

# COAL

## The BURNING QUESTIONS

In January, DEFRA unveiled plans to phase out the sale of house coal. If implemented, these could seriously affect railways' abilities to source suitable coal at an affordable price. **THOMAS BRIGHT** discovers how preservation can fight back.

**I**n the last edition of *Steam Railway*, we explored how the Department for Environment, Food & Rural Affairs' proposals to ban the sale of bituminous coal for household use could have serious unintended consequences for railways and steam preservation (SR489).

In case you missed it – or want to refresh your memory – the Government has committed to reducing particulate matter emissions, and DEFRA has identified households burning solid fuels – such as wet wood and bituminous coal – as “the largest single contributors to national particulate matter emissions”. To tackle this, it intends to (among other proposals) phase out the sale of traditional house coal and encourage users to switch to ‘smokeless’, low-sulphur ovoids instead.

DEFRA has confirmed that railways and other heritage coal-burning institutions will not be banned from burning coal, nor will they be subject to any emissions regulations arising from these proposals. However, the concern is that if the demand for sized, lumped coal that locomotives and other steam-powered exhibits use (and for which the household market represents the largest single consumer) diminishes, heritage coal burners could be left in the lurch as mines cease production of such coal and the distribution network necessary for supplying that coal disappears.

There are fears that railways will be forced to rely solely upon imports, which could cause coal prices to rise exponentially, to the point where railways might have to seriously reconsider how, when and if they can continue to run steam locomotives.

Steve Oates – chief executive of the Heritage Railway Association – believes that DEFRA's proposals “threaten our [coal] supplies and our very existence.” These sentiments are echoed not only by a number of major preserved railways, but also other organisations that represent the heritage coal-burning community.

In short, then, this is an issue which steam preservation as a whole cannot afford to ignore.

But do not despair – all is not lost. While the situation has the very real potential of causing serious damage to the preservation industry if left unchecked, there is hope on the horizon – and there are a number of solutions to the problem.

● See *Coal: in the firing line?* SR489, p70-77.

### ● Good to hear. So, what can we do?

To understand those solutions, let's break down the problems and tackle them one by one. Until DEFRA reveals its formal response later this year to the recommendations outlined in its consultation on solid fuels, no one can say for sure what form its legislation might take. What does seem certain, however, is that a ban of some description on the sale of coal for household use will come into force sooner or later. The adage of ‘hope for the best, plan for the worst’ could not be more prudent, and there are a number of industry bodies fighting on our behalf to protect our right to mine, sell and burn coal.

Firstly, there's the British coal industry itself. It argues that wet wood rather than coal is the main contributor to particulate emissions, and that DEFRA would do better to focus its emissions regulations on this instead.

In its response to DEFRA's consultation on solid fuels, CoalImp – the Association of Coal Importers and Producers – said: “The figures... clearly illustrate that the growing wood market is the major problem, accounting for around 34% out of a total of 39% of such emissions from this sector. By contrast, CoalImp members estimate that emissions of particulates from the burning of house coal account for less than 2%.

“AN UNINTENDED CONSEQUENCE OF CLOSING ALL UK MINES... WOULD BE THE LOSS OF HERITAGE STEAM”

JAMES HERVEY-BATHURST CBE DL, HERITAGE FUEL ALLIANCE CHAIRMAN

“CoalImp calls on Government to look again at the evidence, and at the potential impact on house coal consumers in rural areas, and to reconsider its proposals.”

### What is the heritage preservation industry doing?

A number of organisations have expressed their concerns about what damage the unintended consequences of DEFRA's proposed coal ban will inflict upon the heritage coal-burning community.

The CEO HRA's Steve Oates told *Steam Railway*: “In October, I submitted a reasoned but robust five-page response to the DEFRA consultation with two clear objectives: to see the right of railways to burn coal to be fully preserved, fully exempting us from compliance with whatever controls are imposed on domestic or other coal burning; and to urge that measures – whether planning, regulatory or otherwise – are put in place to ensure the retention of, at least, some limited UK-based mining of

low-sulphur bituminous coal or dry steam coal. This in turn will ensure some certainty of supply and the retention of at least some of the supply and distribution network.”

The latter is essential if we are to protect our ability to source sized, lumped coal suitable for locomotive use.

The HRA has also highlighted the preservation industry's significant, positive impact upon the UK economy. According to the All-Party Parliamentary Group on Heritage Rail's 2013 report, preserved railways contribute an estimated £250 million to the national economy. The HRA calculates that railways employ 4,000 people, 22,000 volunteers and welcome 13 million visitors every year.

