Elsham Tech Park

Economic Needs and Benefits Report

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Elsham Tech Park Ltd

Economic Needs and Benefits Report

AI Data Centre Campus

Elsham Tech Park
North Lincolnshire

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ECONOMICS

A Report by Nicol Economics

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1. Introduction

Purpose of the report

1.1 This report has been commissioned by Elsham Tech Park Ltd. It sets out an assessment of the overall economic benefits from the proposed Elsham Tech Park development in North Lincolnshire.

The site

1.2 The proposed Elsham Tech Park application site extends to circa 176 hectares. The site is located immediately south east of the existing Elsham Wolds Industrial Estate which extends to around 4 hectares. The site is just off the A15 and about three kilometres north of the A15/A18 Barnetby Interchange on the M180. The site lies fully within the North Lincolnshire local authority area (see Figure 1.1).

1.3 The closest significant settlements are Brigg (6,000 population and 10 kilometres or a nine minutes' drive) and Barton-upon-Humber (12,000 population which is 11 kilometres from the site or a seven to eight minute drive). Scunthorpe the largest settlement in North Lincolnshire with around 80,000 inhabitants is 24 kilometres from the site (around 17 minutes' drive time) whilst Immingham and Grimsby/Cleethorpes (both in North East Lincolnshire) are respectively around 20 and 30 kilometres from the site[1].

1.4 The site is located near to the South Humber Bank port and energy cluster and employment area. This is one of the largest industrial and energy locations in the UK. It is also close to the major industrial areas of Scunthorpe.

The development proposals

1.5 The proposed development is for a large scale data centre campus for a new type of data centre that is designed to "train" Artificial Intelligence (AI) models. These data centres require very high levels of computing capacity and, in consequence, power capacity.

1.6 The proposed data centre campus would provide an overall IT Load[2] of up to 1,000MW. It is envisaged that the data centre campus facilities once complete would comprise a series of separate land parcels with a number of data centre buildings that could be occupied by multiple operators. The overall floorspace of the data centre buildings would be circa 905,000 sqm (GEA) including areas for all plant and machinery.

1.7 This would be the largest data centre campus in the northern part of the UK[3] and indeed the whole of the UK at the time of preparing the planning application.

[1] Distances and travel times from Google maps and to centres of the respective settlements

[2] "IT load" or "critical power" is the key measure of data centre capacity. It refers to the data centre power load that is consumed or is dedicated to IT equipment such as servers, storage equipment and communications switches and routers. Power for lighting or cooling the data centre is excluded from "critical" power. Data centres - whether managed internally or outsourced - are sized based on the current or expected amount of critical power.

[3] The recently consented large-scale Cambois data centre campus in Blyth in Northumberland comprises 10 data centre buildings on its proposed campus each with 72MW of IT load or 720MW in total

1.8 The Proposed Development as covered by the planning application comprises:

> "***Outline planning permission for the construction of a data centre park, including ancillary offices, internal plant and cooling equipment, emergency backup generators with associated fuel storage, District Heating centre, flexible commercial/amenity building(s) (Use Classes E, F1 and F2) and construction of buildings for agricultural purposes. Other works include means of access, internal roads and footpaths, cycle and car parking, hard and soft landscaping, security gatehouses and perimeter fencing, lighting, drainage, pumping station, electricity substation(s), energy generation/storage, undergrounding of overhead power lines and other associated works, infrastructure and ground remodelling including creation of landscaped bunds, with all matters reserved for subsequent consideration. Each phase of the development to be a severable component***."

1.9 The planning application is submitted in outline and the concept of the "campus" is that different data centre users could build and occupy different buildings on the campus (with up to 15 different data centre plots identified in the indicative masterplan). Once serviced with key infrastructure, it could therefore be developed out on a plot by plot basis over period of years with the speed and take-up of individual development plots depending on market demand (with construction of development plots likely to be over a 7 to 10 year period).

Figure 1.1: Elsham Tech Park development site - local context

Source: Bing Maps using Ordnance Survey mapping (Crown Copyright). Note: red area shown for the site is indicative only

2. Data centres

The history of data centres

2.1 Data centres have been around for many years, but their role, until recently, has been localised and business specific. The precursor to modern day data centres were the large servers (or mainframes) that were developed in the 1950s and 1960s. These provided secure data storage for industrial business or organisations in the days before the internet and network computing. Even small firms would have their own server that provided back-up data storage for the data generated within an enterprise. These were, in effect, very small and local data centres. These early data centres were often in a specific part of an enterprise's building, but in some cases were off-site for further security and backup but dedicated to the business.

2.2 When the internet took off in the 1990s and 2000s, the amount of data generated by individuals and organisations started to grow very rapidly, as did the means of internet and digital based communication. Increasingly, organisations across the private and public sectors moved to business models where data and information was shared via intranets that required data to be shared and stored somewhere secure (in what became known as enterprise data centres). In parallel, the development of social media platforms such as Facebook, Instagram, YouTube, Twitter etc led to an explosion in the amount of personal data generated and shared that also had to be stored.

2.3 During the 2000s, cloud computing became commercially available and revolutionised the nature of data centres. Cloud computing is defined as the use of "*pooled, centralised computing resources (including data storage and processing) that are provided to customers on-demand, often over the internet.* The key revolution was that third party providers were now able to store data for individuals and organisations over or in "the cloud", thereby supporting intranets and business wide platforms rather than this being done in-house. The term "cloud" is something of a misnomer as this data storage takes place in data centres located in physical sites on the ground.

2.4 Every time a mobile phone, smart TV or computer user accesses internet services such as search engines, apps, or documents, this requires instant access to the data needed for and associated with these activities. This is as true for an on-line flight or holiday booking service as it is for the NHS App that stores Covid-19 passports or a whole range of cloud-based services from Spotify for music, to BBC iPlayer and Netflix for TV and films. It is also true for document editing and sharing platforms (such as Google Docs) and video conferencing services such as Zoom and Microsoft Teams.

2.5 The data economy and society that we now live in requires **key digital infrastructure** to operate successfully. The UK Government's National Data Strategy[4] describes this as "*the virtualised or physical data infrastructure, systems and services that store, process and transfer data*" and explains that this includes:

- Data centres - providing the physical space to store data;
- Peering and transit infrastructure - enabling the exchange of data (what is sometimes referred to cabling or fibre optic connections); and
- Cloud computing - providing, as noted above, the virtualised computing resources that are accessed remotely.

[4] The "UK National Data Strategy, Consultation", DCMS December 2020, leading to "Government response to the consultation on the National Data Strategy", DCMS, May 2021 (the NDS is an evolving strategy that is updated online)

The main types of data centres

2.6 There are a variety of types of data centres. Until the recent advent of AI training data centres, the four main types of data centres developed[5] are:

- **Enterprise** data centres (that are bespoke to one firm and are a continuation of the earlier forms of data centres). They are owned and operated by the business or organisation (although elements can be provided by a third party provider).
- **Co-location** data centres that are operated by one business but are shared by several firms or groups of enterprises (also called multi-tenant data centres). This approach is sometimes referred to as "retail" colocation. A "wholesale" colocation data centre is where the data centre operator provides the whole data centre to a single third party user (who therefore does not own the data centre) and who might be a provider of cloud computing services.
- **Edge** data centres are smaller data centres that are located close to the edge of a network. They provide the same devices found in traditional data centres, but are contained in a smaller footprint, closer to end users and devices[6].
- **Hyperscale** data centres are a specific form of data centre used by the tech giants and major cloud and internet service firms and others.

2.7 Each type of data centre above has different locational requirements, which can also vary within type of data centre from operator to operator.

2.8 The most rapid growth in data centres until very recently has been in ones supporting **cloud computing** for business and individuals. These required proximity to major centres of business and also to other data centres to provide resilience. The size of these data centres has been increasing rapidly and now typically hyperscale data centres require as a very minimum 20MW to 60MW of IT Load and in buildings of 15,000 sqm to 50,000 sqm.

The development of Artificial Intelligence (AI) data centres

2.9 The launch of ChatGPT (Chat Generative Pre-trained Transformer) by OpenAI in November 2022 which is a large language model (LLM) Chatbot led to an accelerated interest in the development of AI across a wide range of applications. By January 2023, it had become what was then the fastest-growing consumer software application in history, gaining over 100 million users. All major tech companies, governments and the business world are responding to the opportunities and challenges from AI.

2.10 All major tech companies are all seeking to make very larger scale investments in the development of new and improved AI models. This development require large scale computing power ("compute") to "train" these AI models. This is leading to extremely strong interest in "AI training data centres" which need to have the computing power to train and develop these models in a safe and secure environment. The activity in AI training data centres can be conducted further away from other data centres[7] and so they are much more footloose in locational terms than many other types of data centres.

[5] These types of data centres feature in the various statistics about data centres. However, the statistics quoted often focus on colocation data centres as these are the ones for which there is most market knowledge.

[6] There is also a variant of edge data centre which is a "portable" data centre that is mobile and can be "lifted and shifted."

[7] In particular they do not need to be in an Availability Zone linked closet to other data centres

2.11 The large tech firms are all investing many billions of dollars in developing and expanding this compute capacity for AI training in the USA and overseas. This is to build up the capacity and competitiveness of their AI products. In 2025 alone, four major tech firms have announce plans to invest over $320 billion in AI data centres and associated infrastructure[8].

[8] Meta $65 billion in AI infrastructure , AWS $100 billion, Microsoft $80 billion, and Google $75 billion, this excludes many other tech firms investing in AI data infrastructure

3. National policy considerations for the proposed development

Planning Policies - NPPF

3.1 Data centres have recently become recognised in planning policy terms as critical parts of the UK's economic development infrastructure and have now been given **explicit support in NPPF**.

3.2 In July 2024, the new Government launched a consultation, that ran until September 2024, on major changes to NPPF and other parts of the planning system[9]. The intent of these proposed changes was very clear from the consultation paper and accompanying statement by the Secretary of State for Communities Housing and Local Government[10]. Para 3 of the consultation paper describes the changes as vital "*to deliver the Government's commitments to achieve economic growth and build 1.5 million new homes*".

3.3 Para 3 (i) of the consultation paper specifically mentions that the changes are intended to:

> *" i. support economic growth in **key sectors**, aligned with the Government's industrial strategy and future **local growth plans**, including laboratories, gigafactories, **datacentres**, **digital economies** and freight and logistics – given their importance to our economic future*" (our emphasis added).

3.4 The consultation document specifically mentioned the role and importance of data centres. Under the heading "building a modern economy" it mentioned laboratories, gigafactories, freight & logistics and digital infrastructure. In respect of the latter it stated:

> c. "*Digital Infrastructure: digital infrastructure, including **data centres**, drive growth across the economy by connecting businesses and public services thereby enabling them to be more efficient and productive. A data centre is a facility hosting networked computer servers that store and process data at scale, enables AI deployment and hosts all cloud-based data. Data centres produce an estimated £4.6bn in revenue each year in the UK (2021) and are forecast to support a UK tech sector worth an additional £41.5bn and 678,000 jobs by 2025*" (para 3(c) page 44, our emphasis added).

3.5 The Ministerial Statement on 30th July by the Deputy Prime Minster and Secretary of State for Communities, Homes and Local Government covered the importance of "building infrastructure to grow the economy". She stressed the "*need to build more of the infrastructure that underpins modern life*" and that the Government will "*change policy to make it easier to build growth-supporting infrastructure such as laboratories, gigafactories, data centres, electricity grid connections and the networks that support freight and logistics.*" This underscores the importance that the new Government places on data centres and the rationale for the changes proposed to NPPF.

3.6 The updated NPPF was published in December 2024 following consultation and addresses these aspirations in two main ways and makes explicit reference to data centres. First, the new NPPF highlights in para 86 the need for proper planning for meeting "the needs of the modern economy" and states:

[9] "*Proposed reforms to the National Planning Policy Framework and other changes to the planning system*", MHCLG, 30th July 2024

[10] "*Building the homes we need*", Statement made on 30 July 2024, Statement UIN HCWS48

"c) *pay particular regard to facilitating development to meet the needs of a modern economy, including by identifying suitable locations for uses such as laboratories, gigafactories,* ***data centres****, digital infrastructure, freight and logistics;*" (our emphasis added).

3.7 Second, new NPPF para 87 expands on the specific locational requirements of different sectors that planning policies and decisions should recognise and address:

"*a) clusters or networks of knowledge and data-driven, creative or high technology industries; and for new, expanded or upgraded facilities and infrastructure that are needed to support the growth of these industries (including* ***data centres*** *and grid connections);*" (our emphasis added).

3.8 The national importance of data centres as part of the country's national economic infrastructure is now fully and explicitly supported in national planning policy. Indeed in September 2024 the Government announced that it had now classed UK data centres as '**Critical National Infrastructure'**[11]. This was the first new CNI designation in almost a decade.

UK Digital and Data Strategies

3.9 The previous UK Government's specific digital ambitions were set out in the **UK Digital Strategy**. This was originally published in May 2017 (before the 2017 Industrial Strategy White Paper), with a new version of the strategy was launched in June 2022[12]. As well as showing the breadth and importance of the digital sector to the economy and society, the digital strategy also highlights the importance of data centres in several areas:

- As part of ensuring a "*world class and secure digital infrastructure*" (1.1).
- To help "*promote digital exports and attract inward investment*" (6.2) (of which the proposed Kenwood Road data centre would be an example in respect of UK digital expertise).

3.10 The aim of the **UK National Data Strategy** (NDS) was: "*to drive the collective vision that will support the UK to build a world-leading data economy.*" It is an evolving strategy that was started in June 2019 with a "call for evidence", leading to publication of a consultation draft in September 2020 which was updated in December 2020. This strategy includes a clear acknowledgement of the role of data centres in supporting the digital economy and the UK economy. The strategy sets out five priority areas of action for government (or "missions") which are:

1) Unlocking the value of data across the economy;
2) Securing a pro-growth and trusted data regime;
3) Transforming government's use of data to drive efficiency and improve public services;
4) Ensuring the security and resilience of the infrastructure on which data relies; and
5) Championing the international flow of data.

