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Executive summary

Within the BuyZET project each city partner has carried out a mapping exercise to identify a shortlist of procurement areas which have the biggest impact on transport emissions within the city. Mapping reports can be accessed through this link: BuyZET publications

This Initial Analysis Report explores potential pathways to zero emission delivery for these shortlisted areas, through discussion with internal stakeholders, and dialogue with other European cities and projects.

The report is intended to act as the basis for in-depth market engagement activities to identify innovative solutions.

The process of narrowing the shortlist down to two categories to focus on further in the project includes applying both quantitative and qualitative criteria. Emission figures found in the mapping report form the basis for the quantitative criteria. A different approach is used for the qualitative criteria. These are developed in cooperation with experts in own organisation and with inputs from other departments. The conclusion from the prioritisation process is to continue with the service categories:

*Building and facility maintenance and repair services*

and

*Industrial waste collection.*

The report further elaborates on how these procurement areas are characterised and how contracts and framework agreements are organised in the municipality of Oslo today. Pathways on how zero emission can be achieved and potential for buyer’s group is also featured.

The next steps in the project are to prepare for procurement prospectuses for each contract associated with the two categories, as well as planning for market engagement activities.

BuyZET project

BuyZET is a Horizon 2020 project that looks into the procurement of innovative solutions for zero emission urban delivery of goods and services.

The main goals of BuyZET project are:

- To boost demand for zero emission vehicles (ZEVs) and other zero emission urban delivery solutions on the European market;
- To develop procurement plans to achieve zero emission urban delivery of goods and services to the public sector, and thereby improve quality of life in European cities.
1. Prioritisation process

The BuyZET project is conducted by The Central Procurement Unit (KOI), which operates within the Agency for Improvement and Development (UKE). KOI manages the citywide framework agreements and offers advice and support to the city’s departments and agencies. The motivation to engage in the BuyZET project is rooted in the City of Oslo’s ambitious goals to reduce greenhouse gas (GHG) emissions by 50% in 2020 and 95% in 2030 (compared to the 1990-level). Green public procurement (GPP) is regarded as a strategic and effective tool in achieving these targets. This analysis report relies on the results of emission figures from the Procurement transportation and emission footprint report, for the City of Oslo. A summary of the main results from this report are presented in table 1.

Table 1 Emission figures from procurements from Oslo municipality, year 2016.

<table>
<thead>
<tr>
<th>City of Oslo</th>
<th>Tonnes CO₂</th>
<th>Kilograms CO</th>
<th>Kilograms NOx</th>
<th>Kilograms PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport service Category 1</td>
<td>2,377</td>
<td>3,249</td>
<td>10,434</td>
<td>380</td>
</tr>
<tr>
<td>Transport service Category 2</td>
<td>2,159</td>
<td>2,635</td>
<td>6,177</td>
<td>89</td>
</tr>
<tr>
<td>Transport service Category 3</td>
<td>1,302</td>
<td>1,716</td>
<td>4,299</td>
<td>83</td>
</tr>
<tr>
<td><strong>Total for transport service Categories</strong></td>
<td><strong>5,838</strong></td>
<td><strong>7,600</strong></td>
<td><strong>20,910</strong></td>
<td><strong>552</strong></td>
</tr>
<tr>
<td>Public transportation</td>
<td>16,934</td>
<td>N/A</td>
<td>64,960</td>
<td>6,093</td>
</tr>
<tr>
<td><strong>Total for the City of Oslo</strong></td>
<td><strong>22,772</strong></td>
<td><strong>7,600</strong></td>
<td><strong>27,406</strong></td>
<td><strong>6,645</strong></td>
</tr>
</tbody>
</table>

* Emission figure is unknown.

A new Procurement Strategy for the City Oslo was recently adopted by the City Government. The new strategy clearly emphasises GPP as one of the four sub-targets and lays a number of strategic guidelines for this area. For KOI this gives important directions on how we prepare and conduct our tenders. The first strategic guideline concerns climate related and environmental concerns in procurements. It states that zero emission alternatives shall be taken into account in all procurement processes. Another important strategic guideline which regards mobility specifically is that biofuels, preferably biogas, should be required when zero emission vehicle (ZEV) technology is not available. Biogas has been selected as best alternative fuel to zero emission because of its low emissions in a life-cycle perspective. Moreover, Oslo municipality is a large producer of biogas fuels, which in turn boosts the work on circular economy.

We believe that the goals for the BuyZET project are perfectly aligned with the directions in the new Procurement Strategy and we regard this steering document as a source of motivation to continue our work towards zero emissions.

