

## **CO<sub>2</sub> Performance ladder - Sector Initiatives 2019**

## History

Version	Date	Author	Description
0.1	27-7-2012	Hans van den Hoven	Initial version
0.2	2-8-2012	Frits Wuts	Adjustments Frits Wuts
0.3	3-8-2012	Frits Wuts	Remarks Hans van den Hoven
0.4	17-8-2012	Frits Wuts	Remarks related to Sacha Tensen (BECO)
0.5	22-8-2012	Frits Wuts	Processed remarks initial audit
1.0	23-8-2012	Frits Wuts	Final version
1.1	17-9-2012	Frits Wuts	Deleted names
2.0	24-8-2014	Frits Wuts	Update initiatives
2.1	07-07-2015	Frits Wuts	Update based on SGS audit
2.2	27-08-2015	Frits Wuts	Update related applications test and external expert SKAO
2.3	19-5-2016	Frits Wuts	2016 update
2.4	05-07-2017	Frits Wuts	Update based on SGS audit
3.0	26-3-2018	Mark van Eesteren	Update to ICT Group N.V. level
3.1	28-3-2018	Mark van Eesteren	Process review changes F. Wuts
3.2	15-5-2018	Mark van Eesteren	Process changes MJA3 covenant ICT-sector
4.0	22-7-2019	Mark van Eesteren	2018 update
4.1	30-07-2020	Priya Pershad	2019 update
5.0	07-08-2020	Peter Lamers	2019 final version

Index

<b>1</b>	<b>Road map ICT 2030</b> .....	<b>4</b>
<b>2</b>	<b>Participation in social initiatives</b> .....	<b>5</b>
	2.1USEF/EnergieKoplopers (intelligent energy networks) .....	5
	2.2GridFlex Heeten .....	5
	2.3Smart Charging (GreenFlux) .....	6
	2.4Hosting .....	6
	2.5Connekt.....	6
	2.6TURNN.....	7
	2.7Congresses .....	7
<b>3</b>	<b>Initiatives in which participating will be considered</b> .....	<b>9</b>
	3.1Nederland CO2 Neutraal .....	9
	3.2Knowledge Network Green Software (KNGS).....	9
	3.3NLdigital .....	9
<b>4</b>	<b>Overview</b> .....	<b>11</b>
	4.1Summary participations by ICT Group.....	12
<b>5</b>	<b>Authorisation</b> .....	<b>13</b>

## 1 Road map ICT 2030

In the road map ICT 2030<sup>1</sup> version 1.1 from May 2012 (ICT-Office, ministry of economic affairs and Atos Consulting) the conclusion is formed that the following energy reductions and their CO<sub>2</sub> emissions are important in the future:

- The already installed capacity can be used better by making use of techniques like virtualisation, cloud computing, data deduplicating and thin provisioning. Data centres will search for measures to further improve their energy management. Additionally, there are possibilities to re-use residual heat of data centres and the connection to Smart Grids, so that saving of data can be placed at the location where the energy is the cheapest.
- The development of more efficient hardware, ICT components and network will make ICT applications energy efficient. Also, energy efficient software will add to energy efficiency. The development of energy efficient applications can be picked up by the ICT industry.
- Stimulate 'the new way of working' to reduce the number of business travel kilometres.

Based on the multi-year plan "MJA3 ICT-sector" 2017-2020 it is recorded that already in 2015, the ICT-sector has achieved the energy reduction goals for 2020 as set in the MJA3-covenant. For the period 2017-2020 the ambition is reduced 3,3 PJ. ICT Group N.V. does not participate in the MJA3 covenant but is close contact with the ICT Nederland branch organisation who is pulling the MJA3-covenant.

The MJA3 ends on December 31<sup>st</sup>, 2020. It's not yet clear what happens next. Industry associations are discussing with the Ministry of Economic Affairs an Climate on future plans. ICT monitors any new developments on this subject, in order to incorporate this in ICT Group reduction plans when necessary.

