

# Historical Perspectives, focusing on Regulation Review



Aki MARUTA

Technova

Japan

[maruta@technova.co.jp](mailto:maruta@technova.co.jp)

**Technova** | Inc.

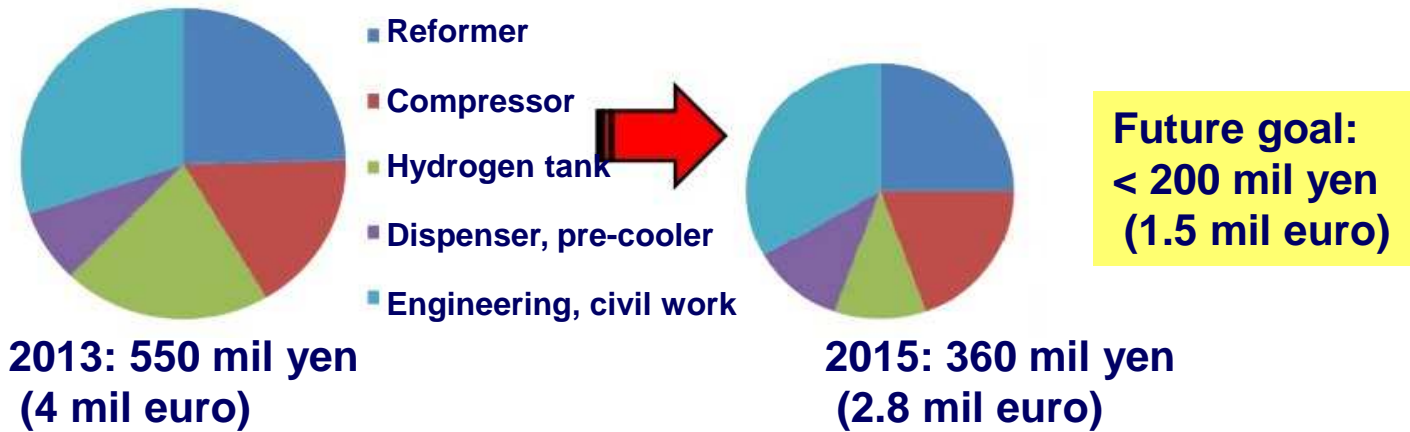
# Why We Need Regulation Review

**Technova | Inc.**

# Why We Need Regulation Review

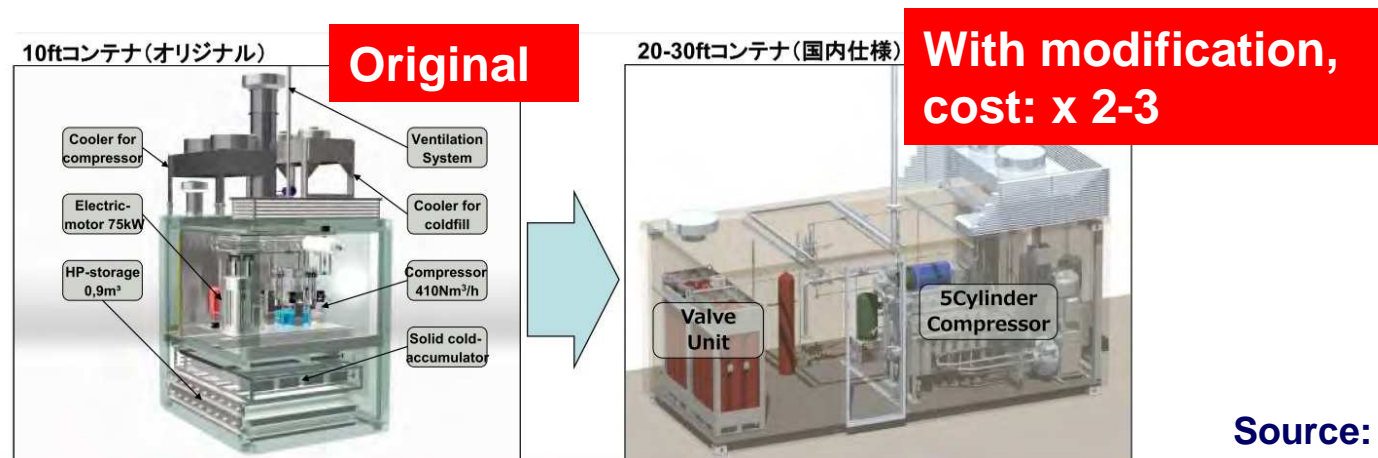
- Because of several regulations, our hydrogen refueling stations (HRS) are costly.

