INTERNATIONAL UNION OF RAILWAYS

unity, solidarity, universality

October 2011

# 8th UIC World Congress on High Speed Rail
# Philadelphia, Pennsylvania, USA 10th - 13th July 2012

## *"HSR Connecting people, building sustainable prosperity"*

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## *Guidelines for a Students Competition*

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The 8th UIC High Speed Rail World Congress is scheduled to take place in July 2012 in Philadelphia, Pennsylvania, USA.

UIC wishes to foster student participation at this Congress. To this end, students will be offered the chance of selection to attend the event, via a competition.

Rules governing the competition and its organisation appear below, in English version only.

**Competition rules:**

1. Shall be considered a University for the purposes of this competition any establishment offering post A-level education.

2. Universities contacted by a UIC National Delegate or other Universities wishing to participate in this competition should instruct students to submit their entries (an essay or drawing) to the National Delegate.

3. Any student of the aforementioned universities may participate, provided proof can be given of their registered student status to the UIC National Delegate.

4. Participation to the competition is voluntary and can consist of either essays or artworks (drawings).

5. Essays and artworks submitted may only be the work of one or *maximum* two students.

6. The student may come from any discipline: engineering, economy, business, literature, sociology, medecine, sciences, arts, inter alia.

7. The paper or the drawing must indicate:
    - the country
    - the city
    - the University name
    - the student(s) name(s)
    - the student(s)' e-mail address
    - the level of the student (First year, second year, …)
    - the student's main course of study or major
    - the subject of the document (see point 9 of the present rules)

8. The student or pair of students, may only submit one entry.

9. The entry must refer to *only one* of the following subjects:
    - Subject 1: Building HSR new infrastructures in the United States
    - Subject 2: The Ideal HSR Station
    - Subject 3: Causes of commercial speed limitation

    These subjects are detailed in appendices 1,2 and 3 respectively.

10. Drawings must be accompanied by an explanatory caption of no more than 3 lines. The drawing may be in the form of a comic strip or be the representation of a vision for the future. The drawing must be submitted in POWERPOINT format occupying no more than one page.

11. Essays must be between 2 and 3 pages long, single space. They should be factual (a series of facts and consequences) or imaginative (about the future in terms of technology and changes in society). They must be submitted in WORD format using a minimum character size 12 Times New Roman font. They may be presented as a short story or in the form of a newspaper or scientific magazine article.

**12. The entry must be saved using the following title format**

***2012 UIC – High Speed Rail World Congress - Student competition - Subject (here: 1,2 or 3) – University name - Student name (& Student name for a team of two)***

**13. The entry must be sent to Ms Clara Zamorano, the National Delegate for Spain (e-mail address: czamorano@adif.es).**

14. **The entry may be submitted in Spanish, French or English though English is preferred.** Quality of English expression will not be taken into account in order to guarantee equality between all students .

15. The deadline is final. Any file sent in after 15 December, 2011 will not be considered.

16. Students participating in this competition authorise UIC to use all or part of their work during the Congress in the form of quotes or displays. UIC however pledges to cite the author(s) and the Universities they attend.

17. All participating students will receive a small reward. The 3 best students for each subject in each country will receive an extra reward. Rewards may differ between countries (a free return ticket to a destination chosen by the student in France) and will be accompanied by a letter from the National Delegate attesting of their participation (and possibly their ranking if in the top 3 of their country). The 3 best students worldwide for each subject will be invited, travel and accomodation expenses paid, to the Congress. Should UIC decide that the quality of entries is insufficient to have 3 worldwide winners, the number of invititations may be reduced.

18. Objections will not be accepted in relation to the grading of entries or selection. Grading will only be communicated to the best three entries in each subject. UIC has no obligation to justify its decisions.

19. Grading will be done in two stages:

    - National Level: the National Delegate will himself select the (maximum) 3 best documents per subject, and send them to the UIC Special International Jury
    - UIC Special International Jury then grades each document from 0 to 20; entries with the highest grade are ranked in first position and so on; in the case of two entries receiving the same grade, the jury will reach a final decision through a vote;
    - Grading will reflect the relevance of the entry with the subject and its originality.

20. Winners of the competition agree to attend the congress and possibly to participate in the Round Tables and other activities.

