



STEPS NEWS LETTER

(Issue 1 2005)

WELCOME - PG 1

CONSORTIUM - PG 1

WORKPACKAGES - PG 2-3

SEMINAR 2 - PG 3

WEBSITE - PG 3

CONTACTS - PG 4

SEMINAR 1 - PG 4

Welcome to the first newsletter of the STEPs project!

The overall aim of STEPs is to develop, compare and assess possible scenarios for the transport system and energy supply of the future.

The research that is underway supports both the overall FP6 programme objective of 'strengthening the scientific and technological bases of industry and promoting research activities in support of other EU policies' and the specific future needs of the transport energy sector. In doing this STEPs is taking into account effects such as:

- ◆ autonomy and security of energy supply,
- ◆ effects on the environment,
- ◆ economic, technical and industrial viability,
- ◆ transport & land use interaction.

STEPS has come to the end of its first phase, which means that it has reached conclusions relating to:

- ◆ assessing recent and ongoing developments and research into vehicle and fuel technologies and the related needs of energy supply chains;
- ◆ analysing national policies on transport and energy
- ◆ analysing case studies and new technology implementation projects;

- ◆ identifying relevant trends in transport and energy use and the relationship between the two.

These findings provide the basis for the remaining technical work within STEPs. Work has now started on defining the scenarios which will be used to provide the constraints for the subsequent modelling exercise. There was an initial discussion of how the scenarios might be formulated at the first STEPs seminar in November 2004 (see back page). The discussion suggested that although there are certain basic assumptions about how the scenarios might be developed, there is scope for some radical thinking which might help show the full range of possibilities of how transport and energy sector might interact and develop in the future. This work is still ongoing and will no doubt feature highly in the forthcoming Soundboard Forum meeting where our selected external experts will be given the chance to influence the direction of the project.

This newsletter summarises the current status of the project and invites you to contribute to the project, in particular by participating in the second STEPs seminar, which will be held on the 20th May 2005 in Krakow, Poland (see page 3 for further details).

STEPS (Scenarios for the Transport system and Energy supply and their Potential effectS) is a project being carried out as part of the European Union Sixth Framework Programme, under its 'Sustainable Surface Transport' priority. The work is being done by a consortium comprising 14 organisations with expertise and skills in scenario building, modelling and transport and energy research. The project is managed by Buck Consultants International. STEPs started in January 2004 and is due to be completed in the summer of 2006.



WORKPACKAGE 1 UPDATE

Workpackage 1 of STEPs has been investigating the state of the art in transport and energy supply has recently produced the first STEPs report: Deliverable 1. The aim of the report is to provide a thorough understanding of the economic, technological and political context within which the transportation sector operates. The report presents a review of the many system balances that exist between the driving forces in the sector, i.e. Fuel supply and demand, Technology supply and demand, Legislative and policy constraints and Market forces.

Fuel Supply and Demand

The report reviews the recent improvements in diesel technology and the associated increases in its share of the private vehicle conventional fuel market. It looks at a range of alternative fuels from natural gas which has been proposed in some parts as an interim solution and biofuels which have recently received EC policy backing to the longer term prospects of the hydrogen economy. All these alternatives have pros and cons:

- ◆ Conventional fuel sources are viewed as unsustainable from an environmental point of view. The demand for diesel has also increased to a point where European refineries need to reconfigure as they have traditionally been optimised to focus on petrol production.
- ◆ Natural gas offers a clean, quiet alternative for heavy duty vehicles, although it is still a fossil fuel, brings environmental drawbacks such as the risk of methane leakage, and a new set of energy security questions.
- ◆ Biodiesel has questions over cost and the impact extra demand would have on the agricultural sector, but with potential benefits to on climate change impacts.
- ◆ Electricity appears promising from the point of view of providing the potential of zero emissions at point of use, but is currently limited by the technology in which it can be applied and requires a full life-cycle analysis to provide a true estimation of its benefits depending on the generation source.
- ◆ Hydrogen is judged to provide a potential long term solution, but is still many years away from widespread implementation and still presents many unknowns in terms of which technology will emerge to exploit its production, which will in turn determine the true extent of its environmental impact.

Vehicle Technology Supply and Demand

Within the conventional vehicle market recent developments that resulted in improved engine and potentially vehicle fuel efficiency have been negated by market pressures to provide bigger more heavily equipped vehicles.

