A background image showing a white wind turbine against a clear blue sky, with solar panels visible in the lower corners.

## **JUST TRANSITION FOR ALL – ANALYTICAL EVIDENCE**

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Background materials for a side-event  
on 3.12.2018 at the COP24

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## ABOUT OUR ORGANISATION

Climate Strategies is an independent, not-for-profit organisation that aims to improve policy in the fields of climate change, energy and sustainable development by bridging the gap between decision-makers and researchers across Europe and internationally. It has three roles:

- 1. **Inspirer:** To identify and test with stakeholders, funders and researchers new research topics, preferably multi-disciplinary and always with potential policy leverage
- 2. **Convener:** To find suitable and fundable topics for projects, conferences and other events where researchers and policy-makers can come together
- 3. **Translator:** To interpret and publicly communicate research outputs so that they can be used by policy makers, business stakeholders and civil society



# 1. JUST TRANSITION PATHWAYS IN MAJOR COAL ECONOMIES: FINDINGS FROM THE COAL TRANSITIONS PROJECT

JESSE BURTON, UNIVERSITY OF CAPE TOWN  
ON BEHALF OF “COAL TRANSITIONS” PROJECT

The Coal Transitions project included research teams from large coal producing and consuming economies, namely Poland, Germany, India, China, South Africa and Australia, as well as experts in economic diversification, transition policy analysis, and historical coal transitions. The project included two streams relevant to the just transition: analysis of past coal and industrial transitions (across various contexts and scales); six country case studies on pathways to implement coal transitions compatible with the “well below 2°C” objective.

The studies found that coal transitions are already happening, driven by the economics of non-coal alternatives and by air pollution, water and health policy, and that the pace of change will likely increase. Yet at the local and regional level coal economies already face socio-economic challenges, and coal dependent regions are not prepared for the pace and scale of change that they face. Historically, coal transitions have happened suddenly, with limited options for regions to embrace alternatives. The research examined the socio-economic implications of coal transitions across countries with varying levels of poverty, inequality, socio-economic development, and coal dependency at national and regional scales. Nonetheless, it found that coal regions are often more similar than different, facing complex trade-offs between extractives and growth in other sectors; coal mining and air, water and health; economic growth and lock-in to dependency; and dependence on existing jobs for prosperity that are already in decline. For all countries, the creation of decent work and a managed transition is important for a low-carbon and just transition.

## Lessons from the literature and case studies

Firstly, that social dialogue is an important condition for appropriately supporting workers and communities to manage the transition in a way that does not exacerbate existing fragilities. Secondly, that in broad terms transition assistance needs to consider both narrow and broad interventions that target both the creation of decent work opportunities for fossil fuel workers and broader economic development activities for coal regions<sup>1</sup>. The latter is particularly important in areas with structural unemployment and high levels of poverty. Finally, there are already many practical interventions to assist those who will be impacted by a transition away from coal. Below we highlight a few related to decent work and economic development.

1 Green, F. (2018) Transition Policy for Climate Change Mitigation: Who, What, Why and How” CCEP Working Paper 1807, May 2018

## Finding a just transition and decent work opportunities for workers<sup>2</sup>

One key finding was that options to protect workers already exist (but implementation requires effort). While the specific contextual factors are important in each country, understanding the labour market and the age, skills, and educational profile of the workforce is necessary. Possible interventions then include:

- Setting a timeline for coal phase down and allowing existing workers to retire naturally
- Providing a bridge to pension for older workers or offering voluntary redundancy packages
- Supporting workers who have appropriate skills or are willing to retrain to take on alternative roles within the company.
- Developing regional worker transfer programmes to support the direct transfer and on-the-job retraining of workers with appropriate skills to move to an alternative local job.
- Redeploying: offering employees who may struggle to find work in other roles or sectors the option to transfer their skills to alternative coal-based sites with the company
- Establishing integrated multi-purpose retraining programmes

## Building local economic resilience

Such interventions must be context-specific and will depend on key issues such as geographical proximity of coal communities to other centres of economic activity; the size of the coal sector in the local or regional economy (GDP and employment); the financial links between the coal sector and the local government and provision of local services; and the degree of psychological attachment that workers and citizens have to the region. Nonetheless, for local regions looking to build their economic resilience and transition beyond coal, the Coal Transitions project identified a number of strategies that can be effective if well executed. These include<sup>3</sup>:

- “**Related diversification**”: developing industries that are related to existing economic activities and industries but do not depend on coal.
- “**Smart specialisation**”: supporting the growth of economic activities that build on an assessment of the region’s strengths and competitive advantages. In coal regions, this could include existing power, rail or port infrastructure, land availability, cultural and industrial heritage, skills of the local workforce, existing industries with growth potential, etc.
- **Strengthening of local entrepreneurial networks**: creating or strengthening networks between higher education and training organisations, local companies and entrepreneurs, local government, organised labour, in order to identify and support the growth of suitable activities.
- **Improvement of local infrastructure**: for increasing the local economic attractiveness of the region, increasing opportunities for economic linkages to other zones of economic activity and employment, increasing the productivity and growth potential of local industries, creating opportunities for former coal workers to stay in their regions.

2 Sartor O. (2018). Implementing coal transitions: Insights from case studies of major coal-consuming economies. IDDRI and Climate Strategies

3 Campbell, S & Coenen, L (2017) Transitioning beyond coal: Lessons from the structural renewal of Europe’s old industrial regions. CCEP Working Paper 1709, November 2017



- **Improvement of “soft attractiveness factors”:** to support re-investment in the area, underpin land-value and thus the wealth of the local community, and limit or reverse demographic outflows.
- **Location of public sector activities in the region:** to mitigate demographic decline, provide additional economic demand for the region, and support the development of new strategic industries.
- **Location of innovation or energy transition projects in the region:** Often regions with a strong link to the energy sector are keen to retain it as it is part of the local identity, and may possess the infrastructure to do so.

### What is still needed?

- Support for national and sub-national entities to engage in social dialogue and to design processes and institutional arrangements to explore context-specific vulnerabilities and economic resilience opportunities in coal dependent areas
- Macroeconomic analysis of the effects of climate policies needs to be supplemented by sector-specific and microeconomic assessments of local impacts on workers and communities
- Political and economic analysis of who bears the costs and benefits of the transition, contextual factors defining potential interventions, and the role of finance in mitigating the impacts of a disorderly transition are important areas of further research

## 2. EXTRACT FROM SUBMISSION TO THE TALANOA DIALOGUE FROM GLOBAL SUBSIDIES INITIATIVE OF IISD ‘FOSSIL FUEL SUBSIDY REFORM AND TAXATION: STORIES FOR SUCCESS’

LAURA MERRILL, IISD

If fossil fuel subsidy reform was coupled with correct pricing of fossil fuels via taxation, the potential combined savings and ongoing revenue streams to governments would be significant. The IMF estimates that removing subsidies and then taxing fossil fuels effectively represents an average potential revenue to governments of 2.6 per cent of GDP globally. Corrective taxes could be a significant revenue sources for many countries for Just Transition, and an increase in price leads to behavioural change. Many countries could experience significant revenue gains from either removal of subsidies and/or correct taxation of fossil fuels. Such revenues to governments could be better spent on other sectors of the economy, such as those reflected in the SDGs including health, education, infrastructure, and sustainable energy for all, as well as supports for workers transitioning in a low-carbon economy.

By tackling subsidies governments are able to save resources and potentially allocate them elsewhere (health, education and sustainable energy). Governments may also tax fossil fuels effectively to bring in ongoing revenues. Not only can fossil fuel subsidy reform and taxation help deliver the SDGs through provision of additional domestic finance but also through behaviour change. Many of the SDGs are interlinked for example linked to poverty reduction, gender empowerment, and sustainable energy access. However, there are broader implications for example around shifting welfare systems from those based on subsidized fossil fuels (cheap fuel) towards more sophisticated social safety nets.

