As part of the Europe 2020 growth strategy, the European Union has committed to cutting its greenhouse gas emissions to 20% below the levels of 1990 by 2020.

By 2050, EU leaders have endorsed the objective of reducing Europe’s greenhouse gas emissions by 80-95% compared to 1990 levels. To achieve this the European Commission has published a roadmap for building the low-carbon European economy that this will require. Power generation will be key to reduce emissions mainly by focussing on increasing reliability on surface renewable sources such as wind, tidal and solar energy. This will be combined with increased carbon capture and storage on fossil fuel power plants, shale gas for power stations, nuclear and geothermal power. Grid scale energy storage involving compressed air in caverns may also be important in convert intermittent surface renewables such as wind, and converting them into base load status.

Geology is key to understanding how we can use these subsurface technologies to the full without damaging the environment, peoples’ property or health. In a densely populated continent such as Europe, this means that high levels of subsurface management and environmental security assurance are needed to realise energy potential.

Weighing up these pros and cons in order to make the right decision is key. Take for example the highly
controversial extraction of shale gas through fracking. The environmental impact is a major concern for many with huge amounts of water required and the worry that potentially carcinogenic chemicals can escape and contaminate ground water. Despite this it is generally agreed that if fracking were to displace coal Europe-wide, significant greenhouse gases savings would be made as has been seen in the US.

Secure and sustainable societies depend on the science base to assess the genesis, extent and conservation of natural resources in order to exploit them and discover new sources without detriment to our environment. Developing energy resources and managing waste safely and responsibly, will require multidisciplinary data, facilities and information. Prior to the exploitation of various sub-surface and surface based energy producing systems it is essential to establish a baseline representing the natural level.

EPOS will simplify and streamline access to multidisciplinary data, products and services for solid Earth sciences. Easy-to-find data and data products as well as tools for visualization, processing and analysis will provide scientists and decision makers with the right data and information to help them make well-informed decisions on geo-resource management so that new sources of energy can be found and explored.