The update of the road map 2030 and related CO<sub>2</sub> reduction targets in the future will depends on the current investigation what is needed to obtain level 5 of the CO<sub>2</sub> performance ladder on ICT Group N.V. level.

---

<sup>1</sup> Routekaart ICT 2030 [https://www.nldigital.nl/wp-content/uploads/2013/01/Routekaart\\_ICT\\_2030.pdf](https://www.nldigital.nl/wp-content/uploads/2013/01/Routekaart_ICT_2030.pdf)

## 2 Participation in social initiatives

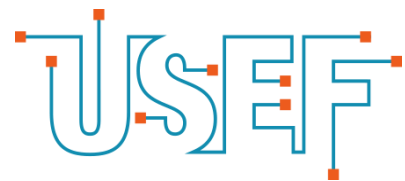
ICT Group (“ICT”) is participating in various initiatives within the sector and the environment to reduce the energy consumption and CO<sub>2</sub> emission.

Besides, a contribution in hours there is budget for the costs of these initiatives. On a yearly basis ICT investigates which social initiatives are available to which comparable companies contributes to reduce CO<sub>2</sub> emissions.

The participation in social initiatives to reduce CO<sub>2</sub> emissions is discussed with ICT’s management team on a yearly basis. In the next paragraph a list of initiatives in which ICT already participates is recorded.

### 2.1 USEF/EnergieKoplopers (intelligent energy networks)

ICT is an important initiator of developing, realising and supporting the ICT for Smart Grids in the Netherlands. For example, ICT is one of the founders of the USEF foundation, together with other key players active across the smart energy chain, ABB, Alliander, DNV GL, Essent, IBM and Stedin. The Universal Smart Energy



Framework (USEF) sets the international common standard for a unified smart energy market, connecting projects and technologies at the lowest cost possible. With a value-to-all approach, USEF enables the commoditisation and trading of flexible energy use. The framework defines the market structure, stakeholders’ roles, how they interact and how they benefit doing so. The USEF foundation was founded to accelerate the transition to a commercially viable smart energy system.

The EnergieKoplopers project in the Dutch town of Heerhugowaard test a USEF flexibility market for the first time. To this end, smart appliances were installed in 203 homes, to enable flexibility electricity consumption. The smart appliances were automatically controlled by a smart ICT system. The project has shown that the USEF flexibility market works: the system helps resolve future problems in the energy system and creates value for all the parties that play a role in a USEF flexibility market.

For more information see:

- <https://www.usef.energy/>
- <https://www.usef.energy/partners/>

### 2.2 GridFlex Heeten

In the village of Heeten in the province of Overijssel, ICT and several partners launched a pilot for GridFlex in December 2017. The aim is to create a local and sustainable energy market for the consumption, storage and trading of solar energy. To make this possible, salt batteries are being used to store the renewable energy. ICT developed the energy management system. With respect to GridFlex Heeten we have setup a chain analysis to reflect on the future CO<sub>2</sub> reductions.



References:

- <https://gridflex.nl/>

### 2.3 Smart Charging (GreenFlux)

ICT and GreenFlux are working together on Smart Charging. Smart Charging is a smart and safe charging system that consists of charging points, a backend system in the cloud and reliable communication between the charging points and the cloud system.



ICT is realising the design, build and operational support for the GreenFlux Service and Operations Platform which is used for the setup and support of the loading poles network. Additionally, ICT is realising the MyGreenFlux portal for the mobile electric driver.

