

XPRESS CASE STUDIES ON BARRIERS TO INVESTMENTS IN RENEWABLE ENERGY SOURCES

– UK –

This case is based on an interview with a representative from a SME (UK-SME-1). UK-SME-1 is a company developing energy storage technology from second life electric vehicle batteries. The XPRESS team interviewed the CEO of the company. Key themes were the company's development and deployment of innovative energy storage technology in recent years, as well as the key role of support from Innovate UK, a UK body which provides innovation funding. On the other hand, there remain key barriers around the market environment and regulation. They also engage through local authorities as part of the company's development, including engagement with local authority procurement frameworks.

Analysis of current situation

a. Sustainability strategies, energy related strategies

The company was founded in 2010 and has been operating as UK-SME-1 since 2014. They develop energy storage technology from second life batteries, representing an innovative renewable energy technology. A key aspect of this is that they have a control architecture allowing them to use any electric vehicle battery.

They have systems installed in the UK, Europe and USA. They are now in scale-up mode, having already developed the technology and tested the business model. Developing their system has been a key focus over the past five years. As electric vehicle uptake increases and demand for storage increases due to increasing renewable generation, the market potential of their technology is expected to grow. As the systems are deployed, unique datasets around battery usage profiles and optimization of battery usage will become available.

Key barriers for the development of the company are around the market environment and regulation, including Ofgem regulations and charging strategies of electricity Distribution Network Operators, as well as rules around the recycling of batteries.

b. PP strategy or regulations & support for SMEs

They pointed to Innovate UK as a particularly beneficial source of support for the company. This was given as an example of public support for innovative renewable energy solutions being done well, whereas other financial incentives, while sometimes beneficial, can also be badly implemented and badly withdrawn. In their view there is also a gap in the UK for an organization to support startups to help them to scale up.



Public procurement is also a means by which the company could be supported, and the company is currently on a public procurement framework. They are not aware of frameworks being actively designed to support renewable energy systems; however public authority frameworks do appear to be increasingly moving towards having low carbon policies. The company also has an existing project with the local City Council, in which Connected Energy's system has been installed alongside the EV chargers and PV canopies.

Barriers & Drivers

In the interview, UK-SME-1 identified following key barriers for the company. These were not primarily around barriers to public procurement; rather they are around the market environment and regulation, including Ofgem regulations and charging strategies of electricity Distribution Network Operators, as well as rules around the recycling of batteries.

Summary & Discussions

UK-SME-1 are a clear example of an innovative SME working in the renewable energy space, and their collaboration with public authorities to date, for example their project with the City Council, illustrates the value of public procurement for supporting such innovative SMEs. However, there are also a broad range of other factors and barriers to consider, including market and regulatory barriers.

4.10.2 Case 2 in UK

This case is based on an interview with a representative from a SME in UK (UK-SME-2). This company is a UK based manufacturer SME specialized in ground source heat pump - GSHPs, with a vast experience in shared ground loops and 5th generation district heating, for social housing and private new buildings, being a manufacturing since 1999. Beyond manufacturing heat pumps, UK-SME-2 works with many installers, specifiers and housing providers across the UK. The current organizational strategies (overall goals, practices) of this firm are relevant for the XPRESS project. The strategy is based on low-carbon heating. The idea is to improve the acceptance of shared ground loop systems in social housing across the UK, e.g. energy retrofitting of tower blocks (improving energy efficiency of gas or electric heating systems).

Analysis of current situation

a. Sustainability strategies, energy related strategies

As current sustainable strategies, the firm uses a Fifth Generation District Heating and cooling network as a thermal energy supply grid, which circulates low-grade heat sourced from the ground, the air or waste heat processes, around a network of pipes to heat pumps. This strategy will allow installing 5th Fifth Generation District Heating low temperature systems for schools and social housing. This is more evident for Scotland, with a high penetration of renewables, where UK-SME-2 products offer very efficient solutions based on ambient



temperature loops, mitigating heat loss and providing a robust sustainable system long life for delivering zero-carbon heating in housing.

The current energy-related strategies and goals are based on low-carbon heating as part of a wider energy system. The firm will be involved in projects as cold energy approaches and electrification of transport using storage of renewable electricity allowing optimization and flexibility. With this strategy in mind in the municipalities, the firm will be involved in innovation local energy.

b. PP strategy or regulations & support for SMEs

Regarding strategies from municipalities on regulations and support schemes applied to SMEs, the reduction of costs seems an important variable to consider. Concerning municipalities having an established strategy for dialogue with suppliers in the pre-tender phase, the firm is aware that local authorities invite solution providers to present a product or solution for something regarding low carbon.

c. PP & supplier engagement

Normally the local authorities ask for a 20 minutes presentation, after a public announcement. During the pre-tender, the public authorities are much more engaged if they have in-house expertise. Otherwise, it is hard to engage and explain the products/solutions to public authorities. After the contract award – sometimes can also be difficult. However, in this phase, it is just contracting, negotiations around what is offered and not offered by the firm, and after some years of experience the firm improved the process making it more clearly on scope.

