



CHATHAM HOUSE

DFID Department for
International
Development

Meeting Report

Advance Market Commitments for Low Carbon Technology: Creating Demand in Developing Countries

Energy Environment & Resource Governance Directorate

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INTRODUCTION

The question of how to shift economic growth onto a low carbon pathway is a central challenge for policymakers. Developing countries are increasingly looking for ways to stimulate investment opportunities in low carbon and energy efficient options, creating markets and incentives to move the estimated \$44 trillion of investment needed by 2030. Supporting the creation of market demand in developing countries – and removing or hedging some of the market risks – will be key in order to encourage the uptake of appropriate low carbon technologies.

Advance Market Commitments (AMCs) are market creation mechanisms that provide the incentives and guarantees needed to ensure sufficient returns on investment by private sector developers. Best known as a proposed solution for the development and manufacture of vaccines, the UK Department for International Development (DFID) is now exploring the use of AMCs to support low carbon technology deployment, while enhancing opportunities for low carbon growth.

A high-level conference was held at Chatham House in January 2010, co-hosted with DFID. This was an important opportunity for nearly one hundred delegates to debate and help develop the AMC concept - with participation spread across donor organisations, developing country governments, NGOs and private sector investors. As well as raising the profile of innovative finance options and AMCs among these critical stakeholders, the meeting was able to test and help refine the concept. The conference was a key milestone in the evolution and emergence of low carbon AMCs as a policy tool.

This report summarises the key messages from the conference. Two research papers on low carbon AMCs, were commissioned by DFID in August 2009: an assessment of the institutional dimensions by Chatham House, and a review of the economics by Vivid Economics. The conference was an opportunity to explain, test and develop the key findings of these reports.

SESSION 1 | NEW OPPORTUNITIES FOR LOW CARBON DEVELOPMENT

The keynote session of the conference addressed first the need for new tools in spreading low carbon technology in the developing world, and second the role that innovative financing can play in accelerating the necessary investment.

Gareth Thomas MP, Minister of State for International Development, opened the conference to outline the UK Government's commitment to exploring the potential of low carbon AMCs, a policy included in the July 2009 DFID White Paper. Mr Thomas argued that climate change will transform the way we do business in the 21st century - in particular to our approach to energy. In this environment, developing countries will need not only power to grow, but 'smart power', that is efficient and carbon friendly, he said. Without it, DFID's vision of combating poverty in the world's poorest countries will likely remain unmet. A country with no access to a modern energy supply cannot achieve economic growth, yet there is a need to debunk the myth that renewables are more expensive than fossil fuels. Mr Thomas argues that poor people are paying too much for substandard energy when renewable alternatives are both cheaper and kinder to the environment. However, the business environment can act as a disincentive to using renewables. It is essential that the private sector is engaged to bridge this gap.

Mr Thomas identified several potential approaches which could be addressed by AMCs. These include 1) focusing on short-term incentives to increase private sector involvement in existing opportunities 2) working with the private sector to address developing country-specific challenges and 3) helping to steer start-up investment 4) Public funding for climate change is used in a way which achieves lasting change and 5) strengthening links between climate change and other priorities.

Jigar Shah, Director of the Carbon War Room and founder of SunEdison, next argued that in 2010, \$400 billion (approximately 20%) of global retail electricity demand could be competitively addressed with clean energy. Using Home Solar Systems as an example for a potential AMC, Mr Shah identified their global opportunity at \$160bn (based upon a first-loss guarantee of \$15 billion, which is exactly what the AMC would be if the carbon price was \$20). For Mr Shah, the question was, therefore, not proving the economics of the argument, but ascertaining why clean technologies are consistently disrespected.

Dr. Thomas Downing, CEO of the Stockholm Energy Institute in Oxford presented the organisation's findings of a study on low-carbon growth prospects in Kenya. The question has moved beyond what could be done and now centres on how it could be done, according to Dr. Downing. Drawing on his experience of working with adaptation, he argued that there are strong parallels between methods of implementing adaptation and AMCs.

