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Financing Europe's Energy Needs & Climate Action in the 21st Century

A high level conference on climate action, energy security and the financial sector

24th March 2010

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Executive Summary

Energy and finance have been two of the hot topics within the EU for the last few years, but they have rarely been brought together, despite the huge sums needed to upgrade and decarbonise Europe's energy infrastructure and to meet the bloc's challenging 2020 targets on renewable energy, energy efficiency and alternative transport fuels.

The link between the two is crucial to a global climate agreement, which proved so elusive at Copenhagen. That made the conference, Financing Europe's Energy Needs & Climate Action in the 21st Century, co-hosted by Barclay's Capital and Fleishman-Hillard and organised by Forum Europe, particularly timely. In his opening keynote speech, the European Commission's Director-General for Energy, Philip Lowe, said that much of the cash will have to come from the private sector, which makes well-functioning and integrated markets vital to the EU's climate change objectives.

Frameworks provided at the EU level which allow for interconnectivity and cross-border initiatives are vital to give private investors the confidence to commit funds, in the same manner that public funds have been committed, while the carbon prices remains low.

As a result of the financial crisis, markets remain risk averse, said Sharon Bowles, MEP and Chair of the Economic and Monetary Affairs (ECON) Committee in the European Parliament – and so do policymakers. Furthermore, every piece of financial regulation is up for review, as those parts of the system that were previously unregulated are coming under the spotlight, too. The net effect of this greater level of scrutiny will be a higher cost of capital – at a time when Europe's energy sector is so in need of investment.

Yet in the grand scheme of things, Europe is not that important, claimed IEA Chief Economist, Fatih Birol. In the future, nearly all increases in emissions will come from emerging markets so

to deal with the problem we have to look beyond Europe, where climate change is not top of the agenda but there is great concern about energy security, which is prompting major improvements in the energy and transport systems of countries such as China and India.

We should not be blinded to this progress just because other countries do not embrace the EU's tradition of a legally binding framework, suggested MEP Lena Ek.

Europe will set an example for others to follow – and the changes needed to meet the IEA's 450ppm scenario are stark, as Birol outlined. By 2030, every second car sold in Europe must be some form of electric vehicle, while €75 of every €100 spent on the electricity system must go to renewable energy. Such measures would also effectively push back the date at which we reach "peak oil", he added.

Trevor Sikorski, Head of Environmental Markets Research at Barclays Capital, focused on the carbon markets and energy markets, asking the question: "Are they working?" In the case of energy markets, the answer is an emphatic 'yes,' as they have been incredibly effective at providing electricity generating capacity and gas import capacity.

The carbon market has also been doing its job, he argued. Still there are disagreements and confusion over what that job entails. Some say that the EU ETS is failing to provide investment for areas such as carbon capture and storage (CCS) – but the carbon market's job is to put a price on the scarcity of carbon and encourage action to cut emissions at the lowest price – which will not include the expensive and unproven CCS.

Thus, other measures will be needed to encourage more investment, because in energy investment terms, 2020 "is not the day after tomorrow, but tomorrow," according to German energy regulator, Johannes Kindler, from the Bundesnetzagentur. However, investors will gravitate towards open, investor-friendly,

well-regulated markets with a coherent, long-term energy strategy that give investors a decent return for the risks they are asked to take.

The private equity sector clearly sees clean technology as an area with great potential but it is concerned about the level of risk aversion built into financial regulation, added EVCA's Javier Echarri.

In the second session, on the legacy of Copenhagen, Barclays Capital's Louis Redshaw suggested that the failure to agree a legally-binding framework would lead to a bottom-up approach to dealing with climate change at national level, but he was optimistic that this would create opportunities for new carbon markets. We need carbon markets to have any hope of meeting climate targets, suggested Kindler.

However, the prospects for a global carbon market are more distant, so Europe has a chance once more to set the pace by setting effective standards for offsets and defining how a sectoral market would work, Delia Villagrasa of the European Climate Foundation (ECF) said.

There is not universal agreement in Europe on the success of the ETS, said Andrzej Blachowicz, of Poland's Centre for Emission Management. Many in Eastern Europe see the Climate Package as unclear and unfair. Only a fair approach, supported by all the EU Member States could serve as a good example for a truly global and participatory climate agreement.

