# Essex set to host Europe’s largest low-carbon greenhouse complex using waste heat



Essex is poised to become the home of Europe's largest low-carbon horticulture site with plans for a substantial 40-hectare complex of greenhouses designed to transform the region's agricultural landscape. Slated to begin operations in 2027, this ambitious project aims to utilise waste heat from an adjacent waste management facility to cultivate around 28,194 tonnes of tomatoes annually. This initiative could potentially reduce the UK's reliance on imported tomatoes by as much as 7.1%, with current imports predominantly sourced from Morocco, Spain, and the Netherlands.

The facility will harness energy generated from burning household rubbish, a method touted as a sustainable alternative to traditional waste disposal that currently leads to significant greenhouse gas emissions. Gareth Jones, a representative from Indaver, the firm responsible for the waste management aspect of the project, elaborates on the process: “The boiler produces steam and some of that steam we'll divert to our new heat exchange, and that will produce the hot water that we'll be sending over to our greenhouses.” This innovative approach offers not only an opportunity to combat waste but also a systematic way to produce essential produce closer to home, addressing both environmental concerns and food security.

As UK consumers increasingly turn to locally sourced products, the push for sustainable, domestic food production is more pertinent than ever. According to data from Defra, nearly half of the UK’s fresh vegetables are currently imported, highlighting the need for initiatives like the Rivenhall Greenhouse. Ed Moorhouse, the project director, emphasises the challenges of existing reliance on imports, particularly given the evolving climate crisis. He notes, “Water porosity in North Africa and in southern Spain is a key issue, extremes of temperature and the effects of climate change,” indicating that relying on imports poses an unsustainable risk to food security.

However, the development is not without its challenges. The National Farmers Union has raised concerns regarding the government's new biodiversity net gain strategy, which necessitates that all developments incorporate measures to enhance nature. Martin Emmett, chair of the NFU's Horticulture and Potatoes Board, warns that such regulations, originally aimed at sectors like housing and infrastructure, could inadvertently hinder agricultural projects similar to Rivenhall by increasing costs and complicating planning processes.

In response to these challenges, the government has stated its commitment to working alongside the agricultural sector to ensure that the Biodiversity Net Gain policy is effective while also investing heavily in initiatives aimed at boosting food security—pledging £5 billion towards sustainable food production.

In conjunction with the greenhouses, the site will also feature a vertical farm housed in a repurposed RAF hangar, aimed at producing leafy greens. This integration of technology and agriculture represents a forward-thinking approach to meet the challenges posed by climate change and global supply chain disruptions. The synergy between the waste management facility and the agricultural production sites illustrates a compelling model for future developments, showcasing how waste can be transformed into a resource.

This initiative not only promises economic revitalisation for the Braintree area, expected to inject approximately £300 million over 20 years and create nearly 500 jobs, but also represents a critical response to the sustainability challenges facing modern agriculture. With the looming spectre of climate change and increasing pressure on food systems, projects like Rivenhall may represent a vital step towards a more resilient and sustainable agricultural future for the UK.

## Reference Map:

* Paragraph 1 – [[1]](https://www.islandfm.com/news/science-and-tech/essex-set-to-be-the-home-of-europes-largest-low-carbon-horticulture-site/), [[2]](https://www.rivenhallgreenhouse.co.uk/)
* Paragraph 2 – [[1]](https://www.islandfm.com/news/science-and-tech/essex-set-to-be-the-home-of-europes-largest-low-carbon-horticulture-site/), [[4]](https://www.fwi.co.uk/news/mega-greenhouse-could-be-major-boost-to-uk-food-security), [[6]](https://www.essexlive.news/news/essex-news/heat-planned-incinerator-could-help-8879671)
* Paragraph 3 – [[3]](https://www.rivenhall-iwmf.co.uk/2024/05/30/indaver-announces-decarbonisation-project-in-essex/), [[5]](https://www.fpcfreshtalkdaily.co.uk/post/plans-submitted-for-150m-essex-greenhouse-aimed-at-boosting-uk-tomato-production), [[7]](https://www.fruitnet.com/fresh-produce-journal/major-new-essex-glasshouse-will-replace-tomato-imports/266613.article)
* Paragraph 4 – [[1]](https://www.islandfm.com/news/science-and-tech/essex-set-to-be-the-home-of-europes-largest-low-carbon-horticulture-site/), [[3]](https://www.rivenhall-iwmf.co.uk/2024/05/30/indaver-announces-decarbonisation-project-in-essex/)
* Paragraph 5 – [[3]](https://www.rivenhall-iwmf.co.uk/2024/05/30/indaver-announces-decarbonisation-project-in-essex/), [[4]](https://www.fwi.co.uk/news/mega-greenhouse-could-be-major-boost-to-uk-food-security)
* Paragraph 6 – [[2]](https://www.rivenhallgreenhouse.co.uk/), [[6]](https://www.essexlive.news/news/essex-news/heat-planned-incinerator-could-help-8879671)

