

# **Storage concepts and impact on H2 infrastructure**

## WORKSHOP 3

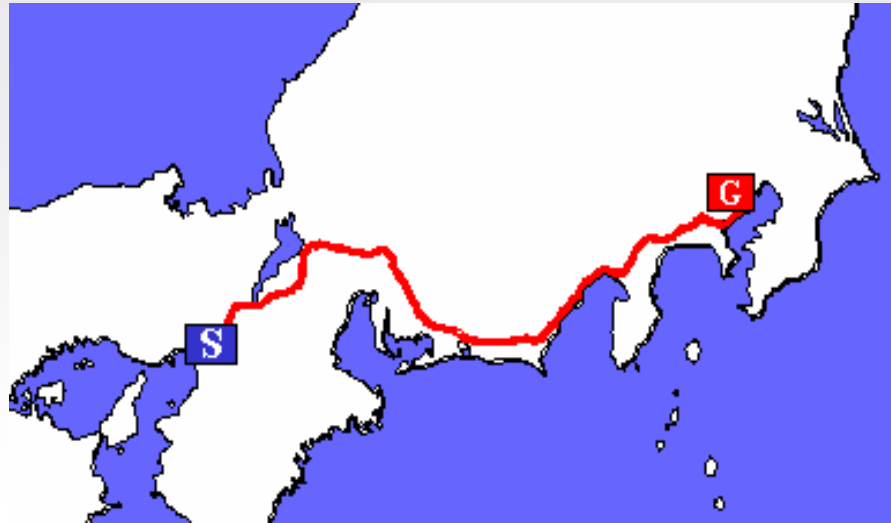
Solid-compressed storage:

Statements from Toyota

## Do we need advanced hydrogen storage?

- We have demonstrated the potential of 70MPa high pressure tank.
- However
  - Is this technology cheap enough for the mass production?
  - Does this technology cover all the vehicle range from small to heavy duty trucks?
- We need a cheap, easy, safe, energy efficient advanced hydrogen storage technologies applicable for all the vehicle.

## Current FCV's cruising range



Improved version of TOYOTA FCHV successfully completed Osaka-Tokyo (560 km) trip *without refueling* on Sept. 28, 2007.

- Fuel efficiency: 25% Up (\*)

- Amount of Hydrogen: Approximately 1.9 times\* ( 70MPa tanks)

(\* Compared with '05 model TOYOTA FCHV)

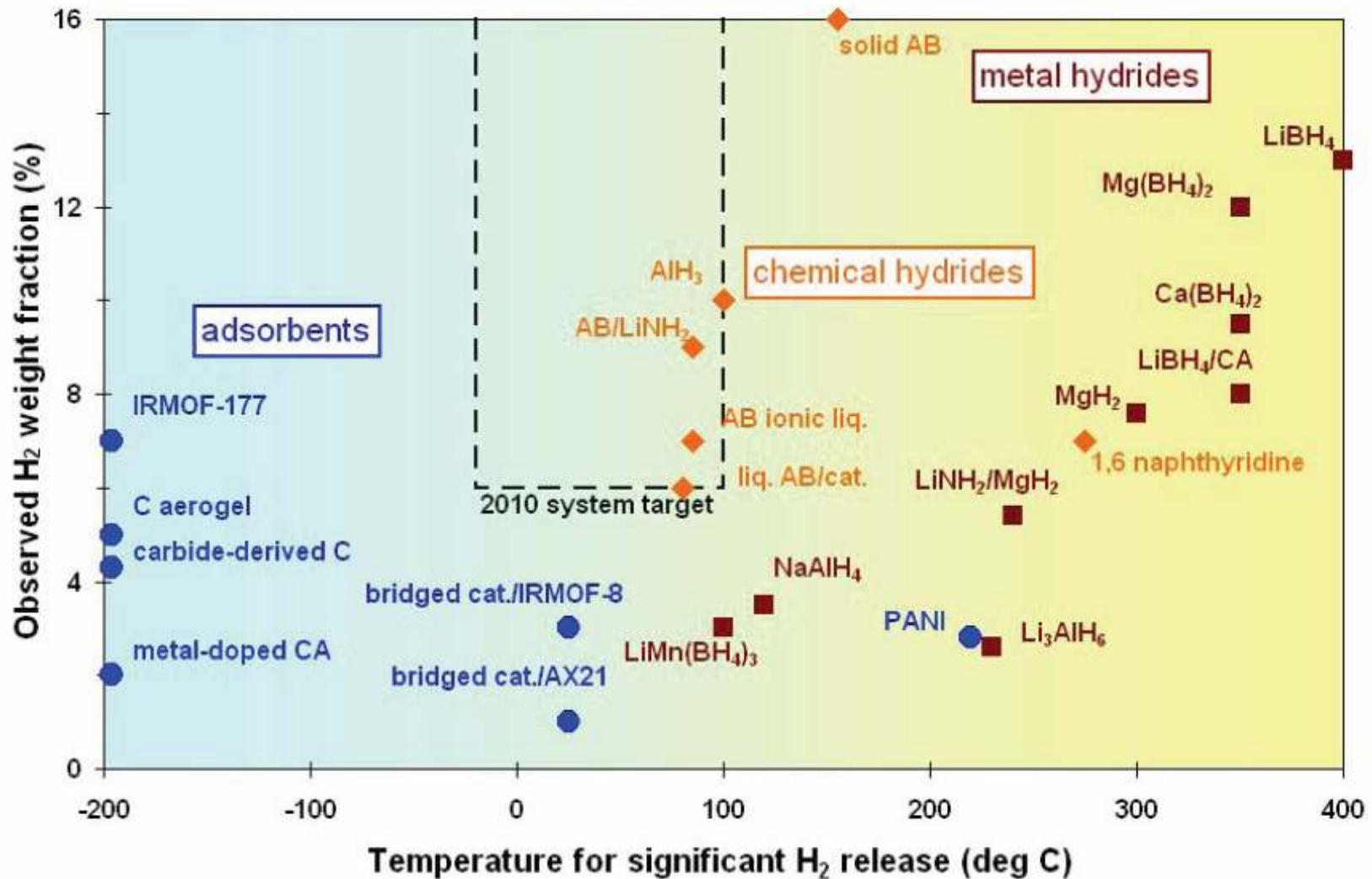
On the other hand, It sacrifices ....