Yet a carbon market is the quickest, most flexible way to meet emissions targets and to do that on a global scale, said Dow Chemical's Russel Mills. The best thing Europe can do is to show the rest of the world that an ETS can be made to work across the economy, he added.

In the keynote speech that closed the conference, Jos Delbeke, Director-General of the new DG Climate Action, said it was time to move on from Copenhagen. The EU sees the glass as half full, he said. "We have a 2°C objective, we have pledges on the table and pledges of finances as well." Nonetheless, there is still a lot of work to do to make the Copenhagen Accord pledges legally binding, to flesh out how sectoral agreements would work and to create a network of linked carbon trading schemes around the world.

If Europe wants to maintain its leadership, it must put itself back on track to reduce its emissions by at least 80% by 2050, he concluded.

Keynote speeches

Philip Lowe,
Director-General, DG Energy, European Commission
Sharon Bowles,
MEP and Chair of the ECON Committee, European Parliament

The conference opened with Nickolas Reinhardt, Senior Policy Advisor and Chair of International and Regulatory Affairs at Fleishman-Hillard, pointing out that there are many meetings about energy and climate change and that there are lots of finance summits, but very few that bring the two subjects together.

Given that Europe's energy infrastructure needs €20 trillion of investment by 2030 to be upgraded and climate-proof, and that the financial crisis has reduced the availability of public sector finance, there is clearly a need for such a discussion, he added.

Philip Lowe, Director-General of the new DG Energy, highlighted the EU's initiatives over the last three years on climate change, energy security and competition, including their binding target to increase the proportion of energy generated from renewable sources by 20% by 2020. Governments have also committed to increase energy efficiency with an indicative target of 20% within the same time frame.

Bringing economic and energy policy closer together is a key priority for the new Commission, he asserted. "Sustainable growth, competition, security of supply, safety, welfare, jobs, skills, innovation, investment and resource efficiency are all areas that apply very much to energy policy in our efforts to reach the 2020 targets and beyond," Lowe added. "Developing energy networks and commercialising the use of low-carbon technologies are key. But to meet our climate change objectives, we need well-functioning and integrated markets."

Investment decisions must be embedded within a competitive internal market for energy that delivers safe and secure supplies at competitive and affordable prices. Most of Europe's energy and transport networks – based on cheap, plentiful fossil fuel supplies – are ageing and there are many gaps, he said. In newer Member States, there are very poor connections and some regions are vulnerable to supply disruptions.

All of these factors work against the functioning and further integration of the internal market, and the investments in renewable energy projects that are needed to meet the EU's targets.

"We are aware of the investment required to meet these objectives," he said. "Up to 2030, €1 trillion must be spent on grids, networks and generating capacity for electricity." Even if you think of gas as a transitional fuel source, you still need to spend €150bn on infrastructure, and that excludes money going into pipelines to import gas into Europe. A further €50bn must be spent on energy technology in the next decade, he added.

The scale of the investment means that much of the finance will come from private sector sources but "if banks and businesses are going to invest, they need to be reassured that their money is going into a market framework that gives them some level of security and control of risk". Much of the investment will involve cross-border initiatives, he continued, but that requires EU-level legislation that is not always in place at the moment.

The role of the market is to give investors the right signals about what to invest in, the Director-General said, but it struggles sometimes when it comes to future investments in such a complex field, which is why the public authorities need to become involved. The price of carbon was never going to be enough of a signal to direct investment "and I find it surprising that the world ever thought that the carbon price alone would entirely encourage these investments.".

Moving to a market where suppliers and distributors do not control networks, "you have to ask who is going to invest in infrastructure networks and at what level," Lowe added. But infrastructure and generating capacity are investments that could appeal to pension funds looking for long-term, stable returns, even if these are at lower rates than are available elsewhere. However, investors would need to be convinced that the business environment is stable enough to make the investment sufficiently low-risk.

European Framework

Regulations creating an open and competitive energy market will help, but "for the last 100 years, the focus has been on making it work at a national level and not taking into account the costs and benefits of interconnection on a European scale. We have to show the business community that these frameworks are serious," Lowe asserted.

