EVENT REPORT

Championing Product Efficiency in Support of Nationally Determined Contributions and Net Zero

Hosted By: the UN COP 26 Champions Team, UK BEIS, UNEP-led Cool Coalition, The Climate Group EP100, Kigali Cooling Efficiency Program, International Energy Agency, SEAD Initiative

When: Thursday 10 December 2020, 13.30 GMT **Virtual Total Running Time**: 105 minutes

Context of the session

Improving the efficiency of everyday products such as fridges, lights, and air-conditioners and the electric motors that drive them, is a critical solution in urgent efforts to limit global temperature rise to 1.5 degrees Celsius – illustrated in the UNEP Gap Report which states that "efficient appliances" are one of the areas with highest potential of closing the emissions gap. In addition to saving energy and emissions, product efficiency also brings multiple benefits for governments, businesses and consumers in reduced energy bills, improved air quality, enhanced real estate value, energy security and avoided supply costs.

Product energy efficiency policy can unlock these multiple benefits. For example, EU product policy has reduced product energy demand by 15% below business-as-usual levels, resulting in net consumer financial savings of EUR 63 billion and EUR 66 billion in extra revenue for businesses. However, the average efficiency of products sold is still low for most products. For example, the average efficiency of air conditioners sold in major markets today is less than half of what is typically available on the shelves – and one third of best available technology. This presents a huge opportunity for governments, businesses, investors and public authorities across the world. As we march ahead to COP26 in Glasgow in November 2021, collectively we can raise efficiency standards to new highs with commitments for policies, investments and products.

As part of the COP26 Energy Transition Campaign, the UK and IEA are developing a Product Efficiency Call to Action, and together with partners The Climate Group, UNEP, The Kigali Cooling Efficiency Program, the Cool Coalition and the Cop26 High Level Champions, organised this webinar to provide a platform for announcements from champion governments, businesses and financiers, philanthropy and international organizations. The webinar marked an important step forward in global efforts to increase product efficiency.

Report of the session

Kate Hughes, Director, International Climate Change, Department for Business, Energy & Industrial Strategy, United Kingdom chaired the session. She gave opening remarks underlying the importance of energy efficiency and the ongoing work of the UK in this field. The UK hopes to increase activities and ambition with business and governments alike on the pathway to COP26. She underscored that product energy efficiency can unlock multiple benefits, both in terms of mitigation and adaptation, but also health and development and others. Access to these products, including refrigerators, ACs, lights and electric motors should not be a luxury.

Ms Hughes announced that, as part of the COP26 Energy Transition Campaign, the UK and IEA are developing a Product Efficiency Call to Action to accelerate work in this area and

reach regional and global coordination on products efficiency and access. She then introduced the keynote speakers, thanking all co-organisers and partners for the organization of the event and the successful collaboration in this field.

Keynote Speeches

The Rt Hon Kwasi Kwarteng MP, Minister of State, Department for Business, Energy & Industrial Strategy thanked partners for their support and work in the climate field, with a special mention for Dr. Fatih Birol's leadership in the energy arena, and welcomed speakers. He underscored the vital role of energy efficiency in tackling climate change and for building a better and greener world through the forthcoming recovery.

In this framework, COP26 will be a watershed conference: the UK hopes that all sectors and stakeholders join the race to net zero, coordinating activities across the world, looking simultaneously at mitigation and adaptation to reach the Paris Goals. The Minister explained that the newly announced UK NDC commits to reducing GHG emission by 68% in 2030 from 1990. If this is achieved, this will be the fastest rate of carbon emissions reduction of all major economies. This process will also be supported by the recently launched 10-point plan for a green industrial revolution.

Energy efficiency has a big role to play in the pursuit of reducing emissions, he underscored: the IEA estimates that energy efficiency policy could enable to achieve more than 40% of the carbon emissions reductions that we need to meet climate goals. Energy efficiency also has benefits for boosting economic productivity, creating green jobs, reducing energy poverty and facilitating energy management. Products energy efficiency is a big part of the action needed: the EIU estimates that improving the efficiency of air conditioners could save 3.4 billion in energy supply bills by 2030 and take 8 years off our timescale to achieve net-zero.

For these reasons, the UK is taking bold action in this area. DEFRA is working closely with UNEP's United for Efficiency Initiative to support enhanced product efficiency standards globally. In collaboration with the IEA, the UK will be delivering a Call to Action through the Super Efficient Appliances Deployment Initiative (SEAD) with the goal to double the efficiency of key products such as ACs, refrigerators, motors and lights sold globally by 2030, alongside India and the European Commission, and helping other countries to take action. The Minister announced the re-launch of the SEAD initiative in early 2021, which will bring it back to the heart of the work towards COP26, and invited countries to re-engage with the initiative.

We cannot miss the window of opportunity that was presented by the recovery and COP26, he said, and called for closer collaboration of businesses through the Climate Group's EP100 initiative. The Rt Hon Kwasi Kwarteng congratulated KCEP on their efforts in this sector, including working with 10 countries to help them include cooling action in their NDCs. He concluded by stating that the UK looks forward to working with everyone present in 2021 to deliver clear ambition and action on energy efficiency an climate friendly cooling.

Dr Fatih Birol, Executive Director, International Energy Agency provided an overview of the energy efficiency benefits and opportunities in his keynote intervention, highlighting its role as the "number one fuel". Energy efficiency, he explained, is the only fuel that can help the economy by reducing costs for consumers, the environment by reducing emissions and pollution, and it is key for energy security. He stated that for COP26, we need all clean energy sources available to reach our shared climate goals, but renewables and efficiency are the most important ones by far.

