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ECONOMICS



# THE ECONOMIC IMPACT OF DRAX IN THE U.K., U.S., & CANADA

SEPTEMBER 2022

drax



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# EXECUTIVE SUMMARY

Drax Group (Drax) is the global leader in the production, generation, and supply of renewable power from sustainably sourced biomass, and a pioneer in carbon removal technology. Its purpose is to enable a zero carbon, lower cost energy future.

Drax plays a key role in the British energy market, generating and supplying low-carbon energy, and providing energy solutions to industrial and business consumers across the country. It is the U.K.'s largest source of renewable power by output, with its portfolio of sustainable bioenergy, hydro-electric, and pumped storage hydro assets spread across England and Scotland.

Drax also has 17 operational and development pellet production sites across North America supplying sustainable biomass to power companies throughout Europe and Asia. Wood fiber used in pellet production is a by-product of sustainable forest management and the manufacture of solid wood products. Since acquiring Pinnacle Renewable Energy in 2021, it has expanded its footprint across North America and transformed into a truly international business.

In the medium-term, Drax plans to be the first power company in the world to capture carbon from 100% biomass feedstock, removing carbon from the atmosphere and creating 'negative emissions'. Drax has an ambition to capture 12 MtCO<sub>2</sub> a year by 2030 globally (including 8MtCO<sub>2</sub> at the Drax Power Station in Yorkshire), to support the rapid decarbonisation of the global power sector.

Reflecting the international nature of Drax's businesses, this study investigates its economic impact in the U.K., U.S., and Canada. It considers Drax's own operations, the economic activity supported by its procurement spending and the impact of the wage payments to employees.

## A SUMMARY OF THE KEY FINDINGS OF THE REPORT

Drax sustains a sizeable contribution to the economies of the U.K., U.S., and Canada.

**Drax supported 35,600 jobs in total across the U.K., U.S., and Canada in 2021.** The company directly employed around 3,200 workers across its sites in the three countries. A further 21,800 jobs were supported along its supply chain by its procurement spend. The wage-induced spending of its employees and those employed in its supply chain sustained a further 10,600 jobs.

By country, Drax supported a total of 17,800 jobs across the U.K. in 2021. These jobs were spread throughout the U.K.'s nations and regions, with the most jobs, some 3,450, supported in the Yorkshire and The Humber region.

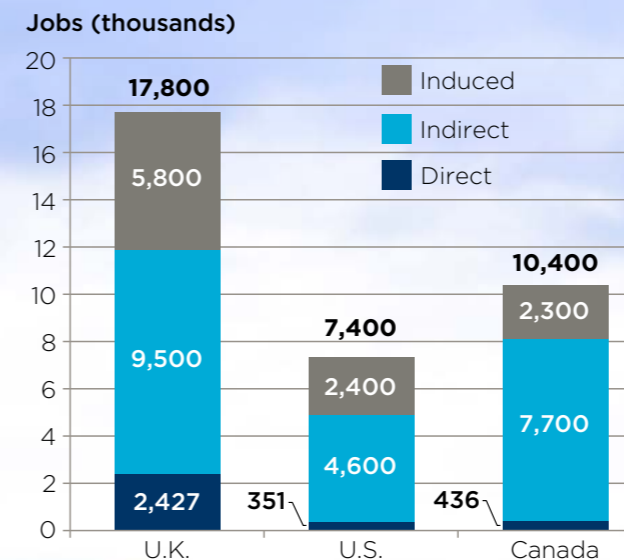
In Canada, Drax supported a total 10,400 jobs in 2021. Some 4,700 of these jobs were sustained in British Columbia, where the majority of the company's Canadian sites are located.

**35,600**

Total jobs supported across the U.K., U.S., and Canada in 2021.



**Fig. 1: Total employment supported by Drax in 2021**



Figures may not sum due to rounding  
Source: Drax, Oxford Economics

The company's operations also supported a total of 7,400 jobs in the United States. A significant share of these jobs were sustained in the states in which the company's operations are focused, including 2,700 jobs in Louisiana, 2,000 jobs in Alabama, and 1,200 jobs in Mississippi.

**£3.1 billion**

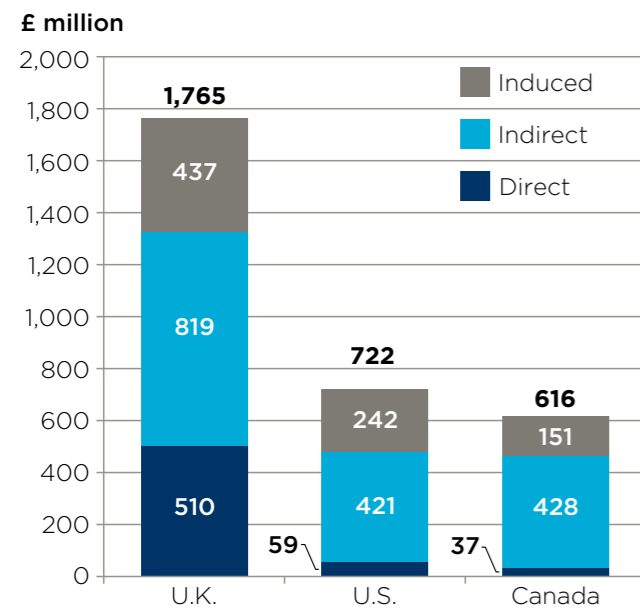
Total contribution to GDP supported across the U.K., U.S., and Canada in 2021.





We estimate that Drax supported a total contribution of **£3.1 billion in 2021 across the U.K., U.S. and Canada.** This is the sum of three channels of impact. Some **£0.6 billion** was generated by the company itself—its direct impact. The company's sizeable procurement spending with external suppliers stimulated a further **£1.7 billion** contribution to GDP—its indirect impact. And the payment of wages by Drax, and the firms in its supply chain, supported a further **£0.8 billion** contribution to GDP—its induced impact.

**Fig. 2: Total contribution to GDP supported by Drax in 2021**



Figures may not sum due to rounding  
Source: Drax, Oxford Economics

A total contribution of **£1.8 billion** to U.K. GDP was supported by Drax's operations in 2021. One third of this GDP impact, nearly **£600 million**, was generated in the Yorkshire and The Humber region, home of Drax Power Station. Drax also supported a **£722 million** (\$1.0 billion) contribution to U.S. GDP, and a **£616 million** (CA\$1.1 billion) contribution to Canadian GDP in 2021.

**In addition, Drax supported nearly £700 million in tax revenues to the countries' authorities in 2021.** The majority of this total was supported in the U.K., with some nearly **£400 million** in tax payments to the U.K. Exchequer associated with Drax, across the three channels of impact. A further **£161 million** (CA\$277 million) in tax payments were supported in Canada, and **£130 million** (\$180 million) in the U.S.

# THE ECONOMIC IMPACT OF DRAX IN THE U.K., U.S., & CANADA



**35,600** Total jobs supported  
○ Direct ○ Indirect ○ Induced

**£3.1 bn** Total GDP contribution  
**£689 mn** Total tax revenues supported

**10,400** Canadian jobs



CANADA



U.K.

**17,800** U.K. jobs



**CA\$1.1 BN** Canadian GDP



**7,400** U.S. jobs



**\$1.0 BN** U.S. GDP



**CA\$277 MN** Canadian tax

**\$180 MN** U.S. tax

**£1.8 BN** U.K. GDP



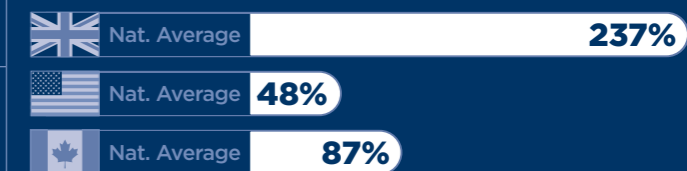
**£398 MN** U.K. tax

**12%** of total U.K. renewable electricity was generated by Drax in 2021.

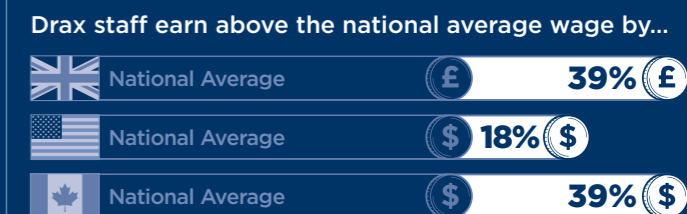
**109%** Pellet production increased by 109% in 2021 compared to 2020.

**12 MtCO<sub>2</sub>** Drax aims to be a carbon negative company by 2030 through generating at least 12 MtCO<sub>2</sub> of negative emissions per year globally.

**HIGHLY PRODUCTIVE STAFF**  
Drax staff are more productive than the average worker by...



**DRAX PAYS HIGH WAGES**



# INTRODUCTION

This report—commissioned by Drax—measures the footprint of the company’s global operations by estimating its economic and social contribution in the U.K., U.S., and Canada in 2021. It follows a series of reports produced by Oxford Economics for Drax, which have quantified its economic impact in the U.K. in the period 2015–2019. This report expands the scope of the assessment to include Drax’s impact in the United States and Canada in order to capture the global nature of its operations using Oxford Economics’ Global Sustainability Model.

Drax is a leading British energy company working primarily in the production and supply of renewable energy. It is the U.K.’s largest source of renewable power by output and is the second largest sustainable biomass producer globally.<sup>1</sup> Its operation has three main areas: producing sustainable biomass pellets for use in electricity production; generating electricity; and supplying power to customers.

Pellets are produced from forestry and agriculture by-products and residues in North America. Drax now has 17 pellet production sites located across the southern U.S. and western Canada. Recent acquisitions have fuelled the growth of its pellet production operations, with the production volume in 2021 representing an increase of 109% relative to 2020. Once manufactured, pellets are transported to the U.K. for use in electricity production or sold to third parties. Drax has around £3.8 billion (\$4.5 billion) of long-term contracted pellet sales to third party businesses across Asia and Europe.

Drax has a portfolio of renewable power assets across the U.K.. The largest of which is Drax Power Station—the biomass facility is the U.K.’s largest single source of renewable electricity by output. The company also has hydro and pumped storage facilities located across the country. Some 94% of the electricity generated in 2021 by Drax was renewable, up from 77% in the previous year. In fact, the group generated 12% of the U.K.’s total renewable electricity in 2021, a rise from 11% in 2020. In addition, Drax’s Customer business focuses on selling renewable electricity to industrial and corporate customers.

The following report is structured as follows:

- The first chapter explores the economic and social contribution Drax made to the U.K. economy in 2021, through the GDP, employment, and tax revenues it supported nationwide and in each of its constituent nations and regions.
- The second chapter outlines Drax’s impact in the U.S., including in Alabama, Louisiana, and Mississippi.
- The third chapter investigates the contribution of Drax to the economies of Canada and British Columbia.
- The appendix outlines the methodology used in the analysis, detailing Oxford Economics’ approach to measuring economic and social impacts in each country.

## INTRODUCTION TO ECONOMIC IMPACT ANALYSIS

This report analyses Drax’s economic impact across three core channels. These are the:

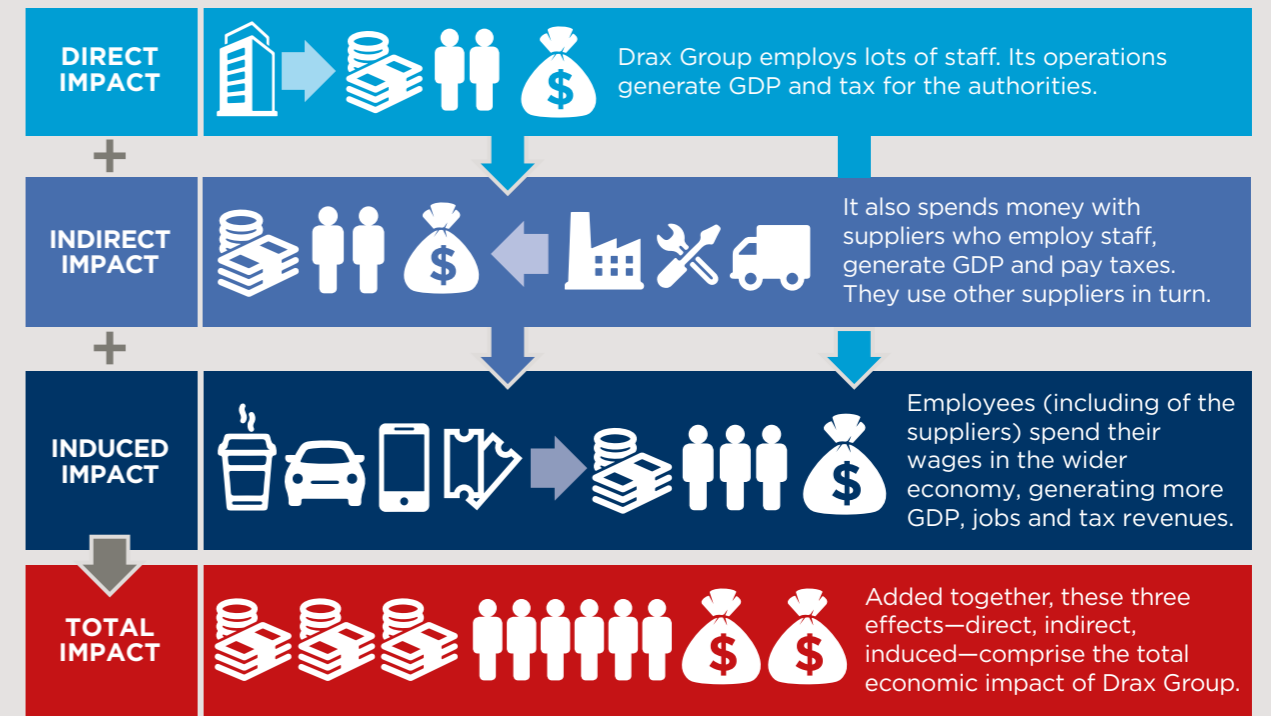
- **Direct impact**, which is the economic activity that Drax itself generates at its U.K., U.S., and Canadian facilities;
- **Indirect impact**, or supply chain impact, which encapsulates the economic activity supported along Drax’s supply chains in the U.K., U.S., and Canada as a result of its procurement of goods and services; and,
- **Induced impact**, or wage-financed spending impact, which is the economic activity stimulated from both Drax’s, and its suppliers’, wage payments to employees.

