

Under New Management: Energy Resource Allocation in Great War Britain

Daniel Davenport

Supervised by Dr. Mariel Grant

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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, 2014); Roger Burt, Peter Waite, and Ray Burnley, *Devon and Somerset Mines: Metalliferous and Associated Minerals, 1845-1913*, The Mineral Statistics for the United Kingdom, 1845-1913, v. 6 (Exeter: Published by the University of Exeter in association with the Northern Mine Research Society, 1984); Roy Church, *The History of the British Coal Industry: Victorian Pre-Eminence*, 1986; Chris Evans and Göran Rydén, eds., *The Industrial Revolution in Iron: The Impact of British Coal Technology in Nineteenth-Century Europe* (Aldershot, Hants, England ; Burlington, VT: Ashgate, 2005); Ben Fine, *The Coal Question: Political Economy and Industrial Change from the Nineteenth Century to the Present Day* (London: Routledge, 1990); Michael W. Flinn, *The History of the British Coal Industry: 1700-1830 The Industrial Revolution*, vol. 2 (Oxford, 1984); Barbara Freese, *Coal: A Human History* (London: Heinemann, 2003); Robert L Galloway, *Annals of Coal Mining and the Coal Trade* (London: The Colliery Guardian Company, 1898); Walcot Gibbsno, *Coal in Great Britain: The Composition, Structure, and Resources of the Coalfields, Visible, and Concealed of Great Britain* (London: Edward Arnold, 1920); A. R. Griffin, *Mining in the East Midlands, 1550-1947* (London: Cass, 1971); John Hatcher, *The History of the British Coal Industry: Before 1700: Towards the Age of Coal*, vol. 1 (Oxford University Press, 1993); George Henwood, *Cornwall's Mines and Miners*, ed. Roger Burt (Truro: Bradford Barton, 1972); W Stanley Jevons, *The Coal Question: An Inquiry Concerning the Progress of the Nation and the Probable Exhaustion of Our Coal Mines*, 1865; John Platt, *British Coal*, 1968, <http://archive.org/details/britishcoal0000john>; Richard Mede, *The Coal and Iron Industries of the United Kingdom* (London: Crosby Lockwood and co., 1882); Walter Minchinton, 'The Rise and Fall of the British Coal Industry: A Review Article', 2022; B. R. Mitchell, *Economic Development of the British Coal Industry, 1800-1914* (Cambridge University Press, 1984); Abe Moffat, *My Life With the Miners* (London Lawrence & Wishart, 1965); Tom Morrison, *Cornwall's Central Mines: The Southern District, 1810-1895* (Newmill, Penzance, Cornwall: A. Hodge, 1983); Andrew Martin Neuman, *Economic Organization of the British Coal Industry* (George Routledge & sons, 1934); Barry Supple, *The History of the British Coal Industry: The Political Economy of Decline*, The History of the British Coal Industry 4 (Oxford: Clarendon Press, 1987); Marcella Bush Trevino, 'Coal and Energy Production' (Salem Press Encyclopedia, 2022); Arthur Trueman, *The Coalfields of Great Britain* (Edward Arnold, 1954).

² Our World in Data. 'Long-Term Energy Transitions', 2022.

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 However, the scope of this work tends to be extremely broad. One highly narrative history on the use of energy is Alfred Crosby's 2006 book *Children of the Sun*. His approach to the history of energy focuses on how society is built on energy, and he charts the process of modernisation through energy.⁴ Rolf Sieferle, in a 2001 book on the decline of forests in Europe, argues that this development forced Britain (and Germany) to search for new energy resources and coal provided the solution.⁵ The history of coal underpins much of the history of energy. There is growing interest in researching energy's role in history. However, by focusing on wide histories of the world, they cast a broad net. This paper adds to the scholarship on energy by being more specific and examining the Great War as a period in energy history.

Paul Warde's *Energy Consumption in England and Wales* offers some of the best local statistics on energy consumption.⁶ Statistical sources generally do not track domestic energy use.⁷ Warde is an exception to the rule, yet his work appears to contain some flawed information. For example, his estimates for overall coal production are unrealistic and are contradicted by other data.⁸ Data on production is far more detailed than data on consumption, for which no firm numbers exist. Despite these constraints, it is possible to gain insights into problems, and

³ Malcolm Keay, 'Energy: The Long View', 2007; Faculty of Arts and Sciences, Harvard University and Magdalene College, University of Cambridge, 'Energy History: Joint Center for History and Economics' 2022.

⁴ Alfred W. Crosby, *Children of the Sun: A History of Humanity's Unappeasable Appetite for Energy*, (New York: W.W. Norton, 2006).

⁵ Rolf Peter Sieferle, *The Subterranean Forest: Energy Systems and the Industrial Revolution*, vol. 39, 2001.

⁶ Paul Warde, *Energy Consumption in England & Wales 1560-2000* (Napoli: Istituto di Studio sulle Società del Mediterraneo, 2007).

⁷ Department for Business, Energy & Industrial Strategy, 'Historical Coal Data: Coal Availability and Consumption, 1853 to 20[11]', 2022.

⁸ Warde, *Energy Consumption in England & Wales*, 60.

