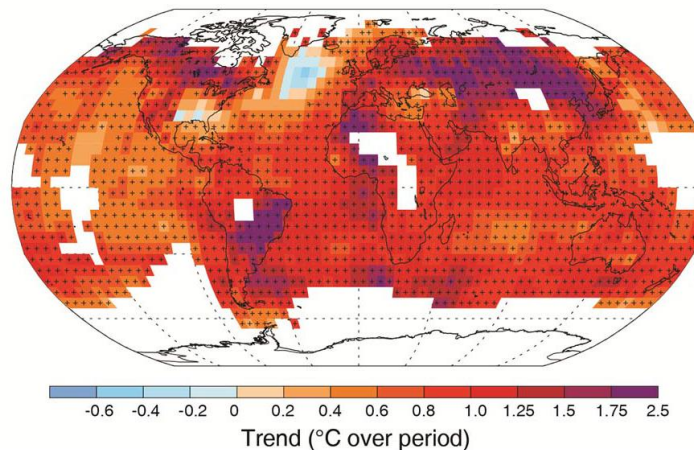


DESCARBONIZAÇÃO: UM MUST

Com a publicação recente do 5º relatório de avaliação do IPCC (*Climate Change 2013: the Physical Science Basis: Summary for Policymakers*) verificou-se uma dramatização, justificada, sobre os efeitos que as alterações climáticas, que se estão a verificar, terão sobre o futuro próximo do nosso ecossistema. A contribuição das emissões de CO₂ para o aquecimento global é considerada inequívoca. A descarbonização do mix energético torna-se, neste contexto, um imperativo moral se quisermos acautelar o legado que pretendemos deixar às gerações futuras.

(b) Observed change in average surface temperature 1901–2012



- Este objectivo da descarbonização consta já da Agenda da sustentabilidade energética e a sua viabilidade, custos e soluções associadas tem sido objecto de vários cenários elaborados por organismos internacionais, de que destacamos a AIE e a União Europeia, e cujas conclusões consideramos oportuno rever.
- O *Blue Map Scenario* da IEA/OCDE (com várias alternativas) definiu o objectivo de reduzir para metade o total de emissões de CO₂ em 2050 (tendo como referência os níveis de 2005) e avaliou os custos das várias trajectórias que permitem atingir esse objectivo através do recurso a *low carbon technologies*, disponíveis ou em desenvolvimento, com redução da dependência dos combustíveis fósseis e da poluição atmosférica. Conclui que o objectivo é viável, embora implicando investimentos significativos. Mas os benefícios em termos de impacto ambiental, segurança energética e redução da factura energética serão igualmente relevantes.

A Comissão Europeia propõe-se a um objectivo mais ambicioso: “*The EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group*”¹. Conclui que a descarbonização é possível e que terá, no longo prazo, um custo inferior ao das políticas actuais. Em todos os cenários a Energia Eléctrica reforçará a sua penetração no mix energético, com contributos importantes nos transportes e na climatização. A produção de energia irá passar por alterações estruturais, para poder atingir níveis de descarbonização já significativos em 2030 (57-65% em 2030 e 96-99% em 2050).

¹ *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions- Energy roadmap 2050 (European Commission, Brussels, 15.12.2011, com(2011) 885 final)*

As ameaças estão identificadas, o diagnóstico realizado, os planos elaborados. Temos o dever moral de passar à acção. É uma questão do legado que queremos deixar às gerações futuras. O GreenSynFuel é uma tecnologia inovadora para integrar o plano de acção, e contribuir para cumprir as metas definidas (ou mesmo antecipá-las).

