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The web of policy, technology, and market developments taking place within the energy sector across the world converged profoundly in the recent climate negotiations held in Copenhagen. Energy Edge has prepared a series of client briefings based on its involvement at the climate talks that outline some of the most prospective scenarios for how climate policy will impact investment opportunities for energy providers.

Following Copenhagen, when a non-binding "Copenhagen Accord" was agreed by many (but not all) the key players, countries were to declare their "association" to the Accord. Energy Edge's Karl Schultz who attended the Summit considers the ramifications of Copenhagen and of what has happened since:

- ***By and large, the commitments made under Copenhagen have been at the lower end of what many countries had proposed at the outset.***
- ***In some cases, enacting cuts depend on further governmental action, while, in the case of some major industrializing nations, firm commitments have yet to be made***
- ***While perhaps a disappointment, Copenhagen is going to force vastly deeper cuts in emissions and impact a much wider set of economic players than Kyoto,***
- ***Taking on the commitments under Copenhagen in earnest will mark a significant transition to a low-carbon future, although the technologies which will be favored in this future have yet to be determined***

As noted in my post-Copenhagen debrief, intelligent stakeholders in the energy arena are now forced to "stay tuned" indefinitely as Copenhagen resolved very little and left the world wondering what collection of commitments countries would submit by the 31 January deadline. The deadline became "soft" but as of today 102 countries had submitted either "quantified economy-wide emissions targets for 2020" (industrialized countries) or "nationally appropriate mitigation actions" (NAMAs, for developing countries).

Meanwhile, the past two months have been a time for everyone to take stock of what the Copenhagen outcome (or lack thereof) means. Some parties consider the Accord a successful outcome as it does provide a politically acceptable way for all (or almost all) parties to join in, with developing countries formalizing their actions for the first time and everyone associated agreeing that warming should be limited to 2° C. Others believe that Copenhagen (the conference, but also the Accord) are a disaster as there is no binding treaty to take the place of Kyoto, no clear pathway to get there, and plenty of ambiguity around what are the likely limits post 2012 and how will they be implemented. In other words, everyone could take what they wanted in terms of the Accord.

The commitments related to Copenhagen have not been particularly surprising. Most of the "quantified targets" match up with the lower range of what countries proposed prior to the conference. Many of the commitments are conditional, on passage of legislation (U.S.) or on others taking on meaningful commitments

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(Japan). Some are range bound (EU, Australia). The “NAMAs” of developing countries also matched up closely with prior announcements. But China and India, while submitting actions to the UN, did not formally associate with the Copenhagen Accord. They did not refuse, but it is clear that moving forward, both countries want the process to be run through the negotiating tracks of the United Nations.

Looking ahead, then, the UN will be having a session in Bonn, Germany this June, and then the next annual “Conference of Parties” to the Framework Convention on Climate Change will meet in November and early December in Mexico. There will be a major “G20” meeting in Toronto in June, when details could also be worked out, and the UN is considering hosting other meetings to forward the discussions. Meanwhile, work is underway to figure out how to disburse the \$10 billion/year committed by wealthy countries to developing countries, and the CDM and JI bodies are working through some reforms to their procedures.

But what does this all mean?

Most analyses indicate that the pledges of industrialized countries, depending on certain assumptions, will on aggregate reduce emissions by 12-19 % below 1990 levels by 2020. Compared to the estimates by the Intergovernmental Panel on Climate Change (IPCC) on what is likely to avert two degree warming (25 – 40 % reductions below 1990 levels) these pledges don’t match up with what is necessary (although much more stringent – possibly draconian - action after 2020 might just do it). Also, the \$100 billion pledged (without clarity on how it will be funded) for developing countries in 2020 doesn’t match up with the needs, expected to be at least twice as costly. So, the Accord is not going to save the day.

That’s one way to look at the issue, and it is probably correct. Another perspective, however, that is valid for companies in the energy sector, is to consider how significant the Accord’s pledges are compared with the status quo.

