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# Coal Transition in the UNITED KINGDOM

*An historical case study for the project "Coal Transitions:  
Research and Dialogue on the Future of Coal"*

**2017**



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*This is one of the 6 country case-studies commissioned to collect experience on past coal transitions. The 6 countries are: Czech Republic, the Netherlands, Poland, Spain, UK, USA. Their role in the Coal Transitions project was to provide background information for a Synthesis Report for decision makers, and provide general lessons for national project teams to take into account in developing their coal transitions pathways for the future.*

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## Summary

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The UK has virtually completed its move away from the production and use of coal – an astonishing transformation for an economy that once relied overwhelmingly on coal power. This is however a transformation that was never really ‘planned’ and the move away from coal started long before concerns about climate change achieved political prominence.

Until as late as November 2015, for example, there was no government commitment to phase out coal in UK electricity generation. But it was already happening, and some of the most rapid change was actually in 2016, triggered in particular by the impact of a ‘carbon tax’ which has tipped the economics away from coal to gas-fired generation. A handful of coal-fired power stations will remain on the grid for a few years to help meet peak demand, but to all intents the UK is already entering the post-coal era.

Whether this has been achieved without undue pain to coalmining areas is however deeply questionable. Job losses were for many years managed by a combination

of redundancies and transfers to surviving mines. Redundancy payments, welfare benefits and early access to pensions provided support former miners, and careers advice and training was on offer. Most former miners have now reached retirement age.

The big problem for mining communities has been replacement of the lost jobs. The UK has a long history of efforts to regenerate areas affected by coal closures and there is clear evidence that this has delivered positive results in the form of new jobs. Nevertheless, there continues to be an imbalance in the labour market in the former coalfields, manifest in on-going high levels of worklessness, particularly on incapacity benefits. And where new jobs have been created they have often been low-paid.

## The long decline in UK coal production

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UK coal production actually peaked in 1913, when 1.1 million miners produced 292 million tonnes from 3,024 mines<sup>1</sup>. The whole of this output was from ‘deep mines’ (or collieries).

By the middle of the 20<sup>th</sup> century the UK was still a major coal producer but had lost most of its once substantial export markets. **Table 1** shows UK coal production and

employment between 1960 and 2016. In 1960 the UK produced nearly 200m tonnes a year. By the beginning of the 1980s coal output was still 130m tonnes a year and the mining workforce was still well over 200,000. Thereafter, output and employment declined almost unremittingly. The last UK deep mine closed in December 2015<sup>2</sup>.

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<sup>1</sup> All data from the Department for Business, Energy and Industrial Strategy (BEIS)

<sup>2</sup> A handful of tiny mines with negligible output still survive.

**Table 1.** UK annual coal production, imports and employment, 1960-2016

	Total output m.t.	Deep mine m.t.	Opencast m.t.	Imports m.t.	Employment
1960	198	189	9	0	607,000
1965	192	183	9	0	455,000
1970	147	137	11	0	290,000
1975	129	117	11	5	252,000
1980	130	112	18	7	237,000
1986*	108	90	18	11	91,000
1990	93	73	20	15	49,000
1995	53	35	18	16	12,000
2000	31	17	14	23	11,000
2005	20	10	11	44	6,000
2010	18	7	11	27	6,000
2015	9	3	6	24	2,000
2016	4	0	4	6	1,000

\*1985 data affected by strike. Sources: BEIS and author's estimates for 2016 based on BEIS

There is a commonly held view that the run-down and closure of the UK coal industry was a political decision, prompted by the antipathy of Conservative governments towards the powerful miners' trade union. The political animosity was real enough, most especially during the year-long miners' strike of 1984/5, but there was never in fact an explicit UK government decision to close down the coal industry, in contrast to the situation in some other European countries. Nevertheless, it is probably fair to say that successive governments have been willing to acquiesce in this outcome.

