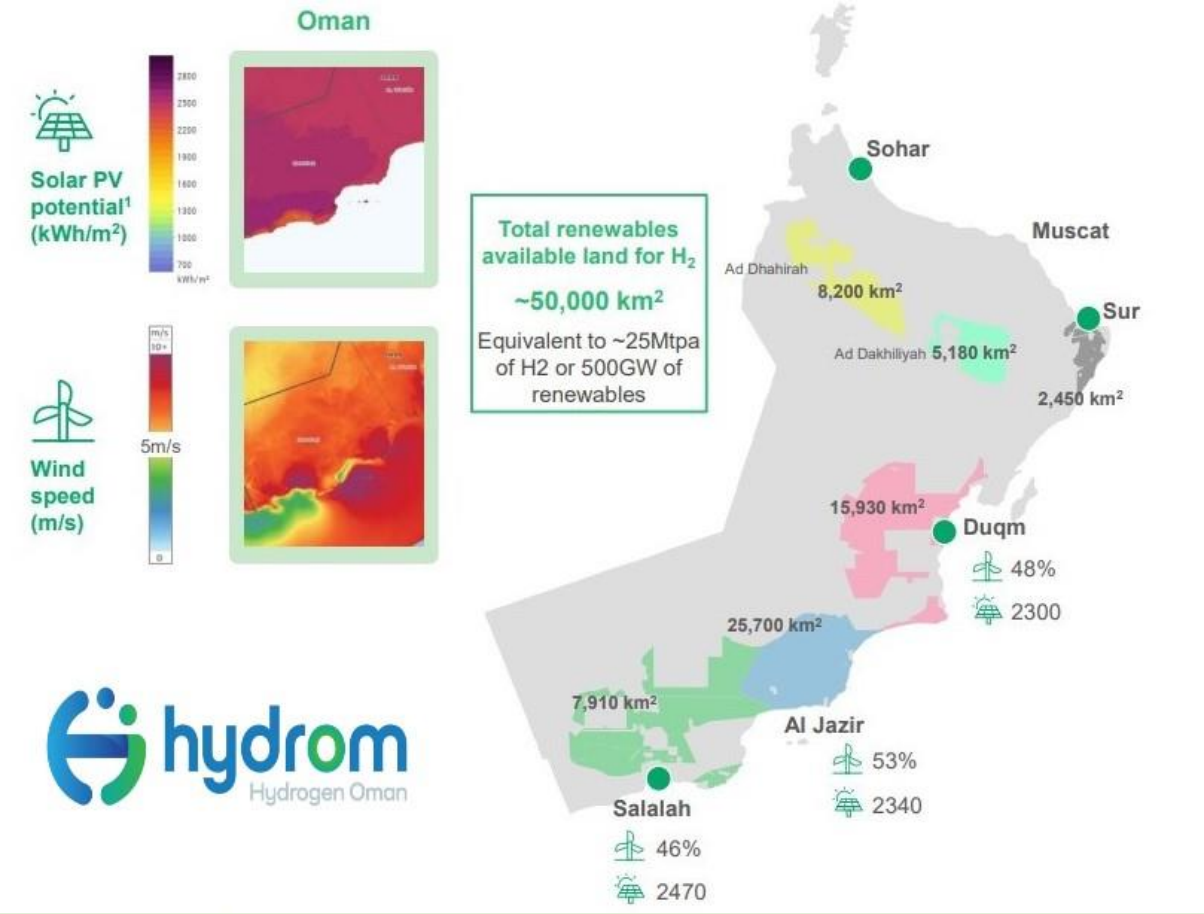
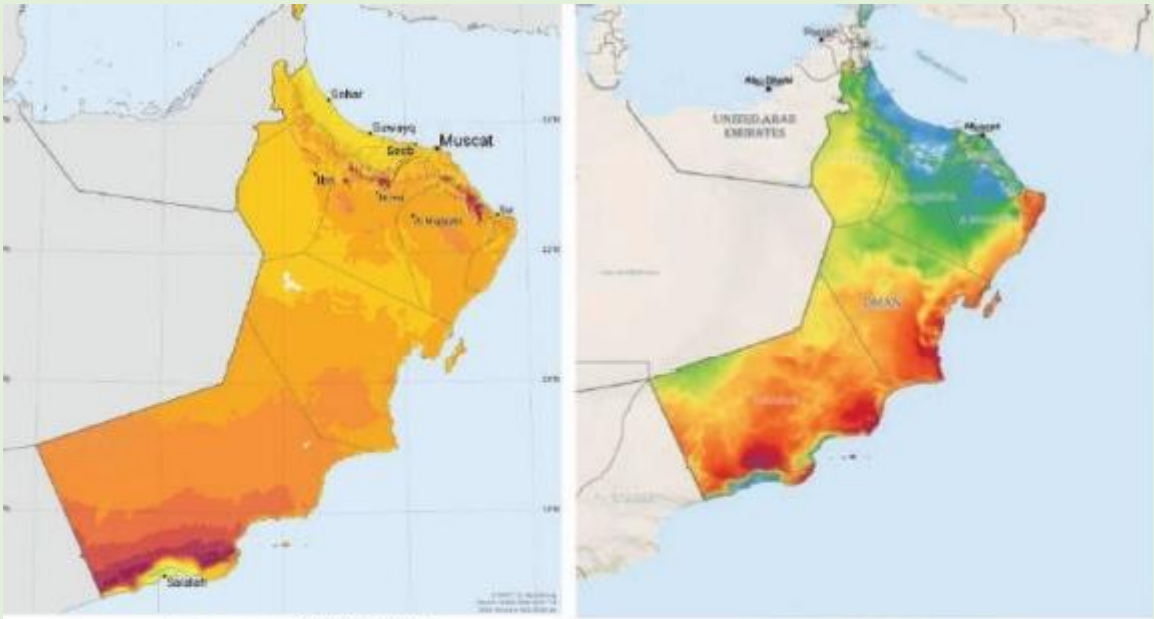
Hydrom

