BABERGH DISTRICT COUNCIL

From: Cabinet Member for the Environment	**Report Number: BCa/17/70**
To: BDC Cabinet	**Date of meetings: 10 May 2018**

TO CONSIDER BATTERY STORAGE AT ALL OF THE LEISURE SITES

1. Purpose of Report

1.1 To approve the installation of (commercial scale) battery storage at the four leisure centres owned by Mid Suffolk and Babergh District Councils. The scheme will store electricity, discharge when electricity costs are at a premium and / or the National Grid requires flexible support. This will provide lower electricity bills for the Councils' facilities and provide an income stream for the General Funds of both Councils.

2. Recommendations

2.1 That Cabinet approves in principle to proceed with the purchase and installation and operation of (commercial scale) battery storage at the Babergh District Council leisure centres and grants delegated authority to the Assistant Director for Finance in conjunction with the Cabinet Member with responsibility for Finance and the Cabinet Member with responsibility for the Environment, to authorise a maximum cost of £154,000.

Reason for decision:

To provide the Councils with a return on investment over the next 15 years through the reduction in electricity bills and sale of storage capacity .

3. Financial Implications

3.1 The proposal requires capital investment of approximately £121,500 for battery storage units. There would be some additional minor works to accommodate batteries in the buildings which is estimated to be £10,000 per site and the associated costs such as, specification writing, project management, tendering, surveys etc estimated to be a further £12,500. This would give a total estimated cost of £154,000. The scheme has the potential to provide a return on the investment within approximately 7 years and provide an income for 15 years through lower running costs of the buildings and sale of our capacity to the electricity distribution companies.

3.2 The savings and income from the project categorised into two areas; firstly, savings in energy not purchased from the national grid at peak times along with associated savings from reducing peak demand and secondly income from contracts with the energy distributors (National Grid, UK Power Networks). The first are described as Fixed revenues/savings, the second is described as Non Fixed revenues.

3.3 The two tables below outline the potential savings/income for all 4 sites firstly *without* Non Fixed Revenues (the contracts with National Grid /UKPN) latterly *with* contracts in place .

3.4

		2018	2019	2020	2021
Non-Fixed Revenues	Energy Arbitrage	£11,041	£11,041	£11,041	£11,041
	CM contracts	£3,174	£3,237	£3,301	£5,290
Fixed Revenues / Savings	DUoS	£5,260	£5,576	£5,910	£6,265
	Triads	£13,590	£15,002	£16,444	£17,889
	Capacity Market Saving	£667	£700	£735	£772
		£33,732	**£35,557**	**£37,432**	**£41,257**

3.5

		2018	2019	2020	2021
Non-Fixed Revenues	FFR contracts	£24,312	£24,312	£24,312	£24,312
	CM contracts	£3,174	£3,237	£3,301	£5,290
Fixed Revenues / Savings	DUoS	£5,260	£5,576	£5,910	£6,265
	Triads	£13,590	£15,002	£16,444	£17,889
	Capacity Market Saving	£667	£700	£735	£772
		£47,003	**£48,827**	**£50,702**	**£54,527**

3.6 The projections can only be plotted for the next few years as the energy market rapidly evolves and the originators of some of the savings (National Grid, UKPN) only provide the payments schedule for their contracts for a short distance into the future. However it can be seen that substantial revenues can be generated very quickly and this is a growing market, the energy distributors require more and more storage as a) demand for energy increases and b) the production of energy in the UK shifts more and more towards renewables which are not available 24/7 and require storage.

3.7 The cost of maintenance of the batteries is approximately £4,000 per annum per site.

3.8 The return on investment (assuming no rise in revenue after 2021) is 12% and 16% (depending on whether non fixed revenue contracts are secured). This is an annual figure and does not include the project management fees.

4. Legal Implications

4.1 Legal agreements will need to be entered into with South Suffolk Leisure (SSL), Everyone Active and with National Grid.

5. Risk Management

5.1 The higher income stream would require the securing of ‘Non Fixed Revenue contracts’ with the regional/national electricity suppliers however the figures provided in this initial report demonstrate that we do not need to rely on these contracts. Such contracts are awarded monthly and last for 2 years at a time. As mentioned later there is an increasing demand for energy storage.

5.2 The batteries would be procured either via a tender or existing framework to ensure best value and the author is aware of incidences where contracts provide a guaranteed income.

6. Consultations

6.1 Liaison with the Councils' leisure centre operators has been made at this early stage to ensure agreement would be forthcoming. Initial, positive, high level discussions have taken place at a Director level. Both Babergh and Mid Suffolk facility management operators have confirmed they are supportive and will agree to enter into contractual requirements with the council.

7. Equality Analysis

7.1 Advice on the need for an EQIA will be sought pending approval. However, it is expected that any such EQIA will demonstrate that the project raises no equality issues.

8. Shared Service / Partnership Implications

8.1 The proposal includes the leisure centres in both districts.

8.2 The Councils' leisure centre providers will need to be involved as the stored energy *may* be used within the centre at certain times of the day and replace grid based electricity. An arrangement as to how that energy will be paid for will need to be agreed.

9. Links to Joint Strategic Plan

This work would contribute to Managing the Councils' Corporate Assets Effectively which states *we will invest in new assets, in order to generate additional income*. This will help the Councils become more financially stable and reduce reliance on government funding, generating income of our own that we control.

10. Key Information

10.1 Battery storage has made huge advances in recent years and the cost of installation has dropped dramatically as the technology has become mainstream. The physical size of the units has also reduced allowing for a wider range of applications. The combination of the two elements makes them an attractive proposal for facilities with high energy use such as leisure centres.

10.2 Installation of the battery storage units is not predicated on other routine maintenance or capital investment programmes. Other works are planned for Kingfisher Leisure Centre and Hadleigh Pool and Leisure Centre which may prove timely but are not necessary for the progression of this scheme.

10.3 The Business Model underpinning this investment opportunity are based on:

10.4 a) Savings to the host property through more intelligent use of electricity on site.

b) Income streams from selling our capacity to UK Power Networks to provide them with grid resilience for which there are payments made. (non fixed revenue)

Peak costs (1600-1900hrs)p/kW	Night time Electricity Costs p/kW
11.137p	7.268p

10.5 Above are sample costs for electricity at different times of the day. The business model assumes that the batteries will be fully charged overnight at a cost of 7.268p/kWh and then stored and used between 1600hrs and 1900hrs thus saving the facility 3.869p/kW. An additional saving is achieved by virtue of the facility using less grid based electricity at peak time. In recognition of helping to reduce overall demand the electricity distribution companies will reduce the distribution element of the energy bill. This basic income stream alone will result in a financially viable project that will pay back in approximately 7 years.

10.6 The non fixed revenue model involves securing a contract from the electricity distributors (UKPN or National Grid) to take control of the battery installation to allow them to use the grid in a smart fashion. The contracts permit the grid operating company to remotely control the battery and discharge the energy into the leisure centre so the demand on the national grid is reduced or energy is absorbed from the grid in times of over-supply. Contracts are awarded every month and once secured are guaranteed for 2 years at a time. Having 4 installations in place (one in each leisure centre) to service this type of contract provides the greatest potential capacity and increases the opportunities to be awarded a contract.

11. Background Documents

Battery Storage Glossary

Budget quotes from market testing, for project management, specification drafting, supply and installation of batteries.

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