Members of the Sustainability Team within KOI have participated in development and applying the prioritisation criteria as well as giving input to this report. Members of the Mobility Team at the Climate Agency (KLI) have also contributed with valuable input to this report.
This chapter elaborates on the process of choosing the two categories which are to be focused on further in the BuyZET project. This includes different considerations; narrowing down the number of categories, the process of developing both qualitative and quantitative criteria and finally how these were applied.

It is important to clarify that the term “zero emission” only relates to vehicles with no exhaust emissions. The production and distribution of fuels, batteries or vehicle are not included. Neither are disposal of batteries or vehicles. The system boundary is set as the City of Oslo. This is contradictory since GHG is a global problem and also when introducing biogas as a preferable fuel. The reason for doing so is to reduce the complexity in the future work and because the main goal for both the Oslo municipality and the BuyZET project is to reduce transportation and achieve zero emissions from procurements within the city.

1.1. Initial shortlisting of categories

The first step in choosing two priority areas was to sort goods and service categories in descending order based on emission figures. Both CO₂ emissions and harmful pollutants (CO, NOx and PM) were considered in this process.

A choice was made to only include categories that had CO₂ emissions contributing to more than 0.5% of the total emissions. CO₂ was used because the other emission figures more or less follow the same trend for all categories, and because CO₂ reduction also has top priority.

This process of narrowing down on most significant categories resulted in the 13 categories presented in Table 2.

Table 2 Categories considered for prioritisation

<table>
<thead>
<tr>
<th>Transport service category</th>
<th>Type</th>
<th>Category</th>
<th>Tonnes CO₂ emitted Year 2016</th>
<th>% of total emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 2 Services</td>
<td></td>
<td>Public waste collection (households)</td>
<td>762</td>
<td>13%</td>
</tr>
<tr>
<td>Category 2 Services</td>
<td></td>
<td>Industrial waste collection (from agencies)</td>
<td>724</td>
<td>12%</td>
</tr>
<tr>
<td>Category 2 Services</td>
<td></td>
<td>Transport services for persons with disabilities</td>
<td>506</td>
<td>9%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Building and facility maintenance and repair services</td>
<td>440</td>
<td>8%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Sewage treatment services</td>
<td>151</td>
<td>3%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Freight and courier</td>
<td>111</td>
<td>2%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Community day care transport</td>
<td>65</td>
<td>1%</td>
</tr>
<tr>
<td>Category 3 Goods</td>
<td></td>
<td>Food and beverage</td>
<td>65</td>
<td>1%</td>
</tr>
<tr>
<td>Category 2 Services</td>
<td></td>
<td>School transport</td>
<td>55</td>
<td>0.9%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Relocation and transport arranging services</td>
<td>49</td>
<td>0.8%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Road maintenance</td>
<td>43</td>
<td>0.7%</td>
</tr>
<tr>
<td>Category 3 Services</td>
<td></td>
<td>Alarm and security services</td>
<td>38</td>
<td>0.7%</td>
</tr>
<tr>
<td>Category 3 Goods</td>
<td></td>
<td>Office equipment, accessories and supplies</td>
<td>33</td>
<td>0.6%</td>
</tr>
</tbody>
</table>
Three categories were later omitted from the list in Table 2. The reasons are elaborated on below.

Omitted categories:

- Public waste collection (households)
- Transport services for persons with disabilities
- School transport

Public waste collection (households)

The Agency for Waste Management (REN) is responsible for contracts with providers of waste collection services. Normally household waste collection services are covered through procurement. In 2016 - 2017 Veireno AS, which was the supplier at that time, failed to comply with the contract terms and declared bankruptcy. In spring 2017, REN purchased the entire vehicle fleet from Veireno AS, and has since then been responsible for household waste collection. According to the methodology used in the BuyZET project, this means that these waste collection trucks now sort under transport service category 1.

Currently, the future organisation of the household waste collection services is not yet decided upon. It is not clear if and when a new procurement process in this category will be announced. In our opinion the uncertainty for this category is too high. Therefore we have decided to omit this category from the list.

Transport services for persons with disabilities and School transport

The service categories “Transport services for persons with disabilities” and “School transport” have some similarities. They are therefore discussed together here. The Welfare Agency (VEL) and the Education Agency (UDE) are responsible for these two procurement categories respectively. The suppliers are mainly Taxi companies. Some suppliers have contracts in both categories.

The main reason not to proceed with these categories within the BuyZET project is the current limitations with regard to the legislation on taxi permits. There is an ongoing work on improving the environmental footprint of the taxi industry by restricting permits only to owners of ZEVs. The regulations are of great importance in achieving the City of Oslo’s climate goals. The amendment is expected to enter into force in year 2022, and consequently this goes beyond the time allocated to the BuyZET project. Also, the Procurement Unit at the Agency for Improvement and Development (UKE) are not in a position to influence this process directly.

