

Response to the Green Paper COM(2013)169 Final

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Climate change and energy policies remain key issues for the EU, and the consultation on the policy framework to 2030 is both welcome and timely. However, the description of policy options in the Commission's paper is too narrow, and too locked-into the approaches developed in the 1990s, and which have already been shown to be ineffective and inconsistent with those emerging elsewhere in the world, notably in the US and China. Much more substantial change is needed in the overall policy framework – simply setting new targets for emissions in 2030 will not be effective.

The Framework needs to shift to a focus on Consumption-based accounting of carbon emissions: to empower everyone to contribute to lower-carbon lifestyles; to avoid the need to border controls on imported goods and services, and to make genuine progress to a low-carbon future for the EU. The emphasis in energy policy needs to shift further to “energy-efficiency”, recognising that the shift to renewable, while important, will not deliver a sufficient shift away from fossil fuel use, either in the EU or worldwide by 2050. Finally, a major effort must be started on developing the land-use technologies for bio-sequestration – re-locking atmospheric carbon into soils, wetlands and forests – to buy us a few decades for the transition to a low-carbon, de-centralised energy system.

Why consumption-based accounting is the only long-term approach.

The Emissions Trading System has been an excellent learning tools, but is not effective in either of its goals of establishing a stable and predictable carbon price, and therefore giving an incentive for the shift to low-carbon production. It has been, and remains, open to fraud and political pressures. It institutionalises targets for the production-side carbon emissions, but ensures that emissions are always at the target level, never below it. It will never be replicated globally, and therefore requires measures against “carbon leakage”, which will become progressively more difficult to implement, and, because it only addresses 40% of emissions, and engages a small proportion of companies and, it will never be effective in cutting emissions sufficiently for climate stability.

Consumption-based accounting for carbon emissions is the only way to give a real picture of the damage we do to the stability of the climate. It is also the only way everyone can be aware of the lifestyle choices they make every day and the impact they have on the climate. Most people have no feel for the emission (or sequestration) impacts of their activities. We all need to know the impact of our shopping, travel and housing impacts through a “carbon” cost of all goods and services. Only then can we choose the less damaging options.

The technology and tools for carbon accounting through supply-chains to labels at the point of use and purchase are now available. The GHG protocols of the WBCSD are stable and implementable by most companies, and IT-based systems for carbon accounting are widely available.

Improved energy-efficiency remains the most effective way to cut emission before 2030.

Energy-efficiency improvements offer both the greater emission reductions and more cost effective cuts than the growth of renewable to 2030. In addition to incremental improvements across the board of energy-use, systemic changes associated with new technologies offer major improvements: LED lighting, heat-pumps for space heating, and the shift of freight transport to electrically-powered rail-freight systems.

In addition, a transition to integrated “smart-grids” across the EU could enable more efficient use of available renewable power, both by end-users and in the grid itself. The key will be a “real-time” (15 minute updates) price signal to users to allow them to programme power use at times of abundance and avoid peaks in demand. In due course, a “carbon-intensity” signal could also allow users to programme power use to minimise carbon emissions.

Re-balancing the carbon-cycle to stabilise GHG concentrations and the climate

As we reach levels of GHG concentrations near the maximum consistent with a stable climate, the price of emitting a tonne of Carbon-dioxide must converge to the cost of removing it again. Ideas for a long-term re-balancing of the carbon cycle have been discussed for some time by Members of the Club of Rome, and the attached concept could also address the need to restore fertility in soils and generate new revenues for the farming communities around the world. Much remains to be tested and validated, but it would appear prudent to increase research and trials for large-scale bio-sequestration in the EU.

What targets for 2030?

With Carbon-dioxide concentrations in the atmosphere already about 400 ppm, already near the level at which they could generate unacceptably frequent extreme weather events (floods, storms, heat-waves and fires), the priority must be to re-balance emission and re-sequestration of carbon to and from the atmosphere. The only target for 2030 must therefore be one that relates to our effectiveness in doing this. Net emissions (emissions less re-sequestrations) in the EU could be cut by 50% by 2030 and to near zero by 2050, compared with a baseline of 1990.

Member-states, regions, cities and companies should be left the maximum flexibility in combining improvements in energy-efficiency, with a shift to low-carbon renewables, and off-setting emissions by equivalent capture and sequestration. A genuine “carbon market” in which emissions can be only traded against certified sequestration can ensure a fair competitive environment, without the need for border compensations. All un-compensated emissions should be taxed at a minimum EU level – The taxation will effectively cap the carbon-emission price.

