Agenda Item No: 7

INVESTMENT GRADE PROPOSAL (IGP) STAGE 1 UPDATE ON THE DEVELOPMENT OF THE NORTH ANGLE SOLAR FARM

To: **Commercial and Investment Committee**

Meeting Date: **12 July 2019**

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

Electoral division(s): **Soham South & Haddenham**

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

Purpose: **To provide a progress update on Stage 1 of the Investment Grade Proposal development process for this project and seek approval to proceed to Stages 2-3.**

Recommendation:

a) Note the findings of the Stage 1 work;

b) Note the risks around grid connection costs; and

c) Approve the progression to Stage 2 and 3 of the IGP development.

	Officer contact:		***Member contacts:***
Name:	Claire Julian-Smith & Hugo Mallaby	Names:	Councillors J Schumann & A Hay
Post:	Programme Manager/Asset Manager (Rural)	Post:	Committee Chair/Vice-Chair
Email:	Claire.julian-smith@cambridgeshire.gov.uk	Email:	joshua.schumann@cambridgeshire.gov.uk anne.hay@cambridgeshire.gov.uk
Tel:	01223 715349	Tel:	01223 706398

1. BACKGROUND

1.1. At the 18 January 2019 Commercial and Investment Committee meeting, a development budget of £600,000 for an Investment Grade Proposal (IGP) for an energy project at North Angle farm (previously referred to as Mere Farm) was approved. The IGP development is split into three stages 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. This report covers the IGP Stage 1 findings for the project (a 37 MW solar farm). Stage 1 includes:

- Initial design work;
- Pre-planning process;
- Distribution Network Operator feasibility study for a grid connection; and
- Application to the Distribution Network Operator.

2. MAIN ISSUES

2.1. **Grid Connection***.* The previous report highlighted that securing a grid connection in a constrained area is a key risk. Feedback from UK Power Networks (UKPN) indicated that an unconstrained connection would cost approximately £22m and a constrained connection (i.e. limiting the electricity we are allowed to sell) would cost approximately £6.5 million with a forecasted curtailment[1] figure of 6.35%.

2.2. The £6.5M breaks down to an allocation of approximately £1.5M for non-contestable works that UKPN will have to undertake (upgrades at the substation), and the £5M is allocated for contestable works (including laying cable from the site to the substation). It is our understanding that the £5M figure can be realistically lowered, and work is underway to identify such solutions, including connecting to battery storage schemes in the area.

2.3. While the increased connection cost has lowered the expected returns from the project, the impact of that has been partially offset by other factors, such as a reduction in interest rates, and the prospects for a positive return remain good. Table 1 illustrates the change in the expected return from the original High Level Assessment (HLA) presented to Committee in January 2019. The figures are before considering the potential mitigations outlined in paragraph 2.5.

Table 1 – Changes to expected returns:

	Capital cost	Payback period (years)	IRR (Internal Rate of Return)	NPV (Net Present Value)	25 year Net Return
18/01/2019	£22,777,260	14.18	6.56%	£2,365,600	£32.9M

[1] Enforced restriction (by UKPN) on the volume of electricity generated from the solar farm, which is delivered to the grid, thereby losing a proportion of the revenue.

12/07/2019	£27,580,092	15.12	4.95%	£2,085,428	£23.9M

2.4 A sensitivity analysis has been done to review the impact of changes in all the major factors that affect the projected return. The table in Appendix A summarises the results. While the returns are sensitive to changes in factors such as the wholesale price of electricity and interest rates, the analysis suggests there is currently more scope for increases than decreases in the projected return.

2.5. ***Alternative Grid Connection Options****.* Officers are actively exploring alternative grid connection options, presented in Table 2 below, with indicative costs (where known). Further information is being sought to inform the options appraisal. The solution offering the best business case will be pursued.

Table 2 – Connection Options:

	Capacity	**Grid Connection Option**	**Indicative Costs**	**Risks & Issues**
1.	29MW	UKPN (Burwell Local 33kV grid)	£3M	Cannot pursue options 1 & 2 simultaneously. If this option is withdrawn, the application process for option 1 will have to be started again.
2.	50MW	UKPN (Burwell main 132kV grid)	Under discussion with UKPN	Legal advice required to confirm that the capacities of Triangle and North Angle solar farms are viewed separately and that the capacity of North Angle could be increased to 50MW without reaching the threshold of a Nationally Significant Infrastructure Project (NSIP).
3.	37MW	Battery storage scheme	Under discussion.	Untested connection option. Timescales for the construction of each project would need to be aligned.

