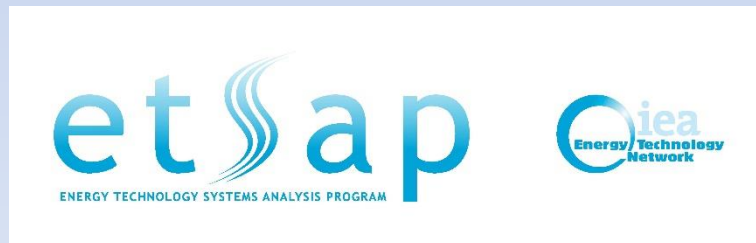


TIMES-GTAP soft-link methodology and interface



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Participating Partners: 5 ETSAP partners + 2 other participants

- UCC: B. Ó Gallachóir, J. Glynn, Kami-Delivand
- CRES: G. Giannakidis
- DTU/DEA: K. Karlsson, K. Anderssen, L. Brømsøe Termansen
- ENEA: M. Gaeta, C. Martini
- FEEM: F. Bosello, R. Parrado
- UCL: Paul Dodds, Matthew Winning
- E4SMA: M. Gargiulo

Time schedule: 1 year

Estimated costs

- **€86,900 = €58,900 ETSAP + €28,000 co-financing from UCC and CRES.**
- The amount sought from ETSAP (€ 58,900) comprises of which € 42,900 for personnel and €16,000 for travel, GTAP training and GTAP licenses. The estimated travelling costs include 3 or 4 meetings.

Project Description

- Develop and test a methodology for soft-linking a TIMES model with a GTAP-based CGE model.
- Global Trade Analysis Project is an initiative and a consortium of academic research centers lead by Purdue University (<https://www.gtap.agecon.purdue.edu>) which develops and periodically releases a database and the core structure of a computable general equilibrium model for the world economic systems. The soft-link exercise will use the free versions GTAP 7 (Narayanan et al. 2008):
 - GTAP 7 is calibrated in 2004.
 - Represents 113 countries/regions and 57 sectors.
 - The methodology developed will be general enough to be applied, with few adjustments, to the most recent GTAP database and model releases.

Outputs of the project

- **Identification of input and output** data exchanged between models.
- **Data harmonization** approach.
- Identification of the **critical variables** and assumptions involved.
- Excel **user friendly interface** development to support in linking the models and accordingly exchange data and provide results.
 - In this initial phases of the development, the interface will launch the soft linked process, manage the data exchange, store and display results.
 - Alternatives to Excel could be tested.
- **Four case studies** will be developed and analysed (Ireland, Denmark, Greece and Italy). *The project is also open to other partners who wish to join.*

Deliverables

- A **report** describing the methodology for soft-linking a TIMES model with the GTAP database.
- **Case studies** for four models.
- Simple **user interface** for linking the models.

If successful, Phase 2 will be proposed which could focus on generalizing the methodology to **soft-link the GTAP global database with the TIAM** model and/or **improving the soft-linking interface**, for example using VEDA Front End.

Other options could also be considered for Phase 2 based on the experience gained in the current proposal.

Expected benefits for ETSAP

- **Improve the tools** capabilities.
- Provide a soft-linked methodology for the **integration of energy systems modelling with the macro economy**.
- Provide the basis for using consistent economic drivers across all TIMES models based on GTAP projections.
- Starting point for the development of a **new network** and future collaborations between the **ETSAP and GTAP community**.
- By **formalizing the linking** of the two important tools the communities will be very strong in **competition** with other alternatives.

This project is relevant for:

- Annex XIV Objective (a) **“Tools Maintenance, Improving and Capacity Building”** by contributing to the ETSAP Tools and Methodologies development for the long term analysis of the energy, economy, and environment interactions.
- Annex XIV Objective (b) **“Research and Development”** according to which ETSAP will support research and development activities in improved modelling of the interactions between the energy system and the economy. More specifically it is listed in the Annex XIV work programme that **“The possibility to include economic sectors analysis in ETSAP’s tools (for example by building a CGE model generator hard-linked with the TIMES model generator) could be further investigated”**.