installation and mounting requirements | | Y | | | Y | Y | N | N |

# Vehicle Fuel System Integrity(Continue)

| | | Conventional Gasoline and Electrical /Hybrid | | | | Hydrogen- / Fuel Cell- Vehicle | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Japan | EU | US | Korea | Japan | EU | US | Korea |
| Component Requirements | Container | N/A | N/A | N/A | N/A | Y | Y | N | N |
| | Container attachment | N/A | N/A | N/A | N/A | Y | Y | N | N |
| | Other components of the fuel system | N/A | N/A | N/A | N/A | Y | Y | N | N |
| | Fuel Cell | N/A | N/A | N/A | N/A | N | N | N | N |
| Electrical Isolation and Electric Safety | In-use | N | Y | N | N | Y | N | N | N |
| | During and post crash | N | N | Y | N | N | N | Y | N |
| | Total electric safety | | N | | N | Y | N | | N |

# Vehicle Occupant Protection

| | Japan | EU | US | Korea |
|---|---|---|---|---|
| Full Frontal | 50km/h | Y | 48km/h | 48km/h |
| Offset Frontal | N | 56km/h | N | N |
| Side Deformable Barrier | 50km/h | 50km/h | 53km/h | 50km/h |
| Side Pole | N | N | 53km/h | N |
| Rear | N | N | N | N |
| Rollover | N | N | Y | Y |
| Roof Crush | N | N | Y | Y |

Source : UN/ECE/TRANS/WP.29/AC.3/17

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# Thank you for your attention