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Coal Transition Insights:
- UK coal plant closures
- Coal regions and Innovation

Symposium on a just coal transition for South Africa

Cape Town, 27 February 2019

Insights from the UK coal phase out experience

Chris Littlecott, E3G

27 February 2019

UK coal phase out policy and progress

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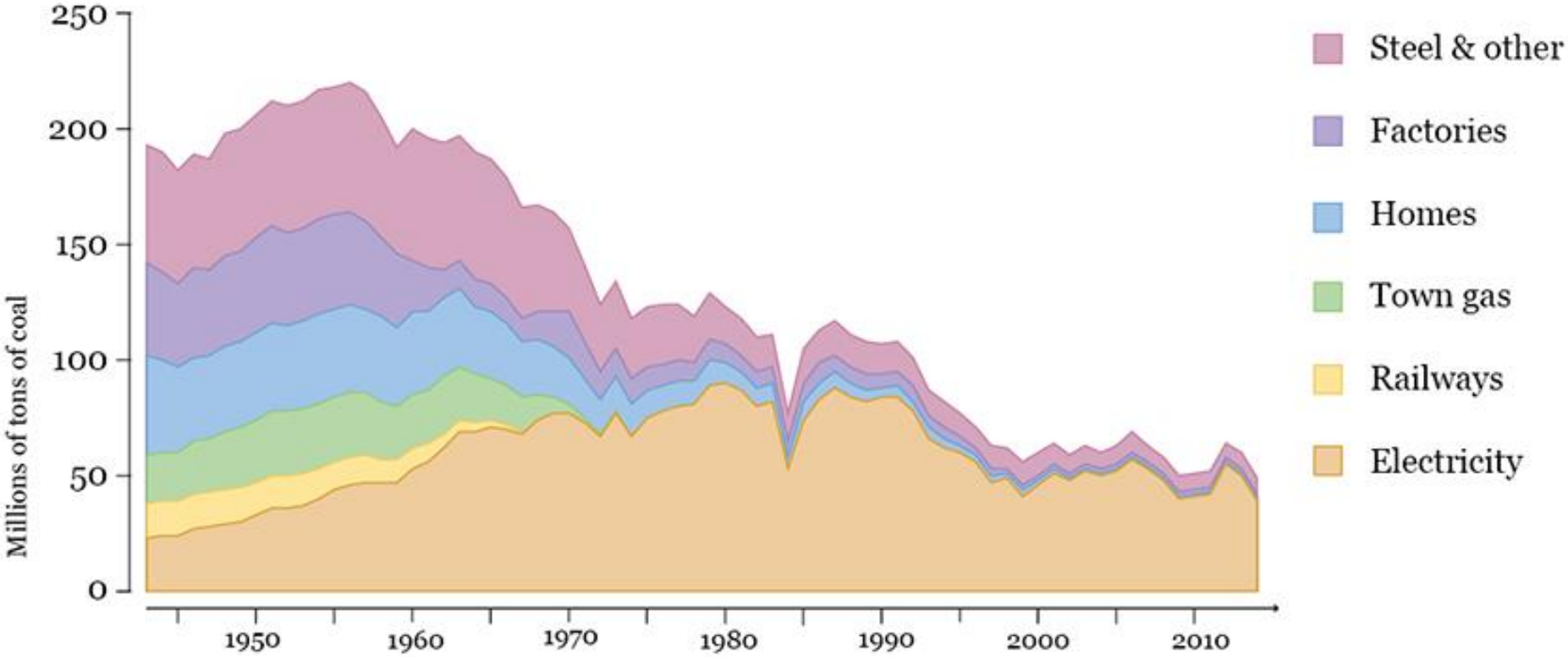
- In November 2015, the UK government was the first to commit to a national coal phase out policy, which will see coal-fired electricity generation cease by 2025. The subsequent decline in coal generation has been rapid:
  - May 2016 saw the first period without coal in the GB electricity mix, lasting for just over five hours.
  - GB saw first 24-hour period without coal in April 2017.
  - The current GB record for continuous coal-free generation is 76 hours.
  - Coal free hours have tripled each year since 2016: 1800+ hours in 2018.
  - Coal provided just 7% of UK electricity in 2017.
  - The decline in coal use has coincided with the UK's renewable sector providing record amounts of electricity, with more than 7.4% coming from solar alone over the summer of 2018.

