Case Studies

https://heatpumpingtechnologies.org/annex57/

ANNEX 57 — Flexibility by implementation of heat pumps in multi-vector energy systems and thermal networks

Demo No.: 22	**Location/City: Houten**	**Country:** The Netherlands

Project name (short and full title): Electrification innovation platform Building sector (GO-E)

Quotation:

(1) Scalable flex services that contribute to a better use of local energy sources and contribute to reducing (the increase in) peak load of regional networks; (2) Standardisation, interoperability and cybersecurity are integral parts of these services and products to make flexibility widely affordable and secure. (3) Regional network operators can make informed decisions as to whether, when, where and how flexibility should be used to avoid network congestion; (4) To this end, network operators and service providers have insight into the impact of electrification in the built environment and into the potential of solutions such as flex services; and (5) Consumers and business energy users are at the heart of the design of the flex services and products in GO-e by using the innovative 'participation by design'.

GO-e solutions should be used in the electricity system for the first time by 2025.

Schedule of the demo project (research study): 2021 -2024.	**Year of realisation:** 2024

Leader organisation (owner, constructor, solution developer, research inst., etc.):

TNO

Participating organisations – demonstration project part (involved other organisations):

TNO, Greenchoice, Itho Daalderop, Alliander, Enexis, ElaadNL

The entire flex chain is represented in GO-e. By working together with end users, this forms a strong consortium with a large scope and customer base. This collaboration results in integrated and coordinated system solutions. This enables GO-e to introduce high-impact results to the market.

Budget of the demo (invest/monitoring etc.):

€ 5.435.226,00

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Summary of the project:

Energy supplier Greenchoice and HP manufacter Itho Daalderop develop a flexible heat pump service for households which is tested in Houten.

TNO and E-laad work together on S2 protocol implementation, connection between heat pump and home energy management system.

Results

Published articles (paper, article etc.):

Projectsite (projectgo-e.nl)

Titel Publicatie	Datum	Uitgever
A Co-simulation Framework Design to Assess the Effectiveness of Flexibility Activation Mechanisms on Congestion in Dutch Distribution Networks	4 april 2022	1st International workshop on "Open Source Modelling and Simulation of Energy Systems", RWTH Aachen
Technologie voor flexibel elektriciteitsgebruik in de praktijk (https://www.technolution.com/spark/nl/publicaties/technologie-flexibilisering-energiegebruik/?noredirect=nl-NL)	Juni 2022	Technolution
Outlook Logistiek & Bedrijventerreinen (https://elaad.nl/stroomvraag-op-bedrijventerreinen-voor-opladen-elektrische-voertuigen-gaat-fors-toenemen/)	3 juni 2022	ElaadNL
Smart Energy Solutions event, Keynote presentatie "Slimme flexibiliteitsdiensten, een oplossing voor netverzwaring?" door Jop Spoelstra en Bob Ran	11 oktober 2022	Dutch Power en TKI Urban Energy
Modeling a Domestic All-Electric Air-Water Heat-Pump System for Discrete-Time Simulations	30 september 2022	57th International Universities Power Engineering Conference (UPEC)
A Quantification Method for the Potential Downward Flexibility of Full-Electric Heat Pumps during Congestion Events	25 juni 2023	IEEE Belgrade PowerTech - *accepted*
A Dynamic Bandwidth Tariff Assessment in a Dutch Distribution Network Using a Novel Scalable Distributed Simulation Framework	12 juni 2023	CIRED 2023 International Conference & Exhibition on Electricity Distribution - *submitted*
Titel Media artikel	**Datum**	**Naam tijdschrift, krant, website, ...**
GO-e: 'Waar en wanneer is flexibiliteit het goede alternatief voor netverzwaring?'	maart 2022	Solar Magazine
Gespannen of overbelast? Het stroomnet ook! Denk mee over hoe dat anders kan. (https://www.omroephouten.nl/gespannen-of-overbelast-het-stroomnet-ook-denk-mee-over-hoe-dat-anders-kan/)	14 maart 2023	Omroep Houten

Contact information Built Environment Electrification Innovation Platform - Topsector Energie

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