



Ministry of Economy



The Israel Export &
International Cooperation Institute



Samuel Neaman Institute
For Advanced Studies In Science And Technology

Israeli Technology in the Oil & Gas Sector



The oil & gas industry is engaged in exploration of the optimal methods for contending with a range of water-related challenges in today's dynamic public climate. Addressing oil spills, refining exploration and excavation processes, improving advanced treatment and reclamation techniques, utilizing smart metering, creating effective monitoring and scaling practices, and reducing biofouling and energy usage, present just a few of the areas in which the sector can benefit from water technology innovation so as to compete in a rapidly changing global environment.

Israel has been a pioneering force in global efforts to develop the technologies that can address some of these challenges, offering innovative technologies that promise to dramatically alter the playing field. The cutting-edge technologies now available include:

- Advanced integrated plants for the treatment of produced water. The plants utilize advanced filtration and membrane technologies to ensure that treated water is suitable for reuse, including oil separation and micro/ultrafiltration prior to reverse osmosis desalination.
- A highly cost-effective and environmentally friendly approach to evaporating brine.
- An in-process monitoring system that can measure particles in a broad size range from nano range to several hundreds of micron range, unaffected by the particles' refractive index.
- A 100% pure mineral sorbent which is more efficient and effective than any sorbent currently on the market. Enables the removal and use of adsorbed oil, and is fully recyclable and ecologically friendly.
- A leading industrial wireless monitoring solution, based on a revolutionary concept for wireless valve monitoring in the process industry. Transmits real-time position indication to the control system and enables predictive maintenance on actuated valves, reducing capital and operational expenses while increasing plant safety and productivity.

The oil & gas sector needs solutions. Israel has them. To find out more about the Israeli water technologists which are helping to advance industry while shaping a better global future, **contact Israel NewTech: israelnewtech@economy.gov.il**

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Introduction

Overcoming the challenges of an arid climate has been vital to Israel's growth since its establishment. Driven by circumstance to maximize its creative capacity, Israel's innovations in the realm of water technologies, management, and long-term planning have made sustainable water consumption a reality in 2013, and well into the future.

Among the impressive range of innovations, nationwide reclamation of treated domestic wastewater for irrigation in the agricultural sector, solutions for industrial wastewater, and the large-scale production of desalinated water have been especially groundbreaking. In fact, Israel has the highest level of water reclamation in the world today.

Israel NewTech, the Israeli national program for the promotion of the Cleantech sector, led by the Ministry of Economy in collaboration with the Samuel Neaman Institute at the Technion and the Israeli Export & International Cooperation Institute, conducted strategic research to identify global current and future challenges of water usage, in six dominant industry sectors: Oil & Gas, Mining, Pharmaceuticals, Food & Beverages, Semiconductors & Metals. This research helped to identify the challenges unique to each sector and to estimate the potential contribution of Israeli water technologies in offering innovative solutions.

Oil & Gas Sector

The global oil & gas industry is currently contending with a range of challenges that bring questions of economic efficiency and environmental sustainability to the fore.

Given the close links between energy and water production, the efficient use of water is naturally a primary concern. Oil production, conventional gas production from reservoirs, and shale gas production all require large amounts of water and rely heavily on smart technologies that ensure efficient water usage that can guarantee both cost effectiveness and sustainable ecological practice.

By turning to safer, economically efficient and environmentally sustainable water technologies, the oil and gas industry can position itself to continue to expand profitability, while still complying with environmental regulations.