

NORTH ANGLE SOLAR FARM INVESTMENT DECISION

To: Commercial and Investment Committee

Meeting Date: 18 December 2020

From: Steve Cox, Executive Director, Place and Economy

Electoral division(s): Soham South and Haddenham

Forward Plan ref: 2020/053

Key decision: YES

Outcome: To provide an additional 29.4 MW capacity of local renewable electricity generation in Cambridgeshire and save over 105,000 tonnes of carbon dioxide emissions over the next thirty years, displacing fossil fuel generated electricity. To build networks of local clean electricity supplies for local businesses, communities and projects.

Recommendation: Members are asked to:

- a) To approve the investment case for the North Angle Solar Farm project as set out in section 2 of the report.
- b) To approve the proposed delegation arrangements set out in section 6, to enter into a construction contract with Bouygues E&S Solutions on agreement of the final price; and
- c) To scope options for private wire connections to the North Angle Solar Farm Project and in particular the detailed proposal for Swaffham Prior Community Heat Project.

Officer contact:

Name: Claire Julian-Smith
Post: Programme Manager - Energy
Email: Claire.julian-smith@cambridgeshire.gov.uk
Tel: 01223 715349

Member contacts:

Names: Councillors Goldsack and Boden
Post: Chair/Vice-Chair
Email: Mark.Goldsack@cambridgeshire.gov.uk | cboden@fenland.gov.uk
Tel: 07831 168899 | 07860 783969

1. Background

- 1.1 In May 2019, Cambridgeshire County Council declared a Climate and Environment Emergency and committed to the development of a Climate Change and Environment Strategy (CCES) which was approved at Full Council in May 2020. This strategy includes mitigation of climate change and the use of the Council's assets to generate clean energy.
- 1.2 The Council adopted a new corporate objective (in February 2020) to deliver net zero carbon emissions for Cambridgeshire by 2050 and committed as part of its CCES to UK ambitions to green finance through the use of its assets to support green projects.
- 1.3 The Council successfully developed a 12 MW solar park at Triangle Farm, Soham, which has been generating clean energy since 2017 and is delivering around £350,000 per annum net revenue to support Council services. Building on this success, the Council was keen to develop a pipeline of large, clean energy projects for commercial and community benefit.
- 1.4 The North Angle Solar Farm Project is an area of 188 acres of Council-owned land located just south of the existing Triangle solar farm, on North Angle Farm (see Appendix A). The project comprises 78,000 solar panels and will generate the equivalent electricity as used by 12,000 households annually and prevent over 105,000 tonnes of CO₂ emissions over the 30 year lifetime of the project.
- 1.5 The project development budget for North Angle Farm totalled £1.1 million including the down payment for the grid connection to UK Power Networks. The budget has covered all project development costs including the requirement for an Environmental Impact Assessment, crop compensation and the investment grade proposal. The forecast spend to date on the development budget is £870,000 of the £1.1 million.
- 1.6 The outcome of this report is to seek approval for the investment case for North Angle Solar Farm, agree works contracts and start construction in Spring 2021, (as illustrated in the high level draft programme attached in Appendix B) and bring forward a detailed proposal for a power purchase agreement for the Swaffham Prior Community Heat Project.

2. Investment Proposal

- 2.1 In October 2020, Environment and Sustainability Committee approved a paper on Valuing Carbon. This proposed that all Council business cases include the notional value of carbon to sit alongside and inform investment decisions. A summary of the base business case is set out overleaf in Table 1. The carbon value of the savings is taken from the government Green Book, which sets out recommended price assumptions for project appraisal. In the case of electricity generation, these assumptions are on regulated emissions and based on projected prices within the EU emissions trading scheme.

