

# Procurement of E-Buses and Charging Systems

## City of Tampere

### About this Best Practice Case

Main learnings of this case are how long term sustainable business models can be achieved or tested. Tampere purchased e-busses and charging systems due to no investment activities from the private side in this field. The aim was to achieve a system for one e-bus line that also provides a platform for future sustainable mobility. The case shows how to achieve feasible sustainable business models and how the private sector may be pushed into future investments.

**Title:** Procurement of E-Buses, charging station and 4 depot charges.  
**Cluster Topic:** Alternative Fuelled Vehicles  
**Procedure:** Open procedure, marked dialogue and consultation in advance  
**Directive:** 2004/18/EC  
**Country:** Finland  
**Procuring Authority:** City of Tampere, department of traffic planning  
**TED:** 2015/S 106-192311 and 2015/S 127-232079

## **City of Tampere: Procurement of E-Buses, Charging Station and 4 Depot Chargers**

### **Key Points**

- Innovative procurement of e-buses, charging station and 4 depot charges in Tampere (Finland)
- The goal of the innovative e-bus procurement was to enable a platform for smart traffic solutions. City of Tampere aims to become a national forerunner in the field of electric mobility by 2025. This means Tampere is looking at innovative solutions to develop its public transport and advance electric mobility. The background for this procurement action was also ambitious environmental goals.
- Basing the participation of the supplier in the pre-tender dialogue on required test data provided by each supplier proved to be efficient.

### **The Procurement Objectives**

#### **Brief description**

The City strategies in Finland are targeting cleaner, smoother and safer traffic as well as more enjoyable city centre areas for their citizens.

One key enabler for procuring an innovative solution like this e-bus is that in Tampere, innovative procurement is deeply embedded in several strategic documents and objectives like the strategic procurement function, Tampere's strategy and development plan, action plans, budgetary objectives and toolbox-material for procurers.

To describe one example in more detail the procurement principles of the city of Tampere include innovative procurement in following way:

The city of Tampere is seeing its public procurement as a tool to foster the birth of innovation and new businesses.

Opening up city's procurement process and plans are seen as key features in building Smart Tampere, which is currently forwarded by Smart Tampere-development program.

#### **Reasons for this procurement**

In 2016 City of Tampere has done a roadmap for future's possible innovative procurements. The roadmap includes the framework and process for identifying the potential innovative procurements in advance. The roadmap also answers to the national aim of raising the

innovative procurement's share to 5% of all public procurements. City of Tampere aims at cutting CO2 emissions 40% from the level of 1990 by 2025. The overall aim of the City of Tampere is to become a national forerunner in the field of electric mobility by 2025. This means Tampere is looking at innovative solutions to develop its public transport and advance electric mobility. On the background are also the ambitious environmental goals.

The City planners recognised the high potential of Electronic-Vehicles to achieve these goals. Tampere decided to do the next step forward, as the private sector, including the existing local energy provider, had not invested much in the charging network in the City. Thus, the City concluded that the city itself had to play an active role in building this network.

As a consequence hereof the City of Tampere decided to carry out a tender procedure to find a new external energy operator who could also build a sustainable business model around this system.

The goal of the innovative e-bus procurement was to enable a platform for smart traffic solutions. They did not just procure an e-bus line. The line and these buses are also serving as testbeds. While procurement was required (procured the buses and charging system), the data from buses and the charging are provided as *open data*. This gives the opportunity to do additional studies. Installations to the buses can be done for testing and making development projects.

## Innovative Aspects

### **The solution procured is innovative**

Tampere converted one diesel bus line to being solely operating by full-electric buses. This required procurement of 4 e-buses and a charging station. The innovative aspects of electronic vehicles are the potential to reduce costs of daily use (power and maintenance is cheaper), thus being efficient in terms of live cycle costs.

### **The procurement procedure is innovative**

Due to an intense market consultation prior to the actual tender procedure the City of Tampere gained a good knowledge on the potential suppliers available on the market and a good insight in its own needs. Thus, the City of Tampere was able to specify its needs and requirements and to assess the potential number of bids. As a consequence hereof, the City of Tampere chose the open procedure instead of a more complex procedure, e.g. the competitive dialogue.