SESSION 2 | MAKING THE CASE FOR LOW CARBON AMCS

David Wheeler from the Center for Global Development (CGD) opened the second session by outlining the case for low carbon AMCs in the context of the global challenge of climate change. He then examined the financial realities that a low carbon economy will have to confront in terms of investment needs. Before Copenhagen, Hillary Clinton was expected to pledge support “toward a goal of jointly mobilizing 100 billion a year by 2020 to address the climate change needs of developing countries” (H Clinton, Dec 17). Post COP15, however, it is a different story with Obama promising a three year freeze on spending in order to “convince Americans that he’s on top of 1.3 trillion deficit” (The Independent, Jan 27). The second financial reality is that the world will need a ‘phenomenal amount of money to change its energy supply from fossil fuels to cleaner sources to adapt to climate change’ (Yvo de Boer, UNFCCC Executive Secretary).

The upshot of this is that to make the move to a low carbon economy successful, we will have to be smart with the available funds and the major challenge that green technologies face is investor confidence. Mr Wheeler offered a comparison between the successful vaccine AMC and the potential low carbon AMC. Both vaccines and decarbonisation can demonstrate a) proven technology; b) potential scalability and c) investor uncertainty that needs to be addressed – all of which are principal conditions for an AMC. However there are of course significant differences. He highlighted necessary factors for success as capable producers, a market guarantee and a financing agreement that would price the product once it has been scaled up. He also pointed out that the risk will fall in time with the advance of scale. To make an AMC function the following dimensions were also identified: targeted market identification; an assessment of local constraints; attraction of appropriate entrepreneurs; an appropriate local business environment; and consideration of corruption fighting elements as dealing with public resources.

Dean Cooper, head of UNEP’s energy finance unit next outlined the major emerging energy trends, how these link to financing mechanisms and where AMCs could fit in. He began by painting a positive picture of the growth of investment in renewables over the last 5/6 years, pointing out that despite the economic crisis there are signs that investment is picking up again at a steady level. Moreover, he informed the audience of the fact that total investment in renewable technologies had exceeded those in fossil fuels in 2008, which he described as a milestone. Although he would not as yet say that renewables are forming the scenario for business as usual, it is undeniable that there is a gradually increasing trend. Importantly, investment in renewable energy seems to be on the increase at all steps along the process - from early development stages through to the end-user provision. Furthermore, the policy frameworks related to renewable energy – the number of initiatives at a policy level – are also increasing.

From this introduction Mr Cooper asked the question of why we need to be talking about new markets or mechanisms if things are already looking so positive? His answer is that the financing market is still a significant barrier in the whole process. The questions we need to address are, a) what financing is required? and b) who can provide it at the relevant stages? It is the move from the research stage to implementation that requires upfront investment, from where is this to be sourced? These innovation stages that require trials are a treacherous area as the risks associated with first-movers are extremely high. The high cost of development and the substantial associated risk is going to be reflected in the ‘first mover’ costs. As a result, project development (from innovation level) is often not viable and this is where AMCs could be of interest - for those ‘first-movers’ who are piloting new technologies in new areas. Ultimately, the commercial sector will drive investment, the result of which is that there is little chance of investment going into least developed countries where the risk is higher. The reality is that investors will invest in geographical areas where high returns are more secure. Maybe as a result of this current reluctance, there is a place for AMCs in increasing investor confidence reducing risk.

Ian Temperton from Climate Change Capital (CCC) opened his presentation stating that the key to gaining investment is for all information to be simple, obvious and lucrative. Low carbon technology has to be able to deliver products that the investment community understands. Mr Temperton argued that it is easier to change green investments into products that the investor community will understand than to try to change the finance market itself. It is also important to note that the capital intensity of the transition to the low carbon economy is crucial. Everything low carbon is capital intensive and climate change is a capital problem. The concerns that low carbon advocates are faced with are: high upfront costs; an insufficiently developed world market; risk that desperate people might not play by the same IP rules and risk of under investment. Where the AMC can assist is by putting in place a system by which investors will have their upfront investments repaid and improve confidence.