Historical importance of coal in UK

- 1950: 97% of electricity, 90% of primary consumption.



Source: **Carbon Brief** *calculations using figures from the* ***Department for Energy and Climate Change*** *and* ***European electricity use data***

Phases of investment in generating technologies

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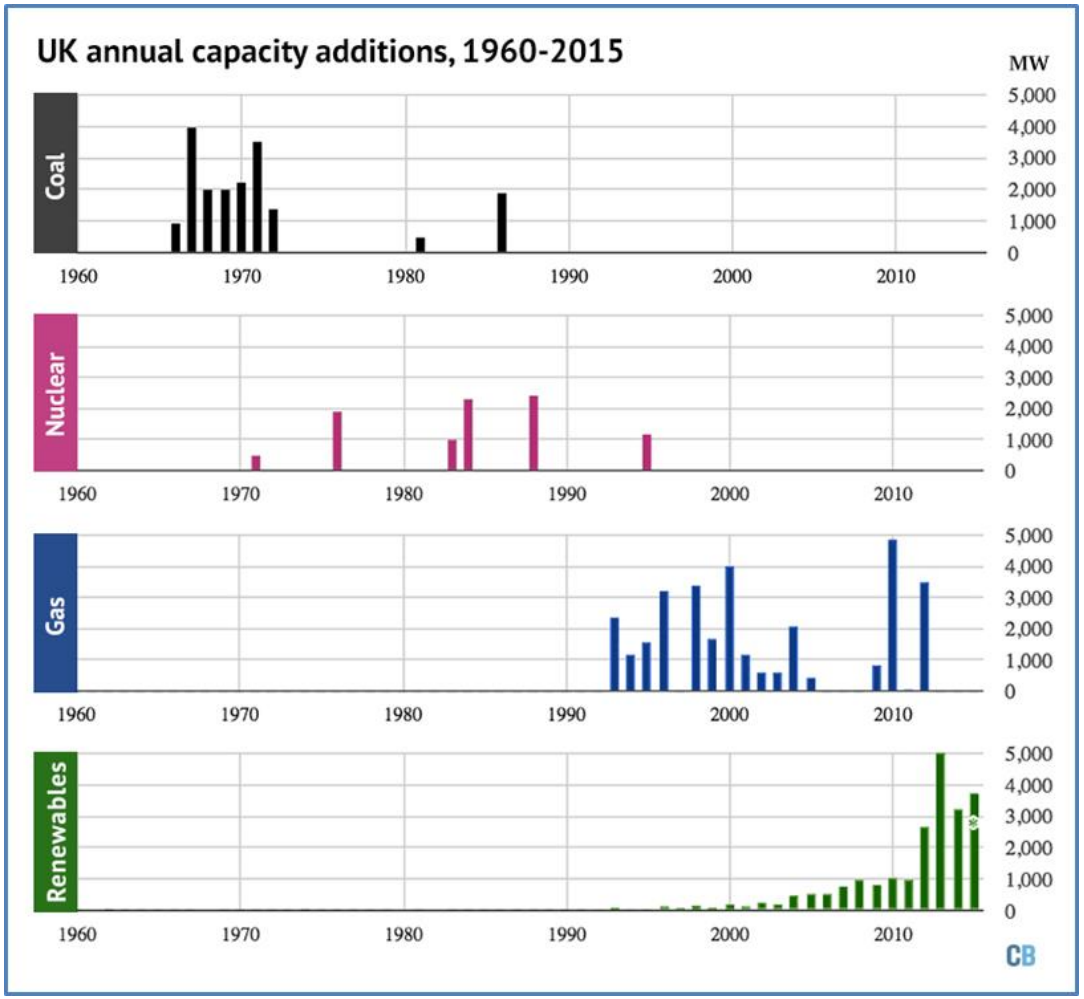
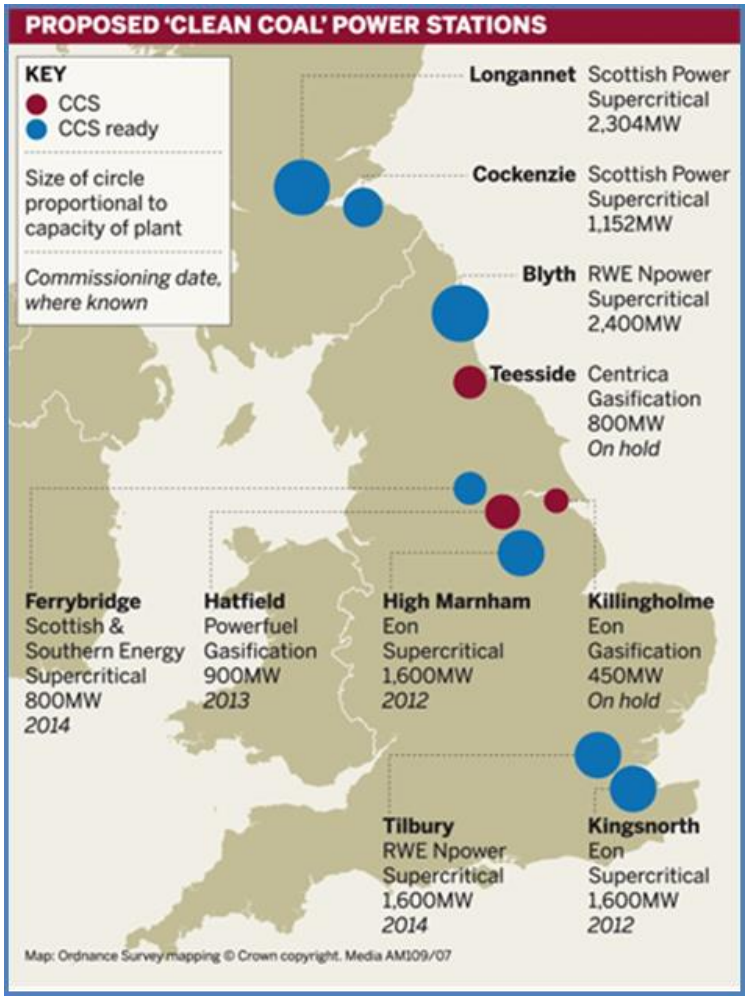
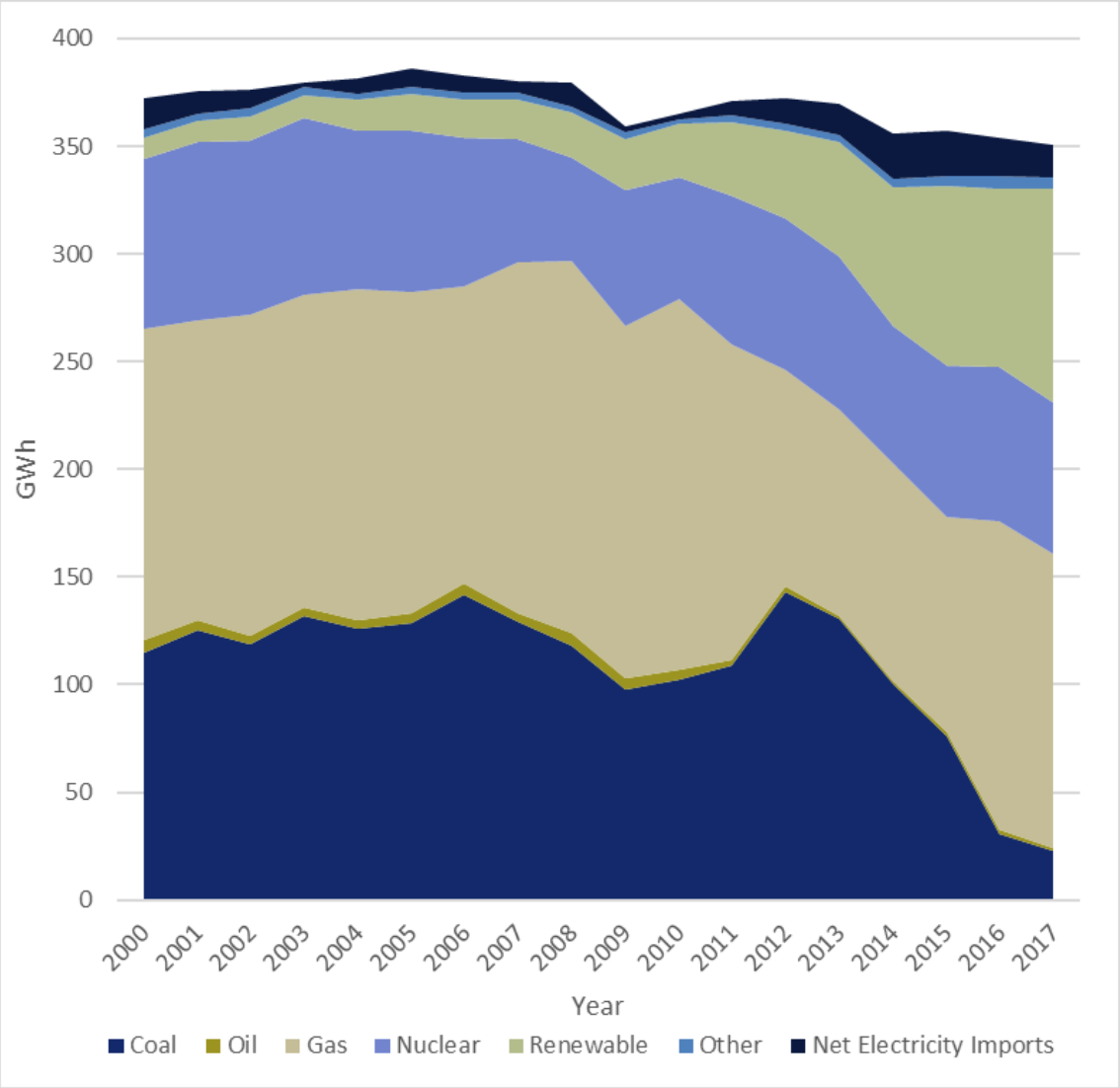