Just 12 energy companies supply almost 95% of Europe's energy, he added. So while there may be 27 energy policies, 27 energy ministers and 27 sets of regulators, a dozen companies have a key role in how these markets work. "We have to convince them and their financial backers that there is a model that will be successful.

"Is there a case for more finance from public sources to stimulate the investments we are talking about?" Lowe asked. "Many financial institutions say there is, at least for a transitional period until there is more certainty about the carbon price and until barriers to an internal market have been removed. There may need to be public support to provide a minimum amount of equity capital for certain schemes, which would be the basis for private institutions to raise more debt."

The construction period of large energy infrastructure projects is full of minefields for investors – pension funds would be very jittery about the potential for cost overruns on nuclear power stations, given the current Finnish experience, for example. However, once construction is over and plants have been commissioned, the risk goes down considerably so the private sector could step in to take more of the burden at this point, he explained.

Many projects are finding it difficult to obtain finance in the current climate, said the second keynote speaker Sharon Bowles, MEP and chair of the ECON Committee, because both financial markets and policymakers remain risk averse.

"The financial crisis has led to just about every piece of financial regulation being up for review and reinforcement – and what was previously unregulated is receiving a lot of attention, too," she said.

The collective cost of the Financial Services Action Plan was about 5% of growth, and the latest round of changes would at least equal that. The risk-averse culture increases the cost of projects, particularly those that take some time to come to fruition or involve research and development (R&D). It is not just big business that suffers as a result but the SMEs further down the supply chain, too.

It's the economy, stupid

"Never have the words: 'It's the economy, stupid' been more relevant," Bowles pointed out. Although energy, R&D, emissions trading and the environment are all the responsibility of other committees, most financial players active in these fields – banks, pension funds, investors, energy companies and small businesses – will all be affected by changes in financial regulation.

The Alternative Investment Fund Management Directive (AIFMD) is characterised as being aimed at "the hedge funds that everyone loves to hate" but it will affect any activity that is not retail investment, which encompasses everyone from infrastructure funds to real estate to venture capital. "The impact on returns will be significant and that will reduce investment capital." In turn, that will make the lower investment returns mentioned by Lowe less attractive, she said, as investors will be seeking higher returns, "which will, ironically, be much riskier".

The Capital Requirements Directive is loading ever-more requirements on banks' capital bases, and "for every euro that is tucked away in the banks, that means €10 that cannot be lent. The cost of capital will inevitably rise."

The EU's derivatives regulation does not deal with commodities or emissions trading, as opposed to the US where these subjects are covered by the same legislation. "I have invested a lot of time in working to avoid regulatory arbitrage, which could play big in the derivatives market." she explained. "I hope that the EU division between commodities and other derivatives does not lead to gaps that we might live to regret."

Another concern is the effect of the legislation on normal hedging activity, which may become much more expensive. The extra cost will inevitably be passed on in the form of fees and a higher cost of capital.

Session 1
Financing Europe's and the World's Energy Needs

Europe depends on imports for 50% of its energy needs and this will rise to 70% in the next 10 years unless action is taken, said Lena Ek, MEP, moderating the first session of the debate. "We have a 'rusty' grid that goes from East to West and has one door, rather than the circular system we tried to build in the Nordic region," she added.

Legislation has focused on energy efficiency, but it is a difficult thing to pin down in a world where 10% of the electricity that goes into homes is used in standby functions and industry fails to take advantage of the wasted gas and heat it generates because the payback is "not quite quick enough".

Yet Europe is not that important in terms of the global climate problem, said Dr Fatih Birol, Chief Economist at the International Energy Agency. "Europe is responsible for about 15% of global CO2 emissions and in future, almost all the growth in emissions will come from developing countries. So, if we want to address global climate change, we have to look beyond Europe."

Climate change is not necessarily at the top of the agenda for many of the countries that will be responsible for future emissions, but energy security will be a major driver to make their energy and transport systems more sustainable, he added.

Many countries, including China, were traumatised by $147-a-barrel oil and there is no reason to think that oil prices will return to the low levels seen before 2007. "With current policies in place, the era of cheap oil is over."

