



European Commission Consultation on Indirect Land Use Impacts of Biofuels – October 2010

Appendix 3: Introduction to Causal-Descriptive Modelling and the work done by the E4Tech Ltd for the UK Government in assessing ILUC.

To date the European Commission (and US regulators) have relied upon General and Partial Equilibrium models to derive an ILUC factor. There is broad consensus amongst UK stakeholders (excluding most environmental groups) that ILUC factors derived from analysis exclusively using these tools are not an appropriate basis for policy conclusions.

In many classical macroeconomic models (not just agri-economic models), key parameters are exogenously determined by either assumption or calculated from time series data. However, both methods need not use parameters that are measurable real world data; the parameters are often defined for the convenience of modelling. More recent macro-economic models have tried to bridge this short coming by using micro-economic modelling to build the parameters endogenously. This is the approach that should be taken when developing further analytical tools.

Given the significant limitations of the evidence base supporting the consultation document it is important that in responding to the consultation that Commission seek to utilise new sources of evidence. One such assessment is the bottom-up (Causal-Descriptive) modelling undertaken by E4tech for the UK Department for Transport (DfT) which was published on 19th October 2010. This approach provides a valuable tool for exploring and estimating the range of ILUC emissions arising from RED targets. Specifically they can be used to provide an indication of the relative risk of emissions arising from ILUC from different feedstocks and the sensitivity of these outcomes to underlying assumptions.

Causal-descriptive approaches have a number of strengths, notably:

- The grounding of the approach and underlying assumptions in supporting evidence from a range of sources
- The greater accessibility and transparency of the approach and assumptions for diverse stakeholders and therefore the capacity for peer review and continuous improvement
- The ability to readily generate ranges, test the sensitivity of estimates to input assumptions and explore uncertainties
- The ability to adapt to approach to account for key features influencing the ILUC assessment for different feedstocks
- The ability to assess the impact of policy interventions

Problems in the macro economic models that have been addressed by the e4Tech work:

- Correct treatment of DDGS
- Soy meal as the marginal protein source for EU animal feed
- Palm oil is the marginal source of vegetable oil
- Takes account of DDGS co-product protein content and its substitution of soymeal

Problems in the macro economic models that have not been addressed by the e4Tech work:

- Lack of justification for a factor for lower yields on new land
- Increased cropping intensity (multi-cropping or reduced fallow in rotation) can be significant in reducing arable land area
- Failure to model land rotates regularly between grassland and cropland (that does not build up carbon stocks)

The commission should make greater use of this type of assessment as an input to policy development, building upon the work undertaken in the UK.

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