

POST-WEBINAR



Webinar Topic:	Race to Net Zero: Shaping Tomorrow's Sustainable World
Date / Time:	Saturday, 18 May 2024, 10:30 – 11:30 AM
Synopsis:	<p>Climate change is one of the most perilous risks of the 21st century. Countries around the world are stepping up efforts to achieve net zero, a state where all emissions from human activities are counterbalanced by the removal of carbon from the atmosphere.</p> <p>This includes transitioning to the use of low-carbon energy sources and phasing down the use of fossil fuels. There is a need to reduce carbon emissions, and to ensure that any hard-to-abate emissions are addressed by carbon trading. There is also growing interest in carbon capture and storage, where carbon dioxide is separated from the air.</p> <p>In this webinar, we will explore current and emerging initiatives to accelerate the journey to net zero, with a focus on efforts in Singapore, ASEAN, and Asia – plus the pivotal role of youths in creating a greener future for all.</p>
Video(s):	<p>TED: What is net-zero? https://www.youtube.com/watch?v=QPmUafuqM08</p> <p>CNA Explains: What is carbon trading and how does it work? https://www.youtube.com/watch?v=Iji2i7EzPI</p>

Speaker(s):



Mr. Low Ying Hui

Mr Low Ying Hui is a Senior Associate with the Investments and M&A team in EDP Renewables, a multinational renewable energy company. He is focused on the development of 2 gigawatts of solar, battery and wind assets in Australia, Indonesia and Taiwan.



Ms Hum Wei Mei

Ms Hum Wei Mei is concurrently Head of Asia Pacific and Global Head of Environmental Products at ACX. She is responsible for advancing ACX's business interests in the Asia Pacific Region, product structuring and development. She represents ACX on several industry led Task Forces and Committees.

**Social Media
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What we have learnt

Net zero refers to a state in which the greenhouse gases entering the atmosphere are balanced by its equivalent removal out of the atmosphere. It is an ambitious but necessary goal that many believe will alleviate the negative impact of climate change. To reach this goal of net zero, governments and companies have begun transitioning from fossil fuels to more renewable sources of energy, such as wind and solar energy. Carbon credit markets are also emerging as a key mechanism towards reaching net zero. These are specialised financial markets through which carbon credits can be bought and sold. In this system, carbon credits function as permits that allow the purchaser to emit a certain amount of carbon dioxide or other greenhouse gases.

Renewable Energy

Renewable energy plays a significant role in reaching net zero as these sustainable sources of energy generate electricity without emitting greenhouse gases like carbon dioxide. Transitioning to renewable energy significantly reduces emissions, which is key towards achieving net zero. In this session, Mr. Low shared the various forms of renewable energy that industry players and governments are currently exploring and actively producing.

Wind energy is a renewable energy source that collects and converts the kinetic energy produced by wind into electricity. Mr. Low shared that while it is one of the more widely utilised renewable energy sources, there needs to be greater consistency in wind speeds for it to function effectively. Therefore, wind farms are best suited for areas in wind-swept regions, such as Vietnam, Thailand, Korea, and Japan.

Over the last decade, solar energy has also emerged as another commonly utilised form of renewable energy. This is due to improvements in the efficiency of technologies and production capacity, resulting in a reduction in costs. Therefore, Solar energy is more affordable and accessible. Mr. Low highlighted that solar energy is a form of renewable energy that Singapore can adopt easily, given its inherent geographical strength as an island near the equator. This would allow for the easy construction of floating solar farms and rooftop solar farms, such as the Woodlands Offshore Floating PV System.

In addition to wind and solar energy, Mr. Low explained that companies such as EDP Renewables have been exploring the creation of new energy storage facilities to store energy. He emphasised that such storage systems will be invaluable in the future, given that renewable sources of energy are more intermittent and inconsistent as compared to energy derived from fossil fuels. For example, solar farms only generate power when the sun is shining. There is a risk of instability and power supply disruption, which in turn will create price volatility in the energy market. This risk could be mediated through the creation of energy storage facilities, where countries produce excess energy and store it to minimise the risk of disruption. This could be especially useful for ASEAN countries located near the equator, where countries such as Malaysia have the potential to produce solar energy in excess for future use.

Additionally, Mr. Low highlighted the potential of green hydrogen. Green hydrogen can be generated from electrolysis using excess renewable electricity during peak production hours. Once produced, hydrogen can be used in stationary fuel cells for power generation or stored for

longer-term use. It then allows vast quantities of clean energy to be stored for long durations for use when necessary.

Carbon Credits Markets

Carbon credit markets also play a crucial role in reaching net zero by providing economic incentives to companies, industries, and governments to reduce their greenhouse gas emissions. By rewarding emissions reduction, carbon credit markets encourage governments and industry actors to adopt cleaner, low-carbon practices and technologies that will significantly facilitate our progress towards net zero. Carbon trading occurs in three different carbon markets: the compliance and voluntary markets at the national level, and the international carbon market under Article 6 of the Paris Agreement.

Ms. Hum shared that a compliance carbon market is typically a domestic market created and regulated by governments. Businesses are then required to participate in the market in order to comply with regulations, hence the name. They are also referred to as mandatory carbon markets. For example, regulatory bodies may set limits on the total amount of emissions that industries and businesses can emit, and then companies can trade national carbon allowances and other eligible carbon credits to meet their limits or exchange excess capacity with other firms.

The voluntary carbon market is where the issuance, buying and selling of carbon credits is not mandatory. Companies can opt to participate or not. Companies looking to offset their carbon credits from new projects participate in this market in a bid to fulfil environmental, social, and governance (ESG) requirements or satisfy shareholders' environmental goals.

