Domestic freight

The domestic freight lever reported here captures all commercial transport in Ireland, including trucks (heavy goods vehicles; HGVs), vans (light goods vehicles under 2 tonnes in weight; LGVs), rail freight, domestic marine navigation and the fuel consumption of service and construction vehicles encompassed in the 'unspecified' category in the Irish energy balance.[12]

The trajectories are presented in terms of vehicle kilometres for LGVs, the weight of freight carried by HGVs (in tonne kilometres), and improvements in engine efficiency/fuel type. In 2013, 99% of Irish freight in terms of volume was transported by road.[13] 9,138 million tonnes-kilometres of goods were transported by trucks on the road (HGVs) and vans (LGVs) travelled around 4 billion vehicle kilometres.[14] Rail freight is assumed to continue to account for less than 1% of total freight movement in Ireland up to 2050.[15]

Trajectory 1

This trajectory assumes that goods movement as measured by vehicle-kilometres for LGVs and tonnes-km by HGVs almost doubles by 2050 in line with population and economic growth. A growth in movement of freight by rail reflects a utilisation of spare bulk rail transport capacity. The energy efficiency of road freight improves by 15% to 2050; 10% of LGVs are electric.

Trajectory 2

Trajectory 2 assumes that the efficiency of diesel powered goods vehicles improves by 20% and that the vehicle-kilometres travelled and tonne-kilometres carried increases by 70% by 2050 (equivalent to an average 1.3% per year). 10% of lorries are powered by compressed natural gas (GNC) and 30% of LGVs are electric.

Trajectory 3

Trajectory 3 assumes that by 2050, the movement of freight grows but less quickly than economic output (GDP). Conventional lorries are 30% more efficient and 25% are CNG; 50% of LGVs are electric. This trajectory assumes that overall vehicle-kilometres increases by 60% from 2013 to 2050.

Trajectory 4

Trajectory 4 assumes that the volume of freight moved decouples from economic growth and grows at a slower rate of 1% per year. All freight trains are electric. HGVs are 42% more efficient, consistent with IEA projections for maximum potential goods vehicle efficiency gains. 40% of HGVs rely on gas and 100% of LGVs are electric.

Interaction with other choices

Choices about building different sorts of infrastructure, about the use of waste, bioenergy and other fuels, and shifts in the size of Irish industry will all influence freight transport demand. The 2050 Calculator does not model the impact on freight of these choices; you have to make sure your choices are consistent.

We can power Ireland's lorries by biofuel or biogas instead of diesel or natural gas. To bring this about in the Calculator, choose either (i) to import bioenergy or (ii) to dedicate land to biocrops; and then turn those biocrops into liquid or gaseous fuels.

Figure 3: Energy demand in TWh/yr for domestic freight (including HGVs, LGVs, marine navigation, and service vehicles)