For the time being KOI is already in a constructive dialogue with both VEL and UDE in designing and developing environmental criteria for the new contracts. In our opinion the cooperation with the agencies is functioning well and we do not see any further benefits of prioritising these categories through the BuyZET project.
1.2. Applied criteria for prioritisation

For the final prioritisation the Sustainability Team within KOI developed a series of criteria to apply, outlined in more detail below:

- CO₂ emissions
- Other harmful emissions (CO, NOx, PM)
- Practicability
- Possible emission reductions
- Transferability (“snowball effect”)
- Positive PR and media coverage

It was a great challenge to find a good balance between emission figures and success factors for each category. These considerations were divided into two different groups: quantitative and qualitative criteria. It was agreed upon that both groups were important and should be weighted equally.

**Considerations for the quantitative criteria**

Emission figures for CO₂, CO, NOx and PM from the mapping report were used as input for the quantitative criteria. Ranking the different emission types against each other was however a challenging task.

CO₂ emissions were ranked highest because of the political attention they are given through the City of Oslo’s climate goals and ambitions. NOx emissions were ranked second due to increasing local air pollution caused by traffic. PM and CO have in general less focus than CO₂ and NOx. They were thus given the lowest weighting.

**Considerations for the qualitative criteria**

Different alternatives were considered in developing of the qualitative criteria. In the end four criteria were selected. In our opinion, the most important areas are covered by these criteria:

- Practicability
- Possible emission reductions
- Transferability (“snowball effect”)
- Positive PR and media coverage

A scale from 0 – 100% were used to measure the extent of possible achievements for each criterion.

Practicability is ranked as the most important criterion. In order to succeed with a category it is essential that implementation of new environmental criteria is possible. The first part of this criterion is whether the industry is ready for zero emission solutions or already has this implemented.
to some degree. The second part is how much we are able to influence decision makers and public buyers on relevant upcoming tenders.

Possible emission reduction in this context is the assumed percentage decrease in emissions which is possible to achieve within a category, given available zero emission technology and biofuels. The actual emission figures related to the categories are not accounted for here. Because emission reduction is the main goal of the BuyZET project this criterion is given a high weight.

Transferability or the “snowball effect” criterion contains two different aspects. The first is how much our initiatives will affect the supplier’s deliveries to other customers. The second aspect is how this will affect other public buyers, i.e. how low emission transportation will be considered in new tenders. As the next criterion, Positive PR and media coverage, we believe transferability is an important objective. However, it depends on the first criterion, practicability, to be successful. Transferability is therefore given a low weighting.

Positive PR and media coverage is included as a criterion, because showcasing methods and results are important to inspire agencies in Oslo as well as other municipalities and stakeholders. We believe this is an important objective for the project, but it is not the most important one. The criterion is therefore given a low weighting.

Table 3 contains a complete list of criteria used and their associated weighting.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum score</th>
<th>% weight of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUANTITATIVE CRITERIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of CO₂ emissions</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Amount of NOx emissions</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Amount of PM emissions</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Amount of CO emissions</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total for quantitative criteria</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>QUALITATIVE CRITERIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practicability</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Possible emission reductions</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Transferability (“snowball effect”)</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Positive PR and media coverage</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total for qualitative criteria</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows the results from the process of applying the criteria and assigning a score to each category. “Building and facility maintenance and repair services” and “Industrial waste collection (from agencies)” stand out as the most promising categories to proceed with, because of their high total score. Consequently, these categories are chosen as the priority areas.
See Appendix A for a complete overview over associated scores for all the categories which were considered in this process.

**Table 4 Results from applied criteria**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantitative score</th>
<th>Qualitative score</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building and facility maintenance and repair services</td>
<td>8.4</td>
<td>7.4</td>
<td><strong>15.8</strong></td>
</tr>
<tr>
<td>Industrial waste collection (from agencies)</td>
<td>8.7</td>
<td>4.5</td>
<td><strong>13.1</strong></td>
</tr>
<tr>
<td>Community day care transport</td>
<td>1.2</td>
<td>7.8</td>
<td><strong>9.0</strong></td>
</tr>
<tr>
<td>Freight and courier</td>
<td>2.3</td>
<td>5.3</td>
<td><strong>7.6</strong></td>
</tr>
<tr>
<td>Alarm and security services</td>
<td>0.7</td>
<td>7.4</td>
<td><strong>8.1</strong></td>
</tr>
<tr>
<td>Office equipment, accessories and supplies</td>
<td>0.9</td>
<td>6.5</td>
<td><strong>7.4</strong></td>
</tr>
<tr>
<td>Relocation and transport arranging services</td>
<td>1.0</td>
<td>5.9</td>
<td><strong>6.9</strong></td>
</tr>
<tr>
<td>Food and beverage</td>
<td>1.3</td>
<td>5.4</td>
<td><strong>6.7</strong></td>
</tr>
<tr>
<td>Sewage treatment services</td>
<td>3.1</td>
<td>3.2</td>
<td><strong>6.3</strong></td>
</tr>
<tr>
<td>Road maintenance</td>
<td>2.2</td>
<td>2.9</td>
<td><strong>5.1</strong></td>
</tr>
</tbody>
</table>

