
A Future for Lusatia

A Structural Change Plan for
the Lusatia Coal-Mining Region

IMPULSE

Agora
Energiewende



A Future for Lusatia

ABOUT

IMPULSE REPORT

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A Structural Change Plan for the Lusatia
Coal-Mining Region

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Preface

Dear readers,

In Germany's most recent legislative session, the future of coal-fired energy generation was the subject of frequent and vigorous debate. All parties were nonetheless unanimous that the regions most affected by structural change in the lignite coal industry should not be left to fend for themselves.

Agora Energiewende made a key contribution to the debate through the publication of its *Eleven Principles for a Consensus on Coal*. One of these principles called for the establishment of a structural change fund at the federal level to assist the affected lignite mining regions. The present paper fleshes out this proposal, taking the Lusatia region as an example.

The proposal resulted from intensive discussions with Lusatia-based stakeholders from the spheres of business, academia, politics and civil society. The aim of these discussions was to bring together a wide range of ideas and initiatives from the region, in order

to formulate a concrete proposal that would accommodate a broad spectrum of interests.

What is ultimately at stake here is the structural development of the Lusatia region for the 21st century. The key elements of this development include an innovative economy, a prominent place in Germany's energy transition, up-to-date infrastructure, and a cultural sphere that encourages people to remain in or return to the region. Such a development process of course works best when a region can shape its own future, rather than having decisions made for it elsewhere.

Our proposal seeks to drive forward a debate that has already been underway for some time in the region, and that now urgently needs to bear fruit. We look forward to hearing your responses and suggestions, so that we can reach the best decisions as soon as possible. We hope you enjoy the paper.

Yours truly,
Patrick Graichen
Director, Agora Energiewende

Key findings at a glance:

1

From 2019, a "Lusatia Structural Change Fund" should be established within Germany's federal budget.

The aim of the fund would be to strengthen the region's economic attractiveness and its desirability as a place to live. It should help to: preserve the region's industrial character, strengthen innovation among its businesses, support its academic institutions, equip it with an up-to-date transport network and digital infrastructure, and foster a lively civil society that retains local residents while also attracting new ones.

2

The Lusatia Fund should be endowed with 100 million euros per year for 15 years, to be divided equally between four key pillars: business development, academia, infrastructure, and civil society.

In each of these areas, it should be possible to use the available funds in a flexible manner (i.e. to shift funding between areas), and funds that are not withdrawn should not expire (i.e. funding should be transferable to subsequent years).

3

Regional stakeholders from the spheres of business, academia, politics, and civil society should play a key role in awarding of funds.

The federal government should only play a monitoring and coordinating role, as part of a steering committee; decisions on funding priorities should be made by stakeholders from the region.

4

The funds assigned to the civil society pillar should be administered by a new "Lusatia Future Foundation."

Raising the attractiveness of a region means more than just promoting its economy, academic institutions and infrastructure. Ultimately, the vibrancy of a place depends on art, culture, lived traditions and the quality of civil society. These factors require ongoing support, which can be guaranteed in the short term through the Structural Change Fund and in the long term through developing a foundation with a strong endowment.

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Summary

Agora Energiewende’s “Lusatia Structural Change Fund”: The Key Data

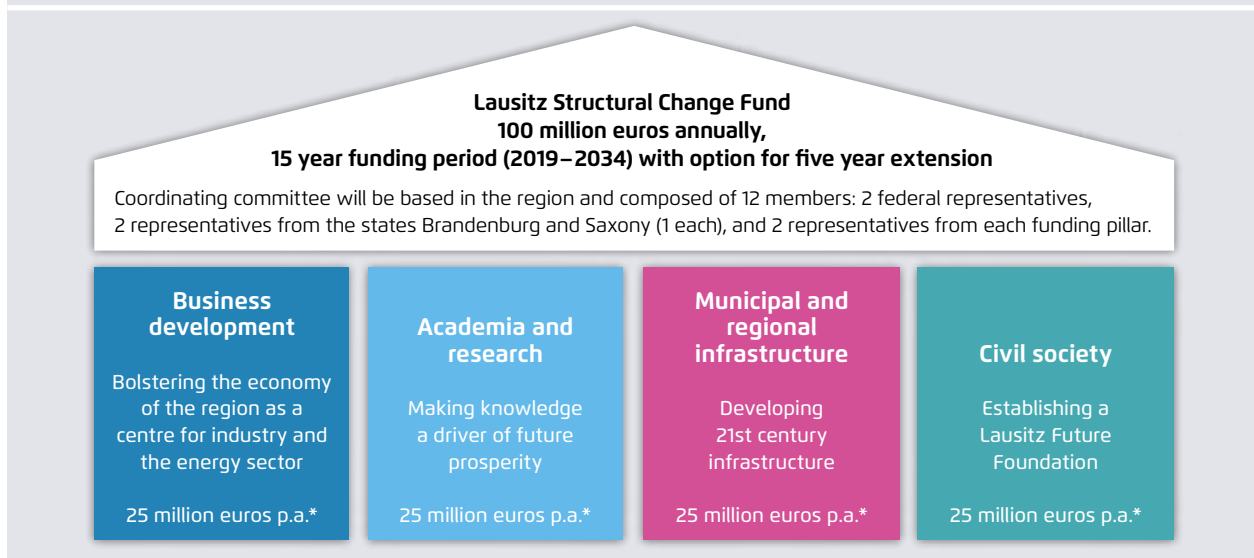
- **Total funding:** 100 million euros per year
- **Duration:** 15 years (2019–2034), with the option of extending the project for a further 5 years in modified form.
- **Coordinating committee:** to take the form of a 12-member “standing committee,” based in the region. The committee members will be drawn from the federal government (2 members), the state governments of Brandenburg (1 member) and Saxony (1 member) and the four regional “pillars” (8 members).
- **Four sectoral pillars, each of which is to receive 25 per cent of the total funding.** Funds that are not withdrawn will remain available for use in subsequent years, and funds will be transferable between different pillars.
- **Pillar 1 – business development.** Maintaining Lusatia as an economic powerhouse and energy-focused region (installing one gigawatt of renewable capacity for every gigawatt of decommissioned

lignite-based capacity) and promoting innovation (particularly in new energy and CO₂ technologies). The aim: to develop economic structures that are no longer dependent on lignite.

- **Pillar 2 – promoting academia and research.** Bolstering universities and research institutions in the region, in part by founding a Fraunhofer Institute for the Decarbonisation of Industry. The aim: to put Lusatia squarely on the map as a research centre.
- **Pillar 3 – developing and modernising the municipal and regional infrastructure.** Improving the area’s transport infrastructure (including the Berlin-Cottbus and Görlitz-Dresden rail links) and rolling out high-speed internet. The aim: to ensure the region has the most up-to-date infrastructure possible.
- **Pillar 4 – The Lusatia Future Foundation.** Supporting a wide range of civil society initiatives in the region, particularly in the areas of art, culture, local traditions, and social modernisation. The aim: to raise the area’s attractiveness.

Four Pillar Model for the Lausitz Structural Change Fund

Figure S1



Authors’ figure

* Unused funding should be transferable to subsequent years and funding should also be transferable between pillars.

1. Introduction: For a Just Energy Transition

The goal of Germany's *Energiewende*, or energy transition, is to develop a climate friendly, economically viable and reliable energy system. Numerous studies have shown that phasing out coal is essential to this transition.¹ Indeed, without abandoning coal, Germany cannot meet its national climate targets for reducing GHG emissions: In relation to 1990 levels, Germany hopes to achieve a 40 per cent reduction by 2020 and a 80 to 95 per cent by 2050.

What is equally important for the medium and long-term success of the energy transition, however, is that it should be conducted equitably across the board. And this means distributing the benefits and burdens of this social revolution as equally as possible, so that all sectors of society play their part in realising it.² Nevertheless, if the energy transition is to be truly "just", the decarbonisation of the energy industry will need to be accompanied by proactive support for regions whose economies are currently built upon fossil-fuel technologies. Such areas must be helped to generate new economic models.

Particular solidarity is owed to Germany's coal-mining regions, which for many decades formed the backbone of Germany's economic development. In these regions, the coal industry once employed more than a million people. With hard coal mining in

Germany soon to become a thing of the past,³ the most important "energy transition hotspots" will be the Rhenish and central German lignite-mining regions and Lusatia. For over a hundred years, these three regions have helped to ensure a reliable supply of energy in Germany.

Accordingly, when we published our *Eleven Principles for a Consensus on Coal*⁴ in 2016 (the first comprehensive plan for the gradual decarbonisation of the German energy sector), we particularly emphasised the consequences of a coal phase-out for these regions. In light of Germany's ambitious climate protection targets, we recommended that no new open-pit mines should be developed and that no more communities should be relocated (Principle 6). Furthermore, we offered a proposal to fund the follow-up costs of lignite mining even during its stepwise phase-out period (Principle 7). Above all, however, we stressed the importance of ensuring the future prosperity of the affected regions by actively shaping structural change via a dedicated, federally financed fund (Principle 8):

We believe a "Structural Change Fund for Lignite Regions" should be created within the federal budget and outfitted with 250 million euros annually over the entire transformation period. Funding should be allocated to each region based on the number of jobs impacted in each respective lignite mining area."⁵

Since the publication of our *Eleven Principles*, the debate on the gradual decarbonisation of the energy sector, not to mention the concrete progress of the

1 The only way of combining continued coal usage with climate protection measures would be by using carbon capture and storage (CCS) technology. Though CCS has been discussed in connection with coal-fired power stations in Germany, it has not become commercially viable. In light of its high costs and lack of public acceptance, it would seem to have no real future here.