We analyse these channels of impact using three core metrics:

- **Employment** (measured on a headcount basis);
- **Gross value added (GVA)** contribution to the country’s GDP; and,
- **Tax receipts** generated by the activity and employment supported by Drax.

While most economic impact assessments measure these effects based only on spending that occurs within the country of interest, this report goes further, to assess the impact of Drax’s global activities in the U.K., U.S., and Canada. This is a more comprehensive approach that is suited to companies with a global footprint, like Drax. A detailed methodology discussion is in the appendix to this report.

Fig. 3: Illustrating the channels of economic impact



# THE ECONOMIC IMPACT OF DRAX IN THE U.K.

Drax's power generation assets are located in the U.K.. Its portfolio of low-carbon and renewable power generation facilities include biomass, hydro, and pumped storage. The largest is Drax Power Station, which is located along with its corporate headquarters at Selby in the Yorkshire and the Humber region. It is the U.K.'s largest single source of renewable electricity—providing 12% of the U.K.'s renewable power—using biomass pellets. The company is also working towards progressing options for bioenergy with carbon capture and storage (BECCS) at the site. Its plans for the carbon capture project include removing 8Mt of CO<sub>2</sub> emissions from the atmosphere each year by 2030.

The U.K. is also home to Drax's Customer business. This part of the business focuses primarily on selling renewable electricity to industrial and commercial customers and providing support and energy management services. This includes Ipswich-based Drax Customers (formerly known as Haven Power), acquired by Drax in 2009, and Opus Energy, which was acquired by Drax in 2017, and has recently moved to a new office in Northampton, East Midlands.

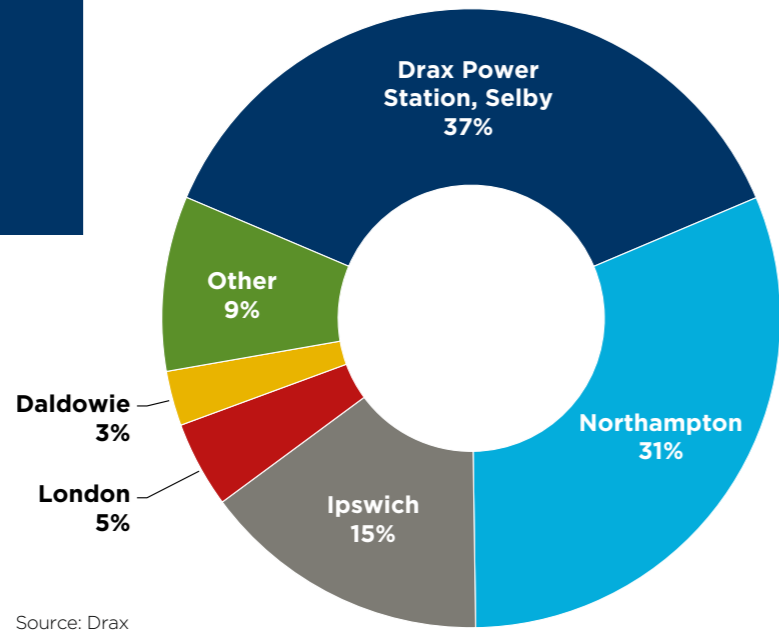
In this section we outline the economic activity supported by Drax in the U.K. in 2021 through its gross value added contribution to U.K. GDP, employment supported, and tax revenues sustained. We also explore the social contribution it makes to the communities in which it operates.

## DIRECT ECONOMIC IMPACT

The activities of Drax directly contributed **£510 million to U.K. GDP during 2021**. This figure encompasses the gross profits it earned through its operations and the gross wages paid to its workers.

**Drax employed 2,427 workers across the U.K. in 2021.**<sup>2</sup> This employment was spread across the country at Drax's various sites. The most jobs were located at Drax Power Station, in the Yorkshire and The Humber region, with an average of 904 roles (37% of the total) in various capacities during 2021 (Fig. 4). A further 756 workers were located at the Northampton, East Midlands, office, and 367 workers at the Ipswich office, East of England.

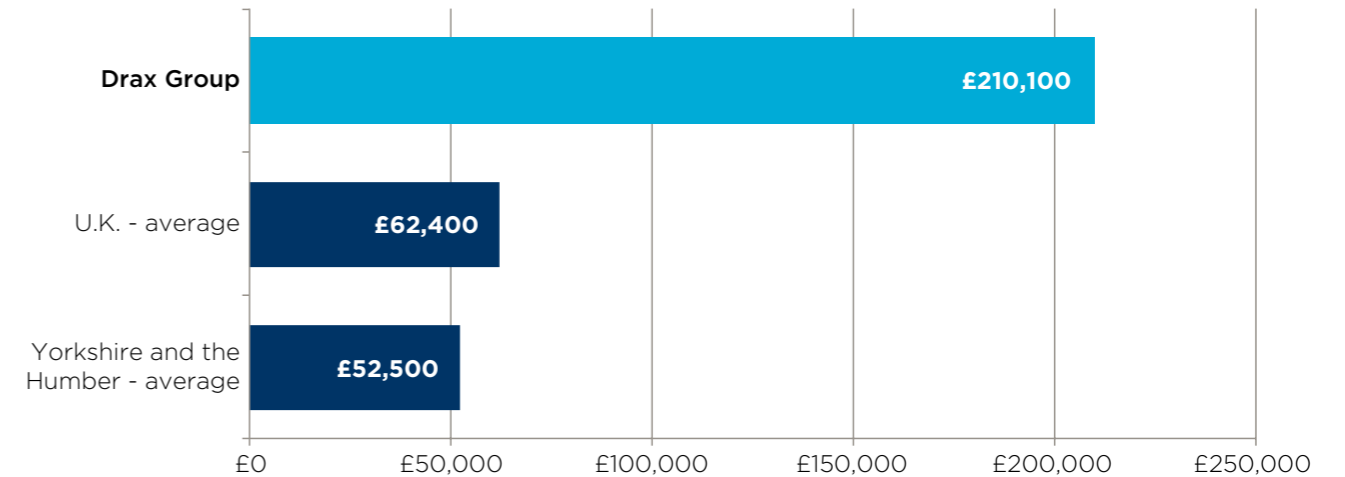
Fig. 4: Drax's direct employment in the U.K. by site



Source: Drax

**£510 million**  
Drax's direct contribution to U.K. GDP in 2021, along with  
**2,427**  
direct jobs supported.

Fig. 5. The productivity of Drax's U.K. staff versus national and regional averages



Source: Drax, ONS

**The company's staff are highly productive.** The average gross value added generated per employee—a measure of productivity—of Drax workers in the U.K. was £210,100 in 2021. This means that the company's U.K. workers were 237% more productive than the average worker in the country, and 300% more productive than the average worker in the Yorkshire and the Humber region (Fig. 5).<sup>3</sup> Having high productivity workers is important because it boosts the price competitiveness of U.K. products and living standards for the U.K.'s residents. Increasing nationwide productivity is a key part of the Government's Industrial Strategy, and the high productivity of Drax employees helps to address the U.K.'s historic productivity gap with the other G7 economies.<sup>4</sup>

In addition, Drax directly generated £88 million in tax revenues to the U.K. Exchequer. This total is made up of the U.K. Corporation Tax paid by the group, and the labour taxes generated by its direct workforce (income tax, and employers' and employees' National Insurance Contributions).

## INDIRECT ECONOMIC IMPACT

Drax has a broad and diverse supply chain that spans the world, but businesses in the U.K. are important suppliers to the group's operations. Its purchases of goods and services from U.K. businesses stimulates further "indirect" economic activity.

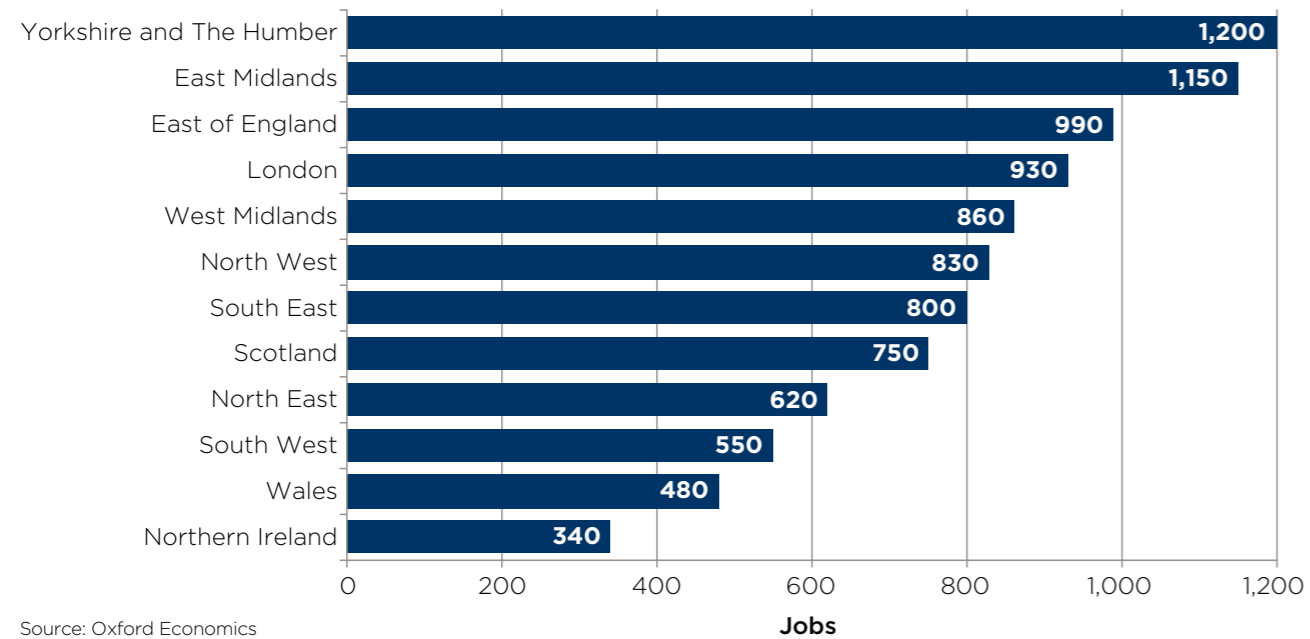
In 2021, Drax spent £1.2 billion with U.K.-based suppliers. The majority of this spending, some £0.9 billion, was with suppliers in the power and utilities sector, including the group's National Grid spending.<sup>5</sup> A further £80 million was spent on professional, scientific, and technical services, while £61 million was spent on services ancillary to energy provision (such as metering or brokerage fees). In order to meet the intermediate demands of Drax, these businesses make purchases from their own suppliers, and so on down the supply chain. The sum of all these supply chain interactions produces the so-called indirect impact, which ripples out across the economy and country.

<sup>3</sup> ONS, "Subregional productivity: labour productivity indices by U.K. ITL2 and ITL3 subregions", 2022

<sup>4</sup> ONS, "International comparisons of U.K. productivity (ICP), final estimates: 2020", 2022

<sup>5</sup> This includes external energy purchases from Drax's Customer business, following the methodology used in previous Oxford Economics reports for Drax.

**Fig. 6: Distribution of Drax's indirect employment by U.K. nation and region**



Source: Oxford Economics

**We estimate Drax's procurement spending with suppliers supported a further £820 million contribution to U.K. GDP during 2021, and around 9,500 jobs across the country.** This impact is sizeable: the number of indirect jobs supported by the group was nearly four times as many as its direct employment, pointing towards the capital-intensive nature of its activities. The most indirect jobs were sustained in Yorkshire and The Humber, with 1,200 jobs, followed by the East Midlands, with 1,150 jobs (Fig. 6).

The economic activity supported along Drax's supply chain generated a further £213 million in U.K. tax receipts. The majority of this total was labour taxes (54%), while taxes on products, such as VAT, accounted for a further 13%.

**INDUCED ECONOMIC IMPACT**

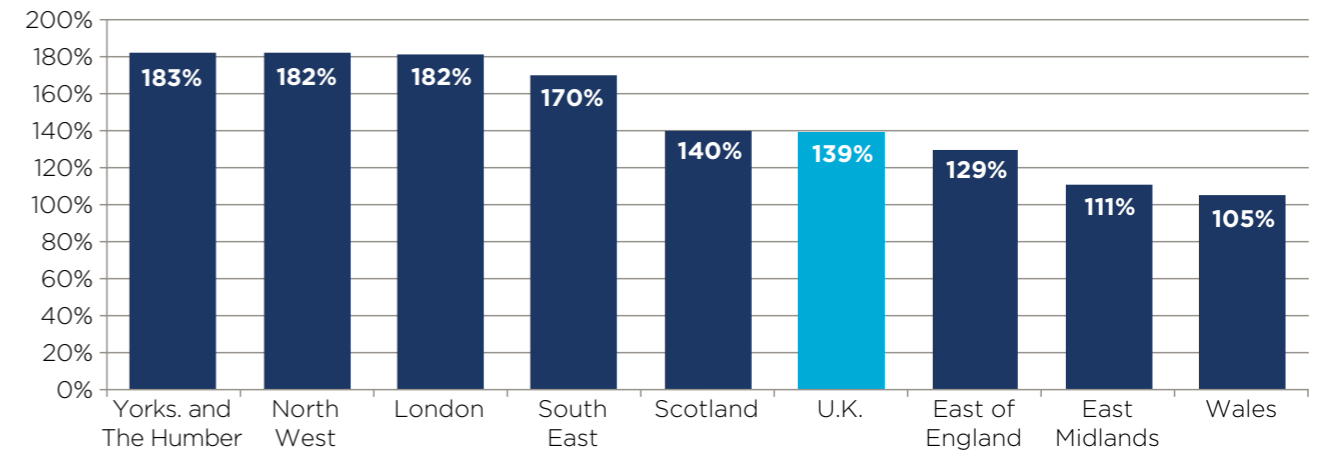
The wage-financed spending of those employed by Drax, or in its supply chain, forms a further channel through which it contributes to the U.K. economy. Employees make purchases at retail and leisure outlets throughout the country; these purchases stimulate further activity, adding value, sustaining employment, and raising tax revenues.

