

Under New Management: Energy Resource Allocation in Great War Britain

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The scholarship on coal is vast, as reflects its importance in British history. Aside from being discussed in virtually every history of the origins and progression of the Industrial Revolution, coal has been the focus of numerous specific studies. The modern literature on the topic ranges across social, economic, biographical, gender, and cultural histories of coal.¹ That is fitting; coal fuelled the world-changing Industrial Revolution and was Britain's primary energy source for much of its modern history. Coal dominated roughly from the Industrial Revolution in the late Eighteenth Century to the 1980s.² Providing livelihoods for communities, firing factories and trains, and facilitating unprecedented economic growth as well as unprecedented pollution, coal is crucial to the history of energy and British history.

In addition to specific histories about coal itself, coal features in boarder studies about

¹ Thomas Southcliffe Ashton and Joseph Sykes, *The Coal Industry of the Eighteenth Century* (Manchester University Press, 1964); J A Buckley, *The Cornish Mining Industry: A Brief History* (Redruth, Cornwall: Tor Mark, 2002); Roger Burt et al., *Mining in Cornwall and Devon: Mines and Men* (Exeter: University of Exeter Press, 2002).

energy. Energy history, a small but growing area, also charts the use of coal in Britain. The universities of Oxford and Harvard both have centres dedicated to the study of energy which have published reports such as *Energy: The Long View*, which discussed the energy needs of society and their environmental consequences.³

consumption remains crucial to study. The consumption of energy in society is critical to understanding changes in quality of life, use of resources, allocation of goods, economic growth, and pollution.

As early as the 1600s, the decline in the availability of wood for fuel pushed Britain towards mining coal. Coal brought a heavier smoke, and in its early days aristocrats disdained it. In the medieval period Edward I (reigned 1272 to 1307) had restricted the use of coal in Britain.⁹ By 1600, scepticism about coal had been surpassed by growing economic necessity, because deforestation pushed timber supplies away from towns and cities, where increasing populations amplified the demand.

with almost all growth occurring from 1780 onward.

the Second World War. Household coal consumption continued to be crucial into the mid-Twentieth Century. British coal only entered terminal decline around 1985. It took the rest of the Twentieth century to fade almost completely.¹⁷ We could therefore periodize the Great War as the high point, or the middle period, of industrial coal consumption in Britain.

Coal was a “factor of supreme importance” during the Great War, according to contemporaries, as it contributed to the production of the materials needed to equip the country.¹⁸ From facilitating the smelting of iron ore for weapons and munitions, to the transport of goods via rail networks and shipping, it underpinned the war effort. The *Times History of the War* acknowledged the important role of coal-based energy during the war, outlining how “at every stage in the manufacture and employment of munitions fuel is indispensable. *Nor is it less indispensable in civil life*”.¹⁹ Indeed, coal helped home front life go on too; it was the chief method by which homes were heated and meals prepared.

During the Great War, Britain saw unprecedented government intervention in all sectors of the marketplace. Controls were introduced into the energy markets to manage the consumption of coal within the constraints of a wartime situation, which both limited production and increased demand. At this time, government and society recognised that coal was more important than other fuel types including gas, petrol, oil, and wood.²⁰ The appearance of a systematized and organized energy policy demonstrates the importance of coal to both government needs and everyday life. When the state-run system was created, its chief goal was to conserve resources to pursue total war, rather than maximize the living standards of the public.

¹⁷ Hannah Ritchie, ‘The Death of UK Coal in Five Charts’, Our World in Data, 28 January 2019.

¹⁸ The Times, *The Times History of War*, vol. 17 (London, 1918) 109.

¹⁹ Ibid.

My italics.