The next steps in the BuyZET project are exploring innovative solutions within the prioritised procurement areas. Although the project now is narrowed down to two categories, there is a great potential for reduction in CO₂ and harmful pollutants within the remaining categories in Table 3. These categories will be addressed through other activities and projects in KOI.
2. Building and facility maintenance and repair services

2.1. Current procurement approach

The category consists of a vast number of craftsmen suppliers, who perform many different tasks essential for buildings and facilities in the City of Oslo. KOI is responsible for citywide framework agreements for electrician, plumber, painter, carpenter, locksmith and glass repair services. Most of the agencies in the municipality are obliged to use the framework agreements when services in these fields are required. Some of the municipal undertakings and agencies have their own contracts in areas which are not covered by the citywide framework agreements. We believe that these contracts are also possible to include in the BuyZET project.

Table 5 shows the emission figures found in the mapping report: *Procurement transportation and emission footprint report, City of Oslo*.

<table>
<thead>
<tr>
<th>Building and facility maintenance and repair services</th>
<th>tCO₂</th>
<th>kgCO</th>
<th>kgNOₓ</th>
<th>kgPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>440</td>
<td>508</td>
<td>1,266</td>
<td>35</td>
</tr>
<tr>
<td>Percentage of total (cat.1+2+3)</td>
<td>8%</td>
<td>7%</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

The BuyZET project could contribute to developing of the next framework agreement in this area, within the timeframe of the project. In dialogue with potential suppliers and internal stakeholders, we believe that we can come up with green, smart and efficient solutions which can also be applied to other procurement areas.

Table 6 shows the current citywide framework agreements administered by KOI. Most of the contracts expire in 2018 and 2019, but since they could be extended for another two years, there is some uncertainty with regard to which contract area will be the first one renewed. Whether a contract is renewed or extended depend on different factors, such as compliance to contract terms and degree of satisfaction with the suppliers/deliveries on the part of the users in the municipality.

If we discover a contract area during the market dialogue phase, which is ready for a transition to zero or lower emission vehicles, we will try to influence the decision makers in our agency to renew the contract instead of extending it.
As mentioned previously, there are some agencies in the municipality which have their own framework agreements on craftsmen services. Dialogue with key personnel in the agencies and queries in Doffin, the national tender announcement database; have revealed important information on this subject. A common characteristic for these agreements is that the requested expertise is not covered by the centralised framework agreements. This applies both to technical issues and need for personnel with specialised skills in a field. Most of the non-centralised framework agreements are found within services such as electrician, plumber and carpenter.

Agencies with own framework agreements on building and facility maintenance and repair services:

- Municipal Undertaking for Social Housing (BBY)
- Municipal Undertaking for Cultural and Sports Facilities (KID)
- Municipal Undertaking for Social Service Buildings (OBY)
- Oslo Port Authority (HAV)
- Municipal Undertaking for Educational Buildings and Property (UBF)
- Agency for Water and Wastewater Services (VAV)

There may be other agencies with relevant framework agreements which have yet not been identified in this research process. We plan to continue the mapping throughout the spring of 2018, and hopefully all relevant contracts will be revealed before procurement prospectuses are to be made.

2.2. Potential pathways to zero emission delivery

Although the suppliers within this category deliver different craftsmen services, they share some common characteristics. All of the suppliers have several assignments or deliveries per week. They also have a fleet mainly consisting of fossil fuelled light duty vehicles. And they all have other customers in addition to Oslo municipality.