Renewables are growing very strongly as they are getting cheaper, but efficiency is not on the same path. A recent IEA report showcased that this year, the world's energy efficiency improvement was the worst of the last 10 years, slowing down rather than accelerating. This makes the UK's leadership and action even more important, as they lead by example and help

to move the energy efficiency agenda forward globally. As people in developing markets in Asia and Africa start buying their first cooling appliances, it is key that there are standards in place to ensure decent levels of efficiency for these products, which will determine their energy sector stability and energy matrix.

Dr Birol called on all economies around the world that are suffering from the pandemic and therefore stipulating recovery plans, to boost economic activity and create jobs through energy efficiency policies in buildings, products and more. Because energy efficiency is a job creating machine, many countries, including the EU, UK and Canada have already included it in stimulus packages. He concluded by stating that pushing this agenda globally and making energy efficiency a cornerstone of the negotiations will be key for the success of the upcoming COP26, and to make Glasgow get to the history books for global climate action.

First Panel Discussion: Policy Makers

Ms. Hughes gave the floor to **Kate Hampton, Chief Executive Officer, Children's Investment Fund Foundation**, who congratulated the UK on their announced revised NDC and green recovery strategy. Notwithstanding a very challenging year, the momentum of tackling climate change has remained, she stated, reminding everyone of the Climate Ambition Summit taking place on the 12th of December, where multiple governments are set to pledge for greater ambition, increased resource financing, enhanced NDCs and alignment with net-zero. Ms Hampton argued that the work of governments needs to be supported and matched by action the private sector and the civil society, as well as philanthropy.

In this framework, she announced that CIFF, which has worked for years in the field of cooling and energy efficiency, supporting the NDC partnership and KCEP, will make a multi-billion dollar commitment for climate action. Ms Hampton then announced the 10 countries that will receive support from KCEP for committing to efficient, climate-friendly cooling in their enhanced NDCs or long-term climate plans, namely: Jordan, Ethiopia, Cambodia, Viet Nam, Burkina Faso, Nigeria, Pakistan, Morocco, Chile, and Tunisia. Ms Hampton then introduced and moderated a high-level panel of policymakers, including representatives from the listed countries and ambitious players in the cooling efficiency area of action.

The first panellist, **H.E. Fekadu Beyene Aleka, Commissioner, Environment, Forest and Climate Change Commission of Ethiopia**, talked about the country's NDC, one that he described as among the most ambitious in its first version in 2015, anchored in the national climate resilient green economic strategy. That NDC set the goal of reducing emissions by 64% compared to the business-as-usual scenario by 2017, and of building an adaptive and resilient economy. The Commissioner said that the country has recently ratified the Kigali Amendment to the Montreal Protocol and is working on the updated NDC that will be finalised soon. He said that it is impossible to understate the importance of cooling at this juncture: cooling has gained significant importance as temperatures and economies grow.

In Ethiopia, it is key to ensure access to cooling for key economic sectors, especially to protect agricultural productivity, while ensuring that growing appliances demand caused by rising population numbers is met sustainably and with high energy efficiency. The Commissioner stated that, given the current low access to cooling, there is a real opportunity to bypass obsolete technologies and leapfrog to highly efficient ones in Ethiopia. However, external capacity is needed to ensure this happens, and thanked KCEP for the support received which will help the country collect additional data, define evidence-based targets, and finalise the updated NDC, which will cover energy efficiency measures for cooling.

"We see this a critical opportunity to enhance Ethiopia's climate ambition. We are looking forward to including sustainable cooling in our next NDC update" the Commissioner announced. He said that the development of MEPS and labels for domestic products is a

priority for the government, given the multiple benefits of enhanced efficiency. The resulting energy savings would allow to reduce energy demand, which increases grid stability, and allow for more users to access electricity networks, reducing the use of biomass for energy and related emissions. Moreover, transitioning to sustainable cooling appliances would allow to move away from refrigerants that have high global warming potentials.

Ethiopia is not only looking at domestic products, but also at vigorous expanding eco-friendly industrial parks initiatives, such as a "Cool Logistic Corridor" between Ethiopia and Europe to expand exports of horticultural products. The Commissioner concluded by highlighting that transitioning to climate friendly efficient cooling has multiple development and climate benefits, which makes it imperative for the world to gather momentum, rally behind relevant initiatives, and called for additional support and plans from all actors, including through NDCs.

Tomas Anker Christensen, Climate Ambassador for Denmark, Ministry of Foreign Affairs, spoke about the Danish national target of 70% emission reduction by 2030, with energy efficiency in buildings being a major component of that drive. However, given its climatic conditions, in Demark the focus is rather on heating. This is why Danish action on cooling is channelled towards international action and global cooperation. A special focus is given to solutions to reverse engineer sustainable technologies used for heating, including better windows, insulation, and district systems.

Sustainable cooling is an essential part of green recovery, the Ambassador argued, especially when it comes to food and health cold chains. Denmark worked closely with Ethiopia as champions of the 2019 Climate Summit on putting cooling on the international agenda, and the Cool Coalition has taken these efforts forward ever since. He highlighted how far international efforts on cooling have come since cooling was first mentioned at the UN Secretary General Summit in 2019. Before then, heating was the central focus of climate talks, but as the economies in the global South develop and the middle class grows, demand for cooling products rises tremendously. In the last 5 years, cooling has become a key global priority in limiting energy demand and emission growth.

At COP26, cooling must remain a high agenda priority, he argued, we need to rally champions to grow our Coalition and work with the private sector to ensure proper communication and collaboration with governments. Radical collaboration is needed, as energy efficiency needs to be enhanced at production level, as well as the policy level, which can be very fragmented and dealt sub nationally or at city level. Denmark is doing its part by working closely with the IEA Clean Energy Transition Programme, Energy Efficiency Hub, and through bilateral cooperation on energy efficiency with 11 developing and emerging economies around the world, he said. With Vietnam, Denmark has a 5-year programme to allow the country to reduce up to 3 million tons of emissions annually, which is equivalent to ⅓ of the Danish annual emissions, he specified.