## Current HRS cost and target



Source: METI

## Even imported one becomes costly



Source: FCCJ



**PAST**

**Technova | Inc.**

# JHFC Project (~2011.3)

## □ Period

- 2002.4 – 2006.3: Phase 1
- 2006.4 – 2011.3: Phase 2

## □ Objective:

- To clarify the remaining issues under the actual use conditions
- **To collect data to develop regulations, codes, and standards**
- To formulate and implement public relations and education strategies for dissemination and promotion
- To verify the energy saving (fuel economy) and environmental impact
- To identify technology and policy trends

**JHFC defined the way to go.  
(identified regulation items for revision)**

**Identified the regulation issues (=barriers)**

見直し前(一例)	2005~2008年度	2009年度~将来の姿
<ul style="list-style-type: none"> <li>・離隔距離</li> </ul>	<ul style="list-style-type: none"> <li>・離隔距離</li> <li>・併設可</li> <li>・準工業、商業、準住居地域可</li> <li>・貯蔵量 不足</li> </ul>	<ul style="list-style-type: none"> <li>・本検討の目標、課題</li> <li>・普及へ影響の大きい法規制面の課題の整理</li> <li>・見直しの道筋策定(誰が、いつまでに、何のデータ...)</li> </ul>
<ul style="list-style-type: none"> <li>・工業(専断)域での35MPaステーションの見直し前と同じ状況</li> <li>・70MPaステーションの事例</li> </ul>	<ul style="list-style-type: none"> <li>・70MPa化でさらなる貯蔵量の確保</li> <li>・配管の場合、日本は4倍、海外は3倍</li> <li>・70MPa化でさらなる貯蔵量の確保</li> <li>・内圧、圧力、大電流が確保できない</li> </ul>	<ul style="list-style-type: none"> <li>・適時・適地で安全で安価な水素を提供できる水素インフラ整備</li> <li>・前掲・安全性確保(充填作業)</li> <li>・蓄圧器の地下/屋上設置 コンパクト化 等</li> </ul>

**水素インフラに関する規制見直しの重点課題**

重点ランクの考え方	ランク	重点課題	法令
<ul style="list-style-type: none"> <li>・特A: 2015年までに見直しされなければ、普及に重大な支障がある項目</li> <li>・A: 2015年までに見直しされなければ、コスト高など商用ベースでの運用面で支障がある項目</li> <li>・B: 普及の過程で必須項目となる可能性がある項目</li> </ul>	70MPa法整備	保安距離の見直し	高圧ガス保安法
	特A	保安統括者の常駐義務見直し	高圧ガス保安法
		保安統括者の常駐義務見直し	高圧ガス保安法
	A	保安統括者の常駐義務見直し	消防法
		保安統括者の常駐義務見直し	建築基準法
	A	保安統括者の常駐義務見直し	高圧ガス保安法
		保安統括者の常駐義務見直し	高圧ガス保安法
	B	保安統括者の常駐義務見直し	高圧ガス保安法
		保安統括者の常駐義務見直し	高圧ガス保安法
	B	保安統括者の常駐義務見直し	高圧ガス保安法
保安統括者の常駐義務見直し		高圧ガス保安法	
B	保安統括者の常駐義務見直し	高圧ガス保安法	
	保安統括者の常駐義務見直し	高圧ガス保安法	

成果: 重点課題17項目がリストアップされた。関係者間の共通認識が図れ、具体的活動の始まるきっかけとなった

Source: FCCJ

Technova Inc.

## Government's Priority List & Roadmap (2010.12)

- Government (METI) released the priority list and roadmap for regulations to be reviewed.

Item	Law
1. Technical standard for 70 MPa HRS*	High Pressure Gas Act
2. Combined HRS* & CNG standard	
3. Safety inspection of high pressure H2 vessel	
4. H2 stockpile at HRS	Building Act
5. Design coefficient	High Pressure Gas Act
6. Metal material	
7. Maximum pressure for H2 transportation	
8. Pressure relief valve	
9. Engraving of CFRP vessel for FCV	
10. CFRP vessel for HRS	Fire Service Act
11. Combined HRS and petrol station	
12. Safe distance between H2 dispenser and road	High Pressure Gas Act
13. Refueling by driver	
14. Explosion-proof area around H2 dispenser	
15. Refueling on road for FCV out of H2	
16. Temporary higher pressure for 70MPa refueling	