3.11 The fourth mission is of very particular relevance to this project. The then Government stated here that:

[11] https://www.gov.uk/government/news/data-centres-to-be-given-massive-boost-and-protections-from-cyber-criminals-and-it-blackouts

[12] "*UK Digital Strategy*", DCMS, May 2022, updated in October 2022 (the update did not change the strategy but reported on progress)

> "*The use of data is now a central part of modern life, so we need to make sure that the infrastructure underpinning it is safe and secure. The infrastructure on which data relies is a vital national asset that needs to be protected from security risks and other concerns, such as service disruption. Interruption to data-driven services and activities can cause disruption to businesses, organisations and public services. While these are also commercial risks to manage, the government has a responsibility to ensure that data and its supporting infrastructure is resilient in the face of established, new and emerging risks, protecting the economy as it grows*".

3.12 The NDS specifically notes that the: "*infrastructure on which data relies is the virtualised or physical data infrastructure, systems and services that store, process and transfer data. This* ***includes data centres (that provide the physical space to store data),*** *peering and transit infrastructure (that enable the exchange of data), and cloud computing that provides virtualised computing resources (for example servers, software, databases, data analytics) that are accessed remotely*" [page 23, our emphasis added].

UK Sectoral Economic Policy

3.13 The importance of the digital economy, tech sectors or digital sectors is a very strong thread that has ran through all recent significant economic policies and plans from governments both prior to the current Government and under the previous Government. There is **very strong continuity** in respect of the **sectors and technological strengths** in the UK that need to be supported to ensure our economic competitiveness stretching back to the 2017 Industrial Strategy.

3.14 The new Government has identified the importance for the UK plc to have a clear **industrial strategy** and had referred to it in several initial ministerial announcements in the summer of 2024. In October 2024, the Government launched a Green Paper consultation on its proposed new Industrial Strategy[13].

3.15 This draft strategy confirmed that the "Digital and Technologies" sector was one of the UK's eight "*growth driving industries*"[14] and that these sectors are to be "*prioritised across services and manufacturing, based on both existing and emerging strengths*". As well as an important specific sector in its own right, the role of data and digital infrastructure in **underpinning** the growth of the UK economy is a theme that runs through the draft Industrial Strategy.

3.16 The draft Industrial Strategy recognises the key role of data in productivity and economic performance stating that:

> "*Data fuels modern business, both as users and producers. There is a huge opportunity for the UK to use its data more strategically, driving innovation and economic growth, including in the growth-driving sectors. It has been estimated that data has the potential to contribute to UK productivity growth by between 0.23% to 1.26% per year, but the UK is currently on the lower end of this range, and further productivity growth gains require greater data maturity*" .

3.17 The document also explicitly notes that the "***additional data centre capacity*** *and access to fast, secure, and reliable digital connectivity is essential to enabling economic growth and to reap the transformational productivity benefits of digitalisation and the adoption of AI*" (page 35, our emphasis added).

[13] "*Invest 2035, The UK's Modern Industrial Strategy*", HMG, October 2024

[14] The other seven being: Advanced Manufacturing; Clean Energy Industries; Creative Industries; Defence; Financial Services; Life Sciences; and Professional and Business Services

3.18 The draft industrial Strategy also underlines its role in supporting **regional growth** across the UK, helping by building on each area's current and future potential opportunities.

Government policy towards AI

3.19 The new UK Government has adopted, as did the previous government, a very supportive approach to AI and aims to be amongst one of the world leaders in the development and use of the technology. In January 2025, the Government published an "AI Opportunities Action Plan"[15]. This was an independent report led by Matt Clifford that set out 50 recommendations for government under three main goals:

1) **Investing in the foundations of AI**: grow the UK's AI sector via investing in and ensuring world-class computing and data infrastructure, access to talent and regulation (including the development of AI Growth Zones).

2) **Push hard on cross-economy AI adoption**: drive adoption of AI across the economy to boost growth.

3) **Position the UK to be an AI maker, not an AI taker**: the UK should aim to have true national champions at critical layers of the "AI stack[16]" so that the UK benefits economically from AI advancement and has influence on future AI's values, safety and governance.

3.20 The Government published its response to the AI Opportunities Plan in January 2025 and agreed with the vast majority of recommendations in the Plan. In particular, it supported the following recommendations:

- Recommendation 4: Establish 'AI Growth Zones' (AIGZs) to facilitate the accelerated build out of AI data centres. In its response it stated: "*As the Action Plan sets out, the UK must maximise opportunities to crowd in private sector investment and facilitate close government-industry collaboration. The government will create AI Growth Zones (AIGZs), area with enhanced access to power and support for planning approvals, to accelerate the build out of AI infrastructure on UK soil*"[17].

3.21 In early February 2025, the Department for Science, Innovation & Technology sought expressions of interests for AI Growth Zones. North Lincolnshire in partnership with Greystoke Land (parent company of both Humber Tech Park and Elsham Tech Park) and with other support submitted an expression of interest for a **Northern Lincolnshire AIGZ**.

3.22 This Expression of Interest built upon the existing approval by North Lincolnshire Council for **Humber Tech Park** on land near the A180 at South Killingholme for a 384MW data centre. The expression of interest noted the opportunity from 1.5 GW (1,500MW) of AI processing capacity coming to Northern Lincolnshire, helping to boost industries in the region and across the UK. It also noted that the area is uniquely positioned to attract this opportunity thanks to its industrial base, skilled workforce and the fact it generates 20% of the UK's total electricity, including 27% of its offshore wind electricity.

[15] "*AI Opportunities Action Plan*", Presented to Parliament by the Secretary of State Science, Innovation and Technology by Command of His Majesty, CP1241, Department for Science, Innovation & Technology (DSIT)

[16] An AI stack is a collection of tools, technologies, and frameworks used to build, train, deploy, and manage AI applications. It covers everything from data processing and machine learning frameworks to cloud services and hardware infrastructure, enabling developers to build AI solutions

[17] "*Policy paper, AI Opportunities Action Plan: government response*", Department for Science, Innovation & Technology, Published 13 January 2025

Conclusions

3.23 There is much that can be drawn from this review of past and current government policy that is highly relevant to the importance of data centres and to this specific development proposal:

1) First, the recognition of the importance of the digital economy to UK prosperity and effective functioning of our public services, government and society.

2) Second, further recognition that this role is becoming ever more important, presenting great opportunities but also challenges.

3) Third, the importance of a secure and reliable digital infrastructure to ensure the smooth functioning and maximise the growth prospects of the economy.

4) Fourth, a recognition that data centres are a critically important part of that national economic infrastructure (recognised in both national planning policy and national industrial policy).

5) Fifth, there is a clear desire to be at the forefront globally of the development of AI and so the need to develop large scale AI infrastructure in the UK by a combination of public and private investment.

6) Sixth, the development of AI Growth Zones is a key planks of government policy on developing the UK's competitiveness in AI. This has led to an expression of interest by North Lincolnshire Council and partners of which this development proposal would form a central part.

4. Local and sub-regional policies and economic performance

4.1 This section explores the current policies for Greater Lincolnshire and for North Lincolnshire that are of relevance to this proposed development as well as data on the local economy.

Greater Lincolnshire economic development policies

4.2 For economic development purposes, North Lincolnshire sits within the "Greater Lincolnshire" area. This comprises the unitary authorities of North Lincolnshire and North East Lincolnshire as well as the county of Lincolnshire (and its seven districts). There has been a Local Enterprise Partnership (LEP) operating over this Greater Lincolnshire area since 2014 (GLLEP). The GLLEP launched its Strategic Economic Plan in 2014 which covered the prospects for the whole of the areas. It described its "priorities and drivers for success" as:

1) The growth of the area's three defining and strongest sectors that offer the most competitive advantage: agri-food, manufacturing, and the visitor economy.

2) To grow specific opportunities identified as future defining features of the area: health and care; low carbon; ports and logistics.

3) To drive this growth by putting expansion into new markets, modern telecommunications, infrastructure improvements and the skills of individuals and business owners at the forefront of what we do

4) To promote Greater Lincolnshire as a place for sustainable growth through improved transport infrastructure to connect us with national and international markets, enabling wider enjoyment of our world-class heritage sites, culture and strong communities

5) To recognise the need for new housing for the existing local population and those moving to the area, and to support balanced housing and economic development through promoting the area's capacity to deliver high-quality growth.

4.3 A 2019 report by Business Lincolnshire on the digital economy[18] identified that:

- The digital tech sector continued to grow strongly in terms of the number of businesses, jobs and the value that it generates for the Greater Lincolnshire economy. The sector encompassed a wide breadth of activities, with electronic components, communications equipment, and data processing standing out as key strengths.

- The report noted that the expansion of the sector had affected the availability of skilled workers, which continued to be a major concern for digital businesses.

- Accessing the right training was a related concern, although the report noted that development of the Institute of Technology (see below) provided scope to build the digital skills capacity of the region.

[18] *"Greater Lincolnshire's Digital Landscape"*, Business Lincolnshire, December 2019

Box 4.1: The Lincolnshire Institute of Technology (LIoT)
Lincolnshire Institute of Technology (LIoT) is a partnership between the University of Lincoln, North Lindsey College and University Campus North Lincolnshire, University Centre Grimsby, Boston College, Grantham College and University Centre, Lincoln College, Riseholme College and Lincoln UTC. It has sites across Greater Lincolnshire including in North and North East Lincolnshire. The partnership states it: "*supports the economic growth and prosperity of Greater Lincolnshire by preparing individuals for work and supporting their development and progression within employment*". It aims to "*support Greater Lincolnshire as a great place to learn, work, recruit, invest and innovate in the engineering and manufacturing, digital, and construction sectors*".
Source: https://www.liot.ac.uk/

4.4 The previous Government agreed a Devolution Deal with Greater Lincolnshire[19] (including North Lincolnshire). This deal has been implemented by the new Government and has led to the creation of a Greater Lincolnshire Mayoral County Combined Authority (MCCA). There will be the integration of the current LEP functions into the Greater Lincolnshire MCCA. The first mayoral election for the MCCA was held in May 2025 and the MCCA is now established.

4.5 The Devolution Deal does not set out a different strategy for the Greater Lincolnshire area to supersede the previous GLLEP strategy nor does it have specific implications for the Proposed Development. The MCCA will have powers in respect of: "*economic development and regeneration functions, including the preparation of an economic assessment for the area; to embed a strong, independent, and diverse local business voice into local democratic institutions and to carry out strategic economic planning that clearly articulates the area's economic priorities and sectoral strengths*".

4.6 The new English Devolution White Paper was published in December 2024[20]. Under the terms of the devolution arrangements, the new mayor for Greater Lincolnshire will be required to produce a Local Growth Plan with local growth priorities agreed with the government providing focus for central government and regional collaboration. This will be prepared from May 2025 onwards.

4.7 In 2021, the then Government announced that the Humber had been successful in its application to become a Freeport[21] (in part a successor to Enterprise Zones) and Humber Freeport's Final Business Case was approved in March 2023. The Freeport area includes three tax sites[22] where tax incentives are available (at Hull East, Goole and Able Humber Port) and one customs site[23] (located in Grimsby).

[19] "*Greater Lincolnshire devolution deal 2023*", Proposed agreement for a devolution deal between the government and the local authorities of Lincolnshire County Council, North East Lincolnshire, and North Lincolnshire Council, November 2023

[20] MHCLG (2024c)

[21] Freeport is a designated area where businesses can invest in productive capacity receiving capital allowances, tax and regulatory incentives and deferred customs duties

[22] Offering incentives in respect of: Stamp Duty Land Tax relief; Business Rate Relief for five years; Enhanced capital allowances for investment in machinery, structures and buildings; and Employer National Insurance contributions relief.

[23] A Freeport customs site is a secure, enclosed site where some normal tax and customs rules do not apply. Businesses within customs sites receive a range of tariff benefits, including duty deferral while the goods remain on-site and suspended import VAT on goods entering the customs site. This means that businesses operating inside designated areas in and around the port may manufacture goods using these imports, before exporting them again without paying the tariffs, and benefit from simplified customs procedures.

4.8 A key part of the pitch to become a Freeport was the Humber's role as "the UK's Energy Estuary". This is described in the Freeport brochure[24] as: "*the pre-eminent energy cluster in North West Europe and a thriving hub for renewable energy production, renowned especially for the development and deployment of the largest offshore wind farms in the world. This cluster hosts various energy industries, including carbon capture and storage, hydrogen and biomass, as well as research and development facilities for new technologies*".

4.9 The Humber Energy Board covers key partners from across the area who are committed to delivering a thriving, decarbonised industrial cluster. Made up from a range of private and public organisations all invested in the Humber region. In 2024 it published its **Humber 2030 Vision**[25] which was in effect the Humber Industrial Cluster Plan (HICP) with support from UKRI. This was one of six projects receiving funding from UKRI's Industrial Decarbonisation Challenge to create a regional blueprint towards decarbonising the region.

4.10 In October 2024, the Humber Energy Board published its **roadmap** for achieving the 2030 Vision[26]. This document highlights a number of key projects that will help decarbonise industry in the region by a mixture of:

- Generation of increased renewable energy
- Development of Carbon Capture and Storage (CCS)
- Development of green hydrogen production and distribution, and
- Development of an enhanced energy distribution infrastructure.

4.11 The development of additional green energy production is one of the reasons that the proposed development, with its large energy demands, would be ideally located in North Lincolnshire as part of the wider Humber area with its ambitious plans.