China will overtake the US as the largest oil importer within 10 years and India will soon overtake Japan as number two. "This is the main reason developed countries want to reduce their reliance on oil in particular." All 28 members of the IEA have good policies and projects in place, but compared to what China is doing, it is on a very small scale, he asserted. "The transformation of the Chinese energy industry will have major effects on both energy production and consumption."

Measures in China's current and upcoming 5-year plan could lead to 1 gigaton of emissions reductions, about a quarter of what is needed globally by 2020.

However, the EU should not necessarily expect others to proceed using the European tradition of a binding legal framework. "You won't find that in the US or China but if we look at results, they are moving forward," said Ek. "We have to step up our efforts in clean technology just to keep pace."

Europe has to change its entire energy supply, chiefly by transforming electricity generation and car manufacturing. Renewable energy must play a key role, Birol added. "For every €100 that goes to electricity expansion, €75 must go to renewables if we want to meet our targets." On the roads, just one in every 100 cars sold in Europe has advanced technologies such as hybrid, plug-in or battery technology.

To be in line with the IEA's 450parts per million (ppm) scenario, by 2030 every 2nd car sold in Europe must be using advanced technology. Reaching this target will require substantial amounts of money. However, such a move will bring substantial benefits on top of the cut in emissions, including savings on fuel costs of $240bn in 2030 and reduced local air pollution. Lower demand

for oil can also take some of the heat out of the oil market and delay the arrival of "peak oil" by several years.

Cutting demand for oil is vital, he asserted. Most people focus on coal because it is the most polluting fossil fuel. But while coal is responsible for 42% of emissions, oil is close behind on 40%, "so oil is not so innocent.".

By contrast, Howard Chase, Director of European Government Affairs at BP, highlighted the advantages of natural gas, which has less than half the CO2 footprint of coal, much lower capital costs and much greater flexibility in generation, particularly when it comes to standby capacity for renewable generation.

Energy demand in the OECD countries will remain broadly level with a slight decline in Europe, he added, "so here investment is about managing the existing system and making it more efficient, lower carbon and more diverse. In major emerging markets it is about growth." Despite its environmental measures, China's energy consumption will double by 2030, at which point it will be twice the size of the US market.

In any case, oil is not running out, he added, and there are huge efficiency gains still to be made in internal combustion engines,

the construction and use of vehicles and biofuels which can drive performance to the levels of electric vehicles but at substantially lower costs. The advent of new sources of gas has made the US self-sufficient in fuel for the next 100 years and released more Liquified Natural Gas (LNG) on to the world market. "Natural gas is starting to be seen as a valuable commodity in its own right and deserves to be a fuel of choice for decades to come."

Effective markets

Trevor Sikorski, Head of Environmental Markets Research for Barclays Capital, focused on two issues: Are Europe's energy markets good at providing the capacity to meet demand?; and is the carbon market working?

On the first point, he was emphatic; "Europe is in a position of overcapacity. We are incredibly long on gas import and power generation capacity," he said. This was demonstrated last winter, the coldest in memory, which led to gas and power prices doing almost nothing. "The market has been incredibly good at providing capacity."

There is a lot of talk about the carbon market not working, Sikorski continued. "Those who don't want action on carbon say that it is not working, while those that want to see rapid change say it is not doing enough. However, I would say that it is working."

The market is there to put a price on the scarcity of carbon but that scarcity is defined largely by political decisions, in particular the level of the cap. The demand side is up to the market, however, "and that is where it gets interesting." The cap set by policymakers has had to interact with a recession where industrial production fell 15% and power demand was 5% down. "It would be odd to argue that you need high carbon prices when meeting the policy goals enshrined in the cap can be done at very moderate prices," he suggested.

Despite this success, people say the market is not working because it is not encouraging investment in particular policy areas such as carbon capture and storage (CCS). But CCS is very much next decade's technology and is currently a very expensive way to cut emissions. It is not the carbon market's job to encourage expensive technologies such as CCS or nuclear power. "Do not expect the market to do things that are very expensive – if you want to do expensive things, you need other policy mechanisms in place."

For CCS to be profitable, the carbon price would have to be at least $130 by 2030, Birol added.

