Environment, Communities and Fire Select Committee	
9 May 2019	**Key Decision: Yes**
Halewick Lane Battery Storage Project	**Part I**
Report by Executive Director Economy, Infrastructure and Environment and Director of Energy, Waste and Environment	**Electoral Division: Sompting and North Lancing**

Summary

Proposal for the redevelopment of Halewick Lane Waste Depot into a large battery storage facility. This will form part of the Your Energy Sussex pipeline of energy generation and energy balancing projects.

West Sussex Plan: Policy Impact and Context

- A strong, safe and sustainable place: Sustainable environment – supporting renewable energy generation by West Sussex County Council.

This project will make a significant contribution toward meeting this outcome by reducing the need for grid reinforcement works in the Worthing area, and encouraging the growth of decentralised generation of energy assets across the county. The completed project will be designed to deploy power when there is excess demand locally and will be able to overcome a variety of grid volatility issues. This will reduce reliance upon power generated and distributed using the national distribution network.

- A prosperous place: Infrastructure that supports a successful economy

The project will support the local economy by preventing further grid reinforcements in the medium-term. Investing in the project will also support a rapidly growing industry which will both place West Sussex County Council (WSCC) on the map from a reputational perspective, and support the growth of industry and skills in this field within the County.

Financial Impact

It is expected that WSCC provides capital funding for the full cost of the scheme. This would be allocated from the capital programme budget assigned for energy projects. The project costs are £11,553M with an IRR of 13.93% and a payback of 7.2 years.

Recommendations

The Committee is asked to consider the recommendation that the Cabinet Member for Environment approves:

1. The capital allocation for the Halewick Lane Battery Storage Project scheme, detailed in section 4 of the report

2. The commencement of the procurement process for the project

3. The delegation of authority to the Director for Energy, Waste and Environment to award the design and construction contract for the scheme

PROPOSAL

1. Background and Context

1.1 The Halewick Lane project would support the agreed objectives of the Your Energy Sussex programme by increasing and enabling the expansion of energy generation in the county as well as supporting and developing the low carbon economy and reducing CO_2 emissions.

1.2 The delivery of this project would make a positive contribution towards delivering the aims of the adopted Energy Strategy 2016-2020 published by West Sussex County Council. In particular the following two aims of the strategy:

- To integrate low-carbon energy generation and infrastructure into the development of West Sussex County Council assets.

- To develop the commercial provision of low-carbon energy and energy related services in West Sussex and ensure the creation and retention of jobs in the area.

1.3 This project therefore forms part of the strategic programme of investment established across the county to deliver these ambitions.

1.4 National Grid has an obligation to control electricity frequency in accordance with the Electricity Supply Regulations to maintain adequate levels of local power supply. Battery storage developments are increasingly assisting the National Grid to meet these obligations and ensure that sufficient generation and/or demand is held in readiness to manage frequency variations.

1.5 This proposed energy storage scheme will assist with this process by enabling energy to be imported from the grid at times of low demand and stored for use when required.

1.6 The need for battery storage development and the associated benefits has been highlighted by the Government. Energy and Emissions Projections 2017 published by the Department or Business, Energy and Industrial Strategy (BEIS) in January 2018 which projects that the percentage of UK electricity generated from low carbon sources such as renewables and nuclear generation will rise from 22% in 2010 to 58% in 2020.

1.7 The UK Government's recent Upgrading our Energy System; Smart Systems and Flexibility Plan (Department for Business, Energy and Industrial Strategy (BEIS), July 2017) clearly sets out the Government's direction of travel with regard to energy storage:

1.8 "Storage can open up many possibilities, helping to integrate low carbon generation, reduce the costs of operating the system, and help avoid or defer costly reinforcements to the network….This is just one of the new smart technologies that will help to keep bills low (p.4)". "…By harnessing the potential of energy storage, demand-side response and smarter business models, we have an opportunity to upgrade to one of the most efficient,

productive energy systems in the world. This is central to how we deliver secure, affordable and clean energy now and in the future (p.7)."

1.9 The need for battery storage therefore forms part of the emerging new smart electricity grid system in the UK and is a critical component of the Government's decarbonisation strategy.

2.0 Whilst battery storage cannot be defined as renewable energy, it forms part of the critical infrastructure for maintaining the existing stability of the grid, as well as enabling a greater supply of intermittent renewable energy to be stored and released on the local and national grid network. Battery-based energy storage is therefore critical infrastructure which will enable the increased deployment of renewable and low carbon energy.