North Lincolnshire economic policies

4.12 In 2023, North Lincolnshire Council developed an updated borough-wide **economic growth plan** to 2028[27]. This describes the vision for the local area as:

> "*North Lincolnshire is a place with strong and sustainable economic growth, leading to wellbeing and prosperity for our businesses, residents and communities*".

4.13 The Growth Plan sets out three priorities each with three underpinning objectives:

- **Priority 1: A place where people, places and products are connected globally to deliver sustainable economic growth**.
  - Further enhance North Lincolnshire as a global trade gateway - connecting businesses across the UK, Europe, and worldwide.
  - Deliver high quality, sustainable, resilient infrastructure.
  - Secure greater freedoms and flexibilities at a local level.
- **Priority 2: A place where businesses and residents make positive changes to create a cleaner, greener, healthier and more sustainable future for North Lincolnshire.**

[24] "*Humber Freeport, UK's Global Gateway*", humberfreeport.org, November 2023

[25] "*The Humber: A 2030 Vision for Industrial Decarbonisation*", Humber Industrial Cluster Plan, February 2023

[26] "*The Humber's Roadmap for Industrial Decarbonisation*", Humber Energy Board, October 2024

[27] "*North Lincolnshire Economic Growth Plan, 2023 – 2028*", North Lincolnshire Council, March 2023

- Move to a net zero economy.
- Enable high quality and environmentally sustainable homes in flourishing communities.
- Promote health, wellbeing, and a good quality of life.

- **Priority 3: A place which enables and encourages businesses, residents and communities to achieve their full potential:**
  - Ensure everyone has the opportunity to learn, work, upskill, re-skill and build a career.
  - Drive growth and innovation in our key sectors.
  - Regenerate town centres.

4.14 In respect of **key sectors** the document lists seven sectors[28] of which one is **digital**. The overall "intent" as stated in the Growth Plan for this objective is to have a "*strong, diverse, and sustainable economic base driven by innovation and new technologies. Increased productivity levels, services and business growth creating **high level, high value added jobs***." [our emphasise added].

4.15 In respect of skills in the Growth Plan, the "intent" here includes that "*people have the right skills to build a career to enrich their lives and reach their full potential".* The interventions mentioned include ones to enhance job and training opportunities, including applying the Skills and Employability Plan[29] into every major development to increase opportunities for apprenticeships, work experience and access to highly skilled jobs.

The North Lincolnshire Local Plan

4.16 North Lincolnshire does not have an up to date adopted Local Plan.

4.17 The North Lincolnshire Core Strategy, which was adopted in June 2011, set out the long term vision for North Lincolnshire and a blueprint for managing growth and development in the area up. However that was only for the period up to 2026 which is almost upon us.

4.18 A Housing and Employment Land Allocations Development Plan Document (DPD) was adopted in March 2016 to supplement the Core Strategy.

4.19 A Submission draft of a new Local Plan was submitted for Examination in November 2022 and was originally scheduled to be examined during 2024. However, North Lincolnshire Council withdrew the emerging Local Plan from Examination in Public in October 2024 so no weight can we attached to it. The recently updated and revised Local Development Scheme has Draft Plan consultation scheduled for Autumn 2025 and then the draft Plan is to be formally submitted to the Secretary of State for examination by an independent planning inspector in Spring 2026.

4.20 For context only, the previous proposed spatial strategy for North Lincolnshire (Policy SS2: spatial strategy for North Lincolnshire) included the following in respect of employment land:

- B. Support the creation of 11,500 new jobs in our priority sectors and encouraging innovation.

[28] Construction, Digital, Energy & Chemicals, Food, Health & Care, Manufacturing & Engineering, Ports & Logistics

[29] "*North Lincolnshire Skills & Employability Plan 2023/2028*", North Lincolnshire Council, March 2023

- C. Develop at least 131.7 hectares of employment land in key locations that supports the delivery of housing growth, and provides opportunities for our priority sectors to grow and meets the requirements of the commercial property market. Amongst these areas are South Humber Gateway; Scunthorpe; Humberside Airport; and strategic locations on Transport Corridors.

4.21 The current Core Strategy and DPD, unsurprisingly, did not identify suitable sites for large scale AI Training Data Centres or any type of data centre. The allocations and assessment of needs are based on an evidence base and assessment focused on the needs of older style industries. The sites allocated for large scale development that might be suitable in sheer size terms for a data centre campus (South Humber Bank and North Killingholme Airfield) are not suitable for other site specific reasons.

4.22 Therefore there are no existing site allocations in North Lincolnshire suitable for a very large scale data centre campus such as the proposed development, as required by the revised NPPF. This point was accepted by North Lincolnshire Council (NLC) when it approved the planning application for the Humber Technology Park in July 2024.

The North Lincolnshire economy

4.23 North Lincolnshire is a unitary authority with a population of around 170,000, a working age population of some 102,000 and a total local labour force of around 80,000[30] and with around 85,000 jobs located in the area[31]. Its economy, as of 2023, generated around £5.6 billion in economic output (Gross Value Added or GVA) according to the ONS[32]. Its largest settlement is Scunthorpe and other important population centres include Barton-on-Humber and Brigg.

4.24 North Lincolnshire's economy and labour market (covering Immingham, Grimsby and Cleethorpes) is closely linked to that of North East Lincolnshire. This area has a slightly smaller economy (total GVA in 2023 of £4.3 billion, a population of around 157,000, a local labour force of around 74,000 and with around 76,000 jobs located in the area).

Structure of the economy

4.25 Table A3 in Appendix A summarises the current economic structure of the local area as measured by employment. The key feature of North Lincolnshire is the high level and share of manufacturing employment (18,000 jobs or 24% of the total) reflecting its large industrial base and the importance of locations such as South Humber Bank and the industrial complex of Scunthorpe. Indeed, manufacturing accounts for 34% of North Lincolnshire's total GVA compared to 9% for the UK as a whole and 15% for the Yorkshire and Humber region.

4.26 The area also has high concentrations of jobs on transport and logistics (7,000 jobs) reflecting its ports and in construction (5,000 jobs). A noticeable feature of the local economy is the low current share of employment in the ICT (Information and Communication) sector, with just 500 jobs less than 1% of all jobs, half the relative share for all Greater Lincolnshire and under a third of relative employment level at a regional level. Overall, employment levels have remained broadly constant in the local areas although the structure has changed over time (see Figure 4.1).

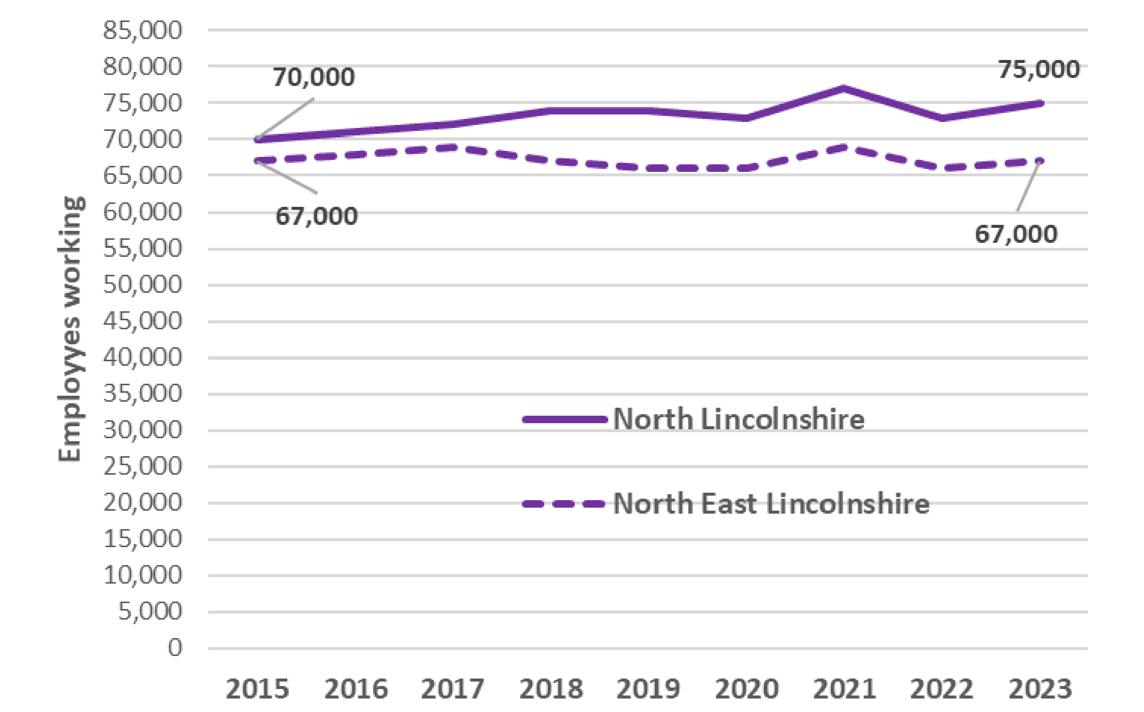
[30] All people economically active (ie in work and seeking work). Data sourced from the ONS Annual Population Survey via NOMIS and is average for the period Jan 2023-Dec 2023 to Jan 2024-Dec 2024. Note: this data is relatively unreliable for local areas

[31] Employee jobs and the self-employed as measured by the ONS for 2023 (75,000 employees and 9,000 self-employed (averaged Jan 2023-Dec 2023 to Jan 2024-Dec 2024)

[32] Regional gross value added (balanced) by industry: local authorities by International Territorial Level (ITL) 1 region: TLE Yorkshire and The Humber, released April 2025

4.27 Although the local economy has performed relatively strongly over the last decade it local economy faces very considerable uncertainty. Notwithstanding the Government's recent intervention, there are considerable concerns over the future of British Steel in Scunthorpe, where 2,700 direct well-paid jobs have been at risk.

Figure 4.1: Changes in employees, 2015 to 2023



Source: ONS Business Register and Employment Survey. Note: data excludes farm-based agriculture

Labour market: unemployment

4.28 As of April 2024, depending on the measure used, there were between 5,000 to 8,000 unemployed adults across the North Lincolnshire and North East Lincolnshire areas combined (not all but most of whom are seeking work) (see Table 4.1). Unemployment rates in North Lincolnshire are on par with those nationally and slightly lower than the average for Yorkshire and the Humber region and above those for all Greater Lincolnshire. The rates are slightly higher in North East Lincolnshire.

Table 4.1: Current employment and unemployment in the local area

Measure	North Lincolnshire	North East Lincolnshire	All Greater Lincolnshire	Yorkshire & Humber	Great Britain
Unemployed (ONS model-based, Jan 2024-Dec 2024)	2,500	2,500	20,900		
Rate (%)	3.1	3.4	4.0	4.1	3.7
Claimant count (March 2025)	3,720	4,115	23,550		
Rate (%)	3.6	4.3	3.5	4.2	3.8
Total employees (2023)	75,000	67,000			
Total jobs (2023)	84,600	75,500			

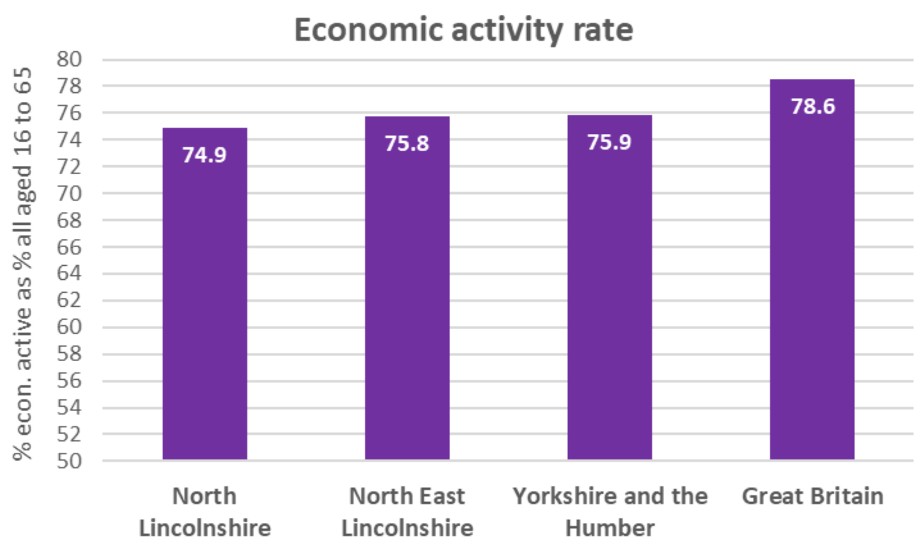
Source: NOMIS, data for February 2024. Rates are % is the number of claimants as a proportion of resident population of area aged 16-64. They are not seasonally adjusted

Labour market: economic activity rates

4.29 The economic activity rates in the local area (North Lincolnshire and North East Lincolnshire) are slightly below the wider regional average, but significantly lower than the national average. If economic activity rates in North Lincolnshire for those aged 16 to 65 were in line with the regional rate there would be around an extra 1,000 people in work or seeking work, if they were in line with the national average there would be around 4,000 extra residents of North Lincolnshire actively engaged in the labour market.

4.30 This suggests that there may be a degree of underemployment locally and more people might be potentially available to or wanting to work that implied by the headline unemployment rate.