2 The *Climate Action Plan 2050* adopted by Germany's federal government in 2016 contains distinct sectoral climate targets (for 2030) for the energy industry, construction, transport, industry, agriculture, and "other."

3 The last two of what were once 180 German hard coal mines will be closed in 2018. Germany has been abandoning hard coal mining since the 1960s for economic reasons that are unconnected with the energy transition.

4 Agora *Energiewende* (2016a)

5 Agora *Energiewende* (2016a), p. 43

energy transition, has gathered pace both nationally and internationally. There is now increasing awareness of the need to proactively manage structural change as soon as possible, rather than a few years down the line. Furthermore, it is evident that decisive steps toward decarbonisation are essential if Germany is to meet its short, medium and long-term climate targets. Add to this the increasing pace of climate change globally, and the need for urgent action is clear.⁶

Alongside national policy efforts, many ideas, initiatives and plans for a post-coal future are also being developed in the lignite-mining regions themselves. These ideas and proposals form the basis of the present paper. In our view, structural change must be led by the mining regions themselves, with the support of society as a whole (as represented by the federal government and parliament).

Germany's three remaining lignite-mining regions will not all be equally affected by the gradual decarbonisation process. In our Eleven Principles, we proposed that the levels of funding allocated to each region should be tied to the economic impact of an early coal phase-out, and thus to the number of lignite-related jobs that would ultimately be lost as a result. Here it is ultimately a question of minimising real reductions in prosperity across the three regions.

The present paper fleshes out our call for a just transition in Lusatia. Lusatia is a prime example of a region that is dominated by mining and energy generation, while having little connection to the surrounding metropolitan areas. Though its industrial base has diversified, the electricity generated in Lusatia's lignite-fired plants remains its most important export, even after the collapse of the former East German lignite chemical industry. This electricity is distributed via a transmission grid that has been built

up over decades. On the whole, Lusatia will be more heavily impacted by the shift to clean energy than the central German and Rhenish mining regions. The former benefits from its proximity to Leipzig, a city experiencing significant growth, while the latter is located in one of Germany and Europe's most highly developed, industrialised, and academically significant regions, which enjoys a diverse employment market.

In Lusatia, then, implementing successful structural change or conversion cannot simply mean reliance on the region's existing infrastructure following a decline in coal-based energy production. Rather, it will mean developing the region's infrastructure and adapting it to the future needs of a modern, diversified, and nationally connected region. In this respect, Lusatia is highly representative of coal-mining regions in Eastern and Southern Europe too, where similar structural shifts are expected to take place at a slightly later date.

In Europe and beyond, keen interest is therefore being paid not just to the energy transition as a whole, but also to Germany's approach to managing change in the regions most affected by it. The task of developing strategies for a just transition that accompanies the deployment of new energy technologies is of great interest not only to federal policymakers, but to impacted regions as well.⁷

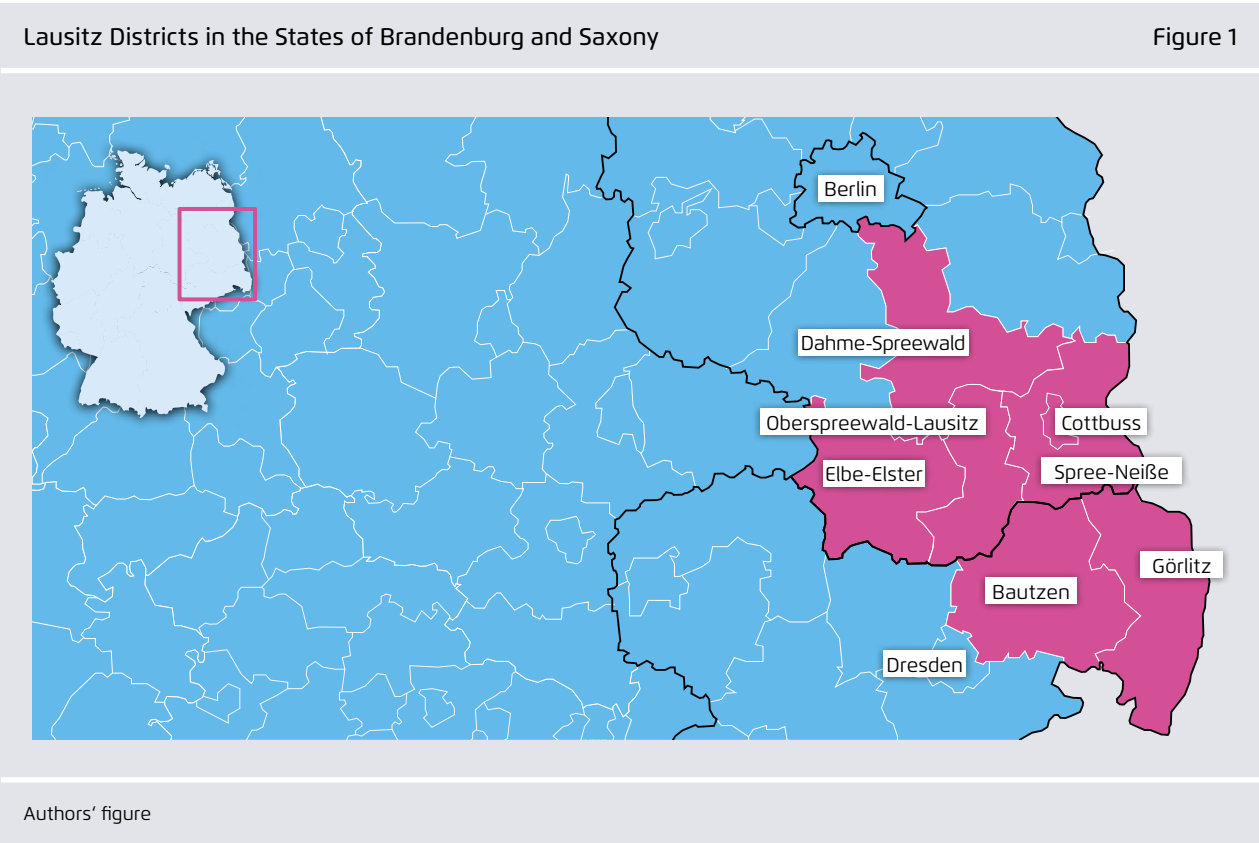
The overarching aim is nothing less than demonstrating how to achieve a broad-based structural shift while harnessing and improving ideas and initiatives that were only partially successful in the 20th century. In this connection, it is crucial that innovative structural policies are perceived as real opportunities within the region, as key stakeholders will otherwise

6 Cf. Agora Energiewende (2017a); Agora Energiewende (2017b)

7 This question has also been discussed by the EU Commission, which in connection with its Clean Energy for All Europeans package offered in December 2016 to jointly develop strategies for structural change with its member states ("supporting a just transition in high carbon regions").

cling to a business-as-usual approach, and thus to lignite-based economies.

On the basis of the number of jobs estimated to be lost as a result of the stepwise transformation process, we have allocated around two-fifths of the proposed Structural Change Fund's 250 million euros to the Lusatia region, i.e. around 100 million euros per year. The present paper calls upon the federal government to make such funding available to the region and offers a range of proposals to ensure it is implemented as efficiently as possible.



2. Time is Running Out: Why Support for Structural Change in Lusatia is Needed Now

2.1. Coming to Terms with the Past

In our view, it is crucial that efforts to support Lusatia at the European, federal, and state levels set out from the local population's relation to the area's changing mining history. The burden of this history continues to influence the mood of the region, which is divided between the states of Brandenburg and Saxony. The very notion of "structural change" is often regarded as an euphemism in the former East Germany, since in the past such change was often experienced as a catastrophic structural rift. As the Berlin Wall fell, for example, around 80,000 people were employed in Lusatia's lignite industry. By 2000, this number had fallen by over 90 per cent to 7,000.⁸

The immediate consequence of the structural collapse of the early 1990s was a sharp rise in unemployment, which in some districts exceeded 20 per cent.⁹ This was followed by the departure of many young, working-age people from the area, with all the associated negative economic and social consequences. The demographic echoes of this migration can still be felt today, and serve to counterbalance the otherwise encouraging drop in regional unemployment.¹⁰ All of this means that the collective psychological wounds inflicted during the early 1990s have only partially healed. The local population has been left with a deep-seated mistrust of established political parties, and particularly of federal policy announcements.¹¹

Scepticism toward such interventions in the local energy industry is also fuelled by a sense of pride in the area's historical achievements and its past ability to punch above its weight. Today, like hard coal in the former West Germany, lignite in the former GDR is far more than just a commodity; it is an essential element of the area's identity. Without these domestic mining regions, both the early industrialisation of the 19th century and the nationwide electrification of the early 20th century would have been impossible.¹²

In the former GDR, lignite was the only domestic energy source available in large quantities, and ensured the country's economic survival until 1989. For decades, workers in the lignite industry in the Lusatia and central German coalfields provided fuel not just for the electricity sector but also for the heating sector and chemical industry. In fact, it was only in 1985 that the quantity of raw GDR lignite used for electricity generation exceeded that of the lignite destined for "refinement," which generally meant the production of briquettes for the domestic and industrial heating sectors.¹³ In the 1970s, lignite accounted for three quarters of all primary energy source usage in the GDR. At the end of the 1980s, it still accounted for two thirds of all usage.

