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REEIO
The Regional Economy Environment Input Output Model

REEIO is a unique decision toolkit designed to assist policy makers analyse regional policies and programmes with regard to the economy and environment. It provides a firm basis for sustainability appraisal, strategic environmental assessment and benchmarks for the resource productivity of businesses and sectors. REEIO was originally developed by Cambridge Econometrics as part of the Reward project, a partnership led by the Environment Agency (EA) with the participation of Regional Development Agencies and the National Assembly for Wales. More recently REEIO has been supported by SCPnet (see http://www.wwflearning.org.uk/scpnet/ for more information).

Scope of REEIO

The links between the economy and the environment are vast and complex. REEIO focuses on one particular set of links, namely those between the economy and source and sink functions of the environment. Furthermore, REEIO is focused in which of these links it encompasses, modelling the links between a region's economy and the key environmental pressures of waste, energy, emissions to air and water demand.

The model provides annual comprehensive projections to 2020 for a wide range of indicators including

- GVA, personal incomes, consumer spending and investment
- output and employment by industry
- employment by occupations
- waste arising by waste streams and industry
- waste entering different management routes
- energy demand by fuel and fuel user (including transport)
- key emissions to air (eg C02)
- water demand by water households and industries

Modelling the link between the economy and the environment in REEIO

The impact on the key environmental pressures being considered is modelled using economic inputs.

Waste

Production of industrial and commercial waste is projected on the basis of each industry's purchases of input products, which are in turn determined by the scale of activity in the industry and the structure of its inputs to production. Household waste is projected on the basis of population growth and the rate of growth in per capita household waste arisings. Associated projections for waste entering the various management routes are produced from the waste arising projections.

Energy use

The use of energy by fuel type is determined on the basis of the scale of activity (level of output, for industry sectors) of the fuel user and the relative price of fuels. The energy demands from power generation in the region is considered by explicit assumptions regarding specific plant capacities and utilisation.

Air emissions

The projections for air emissions are determined in two parts. The energy-related emissions are determined on the basis of energy use by user and fuel. Emissions that are not energy-related are determined by an appropriate activity indicator.

Water use

Water use is determined by modelling different components of overall demand separately. Non-household demand is determined by indicators of economic activity in particular industries that allow for the different water-using characteristics of the different sectors. Household demand for water is determined using by assumptions for per capita water use by metered and non-metered households and an assessment of the proportion of the population that will be within each group. The assumption for per capita water demand can in turn be informed by a more detailed analysis undertaken outside of REEIO, such as a 'micro-components' approach which uses assumptions for the penetration, use and water-using characteristics of different appliances and activities.