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December 2009: Highlights

R&D Issues

First EIT Knowledge and Innovation Communities selected

The European Institute of Innovation and Technology (EIT) has selected its first three Knowledge and Innovation Communities (KICs). The decision was made after the top two proposals for each KIC area had been presented to the EIT governing board at the EIT headquarters in Budapest, Hungary, on 16 December. The subject areas to be addressed are climate change mitigation and adaptation ('Climate-KIC'), sustainable energy ('KIC InnoEnergy') and the future information and communication society ('EIT ICT Labs'). Each of these KICs will receive a start-up grant of EUR 3 million. They are expected to be up and running by the middle of 2010.

The selection of the first Knowledge and Innovation Communities is a further milestone towards a more innovative Europe, proposed by President Barroso, who is looking forward to the KICs becoming innovation hotspots that attract the brightest talents from Europe and beyond. They should develop into the 'places to be' for those students, researchers, and entrepreneurs who want to work together in areas of high relevance for our common future.'

The Climate-KIC will initially concentrate its efforts on achieving excellence in four specific areas:

1. assessing climate change and managing its drivers;
2. transitioning to low-carbon resilient cities;
3. adaptive water management, and;
4. zero carbon production.

Recognising their high potential for innovation and job creation, these four fields were chosen as core elements of this KIC. The goal is that, by 2014, the Climate-KIC 'will be the natural place for companies to locate R&D [research and development] centres, top students to look for climate education, researchers to look for inspiration and policymakers to seek advice'. The core partners include major companies, academic institutions and regional agencies. Co-location centres will be established in London (UK), Zurich (Switzerland), Berlin (Germany), Paris (France) and Randstad (the Netherlands).

The KIC InnoEnergy will be managed as a business and actually be set up as a European company in order to provide stability and develop sustainability. The technological approach covers the most challenging areas of the Strategic Energy Technology (SET) Plan. Co-location centres will be situated in Germany, France, the Netherlands/Belgium, Spain, Poland and Sweden.

The third and final KIC selected will be dedicated to the future information and communication society. The consortium hopes to speed up the transformation of ideas and ICT technologies into real products, services and business. The KIC EIT ICT Labs will set up Co-location centres in Berlin (Germany), Eindhoven (the Netherlands), Helsinki (Finland), Paris (France) and Stockholm (Sweden).

As an essential element of the EIT, the KICs are designed to bring together higher education institutions, research and business in highly integrated partnerships to boost innovation and contribute to Europe's competitiveness and the goals of the future EU 2020 strategy.

For more info. see: http://eit.europa.eu/

Experts urge radical shake-up of EU innovation policy

Five panels of experts have issued a joint policy paper demanding major changes to Europe's innovation policy just weeks before the EU's first commissioner for research and innovation is due to take office. Innovation has risen to the top of the Brussels policy agenda, partly due to the economic crisis and competition from emerging nations, and partly due to the 2009 European Year of Creativity and Innovation.

With the Lisbon Agenda for Growth and Jobs expiring in 2010, and a European Innovation Act promised by next spring, European Commission President Barroso appointed Irish EU Commissioner Máire Geoghegan Quinn as Europe's first commissioner for science and innovation. The move expands the previous science and research portfolio and addresses a long-held criticism that EU innovation policy is too fragmented and dispersed across several sections of the Brussels policymaking machinery.

Members of five advisory groups are urging the EU to radically improve long-term planning as part of a major rethink of the way it organises research and innovation. At a seminar in the European Parliament, experts highlighted five key areas where there is consensus on how to overhaul R&D infrastructure. They want EU funding programmes steered towards research focused on the great social challenges Europe is facing, including climate change, alternative energy, health care for an ageing population, security and cohesion policy. New networks, institutions and policies for open innovation will also be required, along with greater efforts to encourage mobility of researchers and introduce an EU-wide patent system.

The expert panels - four of which were originally appointed by the EU executive, with another independent group - say governments must step up investment in higher education, research and innovation, especially in times of fiscal austerity.

EU clears extra funds for carbon storage, offshore wind

The European Commission has approved a series of offshore wind and CCS projects that will receive over €1.5 billion from the EU's economic recovery fund. In March 2009, EU leaders approved a plan to spend €3.98 billion in support of clean coal projects and offshore wind farms as part of a broader European recovery plan. Some MEPs nevertheless strongly criticised the plan for leaving out energy-efficiency measures. The European Parliament's industry committee adopted a report calling for money not committed before September 2010 to be redirected to energy efficiency and renewable energy projects. The compromise between the institutions in April allows the Commission to propose the use of recovery money that is not committed by the end of 2010 for energy-efficiency and renewables projects. However, the EU executive must prove in a report that priority projects will not be implemented. The report is due in March 2010.

