

SUCCESS CASE 17.2026

Smart charging station foundations

COORDINATED DEPLOYMENT OF PUBLIC CHARGING STATION FOUNDATIONS (NTA 8042)



THE CHALLENGE

The Netherlands is scaling up its public charging network to hundreds of thousands of charge points, but behind this growth lies a hidden challenge: replacement. A charging station has a shorter service life than its foundation, while the market uses many different, incompatible foundations. This fragmentation makes replacement complex and costly. At present, it often takes half a day with two technicians and requires excavation. Against the backdrop of a structural shortage of technical staff, that labour-intensive process is a real bottleneck for the energy transition.

THE SOLUTION

Coordinated by ElaadNL, the knowledge and innovation centre of the Dutch grid operators, a broad committee of manufacturers, municipalities, contractors and charge point operators (CPOs) developed a shared standard under NEN: NTA 8042, “smart public charging station foundations”, published in February 2026. The standard is a physically interchangeable foundation suitable for any public charging station: functional uniformity in the underground part, including fixed positions for threaded ends and connections, a square mounting pattern allowing placement in any orientation, and a footprint no larger than a paving tile. Because the foundation remains in place, the underground infrastructure is untouched. Charging stations connect either via an adapter plate matched to a specific station, or directly onto the foundation. Prototypes were validated in ElaadNL’s test lab.

MAIN ACHIEVEMENTS

Replacing a charging station drops from half a day with two technicians to a maximum of half an hour. Charging stations become interchangeable regardless of brand or supplier, delivering more uniformity, less work on location and a faster replacement process across the Dutch public AC-charging infrastructure. The result is less physical strain for technicians, less disruption to public space and faster deployment of charging infrastructure.

KEY SUCCESS FACTORS

The decisive factor was collaboration across the entire value chain: CPOs, grid operators, contractors, charging station suppliers, municipalities and foundation producers jointly agreed the requirements, giving the standard broad backing from the outset. ElaadNL acted as facilitator and agenda-setter rather than prescriber and provided test-lab validation that fed directly into the standard. The formal NEN route gave it recognised status, while a clear distinction between a uniform underground interface and freedom for product differentiation above ground made it acceptable to the whole market.

WAY FORWARD

This year, new placements of public charging stations must use a smart foundation. Charging station manufacturers have two years to make their products compatible without the need for an adapter plate. To put this in perspective: around 10,000 public charging stations are installed in the Netherlands every year, working towards a target of roughly 200,000 public charging points by 2030. ElaadNL's most recent Outlook indicates that even more will be needed to meet the demand generated by the growing electric vehicle fleet. Every one of these new placements is a candidate for a smart foundation, which is why the project currently focuses on implementation in the Netherlands and on further pilots exploring how to use the smart foundation pro-actively in new housing developments and large-scale network reinforcements. By the end of 2026, a large proportion of newly installed charging infrastructure is expected to use smart foundations.