According to Mr Temperton, the other issue that has to be acknowledged is that capital intensity of energy is in deployment not R&D. He argued that due to time constraints, we have to move to a low carbon economy with already existing technologies. This is the difference between climate change and vaccinations – the capital intensity does not disappear with regard to energy, the upfront investments will be continuous. Mr Temperton asked donors to watch for the risk of crowding out private investment through public interventions.

Jake Werksman of WRI concluded the session by introducing the typical concerns and perspective of the NGO community, although he stressed that WRI is different in nature to some classic NGOs and the community is very broad. From an NGO perspective, climate finance was supposed to be a key element of the Copenhagen package; it would encourage developing countries to come on board by demonstrating the commitment of developed countries. In the run-up to Copenhagen and afterwards, a key focus was on where the 100bn would come from; what institutions would manage that money; and the question of deployment – and this last point is where AMCs come in. Some answers are to be found in the Copenhagen accord, there is very little detail. From the US side NGOs have not been able to get a great deal of detail in where resources for the US contribution would actually come from, which is a source of some concern. The classic tension between UN-based processes and Bretton-Woods led deployment remains and is not addressed in the Accord.

In terms of how AMCs would be received by the NGO community, Mr Werksman explained that so far few people have made the connection between what is happening in the arena of global public health with low carbon development and finance. However, many of the key elements of AMCs have been tackled before by NGOs in isolation. In terms of the positive responses that can be expected, a) there is respect if not understanding of how AMCs work in the global public health b) NGOs have developed an understanding of the project and innovation cycles through the technology transfer debate C) picking winners will be supported by some sections of the NGO community. In terms of the downsides, he noted that a) in picking technologies there is a big tension between clean technology and clean coal at the World Bank and b) there is a lot of scepticism about how much financing commitments will be met by the public sector in reality. Leverage is generally treated with scepticism by NGOs. Some developing countries may see this approach as being asked to perform before the reward. In general, AMCs merit further exploration. We have to be careful about drawing analogies with the health sector. And be careful about the scope of the definition because it will build up expectations.

SESSION 3 | INNOVATIVE FINANCING MECHANISMS FOR NEW DEVELOPMENT THINKING

Session three of the conference investigated how innovative financing mechanisms such as AMC and Output-Based Aid (OBA) could help to deliver development objectives, exploring international experiences to date and the latest thinking.

Susan McAdams presented the challenges encountered by World Bank when seeking to implement AMC pilot projects surrounding vaccines. The World Bank defined vaccine AMCs as a financial commitment by donors to subsidize vaccine purchase at a set price for a set period, if it meets a specified target product profile, and is demanded by GAVI-eligible countries, to spur increased supplier participation, investment and production scale-up and accelerate the introduction of needed vaccines in the world's poorest countries. In seeking to define the characteristics of a generic AMC, Ms McAdams argued that an AMC is a financial incentive mechanism which seeks to create a market. AMCs should be tailored to different objectives along the project development stream and should only be targeted at areas where there is legitimate uncertainty related to the overall costs assessment of whether the initial investment is justified. Ms McAdams was keen to stress that AMCs should be results-dependent, and that only specifically desired outcomes should be subsidised.

Tania Cernuschi addressed the conference to present the Global Alliance for Vaccines and Immunisation's (GAVI) experience of designing and implementing an AMC to develop pneumococcal vaccines in developing countries. As part of the pneumo offer, donors commit \$1.5 bn of AMC funds to guarantee the price of target vaccines once they are developed. Companies are required to commit to a certain annual supply of vaccine for 10 years at a maximum price of \$3.50 per dose, however, each company is entitled to a share of the AMC funds proportional to its supply commitment. Each company's share of the AMC funds is used to increase the price of the initial doses of vaccine to \$7 per dose. In line with the categorisation by Ms McAdams, these AMC funds are only utilized if vaccines are developed/supplied and demanded by GAVI-eligible countries. Currently, the pneumo AMC offer is set to expire in 2020 or as soon as all the funds are allocated. In evaluating the project, Ms Cernuschi was keen to emphasise that it remains too early to assess its overall success. She did, however, state that at first sight, there is high interest from manufacturers to the first tender. The price decline due to the AMC – if it were to be implemented on schedule in 2010 – is forecasted to be in the region of 95% in months, leading the World Bank to regard it as a cost effective intervention.