Fossil fuel subsidies are very regressive in their nature in that they do a poor job of assisting the poor effectively. Research covering 35 countries finds that “on average, the top income quintile receives more than six times more in total subsidies than the bottom quintile” and that fossil fuel subsidies are very regressive: “nearly 93 out of every 100 dollars of gasoline subsidy ‘leaks’ to the top three quintiles.” Subsidies to gasoline perform badly, the bottom two quintiles receive on average 7.4 per cent of benefits and the top two quintiles receive on average 83.2 per cent of benefits.

Country data is also striking. Even with kerosene, where the IMF study finds that benefits are equally distributed across the quintiles, national surveys find real variations on the ground. One study in India finds that for every six rupees the government spends on kerosene subsidies only one rupee reaches the poorest 20 per cent of consumers. This substantial leakage of subsidy benefits to the top income groups means that blanket fuel subsidies are an extremely costly and thus inefficient way to providing assumed targeted welfare to poor households.

## Stories for Success

### On fossil fuel subsidy reform:

The last few years have seen impressive progress by a number of governments in phasing out fossil fuel subsidies and investing instead in social safety nets, education, health care and development priorities. To mitigate the impact of gasoline and diesel subsidy reforms, Indonesia used a basket of social protection policies covering education, health insurance, food subsidies, cash transfers and infrastructure programs. Indeed, Indonesia's first largescale unconditional cash transfer system was created in only six months in order to compensate for subsidy reforms. The Philippines used targeted cash transfers to help build a national safety net and lifeline tariffs to protect the poor in the process of reforms.

Reform presents an opportunity for governments to switch from relatively simple and easy-to-administer subsidies designed to provide welfare benefits via cheap fossil fuels toward more administratively complex, but better-targeted (and often cheaper) social welfare systems and safety nets via direct cash payments and targeted measures.

A World Bank report finds that the link between reforms and the development of social protection schemes is important in that "improvements in social protection systems are critical to the success of reforms" because they make it possible to target assistance to those most in need. Furthermore, it finds that a switch away from fossil fuel subsidies and toward better-targeted assistance can also promote better tracking and governance of the subsidies via smart cards or micropayment schemes.

### On fossil fuel taxation:

Countries can also learn from one another regarding progressive fossil fuel taxation. In China, currently 17% VAT and excise tax are imposed in fuels. The tax prices on gasoline and diesel were increased between November 2014 and January 2015 from US\$0.16 to US\$0.24, and US\$0.13 and US\$0.19 respectively. India introduced a coal cess in 2010 and increased in the cess on coal from Rs 200 per tonne to Rs 400 per tonne in the 2016/2017 budget. This is the third time the cess, now called Clean Energy Cess, has doubled since being introduced in 2010. Since the cess was introduced it has become an important source of revenue, financing an entire budget and supporting green activities. At Rs 200 per tonne it was estimated that Rs 13,000 crore or USD 2 billion was donated to the National Clean Energy Fund (NCEF) every year.

## The Need for Dialogue: Sharing Stories and Lessons Learned

However, many governments are still missing an effective fiscal financing trick from the perspective of saving and raising revenues, significantly reducing emissions and encouraging sustainable energy take off as well as sources of financing and moving forward on broader SDGs such as health, education and safety nets to eliminate poverty. A triple win could be achieved with a combination of fossil fuel subsidy reform and effective fossil fuel taxation. Removing subsidies to fossil fuel consumption is estimated to have emissions reductions ranging from between 6-8 per cent by 2050. Further switching off subsidies to producer subsidies could result in additional savings of 37 Gt, equivalent to all emissions from the aviation sector. Reallocation

of subsidy savings toward renewables and energy efficiency would lower emissions further still. Subsidy reform, combined with a strong—and fully implemented—climate agreement and regulation would improve emission reductions further. Finally, additional taxation of fossil fuels through VAT, GST or carbon pricing improves emission reductions further (to around 20 per cent) and provides much-needed ongoing revenue streams to governments. Yet globally many governments are still doing the opposite. In 2014, 13 per cent of energy-related carbon dioxide emissions were from subsidized fossil fuels compared to 11 per cent of energy-related carbon emissions covered by emissions trading schemes. Not only are these fiscal instruments overlooked from an emissions reductions perspective but also from the perspective of savings and revenue gains that governments could make from implementation, as well as the opportunities for funding the broader SDGs from the perspective of financing for health, education and sustainable energy. There are also opportunities for governments to build more sophisticated welfare systems in the process of fossil fuel subsidy reform that are better targeted at poverty reduction, rather than the provision of cheap fossil fuels.

### 3. COALITIONS AND MOVEMENTS AROUND JUST TRANSITION: CHALLENGES AND SUCCESSES IN THE U.S.

HEIDI GARRETT-PELTIER, RESEARCH FELLOW, POLITICAL ECONOMY RESEARCH INSTITUTE, UNIV. OF MASSACHUSETTS

#### Challenge One: Determining Conceptual Framework and Motivation

##### Differing Motivations

The motivation of Just Transition (JT) programs can either be political motivation or ethical, or both. These can work independently or in tandem. The political motivation is to gather support from people harmed by climate action and who would benefit from a JT program. The ethical motivation behind the JT concept is that losers from a policy intervention should be compensated, and that protecting the climate is a public good whose cost should not be borne by a small set of workers or communities.

##### Differing Conceptions

In the U.S. there are two strands of the JT concept. In one strand, the energy transition is a transition from a fossil-based energy system to one which is more energy efficient and uses more renewable energy. The economic system is relatively unchanged, it just uses different energy sources. The JT in this framework basically involves compensating fossil fuel (FF) workers and impacted communities and helping transition many of these workers into clean energy jobs or other fields. The second strand of the JT concept is more transformative. In this transformative strand, a JT includes a change in ownership structures, in behaviors, in how individuals relate to each other in community. This second strand of JT promotes democratic worker participation, community or cooperative ownership of energy resources, community-based design, and the move toward thinking about and creating a circular economy rather than an extractive and waste-producing economy.

#### Challenge Two: Determining the boundaries of who is included in JT programs

Five categories of people to consider for JT programs: (1) The FF workers (direct workers); (2) Workers in the supply chains of FF (indirect workers); (3) Communities based around a FF industry or employer; (4) FF workers in other countries or in geographies outside the policy area who will be adversely affected by the policy; and (5) “frontline communities” – low-income communities and communities of color who are disproportionately affected by the current energy and economic system. What obligations do we have to people in each of these categories? How far down the supply chain should we go? These are not easy questions to answer, but they need to be addressed in designing appropriate policy, and in conducting the research that informs that policy. If a delineation of boundaries is not explicitly addressed, it will nonetheless implicitly be addressed through possibly unquestioned assumptions. Who gets included in JT programs will be a function both of whether the approach is transitional

or transformative and also of whether the motivation is political or ethical. Policy makers and policy researchers should be clear about the boundaries.

#### Challenge Three: Organized labor can be a source of both support and opposition

In JT efforts, some labor unions in the U.S. have been allies, or are even at the core. We see this with the Steelworkers Union. Others, such as unions in the coal industry, are vehemently opposed to any climate change action. Even within supportive unions, there are varying levels of support. There are at least four factors that would make a union member more or less opposed to an energy transition.

1. **Age.** The closer a worker is to retirement, the less opposed they are likely to be, since the clean energy transition may have little to no effect on their job. In fact, in our research at PERI<sup>1</sup> we found a surprising result when we looked into the demographic profile of fossil fuel workers, which is that it is (in the U.S.) a somewhat older workforce, and that the bulk of job losses in fossil fuel industries resulting from climate policy can actually be accounted for by natural attrition through retirement. In other words, the percentage of workers reaching retirement each year by 2030 or 2035, is quite close to the percentage of workers that would lose jobs due to policy interventions.
2. **Skills.** Many FF workers have transferrable skills. Metal workers or drill operators could move to non-fossil energy or other industries fairly easily. But other FF workers have much more specific skills. Refinery operators, for example, would likely need to be retrained. These workers will therefore tend to be more oppositional to climate action, knowing that the transition will be more challenging for them than for other workers.
3. **Compensation.** Often aligned with skills – the workers who have more specific skills also earn wages above the national median, making it potentially costly to them to change jobs. In general, FF industries have wages above average, and the reality or just the fear of earning a lower salary is one driver of opposition among workers.
4. **Attitude of union leadership.** Having a pro-environment union leader certainly makes a big difference in building alliances. But not only pro-environment leaders are on board; some union leaders see that the energy transition is coming one way or another, and they would rather be helping forge the agenda, making sure that their workers’ interests are represented and that workers will benefit or at least not be harmed from a clean energy future.