Furthermore, the significance of lignite in terms of output levels and large power station input levels remained almost unchanged in the former West Germany after the fall of the Wall. By contrast, the mining industry in the former GDR dramatically collapsed, with lignite usage becoming increasingly restricted to electricity generation, as it had been in the West for some time. This too was regarded as an injustice in the Lusatia region.

8 Öko-Institut (2017), pp. 83 ff.

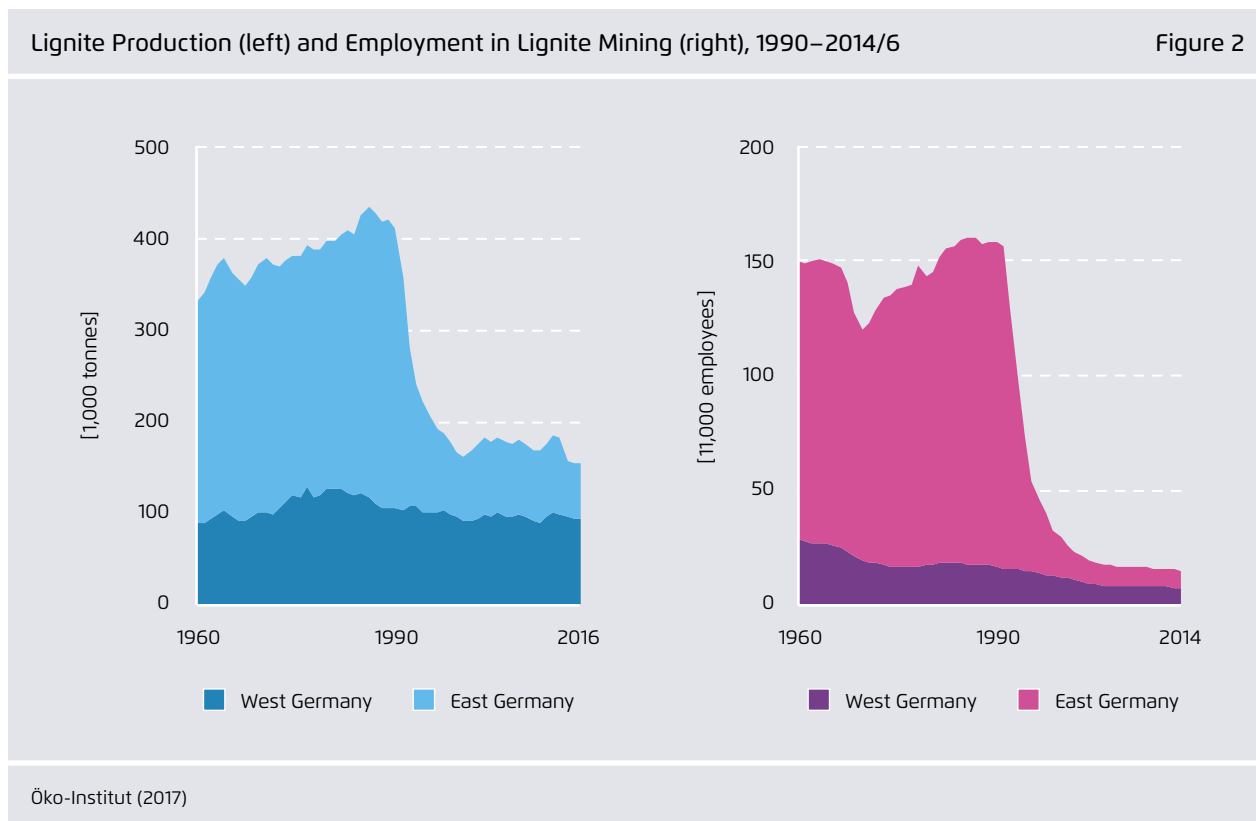
9 Markwardt et al. (2016)

10 Zundel, S. (2017)

11 On the whole, this suspicion is widespread in the former East Germany. In Lusatia it has been reflected by the election of a number of mayors without any national party affiliations.

12 Agora Energiewende (2016a), pp. 15 ff.

13 Öko-Institut (2017), pp. 23 ff.



2.2. The Lignite Phase-Out as a Regional Problem

Today, the lignite industry accounts for only 0.045 per cent of all employees in Germany (and for 0.2 per cent of employees in the manufacturing industry).¹⁴ At the same time, lignite-based energy still accounts for around 23 per cent of gross national electricity generation.¹⁵ Just over a tenth of all electricity generated in Germany is produced in lignite-fired power stations in Lusatia. Lignite-based electricity generation in the three coal-mining regions nonetheless accounts for 50 per cent of the electricity sector's overall climate impact.¹⁶ Emissions from lignite-fired power plants alone are similar to those of Germany's entire transport sector. On the one hand, then, the

economic significance of lignite-based energy generation is relatively low. On the other, it is now clear that it will be impossible to meet Germany's medium-to-long-term climate protection targets without speeding up the lignite phase-out. In order to meet the medium-term target of a 55 per cent reduction in greenhouse gas emissions against 1990 levels by 2030, lignite-based energy generation will need to be halved over the next 13 years.¹⁷

Despite the lignite industry's marginal contribution to the economy and employment as a whole, it nonetheless retains an important place in the lignite mining regions themselves. This is why, despite considerable differences in their details,¹⁸ numerous studies on the significance of the lignite industry and its gradual phase-out in the years and decades ahead have

¹⁴ Öko-Institut (2017), pp. 83 ff.

¹⁵ AG Energiebilanzen (2017)

¹⁶ Umweltbundesamt (2017)

¹⁷ Agora Energiewende (2017a)

¹⁸ See the compilation in Öko-Institut (2017), pp. 86 ff.

all come to the same conclusion: In order to counter reductions in prosperity in the affected regions, it is essential to conduct this phase-out in a gradual and proactive fashion while also providing sufficient financial resources. In doing so, the overarching aim will be to ensure that any economic decline resulting from the lignite phase-out is offset by corresponding economic gains in other areas. Yet we should not lose sight of the fact that, in geographical terms, we are dealing here with a narrowly circumscribed transformation process that an economically prosperous country like Germany is quite capable of managing.

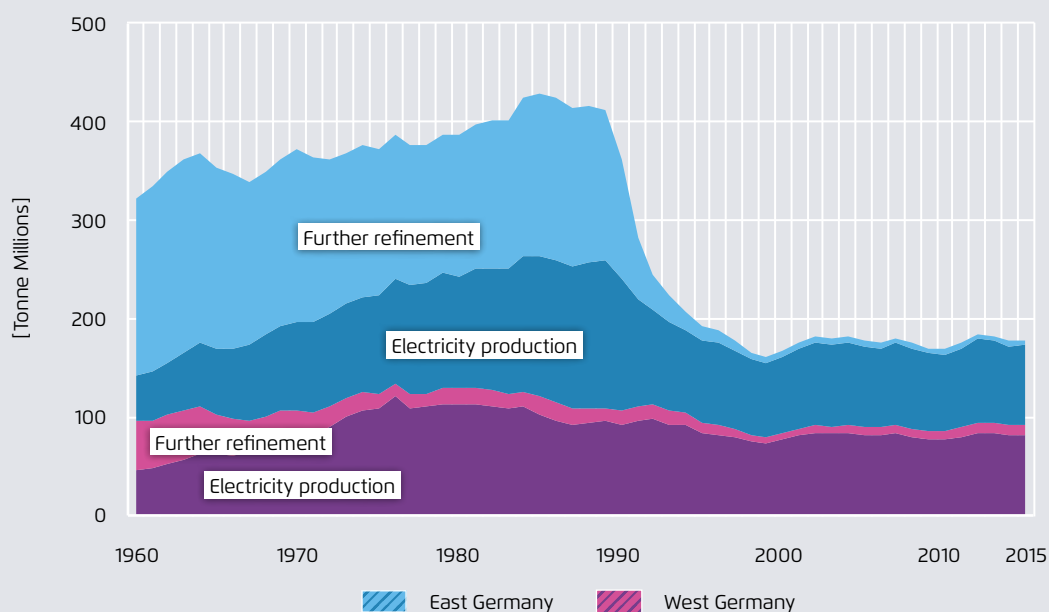
In Lusatia itself, the coal phase-out and associated structural change is in fact already underway, as is evident from the following recent developments:

- Since 2002, the number of people directly employed in the energy industry across Germany (including the Lusatia region) has fallen by 20 per cent, despite a small rise in energy generating capacity in the same period and an increase in lignite extraction. Efficiency drives resulting from declining profit margins in the energy generation sector have therefore already had an effect on regional employment figures.¹⁹
- The federal government's 2015 decision to establish a lignite-based reserve generating capacity will result in the decommissioning of 2.7 GW of lignite-based capacity across the country in 2018-19. This will include blocks E and F of the Jänschwalde power plant, each of which has a capacity of around 500 MW.