²⁰ Ibid.

including the rise of the coal industry, its role in the Industrial Revolution, its maturation leading into the Great War, its nationalization after 1945, and the beginnings of its decline from prominence thereafter.²³ As the title would suggest its primary focus is on the industrial and production aspects of the history of coal rather than the extent and nature of energy consumption. That said this series does include more data on consumption than most, there is also some data on trade levels and the work force.

and social perspectives, as exemplified by Freese's work. Given how important coal has been to the economic development of Britain, it has long maintained a hold on the nation's imagination. Yet there is no study that focuses on domestic coal consumption. That it has been neglected during the period of the Great War is perhaps even more surprising given the growing importance of coal and its incorporation into everyday working-class life which was perhaps most clear during this era. The war was a turning point in the history of coal: its rationing was brought in by a reluctant British Government to address increasingly pressing questions of household energy use and energy shortage. However, histories such as *The First World War: A Very Short Introduction*, by Michael Howard, only briefly mentions coal as a strategic resource for wartime industry and production, and never as an energy source whose use had to be balanced between domestic and military needs.²⁸ The limited attention given to this resource is typical of military histories.²⁹

Historians of the home front such as J M Winter, Robert Roberts, Gerard DeGroot, and Adrian Gregory do, however, discuss how the war reshaped working households' economic position, including the fact that war-time conditions facilitated higher levels of consumption due to greater discretionary incomes and economic security. In his 1996 book *Blighty* DeGroot briefly discusses the fact that "the poor ...had never enjoyed the luxury of warm homes. In fact, with many workers enjoying increasing income, heating became one of the war's main benefits. Thus, rationing of coal did not decrease consumption since workers bought up supplies denied to the middle class." DeGroot implies that the war increased working-class people's access to energy resources.³⁰ Indeed, he asserts that it was only during, and as a result of, the Great War that the

²⁸ Michael Howard, *The First World War: A Very Short Introduction*, Very Short Introductions 154 (Oxford University Press, 2007).

²⁹ Matthew Richardson, *The Hunger War: Food, Rations and Rationing, 1914-1918* (Barnsley, South Yorkshire: Pen & Sword Military, 2015).

³⁰ Gerard J. De Groot, *Blighty: British Society in the Era of the Great War* (London; New York: Longman, 1996) 204.

majority of working class people could afford to purchase coal to heat their homes.³¹ DeGroot does not provide hard and fast statistics to prove this point, but his claim raises relevant questions

of delivery, make definitive statements on prices complex. However, the key point is that coal underwent sustained and rapid price increases during the war, in keeping with the general wartime marketplace.

With prices rising more than 40% above pre-war levels in the first few months of the war, the working class was the first to feel the pain.³⁷ Households that purchased coal in small quantities had no buffer to withstand shortages.³⁸ The rates of increase were higher the smaller the quantity of coal purchased; small .the 36.32 572cherui5 (g)(l)4 10 ()gldi

time 11,000 full wagons were standing in South Wales owing to lack of ships.”⁴⁶ The universities too were hit by the coal shortage. An Oxford official told the *Daily Telegraph* the university had bought a new and more efficient coke stove for every undergraduate’s room at “great expense” in order to burn less coal. Cambridge, on the other hand, gave the impression that there was “no trouble at Cambridge”, and their “undergraduates [were] no worse off than the average citizens of Cambridge”, as they were able to manage energy supplies in direct contact with the local fuel overseer. Interestingly, the Oxford undergraduates got new stoves because of rationing and the shortage, and the Cambridge ones got more attention paid to their needs.⁴⁷

Through 1915, the complaints began to become louder. The War Emergency Workers National Committee made its frustration known: “as regards coal prices, no ordinary consumer has any idea what the maximum prices are either at the pit head or at his own door”. One frustrated writer described how “when coal prices came up[,] the coal merchants... demanded ...their pound of flesh. The price of coal was then fixed at a higher rate. ... Coal prices were so obviously in excess [of pre-war levels] that an enquiry was instituted. In the meantime, the overcharge had been going on for some months.”⁴⁸ As this evocative language suggests, the issue of access to coal and the initial pre-ration price increases evoked a passionate response. Prices continued to rise in 1915, regardless of government claims to have fixed transportation issues when there was still hope that the crisis would be short-lived.⁴⁹ Princess Marie Louise, as president of a charitable society Friends of the Poor, started a coal fund to assist the poor, before government policies came into force.⁵⁰ Some people clearly were increasingly aware of the energy crisis and its impact on the working

⁴⁶ ‘The Submarine Menace’, *Nottingham Evening Post*, 4 March 1919.