Figure 4.2: Economic activity rates, 2023 to 2024



Source: ONS Annual Population Survey, accessed via NOMIS. Note: average for the period Jan 2023-Dec 2023 to Jan 2024-Dec 2024

Labour market: skills and qualifications

4.31 Tables A4, A5 and A6 in Appendix A set out current information on the pool of the local labour force by qualifications level and types of occupations/skills. Key points are that:

- North Lincolnshire has a relatively well-qualified workforce with the proportion of those of working age holding degree the qualifications above the Greater Lincolnshire and similar to the regional average (but below the national average), in contrast qualification levels are lower in North East Lincolnshire.
- There were many more residents working in engineering and allied occupations (3,200 or 4.6% and 3,400 or 4.4% for North Lincolnshire and North East Lincolnshire respectively). This reflects the industrial base of the areas and suggests that, in respect of the construction and engineering related jobs in the proposed development and operation stage, there is a good skills base locally. This is supported by the information in Table A5 on the industrial sectors in which residents work
- There were, in 2021, 1,300 and 900 residents working in IT-related occupations in 2021 in North Lincolnshire and North East Lincolnshire, respectively. At 1.7% and 1.3% respectively these were relatively low share of all those in work compared to Greater Lincolnshire (2.0%) or the region (2.9%), reflecting the relatively small size of the digital sector in the local area and scope for it to grow.

Labour market: wages

4.32 Table 4.2 below sets out annual pay by area of workplace for 2024 (the last year for which data is available for Greater Lincolnshire and North East Lincolnshire). This shows that:

- In North Lincolnshire in 2024 average annual salaries for those working full-time in the area were around £34,500 (median) and £38,000 (mean). These were respectively 9% and 12% below the England averages, (but equal to or higher than the Yorkshire and Humber averages).
- Pay is very slightly lower on average in North East Lincolnshire (especially mean pay as opposed to median pay).

Table 4.2: Annual gross pay 2024 by area of workplace, for those in full-time jobs £000s

Measure	Gender	North Lincolnshire	North East Lincolnshire	Yorkshire and the Humber	England
Median	Male	£39.7	£38.5	£37.3	£40.4
	Female	£28.5	£28.3	£31.0	£34.0
	Total	£34.5	£34.5	£34.4	£37.6
Total, England=100		**91**	92	92	91
Mean	Male	£42.8	£44.9	£43.0	£51.3
	Female	£31.5	£32.2	£35.2	£40.4
	Total	£38.1	£40.2	£39.7	£46.7
Total, England=100		**88**	81	86	85

Source: Annual Survey of Hours And Earnings (ASHE) - workplace analysis, ONS Crown Copyright. Notes: data as of April; also data not currently available for the Greater Lincolnshire area

Conclusions

4.33 Our key conclusions are:

1) Greater Lincolnshire and North Lincolnshire have economic and other policies which in recent documents are highlighting the actual or potential importance of the digital sector as well as strength in engineering and construction. These are all relevant to the proposed development.

2) The current North Lincolnshire Economic Growth Plan highlights the desire to have a "*strong, diverse, and sustainable economic base driven by innovation and new technologies. Increased productivity levels, services and business growth creating high level, high value added jobs*." The proposed development would quite clearly contribute to this ambition.

3) Although unemployment rates, as in other parts of the UK are currently relatively low. There are still of the order of 5,000 to 8,000 unemployed adults across the North Lincolnshire and North East Lincolnshire areas depending on the precise measured used. Most of these will be seeking work. Furthermore, an initial analysis suggests that there could be a further 1,000 to 4,000 local residents not officially economically active that might return to the labour market (for the right jobs at the right pay levels).

4) There are strengths in the engineering and construction sectors locally as evidenced by the number of residents working in related occupations and sectors.

5) The review of data shows that in both North Lincolnshire and North East Lincolnshire the digital/IT sector is currently modest in size, so with the potential to expand. There is a developing technology training infrastructure (LifT) for the digital sector.

6) Wage rates are well below national averages in both North Lincolnshire and North East Lincolnshire although broadly in line with the regional averages.

7) The local economy faces some considerable uncertainty in respect of the future of British Steel and there is a need to diversify its economic base. NLC's Growth Plan explicitly identifies the need for a "*strong, diverse, and sustainable economic base*".

5. Evidence on current and future need for data centres

Relationship between data and the economy

5.1 The growing importance of data to businesses is being driven by several mechanisms, with potential for overlaps between them[33]. The mechanisms are:

- **Improved business intelligence and decision-making.** The generation of ever-greater volumes of data provides the potential for the development of more detailed insights into a wide range of issues and challenges facing businesses. These include better insights into customer behaviour and market trends; more efficient procurement and management of supply chains and inventories; improved environmental performance; more cost-effective compliance with labour market, environmental and other forms of regulation; and better identification and management of business threats and risks.
- **Cost-efficiencies and revenue growth**. In sectors such as manufacturing and construction, efficiencies can be achieved through better procurement, better utilisation of machines and vehicles, and the identification and elimination of wasted resources and energy used in production.
- **Opportunities for product and service innovation** and related opportunities for new business creation.

5.2 There are strong technological and other drivers that are increasing the demand and need for data globally and in the UK. These drivers are also well documented in the various government strategies covered in the previous section. In summary they include:

- The rapid growth of **Artificial Intelligence/Machine Learning** which requires very substantial levels of computer processing power. The very recent arrival of ChatGPT and other "AI chatbots" has and will rapidly transform demand for a whole new host of digital services. It is also true that the use of AI in data centres will help them become more efficient.
- The rise of **cloud computing** where data and applications are held in the "cloud" and accessed by workers and individuals remotely using applications and data stored in data centres.
- The growth of the **Internet of Things** (the increase in the use of connected devices and the proliferation of smart sensors and meters), the move to smart technologies (including in the future driverless cars etc).
- The rise of **data analytics** (or sometimes called Big Data) requiring the analysis of large and very complex data sets.

5.3 These trends are impacting on all sectors of the economy and parts of society. Hence, access to data is becoming increasingly essential for a successful and effectively functioning economy. This is driving very strong demand for new data centre capacity globally and nationally.

[33] Drawn from the "Data Economy Report", Digital Realty, May 2018

Drivers for the location of AI data centres to meet societal and business needs

5.4 The need for data centres capacity to store and often process all the data generated by human activity has been growing very rapidly (at about 15% to 20% annually).

5.5 The launch of ChatGPT (Chat Generative Pre-trained Transformer) by OpenAI in November 2022 which is a large language model (LLM) chatbot has accelerated interest in the development of AI across a wide range of applications. By January 2023, ChatGPT had become what was then the fastest-growing consumer software application in history, gaining over 100 million users. All major tech companies, governments and the business world are considering how to respond to the opportunities and challenges from AI[34].

5.6 There is a wide range of forecasts, but future growth rates to 2030 and beyond range from 20% to 30% annually[35]. This is being driven by the rapid growth of the use data in almost every aspect of human activity – social, economic and governmental as well as the impact of AI. The growth in data centres is responding to the economic, societal and technological drivers.

5.7 AI is not a homogeneous entity, but a technology that is often described as being split into two distinct phases:

- The initial and ongoing "training" of the AI technology and then
- Its use/application sometimes called "inference".

5.8 AI **training** require less focus on resilience and redundancy in data centres[36], and more on cost, access to power, PUE (power usage effectiveness), and general efficiency. Inference, in other words responding to requests and questions from users is, in contrast, much more latency sensitive[37] and will require proximity to the concentrations of users (ie metropolitan hubs) to ensure quick response times for user interfaces and applications.

5.9 Major tech companies are all seeking to develop new and improved AI models. These require very large scale computing power ("compute") to "train" these models. This is leading to extremely strong interest in in a new form of data centre: "**AI training data centres"**. These need to have the computing power to train and develop these models in a safe and secure environment. AI model training is especially energy intensive. It requires the use of graphic processing units (GPUs) which are specialized chips that multi-task better and work faster than the central processing units (CPUs) which run most traditional data centre cloud services.

5.10 Major tech companies are therefore seeking to develop a series of strategically located "AI Giga sites"[38] that are major investments. These data centres need to be on large scale to provide the concentrated computing power required for training the AI technologies and will require a minimum of around 200MW of IT load.

[34] Other LLMs that have been developed by tech firms include: Google's PaLM 2 which will power Google Bard (their version of ChatGPT); Llama 2 by Meta; Claude 2 from Anthropic; and Amazon Q.

[35] See McKinsey (2024)

[36] These are about the ability of data centres to ensure continued service

[37] The speed of service

[38] See JLL (2023b)

5.11 This need is **developing extremely rapidly** and major tech firms have already embarked on a search for sites. The activity in AI training data centres can be conducted further away from other data centre and so they are much more footloose in locational terms than many other types of data centres. Put another way they are less "latency sensitive" than other types of data centres that need to be located close to customer and other data centres to provide resilience.

AI Giga Site - Locational Requirements

5.12 As noted above and in para 2.11 this need for AI training data centre capacity is developing **extremely rapidly** and major tech firms have already embarked on searches for suitable sites for investment in such facilities. The need is an imminent one with potential competing locations across Europe in a **rapid race** to attract these large scale investments.

5.13 Recent research by property advisory firm JLL[39] has highlighted several key location factors for AI data centres:

- (1) access to large scale supply of **power**, ideally renewal power[40];
- (2) high-speed and reliable network **connectivity** (vital for transferring large volumes of data during AI model training);
- (3) large scale supply of **land**, cooler climates and access to water;
- (4) stability of the **political and legal** landscape; and
- (5) and a thriving **research and innovation** ecosystem.

5.14 These factors operate at different spatial levels. The last two operate more at a country level. A site requiring 200MW of IT load would typically need to be at least 20 to 30 hectares in size.

At a country level

5.15 The activity in AI training data centres can be conducted further from other data centre and so they are **more footloose in locational terms** than many other types of data centres. Put another way, they are less "latency sensitive" than other types of data centres that need to be located close to other data centres and to customers to provide resilience.

5.16 The UK, in the sense of its stable legal and regulatory framework and strong tech innovation system, is ideally placed to attract AI training centres. However, within the UK, access to the scale of power required, connectivity and large sites available for immediate use is much harder to provide. The whole of London and the South East for instance does not have suitable sites and there are major issue with grid connectivity and so access to power there. The development of AI Training data centres provides an opportunity to spread some of the investment in data centres beyond London and the South East where it has been concentrated hitherto, this would be supportive of the thrust of the draft Industrial Strategy.

At a local site level

5.17 As with all data centres the specific site location is important in terms of the **physical resilience** of the site. This means that sites at risk of flood, earthquakes, potential accidents (eg airport flightpaths or hazardous processes) and several other factors are not suitable for data centres.

[39] JLL (2023b)

[40] Data centre operators and major tech giants are concerned about their carbon footprint

5.18 In a UK context, the North Lincolnshire area is an ideal location for a large-scale AI training data centre. The area's large scale energy supply from both North Sea gas and now offshore wind is a key locational advantage. There are few other locations in the UK that offer the **scale of power supply and immediate availability of power** as well as other important location characteristics. Overall, 20% of UK's total electricity is generated in Humber region including 27% of the UK's current offshore wind capacity[41].

5.19 The Humber Estuary is home to the UK's most advanced green energy cluster with a strong pipeline of offshore wind, hydrogen production and advanced carbon capture and storage to decarbonise existing thermal generation. These include:

- 3GW of offshore wind power (on top of 2.5 GW existing wind capacity) is due to connect to the region by 2030.
- One of the UK's most advanced carbon capture storage projects (Viking CCS) is based in the Humber. This is projected to connect over 5 GW of Thermal generation. The Humber has access to over 66% of the UK's licensed CO2 storage capacity.
- 720MW of hydrogen generation is planned for the Humber[42].

5.20 The proposed site at Elsham Tech Park is an ideal location for a large scale AI training data centre complex as:

- It benefits from all the **locational advantages** of the Humber Bank area for data centres needing large scale power supply. It has access to the energy supply and grid capacity of the South Humber Bank.
- The local economy has a good base of engineering (and construction) skills to support the build and then operation of the data centres
- It is a **physically robust and secure** site, which is not susceptible to flood risk from the sea/rivers (sitting on land that is 10 to 20 metres above sea level) or from surface drainage flood risk or other hazards.
- It is a **large site** in single ownership and therefore readily deliverable (subject to planning).
- The scale of the site and the ability to develop out on a plot by plot basis gives **flexibility** to meet the specific scale and development rate requirements of a wider range of potential data centre operators.

Conclusions

5.21 There are several key conclusions that can be drawn from this review of need and location drivers:

1) First, there is a growing need for data centre capacity driven by fundamental changes in the economy and society. Much of this capacity has, hitherto, been focussed on the main metropolitan areas of the UK and globally.

2) Second, the advent of mass applications of AI has further driven this demand for data centres.

[41] Source: Humber Energy Board (2024)

[42] Source: Humber Energy Board (2024)

3) Third, a new type of data centre is emerging rapidly required to train the AI applications on vast amounts of data and using very high level of computational power and so energy (AI Giga sites). The major tech companies are seeking to establish a small network of such very large data centres across the globe including in Europe. However, the data centres could be located in different countries and regions within Europe.

4) Fourth, there are different location factors for these data centre: they are very large in scale with concomitant high power requirements and site size. However, they are more locationally footloose at a country and locality level than most other types of data centres.

5.22 The Proposed Development at Elsham is a very suitable site in North Lincolnshire to attract this current inward investment opportunity and would be complementary to already consented Humber Tech Park data centre campus. Indeed, they both form part of the NLC's AI Growth Zone application.

6. The economic benefits from the proposed development

6.1 The economic benefits from the proposed development considered in this report cover:

1) The benefits in terms of economic injection and employment that would stem from the **construction** of the proposed new data centre.

2) The **local level** economic benefits that would stem from the operation of the data centre.

3) The **wider benefits** to the local economy from the scale and nature of the proposed investment.

6.2 The likely jobs and other benefits are estimated using the following parameters that are based on the fully completed scheme delivering total 1,000MW of IT load supplied in a total of 905,000 sqm of building area (GEA).

6.3 It is important to note that many estimates of the economic impacts of data centres at a local level do not distinguish between capital expenditure created and operational impacts as many data centres are in a process of continual expansion and capital investment (especially in a data centre campus such as the development).

