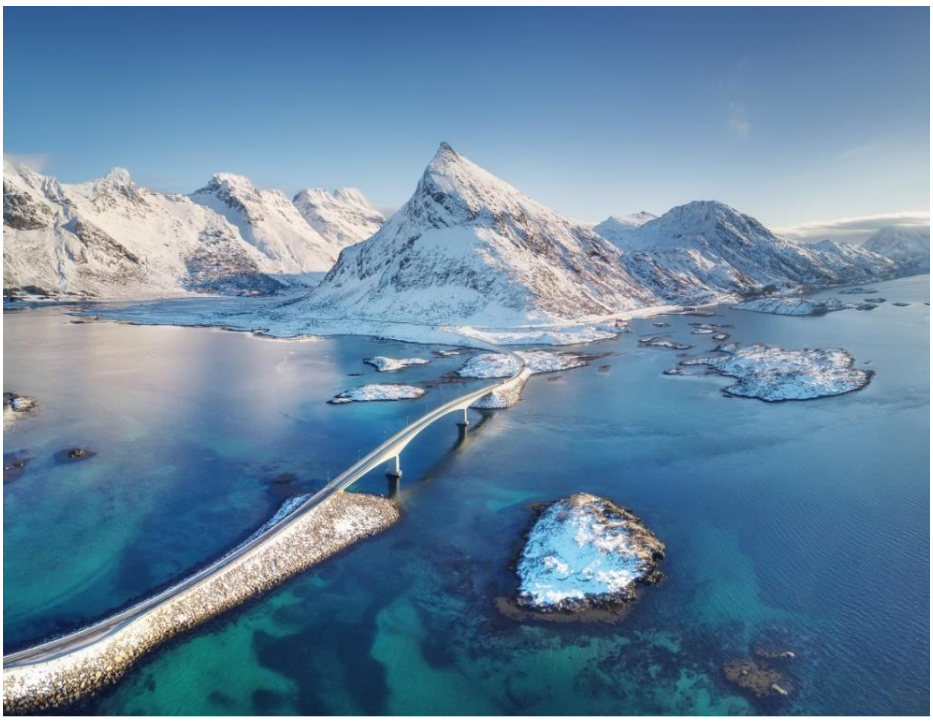
Charging Points for Norway



Tolling
in Norway has
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Norway has a long tradition of using toll systems for funding new roads, bridges, and tunnels. There are almost 50 toll roads in Norway, from Tromsø in the north to Oslo in the south. More than 250 free-flow charging points are installed for toll collection and enforcement.

Since around 1980, city tolling systems have been in place in the largest Norwegian cities of Oslo and Bergen. These tolled city rings not only fund road construction projects but also play a crucial role in improving traffic flow, reducing congestion, enhancing environmental quality, and lowering CO2 emissions in urban areas.

Overcoming the obstacles of urban traffic and interoperability

As many of the toll stations are installed in urban areas, they must overcome special challenges such as small distances between the vehicles, stop-and-go traffic, or varying speeds.

The operation of the multi-lane free-flow toll systems is decentralized among five regional authorities responsible for the establishment, operation, and maintenance of their regional toll systems.

To ensure interoperability among the individual toll systems in Norway, the EETS-compliant AutoPASS standard was established by the national road authority NPRA. It allows various toll suppliers to offer their individual solutions with specific advantages while complying with standard requirements.

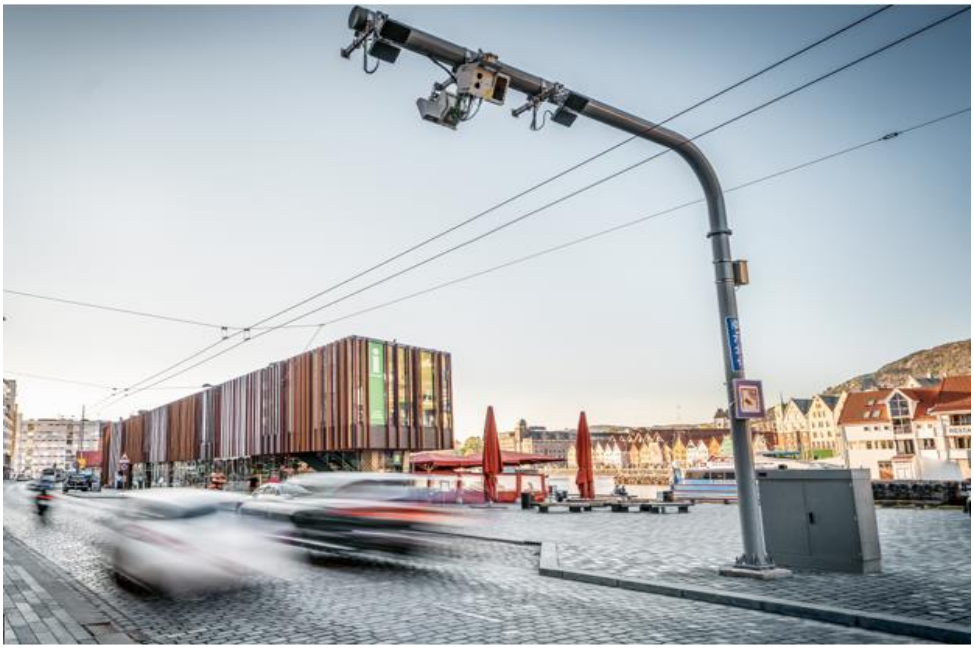
EFKON's supply and maintenance of AutoPASS charging points

EFKON installed the majority of charging points in Norway

By its compelling solutions, EFKON has supplied and installed over 100 multi-lane free-flow charging points in Norway since 2019 - capturing a market share of around 50%.

The delivery comprises the supply of the entire road-side equipment for the free-flow Charging Points consisting of in-house video tolling sensors, DSRC transceivers and a back-office system fully compliant to the AutoPASS standard. The key functionality is to provide the Norwegian central back-office with high-quality, accurate vehicle data records to maximize toll revenue.

EFKON's advanced free-flow solution demonstrates its excellent performance as an urban tolling application in a reliable and effective manner, with most of the charging points installed in the cities of Oslo and Bergen. All roadside components have been supplied redundantly to ensure high availability and to also minimize the on-site maintenance works. All components are designed to deliver optimal performance even under harsh weather conditions in Norway, including snow, ice, and extreme sub-zero temperatures.



EFKON is also responsible for the 24/7 operation and technical maintenance of supplied equipment. Through cooperative collaboration with local partners and the use of specialized tools, high service quality with rapid response times for service and maintenance is delivered.

Main challenges in the project

- Challenge difficult urban traffic situations in city areas
- Achieving accurate ANPR- and detection rates for high system performance
- Withstanding harsh weather conditions in Norway to proof high availability
- Ensuring interoperability by complying with AutoPASS specifications and standards

Achieved results and benefits

- Urban free-flow tolling solution contributing to environmental sustainability and CO2 reduction
- Unified, standard-compliant toll solution suitable for all 5 regional toll operators
- >98% ANPR accuracy with error rates < 0,1 % for secured toll revenue
- Redundant roadside components ensuring maximum availability and optimising service costs and efforts