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 for energy supplies. This was the first era in which many households, at least in London, had access to some coal, but only used little as a substitute in place of expensive timber. Subsequent volatility in the price of coal was a motive for unrest and frustration among poor Londoners.¹⁰ John Hatcher finds that London reached a plateau in the use of coal in the late Eighteenth Century.¹¹ Hatcher shows that demands for more energy were persistent, but because the purchasing power of most households was static, coal remained relatively expensive. Households could not increase their access to energy without a concurrent rise in overall incomes. Despite people having coal as well as wood, most homes remained cold.

The role of coal was transformed again during the Industrial Revolution in the mid-to-late Eighteenth Century. Abundant energy was a prerequisite of industrialisation. While not displacing wood, coal became an indispensable part of life. Its use rapidly expanded; indeed by 1869 it provided 95% of Britain's energy.¹² The growth in the use and mining of coal was logarithmic,

⁹ Barbara Freese. *Coal: A Human History*. London: Heinemann, 2003, 25.

¹⁰ Freese, *Coal*, 31-33.

¹¹ John Hatcher, *The History of the British Coal Industry: Volume 1: Before 1700: Towards the Age of Coal* (Oxford University Press, 1993), 42.

¹² Our World in Data. 'Long-Term Energy Transitions'.

with almost all growth occurring from 1780 onward.¹³ Coal provided almost all the energy for industrial activities during the Industrial Revolution, including mills and factories, shipping, railways, and smelting. Increasingly, throughout society, coal provided the energy for home heating. As Barbra Freese says, the post-medieval trend was towards a society that heated itself with coal.¹⁴

Although real wages and household use of coal began to rise during the Nineteenth Century, domestic coal use did not keep pace with the rapid increase in its use in other areas, such as transportation and industry.¹⁵ The volatile and insecure industrial economy meant that working-class families had no real security in terms of energy consumption. As dirty and polluting as coal was (and is), it raised standards of living by offering new access to energy, even though energy resources remained scarce. Household use of energy is an unsung symbol of economic growth and improving standards of living.

With the 1906 launch of the new class of battleship, the Dreadnought, the Royal Navy signalled the first hints of a Britain less reliant on coal, as oil made up a major portion of the new type of ship's fuel source. However, the change-over was deceptive. The oil did not replace coal; it was in fact introduced to help the coal burn faster.¹⁶ This change in the Royal Navy's use of coal is symbolic of the history of coal in the Twentieth Century; it remained important. The opening of the Great War, eight years later, marked the peak of British coal production and the rise of government intervention in managing energy. A rationing system introduced to manage energy in the Great War was a precursor for the later adoption of a policy of nationalisation in the wake of

¹³ Warde, *Energy Consumption in England & Wales*, 60.

¹⁴ Freese, *Coal*, ch. 1.

¹⁵ Our World in Data, 'Nominal Wages, Consumer Prices, and Real Wages in the UK, United Kingdom, 1750 to 2015', 2017.

¹⁶ John Roberts, *Battleship Dreadnought* (Oxford: Osprey Publishing, 2020).

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.

However, a wide body of evidence indicates that the war changed life in many unexpected ways.²¹ Although the Great War was a devastating humanitarian catastrophe, many workers left the conflict better off financially and physically than they had been in 1914. This was a product of wartime economic policies, including rationing. The wartime coal rationing program intentionally broadened access to coal for the working class in Britain, as part of a system of energy management that saw government take control of the energy market with the idea of prioritizing a minimum level of consumption for each household rather than privileging those who could pay most. Rationing of coal facilitated greater working-class access to energy, as the state intervened to support secure access to energy resources during the crisis. The coal rationing program was the first large-scale government intervention in British history designed to ensure household energy security.

The bulk of modern scholarship on the topic of coal focuses on the Twentieth Century. Histories of coal tend to centre on the period from the 1960s to the 1980s and mainly focus on the coal industry itself, rather than such subjects as coal consumption, access to energy, or energy security.²² Margaret Thatcher's policies regarding coal provoked significant interest in the subject during the 1980s. However, histories of coal, regardless of era, often do not incorporate any comprehensive study of patterns of consumption, particularly that by households and individuals, into their analysis. The core historical study of British coal is Oxford University Press's *The History of the British Coal Industry*, published in several volumes through the mid 1980s, at the height of the unrest over the closure of coal mines. The series examines the history of coal,

²¹ J. M. Winter, *The Great War and the British People* (London: Palgrave Macmillan UK, 1985); Robert Roberts, *The Classic Slum: Salford Life in the First Quarter of the Century* (Penguin Books, 1990); and Adrian Gregory, *The Last Great War: British Society and the First World War* (Cambridge University Press, 2008).

²² A. E. Trueman, ed., *The Coalfields of Great Britain* (London: Arnold, 1954); Ashton and Sykes, *The Coal Industry of the Eighteenth Century*; Abe Moffat, *My Life with the Miners* (London: Lawrence & Wishart, 1965); John Platt, *British Coal*; Griffin, *The British Coalmining Industry*.

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 networks and the market for coal.

