

Sector Initiative “Community flex BZO”

ICT stands for green!



History

Version	Date	Author	Description
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1 Introduction

Sustainable energy cannot longer be ignored. Daily we drive along wind mills and notice solar panels on roofs. Not everybody realises a new dynamic in our energy supply arises. When wind comes down electricity plants have to run faster, because electricity can fail if this not happen. The other way around is if the sun is coming from the behind the clouds and solar panels are producing electricity. At that time electricity plants have to slow down their production.

It should be fantastic that certain machines will produce electricity at the right time. Or when you do not need the electricity from solar panels you are able to share this electricity with other companies.

Here comes the important factor flexibility in play. This is the possibility to adapt the demand and supply to the circumstances with help of machines and installations.

This document will give a description of sector initiatives which ICT has picked up as initiator. The setup document is now for companies instead of houses like the Power Matching City initiative.

2 Participation in social initiatives

To reduce energy and CO₂ emissions in our branch and environment we participate in various initiatives.

Besides hours there is a budget for these social initiatives. On a yearly basis ICT Group investigates and inventories the social initiatives for CO₂ reduction in which comparable companies participates.

This inventory is discussed on a yearly basis with the ICT Group management. In the next paragraphs the project “Community flex BZO” is discussed in which ICT participates as initiator.

2.1 Project aim

The project aim of the project “Community flex BZO is as following. Demonstrate that collectively and mutually availability of flexibility in processes and installations by companies in the same geographical area, can result in a better matching of supply and demand and result an incentive for various chain partners (producer, power grid manager and user).

Sub-targets:

- Track down the availability and size of flexibility by companies.
- Readiness of companies to share this flexibility with companies.
- Contribute to the support for efforts to come to a CO₂ neutral industrial area.
- Increase the mutual solidarity between companies on the industrial area resulting in an increase of the attraction for the area as location.
- Create the possibility for companies to create and lance new energy services.
- Create energy awareness as part of the operational excellence within companies.

Term: 2 year, start 1 January 2016.

2.2 Philosophy

Starting point is, that with the increasing demand of decentral generating flexibility value is created for the involved chain partners. Flexibility for a power grid manager means the power grid is not unnecessary charged and investments in strengthen the power grid. With the increasing electricity transport by companies and the coherent intensification of power grid charge, which is an interesting thought (as there is no need for the power grid manager to charge this costs.

For energy companies flexibility means that based on flexible time frames sharper tariffs and purchase contracts can be offered. In this, volume is important. This project is a prelude for this.

For the participating companies on this industrial area flexibility is interesting, as (connection) costs can be avoided and possibility arise for other purchase contracts.

In this chain companies will help each other to get this flexibility as much as possible, which forms the community.

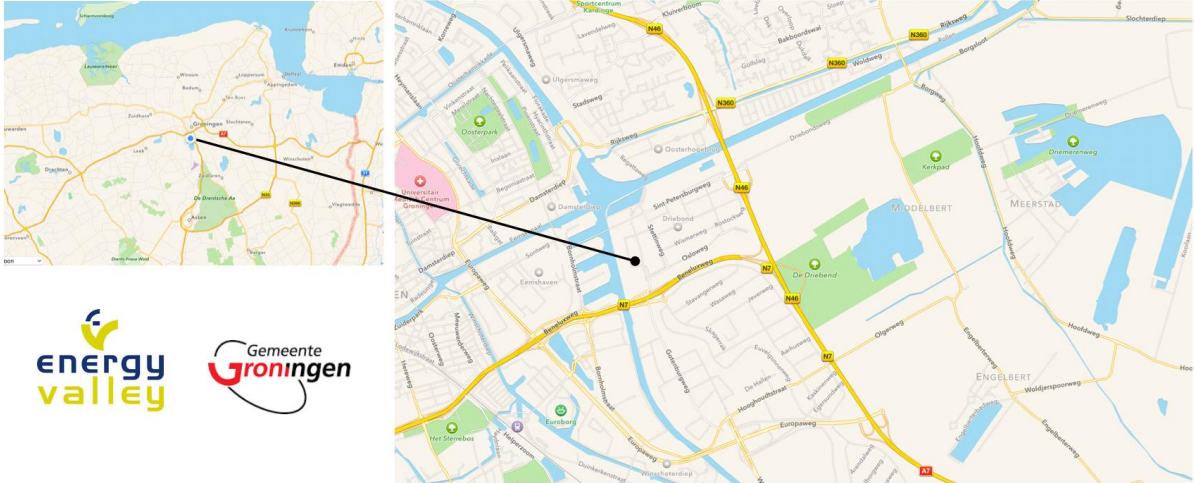
By offering – from the perspective of company – the present and available flexibility to other participating companies in the close neighbourhood (read: ‘Bedrijventerrein Zuid-Oost) and to move the use of energy, in this project it is investigated which advantages and/or effects this has in the energy chain. With respect to this the power grid manager, energy company and his customers (the companies) are primarily investigated.