19 Öko-Institut (2017), pp. 83ff.

Lignite Consumption by Type, 1960–2015

Figure 3



Note: From 1995 onward separate energy data are no longer available for East and West Germany. To create this figure we thus estimated lignite usage in 2000, 2010 and 2015 on the basis of available data.
 Source: Öko-Institut (2017) on the basis of coal industry statistics.

- In 2016, the state-owned Swedish energy company Vattenfall sold the German arm of its lignite business to the Czech companies EPH and PPF Investments. The sale, which was motivated by business and environmental concerns, sent the clearest signal yet that the energy industry sees the writing on the wall for lignite-based energy generation in Germany.²⁰
- At the end of March 2017, Vattenfall's successor companies, Lusatia Energie Bergbau AG and Lusatia Energie Kraftwerke AG (LEAG), published a plan for the region which made clear that the new owners only envisioned a limited future for the Lusatia coalfield.²¹
- Germany's *Climate Action Plan 2050*, which was adopted by the federal government in November 2016, provides for a 50 per cent reduction in CO₂ emissions by 2030. Exactly how this is to be achieved is to be negotiated by a committee for growth, structural change and regional development, which is due to present its conclusions in 2018.²²
- Finally, in June 2017 the state governments of Brandenburg and Saxony published a white paper entitled *Gemeinsam für die Zukunft der Industrieregion Lusatia* ("Together for the Future of the Lusatia Industrial Region"). The paper observes that globalisation, international competition and environmental policies have all exerted an influence on the economic life of the region and "serve to hasten structural change" within it.²³

The joint cabinet meeting that the two regional governments held in Lusatia sent a clear signal that has been heard in the region itself. Many stakeholders in Lusatia are now preparing for a future with continuing declines in lignite-based energy generation.

20 Vattenfall even had to pay more than a billion euros to dispose of its lignite business; see *Manager-Magazin* (16th April 2016).

21 LEAG (2017)

22 Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2016)

23 Landesregierungen Brandenburg und Sachsen (2017)

3. Proposals, Ideas, and Initiatives for Structural Change in Lusatia

3.1. The Present Situation: Key Economic Data and the Role of Lignite in Lusatia

It is now over twenty years since the traumatic structural shift in which Lusatia lost nearly 90 per cent of its lignite-related jobs after the collapse of the former GDR. In the meantime, its economic situation has improved considerably. In 2016, a team from the Brandenburg University of Technology (BTU) published a report on structural change in Lusatia, which was commissioned by the Brandenburg state gov-

ernment. The authors note that the economic data in Lusatia's Brandenburg districts shows "a very positive recent trend."²⁴ The corresponding economic data for the districts in Saxony (comprising the Görlitz und Bautzen districts) indicates a similar pattern (see Table 1).

24 Markwardt et al. (2016) Except where otherwise indicated, the following figures are taken from this report (figures for 2013) or from the preliminary results of a follow-up study; Zundel, S. (2017, figures for 2014).

Selected economic indicators in Lusatia's Brandenburg and Saxony districts (2014).

Table 1

Region	City Cottbus	Dahme-Spree-wald	Elbe-Elster	Ober-spreewald-Lusatia	Spree-Neiße	Brandenburgische Lusatia	Görlitz	Bautzen	Lusatia as a whole
Population ^(a)	99,491	161,952	104,997	112,896	118,030	607,366	260,188	306,570	1,174,124
GDP per inhabitant ^(a)	€30,581	€ 32,309	€ 21,257	€ 22,901	€ 35,128	€ 28,847	€ 24,582	€ 23,045	€ 26,307
GDP per employed individual ^(b)	€ 49,453	€ 72,899	€ 50,131	€ 52,064	€ 88,629	€ 62,861	€ 63,063	€ 56,823	€ 57,654
Number of employees enrolled in the compulsory social security scheme ^(c)	44,815	56,648	32,303	38,756	36,560	209,082	82,461	108,261	399,804
Unemployment levels ^(c)	11 %	6.8 %	11.4 %	12.5 %	10.3 %	10.1 %	11.8 %	8.8 %	10.1 %
Number of employees in the manufacturing industry ^(d)	1,628	5,430	5,895	6,606	8,871	28,430	17,446	24,709	70,585
(a) Statistisches Bundesamt 2015 (b) Markwardt et al. 2016; Amt für Statistik Berlin-Brandenburg 2016, 2016 (c) Bundesagentur für Arbeit 2015 (d) Statistische Ämter des Bundes und der Länder 2017 (e) ifo Dresden									

Zundel, S. (2017)

Unemployment figures in Lusatia have been falling for over a decade, albeit with significant differences from district to district (those of Dahme-Spreewald and Bautzen, for example, have benefited from their proximity to Berlin and Dresden). From 2004 to 2014, unemployment in Lusatia's Brandenburg districts fell by over 50 per cent, from 71,500 to 33,000 (against a total of 400,000 people in employment in 2014).

In 2014, Lusatia's average per capita nominal GDP was (with large regional differences – see Table 1) 26,307 euros. This exceeded the average per capita GDP of 24,226 euros for Saxony and 23,383 euros for Brandenburg, yet remained well below the German average of 36,211 euros.^{25,26} Since 2004, however, the

25 Statista (2017)

26 In order to allow for comparisons, the figures used here all relate to 2014, since more recent overall figures are not yet available for Lusatia. Since 2014, all indicators pertaining to general economic development have continued to rise.

region's nominal economic performance has improved far more than it has in Brandenburg and Germany as a whole. The same holds for overall economic productivity, as measured by nominal GDP per employee.

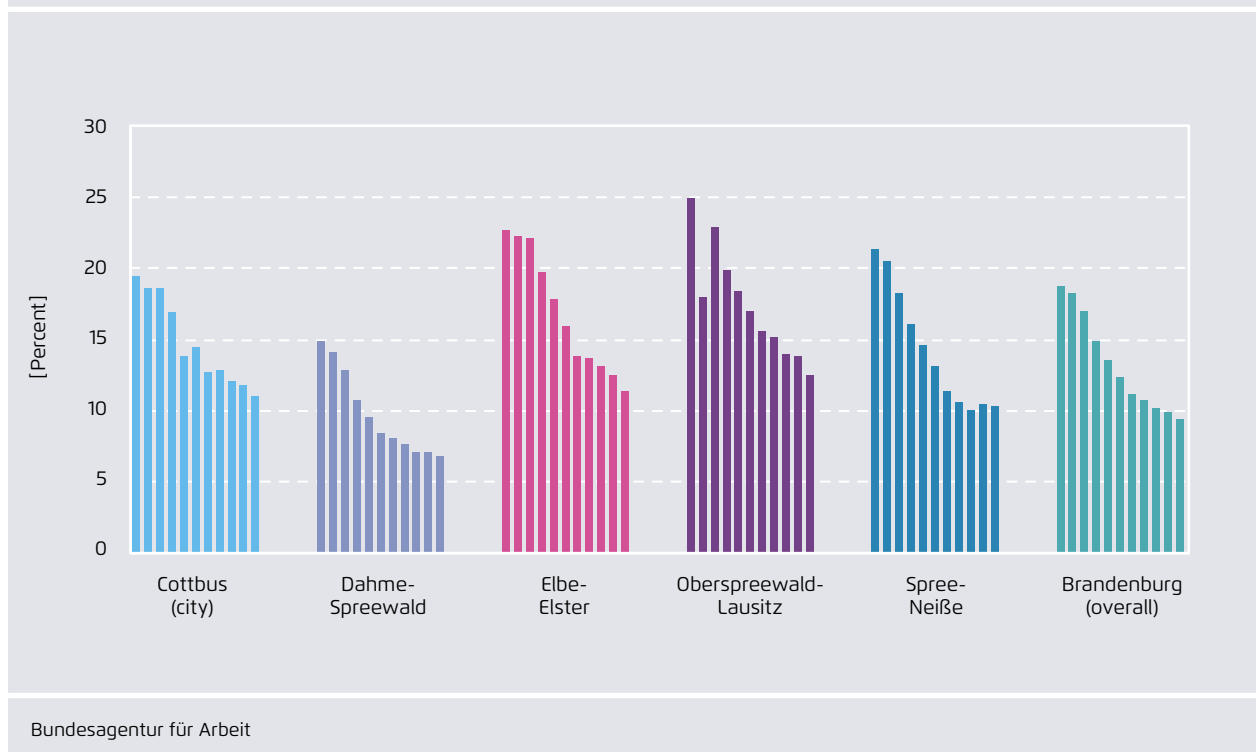
Lusatia's industrial character is primarily, if not exclusively, the result of its lignite mining and energy industry. In Southern Brandenburg, the industrial sector accounts for 31.4 per cent of gross value added. In Brandenburg as a whole it accounts for 27.1 per cent of GVA and in Germany for 22.3 per cent (as of 2014).²⁷ In terms of its recent economic development, Lusatia compares very favourably with other peripheral regions in Brandenburg and Eastern Germany.

