Mrs Deborah Urquhart, Cabinet Member for Environment	**Ref No: ENV04 (19/20)**
June 2019	**Key Decision: Yes**
Halewick Lane Battery Storage Project	**Part I**
Report by Executive Director of Place Services and Director of Environment and Public Protection	**Electoral Division: Sompting and North Lancing**

Summary

The report proposes the redevelopment of the disused Halewick Lane waste site into a large energy storage facility. This will form part of the County Council's pipeline of energy generation and energy storage projects in support of the Energy Strategy.

Energy storage schemes such as this operate by purchasing electricity when it is cheap (due to low demand), storing it in large batteries and selling it back to National Grid at a significantly higher price at times of high demand.

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. In addition, the use of second-life electric vehicle batteries will make a significant contribution toward investing in a technology sourced from finite resources. 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 proposed that WSCC provides capital funding for the scheme, and that the procurement seeks a partner from within the SMARTHUBs consortium to enable access to discounted prices. This is possible as partners within the consortium can be supported by Innovate UK funding (subject to meeting their governance processes). This funding would be allocated from the capital programme budget assigned for energy projects. The capital cost to WSCC would be £11.6M with an Internal Rate of Return (IRR) of 13.93% and a payback of 7.2 years.

Recommendations

That the Cabinet Member for Environment approves:

1. The capital allocation of £11.6M 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 Environment and Public Protection to award the design and construction contract for the scheme and to determine the most appropriate timing.

PROPOSAL

1. Background

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 objective by enabling energy to be imported cheaply from the grid at times of low demand and stored for use when demand is higher and energy has a higher per unit price.

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.

1.10 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 to support the increased deployment of renewable and low carbon energy.

2. Local Context

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. A technical and commercially feasible connection route from the site to the substation has also been determined.

2.2 Since closing in the mid- 90's, the former waste facility at Halewick Lane has become a target for vandalism. WSCC has had to spend a total of £30K over the previous 12 months alone in reinstating fencing and repairing damaged areas.

2.3 A 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. WSCC retains management responsibilities for the landfill 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 site has now received full planning approval by South Downs National Park (SDNP)

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

2.5 SDNP were sympathetic to 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 WSCC to develop a WSCC-owned energy storage system as an income generating opportunity with wider benefits to the local grid.

System configuration options

3.1 The three main battery types available for this system have been assessed and 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.

3.2 We have the opportunity available through Project SMARTHUBS to significantly reduce the capital cost for the battery system. This is due to a number of factors:

3.3 The "second life" Lithium-Ion battery cells included in the system will have been formerly used in standard electric vehicles. Battery performance (ability to hold charge) drops off with use. With battery range a critical issue in automotive use, batteries are typically replaced at least once in a vehicle's life. However these batteries will still take significant charge and can be re-purposed for less demanding commercial energy storage systems before eventually requiring recycling. 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.

3.4 By including Project SMARTHUBS partners in the scheme WSCC is able to reduce its capital expenditure for the batteries and grid connection by £4.1M (approx. 30%) (but will need to satisfy IUK terms and conditions) and the payback and IRR is significantly improved. This is possible due to the fact that SMARTHUBS partners are able to access funding from Innovate UK.

3.5 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 WSCC estates teams and Strutt and Parker, WSCC's land agent.

4.2 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.

4.3 Environment, Communities and Fire Select Committee considered the proposal on 9th May 2019. It was Resolved that the Committee:

1. Supports the project but requests that the timing does not conflict with work already taking place on the neighbouring site. (*Response – this will be addressed through the Construction Management Plan which must be produced by the contractor and signed off by WSCC and SDNP*)

2. Request that a comprehensive traffic management plan is produced. (*Response – this is also a Planning Condition and must be complied with*)

3. Requests that the costs are clearly set out for the final decision report. (*Response – see financial section below)*

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.

The return on investment for the proposed option is an IRR of 13.93% and a payback in 7.2 years. This represents a return above the programme benchmark of 6%. A key component of the deliverability of such a strong IRR is the discount available by procuring through the SMARTHUBS consortium. The impact of the loss of this discount on the scheme return would be to reduce the IRR to 9.19% and extend the payback to 10.7 years, however, this still exceeds the programme benchmark.

5.1 Revenue consequences of proposal

The net income to the County Council, after costs of repaying capital and interest and maintenance charges is expected to be £959,880 in the first full year. The system is estimated to start generating income in July 2020 and so there will only be pro rata income in 2020/21. 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.