**Drax paid £179 million in gross employee compensation in the U.K. during 2021.**

This figure encompasses wages and salaries, pensions contributions, share-based payments, and compensation costs (where relevant).

Drax pays high wages to its U.K. staff—around 39% higher than the national average wage in 2021 (Fig. 7).<sup>6</sup> In the Yorkshire and The Humber region, where the largest number of the company's staff are located, the average Drax wage was 83% higher than the region's average, and 82% higher in the North West and London.<sup>7</sup> Not only does this remuneration support household consumption across the U.K. (Drax's "induced" impact), but it contributes to social outcomes including the levelling up of communities across the country as employees spend their earnings in the local economy.

**Fig. 7: Average Drax salary as a proportion of the regional average salary in 2021**



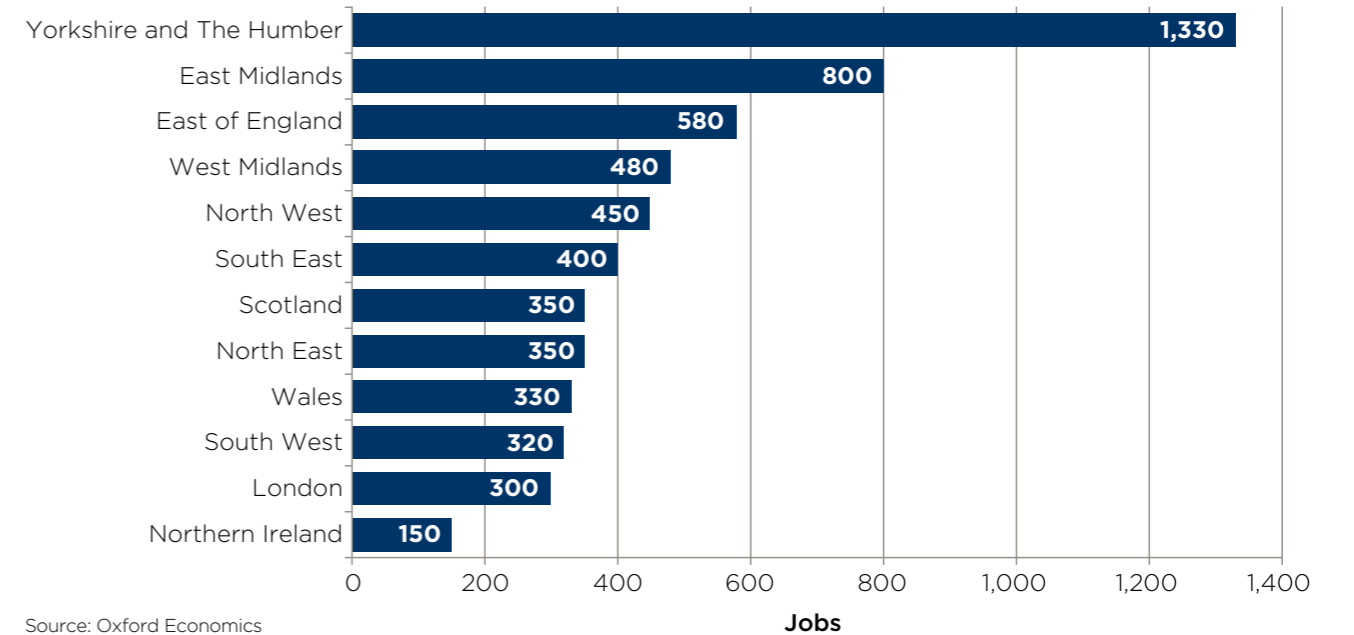
Source: Oxford Economics

**We estimate the wage-financed spending attributable to Drax supported a further £437 million contribution to U.K. GDP in 2021, sustaining 5,800 jobs across the country.** Most of these jobs were supported in Yorkshire and The Humber (1,330 jobs, or 23% of the total). This was followed

by the East Midlands, with 800 jobs supported (or 14% of the total). This reflects the areas where Drax staff live in the U.K. and are therefore more likely to spend their wages in the consumer economy, with these regions hosting the Drax Power Station and Northampton office, respectively.

**This induced activity was associated with tax payments of £97 million to the U.K. Exchequer.** This sum encompasses all the taxes on profits, wages, and procurement discussed previously, while also including the VAT accrued as a result of Drax's induced consumption impact.

**Fig. 8: Distribution of Drax's induced employment by U.K. nation and region**



Source: Oxford Economics

<sup>6</sup>ONS, "Annual Survey of Hours and Earnings (ASHE)", 2022  
<sup>7</sup>Figures based on where the Drax worker resides.



**TOTAL ECONOMIC IMPACT**

By adding the three channels of impact discussed above we arrive at our estimates for the total impact of Drax in the U.K. in 2021. This is the company's total "footprint" on the U.K. economy.

**£1.8 billion**

Drax's total contribution to U.K. GDP in 2021, along with

**17,800**

total jobs supported.

We estimate Drax's activities generated a **£1.8 billion** contribution to U.K. GDP during 2021. The company itself contributed more than £500 million to U.K. GDP over the year. Owing to the extensive and sizeable nature of Drax's U.K. supply chain, the indirect channel accounted for nearly half (46%) of this total contribution (Fig. 9). And, lastly, Drax and its suppliers' wage payments contributed nearly £440 million to U.K. GDP.

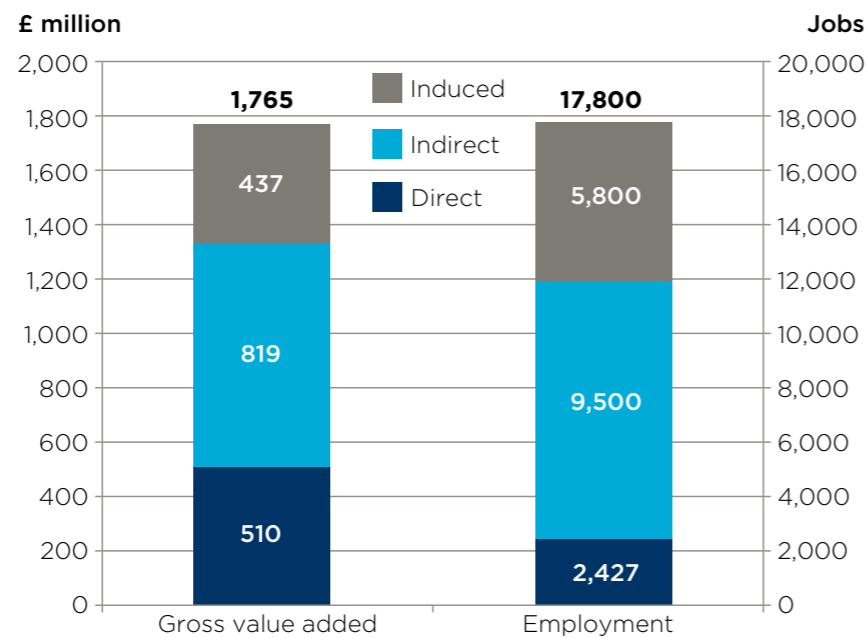
To put these numbers into context, Drax's total contribution to GDP was equivalent in size to 11% of Liverpool's economy. Put another way, our results show that for every £1 in gross value added generated by Drax itself, it supported a further £2.50 around the rest of the U.K. economy through its expenditure. This means we estimate Drax has a GDP multiplier of 3.5.

**Drax supported 17,800 jobs across the U.K. in 2021.** The company itself employed nearly 2,500 people across the country. Mirroring the case with its contribution to GDP, the group supported the greatest number of people through its procurement: an estimated 9,500 jobs with U.K. suppliers, or 53% of the total. Finally,

Drax and its suppliers' wage payments supported 5,800 U.K. jobs. The total number of jobs supported by Drax in 2021 was equivalent to 15% of the total employment in York.

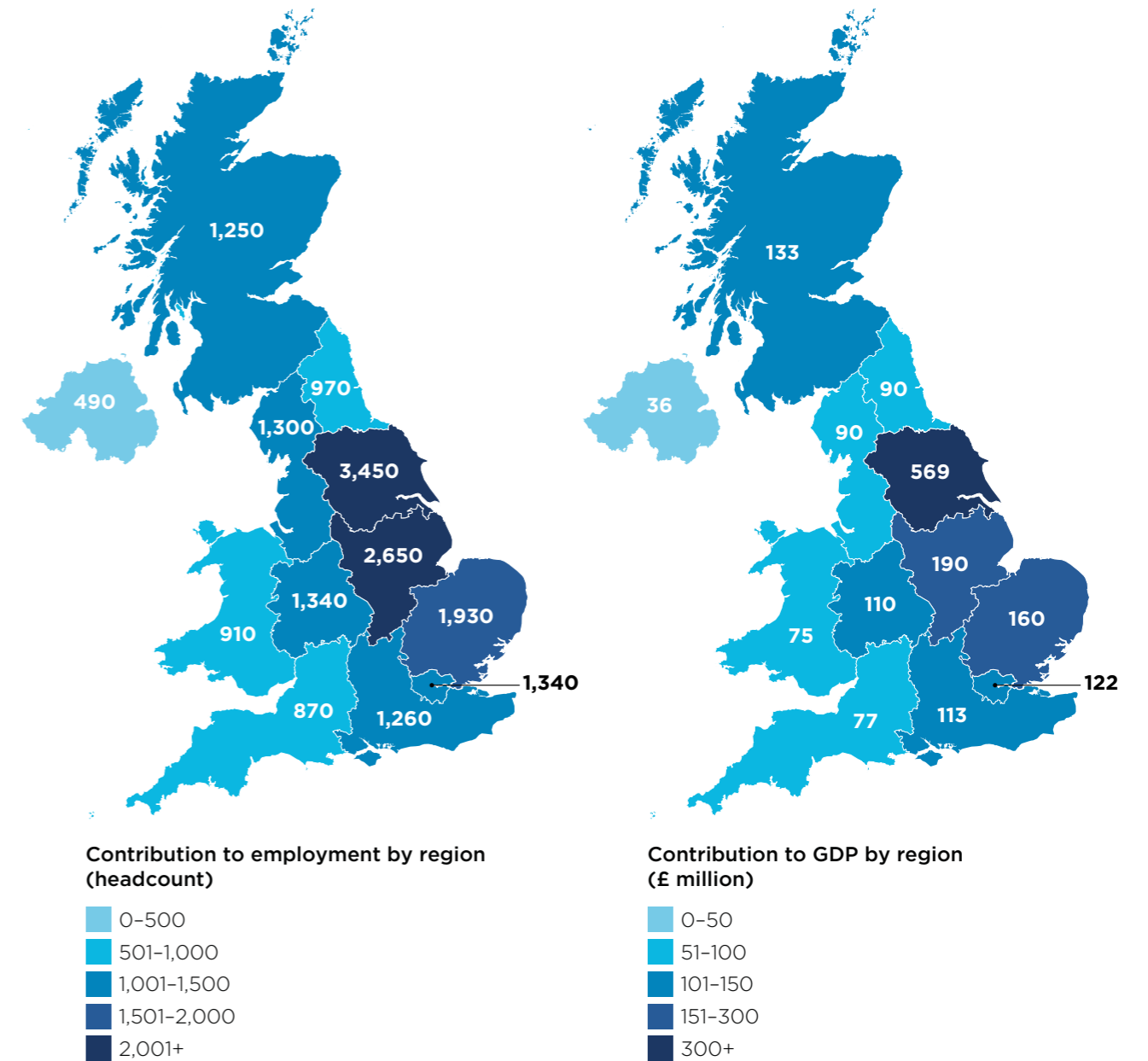
**The economic activity supported by Drax also generated an estimated £400 million in U.K. tax revenues.** The majority of this, an estimated £213 million in tax payments, is generated along the company's supply chain. This total is a significant contribution to the U.K. Exchequer that would be sufficient to pay the annual salaries of 12,800 nurses or 9,700 police officers, for example.<sup>8</sup> It also means £1 in every £1,800 collected by HMRC can be attributed to Drax's activity.<sup>9</sup>

**Fig. 9: Total impact of Drax in the U.K. in 2021**



Source: Drax, Oxford Economics. Figures may not sum due to rounding.

**Fig. 10: Drax's total impact across the U.K. in 2021**



<sup>8</sup>ONS, "Annual Survey of Hours and Earnings (ASHE)", 2022  
<sup>9</sup>HMRC, "HMRC tax receipts and National Insurance contributions for the U.K.", 2022



**SOCIAL VALUE ANALYSIS**

Beyond the headline metrics described above, we can explore the importance of Drax's economic footprint by considering the social value it creates in communities across the country. With eight sites located throughout the U.K., Drax contributes to the U.K. Government's Levelling Up agenda by purchasing goods and services, paying wages, and supporting economic activity across the length and breadth of the country.

The U.K. Government sets out a framework for measuring social impact in its *Social Value Model*.<sup>10</sup> Here we consider two areas in which Drax supports communities across the U.K.: *tackling economic inequality* by creating new businesses, new jobs, and new skills; and supporting *wellbeing*.