In contrast to these overall economic indicators, however, the demographic data for the region has long painted a rather gloomier picture. According to current prognoses, the tendency toward emigration is set

27 Lange, H. R.; Krüger, W. (2017)

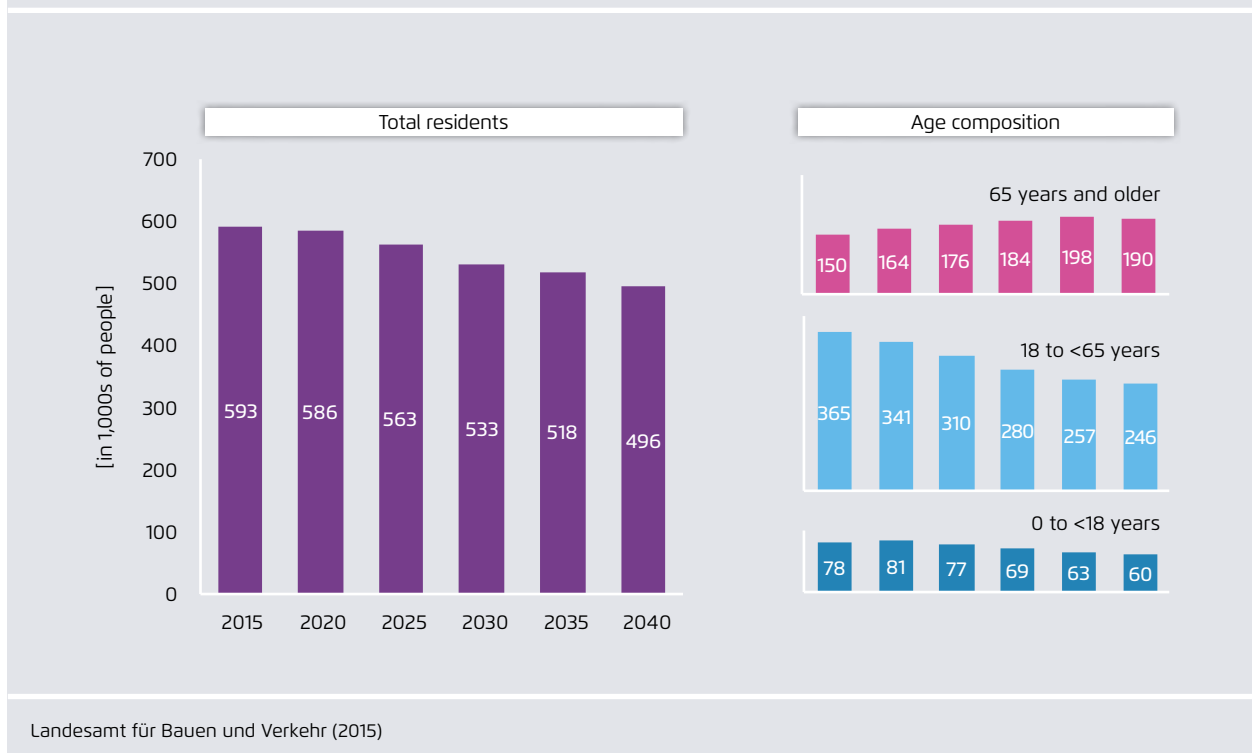
Unemployment Rates in Lausitz Districts and in the State of Brandenburg, 2004 to 2014

Figure 4



Demographic Forecasts for Lausitz Districts in Brandenburg, 2015 to 2040

Figure 5



to continue in the years to come, at least in Lusatia's more peripheral districts. In 2014, 1.2 million people lived in Lusatia's Brandenburg and Saxony districts. The consequences of the demographic shifts of the early 1990s nonetheless continue to be felt today, and the region suffers from an ever growing lack of skilled workers. On current estimates, Lusatia's Brandenburg districts are expected to lose around a third of their labour force between 2015 and 2040, with the average age also set to rise sharply during the same period. In absolute terms, this would mean the loss of more than 100,000 working-age people by 2040²⁸ (cf. Figure 5). The figures for the Saxony districts tell a similar story. Though some areas of Lusatia have recently begun to see some immigration (particularly the Dahme-Spreewald district bordering Berlin), this reversal has not been significant enough to compensate for the demographic losses experienced during the early 1990s.

In sum, what these figures indicate is that mass unemployment is by no means a necessary consequence of the new structural shifts induced by the gradual phase-out of lignite mining and electricity generation. The phase-out should rather be conducted in such a way as to increase the area's attractiveness, so that greater numbers of working-age people move to the region and skilled workers remain there after finishing their training. In managing present and future structural change in the area, it is therefore essential to focus on recruiting, training and mobilising skilled workers.

In addition, the above economic indicators make clear that, unlike traditional economic development programmes for structurally weak regions, shaping structural change in Lusatia cannot be a question of initiating a recovery process, but rather of preventing any new economic decline.

28 Zundel, S. (2017)

The lignite industry is currently the most important branch of Lusatia's industry as a whole. It accounts for 13 per cent of all gross value added in Southern Brandenburg, with additional jobs in the retail, service and construction sectors depending on it.²⁹ These are not insignificant figures. At the same time, however, less than 5 per cent of all employees in Lusatia work in the mining and energy generation sectors.³⁰ The region is then by no means dependent on these sectors alone. Rather than being industrially homogeneous, it enjoys a comparatively diverse industrial structure. There is therefore a strong basis for successful structural change in the area. Yet it would be a mistake to think that such change could take the form of a one-to-one transformation of existing industrial jobs in the energy sector into new industrial jobs, or even into new energy industry jobs. The aim should nonetheless be to retain as many jobs as possible in the energy sector.

In light of the complexity of the regional context, the authors of the BTU report warn against "ceding to the temptation to evoke the impending impoverishment of the region" where political discussions are concerned. Though they describe the situation as "very serious," they also note that "an economic catastrophe such as that of the 1990s is not on the horizon."³¹

3.2. Structural Change Is Already Underway

In truth, many aspects of the impending structural change process have already begun to manifest themselves, both in Germany and beyond.³² This change will not wait for politicians to announce a legally binding road map for the decarbonisation of the energy industry or to establish a consensus with the lignite industry.

29 Schäfer, K.; Sannig, J.; Krüger, W. (2017), pp. 75-76

30 Zundel (2017)

31 Markwardt et al. (2016), p. 30

32 Rocholl, M. (2017), pp. 43 ff.

The number of people employed in the lignite industry has been falling for years, and not only in Lusatia. According to statistics provided by the lignite association DEBRIV, the number of people directly employed in lignite mining and lignite power stations across Germany dropped by 4.3 per cent between the end of 2015 and the end of 2016, to just under 20,000. This figure also includes trainees, semi-retired employees and members of the *Lusatia und Mitteldeutsche Bergbau-Verwaltungsgesellschaft* (Lusatia and Central German Mining Administration Society – LBMV) who are involved in recultivating old open-pit mines in the former GDR.³³ This downward trend is set to continue with the upcoming closure of two blocks of the Jänschwalde power station and the implementation of the LEAG's *Regional Plan for Lusatia*, which was published in March 2017.

In recent years, a number of political decisions and announcements have again drawn attention to the region's future. The federal government's 2015 decision to relegate blocks E and F of the Jänschwalde power station to its lignite reserve capacity in order to meet Germany's 2020 climate targets represents the first externally imposed reduction of generating capacity in Lusatia. Though this measure is in no way sufficient to meet the 2020 targets, the decision nonetheless sent a strong signal that the phasing-out of lignite in Lusatia was about to begin in earnest. In the meantime, both the local population and the state governments of Brandenburg and Saxony have come to regard the phase-out as unavoidable.

In March 2017, the new owner of Lusatia's coal mines and power stations, LEAG, published its "Consolidated Regional Plan." For the first time, this plan incorporated the conclusions of national and international debates on the energy transition and climate change more broadly. In particular, the advisory board of Lusatia Energie Bergbau AG voted:

33 Öko-Institut (2017), pp. 83 ff.

