TRAFIKVERKET

Request for Information

Alternative Power Sources for Roadside Systems in Sweden

English version, 29 May 2020

Company name:
Name of contact person:
Email:
Phone number:

1 Contents

2 Introduction

2.1 About Trafikverket

Trafikverket is a Swedish government agency responsible for the activities of the former National Road and Railway Administrations, the National Traffic and Shipping Board as well as the Swedish Maritime Administration and the Swedish Transport Agency. In addition, some of the earlier SIKA (Swedish Institute for Transport and Communications Analysis) functions are currently within Trafikverket. Trafikverket has approximately 6,500 employees. The headquarters are located in Borlänge, Sweden, and the regional offices in Luleå, Gävle, Stockholm, Eskilstuna, Gothenburg and Kristianstad.

Trafikverket is responsible for the long-term planning of the transport system for road, rail, sea and air transport as well as for the construction, operation and maintenance of state roads and railways. Trafikverket also handles national contributions to the Swedish shipping industry and promotes accessibility in the public transport, including the award of contracts.

2.2 Background and Overview of Current Situation

The Swedish Transport Administration has for a long time installed various types of technical systems in the road network. These are, for example road safety/speed cameras (ATK) and Road Weather Stations (RWS). There are also similar systems such as traffic cameras and traffic counters. Technical systems depend on electricity to operate, and it is a challenge to connect them to the fixed grid in some places. It can take time to get connections and it can also mean high costs to set up the connections.



The systems work in slightly different ways. ATK is in continuous operation and measures the speed of all passing vehicles and takes a picture of vehicles exceeding the current speed. RWS record weather data at 5 or 10-minute intervals. Both systems need communication to transmit data and to enable monitoring their (effective) operation. These are just two examples of the technical systems that exist within the Swedish Transport Administration; there are more that may have similar needs.

At present, the Swedish Transport Administration uses different solutions when connection of roadside technical systems to the electricity grid cannot be set up. Among other things, there are uninterruptible power supply (UPS) systems, larger batteries that are replaced periodically, and solutions that have both batteries and fuel-powered generators. Some of the solutions can be demanding because the agency has to make regular maintenance and oversight visits, which can mean high operating costs.

Aware of the recent rapid progress in the development of alternative and renewable electricity sources, the Swedish Transport Administration considers that new possibilities are opened up to provide different technical systems with electricity other than through connections to the electricity grid. Particularly with regard to the supply of electricity systems located in places where connection to the grid would entail high costs and long times for connection.

2.3 Need and System Overview

The purpose of this request for information (RFI) is to provide Trafikverket with a better understanding of the market's ability to deliver alternative sources of electricity, available delivery models and best practices.

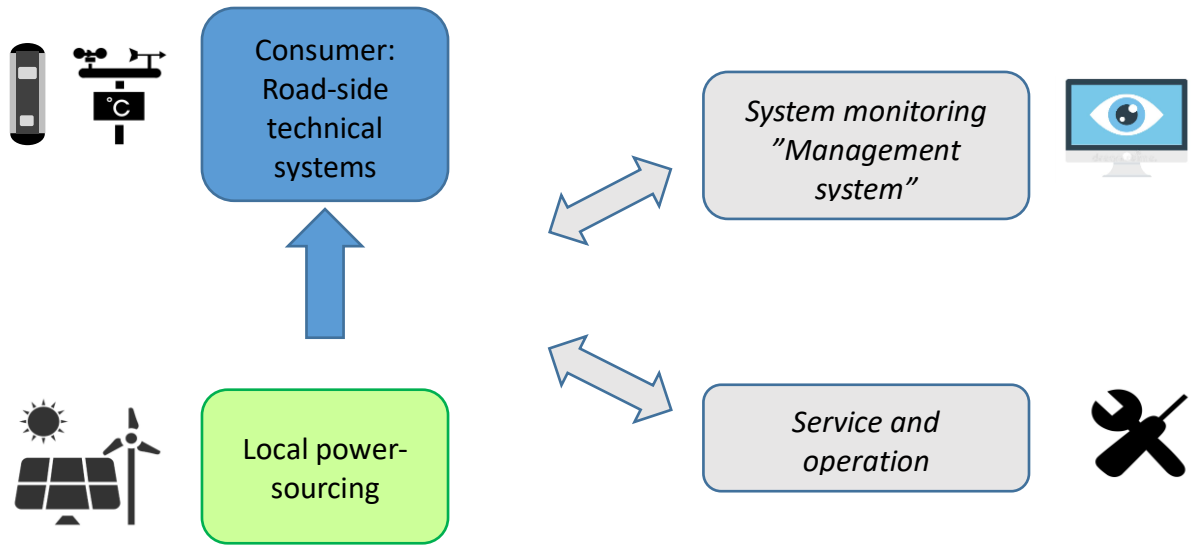
In addition to renewable sources of electricity from solar or wind, the Swedish Transport Administration is also interested in more efficient battery-based solutions (i.e. efficient ways of charging devices centrally and replacing them in the field).