21. All students invited to the Congress agree to be involved in an international team coordinated by UIC during the Congress. They must attend the Congress sessions and comply with the programme they will be instructed with. Attendance is compulsory. These students will receive a letter of thanks (or a diploma) from UIC which will certify their active participation in the Congress.

22. **All participating students must sign these guidelines prior to submission of an entry. The following details must be clearly written on the last page as follows:**

    **Country : .....**
    **City : .....**
    **University name : .....**
    **Student(s) name(s) : .....**
    **Student(s)' e-mail address: .....**
    **Level of the student (First year, second year, …) : .....**
    **Student main course of study or major. :.....**

    **The guidelines, signed by the students, must be sent to the National Delegate by their University after official validation.**

# Appendix 1: Subject 1

## *Building High Speed rail (HSR) new infrastructures in the United States*

### 1. Background

Through several addresses to his country, President Obama has strongly advocated in favor of high speed rail.
His vision is that 80 percent of Americans should have access to some type of high speed trains within the next 25 years.
In February 2009, as part of the American Recovery and Reinvestment Act (ARRA), Congress allocated $8 billion to be granted to states for intercity rail projects, with "priority to projects that support development of intercity high-speed rail service"
11 corridors have been identified throughout the whole country from West to East and North to South.
In 2010, Congress allocated $2.5 billion in the FY budget particularly for the following corridors: California( $898 million), Florida ($800 million) and Chicago Hub ($428 million).
On March 2010, Amtrack announced it had created a dedicated department to pursue the development of high speed rail. The focus of the department is on the NorthEast corridor (Washington - New York – Boston).
On December 2010, the Transportation Secretary announced $1.2 billion in grants for Wisconsin and Ohio would be removed and redirected to other states.
On February 2011, Florida Governor indicated he rejected all federal funds to construct a high-speed railway project. Those funds were once again redistributed to other states.
In February 2011, Vice President Biden proposed investing $53 billion in improved passenger rail service over six years.

Meanwhile, the high speed rail network is rapidelly extending worldwide: it was 5,000 km long in 2000 and 12,000 km in 2010. It is expected to be between 25,000 and 30,000 km long in 2020. China has had a big hand in these figures and the rapidity of the creation of its network is worth being noticed. In Europe, the creation of nationwide high speed networks stretches over several decades. In France the first high speed line started revenue services in 1981, already 30 years ago. About 1/3 of the country's long term high speed master plan is completed. Even in Spain, where many stretches of high speed line have recently been commisioned, the first project was the Madrid - Sevilla route inaugurated in 1992, almost 20 years ago. Belgium stands as an exception since the totality of its high speed network is presently completed.

Japan, which pioneered high speed rail in the 60's, is still building new segments of high speed rail.

Moreover the extensions of the network which are now commisioned are generally very long term projects. In France, which is considered a fast country in terms of high speed rail network expansion, no project can take less than 15 years from start to completion. In the UK High Speed 2 line is planned only for ... 2029 (initial timing).

The recent evolution in the United States has to be considered having in mind the length of the planning period both in Europe and Japan: overcoming oppositions, deciding and funding a project generally takes much more time than constructing it.

Moreover the network extension is subject to the availability of the financial support of public bodies.

Europe, Japan and the United States are heavily in debt. The outlook may be grim with the debt crisis on both sides of the Atlantic Ocean (including the long term rating recently lowered of several countries). Any shortage of public money is liable to delay such infrastructure projects. Anywhere, developing a HSR network is a challenge for a nation and it calls for a very strong and steady political will.

## 2. Subject

***After a short review of who and what pioneered High Speed Rail (HSR), you will answer the question:***
***What are the primary obstacles to overcome to have new dedicated HSR new infrastructures built in the United States? Can the US afford not to invest in HSR?***

*The following issues may help dealing with the subject:*

*Why did Japan and France pioneer High Speed Rail (HSR)?*
*For further extensions of their network do these countries have the same motivations?*
*For other countries does HSR serve the same purposes?*
*How can you explain the fast HSR network deployment in Spain and China?*
*Historically did such motivations existed in the United States?*
*What main differences may explain the absence of dedicated HSR lines in the US: geography, demography, economic development, role of public authorities, strength of the competition on the transport market,industries and lobbies, way of life, state of mind, ...?*
*Could you list the similarities and particularities of the American context and draw from this analysis the best opportunities for the US?*
*Are there specific needs for the US, compared to other regions in the world?*
*What are the best foreign practices that could by translated to the US?*
*Why previous project, such as Texas and Florida, failed?*
*What obstacles President Obama's impulse is expected to overcome?*
*Do you think that building several HSR corridors at once is too ambitious a program? Would it be better to focus on just one project and expect its success incite future HSR networks?*