Economic impacts from the construction of the data centre

Scale of the investment

6.4 The Elsham Technology Park development would represent a **very substantial investment for North Lincolnshire**. Each data centre building on the campus would require very significant expenditure in the initial set-up phase in both buildings and plant and equipment. The data centre will then undergo periodic expansion and renovation as the operator updates its infrastructure to meet customer demand and integrate the latest technological advances. There is, therefore, ongoing capital expenditure throughout the life of all data centres.

6.5 Work by the US Chamber of Commerce (USCoC)[43] helpfully set out the cost components of data centres. The USCoC explains the construction of a “typical” data centre covers:

- Base building construction – architectural, planning and design, building permits, local taxes, land excavation and grading, roadways, tie-ins to utilities, and the building shell (around 20% of all capital costs excluding land).
- Mechanical and electronic equipment purchases and installation – costs include mechanical and electronic equipment (account for an estimated 75% to 80% of the initial capital costs).

6.6 A more detailed breakdown is that the cost components of construction based upon USCoC comprise:

- Land and building shell (15% to 20%): covering building shell, raised floor.
- Electrical systems (40% to 45%): covering electrical backup generators, batteries, power distribution units (PDU), uninterruptible power supply (UPS), switchgear/transformers.

[43] USCoC (2017)

- HVAC/mechanical/cooling systems (15% to 20%): covering computer room air conditioners, computer room air handlers, air cooled chillers, chilled water storage and pipes.
- Building fit-out (20% to 25%): covering lobby / entrance, meet-me room, shipping & receiving area.

6.7 There are few precedents for data centres of this scale globally. However, we have been able to apply parameters from other data centres and industry standards to develop broad estimates for the total construction cost of the proposed development when fully complete. The large data centre users are of course seeking economies of scale from developing larger data centres. However, the demands of the high powered computing needed for AI training application creates other demands.

6.8 The range of total construction cost, including all professional fees, for the completed data centre will depend on the precise specification and construction techniques used. However, as shown in Table A1 in Appendix A, the cost is likely to range from at a very minimum around **£5.5 billion to an average of around £7.5 billion** for the completed development (in 2025 prices[44]). There are likely to be significant economies of scale for such large data centre developments, therefore the total cost is likely to be towards the lower end of the ranges set out in Table A1.

6.9 It is important to note that these figures exclude the cost of the actual computing equipment installed inside the data centre. Based on evidence from the USA, the capital expenditure on the equipment installed inside data centres is likely to be as large if not larger than the capital construction cost.

6.10 Such a level of investment would represent one of the very largest ever inward investment projects in the UK.

Construction jobs and GVA supported

6.11 This level of investment would support a very large number of construction and related jobs during the build out phase. The two current $800 million (£645 million) Meta[45] AI data centres being built in Texas and Idaho are each projected to have 1,000 to 1,200 skilled construction workers on site during their peak construction period.

6.12 Meta's proposed AI training datacentre at Richland Parish in Louisiana would, when completed, be its largest facility in the world. This is proposed to be some 4,000,000 sqft (372,000 sqm) in size when fully built out. Meta have stated that the peak construction employment on site would be 5,000 workers over the five year build out period from 2025 to 2030 (or one worker on site for every 74 sqm of space). Other Meta data centres have 1,000 to 2,000 forecast peak workers on site.

6.13 Across all other Meta data centres for which there is public information, the average peak workforce works at around 90 sqm of data centre floorspace for every peak on-site construction job[46]. The variations are explained by the speed of construction (the faster the higher the peak relative to overall size) and the scope for economies of scale.

[44] And the possibility the figure could approach £9 billion

[45] The report draws relatively heavily on Meta data simply because they have released more information about their data centres into the public domain that other large scale tech companies

[46] These are: Temple, Texas; Kuna, Idaho; Huntsville, Alabama; Mesa, Arizona; Cheyenne, Wyoming

6.14 These data centres are of similar scale of the proposed data centre campus at Elsham Tech Park. The scale of construction activity on and off site and in the supply chain will be very significant. The actual number of jobs supported will depend on the speed of construction, the methods used and supply chains and sourcing.

6.15 Previous research has indicated that 1 FTE construction job for one year is supported for roughly every £174,000 of construction spend in a data centre[47]. Taking account of potential economies of scale and potential for modular construction we have also used a higher figure of around £209,000 of spend per FTE job (see Table A1). This produces a core range of from around **26,000** up to **36,000 person years of employment** supported by the proposed development.

6.16 This range is assessed on the basis that the great bulk of direct construction spend occurs in the UK. It may be the case that there is a significant imported element of direct construction spend related to specialist equipment and/or expertise. A recent assessment of a new data centre in London[48] using data from the intended operator had information on likely sourcing of goods and services in the construction phase and overall 73% was spent in the UK. If this degree of importing of main construction spend were to apply the Elsham Tech Park then the range of person years of construction employment would be some **20,000 to 27,000** in total over the period of build out.

6.17 These construction jobs will be a mixture of on and off site jobs and the numbers at their peak will depend on the speed of the build out of the campus development as well as the methods of construction used. If the whole project were built out over a 7 year period (to the lower end of the potential range), the project could be supporting at least **3,700 to 5,100 jobs a year** on average on and off site. However, if the campus were built out over a longer period of 10 year then average annual construction jobs supported (on and off site) could range **2,600 to 3,600 jobs**.

6.18 These jobs would be a mixture of jobs in construction groundworks, demolition, utilities, steelwork, plus many in mechanical and electrical engineering and professional services. It is important to stress that the jobs would be located both on and off-site.

Table 6.1: Estimate construction jobs supported by the Elsham Tech Park data centre campus development (when fully built out)

Measure		Lower	Higher
All person years of employment*		26,000**	36,000**
		Average annual FTE jobs supported*	
Assumed building period (years)	5.0***	5,200	7,200
	6.0***	4,300	6,000
	7.0	3,700	5,100
	8.0	3,300	4,500
	9.0	2,900	4,000
	10.0	2,600	3,600

*Source: Nicol Economics estimates. Notes: * both on and off site; ** if c. 25% of spend was spent directly on imported goods and services then the total job numbers would range 20,000 to 27,000 and the annual average number of jobs supported would fall correspondingly; ***for illustrative purposes only, it is unlikely that the data centre campus would be built out over such a relatively short period given its scale even though it would be technically feasible, given that a number of different data centre operators would be involved.*

[47] The figure is sourced from the capital cost per job from a report on data centres in Northern Virgina (the largest cluster in the world in 2024) which is $214,000 converted to value in £s (£169,000) and then updated to 2025 prices using the UK GDP deflator rise of 3% to £174,000. The base report is NVTC (2024)

[48] Oxford Economics (2023)

6.19 As well as supporting jobs, the investment in the new facility would provide a GVA boost for the local, sub-regional and national economies during the construction period. At a national level, the ratio of GVA to direct turnover in the construction sector was 39% in 2022 (based on the Annual Business Survey data). Applied to the estimated value of the scheme, this would imply an **initial direct GVA boost of some £2.2 to £3.0 billion**[49] at a UK level. However, there is likely to be some leakage out of the UK as result of imported goods and services noted above.

6.20 Applied to our estimates, there could be of the order of **£2,150 million to £1,560 million of extra construction sector GVA at a UK level** supported by the capital expenditure for Elsham Tech Park.

6.21 The extent that this boost occurs locally and sub-regionally will depend on location of suppliers in the construction and fit out work and then the subsequent supply chains involved (i.e. degree of leakage of the construction activity out of the local area and region).

6.22 The study referred to previously for Northern Virginia calculated that for every $1 of economic output created in construction there was around $0.54 in further indirect and induced multiplier economic effects in Northern Virginia and similarly 0.52 indirect and induced jobs for every 1.0 direct construction job. The economy and population of Greater Lincolnshire is considerably smaller than that of Northern Virginia[50] so such multipliers need to be used with caution. Nevertheless, there would be large scale further multiplier effects during the construction phase both locally and in the wider regional economy.

Timing of construction effects and interactions with Humber Tech Park

6.23 The development of Elsham Tech Park (ETP) will require a significant construction workforce on and off site. The scale of the project means that some of the construction workers will need to travel to North Lincolnshire from outside the region some on a daily basis but others on a weekly basis. The latter group will need to stay in the area during the week spending money and supporting local accommodation and food and beverage businesses.

6.24 North Lincolnshire has had previous experience of very large scale construction projects. For instance, the recent Keadby 2 power station project construction on the plant began in August 2018 and the plant came online in February 2024. The total construction cost in historic prices was some £500 million (around £700 million in 2025 prices) supporting an anticipated 1,300 construction jobs[51] reaching 500 on site jobs over a six month peak construction period[52]. We understand that the construction of the power station did not place a strain on local labour market or accommodation providers.

6.25 We are aware that there are potentially a significant number of large scale capital projects that might progress in North Lincolnshire and the wider Humber area linked to the green energy and decarbonisation plans of the Humber 2030 Vision. The timing of these is uncertain and they require a range of consents and funding decisions. NLC are aware of the potential impacts on local accommodation infrastructure in particular from large scale construction projects. We do not have any robust basis to assess the cumulative impact of these other projects and the Elsham Technology campus; however we are able to consider the potential dual, combined role of the consented Humber Tech Park (HTP) and the proposed ETP.

[49] Based on the lower end of the range of potential overall construction costs

[50] 3.07 million in Northern Virginia (2020) compared to 1.1 million in Greater Lincolnshire

[51] 13,896 months' worth of construction manpower, spread over a 36 month construction period or on average of c. 390 jobs over the period

[52] Sourced from "Socio-Economics Chapter of Keadby II Environmental Statement", ERM, 2016 accessed on https://web.archive.org/web/20180816065940/http://sse.com/whatwedo/ourprojectsandassets/thermal/keadby2/

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6.26 In considering this possible combine role we have considered two scenarios:

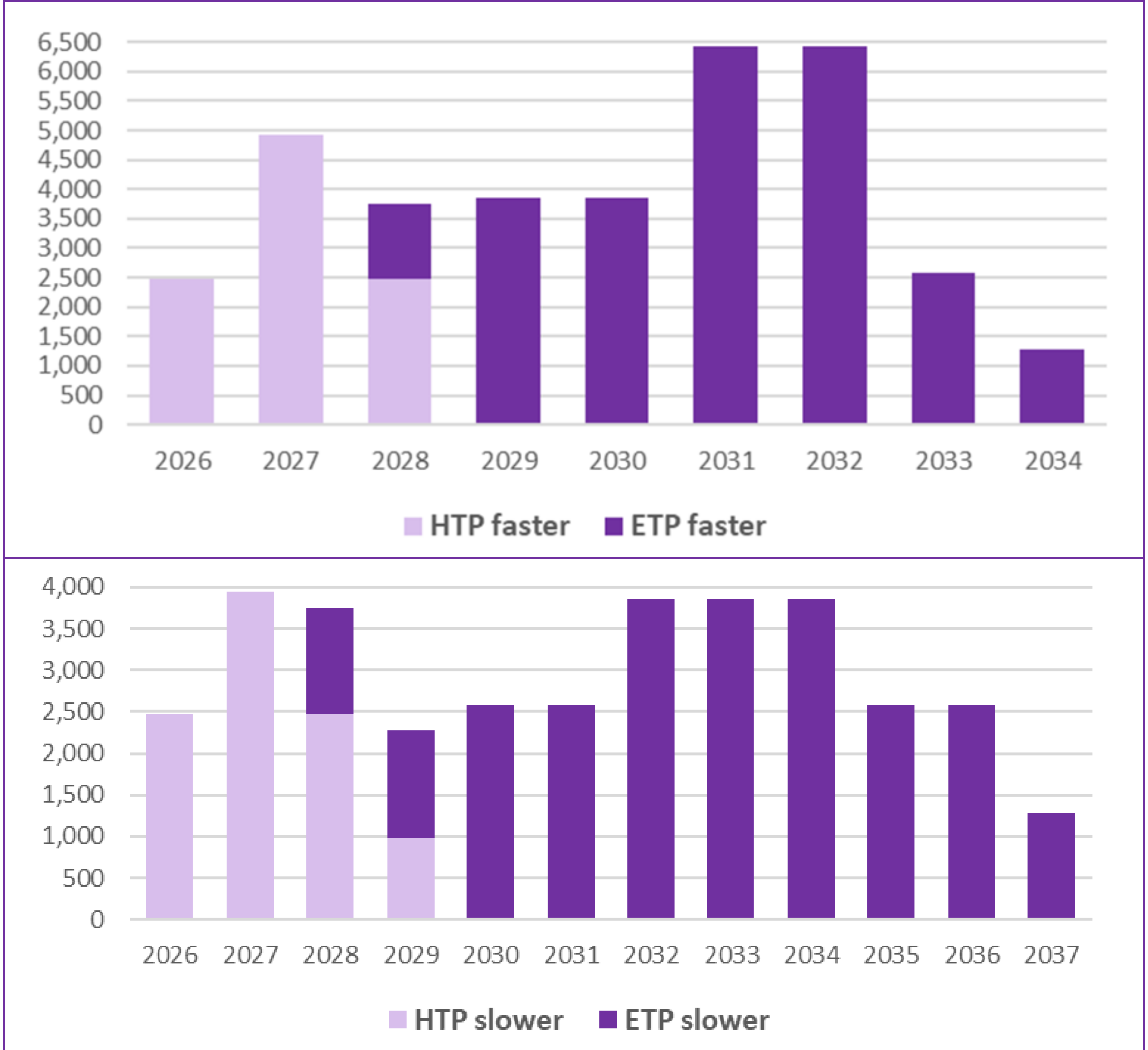
- Faster build out/development
- Slower built out/development.

6.27 The assumptions made are shown in Table A2 in Appendix A. In each case significant construction work on site is assumed to start in 2026 (for HTP) and then by 2028 for ETP.