##### Coalition Building and Examples of Success

Alliance and coalition building in the JT movement will depend largely on whether the conception is transitional or transformative. If transitional, then building a JT movement relies largely on building alliances with FF workers and labor leaders. Based on unsuccessful transition policies in U.S. history, such as Trade Adjustment Assistance, and more successful transition programs such as those with nuclear decommissioning, we have found that an effective JT package includes: (1) Pension guarantees; (2) Job guarantees; (3) Income support, retraining,

1 <https://www.peri.umass.edu/economists/heidi-peltier/item/1032-green-new-deal-for-u-s-states>

and relocation support; and (4) support for communities.<sup>2</sup>

If the vision is transformative, alliance building will look more like the Climate Justice Alliance<sup>3</sup> - which includes indigenous groups, EJ groups, environmentalists, progressive research organizations, and worker centers. The Climate Justice Alliance is a movement-building alliance working toward transformative changes that promote justice.

One specific example of a coalition within the JT sphere is “Reinvest in Our Power.” This is a collaboration among groups, including CJA, “to address inequity and democratize wealth by moving capital and governance from the extractive to the regenerative economy.”<sup>4</sup> With this effort, money is being divested from fossil fuel companies and invested into a democratically-governed and cooperatively owned financial institution that makes loans to advance ecological restoration and community ownership.

Another example is a coalition called “NY Renews,” a coalition of over 100 groups, that is working to advance legislation in NY State that would charge a “polluter fee” and use the revenues to invest in clean energy in disadvantaged communities and to support funding for FF workers and communities impacted by the clean energy transition.

In sum, JT is not one thing. From a moral viewpoint, JT is essential. From a political viewpoint, it could be useful. But in order to advance a JT agenda, it is important to understand whether the goal is transition or transformation, and then to build alliances with the relevant parties, and to produce research and design policy accordingly.

<sup>2</sup> See Chapter 8 in <https://www.peri.umass.edu/publication/item/1026-clean-energy-investments-for-new-york-state-an-economic-framework-for-promoting-climate-stabilization-and-expanding-good-job-opportunities>

<sup>3</sup> <https://climatejusticealliance.org/members-of-the-alliance/>

<sup>4</sup> <https://climatejusticealliance.org/workgroup/reinvest/>

## 4. REGIONAL DISTRIBUTION EFFECTS OF THE ENERGY TRANSITION IN GERMANY

DR. ULRIKE LEHR, PHILIP ULRICH, INSTITUTE OF ECONOMIC STRUCTURES RESEARCH

### 1: Regional distribution – why does it matter?

The transition to a sustainable energy system is often discussed on the national level and overall economic effects are determined. The underlying pattern of regions or federal states or any other subunit is quite often neglected. For the acceptance of the transition in the population, the consideration of regional aspects, however, is essential. The due consideration requires measurement and modeling to have a quantitative, science based decision making background. Thus, analyzing the regional distribution helps to

- Identify „winners and losers“
- Tailor policies and strategies accordingly
- Enhance acceptance

Our contribution to this discussion are here: Regional distribution of gross effects of renewable energy deployment and net effects of the energy transition. With this, we are aiming at answering the following questions:

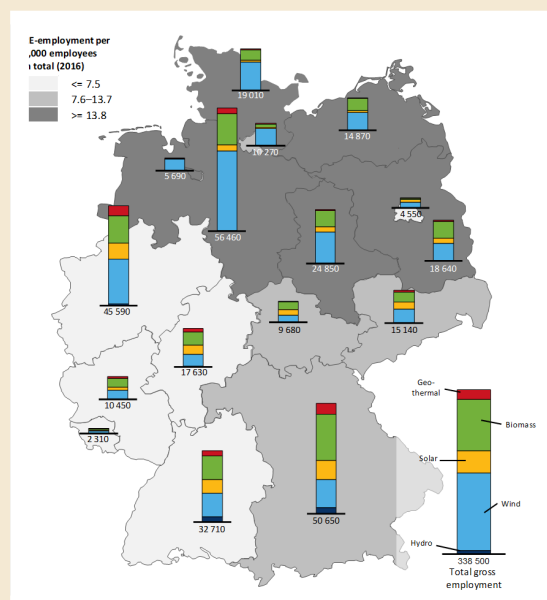
- Where are new job opportunities?
- Who bears the burden of new installations?
- Where are jobs lost?

The Analysis consists of two parts: a model of gross regional effects of renewable energy (RE) deployment in Germany and an analysis of net economic regional effects of the whole Energiewende, the German energy transition.

### 2: Gross effects from RE deployment

There is gross employment in all federal states for all energy sources and technologies. The distribution follows the strengths of the respective federal state. It considers the whole value chain, including direct and indirect employment effects. Installation and manufacturing of the RE system is analyzed separately from operation and maintenance. The former lead to employment, if the sub-state has a producer of systems or components or installs new systems each year. The latter employment derives from systems already installed and in operation. The permanency in employment from the latter is higher. Relative to the size of the federal states, there is a strong concentration of employment in the north and east. Wind energy is the most important pillar in almost all federal states, followed by bioenergy.





Since 2014, RE employment has developed positively, especially in those federal states, where wind industry sites are present and stable, where PV industry was scarce in 2014 or where strong deployment has taken place (most recently mainly wind turbines)

The analysis of gross effects helps to compare the status of different federal states, but a net analysis has to be carried out to complete the picture. Regional net effects are methodologically challenging, in particular need the following questions to be answered:

Which of the following dimensions matter and can be mapped

- economic structures and structural change
- distribution of energy sources in power generation
- investment stimuli
- region-specific multipliers (domestic shares and intermediate inputs, induced effects)
- region-specific reactions to prices or savings?

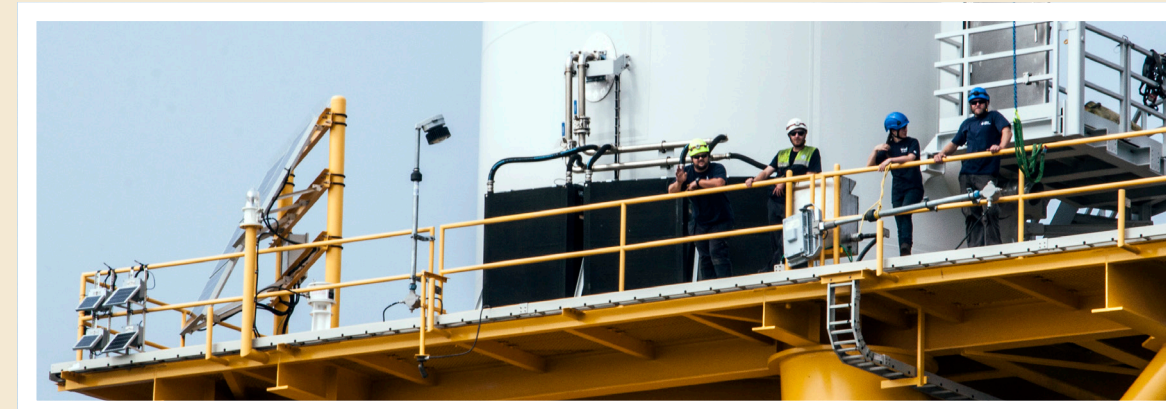
A first attempt at this challenge regarding the energy transition in Germany has been successfully completed. With the developed modeling framework, a scenario comparison can be carried out, comparing the energy transition (RE and energy efficiency) with a contrafactual scenario without any particular investment in neither RE nor energy efficiency.