**Drax procures goods and services from communities that have experienced deprivation.**

A higher proportion of its spending went to businesses located in U.K. local authorities experiencing socioeconomic challenges and where newly opened businesses are least likely to survive.<sup>11</sup> In 2021, businesses located in the 10% of local authorities with the:

- Lowest rates of business survival after one year received 35% of Drax's procurement spending;

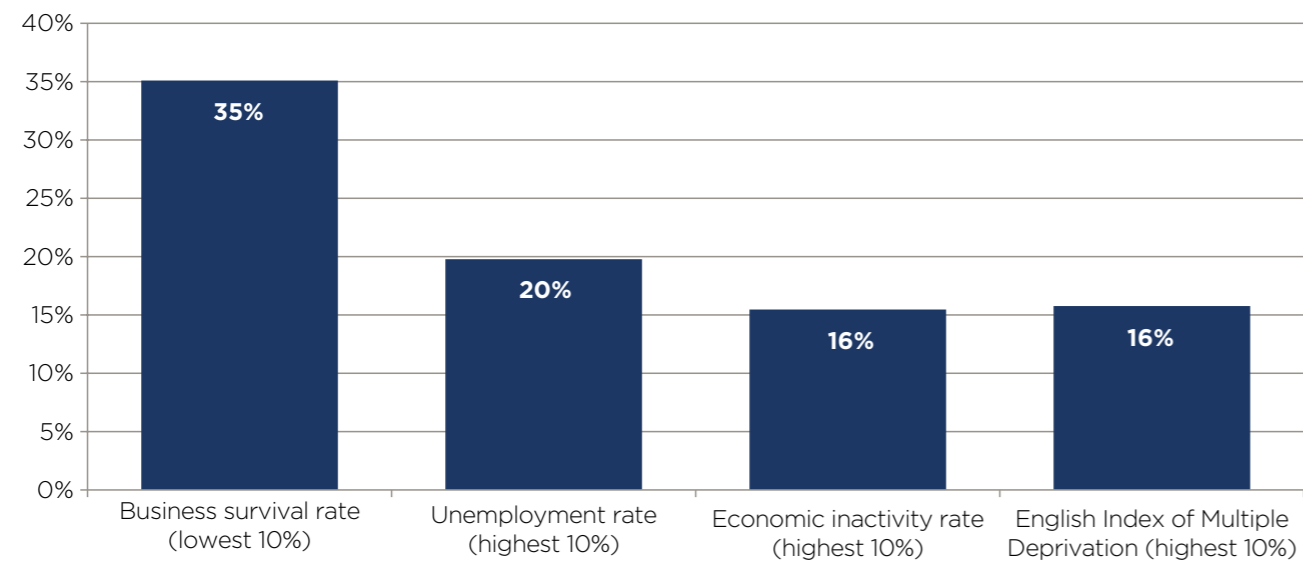
- Highest unemployment rate received 20% of Drax's procurement spending;
- Highest rates of economic inactivity received 16% of Drax's procurement spending; and
- Highest rankings of the English Index of Multiple Deprivation—a composite indicator covering seven domains of deprivation: income, employment, education, health, crime, housing, and living environment—received 16% of Drax's procurement spending.<sup>12</sup>

In supporting economic activity in these areas, the company is addressing the U.K.'s regional economic inequalities and contributing to the U.K. Government's Levelling Up agenda.

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Apprentices training and working with Drax.

**Fig. 11: Share of Drax's procurement spending to businesses located in local authority districts experiencing socioeconomic challenges**



Source: Drax, ONS

<sup>10</sup> Government Commercial Function, "The Social Value Model", 2020

<sup>11</sup> HM Government, "English indices of deprivation", 2022; ONS, "Local labour market indicators by unitary and local authority"; "Business demography", 2022

<sup>12</sup> This pertains to procurement spending in England only because each of the U.K.'s constituent nations have their own, separate index of multiple deprivation.

Drax further contributes to tackling economic inequality by investing in upskilling. The company has 52 apprentices, along with 50 of its employees working towards apprenticeship qualifications across a range of disciplines from engineering to data science. Together, the apprentices' learning hours topped 32,000 in 2021.

The economic benefits of apprenticeships are significant. The lifetime benefits associated with completing a Level 2 Apprenticeship are between £58,000 and £90,000 (in current prices), and between £93,000 and £142,000 for a Level 3 Apprenticeship.<sup>13</sup>

The apprenticeship scheme represents a significant contribution to areas like Selby—where a number of the apprentices are based at Drax Power Station—which has among the lowest rates of youth employment in the country (27%, compared to a national average of 52%), and the highest shares of the population with no qualifications in 2021 (31% with no NVQ qualifications, compared to a national average of 8%).<sup>14</sup>

But it is not just apprentices that benefit from training at Drax. In 2021, the company delivered more than 11 hours of training per worker, at a total cost of £600,000. This is notable given only 19% of the U.K. labour force reported receiving work-related training in 2021.<sup>15</sup>

Activities run by Drax are engaging the next generation with STEM subjects and assisting students with career engagement. The company is encouraging new skills by engaging more than 10,000 students, from primary schools up to higher education institutions, with educational activities. Moreover, in the build-up to the COP26 summit, the company's Waterline Summit ebooklet had 450,000 visits from students, teachers, and parents, while more than 40,000 copies were distributed to schools and colleges.<sup>16</sup> Drax's Business Directory for Careers Leads achieved a further 85,000 impacts.

**Drax supports the wellbeing among its employees and in the communities in which it operates.** Safety, health, and wellbeing is at the core of the company's values. While the employment it provides has been shown to enhance wellbeing, the company further contributes to wellbeing outcomes through its investment in staff healthcare and other programmes.

Nearly 4,000 Drax employees and their family members or partners benefit from private health insurance. While other programmes also sought to improve physical, mental, and social wellbeing. In 2021, the company had:

- More than 11,500 clicks to its Living Well magazine;
- Nearly 8,000 intranet wellbeing article reads; and
- 400 participants in wellbeing activities.

Drax's focus on wellbeing will reduce the demand for public healthcare services. This is further evidenced by the Mental Health First Aider training provided to 20 employees across the company during 2021 in response to challenges posed by the Covid-19 pandemic and the disruption it caused.

The commitment to wellbeing extends to the communities in which Drax operates. In 2021, the company gave £421,000 in charitable donations. This includes 1,200 laptops that were donated to schools and colleges across the country through the Laptops for Learners scheme to help continued learning through the pandemic, and more than £150,000 donated through community partnerships.

<sup>13</sup> Department for Business Innovation and Skills, "Returns to Intermediate and Low Level Vocational Qualifications", 2011. Findings are updated to current prices using ONS GDP deflators.

<sup>14</sup> ONS, "Annual Population Survey", 2022

<sup>15</sup> ONS, "Annual Population Survey", 2022. Note: respondents were asked whether they had received job-related training or education in the last 13 weeks.

<sup>16</sup> <https://thewaterline.global>







# THE ECONOMIC IMPACT OF DRAX IN THE U.S.

Drax's pellet production takes place in North America—split between the Southern U.S. and Western Canada—with a production capacity of around five megatonnes in 2021. In the U.S., the group has seven operational and development sites across the South, with two further facilities at the deep-water ports in Baton Rouge, Louisiana, and Mobile, Alabama, used to transport pellets to Asian and European markets.

In this section we outline Drax's gross value added contribution to GDP, employment, and tax revenue supported in the U.S. and three of its primary States: Alabama, Louisiana, and Mississippi. Drax also has an impact across other states in the U.S., but this impact is smaller, so this report does not provide a deep dive into these areas. This impact is however considered in the overall assessment of the U.S.

## DIRECT ECONOMIC IMPACT

**The activities of Drax directly contributed \$82 million to U.S. GDP in 2021.** This figure encompasses the gross profits it earned through its operations along with the gross wages paid to its workers.

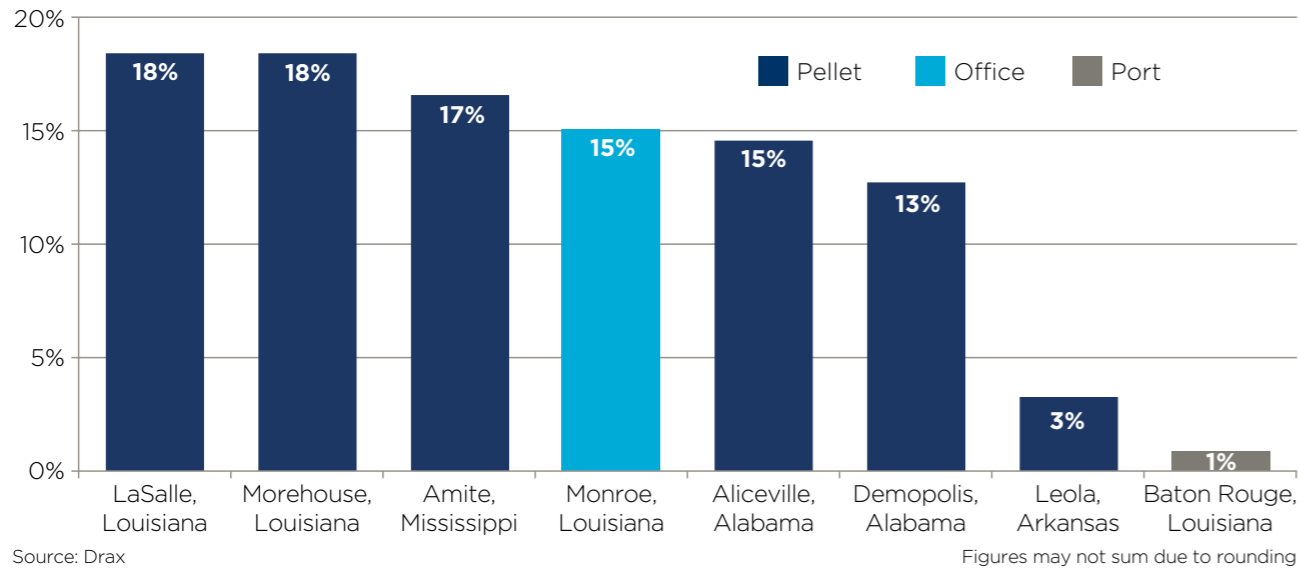
**The company also employed 351 U.S. workers in 2021,** measured as the average of monthly employment levels during the year (it must be noted that the number of U.S. employees rose sharply throughout the year; Drax employed 391 workers at the end of the year). The majority of these workers were based at sites involved in pellet production (Fig. 12).

Drax's U.S. staff are highly productive. The average gross value added generated per worker in 2021, some

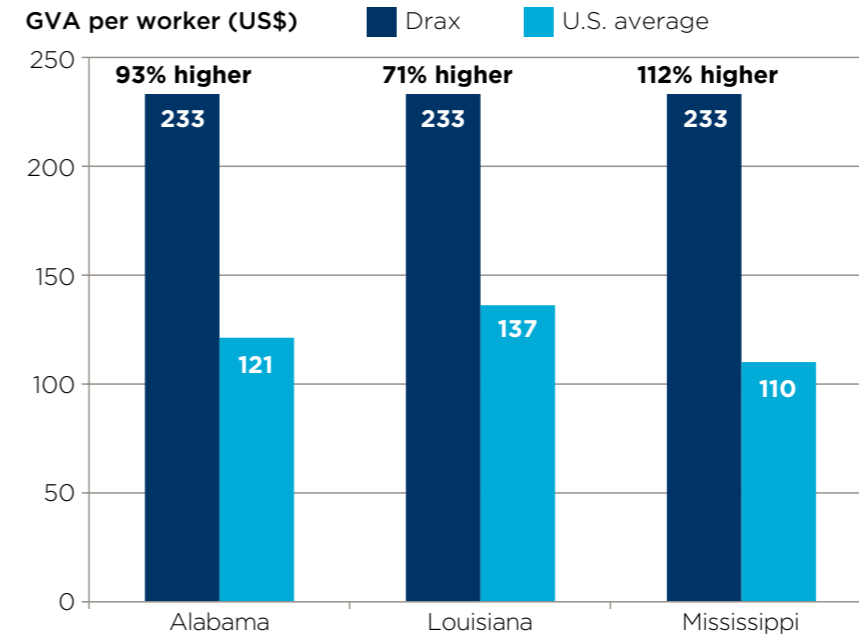
\$233,000, was 48% higher than the national average productivity in the United States.<sup>17</sup> It was equally markedly higher than the average productivity in the three States individually: Alabama (93% above average), Louisiana (71% above average), and Mississippi (112% above average).

In addition to these gross value added and employment contributions, the Group directly generated around \$8 million in tax revenues to U.S. authorities.

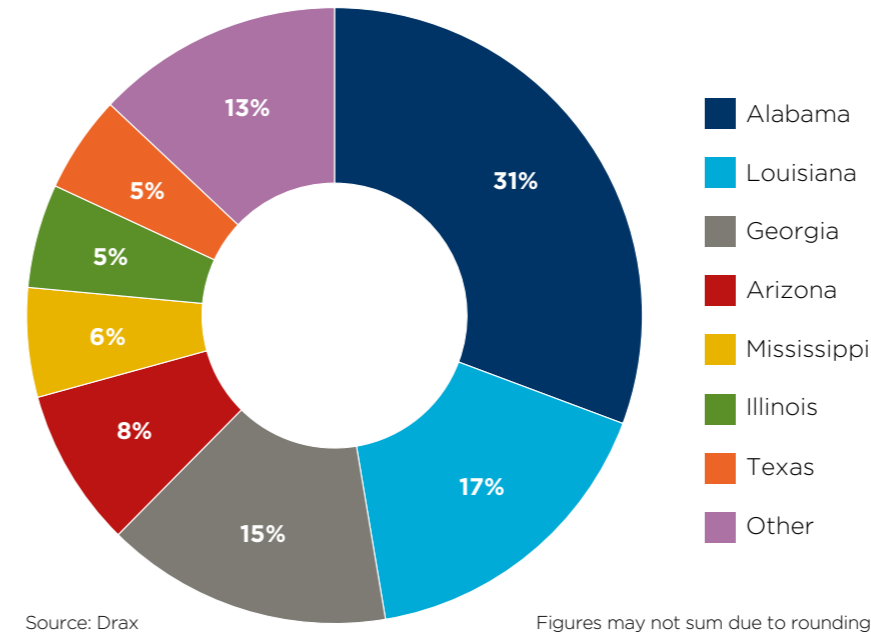
**Fig. 12: The share of Drax's direct employment at each U.S. site**



**Fig. 13: Average productivity of Drax's workers in the U.S. compared to State average productivity in 2021**



**Fig. 14: The share of Drax's procurement spending in the U.S. by State**



## INDIRECT ECONOMIC IMPACT

Drax spent \$573 million with U.S. suppliers in 2021. The majority of this spending was on the production plants, including their machinery and equipment (61% of the total), while a further 21% of this total spending was on the wood fibers that are used to make the pellets. The company's spending was spread across the country, with the largest share going to businesses in Alabama (31%) and Louisiana (17%). This spending stimulates further economic activity along Drax's U.S. supply chain.