6.28 We have modelled the total construction years of employment for each year for the two schemes combined for faster and slower development scenarios (see Figure 6.1). This shows total construction jobs supported **on and off** site (including all professional and design jobs and off site fabrication etc). This shows that, in theory, there could be a peak workforce supported across the UK of up to 6,000 jobs by the early 2030s based on the assumptions made about speed and build up.

6.29 However, we consider it more likely that a slower build out will happen as each scheme has several separate buildings, therefore a maximum direct construction workforce of under 4,000 is more likely peaking in the first five years of the 2030s

Figure 6.1: Potential numbers of on and off site construction workers at Elsham Tech Park (and Humber Tech Park), with different phasing scenarios

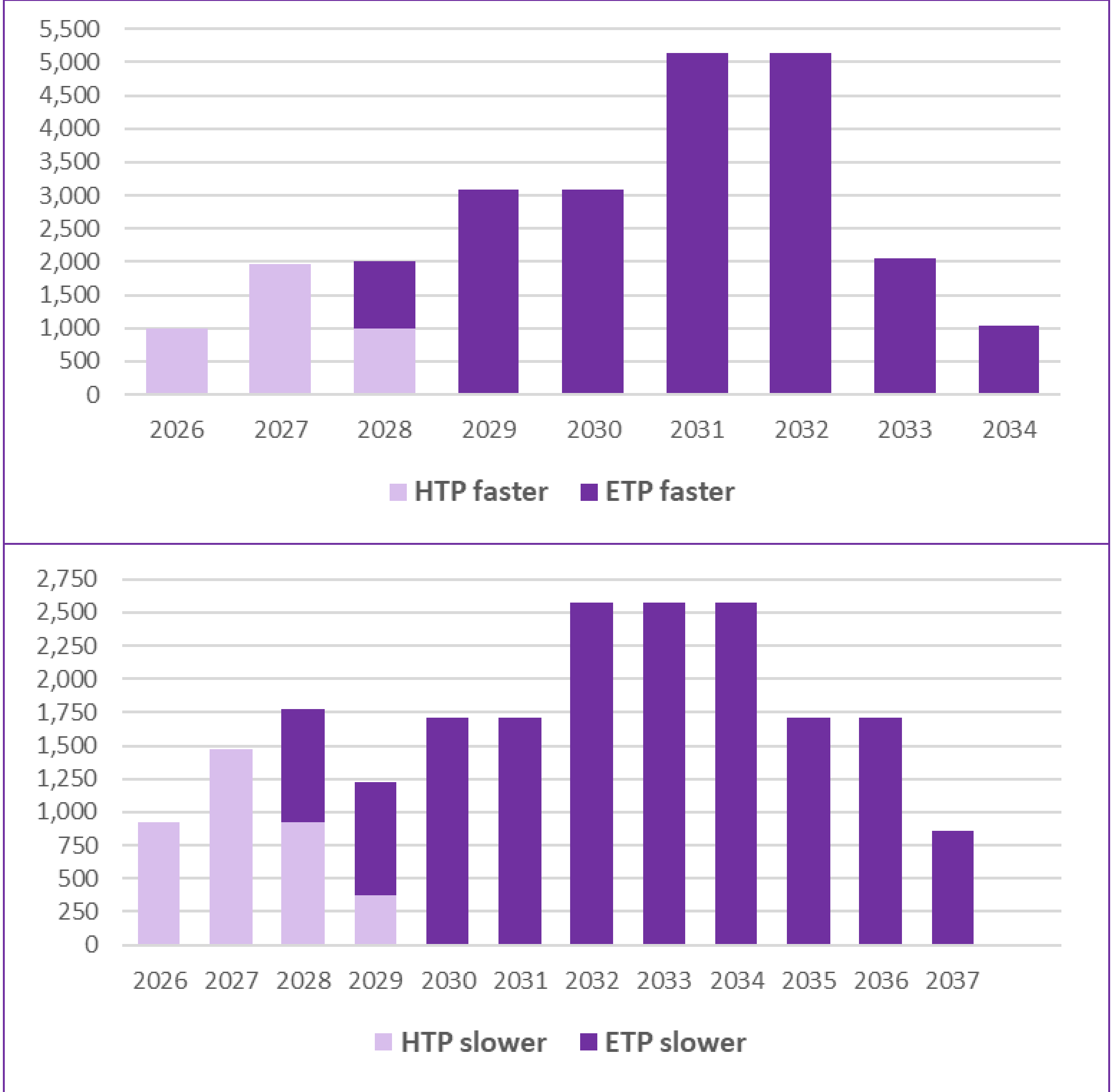


Source: Nicol Economics calculations and estimates

6.30 There will be a mixture of on-site construction activity and much off-site activity. Based on the relationship of areas of development and forecast peak construction workforce from very large data centre schemes in the USA, we have assessed the likely peak on-site construction workforce under slower and faster development rates (see Figure 6.2 and Table A2).

6.31 These are very indicative estimates only. They suggest that under slower development scenario for ETP the peak construction workforce on-site across both schemes could reach 1,500 to 2,500 workers[53].

Figure 6.2: Potential numbers of peak ON SITE construction workers at Elsham Tech Park (and Humber Tech Park), with different phasing



Source: Nicol Economics calculations and estimates (See Table A2 for assumptions made)

[53] The socio economic assessment for the smaller Cambois data centre scheme (which is to be developed over c. 10 years) identified peak construction workforce as c, 1,200 jobs

Local economic impacts from the ongoing operations of the data centre campus

6.32 Data centres are very large scale and capital intensive projects that involve significant energy and IT infrastructure. They are highly automated forms of economic activity but still do require significant numbers of skilled and well-paid on-site staff to ensure they can remain operational at all times. The number of staff and types of jobs will depend, ultimately, on the nature of the operators using the data centre and their business models. To inform this assessment, Nicol Economics have reviewed a wide range of studies on the economic impact of data centres as well as the most recent information from new data centres being built in the USA (see Box 6.1).

Box 6.1: Sources used to estimate economic impacts of the proposed new data centre	
Source	**Comments**
Magnum Economics for NVTC (2024 and 2022)	Detailed analysis of the economic footprint of data centres in the world's largest concentration of data centres for the Northern Virginia Technology Council (NVTC).. Consider construction and operation effects and direct, indirect and induced jobs, wages and economic output/sales
Meta (2024 and 2025)	Published information on Meta's new large scale data centres in the USA[54]
AWS (2025)	Published information on AWS's new large scale data centres in the USA
Compass Datacenters (2025)	Published information on new data centre at Meridian in Mississippi
Arcadis (2024)	Estimates of employment at proposed Cambois data centre campus, Blyth Northumberland (in ES Socio-Economics chapter)
Oxford Economics (2023)	Economic analysis of proposed 95,014 sqm 77MW database in London
Dutch Data Centre Association (DDCA) (2018, 2019 and 2020)	Produce estimates of total jobs, total area and total power of colocation data centres for these three years. Averages are taken the from these.
Copenhagen Economics (2019)	A study of the forecasts benefits of a proposed new hyperscale Google data centre (now built) in Denmark. The forecasts of direct operational jobs are used.
Oxford Economics (2018)	Study of the economic benefits of six major Google data centres in six different states in the USA. For comparability, the direct operational jobs figures only and the areas of the data centres are used.

Direct on-site jobs created

6.33 There is a very significant range of on-site operational jobs at new large-scale data centres being proposed or built in the UK and the USA. Data centres vary widely in terms of:

- Size as measured by critical IT load;
- Size as measured by overall site area or the size of the data centre buildings; and
- Size as measured by total capital cost/scale of investment.

6.34 There are therefore different potential metrics that could be used from other data centres and then applied to the scale of the proposed data centre campus at Elsham Tech Park which are:

[54] Including: Idaho (Kuna); Alabama (Huntsville); Arizona (Mesa); Wyoming (Cheyenne); and Louisiana (Richland Parish)

- Jobs per MW of critical IT load;
- Jobs per square metre floor area of the development (in terms of the GEA or GIA of the data centre buildings); or
- Jobs per £1 million of capital investment.

6.35 Developing and applying these measures is quite challenging as each metric has its own limitations as:

1) Reported figures from other data centre schemes are often **not on a consistent basis**. For instance, how floor area is measured and whether this included on-site back-up generators and substations; and whether reported capital costs include or exclude the costs of the computers installed on racks.

2) As the types of data centres changes and the technology changes this **alters the relationships** for instance between floor area and critical IT load (as a result of the faster processors requiring more power for AI uses).

3) Different firms **have different operating models** and different technologies that are being used in AI training data centres (and do not always make it clear what types of data centres are being built).

4) In particular, the new generation of AI training data centres will have **quite different ratios of jobs** relative to the size of the data centre than for instance hyperscale cloud computing data centres. Therefore it would be misleading to apply such simple jobs per sqm, £m of capital cost or MW of IT load to the proposed ETC data campus to establish the number of jobs on-site.

6.36 The recent planning application for the Humber Tech Park (HTP) scheme at South Killingholme addressed these issues based on the best information available at the time and concluded that the 384MW IT load, 308,978 sqm (GEA) scheme, when fully operational, could support of the order of 370 FTE jobs, or roughly 1 FTE job for every 1MW of IT load or 840 sqm (GEA) of area[55]. This was based on using reported size and operational jobs from reports on the then most recent large scale US data centres[56]. (For many of the large scale data centre being built in the USA there is limited information on IT load whereas the areas of the buildings is more regularly reported upon).

6.37 Applying the same rules of thumb of FTE jobs per building area from HTP would imply around 960 FTE jobs at the Elsham Tech Park data centre campus when fully built out and operational.

6.38 However, we have retested this assumption by reviewing more recent information that has been made available on the largest new data centres being built in the USA or proposed in the UK:

- In the UK, the recently consented Cambois scheme in Northumberland has some similarities to the proposed Elsham Tech Park. According to documents submitted as part of its planning application, the full scheme would be 540,000 sqm in area and have 720MW of IT load and support around 400 operational jobs or roughly 0.6 FTE jobs for every 1MW of IT load or 1 FTE job for every 1,350 sqm of development (GIA).

[55] Note: this area included gantries, excluding gantries it was 1 job for every 470 sqm of space

[56] The HTP evidence base relied on figures reported by Meta as of the major tech firms they are the most open about the scale and jobs associated with the new data centres they build in the USA

- In the USA, Meta has committed to invest in its largest data centre complex at Richland Parish in Louisiana. This data centre is specifically identified as an AI training data centre with up to 500 FTE operational jobs for the 4,000,000 sqft[57] (372,000 sqm) complex when fully built out, or 740 sqm of space for every FTE job.
- Also in the USA, AWS are planning to build a similar sized data centre campus across two data centre complexes in Madison County in Mississippi of 3,200,000 sqft to 4,800,000 sqft (an average of 4,000,000 sqft). AWS announced that these two facilities will employ 1,000 people so if the number is correct 300 to 450 sqm of space per FTE job. However, there is a lack of detail on what is covered by these jobs.
- Finally, Rowan are developing a large scale data centre campus in Maryland and report that 275 FTE operational jobs will be supported directly when this 2,200,000 sqft (204,00 sqm) development is complete or an average of 743 sqm of space per FTE job.

6.39 Considering these data points our conclusion is that the fully built out Elsham Tech Park would employ around at the lower end **600/650 FTE jobs** and the very highest end to 1,100/1,200 FTE jobs. However, the emerging evidence from the USA is that jobs densities for AI training centres are lower than those for hyperscale cloud data centres so the **jobs are likely to be towards the lower end of this range**.

6.40 These jobs at Elsham Tech Park would be in a range of activities including jobs in data centre operations (facilities management, mechanical engineers, electrical engineers and systems technicians), data centre hardware operations (network engineers and hardware engineers), security, maintenance, catering and cleaning.

6.41 The new jobs in the data centre would provide an opportunity to support **upskilling** locally and the development of training and other programmes. Currently the ICT sector in both North Lincolnshire and North East Lincolnshire is small and there are few job opportunities. There were just under 1,000 people employed in the whole ICT sector in 2023 or only around 0.6% of all jobs locally[58] compared to 2.7% across all Yorkshire and the Humber and 4.6% in Great Britain.

6.42 There are excellent opportunities to develop local **apprenticeship and apprenticeship programmes** linked to the jobs at the data centres providing pathways to jobs and skills in engineering (electrical and mechanical) and IT sector jobs. The developers of Elsham Tech Park are already in conversation with training and education bodies that could manage and deliver apprenticeships and other training and will provide funding to support such programmes (to be agreed via Section 106 arrangements).

[57] The information available does not specify exactly what is and is not included in this figure

[58] There were about 142,000 employees working in the two Unitary Authorities in 2023 (75,000 in North Lincolnshire and 67,000 in North East Lincolnshire)

Wages paid

6.43 The jobs in data centres are often highly skilled. Experience from other data centres in the UK suggests that the current average annual wage paid for a full time job at the data centre is likely be in the range of £55,000 to £61,000 (and higher for specialist skills)[59], giving an annual wages bill for a total of 600 to 960 FTE staff of **£35 million to £55 million** (in 2025 prices). The wages paid would be well above the average of North Lincolnshire or North East Lincolnshire - around 45% higher than the mean and 60% higher than the median annual wage for the local area[60].

Table 6.2: Estimates of wages paid, Elsham Tech Park (when fully operational)

Range	£000s pa per FTE	Assumed FTE jobs on site		
		600	960	1,080
Higher	£60.7	£36.4	£58.3	£65.6
Lower	£54.6	£32.8	£52.5	£59.0
Average	**£57.7**	**£34.6**	**£55.4**	**£62.3**

Source: Nicol Economics estimates

Direct Gross Value Added (GVA) created

6.44 As explained above, data centres are extremely capital intensive forms of economic activity resulting from the high costs of construction and the value of the equipment located within a data centre. There is limited robust data on the economic value of the output from data centres (in part because they are a very new form of economic activity). In the UK, the closest approximation is the data on the "data processing and hosting" sector (SIC 63.11). In 2021, according to the Annual Business Survey (ABS)[61], the total amount of GVA (economic output) from the information services sector (SIC 63) was £11.8 billion of which the data processing and hosting sector accounted for £9.0 billion[62].

