

## ENVIRONMENT AND THE FUTURE OF ENERGY

The 2015 United Nations Climate Change Conference, more commonly known as COP21, was continuing to make waves almost a year later at the 23rd World Energy Congress. COP21, where the Paris Agreement was negotiated, was by then well underway to be ratified by 55 countries – the absolute minimum required number of parties for the agreement to enter into force. Consequently, as the major culprit responsible for  $\frac{2}{3}$  of the emissions causing the climate change, according to Fatih Birol's and IEA's findings, the energy sector was discussing throughout the congress the "How?"s and "Who?"s of the agreement that would shortly after come into force. What were the energy leaders' impression of the agreement and expectations for the sector's future?

### **The Paris Agreement is here to change everything.**

Saying that the Paris Agreement was central to all sessions in the congress, irregardless of their topic, would not be a stretch. The stipulations of the Paris agreement necessitate the governments to adopt an experimental form of international governance, which Ricardo Melendez – Ortiz, co-founding Chief Executive of the International Centre for Trade and Sustainable Development (ICTSD), called a "hybrid governance". This promises fundamental changes in the way in which governments, and the energy sector, operate. Han Wenke, Director General of the Energy Research Institute at the National Development and Reform Commission (NDRC), pointed out that the Paris Agreement provided a much clearer package and objectives for the global energy governance.

### **Our energy access efforts sit directly at odds with our environmental targets.**

Ensuring dependable access to energy for all is a fundamental humanitarian challenge of the coming decades. Currently it clashes directly with our Paris targets. Koç Holding's President of Energy Group, Yağız Eyüpoğlu, noted how about 1.3 Billion people around the world have no access to electricity, and that the primary energy source of the 2.7 billion that do is biomass. According to IEA's data, these numbers correspond to  $\frac{2}{3}$  of the population in Africa having no access to electricity even in intermittency. How to provide electricity to those without, whilst meeting the mitigation goals is one of the crucial challenges that the energy world faces.

### **Lack of energy access might mean delayed energy transition.**

Much like in China, where the urbanization rate around 55% means 100 – 150 million people still live below the poverty line, the poor are large in numbers have considerable political power in many countries. Jianyu Zhang from the Environmental Defence Fund pointed out that they will most likely utilise this power to gain access to cheap and quick energy solutions first, which will be at the cost of green, clean energy sources, as clean

energy sources will likely remain costly for some time in the future, despite their rapidly falling prices.

### **Innovation in unexpected fields may aid our efforts.**

Innovations on many fronts - not only in technology, but fields such as finance - can also end up assisting us in our Paris efforts. One such innovation, the Green Bond Market, which has gone from nowhere to become 56 Billion US \$ market in less than a year, is a good example of new practices that can help drive the energy transition forward by educating the financial investors in the real benefits of targeting green investments. Christopher Knowles, the Head of Climate Finance of the European Investment Bank (EIB) expects green bonds to really become incentives for people who approach the capital market, to support their investments in green ways, because they will start to receive better risk premiums by doing so.

### **Addressing the issues on the supply side of the equation is only half of the problem.**

While adoption of new policies and practices are crucial, we will have very little overall success if we fail to transform our current consumption patterns. Some countries are just more wasteful than others and this has a very tangible impact on the energy markets and the global emissions. We have to address the demand side of the equation as well if we want to protect the future. There is very little point to building new development banks and funds and investment schemes or building expensive supply side solutions, if that energy is going to end up being squandered. There is an enormous untapped potential in energy efficiency, and as Fatih Birol stated and re - stated through the congress: "For IEA, energy efficiency is the first fuel."

The Head of the Middle East and Africa Region of Danfoss, Levent Taşkın's stressed that buildings account to 33% of the global energy use and are responsible for 40% of the carbon emissions released into the atmosphere, and that there is a 3 Trillion US \$ worth of untapped opportunity in buildings for energy savings. This offers a particularly exciting opportunity in developing countries, like Turkey, China or India, where the construction business is the main driver of the economy.

### **Where energy efficiency succeeds, it does so because of policy.**

Brian Motherway, the Head of Energy Efficiency of IEA, argued that energy efficiency success stories are always led by policy. Christine Kung - Wai Loh, the Undersecretary of Environment in Hong Kong, believes that energy efficiency efforts cover wide range of decisions from policies, extending even to managerial practices in the sector, like how the system could be run in a way that could stimulate energy saving as a continuous source of energy. Unfortunately, at the moment, energy efficiency policies are very patchily applied and there are even some countries with no policies whatsoever.