Not surprisingly future vehicle technology options are inextricably linked to the different fuel types and a combination of possible pathways for different primary energy sources for different powertrains is presented. Hybrid vehicles appear to present a promising interim

solution mixing electric drivetrains with combustion of conventional or alternative fuels.



application more quickly in the rail sector.

Increases in the use of pure electric vehicles are largely dependent on improvements in battery technology, whilst much development work still needs to be done in bringing fuel cells to the general market, although they are mentioned for possible

Legislative & Policy Constraints

Over recent years emissions legislation has been progressively tightened in the automotive sector with consequences for the technology used in car engines, and this has had a significant influence in driving the improvement in diesel engine technology already referred to. Recent commitments to reduce future average CO₂ emissions and investigations into how to include external costs in the analysis will broaden this focus and may encourage the move to alternative technologies (e.g. hybrids) and fuels (e.g. biofuels). Such shifts will be supported by actions such as the EC directive on the promotion of biofuels / renewable fuels in transport, irrespective of whether they are driven by environmental or energy security concerns.

Market Forces

Recognition is given to the fact that the free market is required to respond to all these various influences and that it can take time to adjust. Policy and legislative drivers tend to recognise this by allowing time for adjustments to be made, but other factors such as world events or consumer demand may be less forgiving. It is also noted that the introduction of new technologies into the transportation sector will require the integration of new suppliers and organisations into the existing framework which will take time to build strong relationships and understanding.

The need for decoupling between economic growth and the growth of the transport sector is introduced. The possibility for this will depend upon how the various options available will be combined in response to the scenarios modelled later in the project, and will be a key controlling factor and indicator of future transport system impacts.

Although much of this is focused at road transport, observations are made of the possibility for non-car transport modes to improve fuel consumption and emissions performance in relation to recent and expected changes in cal potential.



WORKPACKAGE 2 UPDATE

WP2 has been completed and its results have been reported in Deliverable 2. The synthesis of the results was based on a conceptual framework that considered the effects of the broader political socio-economic and technological environment on the use of energy by the freight and passenger transport system.

Given that there are different external elements affecting the energy use by the freight and passenger transport systems, the synthesis work was performed independently for the passenger and freight transport systems.

The ultimate objective of the synthesis work was to identify indicators measuring the use of energy in the transport sector along with their major determinants. The energy use indicators along with their determinants provide the basis for the development of energy use scenarios by the subsequent workpackages of the project.

The analysis has shown that in both freight transport and passenger travel the most important trends can be related to two major driving forces: technological progress and growing affluence. The unconstrained continuation of these trends is likely to lead to conflicts in at least the following three dimensions: global inequality, energy shortage, global climate change.

The development of scenarios regarding the assessment of future energy use in the freight transport sector should consider simultaneously the following trends and their determinants:

- ◆ A trend for increasing demand for freight transport services
- ◆ A trend for increasing fuel efficiency for freight transport vehicles
- ◆ A trend for increasing efficiency in the use of freight transport vehicles
- ◆ A trend for increasing intermodality which will lead to a different modal split

In parallel, the development of scenarios for assessing future passenger transport needs should consider simultaneously the following trends along with their determinants:

- ◆ A trend for increasing demand for passenger transport services
- ◆ A trend for increasing fuel efficiency of private automobiles
- ◆ A trend for more efficient use of automobiles
- ◆ A trend for introducing policies and concepts for more efficient travel demand management.

STEPs SEMINAR 2005

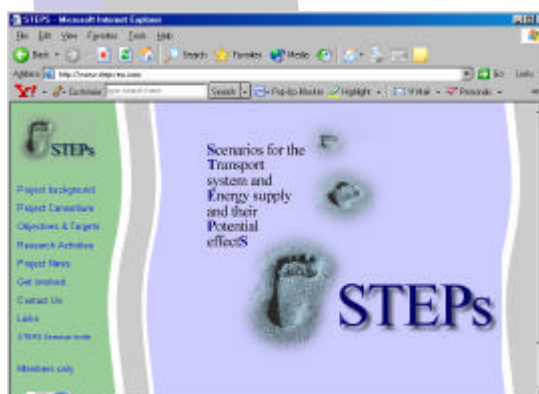
The STEP's-consortium is pleased to invite you to its **second seminar**, due to take place on the 20th May 2005 in Krakow, Poland. It will receive the results of WP 3, and initial proposals for WPs 4 and 5. It will assess critically the proposed scenarios from WP3 in light of the trends identified in WP 2. It will use the same methods as the previous meeting to stimulate discussion, but will be designed to encourage delegates, in groups, to check on the internal consistency between the outputs of WPs 2 and 3. It will then receive initial proposals for WPs 4 and 5, and provide advice on ways of ensuring that they meet the full range of objectives set for them. The results will be a key input to both WPs 4 and 5 and, through them, WP6; recommendations for dissemination will also be made.