Table 1: Base business case, November 2020

Including Carbon	Excluding Carbon	
£24,443,287	£24,443,287	Total Capital Investment Cost
£71,673,737	£61,944,434	Revenue over 30 years
£42,647,333	£32,918,030	Net Financial Benefit over 30 years
7.44%	5.84%	30yr Internal Rate of Return (IRR)
6.66%	4.84%	25yr Internal Rate of Return
13.47	16.09	Payback Period (years)
£12,311,606	£6,425,822	Net Present Value (NPV) over 30 years
	£9,563,705	NPV before cost of loan interest
105,101	105,101	Tonnes Avoided Over 30 years (CO ₂)
3,503	3,503	Average Annual Carbon Saving (CO ₂)
~433	~433	Total Household Carbon Footprint (CO ₂ e)
1069GWh	1069GWh	Generated over 30 years
~9,473	~9,473	Number of households equivalent
~14,304	~14,304	Electric Vehicle trips around earth

- 2.2 The future price for carbon will depend on future political actions by the UK and other governments. This could lead to the carbon savings created as a result of this project as having real cash value. For example, should a local carbon offset scheme be developed, the County Council could consider selling this benefit or retain it as part of its own progress towards net-zero carbon.
- 2.3 The investment case described above is the result of a full procurement for tendered construction works. However, the investment case is not a guaranteed final price due to key uncertainties such as Brexit and COVID-19 that could impact supply chain costs along with exchange rates and tariffs.
- 2.4 A sensitivity analysis is attached in Appendix C on the base business case. Some of the more significant risks and opportunities associated with this are highlighted below. In addition, the risk register for the project is provided in Appendix D.
- 2.5 The £26.3m capital budget for this project, funded by prudential borrowing, was agreed as part of the 2020-21 Business Plan.' The budget will be revised to reflect the finalised costs agreed in the business case for the project as part of the 2021-22 Business Plan, due to be agreed by Council in February 2021.

3. Material Risks and opportunities to the Business Case

3.1 Wider commercial risks – not under our control

3.1.1 The North Angle Solar Farm project will be connected to the distribution network and the default position will be to sell electricity at wholesale prices. The ability to predict the tariff over the project lifetime has been a recurrent issue for investment projects in the renewable energy sector and there has been considerable variation in prices over the last few years.

3.1.2 During 2020, particular downward pressure on prices has been driven by two major factors, Brexit and the Covid-19 pandemic. These resulted in energy prices falling to around £0.028/kWh at one point in the summer, compared to their peak of about £0.070/kWh at the end of 2018. Since then prices have recovered somewhat and are currently around the £0.050/kWh level used in the business case.

3.1.3 In the long-term, projections by the Department for Business, Energy and Industrial Strategy (BEIS) suggest prices will remain roughly stable in the future and this is the basis of the business case. However, there is the possibility that prices could be either higher (as a result of shortage of capacity or an increased use of nuclear) or lower (as a result of excess capacity or cost reductions in future renewable energy projects).

3.1.4 The Council is actively looking at ways to mitigate the risk of changes in energy prices. For example, it is looking at opportunities to sell the electricity locally to customers through private wire and Power Purchase Agreements. One example under discussion is to sell approximately 5% of the electricity generated to the proposed Swaffham Prior Community Heat Project. This, along with sales to other local projects when they become available, could mitigate the risk of wholesale price reductions. In addition, the Council is considering the procurement of an 'aggregator'. Aggregators have expertise in wholesale electricity markets and could help the Council maximise returns and the opportunities for selling electricity.

Table 2 below shows the impact of a 5pKwh reduction in wholesale price to £0.045/kWh on the base business case. The wholesale price would have to reduce by 14p/kWh to £0.036/kWh before the income generated would not cover the capital cost of the scheme.

Table 2 – Sensitivity to lower wholesale energy price

	Base Case	Sensitivity Case
IRR	6.66%	5.40%
Average Annual Cashflow	£1,705,893	£1,374,282
NPV	£12,311,606	£7,826,740
Payback (years)	13.5	14.9

3.1.5 The base business case is based on an expected level of electricity generated by North Angle. This has been estimated by taking actual performance of the adjacent solar farm at Triangle Farm since 2017 and applying it to the North Angle project. The expected level is approximately 9% higher than the figure Bouygues would guarantee to supply. This reflects Bouygues' need to manage performance risk on the project and their own commercial risks. The figure in the business case is a conservative, rather than optimistic assumption as actual generation is likely to be higher for two reasons:

- The quality of solar panels has continued to increase since 2016 when the ones used at Triangle Farm were sourced.
- The energy output used in the model from Triangle Farm was not the actual energy produced, but an adjusted figure taking account of the fact that the amount of solar radiation since 2017 has been about 5% above the long-term average. Given the expected impact of climate change, it is likely that solar radiation will continue to be above the historic average in future.