The results are as follows: The scenario comparison shows positive effects on value added and employment in all federal states at different levels. Structural differences in economic development in the federal states interact with effects at the national level. Structurally weak federal states with a high share of renewable energy experience stronger positive effects, while city states show slightly fewer positive effects. The Construction sector profits from energy efficient buildings mainly in regions with high relevance of the construction sector and regions with labor-intensive construction sector and regions with a high price level in construction.

The scenarios consider the whole set of measures for energy transition and therefore positive and negative effects counterbalance, so that the overall effect on employment is positive or negligible. However, people who lose jobs in coal mining not necessarily find jobs in energy efficiency. Energy transition strategies therefore need the respective transition programs, training, structural change support is necessary. In Germany, the Coal Commission will publish suggestions early 2019.

## 5. FIVE FACTORS FOR IMPLEMENTING A SUCCESSFUL JUST TRANSITION FOR ALL

LUCY STONE, AGULHAS



Workers on an offshore wind turbine. Photo: Chris Bentley/Flickr.

The transition to a low carbon economy has the potential to be so much more than just less polluting. It can be dynamic, inclusive, healthy, and with better work opportunities. The low carbon transition can provide a source of regional prosperity and pride. The necessity of implementing climate policy can be applied to deliver a source of community regeneration and renewal. In order for the required deep decarbonisation to deliver these co-benefits alongside the climate benefits, the transition needs to be planned and well managed.

Economic change can leave not just stranded assets and industries, but stranded communities. Unplanned transitions can leave a legacy of negative social, health and local economic impacts that last for many generations. Communities and workers need not become stranded alongside rusted refineries and abandoned mines.

Our Agulhas Applied Knowledge research found that, if communities and workers participate in the transition, they can *speed up* the rate of change to meet carbon commitments. This needs meaningful, honest dialogue: with workers, communities, entrepreneurs, local and regional governments. Government policy can create the enabling environment for smooth transitions, encouraging industry to co-fund the transition, and providing vital support when necessary.

We looked at best practice in a range of countries, including heavy industry in China, post-industrial decline in Spain and North East England, post-mining in Germany and offshore oil to renewables in Scotland. We found there were five factors necessary for a smooth transition:

**1. Job retraining and skills development are essential.** This can include higher education partnerships or on the job retraining. The government in the Netherlands has focused on retraining workers with 'on the job learning' rather than classroom based training. In Lausitz the German government created a decontamination and environmental clean-up company providing 20,000 new jobs for a post-industrial region facing high job losses. In Appalachia, ex coal miners have been taught to code.



**2. Early retirement and financial compensation is required for workers** who cannot retrain or relocate. This can be fully or part funded by industry or government. For older workers, nearing retirement age, an early pension is a vital and basic element of a transition agreement. This has been common in coalmine closures. In northeast China, where 4,800 workers lost their jobs, a series of actions were taken by government. Alongside policy measures to foster alternative industrial development, it set aside ¥100 billion (£11.6 billion) as an aid package to fund retraining, early retirement and the creation of new public sector jobs between 2016-2018.

**3. Infrastructure projects that stimulate broader regeneration.** Short term job ‘packages’ of transition measures can have an immediate impact, however, broader challenges often remain for regional regeneration. There are good examples that either utilise pre-existing infrastructure (e.g. a university knowledge base), repurpose it (such as turning old mines into lakes) or invest in new infrastructure (e.g. new transport links). The former industrial area in Bilbao was transformed by the Guggenheim museum development, which has become a by-word for successful transition: known as the ‘Bilbao effect’. Most focus on the iconic architecture, but it was the Spanish government’s investment in transport infrastructure and land clean up that was critical to the success.

**4. Regional support schemes to build enterprise capacity, skills and innovation.** For example, the European Commission’s structural funding, but also national government programmes of regional funding. The Tees Valley in north east England had lost over 93,000 manufacturing jobs with the decline of the steel and chemicals industry. Residents in the area have suffered from low expectations and poor education and skills. Despite the presence of five universities in the region, there have been poor links between these knowledge networks and innovation, start-ups and innovation enterprise. A programme established by a regional development agency, ONE North East, successfully invested over £3 million in building enterprise capacity with the universities.

**5. Stakeholder participation and dialogue.** This has repeatedly been shown to be a key ingredient in successful transitions. It can be initiated by communities or workers themselves, either in a bottom up process, or it can be part of a top down process, which sets the political framework and policy support. A stakeholder forum can ensure a more stable, well managed transition. For example:

- In Canada former and current oil sands workers have grouped together to create an initiative to reskill in renewable energy -- citing job insecurity, redundancies and the nature of the work that takes workers away from families for periods of time as reasons to transition out of oil sands industries.
- In Port Augusta, South Australia, just two years ago (2016) workers at a coal-fired power station were worried about losing their jobs as plants (two brown coal mines and a steel mine) were closing, and local residents were worried about air quality and environmental health. The workers and local residents and businesses called for a clean energy transition in their area. They identified a solution in developing a solar thermal plant and found companies interested in investing. The former mining town is now a clean energy hub with 13 renewable projects in train, 3000 jobs in construction and billions of investment. The area is undergoing a revival, with strong local support.

These five factors, illustrated across five diverse country case studies, show that a successful Just Transition for All is preferable, possible, and desirable - with companies, communities and government working together.

## 6. THE GLOBAL IMPACT OF THE GREEN TRANSITION

### CATHERINE SAGET, ILO RESEARCH

#### Challenge One: Determining Conceptual Framework and Motivation

ILO flagship report World Employment and Social Outlook 2018 estimates job losses and job creation as the world moves to a greener economy.

– Twenty-four million new jobs will be created globally by 2030 if the right policies to promote a greener economy are put in place-

According to [World Employment and Social Outlook 2018: Greening with Jobs](#), action to limit global warming to 2 degrees Celsius will result in sufficient job creation to more than offset job losses of 6 million elsewhere.

New jobs will be created by adopting sustainable practices in the energy sector, including changes in the energy mix, promoting the use of electric vehicles and improving the energy efficiency of buildings.

Ecosystem services - including air and water purification soil renewal and fertilization, pest control, pollination and protection against extreme weather conditions - sustain, among others, farming, fishing, forestry and tourism activities, which employ 1.2 billion workers.

But projected temperature increases will make heat stress, particularly in agriculture, more common. It can lead to several medical conditions, including exhaustion and stroke. The report calculates that heat stress will cause a 2 per cent global loss in hours worked by 2030 due to sickness.

At the regional level, there will be net job creation in the Americas, Asia and the Pacific and Europe, representing some 3 million, 14 million and 2 million jobs respectively, resulting from measures taken in the production and use of energy.

In contrast, there could be net job losses in the Middle East (-0.48 per cent) and Africa (-0.04 per cent) if current trends continue, due to the dependence of these regions on fossil fuel and mining, respectively.

The report calls on countries to take urgent action to train workers in the skills needed for the transition to a greener economy, and provide them with social protection that facilitates the transition to new jobs, contributes to preventing poverty and reduces the vulnerability of households and communities.

## Other Key Findings

- Most sectors of the economy will benefit from net job creation: of the 163 economic sectors analysed, only 14 will suffer employment losses of more than 10,000 jobs worldwide.
- Only two sectors, petroleum extraction and petroleum refining, show losses of 1 million or more jobs.
- 2.5 million jobs will be created in renewables-based electricity, offsetting some 400,000 jobs lost in fossil fuel-based electricity generation.
- 6 million jobs can be created by transitioning towards a 'circular economy' which includes activities like recycling, repair, rent and remanufacture - replacing the traditional economic model of "extracting, making, using and disposing".

## No gains without the right policies

Although measures to address climate change may result in short-term employment losses in some cases, their negative impact can be reduced through appropriate policies.