Time is of the essence

According to Johannes Kindler, from the German energy regulator, Bundesnetzagentur, the EU's 2020 targets are hugely ambitious and require a large amount of private capital to be committed very quickly. "In energy investment terms, 2020 is not the day after tomorrow, it is tomorrow. We need to speed up."

But investors need to ask seven questions before they take any decisions, he said.

1) Is there any need for the investment you envisage? This might seem self-explanatory, but not every investment that is publicly recognised makes sense. Do we need more natural gas grids, for example, or do we need better capacity management?

2) Is the country you want to invest in an open market where investors are welcome or is it more public sector-oriented?

3) Is the energy policy coherent and is there a long-term strategy? Or do the policy targets change every three years? Three years ago, the consensus was that we needed more clean coal power plants, but today it is almost impossible to invest in these, he pointed out.

4) Is the legal and environmental framework investor-friendly or does it take an eternity to set up an investment? "Here the Commission missed an opportunity when it set up the 2nd Strategic Energy Review," Kindler said. "The culmination of regulation and legislation is not investor-friendly. Building a power plant takes at least eight years, sometimes more than 20 years."

5) What is the risk category of your investment? This is crucial to the remuneration that is being requested. For something like offshore wind, there is a risk of being left with stranded assets. You also need to take into account the quality of regulators and regulation - openness and transparency should be the guiding rule for regulators.

6) Do developers get a fair price? Regulators serve taxpayers and consumers, but investors need a decent return to make investing worth their while. However, they should avoid trying to play regulators against each other.

7) Is financial market regulation transparent, efficient and investor-friendly? There must be a link between energy infrastructure and trading profitability. For example, a lack of grids obliges German Transmission Systems Operators (TSOs) to accept negative prices if there is too much wind energy in grids. As a result, the market is reacting. Operators are becoming smarter in the way they operate grids while traders are creating new markets and finding new customers.

Effective markets need effective regulation, Chase added. "We understand regulation is coming and we welcome it, but we ask people to look at what works well and think about regulation based on that." He highlighted the West Texas and Henry Hub contracts for oil and gas respectively, which have "significant pre- and post-trade transparency, significant execution on exchange and central clearing" and as a result have had no problems in bringing investment into the industry.

Sikorski highlighted what happens when markets are not regulated, as in the case of spot trading for carbon, which has seen VAT fraud, "phishing" scams and recycling of allowances. "The more you get scandals, the harder it is to roll out the carbon market in other parts of the world because it erodes trust in the market."

Javier Echarri, Secretary General of EVCA, the European Venture Capital Association, took a more micro approach, focusing on private equity and venture capital, which he said is heavily invested in energy and environmental sectors. While 2009 saw a big drop in investment, the fall was not as big as in other sectors.

Natural selection

Almost half of PE & VC investment in 2009 was additional rounds of finance rather than initial support. The industry "continues to support those companies that have the best potential technologies and prospects and drops those that don't. It is pretty severe, but it does ensure that the best companies survive," Echarri said.

Those companies that do succeed create a virtuous circle of spin-offs, new technology and new jobs, he added. A new Nokia phone, for example, has technology from more than 100 companies. More than half of PE/VC money invested in the energy sector is in clean technology. "It is clearly where private investors see the future potential."

Clean tech investment needs a holistic approach, with the private sector bringing know-how and investment and the public sector providing the incentives to invest. "The private sector has an enormous role to play, but we are extremely concerned about the strength of risk aversion built into the regulatory environment."

The private equity sector is worried that this risk-averse culture will feed through to the investment level. "These are relatively high-risk investments and a big part of that risk is public policy risk. The VC sector is going to find it difficult to raise funds because of this risk aversion and the status of financial markets," he pointed out.

Risks can change when the market moves, added Ek, highlighting the changing demand for gas-guzzling cars over the last five years and the risks for pension funds that invest in coal-fired power plants. "The concept of risk is a moving target," she said.

Session 2
The Legacy of Copenhagen: Its Impact on the Carbon Markets

In December's Copenhagen meeting, "people saw that consensus-driven decision-making doesn't work," said moderator Louis Redshaw, Head of Environmental Markets Trading at Barclays Capital. "A number of small island states were able to block the process and no material decisions were made."

