



Market-consultation IoT-connectivity for Eneco devices



Introduction

This document provides background information about the market consultation in relation to the upcoming European Tender for connectivity for IoT-devices for Eneco. In addition to this, Eneco is exploring the possibility of offering SIM-only services and contemplating if these should be part of this tender. Therefore, a separate section about this project is added as "The SIM-only project", on page 8.

Purpose of this market-consultation is to ask suppliers to answer a set of questions in order to obtain information that can be used in preparing the tender.

IoT-Project background

Eneco is an integrated energy company supplying gas, electricity, district heating and additional services focused on sustainability. For the optimization of the production, transport and delivery of heat, Eneco needs to gain insight in the heat-usage of households. To obtain these insights, smart heat-meters have to be installed in households connected to the heat-grid. These smart-meters need to have a way to communicate with Eneco's systems. For this purpose, Eneco wants to use mobile IoT-connections. These mobile IoT-connections would also provide the possibility for Eneco to roll out other IoT-initiatives. To obtain the IoT-subscriptions, a European Tender will be published.

Procedure

- The market-consultation will consist primary of a written section. If desired by Eneco, suppliers will be invited to provide more detailed comments in a meeting in person.
- **Final date for submitting the answered questionnaire is 8 march, 18:00.**
- Questions related to the market-consultation can be asked through the communication-module in TenderNed.
- Answers to these questions will be published on a regular basis. These questions and answers will be visible for all.
- **Latest date to ask questions is 6 march: 12:00.**
- Final round of answers will be published at 6 march by the end of day.
- Candidates are free to provide their answers in the format they prefer.
- Although this market consultation is related to the European Tender; it does not provide Eneco nor candidates with any rights or obligations. Candidates will not have an advantage in the evaluation of their offer.
- The European Tender is a separate procedure; also, candidates that did not participate in the market-consultation are allowed.
- Candidates are not compensated for any costs related to their effort in participating in this market-consultation.
- A summary of the results will be anonymized and published as part of the tender.

Meeting in person

If Eneco has additional questions after evaluating the submissions, Eneco will request candidates to provide more detailed information in the form of an in-person meeting. This meeting is part of the market-consultation and therefore the discussions will be part of the summary of the market-consultation and published as part of the tender.

The IoT-project

Volume

In the period between 2020 and 2022, about 150.000 smart heat meters will be installed in the households; each of these requires an IoT-subscription. The number of other IoT-devices Eneco expects to roll out is about 200.000. The total number of subscriptions is therefore around 350.000. After 2022, a further increase is expected in the number of smart heat meters and IoT-subscriptions. The data-consumption of each IoT-device will be 1-15 MB each month depending on the device type.

Scope

- Providing the IoT-connectivity central offering
- Implementing the solution into Eneco's backbone
- Maintaining and developing the connectivity service (e.g. upgrading to newer technologies if requested)

LPWAN Landscape: Domain, Services and interfaces

Figure 1 provides more insight into the landscape and requested services. It depicts the various interfaces, domains and the proposed responsibilities for the parties involved. Note that it is not a final representation of the landscape but is meant to offer a visual view on the requested services. A more detailed architecture will be required at a later stage and both parties (Eneco and LPWAN provider) will be involved in realizing a detailed architecture.

The image below is attached under "Market-consultation IoT-connectivity for Eneco devices – LPWAN Landscape.pdf" for more easy viewing.

