



Making an impact on the clean energy transition

FROM WASTE TO WHEEL: A CIRCULAR SOLUTION FOR HYDROGEN AS A CLEAN FUEL



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Garbage trucks fuelled from waste

Municipal waste incinerators produce energy for local heating and electricity networks, but during some seasons and times of day supply exceeds demand. This cheap excess electricity can be turned into green hydrogen to power fuel cell vehicles by deploying electrolysis technology at waste incineration plants. Heavy vehicles such as buses and trucks account for around 20 % of Europe's road transport CO₂ emissions, making them prime candidates for transitioning to clean hydrogen.

Powering garbage trucks with energy sourced from the municipal waste they collect is an innovative circular economy solution being demonstrated by the REVIVE project. The FCH JU-funded initiative will use electrolyzers at waste incinerators in Roosendaal in the Netherlands and Gothenburg in Sweden to refuel clean and quiet FCH refuse trucks and plans to expand to other cities. Meanwhile, the JIVE project aims to operate 10 FCH-powered public buses refuelled at a waste-to-energy plant in Wuppertal, Germany. Other projects, such as H2ME2, are exploring similar technology as part of broader FCH infrastructure deployments.

Supporting the green transition

By supporting the development and testing of FCH technology at waste-incinerator sites, the FCH JU is aiming to demonstrate the commercial viability of waste-to-wheel solutions while raising interest and awareness among stakeholders and the public. These initiatives should stimulate the adoption of novel business models and investment in local FCH infrastructure by more towns and cities across Europe, supporting the broader transition to a green and circular economy.

A few towns and cities across Europe are trialling converting electricity generated from municipal waste into hydrogen to power buses, garbage trucks and other fuel cell vehicles. FCH JU projects are initiating the deployment of local 'waste-to-wheel' solutions that support the transition to green and circular economies.



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EXCESS ELECTRICITY TO HYDROGEN ENERGY

Turning excess electricity generated from municipal waste incineration into green hydrogen to power local fleets of FCH buses or refuse trucks.

A LOCAL SOLUTION FOR FCH VEHICLES

To support the adoption of local waste-to-wheel solutions, some FCH JU projects have brought together municipal authorities, waste-incinerator plant operators and FCH technology providers. **The goal?** To demonstrate the commercial viability of converting excess electricity from waste incineration into hydrogen to power local fleets of FCH vehicles. **Key results?** A step towards local circular business models with several waste-powered FCH refuelling plants in operation and more planned across Europe.

KEY ACHIEVEMENTS

REVIVE

2

electrolyser systems deployed at test waste-incinerator sites

15

FCH waste-collection vehicles to be trialled

8

cities and regions to participate in trials

50 %

Tank-to-wheel efficiency targeted for refuse-collection vehicles

800 - 1 000 kg PER DAY

potential for large-capacity hydrogen refuelling stations

UP TO 12 MONTHS

of trials using FCH refuse trucks

JIVE

10

FCH buses to refuel at a waste-to-energy plant in Wuppertal, Germany

IMPACT

REVIVE

20 %

of Europe's road transport CO₂ emissions produced by heavy vehicles such as buses and trucks which could transition to green hydrogen

COMPARABLE

driving range, refuelling time and payload capacity for FCH refuse trucks compared to diesel-powered trucks

LESS NOISE AND ZERO POLLUTION

from FCH garbage trucks, making them ideal for use in residential areas

MONITORING AND ANALYSIS

to explore the potential for waste-to-wheel business models

3

more EU countries to deploy FCH garbage trucks

JIVE

DEMONSTRATE

technological readiness of FCH buses and hydrogen refuelling stations and encourage further uptake



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FIND OUT MORE



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