Table 3 below shows the impact on the business case if it were based on guaranteed energy production rather than the current figure.

Table 3 – Sensitivity to lower energy production

	Base Case	Sensitivity Case
IRR	6.66%	4.87%
Average Annual Cashflow	£1,705,893	£1,233,842
NPV	£12,311,606	£5,977,919
Payback (years)	13.5	15.6

3.1.6 The business case assumes an interest rate of 1.25%, which takes account of the availability of the Local Infrastructure Rate (LIR) for this project. Up until recently this offered a discount of 1.2% to the main Public Works Loan Board (PWLB) rate. However, on 26th November 2020 the Government announced that the additional 1% added to PWLB rates earlier in the year, to reduce the incentive for Councils to borrow, would be removed (but restrictions on the ability of Councils to borrow to fund commercial investments were introduced instead). This means the effective discount from the LIR is now 0.2%. Given the very recent change to arrangements, there is now no real risk of further changes to the PWLB interest rate from political actions, but market movements in the cost of gilts will still be reflected in changes to PWLB rates. Table 4 below shows the potential impact of a 0.2% increase in rates.

Table 4 – Sensitivity to loan interest rate

	Base Case	Sensitivity Case
IRR	6.66%	6.49%
Average Annual Cashflow	£1,705,893	£1,676,561
NPV	£12,311,606	£10,837,145
Payback (years)	13.5	13.7

3.2 Project delivery risks

- 3.2.1 The proposed UKPN cable route followed a hard dig along the highway. To reduce costs the project has explored the option for a soft dig using County land and third party landowners to reduce the high costs of the grid connection. Currently the project has no contract with an Independent Connection Provider (ICP) and therefore the final costs for the route are not fully costed. The Council's Rural Estate team have undertaken preliminary negotiations on wayleaves with several landowners and are now looking to finalise these, subject to Council approval to proceed with the project. It will be imperative that these negotiations are completed in a timely manner to ensure the commencement of construction, which is programmed to start in March 2021.
- 3.2.2 Solar panel capital costs – the solar panels are the single largest cost for the project, as was the case with the Triangle Farm project. At the time of preparing the business case, China announced an increase in glass production tariffs which has a material impact on the cost of panels. In addition, China has recently been subject to flooding, which has delayed panel production and the subsequent cost increases to panels due to shortages. An additional amount of close to £1m is included in the business case on top of the target cost to account for these increases, but there is still a clear risk of additional increases related to Brexit and further shortages. Table 5 below shows the impact if there were an additional £1M of capital costs (an approximate increase of 4% on overall capital costs).

Table 5 – Sensitivity to capital costs

	Base Case	Sensitivity Case
IRR	6.66%	6.22%
Average Annual Cashflow	£1,705,893	£1,658,393
NPV	£12,311,606	£11,183,232
Payback (years)	13.5	14.0

4 Community Engagement and benefits to the local community

- 4.1 Community Engagement - Peterborough Environment City Trust (PECT) were appointed to provide community engagement support for the project. Their objective was to seek the views of local residents, businesses and other stakeholders.
- 4.2 PECT planned to hold various types of consultation events and visits planned to local groups and community events across the local area. However, due to the arrival of the COVID-19 pandemic in Spring 2020 these events were cancelled and alternative digital communication methods were used to reach a wide audience instead.
- 4.3 Two webinars were held during April and May 2020. The sessions were hosted by members of the project team - MLEI, Bouygues and PECT - and included a background and overview of the proposed project, its benefits, and proposed timelines. Participants were encouraged to ask questions during a Q&A session,

which were then answered live by members of the team. Recordings of the presentations were shared on social media, for anyone who was unable to attend the event.

- 4.4 The online events were promoted as part of a wider social media campaign by project partners, and the key geographic area was targeted through paid advertising. Posts were kept engaging with a mixture of informative messages, animated videos, recordings of online events, photographs and digital posters, images from which are shown in appendix E. During a one-month period (April-May 2020) PECT's Facebook page had an overall post reach of 79,958 and a post engagement of 6,164.
- 4.5 Three direct engagement events with Wicken Parish Council and Soham Town Council were undertaken by the MLEI project team between June 2019 and January 2020.
- 4.6 A wide range of stakeholders have been communicated with throughout the project and their input has been incorporated in to the planning application, including the inclusion of community elements such as a new section of footpath, community accessible green space and incorporation of species rich grassland under and between the panels.