**Drax indirectly supported a \$580 million contribution to U.S. GDP through its spending with suppliers in 2021, sustaining an estimated 4,600 jobs.<sup>18</sup>** Reflecting the company's spending with its suppliers, the most jobs were supported in the manufacture and installation of machinery sector, with 1,620 jobs supported, following its investment into the pellet production plants. This was followed by the agriculture and forestry sector, with 640 jobs, from which fibers are purchased. This indirect activity was associated with tax revenues of \$112 million.

<sup>18</sup> As discussed in the methodological appendix, this is estimated using a global modelling approach that captures all of Drax's global supply chains, including the inflows from other countries. Procurement spending in other countries will benefit some American businesses that are in those suppliers' subsequent supply chains. It is for this reason that the indirect gross value added contribution to GDP is greater than Drax's procurement spending in the U.S..

**INDUCED ECONOMIC IMPACT**

**Drax paid \$25 million in gross employee compensation in the U.S. during 2021.**

This figure encompasses wages and salaries, pensions contributions, share-based payments, and compensation costs (where relevant). The average salary paid by Drax in the U.S. was 18% above the national average.<sup>19</sup> This supports more activity in the consumer economy as the staff spend their wages (Drax's "induced" impact).

**Drax wages support staff living in rural areas.**

Of its total wage payments in the U.S., Drax paid 58% to employees living in rural areas of the U.S. in 2021.<sup>20</sup> Given that only around 19% of the U.S.

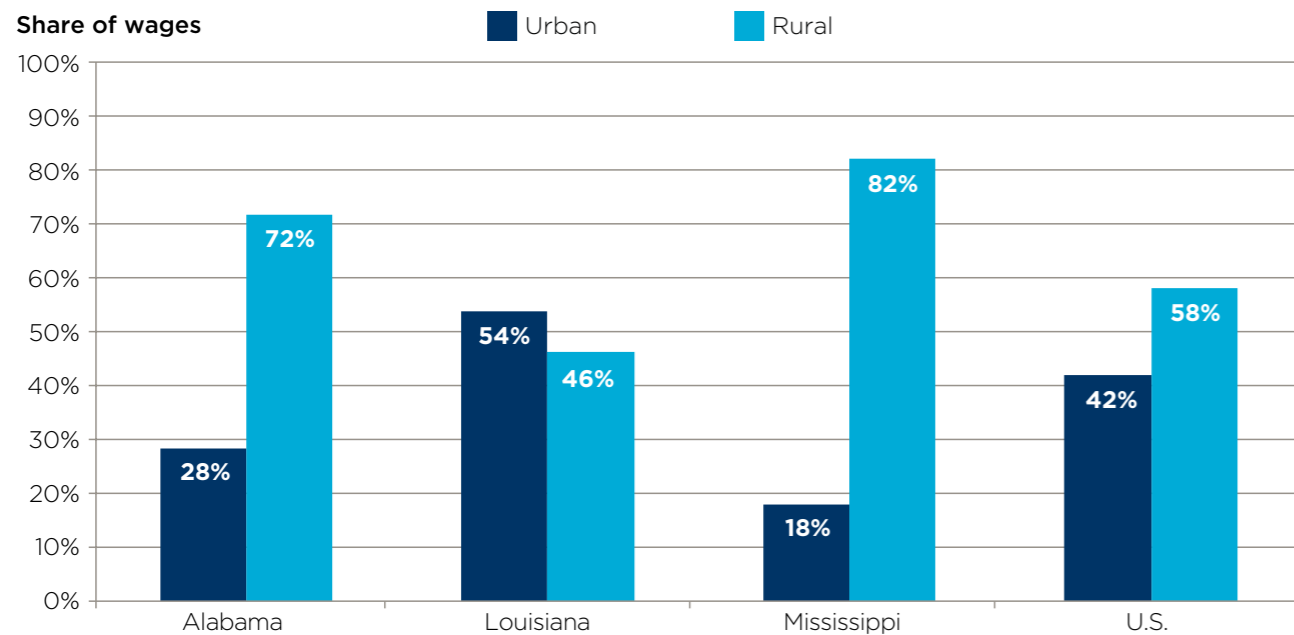
population live in counties that are predominantly rural, with the remaining 81% in mostly urban counties, Drax wages offer substantial support for these communities.

In Alabama, some 72% of all wages paid to Drax employees living in the State were paid to people living in rural counties. This includes Pickens County, AL—a county considered to be fully (100%) rural—where Drax's Aliceville plant is located. The equivalent figure for Mississippi is even higher with 82% of wages paid to rural areas. More than one-third of Drax wages in the State are paid to employees living in Amite County, MS—where Drax's sole plant in Mississippi is located—which is

another county considered to be fully rural. In Louisiana, 46% of wages were paid to staff in rural areas, with almost half of this share received by those in LaSalle County and Morehouse Parish—where Drax's two pellet plants in the State are located (Fig. 15).<sup>21</sup>

**We estimate that Drax's induced impact sustained a \$334 million contribution to U.S. GDP in 2021.** The wage-induced spending attributable to the company also supported around 2,400 jobs across the country. Some 18% of these jobs were supported at businesses in the retail sector, with 12% in the business services sector, and 11% in the accommodation and food services sector.

**Fig. 15: Share of Drax wages by rural and urban classification and by U.S. State**



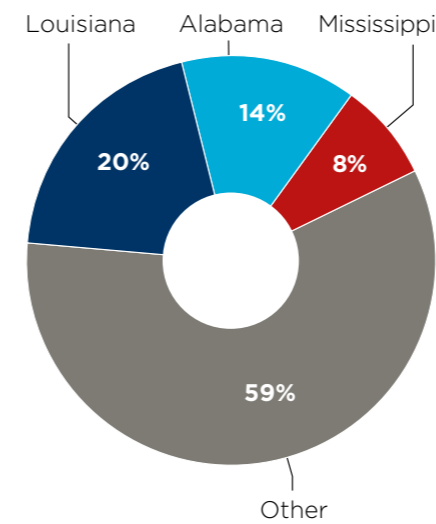
Source: Oxford Economics

<sup>19</sup> U.S. Bureau of Labor Statistics, "Average hourly and weekly earnings of all employees", 2022

<sup>20</sup> U.S. Census Bureau, "2010 Census Urban and Rural Classification and Urban Area Criteria", 2010

<sup>21</sup> This was estimated by applying Drax wages in each county to the percentage of the population living in rural areas in each county reported in the U.S. census. This gives us an estimated distribution of those Drax wages received by people living in rural areas to those in urban areas by county and state.

**Fig. 16: The share of Drax's induced employment in the U.S. by State**



Figures may not sum due to rounding  
Source: Oxford Economics

Considering the geographical spread of these jobs, 41% are supported in Louisiana, Alabama, and Mississippi, where the majority of the company's U.S. staff reside (Fig. 16). While the spending of these staff will be more focused in the aforementioned states, the spending of those employed in the country's U.S. supply chain is more spread around the country, resulting in jobs supported across the U.S. The induced activity supported by the country was associated with tax revenues of \$59 million.

**TOTAL ECONOMIC IMPACT**

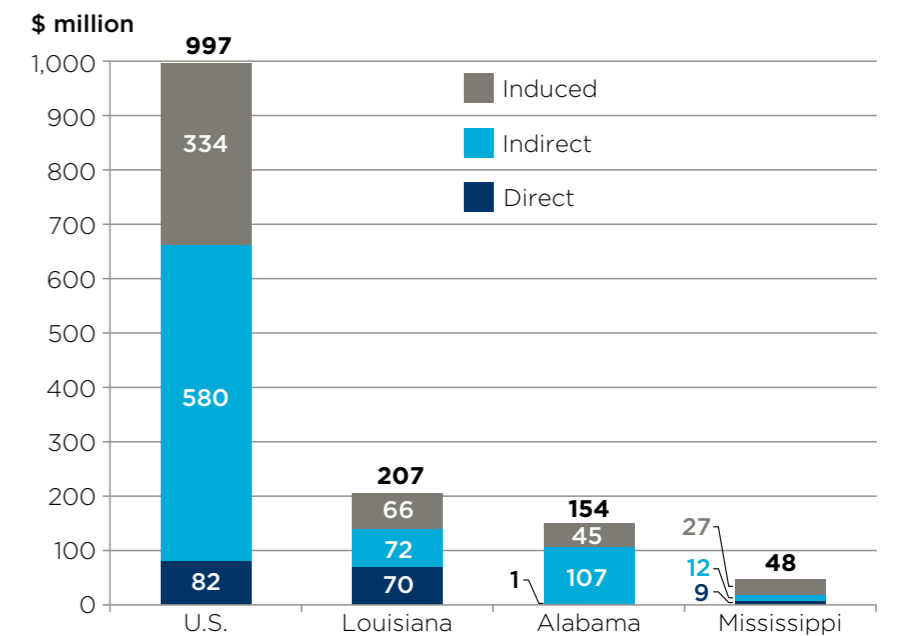
By adding together the three channels discussed above, we arrive at our estimates for the total impact of Drax's activities during 2021. This can be considered the Group's "footprint" in the U.S. economy, and the economies of Alabama, Louisiana, and Mississippi, in that year.

**We estimate that Drax's activities generated a \$1.0 billion contribution to U.S. GDP during 2021.** Owing to the extensive and sizeable nature of Drax's U.S. supply chain, the indirect channel accounted for the majority (58%) of this contribution. In total, this is a sizeable contribution to the American economy, equivalent in size to 4.5% of

Mobile's (Alabama) economy or 12.1% of Monroe's (Louisiana) economy. Nearly half of the nationwide total is sustained in the three states in which Drax's operations are focused. This includes a \$207 million total contribution to Louisiana's economy, and a \$154 million contribution to the economy of Alabama in 2021 (Fig. 17)

**\$1.0 billion**  
Drax's total contribution to U.S. GDP in 2021, along with  
**7,400**  
total jobs supported.

**Fig. 17: Total contribution to GDP supported by Drax in the U.S. in 2021**

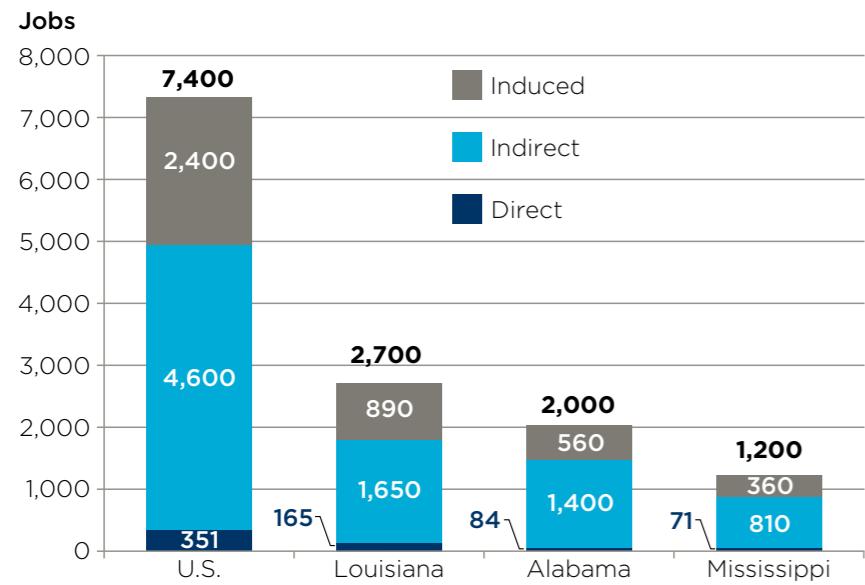


Source: Drax, Oxford Economics

Figures may not sum due to rounding



**Fig. 18: Total employment supported by Drax in the U.S. in 2021**



Source: Drax, Oxford Economics

Figures may not sum due to rounding

**Drax supported 7,400 jobs across the U.S. in 2021.**

The company itself employed 351 U.S. workers, or 5% of the total. But, mirroring the case with its contribution to GDP, it supported the greatest number of people through its procurement: an estimated 4,600 jobs with U.S. suppliers, or 62% of the total (Fig. 18). Finally, Drax and its suppliers' wage payments supported 2,400 jobs across the U.S., or 33% of the total. In total, this was equivalent to 2.8% of the number of people employed in Jackson, Mississippi, for instance. By state, some 2,700 of these jobs were sustained in Louisiana, compared to 2,000 in Alabama, and 1,200 in Mississippi.

In supporting this economic activity, Drax supported an estimated \$180 million in tax revenues paid to U.S.

authorities. This figure includes County, State, and Federal taxes. The majority, some 62% of this total, was supported by activity along the company's supply chain.