The Copenhagen Accord, which more than 100 countries have signed up to, does contain hard caps for the Annex 1 countries and pledges for Nationally Appropriate Mitigation Actions (NAMAs) – or reductions in emissions growth under a business-as-usual scenario – from the non-Annex 1 nations, but it is not legally binding.

In response, we are seeing the first moves to a bottom-up, local deal-making framework. "The debate will be driven by individual countries coming up with their own targets, which will create the potential for trading systems," he added. President Obama's plans for the US are an example of this bottom-up, more local approach, but if a US cap and trade system is created it will inevitably drag in other countries. "A US cap and trade system would be a lynchpin of a global system."

There are two dimensions to the carbon markets, pointed out Andrzej Blachowicz, International Co-operation Manager at the National Administration of the Emissions Trading Scheme / National Centre for Emission Management (KASHUE-KOBiZE) in Poland – Emissions Reduction and Finance. Central and Eastern Europe is crucial for the future of carbon trading, which the region's governments intend to use to meet their Kyoto compliance targets.

However, Blachowicz said he could see the link between the ETS and Kyoto being decoupled from 2013, so that "there is no difficulty seeing which is which." That way, he suggested, the EU sort out its domestic affairs and get its ETS into shape so that it is in a position to sell it on the international scene. The decoupling can be however risky, since the EU ETS was created as a tool towards Kyoto compliance and cannot function without a global goal as a primary driver.

The EU's record on producing real compromises – where everyone is happy – is not good, he suggested. "Yes, there was agreement on a climate package in 2008, but that was because there was political pressure, while Poland, as host of the Poznan COP meeting, felt obliged to sign up. But many EU states still think the deal is not fair," he said. "As we move into the implementation phase, with all the technicalities being worked out, the more unfair that deal appears to be."

A country that is 95% dependent on coal, such as Poland, cannot be in the short perspective treated the same as one that has large amounts of hydro power at its disposal, he asserted.

A number of EU countries pushed for the EU to take a unilateral 30% emissions target to Copenhagen in the hope that it would encourage a deal, but "there is no room for a move to 30%," Blachowicz asserted, because of the risks of competitive disadvantage and carbon leakage. "We need to do an impact assessment and for now those who are keen to see a 30% target should contribute the extra 10% themselves."

When it comes to Kyoto, the countries of the EU come from very different starting points and the poorer countries should not be pushed into taking the same responsibilities as the richer nations. Not only is there a danger of driving production overseas and thus offshoring emissions, "there is also the risk of the poor paying the rich. Bulgaria and Romania have lower GDP than South Korea, Mexico or Brazil".

The EU's unilateral leadership has not proven successful so far and the ambitions of the climate package are at risk, he asserted. "The EU must be more inclusive of the new Member States. I am not saying their thoughts are always correct, but I would like them to be listened to."

ETS is not the only way

In addition, too much political capital is invested in the ETS, when it is clear that other instruments are needed. The ETS lacks clarity, has "millions of regulations and guidelines" and it is sometimes impossible to discover where the policy will lead. "We need more flexibility between the ETS and non-ETS sectors," Blachowicz said.

"I sometimes have the impression that it is not that important whether the carbon market delivers emissions reductions, but it is important that it allows banks and others to trade. We should remember that emissions reduction is the primary goal."

Mark Johnston, Co-Ordinator, Power Plant CO2 Standards at the WWF, agreed that "we have heard too much about the ETS," which accounts for less than half of EU total emissions. We still need traditional regulation in other sectors, such as standards for cars and vans.

However, "if the emissions market follows the money, I cannot blame it," said Kindler. "Let's be a bit more pragmatic and a bit less idealistic."

Carbon is not like a normal commodity, said Delia Villagrasa, Senior Advisor Climate Change Diplomacy at the European Climate Foundation (ECF). "If the sugar market breaks down, that is bad for sugar growers, but if the carbon market breaks down, it is a disaster for the world."