- Luggage space

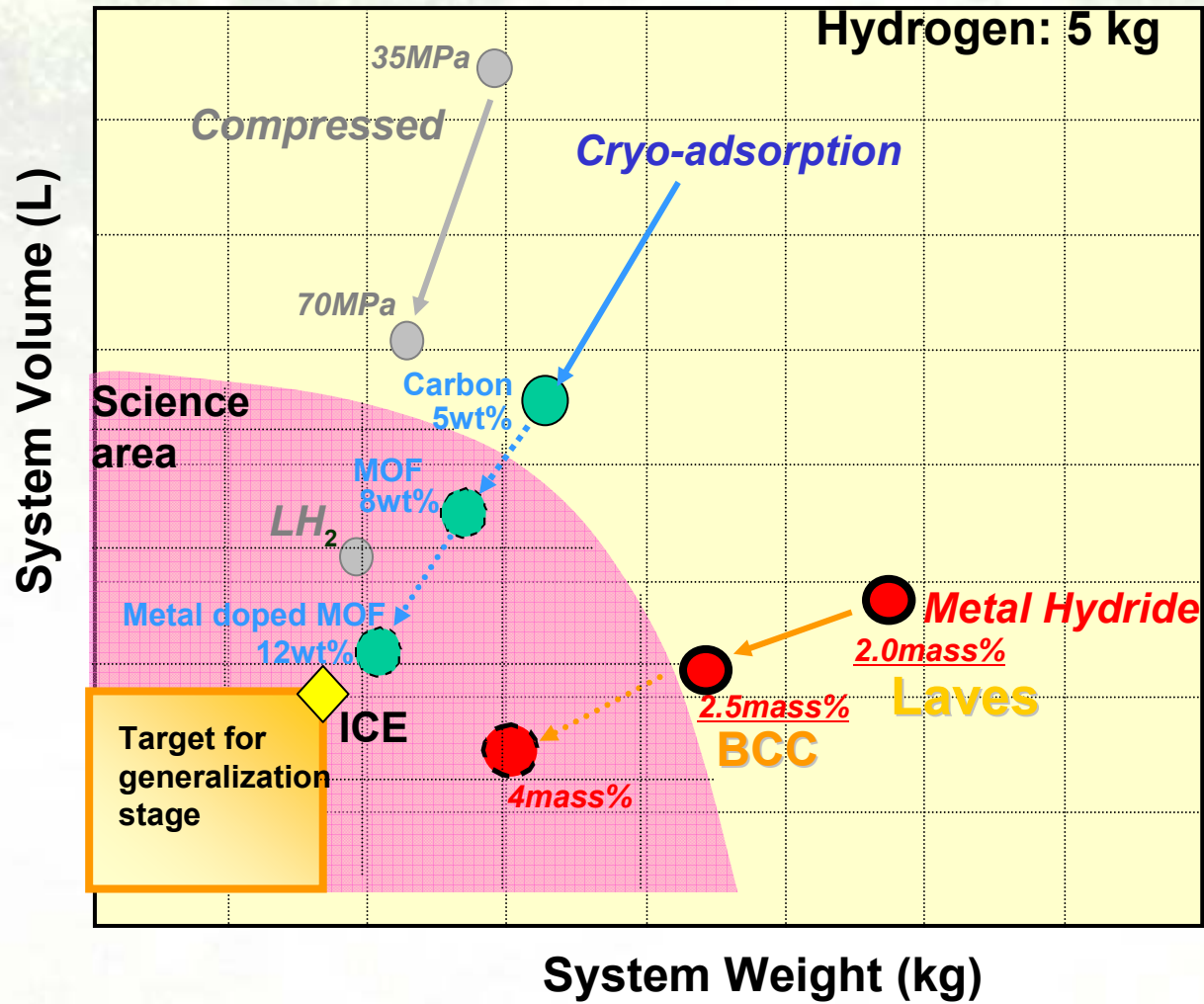
- Cost reduction

- Life-cycle efficiency

# Only few solid storage material can reach the system target



# Approaching the Target



## **Storage Selection priority**

- **Safety**
  - **Minimize hazard and control risk through lifetime**
- **Performance**
  - **Volume/ weight, Charge-Discharge, Efficiency**
- **Cost**
  - **Tank system cost, redundancy**
- **Infrastructure**
  - **Well to Tank, Charge-Discharge efficiency**
- **Scalability**
  - **Applicable to the large/small vehicle**

# Direction of Material-System Development

Pressure  
(MPa)