Alternative histories published during the same period include Brian Mitchell's *Economic Development of the British Coal Industry* and Ben Fine's *The Coal Question*. They respectively see coal as a business or national security question.²⁴ Raymond Smith's *Sea-Coal for London* focuses on transport, markets, and consumption of coal, rather than mines, miners, and mining.²⁵ Yet, these works too tend to emphasize business aspects of the coal trade, as opposed to providing much insight into consumption patterns. In terms of historical statistics, the Department for Business, Energy and Industrial Strategy has some of the most complete statistics on consumption.²⁶ A more recent history by Barbara Freese integrates coal into the story of industrialisation by examining its role in England, America, and China. Her discussion on the development of the British coal industry in its early days demonstrates the extent to which it fuelled the Industrial Revolution. She also investigates the growth of coal use around the world, adopting an environmental and regulatory perspective on the topic.²⁷

The peak period for histories of the coal industry and mine labour was in and around the 1980s. However, recent years have seen growing interest in the topic written from environmental

²³ Michael W. Flinn, *The History of the British Coal Industry: 1700-1830 The Industrial Revolution*, vol. 2 (Oxford, 1984).

²⁴ Mitchell, *Economic Development of the British Coal Industry, 1800-1914.*; Fine, *The Coal Question*.

²⁵ Raymond Smith, *Sea-Coal for London: History of the Coal Factors in the London Market* (Longmans, 1961).

²⁶ This department's name changes often. This name is current to 2023.

Department for Business, Energy & Industrial Strategy, 'Historical Coal Data'.

²⁷ Freese, *Coal*.

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 about the consumption of coal both before and after the Great War, in particular in relation to the working class.

There are no good statistics that track, household-by-household, coal consumption over the course of British history, and those that do exist are of limited accuracy and scope. There is also no in-depth study of what actually happened in terms of coal consumption during the First World War. By interrogating the nature of the rationing program, we can test the claims of DeGroot and other historians and produce a more complete story regarding the rise of the distribution of energy resources in Britain.

There are primary sources available which can be employed to provide insight into this matter. Robert Roberts's description of working-class life provides an important primary source account.³² Even though he does not examine the working class's relationship with coal explicitly, he gives credence to the general argument that the British working classes experienced an improvement in standards of domestic life due to rationing. Newspapers are excellent sources on the development of the rationing system and responses to it. Adrian Gregory uses newspaper evidence extensively in *The Last Great War*, which is not surprising given that these sources provide first-hand accounts as to the implementation and impacts of rationing.³³ Other primary sources, including reports, memoirs, and government records, offer evidence in addition to that captured by the press. R. A. S. Redmayne's 1923 book *The British Coal-Mining Industry During*

³¹ This suggestion is not entirely accurate based on the data from John Hatcher and Barbra Freese. The working class spent much of their income on coal before the war, it was just insufficient to reliably heat homes to a comfortable level. The main point however, that the war increased consumption of coal is proven correct through this analysis.

³² Robert Roberts, *The Classic Slum: Salford Life in the First Quarter of the Century* (London New York: Penguin books, 1990).

³³ Gregory, *The Last Great War*.

the War highlights coal's role, not just in industrial production, but also in trade and home consumption.³⁴ His work is effectively a professional memoir that explains and defends the economic and political actions of the government officials who oversaw rationing, of which he was one.

Before the war, a sufficient supply of energy remained out of reach for the working class.³⁵ The rationing scheme introduced in 1917 was the first full-scale intervention in energy markets by government and a turning point in the working class's access to coal. Indeed, rationing did not reduce domestic consumption of coal as far as the government had hoped: working-class consumption actually increased. Instead of limiting coal consumption generally, rationing redistributed coal across society. Histories of coal, the war, and energy do not tend to address this. Histories of coal focus on mines, mining, and miners; social histories do not consider energy; energy histories are too broad. These sources do not seriously interrogate domestic consumption of energy. The history of coal combines material history, social history, economic history, environmental history, and military history. This necessary place for further work in the scholarship regarding coal is a central issue with which this paper engages.

From the outset of the Great War coal was in great demand while production was disrupted. Accordingly, a crisis in coal ensued that would not abate until roughly 1920. Inflation, which continued throughout the conflict, was profound. Using what was called Best Derby Coal as an example, the market price for consumers in London rose from 25 shillings and 6 pence to 43 shillings by the end of the war, an increase of 69%.³⁶ Price fluctuations are challenging to track, and the terms of various contracts and arrangements, as well as different types of coal and methods

³⁴ R. A. S. Redmayne, *The British Coal-Mining Industry During the War* (Oxford: Oxford Clarendon Press, 1923).

³⁵ Seebohm Rowntree, *Poverty: A Study of Town Life*, 1901.

³⁶ Redmayne, *The British Coal-Mining Industry*, 117.

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 orders were less likely to be bound by contract than larger purchasing. The price of cooking and heating gas also rose rapidly, and other coal derivatives were challenging to find. Some analysts thought that the competitive market for selling would force merchants to eat profits rather than pass costs on.³⁹ However, the supply shortage ensured that downward pressure on prices was not felt.

The coal industry was one of the largest employers in Britain, accounting for over one million people— more than 2% of the entire population in coal mining— with millions more working in auxiliary jobs such as transportatio, and the construction, installation, and maintenance of boilers, furnaces, engines, fireplaces, kitchen equipment, as well as the supply and maintenance of the mines.⁴⁰ The core issue impeding the production of a steady supply of coal during the Great War was the enlistment of miners; at the start of the conflict, 250,000 enlisted— a quarter of the workforce, and 40% of all miners between 19 and 38 years old. Given that “recruits for the Navy were drawn from all classes of the community ...[so that] barristers and coal-miners became shipmates”, it is not a surprise that the mining companies struggled to fill positions.⁴¹ These losses

³⁷ Hatcher, *Towards the Age of Coal*, 49.