Barriers & Drivers

- As main constraints/barriers for the development of the firm, the Public Procurement is seen as one of the most important. Local authorities avoid having contact with private companies because of the public procurement regulations in order to not show that are favoring certain firms.
- In addition, some local authorities do not have energy expertise in house and so need to rely on expensive consultants.
- Moreover, there should be a better scoring system around efficiency, about low-carbon savings, life cycle sustainability.
- As drivers of success, marketing and information (being known in the industry), and having case studies of previous projects to point to. So good examples and case studies of success in different geographies/close to local authorities are important. Moreover, disseminating information clearly is also important.
- Finally, writing tenders and knowing all the details as well as having experience, learning as you go, is also an important driver for success. As possible solutions, the criteria of the scoring systems should be improved.
- In addition, the planning process: Bronze, Silver, Gold banding in Scotland - immediate get a Gold Standard if the client installs their solution (because it saves a large amount of CO₂), whereas if the client used ASHP gets only Bronze Standard (and needs to install



additional products to get the Gold Standard as well). Therefore, procurement should be around life cycle costs and life cycle carbon costs.

4.10.3 Case 3 in UK

This case is based on an interview with a city Councilor in UK to learn about their practices around public procurement of renewable energy solutions. The council has a range of targets and measures in place to support and procure renewable energy.

The key themes of this case were the council's work through and support of other organizations to bring about procurement of renewable energy solutions, as well as the importance of zero carbon within the strategies of the council (including procurement strategies), and the activities of the council to encourage local businesses, particularly SMEs, to bid for council contracts, overcoming any potential barriers that could be faced by SMEs with limited resources to put towards understanding council procurement rules.

Analysis of the current situation

a. Sustainability strategies, energy related strategies

The City Council has targets in place for reductions in carbon emissions, to ensure that the council (representing 1% of the city's economy) is net zero by 2030, and that the city more broadly is net zero by 2050. They are keen to work with local suppliers in particular (50% of suppliers are local), and a large proportion of these are SMEs. The XPRESS team observes that this appears to be one of the more progressive councils in the UK, with high ambitions for achieving reductions in carbon emissions and some good approaches in place to encourage deployment of renewable energy solutions.

The city has a community organization which the council works with, and puts money and resources into, usually through loans. This organization installs and manages renewable energy generation projects alongside businesses, schools, and communities all over the region, as well as supporting communities with energy efficiency projects. It represents a key means by which the council seeks to encourage deployment of renewable energy solutions.

In terms of the council's approach to sustainable energy procurement, while the council does not have dedicated sustainable procurement strategy, green energy is a key factor across all of their strategies, including procurement. The council's requirements and critical success factors around procurement capture their zero carbon aims.

b. PP strategy or regulations

The council aims to keep a lot of work in-house. Due to competition rules, they have had to set up a company to do this. This is about general council services, such as council housing maintenance, maintaining streets, recycling waste, providing MOTs, etc. They don't have a dedicated sustainable procurement strategy; rather green energy is a key factor across all of their strategies, including procurement. The council's requirements and critical success factors around procurement capture their zero carbon aims.



c. PP & SME

There are good practices in place to encourage SMEs to supply to the council and to boost SME suppliers' engagement with the council. They are keen to work with local suppliers in particular (50% of suppliers are local), and a large proportion of these are SMEs. For example, council officers will go out and talk to local companies or run events. This is so that the SMEs can understand what the requirements are if they want to supply to the council, to save everyone time. It's also important to do this since SMEs are less likely (compared to large businesses) to have the resources to work out what they need to do to supply to councils. The balance between small and large suppliers bidding for council projects will depend on the project size. Large suppliers are unlikely to bid for small projects.

Furthermore, it was excellent to hear about the ways that the council encourages local SMEs to supply to the council, to help overcome the barriers to public procurement that innovative SMEs can face, particularly around reduced capacity relative to larger companies, which can have resources dedicated to understanding local authority procurement processes.

The practices of the City Council thus provide some highly beneficial learning into ways that public authorities can promote public procurement from SMEs, particularly in the context of innovative renewable energy solutions - the key focus of the XPRESS project.

As mentioned by the City Councillor, *"We have campaigns to get more people to offer their services and supply to the city council. We have officers who go out and talk to small companies and say, 'This is what we want, we want to get low carbon technology, we want local suppliers.'"*

Summary and Discussions

The council's requirements and critical success factors around procurement capture their zero carbon aims, as well as factors such as the Oxford Living Wage. These strategies for engaging local SMEs allow the SMEs to understand what the requirements are if they want to supply to the council, increasing SME engagement with the council and driving increasing SME participation in public procurement, while avoiding time being wasted in the procurement process for SMEs not appropriately meeting the criteria of the procurement process.

