

Advantages of the new P2G technology for water electrolyser and CO₂ methanation industry

In the short technological description, I explained the importance of the new P2G technology for large-scale application of weather-dependent renewable energies in electricity systems, however the new P2G technology is also important from the point of view of electrolyser and methanizer manufacturing companies. I will present this below.

The key questions regarding the business future of P2G technology are:

- For what purpose and how can the water electrolyser and CO₂ methanation equipment be operated with a load of at least 5-6 thousand hours/year, so that the return on their use is more acceptable? The use of water electrolysers and CO₂ methanizers during peak hours is a necessary but not sufficient solution for the seasonal storage of excess solar and wind energy.
- How can you provide a cheap and practically unlimited amount of CO₂ needed for methanation? CO₂ from bioethanol and biogas is quite cheap, but very limited. The CO₂ that can be extracted from the flue gas of power plants with Carbon Capture technologies is practically unlimited, but due to their significant CAPEX and OPEX implications, the CO₂ that can be obtained in this way is very expensive and not competitive.

The new P2G technology provides effective answers:

- With our new P2G technology, the application of water electrolysers and methanizers in case of combined heat and power generation (CHP) can be ensured with a load of about 8,000 hours/year. Natural gas power plants that provide district heating and domestic hot water cannot be shut down or significantly reduced their operation time, but the natural gas they consume can be replaced with methane (synthetic natural gas) produced from solar and wind energy, via new P2G technology. Thanks to district heating power plants and newly built CCGT power plant applications, the profitability of water electrolyser and CO₂ methanizer equipment can be significantly improved with the new P2G technology.
- With the new P2G technology, the carbon dioxide required for methanation is produced free of charge by the natural gas consuming equipment itself, using the oxygen produced as a by-product of the water electrolyser equipment.

Additionally:

- Due to its direct applicability in district heating, the new P2G technology has significantly better energy efficiency than traditional P2G technologies thanks to the use of waste heat from water electrolyser and CO₂ methanizers, in the district heating.
- The application of our new P2G technology can generate a high demand in the market of electrolysers and methanizers, so it can result in a large production volume within a relatively short time. Thanks to future mass production, the production cost of the equipment can be significantly reduced.

This, in addition to the higher P2G efficiency and increasing the utilization time of electrolyser and methanizer equipment, further improves their economy and reduces their payback period.

The new P2G technology changes the rules of the game for the use of water electrolysers and methanizers: instead of only being used at peak times, it provides long-term operation and better energy efficiency for water electrolyser and CO₂ methanation equipment.

With this, the application of the new P2G technology can significantly improve the profitability and the business future of electrolyser and methanizer manufacturing companies.

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