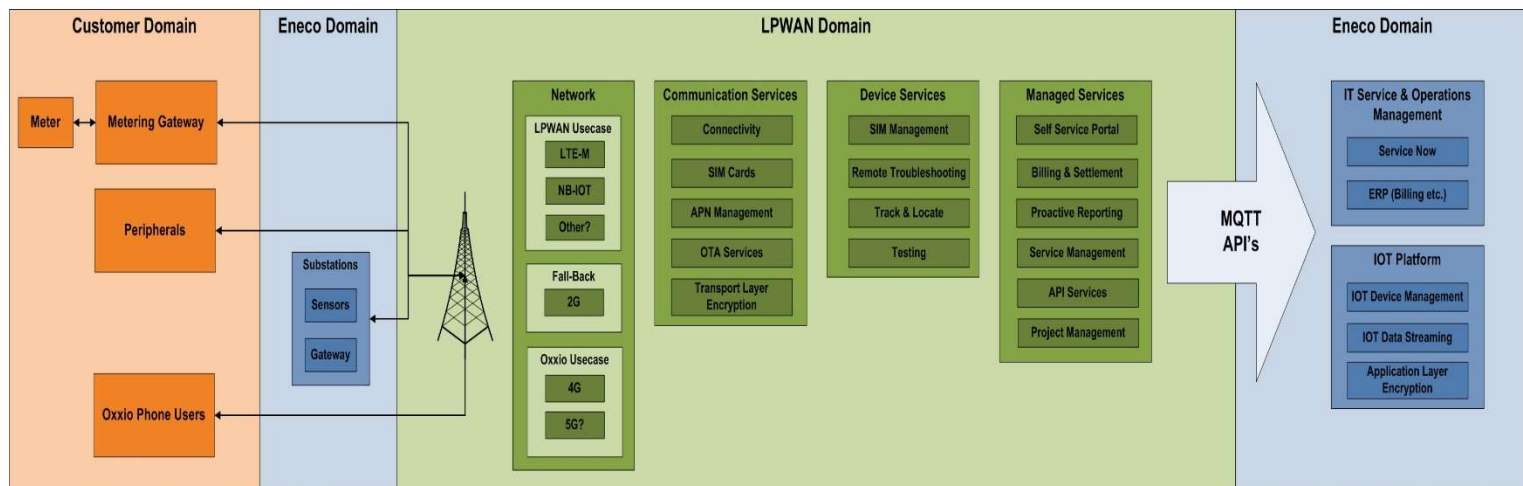


Figure 1: LPWAN Domains, Services and Interfaces



Main Characteristics of the requested service

1. Supplier will offer the network layer; Eneco will provide the IoT platform; gateway and IoT-device management.
2. The network technology we will use to connect the edge to the enterprise tier is LPWAN: NB-IOT and LTE-M
3. The service is offered through SIM cards; Mini-SIM, Micro-SIM, Nano-SIM and eSIM
4. The main messaging protocols supported by our IoT platform are WebSockets, MQTT and HTTPS
5. Our message payload requirements will be depending on the IOT device but are often small in message size (timeseries and events), and more downstream than upstream
6. The service does not have to connect to legacy/OT protocols
7. The solution includes a portal for Eneco to change settings related to APN, SIM-activation etc.
8. The solution includes interactive reports on data-usage.
9. The requested service requires a set of security mechanisms
10. The requested service needs to meet a set of business critical requirements
11. A set of bandwidth, latency and jitter requirements is also specified
12. The service will support device management protocols.
13. The area is in the Netherlands; predominantly the Randstad area.



Questionnaire

1. Requirements

- a. Are you able to provide a solution that fits the requirements listed in this document?
- b. Is your standard product portfolio able to offer a solution that fits these requirements or do you need to develop a solution specific for Eneco?
- c. Do you see any requirements that lead to extra-costs or requirements that you cannot fulfill by yourself? If so, what requirements need to be adjusted in order to find a cost-optimized solution?
- d. Is there a price difference for purchasing the different types of SIM cards (Mini-SIM, Micro-SIM, Nano-SIM and eSIM). Could you provide price examples?

2. Pricing

- a. Could you share the costs-drivers of the solution you would like to suggest?
- b. Eneco prefers to have the recurring costs consolidated in a price for each megabyte of used data for pooled data, instead of a price per subscription. Would this be a pricing model you would be willing to use? Please share the pricing model of your preference; in terms of what type of recurring costs you foresee and how you would like to invoice these.

3. Roaming

- a. Are you able to offer a solution in which IoT-devices can use the network of different telecom providers in case problems arise (temporary) in the network by which you initially offer the IoT-connectivity?
- b. If not, how can you provide a redundant pathway to maintain uptime and coverage in case problems arise (temporary) in the network by which you initially offer the IoT-connectivity?

4. Communication

- a. Do you have any restrictions for Eneco in terms of communicating with the devices?
- b. Is the network capable to receive a simultaneous push from all devices? Or should the devices be configured to push data at specific intervals in order to not cause network congestion?
- c. What is the highest possible device density? How many devices can communicate simultaneously?