**SOCIAL VALUE ANALYSIS**

More than just sustaining a sizeable economic impact across the U.S., Drax's expanding operations are supporting social value across the communities in which it operates. The company purchases goods and services and pays wages across Alabama, Louisiana, and Mississippi, among other areas, stimulating local activity. And by generating jobs in the U.S., Drax is contributing to some of the main aims of the government's American Jobs Plan: creating well paid jobs and reinvigorating local economies.<sup>22</sup>

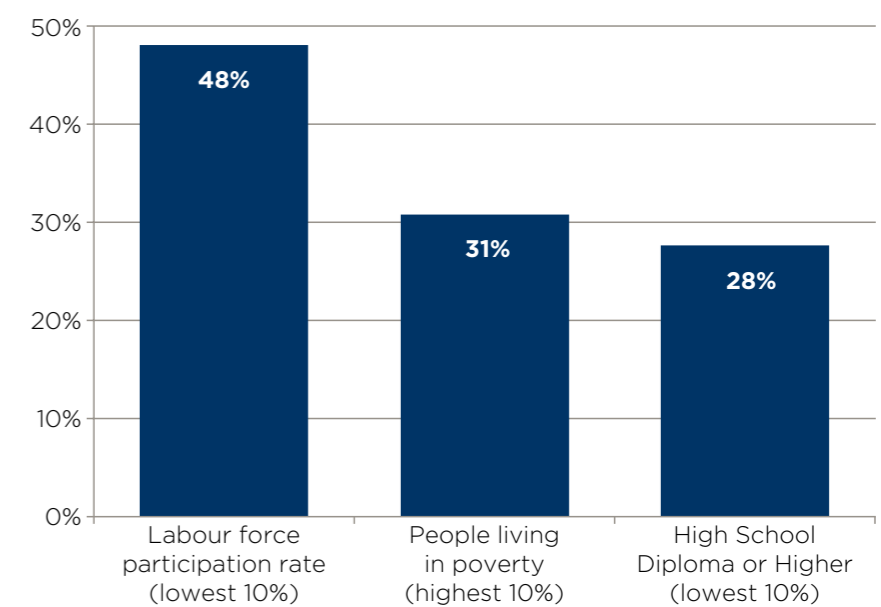
Drax is supporting social value in the U.S. by tackling economic inequality. In 2021, much of its spending—gravitating around its sites in the southern states—was focused on areas of the country that have experienced economic hardship, including low engagement with the labour market and high rates of poverty.<sup>23</sup> By sustaining economic activity in these areas Drax is helping to address the U.S.'s regional inequalities. In 2021, businesses located in the 10% of U.S. states with the:

- lowest labour force participation rates received 48% of Drax's procurement spending;
- highest percentage of people living in poverty received 31% of Drax's procurement; and
- lowest rates of educational attainments received 28% of Drax's procurement.<sup>24</sup>

This is representative of the economic challenges facing the three states in which Drax's U.S. operations are focused. Mississippi and Louisiana—where Drax employs hundreds of workers and supports thousands more jobs—have the two highest rates of people in poverty among all of the U.S. states, while Alabama ranks seventh.<sup>25</sup> This highlights the importance of the economic activity sustained by the company in these areas.

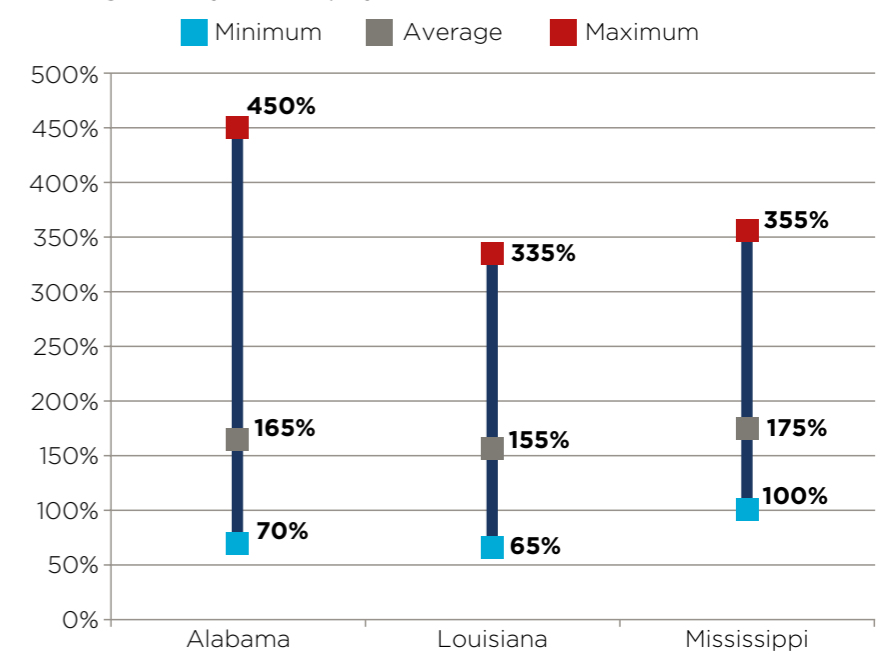
The social impact of Drax is also evident at a more local level. Considering the counties (of which there are more than 3,200) in which its employees reside—some 26% of its wage payments were to staff residing in the 10% of counties with the highest unemployment rates.<sup>26</sup> This further emphasises the importance of the company's employment in the U.S., as these employees will spend their wages in the local area and sustain further economic activity. Indeed, the wages paid by Drax in 2021 were above average in the vast majority (84%) of the counties in which its staff reside. On average, the wages it paid to its staff were 75% higher than the average for the county in which they live for those residing in Mississippi, 65% higher in Alabama, and 55% higher in Louisiana (Fig. 20).<sup>27</sup>

**Fig. 19: Share of Drax's procurement spending to businesses located in states experiencing socioeconomic challenges**



Source: Drax, U.S. Census Bureau

**Fig. 20: Average Drax salary as a proportion of the county's average salary in 2021, by State**



Source: Drax Group, Bureau of Economic Analysis

<sup>22</sup> The White House, "The American Jobs Plan", 2021  
<sup>23</sup> U.S. Census Bureau, "Labour Force Statistics", 2022  
<sup>24</sup> By share of the population with a high school diploma or higher.  
<sup>25</sup> USDA Economic Research Service, "Poverty", 2022

<sup>26</sup> U.S. Bureau of Labor Statistics, "Unemployment rates by county", 2022  
<sup>27</sup> Bureau of Economic Analysis, "Personal Income by County and Metropolitan Area", 2022







# THE ECONOMIC IMPACT OF DRAX IN CANADA

In 2021, Drax acquired Pinnacle Renewable Energy and its pellet production assets on Canada's west coast. This addition increased the group's pellet production capacity by 2.9 megatonnes per annum (to around 5.0 megatonnes per annum) and brought the total number of Drax sites in Canada to 11, with nine pellet production facilities (seven in British Columbia and two in Alberta), and facilities at the deep water ports in Prince Rupert and Vancouver, both British Columbia, used to export pellets to key Asian markets.

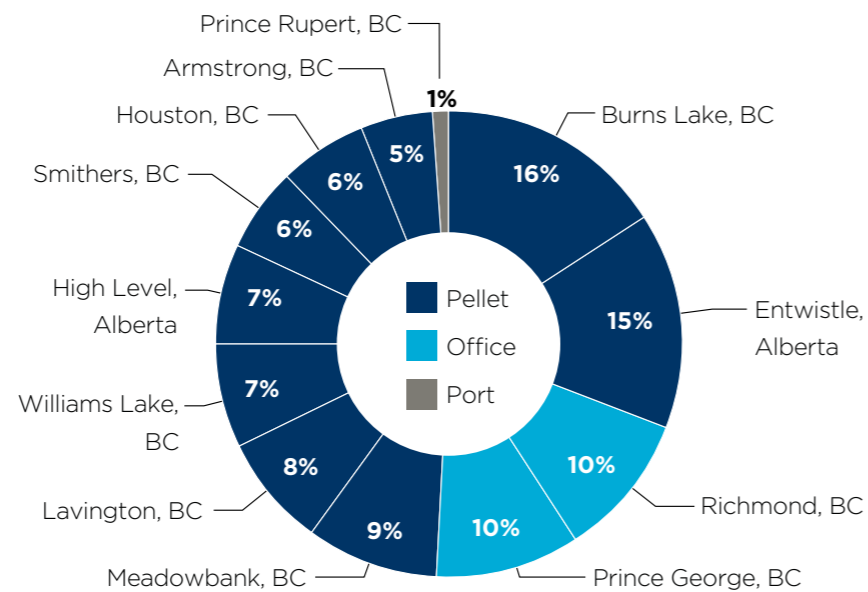
In this section we outline Drax's gross value added contribution to GDP, employment, and tax revenue supported in Canada and in the Province of British Columbia, where the majority of pellet production in the country will take place.

## DIRECT ECONOMIC IMPACT

The activities of Drax directly contributed **CA\$63 million to Canadian GDP** during 2021. This figure encompasses the gross profits it earned through its operations, and the gross wages paid to its workers. It also directly employed some **436 workers** in the country, measured as the average of monthly employment levels during the year. The majority of these workers were located in British Columbia, and the majority at pellet production plants (Fig. 21).

With an average of CA\$145,300 gross value added generated per employee, these staff were highly productive—87% above the national average, in fact (Fig. 22).

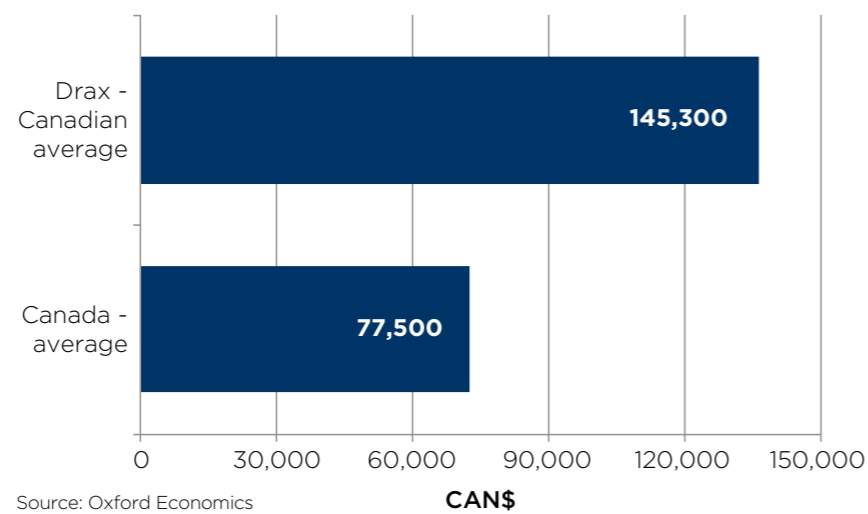
**Fig. 21: The share of Drax's direct employment at each Canadian site**



Source: Drax

Figures may not sum due to rounding

**Fig. 22: Average productivity of Drax's workers in Canada compared to national average productivity in 2021**



Source: Oxford Economics

In addition to these GVA and employment contributions, the group directly generated around CA\$8 million in tax revenues.

## INDIRECT ECONOMIC IMPACT

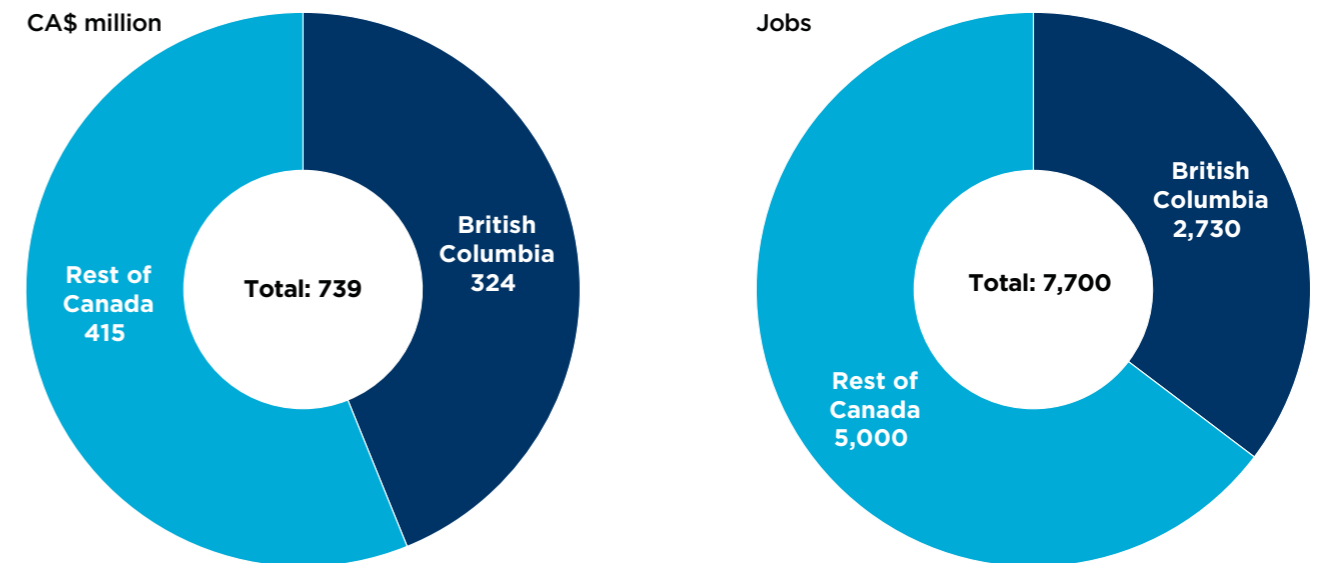
Drax spent CA\$736 million with Canadian suppliers in 2021. More than half of this total, some 58%, was spent with businesses located in British Columbia. A further 13% was spent with businesses in Alberta and 12% with firms in Montreal. As these businesses make purchases from their

own suppliers to meet the intermediate demands of Drax, and so on down the supply chain, further economic activity ripples out across the economies of British Columbia and Canada.

**Drax's indirect impact supported a CA\$739 million contribution to Canadian GDP during in 2021.**<sup>28</sup> Some

CA\$324 million of this was sustained in British Columbia, in the vicinity of Drax's core operations. The group's procurement spending also **supported 7,700 jobs** across Canada, with 2,730 of these jobs located in British Columbia. This indirect activity was associated with tax revenues of more than CA\$200 million.