- Not to build any new power station capacity in Jänschwalde (even with CCS technology) and to cancel the planned re-opening of the Jänschwalde-Nord open-pit mine.
- To close Jänschwalde's existing open-pit mines by 2023 and to fuel the Jänschwalde power station blocks still in use at that time using lignite from the Southern end of the Lusatia coalfield.
- To use only the smaller section of the planned second open-pit extraction site at Nochten (Nochten 2) – the "Sonderfeld Mühlrose" – to fuel the Boxberg power station. This will mean that only 200 people will need to be relocated from the area, rather than 1,700.
- To postpone the decision on whether to invest in the Welzow-Süd II open pit mine until at least 2020 and to make this decision dependent on developments in electricity prices and the broader political context.
- Not to pursue the opening of the Bagenz-Ost and Spremberg-Ost open-pit fields, yet to continue with open-pit mining at the Reichswalde site, in accordance with the approved plans.

On the one hand, most stakeholders inside and outside the region welcomed the LEAG's regional plan, insofar as it ended uncertainty for those affected and helped to strengthen planning security in the regional economy. On the other hand, however, it was seen by some as escalating the debate on the limited lifespan of lignite-based electricity generation.³⁴

For most observers, two things are necessary in light of the LEAG plan: firstly, a faster structural change process, which should primarily be driven by regional actors, and secondly, dependable, long-term financial support from the federal government, which is often held solely responsible in the region for restrictions on lignite mining and energy generation.³⁵

34 Staatskanzlei Land Brandenburg (2017); Wirtschaftsinitiative Lusatia e. V. (2017); Pro Lusatiaer Braunkohle e. V. (2017); IHK Cottbus (2017); Handwerkskammer Cottbus (2017); Innovationsregion Lusatia (2017)

35 This assessment is accurate insofar as key decisions on

3.3. The Key Players and Their Proposals for Lusatia

The fact that important decisions are due to be made on the lignite phase-out in Lusatia during the upcoming federal legislative session has prompted a wide range of stakeholders to develop new initiatives and proposals for the region. In what follows, we shall briefly present these organisations and their initiatives, without any claim to exhaustiveness.

3.3.1. Initiatives from the Business Sector

The "Innovationsregion Lusatia" Association (iRL) was founded at the beginning of 2016, following the federal government's decision to decommission two blocks of the Jänschwalde lignite power station and assign them to its reserve generating capacity.³⁶ Under the aegis of the Cottbus Chamber of Commerce and Industry (IHK), it brings together the Cottbus Chamber of Trade, the Federation of Business Associations for Berlin and Brandenburg (UVB), the *Wirtschaftsinitiative Lusatia* (Lusatia Business Initiative – WiL),³⁷ and the Brandenburg University of Technology (BTU). The iRL aims to help manage structural change in Lusatia by maximising the region's existing economic potential. In concrete terms, this involves developing

climate protection are indeed made at the federal level.

36 The organisation's name was inspired by the Jülich based "Innovationsregion Rheinisches Revier" (IRR) association, which was founded in 2014. This association, however, is for the most part funded by the regional authorities, the state of North Rhine-Westphalia, and the Ministry of Economics in Düsseldorf.

37 Founded in 2009 on the initiative of BASF and Vattenfall, the WiL describes itself as a "regional platform for action and networking by and for Lusatia-based businesses." It organises an annual "Lusatia New Business Competition" and "Lusatia Knowledge Dissemination Prize." From the outset, it was chaired by members of the executive board of Vattenfall Europe Mining & Generation AG. Following the sale of Vattenfall's German mining operations in 2016, Michael von Bronk stayed on as chairman of the association, now in his new capacity as executive board member of the Lusatia Energie Bergbau AG und Lusatia Energie Kraftwerke AG (LEAG). www.wil-ev.de

new areas of business and assisting local companies to elaborate new growth models. One of its key tasks is to stimulate commercial innovation, particularly by building new collaborative networks. The iRL has nonetheless been hamstrung by its lack of funding (thus far derived exclusively from its founders' own resources), which has prevented it from exerting an extensive influence on structural change in the area. The iRL also seeks to stimulate discussion on how to organise and orient the various initiatives and ideas for structural change in Lusatia. In January 2017, it published an influential plan for the region in collaboration with the Cottbus Chamber of Commerce, entitled *"Das Lusatia-Papier"*.^{38,39}

Other Initiatives from and for the Private Sector

Alongside the above initiatives, there are a range of other organisations and state programmes that aim to bolster the local economy.

- Brandenburg Invest⁴⁰ (formerly the ZukunftsAgentur Brandenburg GmbH) is the first port of call in Brandenburg for investors, local companies, and new businesses.
- *Zukunftswerkstatt Lusatia* (The Lusatia Future Workshop) is the working title of a four-year project launched by the federal government and the states of Brandenburg and Saxony in the autumn of 2016. It has been allocated 7.3 million euros from the resources of the joint federal/state scheme for the improvement of regional economic structures (GRW).⁴¹
- *Regionale Wachstumskerne* (Regional Growth Cores) is a programme launched by the Brandenburg state government in 2004. In line with its motto, "strengthening strengths," it has sought to

raise the attractiveness of the area and put a brake on or reverse the emigration of its labour force.⁴²

- Many initiatives have also been launched by district and municipal authorities to stimulate the economy, promote innovation, and encourage businesses to settle in the area. Declining profits in the energy industry and concomitant reductions in tax revenues have nonetheless put these under significant financial pressure.

3.3.2. Municipal and Regional Government Initiatives

The *Lusatiarunde*

The *Lusatiarunde* (Lusatia Round Table) was formally established in the spring of 2016. It is a voluntary alliance between 23 district administrators, mayors, and department heads from Lusatia's Brandenburg and Saxony districts, who have come together to represent the interests of their municipalities and districts in the upcoming process of structural change. The alliance has called on the federal government to guarantee funding for long-term structural change in Lusatia. In addition, it has called for the region, including the development zones adjacent to the key coal industry areas, to be designated an EU "model region" for structural change (on its prospects for success, see section 3.4.4.). To compensate for future industrial job losses, the *Lusatiarunde* has proposed that jobs should be created in research and development and through "alternative uses" of Lusatia lignite. It has also called for a "structural fund that is to be independently managed from within the region itself, with municipal participation." The fund is intended to compensate for reductions in tax revenues as a result of declining profits in the energy industry, and to be used in part for significant infrastructure projects. The alliance proposes the fund should be established through a treaty between the federal government and the states of Brandenburg and Saxony. It has also announced a consultation process with broad citizen participation. The *Lusatiarunde* describes itself as a "link between local people and the various authorities

38 www.innovationsregionlausitz.de

39 Lange, H. R.; Krüger, W. (2017)

40 www.wfbb.de/de; Märkische Onlinezeitung (31 May 2016)

41 Sächsische Staatskanzlei (13 September 2016)

42 www.stk.brandenburg.de

guiding structural change in Lusatia.⁴³ The spokesperson for Brandenburg's municipal authorities in the *Lusatiarunde* is the mayor of Spremberg, Christine Herntier, who is also a member of *Pro Lusatiaer Braunkohle* (For Lusatia Lignite – see below).

Wirtschaftsregion Lusatia GmbH (Association for the Lusatia Economic Region – WRL)

The WRL is currently in the process of being formed. It amounts to an expansion of the *Energieregion Lusatia-Spreewald* association,⁴⁴ whose remit has thus far been limited to Lusatia's Brandenburg districts and the city of Cottbus. The WRL's broader remit will also incorporate Lusatia's Saxony districts. Thus far, however, only the district of Görlitz in Saxony has formally decided to join the WRL. The district of Bautzen has stated that it will not join until commitments are made to provide long-term financing and to earmark appropriate funds within the relevant state and federal budgets.⁴⁵ The association aims to coordinate and guide structural change across Lusatia and to acquire project-specific funding from state governments, the federal government and the EU. It has assumed the role of a consultation and coordination centre for structural change in the region, whose shortcomings have been criticised by the former Federal Minister for Economics, Sigmar Gabriel (SPD).⁴⁶ This expansion of the *Energieregion Lusatia-Spreewald* association into the WRL can be seen as a response by regional and state politicians to the founding of the IRL.

The State Governments of Brandenburg and Saxony

The state governments of Brandenburg and Saxony have long voiced their opposition to any decarbonisation-related structural change in Lusatia, largely irrespective of their political make-up. They have argued that lignite will still be needed for some time to

come as a bridge technology in the energy transition, and that there is therefore no basis for a fundamental change of course. Accordingly, until the autumn of 2016 they rejected all fund-based approaches to the issue at the federal or state level. In the past year, however, their outlook began to shift – particularly after LEAG, the new owner of Lusatia's lignite mines and power stations, published its regional plan in March 2017.

At a joint cabinet meeting in June 2017, both state governments adopted the white paper *Gemeinsam für die Zukunft der Industrieregion Lusatia* (Together for the Future of the Lusatia Industrial Region). The paper acknowledged the "growing pace of structural change" in Lusatia as a result of globalisation, international competition, and environmental and climate policies, and called for Lusatia to be developed as a model region for structural change. According to the paper, this would require it "to be furnished with additional flexible and bureaucratically unencumbered financial and funding instruments by the federal government and the EU."

