

**BABRAHAM SMART ENERGY GRID – INVESTMENT GRADE PROPOSAL STAGE 1
UPDATE**

To: **Commercial and Investment Committee**

Meeting Date: **21 June 2019**

From: **Executive Director – Place and Economy**

Electoral division(s): **Queen Edith's and Sawston & Shelford**

Forward Plan ref: **N/a** *Key decision:* **No**

Purpose: **To consider progress against stage 1 of the Investment Grade Proposal for a smart energy grid at Babraham Park and Ride.**

Recommendation: **The Committee is being asked to:**

- a) Note the work conducted to date to reduce risk and approve progress from stage 1 into stages 2 – 4 of the Investment Grade Proposal (IGP);**
- b) Approve the drawdown of £350,039 for project development fees, internal costs, planning permission and other fees for completion of those IGP stages; and**
- c) Note the risk posed by OFGEM's Targeted Charging Review.**

<i>Officer contacts:</i>		<i>Member contacts:</i>	
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1. BACKGROUND

- 1.1 At the May 2018 Commercial and Investment Committee meeting, a development budget for the first stage of an Investment Grade Proposal (IGP) for smart energy grids was granted for both Trumpington and Babraham Park & Rides. A development budget of £300,000 was approved, split evenly between the two sites.
- 1.2 The IGP development is split into four stages with the intention to obtain the maximum level of certainty and security at the earliest stage of the development, in terms of cost and commitment and to create a decision gateway between stages.
- 1.3 The subject of this report is covering stage one, Concept and Qualification, which includes:
 - outline design;
 - receiving pre-application planning advice;
 - making an initial application to the Distribution Network Operator for a grid connection;
 - engagement with potential Power Purchase Agreement customers; and
 - managing the key risks associated with the above and the overall viability of the project.
- 1.4 In December 2018, Members were briefed on the fact that work on the Trumpington Park & Ride smart energy grid project was on hold pending the outcome of public consultations on different options to manage transport demand in the Southern Fringe. Options included whether or not to build a second park and ride off the M11 and/or whether to double-deck the existing Trumpington Park & Ride. The option to take forward will be decided on 27 June 2019 by the Greater Cambridge Partnership Executive Board.
- 1.5 Through the Climate Change Act, the government has committed to reduce emissions by at least 80% of 1990 levels by the year 2050. In mid-June, government proposed to increase the target to 100% of 1990 levels by the year 2050. To meet these targets, the government has set five-yearly carbon budgets which currently run until 2032. They restrict the amount of greenhouse gas the UK can legally emit in a five year period.
- 1.6 In order to meet these carbon budgets, the government has laid out ambitious plans to decarbonise heat, electricity and transport which will see a rapid increase in the use of renewable energy. As more renewable energy is connected to the grid, services to retain balance in grid operation will be required. Battery energy storage is one technology which provides those services reliably.

2.0 MAIN ISSUES

Developing outline designs

- 2.1 The original concept of a smart energy grid on Babraham Park and Ride included solar renewable energy, battery storage and electric vehicle charging infrastructure for cars and buses. The battery storage was included to provide flexibility services to National Grid to generate revenues and formed the bulk of revenues expected. However, since the initial paper was presented to Committee, the market for battery storage services has experienced uncertainty about the timing and level of revenues.

- 2.2 Given the clear long term need for battery storage capacity to balance Government's ambition for 50% of electricity from renewables by 2030, there is a case to continue to develop battery storage projects despite current revenue uncertainties. This will prepare the Council to bid for grid service contracts as new revenue mechanisms become available, avoiding missed opportunities due to project immaturity. The risk with this approach is that new revenues will not come forward for batteries as the quantity of renewables connected to the grid grows. These issues are explored in much more depth in the paper entitled 'Battery Energy Storage System Market Opportunity & Risk' also on this Committee agenda.
- 2.3 Considering the above, it is proposed to continue to develop the original concept to allow us to develop a shovel-ready project.
- 2.4 In parallel, the concept and design of the scheme remains under review to explore other options including more rapid uptake of electric vehicle chargers, sales to a local customer in place of battery storage revenue and reviewing a range of different options for the use of the battery. These alternative options are intended to reinforce the economic business case, so as to reduce reliance on battery storage revenues.

Planning

- 2.5 The County Council is the planning authority for this project under Regulation 3 of the Town and Country Planning General Regulations 1992. In November 2018, pre-planning advice was received and the following issues identified:

The site is within the greenbelt and sits within both Cambridge City and South Cambridgeshire boundaries which means the policies from both Councils will need to be considered. Both Local Plans have policies with a presumption in favour of renewable and low carbon energy generation. In addition, there is a local nature reserve nearby and sites of special scientific interest. Due to the size of the development, an Environmental Screening Request will be submitted ahead of the full planning application to help inform the submission documents. Given the broad policy support, the planning application is expected to receive an officer recommendation for approval, subject to formal consultation.