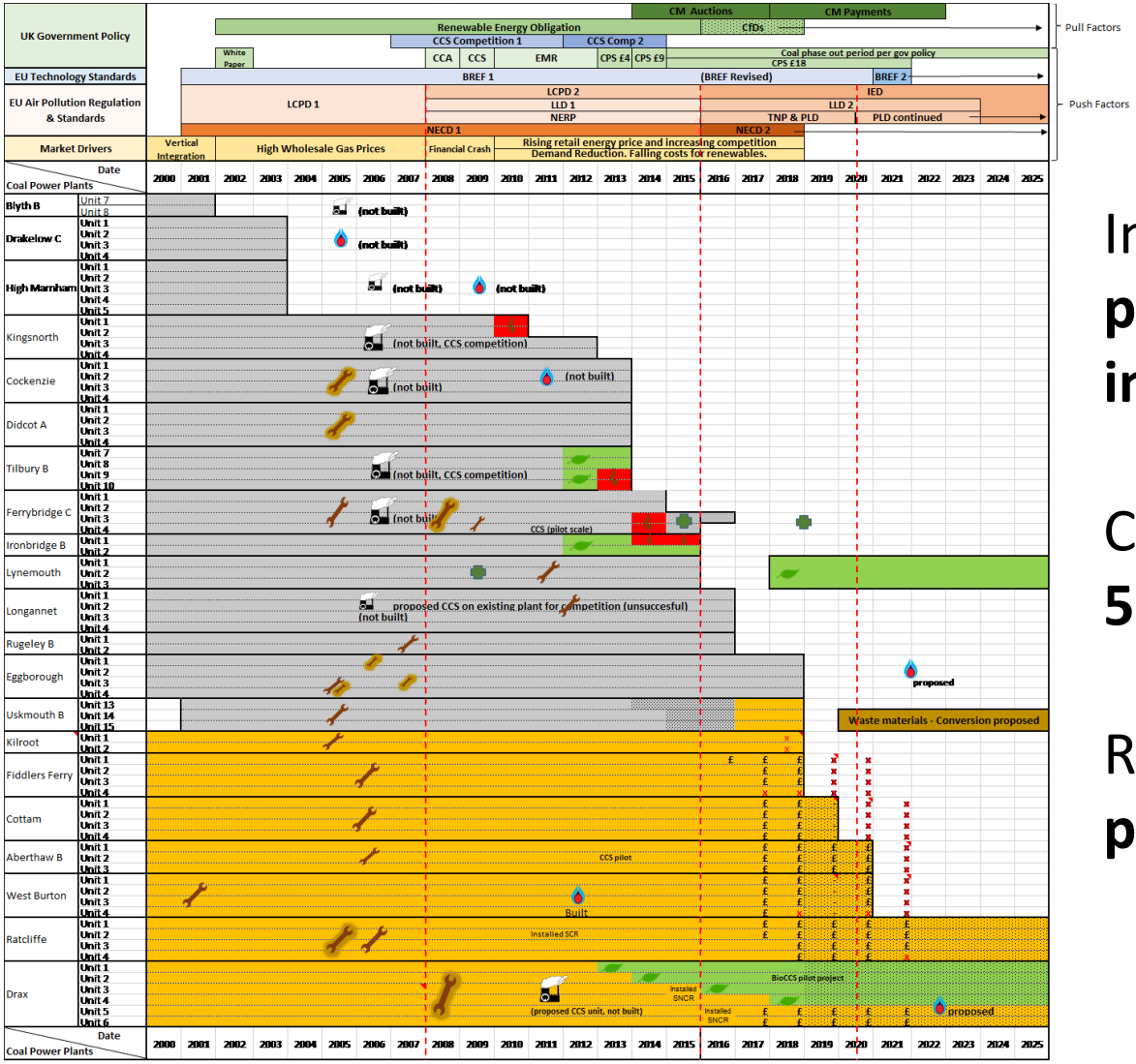


UK generation by source



- Overall reduction in demand continued due to energy efficiency gains.
- Growth in renewables and interconnection.
- Existing gas capacity has seen higher load factors, but very limited additions of new capacity.
- Coal capacity reduced instead of pollution control upgrades.
- Coal generation reduced due increased carbon price.

Review of UK coal power plants



In 2000: **21 power plants, 76 units, 33GW installed capacity**

Closed: **13 power plants, 50 units, 21GW**

Remaining: **8 power plants, 26 units, 12GW**

Options not taken…

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- Initial instinct was to pursue new coal power plants: 7 proposed on existing sites, but none were built
- This incorporated consideration of CCS, including two government competitions for funding:
  - CCS technically deliverable
  - But difficult and expensive
  - Alternatives easier and cheaper
- Parallel shift to consider new gas CCGT, but majority not built and projections falling
- Increasing market focus on flexibility

Alternative uses of sites

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Rugeley coal plant to be transformed into a sustainable village

Energy firm plans to build 2,000 homes powered by solar panels on the Staffordshire site

▲ Super efficient homes are to be built on the Rugeley coal power plant site. Photograph: nagelestock.com/Alamy

An old coal power station is set to be transformed into a "sustainable village" of 2,000 homes powered by solar panels, in the biggest redevelopment yet of a former UK power plant.

French firm Engie said it had decided against selling off the Rugeley site in Staffordshire and would instead build super efficient houses on the 139-hectare site as part of its bid to "move beyond energy".

Half of the energy required by the new homes will come from green sources, predominantly solar, which will be fitted on rooftops, in a field and even

Key Conclusions

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Coal plant conversion has been a minority strategy:

1. The preferred option of generating companies has been **continued operation** of existing coal power plants, until this becomes uneconomic due to market performance, age of components, and / or the need for significant upgrades to meet environmental regulations.
2. In the majority of cases, coal power plants have then pursued **closure**, with consideration of new developments on site.
3. Only in a minority of cases have existing coal power plants opted for **conversion** to operate existing power plant assets using alternative fuels.
4. Operators have sought to redeploy staff to other roles within the company and / or have offered retirement and retraining.