Yogita U. Mummsen of the Global Partnership on Output-Based Aid (a partnership of donors and international organizations) shared her organisation's experience of output-based aid. These are performance-based grants that help cover the gap between what the user can afford and actual cost of providing service. Output Based Aid (OBA) is largely used for basic services that exhibit 'positive externalities' (e.g. health, clean energy) which without OBA, might not be delivered. Like AMCs, OBA support is channelled most often as supply-side 'subsidies' (or 'payments') to service providers through the service provider, after agreed outputs have been delivered. To date, in the infrastructure sectors, OBAs have mostly been "one-off" capital subsidies to help defray costs of initial access for the poor, although there are a small number of on-going and "transitional" OBA schemes in existence. Ms Mummsen noted that this a key difference with low carbon AMCs, which have a focus on creating sustainable markets that continue after support is withdrawn. OBAs were presented as part of a broader results-based framework for improving access to basic services. There are currently 131 OBA projects in the World Bank Group, but their form is different depending on the sector, as they are not part of a prescriptive framework. Examples of an off-grid OBA to support the installation of solar home systems in Bolivia and rural access to grid-based hydropower in Ethiopia were next presented. Ms Mummsen used lessons learned from OBA to explore how they may inform the development of AMCs. She suggested that some form of geographic targeting, perhaps enhanced by subsidising products more

likely to be used by the poor. OBA has been successful in shifting the risk to providers after the delivery of an independently verified output.

Amarquaye Armar presented the findings of an Energy Sector Management Assistance Programme & Performance (ESMAP) report, 'Renewable Energy Market Transformation Initiative: scaling up deployment of grid connected renewable energy technologies for power supply diversification'. This report details a new initiative that works with several countries to develop country-wide strategies to embed renewables in a more systematic way than previously. Countries are now making commitments to two types of market support mechanisms; quantity-based instruments (these set targets for renewable deployment with the expectation that the market will determine the prices of power supplied); and price-based instruments (mandated tariffs or "feed-in-tariffs" that result in a market-determined quantity of renewable energy deployment). According to Mr Armar, price-based instruments such as transitional subsidy schemes face a key challenge of ensuring government commitments to increase tariffs (regulated pass-through of power purchase costs) to enable subsidy phase-out. Establishing regulatory policies for the recovery of power purchase costs were also presented as a major issue since power purchases constitute the single largest cost for distribution utilities, while distribution utilities are unwilling to sign power purchase agreements if regulatory "benchmarks" for pass through of power purchase costs are set too low. In response to these considerations, Mr Armar said that the World Bank was forming a 'regulatory compact' necessary for governments and regulators to establish stable rules for pass through of power purchase costs that would gradually bring the retail tariffs to full cost recovery levels. This compact was presented as the basis for the PRG instrument.

SESSION 4 | STRENGTHENING AMC ANALYSIS

Session four focussed on the detailed research undertaken by Chatham House and Vivid Economics in advance of the conference and was an opportunity to explain and debate the interim findings.

John Ward of Vivid Economics, which has assessed the economic dimensions to low carbon AMCs, began by outlining the scale of the challenge. Estimates suggest that more than \$400 billion of low-carbon mitigation investment will be required per annum in the developing world by 2030. The vast majority of this investment will need to be undertaken by the private sector. At present, various endemic market failures – such as an absence of carbon pricing, fossil fuel subsidies or problems in accessing capital – mean that this level of investment will not take place without intervention. He noted that AMCs are already, and could become further, a powerful mechanism for encouraging this investment. AMCs, according to Vivid's definition and framework, are temporary interventions to make revenues from markets more lucrative and more certain in order to accelerate investment. This definition includes a wide number of well-established interventions, especially in the developed world e.g. feed-in tariffs, renewables obligations. However, it also encompasses more innovative policies.