The report calls for synergies between social protection and environmental policies which support both workers' incomes and the transition to a greener economy. A policy mix comprising cash transfers, stronger social insurance and limits on the use of fossil fuels would lead to faster economic growth, stronger employment creation and a fairer income distribution, as well as lower greenhouse gas emissions.

Countries should take urgent action to anticipate the skills needed for the transition to greener economies and provide new training programmes.

The report also shows that environmental laws, regulations and policies that include labour issues offer a powerful means to advance the [ILO's Decent Work Agenda](#) and environmental objectives.

Social dialogue which allows employers and workers to participate in the political decision-making process alongside governments plays a key role in reconciling social and economic objectives with environmental concerns.

## 7. ASSESSING AMBITION AND INCLUSIVENESS OF DIFFERENT JUST TRANSITION APPROACHES

### DUNJA KRAUSE (UNRISD/JUST TRANSITION RESEARCH COLLABORATIVE)\*

Just Transition—the idea that justice and equity must form an integral part of the transition towards a low-carbon world—is increasingly being mobilized both to counter the idea that protecting the environment and protecting jobs are incompatible, and to broaden the debate to justice-related issues such as the kinds of jobs and societies we envision for the future. From its origins in the labour movement in the United States, Just Transition has evolved and spread to other geographies and constituencies, from environmental justice groups to the international trade union movement, international organizations, the private sector and—since its inclusion in the preamble of the Paris Agreement—global, national and subnational policy circles.

For some, the Just Transition concept, by focusing on the justice and equity dimensions of the shift towards a low-carbon world, can inform a new and powerful narrative. A narrative of hope, tolerance and justice. A narrative that is both aspirational and grounded in peoples' actual lived experiences. A narrative that acts as a beacon to guide collective action while simultaneously giving rise to tangible alternatives on the ground. Not all stakeholders, however, share the same idea of what a Just Transition should look like, or how and by whom it should be accomplished. Instead of leading to an alignment of peoples' views, the concept's growing popularity has led to an expansion of its meanings. This makes it more difficult to clearly identify what Just Transition stands for and raises a number of critical questions regarding the kind of transition we want. Is Just Transition simply another "buzzword" or can it play a positive role in the international climate and sustainable development debates? Such questions inevitably imply a deeper discussion on the meaning of "justice" in the age of climate change.

The Just Transition Research Collaborative (JTRC) was formed to bring together a range of experts working on different aspects of Just Transition, and to unpack the different understandings, narratives and framings of Just Transition that underpin the concept's growing popularity and uptake. The JTRC has produced the report "Mapping Just Transition(s) to a Low-Carbon World" that gives a brief overview of the concept's history, offers a categorization of different Just Transition framings and calls for a progressive interpretation of Just Transition to both accelerate decarbonization and overcome entrenched inequalities that leave people who are least responsible for climate change at the greatest risk from its impacts.

Just Transition approaches and examples can be distinguished in terms of their ambition and inclusiveness. In terms of ambition, approaches range from those that merely seek to create new jobs in a greener economy, via reformist approaches that seek to address distributive and in some cases procedural justice implications to those that aim for a fundamentally different socio-economic system that can overcome deeply rooted inequalities and injustices. A truly Just Transition must work for unionized coal miners as well as for informal workers or service

providers who are affected by changing economies and climate change. Inclusiveness of Just Transition policies and plans is therefore the second parameter in our assessment of different examples.

Despite its growing uptake, the Just Transition is often narrowly conceived as a concept to protect workers who are facing unemployment due to climate policy and shifts to sustainable production systems, in particular as a result of energy transitions. After all, it was the trade union movement that popularized the approach and made climate change a workers' issue. If we think about the scale and urgency of climate change and the rapid action that is needed to limit global warming to a tolerable level, it becomes clear that more profound change is needed. Fostering a rapid transition towards low-carbon development will have far-reaching impacts on all of society, and in the process will affect a much broader public than simply energy and industry workers.

Using our heuristic to locate different Just Transition approaches in terms of their ambition and inclusiveness may help in distinguishing progressive approaches that support social and ecological emancipation from those that aim to protect a specific sector or group of people but do not actually challenge climate injustices. An ambitious and inclusive approach to Just Transition seeks to tackle the root causes of climate change and climate injustice. It promotes alternative development pathways and builds on solidarity, participation and social inclusion. It depends on collective bargaining processes and a combination of enabling policies and local ownership.

In this context, it is important to question whose ideas and values are in the driving seat and how this influences transition pathways. In many countries, neoliberal thinking and policies persist and constrain the role of public interventions and spending that aim to regulate markets to foster equity and sustainability. And while it is true that energy transition is starting to make economic sense and is now driven to a large extent by the private sector, the market will not solve our problems for us. Business interests are still more often than not in conflict with both climate action imperatives and workers' rights. Tackling the imminent impacts of climate change will take a profound transformation and alignment of social and environmental objectives. Recognizing the justice implications of rapid decarbonization can be an important step towards climate action but it must not slow down the transition to a low-carbon world.

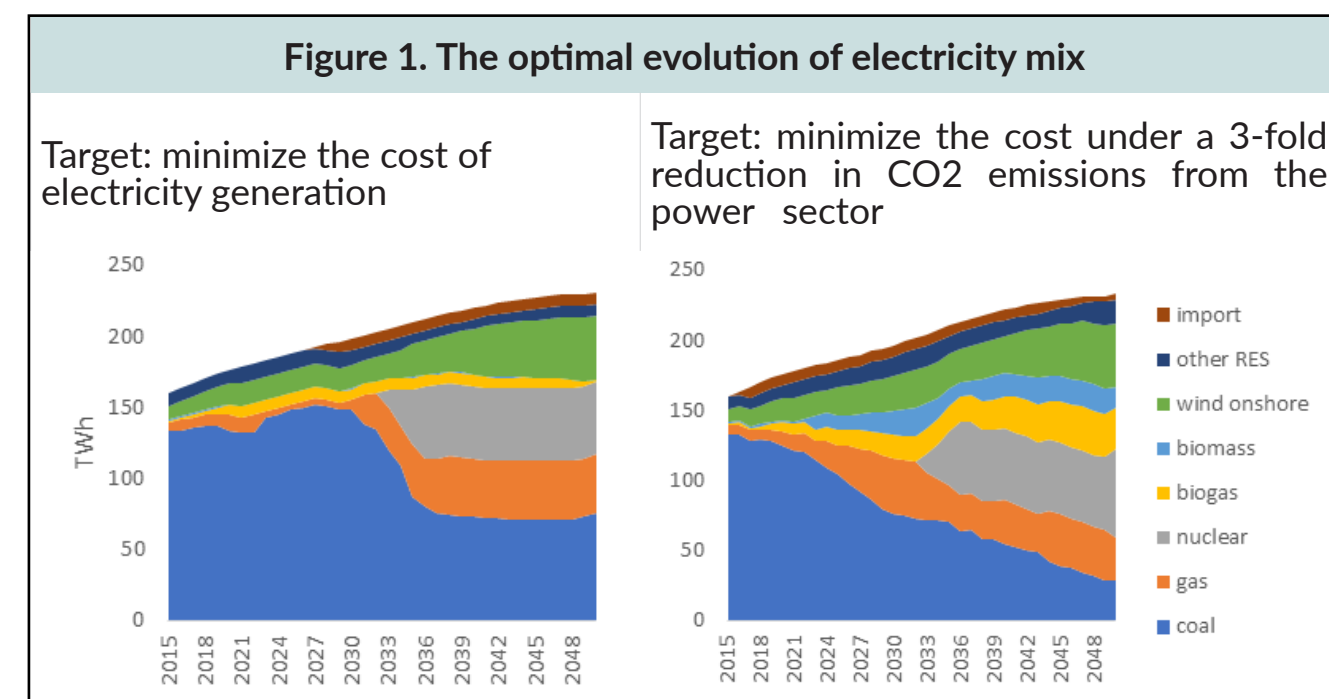
*\*This background note is based on the JTRC Online Forum (<https://medium.com/just-transitions>) and Report ([www.unrisd.org/jtrc-report2018](http://www.unrisd.org/jtrc-report2018))*

## 8. SOCIAL AND ECONOMIC RISKS OF ENERGY TRANSITION IN POLAND AND LABOUR MARKET INSTRUMENTS

JAN WITAJEWSKI-BALTVILKS, IBS

The participation of Poland in the global effort to minimize the risk of greenhouse effect as well as rapid progress of carbon-free technologies will likely lead to a fundamental change in the structure of energy production in Poland. Such a radical change may involve costs for both the economy and society. The Institute for Structural Research conducted research to investigate the consequences of the changes in the energy sector under various targets concerning CO<sub>2</sub> emission reduction. We have also explored potential measures to mitigate the risks for society<sup>1</sup>.