Lastly, Article 6 of the Paris Agreement, the global climate deal signed in 2015, sets out guidelines for international carbon trading. In theory, countries can transfer carbon credits earned from the reduction of greenhouse gas emissions to help one or more other countries meet their overall climate targets. This is still an emerging area, as the details of how to operationalise Article 6 have only gradually been worked out between countries over the past few years.

A carbon exchange involves various elements, including the spot exchange, carbon market board, and auctions. Spot exchanges involve high-speed trades of carbon credits using standardised contracts and different grades of carbon credits. The carbon market board involves transactions with trusted counterparts in specific, identified carbon credits. Auctions are a special facility for large-scale issuances of carbon credits into the market. It is a facility for price discovery and where governments and project developers can determine the price that their carbon credits will fetch.

Pursuing Careers in Sustainability

With the heightened focus on reaching net zero, there is an increase in demand for engaging and employing people with green skills across various sectors. Ms. Hum shared her personal journey entering the sustainability sector. She emphasised that one need not have a degree in environmental science or specialised areas of sustainability from the beginning to forge a meaningful career in the sector. Instead, there are many career paths that could help youths gain valuable experience and establish a career in the sustainability sector in the future. For instance,

she cited her time working in the Singapore government as invaluable for gaining experience in the development and regulation of climate-related policies.

Your questions answered:

1. How can we balance profit-making to ensure that the economy continues to advance, whilst not compromising our sustainable goals?

Mr. Low shared that achieving economic growth and sustainable goals are not mutually exclusive outcomes. Instead, businesses can look to opportunities that are both profitable and sustainable. Renewable energy is no longer more expensive than other forms of energy, making them a cost-effective alternative to energy produced from fossil fuels. That said, Mr. Low cautioned that the degree to which businesses can replace their energy sources with renewable energy depends on what sector they are in.

2. What do you see as the most significant challenges in developing and scaling effective carbon trading systems in our region?

Ms. Hum shared that a large-scale and effective carbon trading system could be achieved through the establishment of Article 6 international carbon markets. Nonetheless, one of the most significant challenges in developing and scaling effective carbon trading systems between countries, such as in the ASEAN region, is the fact that creating an effective trading system requires clarity, speed, and a significant amount of resources from governments to ensure its smooth implementation. It will therefore take time for such systems to be implemented effectively.

3. What do you see as the biggest barriers to achieving net zero emissions in our region?

Mr. Low said that the biggest barrier to achieving net zero would be the limited financial support and political will to achieve these targets. Yet, while countries in the Global South may not have easy access to the necessary funds, they have the capacity to generate innovative solutions that will help them reach the net zero target. They may also be motivated by the pressing urgency of the climate crisis, given that countries in the Global South are at greater risk from the adverse effects of climate change than countries in the Global North.

4. What role do youths play in this 'race to net zero'? What can we do as individuals to better contribute to this movement?

Ms. Hum shared that individual choices do matter. For instance, by choosing to purchase sustainably made goods, companies will be aware of the changing preferences of consumers towards more sustainable processes, and pivot accordingly.

Mr. Low added that young people could also work to put themselves in an influential position where they can implement significant sustainable decisions. Being key decision-makers in organisations or governments enables young people to enact decisions that generate more sustainable outcomes. He also emphasised that should youth have ideas for sustainability-related projects or solutions, they should work on bringing them to fruition with whatever resources they have or can generate.

5. Is there a form of collaboration where some countries have agreed to generate energy while some countries focus on processing these energies? How do they decide who does which, given that these actions will benefit each country differently, financially?

The speakers noted that collaboration in this regard is possible and to be encouraged. Larger ASEAN countries, such as Thailand, Indonesia, and Laos, are better suited for developing renewable energy sources that require large land area. Laos is positioning itself as a renewable energy exporter and is already exporting some electricity from hydropower to Singapore. Malaysia is also exploring energy exports and launched a government body to manage energy trading, the Energy Exchange Malaysia, earlier this year. Singapore is not suited for large-scale renewable projects due to limited land area. On the other hand, Singapore can offer support for renewable energy projects in the region in other ways, such as technology and financing, and this would also generate greater opportunities for cross-border renewable energy trade in the future.

6. Is carbon capture, utilisation, and storage (CCUS) available or will it be available soon? What are the challenges for building, adopting, and maintaining CCUS in an Industry 5.0 era? How can Singapore effectively implement solutions such as carbon storage, where large spaces of land must be utilised?

Ms. Hum said that while the solution is available, it is costly and difficult to implement. Carbon capture involves specifically removing carbon dioxide from the air - for example from the emissions of natural gas power plants – and there needs to be a high enough concentration of captured carbon for storing it to be worthwhile. One possibility she suggested was to use Singapore's natural gas pipelines to send carbon dioxide back to the gas and oil fields that fuel comes from. When fuel is extracted from gas and oil fields, voids are left in the ground that could become storage spaces for carbon dioxide. This could be an avenue for collaboration between Singapore and its neighbouring countries, but it requires further exploration and study before it can be implemented.

7. Is nuclear a feasible option for ASEAN or others in Asia like China and India?

The technologies involved in the development of nuclear energy have progressed significantly. For instance, Mr. Low shared that the new generation of small modular reactors now being developed is generally considered safer compared to traditional nuclear reactors, and ASEAN countries could consider the potential of these options. Nonetheless, he cautioned that one must always balance the effectiveness of such technologies against its risks. The safety concerns involved with the development of nuclear energy facilities are considerable and ASEAN countries should tread carefully should they explore this path.

Answered by Mr. Low Ying Hui, Senior Associate, Mergers & Acquisitions, EDP Renewables APAC, and Ms. Hum Wei Mei, Head of Asia Pacific and Global Head of Environmental Products at ACX. They were the speakers at the "Race to Net Zero: Shaping Tomorrow's Sustainable World" webinar held on 18 May 2024.