



Progress CO₂ reduction in the chain 2019

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

References

Ref #	Version	Date	Author	Description
1	3.0	10-04-2018	M.K. van Eesteren	Chain analysis loading poles
2	3.0	22-05-2018	M.K. van Eesteren	Chain analysis Hosting
3	2.1	23-04-2018	M.K. van Eesteren	Community Flex BZO
4	2.0	06-06-2018	M.K. van Eesteren / M. Luttmer (Luttmer consulting)/ M. Segers (Luttmer consulting)	Grid Flex Heeten

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1 Introduction: Description ICT Group N.V.

ICT Group N.V. (ICT) is a leading industrial technology solutions and services providers offering high quality technological solutions in the information and communication technology areas within various functional domains, especially within Automotive, Logistics, Machine & Systems, Industrial Automation, Energy and Healthcare. ICT is active within the Netherlands, Belgium, France, Bulgaria, Sweden, Germany and the United States.

The ICT solutions offered to clients involve software development, solutions on project basis, the secondment of experienced and highly educated staff as well as services to maintain IT systems.

ICT wants to keep at least level 4 of the CO₂ performance ladder. The CO₂ reduction policies are only applicable on the organizational boundary set in the boundary assessment document.

Since 2011 ICT has arranged his CO₂ reduction policies on the level of ICT Netherlands B.V. which is one of ICT Group N.V.'s subsidiaries. Starting from 2017 ICT wants to arrange his CO₂ reduction policies on ICT Group N.V. level. Based on this ambition we have chosen to use 2016 as a basic year for measuring the CO₂ emissions on ICT Group N.V. level.

On ICT Group N.V. level we have defined sustainable development goals which are included in our Annual Report 2017.

1.1 Organizational Boundary

The organizational boundary of ICT Group N.V. is described in the organizational boundary 2020 document. In this document we base the organizational boundary on the financial control we have from an ICT Group N.V. in a legal entity within the group.

1.2 Responsible

The end responsible for the sustainability reporting within ICT Group N.V. is the Chief Financial Officer (CFO).

1.3 Base year

The base year of ICT Group N.V. is 2016. Until 2016 the base year was 2011 with respect to ICT Netherlands B.V.. The base year has changed as the organizational boundary changed from ICT Netherlands B.V. as stand-alone company to ICT Group N.V.

With respect to the base year, High Tech Solutions B.V. which is part of the ICT Group N.V. organizational boundary starting from 1 June 2017, is added for comparison purposes. This is reflected in the CO₂ progress report 2017 for ICT Group N.V..

In 2018 NedMobiel B.V. is added as part of the ICT Group N.V. boundary starting from 1 January 2018. This is reflected in the CO₂ progress report 2018 for ICT Group N.V..

In 2019 Additude AB, BNV Mobility and Proficium are added as part of the ICT Group N.V. boundary starting from 1 January 2019. This is reflected in the CO₂ progress report 2019 for ICT Group N.V..

The planning period for taking CO₂ reduction measures is 2017 until 2020. For the CO₂ reduction measures see the CO₂ reduction plan 2017-2020 of ICT Group N.V..



2 Inventory

Start	End	Chain analysis	Status
2016	2020	Chain analysis – loading poles	Running
2017	2020	Grid Flex Heeten (GFH)	Running: This project is expected to be completed on August 31th, 2020
		Chain initiative	
2016	2020	Community flex BZO (ICT initiator)	Running: This project is expected to be completed on March 21 2020
		Chain projects	
2011	2015	Energy distribution	Project ended by the end 2015
2014	2016	“Energie koplopers”	Project ended by the end 2016
2018	2018	“Energie koplopers phase II”	Project ended in 2019
2015	2020	USEF/SESP	Running

2.1 Chain analysis

2.1.1 Loading poles

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 grow in the number of electric vehicles the expectations are that the battery capacity will increase what result in an accelerated grew in loading ability. For more information refer to the chain analysis – Loading poles document [1].