⁴⁷ ‘University Men’s Coal’, *Daily Telegraph*, 15 October 1919, The Telegraph Historical Archive, 12; ‘No Trouble at Cambridge’, *Daily Telegraph*, 15 October 1919, The Telegraph Historical Archive, 12.

⁴⁸ Alex J Philip, *Rations, Rationing, and Food Control* (London: The Book World, 1918).

⁴⁹ ‘Panic Buying of Coal’.

⁵⁰ ‘Friends of the Poor’, *Women, War and Society, 1914-1918*, 1915, Imperial War Museum via Archives Unbound.

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Various ideas and schemes to reduce coal consumption started to appear in 1916-17, as the shortages became more severe. One scheme, promoted by a letter-writer to *The Times*, hoped to save food and transportation resources by encouraging families not to take afternoon tea.⁵¹ Amusingly British as this suggestion was, it was also telling as it implies that better-off people should sacrifice to save on coal consumption: working-class people did not have expensive afternoon teas. Prohibitionists argued that “since the war began alcohol has wasted ... 4,000,000 tons of coal” in its production.⁵² They did not make it clear from whence their figures came, but they were convinced both of the importance of saving coal and that reductions in alcohol consumption could help. Other schemes were suggested, such as cutting down gardens to burn as fuel. Overall, they demonstrate the same thing: there was an energy crisis in Britain, and the public did not know how to solve it.

By 1916, the Price of Coal (Limitation) Act regulated the price of coal by its use (industry, railway, shipping, wholesale, etc.). This act did not regulate the final market price at which coal was sold to consumers directly; it left retail profit regulation up to local governments resulting in haphazard and ineffective enforcement. It was mainly effective in regulating industrial, commercial, and export sales.⁵³ *The Western Daily Press* highlighted the failure to act on consumer prices, arguing that it created an environment where in profits moved to middlemen and price increases left regular consumers to pay inflating prices. The consumers most affected were the working-class people

able to secure”.⁵⁴ Despite inflation pushing wages up, people were often upset by price increases (because the former generally took time to catch up to the latter), as wages generally take time to catch up to prices, as was the case during the Great War). *The Nottingham Evening Post* ran a headline “The Coal Industry: ... Profits to owners: Startling Figures Before The Commission.”⁵⁵ The paper agreed with what economists would expect: that fixing a ceiling on the price of coal benefited the largest users of coal, as they had the largest bulk buying power. For merchants, it made less sense to sell in smaller quantities to poorer clients unless at a premium. Price management also failed to reduce use. Economic logic tells us that suppressing price would likely have stimulated demand and worked as a subsidy for high-quantity consumers because of their bulk purchasing power.

Throughout the war Britain’s allies were consistently

issues throughout the entire war.⁵⁷ Although there was an initial fall in the demand for coal as exports to the Central Powers stopped, neutral powers also demanded coal in exchange for necessary war goods. Switzerland and Spain experienced energy shortages.⁵⁸ The international war situation helped the crisis grow. In 1917 the Home Office received information that “Mariupol [then in the Russian Empire] has been very sparsely supplied with fuel during the winter months, and the local metallurgical works, which are working exclusively on munitions, were completely stopped for five weeks during January and February for want of coal”.⁵⁹ The tension between taking miners into the arm

efforts and maintain trading relationships with neutral countries and provide energy for the Home Front.⁶³ Britain's role came to include that of the principal supplier of energy to the war effort. As the public, mostly composed of working-class Britons, faced an increasingly cold winter, in 1917 the British government struggled to make good on international promises and fuel domestic industry. These pressures helped prompt a more radical rationing program.⁶⁴

The commander of Britain's forces in Europe, Sir Douglas Haig, said in 1918 that "the quest for an adequate supply of coal for all our needs is almost a vital one for the Allied cause", in keeping with similar remarks from other allied leaders, such as the French Prime Minister Georges Clemenceau, who asked British miners to redouble their efforts.⁶⁵ The commander of the French forces, Ferdinand Foch, was quoted as saying "Miners of Britain, help me!" while the government tried to deal with a shortfall of about 36 million tons.⁶⁶ The Allied leadership believed wholeheartedly that "coal [was] the key to victory".⁶⁷ The Navy too was concerned about insecure energy supplies. Admiral Beatty of the Royal Navy said "without a regular supply of coal the fleet would be immobilized", requesting that, miners ensure that Britain had an adequate supply.⁶⁸