5 Impact of not proceeding with the project

- 5.1 The Council could decide to delay investment or not to invest in the project. If a delay is proposed, there is a risk that the connection agreement with UKPN will expire and the project moves to the bottom of the list for connections as there are a range of other solar projects under development in the area. This could result in an increase in the future connection costs for the project. In addition the project could shift to a winter build which will also incur additional costs. If the project is cancelled the development costs will need to be funded from revenues. These costs amount to £870,000, of which £127,000 is potentially recoverable. The residual costs would be offset against the energy investment programme income, however, as these income streams have been budgeted for within the Council's wider Business Plan, this would cause an additional one-off pressure.
- 5.2 In addition to the impacts identified above (in either delaying or not investing in the project), officers have also investigated and appraised other options that may be open to the Council; such as the potential to sell on the land with the benefit of planning permission, or the opportunity to review how the development is run or funded in the future. The opportunity to sell the land on with the benefit of planning permission is not a viable option, as this project has been developed on the basis that the Council intends to develop this energy scheme itself. As such, the planning permission fell to be determined under Regulation 3 of the Town and Country Planning General Regulations 1992 (Statutory Instrument 1992/1492), as opposed to a project that the Council does not intend to develop itself that falls within the remit of Regulation 4 of the same legislation that requires planning permission to be sought by the relevant City or District Council. In the event that the Council does not wish to proceed with this project, in order to be able to sell the land on with the benefit of planning permission, this would need a new planning permission to be sought from East Cambridgeshire District Council under Regulation 4, which would require additional costs and time for the necessary determination process, which would lead to similar issues and impacts discussed in paragraph 5.1. above. Nevertheless, the

opportunity to review how the development is run or funded in the future would be possible once the Council had implemented the planning permission and developed the energy scheme itself.

6. Proposed delegation arrangements

- 6.1 To align with the existing construction programme, which is targeting a summer build (during 2021), it will be necessary to sign a works contract with Bouygues early 2021 to enable the purchase of materials and equipment. Similar to the Triangle Solar Farm, it is proposed the decision to sign a contract with Bouygues is delegated to the Chief Finance Officer, in consultation with the Chair of Commercial and Investment Committee and the Executive Director Place and Economy.
- 6.2 The overall final costs for the project, including those of the solar panels, will be given by Bouygues immediately ahead of signing the contract. This will allow Bouygues to then buy the panels and key components of the scheme at a known price.
- 6.3 The decision to proceed to contract would be subject to the Net Present Value of the final business case not being significantly worse than shown in this report.

7. Alignment with corporate priorities

7.1 A good quality of life for everyone

Any revenues derived from the scheme would be used to support key Council services, supporting a good quality of life for residents.

7.2 Thriving places for people to live

There are no significant implications for this priority.

7.3 The best start for Cambridgeshire's children

There are no significant implications for this priority.

7.4 Net-zero carbon emissions for Cambridgeshire by 2050

It is estimated that the project would prevent the emission of more than 105,000 tonnes of CO₂ over the lifetime of the project through offsetting fossil-fuel electricity generation.

8. Significant Implications

8.1 Resource Implications:

The forecast spend to date on the development budget is £870,000; the majority of which are sunk costs, as described in para 5.1. The costs for County Council staff involvement to deliver the project are included in the project development budget.

Future costs for staff to manage the ongoing project are included in the business case.

- 8.2 Procurement / Contractual / Council Contract Procedure Rules Implications: Bouygues Energies & Services were procured under a mini-competition run under the Refit 3 Framework. There are no significant implications arising from this procurement or the proposed contractual arrangements.
- 8.3 Statutory, Legal and Risk Implications:
- 8.3.1 The County Council has a corporate objective to deliver net zero carbon emissions for Cambridgeshire by 2050 and this project supports the Council to deliver this objective.
- 8.3.2 Planning permission has been obtained from the County Council under Regulation 3 of the Town and Country Planning Act (General Regulations) 1992 as a project it intends to develop itself and legal advice confirms that the Council is able to implement this without the need to set up a company.
- 8.4 Equality and Diversity Implications:
There are no significant implications.
- 8.5 Engagement and Communications Implications:
Given the number of solar farm projects coming forward in close proximity to the North Angle site, and the sensitivity of the area from an historic environment perspective, community engagement was a priority as the project developed to ensure that the North Angle scheme became the preferred community option. External support from PECT was appointed to gather feedback from the local community, relay key messages and deliver a series of community engagement events. Please see section 4 above for more details.
- 8.6 Localism and Local Member Involvement:
The East Cambridgeshire Local Plan supports solar renewable energy generation. Concerns at the loss of productive agricultural land were mitigated by siting the development on Grade 3 agricultural land wherever possible.
- 8.7 Public Health Implications:
There are no significant implications. This renewable energy project will generate electricity from the sun, preventing the emission of over 105,000 tonnes of CO₂ over the lifetime of the project.