**Fig. 23: Distribution of Drax's indirect contribution to GDP and employment**



Source: Oxford Economics

Figures may not sum due to rounding

## INDUCED ECONOMIC IMPACT

**Drax paid CA\$38 million in gross employee compensation to its Canadian employees in 2021.** This figure encompasses wages and salaries, pensions contributions, share-based payments, and compensation costs (where relevant). The wages Drax pays to its staff support further economic

activity throughout the country as those staff use their wages to purchase goods from the consumer economy, in local retailers and leisure facilities, for instance. This is supported by the high wages paid by the company: the average salary it paid in 2021 was 39% above the national average.<sup>29</sup>

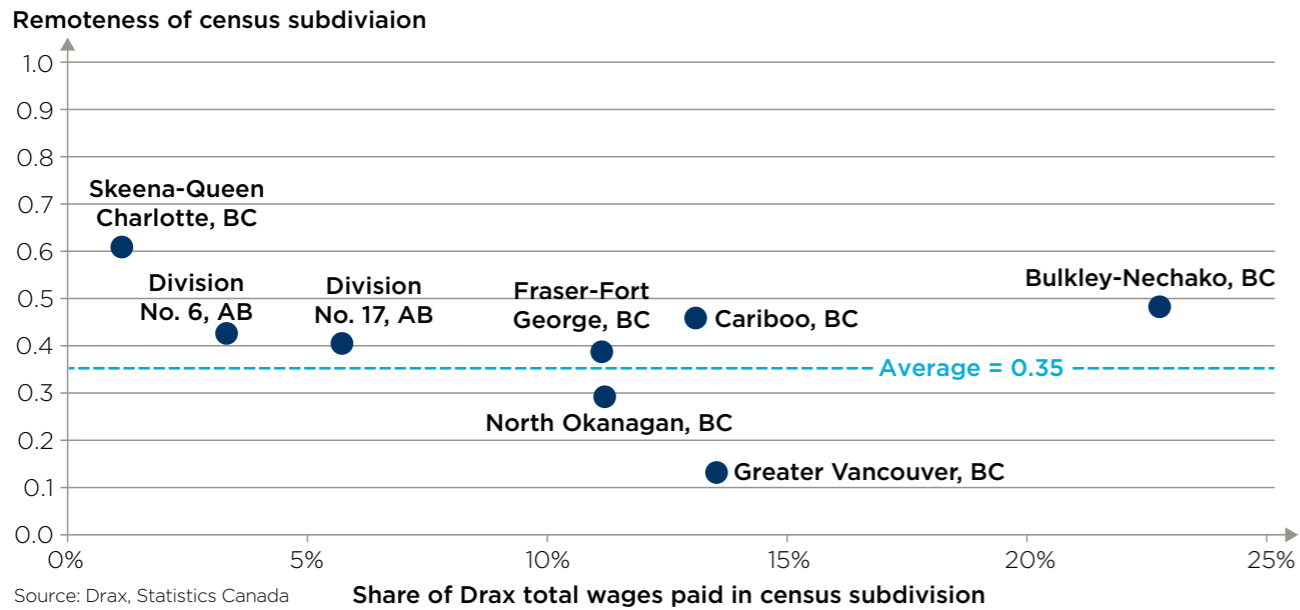
**Drax pays wages to its staff living in rural communities.** The Canadian Index of Remoteness provides a measure of how urban or rural a community is, giving a value of 0.0 for the most urban census subdivision, such as in Toronto, and up to 1.0 for the most rural.<sup>30</sup> While the average

<sup>28</sup> As discussed in the methodological appendix, this is estimated using a global modelling approach that captures all of Drax's global supply chains, including the inflows from other countries. Procurement spending in other countries will benefit some Canadian businesses that are in those suppliers' subsequent supply chains. It is for this reason that the indirect gross value added contribution to GDP is greater than Drax's procurement spending in Canada.

<sup>29</sup> Statistics Canada, "Average usual hours and wages by selected characteristics", 2022

<sup>30</sup> Statistics Canada, "Index of Remoteness", 2020

**Fig. 24: Drax wage payments by census subdivision and their index of remoteness value**



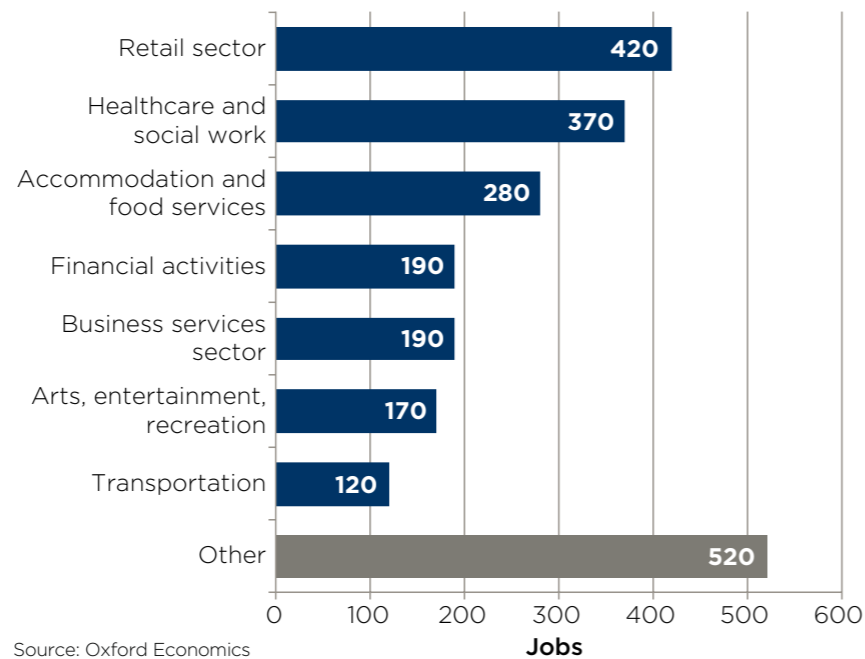
value across Canada is 0.35, Drax pays its wages to workers living in areas with a weighted average of 0.38, highlighting its support for rural communities. In fact, the majority of the communities in which it pays wages are rural (above the average index of remoteness value), as shown in Fig. 24.

**We estimate that Drax's induced impact sustained a CA\$260 million contribution to Canadian GDP in 2021.** The wage-financed spending of those employed by Drax, or in its Canadian supply chain, also supported a further 2,300 jobs across the country. Most jobs were supported in the retail sector, with 420 jobs, or 19% of the total (Fig. 25). This was followed by the healthcare and social work sector (16% of the total) and the accommodation and food services (hospitality) sector (13% of the total).

A further 520 jobs were supported in other sectors, such as education (70 jobs) and real estate (60 jobs).

This induced activity was associated with tax revenues of CA\$65 million.

**Fig. 25: Distribution of Drax's indirect employment in Canada by industrial sector**



**TOTAL ECONOMIC IMPACT**

By combining the three channels of impact, as discussed above, we arrive at our estimates for the total impact of Drax in Canada in 2021.

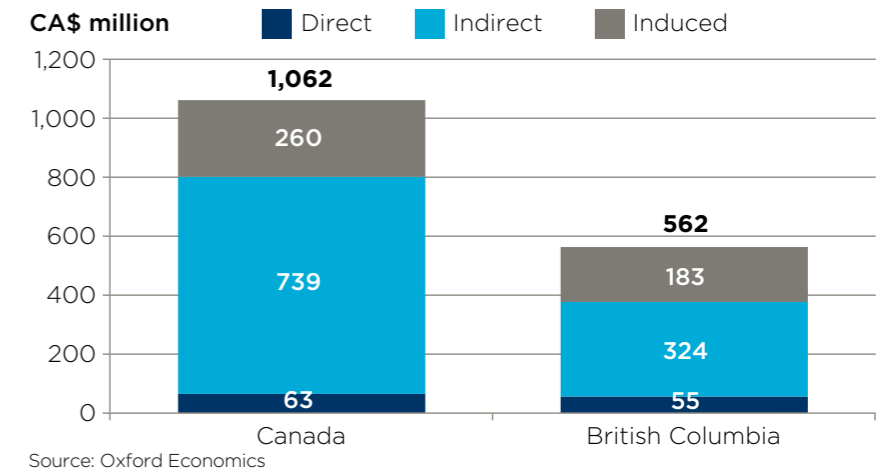
**We estimate that Drax's activities generated a CA\$1.1 billion contribution to Canadian GDP during 2021.** With the company's extensive and sizeable Canadian supply chain, the indirect channel accounted for the majority (70%) of this contribution. In total, this contribution is equivalent in size to 1.2% of Edmonton's economy. More than half of the nationwide total, some CA\$562 million, is sustained in the Province of British Columbia, where the majority of Drax's Canadian operations are located (Fig. 26).

**Drax supported 10,400 jobs across Canada in 2021.** The company itself employed 436 workers in Canada (4% of the total). Reflecting the case with its contribution to GDP, the company supported the most Canadian jobs through its procurement spending: an estimated 7,700 jobs with Canadian suppliers, or 74% of the total (Fig. 27). The company and its suppliers' wage payments supported the remaining 2,300 jobs (22% of the total). The total number of jobs supported across Canada was equivalent to 1.3% of the total number of people employed in Calgary.

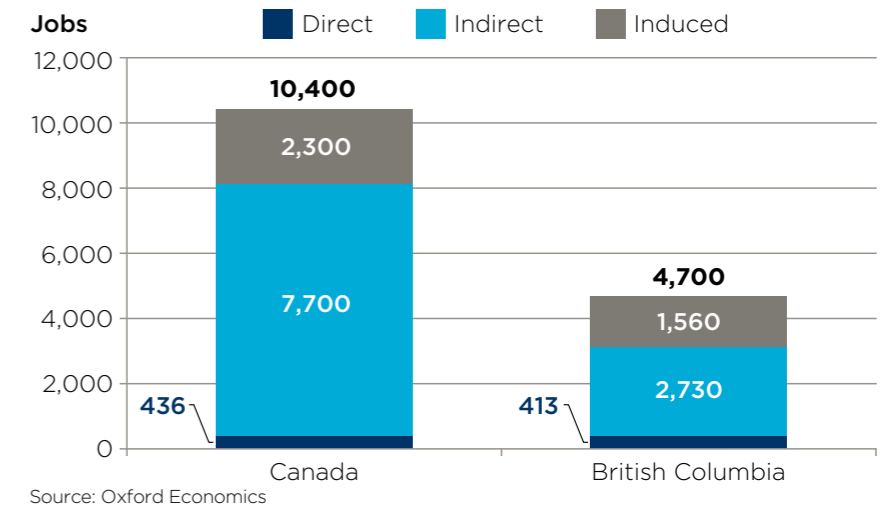
Thousands of jobs were supported in the Province of British Columbia. Some 4,700 of the jobs supported in Canada were located in British Columbia, including more than 2,700 jobs supported by the company's procurement spending with suppliers (Fig. 27). In supporting this economic activity, Drax supported an estimated \$277 million in tax revenues paid to Canadian authorities.

**CA\$1.1 billion**  
**Drax's total contribution to Canadian GDP in 2021, along with**  
**10,400**  
**total jobs supported.**

**Fig. 26: Total contribution to GDP supported by Drax in Canada in 2021**



**Fig. 27: Total employment supported by Drax in Canada in 2021**





**SOCIAL VALUE ANALYSIS**

Beyond the company's headline economic impact figures for Canada, we can explore the importance of Drax to communities across British Columbia and Alberta, in particular, by considering the social value it creates in the areas surrounding its offices and sites. Now with 11 sites spread throughout western Canada, Drax contributes to socioeconomic development of the communities in which it operates by purchasing goods and services, paying wages, and supporting economic activity. This aligns with the

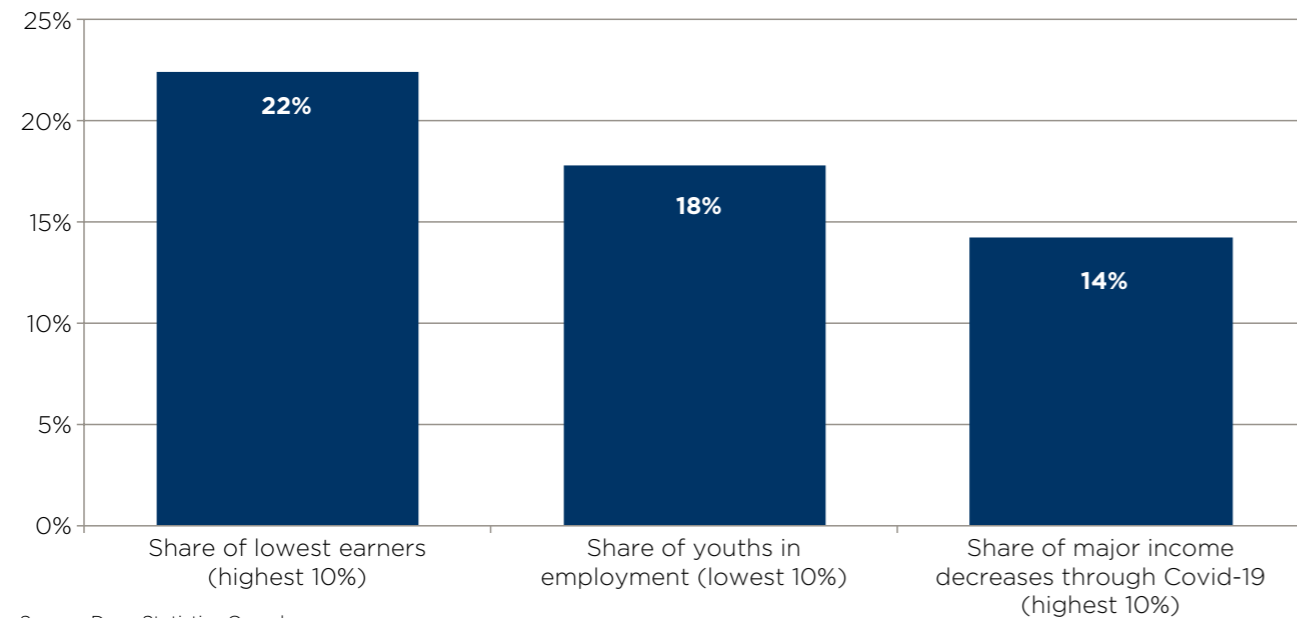
aims of the Government of Canada, which is trying to support regional job creation and establish long-term growth in local economies through its Jobs and Growth Fund, for instance.<sup>31</sup>

Drax creates jobs and pays wages to people living in communities that have experienced socioeconomic challenges, supporting social value by tackling economic inequalities. A higher proportion of its wage payments went to employees residing in Canadian census division areas with weaker labour market outcomes, and which were particularly

impacted by the Covid-19 pandemic.<sup>32</sup> In 2021, employees living in the 10% of census division areas with the:

- highest share of low earners received 22% of Drax's wage payments;<sup>33</sup>
- lowest rates of youth employment received 17% of Drax's wage payments; and
- highest share of the working population that suffered a significant fall in income (of 30% or more) through the Covid-19 pandemic received 14% of Drax's wage payments.

