# Chain activities overview

Sustainability report 2021

on behalf of ICT Group

CO2 Chain activities overview
Sustainability report
Version: 8.0

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## Document information

| Reference | Description |
|---|---|
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## History

| Version | Date | Author | Description |
|---|---|---|---|
| **0.1** | 18-01-2017 | F. Wuts | Initial version |
| **1.1** | 22-02-2017 | F. Wuts | Update based on info from various chain analysis |
| **2.0** | 30-05-2017 | F. Wuts | Update with respect to 2016 results |
| **3.0** | 25-05-2018 | M.K. van Eesteren | Update with respect to 2017 results |
| **4.0** | 19-08-2019 | M.K. van Eesteren | Update with respect to 2018 results |
| **5.0** | 23-06-2020 | P. Pershad | Update with respect to 2019 results |
| **6.0** | 17-08-2020 | P.P. Lamers | Final version 2019 |
| **6.1** | 08-07-2021 | P.P. Lamers | Update 2020 |
| **7.0** | 16-07-2021 | P.P. Lamers | Final version 2020 |
| **7.1** | 26-01-2022 | P.P. Lamers | Update 2021 |
| **8.0** | 02-03-2022 | P.P. Lamers | Final version 2021 |
| | | | |

# 1. Introduction

This document gives an overview of chain activities for ICT Group B.V.

# 2. Inventory

| *Start* | *End* | *Chain analysis* | *Status* |
|---|---|---|---|
| 2020 | -> | TURNN | Active:<br>2021: Initial chain analysis completed |
| 2020 | -> | TROEF | Active:<br>2021: Initial chain analysis completed |
| 2017 | 2020 | GridFlex Heeten | Completed |
| 2016 | 2020 | Loading poles (charging stations) | Completed |
| | | | |
| ***Start*** | ***End*** | ***Chain initiatives/projects*** | ***Status*** |
| 2019 | - | Goingdutch | Active |
| 2016 | 2020 | Community flex BZO (ICT initiator) | Completed |
| 2015 | 2021 | USEF/SESP | Completed in 2021 |
| 2018 | 2018 | Energie koplopers phase II | Completed |
| 2014 | 2016 | Energie koplopers | Completed |
| 2011 | 2015 | Energy distribution | Completed |
| | | | |

## 2.1. Chain analysis

### 2.1.1. TURNN

| *Chain analysis* | *Descripion* |
|---|---|
| Title | TURNN |
| Time frame | 2020-present |
| Participants / Partners | Development<br>• TURNN (ICT Group)<br>Distribution and storage<br>• Servers at Microsoft, Amazon & Cloud VPS<br>Clients, such as<br>• ASML, Brainport Eindhoven, Municipality of Eindhoven, KEOLIS, Qbuzz and Travel electric.<br>• Users of the app.<br>Data providers, such as<br>• InTraffic for public transport data. |
| Description | Turnn helps to reduce mobility emissions. It is mainly used by companies, public transport organizations and (local) governments to achieve their mobility goals. As the organizations that use Turnn increase rapidly, Turnn is growing from a start-up that started two years ago to a scale-up. Turnn consists of a user app, company portal, and administrative portal. |
| Documentation | • Chain analysis TURNN<br>• Progress reports |
| References | • https://turnn.nl/ |

### 2.1.2. TROEF

| *Chain analysis* | *Descripion* |
|---|---|
| Title | TROEF: Layered Energy System (LES) for TROEF |
| Time frame | 2020-present |
| Participants / Partners | TROEF consortium<br>• AM<br>• BAM<br>• Entrnce International Holding<br>• KPN<br>• OrangeNXT (ICT Group)<br>• Stedin Netbeheer<br>• Stichting Hogeschool Utrecht |

| | |
|---|---|
| | • NEN<br>• Technische Universiteit Eindhoven<br>• Tymlez |
| Description | The topic of the value chain analysis is the Layered Energy System (LES) for utility buildings that ICT Group will develop in the context of the TROEF consortium. This builds on the existing product EnergyNXT, but will be expanded with additional functionalities. Data from the use of EnergyNXT can be used to make assumptions for the effect of LES, until direct data from the deployment of LES has been gathered. |
| Documentation | • Chain analysis TROEF<br>• Progress reports |
| References | • https://www.troef-energy.nl/<br>• https://orangenxt.com/ |