2.1 The ability to connect to a suitable grid access point is a fundamental requirement for any battery storage scheme. The District Network Operator (DNO) has confirmed the location of the substation where the site can connect and a technical and commercially feasible connection route from the site to the substation has also been established.

2.2 Since closing in the mid- 90's, the site has become a target for vandalism and theft which has meant WSCC has had to spend a total of £30K over the previous 12 months alone in reinstating fencing and repairing damaged areas.

2.3 The Strategic Site Options Appraisal conducted in 2017 highlighted a number of constraints on the land which limited the potential for it to hold much development potential. Given that the Council retains management responsibilities for the gas wells in and around the site; along with the gas flare, the battery storage facility presents an option which can meet a number of strategic objectives whilst making best use of land with very low development potential.

2.4 The redevelopment of the site at Halewick Lane has therefore been identified as a commercially viable proposition which would make a positive contribution towards achieving the aims and objectives set out within the WSCC Energy Strategy 2016-2019.

2.5 The site has now received full planning approval by South Downs National Park (LINK) who were sympathetic of the view that there were very few development options for the site, and that the proposed site plan included a number of measures that are beneficial to its surroundings. No objections were received.

3 Proposal Details

The proposal is for the Council to develop a WSCC-owned energy storage system where it can maximise all available benefits open to it.

System configuration options

3.1 The three main battery types available for this system have been assessed (Table 1 section 3.52 of Business Case V15- Available to members on

request). The 0.5C battery is clearly shown as being able to benefit from operating at a number of different levels which mean that is it less impacted by longer- term changes, in contrast to energy storage systems that are designed to operate on one of a small number of service levels/ income streams.

3.2 A number of operating models have also been examined for the site. Table 2 (Business Case V15, 3.52- Available to members on request) shows how the system returns are significantly impacted by the overall size of the storage scheme. This is due to the grid connection cost being fixed.

3.3 The opportunity available through Project SMARTHUBS is also shown in the table. Of note is the significantly reduced capital cost for the battery system. This is due to a number of factors:

3.4 The batteries included in the system design are known as 'second-life' Lithium-Ion battery cells derived from electric vehicles. These are re-purposed for commercial energy storage systems. This is a rapidly growing industry being led by large, reputable automotive companies such as BMW Group, Hyundai and Renault. This support for the 'second-life' battery sector is a key component of the SMARTHUBS delivery programme.

3.5 Through Project SMARTHUBS, WSCC is entitled to a 30% discount on the purchase of the battery cells to dramatically reduce the overall capital cost. As can be seen in the summary table below the payback and IRR is significantly improved with the two SMARTHUBS models, in large part down to the significant capital cost difference.

3.6 As a result, delivering the scheme as part of Project SMARTHUBS allows WSCC to absorb the relatively high-cost grid connection and enable the Council to pay back the capital cost of the scheme and realise a net benefit much sooner.

3.7 To operate the site a Power Purchase Agreement (PPA) will be created in a similar vein to the one at Westhampnett. This will enable the purchase and sale of all energy from the grid. An appropriate energy aggregator (such a Npower) will be appointed which means they are responsible for securing all income from the system. It is likely this will be a 4 year contract as these are industry standards.

FACTORS TAKEN INTO ACCOUNT

4 Consultation

4.1 In order to select the site in question, extensive consultation has been undertaken both with the Council's estates teams and Strutt and Parker, the Council's land agent.

4.2 The Strategic Site Options Appraisal that was conducted in 2017 highlighted a number of constraints on the land which limited the potential for development. However, given that the Council retains management responsibilities for the gas wells in and around the site; along with the gas flare, the battery storage facility presents an option which can meet a

number of strategic objectives whilst making best use of land with very low development potential.

4.3 The site has suffered from a prolonged period of neglect. As a result of this it has become a regular target for break-ins, theft and vandalism. All buildings on site are structurally unsafe and there are high quantities of asbestos across the site. For these reasons the Council's estates team have spent over £30K over the previous 12 months alone on restoring broken fences and reducing incidences of vandalism. The scheme proposed therefore puts forward a project that will remove all existing buildings on site. A replacement security system will then be installed and the operation and maintenance of this will be absorbed as part of the wider energy project.

