The OQ Energy Efficiency Conference was held on the 27th of January in Muscat and was opened by Dr. Salim Al Huthaili, CEO of Alternative Energy at OQ, and featured a keynote speech from H.E. Salim bin Nasser Al Auf, Undersecretary – Oman's Ministry of Energy and Minerals. Speakers from various industries and specialties came together to discuss Oman's path to energy efficiency, current challenges and opportunities. This paper outlines the key takeaways from the conference and recommendations to accelerate the development of the energy efficiency market in the Sultanate.

Oman's current landscape and future plans

"Oman is one of the highest consumers of energy per capita in the world, and the energy demand is bound to increase. The right energy efficiency measures can result in huge savings and ensure supply is able to meet demand", said Dr. Al Huthaili during his opening remarks.

H.E. Al Aufi outlined Oman's commitment to pursuing energy efficiency policy. Oman's policies begin by strengthening the cost-reflective tariffs (CRT) on electricity usage. The CRT initially applied to major consumers using above 150 MWh/y but will now be applied to 100 MWh/y usage. Those using below 100 MWh/y will be brought into the tariff over the course of two years, which applies to all industries.

In the near future, Oman is also set to establish an energy efficiency centre and introduce a mandate for all major energy consumers to have energy efficiency officers. These officers will be responsible for ensuring consumption is efficient, set new targets, and implement mechanisms to lower consumption.

As outlined by Oman National Spatial Strategy (ONSS), Oman Vision 2040 is a national ambitious energy policy plan which commits to achieving 39% energy from renewable sources, as per the Paris Agreement. By 2029, some energy resources such as gas power plants are expected to go offline. This would result in a significant decrease in energy generation – 9 gigawatts. Therefore, Oman needs renewable resources to meet electricity demand in the next 20 years.

On the road to Oman Vision 2040, the journey of Alberta, Canada can be taken as an example to achieve similar strides in energy efficiency. As Darcy Spady, Managing Partner at Carbon Connect International shared his experience in the region, an effective way to incentivize organisations towards achieving carbon efficiency is to establish a carbon market economy with which they can obtain financial stimulus for climate-related projects.

Conference outcomes/opportunities for Oman

The conference was divided up into two main panels, one focusing on energy efficiency in oil & gas operations, and the other on the industrial and buildings sectors.
In upstream operations, there is a growing demand for power due to expansion. The main challenge for operators is to ensure growth while reducing carbon footprint. There is a need to optimise the asset life cycle, which would help avoid flaring, which is a huge emitter of CO2 and methane. Optimisation would include heat recovery, compressor pressure level optimisation, nitrogen swiping, etc.

The first step to managing energy efficiency is to define the best-in-class asset efficiency and compare it with top quartile performance. Then a company must evaluate its own efficiency based on historical data, the full life cycle of assets, identify gaps, and lastly establish a road-map to achieve top quartile performance. In order to achieve operational excellence, such management would involve modelling and monitoring, setting targets and reporting, using high-quality process data, visualisation of losses and enforced categorisation, and energy and utilities loss accounting (EULA).

Policies such as carbon levies and carbon credits can go a long way and encourage companies to pursue more aggressive energy efficiency strategies. A carbon market economy could create financial returns for the industry as it would allow companies to trade carbon offset certificates. It was also discussed that oil and gas companies remain hesitant towards bringing in external support through ESCO's, but this attitude may shift in the future as collaborative efforts can achieve greater success. In addition, for successful implementation of strategies, establishing a baseline and gathering publicly available data proved to be crucial through the experiences of organisations.

Covid-19 has laid bare how vulnerable the energy industry is and companies that adopted digital methods early on were the most unscathed by the crisis. Resilience in times of crisis is important and digitalization can assist with energy efficiency strategies.

Residential buildings are the highest energy consumer within the buildings sector; they account for 45% of building energy use. The behaviour of people matters in terms of turning off appliances and lights when not in use. This is the first step to energy efficiency. Secondly, the focus should be on improving the efficiency of appliances and thirdly, generating power from renewables. Academic models carried out on the grid in Oman by Sultan Qaboos University have shown that energy efficiency strategies can result in savings of 37.6% of total energy consumption. If Photovoltaic (PV) or solar water heaters are added to the mix, energy savings go up to 58%.

While organisations utilise international standards for buildings, a more localised building code, such as a unified GCC code, would be welcome. Companies tend to be way of high Capex costs, but the entire life cycle cost of buildings should be considered rather than focusing on the initial Capex.

In order to achieve energy efficiency, Oman needs to be willing to take on the challenge, both at the company and regulation level. Energy efficiency is particularly crucial in Oman's strategy as there are considerable milestones to be achieved in this step prior to implementing alternative energies. Once the right pathways are found to attain scalable efficiency, significant savings can lead to better use of existing energy sources", said Dr. Al Huthaili in his closing remarks.

Key takeaways

- Energy efficiency is key to achieving Oman's Vision 2040 and Oman's commitment to the Paris Agreement. It is also crucial to securing long term supply for increasing energy demand.
- Energy tariff reforms are being accelerated to be cost reflective. If solar lease models are introduced, the removal of subsidies will have less of a financial impact on the consumers.
- Rooftop solar system projects like Sahim II are considered landmark projects in terms of differentiation and potential business value.
- The Sultanate of Oman can benefit from demand reduction auctions covering certain areas or loads. This can tie to a program like Sahim II whereby rooftop Solar PV has to tie to a demand side reduction program for those considered buildings and facilities.
- Energy Efficiency, along with renewable energy, could deliver over 90% reduction of energy-related carbon emissions.
- Oman can take a leading role in the GCC by developing an early carbon tax program (through minimum energy efficiency regulation for industries). This could lead to a carbon market based in Oman.
- Energy Efficiency projects across the upstream and downstream sectors can get a boost if qualified ESCOs are allowed to participate under long term contracts with little to no Capex investments from oil and gas companies.

Recommendations and the path forward for Oman

- A dedicated authority needs to be created for Energy Efficiency and Renewables in the Sultanate. This type of authority would help accelerate energy efficiency implementation, as well as set policies and regulations in place.
- Oman requires a Green Building Code; this is essential for developing a sustainable energy efficiency market.
- Setting minimum efficiency standards for different industrial sectors is important for kicking off the ESCO market in Oman and can be done as such that it brings savings to end users and not added costs.