



Open Report on behalf of Andy Gutherson Executive Director - Place

Report to:	Environment and Economy Scrutiny Committee
Date:	12 September 2023
Subject:	Energy Option Analysis for Greater Lincolnshire Final Report, Outcomes, and Next Steps

Summary:

In April 2023, an Energy for Growth – Energy Option Analysis for Greater Lincolnshire report was presented to the committee, which contained the Interim Report by consultants, RLB. This paper summarises the final report and the outcomes and outlines next steps and actions.

Actions Required:

Members of the Committee are invited to note the content of the final report and provide feedback on the next steps identified.

1. Background

As reported in April, Rider Levett Bucknall (RLB) was commissioned by the Greater Lincolnshire Infrastructure Group (IG) to undertake an Energy Option Analysis (EOA) for Greater Lincolnshire. The commission commenced in June 2022 and the final report was presented to the IG in July 2023.

The report is included in Appendix 1 and addresses the four Key Lines of Enquiry (KLOEs) included in the previous paper. The recommendations that are suggested in the report, are set out in Appendix 2, and the next steps that will be undertaken discussed in section 1.4 below.

1.1 Interim Report – Committee comments

The Interim Report was presented in April 2023, generating feedback from the Committee regarding additional areas for consideration. The table below indicates where these items have been addressed in the final report.

Committee comment	Where addressed in report
West Burton nuclear fusion Spherical Tokamak for Energy Production (STEP) prototype facility	There is a section on Nuclear in the Alternative Technologies section. STEP prototype is referenced on page 30.
Off-shore wind energy generation (as there are large facilities off the Lincolnshire coast)	There is a section on Offshore Wind in the Alternative Technologies section (Page 32 -33). Offshore wind farms in Greater Lincolnshire are listed on page 33.
Solar photovoltaic (PV) energy generation (as there are many Nationally Significant Infrastructure Project (NSIP) applications for this in the county)	There is a section on Solar PV in the Alternative Technologies section (Page 37 -38). Solar NSIPs in Greater Lincolnshire are listed on page 37.
Large emerging / future housing sites, particularly sustainable urban extensions (SUEs), and their significant scope for using green energy, e.g., solar PV, ground source	SUEs are referenced in section 6.1 – Residential. The case studies provide details of what the feasibility studies should include. In addition to this all SUEs have been included in the data analysis.
The impact of the increasing change to electric vehicles (EVs) rather than petrol / diesel vehicles	EVs are considered in the Section 6.5 and in other sections throughout the report. EV data is also included in the electrical load assessment data used to create the mapping dashboard
Specific comment on the lack of grid capacity affecting growth	Council area analysis of where capacity constraints will be are referenced in Section 7 – Future Demand Analysis.

1.2 Commission Outputs

The commission provided two main outputs: a final report and an electricity demand mapping dashboard system.

1.2.1 Final report

The final report comprises the research and engagement which RLB has undertaken during the commission period.

Key focus sectors (where growth is anticipated) and both Distribution Network Operators (DNOs) operating in the Greater Lincolnshire area (Northern Powergrid (NPg) and National Grid Electricity Distribution (NGED) have been engaged over the course of the commission to help understand the current electricity landscape and future strategies for the region.

The report provides insight on the following areas:

- UK national energy system

- Local energy context
- Energy management
- Alternative and emerging technologies
- Future Energy Scenarios analysis
- Energy investment analysis
- Sector discussion for residential, industrial, ports and logistics, health, agriculture, and energy
- Future demand analysis and energy shortfall analysis

The scope of this commission focuses on the distribution network, however it is recognised that the transmission network also faces a number of challenges, as identified in the recent Electricity Network Commissioner – Companion Report Findings and Recommendations report.¹ One of the next steps included in section 1.4, involves keeping up to date with best practice and changing policy. This will include, amongst other things, reviewing the Energy Security Secretary’s action plan, that will be formulated as a result of the Electricity Network Commissioner’s report, and understanding the recommended actions.

1.2.2 Electricity demand mapping dashboard system

The mapping dashboard, supported by Power BI, shows the future demand capacity of the distribution network primary substations when the electrical load associated with the proposed developments within the Greater Lincolnshire area are taken into consideration. The data has been defined according to priority levels that give an indication of timescales of the developments (1-3 years, 4-10 years, and 11 years+). Based on this data, a future demand analysis is included in Section 7 of the report, pages 61 to 73 and Appendix C (pages 106 -118) and includes RAG (Red, Amber, Green) maps of the primary substations demand headroom.