2.3 Questions

- Where is the flexibility?
- Are companies willing to make this flexibility available?
- If this answer is no, why not? What interests plays a role and how far will they go to prefer other interest.
- What is the value of the flexibility? (for industrial area Zuid-Oost)?
- Which advantages / effects has the offer of flexibility in the energy chain for the actors and their services and products?

2.4 Location

Energy Valley region > province Groningen > Municipal Groningen > Industrial Area Zuid-Oost Groningen (BZO).



3 Project

The idea is that for a number of companies – with flexibility – their processes and installations will be monitored. Flexibility is determined, among other things, by the present cooling- and freezing systems, batteries (electricity transport), heat pumps and/or the time-shifting activations of installations. These companies are spread on the industrial area and are behind the same 'trafostation'.

In an ICT environment the physical network is constructed. On installations of the participating companies sensors and measurement instruments are placed which are used to read the energy consumption data. The energy consumption data is matched on a real-time with the available sustainable energy and aligned with the power grid capacity.

At a distance – in consultation with each other – it is investigated which scenarios in the process or installations can be steered differently, so that the balance in the power grid is improved. In this it is investigated – and there is the willingness to work together – how companies can align their energy profile so that the desired balance in the power grid is reached. In this project the initiators (Enexis, VBZO, Energy Valley, Municipal Groningen and ICT) are interested in the extent to which companies can cooperate with each other.

How we select the companies:

- All companies located in the industrial area can join.
- The members of the VBZO are receiving an inquiry with questions with respect to their energy consumption and flexibility.
- Based on this inquiry 20 companies are selected with a flexibility potential which is ranked as well and are willing to participate.
- These 20 companies are intensively scanned on their energy consumption to get a better insight in the flexibility possibilities.
- To reduce the costs 5 companies will actually join in the live-experiment. These companies will show the willingness that – on selected moments that from a flexibility point of view it will create the most value – their processes and installations will be controlled.

To strengthen the character of the community project, the idea is that the remaining companies are actively involved in the project parallel to the live-experiment. This by a continuous information supply about the progress and results of the projects. Furthermore, we consider to organize an energy scan for the remaining group of 15 companies which have a well flexibility potential.

We consider that the willingness of the companies is an important factor to ultimately select the companies for the live-experiment.

3.1 Involved participants

	Organisations	Role	Primary motivation for participation
Services	ICT Automatisering	Software integrator and product supplier in the area of information- and communication technology	With this project ICT is able to further develop the software platform which is also used in other projects related to the matching of demand and supply within a community. ICT is using the USEF assumptions with market mechanisms for the trading in flexibility.
	Enexis	Power grid owner	Wants to know which interest and barriers there are for companies when flexibility is offered and which value this represents in the chain. Is interested in the role of the community.
	Main Energie	Energy supplier	Wants to investigate the ESCO role or role of aggregator. Also to be able to develop a new service with respect to the use of flexibility in the energy demand.
USERS	Property View	Real Estate owner	Wants to have a better understanding of the energy issues among tenants.
	FC Groningen	Soccer club.	Has the availability of 1MW sustainable energy based on solar panels. This provides the ability to increase the dynamics in the virtual simulation environment. Also wants to share their knowledge with other companies in the industrial area.
	DeliXL	Wholesale of food for catering	Consumes a lot of energy and is therefore interest in the reducing the energy costs. Has the availability of flexibility with respect to freezing capacity and electric transport.
	Chris Russel	Marketing office and creative production centre	The installations are printers and printing press. Consumes a lot of energy and is therefore interest in the reducing the energy costs. Is willing to make the present flexibility available.
	Zalsman	Printing company	Is a printing company and has therefore a lot of printing presses. The company is a non-stop company. Is willing to make the present flexibility available, e.g. electric transport.
	UMCG/LifeLines	Storage human samples	Consumes as lot energy. Has the availability of flexibility because the freezing capacity.
	Boosters	VBZO	Cooperation for industrial are Zuid-Oost

Foundation Energy Valley (SEV)	Project management	Wants to facilitate companies in the Energy Valley region to develop new business in the energy working field. This project will result in new energy services.
Municipal Groningen	Facilitator	Wants a CO ₂ neutral industrial area. Furthermore, this project has to be an icon project comparable to PowerMatching City.

A number of companies has indicated that they want to be involved in the project. Meetings with these companies are taking place and the results are shared with the initiative group.

