



Focus Group Discussion: Financing Models for Efficient and Low Carbon Cooling Systems

22 July 2020

Meeting summary

The demand for cooling in Indonesia is forecasted by the IEA to reach 340 TWh by 2050 and require nearly 110 GW of new electricity generation capacity. Yet, more than 35 GW could be saved in new electricity capacity if the growing demand for cooling is met with best available technologies. According to the Economist Intelligence Unit in the Cooling Imperative Report (2019), Indonesia could experience more than 123 days a year of temperatures above 35°C. There is an urgent need for Indonesia to develop an efficient cooling strategy and environmentally friendly cooling system as well as to implement policies to ensure that the rapid growth in demand for cooling is met with efficient and low carbon technologies that furthermore will help Indonesia achieve its NDC target.

In Indonesia, the tourism industry is one of the key contributors to the economy and particularly hard hit by the Covid-19 pandemic. The industry will need to identify and implement cost saving measures that can improve their business and support the recovery process. The hospitality sector, has the opportunity to implement significant energy savings from more efficient cooling systems. With limited funds to make capital investments, innovative financing models such as Cooling as a Service (CaaS) can help companies implement cost saving measures without the need for an initial outlay of capital.

This Focus Group Discussion explored the potential for advanced cooling technologies to help support Indonesia's post COVID-19 economic recovery and highlighted how new innovative financing models can be used to help bring efficient and low carbon cooling systems to market.

Speaker presentations:

Bapak Hariyanto, Director of Energy Conservation MEMR, provided an overview of energy efficiency regulations and highlighted priorities and activities of the Ministry in supporting energy efficiency and more efficient cooling investments. A survey conducted in government and commercial buildings in 8 cities showed that about two-thirds of all energy consumption was used for cooling and studies have shown that energy savings potential in the commercial and industry sector are significant. Energy efficiency projects however face financing challenges and project guarantees are required to support the realisation of projects.

Kevin Lane, Energy Analyst at the International Energy Agency, outlined the crucial role that the deployment of efficient cooling systems will need to play if we are to meet our global clean energy and climate change targets. With higher temperatures, and especially increased wealth, demand for cooling could account for 30% of peak electricity load by 2040 and place significant



pressure on the need to expand capacity and electricity networks. The use of best available cooling technologies and improved building envelopes could reduce that by half. Policy solutions including the implementation of minimum energy performance standards (MEPS) and mandatory labelling programmes can help to send the right market signals for driving commercialisation of high efficiency technologies. Innovative financing solutions will be needed to support the investment in efficient, climate friendly cooling. Covid-19 recovery packages could play a significant role in subsidising installations and credit risk.

Ibu Herlin Herlianika, Chairwoman at ASHRAE Indonesia, provided an overview of the current best available cooling technologies and highlighted financing challenges faced by the market under the additional strain of the economic slowdown. Improvements in HVAC systems with increased output of fresh air could reduce airborne exposure to COVID-19 and lower the risk of infection. From a life cycle cost perspective, the capital cost of equipment represents only a fifth of the total costs with operating and maintenance costs representing the bulk of total operating costs and hence the need to choose high efficiency cooling systems as well as a need to select systems with low global warming potential (GWP) refrigerants.

James Maguire and Peter Hobson, SDCL outlined the need to mobilise capital for investments in efficient cooling systems to meet rising cooling demand as global temperatures continue to rise. SDCL and the Kigali Cooling Efficiency Program (K-CEP) aim to mobilise US\$ 100 million in capital. Cooling as a Service is an innovative finance model where cooling equipment is supplied and installed to customers with no upfront payment. SDCL have funded 4 Investment Grade Audits (IGAs) in the hospitality sector but projects at present are not bankable given high credit risk associated with very low occupancy levels, reduced revenues and uncertainty on the length and depth of the current COVID-19 global economic recession. A guarantee facility to de-risk cooling efficiency projects in the hospitality sector to acceptable risk-adjusted return levels would help to unlock private sector investments

Remarks from discussants:

Ibu Emma Rachmawaty, Director of Mitigation at the Ministry of Environment and Forestry, shared the latest developments with respect to implementation of the Montreal Protocol and the HCFC phase out management in Indonesia. She also provided an overview of the development of refrigerants and Kigali Amendment of the Montreal Protocol implementation plan for the phase-down of HFC. Indonesia has policies to strengthen the competencies of servicing sector in managing refrigerants, in particular, those with specific characteristics such as flammability and toxicity. Indonesia will include HFC as a new gas and new mitigation action in the second NDC in 2025.



Florian Kitt, Energy Specialist at the Asian Development Bank (Indonesia), highlighted ADB's energy efficiency activities and its ongoing support to MEMR to help establish a regulatory framework for ESCO development in Indonesia. The cooling sector represents significant energy efficiency potentials but the small individual project sizes pose financing difficulties. ADB sovereign energy sector loans tend to be above \$100 million and are directed to government projects, and non-sovereign lending size is typically at least USD 25 million, which implies a total project size of at least \$100 million as non-sovereign loans can cover up to 25% of total project cost. To address this scale challenge for energy efficiency projects, ADB advocates aggregating projects and is evaluating options to develop a guarantee mechanisms that could be structured as a low cost loan (LIBOR+50bps) to a state-owned enterprise such as PTSMI or IIGF to provide de-risking mechanisms such as a payment guarantee. ADB could also provide financial intermediary loans to a state-owned entity or Ministry for on-lending to private sector projects.

Bapak Rana Yusuf Nasir, Vice Chairman of MASKEEI, provided an overview of the various cooling technology options for advanced cooling systems and highlighted the need to support research and development to improve technology performance on a continuous basis. The selection of chiller system needs to consider both improvements in energy efficiency and the use of low GWP refrigerants. Policies are also needed to encourage efficient operating practices, with No Cost measures to make investment more attractive to investor by having a shorter payback period by combining High Cost and No Cost measures. One of such measures as higher thermostat settings that can reduce energy demand for cooling.

Main takeaways from the discussion:

- Demand for cooling will be a big driver of future electricity demand growth in Indonesia, especially for the buildings sector. Energy efficient products are available and experience in other countries have shown that they do not need to necessarily cost more and could potentially lead to local manufacturing benefits.
- Policy measures such as minimum energy performance standards (MEPS) and mandatory energy labelling can play a key role in improving the efficiency of new equipment. More stringent regulation, particularly for higher efficiency and low GWP refrigerants are needed to send the right signals to the market to ensure that global best available technology is also widely available in Indonesia.
- There is a role for new financing models such as the Cooling as a Service (CaaS) model to facilitate the deployment of more efficient and low carbon cooling technologies. With no capital outlay by the asset owner, the CaaS model can help address the finance and investment barriers faced by building owners and in the case of the hospitality sector allow them to return to profitability quicker.



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- Economic stimulus programmes particularly those that integrate sustainability and green measures can be an important catalysis for the energy efficiency market. Stimulus can be used to subsidise installations and help manage project risks associated with new technologies or new business models. There is a high employment generated per dollar invested in efficiency and in general, the job creation intensity in emerging economies is higher than that of developed economies. Stimulus funds could help to demonstrate new financing models that are needed to meet clean energy and climate goals.
- A de-risking or guarantee mechanism would allow the energy efficient cooling projects to be bankable, as the hospitality sector has been severely impacted by the COVID-19 pandemic. Such a mechanism could blend public funds from IFIs and philanthropy to leverage private capital with a potential multiplier effect of 10 to 20 times.