Have the resource implications been cleared by Finance? Yes

Name of Financial Officer: Ellie Tod

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 the Council's Monitoring Officer or LGSS Law? Yes

Name of Legal Officer: Fiona McMillan

Have the equality and diversity implications been cleared by your Service Contact? Yes

Name of Legal Officer: Elsa Evans

Have any engagement and communication implications been cleared by Communications? Yes

Name of Officer: Bethan Griffiths

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 or No

Name of Officer: Iain Green

Source documents

Documents

- Outline Business Case (business case for a solar farm on rural estate), January 2019
- Investment Grade Proposal (IGP) Stage 1 update on the development of the North Angle Solar Farm project, July 2019
- Approval for Grid Connection down payments for energy investment projects, October 2019
- Project update, March 2020 (circulated via email)

Location

- <https://tinyurl.com/y64yk828>
- <https://tinyurl.com/y2ncl6k5>
- <https://tinyurl.com/uo32y6c>
- Available by e-mail

Appendix A: Site location

A map showing the proposed area for the development of a solar farm on North Angle farm (188 acres / 76 hectares), within the County-owned Mere Farm Estate.



Appendix B: High level (draft) programme:

Stage	Q1 2021			Q2 2021			Q3 2021			Q4 2021			Q1 2022			Q2 2022		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Pre-Contract																		
Contract Finalisation	█	█																
Contract Sign-off	█	█																
Design Validation Surveys	█																	
PCIP / H&S Plan Finalisation	█	█																
Pre-con Planning Conditions Work	█																	
Off-site Mobilisation		█	█	█														
Pre-con Planning Conditions Discharge	█	█	█	█														
Surveys	█	█																
Pre-construction Design	█	█	█															
Programming & Interfacing		█	█															
Procurement			█	█	█	█	█	█	█									
Long Lead / Major Equipment			█	█	█	█	█	█	█									
Site Mobilisation / Pre-Con			█	█	█	█	█	█	█	█	█	█	█	█				
Construction					█	█	█	█	█	█	█	█	█	█	█			
Roadways					█	█	█	█										
Mounting							█	█	█	█								
Piling						█	█	█	█									
Mechanical Install								█	█	█	█	█	█					
Trenching / Cabling							█	█	█	█	█	█	█					
Inverters / Substations Install									█	█	█	█	█					
Other - Controls / Weather Stations										█	█	█	█	█				
Terminations & Jointing										█	█	█	█	█				
Commissioning										█	█	█	█	█	█			
Demobilisation										█	█	█	█	█	█	█		
Practical Completion															█	█		
Provisional Acceptance																█	█	

Appendix C: Sensitivity of business case to changes in assumptions

Major areas affecting results	Business case assumptions	Sensitivity adjustment
Energy produced	Extrapolated from Triangle Farm actuals	Bouygues assumptions underpinning Energy Performance Guarantee
Energy available for sale	Allows 3% curtailment by UKPN	Allows 6% curtailment
Wholesale price	£0.05/kWh	£0.045/kWh
Price charged to Swaffham Prior	£0.05/kWh	£0.06/kWh
Sale of carbon credits	Sell at Green Book traded price	Sell at 50% of Green Book traded price
Capital costs	Base case	Base case + £1M (approx. 4% increase)
Operational costs	Base case	Base case + 10%
CCC costs (rent, rates, insurance)	Base case	Base case + 10%
Lifecycle costs	Base case	Base case + 10%
Inflation (RPI)	2.75% RPI, 2.00% CPI	3.75% RPI, 3.00% CPI
Loan interest rate	1.17%	2.17%