Working Group I Contribution to the IPCC Fifth Assessment Report

CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS: *Summary for Policymakers*

- Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased
- Global surface temperature change for the end of the 21st century is *likely* to exceed 1.5°C relative to 1850 to 1900 for all RCP scenarios except RCP2.6. It is *likely* to exceed 2°C for RCP6.0 and RCP8.5, and *more likely than not* to exceed 2°C for RCP4.5. Warming will continue beyond 2100 under all RCP scenarios except RCP2.6. Warming will continue to exhibit interannual-to-decadal variability and will not be regionally uniform (*RCPs - Representative Concentration Pathways*)
- Global mean sea level rise for 2081–2100 relative to 1986–2005 will *likely* be in the ranges of 0.26 to 0.55 m for RCP2.6, 0.32 to 0.63 m for RCP4.5, 0.33 to 0.63 m for RCP6.0, and 0.45 to 0.82 m for RCP8.5 (*medium confidence*). For RCP8.5, the rise by the year 2100 is 0.52 to 0.98m, with a rate during 2081–2100 of 8 to 16 mm yr⁻¹ (*medium confidence*).
- Climate change will affect carbon cycle processes in a way that will exacerbate the increase of CO₂ in the atmosphere (*high confidence*). Further uptake of carbon by the ocean will increase ocean acidification.

ENERGY RESEARCH PARTNERSHIP SCENARIO ANALYSIS – IEA, BLUE MAP

- The BLUE Map scenario (with several variants) is target-oriented: it sets the goal of halving global energy-related CO₂ emissions by 2050 (compared to 2005 levels) and examines the least-cost means of achieving that goal through the deployment of existing and new low-carbon technologies. The BLUE scenarios also enhance energy security (e.g. by reducing dependence on fossil fuels) and bring other benefits that contribute to economic development (e.g. improved health due to lower air pollution).
- Global electricity demand rises 119% from 17 PWh in 2007 to 37 PWh in 2050, but with demand in OECD countries increasing by 1/3rd. [ETP2010, Ch. 4] Share of electricity in final consumption under the BLUE Map scenario rises from 17% in 2007 to 27% in 2050.
- Using a combination of existing and new technologies, as envisaged in the BLUE scenarios, it is possible to halve worldwide energy-related CO₂ emissions by 2050. Achieving this will be challenging, and will require significant investment. But the benefits in terms of environmental outcomes, improved energy security and reduced energy bills will also be large.

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

ENERGY ROADMAP 2050 (EUROPEAN COMMISSION, Brussels, 15.12.2011, COM(2011) 885 final)

- The EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group¹

- *Decarbonisation is possible – and can be less costly than current policies in the long-run.* The scenarios show that decarbonisation of the energy system is possible. The total energy system cost (including fuel, electricity and capital costs, investment in equipment, energy efficient products etc) could represent slightly less than the 14.6% percent of European GDP in 2050 in the case of CPI compared to the level of 10,5% in 2005. This reflects a significant shift of the role energy plays in society. Exposure to fossil fuel price volatility would drop in decarbonisation scenarios as import dependency falls to 35-45% in 2050, compared to 58% under current policies.
- All scenarios show **electricity will have to play a much greater role** than now (almost doubling its share in final energy demand to 36-39% in 2050) and will have to contribute to the decarbonisation of transport and heating/cooling (see graph 2). Electricity could provide around 65% of energy demand by passenger cars and light duty vehicles, as shown in all decarbonisation scenarios. The **power generation system would have to undergo structural change** and achieve a significant level of decarbonisation already in 2030 (57-65% in 2030 and 96-99% in 2050).
- *Electricity prices rise until 2030 and then decline* Most scenarios suggest that **electricity prices** will rise to 2030, but fall thereafter. In the High Renewables scenario, which implies a 97% share for renewable sources in electricity consumption, the modelled electricity prices continue to rise but at a decelerated rate - due to *high capital costs* and assumptions about high needs for balancing capacity, storage and *grid investments* in this "near 100% RES power" scenario. However, substantial RES penetration does not necessarily mean high electricity prices. The High Energy Efficiency scenario and also the Diversified Supply Technology scenario have the lowest electricity prices and provide 60-65% of electricity consumption from RES, up from only 20% at present..