The chief purpose of trading the global commons is to combat climate change, but sometimes that gets forgotten, she conceded. The other goal is to create investment in low-carbon infrastructure, stimulate R&D and finance the transition to a low-carbon economy in Europe and the rest of the world. It seems likely that the rest of the world will get forgotten in the current recession, because it is not mandatory to direct funds to other countries.

The outcome of Copenhagen is totally unclear, she added. "There is no certainty that the carbon market will continue in its present form. That uncertainty is unhelpful, but we have to remember that the market we have is not enough to deliver the finance necessary to achieve a clean carbon economy."

An ECF study looking at the reductions that the carbon market can deliver finds that even with a cap on emissions of 25% below 1990 levels, only about half of the finance needed to transform the economy would be delivered by the carbon market – the cap would have to be 40% below 1990 levels to even get close.

"Finance ministers need to be aware they will have to cough up more money," Villagrasa said, not least because there is no guarantee that the development of global markets will be optimal. While the US Senate climate bill contains caps, they differ across sectors, with manufacturers likely to enter any cap and trade scheme later than utilities. The plan to recycle money back to consumers rather than into low-carbon investments is counter-

productive and it is unclear how the US will interact with other markets. In 2009, the US offset market was worth just $74m of a total $2.4bn.

Europe's leading role

Meanwhile, the Clean Development Mechanism (CDM) does not necessarily deliver additional reductions, Australia's cap and trade bill has twice been defeated and Japan's bill may demand only intensity targets. "A global market by 2015 does not look all that likely at the moment, so the EU is likely to remain the key carbon market for now," Villagrasa pointed out. This means it will be the key bloc in defining offset standards and gives the EU a chance to clean up the offset market, set down rules for the CDM, move towards sectoral trading and ensure that auctioning money is used to help developing countries.

The EU has to clean up its act, particularly in the new member states, if it wants to set an example to Russia and Ukraine over hot air credits. "We also need to make sure we tighten the cap in the ETS and meet our targets – and that means 30% by 2020 or we are not on track."

The best thing Europe can do is to show that an ETS can be made to work for all industrial groups, said Russel Mills, Global Director for Energy & Climate Change Policy at Dow Europe, who gave an industrial perspective on the subject. "The more divergent Europe is from the rest of the world, the more difficult it will be for the rest of the world to solve this problem."

Dow has saved about 19m tons of CO2 since 1994 and about $9bn in costs, nearly all of them from efficiency measures. Despite this, from 2002 to 2009, the company's energy and feedstock bill – nearly all of it fossil fuels – had risen from $8bn to $30bn. "The key driver is money," he said.

However, "it is a very long race. It is two decades before you see the winning post and another two decades before you can win the race."

The carbon market's contribution stems from the fact that "you cannot manage carbon without a price for carbon. Cap and trade gets you to an agreed target at the lowest possible cost and it is the fastest way to make it global," Dow said.

Meanwhile, US legislation is unlikely before 2011, with industry not likely to be subject to caps before 2016. "In reality, the race in the US has already started – but it is called security of supply. For the first 10 years, a security of supply race is the same as a low-carbon race," Mills suggested.

Price discovery

The role of the financial markets in fighting climate change is simple, suggested Redshaw – it is price discovery. "The market ultimately leads to efficiency and the alternative, a tax, won't cap emissions and will be unable to react quickly, which is vital in a recession." The carbon price dropped rapidly when it became obvious companies no longer needed their allowances because output had dropped.

Emissions trading has mobilised more than $15bn of investment in the carbon sector, he said and "it is the chance of the price increasing that mobilises that kind of money." Nonetheless, there have clearly been problems recently – VAT fraud, theft, the recycling of credits – but this arises because spot markets are not regulated.

Despite these problems, "we badly need the carbon market," asserted Kindler. "If not, it will be even more difficult to meet our climate targets."

Yet the market cannot meet the targets without the political will of the governments involved, Redshaw said. "If the world is involved in an ETS, then at some point it will meet its target because the price will cause that to happen."

However, as Mills pointed out, countries act in their own best interests. The EU and the US are China's biggest export markets so "if we can create the belief that for them to export to these markets they will have to take their own measures or face huge difficulties then they will start to make the strategic long-term plans that they need to make. In fact, they have been heading in that direction for many years."