For more information, see:

- 2015, ICT and Brabantse Ontwikkelings Maatschappij (BOM) acquire stake in GreenFlux, <http://ict.eu/2015/ict-brabantse-ontwikkelings-maatschappij-bom-acquire-stake-in-greenflux/>
- 2016, GreenFlux Smart Charging Controller wins sMove360° Award at eCarTec in Munich, <https://ict.eu/2016/greenflux-smart-charging-controller-wins-smove360-award-ecartec-munich/>
- 2017, Transform data into action-oriented information, <https://ict.eu/blog/transform-data-action-oriented-information/>
- 2018, Eneco Group and SET Ventures invest in GreenFlux, <https://ict.eu/2018/eneco-group-and-set-ventures-invest-in-greenflux/>
- 2019, ICT Group N.V. Annual report 2019, <https://ict.eu/annualreport/>
- GreenFlux, <https://www.greenflux.com/about-us/investors/>

### 2.4 Hosting

Under the title 'hosting' ICT offers her knowledge and experience with Cloud Computing over the whole spectrum from IaaS (Infrastructure as a Service), PaaS (Platform as a Server) to SaaS (Software as a Service) on, among other things, the Windows Azure Cloud platform. This software hosting technology is already used in a number of projects and in the future the use will be further expanded. Additionally, the service will be extended with support services to be able to serve the customers more broadly and deeply.

An important part of this Cloud Sourcing proposition is the offering of a total 'green' package. The energy reduction compared to a traditional on-premise solution is considerably. For more information on this initiative, refer to <https://ict.eu/digital-transformation/cloud/>.

### 2.5 Connekt

This is the independent network for smart, sustainable and social mobility. A healthy mix of knowledge, creativity and vigour in which influential partners are coming together. With more than 200 partners all over the world we create and realise tangible solutions for a more sustainable and economic better world.

**Possible participation: Participation via InTraffic.**

**Contact information:** <https://www.connekt.nl/home/>

**Aspects:** CO<sub>2</sub>-reduction related to mobility.

## 2.6 TURNN

After the Athlon Mobility project pilot was stopped (see 2018 report) a new approach was started: Developing mobility an ICT Group N.V. solution TURNN for ICT employees. This is currently still under investigation/development.



TURNN is also involved in various project collaborating with National- and Reginal governments. Like: Mobility as a Service Pilots (MaaS). Seven regional pilots executed by the Ministry of Infrastructure and Water Management (see: <https://www.rijksoverheid.nl/documenten/brochures/2018/06/25/mobility-as-a-service---regionale-pilots>):

TURNN participates in projects:

- MaaS pilot Eindhoven: “Sustainability”;  
Project “Sustainable Mobility Brainport Eindhoven”. Participation with: Municipality of Eindhoven, ASML and Brainport Development. See: <https://turnn.nl/actueel/maas-pilot-helpt-brainport-eindhoven-duurzaam-bereikbaar-te-houden/>
- MaaS pilot Limburg: “Borderless mobility Limburg”  
Project “Borderless Mobility”. Participation with: Arriva. See: <https://turnn.nl/actueel/ict-group-en-arriva-zetten-volgende-stap-in-mobility-as-a-service-met-via-go/>

Besides the pilots TURNN also will supply the MaaS platform for the 10 year concession in northern regions Groningen and Drenthe together with bus transport company Qbuzz. See: <https://turnn.nl/actueel/nieuws-1/>

## 2.7 Congresses

Participation to various congresses, for example:

Event	Description	References
InfraTech 2019 15-18 January 2019	InfraTech 2019 is a unique knowledge platform where clients, contractors, engineering firms and suppliers showcase why the Dutch infrastructure sector has been among the best in the world for years.	<ul style="list-style-type: none"> <li>• <a href="https://ict.eu/2019/ict-group-at-infratech-tunnelplein/">https://ict.eu/2019/ict-group-at-infratech-tunnelplein/</a></li> </ul>
Waterinfodag 2019 28 March 2019	The Waterinfodag is the national event on information provision in the water sector.	<ul style="list-style-type: none"> <li>• <a href="https://ict.eu/2019/waterinfodag-2019-press/">https://ict.eu/2019/waterinfodag-2019-press/</a></li> <li>• <a href="https://ict.eu/video/isa-95-energy-transition-and-data-within-water/">https://ict.eu/video/isa-95-energy-transition-and-data-within-water/</a></li> </ul>
TOC Europe 18-20 June 2019	TOC Europe is part of a global portfolio of events that bring together stakeholders of the container supply chain to learn, debate and network	<ul style="list-style-type: none"> <li>• <a href="https://ict.eu/2019/toc-europe-2019/">https://ict.eu/2019/toc-europe-2019/</a></li> <li>• <a href="https://ict.eu/video/moving-container-terminals-to-the-21st-century-at-toc-europe/">https://ict.eu/video/moving-container-terminals-to-the-21st-century-at-toc-europe/</a></li> </ul>