If you would like to attend the second STEP's seminar please contact **Dr Ann Jopson** (e-mail: ajopson@its.leeds.ac.uk) or complete the on-line registration form which can be found on the STEP's website.

STEPs WEBSITE

STEP's has its own website which can be found at <http://www.STEPs-eu.com>.

On the website visitors can find information on the project, the consortium partners, the aims and objectives of the project and regular updates from each of the workpackages. The project partners also have access to a members only site where information can be discussed and passed between the consortium members.



The STEP's website can be found at <http://www.STEPs-eu.com>

STEPs SEMINAR 2004, BUDAPEST

The first open discussion meeting of the **STEPs** project was held in November 2004 in Budapest. The focus of the meeting was on transportation and energy supply trends and the state of the art at the beginning of the 21st Century and centred around presentations on ***the state of the art in transport and energy supply***, by Mr Carlos Marques from Portuguese consultancy TIS (Transport Innovations and Systems) and ***transportation trends, and energy implications*** by Mr Christos Tsanos of TRANSLOG, Athens University of Economics, and Business.

The meeting was attended by a range of professionals from across Europe, including new member states. Attendees, from both within and outside the STEP's consortium, represented a wide spectrum of the transport profession including academics, EU and government officials, the motor industry, and specialist organisations.



The discussion on the state of the art in transport and energy supply focused on the inclusion of well-to-wheel issues, especially emissions, and the priorities in terms of which modes should be considered in the project. Although the transport sector is currently dominated by road transport there was a widely held view that STEP's should give equal emphasis in modelling terms to all modes, given the range of mode choice outcomes that may be driven by energy supply in the future.

It is widely accepted that alternative sources of energy will need to be developed to achieve future sustainability, but the form of that new supply is hotly debated, and this was also the case at the meeting.

The uptake of alternative fuels was also a concern to participants, with projections suggesting that they will only account for 10% of the market by 2030, but that Global Warming and finite supply problems need resolving more urgently. The range of alternative fuels to be incorporated within the project was also considered important. Biofuels, reformer-based fuel cells, and electric vehicles were identified as options not to be overlooked when considering future options.

The discussion that followed the presentation of transportation trends, and energy implications was closely linked to the scenario building that will be conducted in the next stage of STEP's and which will define how the models will be used to assess future developments and needs. The issue for the audience centred on how the trends identified should be used in the scenario building and modelling, rather than the actual trends themselves. The discussion was centered around the proposed set of indicators to be used in the scenarios that will be developed in latter workpackages of the projects. Careful consideration will also be needed to ensure that the scenarios, the indicators that are eventually used and the modelling demands they will make, all fall within the capabilities of the models that will be used (whether that is within the capabilities of existing models or the limited scope available for model development as part of STEP's).

Having discussed the key concerns in future transport and energy supply developments, the discussion shifted to focus on the next stage of the STEP's project – development of future scenarios that will actually be used in the modelling. EU policy options need to be incorporated, especially trans-European networks. Policies that influence technology developments (e.g., Euro 5 emissions standards), and social and economic factors (e.g., internalisation of external costs) also need to be incorporated, since transport is influenced by, and has influence on, many other sectors. This would mean that STEP's would take a broad view of policy developments, going beyond the transport sector. Such an approach would also reflect the EU shift towards focusing on environmental, social, and economic sustainability. However, this focus on EU policy should not substitute consideration of national policies, as within the EU there is a diversity of national policies ranging from those very focused on sustainability, to those primarily concerned with economic growth.

Wider considerations will also be important. In particular, the actions of new member states were highlighted, particularly with regard to moves to meet noise and emission regulations. With regard to future social trends, travel time budgets were considered particularly relevant: for example, will travel time budgets increase to allow more time for travel, will travel for some journey purposes be reduced to allow increases in other areas, or will non-transport factors, such as increasing working hours, force changes in travel time budgets?

If you would like to find out more information about STEP's or be kept informed about future events please visit the website STEPs-eu.com

If you wish to contact the Project Co-ordinator, Buck Consultants International, please e-mail:

Sander Kooijman Sander.Kooijman@BCIGlobal.com (project co-ordinator)
Or **Ernst Voerman** Ernst.Voerman@BCIGlobal.com