Ambassador Christensen concluded by congratulating the UK for putting energy efficiency at the centre of the COP26 work. He underscored that the Danish Minister joined the Energy Transition Council, and that Denmark believes energy efficiency to be a key component of the ongoing decarbonisation transition, highlighting that the cooling dimension of energy efficiency is key to meet the Paris targets and make the economic case for green growth.

H.E. Minister Juan Carlos Jobet, Minister of Energy, Chile continued the discussion by underscoring how cooling and energy efficiency will contribute to the country's carbon neutrality pledge by 2050 and the newly updated NDC, which is very ambitious. Chile's plan aims at shutting down coal power plants, accelerating the development of renewable energy, producing and exporting green hydrogen, developing electromobility, but energy efficiency is at the core of it all. The Minister announced that the country is about to pass the first energy

efficiency law, which will introduce energy performance standards and labelling for vehicles and buildings.

He explained that Chile already has had MEPs for products that cover 80% of all residential energy consumption and labels that cover 47% of national energy consumption for 15 years. In the last 10 years, energy efficiency standards for lights and refrigerators have allowed saving the equivalent of 8 full months of domestic electricity use. Notwithstanding the great positive impacts of products' energy efficiency, the Minister wants to be more ambitious: the next steps are to keep updating required levels to include more products and to make citizens increasingly aware of their role in saving energy.

The Minister underscored the need to strengthen the links between energy efficiency and climate action, which the SEAD initiative will help tackle in the coming years. Chile is working with many international initiatives and partners to promote energy efficiency nationally and globally, including the United for Efficiency initiative, the IEA and many others. A key challenge that remains to be addressed to further this work is the regulatory diversity across countries: to accelerate the adoption of products efficiency standards, it is very important to ensure global harmonisation and standardization, the Minister concluded.

H.E. Minister Dr. Mohammad Mahmood Abubakar, Minister of Environment, Federal Republic of Nigeria started his intervention by explaining that Nigeria is placed within the tropical zone of West Africa, is the most populous country in Africa with 206 million people, with a rapidly growing population at a 2.5% rate. This means that 401-432 million people might be living in Nigeria by 2050. This, together with lifestyle changes and urbanisation, collectively contribute to growing energy demand, he stated, that must be met following a low carbon pathway to reach a sustainable economy pathway.

Nigeria is engaged internationally to ensure that its growth is aligned with global climate goals. The country ratified the UNFCCC and complied with all reporting and submission obligations, including national communications, and adopted strong policy frameworks, including the National Adaptation Strategy and the Climate Change Policy Response Strategy. Nigeria submitted a robust NDC in 2015 with an unconditional goal of 20% emission reduction, and a 45% conditional commitment. The NDC has the power sector at the centre of its ambitions, with a 30% efficiency target, the Minister underscored.

The revised NDC that is being currently updated will further strengthen implementation mechanisms and help undertake new data assessments to enhance transparency. The efficiency target will be enhanced by including efficient cooling across all sectors, a commitment strengthened at the last Inter Ministerial Committee on Climate Change that met in July 2020. The highest political commitment from Nigeria was demonstrated by the President at the 2019 UN General Assembly, who recognised the need to integrate elements such as green jobs assessment, gender mainstreaming, vulnerability assessments, and nature-based solutions in climate plans.

Minister Abubakar concluded by highlighting that Nigeria's current NDC recognises that climate change has significant effects on the energy sector: rising temperatures have resulted in increased demand for cooling and domestic products, which can lead to energy shortages. Consequently, the country commits to strong GHG emission reductions, with a target of 179 million tons cuts per year in 2030 through economy wide energy efficiency, in which the cooling sector has the highest potential. The current NDC revision envisions a target for cooling energy efficiency, he announced. As a long-term plan, the country is committed to greatly improve energy efficiency to reduce energy shortage incidents, as well as expand suitable energy sources and reducing the vulnerability of infrastructure from climate impacts.

Ms. Hampton wrapped up the panel by underscoring the high potential of climate-friendly, efficient cooling for near-term emissions reduction and acceleration of green growth, with multiple co-benefits for the power sector. She thanked attendees for their increasing ambition, congratulated the rising commitments to net-zero, and wishing to see additional countries and stakeholders act ambitiously to reach the Paris Goals.

Second Panel Discussion: Businesses

Nigel Topping, UK High Level Climate Action Champion, COP26 took the floor to underscore the importance of focusing not only on the supply side of the energy transition, but also on the demand side: transitioning to climate friendly, energy efficient cooling can help avoid up to 60 billion tons of emission, equivalent to 8 years' worth of emissions. For this reason, Mr Gonzalo Munoz, Mr Topping and the rest of the Climate Champions Team, led by Dan Hamza-Goodacre, have developed a Climate Action Pathway for Net-Zero Cooling, of which he announced the publication. The pathway encompasses the three pillars passive cooling, super-efficient appliances, and ultralow GWP refrigerants, and will be completed by additional features to support the transition set to be available in 2021.

He then introduced a high-level private sector panel, where private sector leaders shared their ambition, as well as what they see as key challenges and opportunities for action in this area.

Jamshyd Godrej, Chairman and Managing Director, Godrej & Boyce Mfg Co. Ltd. kick started the panel by highlighting how his company has been working on improving energy efficiency for the last 15 years, since India made a very strong effort at improving the country's energy efficiency of home appliances through the Star Rating programme. This has given impetus for all manufacturers in the country to act on efficiency. Moreover, the company also uses F-gases with low GWP as they have not only a climate benefit, but also an energy efficiency one, as by using R290 cooling appliances are able to get significant efficiency improvements.