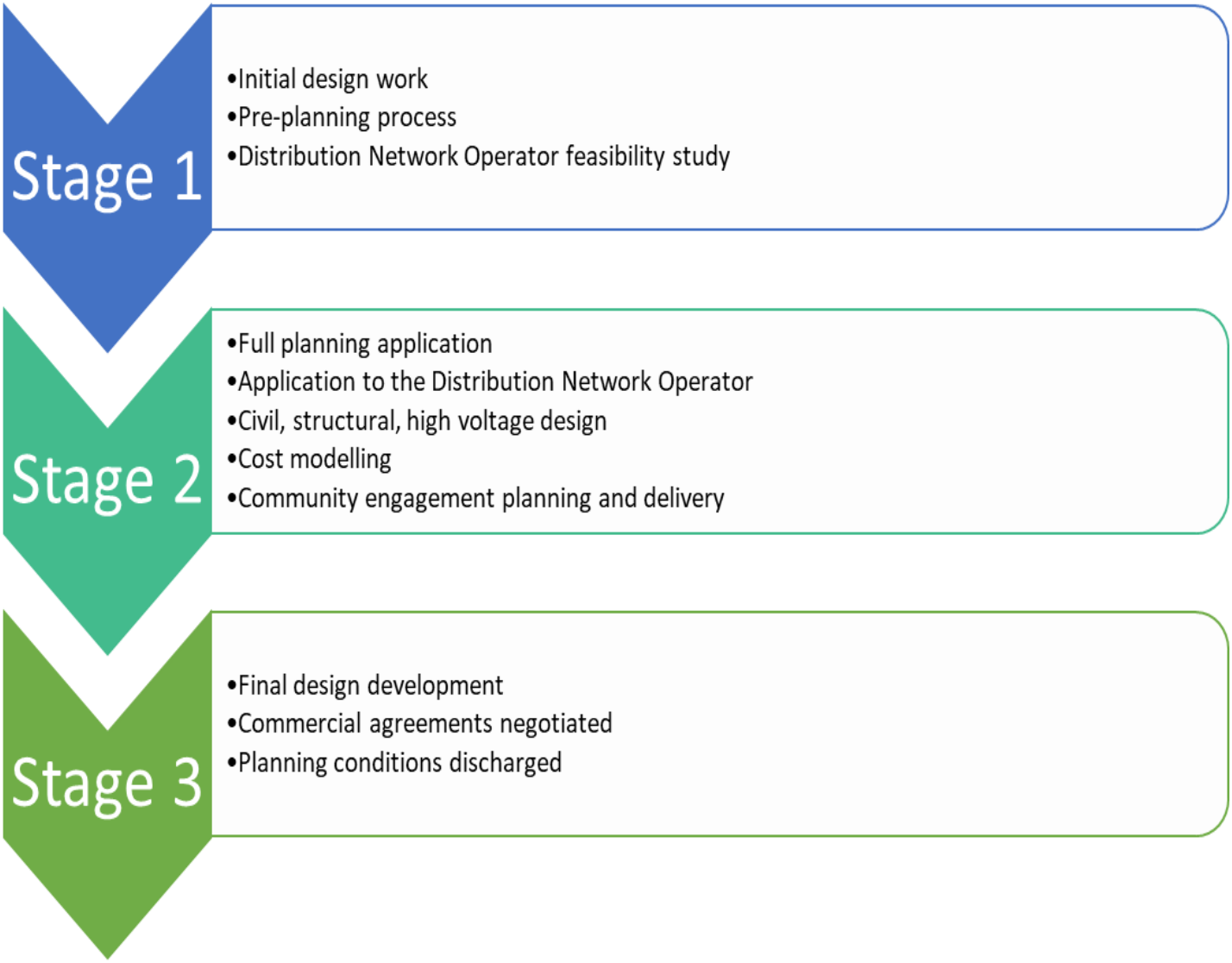
2.6. ***Planning****.* Pre-application advice has been sought from the Planning Authority, which is due week ending 19 July 2019. At this stage, it is not anticipated that a full Environmental Impact Assessment will be needed, however this remains a risk – particularly in relation to the historic environment and cumulative impact of existing and anticipated projects. Should this be required, officers will seek to scope the content to minimise cost. In order to mitigate any

planning delays, the seasonal environmental surveys required associated with a project of this size, as advised by our planning consultant, are under way.

2.7. ***Cumulative Impact.*** There are plans for a number of solar farms in close proximity to the North Angle site, including the Sunnica application for a 500MW solar farm. It is understood that these projects are at broadly the same stage of project development as North Angle. It is therefore important that the North Angle project is progressed quickly to mitigate potential issues of cumulative impact in the planning process

2.8. ***Community Engagement****.* Early engagement with key parish councils has started to gain feedback that will inform the planning application, due to be submitted by the end of 2019. The scope of the project has already been presented to both Wicken Parish Council and Soham Town Council for their views on any impacts and mitigation that can be included as part of the early design work. Procurement of external engagement expertise has started to support the planning application and this support will be in place from September 2019 as part of the next phase of work.