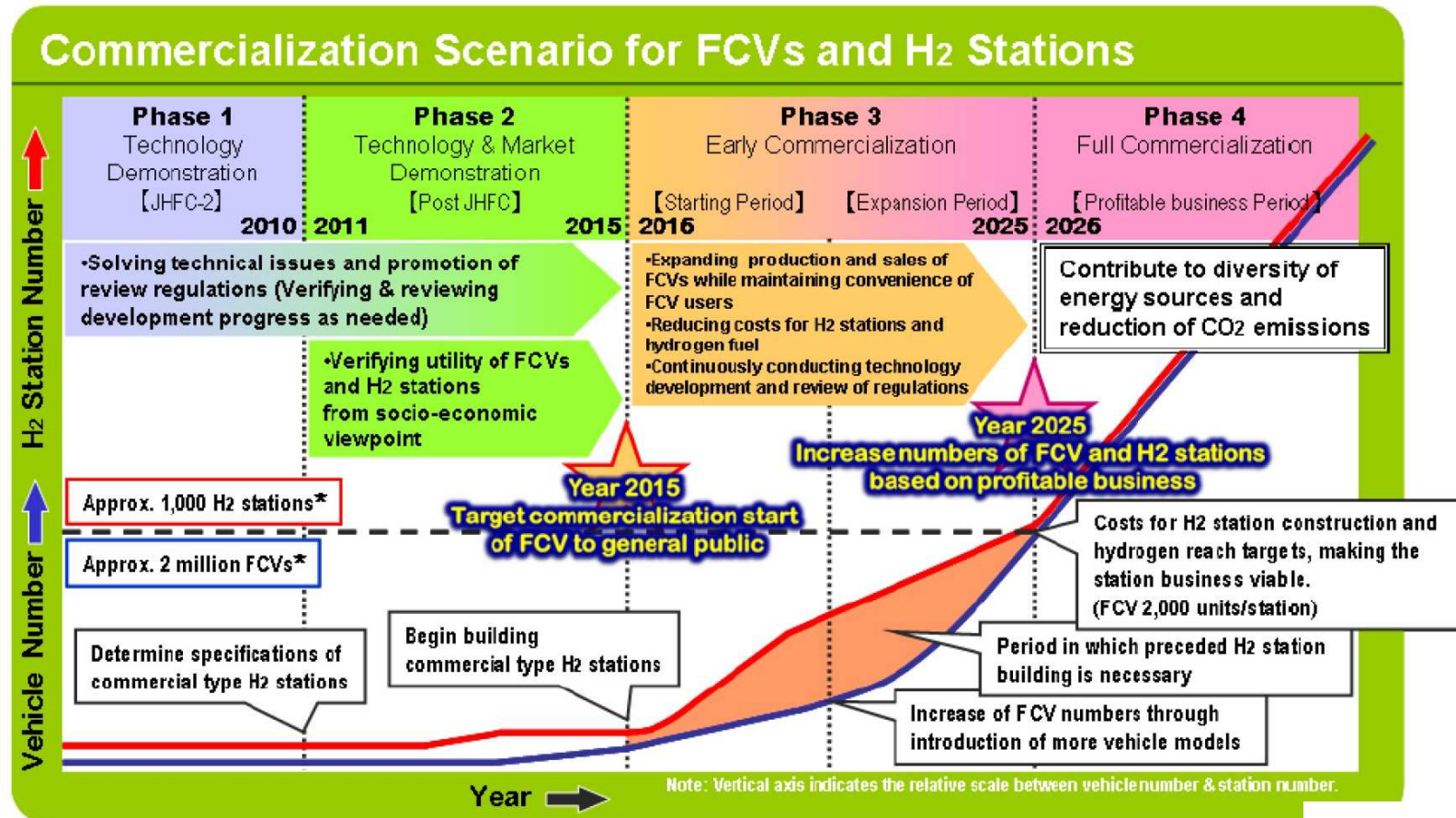
*HRS\*: Hydrogen Refueling Station*

11

Source: NEDO

**Now, it became official task.**

# FCCJ Commercialization Scenario (2010.3)



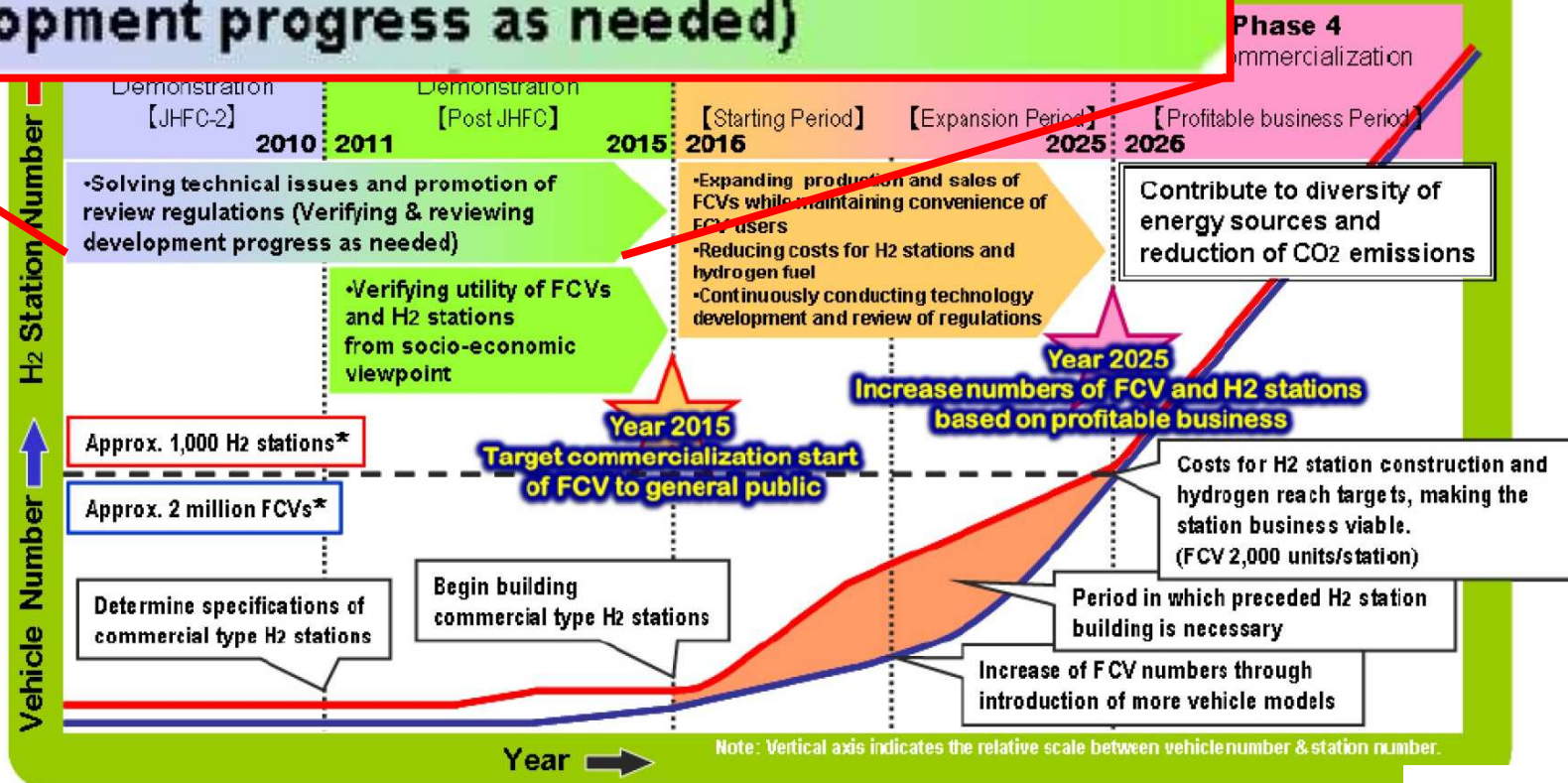
\* Precondition: Benefit for FCV users (price/convenience etc.) are secured, and FCVs are widely and smoothly deployed

Source : Fuel Cell Commercialization Conference of Japan (FCCJ)

Industry made the vision.

# FCCJ Commercialization Scenario (2010.3)

**-Solving technical issues and promotion of review regulations (Verifying & reviewing development progress as needed)**



\* Precondition: Benefit for FCV users (price/convenience etc.) are secured, and FCVs are widely and smoothly deployed

Source : Fuel Cell Commercialization Conference of Japan (FCCJ)

**Industry made the vision, based on regulation review**



# Industries' Joint Announcement (2011.1)

➤ Thirteen Japanese companies jointly announced the following related to mass-produced FCVs and a hydrogen infrastructure.

1. Automakers are aiming to launch FCVs in the Japanese market—mainly in the country's four major metropolitan areas in 2015.
2. Hydrogen fuel suppliers are aiming to construct approximately 100 hydrogen refueling stations (HRS) by 2015.
3. Automakers and hydrogen fuel suppliers will work together to expand the introduction of FCVs and develop a hydrogen supply network throughout Japan.