Indeed, from 1995 onwards the UK coal industry was fully in private ownership so it was for private owners to decide whether or not to continue production. Their decisions were driven by the size of the market for coal, the costs of production and the competition from imports – the determinants of profitability. From the 1990s onwards, cheaper imports in particular, mainly from Russia but also the United States and Australia, helped drive down UK coal production. In recent decades too, little if any UK coal has been exported – a reflection of the relatively high cost of coal from UK deep mines compared to lower-cost mainly opencast coal on the world market. The UK's own opencast coal production proved somewhat more resilient than output from deep mines, reaching a peak of 20m tonnes a year in 1990, but has subsequently been squeezed by falling UK markets, competition from imports and the tough environmental and planning controls on opencast sites that are inevitable in a densely populated country.

Opencast coal production has rarely enjoyed public support in the UK and for many years proposals secured planning approval only on appeal, against the wishes of local authorities. Revisions to the planning rules in the 1990s finally began to shift the balance the other way, curbing production, so that more recent opencast mining has occurred only where it causes less disturbance – in sparsely populated parts of Ayrshire for example. In theory all opencast coal sites carry strict restoration conditions. In practice, where operators have gone bankrupt, restoration has been difficult to enforce.

What should be clear however from historical trends is that until its final phase from 2010 onwards, when green initiatives began to have a significant influence on power generation, the decline in UK coal production had little to do with policies to de-carbonise the UK economy.

# The decline in coal-fired electricity generation

The run-down in coal consumption in the UK over recent decades is intimately bound up with trends in electricity generation.

By the beginning of the 1980s, power stations had become by far the dominant market for UK coal. Other historical uses – in rail transport and domestic heating for example – had fallen to negligible levels. Beyond the power stations, only the steel industry remained a significant coal consumer, though one that has also been declining as UK steel production has fallen.

The miners' strike of 1984/5 is often regarded as a watershed and in the five years after the strike the workforce in the coal industry was cut by two-thirds but the volume of coal supplied to power stations held up at 80-90m tonnes a year. **Table 2** shows what then happened to coal consumption, from 1990 onwards, and **Table 3** shows the sources of UK electricity supply from 2000 onwards<sup>3</sup>.

The 1990s, in particular the first half of the decade, saw the first big reduction in power station coal use. This was the result of the 'dash for gas', as it became known, when large numbers of new gas-fired power stations displaced coal. One immediate consequence was a big reduction in UK carbon dioxide emissions (burning gas produces

less CO<sub>2</sub> than burning coal) and the UK's experience in the 1990s has sometimes therefore been portrayed as an early achievement of climate change policy.

This interpretation is inaccurate. The 1990s dash for gas was actually triggered by the particular structure of privatisation of the UK electricity supply industry in the late 1980s. Newly-privatised electricity distributors, initially without any power stations of their own, rushed to build new gas stations, by themselves or in collaboration with partners, in order to free themselves from domination by the big newly-privatised power generators, often signing up to 'take-or-pay' contracts that locked out lower-cost coal-fired generators. If coal consumption and carbon emissions fell, as they did, it was primarily an accidental by-product of this corporate manoeuvring.

Thereafter, in the 2000s, power station coal consumption broadly stabilised. For much of the decade, coal supplied around a third of all electricity generated. Renewables remained a small contributor and the output from nuclear declined as older stations reached the end of their lives. During the 2000s most of the large coal-fired power stations were retro-fitted with equipment to reduce sulphur emissions and thereby meet EU environmental directives. The generally small, less intensively-used stations that failed to do so in effect became time-limited and gradually closed. The possibility of a new coal-fired station (at Kingsnorth) was explored but provoked opposition, and there were schemes for carbon capture and storage at the Yorkshire power stations and in Scotland that foundered because of high costs and the failure to deliver public subsidies. Yet by the end of the decade a dozen large

**Table 2.** UK annual coal consumption 1990-2016

	Power stations m.t.	All coal consumption m.t.
1990	84	96
1995	59	69
2000	46	56
2005	52	59
2010	41	49
2015	29	38
2016	12	18