Event	Description	References
		<ul style="list-style-type: none"> <li>• <a href="https://www.tocevents-europe.com/en/About/sustainability.html">https://www.tocevents-europe.com/en/About/sustainability.html</a></li> </ul>
<p>Water congress 2019 10 October 2019</p>	<p><i>Only available in Dutch</i></p> <p>Ook in 2019 organiseert ICT Group weer het toonaangevende ICT Group Water Congres. Werkt u bij een waterschap, drinkwaterbedrijf, gemeente of ingenieursadviesbureau en heeft u te maken met onder andere (proces)automatisering op het gebied van afvalwater, oppervlaktewater of drinkwater en wilt u op de hoogte blijven van slimme IT-oplossingen in Water? Dan mag u het toonaangevende ICT Group Water Congres in het midden van het land niet missen!</p>	<ul style="list-style-type: none"> <li>• <a href="https://ict.eu/2019/water-congres-2019-water-4-0-automatisering-en-informatisering/">https://ict.eu/2019/water-congres-2019-water-4-0-automatisering-en-informatisering/</a></li> <li>• <a href="https://ict.eu/video/water-congress-2019-video/">https://ict.eu/video/water-congress-2019-video/</a></li> </ul>
<p>Vakbeurs Energie 2019 8-10 October 2019</p>	<p><i>Only available in Dutch</i></p> <p>ICT Group is aanwezig op de Vakbeurs Energie. Deze beurs is hét live B2B platform gericht op duurzame energieopwekking en energiebesparing. Het is een platform boordevol innovaties, lezingen, live demonstraties en waardevolle contacten.</p>	<ul style="list-style-type: none"> <li>• <a href="https://ict.eu/2019/vakbeurs-energie-2019/">https://ict.eu/2019/vakbeurs-energie-2019/</a></li> <li>• <a href="https://www.vakbeursenergie.nl/">https://www.vakbeursenergie.nl/</a></li> </ul>



### 3 Initiatives in which participating will be considered

As ICT believes it is important to participate in initiatives which suits us a well and in which we can successfully contribute we investigate and consider participating in the following initiatives.

#### 3.1 Nederland CO2 Neutraal

Nederland CO2 Neutraal organizes various congresses. During these congresses practical and concrete tips are provided with respect to CO<sub>2</sub> reduction possibilities.

For more information about this initiative, refer to: <http://nlco2neutraal.nl/>

#### 3.2 Knowledge Network Green Software (KNGS)

Accelerate the investigation to the development of energy efficient software. Takes care that a new generation of software developers educated which can develop energy efficient software.

The Knowledge Network Green Software is an elaboration of long-term agreements between businesses and government (MJA3 and MEE), in which is recorded that businesses will be more energy-efficient every two year.

**Possibility to participate:** Participation is open for every commercial, governmental or academic organization which is active in this working field. Although this is an interesting subject there doesn't seem to be a lot of activity in this knowledge network recently (last publication: September 18<sup>th</sup> 2017, <http://kngs.wikidot.com/>).

For more information about this initiative, refer to: <https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/energie-besparen/kennisnetwerken/knowledge-network-green-software>

#### 3.3 NLdigital

NLdigital<sup>2</sup> is a branch organization for the IT, Telecom and Internet companies. Within NLdigital initiatives are taken based on the long-term agreement (MJA) for energy reduction. Examples of these initiatives are the Smartgrids based on the road map ICT 2030.

