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The web of policy, technology, and market developments taking place within the energy sector across the world will converge profoundly with the current round of climate negotiations. Energy Edge is preparing a series of client briefings based on its involvement at the climate talks culminating in Copenhagen this December. These briefings will outline some of the most prospective scenarios for how climate policy will impact investment opportunities for energy providers.

This first briefing precedes the Copenhagen Summit and summarizes the key issues being debated, outlines a few potential outcomes, and considers how these will impact the prospects for different energy investments going forward. Subsequent briefings during and after Copenhagen will update and clarify the emerging scenarios, and provide energy stakeholders a view on the possible impacts on energy prices, carbon prices, investment opportunities and risks.

The future of the energy sector will be shaped in Copenhagen, or so many hope, think or dread. That's because this December the Danish city will host global negotiations to set limits on greenhouse gas emissions for the period after current targets expire in 2013. The implications will be far reaching as the meeting aims to set national emissions targets, and also outline the incentives for future emission reduction activity. But while the world awaits this "conference of parties", the variety of differing national interests means achieving a strong agreement will be difficult.

Consumption of fossil energy is the most important source of anthropogenic greenhouse gas emissions – well over half the global total. The scientific consensus is that global emissions must decline by 50-80% from 1990 levels by 2050 in order to avert catastrophic climate change. Thus, unless we are willing to risk and indeed expect catastrophe, fossil energy consumption must decline, or the carbon dioxide it produces must be stored – there is no other way around this conclusion. The proposed trajectory to achieve this has emissions from industrialized nations dropping by 25 – 40% by 2020.

The policies enacted following Copenhagen have the potential to markedly change the extent, and or the way, that wealthy countries consume fossil energy over the next decade. As a consequence all participants in the energy supply chain face profound risks and opportunities depending on the outcome of these talks.

So how will the Copenhagen talks attempt to create an international framework to reach these targets? Simply put the talks will address two key issues:

- What caps should be placed on emissions and where?, and
- What mechanisms will be used to incentivize these emission reductions?

What Caps Will be Placed on Emissions and Where?

Based on previous climate change negotiations a variety of countries have already implemented emissions caps. However, the level of these caps and their limited geographic scope mean they are inadequate to meet the global emission reductions of 25-40% proposed by scientists. At the same time other countries have implemented local emission reduction initiatives, but they have not bound themselves to international commitments in this regard.

This round of talks will focus on the inclusion of other countries to this international commitment and the level of reductions committed therein. The key issues will include:

- Will Europe and Japan commit to further reduction in their caps? They have proposed targets that as an aggregate result in less than 25% reductions from 1990, but the EU has also a preparedness to increase the level of emission reduction depending on how far other countries commit.
- The U.S.? It looks unlikely to commit to the same level of targets as other developed countries, and any commitment will be contingent on meaningful commitments coming from China and other developing countries.
- So what will be the stance of developing countries? The least developing countries will not face caps. But ...
- Russia? It will probably accept a cap, but at the same time it is claiming that it deserves the extra emission allowances it did not use during the current Kyoto period (about five billion tonnes). The result might, in effect, be no real cap through 2020.
- China and India? Probably not, but they have announced other policies that could do a tremendous amount to limit emissions, increasing energy efficiency and encouraging renewable energy.

The critical question is whether, and how, the agendas and contingent commitments of key nations can coalesce into global agreement?

What Mechanisms will be used to Incentivize these Emission Reductions?

In Europe, along with a number of clean energy subsidies and other measures, the primary/flagship mechanism for incentivizing emission reduction has been the allocation and trading of emission allowances. With a potentially broader geographic scope of international commitment what will be the future incentive mechanism?

Many parties are very skeptical of the current system, especially of the “Clean Development Mechanism” (CDM) under the Kyoto Protocol. Some say it is too lenient, others, too strict. Will it survive as a viable way for the private sector to secure credits to offset emissions, and finance investment in clean energy in developing countries?