The Kyoto Protocol sets its targets around 1990 emissions: for each country with targets (38 countries representing 16 billion tonnes of CO₂ equivalent emissions in 1990), the target was to achieve emissions changes from baseline in 2008-2012 of between -8% and +10%, depending on what the country negotiated. The U.S. never ratified Kyoto, and the economies of the former Soviet Union and Eastern Europe contracted in the early 1990s, and the result of Kyoto looks to be at best an increase in emissions of over 600 million tonnes.

The Copenhagen Accord allows countries to set whatever base year they want. There is also plenty of room for interpreting emissions differently. But, looking at analyses performed by the U.S. Climate Network, we are able to see what, measured from a normalized 1990 baseline, the low and high ranges of emissions cuts will be by 2020. Comparing just the countries with Kyoto and Copenhagen targets, Copenhagen pledges result in cuts below 1990 of between 1930 and 2787 million tonnes. If you add in the countries that didn’t have targets in Kyoto (like Kazakhstan and Belarus) and then add in the Nationally Appropriate Mitigation Action (NAMA) pledges for developing countries, the global totals are much, much more steep:

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	Kyoto Reductions (MtCO ₂ e)				Copenhagen Reductions (MtCO ₂ e)		
	1990 Emissions	Emissions in Kyoto Protocol Signatories in 2007(BAU)	2008-2012 Emissions Targets for Kyoto Signatories	Kyoto Reductions from BAU	BAU Projection 2020 ¹	Emissions in 2020 (low end/high end)	Reductions from BAU 2020 (high end/low end)
Copenhagen Targets	16190	7107	6206	902	20229	13403/14260	6826/5969
Copenhagen NAMAs	8726	0	0	0	21676	10056/19676	11620/2000
Other	11161	0	0	0	12530	12490/12490	40/40
Total	36077	7107	6206	902	54434	35949/46426	18485/8008

¹ based on IEA Base Case Scenario, World Energy Outlook 2009

Comparison of cuts of Green House Gas Emissions against “Business as Usual” – Copenhagen vs. Kyoto

The table above shows that Copenhagen’s proposed targets and actions result in net reductions of between about 8000 and 18500 MtCO₂e in 2020 against the IEA’s “business as usual” scenario (although these scenarios are highly sensitive to GDP growth in China and India and the lower limit may be unrealistic) versus about 900 MtCO₂e reductions against BAU creditable to Kyoto.

It’s important to remember that the Kyoto Protocol’s first period goes from 2008 – 2012. So it is less than half of the way completed. The recent global economic downturn reduced emissions, especially in countries with emissions targets, thus dampening the need to take action. Nonetheless, Kyoto has resulted in the EU establishing an emissions trading scheme that currently prices emissions allowances at around €13/t, and credits generated in developing countries at about €11/t. Kyoto has stimulated registration of over 2000 projects under the credit regime called the Clean Development Mechanism. Other countries, especially Japan, have also been actively scouring the world for good projects to generate credits.

The recent pledges announced come from countries representing over 80% of global emissions and for the first time actions are formally submitted from developing countries, where most future emission growth is expected. Countries like China, India, and Brazil, are formalizing energy efficiency and renewable energy certificate trading schemes or feed-in tariffs for renewable energy. A lot of this action suits other national priorities such as energy security and local air quality, and the jobs and export potential created by stimulating renewable energy technologies and manufacturing are key political and international trade motives. Hence, these countries don’t have to be altruistic to achieve a lot more than has happened to date.

So Copenhagen is not enough. But while further analyses are needed to determine exactly what carbon prices energy producers and consumers are likely to need to factor into operations and fuel purchase decisions, and also into long-term investments, it is clear that if we are limiting our global emissions ambitions to the Copenhagen Accord for the time being, this still is a tremendous watershed in the shift to a low carbon global economy that simply cannot be dismissed.

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The good news is that every sector of the economy will have winners. The rules have not yet been set on which low/no carbon energy technologies are favored. Scenarios created by Energy Edge show that even the coal sector could end up a winner while the economy is being de-carbonized.

***Karl Schultz AB, M.PI** (karl.schultz@energyedge.net) has been in the environmental protection field for his entire career and is a recognized thought leader in the field of climate change and emissions markets. Having worked at the EPA for 10 years Karl now advises an array of industry leaders across a broad range of environmental and energy related issues.*

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