**Fig. 28: Share of Drax's wage payments to employees in census division areas experiencing socioeconomic challenges**



Source: Drax, Statistics Canada

<sup>31</sup> Government of Canada, "Jobs and Growth Fund", 2021

<sup>32</sup> Statistics Canada, "Census Profile, 2021", 2022

<sup>33</sup> Defined as the highest share of residents in the lowest 10% of earners across the country.

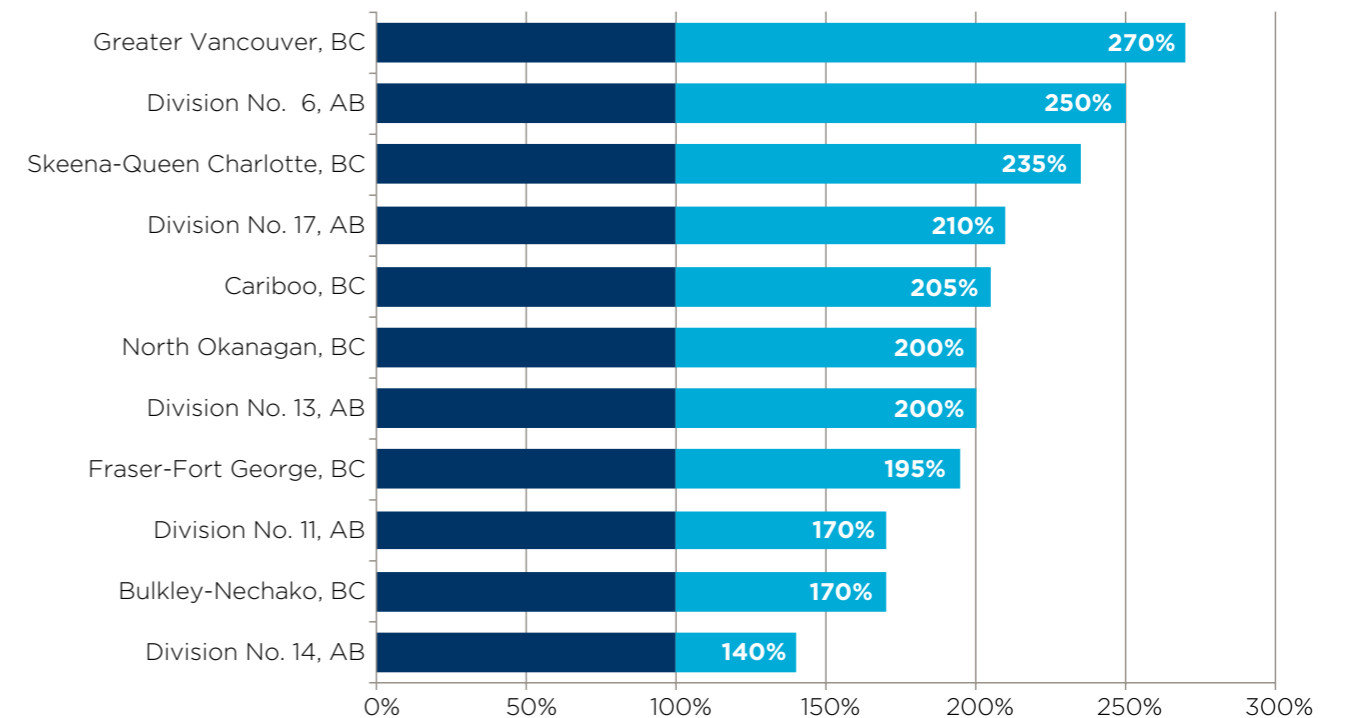
Drax's commitment to its employees and the communities in which they live is further exemplified by the wages it pays to its staff living across the length and breadth of British Columbia and Alberta. This supports the wellbeing of staff and the economic health of the villages, towns, and cities in which they live and spend their wages in the consumer economy. In fact, in each of the communities in which Drax staff reside, the wages they were paid were higher than average (Fig. 29). In Greater

Vancouver, British Columbia, and Division No. 6, Alberta, which includes Calgary, the wages paid by the company were at least 150% higher than the area's average.

The company's commitment to staff wellbeing is evident in Canada. Health and safety is a priority at the pellet production sites, which are all certified to ISO 45001 standards. In 2021, the company committed CA\$27 million to a site-by-site health and safety assessment for the improvement and continued

mitigation of health and safety risks at the sites. The staff at Pinnacle Renewable Energy also joined in physical wellbeing activities, together covering more than 8,500km in the summer step challenges, having originally aimed to cover the equivalent distance between the Westview Terminal in British Columbia, Canada, and the Port in Mobile, Alabama, U.S.

**Fig. 29: Average Drax salary as a proportion of the census division's average salary in 2021<sup>34</sup>**



Source: Drax Group, Statistics Canada

<sup>34</sup> Census division areas with fewer than five resident employees omitted for data confidentiality purposes.







# APPENDIX: METHODOLOGY

## METHODOLOGY FOR CAPTURING DIRECT IMPACTS

Data on the direct impact of Drax—including its contribution to GDP, jobs created, and taxes paid by the business and its employees—were provided directly by the company. Direct GDP is taken to be the sum of total employee compensation, and earnings (i.e., corporate profits) before tax, interest, depreciation, and amortisation (“EBITDA”).

## METHODOLOGY FOR CAPTURING THE INDIRECT AND INDUCED IMPACTS—THE GLOBAL MODELLING APPROACH

To quantify Drax’s total indirect (supply chain) and induced (wage expenditure) impacts in the three countries (U.K., U.S., and Canada), Oxford Economics used a technique called input-output modelling, first developed by the academic Wassily Leontief, who won a Nobel prize for his work. The technique uses national accounts data that specify how much each industry buys from each other industry and from other countries in a given year. Through a series of matrix algebra techniques, it is possible to estimate the additional economic activity that is stimulated from a given

amount of final demand, where in this case final demand is the purchases Drax makes from its suppliers or Drax’s employees make from consumer goods and services outlets.

For this analysis, Oxford Economics used an input-output model of the global economy, using the latest OECD economic and trade data as its starting point. A basic national input-output table gives a snapshot of an economy at a given point in time, essentially showing who buys what from whom in the economy. The global modelling approach used here extends this concept to

include purchases by each industry from industries in other countries, as well as from other industries in their own country. The value of purchases of supplies by Drax’s global operations was provided by the company.

The use of a global model in this analysis allowed “feedback effects” to be captured, in cases where Drax’s imports into the countries in question include some content originally created in that country further along the international supply chain. The concept is illustrated in Fig. 30.

## ESTIMATING SUBNATIONAL IMPACTS

### Drax’s Economic impact in the U.K.

Oxford Economics put together a detailed model of the U.K. economy, initially comprising 105 industries in each of the 12 standard statistical regions. The 105 industries are those found in the most detailed version of the ONS set of U.K. input-output (I-O) tables.<sup>35</sup> A domestic input-output table gives a snapshot of an economy at a given point in time. The model shows the major spending flows from “final demand” (i.e., consumer spending, government spending, investment, and exports to the rest of the world); intermediate spending patterns (i.e., what each sector buys from every other sector—the supply chain in other words); how much of that spending stays within the domestic/provincial economy; and the distribution of income between employment income and other income (mainly profits). In essence, an input-output table shows who buys what from whom in the economy.

To estimate Drax’s indirect impact in the U.K.’s constituent nations and regions, we feed in the company’s data on the amount spent and type of goods and services purchased from its U.K. suppliers. In order to calculate the induced impact, we input the information on compensation it pays to workers, as provided by Drax, which is distributed throughout the consumer economy using the I-O tables.

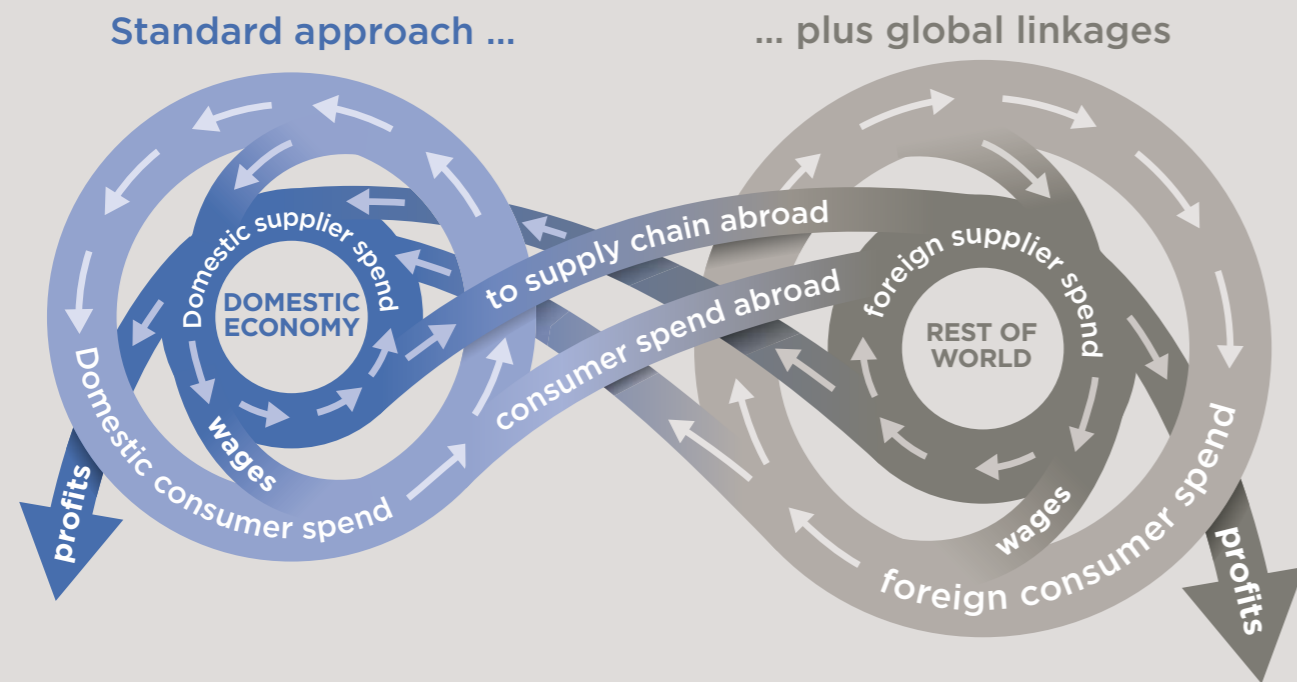
### Drax’s Economic impact in the U.S.

To estimate the indirect and induced GDP impacts of Drax in the States of Alabama, Louisiana, and Mississippi, Oxford Economics used the IMPLAN economic impact models, which are based on the entire pattern of transactions between industrial sectors (as found in an input-output table).<sup>36</sup>

The pattern of Drax’s spending by industrial sector and wage payments to U.S. workers was fed into the IMPLAN economic impact models. The gross value added, employment, and tax impacts were calculated within the model, which also incorporates the latest gross value added-to-output, employment-to-output, and tax-to-output ratios, on a refined industry-by-industry basis.

The global modelling approach, described above, captures trade flows into the U.S. from other parts of Drax’s global operations. In other words, some additional economic activity will be stimulated in the U.S. by Drax’s non-U.S. spending. This additional activity is therefore distributed among the U.S. States using their share of the country’s GVA and employment, sourced from the Bureau of Economic Analysis.<sup>37</sup>

Fig. 30: The Oxford Economics Global Sustainability Model



<sup>35</sup> ONS, “U.K. input-output analytical tables”, 2022

<sup>36</sup> IMPLAN is an input-output modelling system used to build models at various levels of geography, including national and state. IMPLAN is widely used and recognized by government organisations, nonprofits, economic development organizations, workforce planners, education institutions, and consultants across the U.S. and Canada.

<sup>37</sup> BEA, “GDP by State”; “Employment by State”, 2022



### Drax's Economic impact in Canada

To estimate the indirect and induced GDP impacts of Drax in the Province of British Columbia (BC), Oxford Economics used the latest available Statistics Canada provincial input-output table for BC.<sup>38</sup> As with the other countries, the domestic input-output table gives a snapshot of the economy at a given point in time, outlining who buys what from whom.

To estimate the indirect impact, we used vendor-level information on the amount spent and type of goods and services purchased from BC-based businesses by Drax. In order to calculate the induced impact, we took the figures for wages paid to workers, as provided by Drax, and distributed that spending to sectors in the consumer economy using the BC input-output table.

The additional economic activity stimulated in Canada by Drax's non-Canadian spending (captured through the global modelling approach) is distributed among Canada's provinces using their share of the country's GVA and employment, sourced for Statistics Canada.<sup>39</sup>

# OXFORD ECONOMICS

Oxford Economics was founded in 1981 as a commercial venture with Oxford University's business college to provide economic forecasting and modelling to U.K. companies and financial institutions expanding abroad. Since then, we have become one of the world's foremost independent global advisory firms, providing reports, forecasts and analytical tools on more than 200 countries, 100 industries, and 7,000 cities and regions. Our best-in-class global economic and industry models and analytical tools give us an unparalleled ability to forecast external market trends and assess their economic, social and business impact.

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