The number of installations is estimated to range between 40 and 50 sites.

The roadside installations should feature enclosures and other exposed components designed for outdoor use (including all weather extremes in Sweden) and continuous (24/7/365) operation.

The energy consumption of the systems can be 200-500 watts in continuous operation. It depends on the configuration, e.g. if heated sensors are used in RWiS, or camera and camera lighting.

If there are any related limitations, it is important to indicate that clearly in the response to this RFI. Below is a simple overview of how we think the local supply of electricity relates to other essential parts of the system. As mentioned, the “consumers” in this case are the roadside systems.



The systems also need monitoring. For example, the operator should be able to see electricity generation and power left, as well as any service needs, and diagnostics of any potential failures. The respondent should give suggestions on how to provide possible solutions to these concerns.

The system also needs a long-term solution for service and operation. Trafikverket will use a solution for a long time to come, and understanding the system's entire lifecycle is important. That also means the needs of field service and maintenance personnel must be addressed, including provision of functioning workshops, spare parts, manuals, etc. Please describe how all of this would be envisioned in your solution. Today, an action time if an error occur, is for RWiS 2 business days and for ATK 20 days.

Additional considerations that the respondents should keep in mind, include that the Swedish Transport Administration strives for standardised solutions that are flexible and expandable. Trafikverket wants to avoid purpose-built solutions that are difficult to adapt or improve in the future.

Finally, the Swedish Transport Administration is a government agency with strategically important infrastructure. This entails security requirements, including how equipment is protected both physically and through cybersecurity.

2.4 Purpose of this Request

This document aims to prepare the way for a future procurement by identifying market offerings and innovation that will help Trafikverket to better understand the market's interest to supply these solutions for Sweden, along with their cost structure and drivers for deliveries.

This RFI is a first step to find out more about the market's ability to meet the needs of Trafikverket. One possible follow up activity is for Trafikverket to buy and test some conventional and renewable energy-powered same equipment to see how they would operate in practice.

Above, a traffic counter in joint installation with a road weather station

This document is not part of a contract, and does not represent a commitment from Trafikverket to undertake a procurement after the RFI is conducted.

Trafikverket has no obligation to compensate participants for any costs associated with responding to this request or for related work.

2.5 Preliminary Time Plan

The following schedule is tentative and subject to change.

Activity	Date
RFI public release	June 2020
Submissions accepted	Aug 31 2020
Analysis of RFI and RFQ complete	Autumn 2020
Possible practical tests	2021
Possible Procurement	2022

If necessary, Trafikverket will contact any providers responding to this RFI for additional questions.

3 Provider Responses

System and equipment providers are invited to respond to the questions below and refer to other material where specific items might be described in more detail.