Sources: BEIS and author's estimates for 2016 based on BEIS

<sup>3</sup> Comparable pre-2000 data is not readily available

**Table 3.** UK electricity supply, 2000-2016, percentages

	Coal	Oil	Gas	Nuclear	Renewables	Imports	TOTAL
2000	31	2	39	21	3	4	100
2005	34	1	39	19	4	2	100
2010	28	1	47	15	7	1	100
2015	21	1	29	19	24	6	100
2016	8	1	43	18	24	6	100

Sources: BEIS and author's estimates for 2016 based on BEIS

coal-fired power stations still formed a key part of the UK electricity system and despite their considerable age there still remained no compelling engineering or economic reason for their run-down or closure.

The really significant change occurred after 2010, and in particular in 2016. Power station coal consumption plummeted – to 29m tonnes in 2015 and an estimated outturn of just 12m tonnes in 2016<sup>4</sup>. On 12 May 2016, for twelve and half hours, coal made absolutely no contribution to Britain's power supplies. This was the first time this had happened since 1882, when the first public coal-fired generator opened in London.

The increase in output from renewables – in the UK context wind, solar and biomass – explains part of the fall in power station coal consumption. UK investment in renewables has mostly come to fruition since 2010, aided by subsidies through electricity prices. The closure since 2010 of the coal-fired power stations that failed to meet EU environmental directives also accounts for some of the fall – though coal consumption is influenced more by how much each power station is used than by the number of stations.

However, the driving factor behind the big recent decline in power station coal use is the UK's carbon tax (or 'carbon price support' as it is called formally), introduced in 2013 and subsequently escalated year-on-year. The carbon tax is levied on CO<sub>2</sub> emissions and provides a strong incentive to decarbonise electricity production, though in reality a significant motivation for its introduction was probably the substantial additional tax revenue at a time when the government was grappling with a large budget deficit.

Nevertheless, by taxing carbon emissions, coal-fired generation is disadvantaged relative to gas-fired generation because coal has a higher carbon content and because modern gas-fired power stations have a higher 'thermal efficiency' (i.e. convert a higher proportion of chemical energy into electricity). The effect, even in a period when coal prices are low, has been to flip the economics of coal and gas-fired power generation. It is now cheaper to run gas-fired power stations in preference to coal-fired stations, consigning the coal stations to a marginal role, to be brought into use only at times of peak electricity demand. In effect, the UK's remaining large coal-fired

stations have been consigned to the role occupied for many years by large and barely-used oil-fired stations. In the UK at least, coal-fired electricity generation is no longer a profitable activity. The remaining coal-fired power stations in the UK are each very big indeed – 2,000MW is the typical capacity, made up of three or four 660 or 500MW units – and they carry huge, fixed overheads. They cannot break even by operating for just a few days a year at times of peak demand. Illustrating the point, in February 2016 one operator offered to pay in excess of £30m to exit a contract to supply electricity from a big coal-fired station that it wanted to close.

Against this backdrop, the UK government announced in November 2015 that it intends to bring an end to 'unabated' coal-fired generation – that is, coal power without carbon capture and storage – by 2025, with minimal coal-fired power from 2023. This may appear ambitious but in fact the UK is already four-fifths of the way there.

The challenge for the UK government is actually to keep the remaining coal-fired power stations open that long, given that the carbon tax has rendered their economics so hopeless. The coal stations are still needed – there is insufficient new generating capacity in the pipeline to offset their closure and thereby prevent power shortages at times of peak demand. Sufficient new gas-fired capacity could not be on-stream until 2022 or 2023 and the present market structure has not proved effective in delivering new projects. New nuclear will not be available until at least 2025. A step-change in the rate of construction of new renewable capacity would help but this is unlikely because of constraints in the planning system. Diesel generators are an option of questionable environmental desirability.