Hydrogen Oman

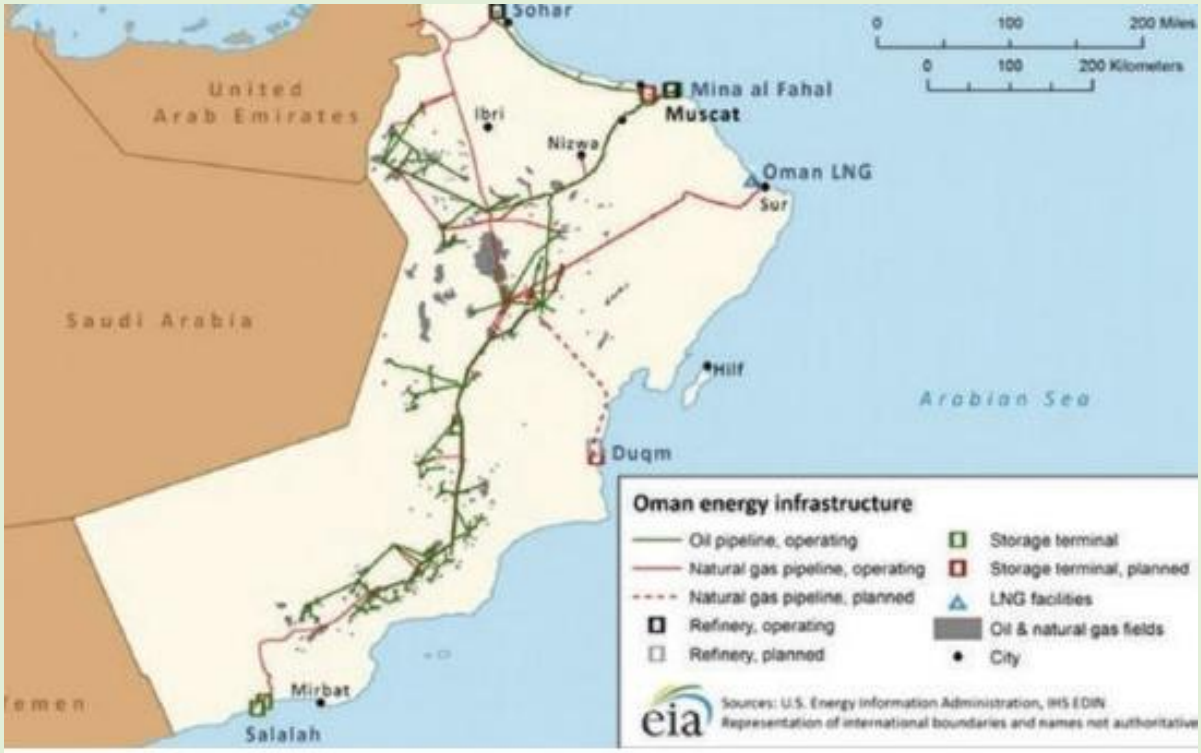


A couple of years ago I was invited to examine the situation around the Gulf state of Oman regarding the energy transition, and particularly looking at opportunities around renewable energy and the newcomer of hydrogen, especially the green and renewable variety.



: Photovoltaic Electricity Potential in Oman © 2020 The World Bank, Source: Global Solar Atlas 2.0, Solar resource data: Solargis. Right: Mean Wind Speed Map @ DTU, Source: Global Wind Atlas 3.0

Oman is a mature energy exporter, with a long history of oil and gas production, refining and offtake agreements. The northern part is renowned for its beauty, but Oman has constraints, especially around water requirements.



