[Letter to the Editor]

by Adelbert Goede
Fellow of the European Physical Society
DOI: http://dx.doi.org/10.1051/epn/2016203

The need for Basic Energy Research

The Paris Conference of the United Nations Framework Convention on Climate Change (UNFCC) may have brought relief to some, the fact remains that climate models, the basis of the politically negotiated limit on earth surface temperature rise, are far from perfect. The ocean exerts large inertia on the coupled atmosphere-ocean system and its interaction is less well understood. For example, Atlantic multi-decadal temperature oscillation, the global-warming hiatus, was not captured by these models. Meridional overturning time scales of the ocean are expressed in centennials rather than decades, which stretches the predictive power of models. Models are starved of deep sea data which carry the heat; below 700m depth hardly any measurement exist to validate the models. This calls for better models and more measurements, lest public opinion turns against current climate policy measures for lack of credibility of the climate forecast.

This is hardly EPS expertise and not the point anyway. At this point in time, given the uncertainties, it is good policy to work on solutions, rather than argue about (imperfect) climate model predictions. The energy transition is EPS core business and this is what we should be concentrating on.

The energy transition is increasingly hampered by its focus on the energy source rather than the system as a whole. For example, large scale deployment of wind farms is based on the upscaling of existing wind turbine technology, rather than basic research needed to solve the intermittency problem at system level including energy storage. Public money is spent on deployment of today's technology. As a consequence, perverse feed-in tariffs, destructive cross border transport and wasteful overcapacity characterise this corner of the renewable energy market.

The EU has set ambitious energy and climate targets. The Strategic Energy Technology (SET) Plan shows what research is needed. Sadly, when it comes to implementation, the EU Horizon 2020 Energy Work Programme 2016-2017 offers precious little opportunity in basic energy research. Most calls are directed at high Technological Readiness Level, aimed at implementation of today's technology. The 2030-2050 energy transition, however, requires investment in basic research and innovation, enabling tomorrow's technology. The EPS should stand up against current EU implementation practise and advocate the need for basic energy research both in Brussels and with their Member State masters. ■