Mr. Godrej also announced that his company is joining the EP100 challenge, and that it will reduce its carbon intensity by 60% by 2030. These intermediate targets will be helpful to get on a pathway to net-zero by 2050, which is a clear intention of the company. Godrej is already making products on the path to reach net-zero emissions, with refrigerants that have zero global warming potential and by using chips with semiconductors, and will make a strong focus of getting to net zero as fast as possible.

Godrej's efforts for decarbonisation go hand in hand with India's, a country that is heavily investing in solar power and other renewables to limit dependence from and replace coal. This energy transition is being enabled by incentives, which, he argued, could be put in place in a similar way for cooling appliances. India has implemented a similar programme and successfully drove down the cost of highly efficient LED lamps thanks to mass procurement and incentives.

The government has also realised that there is a vast number of inefficient appliances that consumers keep on using until functioning, but that drive up energy use tremendously. It has hence put in place an initiative to aggregate demand of cooling appliances called Energy Efficiency Services Limited, a company to tender out very large amounts of efficient appliances to drive down costs. This allowed to accelerate a transition to increasingly efficient products at a fast rate and large scale, accelerating energy savings and climate benefits.

Aggregation is therefore a key factor to enabling the transition to super-efficient cooling appliances, and India has a key role in doing so not only for its own market, but for the entire world, given its large market. Another approach is to provide power supplier incentives to be passed on to owners of the most efficient appliances, which can also incentivise a transition.

Lastly, Mr Godrej argued, governments can play a major role by setting minimum energy efficient standards and security standards for refrigerants management that support the uptake of appliances with high efficiency but that are also cost-accessible and available.

David Appel, President of Refrigeration, Carrier took the stage to outline the group's commitment to fighting climate change by applying industry leading technology, by enhancing efficiency of its products, and by lowering emissions from operations. In terms of policy, Carrier supports the reduction of carbon emissions, the enhancement of standards, and the avoidance of cost increases that can keep older equipment in operation longer. He stated that the company is committed to use low GWP refrigerants, and pioneered the use of CO2 as an alternative in applications like supermarkets, warehouses for refrigeration, and marine container applications, offering industry-leading technologies.

Beyond refrigerants, Mr Appel said that Carriers see a great opportunity in reducing the dependence on fossil fuels of transport refrigeration units. For this reason, new trucks have been produced that use 37% less fuel compared to previous models, and next generation trailers have 30% savings compared to predecessors, which translates to 5 times less emissions annually per unit. Carrier aims at making even bigger impacts with the fully autonomous, fully electric engineless refrigeration system launched in October, a technology that represents the future of refrigerated trailer technology as it produces zero direct CO2 and zero particulate emissions.

Mr Appel underscored the key role of innovation for his company in the fight against climate change, a priority for Carriers, which brings to the market more than 100 new products per year with increasingly high performance, efficiency and sustainability. As Carrier invests in innovation as the core of its business, it also sees the growing benefits and demand from smart solutions and digital capabilities. A new digital platform is therefore being developed to improve efficiency and stability throughout cold chains, ultimately reducing waste in supply chains through machine learning, analytics and AI to reduce energy consumption.

Industry recognises that it plays a critical role to play in reaching net-zero, he said. Carrier, as leader of HVAC and cooling technologies, knows about the profound impact that its services can have on the fight to mitigate climate change. In fact, as HFCs cause 15% of global emissions, and food waste across the value chain an additional 12%, they are perfectly placed to make a difference, and efforts are informed by science-based targets. For this reason, last week, Carrier announced its first set of ESG goals since becoming an independent company in April. These include a transformation to the company operations to become carbon neutral, while maintaining world class safety metrics, and reducing the emissions of its customers by more than 1 gigatons in the next decade, with a supporting investment of over 2 billion dollars.

Achieving global sustainable and safe cold chains, Mr Appel explained, has multiple benefits, including food loss and emission reductions, improved food supply, safety and quality, and effective market connection for producers. As ⅓ of the food produced globally gets lost, meaning that if food waste was a country it would be the third highest emitter globally. For this reason, he stated, Carrier sees addressing food security and emissions as parts of the same fight against climate change and poverty. This drives the company's action towards a more sustainable and safer planet for all through the development of increasingly effective and climate friendly cold chains, Appel concluded.

Jürgen Fischer, President, Danfoss Cooling started his intervention by stating that Danfoss is an energy efficiency company, in hydraulics, in power electronics, in heating and cooling. Energy efficiency allows to reduce production, storage and transportation needs for energy, which are often overlooked benefits, he highlighted. Mr Fischer underscored the need for the industry to "eat its own medicine" and lead in the fight against climate change by example.

This is why Danfoss has made an innovation application centre out of its Danish headquarter, to showcase that it is possible to make a complete region CO2 neutral.

In terms of operations, Danfoss's factories will become CO2 neutral by scope 1 and 2 by 2022, by powering operations with wind energy, and then reusing heat from the same operations and processes to feed a district heating system. This, in turn, reduces heating costs for nearby inhabitants by 50%, demonstrating how energy efficiency is a win-win-win investment. Mr Fischer explained that while his company has committed to carbon neutrality by 2030, they are hoping to get there already in 2027, and that Danfoss is proud to have joined the EP100, EV100 and RE100 challenges to underscore its ambitions.

Danfoss is also working with suppliers globally to help them achieve CO2 neutrality, which expands the influence and benefits of the company's ambition. However, the industry also needs to manage a cooperating relationship with policymakers, following the EU example, to find affordable and executable strategies and targets to further reduce the environmental impact of cooling. Strategies and incentives need to drive change of the entire system, which means that these have to look at the whole system to be effective, Mr Fischer said.