We find that by 2050 the consumption of coal by the Polish economy will fall in all scenarios considered, including the scenarios with no specific CO<sub>2</sub> emission reduction targets (Witajewski-Baltvilks et al. 2018a). The primary causes for this trend are (i) the progress of low-carbon technologies, increase in energy efficiency and growing prices of EU-ETS allowances. An illustration for the declining role of coal is the evolution of the production in the power sector. Our simulations suggest that the pathway that minimize electricity generation cost and assume no CO<sub>2</sub> emission targets involves the replacement of coal with a mix of onshore wind, nuclear, natural gas in the early 2030s (Witajewski-Baltvilks et al. 2018b). An alternative pathway that allows for the three-fold reduction of CO<sub>2</sub> emissions from the power sector would additionally require an increase in the use of biogas, and biomass (see figure 1).

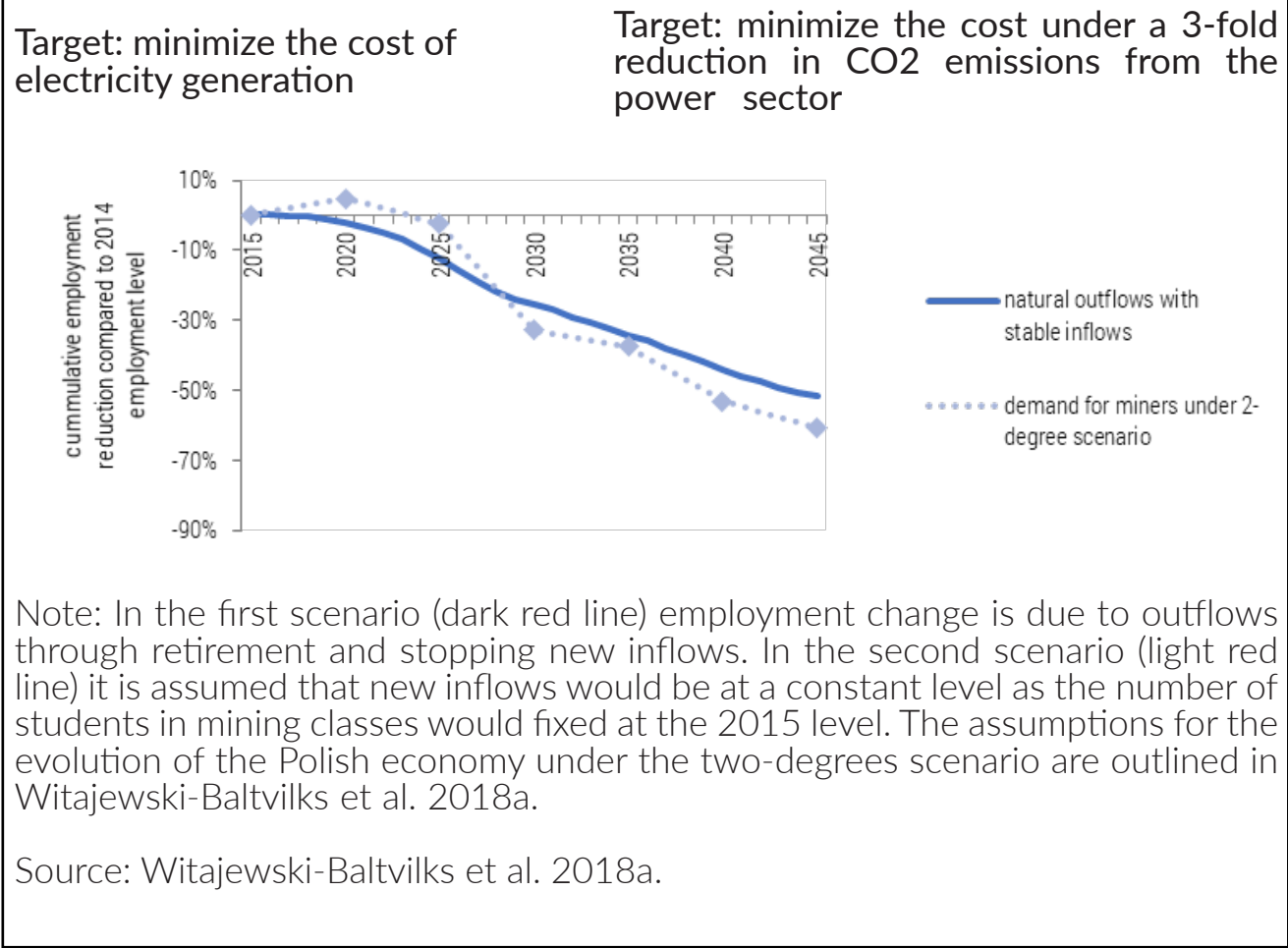


<sup>1</sup> The research leading to this paper was performed under the Coal Transition project that received funding from the KR foundation and the TRANSrisk Horizon2020 project, grant number 642260



The drop in coal consumption will necessitate the phase-down of coal-mining sector in Poland. The reason for this is that most of hard coal consumed in Poland is produced domestically. This contrast with the case of other major coal consumers in Europe which cover most of its consumption from import.

**Figure 3. Scenarios of employment reduction in the hard-coal sector due to outflows through retirement by 2030**



The cut in production needs to be associated with a reduction in, currently sizable, employment in the coal mining sector, particularly in the hard-coal mining. We estimate that employment in that sector will need to be reduced by 47% during the period 2015-2030 and by 77% during the period 2015-2050 (Witajewski-Baltvilks et al. 2018a).

The reduction in employment might happen in two ways: (i) by lay-offs in the mining sector and a shift of workers to other sectors of the economy or (ii) by outflow of workers in the mining sector to retirement when they reach the retirement age (natural attrition) coupled with limiting the entry of new workers and directing young generation into other sectors of the economy.

Our simulations show that the lay-offs will not be necessary since most of the employment reduction could be achieved through an outflow of workers to retirement and a moderate

inflow of new workers. Natural attrition and limiting the entry of new workers would generate a drop in supply of labour that is very close to the drop in demand for labour in the sector under our ambitious emission reduction scenario.

The study by Lewandowski et al. (2018) shows that the negative effect of coal consumption decline on employment could be further reduced by investments in improving energy efficiency of residential buildings in Silesia. In the most ambitious scenario (assuming a two-fold increase of the pace and a comprehensive retrofit in each building), up to 100,000 additional jobs may be created at the country level. A large fraction of these additional jobs could be created in the Silesia region.