Mr Ward argued that AMCs are more likely to promote deployment of existing technologies, or encourage incremental R&D, than they are to lead to breakthrough, radical technologies. According to Vivid's analysis, where cost uncertainty is acute, investors are likely to prefer quantity (or revenue) AMCs. When demand uncertainty is more pervasive, investors are likely to prefer price AMCs. In all cases, however, removing risks from investors means that greater risk is placed on other market participants i.e. either the public sector or existing consumers. Mr. Ward stressed that managing the exit strategy and potential for excess rents are critical challenges.

Felix Preston then presented Chatham House's research on the institutional dimensions of low carbon AMCs. This focused on the issues that donors will need to consider when going through the process of designing and implementing an AMC. Mr Preston explored the nature of the institutional relationships that would surround an AMC and will help determine its success or failure. A conceptual model for an AMC was introduced which maps out the key actors in an AMC and how money would actually flow. This model was developed further to consider the potential role of carbon finance and the potential for guarantees instead of fixed payments as an alternative approach. The presentation then covered where AMCs sit in the context of many existing forms of public finance, and considered how these interventions may potentially be packaged along with an AMC at project development stage. Finally, Mr. Preston reviewed the existing pathways for climate finance from the global to project level, and discussed which funds may be promising avenues to explore for AMCs. In the question and answer session, there was interest in the challenges associated with phasing in support along the supply chain and the trade issues associated with prioritizing domestic industry (through, for example, local content requirements).

The main thrust of the Chatham House presentation was that though AMCs do have the potential to make a significant contribution to support for renewable energy in the developing world, there are considerable institutional and design challenges to overcome. Building in accountability and learning as part of AMCs will be very important.

SESSION 5 | PIONEERING LOW CARBON AMCS

The fifth session sought to scope out the potential opportunities – from large to small scale, from technologies to business models – and to discuss current thinking around how AMCs could be used to drive private investment. This was an opportunity to consider real case studies and their development impacts.

Simon Collings from GVEP International used the theoretical input from Vivid Economics and Chatham House on the previous day to present two examples of how AMCs could be translated into practice. Mr Collings focussed on biomass and energy efficiency solutions as they remain the largest contributor of greenhouse gases in many low-income developing countries, especially sub-Saharan Africa. Two case studies were identified – on briquettes and earth bricks – that potentially illustrate how AMCs could be designed in practice. The examples were chosen because they seem to be sophisticated and innovative technologies which are already cheaper or at least near break-even point with conventional high-carbon substitutes, but there are real or perceived risks that prevent up-scaling. Mr Collings argued that by creating market certainty, many innovations such as briquettes, driven by cottage industries, may be provided with new opportunities to access economies of scale. In the case of briquettes, GVEP has found that prices are already cheaper or break even with charcoal, leading them to conclude that no subsidies are required. This would in theory allow donor funding to concentrate on strengthening the capacity of suppliers to be able to react to a market 'pull'. To this end, commitments could be sought from institutions such as schools, army bases and hospitals to substitute an increasing percentage of their current charcoal consumption with briquettes, helping to create demand and scale-up their use.

Next, Mr Collings addressed the use of earth bricks, which he explained had been tested and approved for use – pointing to DFIDs decision to fund the building of 4,000 schools in Malawi using earth bricks – yet have not been adopted at scale. For this second case study, it was argued that by creating increased demand for earth bricks, the business could be stimulated to become self-sufficient and reduce the cost per unit. Mr Collings posited that governments could agree on fixed prices for each school build, ensuring cheaper than conventional costs which may have a knock-on effect of scaling-up production, increasing industry awareness and also increasing the market share of earth bricks compared to conventional bricks and cement.