There has been little alternative, therefore, to issuing 'capacity contracts' to keep the remaining large coal-fired power stations on the grid, even if they are little used. Four big coal-fired power stations now have contracts that secure their future through to 2021. A further three may secure shorter-term commitments. If new gas-fired capacity, in particular, fails to come forward the coal stations may have to stay longer.

But while some UK coal-fired generation is set to survive for a few years it is nevertheless just a footnote to the big story. In the UK, coal production has all but ended, coal-fired power generation has fallen to record lows and is on the way out, and coal imports have shrunk to not much more than what is needed to keep the steel industry going.

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<sup>4</sup> The estimates for 2016 are based on the percentage decline between the first two quarters of 2015 and the first two quarters of 2016 (Source: BEIS). In practice this may still overestimate coal use in 2016 because of the closure of coal-fired capacity in spring 2016.

# Measures to ease transition

**Table 4** summarises the measures that have been put in place to ease the transition away from coal production and consumption in the UK.

What must be kept in mind here is that this collection of measures has never added up to a 'strategy', conceived and implemented as a coherent whole to help deliver a move away from coal. Indeed, with the exception of the initiatives targeted at electricity consumers, the measures were never designed as an adjunct to climate change policy. Rather, they have evolved through time in response to political pressure and expediency. Some of the measures indeed, such as the availability of welfare benefits for redundant workers, are deeply embedded in the UK's economic model.

Because coal production and electricity generation have both been in private hands for more than two decades, and because the UK operates an essentially liberal market economy, the consequences for companies in the coal and electricity sectors have not been a significant political concern. Some coal producers, for example,

have simply been allowed to go bankrupt. Rather, the expectation has been that the companies affected will diversify away from coal. Some, in the electricity sector, were already highly diversified.

The consequences for electricity consumers have been a greater concern. In the UK, electricity prices are now higher than they would have been in the absence of 'green' measures, though by precisely how much is unclear in the context of a complex market. The cost of subsidies to renewable energy and the 'carbon tax' appear, for the most part, to be passed on to the consumer rather than absorbed by electricity companies' profits. In particular, energy-intensive industries such as steel, cement, paper, ceramics and some chemical production have complained that 'green' energy charges make production in the UK uncompetitive and encourage 'carbon leakage' – the export of production to other countries where the same or more carbon is emitted. The UK government has responded with a financial compensation scheme and more recently with exemptions from some charges. The

**Table 4.** Transition strategies — Typology (UK)

Compensation or grandfathering (backward-looking)	Structural adjustment assistance (forward-looking, narrow)	Adaptive support (forward-looking, broad)
<b>Consumers/ households</b>		
Energy intensive industries compensated for, then exempted from, selected green charges on electricity prices	Subsidy, now much reduced, for installation of solar panels on domestic and commercial properties	Advice on energy efficiency
<b>Workers</b>		
Lump-sum redundancy payments for miners, varying in value through time but typically worth 6-12 months' wages State unemployment benefits and (in many other cases) incapacity benefits Other welfare benefits	Employment and training advice for ex-miners in the first 6-12 months following redundancy	On-going but declining government funding for the Coal Industry Social Welfare Organisation
<b>Communities</b>		
Revenue Support Grant system compensates local authorities for loss of property tax revenue following closure of mines and power stations	Government-funded colliery site reclamation programme EU Structural Funds target mining areas Assisted Area status for coalmining areas under UK regional policy Infrastructure investment in former mining areas	Government financial support for community projects from Coalfields Regeneration Trust Lottery funding for heritage and community projects Funding for national mining museums
<b>Corporations</b>		
Coal industry state-owned up to 1994 and financial losses absorbed by Exchequer Limited subsidy under EU rules to private coal producers in late 1990s Inherited liabilities on miners' health compensation and on environment met by Exchequer	Market economy allows corporate diversification (e.g. coal power generators move into gas, mining companies into property development)	Low tax, low regulation environment

Source: Table content by the author(s). Table concept by Fergus Green.

concessions to date have however been half-hearted, failing for example to offset the impact of the carbon tax on electricity prices. The UK's energy intensive industries still have legitimate concerns about the consequence of decarbonisation for their commercial viability.