<table>
<thead>
<tr>
<th>Type of contract</th>
<th>Contract period</th>
<th>Optional</th>
<th>No. suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical services</td>
<td>20.06.2016 – 19.06.2018</td>
<td>1+1 year</td>
<td>4</td>
</tr>
<tr>
<td>Plumbing services</td>
<td>12.08.2016 – 11.08.2018</td>
<td>1+1 year</td>
<td>7</td>
</tr>
<tr>
<td>Painting services</td>
<td>24.04.2017 – 23.04.2019</td>
<td>1+1 year</td>
<td>4</td>
</tr>
<tr>
<td>Carpenter services</td>
<td>12.09.2016 – 11.09.2018</td>
<td>1+1 year</td>
<td>6</td>
</tr>
<tr>
<td>Locksmith services</td>
<td>21.11.2014 – 20.11.2017</td>
<td>1 year</td>
<td>3</td>
</tr>
<tr>
<td>Glass repair services</td>
<td>26.11.2017 – 25.11.2019</td>
<td>1+1 year</td>
<td>1</td>
</tr>
</tbody>
</table>
A few pioneer craftsmen using ZEVs do exist in Norway. Not surprisingly most of them are electricians. A study \(^1\) conducted by the Norwegian Centre for Transport research in 2016 states that craftsman services are responsible for 10-15% of all traffic in the City of Oslo. It also states that 5% of the craftsmen in Oslo have access to a ZEV at their workplace. Another interesting result from the study is that 50% of the companies are likely to purchase ZEVs within the next five years. In our opinion this means that the industry is ready, and that measures in this area are most necessary.

We have identified different pathways to achieve the goal of zero emission deliveries within this category. The pathways consider both the reduction of CO\(_2\) emissions and harmful pollutants as well as the need to minimize the transportation needs. The pathways are not mutually exclusive, and we believe that the best solutions may rise from a combination of the different suggestions.

**Pathways to zero emissions for category: Building and facility maintenance and repair services**

1) Use of strict environmental criteria in tenders  
2) Innovation partnership  
3) Storage areas for suppliers  
4) Promoting suppliers with short travel distance  
5) Designated electric vehicle chargers in delivery locations  
6) Assistance to suppliers in applying for financial funding

**Pathway 1 – Use of strict environmental criteria in tenders**

The new public procurement act in Norway introduced in 2017 significantly strengthens the environmental focus in tenders. The act also states that environmental award criteria should be weighted at least 30 per cent when such are applied. This provision sends a signal to suppliers about the importance of environmental requirements, and encourages them to compete on good solutions to reduce adverse environmental impacts. Although this provision is undoubtedly an improvement, there are ongoing debates in procurement communities on whether use of environmental award criteria is the best way to achieve good environmental solutions. The critics believe that environmental award criteria in some cases can be an unnecessary barrier, thus preventing better environmental solutions were suppliers already have introduced ZEV or other environmentally friendly technology. When this is possible, environmental criteria should be presented as minimum criteria in the technical specifications or as a contract clause with a short deadline for implementation.

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\(^1\) [https://www.toi.no/handverkeres-transporter/category1445.html](https://www.toi.no/handverkeres-transporter/category1445.html)
It is however too early to decide in this phase how the tender documents are to be formulated. However, we believe that it is important to be aware of this issue when approaching the suppliers in the different areas within this category.

Promoting ZEV using environmental award criteria, is currently not used in many tenders in Oslo municipality. But some cases are available. KOI signed recently a new contract on delivery and cleaning of floor mats. Environmental award criteria were used in the tender, and suppliers were rewarded with the highest score if they used ZEVs when transporting mats. The suppliers responded positively, and the winner of the contract, Nor Tekstil AS, will use electric light duty vehicles (LDV) in future deliveries.

**Pathway 2 – Innovation partnership**

Innovation is not only a buzzword, but more of a direction in order to succeed with GPP. This tender procedure involves suppliers through dialogue and encourages them to come up with ideas, to meet the demands of the contracting authority.

The reason to choose this tender procedure should arise from a situation where zero emissions goal can best (or only) be achieved through close cooperation with the suppliers. Hopefully new ideas on how to reduce emissions could be found, e.g. alternative means of transport such as electrical bicycles or improvements made in the ordering procedure such as collecting orders in one area to reduce the need for transport. Another benefit associated with innovation partnership is the opportunity to mitigate the financial risk, especially for suppliers with limited funds. This is relevant if new tenders involve investments in ZEVs or charging infrastructure.

In our opinion it will become clearer whether or not innovation partnership is suitable for craftsmen services, as the BuyZET project moves forward and our knowledge about this category increases.

**Pathway 3 – Storage areas for suppliers**

A great share of the transport volume for craftsmen involves pickup and delivery of materials and tools. An idea to reduce this kind of trips could be to introduce storage areas for suppliers which are nearby or close to the locations that are often visited. These storage areas should be easy to access, and may ideally also include electric vehicle chargers. We do not know if this kind of arrangements have been done by other municipalities or contracting authorities before. A pilot could be a reasonable way to test if this concept is actually feasible.
Pathway 4 – Promoting suppliers with short travel distance

Most of the citywide framework agreements on craftsmen services use zone sharing. This means that the municipality is divided into geographical zones which the contracted suppliers are serving. It is not a requirement in the tender that the suppliers actually have to be located in the zone. As a result the suppliers in many cases have to travel a great distance before they arrive at to their zone. It is interesting to examine if this could be solved by using response time to the actual zone as a part of the award criteria in the tender documents. This should of course be dealt with such that the suppliers are equally treated.