In 2018 NLdigital has agreed with the Secretary of State of economic affairs to enter a long-term agreement (MJA) energy efficiency. The long-term agreement offers ICT companies a voluntary, but not an opportunity without obligations to reduce their energy consumption. Attendees to the long-term agreement can reduce their energy consumption in two ways: improve their own energy efficiency and develop and use innovative ICT solution in other sectors.

ICT companies who participate in the long-term agreement, make an effort to improve their energy efficiency with 2% on a yearly basis. In 2020 an improvement of 30% compared 2005 must be realised. To support the energy efficiency goals the foundation 'ICT Milieu' has founded. All ICT companies can access the long-term agreement (MJA).

---

<sup>2</sup> Previously named Nederland ICT

Currently, 42 ICT-sector related companies are participating in the long-term agreement. This are data centers, soft- and hardware companies, telecom companies and ICT consultants. The last long-term energy efficient plan for 2017-2020 is already presented. For more information about this plan, refer to <https://www.nldigital.nl/wp-content/uploads/2017/10/MJP-2017-2020-ICT-sector.pdf>.

**Possibility to participate:** Participation is open for every commercial, governmental or academic organization which is active in this working field.

**For more information about this initiative, refer to:** <https://www.nldigital.nl/actueel/?filter-thema=duurzaamheid>

## 4 Overview

	Form		Benefits and expenses		Theme			Conclusion
	Congress	Long-term	Membership expenses	Benefit for ICT	ICT	Mobility	Sustainability	
USEF / EnergieKoplopers (intelligent networks)	No	Yes		Insights and participations in the newest developments in this area	X		X	ICT already is one of the founding partners
GridFlex Heeten	No	Yes		Insights and participations in the newest developments in this area	X		X	ICT already is one of the initiators / record in scope 3 analysis
Smart Charging (GreenFlux)	No	Yes		Insights and participations in the newest developments in with respect to loading poles and the techniques in the management of loading poles	X	X	X	ICT already is an initiator via the participation in GreenFlux / scope 3 analysis
Hosting	No	Yes		Reduce the energy consumption by ICT clients	X		X	Record in reduction plans / scope 3 analysis
Connekt	Yes	Yes	Regular member (€2.000)	Insights and participations in mobility issues and standards	X	X	X	Dialogue is started via InTraffic
TURNN	No	Yes	n.a.	Reduction CO <sub>2</sub> emission / Flexibility in transport form		X	X	Participation via various projects
InfraTech	Yes		Congress expenses	Knowledge sharing about sustainable Infra & Mobility solutions	X	X	X	January 2019
Waterinfodag	Yes		Congress expenses	Knowledge sharing about smart grids on sewage treatment plants	X		X	March 2019
TOC Europe	Yes		Congress expenses	Knowledge sharing about more efficient container terminal management	X		X	June 2019
Water congress	Yes		Congress expenses	Knowledge sharing about water management systems	X		X	October 2019
Vakbeurs Energie	Yes		Congress expenses	Knowledge sharing about sustainable energy solutions and innovations	X		X	October 2019
Nederland CO2 Neutraal	Yes		n/a	Practical tips on how to reduce CO <sub>2</sub>			X	Is considered
NLdigital	No	Yes	n/a	Insight and participation in the most recent developments with respect to sustainability	X		X	Is considered

#### **4.1 Summary participations by ICT Group**

ICT actively participates in the following initiatives:

- USEF/Energiekoplopers – intelligent networks
- GridFlex Heeten
- Smart charging (GreenFlux)
- Connekt (via InTraffic)
- Various congresses

ICT considers participation to:

- Nederland CO2 Neutraal (congresses)
- NLdigital

## 5 Authorisation

	<u>Initials</u>	<u>Date</u>
Peter Lamers – QHSE Manager		<u>8/9/2020</u>
Jan Willem Wienbelt – Chief Financial Officer ICT Group N.V.		<u>8/9/2020</u>