But in the UK the primary concern arising from the move away from coal has been for the workers affected and the places in which they live. More specifically, it has been for ex-miners and former mining communities because the coal-fired power station that closing are far less numerous than the closed collieries and employ fewer workers<sup>5</sup>. The UK's former coalfields are a substantial part of the country with a combined population of 5.5 million, or about 9 per cent of the entire population. They are too large a component of the country to be willingly abandoned and they have traditionally had a strong voice through the trade union movement and the Labour Party. Three points about their local economies are worth logging by way of background.

First, the problems arising from colliery closures extend back a very long way in the UK, at least to the inter-war years when policies were first developed to bring new jobs to what were then called 'depressed areas' – many of them coalfields. From the late 1940s onwards, the UK has had regional policies of varying strengths to promote new economic activities in areas affected by job loss. Well before climate change became a concern, most of the UK coalfields had long had in place measures to strengthen their economies.

Second, the UK is a relatively densely populated country with high car ownership. This means that, with a few exceptions, most UK coalfield communities are not unduly remote or isolated. Within reason, there has been the opportunity to commute to nearby towns and most former mining communities function as part of wider sub-regional economies.

Third, the coal industry was never the sole employer in the UK coalfields. By the last third of the 20<sup>th</sup> century, in most areas coalmining took place alongside other activities, if not in the same town or village then nearby. At the beginning of the 1980s, around a quarter of all men in employment and living in the UK coalfields worked in the coal industry<sup>6</sup>. In parts of South Yorkshire the

proportion was as high as 70 per cent but in Lancashire and North Staffordshire, where coalmining took place in a more urban context, it was around 10 per cent.

Even so, the disappearance of a quarter of a million coalmining jobs since the early 1980s, from places where the industry was a large and sometimes dominating employer and where there had mostly been a long history of unemployment and job loss, was always going to be a cataclysmic blow to local communities.

For the ex-miners themselves the blow was softened by lump-sum redundancy payments, generally going well beyond the statutory minimum. Advice on alternative employment and training was also provided, initially by British Coal Enterprise (an offshoot of the then state-owned coal company) and latterly by government working in partnership with the private coal companies. In practice this often consisted of little more than careers advice and signposting to local job vacancies. A minority were funded on training courses, generally of short duration, to help them move into industries such as construction and haulage.

During the 1980s and 90s, when the biggest job losses occurred, the closures were usually managed so that those who preferred redundancy were allowed to leave while those who wanted to stay in the industry were transferred to mines that remained open, usually within commuting distance. This broke down as the mines became fewer in number and the opportunities to move dwindled, and 'voluntary' is perhaps not an apt description for redundancies that often happened under duress. It was however a model that served management well by easing the resistance to closures. In effect, redundancy generally happened to the miners most willing to acquiesce in this outcome. In practice, an older generation of miners mostly left the industry and with the support of welfare benefits, redundancy money and perhaps early access to a coal industry pension left the labour market altogether. Younger workers stayed on for longer or when they did leave the industry they often moved into other work, though not always as well paid. The miner who lost his job in the 1980s or 90s has typically now reached state pension age. The men made redundant in the more recent closures have mostly been older too, sometimes not far off retirement, having moved from mine to mine over twenty or thirty years.

So the ex-miners themselves have not been the heart of the problem. Rather, in the UK it has long been recognised that if large numbers of jobs are lost from an area it creates a job shortfall in the local labour market that has

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<sup>5</sup> A typical large coal-fired power station in the UK employs around 500 on site, including contractors.