Financing costs have been split between interest payable and debt repayment. In practice these are combined into a single annuity payment. The interest element reflects the "cost of capital" (modelled at an assumed Public Works Loans Board rate of 3%) and the debt repayment is based on the statutory Minimum Revenue Provision spread over 25 years. This latter component represents the way in which local authorities are required to account for capital spending and is not directly analogous to how a private sector organisation would account for these costs. In the context of this transaction, the key point is that the Internal Rate of Return exceeds the financing cost and thus makes a net contribution to the revenue account

	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	0	2,354	3,189	3,195
Repayment of Capital	0	-238	-324	-334
Interest Payments	0	-245	-320	-311
Energy Purchases	0	-711	-964	-965
Maintenance and Lifecycle Costs	0	-440	-594	-595
Net Income	0	720	989	991

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

The "Capital budget" line above shows the forecast profile of capital spend on energy projects from the corporate capital programme over the four year period.

As £11.553m will be required for the project in 2019/20, it is proposed to bring forward £8.853m from next year's allocation to add to the £2.7m allocated this year. This will leave a balance of £23.87m for future projects within the four year span.

5.3 The effect of the proposal

5.3.1 The scheme will generate an income that will significantly mitigate WSCC 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 WSCC 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.

5.4 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 WSCC 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.**

7.2.1 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.

7.3 **Income from the battery system is reduced due to Government policy changes.**

7.3.1 The reduction in overall capital cost is dependent upon the Government supported SMARTHUBS programme. If the SMARTHUBS discount were removed from the project it has been demonstrated that the project still presents a healthy IRR and payback.

7.3.2 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.

7.4 **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.**

7.4.1 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. The risk of not obtaining the necessary consent to access is deemed low; the speed of engagement is of more concern due to its capacity to add delays. In the event that things do not start to move forward at pace, the matter will be escalated. Separately, 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 engagement with the Crown Estate will also result in these flood issues being addressed.

7.4.2 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 WSCC could choose to do nothing with the site. In 2018-19 alone the maintenance and repairs of the site amounted to £30K due to persistent vandalism. Additional costs could potentially be incurred under The Occupiers' Liability Act 1984. 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 WSCC could choose to sell the land. However, the sale would not present a profitable option because its development potential is known to be extremely limited. 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.

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, unobtrusive and sympathetic to the requirements of the national park and to the residents and users of the land adjacent to the site.

8.1.5 WSCC 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:

WSCC 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 WSCC 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 WSCC, 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 WSCC will enable it to maximise the income generation capability from the site.

8.2.5 By retaining ownership of the site WSCC 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 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 WSCC retains total control of the available connection.

8.2.7 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.

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

Disadvantages:

8.2.9 This option involves significant capital cost; however the full capital cost, grid connection and contingency are built into the business model.

8.2.10 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. To limit this exposure the system configuration that is proposed is one that will maximise income in the short-term but will also mitigate the impact of changes to Government policy in the future.

8.2.11 In addition, the grid 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.

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

8.2.13 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;

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

The preferred option

The proposal is for WSCC 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 3.

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

11.1 The scheme will be positive in terms of crime and disorder reduction. The site has suffered from a prolonged period of neglect and has become a regular target for break-ins, theft and vandalism. All buildings on site are structurally unsafe and there are quantities of asbestos across the site. This has led to many concerns being raised locally.

11.2 WSCC Estates Team have spent over £30K over the previous 12 months alone on remediating damage to fences and other vandalism where this would otherwise perpetuate the hazards. The proposed scheme will eliminate all health and safety hazards on site through removal of all existing buildings and installation of a replacement security system.

Lee Harris
Executive Director of Place Services

Steve Read
Director of Environment and Public Protection

Contact Officer: Tom Coates, Senior Advisor, Tel: 0330 2226458

Appendices

Appendix 1: Halewick Lane Business Case V15
Appendix 2: Halewick Lane BC Financial models (V15)
Appendix 3: Equality Impact Report
Appendix 4: Benefits Map
Appendix 5: Sustainability Appraisal

Appendices 1 and 2 (available to members upon request) are exempt from publication because they contain information relating to the financial or business affairs of any particular person (including the authority holding that information (see Part I of Schedule 12A of the Local Government Act 1972.) and the public interest in maintaining the exemption of that information outweighs the public interest in disclosing the information.