Pathway 5 – Designated electric vehicle chargers in delivery locations

The Agency for Urban Environment (BYM) has been a partner in the EU-project “Freight Electric Vehicles in Urban Europe” (FREVUE)\(^2\), which concluded in September 2017. The objective for FREVUE was to find solutions on how to achieve emission free goods deliveries. BYM cooperated with the mail and courier supplier, BRING to test how designated electric vehicle chargers could work as an asset to enable city logistics with ZEVs in the City of Oslo. Three fast chargers have been installed, equipped with technology to reserve time slots. As BYM already is affiliated with the BuyZET project, it could be interesting to see if this is also applicable for service providers such as craftsmen. If this concept is to be scaled up, it could also be very interesting for the remaining service and goods categories presented in Table 2.

Pathway 6 – Assistance to suppliers in applying for financial funding

There are support schemes in Norway designed for companies who want to reduce their environmental and climate footprints. The most prominent is Enova, a government enterprise responsible for promoting environmentally friendly production and consumption of energy. The last few years they have introduced support schemes for companies who want to invest in ZEVs as well as hydrogen and charging infrastructure. Funding can be granted for a share of the additional costs which is associated with these investments.

An easy first step for this pathway is making all the suppliers aware of the available support schemes. This could either be done through market dialogue or in a dialog meeting with potential suppliers. A follow up on this could be to offer assistance in applying for funding. Although filling out the application form and providing an investment budget is not too difficult, this could possibly be a

\(^2\) [https://frevue.eu](https://frevue.eu)
barrier for suppliers which finds this time consuming or are not used to this kind of tasks. If this guiding ought to be done, measures must be taken in order to ensure that all suppliers are equally treated.

2.3. Potential for buyers’ group

We see a great potential in creating buyers’ group within the category building and facility maintenance and repair services. This is due to the fact that every entity which own or hire a building or facility acquires craftsmen services on a regular basis. Joining forces with other public buyers will most certainly have a great impact on the suppliers, and send a clear message that environmental concerns have a high priority.

We have done some initial research on which other public entities that could be interested in this sort of cooperation. The interest can be sorted in three groups:

- Other municipalities nearby Oslo.
- Large state-owned enterprises e.g. the Norwegian National Rail Administration, the Norwegian Public Roads Administration and Statsbygg (Norwegian government's key advisor in construction and property affairs).
- Smaller state-owned or publicly funded entities.

2.4. Conclusions and next steps

Building and facility maintenance and repair services is a complex service category. The category consists of many different types of services, provided by a vast number of suppliers. We believe that there are some low hanging fruits for this category, like replacing a share of the vehicles with ZEVs. In order to succeed we must take into account that there are many different agreements across the municipality, and that there is an absolute need to cooperate inside the municipality to reach our ambitious goal. A top priority for this category is therefore to get a complete overview over current craftsmen service contracts for all agencies in the municipality, and when the different agreements expire.

We are aware that there are reasons behind the large emission figures for craftsmen services. Some of this can be explained by the lack of ZEVs with sufficient driving range and load capacity, and an apparent low interest in environmental matters for some suppliers. We believe dialogue and an open mind is a reasonable attitude when approaching the suppliers. If we can understand their concerns, we think we can encourage them to come up with good solutions to the challenges that will occur when the different pathways will be tested. As a first step, we will use the upcoming follow up meetings we have scheduled with our suppliers on the citywide framework agreements, to introduce our pathways and make reflections on how this can be conducted in a feasible way.
3. Industrial waste collection

3.1. Current procurement approach

Collection of all types of waste produced by the agencies in the municipality is conducted by a few large suppliers. We believe that improvements can be made both on supplier side and within the agencies. Waste removal, recycling and recovery could also easily be linked to other relevant projects in KOI, e.g. introducing circular procurement and reducing material consumption. This is also highlighted in the new Procurement Strategy. Industrial waste collection stands out as the category with the largest emission figures. This encourages us to find the best solutions in order to reduce the emissions. Table 7 presents the emission figures found in the Procurement transportation and emission footprint report – City of Oslo.