At an individual level, the APPGHR's figures indicate that for every £1 spent on a railway, a mean average figure of £2.71 is added to the local economy. For some lines, such as the North Yorkshire Moors Railway, that contribution is even greater; the

The fireman throws another round of coal into the firebox of an '0149' 2-6-2 at Wolsztyn, Poland. Although British railways have imported coal from Poland in previous years, the country has subsequently banned all coal exports.

ANDREW RAPACZ



APPGHR estimates that the line’s economic value to the locality is six times its annual turnover.

The Government is aware of railways’ economic contributions and value, and Members of Parliament are also looking at coal.

One MP who is acutely aware of how important the local railway is to her constituency is Nicky Morgan, MP for Loughborough – headquarters of the Great Central Railway. She is also the chairwoman of the APPGHR, and the group has recently launched its own investigations into coal.

Chris Austin OBE – West Somerset Steam Railway Trust chairman, former WSR plc chairman and APPGHR secretary – says: “the All-Party Group’s interest in coal stems from the HRA’s concerns about future supplies, and was then highlighted by the responses to the Government’s consultation on domestic fuel-burning last autumn. Nicky Morgan spoke at the November HRA conference in Birmingham, and took the view – with [HRA president] Lord Richard Faulkner – that this was something the All-Party Group should look at in more detail.

“Members want to understand the facts and how they might impact on the railways in their constituencies, given their importance to local economy, then understand what options there might be to allow the railways to continue successfully.”

Another organisation battling on our behalf is the Heritage Fuel Alliance. HFA Chairman James Hervey-Bathurst CBE DL says: “The HFA is a lobbying alliance of groups representing users of coal in heritage situations. It has been formed to represent members’ interests to the Government and in Whitehall, and to ensure that coal can still be used in heritage situations.

“On November 7 we met with the DEFRA official responsible for clean air, Bridget Allison, and made the case for heritage coal use, which was accepted, and also for the continuation of the use of UK coal in domestic situations so that the UK mining industry can survive, as heritage consumption would not be enough to allow sustainability. We emphasised that our activities could suffer collateral damage from a lack of UK-sourced coal and that an unintended consequence of closing all UK mines and distributors would be the loss of heritage steam unless importing were economic.

“We have supported our case with evidence of the economic and social value of what we do. We hope to reinforce that claim by meeting a senior Department of Digital, Culture, Media & Sport official, but have not been successful yet in arranging a meeting.

“The HFA recognises the problems we would face if there were no UK coal industry at all, and so a second leg of our lobbying is to work with the coal sector to make the case for domestic coal use also to continue, but that is a harder ask.”

On the same day that the HFA met with Bridget Allison, Lizzie Glithero-West, CEO of the Heritage Alliance – of which the HFA is a member – met with Michael Gove, the Secretary of State for Environment, Food and Rural Affairs, to express her concerns about coal and campaign for the UK coal industry’s protection. It is reported that Mr Gove said these concerns would be considered by DEFRA as it draws up its plans for coal.

In short, there are a number of organisations wielding considerable clout fighting to protect preservation’s right to buy and burn coal, as well as lobbying both DEFRA and the Government to reconsider its proposals.

**That’s encouraging. But what if they don’t succeed?**  
If DEFRA’s proposals are enforced, the biggest problem facing preservation is supply, but even if or when it is instigated, coal is not going to disappear immediately.



Howard Johnson, the former managing director of Johnson Wholesale Fuels Ltd, and who has nearly 40 years’ experience of the coal industry, says: “There is currently approximately 130,000 tonnes of sized house coal sold each year. Therefore, when the ban eventually happens, initially there is going to be a surplus of approximately 100,000 tonnes of coal without a home.”

Preserved railways burn an estimated 26,000 tonnes of coal per year, so this surplus could represent nearly four years’ worth of supply. However, there is a caveat. Howard says: “This material will not disappear overnight, although merchants, importers and others in the trade will be scaling back their coal operations so as not to be left with mountains of unsold stock.”

The preservation industry’s supply of sized, lumped coal is dependent upon the continued demand for such coal from the household market. However, Coallmp says: “The house coal market in the UK is in long-term decline, with sales reducing by between 10-15% per annum.”

Any coal ban would naturally hasten that decline, but with domestic coal production now almost negligible, and the mines which supply the preservation sector expected to close within the next decade, we face the distinct possibility of being totally reliant on imports in the near future.

