



# Informed Analysis for Sustainable Transportation



The International  
Energy Agency's  
Mobility Modelling  
Partnership



INTERNATIONAL  
ENERGY  
AGENCY

## The International Energy Agency

The International Energy Agency (IEA) is an autonomous body which was established in 1974 within the framework of the Organisation for Economic Co-operation and Development (OECD) to implement an international energy programme. It carries out a comprehensive programme of energy co-operation among twenty-six of the OECD's thirty member countries. The basic aims of the IEA are:

- To maintain and improve systems for coping with oil supply disruptions.
- To promote rational energy policies in a global context through co-operative relations with non-member countries, industry and international organizations.
- To operate a permanent information system on the international oil market.
- To improve the world's energy supply and demand structure by developing alternative energy sources and increasing the efficiency of energy use.
- To assist in the integration of environmental and energy policies.

As such, IEA is uniquely placed to exert leadership in this area, by bringing together nations and disparate communities from the realms of science, policy, and technology to rise to the challenges of accelerating long-term energy innovation.

## Background

Enhanced personal mobility and higher standards of living go hand-in-hand. However, enhanced mobility comes at a price, leading to increases in pollution, greenhouse gas emissions, congestion, noise, as well as other unintended consequences. For this reason, sustainable mobility ranks high on the agenda as countries and regions across the world seek to increase mobility and to lessen transport's impact.

The International Energy Agency (IEA) and its Partners in the Mobility Modelling (MoMo) Effort believe that sustainable mobility can be achieved and active collaboration and sound analysis can contribute to this goal. Analysing all of the aspects of mobility can be a daunting challenge. Researchers and policymakers face a difficult task, due to missing or inaccurate data, the lack of a comprehensive tool to study the full range of transportation technologies and practices, and the lack of a forum where they can share ideas, analysis and research and ask and answer questions.

Since its inception in 2002, MoMo has helped to fill this gap. MoMo is the result of a partnership between six leading organisations and the IEA aimed at the improvement of the mobility analysis capabilities around the world. MoMo Partners include: IEA, BP, Shell, Toyota, Nissan, Norsk Hydro and Honda.



**TOYOTA**



**NISSAN**  
MOTOR COMPANY

**HONDA**



**HYDRO**

1

# 2

## Mobility 2030: Meeting the Challenges to Sustainability



The World Business Council for Sustainable Development (WBCSD)'s Sustainable Mobility Project turned to IEA in 2003 to help develop an analytical tool and scenarios to aid the group's mobility analysis. With WBCSD support, IEA improved significantly the existing transport sector sub-model of its Energy Technology Perspectives model and developed a spreadsheet model capable of projecting a range of mobility indicators. The model was designed to cover all motorised transport modes and all major world regions. WBCSD's Mobility 2030 Publication included several projections generated by the model.

Source: [www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=NjA5NA](http://www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=NjA5NA)

## Current and Planned Activities

The MoMo Partnership's current scope of activities includes continued development and refinement of the model, as well as meetings, workshops and publications designed to enhance collaboration and disseminate analysis.

Planned future developments include:

- Improving the Model's characterization of demand-side technologies for light-duty vehicles, including the contribution and potential of different technologies to improve fuel economy (e.g. advanced combustion, light and full hybrids, efficient on-board electrical appliances, tyres, lighter materials etc).
- Regional enlargement – improved data for the developing world and more detail in OECD regions.
- Data updates – including the latest 2005 data and extending the historical and technology-related data series.
- Including price elasticities for light-duty vehicles.
- Improving the detail of modelling for transportation modes other than light-duty vehicles, including stock models, data on costs, as well as increased information on air transport.

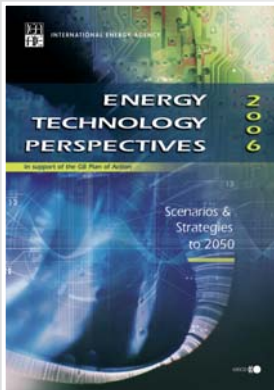
## MoMo Model: Analytical Capabilities

The MoMo spreadsheet model allows the development of scenarios exploring impacts of transportation on energy use, CO<sub>2</sub> and pollutant emissions, safety, and materials use.

Other key features of the model include:

- 11 world geographic regions (to be expanded).
- Extensive light-duty vehicle data extracted from many sources.
- Coverage of a comprehensive variety of fuel pathways.
- Coverage of the full range of transport modes.
- The extensive incorporation of individual technology impacts, after advice from Partners.
- Data on life-cycle impacts of material requirements for vehicles.
- Full life-cycle analysis for emissions from light duty vehicles.
- Analysis of a range of pollutant emissions and safety indicators.

## The MoMo Model's Contribution to the IEA's *Energy Technology Perspectives: Scenarios and Strategies to 2050* publication



The IEA broke new ground with the *Energy Technology Perspectives* (ETP) publication in June 2006. ETP provides a comprehensive and detailed analysis of the key energy technologies of the next 50 years, and includes a number of scenarios to demonstrate that a more sustainable energy future is within our reach.

For the ETP publication, the MoMo model was used to analyse scenarios of how to improve the sustainability of the transport sector. MoMo allowed the IEA to model in detail the impacts of individual technologies and how they might be diffused through the vehicle fleet over time. Contributions from the MoMo Partners' research and experience were vital in developing the key assumptions and model inputs. The MoMo model was integrated into the ETP MARKAL model for this analysis in order to dynamically model fuel supply, availability and costs and identify least-cost abatement options on the demand and supply sides, significantly enhancing the transport sector analysis.

The ETP is expected to become a regular biennial publication of the IEA.

## Join Us

The IEA is interested in continuing to develop the MoMo model and to enlarge the Partnership to foster interest and discussion on sustainable mobility. The IEA is seeking additional sponsors and collaborators from governmental institutions, the private sector and academic institutions who can bring useful insights to improve the modelling and enhance the MoMo Partnership. Consider joining us.

Partners benefit in the following ways:

- Participation in annual meetings.
- Access to the MoMo model and input into its evolution.
- Ability to provide input for IEA publications.
- Collaboration with a wide range of mobility stakeholders.
- Sharing the latest data and analytical techniques.
- Policy analysis opportunities, including:
  - “what if” analysis of changing trends in one or more variables.
  - linking policy trends with technology analysis.
  - full “back-casting”.

## For More Information

For more information about the MoMo effort, including how to join or technical modelling questions, contact:

### **MoMo participation**

Tom Kerr, email: [thomas.kerr@iea.org](mailto:thomas.kerr@iea.org)  
Tel. +33 1 40 57 67 84

### **MoMo modelling**

Pierpaolo Cazzola, email: [pierpaolo.cazzola@iea.org](mailto:pierpaolo.cazzola@iea.org)  
Tel. +33 1 40 57 67 89

4