³⁸ Hatcher, *Towards the Age of Coal*, 49.

³⁹ C S Orwin, *The Farmer in War-Time* (Oxford University Press, 1915).

⁴⁰ Peter Thorsheim, *Inventing Pollution: Coal, Smoke, and Culture in Britain since 1800*, Ohio University Press Series in Ecology and History (Athens, Ohio: Ohio University Press, 2006).

⁴¹ George F Stone and Charles Wells, *Bristol and the Great War*, 1920.

were never fully replaced during the war. As a result, output drastically fell; moreover, with the loss of the youngest workers, output per worker fell from 260 tons per year to 230 from 1913 to 1918.⁴² In addition to price increases, the situation around the distribution of coal became chaotic; at any time, coal could be requisitioned by the military from organisations operating in the domestic sphere.⁴³ Military demand increased rapidly. South Wales, for example saw the Navy move from purchasing 1.5 million tons of coal before the war to 15 million by its end.⁴⁴

In response to this dual demand and supply shock, the price of coal rose rapidly higher, and pressure grew through 1914 and 1915 for government to intervene. In February 1915, *The Times* proclaimed that “it seems clear that the public are being exploited in regard to coal prices in London, which, already very high, are likely to become still higher”. The, the article suggests that the public itself was responsible for price increases, due to a surge in panic buying brought on by the uncertainty of the war, although the paper also predicted that increased consumer pressure would drive prices steadily higher. Prices for dealers at the coal pit had roughly doubled already, depending on what pre-war contract the dealer held.

More dire headlines proclaimed that the country was “living hand to mouth” in response to the pressures of war and shortages of coal, with one official calling it “the worst home crisis of the war”, with output substantially down and the stocks of gas companies, electricity generators, industrial firms, and retail merchants’ all lower.⁴⁵ Attacks on shipping during Germany’s submarine campaign placed extra strain on the coal situation, with one report from the *Nottingham Evening Post* saying “the coal controller could not have kept the pits continuously at work. At one

⁴² Hatcher, *Towards the Age of Coal*, 47-48.

⁴³ ‘Confidential Print: First World War: General Correspondence, April-September 1917, Part 10’ (Foreign Office, September 1917), Adam Matthew Digital: The First World War, 150.

⁴⁴ Hatcher, *Towards the Age of Coal* 47-48.

⁴⁵ ‘Coal Crisis’, *The Sunday Times*, 8 September 1918, The Sunday Times Historical Archive, 8.

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.

class.

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 of urban centres: “especially the small consumers in London and our large industrial centres had laid [sic] to pay shameful prices for the little quantities that they had been

⁵¹ Burton Chadwick, ‘No Afternoon Tea’, *The Times*, 21 November 1916, The Times Digital Archive, 11.

⁵² ‘Strength of Britain Movement’, *The Times*, 9 December 1916, The Times Digital Archive.

⁵³ Redmayne, *The British Coal-Mining Industry During the War*, 120-124.

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 short of coal. By 1917 pressure had continued to build. Italy and France both lobbied Britain for more coal, France in particular after the loss of reliable production in its industrial regions near the German border and the front lines of the war. Italian officials pressured British representatives so often for coal that, when a new Italian representative argued that national morale would fade without more coal, the British official receiving the request wrote home that the official

being new to the Ministry and perhaps not yet altogether familiar with the previous history of the difficulties of supply and with the great efforts that are being made, he continues to urge ... necessity of more ... coal. He argues that the people have resisted the first shock of the disaster well and that the public spirit is still good, but that if coal and grain fail it will be bound ... to give way. This has been so often put forward before ... and the situation is so well known to His Majesty's Government, that I do not propose to take any special action.⁵⁶

France and Italy both had coal missions to Britain, and Russia experienced substantial supply

⁵⁴ ‘Dean Forest Miners’, *Western Daily Press*, 10 July 1916, British Library Newspapers, 13.

⁵⁵ ‘The Coal Industry’, *Nottingham Evening Post*, 4 March 1919, British Library Newspapers, 1.

⁵⁶ ‘Confidential Print: First World War: General Correspondence, April-September 1917, Part 10’, 302.

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 army and keeping them in the mines or even returning them to the mines continued for the entire war. The *Bath Chronicle* paraphrased the tension between the service of miners in the army and their service in the mines by saying “They had to take the men. They had to take the coal. 75,000 more Miners were called to the colours [in 1918]. Our winter coal reserves were sacrificed to save the Armies and to bring the Americans to the front. ... Victory is on the way.”⁶⁰

The United States became the largest coal-producing nation in the world, but initial wartime trade with America focused on other goods, such as food. Over the course of the war, diplomatic pressure mounted from Britain’s allies for the UK to increase domestic production of coal.⁶¹ The United States’ entry into the war increased the allied need for coal in Europe as American troops required European-sourced coal. Shipping it from America was impractical as the American entry into the war placed greater strain on a shipping system already under pressure from the German U-boat campaign.⁶² There was a tension between the need to fuel allies’ war

⁵⁷ The Times, *The Times History of War*, 124; ‘Coal Crisis’.