The mapping dashboard provides an evidence base for current and future electricity demand in the region and demonstrates where electricity distribution network capacity constraints are in relation to predicted growth. This helps to identify where investment may be required to meet net zero targets and enable economic growth.

Whilst the report also identifies that there are constraints connecting electricity generation schemes to the distribution network, it should be noted that only network demand and demand capacity constraints were included in the scope of this study. The mapping dashboard can be expanded to include additional layers, and this will be explored as part of the next steps.

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Electricity Networks Commissioner – Companion Report Findings and Recommendations - [Accelerating electricity transmission network deployment: Electricity Networks Commissioner’s recommendations - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/781111/accelerating-electricity-transmission-network-deployment-electricity-networks-commissioner-s-recommendations.pdf)

1.3 Key findings

The report addresses the four Key Lines of Enquiry (KLOEs) in the commission specification, which are set out on page 3, and elsewhere, in the report, and provides a review and analysis of the UK electricity system. Key technologies and a range of other topics essential to regional net zero and the electricity system's role in regional economic growth are addressed and aligned as far as possible to specific data and evidence from the Greater Lincolnshire region.

RLB identified the following key findings which have informed the recommendations:

- A clear shift towards innovation and alternative energy sources across the region;
- Net zero is a common theme across all sectors, echoed by the shift in energy providers and increase in private investment;
- Inconsistent collaboration across the region.

1.4 Report Recommendations and next steps/actions

The report makes a number of recommendations and captures them under the following themes:

- Collaboration
- Energy Transformation
- Innovation

A table of recommendations included in the report, has been provided in Appendix 2. Officers have reviewed the recommendations and developed a plan of prioritised actions set out by theme, below. These are classified as either actively underway, emerging next steps (Year 0-2) or longer term (Year 2+) objectives which require further development and is focused on activity most appropriate for LCC to lead/facilitate. In addition to the report recommendations other actions have been incorporated that have arisen as part of the engagement process.

More widely, LCC's Place Directorate is driving other work which supports the energy agenda and whereby a coordinated approach will shape and further refine the actions outlined in this report.

Existing partnership working arrangements will further strengthen the activity, particularly through the Infrastructure Group (IG) which comprises the Chief Executives/Senior Management of the 10 Greater Lincolnshire Local Authorities (LAs), and the Strategic Infrastructure Delivery Framework (SIDF) Working Group which has comprehensive public sector representation.

1.4.1 Collaboration

Challenge: How to take forward collaboration

Actions actively underway

Creation of a Greater Lincolnshire Energy Working Group

- The SIDF Working Group will initially be used as the forum to engage LAs and wider partners with the recommendations of the Energy Options Analysis. The Working Group has been tasked by the IG with developing an Action Plan for Energy, and as such energy focused work will be effectively coordinated. This remit will be reviewed in light of the future role of the Greater Lincolnshire Local Enterprise Partnership (GLLEP) Energy Council and the emergence of the Regional Energy Forum.

DNO Engagement

- Continued engagement with both DNOs in Greater Lincolnshire to enable a two-way dialogue and develop a mechanism for collaboratively disseminating local knowledge to enable DNOs to accurately model for their Distribution Future Energy Scenarios (DFES).

Information sharing

- Continued intelligence, data and information sharing to strengthen knowledge and understanding, avoid duplication and benefit projects in the Greater Lincolnshire area.

Open Networks Insights Forum

- The quarterly online forum comprises electricity grid operators and stakeholders to align processes to network connections. Investigate scope of forum and recommend attendance of LAs accordingly to IG group.

Emerging Next Steps

DNO Engagement

- Continued engagement with both DNOs in Greater Lincolnshire to review strategies and understand differences in approaches across the region.

Integration with Regional System Planners (RSPs)

- Ofgem propose to create RSPs responsible for developing a multi-year strategic plan, bringing together those involved in planning the energy system at a local level and ensure they understand the goals and plans of each party. Monitor Ofgem progress on the implementation of RSPs and present an update/recommendation to the IG group.

Review of Working group Resources and Technical Skills across Greater Lincolnshire Authorities

- Resources and technical support will be reviewed to ensure a smooth transition from the SIDF Working Group to a more long-term governance arrangement.

Creation of an Interim Regional Future Energy Forum

- In addition to the energy working group, as an interim measure, it is thought that the SIDF working group could be used as a caretaker of the Regional Energy Forum as a mechanism to engage with LAs and wider partners. It is thought that this Forum will also have a role of talking to Government, to highlight what is happening in Greater Lincolnshire. Terms of Reference for this Forum are currently being formulated.