4.4 Key stakeholder and resident consultation was undertaken prior to the project being included in the pre-application process with South Downs National Park (SDNP). This took the form of contacting all local members and holding a number of different drop-in and engagement sessions with the Parish Council and with local community groups. The feedback received from this engagement reaffirmed the need to redevelop the site, and for the concerns held locally for the hazards on site. As part of the resident engagement sessions both prior to and during the planning process the project has not received any objections to the planning application.

Below is a link to the Halewick Lane Planning Application as approved by SDNP:

https://planningpublicaccess.southdowns.gov.uk/online-applications/applicationDetails.do?keyVal=PJOJ9MTUI8K00&activeTab=summary

5 Financial (revenue and capital) and Resource Implications

If the investment is approved it will contribute to the overall success of the Your Energy Sussex programme and bring in an income to WSCC of £29M over the 25 year life of the project. A full financial breakdown is available to members on request. This assumes that the Council is to borrow funds using PWLB to finance the scheme at £11.553M. As has been approved by Commercial Finance, the borrowing rate has been set at 3% for modelling purposes. The financial breakdown includes the cost of borrowing from Public Works Loan Board (PWLB).

5.1 Revenue consequences of proposal

The net income to the County Council, after all financing and maintenance charges is expected to be £959,880 in year 1. In the following years the net income modelled will vary as a result of assumptions made in regard to energy price inflation and the degradation of the asset.

	Year 1 2019/2020 £000's	Year 2 2020/21 £000's	Year 3 2021/22 £000's	Year 4 2022/23 £000's
Gross Income	3,139	3,206	3,191	3,176
Financing Charges	-644	-644	-644	-644
Energy Purchases	-948	-969	-964	-960
Maintenance and Lifecycle Costs	-587	-596	-594	-593
Net Income	960	998	988	979

5.2 Capital consequences

	Current Year 2019/20 £m	Year 2 2020/21 £m	Year 3 2021/22 £m	Year 4 2022/23 £m
Capital budget	2.700	11.800	6.000	14.924
Change from Proposal	-11.553			
Accelerated Expenditure	8.853	-8.853		
Remaining budget	0	2.947	6.000	14.924

5.3 The effect of the proposal

5.3.1 The scheme will generate an income that will significantly mitigate the Council's energy budget exposure to future energy price increases.

5.3.2 Included in the scheme will be the complete, safe removal of the now condemned, hazardous and unsightly buildings on site. The site's current condition has caused significant resident concern in relation to health and safety, trespass and vandalism. The replacement scheme will significantly reduce these issues due to robust security and the installation of a CCTV system.

5.3.3 The land has limited alternative development potential and presents a scheme that is entirely removable. A decommissioning budget has also been allotted to the financial model.

5.3.4 The scheme will support local industry where possible, by employing local businesses both prior to, and on completion of the project where practicable.

5.3.5 The Council would become a demonstrable site of interest by owning one of the largest public-sector owned stand-alone storage systems in the UK.

5.3.6 Landmark development for reuse of second-life electric vehicle (EV) batteries, thereby contributing to prudent use of resources.

5.3.7 There will be ecological enhancements made to the site, benefitting the local wildlife populations particularly on the northern, eastern and southern boundaries.

5.3.8 Aligning the scheme to Project SMARTHUBS and taking advantage of funding available through this route would provide the Council with a means by which it can generate an income and realise the full potential from the site far sooner than progressing this scheme outside of the SMARTHUBS programme.

5.4 *Future transformation, savings/efficiencies being delivered*

The project makes a significant contribution towards protecting the County Council from energy price inflation and projects a net income for the Council of £29M over the lifetime of the project.

5.5 *Human Resources, IT and Assets Impact*

No additional HR or IT resources are required for the scheme on top of officer time already in place to support the Energy programme. There is also no impact on WSCC assets.

6 Legal Implications

TUPE and staff pension issues will not apply and there should be no State Aid subsidy. The Public Contract Regulations 2015 will apply to this project and the Council has the statutory powers to undertake the project. No other legal implications have been identified (other than in Sections 8, 9 and 10 of this report).

7 Risk Assessment Implications and Mitigations

7.1 The main risks associated with the delivery of the project are as follows:

7.2 The battery solution for the site either incurs problems within the lifetime of the warranty or after it has expired.