As of now, he argued, there is a delay of 5-10 years between the creation of a new technology and its embedding into regulations, which hinders the uptake of innovation, especially in public procurement. Moreover, industry and policy need to tighten collaboration to close the training gaps for the entire value chain, from architects to contractors, to ensure that the most innovative and sustainable technologies are known and understood by implementers and used effectively. Key examples are propane-based and CO2 refrigerants, which can pose higher security risks if not managed effectively, but have very low GWP.

Mr Fischer concluded by calling for the same investment and risk-taking approach that was used globally against the COVID-19 pandemic and for finding the vaccine, to be adopted for the climate crisis, a much graver and long-term crisis, and its potential solutions.

Pablo Moreno, Vice-President Corporate Affairs, Mabe highlighted how his company has recognised sustainability as a way to adapt, innovate and collaborate towards new equilibriums, designing new products to provide sustainable solutions to customers worldwide. Mabe's strategy encompasses 3 pillars: economic aspects, social impacts of operations, and company-wide environmental efforts.

Mabe is working hand in hand with governments and international organizations to reduce the industry's emissions and environmental impacts. Mr. Moreno explained how the company is moving towards sustainable and efficient cooling appliances by phasing down HFCs and replacing them with alternatives that allow to reduce the global warming potential by 98%, as well as increase the efficiency of their products by 20-25 %. He then announced that Mabe is joining EP100, pledging to improve the company's energy productivity and to continue leading efforts in Latin America. In fact, Mabe is present in all countries on the continent, which allows to provide a unique voice for the industry and inspire others to follow.

Mr Moreno highlighted the importance of regional harmonisation, which would help super-efficient appliances benefit from economies of scale and drive down costs, as well as to enhance efforts for market surveillance to track progress and ensure compliance to existing policy instruments. Mabe is working to accelerate action on the uptake efficiency standards on the continent with the support of the Mexican government and key international partners, including U4E, as well as sharing best practices, Moreno concluded.

Closing Remarks

Ms Hughes thanked both panels for their participation and their ambition, underscoring the importance of efficient cooling in achieving a clean transition to net-zero. She repeated the UK's willingness to work with all partners towards COP26, including through the SEAD initiative and EP100, to increase momentum on this critical area from governments and industry, to identify opportunities for global and regional coordination, to accelerate the uptake of efficient appliances, and to find smart solutions and foster innovation. Working together, we can tackle this challenge more quickly and effectively: the continued engagement and collaboration of all stakeholders towards and beyond COP26 will be fundamental to achieve climate goals.

She then introduced **Inger Andersen, Under-Secretary-General of the United Nations, Executive Director of the UN Environment Programme**, who gave closing remarks.

Ms. Andersen thanked the organizers individually for delivering the event and for the passion and support of all speakers on this important topic. Countries get the importance of action and want to get it done, she said, and we desperately need these commitments, as we are so far behind with our mitigation efforts. Andersen then explained that emissions are at their highest level, and that the small drop experienced during the lockdown is not in any way sufficient for mitigating climate change. The only way to get this done, is shifting gear and choosing the right technologies and solutions.

UNEP's Emissions Gap Report 2020, published on December 9th, outlined that if we continue in this path of emissions, we will be in excess of an average of 3 degrees by the end of the century, way beyond the Paris goals. As such, Andersen underscored that we are in desperate need of low carbon solutions and technologies, including for cooling and other products. We need to integrate sustainable approaches to cooling and other devices into the COVID-19 responses and long-term planning, she stated, as a green recovery has the potential to knock out a large share of emissions.

We cannot win the race to zero without enhancing the efficiency of products and appliances, and we need all stakeholders across sectors, institutions and business, will need to collaborate to catalyse action towards net-zero cooling. Stimulus and recovery packages need to capture sustainable solutions and approaches if we are to get a fighting chance for getting at only 1.5C of warming. This action will have to support the adoption of measures that avoid or reduce the need for mechanical cooling, such as green roofs and natural shading, and of super-efficient equipment and appliances. These, in turn, must go together with the implementation of the Kigali Amendment to the Montreal Protocol, to reduce emissions and impact from HFCs.

While action from countries is fundamental, Ms. Andersen also highlighted the fundamental role of action from the private sector and manufacturers. As the Secretariat of the Cool Coalition, UNEP is very pleased to see business leaders championing climate friendly and efficient cooling in their companies, and is committed to continue providing a platform for collaboration on the topic. However, these commitments are still not sufficient: we need everyone on board, she stated, and more companies like the ones present today to sign up for the Climate Group EP100 Cooling Challenge, and have commitments rapidly turn into action.

Ms. Andersen thanked KCEP for the support provided to countries in strengthening their NDCs and in planning for action on cooling, and India's ESCO that committed to expanding their cooling portfolio to cold chains. She underscored that more supporting action is needed for the widespread adoption and enforcement of enabling policies. Goodwill alone will not deliver the changes needed, but policy tools, incentives and standards can drive the adoption of better technologies market-wide, she said. UNEP encourages countries all around the world to adopt these policies, such as those that have been put in place thanks to United for Efficiency.

Ms. Andersen concluded by making a call to action to make efficient, climate-friendly cooling a priority, following the example of champions and adding these aspects into NDCs and stimulus packages, to make real headway. “We need to make everyone know about this opportunity. We need these commitments from local and national governments and from the industry. If we do this, we can bring real and positive change for the planet, whilst also improving billions of lives, creating green jobs and opportunities for the future. The Cool Coalition is here to help on this journey, and together we can make all the difference” Andersen concluded.

Speakers Biographies

<table>
<tr><th colspan="2">Chair and Opening</th></tr>
<tr><td>  </td><td>Kate Hughes, Director, International Climate Change, Department for Business, Energy & Industrial Strategy, United Kingdom

Kate Hughes is Director for International Climate Change in the UK’s Department for Business, Energy and Industrial Strategy. Kate leads teams supporting clean energy transitions (including the Powering Past Coal Alliance), green finance, sustainable supply chains, and increasing the uptake of electric vehicles.