	Base Case	Energy Produced	Energy available for sale	Wholesale Price	Price charged to Swaffham Prior	Sale of Carbon Credits
IRR	6.66%	4.87%	6.22%	5.40%	6.77%	5.76%
Average Cashflow	£1,705,893	£1,233,842	£1,591,268	£1,374,282	£1,738,379	£1,511,307
NPV	£12,311,606	£5,977,919	£10,742,071	£7,826,740	£12,737,354	£9,368,714
Payback (years)	13.5	15.6	13.9	14.9	13.4	14.6

	Base Case	Capital Costs	Operational Costs	CCC Costs	Lifecycle Costs	Inflation (RPI)	Loan Interest Rate
IRR	6.66%	6.22%	6.52%	6.56%	6.62%	7.77%	6.49%
Average Cashflow	£1,705,893	£1,658,393	£1,668,148	£1,678,959	£1,690,503	£2,206,702	£1,676,561
NPV	£12,311,606	£11,183,232	£11,802,462	£11,949,465	£12,148,603	£12,559,197	£10,837,145
Payback (years)	13.5	14.0	13.6	13.6	13.5	12.7	13.7

Appendix D: North Angle Solar Farm Risk Register

Material Risks	Causes	Impacts	Risk Level	Mitigating Strategies
Breach of planning condition	<ol style="list-style-type: none"> 1.Failure to meet planning requirements 2.Incompetency 3.Resources - Insufficient/inadequate project or supply chain resources available to develop the project 	<ol style="list-style-type: none"> 1.Project delays 2.Additional costs 		<ol style="list-style-type: none"> 1. Commission competent planning consultant 2. CCC to ensure that appropriate resources and financial provisions are committed to the discharge of conditions
Project affected by external events	<ol style="list-style-type: none"> 1.Covid-19 2.Brexit 	<ol style="list-style-type: none"> 1.Delays to / unable to complete development programme 2.Increased costs, changes to the economic business case. 		<ol style="list-style-type: none"> 1. Continue to monitor the evolution of Covid-19 and Brexit events
The project becomes unfeasible/ unviable	<ol style="list-style-type: none"> 1.Failure to identify and/or secure the most cost-efficient cable route to the point of connection. 2.Legal - Challenges in obtaining wayleaves or easements over third party land. 3.Wholesale prices/price projections are lower than the modelled predictions. 4.Changes to economy cause inflationary cost increases for goods and services. 5.Wrong assumptions in the financial model 	<ol style="list-style-type: none"> 1. Project cessation and/or delay (due to negotiation) 2. Extra legal costs and additional costs associated with alternative routing around third party land 3. Increased costs, changes to the economic business case 4. Forecasted revenues are lower than predicted, thus extending paybacks beyond the thresholds agreed in the contract. 		<ol style="list-style-type: none"> 1. Optimisation/Aggregator Services to be procured 2. CCC's Real Estates involved in the wayleaves/easement negotiation process 3. Cost analysis of the potential routes proposed by UKPN 4. Quote from an Independent Connection Provider (ICP) for the contestable works. 5. Undertake sensitivity analysis to evaluate the impacts of all potential pricing scenarios. 6. Consideration of the option to supply electricity for the Swaffham Project.
Insufficient/inadequate resources available to develop the project	<ol style="list-style-type: none"> 1.Insufficient/inadequate local supply-chain contractor resources available to deliver the project 2.Labour market affected by Brexit and the restriction of EU citizens to work in the UK 	<ol style="list-style-type: none"> 1.Delays to / unable to complete development programme 2.Need to source from further afield - increased costs 		<ol style="list-style-type: none"> 1. Continue monitoring the local and regional economy, the progress of the Covid-19 pandemic and implications of Brexit.
Project is negative impacted by legal procedures	<ol style="list-style-type: none"> 1.A change in regulations/legislation drives changes in the design or development of the project 2.Grid connection traverses third party land, thus necessitating wayleaves/easements 3.Contractor or subcontractor breach/cessation leads to termination of contract midway through the construction phase 	<ol style="list-style-type: none"> 1.Programme delays, additional costs, legal 2.Changes to the economic business case. 		<ol style="list-style-type: none"> 1. Seek legal advice for the wayleave/easement negotiations 2. Involvement of the CCC's Real Estates team in the cable route definition and the wayleave/easement negotiations. 3. Continual monitoring and research into prospective regulatory or legislative changes that may impact the viability of the proposal.
Environmental disaster occurs during the construction phase.	<ol style="list-style-type: none"> 1.Leaching of hazardous fluid pollutants into ground e.g. asbestos 2.Uncontrolled release of airborne pollutants 3.Bad practices and lack of monitoring 4.Poor construction management 	<ol style="list-style-type: none"> 1.Legal and remedial additional costs 2.Damage to local natural habitat 		<ol style="list-style-type: none"> 1. Ensure effective environmental controls, policies and procedures are in place on-site. 2. Commission Environmental Aspects & Impacts Assessment and develop and implement the Construction Environmental Management Plan prior to construction.
Community disturbed and disrupted by construction works	<ol style="list-style-type: none"> 1.Noise/vibration, roadworks, dust, lighting etc. 	<ol style="list-style-type: none"> 1.Reputation and relationship with customers 2.Complaints received 		<ol style="list-style-type: none"> 1. Develop Construction Environmental Management Plans and Risk Registers to identify and minimise potential nuisances, such as noise, vibration etc.