3.1 Administrative Instructions

- Trafikverket will accept responses to this RFI no later than close of business on **31 August** 2020.
- Submissions must be made electronically via email to: lars-erik.steinland@trafikverket.se
- Questions can be submitted via email from the release date until *18 June*, to the address above.
- All questions must include: full name of person sending the email, title, legal business name, address, phone number with country code
- The respondent must provide one or more custom response documents referenced in the sections below.
- Responses can be delivered in Swedish or English.
- Respondents are requested to enter full contact details (see above), in case Trafikverket needs to contact them for any follow-up or clarification questions.
- Trafikverket may also to communicate with respondents with specific additional questions or clarifications after the RFI-period is closed.

3.2 Provider Information

Trafikverket requires a short description of the provider's history, estimated market share, size and geographic presence. If possible, write your answer directly in the table.

Respondent information	Reference the annex and/or section where the provider's responses are found (if applicable)
a) Briefly describe the provider's organization and history	
b) Describe the organization's size and annual revenue (number of employees, turnover and currency used)	
c) Describe the overall total service offerings	
d) Please describe geographical presence and delivery capabilities	

3.3 Provider Offers

Trafikverket would like to understand the provider's record of delivery and performance for systems or equipment relevant to what is described in the preceding sections.

The questions below are, in part, standard questions that Trafikverket uses in other contexts. If any of the questions do not apply to the offer presented, there is no requirement to respond to that question.

The right to compete in future procurements issued by Trafikverket is not affected in the event that a potential provider chooses not to submit a response to this RFI. However, Trafikverket would be interested in learning the reasons for not submitting a response.

Overall Information	Enter text or refer to annex and/or section where the provider's responses are found (if applicable)
a) Describe the overall supplier's possible solutions, preferably related to the current situation and needs described.	
b) Describe basic functions, solution principles for generating electricity.	
c) Describe generating capacity, with examples of power calculations depending on where in Sweden the solution is located. Examples of desired placements include Kiruna, Ange and Gothenburg.	
d) Describe principles for electricity accumulation, handling and local storage of energy.	
e) Describe the dimensions and weight of your solutions.	
f) Describe any specific conditions that Trafikverket needs to consider with your solutions. E.g. ground works, building permits, etc.	
g) Describe other general conditions that the Trafikverket needs to consider with your solutions.	
h) Describe the target prices for your solutions. Note that prices are not binding.	

i) Describe the pricing model and the cost drivers you identify.
j) Give a basic description of how you are able to handle flexibility and security.
k) Give a basic description of how you can handle service and spare parts in the long term.
l) Please describe in general whether you have solutions to remotely monitor your facilities, whether they are standardized and what interfaces they have. If it is possible to retrieve data from the local solution via a standardized protocol (e.g. a web input and if there is an API connecting to the central solution).
m) Please describe whether there are costs such as annual licenses or other recurring costs for your solution, and what is included or not.
n) Describe other ideas, information, innovation or possible solutions that you deem relevant to this area.
o) Describe whether and how your solutions relate to established standardization in the field. Also specify which one (IEC, ISO, NEMA).
p) Describe how you in principle your conditions to participate if Trafikverket wants to arrange a practical test of your system solutions.
q) Do you have any other recommendations or comments to Trafikverket in this area?

4 Publicity and Privacy Statement

The responses provided to this RFI will be treated as public domain documents by Trafikverket.

Public documents are made public and can, upon request, be disclosed to third parties, unless there are legal grounds to classify the requested information. Information received by Trafikverket under this RFI may be covered by professional confidentiality if it can be shown that Trafikverket, in the future commission of any contract, may suffer damage if the information is disclosed.

If the provider is of the opinion that certain information should be kept confidential with respect to the respondent's business or operational conditions, as well as to the special reason to assume that the respondent may suffer damage if the information is divulged, the respondent should submit a written request for privacy. The request should include a description of the specific data to be protected and the assessment of damage that the respondent would suffer if the data is divulged.

Please note that Trafikverket cannot guarantee that the received data will be covered by any obligation of professional secrecy. Therefore, rrespondents are advised not to include any confidential or proprietary information in responses to this RFI as it may be disclosed.

Trafikverket is obligated to make a particular examination, in each case, when someone requests access to a public document. Respondents to this RFI should be aware that Trafikverket may need to disclose information to potential persons requesting this information.