Government management of the coal industry did not come into force until 1917, when the Government established the office of the Coal Controller under Sir Guy Calthrop. Before he took office in March 1917, he managed railways. The government hoped he could better manage the industry,

supply, especially as the rationing scheme was applied to London first. There were some limited complaints on the imposition of rationing. But by the time the program entered into force, the war had worn down Britain's resources to such a degree that the extent of the shortages had become well-known.⁷² The Government also announced that, for the winter of 1917/18, coal rationing would be expanded. Restrictions on petrol use were also announced. Petrol was less important to at this time as it delivered very little of the total energy mix, though its importance was growing in transportation in particular.

In the summer of 1918, the Prime Minister became convinced that the time had come for the government to take a much greater role.⁷³ David Lloyd George worked to appoint new planners across parties to advise the new Coal Controller and take more direct control of the coal business, as the government came to the conclusion that coal owners were not managing it in the best interests of the nation.⁷⁴ One new advisor appointed to assist Calthrop in 1918 only agreed to take

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consumption as 181 million tons for all uses but indicates that reliable information on coal consumption by specific use does not appear until the 1940s.⁷⁶

The Daily Mail congratulated London's consumers on successful reductions of coal, suggesting that the capital was a model for the country.⁷⁷ To free up supplies for the greater war effort, the government targeted a mixture of reductions in household energy use and industrial energy use.⁷⁸ However, rationing was not uniform across the country when it was expanded beyond London. Areas far from coalfields and remote places of the country were treated differently. The areas closest to coal mines received a lighter degree of restrictions (and miners themselves were broadly exempted), whereas the government hoped to achieve broad reductions overall. In the areas furthest from the mine heads, the state encouraged more timber use for heating.⁷⁹

Over time, the authority of the Household Fuel and Lighting Order expanded to apply across the UK.⁸⁰ After the initial rationing scheme in London, other areas of Britain expected the rationing system to come to them. The main rationing scheme, the drive to reduce domestic consumption by approximately nine million tons per year, had the greatest effect in the winter of 1918/19.⁸¹ For example, the *Aberdeen Journal* explained to its readers that a ration was on the way, but predicted that the ration in Scotland would be greater than that in England. Considering that England's ration was about three times larger than the one in effect in France, and that Italians lacked access to coal, the paper suggested Scotland had nothing to worry about.⁸² The new

⁷⁶ Department for Business, Energy & Industrial Strategy, 'Historical Coal Data: Coal Availability and Consumption, 1853 to 20[11]', 2022.

⁷⁷ 'London's Good Example', *Daily Mail*, 23 August 1918, Daily Mail Historical Archive, 4.

⁷⁸ 'The Coal Shortage', *Dundee Courier*, 21 August 1918, British Library Newspapers, 2.

⁷⁹ 'Rationing of Coal, Gas, Electricity', *Daily Telegraph*, 21 March 1918, The Telegraph Historical Archive, 7.

⁸⁰ 'The Coal Shortage'.

⁸¹ Redmayne, *The British Coal-Mining Industry During the War*, 190.

⁸² 'The Fuel Problem', 13 September 1918, *Aberdeen Journal*.

one of his main responsibilities was to free up stocks of coal for military and allied use. As the rationing system was introduced, he said that “consumers were not aware of the obligations laid on them by the order ... and after the last three months trial ... no excuse will be acceptable from those who fail to obey the restrictions which it has been necessary to place on them to meet the national emergency.” Calthrop called on the public to be patriotic in meeting the national emergency given that “a successful war is founded on sacrifice”, calling for the entire nation to participate.⁸⁶