Both states have called for federal funding of "at least 1.2 billion euros for structural development projects in Lusatia, in addition to any pre-planned infrastructure projects" from 2019 to 2024. They have also demanded that "obstacles to state aid law be kept to a minimum" by the EU in order to have a chance of attracting large corporations to the area. In addition to promoting innovation, R&D and business development, both state governments see infrastructure development as one of the region's highest priorities.^{47,48}

43 www.lausitzrunde.de

44 www.energieregion-lausitz.de

45 *Lusatiaer Rundschau* (29 June 2017)

46 Jurk, T. (2016)

47 Landesregierungen von Brandenburg und Sachsen (2017)

48 Sächsische Staatskanzlei (13 June 2017)

3.3.3. Academic and Research Institutions

The Brandenburg University of Technology (BTU) at Cottbus-Senftenberg, The Zittau/Görlitz University of Applied Sciences

For many stakeholders in the region, and particularly those in the political sphere, Lusatia's universities have an important if not decisive role to play in driving commercial innovation. It is widely held that the universities' specialisation in technical and energy-related fields can help Lusatia acquire a prime role in the nascent energy transition industry. There is nonetheless a considerable mismatch between the expectations placed on the universities and their current levels of funding. Brandenburg in particular lies at the bottom of the rankings for state expenditure on academia and research and core university financing. The same holds for research and development spending among businesses in the state.⁴⁹ These funding shortfalls have also affected Lusatia as a region.

For some time now, commercial partnerships and independent research at the BTU and the Zittau/Görlitz University of Applied Sciences have no longer focussed only on traditional energy systems (i.e. mining and fossil-fuel electricity generation), but have increasingly been oriented toward the development of innovative solutions for the transformation of the energy system and other economic sectors. For some observers, the universities' very futures are bound up with their commercial collaborations with companies who hope to play an innovative role in the future energy system. Accordingly, they tend to take a pessimistic view of the institutions' chances of competing with Berlin's and Dresden's technical universities.

The two universities thus find themselves confronted by the need to excel in both basic and applied research. On the one hand, they are pressed to achieve research excellence (and thus become eligible for funding from Germany's main funding agency, the DFG), while on the other they are assigned a central role in developing transitional strategies for Lusatia,

in their capacity as its "regional universities." In order to fulfil these roles, however, they first of all require appropriate facilities and resources.⁵⁰

3.3.4. Civil Society Initiatives

The debate on the future of lignite has given birth to a raft of initiatives, associations and organisations for and against the continuation of lignite mining and electricity generation. This debate is not simply a question of differing worldviews, but also of diametrically opposed interests that are not restricted to and often predated the debate on the energy transition. On the one hand, there are those who fear the loss of secure and comparatively well-paid jobs, while on the other there are environmental campaigners and individuals facing relocation due to the expansion of open-pit mining.

Against the backdrop of broader political measures to combat climate change, however, these long-standing debates are now drawing to a close. Since the long-term continuation of lignite-based energy generation is now out of the question, the focus has shifted to what should take its place and the concrete measures needed to reduce coal-based energy generation. This new situation raises hopes of easing social tensions in the region.

Pro Lusatiaer Braunkohle (For Lusatia Lignite)

Founded in 2011, the Pro Lusatiaer Braunkohle association is one of the key organisations calling for the continuation of lignite-based energy generation for as long as possible. It argues that lignite is indispensable in the long term, and that at the very least it will be required as a bridge technology to ensure Germany enjoys a secure and affordable energy system until the middle of the 21st century. The dynamic association describes itself as a "movement of citizens attached to their home region" and largely adopts the same arguments as the lignite industry itself and its leading trade union, IG BCE. The association's stated aim is to "promote and strengthen social engagement

49 Berger, W.; Schnellenbach, J. (2017), pp. 27–28 and 15–16

50 Berger, W.; Schnellenbach, J. (2017), p. 21

for the perpetuation of lignite mining, in order to safeguard existing structures.”⁵¹

Critical Voices

Alongside organisations such as *Pro Lusatiaer Braunkohle*, there are also numerous local and regional groups that are opposed to any further lignite mining, population relocation and open-pit mining expansion.

The *Umweltgruppe Cottbus* (Cottbus Environmental Association) was founded in 1987 in the midst of the GDR citizens' rights movement. It joined the *Grüne Liga* environmental network in 1990, in which it acts as a federal lignite liaison centre. It also represents environmental groups on the state of Brandenburg's lignite committee and tends to be sceptical toward structural change proposals from regional industrial players, who are traditionally pro-lignite.^{52,53} The *Klinger Runde* citizens association, meanwhile, was founded in 2007 in response to plans for new open-pit mines and later fielded candidates in the elections for the Spree-Neiße district assembly. The *Strukturwandel jetzt – kein Nochten II* (Structural Change Now – No Nochten II) association is active in Lusatia's Saxony districts and consists of environmental activists, residents of open-pit mining areas and local politicians. The *Allianz für Welzow*, for its part, has sought to prevent the opening of Sub-Field II of the Welzow-Süd open-pit mine. In addition, the Jänschwalde-Nord open-pit mine was opposed by the parish of Schenkendöbern, which would have been impacted by the development, along with the Agenda21 group and many citizens of the neighbouring city of Guben. The environmental organisations NABU, BUND and Greenpeace, which all operate at the federal level, are also represented by regional groups in Lusatia. Since 2011, Lusatia has hosted an annual Energy and Climate Camp.

Though these organisations often differ in terms of how they attempt to counter the lignite industry, they all call for planned structural change and the involvement of coal-critics and environmental activists in its implementation. They do not feel themselves to be represented in the *Lusatiarunde*, which they see as being wholly comprised of lignite supporters.

The Regional Protestant Church

Beyond the present debate around the future of lignite-based energy generation, there have always been social organisations that have sought to mediate between opposing parties. One such organisation is the Protestant church, which tends to be rather critical of lignite mining and energy generation, in line with its duty to preserve the integrity of the creation. In September 2017, the regional church of Berlin-Brandenburg-schlesische Oberlausitz founded a centre for dialogue and change. The church's general superintendent for Görlitz, Martin Herche, hopes that it will serve as a “focal-point for social dialogue” that will play an important role in “the struggle for a brighter future for Lusatia.” The centre is intended to “offer an open space for listening and speaking, in order to help shape change.” It is based in the Cottbus district of Kahren and led by vicar Burkhard Behr.^{54,55}

The Lusatiaer Perspektiven Association

As the inevitability of the decarbonisation process and the associated structural change has become increasingly clear, many new initiatives have been launched by civil society groups seeking to help shape Lusatia's post-lignite future and gradually overcome its social divisions. One such organisation is *Lausiter Perspektiven*, which is conceived as an independent citizens' forum. In 2016, it published its “Lusatiaer Erklärung” (Lusatia Statement), which

51 www.pro-lausitz.de

52 www.kein-tagebau.de

53 Schuster, R. (2016)

54 www.ekbo.de

55 Evangelische Landeskirche Berlin-Brandenburg-schlesische Oberlausitz (2016)

opens with the words, "Lusatia is dear to us all."^{56,57} By its own account, it aims to help shape structural change in Lusatia in a manner that transcends political, social and ideological divisions. It therefore functions essentially as a liaison centre and platform for local, regional, national and international initiatives for sustainable regional development.

The association aims to ensure that jobs and prosperity are not played off against the environment and the destruction of natural resources. It is active across Lusatia as a historical and cultural region, and not only in Brandenburg and Saxony; its activities thus extend into Poland and the Czech Republic. In order to generate greater momentum for the upcoming change, the association has called for a new vision for the region to be developed by as many people as possible in all parts of Lusatia. To this end, it organises events and educational projects, provides information and brings together citizens, regional authorities, businesses, associations and initiatives. Furthermore, it seeks to intensify regional, national and international exchange between regions faced with similar challenges and opportunities.

3.4. The Players at the Federal Level and the Role of the EU

3.4.1. Federal Politics

The Federal Government

The federal government has stated that further climate protection measures are to be voted on in 2018, as part of the implementation of the 2030 sectoral targets detailed in the *Climate Action Plan 2050*.⁵⁸ If the 2030 sectoral target for the energy industry is

to be reached, these measures will inevitably have to include the gradual closure of coal-fired power stations. In light of this, the government is endeavouring to make more concerted efforts to shape the energy transition in a way that does not lead to structural rifts. Ultimately, the aim is to "help the affected regions to help themselves", as encapsulated in the German expression "*Hilfe zur Selbsthilfe*".

In 2016, the federal government agreed with the states of Brandenburg and Saxony to provide Lusatia's districts with a total of 7.3 million euros over the next four years, as part of the joint federal/state scheme to improve regional economic structures (GRW).

Furthermore, the *Climate Action Plan 2050* also states that:

"It will only be possible to meet the climate targets if coal-fired electricity production is gradually reduced. When steering this development, it is essential to take the economic outlook and jobs in the affected regions into account. Above all, it is necessary to open up tangible prospects for these regions before definite decisions about gradually pulling out of the lignite industry can be taken. To do this, we need a regional and industrial policy strategy, which proactively shapes structural change and supports businesses and their workforce in adapting to new regional structures."⁵⁹

The details of the future development strategy for the lignite-mining regions are to be elaborated by a commission for growth, structural change and regional development, which will be based in the Federal Ministry for Economic Affairs and Energy and will "involve other government departments, along with the states, local authorities, trade unions, representatives of affected businesses and sectors and regional actors."