6.45 The GVA per job filled in 2019 was £140,000 for the whole information services sector (SIC 63) and around £130,000 for the "data processing and hosting" sector (SIC 63.11). In 2024 price terms these would be, respectively, around £170,000 and £155,000 per job.

6.46 Given the highly capital intensive nature of the proposed development we have also looked at the estimate for Northern Virginia of the direct economic output produced per job in data centres there (which are comparable in terms of scale). This was around $1,200,000 per job in 2024 (or £975,000 in 2024 UK prices). This is measure of economic output (in effect total sales value not the same as GVA).

[59] Based on a mix of information from confidential information from actual data centre operators, online recruitment sites such as Total Jobs and the Annual Survey of Hours and Earnings (ASHE). ASHE reported the mean UK full time salary in the Information and Communication sector (ICT) in 2023 as around £53,000 (Table 29.7a Annual pay - Gross) and for Yorkshire and the Humber region around £48,000 (Table 5). These have been uprated to 2025 value using the average increase in earnings for the UK as a whole since September 2023 to February 2025 (10.4%)

[60] In April 2024, according to Annual Survey of Hours and Earnings (ASHE) data average annual wages for those working full-time were: North Lincolnshire, £34,500 median and £38,100 mean; North East Lincolnshire, £34,500 median and £40,200 mean.

[61] The ABS is an annual sample survey of approximately 73,000 businesses across the United Kingdom by the ONS. The ABS draws its sample from the Inter-Departmental Business Register (IDBR).

[62] The total estimated value of GVA from SIC 61 to 63 (what is referred to as the "data/information economy" in this report) was £116 billion.

6.47 In the UK in 2022 for the Information Services sector the ratio of GVA to total sales was 55%. Applying this ration to the figure derived from Northern Virginia gives a potential GVA created per job of around **£530,000** in 2024 prices. A recent report for a new data centre for IXDS Ltd in London estimated GVA per job at £620,000[63] and £1.05 million of direct GVA for every MW of capacity.

6.48 Using this higher figure of GVA per job (£530,000) leads to a much larger estimate of around **£320 to £570 million** in direct GVA generated by the data centre. Given the scale and capital intensity of the proposed development, this higher figure is, we consider, the more robust one to use as a measure of the direct GVA generated by the development in North Lincolnshire. To put this figure into context, it would represent about a 6% to 10% increase in the total estimated GVA generated in North Lincolnshire in 2024[64].

Other indirect and induced economic effects

6.49 All forms of economic activity produce wider benefits via so-called **multiplier effects**. These stem from: supply chain effects ("indirect impacts"); and from the jobs and economic activity supported by the wages of those employed directly and indirectly ("induced impacts").

6.50 The scale of these effects depends on a wide range of factors: the nature and location of key purchases by the data centre; the area of impact considered (the larger the area the bigger will be their effect); and the economic base of the surrounding area (if businesses located there can provide the key inputs and purchases or if these need to be supplied from further afield or abroad).

6.51 It is not possible to assess the precise scale and location of these effects for the proposed project. However, there are useful indicators of the potential scale of these effects at the level of the UK or regional economy:

- The research from the recent study on data centres in Northern Virginia showed that the multipliers (ratio of indirect and induced effects to direct effects) were 2.9, 1.3, and 0.7 for jobs, wages and economic output respectively (at the level of Northern Virginia[65]).
- A study by Oxford Economics[66] for Google estimated the indirect effects at a US state level to be around 0.94 indirect jobs for every one direct job in a Google data centre.

6.52 These multipliers relate to larger and more complex economic geographies than that of North Lincolnshire or the Humberside area. The 2014 HCA Guidance on additionality suggests that most projects will be in the category of median multiplier levels (for "average linkages"). The multipliers they suggest are 1.1 at a neighbourhood level and 1.5 at a regional level. More recently the HM Treasury Green Book (2020) has advisory estimates for job multipliers for different sectors. This project would be classify as tradable[67] and so the potential multiplier is 1.3 extra jobs for every 1 job created (0.9 non-tradable and 0.4 tradable sector jobs from the Green Book central estimates).

6.53 We have constructed an initial estimate of GVA generated and associated jobs and wages bill in the supply chain in Greater Lincolnshire/Humber area arising from the wages bill and local spend by the data centres operated at Elsham Tech Park (see Table 6.3).

[63] Oxford Economics (2023)

[64] Estimated at around £5.6 billion in 2023 according to the ONS

[65] The GDP of the State of Virginia was around $557 billion dollars in 2019 or roughly a fifth (20%) of the size of the UK economy £2,170 billion (its population at 9 million is about 13% of the UK's population)

[66] Oxford Economics (2018) but ranged from 0.7 in South Carolina up to 1.35 in Georgia.

[67] A sector where the output is sold mostly outside the local area as in the case of a data centre

Table 6.3: Initial estimates of overall jobs and GVA creation by the proposed new data centre for the Greater Lincolnshire/Humber area (2024 prices), based on 960 direct FTE jobs			
Type of economic effect	Jobs (FTEs)	GVA (£ms)	Pay (£ms)
Direct (A)	960	£510	£55
Indirect and induced (or multiplier effects) (B=higher)*	2,761	£380	£73
Indirect and induced (or multiplier effects) (C=lower)*	1,824		
Total HIGHER (D=A+B)	3,721	£890	£128
Total LOWER (E=A+C)	2,784		
Total Higher (rounded)	**3,700**	**£900**	**£130**
Total Lower (rounded)	**2,800**		
Assumed indirect/inducted (Tye II) multiplier HIGHER	*2.9*	*0.7*	*1.3*
Assumed indirect/inducted (Tye II) multiplier LOWER	*1.9*		
Source: Nicol Economics estimates. Notes: these assume the development is fully built out; these are the gross effects and assume the economic benefits are fully realised, they do not consider any possible displacement or substitution (crowding out) effects in the labour market.			

Location of job and supply chain benefits

6.54 Elsham Tech Park is located in the local authority area of North Lincolnshire. This is where the direct economic activity will take place and jobs located. However, the site is located close to the boundary with North East Lincolnshire so employees will travel from there as well. It is difficult to say with any degree of certainty how many of the jobs would be taken by residents of North Lincolnshire. In 2021, overall 80% of jobs located in North Lincolnshire at the time were filled by residents of North Lincolnshire and a further 5% by residents of North East Lincolnshire[68].

6.55 For the whole North Lincolnshire area over 73% of those travelling to work in 2021 who worked in the North Lincolnshire area also lived there and 81% for North East Lincolnshire and North Lincolnshire areas together (Table A7).

- Just 7% of the workforce travelling to work crossed the Humber Bridge (ie came from Hull or East Riding).
- Outside Humberside, West Lindsey to the south (includes Gainsborough and Market Raisen) and Doncaster to the west were the next main areas (3% and 2% respectively).

6.56 However, North Lincolnshire is a large area so travel to work patterns will vary east to west and north to south. Table A8 shows the place of residence of those working in Brigg/Elsham (the area best approximating to the proposed development site). This area was much more reliant on workers from North Lincolnshire and North East Lincolnshire combined (92%) that for all those working in North Lincolnshire (81% combined). This is likely to be due to its location in the middle of the combined NLC/NELC area compared to Scunthorpe which is more accessible to the west and south). The numbers travelling from Hull/East Riding was small (6%) and indeed slightly lower than that for the whole local authority area. The 2021 Census also has information on how far people travel to work (see Table A9). Overall, about 80% of those working in the local area travelled less than 30 kilometres to work

[68] The next two most important locations were: Kingston upon Hull and West Lindsey (in both cases their residents accounting for 3% of jobs). It is important to note that due to the impact of Covid at the time of the 2021 Census (April 2021) more people were on furlough or working from home than normal, so these proportions will have changed more recently. Nevertheless, they indicate that North Lincolnshire is a relatively self-contained labour market and that the most important source of workers is North East Lincolnshire

6.57 There is variation in how far people travel depending on the hours they work and the type of job (better paid workers tend to travel further). So as Table A10 shows managerial and professional staff tend to travel further to work.

6.58 Overall, in terms of where operational staff are likely to be drawn from based on current travel to work patterns we can concluded from this analysis that:

- The vast majority of staff are likely to travel will come from the North Lincolnshire area itself with North East Lincolnshire the next main source of staff.
- The two areas between them are likely to account for 80% to 90% of operational staff.
- There is likely to be relatively little travel across the Humber Bridge (6% to 7%).
- A small amount of staff may be drawn from Doncaster to the west and West Lindsey to the south (less than 5%).

6.59 The proposed development will also benefit the economies, businesses, and residents across Greater Lincolnshire including North Lincolnshire via the wider supply chain as well as the rest of the former Humberside area.

Non-domestic rates impacts

6.60 Under current arrangements North Lincolnshire Council stands to retain some of the additional business rates from any new development to help support local services and investment in the local area. We have assessed the likely total rateable value for the completed development to be around £62 million for the buildings in the fully developed data campus including an allowance for the plant and machinery. This is based on other existing large data centres in England and Wales[69].

6.61 For such a set of buildings once fully complete the total rates paid in 2025/26 based on rates multiplier of £0.555 for every £1 of rateable value would be around £34 million[70]. The amount that could be retained locally (by North Lincolnshire) based on 50% of the extra rates paid would be around £17 million. To put this figure into context, the net revenue budget for the council set for 2025/26 is £228 million. Of course this amount of rates paid would not occur from day 1, but would grow over time as the site was development and data centre buildings were built and then became occupied.

Proposed greenhouses

6.62 The proposed development includes an area of seven hectares devoted to greenhouses taking advantage of the heat produced in the data centres. According to estimates by Collison & Associates, intensive greenhouse activity growing tomatoes or similar crops using a highly mechanised system would support around 48 FTE jobs at the site (dealing with all aspects of growing, for packing, and distribution, as well as overall management, and maintenance of systems)[71].

[69] Based in large part on the Vantage, data centre in Newport, Wales. This a 36,000 sqm data centre whose total rateable value is £2.8 million and taking account of the mix of floor areas etc. The rateable value (RV) assessed excludes the gantry floors. The average RV per sqm across 11 data centres was £148 per sqm, applied to the proposed development excluding gantries this would be higher at £26 million in RV. However, these data centres are of a different type and size than that proposed at ETP

[70] This would be a 34% increase on the total of £99.4 million forecast for net business rates collected in 2025/26 by North Lincolnshire (much of which it does not keep but goes into a central pool)

[71] Based on 8 FTE jobs per hectare of growing area and assuming roughly one hectare dedicated to packhouse, dispatch, cold store buildings

Conclusions

6.63 The development of a 1,000MW IT load AI data centre campus in North Lincolnshire would provide a major boost to the local and wider economy and help to diversify its economic base:

1) The c. £5.5 to £7.5 billion plus investment could support up to 26,000 to 36,000 person years of employment both on and off site during the construction and fit-out stage and around 2,500 annual jobs on and off site. This will provide a direct c. £1.6 to £2.1 billion GVA boost in total during the construction period for the UK.

2) When fully operational, the data centre will support around 600 to 1,000 direct FTE jobs on-site supporting a £35 to £55 million annual wage bill and an estimated £500 million in direct GVA. It would deliver a 10% increase in the total estimated GVA generated in North Lincolnshire in 2024

3) Taking account of potential supply chain and other multiplier effects, a further potential 1,800 to 2,800 FTE jobs (or a total of c. 2,800 to 3,700 FTE jobs) and £70 million of wages (£130 million in total) and would be supported in the Greater Lincolnshire/wider Humber area.

4) The development would provide an average annual salary for workers on site of around £58,000 per FTE based on current data centre sector wage levels. This would be very substantially above current wage levels in North Lincolnshire - around 45% higher than the mean and 60% higher than the median annual wage for jobs based in the North Lincolnshire local area.

7. Conclusions

7.1 The principal conclusions from this report are as follows:

Policy Support

1) There is widespread and clear policy support at a national level for ensuring the UK has a high quality and resilient digital infrastructure - including data centres. The UK Government is supportive of the UK taking a leading role in the new world of AI.

2) The rate of growth of data storage capacity in data centres has been extraordinarily fast and shows no signs of slowing down as changes in technology drive the way society and the economy operates in the UK (and globally).

3) The need for data centres has been further increased by the new development of AI in so called large language models supporting products such a ChatGPT. The development and delivery of these applications requires very large amounts of data processing capacity and associated power.

4) There is an opportunity to attract some of the relatively small number of large scale AI GigaSite data centres that are being developed and rolled out very rapidly by major tech companies at present. AI data centres that are designed to train large scale AI applications are more footloose than other forms of data centres (which tend to cluster near major metropolitan centres).

5) As well as an attractive climate for inward investment and business (such as that exists in the UK), this form of data centre needs large sites and a ready supply of power that are not subject to unacceptable risks (such as flooding).

6) Elsham Tech Park provides an excellent and competitive location for such an investment.

Benefits of the Proposed Development

7) The c. £5.5 billion to £7.5 billion plus investment would be one of the largest inward investments into the UK. It would support North Lincolnshire's aspirations to become an AI Growth Zone; indeed it plays a central role in the Growth Zone bid to the UK Government.

8) Such as scale of investment could support up to 26,000 to 36,000 person years of employment both on and off site during the construction and fit-out stage; with around 2,500 construction jobs supported annual on and off site for a development over a 10 year period. This will provide a direct c. £1.6 to £2.1 billion GVA boost in total for the UK during the construction period.