Announcements of the new rationing system instructed people to fill out paperwork with their local merchants to purchase coal (though requisition forms were not required for the lowest quantities of coal). Restrictions included the imposition of rules that limited households to holding a maximum of one year’s coal supply, though all individuals were allowed to have at least one month’s supply or two tons at a time, whichever was more. Interestingly, these restrictions

heating from their stations.⁸⁹ Their on-hand supplies dwindled through the war, as energy limitations increased. Stocks of coal dwindled as the energy crisis deepened. Demand for rail travel and cargo was plentiful; energy resources were not.⁹⁰ Most newspapers hoped to encourage patriotic feeling and a reduction in the use of coal by presenting it as a patriotic duty. They also encouraged the public to be satisfied with their ration and use less given the condition of British allies. The government built a strategy whereby it structured the ration to place the burden of reduction on larger homes while, biasing the system, based on pre-war norms, towards the smallest ones.

Like many newspapers, Calthrop pointed out that Britain's allies were suffering more than the British public and that more coal was needed to meet wartime needs. Furthermore, Calthrop implied that coal was necessary to supply American soldiers.⁹¹ He went on to point out that Britain had been failing to make good on its allied war commitments in the summer of 1918 due to shortages of increasing severity. Britain had lapsed on trade commitments as well. Calthrop cited sickness for some of the lowest production outcomes of the war. He took the standard national line on the home front of declaring that essential industries like coal mining had become part of the war effort. He also pointed out that the miners had mostly been exempted from the coal rationing orders, implying that this was a demonstration of trust from the government. Finally, he attempted to appeal to socialist miners by pointing out that their labour could help make the new system of state control work and demonstrate that a state mining industry was better.⁹²

Controversy over who got what abounded. *The Daily Telegraph* reported that "coal intended for household consumers was diverted to [public war-related] undertakings... A vital

⁸⁹ 'Coal Economy on the Railways', *The Times*, 9 September 1918, The Times Digital Archive.

⁹⁰ 'Coal for Railways', *Daily Telegraph*, 9 September 1918, The Telegraph Historical Archive, 5.

⁹¹ 'Truth About Coal', *The Times*, 21 August 1918, 7.

⁹² *Ibid.*

problem now remains to ... transport sufficient house coal to enable the merchants to fill up all the

Rationing increased working-class access to energy. This was understood at the time, as those who lived through the war made clear: “one of the principal objects of the Household Fuel and Lighting Order [the primary basis for the rationing system] was to secure distribution of coal in small quantities to small consumers, and preference had to be given to those deliveries over the large deliveries. Consequently, deliveries in small quantities were made compulsory upon the [coal] trade in order to secure the end in view.”⁹⁵ Yet, despite its impact, details of how the government implemented the policy has not been the focus of much historical study.

Coal had become foundational to civic and military life: “coal is not merely gold... money cannot buy it.” Shortages of coal meant that there were issues in everything from production to the deployment of small boats especially as the crisis worsened in 1918.⁹⁶ Indeed the government let it be known that, if it discovered false declarations in rationing paperwork, there would be prosecutions. Of course, in a self-reporting system it was impossible to monitor all people. But as the example above indicates we know that some prosecutions did occur, and there were publicized

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rationing measures to limit the consumption of coal. The coal shortage was the principal motive for the passage of the daylight savings time bill to make better use of the sun's light. Gas and electrical lighting required coal to run and gas companies had perpetual problems throughout the war finding coal stocks.⁹⁹ Theatres and other energy-intensive buildings came under scrutiny for their coal use by the coal authorities who issued mandatory closing times, citing the justification that this would save energy.¹⁰⁰

Across Britain, large kitchens, music halls, picture houses, and stately homes all saw increasing limitations placed on their pre-war activities. In short, coal use came under pressure, except for that by the smallest consumers.¹⁰¹ Everyone rationed coal use, from the military to the Red Cross, railways, estates, and firms. The government delegated much of the authority for the oversight of the rationing system to cities, which oversaw the day-to day work of rationing coal.¹⁰² A plethora of committees to organise energy use was also set up by the government, with examples including the coal conservation sub-committee, the electric power supply committee.¹⁰³ Committees and government at the local level did the required work to

electricity. The total amount allowed under rationing would demand significant reductions, as under the rules roughly 7 tons of coal, 15,000 ft of gas and 240 units of electricity would be available. However, a theoretical consumer was permitted to make trade-offs. If they wanted an additional 30,000 ft of gas, they would need to sacrifice another 2 tons of coal, thus reducing coal by half to retain access to cooking fuel.¹⁰⁶ Default rations required no requisition paperwork; they included one hundredweight of coal per week and 22,500 ft of gas and 120 units of electricity.