⁵⁸ ‘Confidential Print: First World War: General Correspondence, April-September 1917, Part 10’, 247, 263.

⁵⁹ ‘Confidential Print: First World War: General Correspondence, April-September 1917, Part 10’, 31.

⁶⁰ ‘A Critical Decision Revealed’, *Bath Chronicle and Weekly Gazette*, 7 September 1918, British Library Newspapers.

⁶¹ ‘Confidential Print: First World War: General Correspondence, April-September 1917, Part 10’.

⁶² ‘Submarine War’, *Western Times*, 12 October 1916, British Library Newspapers.

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, as it was failing to deliver for consumers, supply the war effort, and meet demands for export. The Controller had command of all mines and authority over the trade and transportation networks that linked them to markets. The consensus, in government and business, was that this

⁶³ 'Confidential Print: First World War: General Correspondence, April-September 1917, Part 10'.

⁶⁴ R A S Redmayne, *The British Coal-Mining Industry During the War* (Oxford: Oxford Clarendon Press, 1923), ch. V-XIII.

⁶⁵ 'In Wartime Coal Is More than Gold', *Dundee Courier*, 21 August 1918, *Dundee Courier*, 2.

⁶⁶ 'Help Me!', *Daily Mail*, 21 August 1918, *Daily Mail Historical Archive*, 3.

⁶⁷ *Ibid.*

⁶⁸ 'In Wartime Coal Is More than Gold', 2.

level of state control was a “necessary evil”.⁶⁹

Throughout the first years of the war, the British government did not want to bring in a system of rationing for either food or energy. Recourse to such measures is often taken as an implicit admission that their plans for a war economy have failed. However, public pressure to introduce a rationing system increased as prices, especially for retail sales of coal, rose rapidly and the government became increasingly aware of the impacts on working-class households.⁷⁰ Adrian Gregory chronicles public anger over war profiteering (real or imagined) and the increases to the cost of living. This pressure worked alongside the simple reality that Britain was not producing enough coal to fuel the war effort. Parliament was initially reluctant to introduce controls on coal consumption; however, the ongoing problems with existing management systems (price management and limited government management of production) eventually convinced the government to introduce rationing, with the primary aim of reducing the coal deficit.

On 10 August 1917 the Household Coal Distribution Order came into effect. This new order limited household coal use in the Greater London area for the autumn and winter of 1917/18. The limits imposed in London in 1917/18 were focused on distribution of coal; the government took control of supply and management of coal in London during that time in addition to its management of the mining industry. However, the order was limited in its effectiveness. It focused on streamlining the organization of the coal industry rather than the implementation of truly large-scale rationing based on principles of fairness.⁷¹

Metropolitan members of parliament were particularly interested in the question of the coal

⁶⁹ Redmayne, *The British Coal-Mining Industry During the War*, 209.

⁷⁰ Departmental Committee on Retail Coal Prices, ‘Report of the Committee Appointed by the Board of Trade to Inquire into the Causes of the Present Rise in the Retail Price of Coal Sold for Domestic Use’, Cd. 7866, (House of Commons, 1915), House of Commons Parliamentary Papers Online, 4.

⁷¹ Redmayne, *The British Coal-Mining Industry During the War*, 110-112.

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 the position if more men were brought back from the military to serve in the mines, implying that trying to fix the coal situation was untenable otherwise. Lloyd George's handling of the coal crisis was representative of his overall approach, which involved expanding the role of government to solve problems not previously associated with government solutions.

Redmayne estimates domestic coal consumption to have been around 47 million tons per year in the period leading up to the war but admits that no one really knew. Various estimates diverge by as much as 35% demonstrating the inexact nature of statistical analysis for historical energy consumption.⁷⁵ The Department for Business, Energy and Industrial Strategy quotes total

⁷² 'The Cost of Coal: Miners Growing Demands' in 'Dissemination of Enemy Propaganda in the UK, 1914-1918' (London, 1915), HO 45/23542, The National Archives.

⁷³ 'Miscellaneous Cabinet Office Records Collected by Sir James Masterton Smith' (Shantung; Verdun; Messines, 1917), CAB 1/27/1-29, The National Archives, 59.

⁷⁴ Ibid.

⁷⁵ Redmayne, *The British Coal-Mining Industry During the War*, 112.

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*.

Household Fuel and Lighting Order superseded previous legislation for London only and brought coal rationing to England and Wales in July 1918. In September of that year, the same framework came to Scotland.

The Coal Controller specifically cited the reduction in the number of coal miners as the reason why Britain needed broad rationing, combined with increased demand from allies, which meant that the previous market system could no longer be relied on.⁸³ The changes to domestic consumption did not represent broadened domestic consumption of energy in aggregate, but rather resulted in increased consumption of energy by the working class and the redistribution of limited domestic supplies. This is why, despite the profound changes to domestic consumption which resulted from the rationing scheme, the drop in overall domestic consumption was less than the coal controller's planners had hoped.⁸⁴

Calthrop was the face of coal rationing and often spoke with the press to "allay any unreasonable fear". He informed the population of the upcoming rationing system and encouraged them to begin purchasing in anticipation of limits on the maximum coal it was possible to hold as a residential consumer. The reason, as paraphrased by the *Aberdeen Journal*, was that, if as many consumers as possible purchased coal before the system came into force, "when the shortage comes the authorities will be able to devote all their attention to supplying the poorer classes who have no storage facilities".⁸⁵ There was a degree of consensus that there had to be a focus on access to energy for low earners.