## 9. SYSTEMS APPROACH TOWARDS JUST TRANSITION: THE CASE OF UPPER SILESIA<sup>1</sup>

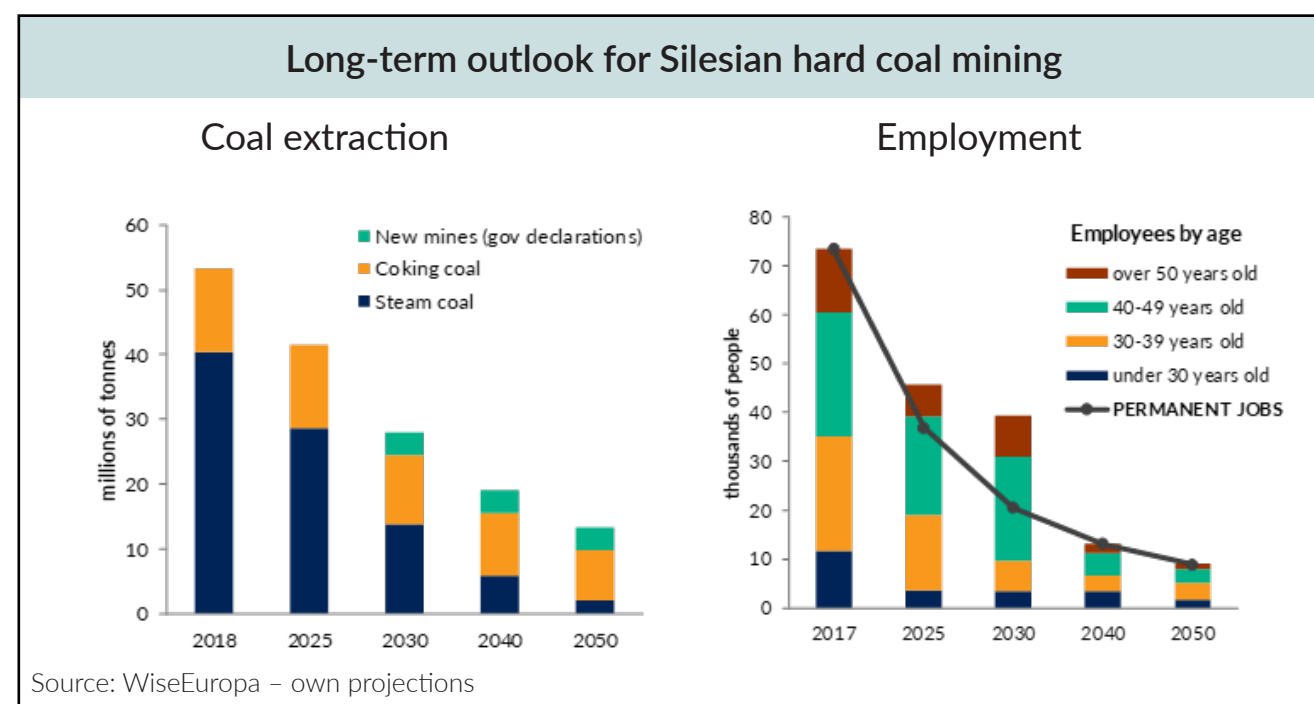
MACIEJ BUKOWSKI, WISEEUROPA

In order to address the transition from coal in a systemic way and to ensure long-term sustainable development of coal regions, policymakers and other stakeholders need to:

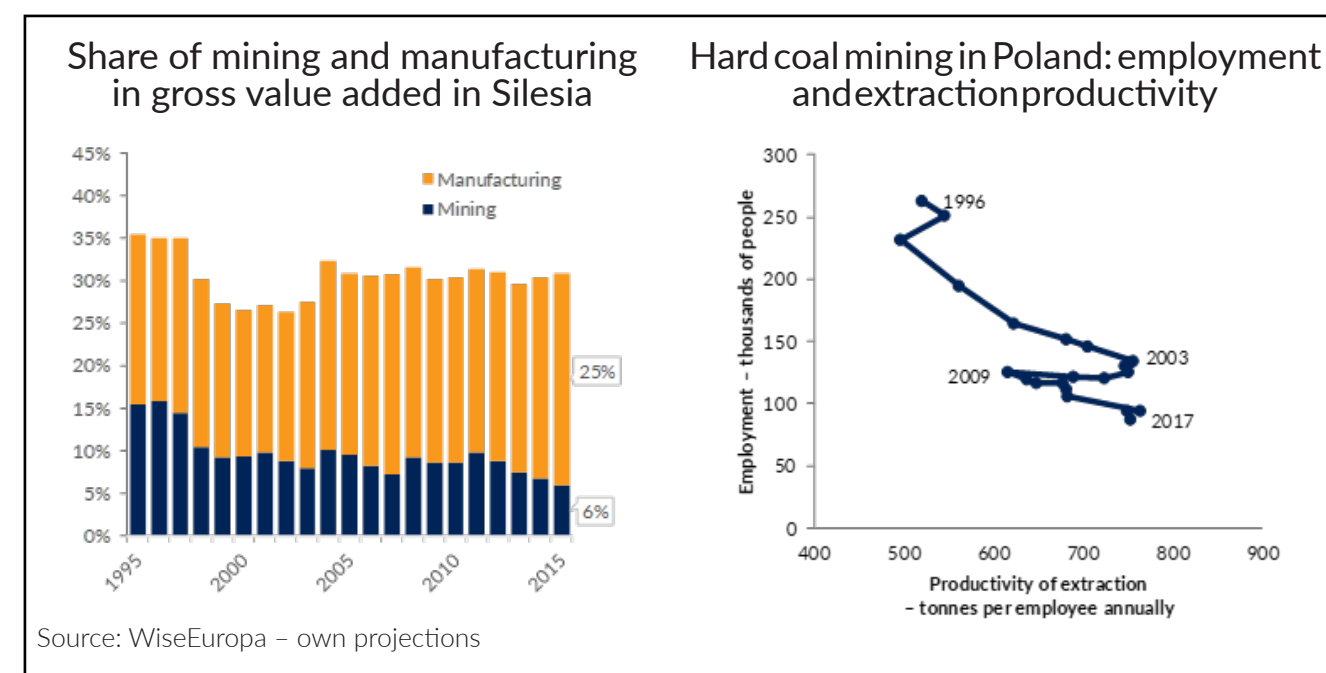
1. accept the inevitability of structural change of the regional economy and assess its likely pace,
2. identify key drivers of future growth beyond the coal-dependent sectors,
3. address broader socio-economic challenges which can hamper transition.

This requires assessing not only sectoral data, but also broader evidence, including macroeconomic, demographic and social survey data which provide a complex picture of regions in transitions.

In the case of Upper Silesia, the evidence shows that structural shift from coal is driven primarily by economic factors, especially low productivity growth of the mining sector and successful restructuring of the regional manufacturing base. This creates wage pressure on mines and results in the long-term decline of the coal extraction and associated jobs. Historical trends and bottom-up sectoral forecasts indicate that by 2050 steam coal extraction will disappear from the Upper Silesia mines. Only the most efficient coking coal mines have a chance to remain on the market until mid-century, however, they too will have to improve productivity and reduce their workforce significantly. Overall, by 2050, the number of jobs in the sector will fall to below 10 thousand people (seven times lower than today).