2.9. ***Next stages****.* The diagram below outlines the scope of work for the stages of the IGP development, this report seeks to proceed to stages 2-3 In contrast to the other energy projects, the development of the IGP for the North Angle project is split in to 3 stages, rather than 4. This is both a reflection of a comparatively less complex project, utilising a single technology; however, it also demonstrates how the development of these types of projects has evolved, and in the future it is likely that they will continue to be 3 stages, rather than 4.



2.9 Spend to date on stage 1 is a total of £55,100, and indicative costs for stages 2 and 3 are set out in Table 3 below:

Table 3 – Indicative costs for stages 2 and 3:

Element	Estimated cost*
Investment Grade Proposal – phase 2 • RIBA Design Stage 3**; • Planning application documentation and fee; • Cost modelling; and • Payment to Local Partnerships to assist in technical development / Framework compliance.	£390,000
Investment Grade Proposal – phase 3 • RIBA Design Stage 4**; • Measurement & Verification planning; • IGP finalisation; • Commercial documentation; • Discharge of planning conditions; and • Construction programme planning.	£140,000

*For each phase, costs for internal staff, legal and financial services are included above. ** A description of RIBA Plan of Work stages is included in **Appendix B**.

2.10 Spend against this project and progress within each stage will continue to be reported in the Energy Investment Unit's quarterly reports to C&I Committee.

2.11 Project issues and progress updates will be reported to the Members working group for the energy investment projects.

3. ALIGNMENT WITH CORPORATE PRIORITIES

A good quality of life for everyone

3.1 There are no significant implications for this priority.

Thriving places for people to live

3.2 There are no significant implications for this priority.

The best start for Cambridgeshire's children

3.3 There are no significant implications for this priority.

4. SIGNIFICANT IMPLICATIONS

4.1 Resource Implications

If, following the development of the detailed business case, the Council decides not to invest, the funding for the development of the detailed business case will have to be paid. A buffer to protect against the failure of any individual project is managed through the development of a pipeline of projects. The current proposition is to offset any sunk costs against the revenues generated from the wider program of energy projects being developed on our assets (excluding the schools and corporate building energy projects).

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

Impact on human resources: The costs for County Council staff involvement to deliver the project are included in the project development budget.

Sustainable Resources: The aim of the project is to generate low-carbon electricity, generate an income for the Council and provide solutions to the grid capacity problems experienced across Cambridgeshire.

4.2 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. Any resulting construction contract would only need to be in place before the expiration of the Framework.

4.3 Statutory, Legal and Risk Implications

All projects have to demonstrate compliance with State Aid requirements, even where there is no grant funding. The main way of doing that for this project will be to demonstrate that the Authority is acting commercially when generating and selling electricity.

The Council is able to sell electricity to the grid, and already does so through its extensive programme of schemes across schools, service buildings and County Farms Estate – including Triangle Farm.

4.4 Equality and Diversity Implications

There are no significant implications.

4.5 Engagement and Communications Implications

Given the number of solar farm projects coming forward, as described in 2.7, community engagement is a priority as the project develops to ensure that the North Angle scheme becomes the preferred community option.

Presentations have been delivered to Wicken Parish Council (11 June 2019) and Soham Town Council Planning Committee (24 June 2019). Further community engagement activity will be conducted in Stages 2 & 3. In particular as part of the planning application development at Stage 2, a consultant will be procured to deliver a series of community engagement events.

4.6 Localism and Local Member Involvement

The East Cambridgeshire Local Plan supports solar renewable energy generation. Concerns at loss of productive agricultural land is mitigated by siting the development on Grade 3 agricultural land.

4.7 Public Health Implications

The project will generate high voltage electricity. Designs must therefore include security fencing and CCTV cameras relaying images to a central control room to deter unauthorised access to the site.