<sup>6</sup> C Beatty, S Fothergill and R Powell (2007) 'Twenty years on: has the economy of the UK coalfields recovered?', *Environment and Planning A*, vol. 39, pp. 1654-1675.

the potential to persist over many years. The ex-miner may find new work, but if there are not enough jobs in total he will often do so at the expense of another local jobseeker, thereby transferring unemployment from one individual to another. A father may welcome redundancy as his employer closes, but that job is no longer available for his son or daughter.

In the UK the prime focus has therefore been on the regeneration of the economy of the former mining areas. A raft of measures have been in place by central and local government and indeed by the European Union, though not in any way automatically. These are initiatives that were sometimes hard-won and the result of sustained political pressure, notably from the national association of local authorities in Britain's coalmining areas<sup>7</sup>. The Coalfields Task Force, established in 1997 by the in-coming Labour Government and reporting the following year<sup>8</sup>, gave an important one-off boost to coalfield regeneration efforts.

Since the 1990s, the four most significant coalfield regeneration measures have been:

- **Colliery site reclamation.** This has been about bringing land back into productive use for housing and industry as well as cleaning up the environment. The programme in England<sup>9</sup> covered 107 former coal sites, involved more than £800m in public funding up-front (£400m after revenue from sales) and levered-in in excess of £2bn in private sector investment.

- **EU Structural Funds.** The EU has part-financed a vast range of regeneration schemes in the UK's less prosperous areas, including investment in infrastructure, training and business support. The former coalfields have been major beneficiaries and the former South Wales coalfield presently still benefits from top-priority 'Less Developed' region status.

- **Assisted Area status.** This enables the UK government and the devolved administrations, working within EU state aid rules, to provide financial support to companies towards the cost of investments that create or protect jobs in less prosperous areas like the former coalfields. It has proved a key tool in delivering inward investment.

- **Infrastructure investment.** This includes investment by the UK government, devolved administrations, development agencies and local authorities in new roads and in new commercial and industrial sites, and has generally been a pre-condition to new economic development in former mining areas where the previous infrastructure was geared to the coal industry.

There have in addition been a number of initiatives to help rebuild the social fabric of mining communities, where the coal industry and the facilities it provided were once the focus of daily life. The initiatives include the Coalfield Regeneration Trust, a government-funded grant-giving body which has disbursed around £150m to community projects.

## Has coalfield regeneration worked?

Experience demonstrates that the UK coalfields are not beyond economic, social and environmental regeneration. The evidence on employment for example is that while the number of jobs in the coal industry fell by 225,000 between 1981 and 2008 in the English and Welsh coalfields, the number of male jobs in other sectors in the same places increased by 180,000<sup>10</sup>. This is clear evidence of successful economic regeneration.

At the local level the situation is more complex. Some former coalfield areas have more than made up for the loss of mining jobs. This tends to be true of the smaller coalfields in Kent and parts of the Midlands where the number of jobs lost was lower and where the surrounding economy is relatively prosperous. In South Wales, Ayrshire and Northumberland – all more remote – job replacement has been less impressive.

<sup>7</sup> The Coalfield Communities Campaign (CCC) was formed in 1985 by local authorities in Britain's mining areas to press for regeneration funding and support in the wake of coal job losses. In 2007 CCC became the largest component of a new, wider local authority association, the Industrial Communities Alliance, which continues to press for regeneration.

<sup>8</sup> Coalfields Task Force (1998) *Making the Difference: the Coalfields Task Force report*, DETR, London.

<sup>9</sup> Scotland and Wales have operated their own schemes of land reclamation

<sup>10</sup> M Foden, S Fothergill and T Gore (2014) *The State of the Coalfields*, CRESR, Sheffield Hallam University

Additionally, many of the new jobs are less well-paid and often less secure than the jobs in the mines. This is particularly noticeable in the large former coalfield straddling Yorkshire, Nottinghamshire and Derbyshire, where a central location within Britain has attracted large numbers of national distribution centres and warehouses, many onto former colliery sites. Low pay is also noticeable in the places around the country where work in call centres has replaced the mines. Median earnings in the UK's former coalfields are on average 7-8 per cent lower than the national average, and 20-25 per cent behind the level in London and the South East, the most prosperous part of the country<sup>11</sup>. Coalmining itself was typically one of the best paid of all manual jobs in the UK, so its loss has been felt more acutely than these figures suggest.