Oman Oil & Gas infrastructure. Source: U.S. Energy Information Administration, HIS EDIN.

There are challenges around people's cooking and heating requirements around kerosene and a chance to take a strategic snapshot and look forward to seeing whether we're the country - which also has a considerable unemployment issue amongst its younger populace - might afford wider opportunities based around the energy transition.

Masdar, another Middle East based entity, took a similar line around, two or so decades ago, that oil and gas is finite. There is a world beyond fossils, and it

might be prudent to think about it sooner rather than have events forced upon the emirate. I looked at to the potential in the area and the wider potential industrial aspirations perhaps rather than being a passive recipient of some of the new aspects, for example, transport, Hydrogen busses and heavy goods vehicles are starting to appear with rail infrastructure and updates in refining infrastructure. And so perhaps this opportunity for the unemployment to be resolved using this new these new decarbonized industrial opportunities.

Three initial zones have successfully been let in an initial Hydrom process completed this week. Fortunately, the infrastructure is already largely in place with ports, refineries, roads and essentials needed if one wants to be an exporting country which minority has in fact, he's got strong relationships with the European ports not least with Rotterdam, which is leading the charge around the Maasvlakte, already shared with the community.

Large-scale players including BP, and indeed my company has many happy years with the shell have prevailed and they will doubtless be looking to build out on the land and the opportunities in among going forward.

The figures are impressive, Oman aims to increase green hydrogen production from 32,500 to 3.75 million tonnes per year by 2040 and from 3.5 to 8.5 million tonnes per year by 2050. The country estimates that it will need a cumulative investment of $140 billion over this period to reach its production target by 2050.

One of the most mature oil and gas players on the planet is therefore investing in the aspiration leading the green hydrogen energy transition and is showing

signs of commitment with a successful auctioning round with all the major players that one would expect.

A map of Port of Sohar and Sohar Freezone (courtesy of Sohar FZ).

The three initial auction areas:

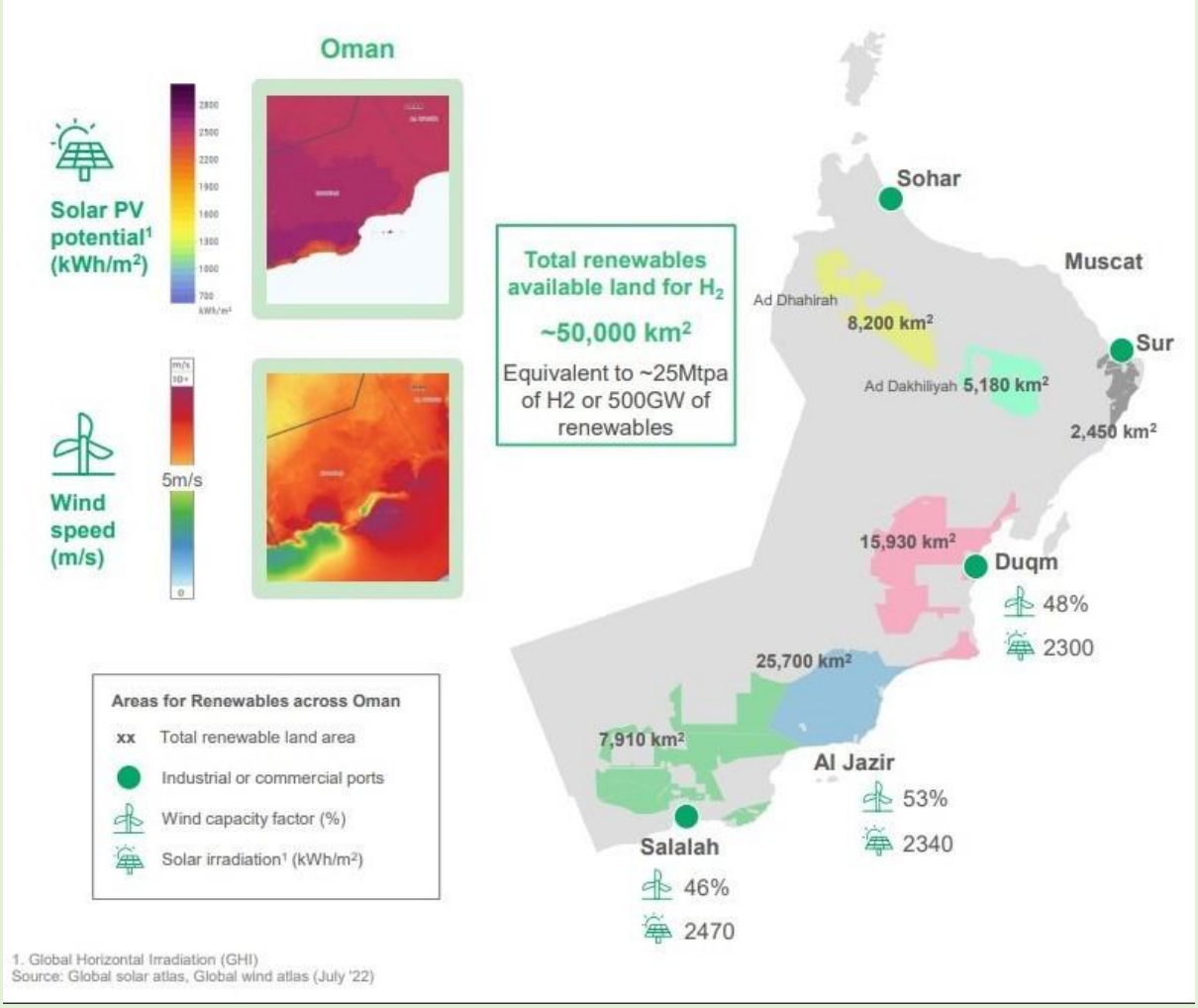
Block 1 is awarded to a consortium comprised of Copenhagen Infrastructure Partners (#CIP), Blue Power Partners (BPP), and Al Khadra. This will develop green hydrogen for planned green steel plants in the Port of #Duqm, showcasing the potential of renewable energy in diversifying the national economy.

