

Internalising Externalities in MARKAL – TIMES Models

Denise Van Regemorter^a and GianCarlo Tosato^b

^a CES-Katholieke Universiteit Leuven, Leuven, Belgium

^b ETSAP Project Head, on leave from ENEA to European Fusion Development Agreement, Max-Planck-Institut fuer Plasmaphysik, Garching Bei Muenchen, Germany

Corresponding author: <giancarlo.tosato@efda.org> or <gctosato@tiscalinet.it>

A partial equilibrium version of MARKAL including a simple damage function has been already developed and implemented to analyse interactions of various mitigation policies and policy implication for Belgium (Prost and Regemorter, 2001). Extending that approach, this paper describes how to embody in MARKAL-TIMES the "impact pathway approach" in a more refined way. In a multi regional frame, emissions from each region impact the environment locally and in the neighbouring regions and produce in each final deposition region three categories damage – public health, ecosystem, biodiversity – that are internalised. The new combined objective function can be interpreted as green "consumer/producer surplus".

Reference:

Proost S., Van Regemorter D., 'Interaction between local air pollution and global warming and its policy implications for Belgium', CES-ETE WP n°2001-16

Abstract for the International Energy Workshop
jointly organized by the
Energy Modeling Forum (EMF), International Energy Agency (IEA) and IIASA.
24-26 June 2003 at IIASA Conference Center, Laxenburg, Austria