Factsheet:
Renewable Energy and (Green) Hydrogen in Argentina

Renewable Energy

Argentina has excellent conditions for the generation of renewable energy:

- Argentina has made great progress in the expansion of renewable energy in recent years. In the period between May 2018 and November 2022, energy consumption from renewable sources grew from 1.5% to 14.3%. By 2025, Argentina aims to meet 20% of its energy consumption from renewable sources, and as much as 30% by 2030.
- Argentina has excellent solar radiation values. 85% of all electricity consumers are located in the provinces of Buenos Aires, Santa Fe, Córdoba, Entre Ríos, Salta and Tucumán, where the average solar radiation is up to 4.8 kW/m2, making it one of the seven regions with the highest solar radiation in the world.
- Approximately 65% of the installed capacity from RE comes from wind energy, especially from large wind farms in Patagonia, where the average wind speed is between 9-12 m/s. Enormous growth potential of the sector due to the production of green hydrogen from wind energy.
- The strong agricultural sector provides excellent conditions for the use of biogas and biomass. Availability of dry and wet biomass currently exceeds its energy use in many cases, which is also a great potential due to the largely gas-based energy mix. The demand for biogas from landfill gas is increasing.
- Between 2016 and 2019, large-scale RE projects were supported under the national RenovAR tendering program, which contributed significantly to the above-mentioned expansion. The current government has decided against continuing RenovAR and is focusing primarily on expanding distributed generation and projects with high local content.
- Argentina's high-voltage grid is both very congested and outdated. In order not to slow down the expansion of renewable energies, an urgent expansion of the power grid is required. The situation of feed-in capacities in the regional medium-voltage grids is better.
- Argentina has a national law since 2017, which allows the feed-in of electrical energy from renewable energy sources. Numerous projects are already feeding into the regional power grids, and others are waiting for feed-in permits. The installed capacity of decentralized electricity generation comes almost exclusively from solar energy and 50% from private households. Currently 1.000 individual producers are feeding into regional grids an amount of more than 17 MW. In January 2023 Buenos Aires Province (Argentinean province with largest number of habitants) adhered to the national law raising expectations of a notable increase in producers and installed capacity.

Opportunities:

- Due to the national expansion targets and the simultaneously overloaded high-voltage grids, decentralized power generation in Argentina offers great potential.
- Compared to the rest of the world, Argentina has excellent conditions for the production of green hydrogen (see below).

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(Green) Hydrogen

- Argentina has extraordinary conditions to produce green hydrogen due to exceptional conditions for solar and wind power generation, vast tracts of untapped territory and a large reservoir of fresh and salt water, especially in the southern region of the country. It thus becomes a key potential supplier of green hydrogen for Germany.
- Currently, more than 395 kton are produced each year for industrial processes in Argentina: ammonia/urea-based fertilizers (33%), hydrotreating processes in the oil refining industry (27%), the direct reduction of iron oxides in the iron and steel industry (16%) and methanol production (15%). The remaining 10% is a by-product of other chemical processes.Argentina has potential and existing capacities to build up its ammonia production capacity using its existing natural gas reserves, while developing its vast renewable hydrogen potential in order to switch to green ammonia as fast as possible. This production of green ammonia could be exported to countries like Germany.Due to its large reserves of unconventional natural gas in Vaca Muerta, Argentina aims to promote the production of green and blue hydrogen.
- Green and blue hydrogen could help Argentina achieve its climate goals. Argentina has committed to limit its greenhouse gas emissions to 313 MtCO2e by 2030 in accordance with the latest Nationally Determined Contribution (NDC) and the long-term goal of achieving carbon neutrality by 2050.
- Currently it is possible to achieve a production cost of blue hydrogen (natural gas reforming with CO2 capture and storage) of 1.4 - 1.8 USD/kg; by 2030 it is expected to be possible to achieve a green hydrogen cost of up to 1.5 - 1.6 USD/kg. There is an annual green hydrogen production potential of more than 1,000 Mton.
- Main challenges are the lack of an updated regulatory framework and a clear strategy from the government. Added to this is the country's macroeconomic-financial difficulty. Nevertheless, proposals for a Hydrogen Economy Law and a national strategy are currently being discussed and are expected to be approved in 2023
- Advantages of Argentina with respect to the hydrogen economy: partially existing infrastructure (oil and gas experience), domestic market with 400 mTon/year of annual consumption growing, renewable energy potential, high professional training, etc.
- Existing project with Germany: the state-owned company IEASA (Integración Energética Argentina Sociedad Anónima) is developing a green hydrogen production project with the support of the technical and economic development of Fraunhofer IEE. Green hydrogen will be generated from a 200 MW wind farm with an investment of more than 200,000,000 USD. Siemens Energy announced an investment of more than 500,000,000 USD in cooperation with the US company MMEX Resources Corporation in order to produce 55 tn/day of green hydrogen with a 300 MW Wind Farm in Tierra del Fuego, Patagonia.
- There are several German companies already operating in Argentina or interested in the hydrogen market that are demanding a clear roadmap from the government to move forward with projects and invest in Argentina.

Priorities:

- Move forward with the regulatory framework and a medium- and long-term hydrogen strategy to provide confidence and framework conditions for investments in the sector.

- Countries in the region, especially Uruguay and Chile, are making rapid progress in the development of a hydrogen market. Argentina needs to develop the framework conditions soon in order not to be left behind internationally.
- Further expand dialogue between Germany and Argentina on the basis of cooperation potential with a view to a possible bilateral energy partnership.

AHK Argentina´s involvement

- Promoting and developing in Argentina the initiative H2Uppp implemented by GIZ on behalf of BMWK
- Regular projects within the scope of the initiative German Energy Solutions (“Exportinitiative Energie”) of the BMWK
- Further training European Energy Manager (EUREM) in the field of energy efficiency and renewable energies since 2011
- AHK-Hydrogen Committee (exchange group with regular meetings for German AHK members)
- Regular conferences and seminars on the topics of hydrogen and energy (10/2022 the first Hydrogen Forum with an extraordinary success was held. A second edition of the Forum is expected to take place in June 2023)
- Dialogue series Ciclo Verde (“Green Cycle”), open to the public, with the participation of highly renown local and international speakers from different energy and environmental fields
- Training for PV-Installers since 2022