### 2.1.3. GridFlex Heeten

| ***Chain analysis*** | ***Descripion*** |
|---|---|
| Title | GridFlex Heeten |
| Time frame | 2017-2020 |
| Participants / Partners | • ENEXIS Netbeheer<br>• ENDONA<br>• University of Twente<br>• Enpuls<br>• DrTen<br>• Escozon<br>• Buurkracht<br>• ICT Group |
| Description | The Grid Flex Heeten project is focusing on an active energy community in the village Heeten. The village has an exemption for energy taxes to experiment with alternative energy propositions. The community will experiment with peer-to-peer supply and the use of batteries to adjust demand and supply. ICT will implement the Smart Energy Service Platform and will offer a control interface steering the batteries. An adjustment algorithm will be used to adjust the demand and supply, based on the locally produced solar energy. |
| Documentation | • Chain analysis GridFlex Heeten<br>• Progress reports |
| References | • https://gridflex.nl/ |

### 2.1.4. Loading poles (charging stations)

| *Chain analysis* | *Descripion* |
|---|---|
| Title | Loading poles (charging stations) |
| Time frame | 2016-2020 |
| Participants / Partners | • GreenFlux<br>• BOM (Brabantse Ontwikkelings Maatschappij)<br>• ICT Group |
| Description | This cooperation between parties is an unique combination of knowledge about electricity transport, the energy domain and innovative IT solutions. The grow expectations of electric driving in West-Europe are enormous. Beside the growth in the number of electric vehicles, the expectations are that the battery capacity will increase what will result in an accelerated expansion in loading ability. |
| Documentation | • Chain analysis loading poles<br>• Loading poles progress reports |
| References | • https://www.bom.nl/<br>• https://greenflux.nl/<br>• https://www.greenflux.com/ |

## 2.2. Chain initiatives / projects

### 2.2.1. Goingdutch

goinGDutch emerged from an ideology centred on building on The Future Of Cycling, but which recognised that the challenges presented by urbanisation and mobility are too complex to be solved by one party alone.
Through this initiative, under the auspices of the Ministry of Infrastructure & Water Management, companies BAM Infra, Schiphol, Microsoft and OrangeNXT have joined forces, working as partners to benefit governments, businesses and end users. In the past, we would all provide our own separate pieces of the puzzle, but now we focus on the end result together, working on new concepts and services that place end users front and centre.

More information:

- https://goingdutch.bike/en/
- https://togetherwecycle.eu/

Social:

- https://www.linkedin.com/company/goingdutch/

Selection of activities:

2021

- Vervoerregio Amsterdam: https://vervoerregio.nl/artikel/20210913-social-ride-op-de-fiets-in-de-schipholregio
- Area30: https://goingdutch.bike/area30/
- Start of pilot inventory of traffic safety cycle paths: https://goingdutch.bike/start-pilot-inventarisatie-verkeersveiligheid-fietspaden/

2020

- Speed bike safe in crowded areas thanks to speed regulation: https://goingdutch.bike/613-2/
- Building the cycling-community of the future: https://goingdutch.bike/goingdutch-vergroot-bereikbaarheid-en-mobiliteit-rondom-steden-en-luchthavens-met-slimme-mobiliteit-en-interactieve-fietsroutes/

2019

- Start of goinGDutch by secretary of state Stientje van Veldhoven: https://www.youtube.com/watch?v=WHUAzUyWnng

### 2.2.2. Chain initiative ”Community Flex BZO”

This is a project with respect to the energy awareness in the small and medium-sized enterprises sector. A community in Groningen wants to create a local balance between the supply and demand of electricity, by using flexibility in production processes, heating, cooling and loading poles and

adjust the local availability of sustainable (“green”) energy. The aim of the project is to establish a business case as a response for small and medium-sized enterprises to see if a local energy balance is possible. ICT will use the Smart Energy Service Platform to create access to all machines and processes. Based on the data of these machines and processes, the Smart Energy Service Platform will form an adjustment strategy which is able to create the local electricity balance.