Newspapers generally praised the rationing system and sought to inform the public and follow the government's line which emphasized sacrifice and resilience.¹⁰⁷ *The Daily Telegraph* suggested that there were clear methods of economizing on coal, such as by putting "an end [to] fires in bed-rooms [sic] except for invalids... the most discomfort will be caused by the diminution in the number of heated rooms. Most households this winter will have to content themselves with two fires at most, in the kitchen and in one living-room. To a small family this means no great inconvenience". The paper went on to describe how a middle-class family, whose father had an office job would have to s fng

often were propaganda, they offered people simpl

million tons. The rest, he hoped, would come from rationing the energy use of civilian industry.¹¹⁹

There was debate for the entire war over whether it was acceptable and necessary to override the Eight Hours Act, which limited the working time of miners to eight hours only per day. Ultimately, the government permitted additional limited overtime based on negotiations with the unions and business owners.¹²⁰ Arguments over the productivity of miners, wages, and working conditions abounded.¹²¹ Labour leaders claimed that with the manpower losses to the war and new challenges in mining miners had performed well.¹²² Talk of nationalisation was in the air; by 1919 labour organisations began to produce petitions of this kind: “this meeting of

homes this was a major change for them, but it had a minimum impact on working-class households that generally occupied smaller homes and struggled to afford what little coal they burned.

Often, families could burn both gas and coal, and sometimes electricity. There was an sometimes-misunderstood formal rate of exchange to convert the coal ration to coal derivatives.¹²⁵ The use of gas rapidly increased during the war, particularly in its use in industrial heating moving from 6.7% of total industrial heating in 1913 to 21% of the total by 1919, which represented more than a tripling of its use in industrial situations, as coal was diverted towards households and for transportation, wherever possible.¹²⁶

The Controller of Timber, Sir James Ball, worked alongside the Coal Controller and attempted to reduce coal consumption by providing wood supplies to population areas as far away from coalfields to reduce transportation costs.¹²⁷ Overall, these changes were unlikely to have affected the working class very much, as local timber cutting already provided a source of fuel for rural people and urban people's initial access to fuel was fairly limited anyway.

The Government could only consider the abolition of the rationing system as demand fell and supply increased after the end of the war. However, rationing continued through 1919 as economic and supply issues continued to constrain available coal even after the armistice in November 1918. The return of labour to the mines also helped, but again the industry took time to recover from the strain of the war.

Throughout the war, newspapers and political leaders proposed various ways of getting out of the coal crisis. A Parliamentary Committee in 1918 suggested that 55,000,000 tons of coal could

¹²⁵ 'Hearth and Home'.

¹²⁶ Reginald H. Brazier and Ernest Sandford, *Birmingham and the Great War* (Cornish Brothers Ltd, 1921), 204.

¹²⁷ 'Burn Less Coal', *Daily Mail*, 16 August 1918, Daily Mail Historical Archive, 4.

be saved if Britain moved from a system of small power stations to a new network of “super-power

control over the economy. Rationing marked a departure from the laissez-faire approach to economics that had come to prominence in Britain during the Victorian period.¹³¹ Formerly, the entire energy production chain from the extraction in mines to coal's use was almost entirely in private hands and unregulated. The intervention in the consumer market for energy, during the First World War, changed matters so drastically that the British Government would never resume its previous distance from energy management.

It is not correct, though, to claim that the war did not affect the working class negatively at all after rationing was implemented

of whether the population has access to energy.¹³³ From this perspective, during the Great War the British working class attained an unprecedented level of energy security.

¹³³ Nick Jelley, 'Energy Security' (Oxford University Press, 2019).

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