7.3 In line with our approach to Your Energy Sussex energy schemes, the final design of the system is heavily influenced by the protections that can be purchased and designed-into the final project. The energy storage system purchased will have a 7 year warranty. Within the financial model for the scheme a full battery replacement will be budgeted for every 8 years. In contrast to first-generation models the capital cost replacement of the second-life batteries is far lower, and is projected to be so owing to the projected proliferation of this industry which will follow the expansion of the electric vehicle industry. This will ensure income projections are maintained

and that there is recourse to the manufacturer in the event of any problems with the system. Full replacements of the battery inverters will also be budgeted for within the scheme. As has been secured with the Westhampnett solar farm, insurance will also be budgeted for against loss of income in the unlikely event of system failure. Whilst the batteries will be under warranty, the lead-in time to obtain any replacement components under warranty will be insured against. All additional measures that will be in place to protect the council in the event of contractor failure or collapse are also outline in the Business Case (V15, Section 4.2), available to members on request.

7.4 Income from the battery system is reduced due to Government policy changes

7.5 The income from this scheme does not rely in any form upon any Government subsidy. Whilst there is some uncertainty and potential for change with regards to the income streams available to energy generating assets, the overall trend is unchanged. Grid balancing and local generation assets such as this project are urgently needed nationally (as has been documented in the strategic case) and this has been demonstrated in the financial modelling included with the business case (available to members on request).

7.6 Halewick Lane (the road leading to the site) is owned by the Crown Estate. Negotiations with the Crown Estate, for access to lay cables from the site to the rid connection point, could delay the project.

7.7 The WSCC legal team are in touch with the legal firm representing the Crown Estate and are working to put arrangements in place for cable access to be ensured. In addition, in recent months it has come to light that the road itself has suffered from neglect with flood alleviation measures being worn away. It is expected that by engaging with the Crown Estate some of these flood issues can also be addressed.

7.8 In August 2018 there was a flooding event on Halewick Lane, further along from the battery site. Whilst the activities on the adjacent privately-owned landfill, along with the poorly maintained flood protection measures (as cited above) have been cited as the cause, a repeat event could occur.

7.9 A Flood Risk Assessment (FRA) and Drainage Survey was conducted at the battery site. Both surveys concluded that there were no drainage or flooding concerns arising and that all surface water drainage measures on site are adequate. In addition, given the position of the WSCC owned waste transfer site in relation to the closed-landfill it was also concluded that any potential flooding issues arising from the landfill in the future would not negatively impact the WSCC site. The FRA has also stated that the site itself has not historically experienced any flooding events to the extent that it has been classified as being in Flood Risk Vulnerability Classification 1. This is the lowest vulnerability classification a site can receive therefore flooding should not be an issue.

8 Other Options Considered

8.1 Long-listed options considered for the site:

Do nothing:

8.1.1 The Council could choose to do nothing with the site. However, the site is currently costing WSCC significant amounts in maintenance due to vandalism and theft. In 2018-19 alone the maintenance and repairs of the site amounted to £30K. There is an ongoing need to reinforce the security fence to deter trespassers from entering buildings which pose a serious health and safety concern. Additional costs could potentially be incurred under The Occupiers' Liability Act 1984. The Act extends the common duty of care to trespassers, providing that this duty is to be required when the occupier has actual or constructive knowledge that a danger exists and that a trespasser is or may be near it. The Act allows an injured trespasser to claim for death and personal injury. There is a large quantity of asbestos sheeting on site and the buildings are structurally unsafe. Doing nothing will prolong the very serious health and safety risk from the site and ongoing maintenance costs to WSCC will mount.

Sale of land:

8.1.2 The Council could choose to sell the land. However, the sale would not present a profitable option because its development potential is extremely limited. It is highly unlikely that the site could be used for housing or even commercial/ industrial usage for example. In addition, any sale would not guarantee that the existing unsafe structures would be demolished; further prolonging the serious health and safety concerns on site. If the existing structure and health and safety and occupiers liability issues were to continue with the site under new ownership it is arguable that the Council would have considerable reputational issues to manage in the future.

Retain to build houses on the site:

8.1.3 Given the constraints on site access, the location within the SDNP and the existing gas flare on site we have been advised that it is unlikely that residential development would ever be permitted.

Develop energy storage project:

8.1.4 Completing an energy storage scheme on the site would present a development option that is quiet and unobtrusive and both sympathetic to the requirements of the national park and to the residents and users of the land adjacent to the site. The construction phase for the scheme would include total demolition of all existing buildings down to the existing slab with the replacement of a new high security fence and CCTV system. This will reduce instances of vandalism on site, along with the health and safety concerns.