For further information refer to the chain initiative – Eindrapport BZO Community Flex, 2020-08-28.

**Result:**
With this project “small” parts of flexibility of the industry park will be used. These small parts will be bundled and will cooperate with each other. This flexibility provides an “accommodation” for temporary surpluses of sustainable produced electricity. This will prevent investments by the electricity grid manager which will result in cost and energy savings.

**Reference:**

- Website: https://www.bzocommunityflex.nl/

### 2.2.3. Chain project “Energiekoplopers”

The project “Energiekoplopers Heerhugowaard” is a smart energy district of almost 200 households in which the energy consumption within the district is optimised.

The households have innovative equipment by which flexibility in energy demand and supply is present. The whole project is based on USEF. Heerhugowaard is the first pilot in which the USEF reference implementation is applicable. The consortium consists of Alliander, Essent, IBM, ICT, NRG031 and the municipal Heerhugowaard.

In 2017 phase 2 of the project is started. In this phase batteries were added in which locally produced electricity was stored and could be used during moments of peaks in the electricity demand. The project was officially completed in 2018 and in early 2019 the system was dismantled. The final report can be found on the following URL:
https://www.liander.nl/sites/default/files/Eindrapportage%20EnergieKoplopers2.pdf .

Result:
ICT is responsible for the IT infrastructure. The ICT Smart Energy Service Platform forms the basis for the IT-solution, so that access to smart meters and equipment in the houses, the collection and storage of data, and feedback by community through portals and apps is realised. Refer also to https://www.youtube.com/watch?v=2K7uQp6dfgE


References:

- https://ict.eu/nl/video/energiekoplopers-project-heerhugowaard/

### 2.2.4. Chain project USEF/SESP

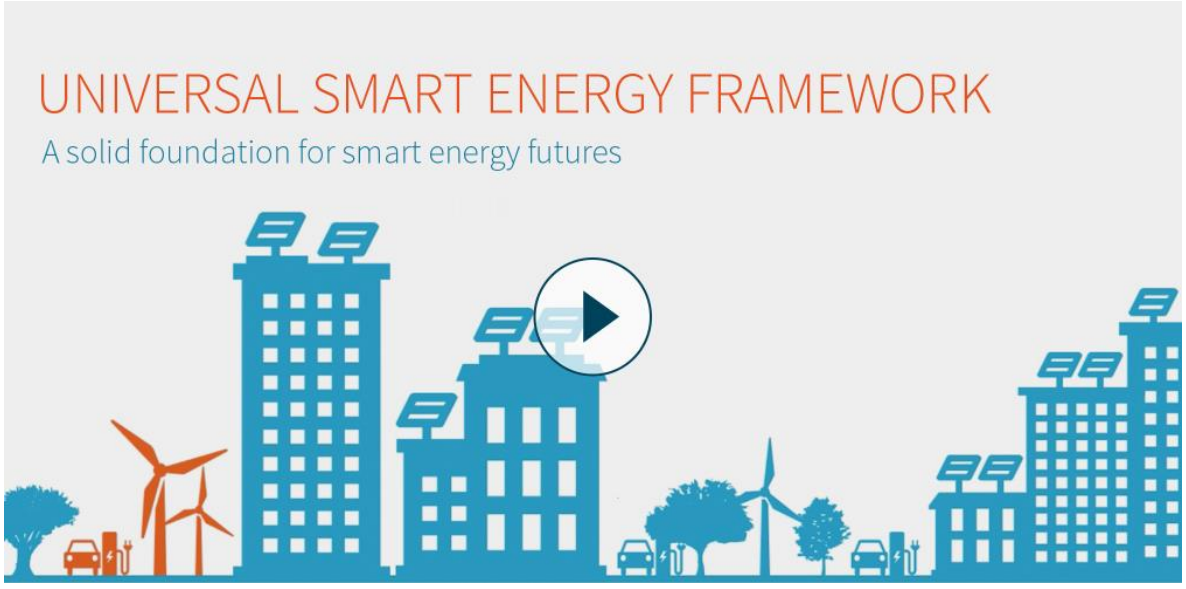
A consortium of seven Dutch companies on the energy market (among which ICT) has presented the Universal Smart Energy Framework (USEF) during the European Utility Week in Wien. USEF described a new market model which will enable trading in flexible energy use and will enable the companies in the energy system, to benefit from flexible production, storage and use of energy. USEF is set to be the international standard for smart energy systems. A standard is needed to speed up and connect the various initiatives, see also https://www.usef.energy/