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 de Silva
Has the impact on statutory, legal and risk implications been cleared by LGSS Law?	Yes Name of Legal Officer: Fiona McMillan
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: Sarah Silk / Eleanor Bell
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 Cases for Solar Farm on Rural Estate Land at Mere Farm	1. https://tinyurl.com/y64yk828
2 18 January 2019 C & I Committee Decision Statement	2. https://tinyurl.com/y27xm75e

Appendix A – Sensitivity Analysis:

Factor	Committee	Current	Sensitivity	NPV	Reason for choosing sensitivity figure
System capacity in MW	36.9	36.9	40.0	+£3.2m	Capacity proposed in grid connection application
Solar yield (kWh/kWp)	984	1,062	1,034	-£1.3m	Figure used for Triangle farm model (actual performance is
Degradation rate	0.75%	0.60%	0.50%	+£0.6m	Research studies show less drop in performance over time
Curtailment	4.00%	3.00%	1.00%	+£0.9m	The 6.35% in UKPN report assumed a much higher yield tha
Strike price (MWh)	£60.33	£66.87	£60.33	-£5.3m	Impact of reverting to Committee figure
Electricity inflation	4.07%	1.88%	4.07%	+£12.3m	Impact of reverting to Committee figure
General inflation (affects discount rate)	2.75%	2.20%	2.75%	-£2.9m	Impact of reverting to Committee figure
Loan interest rate	2.90%	2.06%	1.86%	+£1.5m	Impact of successfully gaining access to Local Infrastructure
Capital costs	£22.8m	£27.6m	£28.6m	-£1.2m	Other costs could potentially rise, e.g. due to exchange rate
Impact of Targeted Charging Review			BSUoS charges	-£2.6m	

Notes on factors:

System capacity – the peak generation capacity of the solar farm
Solar yield – the efficiency of the panels in converting solar energy into electricity
Degradation rate – the reduction in efficiency of the panels as they get older
Curtailment – the extent to which UKPN prevent electricity from being exported in order to balance the overall grid
Strike price – the current price of wholesale electricity
Electricity inflation – the future increase expected in the wholesale electricity price
General inflation – the future increase expected in other prices
Loan interest rate – the current cost of a PWLB loan for 25 years
Capital costs – the total initial cost of the project, including Council development costs
Targeted Charging Review – Ofgem proposals out to consultation that could result in an increase in costs to renewable energy projects of using the grid

Appendix B: – Description of RIBA stages

The RIBA Plan of Work organises the process of briefing, designing, constructing and operating building projects into eight stages and details the tasks and outputs required at each stage.

Stages

The stages are represented by numbers to avoid confusion with the stages in the RIBA Outline Plan of Work 2007, which were represented by letters.

The shift to numbers also allows the stages to be aligned with a set of unified industry stages agreed through the Construction Industry Council (CIC). Aligning the stage numbers in the RIBA Plan of Work 2013 with this structure helps to achieve one of the core objectives of the RIBA Plan of Work 2013, namely greater cohesion within the construction industry.

The eight stages of the RIBA Plan of Work 2013 are derived as follows:

Stage 0 Strategic Definition is a new stage in which a project is strategically appraised and defined before a detailed brief is created. This is particularly relevant in the context of sustainability, when a refurbishment or extension, or indeed a rationalised space plan, may be more appropriate than a new building. Certain activities in Stage 0 are derived from the former (RIBA Outline Plan of Work 2007) Stage A – Appraisal.

Stage 1 Preparation and Brief merges the residual tasks from the former Stage A – Appraisal – with the Stage B – Design Brief – tasks that relate to carrying out preparation activities and briefing in tandem.

Stage 2 Concept Design maps exactly to the former Stage C – Concept.

Stage 3 Developed Design maps broadly to the former Stage D – Design Development – and part of Stage E – Technical Design. The strategic difference is that in the RIBA Plan of Work 2013 the Developed Design will be coordinated and aligned with the **Cost Information** by the end of Stage 3. This may not increase the amount of design work required, but extra time will be needed to review information and implement any changes that arise from comments made before all the outputs are coordinated prior to the **Information Exchange** at the end of Stage 3.

Stage 4 Technical Design comprises the residual technical work of the core design team members. At the end of Stage 4, the design work of these designers will be completed, although they may have to respond to **Design Queries** that arise from work undertaken on site during Stage 5. This stage also includes and recognises the importance of design work undertaken by specialist subcontractors and/or suppliers employed by the contractor (Performance Specified Work in JCT contracts) and the need to define this work early in the process in the **Design Responsibility Matrix**.

Stage 5 Construction maps to the former Stage K – Construction to Practical Completion – but also includes Stage J – Mobilisation.

Stage 6 Handover and Close Out maps broadly to the former Stage L – Post Practical Completion – services.

Stage 7 In Use is a new stage which includes **Post-occupancy Evaluation** and review of **Project Performance** as well as new duties that can be undertaken during the In Use period of a building.

Procurement and tendering

Although the RIBA Plan of Work 2013 does not include a stage corresponding to Stages G, H and J of the RIBA Outline Plan of Work 2007, which relate to the tendering activities associated with traditional procurement, it includes these activities in the Procurement task bar.