



### Issue 3 - January 2012

Joint EU - Japan - US task force on the development of a standard methodology for impact assessment of ITS measures on energy consumption and CO<sub>2</sub> emissions

# newsletter

## Editorial

Policy makers in Europe, Japan and the US share the conviction that the application of information and communication technology (ICT) to the field of road transport, commonly referred to as intelligent transport systems (ITS), can make a significant contribution to improving energy efficiency and reducing CO<sub>2</sub> emissions from the sector.

As the development of so-called 'green ITS' applications and services happens, common understanding of their impact and effect is necessary. This is what ECOSTAND covers together with its Japanese and American counterparts.

Different assessment methodologies and models are used in different regions of the world, which renders the comparison of results difficult and hampers decision making. A standard international assessment methodology would ensure that knowledge on the impacts of ITS is acquired using a rigorous, systematic approach, validated on a global scale.

Sharing information and having detailed discussions has proven to be a very effective way of increasing understanding between the parties present and interest is rising, as shown by the number of participants at the different events organised.

The next step is to actually develop the framework in which these assessment methodologies will fit, starting with the joint technical report that will be written in the coming year. The aim is to present the first results of this report during the ITS World Congress in Vienna in October 2012.

Both the AMITRAN and the ICT-Emissions European projects are closely related to the work of ECOSTAND and will continue their work based on this joint technical report in order to fulfil their goals focusing on a global and harmonised assessment methodology.

To further strengthen the collaboration with its US counterparts as a part of the EU-US memorandum of cooperation, Martijn de Kievit, Coordinator of the ECOSTAND project, took over the chairmanship of the EU-US Sustainability Applications working group. The next step is to set the working agenda for this group and identify chances and possibilities where collaboration can be further strengthened. The ITS World Congress in Vienna will be another excellent opportunity to show commonalities between the three regions and will be used to express common interests between the regions.



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In this issue:

... Editorial

... The project *raison d'être*

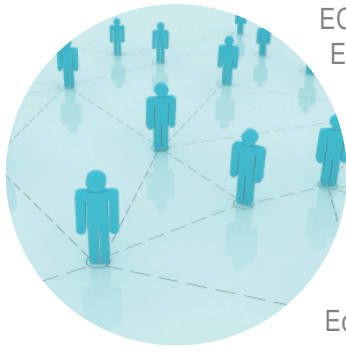
... Report from the 2<sup>nd</sup> symposium

... 3<sup>rd</sup> symposium announcement

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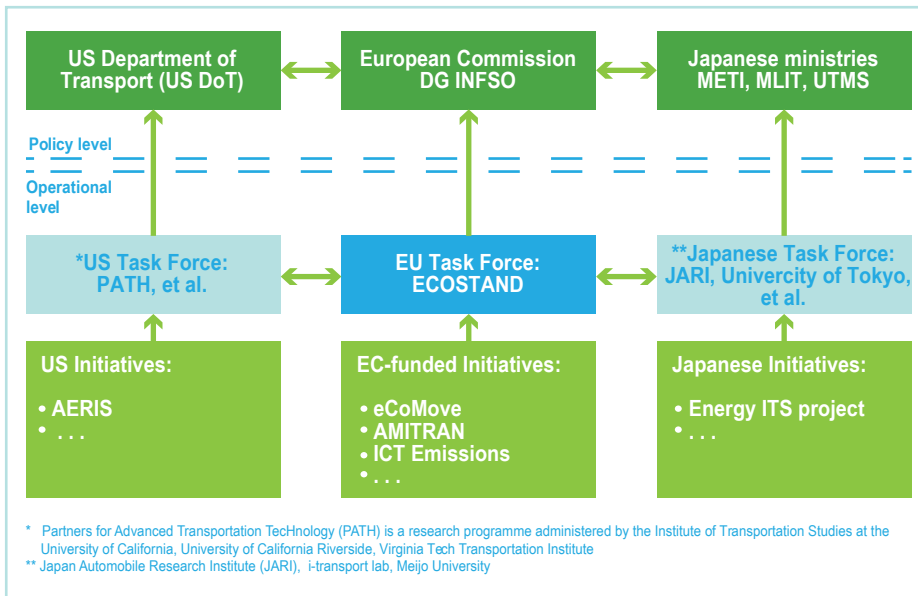
## The project



ECOSTAND was established to support cooperation between the European Union (EU), Japan and the United States (US), in working towards a common assessment methodology for determining the impacts of Intelligent Transport Systems on energy efficiency and CO<sub>2</sub> emissions standardisation.

The project serves as a platform for the continuation and expansion of the EU-US collaboration, and effectively replaces the European Commission (EC)-METI (Japanese Ministry of Economy, Trade and Industry) Task Force<sup>1</sup>.

This support will involve the formulation of (i) policy advice, in the form of a roadmap and (ii) a joint research agenda to identify gaps in the understanding and to propose solutions to enable the methodology to be developed.



The EC-METI Task Force identified six different themes or 'sub-topics' on which the project will progress during symposia, which will ensure the cooperation of key experts and serve as a forum for exchanging information.

Sub-topic	Description	Main aim
1	ITS applications	Agreement on the main categories and types of ITS applications which the methodology needs to be able to assess
2	Traffic simulation	Identify traffic modelling approaches enabling CO <sub>2</sub> emissions estimation for - baseline conditions - various ITS implementation scenarios
3	Emission modelling	Identify key requirements of CO <sub>2</sub> emission models required to calculate ITS impacts
4	Monitoring using probe vehicles	Agreement on the contribution of probe data to 'real-time' CO <sub>2</sub> monitoring
5	Validation methodology	Common validation framework for both traffic simulation and CO <sub>2</sub> emission models
6	International traffic database	Access to data required for estimating the impacts of ITS applications on CO <sub>2</sub> emissions, for validating models, and to enhance current international traffic databases

<sup>1</sup> In March 2008, a Cooperation Agreement was signed between the EC Information Society and Media Directorate-General (DG INFSO) and METI, followed by a similar agreement between the EC and the Research and Innovative Technology Administration (RITA) of the US Department of Transport (DoT) to promote a periodic dialogue as well as collaborative research in January 2009.