In getting these plans across, Calthrop communicated through the press. His main goal with media releases was to transmit information to the nation and encourage coal-saving behaviour, as

⁸³ 'Why Coal Is Rationed', *Western Daily Press*, 5 June 1918, British Library Newspapers, 4.

⁸⁴ Redmayne, *The British Coal-Mining Industry During the War, 119-120*.

⁸⁵ 'London Letter', *Aberdeen Journal*, 15 August 1918, British Library Newspapers, 2.

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 would in practise only have an impact on better-off coal-buyers. Working-class people would not have room to store a year’s worth of coal and could not afford it anyway. The two tons rule ensured that less affluent consumers would always be able to buy what they needed. The caps on coal consumption and coal stocks ensured that the affluent could not buy all that they might have desired to purchase.⁸⁷

The coal shortages entered life in many ways. Patriotic appeals, in essence coal propaganda, was common: “Win-the-War Coal”, “Use Less Coal”, and “Burn Less Coal: Mothers of France Appeal” are representative headlines.⁸⁸ Railways limited services and cut lighting and

⁸⁶ ‘Fuel and Lighting Rations’, *Derby Daily Telegraph*, 27 September 1918, British Library Newspapers, 3.

⁸⁷ ‘Coal in Arrears’, *Daily Mail*, 17 September 1917, Daily Mail Historical Archive, 6.

⁸⁸ ‘Use Less Coal’, *Bath Chronicle and Weekly Gazette*, 7 September 1918, British Library Newspapers, 9; ‘London’s Good Example’; ‘Burn Less Coal’.

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 cellars of those who possess them and for those who must buy in small quantities". *The Telegraph* meant the working class when it mentioned those who had to buy in small quantities, as working-class coal-purchasing patterns had to be different, as their homes often did not contain coal cellars as was common among wealthier people. Most newspaper discussion of coal occurred from 1917-1919. Very few articles mention coal in 1914 and 1915.

The *Daily Mail* proclaimed (incorrectly) that the "sufferings that will otherwise befall private homes [if production is insufficient], and particularly those of the poor", well after the ration was under way, also said "nobody in England will have enough coal this winter", which was true in the strict sense that no one would have as much as they wanted, but false in the more real sense that some consumers were doing better than before and would have enough to get through the winter.⁹³ All of the British public was not in the same position; the government's plan for coal involved maintaining morale and productivity on the home front by deliberately moving coal towards the least well-off people while asking wealthier households to burn less.

Calthrop worked to create a sense of urgency: "unless [the British people] economize in coal, both for domestic and industrial purposes, it will be impossible for us to assist our allies... coal is the key industry of the country. If that breaks down, our position will be critical". Yet, the coal controller adopted an egalitarian approach, saying "I should like to see householders try to do with even 25 per cent less than the ration allowed...the basis of our rationing scheme is that, at any moment when there is a shortage of supply in any city we can divert all the delivering facilities to supplying the poor consumers who have no storage capacity and sometimes no money to buy in advance. They must be supplied weekly. All other delivery will stop until their needs are met."⁹⁴

⁹³ 'Nobody Will Have Enough Coal', *Daily Mail*, 10 August 1918, Daily Mail Historical Archive, 2.

⁹⁴ 'The Shortage of Coal Supplies', *Aberdeen Journal*, 16 August 1918, British Library Newspapers.

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 incidents of crackdowns on excessive energy consumption by wealthier people.⁹⁷ The government prosecuted at least some of those who violated the rationing system, including one wealthy man who had claimed a ration based on the outbuilding in which his butler was living, while also having his butler submit a requisition to get more coal for the main house. The prosecutor argued “this was a deliberate attempt by a man of immense wealth, to take a very mean advantage of the Orders made by the Coal Controller”.⁹⁸

Although coal rationing was the main intervention that affected the general population, Government mandated several extraordinary policies in addition to introducing household

⁹⁵ Redmayne, *The British Coal-Mining Industry During the War*, 119.

⁹⁶ ‘Money Cannot Get Coal’, *Daily Mail*, 21 August 1918, Daily Mail Historical Archive, 3.

⁹⁷ ‘Stocks Of Coal’, *The Times*, 10 October 1918, The Times Digital Archive, 3.

⁹⁸ Newspaper’s paraphrase. ‘Mr. Speyer’s Coal Supply’, *The Times*, 10 October 1918, The Times Digital Archive, 3.

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 organise paperwork, distribution, and supplies.¹⁰⁴

The Daily Telegraph noted that, as “the fuel ration is based upon the number of rooms in one house, with certain adjustments for the number of occupants and special needs, residents in small houses [were] practically untouched [by the new restrictions].”¹⁰⁵ According to *The Daily Mail* a typical eight-room house would consume 10 tons of coal, 50,000 ft of gas, and 300 units of

⁹⁹ ‘The Coal Outlook’, *Daily Telegraph*, 15 August 1918, The Telegraph Historical Archive, 3.