She has been Senior Reporting Officer for BEIS’s share of the £5.8bn International Climate Fund, overseeing a range of programmes designed to support developing counties to respond to the challenges and opportunities of climate change. The portfolio includes projects aimed at reducing deforestation, mobilising private finance, scaling up low carbon technologies and providing cutting-edge technical assistance, drawing on UK clean growth expertise.

Until recently Kate was the UK Alternate Board member for the Green Climate Fund (GCF), and she has co-chaired the Climate Investment Funds and Clean Technology Fund committee meetings. Kate has worked on UK and international climate and environment policies for 20 years.</td></tr>
<tr><th colspan="2">Key notes</th></tr>
</table>

The Rt Hon Kwasi Kwarteng MP, Minister of State, Department for Business, Energy & Industrial Strategy

Kwasi Kwarteng was appointed Minister of State at the Department of Business, Energy and Industrial Strategy on 24 July 2019. Kwasi was Parliamentary Under Secretary of State in the Department for Exiting the European Union from 16 November 2018 to 24 July 2019.

Kwasi read classics and history at Trinity College, Cambridge, and then attended Harvard University on a Kennedy Scholarship. He earned a PhD in economic history from the University of Cambridge in 2000. Before becoming a Member of Parliament, Kwasi worked as an analyst in financial services.

Kwasi was elected the Conservative MP for Spelthorne in 2010. From 2010 until 2013 he was a member of the Transport Select Committee, and in 2013 he joined the Work and Pensions Select Committee where he was a member until 2015.

In October 2016 Kwasi joined the Public Accounts Committee, where he was a member until May 2017. In 2015 Kwasi was appointed as Parliamentary Private Secretary to the Leader of the House of Lords, and in 2017 he became Parliamentary Private Secretary to the Chancellor of the Exchequer.

Dr Fatih Birol, Executive Director, International Energy Agency

Dr Fatih Birol has served as Executive Director of the International Energy Agency since September 2015. He was re-elected in January 2018 for a second four-year term, which will begin in September 2019. Under his leadership, the IEA has undertaken its first comprehensive modernisation programme since its creation in 1974. This effort focuses on three pillars: opening the doors of the IEA to include major emerging countries, such as Brazil, China, India, Indonesia, Mexico and South Africa who have joined the IEA Family, thus increasing its share of global energy demand from 38% to almost 75%; broadening the IEA's security mandate to natural gas and electricity as well as oil; and making the IEA the global hub for clean energy technologies and energy efficiency.

Prior to his nomination as Executive Director, Dr Birol spent over 20 years at the IEA, rising through the ranks to the position of Chief Economist responsible for the flagship World Energy Outlook publication. He is also the founder and chair of the IEA Energy Business Council, one of the world's most active industry advisory groups in energy. Dr Birol has been named by Forbes Magazine among the most influential people on the world's energy scene and was recognised by the Financial Times in 2017 as Energy Personality of the Year. He chairs the World Economic Forum's (Davos) Energy Advisory Board and serves on the UN Secretary-General's Advisory Board on 'Sustainable Energy for All'. He is the recipient of numerous awards, including the Japanese Emperor's Order of the Rising Sun, the Order of the Polar Star from the King of Sweden and the highest Presidential decorations from Austria, Germany and Italy.

Before the IEA, Dr Birol worked at the Organisation of the Petroleum Exporting Countries (OPEC) in Vienna. He earned a BSc degree in power engineering from the Technical University of Istanbul and received a MSc and PhD in energy economics from the Technical University of Vienna. Dr Birol was awarded a Doctorate of Science honoris causa from Imperial College London in 2013. He was also made an honorary life member of Galatasaray Football Club in 2013.

Panel 1: Policymakers	
	**H.E. Fekadu Beyene Aleka, Commissioner, Environment, Forest and Climate Change Commission of Ethiopia** Professor Fekadu Beyene Aleka holds a PhD in Dairy Technology (Food Sciences and Technology) from Agricultural University of Norway (UMB), Norway (in 1994); MSc in Animal Production (Agriculture) from Alemaya University (in 1987), BSc in Animal Sciences (Agriculture), Addis Ababa University (in 1982). As of October 2018, Professor Fekadu Beyene has been appointed as Commissioner, Environment, Forest and Climate Change Commission (EFCCC) of the Federal Democratic Republic of Ethiopia (FDRE). He had been Minister of the Ministry of Livestock and Fisheries from October 2017 to May 2018, and State Minister of the Ministry of Agriculture and Livestock Resources of the FDRE from May to October 2018. He served in different capacities at Hawassa (Debub) University, as Lecturer, Assistant Professor, Associate Professor and Professor of Dairy Sciences, and Dean of Students, Academic Vice-Dean, Academic Programs Officer of the same University (1982 to 2008). Furthermore, he was a founding President of Wollega University, 2009- 2016), and also served as President of Ethiopian Civil Service University (2016). He had worked as editor and reviewer of peer reviewed journals, published more than 50 articles in peer reviewed journals. He had served as instructor of dairy Sciences, Food Science and Technology, Nutrition, Research Methods and related courses at under graduate and graduate programs, and supervised several MSc and PhD students, and as internal and external examiner of MSc and PhD Thesis of graduate students of many Universities in Ethiopia. Prof. Fekadu Beyene also served as President of the Consortium of Ethiopian Public Universities (2014 – 2016), and Chairperson of the Consortium of Universities and Colleges in Oromia (CUCO). He was a Visiting Scholar at Langston University, (USA) in 2002/3), and Visiting Scientist at Saskatchewan University (Canada) in 2008). He is a member of professional societies and alumni associations such as ESAP, EBS, UNiStaff, REAL etc. He served as chairperson and member of national steering committees, taskforces, and managing and advisory Boards of Institutes and Universities, and also served as coordinator of national and international bilateral and multilateral projects.

