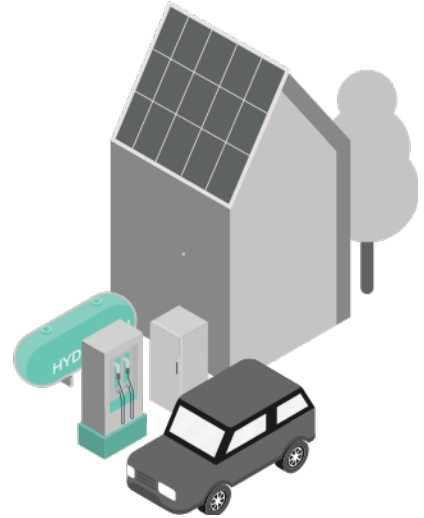


# COST OF HYDROGEN REFUELING STATIONS (HRS)

# Components

Main components necessary for refuelling:

- Electrolyser for on-site hydrogen generation
- Storage tanks
- Compressor
- Dispensing unit



# Types of Refilling

## Fast Refilling

- Standard for commercial HRS
- Fills a car tank in ca. 5 mins
- Cooling unit necessary

## 700 bar Refilling

- Standard for cars

## Slow Refilling

- Refilling takes 1 to 2 hours
- Cheaper equipment

## 350 bar Refilling

- Standard for busses, trucks and forklifts
- Cheaper equipment

# Compression Types

The compressor is one of the two most expensive components.

## Piston compressors

- Comparably cheap
- Well tested
- Oil-carry over possible

## Diaphragm compressors

- No oil-carry over to hydrogen site
- Longer up-time
- Expensive
- Lower flow rates

## Electrochemical compressor

- Efficient
- Silent
- Expensive
- Only few suppliers so far

# Cost of Components

	350 bar	700 bar
Storage tank	ca. 900 €/kg	ca. 1,400 €/kg
Compressor	75,000 to 170,000 €	80,000 to 190,000 €
Dispensing unit	ca. 4,000 €	ca. 10,000 €
Cooling unit		min. 100,000 €
Auxiliary components	ca. 30,000 €	ca. 40,000 €
Total	122,000 to 217,000 €	150,000 to 260,000 €



Not considered: Cost of hydrogen generation, engineering, approval process, site preparation, installation, land, control system.



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