**Developing countries can have renewable energy, only if they accede to the uncertainty it brings.**

For developing countries, adopting renewables means importing them, and they face many uncertainties financially or otherwise in every step. Emerging economies are exposed to currency fluctuations internationally, and social and political restlessness domestically as a consequence of a rapidly growing economy. Some face the challenge of having a less than sufficient infrastructure or grid system. These issues must be addressed simultaneously if these countries are to fully realize these new energy sources' benefits.

**As we move forward we should take care to protect global trade from distortions...**

To hit our Paris targets, we will have to achieve net zero emissions by 2050, and for that we not only have to combat emissions from coal and gas power plants but also those from industrial practices. The energy world at large will have to find alternative means – policies, technologies, practices – to combat CO<sub>2</sub> emissions. The challenge here is doing so without creating distortions in the international markets and international trade, following the principles of non – discrimination, ensuring that we don't offset the terms of trade, and the competitiveness of industries.

**... and the silver bullet to tackle this particular challenge is carbon pricing.**

Carbon pricing taxes carbon, using market measures and mechanisms while making sure that the competitiveness is preserved. Carbon pricing (1) incentivises carbon free technologies, (2) penalises the use of fossil fuels according to their carbon content, (3) creates revenues, which can be used for other issues like infrastructure investments, compensation of the losers of the new order or even investment in RnD or involvement on research initiatives like "Mission Innovation". One thing all leaders seemed to agree on this topic was that carbon pricing is inevitable. And whilst being very much encouraged during COP21, at the moment, there is no carbon market governance mechanism. Ottmar Edenhofer, Deputy Director and Chief Economist of Potsdam Institute for Climate Impact Research, believes that is just as well. There shouldn't be any global authority for carbon taxation or a global carbon market, lest they end up operating to the detriment of international trade. He suggested countries determining and committing to their own set carbon price and implementing it either as a tax or a carbon emissions scheme or a combination of both would offer a more realistic approach.

**Even curbing emissions is not enough to meet our targets.**

While as Christian Friis Bach, the Executive Secretary of UNECE, mentioned, around 80% of coal, 50% of oil and 30% of gas will have to be left in the ground for us to meet our emission goals, this is not likely to happen. What's more, we not only have to ensure

we don't release any more greenhouse gases, but also actually withdraw CO<sub>2</sub> from the atmosphere. This makes CCS one of the most necessary technologies we have to venture to avoid climate catastrophe. Unfortunately, CCS is moving too slowly to offer a solution for the energy world. There are many barriers in place for CCS to scale up. One barrier that really hinders CCS is that there hasn't been a demonstration of CCS at a sufficient level anywhere in the world. Another one is, as John Scott argued, since Kyoto, there has been a very strong anti - carbon industry lobby in place.

Bad publicity and poor public opinion is yet another one, because some well - meaning environmentalists have painted CCS as something that somehow perpetuates the carbon intensive industries rather than a key one of many solutions for decarbonising the future.

### **We cannot rely on economics alone to drive CCS.**

As a novel technology with a few friends, CCS investments are difficult to push forward with just private investments. The congress participants were more or less unanimously in agreement that it is policy makers who should ultimately be the ones encouraging the development of CCS. CCS will not only allow economic regeneration in areas which rely on old industries like iron, steel, coal and cement, but will also offer some room for these old industries and fossil fuel producers to manoeuvre as they have currently assumed only the role of perpetuator of a problem and have no way contributing to the dialogue and the political decision-making process.

### **Nuclear power plays very well with our energy and environment objectives.**

Nuclear causes no emissions or air pollutants, and is cost competitive according to the latest OECD study. IEA estimates up to 56% increase in the use of nuclear power by 2030. Just by utilising the nuclear power technology, we avoid emitting 2 billion tons of CO<sub>2</sub>, and in the past 40 years nuclear power prevented the emission of 60 billion tons of CO<sub>2</sub>.

Without nuclear power, it is very unlikely that the international community can achieve the objective of less than 2°C increase. Nuclear power and the use of nuclear power should not be limited to developed countries. Access to nuclear power should be given to developing countries.

### **It's early yet to celebrate.**

Many speakers have expressed genuine worry that the Paris achievement will soothe the policy makers and energy leaders into a false sense of security and inertia. As William D'Haeseleer, Director of the University of Leuven Energy Institute has put it; "The real work will start after COP21." It's too early to congratulate one another on a job well done.