Regional Coal Transitions:
Transformative Change through Innovation

Study commissioned by Climate-KIC

Authored by E3G Berlin

Comparing Regional Coal Transitions

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Key variables:

- ✓ Stage of the transition
- ✓ Political vs. market-driven transition
- ✓ Key stakeholders – champions and veto players
- ✓ Innovation measures
- ✓ Social support schemes
- ✓ Access to finance and public investment

Case study locations:

1. South Limburg, Netherlands
2. Alberta, Canada
3. Ústecký kraj, Czech Republic
4. Upper Nitra, Slovakia
5. South-West Oltenia, Romania

Highlights

- The transitions studied were primarily driven by **high economic pressure on coal**, whilst climate concerns play a more indirect role. Economic diversification and availability of natural resources often play important roles.
- When transition strategies foresee the phase-out of coal**, re-employment and re-skilling of the existing workforce** is more important than attracting new workforce to the region. When transition strategies centre on economic diversification, measures focus on **enhancing employment opportunities**.
- In the coal regions studied, **public measures to foster innovation prevail** as regional innovation and technology capability is often low.

Examples of innovation measures

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Political **measures to support innovation** in the transition regions :

- Creation and development of **higher education institutes**
- Support for **R&D** (e.g. Alberta Carbon Conversion Technology Centre)
- Support for **entrepreneurship**
- Provision of **venture capital** (e.g. Limburg Investment and Development Fund)
- Establishment of **funds supporting innovation** (e.g. Limburg Investment and Development Fund, Alberta's Energy Innovation Fund)
- Introduction of an **economy-wide carbon price** in Alberta

Champions and veto players 1/2

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Transition strategies were developed with incumbent actors in all cases studied, whilst new actors play little to no role.

- In most cases, the transition is driven by **local / regional authorities**.
  - In Czech Republic, the coal mining regions approached the national government for help in restructuring the regional economy.
  - In Upper Nitra, the action plan was initiated and developed by local stakeholders and then taken to the national level.
  - Only in South Limburg the **national government** initiated and implemented the transition.
- **Mining and power companies** play a major role and have a lot of political leverage. In South Limburg, the Dutch State Mines successfully adapted to the new circumstances and transformed into chemical company DSM.
- **Organized labour** is often a key actor, aiming to protect old and/or secure new employment opportunities (e.g. South Limburg 'No closure without new employment').

Champions and veto players 2/2

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- The role of **regional development agencies** differs. In Romania, they have an active role as managing authorities for EU regional development funds and initiated smart specialisation strategies.
- **Academia** supports transition processes in some cases.
- Similarly, **start-ups or new businesses** do not play a visible role in the cases studied, even though potentially influential actors could be identified.
- **Civil society organizations** often initiate discussions on transitioning away from coal. However, particularly in many Central and Eastern European countries, civil society struggles with adequate organizational capacity and a lack of access to decision-makers, making it difficult to influence the process.

Conclusions

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- Future transitions **won't be driven by market developments alone** but by the necessity to reach climate targets. This will put pressure on politics to shape this change and establish frameworks to guide transitions.
- **Stakeholder engagement depends on regions but needs to move beyond incumbents** when developing transition strategies. Incumbent actors shaping the transition may lead to contradictory developments (e.g. campaign for a pro coal mayor in Prievidza, Slovakia).
- The **role of new actors can be enhanced** but this depends on regional context as well as access to funding and support. New actors might become particularly relevant in regions where the government lacks the will to initiate a transition.
- There is **no blueprint for supporting innovation** in transition regions. Existing cases provide a toolbox, but solutions need to be developed at the local/regional level. Measures for retraining need to consider circumstances and skillsets of miners and plant workers.