The number and quality of replacement jobs is however only part of the story. The problem is that even before the coal job losses started in earnest in the 1980s, these areas already suffered from high unemployment, at least in part because of previous mining job losses. Additionally, their economies needed to grow to absorb the additional labour supply arising from an increase in the population of working age, rising labour market participation among women and, more recently, international in-migration. The evidence is that the UK's coalfield economies have failed to grow fast enough and that on a whole range of socio-economic indicators they still lag badly behind regional and national averages<sup>12</sup>. Claimant unemployment – the number out-of-work claiming unemployment benefits – is a poor guide. Claimant unemployment is actually lower now in mining areas than when the mines were working, which is sometimes used to argue that the job shortfall has been eliminated but is in fact profoundly misleading.

What has actually happened in response to coal job loss – and in response to industrial job loss elsewhere in the UK as well – is that large numbers of working age men and women have been diverted out of the labour market altogether into 'economic inactivity'. In particular, they have been diverted from unemployment benefits onto incapacity benefits and in effect have become 'hidden unemployed'. These are men and women with health problems or disabilities who could have been expected to be in work in a fully employed economy but in difficult labour market like the former coalfields have been parked on incapacity benefits instead.

The scale of this diversion is remarkable and the for-

mer coalfields are the epicentre of the phenomenon<sup>13</sup>. Across Britain as a whole in 2016, 2.5m adults of working age were out-of-work on incapacity benefits (these days Employment and Support Allowance) compared to just 800,000 claiming unemployment benefits. In the former coalfields, the incapacity claimant rate averages between 8 and 9 per cent of all adults between the ages of 16 and 64<sup>14</sup>, peaking at 11 per cent in the large South Wales coalfield. This compares with a national average of 6 per cent, and a claimant rate as low as 3 per cent in the most prosperous parts of the UK.

The former coalfields have above average levels of incapacitating ill health, not least because of higher exposure to the damaging effects on health of working in the coal industry. However, this cannot explain the high numbers out-of-work on incapacity benefits, not least because so many of the ex-miners themselves have now reached state pension age and therefore dropped out of the incapacity numbers. Also, it is striking that the surge in incapacity numbers only happened after the pit closures, whereas when the pits were still working the numbers were far lower and far more men were actually exposed to the ill-effects of working in the industry, especially in an era when the standards of health and safety in the mines were lower.

The point is that job loss from the UK coal industry has resulted in near-permanently higher worklessness in the former coalfields, but mostly not in conventional forms. Initially much of the withdrawal from the labour market onto incapacity benefits was among the ex-miners themselves. As they gradually reached state pension age, normal competitive forces in difficult labour markets like the coalfields, where there have not been enough jobs to absorb all the potential workforce, have then squeezed out substantial numbers of men and women in the generations behind them.

Ill health or disability is not necessarily a bar to employment but it is one of the great discriminators in the labour market, helping to determine who works and who doesn't. If ill health or disability sits alongside poor qualifications, advancing age and low-grade work experience, the chances of finding and keeping work are slim,

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<sup>11</sup> M Foden, S Fothergill and T Gore (2014) *op. cit.*

<sup>12</sup> M Foden, S Fothergill and T Gore (2014) *op. cit.*

<sup>13</sup> See for example C Beatty and S Fothergill (2005) 'The diversion from 'unemployment' to 'sickness' across UK regions and districts', *Regional Studies*, vol.39, pp. 837-854.