	**Ambassador Tomas Anker Christensen, Climate Ambassador for Denmark, Ministry of Foreign Affairs, Denmark** Ambassador Tomas Anker Christensen is the Climate Ambassador for Denmark since February 2020, a role he took to help increase the global climate ambition level in the implementation of the Paris Agreement. Before this role, Tomas Anker Christensen was the Danish Ambassador to Cairo. The Ambassador has long experience in the field of climate. He has been Head of Department for the Ministry of Foreign Affairs' Centre for Global Challenges, where he was at the head of the establishment of the 3GF – an international partnership for green transition. Subsequently, he was employed by the UN Secretary-General's Cabinet, where he was head of the climate team with responsibility for preparing and conducting the 2014 UN Climate Summit. In the period 2015-2017, he was head of cabinet for the president of the General Assembly with particular focus on implementation of the Paris Agreement and the UN Sustainable Development Goals. Thereafter, Tomas Anker Christensen was appointed special advisor to the UN's special envoy on climate, Michael Bloomberg.
	**H.E. Minister Juan Carlos Jobet, Minister of Energy, Chile** Jobet holds a degree in Commercial Engineering from the Universidad Católica and a master's degree in Business Administration and another in Public Administration from Harvard University. Between 2000 and 2010, he began his career in the corporate financial advising firm Asset Chile. In 2010, he joined President Sebastián Piñera's first administration as Cabinet Chief for Interior Minister Rodrigo Hinzpeter, playing a key role in the Emergency Committee created to address the rebuilding of the country following the February 2010 earthquake. On July 29, 2011, he was appointed Housing Undersecretary, continuing with the work of reconstruction and boosting the role that the ministry played in urban development. On July 24, 2013, he was appointed Labor and Social Welfare Minister, focusing on extending preschool services to the children of all working women, a mission that he described at the time as a project that "levels the playing field for children." After working in various roles in the private sector, in January 2019 he took on the responsibility of directing the Infrastructure Fund, a new state-run entity designed to develop new public infrastructure such as roadways, railways and ports. He is now taking on an even greater challenge: leading the Energy Ministry, which has as its mission moving Chile towards a new greener, carbon-free energy matrix with a focus on non-conventional renewable energies and making Chile carbon-neutral.

H.E. Minister Dr. Mohammad Mahmood Abubakar, Minister of Environment, Federal Republic of Nigeria

Dr. Mohammad Mahmood Abubakar was born on 30th December, 1958 in Tudun Wada, Kaduna South of Kaduna State. He obtained his Bachelor's Degree in (Biology Major, Chemistry Minor) specializing in Microbiology and Master's Degree in Resources Management with specialization in Natural Resources Management from Central Washington University, Ellensburg, Wa., and a PhD in Watersheds Management from the University of Arizona, Tucson all in USA.

He was during his National Youth Service Corps (NYSC) days a Microbiologist at NNPC Kaduna Refinery, Kaduna. He has worked for over 10 years in various organization starting from Kittitas Country (Health Dept.) as Environmental Health Inspector, University of Arizona as Research and Teaching Assistance, E&A Environmental Services Los Angeles, California as Environmental professional (Industrial Hygienist), Municipality of Metropolitan Seattle as Industrial Waste Investigator. He also worked in Nigeria as a Director Planning, Research and Evaluation with the Kaduna State Environmental Protection Agency and have lectured at Water Resources Research Institute, Kaduna as well as a volunteer Environmental consultant for the United Nations Association, Seattle.

He was at different times Member, Kaduna State House of Assembly, Member Buhari Support Group, Kano State CPC Caretaker Committee Chairman, Deputy Director Field operations of the APC Presidential Campaign Council, Director Buhari Support Groups in the Presidential Campaign Council (PCC), National Chairman Buhari Support Organisation and lately as Board Chairman Universal Basic Education Board (UBEC).

MODERATOR

Kate Hampton, Chief Executive Officer, Children's Investment Fund Foundation

Kate became CEO in March 2016, having run CIFF's Climate Change team since 2009. Kate sits on the board of the European Climate Foundation. Current advisory roles include to the Observer Research Foundation (India) and the China Council for International Cooperation on Environment and Development. She has been featured in the top 100 Profiles of Paris, a collection of stories from the key people who created the Paris Agreement.

Kate's career spans roles in government, finance, consulting, a think tank and NGOs. Before joining CIFF she was Head of Policy at Climate Change Capital, a boutique investment firm with $1.5 billion under management, advising asset managers and multinational companies on clean energy opportunities.

She has also advised policymakers in a number of roles, including as Senior Policy Advisor for the United UK's G8 and EU presidencies in 2005, and as a Sherpa to the EU High-Level Group on Competitiveness, Energy and Environment in 2007.

In 2008, Kate was named a World Economic Forum Young Global Leader. She holds a BSc from the London School of Economics and a Master's in Public Policy from the Harvard Kennedy School, where she was a Fulbright Scholar. She has also completed the Singularity University Executive Programme. She speaks French and Spanish.

