



## Nuclear desalination in Chile: a competitive solution

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### ABSTRACT

Renewable energy sources are considered the main drive for developing at least 70% of the total energy in Chile by 2050. All major international greenhouse gases reduction agreements include growth of renewable energy sources and nuclear power as the only ways to significantly reduce emissions by the decade 2040–50. Chile's energy production matrix still relies heavily on fossil fuels, making very difficult to match the goal targeted by international agreements. For these reasons, the possibility of using nuclear power plants is considered. Small modular reactors (SMRs) in particular seems particularly suitable for a country like Chile for many reasons: SMRs are scalable and can provide energy in remote locations with no or limited grids (Atacama desert); SMRs can cope easily with future demands for expansion, thanks to their modularity; SMRs are cost effective and use all the latest developments in safety. This paper examines, using IAEA DEEP 5 economic software, the costs of nuclear desalinated water produced for the Chilean mining industry. Comparisons with respect to existing fossil fuels solutions show that the final cost is very competitive and allow for significant reduction of CO<sub>2</sub> emissions.

*Keywords:* Small modular reactors; Chile 2050 energy policy; Nuclear desalination; IAEA DEEP 5 software

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