- 2.6 As the site is located in the Green Belt, additional sensitivities can be expected, therefore a community engagement officer will be procured.
- 2.7 Following receipt of two quotes, a planning consultant was procured by our partner Bouygues to develop the full planning application. A Preliminary Ecological Assessment has been conducted identifying two issues: the existence of potential bat foraging areas on site and that one of the routes for electrical connection cabling traverses a wildlife corridor. A breeding bird survey was also conducted. The full application is scheduled to be submitted in the third stage of IGP development, these studies were brought forward due to the seasonal nature of ecological studies.

Connection to the Distribution Network Operator

- 2.8 The Energy Investment Unit (EIU) and Greater Cambridge Partnership (GCP) have commissioned an engineering feasibility study for upgrading the 132kV substation at Fulbourn to unlock grid capacity in Cambridge Southern Fringe to primarily support

commercial growth. The results of this feasibility study are due by October 2019. Detailed designs would be progressed over the subsequent 18 months with construction planned to install the grid reinforcement by 2022-23. The investment by GCP may be recouped by sharing the cost upgrades fairly by subsequent developers using the new substation. Both Babraham and Trumpington Park and Ride developments could come under this arrangement to facilitate the battery storage opportunities as part of this project. Consideration may be needed as to how to phase the Babraham project delivery to benefit from these upgrades.

- 2.9 Without the above grid reinforcements in place, the Babraham P+R project had to make an application for a connection under UK Power Network's Flexible Distributed Generation (FDG) scheme in April 2019 to understand potential costs. The FDG scheme offers grid connection at a lower cost however generation could be subjected to curtailment. A curtailed connection means that CCC could be asked to reduce our generation over the course of the year.
- 2.10 An application was made by Bouygues to UKPN for the largest capacity of battery storage and solar PV array (12 MW in total), so as to obtain an understanding of the worst case in terms of curtailment and cost. Informally, CCC has been advised that the connection costs could be as high as £4.5million with estimated curtailment of 5% of generation. It is proposed that a revised application be made once the final capacity and scope of system has been determined and discussions conducted with UKPN on the strategic grid reinforcements proposed under section 2.8.

Power Purchase Agreements/Other revenues

- 2.11 Initial discussions with Addenbrooke's hospital took place during 2018 to gauge their interest in purchasing green electricity from the project. These discussions were positive dependent on the price of the electricity and their procurement processes. Sales to a local customer via a Power Purchase Agreement can produce a better return on investment than selling directly at a wholesale tariff onto the grid. A buried private wire would be required to connect the Park & Ride to Addenbrooke's in order to supply electricity, however much of the land between the two locations is owned by the County Council. It is proposed that the Council continues with further negotiations with Addenbrookes and other companies at the biomedical campus in the next stage of the project.
- 2.12 In parallel, discussions on the Council's future buying strategy for energy post 2020 are ongoing. The EIU is scoping how corporate Power Purchase Agreements (PPAs) and Demand Side Response (DSR) mechanisms included in purchasing agreements can be used to optimise benefits to the Council. This provides the opportunity to sell energy generated from our assets at better than wholesale price and buy electricity at lower cost.
- 2.13 The EIU is developing a second Innovate UK Bid for submission in July 2019, which will be the subject of a report to the July Commercial & Investment Committee. The aim of this project is to work with UKPN to provide the network capacity for growth to 2030 not only looking at strategic grid reinforcements as described in paragraph 2.8 above but also to deliver flexibility services for the network to manage peak demand. Babraham and Trumpington Park and Ride (P+R) schemes could form part of the flexibility services offer should we be successful in the Innovate UK bid, offsetting some of the costs of those

schemes.

Contracting

- 2.14 A contract covering the full development of the Investment Grade Proposal was agreed with design and build contractor, Bouygues Energies & Services. Progression through the overall development of the IGP is governed by Commercial and Investment Committee. A second contract with Local Partnerships (co-owner of the Refit 3 Framework) was negotiated to provide independent review of materials Bouygues produces as well as any Works contract eventually negotiated. Local Partnerships' review of the High Level Assessment was provided in February 2019 and will be reflected in future business models.