The market consultation phase demonstrated that a well carried out market consultation in some cases can reduce the needs for dialogue under the actual procurement phase and thus lead to the fact that a less complex procurement procedure is sufficient.

## The Procurement Process

The planning of the procurement began with intense market dialogues. First dialogues were held bilaterally with the economic operators and the City. These dialogues aimed at investigating the situation on the market and to find out what solutions exist and how those solutions corresponded to the City's needs.

## Key reasons for using an open procedure

Following the prior market consultation phase, and based on knowledge of only a small number of potential suppliers and the fact, that the city was actually able to specify the requirements for the procurement, a decision on proceeding with an open procedure was made. The choice of open procedure was also made due to the fact that no modifications to existing solutions were foreseen and thus all requirements and terms could be specified and completed in a first edition of the tender documentation.

Following the completion of the first draft edition of the tender documentation, the documentation was send out to a number of potential e-bus and charging system operators for comments, together with a list of questions to be answered, and a subsequent dialogue meeting was held centred on this documentation. Multiple comments were received that helped to formulate the final edition of the tender documentation.

## Procurement Procedure

### The open procedure in short

This procedure is a single-stage process inviting any suppliers that fulfil the selection criteria (economic criteria and/or technical capacity etc.) to submit a tender. Every tenderer meeting the selection criteria will have their bids evaluated. The open procedure does not include or allow any dialogue or negotiation with the tenderers.<sup>6</sup>

### Pro and Cons of the market dialogue and the open procedure

#### *The market dialogue*

The market dialogue that was performed before the tender did lead to numerous improvements and helped formulating the specifications.

1) At the first stage of planning the procurement it was not clear, whether the charging system and the buses could be procured at the same time and in one contract. During the market dialogue, this was clarified and it was decided to do so. The main reasons for this decision was that a procurement in one contract containing both elements was deemed much clearer for both the procuring authority and the market and most importantly, a coherent contract was deemed to minimise the risk that the two systems were not technically compatible.

2) Talking with the market made it clear that the planned evaluation sub-criterion “energy consumption” had to be omitted, as no technology on the market existed to measure such criterion, and thus making incoming tenders incomparable.

3) Defining possible number of bus seats.

4) Setting delivery time for bussed and service goals for allowing busses to be out of order without sanctions.

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<sup>6</sup> Under the old procurement directives, the open procedure was also characterised by a requirement of making the full tender documentation public and available for anyone interested and in connection with publishing the contract notice in the TED. Today, under the new procurement directives, including the 2014/24/EU directive, this requirement applies to all procedures.

### **The open procedure**

One positive aspect of the open procedure is clearly, that it provides a maximum room for competition and is deemed the less resource demanding procedure of any procedures available for both procuring authority and tenderers.

As said, because other options were excluded (not many bidders available) Tampere went for the open procedure, which worked, because the dialogue already took place prior to the tender procedure via the market dialogue. However, the open dialogue also entailed negative aspects. The City of Tampere only had a limited knowledge on electric bus solutions, from the market dialogue and during the open procedure still multiple questions were raised. It was not possible to re-frame and negotiate with economic operators within the open procedure, so only minor details could be change during the open procedure, which is not very innovation friendly. In addition, “economic operators may be less keen to participate in an open procedure if the contract is more complex, and as a result the tender documents are not routinely prepared and require high levels of input. The cost of preparing a full tender can be a disincentive to participation where the likelihood of success is lower due to the high level of competition”<sup>7</sup>.

### **Award Criteria of the Procurement**

The contract award criterion of the final tender was “best price-quality ratio (BPQR)” based on the following sub-criteria:

<b>Sub-criterion</b>	<b>Weighting</b>
Price	85 pnts
Hour-price on repair services	1 pnt
Type of heating system	2,5 pnts
Side-slide doors	1 pnt
Size of wheels	2 pnts
Seating space	1,5 pnts
Amount of seats	Seats 32< (max 1pnt)
Plan on innovation	2pnts
Warranty of batteries	5pnts

### **Difficulties when choosing the criteria**

1. It was difficult to decide on charging method and infrastructure, because the procurers had limited knowledge about the technology.