Six CCS demonstration projects were deemed mature enough to qualify for the €1 billion designated to support the fledgling technology. These include Vattenfall's Jaenshwalde power plant in Germany, Endesa's Compostilla plant in Spain, Maasvlakte plant in the Netherlands, Hatfield in the UK and Belchatow in Poland, which will each receive €180 million. In addition, Enel's Porto-Tolle plant in Italy gets €100 million. These projects were selected out of a total of 12 proposals, with a further four put on a reserve list should one of the selected projects fall through, but it was stressed that this would be extremely unlikely.

On offshore wind energy, nine projects out of the 29 proposed will share a total of €565 million. These range from €150m for an interconnection of German, Swedish and Danish wind farms in the Kriegers Flak area, to 10 billion for Belgium's Thornton Bank deep-water off-shore park.

Energy Commissioner Piebalgs defended the selection, which was made with a view to rewarding demonstrations that are mature enough to aid economic recovery. The signing of contracts will start this month, and the money will be made available to companies between 2010 and 2012, depending on their stage of development. According to the commissioner, helping the six CCS projects get off the ground will create a "core group of pioneers". “Six is really the minimum to start with," Piebalgs said, adding that Europe is the first to contribute public money to real projects. But the EU is still far from achieving its ambition to have 10-12 CCS projects up and running by 2015, in order to make the technology commercially viable by 2020. "Without CCS, we really can't make a sufficient contribution to capping greenhouse gas emissions," Piebalgs warned. But the technology comes at a high price and would require the EU to look into other financial sources, he added.

Energy

Buzek calls for EU 'energy community'

European Parliament President Jerzy Buzek told EU leaders that a 'European Energy Community' could become the next big EU project, similar to the European Coal and Steel Community, which played a major role in the Union's history sixty years ago. Speaking recently to a small group of journalists, European Commission President José Manuel Barroso likened EU policies to address climate change and improve energy security to the European Coal and Steel Community. Barroso added that in terms of policies, the EU's leadership in addressing the climate change challenge had been "by far" the greatest EU success.

Speaking to the press after having met EU leaders gathered in Brussels for a two-day summit, Buzek said it was "paramount" for the Union to identify big European projects that countries can pursue jointly. "These projects should also be understandable by our citizens. There are many suggestions to this, and the plan should be big enough to meet the challenges awaiting us. The European Energy Community is one of these suggestions," he said. "Such a project is recommendable to the entire community as a driving force to increase competitiveness on the global scale," Buzek declared.

As the world is confronted with climate change challenges and needs to secure sufficient energy supplies, the objective is to link those issues, Buzek argued. He further explained that the project would encompass cross-border connections and major investments, as well as gas purchases from third countries and measures to meet all the major challenges facing the EU today, including the economic downturn. Agriculture and transport would also be covered by the project as he feels that, in many respects green energy is related to agriculture, and a lot of energy is lost in transport.

Buzek is convinced that for the EU as a whole, it would be much better to talk with our neighbours jointly about oil and gas, gas in particular, because when we negotiate separately, we start competing with each other. And this gives better opportunities to our suppliers, who have several customers to choose between. They can try to divide us. By negotiating jointly, we will have a stronger position, which goes without saying," he said.

Climate change

Global warming a constant upward trend, WMO figures reveal

New data from the World Meteorological Organization (WMO) place 2009 among the top 10 hottest years since records began in 1850. The figures show that temperatures are rising steadily, with the years from 2000 to 2009 hotter than the 1990s, which were in turn hotter than the 1980s. Meanwhile, a new tool has been developed that demonstrates the scale of the impacts of climate change.

According to the WMO figures, above-average temperatures were recorded in most parts of the world except North America, which experienced cooler-than-average temperatures. Many extreme weather conditions were recorded by the WMO, including floods, droughts and heat waves. China suffered its worst drought in five decades, and severe and prolonged droughts also occurred in Argentina, south-eastern Australia, East Africa, India and Mexico. In Kenya the drought caused a 40% decline in the country's maize harvest. In West Africa, rainfall was so intense in September that more than 100,000 people were affected. Burkina Faso experienced the worst rainfall in the region for 90 years, more than 263 mm of rain in less than 12 hours.