This in itself is not a bad thing, as railways already use a significant amount of imported coal, primarily from Russia, but it would mean that British locomotives no longer burn British coal – a tradition which can trace its roots back to Richard Trevithick’s

first experiments with locomotion in 1801. Thus, a symbolic piece of preservation would be consigned to the history books.

However, imported coal has its own problems. Howard says: “It is simply not practical to look at shipping sized material from any further afield than Europe, that is to say Colombia, America and Australia for example, as the degradation costs would be astronomical.

“Sized coal can only be shipped in relatively small quantities, that is 3-5,000 tonnes as, once loaded into the vessel holds for transportation, the material self-crushes under its own weight. That is why most sized coal is sourced from reasonably close European countries, or prepared from Panamax vessels that have brought cargoes of 130,000 tonnes of 0-130mm coal, which cushions the lumps.”

This limits the countries from which we can import coal, but Howard adds: “Russia statistically has been one of the UK’s largest suppliers for several years now, and this situation is unlikely to change. Most railways have used some Russian coal and I would envisage that this will be the country of origin going forward, although sourcing the correct coal that suits each and every operation and users’ requirements might be a challenge.”

**Why would using Russian coal be a ‘challenge’? Coal is coal, isn’t it?**

“What works well on some locomotives can be troublesome on others,” explains Tim Cranmer, director of MC Carbon Ltd. “Common to all, though, is the need for a well-screened coal with a size suitable for the firebox. It should produce low ash plus good reactivity, but not so much that it burns away too quickly. It should also be clean burning to keep smoke emissions low, and non or weakly clinking to avoid damage to the firebars.

“Finally, low sulphur and chlorine content will reduce the effects of corrosion.”

◀ ‘Jubilee’ No. 45690 *Leander* passes Hatfield Colliery – then one of the last operational deep coal mines in Britain – on May 30 2015 with the ‘East Yorkshireman’. The mine closed a month later. There are no deep coal mines left. ROBERT FALCONER

▼ A pile of Welsh Ffos-y-Fran coal at Boston Lodge on the Ffestiniog Railway. The FR’s original fleet was designed to burn Welsh coal. THOMAS BRIGHT/SR



Steve Oates says: “Steam engines were designed to run on specific types of coal so the real impact will occur if choice is further reduced by the closure of one or more of the remaining UK mines and/or coal has to be sourced from overseas, making all railways dependent upon one source.”

Most railways tend to prefer Welsh steam coal, of the variety mined at Ffos-y-Fran, because it is slow-burning, low in sulphur, chlorine and volatiles, and makes little smoke. That said, not everybody prefers Welsh coal. Kent & East Sussex Railway operating manager Pete Salmon says: “We have tried Ffos-y-Fran; our main issue is that it is very friable and we find that by the time we’ve tipped it, moved it around the pile to make space and then tipped it into a loco, there’s a huge amount of dust. We find hard coal, such as from Shotton, suits us much better, both from a handling point of view and regarding value for money.”

Railways are fortunate that, currently at least, there are a number of different sources of coal, so they can pick and choose whichever variety best meets their needs. If indigenous supplies run out, and/or we are forced to import coal from abroad, that breadth of choice will become unavailable.

Chris Price, general manager of one of preservation’s single biggest consumers of coal, the North Yorkshire Moors Railway, adds: “In my opinion, the days of having a favourite coal are gone. If it’s black and we can use it to make steam then we will use it, and adapt to do so.”

Another challenge to which Howard refers is distribution. Steve Oates explains: “If burning household coal is banned, this will almost certainly cause a collapse in the distribution and supply network. Heritage users will need to establish a new supply network and/or work with an existing supplier/distributor to establish a supply network just for them.”

While it is unfeasible for railways to unite and either operate their own mine, or agree to buy their coal from one specific mine, both they and other heritage coal burners can get together in a different sort of enterprise which should not only keep costs down, but also ensure that the requisite supply chain is protected.

At the HRA’s autumn management meeting on November 8, Howard proposed the formation of a joint coal-buying syndicate. He says: “What I believe is required is an all-encompassing association of all ‘steam parties’ – not just trains and traction engines – so that we have the maximum input on our fuel choices, suitability and so forth.