Case 1: South Limburg, Netherlands

- South Limburg was **one of the first European regions to successfully phase-out its coal mining activities** (hard coal). Coal used to be major source of energy supply for Dutch households and companies.
- The **transition** was managed over a period of 25 years from **1965 to 1990**. A plan for the gradual closing of mines was announced in 1965 by the federal government. At the time of the announcement, the coal mines provided 53,000 direct jobs. The last mine closed in 1974.
- The phase-out was driven by worsening market conditions for coal and the discovery of Europe's largest natural gas field in the north of the Netherlands in 1959. From 1963 onwards gas began to quickly displace coal in the market.
- Economic restructuring of the region resulted in the **successful establishment of new sectors**, such as healthcare, trade, industry, business services as well as higher education institutes.

https://en.wikipedia.org/wiki/Limburg_(Netherlands)#/media/File:Limburg_in_the_Netherlands.svg

Case 2: Alberta, Canada

- Alberta is the **largest producer of coal-fired electricity** in Canada, 47% of its electricity is produced from coal. In 2014, lignite accounted for 78% of the coal produced. The coal sector provides 2000-3000 direct jobs. The province has massive oil and gas resource potential.
- Most of Alberta's coal plants will retire by 2030 because of a regulation passed in 2012 under the **Canadian Environmental Protection Act (CEPA)**. In 2016, the Canadian government pledged to phase-out coal by 2030. It is a co-founder of the Powering Past Coal Alliance.
- In **2015**, the Government of Alberta adopted the **Climate Leadership Plan (CLP)**, which introduces the phase-out of emissions from coal power by 2030, an economy-wide carbon price and a renewable energy target (30% by 2030).
- The plan is complemented by transition programmes and funds for affected workers and communities as well as by a Climate Change Innovation and Technology Framework (CCITF) to foster innovations for the CLP.
- Following the Federal Court of Appeals ruling against the Trans Mountain Pipeline expansion in August 2018, the Alberta government announced its intention to pull out of the Pan-Canadian Framework on Clean Growth and Climate Change but it remains committed to its CLP.

https://de.wikipedia.org/wiki/Datei:Alberta_in_Canada.svg

Case 3: Ústecký kraj, Czech Republic

- Czech Republic relies heavily on domestic coal to meet its energy needs (50% in 2014). Ústecký kraj is the country's **main lignite mining region**, providing 7,000 direct jobs.
- At the EU level, Czech Republic has often cooperated with the **Visegrád Group**. However, it also deviates from Poland, the most powerful state within the group, on some issues and takes a more progressive stance.
- Czech Republic does **not have an official coal phase-out date** but the national energy strategy assumes a substantial decrease of coal.
- In **2017**, the central government adopted the **RE:START strategy for the economic restructuring** of the country's main mining regions as these are also the poorest regions.
- RE:START is not a climate policy instrument. It is a programme with the goal to diversify the regional economy, improve the training of the workforce and increase the share of high-value added industry.

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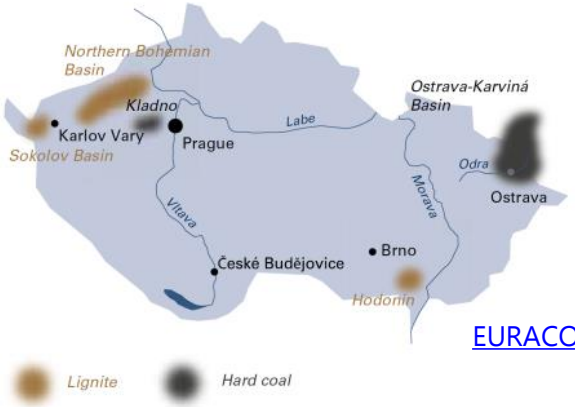