**With mentioning the importance of regulation review for HRS development**

Source: NEDO

Auto: Toyota, Nissan, Honda

Oil: JX, Idemitsu Kosan, Showa Shell, Cosmo

Gas: Iwatani Sangyo, Taiyo Nissan, Tokyo Gas, Osaka Gas, Toho Gas, Seibu Gas

**Industry made the commitment,  
with mentioning importance of regulation review**



Today



**Technova | Inc.**

## Top-level support (2013.5)

- PM clearly stated the need for regulation review for FCVs .



### PM Shinzo Abe (May 17, 2013)

I support companies which make challenges toward innovation.  
The keyword is “regulation review”.

One example is **FCV, which is an eco-friendly, innovative vehicle with no CO2 emission**. However, there are so many regulations over **hydrogen tanks and hydrogen stations**. (SNIP)

Too many discussions already. Time to go. Toward new innovations, Abe Cabinet will promote regulation review.

*(unofficial translation)*

**Top leader committed regulation review.**

# Japan Revitalisation Strategy (2013.5)

## Japan Revitalisation Strategy - Japan is Back (June 14, 2013)

**Support for introduction of hydrogen refueling stations and review of regulations relating to fuel cell vehicles and hydrogen infrastructure**

In preparation for the release of **fuel cell vehicles to market in 2015**, **review regulations** relating to fuel cell vehicles and hydrogen infrastructure, at the same time, through support for introduction of hydrogen refueling stations, the government aims to achieve **world's fastest dissemination of fuel cell vehicles**.

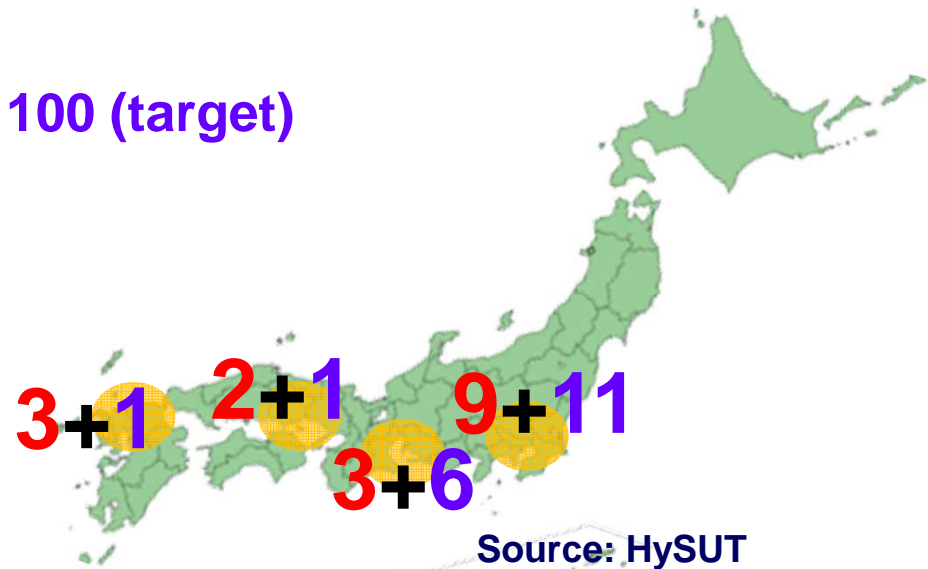
Source: Japan Revitalisation Strategy - Japan is Back (June 14, 2013)  
[http://www.kantei.go.jp/foreign/96\\_abe/documents/2013/1200485\\_7321.html](http://www.kantei.go.jp/foreign/96_abe/documents/2013/1200485_7321.html)

**Government's reconfirm the commitment on FCV commercialization and regulation review.**

# Hydrogen Stations: Toward 100

- By the end of FY2012
  - **Experimental HRS:** 17
- FY2013 budget for HRS subsidy: 4.6 bil yen (=35 mil Euro)
  - **Commercial HRS:** 19 (New installations)
- FY2014 and FY2015
  - **Commercial HRS:** more stations coming
- By 2015 (Target)
  - **Commercial HRS** ca. 100 (target)

- Subsidy ratio: 50%
- Average subsidy awarded:  
35 mil Euro / 19 = 1.8 mil Euro
- Average station cost today:  
3.6 mil Euro



Long way to go, but making progress...

## Conclusion

- ❑ Regulation review is important part of FCV commercialization.
- ❑ If all necessary regulation reviews are processed and finished, HRS cost may be >200 mil yen (currently 550 mil yen).
- ❑ Top leader committed the review, and it is now included in national strategy.
- ❑ Now, work!