

Abstract & key takeaways to EU policymakers

NEO-CARBON ERA – RENEWABLE ENERGY SOLUTIONS FOR THE POST COP21 WORLD chaired by MEP Pietikäinen, 14/6/2016, European Parliament, Brussels

To fulfil the COP21 targets, EU needs to transform its energy systems to emission-free by 2050 at the latest. Simultaneously Commission's objective is for EU to regain its position as the global leader in renewables. These ambitions set the scene for a solution-oriented informal round-table with MEPs, EC officials and researchers in the context of EU sustainable energy week.

This abstract sums up the keynote - "Emission free energy system is possible – now" - with three cross-cutting trends that should be taken into consideration in Commission Research, Innovation and Competitiveness strategy for the Energy Union (EURIC) and in further policy-exchanges with e.g. inter-parliamentary EUFORES network.

Transition to post post COP21 100% renewable energy system (Neo-Carbon era) is technologically possible today, but the below 3 trends of exponential energy transition need urgent policy-attention:

1. Disruption of current energy system leads to great electrification and Internet of Energy
Energy system disruption takes place both at the level of individual technologies and at the systemic level. Building an emission free energy system will lead to great electrification of society with systemic energy efficiency improvements. At the technologies level it leads e.g. to the uptake of electric mobility and rollout of decentralised renewable electricity generation plants gradually replacing the current centralised power plants as primary energy production units. At the systemic level digitalization (incl. Internet connection in home appliances) further supports the decentralisation. The result is best described as Internet of Energy, where all electricity users will be connected to the same energy efficient system and where electricity is traded in real time.

2. Future energy security is a cybersecurity challenge

In the post COP21 world, the present role of oil, coal and gas markets will diminish as energy independence is enabled by decentralised renewable energy systems. Global transition to renewables therefore disrupts the current inter-dependencies and power balance between nations and regions. Deconstruction of the major global income distribution framework, based on fossil energy flows, will cause political unrest. In the Internet of Energy system, energy security becomes primarily a cybersecurity challenge. If carbon is still needed in the post fossil world e.g. for materials, chemicals or fuels, they can be produced from carbon dioxide, water and electricity forming the basis for Neo-Carbon era.

3. Future energy market is electricity market

Fossil fuels, particularly oil, cannot set the benchmark for energy prices in the post COP21 world simply because fossil fuels will be phased out. Energy markets need to reinvent how the price of energy is formed, as the future energy market will be electricity market. There only the renewable energy production capacity has direct costs, as marginal production costs for renewable energy are low. The cost of the production capacity is finally dependant on the financial market and the cost of capital. Therefore, secure access to the capital is more critical than access to oil and gas resources.

Neo-Carbon Energy (NCE) is the largest ever renewable energy research in Finland. NCE is ready to continue the promising round-table debate on how the current EU strategies take these energy trends into account. NCE suggests launch of an agile EU level strategic initiative merging research and policy-analyses on the three cross cutting trends described above.

More: Dir. Pasi Vainikka +358405825987, ppt-presentation & www.neocarbonenergy.fi (incl. library)