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Climate, Energy & Mobility

Dutch Solutions for Israeli Redevelopment Initiatives

02 January 2024

By Eva Lucius and Dr. Racheli Kreisberg, Innovation Attache, Netherlands Innovation Network in Israel

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On December 11, 2023, Israel's Prime Minister's Office and the Tekuma Authority, representing the Israeli communities in the Gaza Envelope area, released a joint statement announcing the implementation of a strategic multi-year Tekuma redevelopment plan. With a budget of $4.9 billion, the plan addresses the increased necessity to rebuild and rehabilitate communities in the Tekuma region in a safe and sustainable manner. This ambition is aligned with that of the Innovation Attache at the Netherlands Embassy in Israel who is looking for ways in which NL can play a role in Israel's redevelopment initiatives using cleaner energy to enhance energy transition and smart transportation opportunities. Thus, both from IL's government policy as well as the vision of the NL embassy in IL, there are innovation opportunities which can be identified and addressed. We propose to consider starting energy and transportation pilot projects which can lead to IL issuing tenders which will be open to NL solutions. The latter can be implemented, leading to economic benefits for the NL economy,.

The IL challenges in the energy sector we identified are i) transitioning to renewable energy sources, mainly solar energy; ii) developing renewable energy carriers, such as green and blue hydrogen and hydrogen derivatives; iii) developing improved energy storage facilities, such as batteries; iv) transition the industry and other off-takers to use clean energy. IL's transportation challenges are i) developing smart roads, whilst harnessing solar energy; ii) adopting more hydrogen (H2) and electric vehicles (eV); iii) implementing more H2 and eV charging facilities. These actions also align with Israel's commitment to the Paris Agreement to achieve net-zero emissions by 2050.

Mobility

Basic physical infrastructure, namely roads and pathways, need to be restored in the Tekuma region. In the Netherlands, public and private companies and consortiums have already piloted projects whereby solar panels were installed next to roads and pathways, solar cells were integrated into pathways, and smart pavements were developed. Other companies in both the Netherlands and Israel have also already developed smart sensors in asphalt and smart roads and pavements that wirelessly charge electric vehicles (eV). Such initiatives can be developed for the Tekuma region, alongside H2 Refuelling Stations (HRS) and eV charging facilities. In May of 2023, Israel opened its first Hydrogen Refuelling Station (HRS), by Sonol in Yagur. In the Tekuma region, similar development sites could be considered to achieve restoration through innovative construction of one more HRS. Besides H2, circularity in transportation infrastructure will also require the building and expansion of electric vehicle charging facilities in the Tekuma region. Dutch eV manufacturers and other companies in the field of clean energy and energy materials could do so through tenders with local IL companies, like Sonol and Paz, who are currently the main providers of eV charging stations in Israel.

Israel is in possession of three H2 trucks, jointly purchased by Colmobil, Bazan and Sonol, which are currently fuelled by grey hydrogen at the HRS. There is an opportunity to transit from grey hydrogen HRS to green or blue H2. In this regard, Dutch companies could provide electrolysers to produce green hydrogen. Another opportunity for Dutch companies is to export H2 trucks to IL via DAF/Taavura. A third opportunity would be for Dutch companies to provide new or refurbished H2 trucks to retrofit some of IL's 300,000 diesel trucks. Besides H2 trucks, Israel aims to have 60% of its public transportation buses driving electric by 2026 and 100% of eV urban buses by 2035. IL has an interest to obtain more and newer eV buses and other forms of transportation such as cars, scooters and

bicycles. Opportunities for leading Dutch companies to cooperate with local companies to provide an influx of eVs to the Tekuma region are, therefore, extensive, and necessary.

Energy Transitioning

Currently, 12% of Israel's total energy consumption comes from renewable energy sources. Solar energy production has been adopted in Israel since the 1950s and is IL's biggest renewable energy source with a production capacity of more than 1,438 MW, accounting for about 95% of total renewable energy in Israel. IL companies, like SolarEdge and Brightsource, which is linked to Ashalim Power Station, one of the world's largest solar power plants, are market leaders in the field of solar energy production. Wind energy, however, only accounted for 27 MW of Israel's total renewable energy production in 2022, yet in June 2023, IL company Enlight Renewable Energy first connected to IL's electricity grid and in October they began commercial operations of 39 cutting-edge wind turbines in northern Israel. The wind farm, Genesis Wind, has a total capacity of 207 MW which is a significant improvement towards Israel's net-zero emissions goal.

In 2023, IL's Ministry of Energy has developed a hydrogen strategy aimed at integrating this energy carrier in the energy economy. By 2030, IL aims to focus its investments on pilot projects and regulation adaptations to initiate infrastructure development in a number of fields, including the creation of green/blue hydrogen areas, such as hydrogen valleys, underground storage facilities for hydrogen, carbon capture storage solutions and hydrogen derivative fuels such as ammonia and methanol. When discussing the need for improved energy storage facilities, Israeli companies like Doral Energy, Enlight Energy, and Augwind Energy, have revolutionised renewable energy production by combining production and storage technologies. Doral Energy established its first energy storage facility in northern Israel in 2021 and is developing a hydrogen hub in the Eilat Eilot region in the south.

Both of these opportunities can be addressed by the NL economy at different levels. In The Netherlands, the 'Topsector Energie' can help connect and support IL companies and knowledge institutions in the development and application of energy transitions through small-scale projects. In addition, Dutch companies could provide electrolysers to IL to enable the production of green hydrogen, CCUS technologies. Besides green hydrogen, there are also opportunities for NL companies in the field of green energy production in the Tekuma region. Lastly, Dutch energy production technology can help address Israel's ambition to increase their energy storage capacity.

R&D Efforts

The Netherlands can contribute to this pilot project by leading innovation initiatives with Dutch top sector know-how in circularity, climate & energy transition. The focus of the innovation initiative is on transitioning to cleaner energy, improving energy carriers & production infrastructure, enhancing mobility by adopting more H2 and eV and building smart roads and more transportation infrastructure.

Through instigating a search for economic opportunities, initial pilot projects and, eventually, tender opportunities, innovative cooperation between NL and IL can help in achieving successful redevelopment of the Tekuma region.

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