5. Roadmap

- a. Given the roadmap and desired coverage in the Randstad area, do you think a roll out based on LTE-M and NB-IOT will be realistic?
- b. How can we align the roll out of smart meters with respect to coverage in specific areas? E.g. we could inform you on a rollout roadmap in order to inform you in due time?

6. Technology

- a. What are your thoughts on keeping the NB-IOT and LTE-M technology for a duration that extends the life of the frame-agreement; to keep the subscriptions online after the frame-agreement has ended, for a time of 18 years?

7. Liability

- a. It will lead to extra costs for Eneco in case problems in the connectivity require a visit to the household by Eneco to restore connectivity or to manually acquire the registered heat-consumption; Eneco would like the supplier of the IoT-connectivity service to accept liability for these events in case these problems are related to the connectivity service. What would you be willing to accept in terms of liability for these types of situations? Please specify an amount and description.

8. Battery-life

- a. The IoT device in the household will likely be battery powered. The battery has to last 10 years. It will lead to extra costs for Eneco in the battery has to be changed in between. Eneco would like the supplier of the IoT-connectivity service to accept liability for premature empty battery drainage. How would you like to work with Eneco in terms of battery requirements and testing?
- b. What are your possibilities in order to minimize the energy usage for IoT devices? (E.g. network parameters, signal strength adjustment etc.).
- c. What would you be willing to accept in terms of liability for premature battery drainage?

9. SIM-cards

- a. The proposed solution needs to be able to provide connectivity during the full lifetime of the smart heat-meter. This implies that after initial installation of the SIM-card; no physical interaction with the IoT-device is required. Is it possible for you technically to offer the service as described in above? Is this possible for every type of SIM card?
- b. At the end of the validity of the framework agreement, it is likely that Eneco would like to maintain connectivity for the IOT devices and would start a new tender to obtain new connectivity subscriptions. It is possible that this tender will be awarded to a different supplier. Eneco would like the new supplier to be able to provide the IoT-connectivity service without the necessity for a SIM-change or other physical intervention at the location of the IoT-device. Is it possible for you technically to offer the service as described above?
- c. Do you have a reference-project in which you demonstrated a successful take-over of SIM-cards that were previously used by a different supplier?



10. Security

What are your thoughts on IOT security standards and protocols? There are some standards/protocols being developed, e.g. NISTIR 8200 or UL 2900-1. Are you planning on implementing any of these standards?

11. Device-management

Is there a specific Device Management platform you would prefer to integrate with?

12. Organization

How do you believe Eneco should organize the management of 350.000 connections after role out?

13. Contract

Since the importance of the IoT connectivity service for Eneco, Eneco proposes a framework agreement with a relatively long validity of 2 x 4 years. Under this framework agreement, the individual subscriptions will be ordered, with a flexible duration. Would you be willing to use this contracting setup? If not; what contract setup or duration would you advice?

14. Project-advice

What specific concerns about this project would you like to address? Are there specific tests you believe Eneco should arrange before mass role out?

The SIM-only project

Introduction

Eneco (and her affiliates) are exploring the offering of "SIM-only" services to their customers. Eneco will act as a Label cooperating with an MVNO or mobile network provider as a wholesale provider. The mobile network provider supplies the Eneco customers with a SIM card, offering services like voice, SMS and data. The aggregated amount of network usage of all customers will be billed to Eneco and Eneco will charge the customers individually.

	Wholesale provider	Eneco
Responsibility	· Radio network, · Mobile core network, · SIM cards and · Provisioning	· Billing, · Debt collection, · Customer service, · Product development, · Marketing, · Sales, · Distribution.
Charging	Charging Eneco for the entire portfolio	Charging customers individually

Figure 2: Schematic overview of tasks/responsibilities

Questionnaire

Eneco believes that it could be interesting for suppliers to offer the services needed for the SIM-only project in combination with the services needed for the IoT-project.

1. Would you be interested in offering the services needed for the SIM-only project in addition to the IoT-services? If not, why not?
2. Do you believe the SIM-only project should be part of this Tender or covered in a separate Tender?