<sup>14</sup> M Foden, S Fothergill and T Gore (2014) *op. cit.*

especially in a difficult labour market. In the former coalfields, these men and women, mostly now with no direct connection to the coal industry, have been diverted onto incapacity benefits. They have mostly give up looking for work – a seemingly hopeless task – and become classified as ‘economically inactive’. In the former coalfields of England and Wales, the number of working age men who are ‘economically inactive’ is still 150,000 higher than at the start of the 1980s<sup>15</sup>. A number of other statistics<sup>16</sup> underline the continuing employment shortfall:

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<sup>15</sup> M Foden, S Fothergill and T Gore (2014) op. cit.

<sup>16</sup> M Foden, S Fothergill and T Gore (2014) op. cit.

- In every individual UK coalfield the ‘job density’ – the ratio between the number of jobs in the area and the number of working age residents – is below the GB average
  - Across the UK coalfields as a whole in 2012 there were just 50 jobs for every 100 residents of working age
  - In the larger coalfields, the employment rate – the share of adults of working age with jobs – is 5-10 percentage points below the level in South East England
  - The business stock and the business formation rate in the coalfields are both well below the national average
- What all this evidence tells us is that although economic regeneration in the UK’s former coalfields has proved possible, the task is far from complete.

## Lessons from the UK experience

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There are inevitably aspects of the UK’s move away from coal that are unique to the UK and offer little guidance to other countries. In particular, the decline in UK coal production and use clearly long pre-dates widespread concern over climate change. Except perhaps in its final stage, the decline and fall of UK coal has not been driven by climate change policy. That said, there are probably four key lessons from the UK experience.

First, the UK demonstrates that it is possible for a large, mature economy to move away from coal. That the UK should have done so or, more accurately, should be on the brink of doing so, is all the more remarkable because the UK’s industrialisation from the 18<sup>th</sup> century onwards was so heavily dependent on coal. In electricity generation, this dependence on coal lasted until quite recently. Second, the UK shows that electricity markets can be structured to deliver a shift away from coal. This happened first in the 1990s ‘dash for gas’ and latterly as a result of subsidies to renewables and the ‘carbon tax’. The shift from coal in power generation has taken place despite low coal prices (in recent years in the UK, low prices for imported coal) and in the context of privately-owned energy companies and remarkably little central planning. The ‘carbon tax’ has arguably been the single most important factor because it has so dramatically shifted the terms of competition between coal and gas-fired power stations. That this tax would have such a major impact so quickly was perhaps not widely fore-

seen. Its radical impact has however been possible only because the UK has access to substantial gas supplies, because the UK had a substantial cohort of existing gas-fired power stations that could be used more intensively, and because UK consumers have been able to absorb the resulting higher electricity prices.

Third, the UK shows that coal industry redundancies can be managed sensibly. Let us be clear here: the job losses from the UK coal industry still caused immense distress and could have been handled far better. More forward planning and longer notice of closure would have helped a great deal. Nevertheless, the process whereby some miners opted for redundancy while others transferred to surviving mines worked very effectively for a number of years and the financial package available to ex-miners – redundancy payments, welfare benefits and pensions – averted much of the worst hardship.

Fourth, the UK shows that rebuilding the economy of former mining communities takes a long time. The rebuilding is necessary because the problem does not disappear when the ex-miner himself finds a new job, moves away or retires. The disappearance of the coal industry leaves a big hole in local economies. The UK probably has a longer engagement in coalfield regeneration than anywhere else in the world, yet the task remains unfinished. The lesson is that there is no quick fix.

## **COAL TRANSITIONS: RESEARCH AND DIALOGUE ON THE FUTURE OF COAL**

*COAL TRANSITIONS* is a large-scale research project led by Climate Strategies and The Institute for Sustainable Development and International Relations (IDDRI) and funded by the KR Foundation.

The project's main objective is to conduct research and policy dialogue on the issue of managing the transition within the coal sector in major coal using economies, as is required if climate change is to be successfully limited to 2°C.

THIS PROJECT BRINGS TOGETHER RESEARCHERS FROM AROUND THE GLOBE, INCLUDING AUSTRALIA, SOUTH AFRICA, GERMANY, POLAND, INDIA AND CHINA.

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