Result:

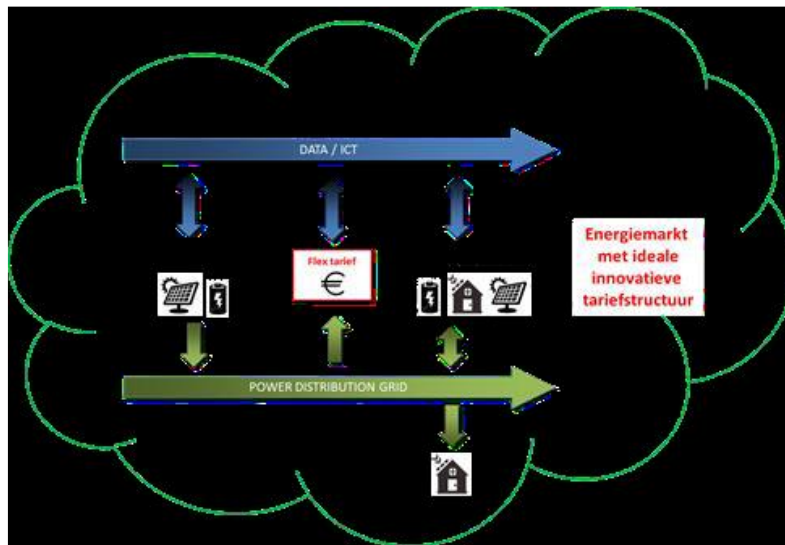
The cooperation with GreenFlux gives an indication of the electricity consumption of electric vehicles in relation to the fuel consumption of cars and the CO₂ reduction coming from the use of electric vehicles instead of conventional vehicles.

2.1.2 Grid Flex Heeten (GFH)

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. The project has financial support from the Dutch government and a running time of 4 years [4]. For more information refer to the chain analysis – Grid Flex Heeten document.

Result:

The project will result to a common business case for a sustainable energy system, a set of innovative price mechanism for local energy markets, a local energy market in Heeten in which price mechanisms, local energy production and storage are matched and an insight in the possibilities and consequences of lower peak loads and regulations.



2.2 Chain initiatives

2.2.1 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 with the use of 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 setup a business case as a response for small and medium-sized enterprises 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 analysis – Community Flex BZO document [3].

Result:

With this project "small" pieces of flexibility on the industry park will be used. This small pieces will be bundled and 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 result in cost and energy savings.

2.3 Chain projects

2.3.1 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.

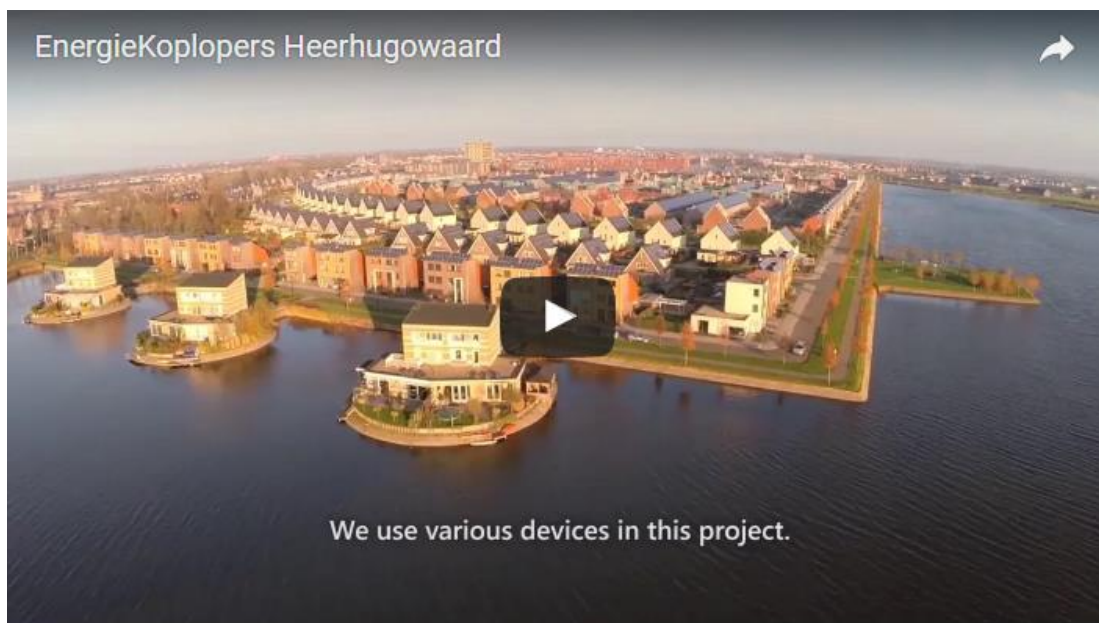
In 2017 phase 2 of the project is started. In this phase batteries are added in which locally produced electricity is stored and are used during moments of peaks in the electricity demand. The project was

