



ISO/TC 197  
Hydrogen technologies

Email of secretary: [jim.ferrero@bnq.qc.ca](mailto:jim.ferrero@bnq.qc.ca)  
Secretariat: SCC (Canada)

**Snapshot on some French initiatives 2015**

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# COMMISSION NATIONALE « TECHNOLOGIES DE L'HYDROGENE »

**ISO/TC 197 PLENARY MEETING**

**SNAPSHOT ON SOME  
NATIONAL INITIATIVES**

**December 3rd & 4th 2015**

**afnor**

**NORMALISATION**

**French delegation**

# REAL LIVE SITUATIONS



## ● COP 21 HYDROGEN FUELING STATION

- ◆ To show that clean mobility thanks to H2 is a reality
- ◆ AIR LIQUIDE technology station at Pont de l'Alma in inner Paris
- ◆ Very first hydrogen fueling stations in Paris for a real live usage



- ◆ 5 taxis + 1 Paris City hall limo (Hyundai FC + Toyota Mirai)
- ◆ 16 cylinders of 50 L each / 700 bar
- ◆ 89,3 kg of H2 stored
- ◆ To be maintained after COP 21 (20 taxis by 2016)
- ◆ + 1 MCPHY station in Paris suburb (Paris City hall delivery & utility fleet)



# REAL LIVE SITUATIONS

- 2015: 2 new Refueling stations in warehouses for forklift trucks
  - ◆ Total of 4 H2 fueling stations in warehouses



# REAL LIVE SITUATIONS

- **DEVELOPMENT OF HYDROGEN INFRASTRUCTURE**
  - ◆ 20 H2 public fueling stations / 1000 vehicles in 2016



# REAL LIVE SITUATIONS



## ● RANGE EXTENDERS IMPLEMENTATIONS

- ◆ Instigated in the framework of the “H2 Mobility France” plan
- ◆ Symbio Fcell technology used in Renault Kangoo
- ◆ To be used by major logisticians and public services of some local authorities for captive fleets



- ◆ Roughly 100 vehicles in total
- ◆ Additional autonomy of 150 Kms

# REAL LIVE SITUATIONS



- **METAL HYDRIDE TANKS FOR CAR**

- ◆ **Mobypost project**
- ◆ **10 cars are tested by French postmen in 2 different postal centers from early 2015**
- ◆ **These small cars used hydride tanks**
- ◆ **Refilling at 10 bars by hydrogen produce by electrolyser on site and stored at 30 bar**





- **REVISION OF NF M58-003:2013 "INSTALLATION OF HYDROGEN RELATED SYSTEMS"**
  - ◆ Lack of applicable regulations at this time for H2 Energy installation
  - ◆ Hence a standard as a response to the local authorities when implementing demonstrators & HRS
  - ◆ 2 years now of valuable experiences in France
  - ◆ Relevant feedbacks for revision:
    - Consistency with TR/TS 19880-1 for HRS
    - Risk assessment & safety distances
    - Fueling of range-extender vehicles
    - Integrated HRS (# standalone)
    - Indoor refueling
  - ◆ Logical synergies for a mutual revision process



# REGULATORY ASPECTS



## ● DEVELOPMENT OF A DEDICATED ROAD MAP FOR A NEW REGULATORY FRAMEWORK FOR HYDROGEN AND FUELL CELLS

- ◆ Addressed by the sector stakeholders to the Direction Générale de la Prévention des Risques (from Ministère de l'Écologie, du Développement durable et de l'Énergie)
- ◆ 3 priorities:
  - Forklifts > Publication of a specific ministerial order
  - Fueling stations for captive fleets > On-going
  - Hydrogen production > On-going / Toward the update of national nomenclature ICPE (protection of environment classified installations) / Harmonization of the thresholds and associated authorization types applicable when handling hydrogen (no authorization when inferior to 100 kg, mandatory authorization from 100 kg to 1T)
- ◆ Further step:
  - Emissions > Context of an European directive on industrial emissions impacting ICPE nomenclature / Legal approach in order to have H2 installations uncovered since non-polluting