¹⁰⁰ J.C. Strange, *The First World War Diaries of Miss J.C. Strange*, 1914, 163.

¹⁰¹ William Herbert Scott, *Leeds in the Great War: A Book of Remembrance* (Leeds: The Libraries and Arts Committee, 1923).

¹⁰² ‘Coal Economy’, *Western Daily Press*, 21 September 1918, British Library Newspapers, 5.

¹⁰³ ‘Dissemination of Enemy Propaganda in the UK, 1914-1918’, 1007.

¹⁰⁴ Stone and Wells, *Bristol and the Great War*, 214-218.

¹⁰⁵ ‘Coal for Railways’, 5.

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 spend more time in proximity with the rest of the family. As working-class families could not afford to run many fires in parallel and could not afford larger homes, these sacrifices would not be asked of them.¹⁰⁸

Coal provided gas and electricity and the government called on all people to save coal and light. Wartime propaganda included advice on how to save coal and gas and extract the maximum heat from fuel. Suggestions included leaving slow-cooking meals in a hot place to take advantage of residual heat or making an insulated container for use in cooking (a "hay box").¹⁰⁹ The attempts

¹⁰⁶ 'London's Good Example', *Daily Mail*, 23 August 1918, Daily Mail Historical Archive, 4.

¹⁰⁷ 'Rationing of Coal, Gas, Electricity'.

¹⁰⁸ 'Hearth and Home', *Daily Telegraph*, 6 July 1918, The Telegraph Historical Archive.

¹⁰⁹ 'How To Save Fuel', n.d., F.E.63. Recipes. Food. n.d. MS Women, War and Society, 1914-1918 FOOD 3.2/16, Imperial War Museum. Archives Unbound.

often were propaganda, they offered people simplistic but perhaps morally compelling choices: “Which is it to be? Economy in the Household or shortage in the Navy and Army?”. Other suggestions included using gas instead of coal, saving the bits of left-over coal, and using residual heat in the fireplace. The government preferred consumers to burn gas over coal when possible. It also suggested mixing coal and coke, the use of smaller grates, and placing food in home-made insulated containers.¹¹⁰ One member of the Coal Exchange remarked that ‘every ton of coal produced to-day is worth at least a ton and a half later’, implicitly describing the economic idea of discounting that recognised that current consumption was more valuable than the same consumption in the future.¹¹¹

The rationing amounts available per household seem to have been roughly calibrated to supply basic needs to less well-off households and set a low ceiling for energy consumption¹¹². Yet the bureaucratic nature of the system was an impediment for people to take full advantage of the system, especially given that literacy remained limited among the poorest groups in society.¹¹³ The system required requisition forms, and the fact that the fuel ration limited general consumption, not just coal, escaped many (e.g. one might use less coal and burn far more gas without knowing that use of other energy sources reduced the coal ration). However, literacy improved over time in part due to greater interactions with a more active state, which is representative of how the working class adapted to the greater role of government in everyday life.¹¹⁴

¹¹⁰ ‘Leaflets Issued by the The National War Savings Committee. Metropolitan Committee For War Savings Leaflets Issued By The National War Savings Committee. Metropolitan Committee For War Savings (Established Under The Auspices Of The National War Saving Committee).’, n.d., Employment. n.d. MS Women, War and Society, 1914-1918 EMP. 53/96, Imperial War Museum, Archives Unbound.

¹¹¹ ‘Fuel’, *Exeter and Plymouth Gazette*, 16 August 1918, British Library Newspapers, 8.

¹¹² ‘Coal for Railways’, *Daily Telegraph*, 9 September 1918, The Telegraph Historical Archive, 5.

¹¹³ ‘Local Notes’, *Western Daily Press*, 12 September 1918, British Library Newspapers, 3.

¹¹⁴ Roberts, *The Classic Slum*, ch. 9.

The Coal Controller's public stance was perhaps on best display in the final months of the war when he declared "I fully believe no real hardship will be inflicted upon the ordinary household, though I admit that many people will have to submit to a greater deal of inconvenience and change of habits."¹¹⁵ Calthrop focused on the needs of the military and military-related industry, the needs of British allies, as well as the need to produce domestic coal to avoid the use of shipping resources from the United States.

Labour shortages ensured that certain working-class groups were in a strong bargaining position. This may have contributed to the Government's willingness to ensure that working class households had access to fuel. One representative story from the period that makes this point is

Dad was a quiet, patriotic man and he would rather not have struck especially with the war on. He supported the war, he'd volunteered for the army but they'd told him he would be more useful as a miner. He didn't go to all the meetings that the police tried to break up, but he decided to go along with the majority when they came out on strike. When they were out, I used to get up early to go up the slagheap with my dad and my brother to get coal for the fire. I can't remember how long the strikes lasted, but they got what they wanted. I think they were awarded two shillings a week extra and then Dad had to admit that perhaps it was worth it after all."¹¹⁶ Like some strikes, this one was over quickly when the superior bargaining position of the workers became clear.