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>



2.3.2 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 must 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. This as 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 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/>

UNIVERSAL SMART ENERGY FRAMEWORK

A solid foundation for smart energy futures



3 Progress chain analyses

With regard to CO₂ reduction in the chain ICT has reached the set goals. For this year various initiatives were carried out to contribute further. The following links show which initiatives ICT unfolds with respect to energy reduction.

1. GreenFlux infrastructure for loading poles in the Netherlands:
URL: <https://ict.eu/case/greenflux-service-operations-platform/>
2. GridFlex Heeten

3.1 Progress chain analysis 'loading poles'

The chain analysis is updated with the 2019 results with regard to kWh consumption and the related CO₂ reduction. For further detail see the chain analysis 'loading poles' document.

3.2 Progress chain initiative "GridFlex Heeten"

During 2019 the 140 households of GridFlex Heeten are connected as local energy network. This means that based on the theoretical CO₂ reduction as calculated in previous paragraph a CO₂ reduction of 208 kg CO₂ kg is realised.

The role out of the salt sea battery is delayed. The GridFlex Heeten consortium has decided to put this on a side track and to move on with other parts of the project. As the batteries are not physically in place the University of Twente has projected the behaviour of batteries based on a simulation as if the batteries were in place. Furthermore, the consortium was looking for another battery supplies and the alternatives found are Lithium-Ion battery and lead-acid ("Loodzuur") battery which will be used in 2020.

Another part of the project contains the adjustment of household energy usage to the status of the local network. This by avoiding peaks on the energy network so that the energy network can be used more efficient. This prevents grid reinforcements and aging. For that Enexis introduced a dynamic net work electricity rate and ICT has extended the GridFlex Heeten with the dynamic electricity rate including a 24 hours prediction. Based on this app the GridFlex Heeten households can decide when they want to use energy and unburden the energy network.

4 Possible new chain analysis

4.1 Sewage treatment (RWZI)

ICT Group is a large player in the replacement of sewage treatment installations. If sewage treatment installations are replaced the process automation is revised which also contains the steering of sewage treatment installations. Efficient steering of sewage treatment can result in CO₂ reductions. The possible setup of a chain analysis with respect to sewage treatment would be further investigated in 2019. However, no progress was achieved in 2019.

4.2 Investigation possible new chain analysis

Some possibilities for new chain analysis in order to reduce CO₂ based on the services/products we deliver/purchase can be:

1. Virtual Powerplant in Loenen: project with 100 households that are controlled by solar panels, 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://duurzaamloenen.nl/project/>

This project is part of a bigger 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. 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 itself will start in 2020.

- URL for more information on the project:
<https://projecten.topsectorenergie.nl/projecten/vlakplaattractiebatterijen-voor-afrr-00033435>
- <https://www.tennet.eu/nl/nieuws/nieuws/equigy-platform-biedt-europese-consumenten-toegang-tot-de-duurzame-energiemarkt-van-morgen/>

3. Blauwflex

Goal: Development of blueprints to maximize flexibility in older residential areas.

In 2019 the preparations started and the project will officially start in January 2020.