9) When fully operational, the data centre will support around **600 to 1,000 direct FTE jobs on-site** supporting a **£35 to £55 million** annual wage bill and an estimated **£320 million** to **£500 million in direct GVA**. It would deliver a c. 10% increase in the total current estimated GVA generated in North Lincolnshire.

10) Taking account of potential supply chain and other multiplier effects, a further potential 1,800 to 2,800 FTE jobs (or a total of c. 2,800 to 3,700 FTE jobs) and £70 million of wages (giving £130 million in total) would be supported in the Greater Lincolnshire/wider Humber area.

11) The development would provide an average annual salary for workers on site of around £58,000 per FTE based on current wage levels which is very substantially above current wage levels in North Lincolnshire - around 45% higher than the mean and 60% higher than the median annual wage for jobs based in the North Lincolnshire local area. This would help raise local wage levels to above the regional average and closer to the national average.

12) The development also provides excellent opportunities for training and skills development and helping growth the digital economy in North Lincolnshire and support the engineering and construction skills base.

13) In doing this the proposed development would help the diversification of the North Lincolnshire economy which faces some considerable vulnerabilities, not least the continued uncertain future over the British Steel works in Scunthorpe. It would also support the regional development of critical industrial sectors in the UK.

Appendix A: Data tables

Table A1: Elsham Tech Park data campus scheme, initial estimates of capital costs and associated construction employment

	Cost assumption	Apply basic T&T average (London/ UK) (1)	Factoring cheaper UK location (2)	Applying quoted recent US range (3)		
				Low	High	Mid
	$ per MW	$11.2	$9.7	$7.0	$12.0	$9.5
	£s per MW	£8.8	£7.6	£5.5	£9.4	£7.5
Elements		**Costs £ms, 2025 prices**				
Building shell	14%	£1,252	£1,081	£783	£1,342	£1,062
Electrical systems	45%	£3,973	£3,430	£2,483	£4,257	£3,370
HVAC / mechanical / cooling	21%	£1,813	£1,566	£1,133	£1,943	£1,538
Fire suppression	2%	£214	£185	£134	£230	£182
Building fit-out	18%	£1,566	£1,352	£978	£1,677	£1,328
All elements		£8,819	£7,614	£5,512	£9,449	£7,481
Rounded		**£8,800**	**£7,600**	**£5,500**	**£9,400**	**£7,500**
Total person years of employed created (on and off site) (4)	*Higher*	51,000	44,000	32,000	54,000	43,000
	Lower	**42,000**	**36,000**	**26,000**	**45,000**	**36,000**

Notes: (1) Turner and Townsend, "2024 Data centre cost index" October 2024, conversion from $s to £s based on $1.27 to £1.0 (the average for the six month to April 2025); (2) assumed 13% cheaper based on Paris, Amsterdam and Dublin cost rates relative to London; (3) sourced from DgtlInfra.COM
All figures exclude costs for: utility works, groundworks, site works, fibre cabling to support office fit-outs, professional services fees and active IT equipment; (4) based on £174,000 of spend per job (higher jobs) and then with an assumed 20% efficiency to £209,000 per job (lower jobs).

Table A2: Scenarios for build out of Elsham Tech Park and Humber Tech Park				
	HTP		**ETP**	
	Faster	Slower	Faster	Slower
Main construction start date	2026	2026	2028	2028
Build out period	3	4	7	10
Share of total jobs by year				
Year 1	25%	25%	5%	5%
Year 2	50%	40%	15%	5%
Year 3	25%	25%	15%	10%
Year 4		10%	30%	10%
Year 5			20%	15%
Year 6			10%	15%
Year 7			5%	15%
Year 8				10%
Year 9				10%
Year 10				5%
Total	100%	100%	100%	100%
Total person years of employment	**9,900**		**25,700**	
POTENTIAL PEAK CONSTRUCTION				
	Peak construction jobs per sqm of scheme			
Meta Other		74		74
Meta Richland Parish	88		88	
	Applied to HTP*		Applied to ETP*	
	2,000	2,300	5,200	6,100
*Note: * equates to c 50% of maximum construction jobs for HTP and 80% for ETP under the faster build out periods.*				

Table A3: Employee Jobs By Industry, North Lincolnshire 2023						
Sector (ranked by jobs)	North Lincoln-shire	North Lincoln-shire	Yorkshire and the Humber	Great Britain	LQ vs	
	Jobs	%	%	%	Y&H	GB
C : Manufacturing	18,000	24.0	10.9	7.5	2.2	3.2
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	11,000	14.7	14.7	13.7	1.0	1.1
Q : Human health and social work activities	8,000	10.7	14.4	13.9	0.7	0.8
H : Transportation and storage	7,000	9.3	5.9	5.0	1.6	1.9
P : Education	6,000	8.0	9.5	8.6	0.8	0.9
F : Construction	5,000	6.7	4.9	4.8	1.4	1.4
I : Accommodation and food service activities	4,000	5.3	7.6	8.0	0.7	0.7
N : Administrative and support service activities	4,000	5.3	8.4	8.7	0.6	0.6
O : Public administration and defence; compulsory social security	3,000	4.0	4.8	4.7	0.8	0.9
M : Professional, scientific and technical activities	2,500	3.3	7.1	9.3	0.5	0.4
R : Arts, entertainment and recreation	1,500	2.0	2.1	2.6	1.0	0.8
S : Other service activities	1,250	1.7	1.5	1.9	1.1	0.9
L : Real estate activities	1,000	1.3	1.4	1.9	0.9	0.7
D : Electricity, gas, steam and air conditioning supply	500	0.7	0.3	0.4	2.3	1.8
E : Water supply; sewerage, waste management and remediation activities	500	0.7	0.7	0.7	1.0	1.0
J : Information and communication	500	0.7	2.6	4.6	0.3	0.2
K : Financial and insurance activities	500	0.7	2.9	3.4	0.2	0.2
B : Mining and quarrying	175	0.2	0.1	0.1	2.0	2.0
Total	**75,000**	100				

Source: ONS Business Register and Employment Survey : open access sourced via Nomis. LQ of location quotient is a measure of the degree of relative representation of sector or industry in an area compared to another areas, above 1 is relatively over-representation and below 1 relatively under-representation

Table A4: Qualifications levels of the working age population (Jan 2024-Dec 2024)							
Level	North Lincolnshire		North East Lincolnshire		Greater Lincolnshire	Yorkshire & Humber	Great Britain
	(Level)	(%)	(Level)	(%)	(%)	(%)	(%)
RQF4 and Above	30,100	30	22,400	25	33	40	48
RQF3 and Above	58,600	59	44,800	50	58	63	68
RQF2 and Above	85,500	86	72,900	81	85	85	87
RQF1 and Above	87,700	88	78,700	88	90	88	89
Other qualifications	5,400	6	2,500	3	3	4	4
No Qualifications	6,300	6	8,800	10	7	8	7

Source: ONS APS accessed via NOMIS; Notes: levels and %s are for those aged 16 to 64
Other Qualifications = includes foreign qualifications and some professional qualifications.
RQF/NVQ 1 Equivalent = fewer than 5 GCSEs at grades A-C, foundation GNVQ, NVQ 1,
RQF/NVQ 2 Equivalent =5 or more GCSEs at grades A-C, intermediate GNVQ, NVQ 2,
RQF/NVQ 3 Equivalent = 2 or more A levels, advanced GNVQ, NVQ 3
RQF/NVQ 4 Equivalent and Above = HND, Degree and Higher Degree level qualifications or equivalent

Table A5: Occupations held by residents in work (all usual residents aged 16 years and over in employment the week before the Census 2021)							
Occupation (current)	North Lincolnshire		North East Lincolnshire		Greater Lincolnshire	Yorkshire & Humber	Great Britain
	Nos.	%	Nos.	%	%	%	%
All usual residents aged 16 years and over in employment	76,219	100.0	68,849	100.0	100.0	100.0	100.0
212 Engineering Professionals	1,178	1.5	897	1.3	1.3	1.3	1.4
213 Information Technology Professionals	814	1.1	529	0.8	1.2	1.9	2.5
214 Web and Multimedia Design Professionals	111	0.1	83	0.1	0.2	0.3	0.4
311 Science, Engineering and Production Technicians	921	1.2	1,123	1.6	1.2	0.9	0.9
313 Information Technology Technicians	353	0.5	295	0.4	0.6	0.7	0.8
524 Electrical and Electronic Trades	1,012	1.3	971	1.4	1.3	1.3	1.3
525 Skilled Metal, Electrical and Electronic Trades Supervisors	300	0.4	190	0.3	0.2	0.2	0.1
All IT related (213, 214 & 313)	1,278	1.7	907	1.3	2.0	2.9	3.7
All engineering and allied (212, 311, 524 and 525)	3,411	4.4	3,181	4.6	4.0	3.7	3.7
Source: TS064 - Occupation - minor groups, 2021 Census of Population							

Table A6: Industry of work of residents, 2021 (all usual residents aged 16 years and over in employment the week before the Census							
Industry (current)	North Lincolnshire		North East Lincolnshire		Greater Lincolnshire	Yorkshire & Humber	Great Britain
	Nos.	%	Nos.	%	%	%	%
Total in work	76,217	100.0	68,851	100.0	100.0	100.0	100.0
C: Manufacturing	13,248	17.4	9,540	13.9	11.7	7.3	9.4
26 Manufacture of computer, electrical and optical products	126	0.2	95	0.1	0.2	0.3	0.2
27 Manufacture of electrical equipment	71	0.1	38	0.1	0.1	0.2	0.2
33 Repair and installation of machinery and equipment	157	0.2	99	0.1	0.2	0.2	0.2
41 Construction of buildings; 42 Civil engineering; 43 Specialised construction activities	6,345	8.3	5,790	8.4	8.6	8.7	8.6
J: Information and communication	1,215	1.6	909	1.3	2.2	4.7	3.1
61 Telecommunications	312	0.4	207	0.3	0.4	0.7	0.7
62 Computer programming, consultancy and related activities	688	0.9	487	0.7	1.3	2.9	1.9
63 Information service activities	41	0.1	18	0.0	0.0	0.1	0.1
71 Architectural and engineering activities; technical testing and analysis	711	0.9	827	1.2	1.0	1.4	1.2
All IT (61 to 63)	**1,041**	**1.4**	**712**	**1.0**	**1.7**	**3.7**	**2.7**
All manufacturing and construction related to project (26, 27, 33 and 41, 42 and 43, and 71)	**7,410**	**9.7**	**6,849**	**9.9**	**10.1**	**10.8**	**10.4**
Source: TS060 – Industry, 2021 Census							

Table A7: all those in work in 2021 not working at or from home working in North Lincolnshire			
Place of residence for those working in North Lincolnshire	Nos.	%	Cumulative %
Total	54,400	100.0%	
North Lincolnshire	39,900	73.3%	73.3%
North East Lincolnshire	4,100	7.5%	80.9%
Kingston upon Hull	2,600	4.8%	85.7%
West Lindsey	2,200	4.0%	89.7%
Doncaster	1,600	2.9%	92.6%
East Riding of Yorkshire	1,300	2.4%	95.0%
East Lindsey	300	0.6%	95.6%
Bassetlaw	300	0.6%	96.1%
Lincoln	200	0.4%	96.5%
Source: Nicol Economics analysis of 2021 Census travel to work data. Note: at the time of the Census there were 23,600 people working in North Lincolnshire at or from home			

Table A8: Those whose workplace was Brigg/Elsham Woods in 2021 (MSOA E02002759)			
Place of residence for those working in Brigg/Elsham Woods area	Nos.	%	Cumulative %
All North Lincolnshire	2,558	82.4%	
North East Lincolnshire	309	10.0%	92.3%
East Riding	88	2.8%	95.2%
Hull	88	2.8%	98.0%
Doncaster	26	0.8%	98.8%
All areas	3,105	100%	
Source: Nicol Economics analysis of 2021 Census travel to work data. Note: the total: Mainly working at or from home, No fixed place, = 1,500			

Table A9: Distance travelled to work in 2021, those not working at or from home					
Distance travelled	Resident of …..				All **working** in Brigg/ Elsham area
	Barton-on-Humber	Brigg/ Elsham	All North Lincolnshire	All Yorkshire and the Humber	
Less than 2km	26%	19%	20%	20%	16%
2km to less than 5km	6%	6%	26%	25%	12%
5km to less than 10km	16%	15%	16%	23%	16%
10km to less than 20km	37%	35%	19%	19%	35%
20km to less than 30km	9%	16%	9%	6%	14%
30km to less than 40km	2%	3%	5%	3%	3%
40km to less than 60km	2%	3%	3%	2%	2%
60km and over	3%	3%	2%	2%	2%
All less than:					
5km	33%	25%	46%	45%	28%
10km	48%	40%	62%	68%	44%
20km	85%	75%	81%	87%	79%
30km	**94%**	**91%**	**90%**	**93%**	**93%**
Source: Nicol Economics analysis of 2021 Census travel to work data.					

Table A10: Distance travelled to work North Lincolnshire residents in 2021 (those traveling to work only)			
Occupation (current)	**Less than 10km**	**10km to less than 30km**	**30km and over**
1. Managers, directors and senior officials	30%	20%	10%
2. Professional occupations	30%	23%	10%
3. Associate professional and technical occupations	30%	19%	10%
5. Skilled trades occupations	34%	17%	6%
4. Administrative and secretarial occupations	40%	19%	5%
8. Process, plant and machine operatives	50%	18%	6%
6. Caring, leisure and other service occupations	53%	18%	4%
7. Sales and customer service occupations	60%	18%	4%
9. Elementary occupations	62%	18%	5%
Total	**43%**	**19%**	**7%**
Source: Nicol Economics analysis of 2021 Census travel to work data.			

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