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## Bibliography

1. <https://www.islandfm.com/news/science-and-tech/essex-set-to-be-the-home-of-europes-largest-low-carbon-horticulture-site/> - Please view link - unable to able to access data
2. <https://www.rivenhallgreenhouse.co.uk/> - Rivenhall Greenhouse plans to develop a 40-hectare series of low-carbon greenhouses on previously quarried land at Bradwell, east of Braintree, Essex. The project aims to provide 420 full-time jobs and 80 part-time jobs, injecting approximately £300 million into the Braintree economy over the first 20 years of operation. The greenhouses will produce 28,194 tonnes of tomatoes annually, offsetting 7.1% of UK tomato imports from Southern Spain, Morocco, and Holland. The facility will also include a vertical farm in a former RAF hangar, producing 375 tonnes of leafy greens per year. The project is expected to be operational by 2027, utilizing waste heat and CO₂ from a nearby waste management facility operated by Indaver. ([rivenhallgreenhouse.co.uk](https://www.rivenhallgreenhouse.co.uk/?utm_source=openai))
3. <https://www.rivenhall-iwmf.co.uk/2024/05/30/indaver-announces-decarbonisation-project-in-essex/> - Indaver has announced an ambitious decarbonisation project at the Rivenhall Integrated Waste Management Facility (IWMF) in Essex, in collaboration with Oasthouse Ventures. The project involves developing a carbon capture plant and greenhouses on adjacent land. The carbon capture system is expected to be operational by the end of 2026, with plans to scale up thereafter. The initiative aims to combat climate change by utilizing waste heat, electricity, and captured CO₂ to power and feed cutting-edge greenhouses, exemplifying a symbiotic relationship between industry and agriculture. ([rivenhall-iwmf.co.uk](https://www.rivenhall-iwmf.co.uk/2024/05/30/indaver-announces-decarbonisation-project-in-essex/?utm_source=openai))
4. <https://www.fwi.co.uk/news/mega-greenhouse-could-be-major-boost-to-uk-food-security> - Plans have been submitted to Essex County Council for a new 40-hectare glasshouse complex, which, if approved, would be the second largest in the UK, capable of producing approximately 30,000 tonnes of tomatoes annually. The project, led by Rivenhall Greenhouse, involves siting the mega-glasshouse on reclaimed land beside a new waste recycling plant in north Essex. This plant is currently being built by waste management company Indaver, and it is envisioned that it will provide all the heat, carbon dioxide, and electricity needed for significant food production. The development aims to reinforce UK food security in an increasingly uncertain world. ([fwi.co.uk](https://www.fwi.co.uk/news/mega-greenhouse-could-be-major-boost-to-uk-food-security?utm_source=openai))
5. <https://www.fpcfreshtalkdaily.co.uk/post/plans-submitted-for-150m-essex-greenhouse-aimed-at-boosting-uk-tomato-production> - A planning application has been submitted for a £150 million greenhouse complex in Rivenhall, Essex, which could become one of the UK's largest horticultural facilities. The 40-hectare site is designed to produce up to 30,000 tonnes of tomatoes annually, potentially reducing the nation's reliance on imports from countries like Spain, Morocco, and the Netherlands. The project, led by Rivenhall Greenhouse Ltd and spearheaded by Ed Moorhouse, proposes utilizing heat, electricity, and carbon dioxide from a neighboring energy-from-waste facility operated by Dutch firm Indaver. This integration aims to provide stable energy prices for a decade, shielding the operation from future gas price fluctuations. ([fpcfreshtalkdaily.co.uk](https://www.fpcfreshtalkdaily.co.uk/post/plans-submitted-for-150m-essex-greenhouse-aimed-at-boosting-uk-tomato-production?utm_source=openai))
6. <https://www.essexlive.news/news/essex-news/heat-planned-incinerator-could-help-8879671> - The Rivenhall Greenhouse project plans to convert the existing Rivenhall RAF hangar into a hi-tech vertical farm capable of annually producing 375 tonnes of leafy greens. Once operational, the greenhouse will provide an annual injection of approximately £600,000 into local agriculture supply businesses, while producing 28,194 tonnes of tomatoes per year. This would offset 7.1% of UK tomato imports from Southern Spain, Morocco, and Holland. The project also aims to utilize waste heat and CO₂ from a nearby waste management facility operated by Indaver. ([essexlive.news](https://www.essexlive.news/news/essex-news/heat-planned-incinerator-could-help-8879671?utm_source=openai))
7. <https://www.fruitnet.com/fresh-produce-journal/major-new-essex-glasshouse-will-replace-tomato-imports/266613.article> - A 40-hectare low-carbon series of glasshouses in Essex is out for consultation as developers say it will provide climate-resilient tomato production and replace imports from Holland, Morocco, and Spain. The Rivenhall Greenhouse, near Braintree, will include a vertical farm in a nearby former RAF hangar and is expected to displace 7.1% of current tomato imports from countries including Spain, Morocco, and Holland. Its vertical farm will produce 375 tonnes of leafy greens in a former RAF Rivenhall hangar. The site will use waste heat and CO₂ from a new waste management facility due to be constructed nearby. ([fruitnet.com](https://www.fruitnet.com/fresh-produce-journal/major-new-essex-glasshouse-will-replace-tomato-imports/266613.article?utm_source=openai))