Carbon balance and development: An integrated approach to climate and energy security, human development and bio-diversity

There is an urgent need to **stabilise concentrations of greenhouse gases in the atmosphere at levels that avoid dangerous climate change and simultaneously secure affordable energy for all, re-stimulate equitable human development and protect bio-diversity.**

Current international negotiations are focused on the wrong targets and inadequate mechanisms. We must focus on **energy-efficiency and diversification, and on stabilising greenhouse gas concentrations (GHG)**¹, not just on carbon emissions. We are already near dangerous levels of GHG concentrations; therefore it will not be enough to just reduce emissions: Management of GHG concentrations is inextricably linked to energy security through the need for a new diversity of indigenous energy supplies in all regions. It is also inextricably linked to sustaining bio-diversity in forests and wetlands, the natural stores of bio-sequestered carbon, and reserves of fresh water.

Solutions must be effective, sustainable, simple, multi-purpose and carry the support of key people and businesses in the world. They will require innovation and large investments in simultaneous transformations to:

- More efficient use of energy and resources: addressing both energy-security and carbon emissions;
- Diverse and local low-carbon energy sources, to ensure affordable energy for all, and
- Remove carbon dioxide from the atmosphere **and sequester it in the largest natural stores: soils and wetlands**, by adapting agriculture, forestry and land-use practices, which can also improve soils, improve food yields, secure fresh-water supplies and protect bio-diversity.

Part of the solution must be a market framework which stimulates this innovation and transformational change, and values eco-system services. However, the market framework is not sufficient. **The solution is the transformational change.** Only global business leaders and civil society can implement these solutions, and they must be as fully engaged as Governments and Heads of State in designing and then implementing the investments and transformations we need. The current international UNFCCC discussions are too constrained by pre-existing policy frameworks, and too narrowly engage only Governments. We therefore need a new approach for a partnership between business leaders, legislators, civil society and Governments, each contributing to the design and implementation of the solution in their own way.

¹ Beyond about 350-450 ppm of carbon dioxide equivalents, the risks of disruptive instabilities could be very large: <http://www.columbia.edu/~jeh1/2008/TargetCO2_20080317.pdf>

Targets for climate and energy-security

To avoid a substantial risk of disruptive climate change, the concentrations of greenhouse gases in the atmosphere must be kept below dangerous levels². Agreement on maximum safe levels should be therefore be the focus of further work by the IPCC, and should be the focus of international agreements. To meet concentration targets, a strategy for rapid reduction in “net emissions³” will have to be agreed, and it may even be necessary to achieve net reductions in the later part of the 21st century. Targets will have to be regularly reviewed as the scientific evidence evolves, and must be able to be re-visited within a stable international framework. **Governments should therefore decouple the setting of specific concentration targets from the creation of a global carbon market.**

Energy-efficiency and diversity targets are also and separately needed. Energy-efficiency is a measure of economic-efficiency, and energy-diversity is a measure of national security and financial independence. These targets are therefore best adopted at the national and regional levels at which policies can be implemented, and business and the public can be mobilised. Their achievement will depend on the strength of a portfolio of policies to accelerate transformational change: Support for RTD and innovation, transformation of public administrations and government services, and pulling-through innovations by billions of personal, informed choices in our daily lives. Financial incentives must be complemented by regulations and other incentives: labelling of products and services with their energy-efficiency and “net carbon footprint” at the point of sale; and net-carbon emission reporting by companies to let investors take carbon-related risks into account.

A carbon-market to balance emissions and removals

An economic cost must be associated with carbon emissions⁴. However, it will not be sufficient to simply trade emission permits between larger emitters in industrialised countries: A next phase of a “Kyoto-type” mechanism will not deliver the reductions needed,

To manage atmospheric concentrations, carbon emissions must eventually be partially, or fully matched by removals. We know that the natural stability (and fluctuations) of green-house gases has been assured by a balance between geological emissions and bio- and geo-sequestration. Such a balance must be restored. We know that bio-sequestrations in forests; wetlands and soils have the potential to match natural and enhanced emissions. We know that they can be enhanced by modifying forestry and agricultural practices, and can be scalable to the billions of tonnes, at affordable costs (20-100 Euros/tonne), if we engage most farmers and forest and wetland managers in the world.

² What constitutes a "dangerous level" must be kept under scientific review, but on the basis of a risk assessment of disruptive change in critical regions (the Amazon and Arctic etc) not just of most probable gradual change.

³ Total anthropogenic emissions, less sequestrations additional to those from natural systems associated with deliberate forestry and wetland management or specific agricultural practices.

⁴ Only carbon dioxide. A separate and parallel framework may be needed for methane because of its radically different residence-time in the atmosphere and different emission and absorption mechanisms. HFC would be better dealt with in the Montreal Protocol.

The market of emissions and removals must be global, and must assure a stable and predictable “carbon emission price”, related to the real cost of removal, not to an artificial scarcity of emission permits generated by unsustainable political decisions. Markets must be first created at local and regional level, and must be open to a very large number of participants – the emitters and sequesters of carbon dioxide. Wider markets can be built progressively from local, national and sector initiatives, with clearing mechanisms at regional and global levels. At the local-level, markets may need to be associated with micro-finance initiatives to engage large numbers of farmers and companies in developing countries in certified carbon sequestration in soils and wetlands. Only when such regional markets are mature and stable can they effectively be interlinked through global clearing systems.

