

## FERRMED MULTISECTORAL WORKING GROUPS – FMWG

The business oriented approach to the EU Railway Core Network development with Eurasian outlook

### **“ROLLING STOCK” MULTISECTORAL WORKING GROUP**

#### **DETAILED OBJECTIVES AND OPERATIONAL PROCEDURES**

##### **1. WORKING GROUP SUBJECT**

- a. Freight locomotives
  - i. Electric locomotives
  - ii. Diesel locomotives
  - iii. Hybrid locomotives
- b. Regional and Commuter trains:
  - i. Electric trains
  - ii. Diesel trains
  - iii. Hybrid trains
- c. All types of freight wagons.
- d. Special vehicles:
  - i. Shunters
  - ii. Assembly and infrastructure (except rails) maintenance and reparation vehicles.
- e. “Movable material”

##### **2. AREA OF ACTION**

- a. The European Union (particularly the “Core Network” developed by phases). We must contemplate the impact of the Euro-Asian area in the Trans European network.

##### **3. OBJECTIVES**

Certify the necessary actuations regarding the Rolling Stock to increase the share of the intermodal transport, through:

- a. Unifying the procedures of homologation within the EU, eliminating uncertainties
- b. Implementing of the FERRMED Standards related to Rolling Stock.
- c. Respect to the environmental measures, especially those relative to noise and vibrations.
- d. Reducing transportation costs.
- e. Improving the quality of the freight transport.
- f. Facilitating the digitalisation of the information.

- g. Stimulating the implementation of the design criteria (see a not exhaustive list in Annex 1) referred to in previous studies:
  - i. FERRMED, WAGON CONCEPT STUDY (FERRMED, Royal Institute of Technology of Stockholm, Institute of Technology Berlin), May 2010
  - ii. FERRMED, FREIGHT LOCOMOTIVE CONCEPT STUDY (FERRMED, Alstom, Faiveley, Vossloh, Colegio Oficial de Ingenieros Superiores Industriales de la Comunidad Valenciana, Enginyers Industrials de Catalunya, Applus, UPC)
  - iii. WHITE PAPER INNOVATIVE RAIL FREIGHT WAGON 2030 (TU Dresden, TU Berlin), September 2012
  - iv. UIC document on train features (specially length)
  - v. CER document on train features (specially length)
  - vi. Et altri.

#### **4. PRIORITIES**

- a. Freight trains length increasing.
- b. Locomotives with UIC gauge for the Mediterranean Corridor between Spain and France.
- c. FERRMED Freight wagon concept implementation. Emphasis on points in Annex 1, paragraphs 1 and 3.
- d. Need of a Substitution Plan (Scrappage Scheme) to construct new freight wagons or retrofitting of the current ones, looking for the compatibility between the newly-designed wagons and the current ones (especially at the coupling system).
- e. Reduction of the environmental impact of the rolling stock (particularly noise, vibration and GHG emissions).
- f. Implementation of the ERTMS system on current locomotives.
- g. Construction of wagons according to the adopted criteria, for testing.

#### **5. WORKING METHOD**

- a. Division of the group into two subgroups:
  - i. Locomotives, unit trains and special vehicles
  - ii. Wagons
- b. A Coordinator and a Secretary will be appointed for each Working Group. They will be also responsible for one of the two subgroups. A Coordinator and a Secretary will be appointed for the other subgroup, reporting to the former ones.
- c. Periodic meetings of every subgroup depending on its working plan.
- d. Studies, analysis, reports and proposals and the impulsion of its implementation in the rolling stock development and design.
- e. Scheme of the work to be performed
  - i. Formation of the subgroups from the members of FERRMED and of the Advisory Council.

1. Members of FERRMED and of the Advisory Council
  2. Rolling stock manufacturers
  3. Entities that carried out studies on the topic (Universities, railway associations, etc.)
  4. Other railway associations
  5. Users of the railway transport (loaders, logistic operators, etc. and/or their associations)
  6. Financial entities and potential investors
- ii. Methodology for achieving the Objectives
1. Current situation
  2. Priorities
  3. Present problems: listing
  4. Possible solutions
  5. Implementation of the possible solutions
  6. Alliances to fulfill the objectives
    - a. With Rolling Stock manufacturers and/or their associations
    - b. With associations with similar objectives related to Rolling Stock as FERRMED ones
    - c. Users of the railway transport (loaders, logistic operators, etc. and/or their associations)
    - d. With railway companies
    - e. With experts of renown
    - f. With financial entities and potential investors
    - g. Others
  7. Identification of interlocutors to discuss the studies and proposals
    - a. European Commission (DG MOVE)
    - b. Committee of Transports (TRAN) of the European Parliament
    - c. Coordinators of the Corridors and the technical advisors appointed by DG MOVE
    - d. ERA, European Railway Agency
    - e. UIC, International Union of Railways
    - f. UNIFE, The Association of the European Rail Industry
    - g. Financial entities and potential investors
    - h. People in charge of Transports at the public bodies (European, national and regional)
    - i. Media
    - j. Others
- iii. Spreading of the job done
1. FERRMED Newsletters and website