Outreach

- 2.15 In January and February 2019, presentations were given by officers of the County Council and partner organisation Bouygues to Great Shelford Parish Councillors and to a public meeting in Great Shelford. In addition, staff were available at the Park and Ride to talk to commuters about the project on several occasions. A letter delivered to local residents, information posted on the County Council's Facebook page and www.mlei.co.uk advertised the above events.
- 2.16 Ongoing community engagement is planned throughout project development. As there may be sensitivities due to the site being located in the green belt, a community engagement consultant will be procured.

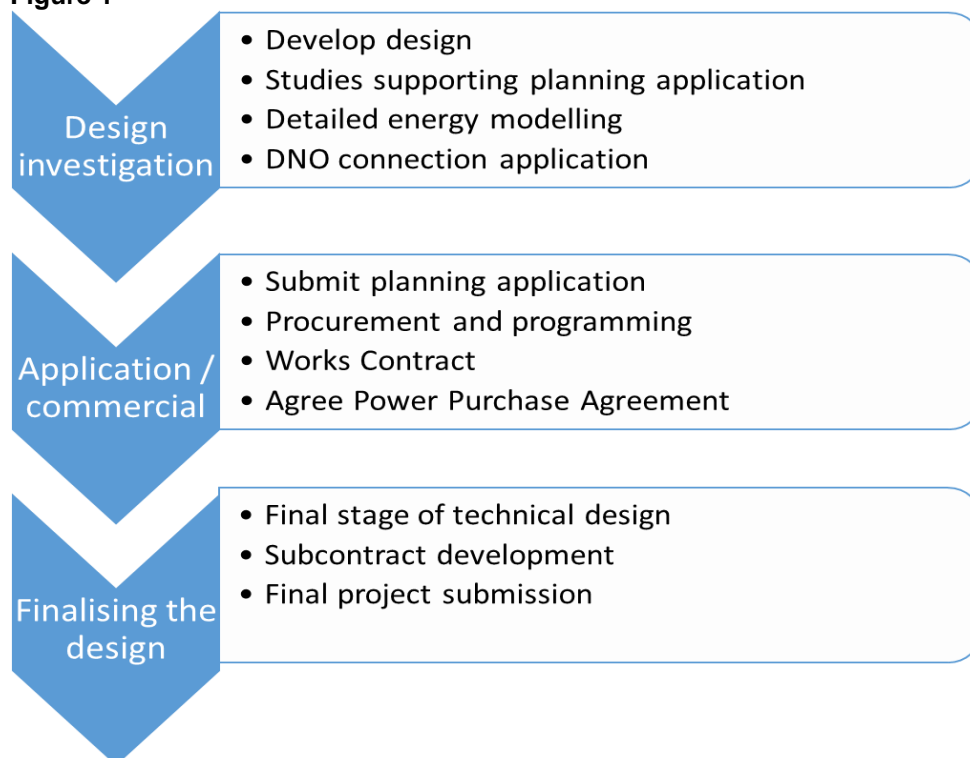
Other risk management

- 2.17 The Biomedical campus continues to grow as does the demand for parking at Babraham P+R. Since the relocation of Papworth hospital, monitoring at the P+R identifies that the site is at or near capacity. Discussions are now ongoing with Greater Cambridge Partnership as how to manage car parking capacity when construction of the smart energy grid starts on site.
- 2.18 OFGEM has been consulting on changes to its charging regime for use of the network for all asset types across the UK power system. The proposals aim to level the playing field between different forms of generation from 2023. However, the current proposals would negatively impact solar and battery storage schemes connecting to the distribution or transmission network more than any other type of asset. This has led OFGEM to review their proposals but if left unchanged, this has the potential to delay subsidy free solar and battery schemes by up to 3-5 years, as there may be no mechanism for these projects to recover the additional charges. Other asset classes can access Contract for Difference or capacity markets to recoup the additional charges. Discussions are now ongoing with the Department for Business, Energy & Industrial Strategy to prepare Government on the impact of these proposals on their Clean Growth Strategy.

Next stages

- 2.19 The diagram below (Figure 1) outlines the high level scope of work for the next three stages of the Investment Grade Proposal, i.e. stages 2 - 4.

Figure 1



Stage 2-4 Budget Requirements

2.20 Spend to date on Stage 1 and budget requirements for stages 2-4 are set out below.

IGP Stage	Indicative timescale	Revenue Budget	Capital Budget
Stage 1 (spent or committed)	Completed	£1,902	£77,404
Stage 2	July 2019 – March 2020	£27,135	£154,161
Stage 3	April – September 2020	£8,056	£109,019
Stage 4	October - December 2020	£4,828	£86,859
TOTAL		£41,922	£427,443

2.21 Approval is requested to draw down a further £350k of capital funding to develop the project through stages 2 to 4 as set out above. £40k of revenue funding is also required which will be provided within the Transformation Fund allocation agreed by General Purposes Committee in May, bringing the total additional project spend to £390k. The project budget agreed by Capital Programme Board in August 2018 included £459k for project development so the resource requirements set out above are in line with those previously approved. These estimates include an element of contingency so actual costs may be slightly lower.

