

Energy Security and Climate Change

Ensuring secure and affordable energy supply and dealing with climate change are key global objectives. Addressing these issues requires urgent, continuous global action and an integrated policy approach, using a wide range of locally, nationally or internationally defined policy measures. Access to affordable, clean and secure energy to boost sustainable economic growth will require innovative and well coordinated actions. Tackling the challenge of energy security will also need extraordinary level of international cooperation in several areas, including increasing energy efficiency, market transparency, diversifying energy supplies and protecting the world's energy supply system.

Energy and climate change are affecting national security to be three major global challenges. These three areas are interconnected through continual and growing dependence on fossil fuels. It is impossible to solve one of these challenges in isolation but all three have to be addressed.

Energy security should be based on major priorities of:

- Reducing carbon emissions to contribute to limitation of climate change.
- Keeping integral earth's carrying capacity and avoiding impacts on biodiversity, water flows and other natural systems.
 - Avoiding relying on long and fragile lines of supply vulnerable to both attacks and natural disasters.
- Being supplied from a variety of different sources and applying various diversification tools.
- Being based on fair arrangements that do contribute to social, political or economic stability and predictability.

Previous mentioned priorities would be reached by different activities.

Firstly, by promoting, investing in and regulating energy efficiency measures, as the most cost effective means to reduce reliance on long, insecure links to fossil fuel supplies, especially in the transport sector, buildings and appliances.

For newly sold passenger cars the EU intends to take measures to ensure average emissions of 120 g CO₂/km by 2012. Improved vehicle efficiency is extremely powerful option, biofuels and hybrids are inevitable for road transport but also electric and hydrogen cars are realistic options in the long term.

It would be crucial to support energy efficient products what includes public procurement programs and incentives for their purchase by consumers, constantly raising the bar on minimum efficiency standards for buildings, electrical equipment and vehicles and energy labeling as a norm for all energy using products.

The great potential of combined heat and power technologies should be supported by growth targets and improved access to grids.

Secondly, by developing policy and market instruments that support diversification of energy types, sources, routes of energy supplies and technological diversification, particularly promoting the switch to low carbon options.

Thirdly, by creating better opportunities for alternative, renewable and clean energy resources through redirecting subsidies from conventional to clean fuels.

Then, by encouraging the clean and renewable energies through mandatory quantitative targets. Renewables technologies like wind, solar, biomass, geothermal and other technologies are becoming more competitive energy suppliers, even despite massive levels of subsidies to fossil fuels and in many countries a merely rhetorical policy support.

Renewable energies diversify energy sources, promote efficiency and generally reduce reliance on extended energy supply routes and vulnerable infrastructure. While renewables are often mentioned favorably, in practice the priorities for support are often long term research and development of less proven and immediately available technologies in hydrogen, methane and carbon capture and storage. It is necessary to better support renewables with such measures as mandatory renewables targets, improved access to grids which could include supportive “feed-in” prices to help establish technologies, and through reduced subsidies to fossil fuels.

Then, by recognizing that nuclear energy is one of the most uneconomic energy technologies and that it carries risks on safety, waste disposal and weapons proliferation although still widely accepted option for combating climate change.

Also, by recognizing the value of highly efficient natural gas as a bridging fuel to a secure, sustainable, zero carbon energy future for the next three to four decades although it is not a long-term solution to climate change or to energy security.

Finally, by considering carbon capture and storage potential. In this regard, it is necessary to create a more global regulatory framework for sound, safe and environmentally friendly carbon capture and storage and so ensure that only zero-emission coal and gas power plants are built from now on.

Open, transparent, efficient and competitive markets for energy production, supply, use, transmission and transit services; transparent, fair, stable and effective legal, institutional and regulatory frameworks; physical security of critical energy infrastructure; establishing strategic reserves and emergency plans to limit consumption in order to mitigate the magnitude of physical unavailability caused by different reasons are all important prerequisites of energy security as well.

It is worth mentioning the need to identify opportunities to advance as many methane recovery-and-use projects as possible.