## 3. Modalities of participation

There are 3 ways to deal with the subject:

***1 – writing an essay dealing with these issues***
***2 – preparing a speech for the next elected President of the United States***
***3 – imagining a short novel about people riding new HSR trains in the US***

# Appendix 2: Subject 2

## *The ideal High Speed Rail (HSR) station*

### 1. Background

The creation of high speed lines has proved to be efficient for increasing the rail market share partly by diverting customers from the other transport modes and partly by increasing people's mobility. However, the high speed travellers have no direct perception of the speed:
- on board high speed trains they may just "feel" the speed if ever they can make a difference with other trains,
- and in stations high speed trains are still.
They know of speed the shape of the train and its time table. These are the main salient features that can be percieved at once about high speed rail.

So the question is whether there is a need or not to build new stations or adapt existing ones when a high speed line is operated.

### 2. Subject

***Describe an ideal rail station and try to identify the particularities higher speeds are expected to bring to stations.***

*The following issues may help dealing with the subject:*

*From the passenger's viewpoint, is a high speed train just a train running faster than a conventional train?*
*What does this change as regards stations?*
*When a high speed train serves a station, as any other train, it stops and stays along the platform: so what specific requirements are entailed for stations greeting high speed trains?*
*Can high speed trains be successful without remodelling existing stations?*
*Would you recommend the creation of new stations?*
*What do you expect of a station when you are getting on or off a high speed train in terms of services?*
*Is a rail station similar to an airport?*
*Do high speed trains change the door-to-door trip for the passenger?*
*What may be the respective viewpoints about stations of a customer, a train operator, an infrastructure mananger and a city planner?*

### 3. Modalities of participation

There are 3 ways for dealing with the subject:

***1 - writing an essay on the subject***
***2 – Imagining a short story about customers boarding or getting off a high speed train in a station in the United States***
***3 – drawing an ideal high speed rail station.***

# Appendix 3: Subject 3

## *Causes of commercial speed limitation*

### 1. Background

Rail world speed records are numerous.

France broke the last world speed record in April 2007 with a special test trainset at 574.8 km/h.

China broke the last world speed record in December 2010 with a regular trainset at 481.1 km/h.

However the commercial speed on regular trains is presently limited to 320 km/h in France and 350 km/h in China.

Several reasons explain the gap between world speed records and commercial speeds: the ability to maintain any industrial safe and reliable process, the cost of operating at highest speeds, the commercial relevance of speed, ...

Nevertheless the commercial speed is increasing over a long period:

- 160 km/h up to 1961
- 210 km/h up to 1979
- 270 km/h up to 1989
- 300 km/h up to 2007
- 320 km/h and 350 km/h from 2007.

This steady increase leads us to believe that there are underlying technical progresses and evolutions in the market.

### 2. Subject

***What is the major cause of the commercial speed limitation: safety, noise pollution, stability on the track, energy consumption, cost of operations and maintenance, investment costs, market needs, or something else? Can you imagine the means to overcome them? Do you think that solving such constraints will push for the introduction of a breakthrough in the train technology?***

*The following considerations may help dealing with the subject:*

*The speed limitation may be a combination of several causes.*
*Most technologies are steadily improved upon to a given performance level. Beyond this threshold, any marginal improvement is so difficult and costly to obtain that it is better to*

*abandon the technology and promote a new one. Steam trains had reached a level close to perfection and this was the cause of their demise: it was becoming much more easy to reach better technical and economical performances with diesel or electric powered trains.*
*Moreover there is a competition between transport modes. Aircraft are constantly improved. Low fare air companies have proved their ability to accomodate higher energy costs. The automobile sector is not lagging behind and is very innovative.*
*In addition, any progress in one of the transport modes raise the customers'expectation for the other transport modes. Rail passengers are therefore more and more demanding particularly in terms of comfort, information, customization of their trip, ...*

## 3. Modalities for participation

Ther are 2 ways of dealing with the subject:

***1 – writing an essay on the subject***
***2 – Imagining a short story about high speed trains and lines in the United States in the middle of this century (2050).***