Many other parts of the world were also badly affected by extreme rainfall. Floods, tornados and heavy thunderstorms caused much damage across Germany. The United Kingdom also experienced severe flooding and more than 300 mm of rain was recorded in less than 48 hours in south-eastern Spain as well as across other regions of the Mediterranean. South and central America were also hit by unusual rainfall which led to flooding in Argentina, north-eastern Brazil, Colombia and Uruguay. Landslides caused by flooding also led to hundreds of deaths in Colombia and El Salvador. Canada experienced extreme weather conditions including almost double the normal number of avalanches and a record number of tornados which resulted in 25 deaths. The northern plains region of the US also experienced the wettest October for 115 years and record flooding during March.

The data from the WMO is based on a variety of data sources including land-based climate stations, ships and satellites. The final figures for 2009 will be published in March 2010 in the annual WMO Statement on the Status of Global Climate. Meanwhile, the IGBP (International Geosphere-Biosphere Programme) has released details of a new tool, called the IGBP Climate Change Index, to track global warming. The index was the brainchild of a group of IGBP scientists who were concerned that current climate change data are often confusing and not clear enough about the scale of the changes that are happening; it constitutes an attempt to simplify data and reveal general trends in climate change. The index charts changes in four key indicators of climate change: temperatures, sea ice, sea level, and carbon dioxide. It reveals a clear upward direction in climate change since 1980, the first year covered by the tool.

The IGBP is a research programme that is studying global climate change in order to provide scientific evidence to help make the Earth and its ecosystems more sustainable.

For more, see: http://www.wmo.int/pages/index_en.html or http://www.igbp.net/

Europe to feel economic crunch from climate change

The European Commission's Joint Research Centre (JRC) recently issued a report outlining how the EU would lose between EUR 20 billion and EUR 65 billion if we were to experience the climate projected for the 2080s today, with a temperature rise of between 2.5°C to 5.4°C.

The PESETA ('Projection of economic impacts of climate change in sectors of the European Union based on bottom-up analysis') project evaluated the annual economic impacts of climate change in Europe in coastal systems, river flooding, agriculture and tourism - four elements that are sensitive to climate change. Adaptation policies were not considered in the assessment. PESETA presented diverse regional impacts of climate change across the EU: southern and central Europe would sustain a number of damages, while northern Europe would be the only region to benefit from climate change, especially in terms of the economy and the four elements. Besides the increase in temperature, the report predicted that the sea level will rise between 48 cm and 88 cm.

On the whole, the EU's economy would contract substantially each year and global warming would have an adverse impact on the level of economic growth for Europeans. It should be noted, however, that the overall cost of global warming could be even higher since the PESETA study did not take into account non-market variables including natural disasters or biodiversity. The report has suggested that welfare could drop by 0.2% if the temperature increases by 2.5°C. However, a 5.4°C increase could slash EU welfare growth by half.

In terms of the four elements, estimates are that:

- coastal systems (sea floods and migration costs) would decrease annual welfare by 0.46% and affect up to 5.5 million people;
- river flooding would decrease annual welfare by 0.24% and affect up to 400,000 people;
- agriculture would sustain 10% losses in crop yields each year;
- tourism is considered the only sector that will not really be affected, but officials speculate variances across the regions will emerge.

From a regional perspective, southern Europe - in particular Bulgaria, Greece, Italy, Portugal and Spain - is expected to sustain the biggest welfare losses (between 0.3% and 1.6% per year), and agriculture could post a 25% loss in yields. The tourism sector in this region could lose up to EUR 5 billion each year.

Central Europe North - Belgium, Germany, the Netherlands and Poland - would report around 0.3% and 0.7% welfare losses. The region's coastal systems would sustain damages, with up to 2.4 million people affected by sea floods, and river flooding would burn a EUR 5 billion hole in pockets. On the contrary, however, the tourism sector will report growth (up to EUR 4 billion in extra revenue).

Central Europe South - Austria, the Czech Republic, France, Hungary, Romania and Slovakia - would sustain between 0.1% and 0.6% in welfare losses, and its coastal and river systems would feel a considerable crunch due to flooding. Tourism, on the other hand, would not; experts speculate that this sector would post EUR 10 billion in additional revenues.

Northern Europe - Denmark, Estonia, Finland, Latvia, Lithuania and Sweden - will be the only region to profit from these changes, with its agricultural sector posting the most positive results. The only sour point is that sea floods could potentially affect over 250,000 people each year.

The Commission has used the PESETA project's preliminary results for the White paper 'Adapting to climate change: towards a European framework for action'.