An alternative approach and one gaining ground relative to the project based CDM is structured around sector emissions limits in middle-income countries. Under this approach an industry has its emissions capped and while allowance trading can occur, it would do so at higher level than project-based reductions.

A further issue to be addressed is the extent to which any of the emissions markets might be linked. For example, if the U.S. develops an emissions market and its cap is easier than the EU’s (a possibility), then how would the markets relate to each other and converge over time? How could allowances trade between markets? How would this affect the price of allowances?

While significant parts of the talks will focus on emission reduction from fossil fuels, the issue of forestation and its role in CO₂ absorption will also feature, especially as it relates to developing countries and funding the cost of forest protection and reforestation. While forest protection offers a tremendous opportunity, if, as part of a carbon allowance and trading mechanism, it is granted overly lenient targets then this might cause carbon prices to plummet and undermine the viability of urgently needed new technologies and the incentives for emission reductions in other sectors.

Deciding on a mechanism that appropriately balances incentives across all relevant methods for limiting atmospheric CO₂ levels is likely to be the biggest challenge if the talks are to reach a committed conclusion.

How will these issues play out and what are the likely scenarios for the conclusion to this round of talks? In essence the question - What point along the path to a 'complete' solution will we reach?

- At a general level progress will be measured by the overall level of global emission cuts agreed; the distribution of these cuts among countries and sectors; and their timeframe.
- At a detailed level the measure of progress needs to be about practical implementation issues - What energy investments are permitted, banned, incentivized and discouraged? Who regulates them- international bodies, national governments, or third parties?

Below we have outlined our three "most likely" scenarios for the conclusions of these talks and their broad implications for energy markets:

No treaty, but wind in the sails for a treaty within a year

If this plays out then while energy investors may not have the certainty that a treaty would provide, they will be able to make plans based on the expectation of progressively better information within a defined and short time frame about where emissions will be cut, and what technologies will be incentivized.

A likely outcome

No treaty, and chaos over future climate talks

This offers the status quo business models some respite, but does little to give investors any certainty regarding what future technologies will be viable in the longer term. Meanwhile, the global energy fleet will age, increasing the risks that both science-based emissions targets won't be met and that global energy supplies will be inadequate.

Another, almost as likely, scenario

A weak, binding agreement: certainty without much depth

All indications are that finalizing a strong treaty during the Copenhagen talks is unlikely. In the absence of such a strong treaty the parties might agree to a weaker set of commitments. The result of this outcome would probably be short-term certainty for the global energy markets (through 2020, perhaps), but would also reflect global acceptance that some form of calamitous climate change event is likely by mid-century. Under this outcome, global economies and political systems would progress down a pathway of destabilization that would not make life good for many energy investors by the time they retire.

The least likely outcome

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Which of these scenarios plays out will depend on how the Copenhagen talks can resolve tensions between an agreed global imperative and individual national interests - a tension that all the participants will experience.

A poignant and highly visible example of this tension can be seen in the US:

- On one level advocating a strong climate change agenda is consistent with US's leadership role as a world superpower, but simultaneously agreement with and commitment to the same supplants some of its hegemony and independence.
- At another level the US's governance structure makes treaty-ratification difficult, requiring a two-thirds vote in the Senate and therefore the need to effectively confront diverse interest groups and lobbying efforts of those stakeholders, and voters, who feel threatened. The current 'economic' climate exacerbates this issue, increasing the difficulty of gaining support for any agreement that might be perceived to detract from US competitiveness and economic recovery, even though the longer-term environmental impact might be well understood.

In the US the result of this tension is that the U.S. won't vote for and commit to a strong climate treaty unless China and India and other countries also commit. At the same time these countries point out that it is wealthy countries, like the U.S., that were responsible for more than three quarters of cumulative emissions, and that their own, per capita, emissions are a small fraction of America's. Ergo, potential gridlock.

In spite of this profound challenge, many in all major economies are motivated to "do the right thing." Forty heads of state will be in Copenhagen to hash out a deal, and they won't want to come home empty-handed.

Stay tuned...

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