8.1.5 The Council will generate a projected income of £960K in the first year of operation.

8.2 Short-Listed options

The short-listed option is to build an energy storage facility, however there are a number of options for operating the scheme:
The Council obtains planning for the site but then leases the site to a third party to operate the battery storage scheme with WSCC taking a rent.

Advantages:

8.2.1 The Council would simply take a rent from the site for an agreed period. The risk associated with generating income from the site would then sit with the site operator.

8.2.2 The option presents a much lower capital cost to the Council, enabling it to divert expenditure to other areas.

Disadvantages:

8.2.3 The income derived from leasing the site to a third party would be significantly smaller in comparison to building and operating the scheme ourselves.

WSCC-owned energy storage scheme and including it as part of its SMARTHUBS programme of deliverable projects

Advantages:

8.2.4 Developing an energy storage scheme that is wholly-owned by the Council will enable it to maximise the income generation capability from the site. Being in total control of the site will also mean that we will be in a position to respond to any market changes that may come available for WSCC in the future.

8.2.5 By retaining ownership of the site the Council would be projected to generate 960K in this first year of operation and £29M over the 25 year lifetime of the project (within the models proposed).

8.2.6 Three energy storage sizes and technical specifications are outlined below. The largest sized system proposed could mean that a further 16 MW of Export capacity could potentially be utilised at a later stage, and help derive more income from the site.

8.2.7 The energy storage facility would occupy approximately one third of the total of the site. There will therefore be further opportunities to develop the site for additional energy projects if the Council retains total control of the available connection.

8.2.8 Battery storage is a rapidly growing industry solution to all large and medium-sized energy schemes. By developing this site as a wholly-owned WSCC project the council will become one of the UK public sector leaders in this industry.

8.2.9 Including this site within the SMARTHUBS programme of deliverable projects will enable the council to redevelop a large, hazardous and costly site and develop an energy scheme that pays back the original investment and generates an income to the local authority within 7 years.

Disadvantages:

8.2.10 This option involves significant capital cost; however the full capital cost, grid connection and contingency are built into the business model which presents an attractive investment on land that cannot be used for many other purposes.

8.2.11 The storage capacity market income streams on which the income projections rely are undergoing some changes. Therefore any future changes could affect the business-modelling that has been undertaken to date. The business case available to members on request has a summary of how the energy pricing escalator has been modelled. In addition, the system configuration (3.52) that is proposed is one that will maximise income in the short-term but will also mitigate the impact of changes to policies in relation to delivering 'energy services' from energy generators.

8.2.12 However, whilst the actual income streams offered by central government in the long-term are not fully known, the capacity issues being faced by the UK, along with Government's commitment to investing in decentralised energy and new grid balancing schemes is testament to the need for infrastructure of this kind.

8.2.13 By including the Halewick Lane project within the SMARTHUBS project, it will benefit from the following:

8.2.14 The project will receive a substantial discount on the battery modules procured for the scheme by capitalising on advances in the use of 'second life' batteries which will be rolled out under Project SMARTHUBS;

8.2.15 WSCC will be seen to become an active partner in developing a large-scale SMARTHUBS project.

The preferred option

The proposal is for the Council to develop a WSCC-owned energy storage system where it can maximise all available benefits open to it.

9 Equality and Human Rights Assessment

An Equality Impact Report has been produced for the scheme and is attached at Appendix 1.

10 Social Value and Sustainability Assessment

10.1 The project would contribute significantly towards supporting the local economy as the system is likely to be delivered by a local contractor. This would be both for installation and operation and maintenance of the system.

10.2 The programme would help stimulate demand in the local supply chain and help maintain jobs in the developing energy storage industry locally.

10.3 The financial benefits to the County Council for investing in this scheme have been outlined above.

10.4 The County Council will also benefit from being seen to be one of the UK's only local authority-owned battery storage facilities, to have been built.

10.5 The County Council will be protected from future energy price increases over the coming 25 years.

10.6 A 'live' sustainability review of the project will be undertaken for the project at key stages from project procurement, demolition and delivery.

11 Crime and Disorder Reduction Assessment

The scheme is not judged to have any crime and disorder reduction impacts

Lee Harris
Executive Director Economy, Infrastructure and Environment

Steve Read
Director of Energy Waste and Environment

Contact Officer: Tom Coates, Senior Advisor, 0330 2226458

Appendix 1: Equality Impact Report

No background papers.