The scientific agreement is that the world faces serious risks of disaster if the global rise in average temperature cannot be kept under two degrees Celsius in comparison to pre-industrial times, and if global emissions do not peak and begin declining in next 10 to 15 years. If the 2°C threshold cannot be avoided, huge security implications are inevitable, such as:

- Continuing increase in frequency and severity of extreme weather events.
- Sea level rise.
- Crop failures in heavily populated or key food producing areas.
- Unprecedented environmental refugee movements.
- Border disputes over access to energy, water, food and other scarce resources. Concerning energy, hydropower generation is likely to be impacted the most by climate change due to its sensitivity to the amount, timing and geographical pattern of precipitation and to changes in temperature.
- Spread of endemic disease.
- Political, economic and social consequences of governments and other social structures becoming overwhelmed by direct and indirect climate change effects especially in developing world that is least equipped to cope with them.

Climate change is a major risk to increase conflict, insecurity and poverty. In some regions there is proven correlation between drought and the likelihood of high intensity conflicts.

Some scientific estimates point out that the region of SEE is the most climate change vulnerable part of Europe and even at the wider scale. In addition, political violence within and between the historically at risk to conflict SEE states on ethnic ground may become more likely. In that respect climate change mitigation and adaptation measures strongly supported by the international community are of the highest priority for the region.

To minimize or prevent these inconvenient possibilities, global emissions need to decline by at least 50% globally by mid century and lead to a world with low carbon energy supply soon after that, what is even above the level of progress specified in the current UNFCCC/Kyoto framework. The largest cuts are required from G8 economies, in line with a requirement for industrialized countries to reduce all emissions by about 80 percent by 2050. In the face of growing energy demand this is a challenging but not impossible task requiring improvement in energy efficiency and a wholesale switch to low or no emission energy sources. Joint consideration of energy and climate security supports just this direction.

It is crucial to follow security and climate policy options that address energy needs and climate change in an integrated way, rather than putting them in opposition, options that are environmentally effective as well as economically and politically viable through intensive cooperation between major global partners, developed and developing countries, enhanced dialogue between producing, consuming and transit countries, deploying different regional approaches that can be devised to meet common challenges.

Partnership between the government, industry and the business can redefine energy as a challenge into an opportunity: as services we require which create technology which requires skills that create jobs that foster economic growth.

In a transition period to reaching sustainable energy, promoting strategic partnership between national oil and gas companies (NOGCs) and international oil and gas companies (IOGCs) could contribute to more secure energy and ensure mutual benefits: for NOGCs (market access, technology, project management experience and knowledge transfer, capital) and IOGCs (access to reserves, doing business in more favourable, stable and predictable environment). Additional inclusion of governments will enable huge investment needs to be met and strengthen global energy security in the long run.

The debate on energy security needs is frequently limited to security of supply question for importers and the security of demand question for exporters. Besides the issue of a climate change, issue of access to a modern energy supply by hundreds of millions of people in developing countries should be integrated as well. The most developed states` policy decision-makers should take the lead on this integration.

We do not have time to lose. We need urgently to address sustainable development, comprehensive energy policy, environmental balance, new energy technologies, reasonable resource allocation, globalization, population growth, climate change to avoid risk of even harder questions in the next few decades like economic collapse, energy chaos, loss of human habitat, oil wars, resource depletion, irreversible damage, fragmentation, famine and so on.

It is very clear; we need a demanding and sophisticated global strategy that would primarily combine energy efficiency, renewables and natural gas as a bridging fuel that can provide the way for a low carbon future.

Challenges for the SEE energy sector will be even much more outstanding taking into account its main features, as follows:

- Current legal framework is incomplete and partially contradictory.
- Existing laws are not being implemented and many by-laws are missing.
- Local and sometimes national energy strategies or plans are missing; there is no data to design, target and monitor measures and actions.
- Energy companies and particularly municipal district heating companies are overstaffed and undercapitalized with under-qualified management structures.
- Energy prices are normally subsidized. Low prices encourage waste of energy and discourage many reasonable energy efficiency investments.
- Collection rates are unsatisfactory.
- Air pollution from energy production is significantly above EU-standards.
- Use of RES is minimal due to lack of awareness and technical knowledge, no clear RES potential assessment, missing legal provisions and subsidized prices for energy generated from fossil fuels.

- Public awareness is low, specifically concerning the economic and environmental dimensions of energy efficiency.
- No effective support mechanisms identified for the sustainable options.
- Scientific capacity and expertise, which could be addressing the above deficits, is missing – especially regarding the legal and economic dimensions.