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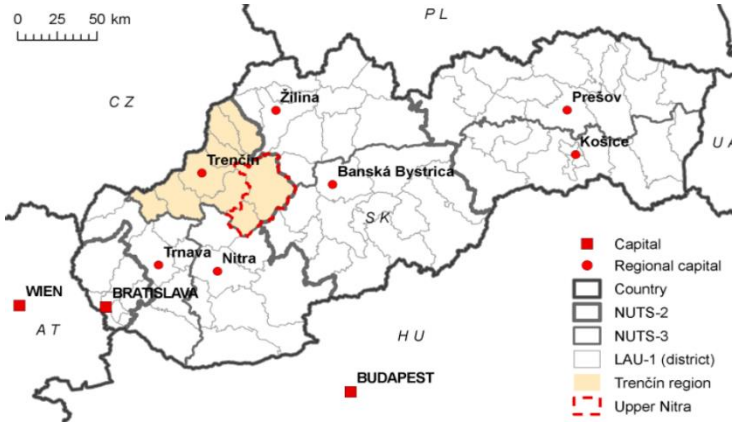
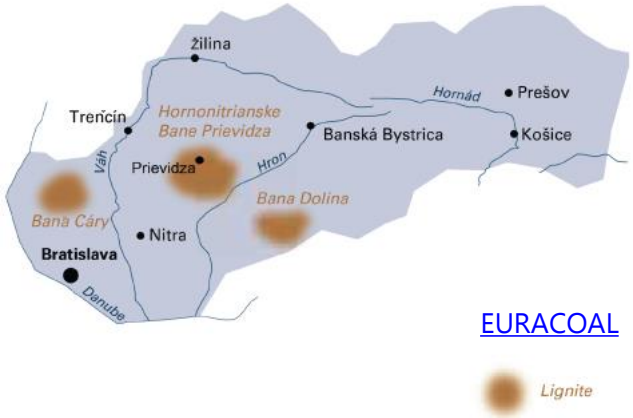
Case 4: Upper Nitra, Slovakia

- Coal supplies less than 12% of Slovakia's power production. Upper Nitra region is the **country's main lignite area.** Estimates of direct mining jobs vary between 700 and 1,700 jobs.
- At the EU level, Slovakia often allies with the **Visegrád Group**. However, it also deviates from Poland on some issues and takes a more progressive stance.
- A **coal phase-out is under discussion** at the national level and considered viable. In November 2018, the government decided to end the lignite feed-in-tariff by 2023, however, this does not necessarily imply an end of coal mining and firing.
- In **2017**, regional and local stakeholders have started developing an **action plan for the post-coal development of Upper Nitra**. Final action plan should be ready at the beginning of 2019 and approved by national government in April 2019.
- Trenčín (of which Upper Nitra is part) is a **pilot region of the EU's Coal Regions in Transition Platform.**



European Commission 2018



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Case 5: South-West Oltenia, Romania

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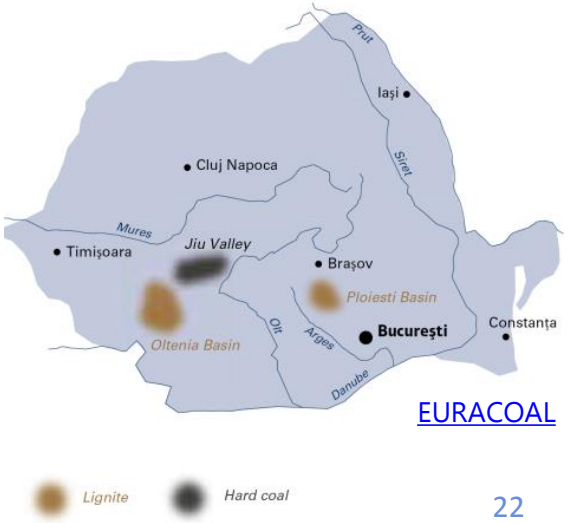
- Coal accounts for 25% of the energy produced in Romania. Oltenia is the **country's main lignite area.** Its coal sector provides 13,100 direct jobs.
- The phase-out of hard coal mining in the **Jiu Valley** is almost completed (from 50,000 mine workers in 1989 to 4,700 today), but despite support from World Bank no long-term economic or social programmes accompanied the transition. The Jiu Valley is a **pilot region of the EU's Coal Regions in Transition Platform.**
- There is **no phase-out of lignite under discussion**. Coal is considered crucial for ensuring the stability of the energy system and the coal sector is heavily subsidised.
- Romania has an exceptionally **high potential for additional renewable energy capacities**. Potentials overlap with current high-carbon regions, particularly the main coal area Oltenia.

https://upload.wikimedia.org/wikipedia/commons/thumb/1/13/EU-Romania.svg/1280px-EU-Romania.svg.png



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About E3G

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E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change.

E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

In February 2019, E3G was ranked the fifth top global environmental policy think tank for the third year running.

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