Sohar

The second, signed with #BP Oman, focuses on the development of green hydrogen for ammonia production and export. Anticipated annual production of 150 KTPA of green hydrogen, this project will utilise 3.5 GW of installed renewable energy capacity.

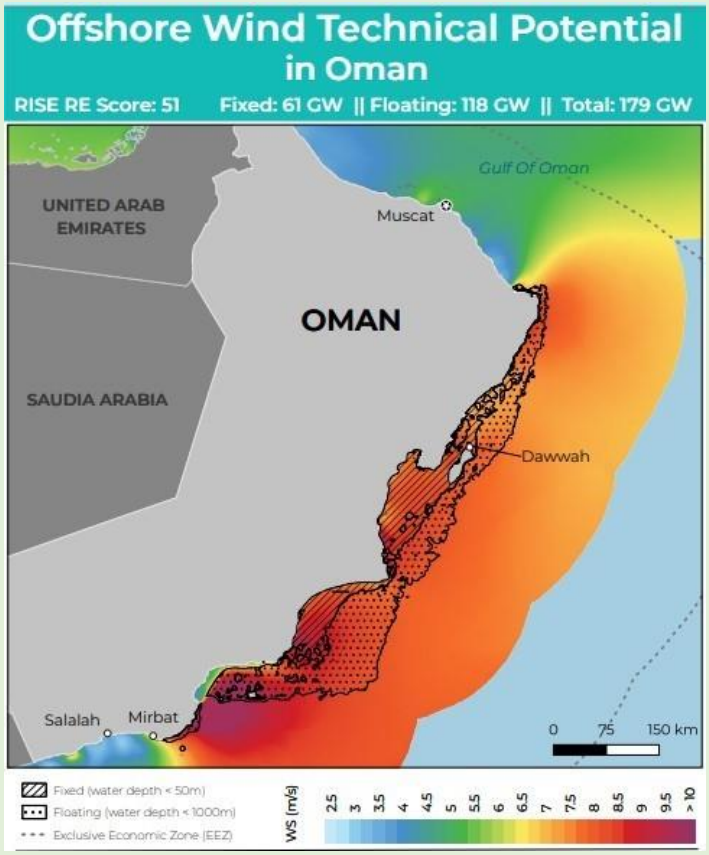
The third is Green Energy Oman (GEO), a consortium aiming to produce up to 150 KTPA of green hydrogen from 4 GW of installed renewables capacity. It includes Oman's integrated Energy Company OQ, Oman #Shell, Kuwait's energy investor #EnerTech, #InterContinental Energy, and Golden Wellspring Wealth for Trading.

#Duqm and #Sohar feature in our corporate training and are both well placed to be front runner in the global Hydrogen and Ammonia economies.



Omani authorities conducted thorough due diligence and, as the figure above illustrates, the green hydrogen prize is of eye-popping proportions the speed of realisation of Hydrom in a few short years, from behind the scenes to now going public and demonstration of Oman's commitment in advance of another Middle East based Cop 28 on the horizon.

Going forwards for Oman there may be more to come with an opportunity of harnessing offshore wind in fixed and floating varieties, I'll keep you informed;



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