

# Hydrogen Production by Electrolysis

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### Abstract

This review presents an update of economic analysis of a small-scale hydrogen production unit based on the electrolysis of water. The base capacity of hydrogen production is about 1,000 Nm<sup>3</sup>/hr. Economics are also given for 500 Nm<sup>3</sup>/hr and 2,000 Nm<sup>3</sup>/hr plants. The plant is assumed to be a green hydrogen producing facility, using an external source of electric power generated from the solar or wind energy. Electric power is available to the plant 24 hours a day through a battery storage system. The capital and O&M costs of the external electric power generation are included in the cost of electricity. Taxes and levies by the grid station are not accounted for in our estimates. However, a sensitivity analysis is presented for production economics as a function of electricity purchased cost. The process employs two stacks of electrolytic cells of NEL brand, each producing approximately 500 Nm<sup>3</sup>/hr of hydrogen at 99.99% purity.

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