<sup>7</sup> SIGMA, 2011 Public Procurement Brief 10, What are the Public Procurement Procedures and When Can They Be Used? , p 2-3. URL: [http://www.sigmaweb.org/publications/Public\\_Procurement\\_Procedures\\_2011.pdf](http://www.sigmaweb.org/publications/Public_Procurement_Procedures_2011.pdf)

2. The next difficult question was which bus line would be the best to choose. Charging time and the average distance the bus can make with a full battery before new charging had to be considered.
3. How to use energy consumption as evaluation criteria was not clear. At the end the market dialogue showed that it would be the best to delete these criteria as it was not measurable.
4. Deciding whether to lease or purchase & if possible sanctions are needed if the solution is not meeting the specifications in the tender. For example often the average distance can vary a lot depending on weather situations (more energy in the winter leads to a much shorter distance the vehicle can make. Also often the duration of km does prove to be 30-50% lower than stated by the marked in the field of electric vehicles. This makes it difficult for public procurers to plan and calculate.
5. Innovativeness: How to include the objective of the electric bus line serving as an innovation platform in the call for tender? Candidates were required to attach a plan on innovation in their tender (how they are going to advance the innovation-bus line activity) which were evaluated (max 2 points). Also data collection (e.g. openness of the access to this data) was determined in the call for tender, since it has a central role in enabling innovation-platform activity.

## Key Results

Tampere received only three tenders, because two tenders did not meet the requirements set in the call for tenders, Solaris Bus & Coach was selected as provider. As a result of a lack of potential suppliers (stated already during the market consultation phase prior to the tender procedure), Tampere became the first City in Finland that has procured e-bus system via open procedure.

## Contract tendered

Solaris Bus & Coach, a Polish company won the tender for the electric bus system for the city of Tampere. The delivery consists of four buses, a quick charging station and four depot charging stations. The buses will be purchased with five-year leasing contract, and they started operation at the end of 2016.

The buses are currently driving on the line 2 in Tampere. All of them are charged at the depot and state of charge is maintained with end stop charging. The line will operate simultaneously as an innovation platform for smart transportation<sup>8</sup>.

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<sup>8</sup> TEKES 2016, EVE – Electric Vehicle Systems 2011-2015, URL: [https://www.tekes.fi/globalassets/julkaisut/eve\\_final\\_report.pdf](https://www.tekes.fi/globalassets/julkaisut/eve_final_report.pdf)

## Key Lessons Learnt

1. **Public procurement of charging infrastructure takes time** – private investments would certainly be faster to implement. A key would be to find a way to support the framework needed for private investments and find out what is needed for private operators to make such E-Mobility Systems to sustainable business models for them.

2. The buyers are unaware of the possibilities of procurement of innovation – **if you ask for innovation you get innovation!** That means there are different ways and possibilities to accelerate development with innovative procurement. The procurer has to give possibilities to companies to be innovative, by using all kinds of options that are provided by different innovative procurement procedures and approaches. When you just provide exactly defined invitations for tenders with no negotiation and no options for different ideas, there will not be innovation. Use different kinds of comparison, criteria, pricing, give extra point of innovations etc. and consider cooperation models.

3. **Markets are not changed by one single project**, the market needs a signal of continuity in order to keep developing.

4. The **Market dialogue helped** to define the number of potential suppliers which eventually led to the choice of the open procedure.

5. The **Market dialogue also supported** some of the decisions on how the final tender should look like:

- The deliverable time of buses and charging station was lengthened to a realistic time.
- The number of seats possible considering the energy consumption and existing battery technology

To sum up the market dialogue helped to make clear what is possible technology wise!

6. During the open procedure multiple questions on the technical and legal specifications came up. It was **not possible to re-frame and negotiate within the open procedure**, which was not deemed to be very innovation friendly.

## References and Further Information:

1. The main reference for this best practice case is the interview done by Anni Kurvinen from the City of Tampere with Elli Kotakorpi.

2. TEKES 2015, Public procurement of innovations – Finnish perspectives,

[https://www.unece.org/fileadmin/DAM/ceci/documents/2015/ICP/TOS-ICP/UNECE\\_Geneva\\_16.-17.12\\_Heimbürger.pdf](https://www.unece.org/fileadmin/DAM/ceci/documents/2015/ICP/TOS-ICP/UNECE_Geneva_16.-17.12_Heimbürger.pdf)