3.2 Planning August / September 2015

Item

Define technological parameters
 Provisional budget
 Feedback intermediate position
 Define work packages, issues
 Budget and cost allocation
 Writing subsidy request
 Cooperation agreement
 Start project (1 January 2016)

Who

SEV, Enexis, ICT
 SEV, Enexis, Groningen, VBZO, ICT
 SEV
 ICT, Enexis, Main Energy
 SEV, Enexis, Groningen, VBZO, ICT
 SEV, all
 All
 All

3.3 Project phases (global)

Q4-2015: Arrange project
 Q1+Q2 - 2016: Inquiries, company energy scans
 Q2+Q3 - 2016: Arrange steering (connections, IT, algorithms)
 Q4 2016: Start measurement campaign
 Q3 2017: End measurement campaign, analysis
 Q4 2017: Finishing analysis, reportings and afronding analyse, rapportage, dissemination.

3.4 Budget (global)

There is global budget from ICT of EUR 23.000.

3.5 Scoping choices

Aspect	Choice	Motivation
Only flexibility related to electricity consumption or also gas or heating?	Only electricity	No heating network in the area, primary energy consumption is electricity, E-flex is developed the furthest.
Local area or broader area	Hell BZO	Larger target group, more diversity in companies. Disadvantage: They are not in the same region of the power grid.
Actual steering or only investigating	Actual steering	Only then participants will experience how this component will fit in there company processes.
Actual calculations or only showing the values	Showing the values	Actual calculations requires that participants will close a new energy contract. This increase the barrier to participate.

Measure the impact on the physical power grid	Only virtual	Using the physical power grid means that all participants must be located in a certain area and the group must have a certain size to significantly influence a part of the power grid. This increases the barrier for participants. By participating in the virtual power grid, the power grid owner is able to sufficiently conclude which value the flexibility has for the power grid and related investments which do not have to be made.
Include energy efficiency of the companies in the investigation?	No	During the energy scan, the reduction measured will be communicated. An additional reduction target will blur the main project target.
Include energy self-sufficiency?	No	Also this will blur the main target of the project. Although participations will get more insight in their energy consumption, which will form a basis in which participations will together think about their energy supply.
Length of the physical experiment.	1 year	To take all seasonal effects into account.

3.6 Communication

The most important communication will go via the ZO-bright community <http://zobright.nl/>, which is made specially for this project, but will have a broader scope ultimately. Other communication is limited. The project was mentioned in the local newspaper, refer to <https://www.bzocommunityflex.nl/project.html>.

4 Progress project in 2017

The start of the BZO community project is delayed. This is due to the fact that the project partner 'Eneco' has decided to step out the project in August 2017. The reason Eneco has stepped out of the project is due to market developments which made that the value of flexibility is insufficiently recognized in the small and medium entities segment. This has not contributed to the commitment.

The other project partner has tried to find another project partner which is able to replace Eneco. With both ENGIE Energie Nederland B.V. and ENGIE Global Energy Market B.V. intensive meetings took place afterwards both parties has decided not to join the project.

Based on the above developments project partners concluded that the large energy companies consider the flex potential of the industrial area is not sufficient (from a financial point of view). Based on this the project partners decided to search for a new smaller energy company which is able to replace 'Eneco'. Therefore meeting with Jules Energy are setup. If Jules Energy or another smaller energy company will not join the project a new situation will exist in which an important aim, assign financial value to energy flexibility is (too) difficult to reach.

5 Progress project in 2018

The progress of the project during 2018 is well. The building of the software is almost ready and the measurement of the energy data has already started. The portfolio steered in this project contains electric vehicles, electric forklift trucks and a freezer room and use the flexibility within the local energy network to support the balance of the national energy network. In a energy system with the generation of sustainable energy balancing capacity is necessary to keep a stable energy network. Currently, this stabilization is mainly performed with fossil power plants. As more balanced capacity is available from fossil power plants the need to use traditional power plants is decreasing.

In the meantime interim reports are published by both Technical University Eindhoven and ICT Automatisering Nederland B.V. Also the flexibility of heat pumps of two education buildings is measured in the meantime.

The energy measurement campaign is currently ongoing until the end of this year. After the measurement campaign the end report will be made.

6 Authorisation

	<u>Initials</u>	<u>Date</u>
Mark van Eesteren – Financial controller & sustainability officer ICT Group N.V.	<hr/>	<hr/> 19-07-2019
Jan-Willem Wienbelt – Chief Financial Officer ICT Group N.V.	<hr/>	<hr/> 19-07-2019

Appendix A CO₂ - Reduction target

Although the primary target of this initiative is not reducing CO₂ emission we will try to obtain an indication what the possibilities are as soon as this initiative is in execution. Further information will be added as soon as this known.

A.1 Reduction targets

One of the targets of this industrial area is to be CO₂ neutral.