As a result, and in spite of Birol's comments, "Europe counts," said Villagrasa. "We are the biggest trading market in the world and the standards we set for our products and processes influence the whole world." The EU must show the way to a low-carbon, prosperous future, through the ETS and other measures, she added. "The 30% target is not just about leading by example; it is in our own self-interests for our survival as a long-term economic power."

But Blachowicz warned that the US and China do not want to "enter a game where the rules have been defined by the EU. We have to reflect their approach and give them a notion of co-ownership of the solutions. That is the strategy we should adopt for the COPs going forward."

Keynote speech

Jos Delbeke,
Director-General, DG Climate Action, European Commission

In the keynote speech that closed the conference, Jos Delbeke, Director-General of the new DG Climate Action in the European Commission, said that the EU was not that enthusiastic about the outcome of Copenhagen, but it is time to turn the page. "We see the glass as half-full," he said. "The Copenhagen Accord is a useful step forward, in particular now that more than 110 states have prescribed actions and commitments. We have to assess what we have and build on that. We have a 2°C objective, we have pledges on the table and pledges of finances as well – the €30bn fast start funding, with €100bn by 2002.

"We have to work further – lots of work is needed on upgrading the targets and actions because they do not bring us to 2°C," he added. "We also have to work on making the Accord legally binding."

The finance to help meet the targets is going to come from both public and private sources, and the ETS is a crucial part of that, not only because it defines and delivers the target but also because it creates incentives to reduce emissions.

In addition, from 2013, the auctioning of allowances will create €30bn-€50bn a year of revenues and there is a political pledge to spend half the money on climate-related activities. Exactly how this money should be spent is still under discussion but most of the money will be spent at national level, Delbeke said

The other element of the carbon markets is offsetting, the CDM "and, we hope, sectoral credit mechanisms, which we hope can provide much more leverage on policies in emerging markets, in particular."

Ideas for sectoral schemes have not yet been fleshed out, Delbeke admitted, partly because the EU wants to avoid being seen as imposing a new element of the carbon market on others. "We want to elaborate a common offsetting scheme. It is an important element in linking markets – it would create a de facto link."

"Ultimately, the EU ETS is not there to stand on its own but to link up to systems elsewhere," he added. "Even if the debate is very heated at present we remain very committed to having linked trading systems by 2015 and confident that we are on track." The pledges in the Accord will be very difficult to deliver without cap and trade schemes, he explained, so despite the political animosity around cap and trade – which the EU experienced not so long ago – governments in the US, Japan, Australia, South Korea, Mexico and even China are considering domestic cap and trade schemes.

Another element to the US situation is that whatever happens at federal level, there is also an ongoing debate at state level and state-level schemes will be able to link up with the EU ETS, as will any schemes agreed outside the scope of the Kyoto Protocol.

Carbon markets can be very important in promoting specific technologies such as CCS, and the Commission has set aside 300m allowances to incentivise the technology, worth €4bn-€5bn at current prices. Under Framework Programme 7, €2.3bn has been allocated to non-nuclear energy research, while the European Energy Programme for Recovery has €1.5bn available for CCS and innovative renewable research.

The biggest stream of public finance will be in the field of renewable energy, where governments have implemented initiatives such as feed-in tariffs, green certificates and investment subsidies. However, the recession has inevitably limited the amount of public finance available so the private sector will have a big role to play.

The transition to a low-carbon economy is prominent in the Barroso II Commission and later in the year, it will outline strategies to decarbonise the energy and transport sectors. Part of this debate is how the EU can move from a 20% target to 30% but there are a number of elements to consider. "What are the consequences of moving to 30%; what are the conditions for making such a move; what are the impacts on competitiveness?" Delbeke asked.

These questions are very important in the run-up to Cancun, he asserted. "If Europe wants to maintain its leadership it has to address the issue of how to put itself back on track to reduce emissions by 80%-90% by 2050."

There are no immediate plans to include transport in the ETS – it is more likely to be dealt with through taxation – but shipping could be if the International Maritime Organisation fails to come up with a global scheme to tackle the sector's emissions. "If they do not move, we have made it clear that the EU will act on its own" as it did with aviation, Delbeke noted.