Longer term next steps

Creation of a Regional Future Energy Forum

- To capitalise on the opportunity of shaping the energy market in the region, a private and public future energy forum / committee, focused on demand vs supply could be developed. May be a 'strategic enhanced partnership' through Combined Authority arrangements or RSPs and is envisaged to complement the functions and remit of the Greater Lincolnshire (GL) Energy Working Group, above.

1.4.2 Energy Transformation

Challenge: Addressing capacity gaps in the electricity distribution network

Actions actively underway

Mapping Intelligence

The commission created a mapping system which produced a 'point in time' overview of known and planned developments to highlight areas with capacity constraint. Ongoing access to the mapping dashboard tool to provide real-time intelligence will require investment. Following an assessment, the most cost-effective option is for RLB to host and update the existing tool in the interim whilst opportunities to develop more robust and wider scope data and dynamic mapping tools are explored. The proposal will require each LA to financially contribute for continued access.

Emerging Next Steps

Mapping Intelligence

- Investigate increasing the function of the existing mapping dashboard system to include capacity of network to connect renewable generation schemes,
- Investigate other mapping tools for longer term implementation and evaluate cost/benefits of solutions for consideration by IG Group.

Learning from best practice

- Reviewing best practice case studies (e.g., smart energy system projects and Prospering from the Energy Revolution (UK Research and Innovation - UKRI) projects and learning from best practice, to explore if any of the case studies could be replicated in Greater Lincolnshire. This may be aligned to other work/commission.
- Keeping abreast of emerging policy and guidance in connection with the transmission and distribution networks and understand relevance to Greater Lincolnshire context.

Data analysis and review to establish place-based priority sites

- Review data and areas identified as having capacity constraints within GL. Assess which areas face greatest capacity constraints soonest and establish the focus of feasibility studies to be commissioned. Assess potential scope for inclusion within current workstreams/present to IG group.

Longer term next steps

Mapping Intelligence

- Implement the preferred energy planning mapping tool.

Energy focused public-private partnership (PPP)

- Sequential to the establishment of a Regional Energy Forum, produce an evidenced report identifying where / how intervention will be beneficial with recommendations on whether to establish an Energy PPP.

1.4.3 Innovation

Actions actively underway

Local Area Energy Plans (LAEPs)

- A series of LAEPs is recommended for GL to provide strategic planning and investment. Options for LCC supporting the execution of an energy strategy or LAEP are being explored as part of a current commission by the Place Directorate, which should provide insight and inform future decision making.

Emerging Next Steps

(None)

Longer term next steps

Smart Energy Skills programme

- Enhance existing skills in energy sector supporting the accelerated delivery of Smart Energy Systems. GLLEP / LCC to develop the concept and present to IG/relevant group.

2. Conclusion

Energy is a key enabler of growth. It is well known that the provision of electricity is critical to support both new and existing commercial and residential developments throughout Greater Lincolnshire. The lack of infrastructure and network capacity without costly network reinforcements can hinder and prevent development and investment in particular areas. This report has provided evidence of where the areas of electricity shortfall will be, and further research and engagement needs to be done to identify which of the innovative solutions covered in the report, would be most appropriate to address this.

The Energy Options Analysis commission by RLB has delivered a useful additional benefit of reviewing various activities across Greater Lincolnshire and provided constructive commentary on alignment. Furthermore, it complements related workstreams within the Place Directorate. Progress is already underway on several actions, with an emerging pathway to delivering the longer-term outcomes. An update of progress and outcomes of the next steps will be presented to this Committee on an annual basis as a part of SIDF reporting.

3. Consultation

N/A

4. Appendices

These are listed below and attached at the back of the report	
Appendix A	Energy Option Analysis for Greater Lincolnshire – Final Report V4. Prepared by RLB
Appendix B	Recommendation Table from the Energy Option Analysis for Greater Lincolnshire report

5. Background Papers

The following background papers as defined in the Local Government Act 1972 were relied upon in the writing of this report.

Document title	Where the document can be viewed
An Energy for Growth – Energy Option Analysis for Greater Lincolnshire	E&E Scrutiny Report 11 April 2023
Report for Information – Energy for Growth (utilities provision in Greater Lincolnshire) update	E&E Scrutiny Information Report 28 February 2023
Energy for Growth (utilities provision in Greater Lincolnshire)	E&E Scrutiny Report 25 October 2022

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