Table 7 Emission figures for category Industrial waste collection (from agencies)

<table>
<thead>
<tr>
<th>Industrial waste collection (from agencies)</th>
<th>tCO₂</th>
<th>kgCO</th>
<th>kgNOx</th>
<th>kgPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>724</td>
<td>414</td>
<td>1,210</td>
<td>17</td>
</tr>
<tr>
<td>Percentage of total (cat.1+2+3)</td>
<td>12%</td>
<td>5%</td>
<td>6%</td>
<td>3%</td>
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</table>

The Agency for Waste Management (REN) is the main contract holder for waste collection from agencies as well as households in the City of Oslo. As mentioned in chapter 1.1, the contract for waste collection from households was terminated in the beginning of 2017. REN succeeded in introducing a large vehicle fleet consisting of biogas fuelled waste collector trucks. REN has the expertise in waste collection, and it is clear that collaboration is necessary. As a starting point for working with this category we are defining industrial waste as waste were agencies in the municipality have contracts for collection, thus omitting waste collection from households. The definition is not clear since many schools, kindergartens and other municipal entities are part of the household waste collection scheme. Another useful way to define industrial waste, is to turn this around, and define industrial waste as waste were contracted suppliers are responsible for waste collection. This definition will be valid as long as REN owns and operates the entire vehicle fleet used for waste collection from households.

The national threshold values are determined in the Norwegian Procurement Act. The Act states that public goods and service procurements with an estimated value over 100,000 NOK have to follow the basic provisions, such as including different suppliers in the tender process. For public procurements over 1,100,000 NOK, more stringent provisions must be followed, such as requirements to the tender procedure and documentation of the process. Overall the Norwegian Procurement Act is aligning with the EU legislation.
An in-depth analysis from KMD spend analysis reveals that 28 agencies have spent more than 100,000 NOK each on waste collection services conducted by one single supplier in the time period November 2016 till October 2017. In the same time period, five agencies spent over 1,100,000 NOK each on one single supplier. These agencies are as follows:

- The Agency for Waste Management (REN)
- Waste-to-Energy Agency (EGE)
- Nursing Home Agency (SYE)
- Agency for Urban Environment (BYM)
- Municipal Undertaking for Social Service Buildings (OBY)

The examined invoices are not solely on waste collection, but also include hiring of container and administrative costs. An interesting observation is that there are 11 suppliers which are serving at least one agency spending over 100,000 NOK, and only six suppliers which are serving at least one agency with spending over 1,100,000 NOK.

Agencies which have rental contracts for their office buildings normally follow the agreements for waste handling and collection, which the building owner already have settled up front. This means that the content in these contracts is partly unknown for the agencies which this applies to. In the data presented above this is not included, because this information is not presented on the invoices. The new Procurement Strategy introduces the term “green rental contracts”, which concerns environmental requirements to buildings rented by the agencies. For the time being it is unknown if this provision also includes waste handling and collection. If it turns out that this is ought to be included, it could be easier to also include this as a part of the BuyZET project.

ZEVs for waste collection have previously been reserved for smaller vehicles with limited load capacity and driving range. The last few years there have been a tremendous improvement in battery technology which enables EV waste collection trucks that are able to perform at the same level as traditional diesel fuelled trucks. Sarpsborg municipality was the first to introduce large EV trucks for waste collection in Norway in autumn 2017. The trucks will be used for waste collection from households. The supplier is Norsk Gjenvinning Renovasjon which also serves agencies in Oslo. Another supplier, Ragn-Sells, have also recently introduced an electric waste collector truck, which in short time will be in use in the eastern part of Norway.

As previously mentioned the Oslo municipality is a large producer of biogas from biological waste. A bi-product in this process is bio-fertilizer. Life cycle assessments show that when the substitution effect of using bio-fertilizer is accounted for, the use of biogas scores much higher than other biofuels in terms of CO₂ reductions. There are many advantages in using biogas as a fuel. The most prominent is that load capacity and driving range is of a less concern. EGE operates the production facilities in Oslo and is also in process of developing infrastructure for liquid biogas (LBG). LBG shares the same characteristics as liquid natural gas (LNG) and opens up for driving ranges up to 1,500
kilometres. We think that biogas is an excellent alternative for the municipality of Oslo in cases where use of ZEVs is not possible. We will therefore emphasize on this further for this category.

3.2. Potential pathways to zero emission delivery

We have identified four different pathways to achieve the goal of zero emission deliveries within this category. The pathways consider both the pollution aspect (CO₂) as well as reduced traffic.

As some of the pathways are equal to the pathways elaborated in chapter 2.2, we will here not go into detail on all of them.

Pathways to zero emissions for category: Industrial waste

1) Use of strict environmental criteria in tenders
2) Innovation partnership
3) Decrease waste and enable circular procurement
4) New citywide framework agreement

Pathway 1 – Use of strict environmental criteria in tenders

Environmental criteria are already used in most of the contracts for waste collection. Unfortunately the tenders have not yet resulted in any ZEVs, as this has not been mandatory or possible for the contracts. As for the craftsmen services it is too early to decide on how the tender documents should be designed. This will clearly also depend on the pick-up and delivery points which are required in the contracts, as well as type of waste.

