

Norwegian Hydrogen Conference - 2019

Switzerland goes ahead - 1,000 hydrogen trucks on the road by 2023

Rolf Huber, Chairman, H₂ Energy Group

Radisson Blu Plaza Hotel, Oslo, May 27th, 2019

Observations from Switzerland with relevance for Norway

Main goal:

fighting climate
warming and
reducing harmful
emissions



Why hydrogen trucks?

Why Switzerland?

Why Hyundai?

Why does it work?

Why hydrogen trucks?



- Optimal **cost/benefit ratio** to reduce CO2
- Expansion vehicles to establish private funded hydrogen fueling station network and therefore to **break-up chicken-egg dilemma**

Trucks and buses emitting more CO₂ than cars

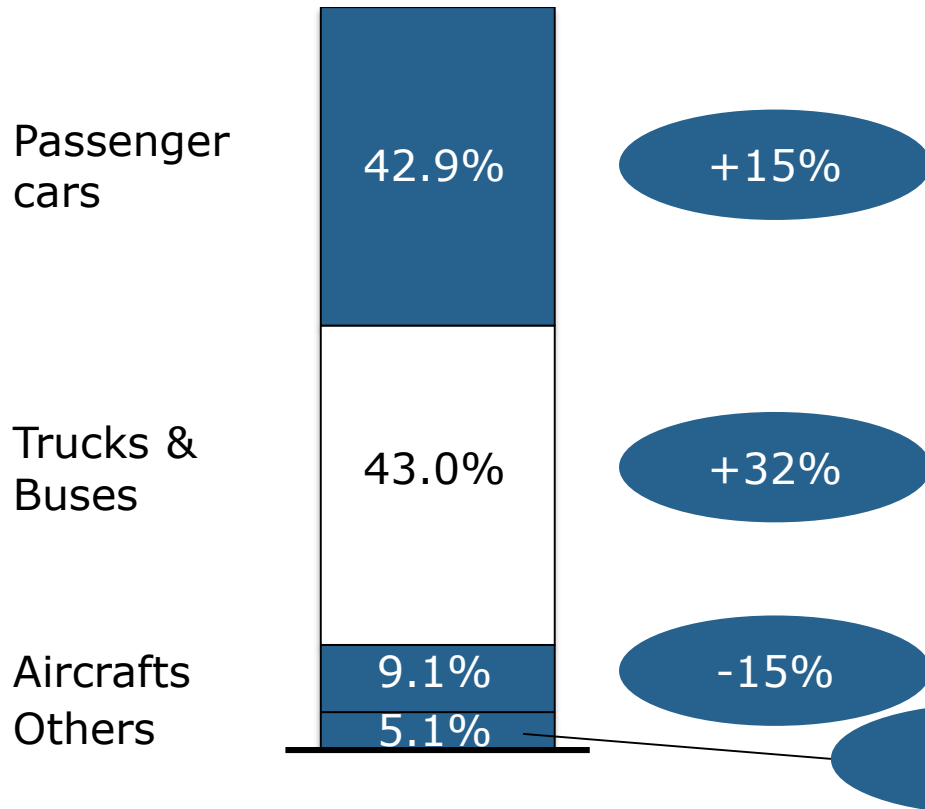
Example USA



US split of CO₂ emission by transportation category, In MtCO₂

Diff. 1990 vs. today

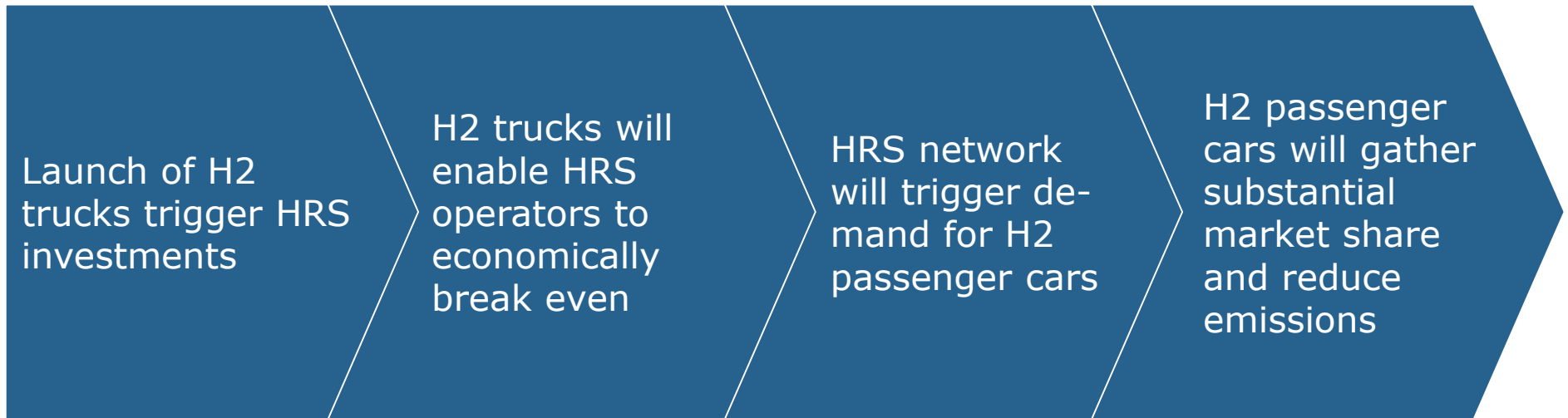
100% = 1'769 MtCO₂



Best cost/benefit ratio for decarbonized trucks and busses



Pathway to privately funded hydrogen refueling network



Why Switzerland?



- Association pro **H2 mobility Switzerland** – not a lighthouse initiative, not a cluster, not a region but an entire nation
- Private, pragmatic industrial **entrepreneurs** investing in infrastructure with conviction and taking responsibility and risks
- **No subsidies** but accountable incentives
- **Country specific** reasons
- Optimal **pilot country** to establish roll-out to all European countries

Association pro H2 mobility Switzerland – not just another hydrogen platform



Why Hyundai Motor Company?



**Automotive companies
with worldwide fuel cell
technology leadership**

Yes



No

51 brands controlled by
11 car companies

> 10 companies

No

Yes

Commercial vehicle, HD truck, bus manufacturer

Not only strategic positioning but, ...



Mindset:

- Cultural Korean background
- Dedicated to take social responsibility: 'let's save the planet'-mentality
- Reliability, honesty and trust
- 'Implement-learn-improve' approach
- Understanding the potential of hydrogen

and potential:

- Financial capabilities
- Degree of integration
- International positioning

Why does it work?

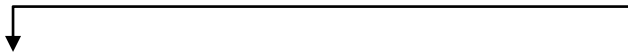


- People sharing same vision, mutual trust and taking risks
- No politicians involved (so far): not waiting for funds, technological 'advice' or any other distractions
- Organizational company construct and working model with large scale capabilities (HydroSpider, HRS, HHM, etc.)
- 'Green hydrogen' only (from renewable sources only)
- Understanding the customers and applying pay-per-use model
- Accepting a potentially 'bumpy road' ahead but sticking to the plan

Working model for European expansion



- Market feedback and customer specifications
- Truck financing
- Technical information relevant to truck engineering (up-fit)



- Exclusive deliveries of trucks to European countries
- Warranties etc.
- Deliveries of maintenance and after-sales parts via Mobis

Elements to be secured in every country

- 'Green' Hydrogen Supply
- Hydrogen Refueling stations
- After sales Management
- Homologation and licensing
- Customer interface
 - Truck sales activities, incl. contract management and sales offering (pay-per-use)
 - Technical customer services



Thank you for your
attention

www.h2energy.ch