Material Risks	Causes	Impacts	Risk Level	Mitigating Strategies
Injury, illness or death caused in the construction of the project	<p>2.Lack of an effective communication strategy during the construction phase</p> <p>1. Insufficient safe systems of work in place on-site/insufficient risk management practices</p> <p>2. Unforeseen or unidentified hazards</p> <p>3. Insufficient and incompetent management/supervision resources</p>	<p>3.Programme delays</p> <p>1. Injuries and/or fatalities</p> <p>2.Workdays lost</p> <p>3.Project is cancelled</p> <p>4.Damage to reputation</p> <p>5.Legal cost and litigations</p>		<p>2. Ensure that complaints management is set out in the communication strategy</p> <p>1. Ensure effective H&S controls, policies and procedures are in place on-site.</p> <p>2. Traffic Management Plans in place</p> <p>3. Effective communication about the procedures to be adopted</p>
Trespassing of construction site, theft or vandalism of construction materials	<p>1. Insufficient security and segregation of construction sites</p>	<p>1. Injury or death</p> <p>2. Additional costs</p> <p>3. Legal disputes</p>		<p>1. Insurances to cover such events.</p> <p>2. Implement appropriate security controls, including hoardings, signage, locks, security lighting, smart water system and remotely monitored, CCTV</p>
Programme delays during the construction phase.	<p>1. Poor coordination and management of resources</p> <p>2. Bad weather</p> <p>3. Coronavirus outbreak reduces the availability of solar PV panels</p>	<p>1. Programme delays, cost overruns</p>		<p>1. Undertake comprehensive supply-chain vetting to establish resource capacity</p> <p>2. Monitor government advice regarding personal and commercial activities as pandemic develops.</p> <p>3. Develop a realistic and functional delivery programme and project execution plan, ensure effective contractual terms to incentivise deliver against the programme</p>
Quality of installation works fail to achieve CCC's Requirements	<p>1. Poor workmanship</p> <p>2. Substandard materials</p>	<p>1. Programme delays</p> <p>2. Cost overruns,</p> <p>3. Poor performance in operation</p>		<p>1. Implement proper and effective quality control procedures.</p> <p>2. Quality acceptance tests to be undertaken prior to handover of any works.</p>
Unavailability of electrical generation	<p>1. Poor coordination and execution of commissioning</p>	<p>1. Revenue delays</p> <p>2. Additional cost</p> <p>3. Client disputes</p> <p>4. Damage to reputation</p>		<p>1. Develop and implement a phased commissioning strategy to prove system prior to the energisation date</p> <p>2. Communication strategy to ensure that a proactive approach is taken to inform stakeholders of the delays, so as to avoid misinterpretation of causes.</p>
During Operation, the system performance is significantly lower than that projected in the energy model/business case	<p>1. A lack of local contractor resources to undertake specialist maintenance and servicing of the equipment.</p> <p>2. System failure, causing downtime of the system due to inadequate or lack maintenance</p> <p>3. Actual losses from the system and network are far higher than that projected in the design.</p>	<p>1. Reduction in annual yield,</p> <p>2. Failure to achieve guarantees</p> <p>3. Contract Penalties</p> <p>4. Forecasted revenues are lower than predicted, thus extending paybacks beyond the thresholds agreed in the contract.</p>		<p>1. Early engagement with local prospective supply-chain partners.</p> <p>2. Undertake research into long-term degradation of solar PV modules to confirm the accuracy of industry benchmarks.</p> <p>3. Undertake appropriate QA and peer review of the model and generation outputs</p> <p>4. Appropriate selection and management of competent and qualified installers</p>
Operations being negatively affected by external events	<p>1. Legal/Regulations - A change in regulations/legislation/policy that directly or indirectly affects the project.</p> <p>2. Threat of a cyber-attack during operation; controls are hacked and control of the site is lost.</p>	<p>1. Increased costs, changes to the economic business case, project cessation.</p> <p>2. Loss of revenue, reputational damage</p>		<p>1. Continual monitoring and research into prospective regulatory, legislative or policy changes that may impact the viability of the proposal.</p> <p>2. Early identification of vulnerabilities; security tools and management to identify active security threats.</p>