Panel 2: Businesses	
	**Jamshyd Godrej, Chairman and Managing Director, Godrej & Boyce Mfg Co. Ltd.** Mr. Jamshyd N. Godrej is the Chairman of the Board of Godrej & Boyce Manufacturing Company Limited. He graduated in Mechanical Engineering from Illinois Institute of Technology, USA. Mr. Godrej is the former Chairman of Ananta Aspen Centre (previously known as Aspen Institute India), Chairman & Trustee of Ananta Centre. He is the President of World Wide Fund for Nature – India. He is the Chairperson of the Board of Directors of Shakti Sustainable Energy Foundation, India Resources Trust and Council on Energy, Environment and Water. He is a Director of World Resources Institute, USA. He is also a Trustee of the Asia Society, USA. He is the Past President of Confederation of Indian Industry and also the Past President of the Indian Machine Tool Manufacturers' Association. Mr. Godrej is the Chairman of the CII Sohrabji Godrej Green Business Centre. The Centre is housed in a LEED Platinum demonstration building which is the first green building in India and the greenest building in the world at the time when it was rated. The Green Business Centre is a Centre of Excellence for green buildings, energy efficiency, energy conservation, non-conventional energy sources, water policy, water conservation, etc. Godrej and Boyce Mfg. Co. Ltd. manufactures and markets refrigerators; washing machines; air conditioners; office furniture; home furniture; security equipment for banks (such as safes, strong room doors, bank lockers, etc.) and for commercial establishments and homes; locks and latches, forklift trucks and warehousing equipment; process equipment for chemical, petrochemical, refineries and allied industries; precision tools for sheet metal, zinc, aluminium; real estate development. The President of India conferred on Mr. Godrej the "Padma Bhushan" on 3rd April 2003.
	**David Appel, President of Refrigeration, Carrier** David Appel is President, Refrigeration, for Carrier, leading the company's $4 billion global transport and commercial refrigeration businesses and cold chain monitoring solutions. David is responsible for driving profitable growth through operational excellence and advancing products and services that protect and preserve the world's supply of food and pharmaceuticals. David has more than 30 years of international experience. He has held numerous leadership roles at Carrier, including Managing Director for Toshiba Carrier UK; Vice President, European Heating, Ventilating and Air Conditioning (HVAC) Distribution; President, Building Systems & Service Europe, Middle East, Africa (EMEA); and President, HVAC EMEA. He was named President of Carrier's Refrigeration business in 2010. David holds a bachelor's degree in economics from the Wharton School of Business, University of Pennsylvania.

	**Jürgen Fischer, President, Danfoss Cooling** Jürgen Fischer has a broad leadership experience from global industrial companies within IT, telecommunication, and machine-building. In 2015, Jürgen Fischer was appointed President of Danfoss Cooling. In 2008, he joined Danfoss as Vice President for Industrial Automation, and in 2010, he became Senior Vice President for Automatic Controls. In 2013, he was appointed President of the Refrigeration and A/C Division.
	**Pablo Moreno, Vice-President Corporate Affairs, Mabe** Pablo Moreno is the Head of Corporate Affairs at Mabe, a Mexican global company that designs, produces, and distributes home appliances to more than 70 countries around the world. Currently he's the Chairman of the Energy Efficiency Savings Trust (FIDE), that induces and promotes savings and the efficient use of electricity in industry, commerce, service, agriculture, municipalities and residential sector. He´s also the past Chairman of the National Electrical Manufacturers Association (CANAME), which represents companies that manufacture products used in the generation, transmission, distribution and end use of electricity. Additionally, he's co-founder of United for Efficiency (U4E), and advisor of the Consultive Council for Energy Transition (CCTE), Consultive Council for Water (CCA), the High Level Business Council of the Mexican Agency of International Cooperation for the Development (AMEXCID), The Aspen Institute and the Confederation of Industrial Chambers of Mexico (CONCAMIN). Also, Mr. Moreno is the past Chairman of the Association of Home Appliance Manufacturers of Mexico (ANFAD), that represent manufacturers companies of mayor and portable home appliances, air conditioners, water heaters and bathroom furniture, and the Association of Standards and Certification (ANCE), that elaborates, certifies, validates, tests and audits over 500 standards of the electro technical, forest, mining, food and beverages sectors and managements systems. Along in his career he has held different positions such as Head of Institutional Relations at Vitro and Public Relations and Communication Director in Prodigy MSN.
	**MODERATOR** **Nigel Topping, UK High Level Climate Action Champion, COP26** Nigel Topping is the UK's High-Level Climate Action Champion, appointed by the UK Prime Minister in January 2020. Nigel works alongside the Chilean High-Level Climate Action Champion, Gonzalo Muñoz. The role of the high-level champions is to strengthen collaboration and drive action from businesses, investors, organisations, cities, and regions on climate change, and coordinate this work with governments and parties to the United Nations Framework Convention on Climate Change (UNFCCC). Nigel was most recently CEO of We Mean Business, a coalition of businesses working to accelerate the transition to a zero-carbon economy. Prior to that he was Executive Director of the Carbon Disclosure Project, following an 18- year career in the private sector, having worked across the world in emerging markets and manufacturing.

Closing Remarks	
	**Inger Andersen, Under-Secretary-General of the United Nations, Executive Director of the UN Environment Programme** Inger Andersen is Under-Secretary-General of the United Nations and Executive Director of the United Nations Environment Programme, headquartered in Nairobi, Kenya. Between 2015 and 2019, Ms. Andersen was the Director-General of the International Union for Conservation of Nature (IUCN). Ms. Andersen has more than 30 years of experience in international development economics, environmental sustainability, strategy and operations. She has led work on a range of issues including agriculture, environmental management, biodiversity conservation, climate change, infrastructure, energy, transport, and water resources management and hydro-diplomacy. Between 1999 and 2014, Ms. Andersen held several leadership positions at the World Bank including Vice President of the Middle East and North Africa; Vice President for Sustainable Development and Head of the CGIAR Fund Council. Prior to her 15 years at the World Bank, Ms. Andersen worked 12 years at the United Nations, first on drought and desertification, beginning with the UN Sudano-Sahelian Office. In 1992, she was appointed UNDP's Water and Environment Coordinator for the Arab Region. Ms. Andersen holds a Bachelors from the London Metropolitan University North and a Masters in Development Economics from the School of Oriental and African Studies, University of London.