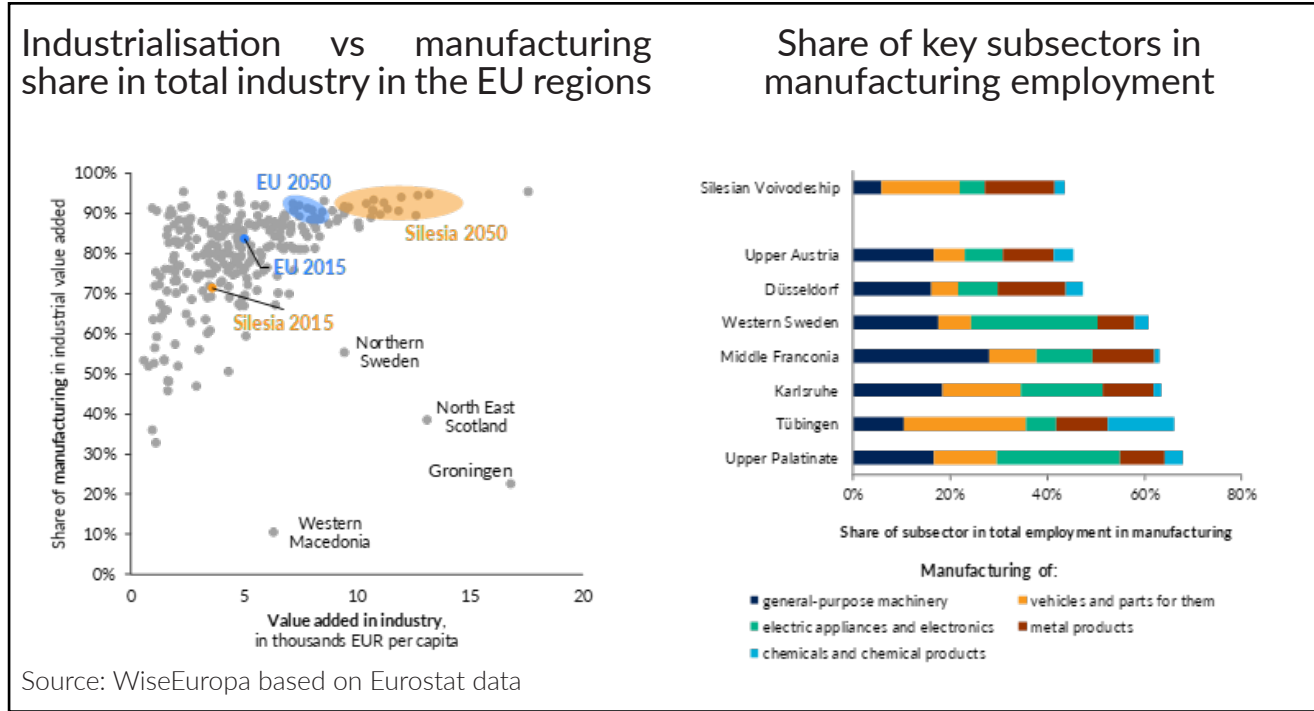


To achieve a level of prosperity close to the EU average by 2050, the Silesian region needs to increase the value added (measured by market exchange rates) in industry and market services by 3.5 times. The European data shows that it is the diversified, advanced manufacturing base and not the energy or mining sectors, that enable a high share of industry in the added value to be reached and demand to be created for high-quality engineering, design, research and development, or consulting services.

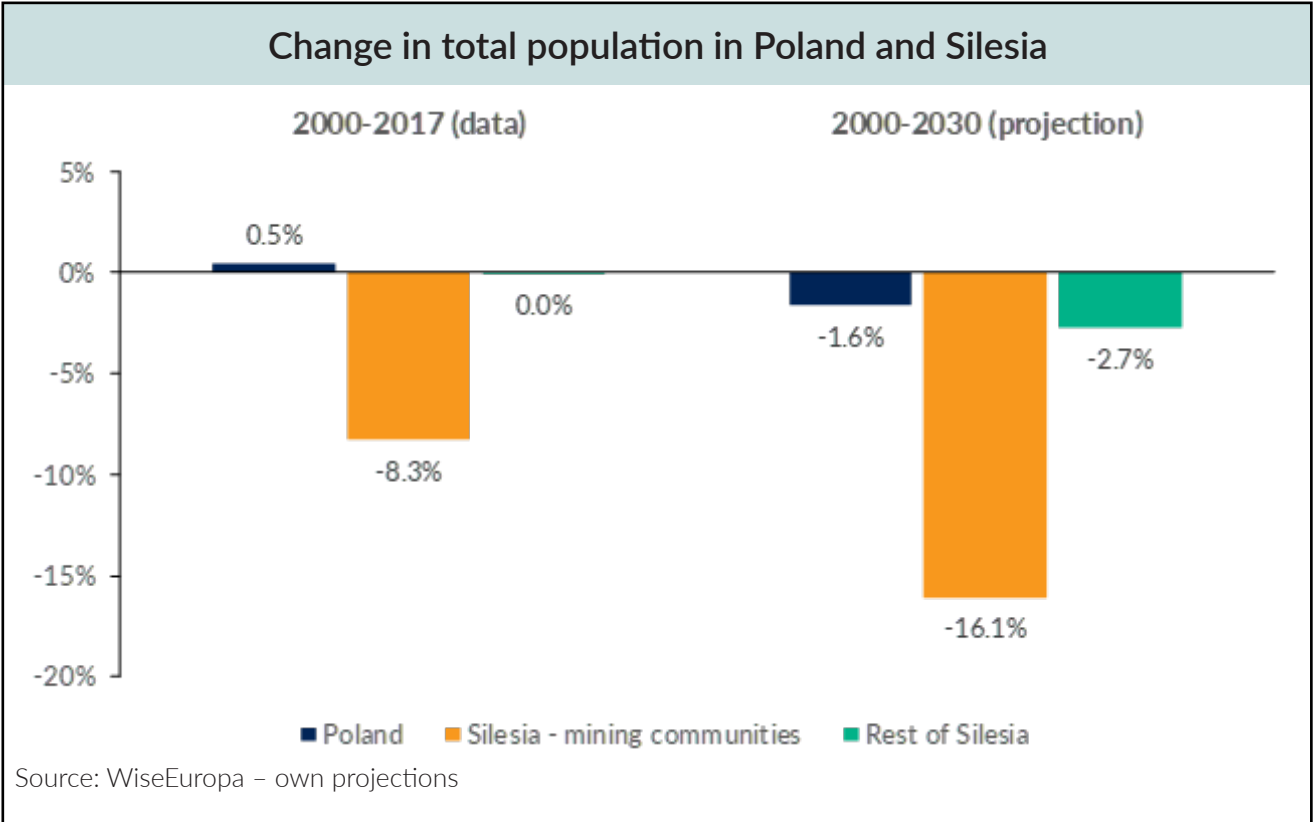


The diversification of the Silesian economy has to be based on changes in the industrial structure and on developing new types of export-oriented services. In highly industrialised regions manufacturing subsectors focused on the local markets (e.g. food industry) play a relatively small role compared to export-oriented companies integrated in the Europe-wide industrial supply chains delivering machinery, electronics, vehicles or chemical products. For this reason, it is crucial for the Silesian Voivodeship to maintain and strengthen its competences in these fields. This includes actions related to the automotive industry (consistent with the ongoing shift to electric drives), and local export-oriented companies in the machinery, chemical, electronic or pharmaceutical industries, as well as these offering advanced B2B and B2C services. Local authorities and central agencies will need to attract the investors from the industries that so far have been under-represented in the region.

The industrial transition which can deliver high level of prosperity in Silesia is dependent on the demographic situation in the region, which poses a major threat for achieving sustainable growth. The demographic problems of the Silesian Voivodeship are caused by both the negative rate of natural population growth, and outflow of people to other regions in Poland and abroad. Furthermore, there is a significant discrepancy between the mining and non-mining communities (approximately half of Silesian population lives in the areas historically associated with mining), with former driving the demographic decline of the whole region. If the resulting population shortfall, which we estimate at 250 thousand people, is not replenished by immigration, maintaining the high level of economic development in the region will become a much more difficult task. Therefore, the policy mix supporting the transition in Silesia should



also include measures focusing on increasing its attractiveness for both existing and potential new inhabitants. The review of quality of life indicators suggests that the high level of air pollution remains the main negative factor in the overall assessment of region's attractiveness. According to the regional Social Progress Index prepared by the European Commission, Silesia was ranked last among 272 European regions in terms of quality of environment. Deep restructuring of local energy and fuel systems – in particular shift towards clean heating and energy efficient buildings – is urgently needed.



To conclude, systemic policy measures are needed to secure the sustainable development of the region. These should go beyond sectoral policies focused on coal-based industries. The policy mix should combine:

1. responsible restructuring of the traditional core of the local economy, guided by the understanding of the inevitable decline of hard coal mining,
2. focus on the outward-oriented diversification of the local manufacturing base,
3. investment in transition towards low-emission economy in all the key sectors (energy, buildings, transport, industry), which will both improve the quality of life in the region and provide demand pull supporting development of new competitive advantages in the region.

1 Based on: M. Bukowski, A. Śniegocki, Z. Wetmańska (2018), From restructuring to sustainable development. The case of Upper Silesia, report by WiseEuropa for WWF Poland Foundation, Warsaw, Poland.





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