Andrew Reicher of the Private Infrastructure Development Group (PIDG) began by outlining details of two wind power farm projects in Africa offering private sector capital in energy-hungry environments – one in Tanzania and the other in Mozambique – that should have been economically viable but collapsed due to market failures. Inadequate revenues and poor credit worthiness exacerbated by government unwillingness and inability to navigate these issues were presented as the key factors. PIDG proposes that these failures could be combated by establishing a bankable entity to act as counterparty to developers' low carbon projects, ensuring payment security. This entity would sit between private renewable power plant developers and utility and industrial electricity customers in sub-Saharan Africa. The business would be a buyer and reseller of power and would pay its suppliers tariffs which are adequate to incentivise them to go ahead with their projects (the approach shared many characteristics with the conceptual model outlined by Chatham House in Session 4). In return for these adequate revenues, suppliers will transfer their rights to any Certified Emission Reduction (CER) revenues the projects might earn under the Clean Development Mechanism. The business will charge its customers affordable and justifiable prices, but it will need to be credit worthy so that suppliers are able to obtain finance for their projects. To ensure that this is the case, the business will need to rely on AMCs, at least initially. Over time the need to call on donors commitments could be reduced through increased CER revenues. One of the key elements of PIDG's strategy is that it will ensure that that the upfront capital for the building of the plants will be provided by the private sector. Mr Reicher concluded by discussing the feasibility of PIDG's proposal, detailing a pre-feasibility study undertaken by Cambridge Economic Policy

Associates, which identified a number of challenges but did not find any fundamental flaws. He expressed PIDG's optimism over the project, citing strong interest from developers and the private sector, should it be put into action.

Hari Sharan of Dasag Engineering – and part of a consortium of organisations including the Rockefeller Foundation, DESI Power, the Confederation of Indian Industry and CleanStar – next outlined his views on how early action was imperative to address global energy challenges. Mr Sharan cited the burgeoning mobile phone industry in India – with its 250,000 towers, of which 60% are running on diesel engines – as a potential partner for low carbon development that already sees major savings for itself in 'going green'. By harnessing the rapidly expanding infrastructure of mobile phone towers in South Asia and Sub-Saharan Africa as an anchor demand and source of revenue, the consortium's strategy aims to provide incentives for private investment and market demand for low-carbon energy services – connecting up rural communities to power that it already provided to base stations, and greening these power sources. The approach seeks to identify business models and pilot projects with potential for massive expansion over the next decade, drawing on multifaceted innovation in technology, policy and market design.

Concluding the session, John Ward of Vivid Economics explored methods of creating AMCs designed to scale-up micro concentrated-solar-power (CSP) technologies. Acknowledging that technology specific approaches have received criticism from some economic quarters, Mr Ward argued that they provided two related benefits: first, that they will help to address the specific market barriers encountered by particular technologies; and also that support may be diluted as generic policies fail to consider the differences in applying AMCs to individual technologies. In exploring the case for micro CSP, Vivid's research focussed on dish/Stirling technology as it is currently the leading contender in the market for a decentralised context. Vivid's research indicates that many of the barriers associated with the relatively high levelised cost of the technology could be tackled through the development of an AMC. In addressing the potential cost savings, Mr Ward pointed towards two studies which have concluded that cost reductions in the region of 70% could be achieved per unit. Whilst acknowledging the need for further studies, Mr Ward expressed optimism over the potential for an AMC to stimulate long-term cost reductions and reliability improvements to lay the foundations of a long-term sustainable market. The design of any potential AMC would require dedicated feasibility studies, market research and extended industry dialogue in addition to supplementary support such as concessional finance for intermediary entrepreneurs / end consumers should be considered.