2. Conferences (specially Berlin INNOTRANS 2018)
3. Specialised media
4. Media and websites of the entities contacted according to paragraph 5.2.6.
5. Media and websites of the entities contacted according to paragraph 5.2.7.
6. Others

## **6. DATA COLLECTION**

- a. Key themes to be considered
  - i. Locomotives with UIC gauge for the Mediterranean Corridor between Spain and France:
    1. Today
    2. Needs for short term
  - ii. Rolling stock designs from previous studies to be applied:
    1. On locomotives
    2. On wagons
    3. Wagons designed according to the adopted criteria
      - a. Test made by SSB Cargo following the 5L initiative. Results
      - b. Compatibility between the newly-designed wagons and the current ones (especially at the coupling system)
  - iii. Substitution Plan
    1. Scrappage Scheme to construct new freight wagons
    2. Retrofitting of the current ones.
  - iv. Implementation of the ERTMS system on current locomotives:
    1. Today
    2. Short term
    3. Medium term
    4. Long term
  - v. Wagons designed by FGC
  - vi. Considerations about the movable material

## **7. EXTERNAL SOURCES**

- a. Information sources
  - i. List of identified sources
  - ii. Contacts under way

## **8. ACTION PLAN**

- a. Action plan (first approach)
  - i. Terms definition (Short, Medium and Large)
  - ii. Identify existing studies under way
  - iii. Specify possible additional studies to be developed
  - iv. Interchange experiences
  - v. Specify key interviews with main actors / stakeholders (shippers, ports, rail operators, logistic companies, etc)
  - vi. Identify/evaluate possible PPPs (public–private partnership)

- vii. Elaborate the corresponding Action Plan (including the development timing)
- viii. Allocate resources

## **9. FOLLOW UP**

### a. REGULAR MEETINGS TO BE ESTABLISHED

- i. Trans-European Corridors Coordinators
- ii. Infrastructure development Coordinator at member State level
- iii. Rail Freight Coordinators (RFC) managers
- iv. EC DG Move representatives
- v. EU Parliament Transport Committee (TRANS)
- vi. European Railway Agency
- vii. Other key Associations/Institutions
- viii. Rolling Stock Manufacturers

**ANNEX 1:** *Some of the design criteria from previous studies:*

1) *Locomotives and wagons*

- a) *Homologation procedures at a supranational level (European).*
- b) *Uniform maintenance protocols*
- c) *Automatic coupling*
  - i) *Mechanics*
  - ii) *Forces*
  - iii) *Data*
  - iv) *Electric Energy*
  - v) *Pneumatic*
- d) *Brake systems.*
- e) *Hardware connection among all the train units*
- f) *Innovative concepts for noise and vibration reduction*
- g) *Localisation of units (GPS/Galileo)*
- h) *Easiness of the intermodal operations*
- i) *Collision Avoidance System*
- j) *Others*

2) *Locomotives:*

- a) *Innovative concepts in traction*
- b) *Required starting tractive effort and hauling power*
- c) *Axle load*
- d) *ERTMS Installation (on new and current locomotives)*
- e) *Others*

3) *Wagons:*

- a) *Weight reduction (through new design and new materials)*
- b) *Maximum axle load*
- c) *Hardware installed on wagons (IT-equipment)*
  - i) *Locomotive connection*
  - ii) *Geolocation*
  - iii) *Doors status (closed/open)*
  - iv) *Cargo monitoring (temperature, air humidity)*
  - v) *Others*
- d) *Specific hardware for Predictive maintenance*
  - i) *Mileage register*
  - ii) *Shock monitoring*
  - iii) *Automatic Brake tests*
  - iv) *Bogies diagnosis*
  - v) *Others*
- e) *Variable gauge bogies*
- f) *Ability for being marshalled over a hump*
- g) *Configurable superstructure (Superstructures in different designs as an interface to the customer and part of the logistics supply chain)*
  - i) *Mechanics*
  - ii) *Electric*
    - (1) *Electric line from the locomotive through the whole train*
    - (2) *On board power generators*
  - iii) *Automated Load & Unload*
- h) *Others*