“We need to contact each and every heritage coal user and start to formulate, plan and structure an organisation. If we structure a framework now, when any significant changes in the supply

“THERE IS GOING TO BE A SURPLUS OF APPROXIMATELY 100,000 TONNES OF COAL WITHOUT A HOME”

HOWARD JOHNSON, FORMER MANAGING DIRECTOR OF JOHNSON WHOLESALE FUELS LTD





← Could British steam locomotives no longer burn British coal? A fire burns on the grate of '9F' No. 92203 'Black Prince' at the North Norfolk Railway on November 24 2018. THOMAS BRIGHT/SR

“ WE  
CANNOT  
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WITH  
DIESEL ”

CHRIS PRICE,  
NYMR GENERAL MANAGER

chain are implemented, we are ready with systems in place and not caught on the back foot panicking about coal supplies and suitable qualities.

“If we do form such an organisation, our correct mix of working partners will need to have onward relationships with industrial users, as it will be critical to ensure that sized, imported coal – once screened and delivered – has outlets for the undersize material. We will also need to have pre-packing and distribution logistics covered, so that when a user requires a few tonne pallets of pre-packed product, a national distribution and logistics system is in place.”

It is an intriguing concept, and one that already has the backing of the Heritage Fuel Alliance. James Hervey-Bathurst says: “If we are forced to rely on imports and require 35,000 tons a year, then combining to buy and arrange storage and distribution will be essential.”

#### ***Aren't there concerns about prices, though? How do we get around that?***

Dick Wood, PR and business development manager at the South Devon Railway, summarises the problem: “We need to run steam trains as a key part of our overall USP, and if we had to import coal from, say, Columbia, Russia or Poland, then that would almost certainly be at a much higher cost, be of variable size and quality, almost certainly be higher in chlorine and sulphurous content, and prone to impurities.

“If we have to pay between 5-10% more for our coal supplies, then our prices will have to increase to match or we'd risk going out of business, as coal currently comprises circa 8% of our costs.”

As Steve Oates said in Part 1 (SR489): “No one knows how coal prices might be affected, so this creates some uncertainty. Various figures have been suggested, ranging from rises of around 50% up to 400% above current prices.”

If this happens, says Steve, “railways will be faced with a significant financial burden which some may struggle to afford.”

Keighley & Worth Valley Railway locomotive director Ralph Ingham says: “I would suggest that around the £200 per tonne mark touched a few years ago is a threshold beyond which many might struggle.”

More detailed consequences of significantly increased coal prices were laid out in Part 1 last issue, but the fear is that if prices were to substantially rise, it would reduce railways' abilities to invest in their infrastructure, rolling stock and other projects.

However, Chris Price says: “I do not hold that coal will become uneconomical, but I feel that how we use it will change if its price rises massively. The price of coal has actually dropped in recent

years, but obviously the uncertainty now facing us means that what happens next is anyone's guess.”

Nonetheless, there seems to be a pressing need for railways to address how they use coal and mitigate against any price increases, regardless of whether DEFRA's proposals come to pass.

Chris adds: “The obvious way of controlling use is fewer trains. We cannot simply replace steam with diesel; diesel locomotives come with their own environmental challenges and fuel oil isn't exactly a vastly cheaper alternative.

“If coal supply becomes a challenge, railways will have to look at their business model to see if embracing initiatives like online booking are something they should be investing in.

“We will obviously work with the HRA and willing heritage railway partners, but we regard this as such an important issue that we are also working through our own strategy with all our coal-supplying stakeholders.”

Former Kent & East Sussex Railway Chairman Ian Legg says: “Increasing fares for steam trains is one approach, however this will have market resistance. Other measures we need to consider are: reducing the number of trains and miles we run with steam engines; use of the right sized engine for the load; static steam heat equipment (not coal-powered); more efficient driving; and some form of electric pre-warming of engines before service.

“Conversion to oil firing is possible, but this has similar environmental issues and wood pellets don't have the high calorific content needed.”

#### ***What does all this mean?***

Preservation is going to face some serious challenges if DEFRA's proposals are implemented. There is no single answer to the problem, and even if DEFRA's regulations are enforced, we are not up a creek without a paddle – we can still source coal, probably from Russia, but we need to work more closely together to ensure that supply. It may not be of the quality, quantity or price that we are used to, but if we want to continue seeing glamorous express passenger engines thundering over the Settle & Carlisle line, or Great Western autotanks working over idyllic branch lines, then we may have to ‘make do and mend’.

There are a number of ways railways can reduce their coal usage, and we might have to think about implementing new technologies to do this. But until DEFRA publishes its formal response to its solid fuel consultation, no one knows for sure what is going to happen. The cards are very much up in the air, and who knows where – and how – they will fall?

As we said at the beginning of this feature, we need to hope for the best but plan for the worst. **SR**