SESSION 6 | BREAKOUT SESSIONS

For this part of the conference delegates split into four groups to tackle different dimensions to AMCs. The breakout groups were designed to cover different geographical regions, different technologies and different examples of AMCs. The key messages from each group were as follows:

Accelerating access to modern energy services – Are AMCs suitable for large scale rural electrification? Example: Green mini-grids in Tanzania

The group agreed that AMCs could be a useful tool – but agreeing priorities and understanding how donors fit AMCs into the broader picture are significant challenges. Questions were raised about whether long-term commitments could work – can donors be trusted to deliver them? In some cases the group argued that subsidies and more traditional subsidy mechanisms may be more relevant. Mini-grids were seen as a potential deliverable for AMCs. But the supply side is also important – what will need to be done to ensure that companies are able to respond, above simply creating the mechanism?

Encouraging rapid take-up of low carbon energy technology – Could AMCs incentivise potential owner-operators to deploy renewable heat and power? Example: Medium-sized biogas for cooking in Rwanda

Importantly, the group questioned whether the supply chain in Rwanda, a potential host of one of the pilot AMCs, was ready and able to respond to AMC in the short term. The group recommended looking again at the range of options for AMC pilots in the light of the conference. It also noted that the terminology may need to be looked at again as need to look at a broader range of options. There was also concern about picking winning technologies.

Harnessing low carbon innovation – What is the role of targeted prize-funds? Example: emergency provision of heat, power and sanitation

The group agreed that prizes should not be considered an AMC. Prizes are at an earlier stage of innovation. However, a combination of prizes with AMCs as part of the package could help bridge the gap between early stage research and commercialisation. A key question is how to reinforce linkages in innovation across sectors. The group stressed that it is important to determine whether an AMC can encourage not just the main incumbents in a market, but all sorts of potential entrants.

Driving market development with regulatory sticks – *What can be achieved via innovative energy regulation? Examples: Geothermal energy in Mexico / Off-grid electricity tariff model in Mozambique.*

The group noted that an AMC would probably require a loan facility for upfront costs and could be combined with a subsidy for the very poor. In the Renewable Energy & Energy Efficiency Partnership's (REEEP) activities, donors typically support either the loan facility or a guarantee. The AMC could be combined with the existing model to help with the transition towards a sustained market (the AMC is therefore addressing the price or quantity gap), including helping SMEs to break into the market. This is one example of how AMCs can be packaged with other measures. However, there are serious institutional and regulatory obstacles to overcome and these vary considerably – a case by case approach is important. The AMC would be best suited to a product that is relatively well known and the sector is at a relatively well developed stage. AMCs also need to be designed in a way that take into account the differences in the supply chain for each technology and which different barriers exist along different parts of the chain. Some participants queried whether it was realistic to withdraw all support in future, or if a long-term subsidy needed. Others noted the risk that if prices fall fast, the AMC would lead to excessive rent.

SESSION 7 | PLENARY

The closing plenary session highlighted key messages from the workshop and the breakout sessions.

Oliver Knight (DFID) introduced the session with some clarifications and an update on DFID's position. He explained that exploring low carbon AMCs is a ministerial objective. Usage of AMCs with vaccines is seen as a success story, so this conference is designed to identify how we can replicate and adapt the vaccine model for low carbon technology. DFID started with a very broad umbrella concept which has started to narrow, but still contains innovation and deployment with different types of instruments. Indeed, DFID would prefer to keep multiple instruments on the table at this stage.

At various points in the conference questions were raised about the definition of AMCs. For some, it needed to be clearer which types of AMC were new and which are already found in the policy toolbox. Mr Knight promised that DFID would review the concept and definition of AMCs following the conference and throughout the pilot studies, to incorporate the many lessons into the design of future activities. If necessarily, different types of AMC could be separated out broken and defined more tightly.

DFID hopes to partner with a range of stakeholders in making this a success, as is shown in the range, depth and quality of delegates at the workshop,. This will be essential not least because a variety of implementation models are available – these could be multilateral, bilateral, public-private partnerships, or developing countries in their own right could implement AMCs without financial support from donors.