There are bases on which to build: The European Emissions Trading Scheme has failed in its three main goals: to establish a stable Carbon-price; to establish a sufficient carbon price to incentivise energy-efficiency improvements, and as a model for a global system. The Clean Development Mechanism (CDM) has proved too open to fraud. Nevertheless, much has been learned, and various "Carbon off-set" frameworks, both public and private have matured. To build on these, it will be necessary to bring carbon-offset schemes within a recognised framework of certification; and to reform the CDM to become a Carbon Balance and Development Market (CBDM). The carbon market may need to grow to a turnover of some hundreds of \$billion per year to balance net future emissions with removals. However, this is small in comparison with many other global markets and market management capacity is available.

Companies and individuals responsible for emissions and sequestration must be able to participate directly in markets. The role of Governments is to regulate the market and set **certification criteria for both carbon emissions and sequestration**, and standards for reporting and labelling, in collaboration with business and NGO alliances⁵.

Such a market could generate investment and income flows from developed and energy-intensive regions to less developed regions: about \$50-100 billion per year. The main flows will be to Africa and Latin America, the regions in most need of new investment for human development, and facing the greatest challenges on bio-diversity and forest management. Investment and income will also flow from urban to rural regions, easing the growing inequalities in prosperity and the pressures on migration, and providing market incentives for more bio-diverse agricultural and forestry practices, and active management of wet-lands.

A market in which carbon emissions are traded and balanced with removals could:

- Provide stability and predictability, essential for investment and innovation;
- Stimulate innovation and investment in both energy efficiency; low-carbon energies and bio-sequestration.
- Protect bio-diversity by valuing eco-systems services, and
- Rebalance investments between the developed and developing countries and between urban and rural areas, to the benefit of equitable human development.

⁵ Such as the Forestry and marine stewardship councils.

Innovation and investment

It will be necessary to encourage and enable business communities, notably the investment community and the leaders of innovations in the ICT, nano-, agro- bio- and genetic technologies, **to accelerate investments in innovations for three areas of transformational change:**

Technologies for radical improvements in energy efficiency exist, but are not widely enough used. Their potential goes beyond incremental improvements in the efficiencies of existing products and services. IT and electronic communications offer radical changes in the way services are provided; in new business models and services that substitute for traditional ways of doing things, and in making more intelligent use of energy in homes, offices and cities⁶. The ICT sector is the motor of innovation capacities and has over 4 billion customers worldwide. It is also spinning-off more efficient lighting systems, solar energy and smart-grid technologies that can help meet our needs more efficiently. Enormous new investments are needed to exploit new opportunities in all societies, but can now be a key part of an economic stimulation package to accelerate recovery from the current economic and financial crisis.

Low-carbon and renewable energy sources have the potential to progressively substitute for fossil fuels. Solar (thermal and voltaic), wind and bio-fuel technologies open up radically new ways of meeting energy-demand in all communities worldwide, even in the poorest: Bio-fuels are meeting a substantial share of demand in Latin America: Wind energy generators are meeting a significant and growing part of demand in Europe and the US: Solar thermal generators could meet a large share of demand in North Africa and other deserts⁷. A variety of agricultural practices and combinations of algae, fungi and bacteria can generate bio-fuels. In some regions, it may be possible and economic to continue to use oil, gas and coal, but with direct geological storage of the effluent carbon-dioxide stream. Technologies for a diverse mix of de-centralized low-carbon energy supply are therefore becoming available, but huge investment is needed to make them affordable in all countries

Technologies for removal and sequestration of carbon from the atmosphere exist. Agricultural practices and forest management practices have been demonstrated at a sufficient scale and can remove and fix carbon at an affordable price. The most promising mimic biological processes⁸. The business and investment capacity for large-scale carbon removal and sequestration exists: **The business of agriculture can become the production of food and fuels, and the removal of greenhouse gases from the atmosphere.** The business of forest management can become the production of food, clean water, fuel, wood, **and the fixing of greenhouse gases.** The business of wet-land management can become water management, bio-diversity and flood protection, **and the fixing of greenhouse gases.** Other industries can also contribute: The building and construction sector has enormous innovation potential to become at least "carbon-neutral".

⁶ www.smart2020.org and <http://www.aeanet.org/publications/publicationsstart.asp>

⁷ en.wikipedia.org/wiki/Trans-Mediterranean_Renewable_Energy_Cooperation

⁸ www.biomimicryinstitute.org/institute-bio.htm and www.amazon.com/Upsizing-Gunter-Pauli/dp/