For more, see: http://peseta.jrc.ec.europa.eu

CCS ruled out of UN clean projects list

CCS will not be added to the list of technologies that industrial countries can invest in to offset their emissions, after some countries expressed their reservations at the UN climate talks in Copenhagen. Negotiators have been debating whether to accept capturing CO2 from industrial installations and storing it underground (CCS) as a means of contributing to emission cuts. But they delayed any decisions until 2010 at the earliest, as no consensus was reached.

Some countries have proposed to add CCS to the UN-backed Clean Development Mechanism (CDM), which allows companies in rich countries to fulfill part of their climate obligations by investing in emission reductions in developing countries. But others have registered concerns regarding the implications of this possible inclusion and highlighted a number of unresolved issues, according to a draft paper from the UN Framework Convention on Climate Change (UNFCCC). The text invited the UNFCCC's scientific advisory body to investigate risk of seepage from storage sites and liability issues in the event of leakage. The group was tasked with reporting back to delegates at the next conference in Mexico in 2010 or in South Africa in 2011.

Leading European investors in the technology include the UK, Germany and Norway. Meanwhile, the US invested $1.4 billion in 12 CCS projects as part of its economic stimulus package at the beginning of October. Earlier this month, the Americans announced that a further $979 million will be invested in three projects. The EU also recently approved €1 billion of economic recovery funding to support six demonstration projects.

However environmentalists are not keen on a technology whose effectiveness they say is still unproven, amid fears that it could divert attention from genuine low-carbon energy sources like renewables.

EU biofuel sustainability criteria 'inconsistent'

More in-depth studies are necessary to develop a robust methodology for calculating indirect land-use change caused by EU biofuel production, concluded a French consultancy's review of currently-known options. In December 2008, EU leaders reached agreement on a new Renewable Energy Directive, which requires each member state to satisfy 10% of its transport fuel needs from renewable sources, including biofuels, hydrogen and green electricity, by 2020. The directive also established sustainability criteria for biofuels. It obliges the bloc to ensure that biofuels offer at least 35% carbon emission savings compared to fossil fuels. The figure rises to 50% as of 2017 and 60% as of 2018. However, concerns have been raised that increased biofuel production would result in massive deforestation and have severe implications for food security, as energy crops replace other land uses (so-called indirect land-use change).

The Renewable Energy Directive and the Fuel Quality Directive, agreed as part of the EU's climate change and energy package in December last year, require the European Commission to compile a report reviewing the impact of indirect land-use change on greenhouse gas emissions and to seek ways to minimise its impact. The report could be accompanied by a proposals for a concrete methodology for calculating indirect land-use change, which could be applied to other commodities.

A new study analysing existing methodologies to calculate the impact of Indirect Land Use Change (ILUC) on greenhouse gas (GHG) emissions highlights major discrepancies when they are applied to different biofuel production processes. The study, compiled by BeCitizen[1], a French environmental consultancy, concludes that percentages of a biofuel's negative or positive impact on GHG emissions vary a lot depending on the crop and zone of production, and asserts that existing studies show a low level of robustness. BeCitizen has stressed, therefore, that it would be "risky" to use current methods as a basis for policymaking,

The five methodologies reviewed include those presented by Searchinger[2], Ecofys[3], Fritsche[4], Fargione[5] and Friends of the Earth[6]. Their methodologies were all analysed according to the assessment criteria identified by the European Commission. The three criteria are:

- The percentage of land displaced per hectare of biofuel planted;
- the type of land and the country where the substitution takes place, and;
- the GHG emissions linked to the ILUC.

Moreover, the methodologies were reviewed according to a further eight sub-criteria: the total value of a given biofuel's by-products, the level of yield, integration of second-generation biofuels, the type of land affected by the ILUC, the carbon stored by the new crop, the timescale of carbon balance calculation, evolving carbon emissions and the source data for calculating emissions. The consultancy stressed that "in-depth studies have to be conducted to develop a robust methodology" incorporating all the above factors.

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[1] http://www.becitizen.com/

[2] http://www.princeton.edu/~tsearchi/writings.html

[3] http://www.ecofys.com/com/areasofexpertise/energyandclimatechangestrategies/biofuels.htm

[4] http://www.fao.org/fileadmin/user_upload/foodclimate/presentations/EM56/Fritsche.pdf

[5] http://www.sciencemag.org/cgi/content/abstract/1152747v1

[6] http://www.foe.co.uk/resource/press_releases/biofuels_double_carbon_emissions_15042009.html