DFID noted the following important points emerged from the conference:

- **Maximise leverage.** There is potential to leverage significant amounts of private investment using public money. In the current financial climate and looking ahead over the next few years to consider the scrutiny that investments in this area will be placed under means that achieving high leverage ratios will be key.
- **Attach public money to outcomes and delivery.** Rather than paying up front for unknown outcomes, attach them to deliverables. Tying assistance or incentive mechanisms to outcomes is a key interest.
- **Helping to create a self-sustaining market.** Some of the most interesting approaches deal with opportunities that should in theory work economically but need some help. Once established these opportunities have the potential to develop into a self sustaining market.
- **Using public money as a smart way to achieve co-benefits.** These include social benefits such as access to energy and education; industrial benefits such as growing capacity and building supply chains and moving up the value chain; or supporting innovation in technologies relevant to developing countries.
- **Taking a sector-wide approach.** AMCs should be non-discriminatory where possible to avoid picking winners.
- **Innovative business models.** Encouraging innovation in the business models as well as the key technologies

In general, the conference stressed that AMCs are not a replacement for other interventions such as loans, grants and project-sector support. Rather they are a potentially important addition to the policy toolbox.

ANNEX 1: COMMENTS AND FEEDBACK FROM DELEGATES

In the final session delegates were asked to submit feedback, ideas and comments via slips of paper. The responses were overwhelmingly positive regarding the concept, and provide additional valuable insight into the formulation of a potential AMC pilot. Chatham House collated the most relevant below in a narrative form and has provided a more extensive version with attributed comments to DFID to aid in follow-up:

AMCs in developing countries

The greatest market for renewables in developing countries is in delivering energy services to the population that is not yet served by a central grid. The AMC is a great idea which will definitely expand the take-up of renewable energy. It should be applied in a flexible way in each country even though the basic concept should be the same. One area is to broaden expansion of modern energy services in developing countries because that is where barriers and uncertainties lie.

There are many important questions to answer: can an AMC be used to provide project development finance to unblock competitive renewable projects in Africa? The output to be "bought" in this case would be a bankable renewable energy project. If not competitive the renewable could also be supported by FIT to close the gap and achieve scale economies.

Defining AMCs and their scope

In defining the 'toolkit' of AMC's it is crucial to examine the barriers and hurdles that successful SME's working with low-carbon technologies face in scaling-up. A key hurdle is access to end-use finance. Mechanisms need to be developed that will attract investment and loan finance into SME's working in this area.

AMCs should be a directed financial intervention where clear evidence of market failure exists in areas of broader society. The critical factor is democratisation of capital, not embedding incumbents. Essentially it is to cover the period where capital and efficiency can be broad brush to what are presently inefficient or unattractive markets which lock people in to self-defeating processes or de facto slavery.

Decentralised, mini-grids/other de-centralised rural electrification

Private companies are used to dealing with centralised management. Will they be interested in managing hundreds of small-scale minigrids? There will be ongoing maintenance, tariff collections, theft, health and safety costs accrued. In the past such post-installation management complications have put-off investors. Local cooperative style management/local micro-enterprise management/public-private infrastructure could be more applicable. In this context AMCs would be used to help with capacity building.

AMCs and the Carbon Market

The ultimate objective is decarbonisation of growth and development (not simply low-carbon technologies). It has to become a tool embedded in a broader framework of low-carbon transformation. It must reward pioneering countries not simply the least expensive technologies.

AMCs should not be used to take risks away from the carbon market at large. This would place a heavy risk of leakage of ODA towards subsidising international carbon financial transactions, and have no development impact.

AMCs could be used to provide a floor price for carbon for selected sectors and locations that would be technology neutral; reinforce the carbon market and; reduce the complexity of any new system.

Potential pilot studies

Cambodia and Senegal offer good opportunities for pilot studies. Both have many SME's operating off of primarily diesel mini-grids which could be replaced by renewables.

Donor discussions

There is an absence of standardised 'fit-all' solutions for institutional arrangements, supply side (implementation) and distribution. A small group of donors could be put together to join forces to discuss these areas.