2.22 We will report on spend against these budgets and progress under each stage in EIU's quarterly reports to C&I Committee.

3.0 ALIGNMENT WITH CORPORATE PRIORITIES

3.1 A good quality of life for everyone

There are no significant implications for this priority.

3.2 Thriving places for people to live

There are no significant implications for this priority.

3.3 The best start for Cambridgeshire's children

The project will provide clean renewable energy to power the sites' usage, and local customers either directly or via electric vehicle charging, thereby reducing the Council's and Cambridgeshire's carbon footprint and mitigating climate change.

4.0 SIGNIFICANT IMPLICATIONS

4.1 Resource Implications

4.2 If, following the development of the detailed business case, it is decided not to implement the projects, project development funding will have to be paid. The current proposition is to offset the costs from these projects against the wider program of energy projects in the pipeline.

4.3 There are no implications for Information and Communications Technologies or data ownership.

4.4 **Impact on human resources.** The costs for county council staff involvement to deliver the project are included.

4.5 **Sustainable Resources.** The project's goal is to generate low-carbon electricity, reduce electricity usage on-site, increase the provision of electric vehicle charge points and provide solutions to the grid capacity problems experienced across Cambridgeshire.

4.6 Procurement/Contractual/Council Contract Procedure Rules Implications

Bouygues Energies & Services was procured under a mini-competition run under the Refit 3 Framework. As the Framework does not expire until April 2020, there are no significant implications from a procurement or contractual standpoint.

4.7 Statutory, Legal and Risk Implications

4.8 Regulatory risk. The OFGEM Targeted Charging Review referenced in section 2.18 presents risk to forming viable business cases for solar and battery storage projects which require connection to the distribution network. A direct connection to a local customer would mitigate this risk.

- 4.9 Reputational risk due to a lack of parking during construction.
- 4.10 Health and safety implications. The canopies could provide some potential cover for crime, therefore the CCTV cameras on site will be repositioned for better coverage. Under canopy lighting will also be provided for better visibility.
- 4.11 A private wire connection to Addenbrookes would necessitate wayleaves / easements on third party land. A private Power Purchase Agreement would also be necessary.

4.12 Equality and Diversity Implications

There are no significant implications. The electric vehicle charge points will be available to the entire community.

4.5 Engagement and Communications Implications

A letter explaining the project was distributed to the surrounding households and businesses in person during January. Staff manned a table at the park and ride to communicate details of the project to commuters in the same time period. A presentation to the Great Shelford community was made in February 2019.

4.6 Localism and Local Member Involvement

Presentations were made to the Great Shelford Parish Council and to the Great Shelford public in January and February 2019. An email update was provided to the Parish Council, County Members, and City Councillors for Queen Edith's, Shelford, and Cherry Hinton in May 2019.

4.7 Public Health Implications

Vehicle emissions are a direct cause of poor air quality and the introduction of additional electric charging points for cars powered by zero emission electricity could therefore lower pollution and therefore result in positive health benefits through improved air quality. The Transport and Health Joint Strategic Needs Assessment 2015 states that new low emission vehicles are either fully electric with no emissions at the point of use or hybrid vehicles which have significantly reduced emissions for periods of the drive cycle and may be capable of some zero emission running. Therefore, with new low emission vehicle technology there is the potential for substantial real world cuts in emissions.

Implications	Officer Clearance
Have the resource implications been cleared by Finance?	Yes Name of Financial Officer: Sarah Heywood
Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by the LGSS Head of Procurement?	Yes Name of Officer: Gus DeSilva
Has the impact on statutory, legal and risk implications been cleared by LGSS Law?	Yes Name of Legal Officer: Debbie Carter-Hughes
Have the equality and diversity implications been cleared by your Service Contact?	Yes Name of Officer: Elsa Evans
Have any engagement and communication implications been cleared by Communications?	Yes Name of Officer: Joanna Shilton
Have any localism and Local Member involvement issues been cleared by your Service Contact?	Yes Name of Officer: Emma Fitch
Have any Public Health implications been cleared by Public Health	Yes Name of Officer: Stuart Keeble

Source Documents	Location
1. Outline Business Case for Smart Energy Grids for Trumpington and Babraham Park and Ride Sites, paper to Commercial and Investment Committee, 25 May 2018.	https://tinyurl.com/y4rypxyn