REN has started to investigate if use of life cycle costs (LCC) analysis, with respect to climate and environmental concerns in tenders can be a feasible and effective measure. This is an interesting approach which we believe could be strong asset in tendering documents. KOI is already in dialogue with REN on this matter and will follow up on the process.

Pathway 2 – Innovation partnership

Involving the suppliers in an early stage and encouraging them to come up with solutions could be a great way of both reducing transportation as well reducing emissions. Suppliers have proven that they are ready to use ZEVs but they are depending on the request from their customers. Use of ZEVs will also require good logistic planning, and we believe that partnership could be a preferable way to achieve our goals.
**Pathway 3 – Decrease waste and enable circular procurement**

BYM is working on a new Consumption Strategy for Oslo municipality. The strategy is soon to be completed and will be published in the beginning of 2018. We have shown great interest to this because circular procurements and economy is one of the core activities for the Sustainability Team. Exploring ways of reducing the consumption in the municipality will automatically affect the need for waste collection. It is not clear at this point how this could be connected to tenders for waste collection, but we want to cooperate with BYM on this matter to see if there are any benefits of exploring this pathway.

**Pathway 4 – New citywide framework agreement**

The citywide framework agreements have a strong advantage as environmental concerns are well incorporated in the procurement process thanks to environmental expertise and strategic work in the Central Procurement Unit. Industrial waste collection has been mentioned as a possible new area that could be interesting as a central framework agreement. Since our department is responsible for the citywide framework agreements, we will explore the opportunities for this.

3.3. Potential for buyers’ group

The same entities which are listed for *Building and facility maintenance and repair services* in chapter 2.3, are also relevant to consider for a buyers’ group for industrial waste. We also believe that The Agency for Public Management and eGovernment (Difi) could be an interesting partner in finding candidates for a buyers’ group. Difi is among other things responsible for guiding the public sector on procurement related issues. Difi has already shown great interest in the BuyZET project, and they are now in an initial phase of developing environmental standard criteria for waste collection and treatment. Their activities on this field are highly relevant for our project and we hope that this could benefit all associated partners within the BuyZET project as well external partners and stakeholders.

3.4. Conclusions and next steps

Industrial waste collection is identified as an important category not solely because of the high emission figures but also since we regard this as a strategically important area to focus on. We believe that the pathways we have explored can accelerate the “green transformation” in this sector. The municipality also has a great responsibility when it comes to finding new innovative solutions for reducing waste, which in turn will reduce the need for waste collection services.
Some suppliers are already engaged in reducing their own emissions by introducing electric waste collection trucks. These suppliers will be key players. And we hope to experience constructive dialogues and knowledge sharing when the market dialogue will take place.

The next steps for this category are to get a complete overview over the different agreements across the agencies of the City of Oslo. It may be necessary to divide the agreements in sub-groups, since the type of waste and pick up deliveries most certainly will vary across the agencies. Another important step is to create a stakeholder/working group with representatives from the agencies which can contribute to the process.
4. Abbreviations

BYM  Agency for Urban Environment
CBG  Comprised biogas
EV   Electric vehicle
GHG  Greenhouse gases
GPP  Green public procurements
HDV  Heavy duty vehicle
KOI  Central Procurement Unit
KLI  Agency for Climate
LBG  Liquid biogas
LDV  Light duty vehicle
PC   Passenger car
REN  Agency for Waste Management
UKE  Agency for Improvement and Development
ZEV  Zero emission vehicle
5. About BuyZET

BuyZET stands for BuyZET ‘Procurement of innovative solutions for zero emission urban delivery of goods and services’.

The BuyZET project will develop innovative procurement plans to help the participating cities achieve their goals of zero emission urban delivery of goods and services.

Partners Logos

Contact details

Reach us:

Visit the project website: http://www.buyzet.eu

Join the discussion at the BuyZET Procurement Forum Group: https://procurement-forum.eu/

Follow BuyZET on Twitter: @BuyZETproject

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Email: glozzi@polisnetwork.eu
6. Appendix A

Criteria and weighting scores used in prioritisation in chapter 1.

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<th>2</th>
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<td><strong>NOx</strong></td>
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<td><strong>Sum Quantitative</strong></td>
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<td><strong>Positive Media coverage</strong></td>
<td><strong>Transferability</strong></td>
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<td><strong>Office equipment. accessories and supplies</strong></td>
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7. Appendix B

Organisational chart for Oslo municipality