URL for more information on the project:

- <https://projecten.topsectorenergie.nl/projecten/ontwikkeling-van-blauwdrukken-voor-het-maximaliseren-van-flexibiliteit-in-oudere-woonwijken-00033431>

4. Congestion management at Stedin on basis of USEF (Zuidplas).
In 2019 the preparations already started and in 2020 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>

5 Comparison Chain Analysis with competitors

As part our CO₂ policy and to investigate possible new chain analyses we have analysed which chain analysis and reduction goals our competitors have.

Competitor	Description chain analysis	Reduction targets
Ordina	<ol style="list-style-type: none"> 1. Process professional services – stimulating train traffic and reducing commuting traffic 2. Process projects – reducing CO₂ by clients by projects 3. Process service – retain electricity usage reduction and stimulate use of green electricity 	<ol style="list-style-type: none"> 1. Unknown for scope 3 and chain analyses. 2. Overall target 8% CO₂ reduction per FTE over the period 2017 – 2020
CGI	<ol style="list-style-type: none"> 1. Reducing commuting traffic 2. Reduce emission office buildings 3. Outsourced datacenters 	<ol style="list-style-type: none"> 1. 15% reduction of all car travel containing business and commuting travel for the period 2015-2020 2. 12% per m2 reduction of emission for office buildings 3. Conform targets of MJA3 plan for IT sector
Sogeti	<ol style="list-style-type: none"> 1. Purchased goods and services. 2. Purchased capital goods. 3. Production waste 	<ol style="list-style-type: none"> 1. Overall reduction targets 2% CO₂ reduction per year for the period 2017-2020.

Based on the chain analysis of our competitors we noticed that on an overall level the chain analysis are focused on internally scope 3 emissions like reducing commuting traffic and stimulating the use of train traffic and are focused on outsourcing datacenters.

With regard to the outsourced datacenters ICT had a chain analysis until 2016.

Therefore, we conclude that our chain analysis are more specific and externally focused. With regard to the reduction targets, 2% per year CO₂ reduction per FTE we notice that the ICT reduction target (2% CO₂ reduction per year per FTE) is in line with the reduction targets of our competitor.

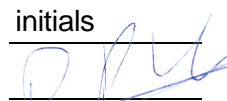


6 Conclusion

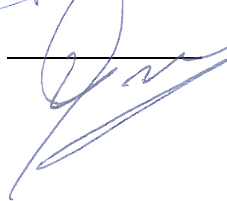
In 2019 the GreenFlux chain analysis is setup which shows well results with regard to CO₂ reductions. This also counts for the Hosting chain analysis. GridFlex Heeten resulted in great results regarding CO₂ reduction. In order to gain some more high-end results, there are some new projects which can be considered for new chain analysis for 2020.

7 Authorisation

Peter Lamers - Sustainability Officer

initials	datum
	17-08-2020

Jan Willem Wienbelt – Chief Financial Officer

	17-08-2020
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Appendix A Cloud projects

Subscription Name
Ampelmann
ASML_CIDT
Azure POC
BDR Thermea Managed Cloud Services
Bosch AVInfra ontwikkelomgeving
CC Microsoft
CC Microsoft Logistic
CC Microsoft PROD
CCU-BackEnd
Cloud Groningen
CloudSolutions
ContiwebTest
Data Lake
Energy Kibana Monitoring
Geas Development
Geas Production
Greenflux ACC
Greenflux DEV
Greenflux PROD
GSOP Eneco Acceptance
GSOP Eneco Production
GSOP Performance
HHW Productie
HHW USEF koppeling met de proeftuin
Hytech Support
IQS_Achievements
LineInsights Development
Lloyds SmartFleet
Omron
Prodecis
RadiomiX
Remeha BDR Connect
Remeha BDR Connect Phase 2
Remeha Connect Acceptance
Remeha Predictive Maintenance
RWS-EA-hosting
SHERPA RWS-WMS
StorSimple
svpbwdashboard
Tegnis Cloud Dev
Tobania Resume Tool
USEF as a Service
USEF Build
Usef Wildlands
Visual Studio Online
Waterschap Limburg
Zuivelhoeve