The project is still running. However, our role changed from being an active governance partner into being hired to make the framework and conduct the pilots. The Foundation's focus is now shifting to facilitating standardization. More information can be found on https://www.usef.energy/new-focus-new-leadership/.

Results: In 2019 ICT worked on the USEF framework and in 2020 the new version will be published. The new framework is called: USEF Flexibility Trading Protocol (UFTP)

More information on this topic can be found on:https://www.usef.energy/usef-flexibility-trading-protocol-specification/.

ICT also contributed on a white paper called New white paper: Energy & Flexibility Services for Citizens Energy Communities. It can be found on: https://www.usef.energy/new-white-paper-energy-flexibility-services-for-citizens-energy-communities/



### 2.2.5. Virtual Powerplant in Loenen

Virtual Powerplant in Loenen: project with 100 households that are controlled by solar panels, electric cars and heat pumps with the aim of using more self-generated electricity and thus achieving more CO2 reduction.

URL for more information on the project:

- https://loenenenergie.nl/de-centrale/
- https://loenenenergie.nl/category/nieuws/de-central/

This project is part of a larger project in which ICT started as a subcontractor in 2019. The project is conducted in different countries, whereas ICT will conduct the Dutch part of it. More information can be found on: https://www.nweurope.eu/projects/project-search/cvpp-community-based-virtual-power-plant/

### 2.2.6. Vlakplaattractiebatterijen for aFRR

Goal: to take over the overproduction of a solar park with a large battery and thereby support Tennet with production. The project preparations started in October 2019, but the project was scheduled to start in 2020.
Partners:

Centurion Exploitatie B.V., Time Shift B.V., Dexter Energy Services B.V., GREENER. power solutions B.V., Escozon Coöperatie U.A., Energie Coöperatie Endona U.A.

URL for more information on the project (ref DEI4819010):

- https://projecten.topsectorenergie.nl/projecten/vlakplaattractiebatterijen-voor-afrr-33435
- https://www.tennet.eu/nl/nieuws/nieuws/equigy-platform-biedt-europese-consumenten-toegang-tot-de-duurzame-energiemarkt-van-morgen/

### 2.2.7. Congestion management at Stedin on basis of USEF (Zuidplaspolder)

In 2019 the preparations already started and in 2021 the project will start.
URL for more information on projects:

- https://stedin.net/over-stedin/duurzaamheid-en-innovaties/een-flexibele-energiemarkt/zuidplaspolder
- https://www.stedin.net/over-stedin/pers-en-media/persberichten/stedin-zoekt-ondernemers-in-de-zuidplaspolder-voor-flexibel-energiegebruik
- https://www.tennet.eu/nl/ons-hoogspanningsnet/onshore-projecten-nederland/station-zuidplaspolder/

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