Although the Government limited the right to strike during the war, organized labour and workers generally held substantial bargaining power.¹¹⁷ The Coal Controller took over from the private owners and negotiated directly with miners in mining districts such as Yorkshire.¹¹⁸ Calthrop appealed to miners (and via the papers the broader nation) about the deficit in coal production which he calculated at 36 million tons of coal towards the end of the war. He further hoped to make up some of this through household energy rationing, but only on the order of 8-9

¹¹⁵ 'In Wartime Coal Is More than Gold'.

¹¹⁶ Steve Humphries, *All Quiet on the Home Front: An Oral History of Life in Britain During the First World War* (Havertown: Pen and Sword, 2017), ch. 8.

¹¹⁷ Roberts, *The Classic Slum*, ch. 9.

¹¹⁸ 'Yorkshire Dispute', *The Times*, 21 August 1918, The Times Digital Archive, 7.

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 Leicestershire miners condemns the action of the government in putting [an additional 6 shillings] per ton on the price of coal and ... pledge ... to give every support ... to nationalise the mines”.¹²³ Nationalisation would happen, but not until the aftermath of the Second World War.

Despite the current of labour antagonism, the Coal Controller tried to encourage society-wide efforts to save coal during the final stretch of the war. “Every mickle makes a muckle and every little helps to win the war. I should like to see housewives try to do with even 25% less than the ration [allows], where it can be managed, and therefore fewer fires.”¹²⁴ Interestingly, he did not make a general plea for everyone to economize, but rather asked those in larger homes to move to using fewer of their rooms to save on coal. His rhetoric assumed that all households deserved a fire, and that the best way to save coal was for each household to have as few fires as possible. In an era when even middle-class families could often afford servants to tend coal fires around their

¹¹⁹ ‘Truth About Coal’.

¹²⁰ ‘Coal Shortage’, *Daily Telegraph*, 27 August 1918, The Telegraph Historical Archive.

¹²¹ ‘Yorks Strike Over’, *Daily Mail*, 23 August 1918, Daily Mail Historical Archive, 4.

¹²² ‘Mr. Smillie’s Appeal: The Coal Outlook’, *Daily Telegraph*, 15 August 1918, The Telegraph Historical Archive, 3.

¹²³ ‘Leicestershire Miners and Nationalisation’, *Nottingham Evening Post*, 2 December 1919, British Library Newspapers.

¹²⁴ ‘Coal’, *Exeter and Plymouth Gazette*, 15 August 1918, British Library Newspapers.

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 stations if possible in proximity to pit heads” to generate Britain’s energy. These stations were never built, but members of parliament were ready to seriously consider radical changes to Britain’s energy makeup to solve the issue.¹²⁸ The consensus view of the House of Lords at the end of the war was reflected in suggestions that further investment over time were needed to ensure energy generation, but that the crisis was immediate and required a short-term solution.

R. A. S. Redmayne, an official who worked with Calthrop, said

Curiously enough, the provision of an allowance [of coal] for poorer consumers ... resulted in an increase in the quantity of coal consumed by the working classes. There is no doubt that, before the War, the working classes could not in many instances afford a reasonable allowance of coal, and could not obtain it even if they could afford it, but with the inauguration of control and the general rise in the level of the wages of working people, the working classes were able to demand the coal which the Controller attributed to them. The total demand for coal was not therefore reduced so much as might have been expected with the introduction of the rationing scheme... probably at no time has the very small consumer of household coal been better served with coal than he was during the period of control.¹²⁹

This lends credence to the arguments of DeGroot and other historians who allude to increased coal consumption during the Great War.¹³⁰ Indeed, the evidence supports an overall trend of increased access to the primary source of energy, coal, alongside increased access to gas and electricity too as coal rations could be traded for either of these. However, DeGroot’s view is not entirely accurate. He implies that the working class gained access to coal for the first time. The research of Freese and Hatcher shows that coal had long since supplanted timber as a primary source of home heating. Rather than getting access to coal for the first time, the working class gained adequate and secure access to energy for the first time as a result of the war.

Government management of energy resources represented a new level of government

¹²⁸ ‘Dissemination of Enemy Propaganda in the UK, 1914-1918’, 1002.

¹²⁹ Redmayne, *The British Coal-Mining Industry During the War*, 115, 120.

¹³⁰ DeGroot, *Blighty*, 204.

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. Life remained hard, and workers made sacrifices and changes to reduce coal consumption. For example, Bexhill bakers developed a new system to bake bread in common and save 250 tons of coal a year. This change proved to be profitable for them as the scarce resources helped encourage efficient use.¹³² However, examples such as this one demonstrates that much of the burden fell on businesses which the government prioritized behind providing basic heating to domestic consumers.

Ultimately, we can see that the rationing system increased consumption of coal by the working class during the Great War. In this way, rationing contributed to the overall improvement in the standard of living for the working class. Exact changes to consumption of energy are impossible to calculate accurately due to statistical difficulties. However, we can see that evidence from the time signals decisively that rationing increased working-class consumption of coal. The evidence shows that the Great War rationing system brought a new level of access to energy for the working class through redistribution and intervention. Although energy security is normally thought of as national access to energy, we can also think of energy security from the perspective

¹³¹ Harold Perkin, *The Origins of Modern English Society*, (London: Routledge, 2002).

¹³² 'Fewer Deliveries', *The Times*, 10 October 1918, The Times Digital Archive.

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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