Appendix E: Community Engagement

Example Facebook posts:



PECT - Creating Sustainable Places

1 hr · 🌐

Cambridgeshire County Council wants to hear from the communities near to North Angle Farm, #Soham & #Wicken. The aim is to offer opportunities for local residents and businesses to learn more about the proposal to develop part of the site into a 29 MW capacity solar farm providing green energy. See www.mlei.co.uk #NorthAngleEnergy



Cambridgeshire County Council
1 May at 13:24 · 🌐

We're working alongside PECT - Creating Sustainable Places to deliver #netzerocarbon emissions for the region by 2050. As part of this, we're planning to develop a site at North Angle into a solar farm providing #greenenergy. Visit <http://socs1.in/qSKfe> #CambridgeshireEnergy



An animated video was created to be used alongside the social media campaign. The video promoted the project, the benefits and how people could engage with the projects.



Webinar:

The original consultation plan for the project included a range of public events, engagement with members of the public, community groups and businesses. This engagement was due to take place in March 2020, just when the COVID-19 lockdown was introduced. The engagement campaign therefore shifted from physical to digital events and communications, including a range of webinars.

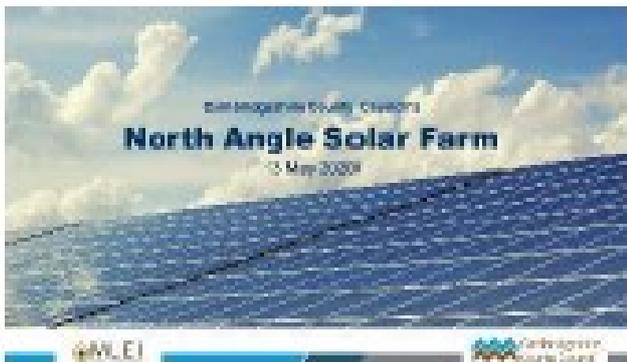


.@CambsCC is seeking permission to build a solar park at North Angle Farm #Soham & #Wicken. The site has the potential to prevent the emission of 90,000 tonnes of CO2. See mlei.co.uk or join tonight's 6pm Zoom event at zoom.us/j/112409311 to find out more



PECT @SustainablePECT · May 14

.@CambsCC is seeking permission to build a solar park at North Angle Farm, near Soham and Wicken. Did you miss last night's online event? You can view the recording here. facebook.com/SustainablePEC... Want to hear more about the project? See mlei.co.uk #NorthAngleEnergy



What is a Solar Farm?

- Solar panels convert the power of the sun into **renewable electricity**
- It doesn't produce the gas, supplying Cambridgeshire's homes and businesses
- Will offset demand placed on fossil-fuelled power stations (gas, coal etc.)
- Avoids carbon emissions, air pollution and other environmental impacts



Environmental and Community Considerations

Visual Impact

- Mitigation for all angles
- Layout and panel orientation
- Careful landscaping - consistent with rest of the SOUTH LINDSAY FARM

Impact on Nature

- Ecological Impact - careful landscaping
- BAP (Biodiversity Action Plan) - careful landscaping

Accessibility Issues & Traffic

- Minimize traffic and noise
- Careful layout and access
- Safe access to surrounding roads and public footpaths

