



## Background information

Like all asset owners of tunnels, the Austrian road authority ASFiNAG is looking for ways to reduce the energy consumption of roads and tunnels and make them more sustainable. ASFiNAG has captured this in two strategic objectives for 2030. The first concerns a reduction of primary energy consumption per kilometer of highway by twenty percent. The second objective is to increase sustainable energy production, so that by 2030 sufficient net sustainable energy will be generated to meet our own energy demand.

An important step towards the latter objective has recently been taken. This became apparent during an online knowledge exchange between representatives of ASFiNAG and the Dutch Center for Underground Construction (COB). René List, head of ASFiNAG's Electro technical and mechanical infrastructure department, said at the time that they had made more than sixteen kilometers of the S01, the Vienna outer ring, fully self-sufficient, including six tunnels with all tunnel technical installations.

*At the invitation of ASFiNAG, a Dutch delegation will visit Vienna from 6 to 7 December 2022 to view the project and to further discuss the solutions and possible bottlenecks.*

ASFiNAG generates the required electricity with solar energy. To this end, the road authority has installed solar panels on road embankments, on top of the tunnels and in noise barriers along the highway. These panels produce 45,000 kWh of electricity annually. That is more than is necessary for the normal daily consumption of the road and the tunnels. The surplus is transported via its own medium voltage cable to and stored in high-quality batteries from the German DHYBRID. The batteries are placed inside or outside the tunnels, depending on the available space. This storage allows a power failure of approximately ten hours to be bridged and no other emergency power supplies are required.

According to List, reducing energy consumption as much as possible is an important condition for self-sufficient tunnels and road infrastructure. ASFiNAG has done this during a number of renovation projects. For example, the tunnels were equipped with energy-efficient lighting, fans and pumps.

The solutions chosen seem extremely suitable for making tunnels energy neutral and self-sufficient. Certainly for parties, which have sufficient land around most tunnels to install solar panels. The visit to Vienna in December is an excellent opportunity to discuss ASFiNAG's approach and to map out the opportunities and possibilities in more detail.

*ASFiNAG (Autobahnen- und Schnellstraßen Finanzierungs- Aktiengesellschaft) has been the Austrian motorway operator since 1982. It not only takes care of the maintenance and management of these roads, but is also responsible for collecting tolls and checking that they are paid.*