The first in a series of ECOSTAND symposia took place during the IEEE Forum on Integrated and Sustainable Transportation Systems (FISTS) in Vienna, Austria, on 30 June – 1 July 2011.

It was agreed that a common nomenclature is needed for ITS applications as well as a common description of each application and the mechanisms by which CO<sub>2</sub> emissions are likely to be affected. A methodology was proposed for providing detailed descriptions of three applications (eco-driving, eco-routing and eco-traffic management) from European and Japanese perspectives.

The development of a framework was started to determine which types of model are best suited to which ITS applications. A mesoscopic modelling approach was described in detail by the Japanese participants.

Another important aspect for a common understanding is validation. The Japanese participants proposed that researchers in Europe and the US should run tests with their own models using existing data from studies in Tokyo. It was also proposed that European and American researchers could provide equivalent information to be tested by the Japanese in order to demonstrate the international validity of the models.

The third ECOSTAND symposium will take place at the Transportation Research Board (TRB) in Washington, USA, on 24 and 25 January 2012, where progress will be reviewed and next steps identified, including integration of common work developed in Japan, the US and Europe.

The first day will focus on the Reference models of the categorisation of ITS applications which in turn will be input for the modelling tools that will be used.

Another important topic of discussion will be the validation and verification of methodologies that will be presented to allow for further understanding and collaboration.

Lastly, results will be shared using similar datasets and similar models to get into the modelling discussion more practically and see if exchanging data delivers interesting results.

All of this work will go into the joint technical report which will see a first draft halfway through 2012.

*To stay informed about the schedule of upcoming symposia, visit our website [www.ecostand-project.eu](http://www.ecostand-project.eu) and sign up to the ECOSTAND interest group.*

## Second ECOSTAND Symposium

The appointed European, Japanese and American experts on the sub-topics identified by the EC-METI Task Force met at the second ECOSTAND symposium, which took place during the ITS World Congress in Orlando, USA, on 20 October 2011.

The symposium involved detailed presentations on the sub-topics and dealt with the common technical report that will be written. The first index of this report was presented and further collaboration is foreseen. It was also noted that just a morning meeting was too short to discuss all aspects that are part of the common assessment framework. Therefore it was decided to organise another two-day working meeting during TRB in January 2012 in Washington, USA.

More specifically, it was decided to try and reach a common understanding about the reference models for each application category. Example applications as presented in Orlando can be very useful in order to create proper discussion on the reference models presented. The importance of the reference applications was stressed again, as it is where common understanding starts.

A more detailed discussion was done in two sub-groups focussing on traffic simulation including validation and verification and another on emission modelling. In the first group, the main discussion focused on the difficulty of scaling up but also where the impacts of ITS applications can be found and what kind of traffic models can be used to show these impacts. As a suggestion a cross-validation study was proposed to be able to compare both the micro and the mesoscopic approach and allow for further comparison.

In the emission modelling discussion, the driving dynamics for the different ITS application categories were discussed during the workshop, the European point of view was identified for all categories. The American point of view was then collected. Based on all points of view, the discussion will be continued at the next meeting.



## Related Global initiatives



The **Energy ITS project** (short for “Development of Energy-saving ITS Technology” project) has been established by NEDO (New Energy and technology Development Organization) in Japan in 2008 in order to establish an international standardised assessment methodology for measuring the effects of ITS. The aim of this five-year project, sponsored by the Japanese Ministry of Economy, Trade, and Industry (METI), is to:

- produce a CO<sub>2</sub> emissions evaluation tool (i.e. a methodology)
- reach agreements with researchers in Europe (and possibly also in US) on the key issues, e.g. vehicle classification and on elements of tools which could be useful elsewhere

The project, which aims at energy savings and CO<sub>2</sub> emission reduction in road traffic, includes R&D of automated heavy truck platooning. In the summer of 2010, three automated trucks drove at 80km/h with a gap of 15 m, and at 80km/h with a gap of 4m by February of 2013, which will save energy and reduce CO<sub>2</sub> emissions by 15%.

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This section presents an overview of related European and global initiatives which address the evaluation of the effects of ICT measures in traffic and transport on energy efficiency and CO<sub>2</sub> emissions.

As such, they are relevant to the work of ECOSTAND as potential contributors to the Symposia and valuable sources of information.

Many other projects are considered and were included in the ECOSTAND “Inception report and state-of-the-art review” (deliverable 2.1), downloadable from our website

[www.ecostand-project.eu](http://www.ecostand-project.eu)



## AERIS

With the goal to improve air quality through the use of “smarter” transport, the AERIS (Applications for the Environment: Real-Time Information Synthesis) research program aims to generate and acquire environmentally-relevant real-time transportation data, and use that data to create actionable information that facilitates applications for the environment.

Employing a multi-modal approach, the AERIS program will work in partnership with the vehicle-to-vehicle (V2V) communications research effort to better define how connected vehicle data and applications might contribute to mitigating some of the negative environmental impacts of surface transportation.

From a governmental point of view, there is a need to make data available not only to allow travellers to make efficient but also “green” transportation choices. The basic research questions for this relate to data availability and how to use data to obtain useful information, connectivity aspects and the potential benefits that can be realised. To assist the development of useful applications to support travellers, 6 transformative concepts were developed.

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