

## SWITZERLAND

Swiss Association for Standardization (SNV)

### Guide for the construction of hydrogen refilling stations

#### Overview

Against a backdrop of global efforts to reduce CO<sub>2</sub> emissions, vehicle drives based on renewable energies are becoming increasingly important. Hydrogen-powered vehicles are a promising option for reducing CO<sub>2</sub> emissions, provided the hydrogen is produced with renewable energy. Switzerland has no comprehensive network of filling stations for hydrogen. One of the reasons for this is the unclear approval process for the planning and construction of hydrogen filling stations.

Swiss guideline SNG 10000:2019, *A guide to the construction of hydrogen refilling stations*, was produced in connection with the Empa project “Construction and operation of the first hydrogen refilling stations in Switzerland with a nominal pressure of 70 MPa”. During the construction of Switzerland’s first hydrogen filling stations, it became apparent that the approval process and compilation of the relevant legal provisions present a challenge for filling station builders and authorities alike.

Hence, Empa (Swiss Federal Laboratories for Materials Science and Technology), together with the relevant expert bodies and regulatory authorities, has drawn up a guideline for the construction of hydrogen refilling stations, which was recently published by the Swiss Standards Association (SNV). Empa is a research institution for applied materials science and technology whose experts sit on numerous SNV standardization committees.

#### Outcomes and benefits

The goal of SNG 10000 was to collect and share findings from the construction of the first two hydrogen filling stations in Switzerland. The information is intended to simplify the planning and construction of future hydrogen filling stations and assist filling station builders and authorities with the approval process.

SNG 10000 breaks down the construction process of hydrogen filling stations with step-by-step instructions and highlights which authorities and organizations should be included in the approval process. In addition to instructions concerning the overall process, relevant national and international laws, regulations, directives and standards are listed in the guide’s annex. Ultimately,

this approach aims to support the development of a sound hydrogen refilling infrastructure in Switzerland.

## Partners involved

In developing this guide, SNV worked with various partner institutions from the public sector and industry:

- **Research:** Swiss Federal Laboratories for Materials Science and Technology (Empa)
- **Authorities:** Swiss Federal Office of Energy (SFOE)
- **Industry:** H2 Energy Ltd; Hyundai Motor Company; filling station operators
- Representatives from the specialist areas of occupational safety, explosion protection and gas

## Timeline

As part of a national effort to decarbonize mobility, Switzerland opened its first two hydrogen fuelling stations for passenger cars in late 2016. Findings from their construction led Empa to the publish Swiss guideline SNG 10000 only a few years later in 2019. Empa was keen to publish the guide through SNV as a “Swiss national guideline” to reach a wider target audience and give the document more weight.

A Swiss guide is a document of purely *informal nature*, which does not contain any requirements.