

Enexis Energy Transition Case Description

Case is provided by [Enexis](#)

Introduction

Enexis Netbeheer is a regional energy network operator, managing the network in the North, East and South of the Netherlands. They do not sell gas or electricity, though they ensure that energy finds its way safely from the energy suppliers to people's homes or premises, connecting to approximately 2.6 million households, businesses, and official agencies. They are constantly working on creating a better, smarter, and more efficient grid which is ready for the future.

On June 28 2019, the Dutch cabinet published the [Climate Agreement](#): the Dutch elaboration of the international climate agreements in Paris (2015). The aim is to significantly reduce CO2 emissions: by half by 2030 compared to 1990. One of the agreements is that 30 energy regions in the Netherlands will investigate where and how best to generate sustainable electricity on land (wind and sun). But also which heat sources can be used so that districts and buildings can get rid of natural gas. Where is space and how much? Are the places socially acceptable and financially feasible? In a Regional Energy Strategy (RES), each energy region describes its own choices. The [National Program RES](#) supports the regions in making the RES.

Assignment

Enexis Netbeheer has challenged you to gain insights from the Enexis open data and other open data – e.g., available from CBS – that can contribute to the energy transition to be made by 2030 and facilitate the informed decision-making process. More specifically,

- Think about the background of the challenge; through what routes can the CO2 emission reduction be achieved?
- Identify areas that should be prioritized in the Regional Energy Strategy; which postal codes should be given priority in terms of capital investments? How can demographic and housing data contribute to the decision making?

The data and documentation can be downloaded from a dedicated Github repository: <https://github.com/jads-nl/execute-enexis>. Consider how this data can help you in solving this challenge. How complete is the data? What kind of dynamics do you recognize in the data? Which patterns do you see in the historical energy consumption and production (trends, conversion, etc.)? What are your hypothesis on the underlying causes for the patterns that you find?

Use the data to support your advice and present your insights in a compelling story. We are keen to see not only your results, but also what approach you've taken. Use your creativity to find insights that will raise Enexis' interest and show them the value of their data supplemented by other open source data – e.g., [CBS](#), [Kadaster](#), [BAG](#), or [PDOK](#) to name a few possible sources.

This case intentionally has a lot of open ends. We look forward to seeing how you employ your creativity in tackling this case within limited time. You can use any tool, method or additional data available you can find.

Data

Enexis have collected a large dataset containing data on home energy use (*Enexis_kleinverbruiksgegevens_DDMMYYYY.csv*) and decentral energy production (*Enexis_decentrale_opwek_kv_(zon_pv)_DDMMYYYY.csv*). In the files *Enexis_kleinverbruiksgegevens_DDMMYYYY.csv*, you will find data on the average annual energy consumption per connection per postal code for electricity and natural gas for the years 2010 till 2020.

In the files *Enexis_decentrale_opwek_kv_(zon_pv)_DDMMYYYY.csv*, the number of energy producing units per 'CBS buurt' and their peak power ('kWp') are provided.

Appendix – Data sources

[Enexis_kleinverbruiksgegevens_DDMMYYYY.csv](#)

Average energy consumption per connection and number of connections per postal code of all 'kleinverbruiksaansluitingen' in the area where Enexis takes care of the energy network. Every record contains the average data of at least 10 connections (households) to ensure the anonymity of the individual users.

- In case more postal codes are needed to exceed the 10 connections 'POSTCODE_TOT' differs from 'POSTCODE_FROM'.
- For each postcode area there is a record for electricity and natural gas use, marked by the feature 'PRODUCTSOORT', being either 'ELK' or 'GAS'.
- The average energy consumption is the net sum of consumption and production, if applicable.

[Enexis_decentrale_opwek_kv_\(zon_pv\)_DDMMYYYY.csv](#)

Number of connections, number of connections with energy producing units and their total peak power per 'CBS Buurt' of all 'kleinverbruiksaansluitingen' in the area where Enexis takes care of the energy network.

- Only energy producing units are included that are administered with Enexis Netbeheer.

Reference

Enexis Netwerkbbeheer Open Data:

<https://www.enexis.nl/over-ons/wat-bieden-we/andere-diensten/open-data>

Overheidsinformatie over transitie uit aardgas:

<https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/duurzame-energie-opwekken/aardgasvrij>

Het Nationaal Programma RES ondersteunt de regio's bij het maken van de Regionale Energiestrategie:

<https://www.regionale-energiestrategie.nl/default.aspx>

The OData API of Statistics Netherlands provides users access to StatLine data in a machine-readable format. In this Quick start guide the use of this API is demonstrated by downloading key figures about Dutch neighborhoods from table 83765NED:

<https://www.cbs.nl/nl-nl/onze-diensten/open-data/statline-als-open-data/snelstartgids>

Kerncijfers per postcode:

<https://www.cbs.nl/nl-nl/dossier/nederland-regionaal/geografische-data/gegevens-per-postcode>

Samenvatting Regionale kerncijfers Nederland uit ruim 50 CBS-statistieken. Uitgesplitst naar vier regionale niveaus van landsdeel tot gemeente:

https://opendata.cbs.nl/statline/portal.html?_la=nl&_catalog=CBS&tableId=70072ned&_theme=235