⁵⁶ www.lausitzer-perspektiven.de

⁵⁷ Lusatiaer Perspektiven e.V. (2016)

⁵⁸ This was most recently affirmed by Angela Merkel, who in an interview with the ARD television channel on 16 July 2017 explicitly acknowledged the need for "further measures" to reach the climate targets. www.tagesschau.de/inland/merkel-sommerinterview-115.html

⁵⁹ Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2016)

The Main Parties in the Federal Election Campaign

All parties represented in the current 18th legislative session of the German Bundestag not only support the energy transition. They also acknowledge the urgent need for carefully planned structural change in lignite regions and for the provision of structural assistance by the federal government.

CDU/CSU

In their joint election manifesto, the CDU and CSU reaffirmed Germany's existing energy and climate targets, which they plan to implement on a "step-by-step" basis. They also stressed that "The same holds for the 2016 Climate Action Plan." Furthermore, with regard to areas such as Germany's lignite regions, the manifesto section on "Securing Equal Living Standards" states that:

"In collaboration with the relevant states, the federal government will take measures to provide new structural opportunities for regions with particular development needs. Such needs include road and rail links, a fibre-optic and 5G broadband roll-out, and research activities in the field of modern energy technologies. In addition, funding to encourage businesses to move to particularly heavily impacted regions should be guaranteed by European law. The long-term phase-out of lignite should also be carried out in parallel with new structural development."⁶⁰

SPD

In its own manifesto section on "Bolstering Trade, Medium-Sized Companies and the Industrial Base": the SPD offers a more detailed affirmation of the need for federal engagement in lignite regions:

"Structural change in the energy industry is set to continue. Particular challenges are faced in Lusatia and in the Central German and Rhenish mining regions, which have historically been dominated by the lignite industry. In these areas, it is crucial to build and expand upon regional economic

structures that respect the area's industrial traditions and provide good jobs that are secured via collective agreements. We shall meet these challenges in close cooperation with the states and regions concerned, and with the affected trade unions, businesses and citizens. In doing so, we will be aided by the ongoing energy transition, which will drive demand for new technologies such as storage facilities and batteries, and for research and development centres in material and process technologies. With federal funding, we will unite the new economic activities in these regions into a compelling force."⁶¹

Bündnis 90/Die Grünen

In the section of its manifesto titled "Time to Phase Out Coal," the German Green party (Bündnis 90/Die Grünen) presents its proposal to "bring an end to the coal era in Germany in a carefully planned and irreversible manner."

"We are mindful of the fact that the phase-out should take place on the back of broad-based dialogue; we will conduct it in a socially sustainable manner and create new jobs in the process. Structural change needs to be jointly financed by the federal government, the relevant state governments and energy companies. [...] We want to shape structural change in the region in collaboration with all concerned and in an environmentally friendly and socially sustainable way. To this end, we will establish a fund to address the clean-up costs of mining-related activities."⁶²

60 CDU/CSU (2017)

61 SPD (2017)

62 Bündnis 90/Die Grünen (2017)

Die Linke

In its 2017 manifesto, Die Linke states that the energy transition “can only be considered a success if it is carried out in a socially equitable manner and led by the citizens concerned.” In the section, “An End to Coal: Ensuring a Just Transition,” the manifesto states that,

“We want to see a rapid, socially cushioned phase-out of coal-based energy generation.” [...] The burden of structural change in the mining regions must not be borne by the industry’s workers. We are therefore calling for a structural change fund to the value of 250 million euros per year in order to provide a security net for these workers and create new jobs in the region.”⁶³

Alongside the above parties, the FDP and the AfD will also be represented in the Bundestag’s 19th legislative session. Their election manifestos nonetheless do not make any reference to the upcoming structural change process in Germany’s lignite regions.

3.4.4. The Role of the European Union

At the EU level, competition law places limits on the funding that can be provided to businesses. The EU nevertheless does not want to see a raft of regions left in a state of dependency following its member states’ energy transitions. As part of its extensive Clean Energy for All Europeans programme, the EU Commission has therefore sought to instigate a dialogue with its member states and their affected regions about how it can best promote a socially sustainable process of change. In its press release on the programme, the Commission announced that it would assess various ways of providing “better support for coal and carbon-intensive regions that the energy transition will sweep through on the path toward cleaner energy.” This assessment is to be carried out in collaboration with regional stakeholders.⁶⁴

63 Die Linke (2017)

64 Europäische Kommission (2016a); Europäische Kommission (2016b)

Local politicians who have petitioned the EU to recognise Lusatia as a model region for structural change have reported that their proposal has been warmly received by the Commission. Such official recognition would expand the range of legally permissible options for supporting the Lusatia region.

Interim Summary

As of autumn 2017, Lusatia is now ready for a serious and concrete debate on structural change, with the potential to generate lasting results. At the federal level too, there is a readiness that transcends the usual party and factional lines to provide prompt structural support to lignite regions, and particularly to Lusatia. Similar momentum is also building within the EU Commission. In the affected states of Brandenburg and Saxony, increasingly pro-active attempts are being made to secure funding for the impending structural change.⁶⁵ What the debate has lacked so far, however, are detailed plans for a Structural Change Fund for lignite regions. How should such a fund be structured in order to most successfully implement change in the region? How can it maintain a high quality of life and a strong industrial base in Lusatia, and how can it help overcome the area’s social divisions? These questions will be pursued in the following sections of our paper.

65 Landesregierungen von Brandenburg und Sachsen (2017); Landtagsfraktionen Brandenburg und Sachsen der CDU (2017); Landtagsfraktionen Bündnis 90/Die Grünen Brandenburg und Sachsen (2017)

4. Structural Change in Lusatia: The Key Elements

4.1. Focussing Funding through a New Structural Fund

At the beginning of 2016, Agora Energiewende proposed that a Structural Change Fund totalling 250 million euros per year should be set up at the federal level for the Central German, Lower Rhine and Lusatia coal-mining regions. Based on our proposal, Lusatia is to be allocated 100 million euros from this fund every year. At present, businesses in Lusatia and the wider area can already benefit from various forms of funding for structurally weak regions from institutions at all political levels (the EU, the federal government, and regional and local authorities). Nevertheless, successfully managing structural change and cultivating consensus-based, sustainable future prospects for the region will require more support than can be provided via existing funding methods and instruments, and cannot be achieved through business development programmes which have proven effective in the past alone.

The aim of our proposed Structural Change Fund is therefore not simply to provide additional support for local businesses during the restructuring process, but also to assist Lusatia more broadly as a region (even if the economy and the region are intertwined). The more attractive Lusatia becomes as a region, the better its chances of strong economic growth. Indeed, the former is perhaps even a necessary condition of the latter.

The same holds for Lusatia's development as an academic and research centre. Its universities will require proactive support to fulfil their role as commercial partners and drivers of economic innovation within and beyond the energy transition sector. Furthermore, infrastructural deficits will need to be redressed in the region, and numerous civil society initiatives and other small-scale projects will need to

be given a chance to contribute to the elaboration of forward-looking, sustainable development plans.

Lusatia is faced with the task of partially reinventing itself as a forward-looking region that is ready to cope with declines in lignite mining and electricity generation. There is broad consensus that Lusatia should be maintained as an industrial and energy-focussed region, though it is also acknowledged that not every new industrial job can or should be an energy industry job. Indeed, it will be important to further diversify Lusatia's industrial base, which remains heavily oriented toward the energy sector. Through the maximisation of the local economy's innovative potential, the installation of advanced infrastructure, the expansion of academic and research institutions, and the cultivation of the region's cultural sphere, Lusatia can make the most of the opportunities provided by structural change. It can also tackle what is perhaps its most pressing problem: how to slow and ultimately reverse the ongoing emigration from the area. The proposed Structural Change Fund can act as a key driver of positive developments.

It has sometimes been proposed that the impending transformation process can best be managed by providing existing funding bodies with further resources, rather than by establishing a dedicated fund. Yet, alongside the fact that the Structural Change Fund is primarily intended to finance projects that do not currently receive significant support, there are four key reasons that speak against this view.

→ Firstly, the structural change in question here is the result of federal and international policy decisions, rather than spatial economic disparities generated by purely market-driven developments. The latter situation, however, is usually presupposed by traditional forms of structural funding, such as the

joint federal/state scheme for the improvement of regional economic structures (GWR).⁶⁶

- Secondly, existing funding measures to support politically induced structural change are unsuited to the present task in a number of ways. Certain measures (such as those which aim to support investment) can only be funded to a limited extent or cannot be funded at all through such programmes, which often require applicants to demonstrate exceptional circumstances.^{67,68}
- Thirdly, reallocating or increasing existing funds to help lignite-mining regions would risk pushing the relevant conflicts beyond the borders of the energy hotspots themselves, since it would be interpreted as unduly privileging these regions over other structurally weak or peripheral areas.⁶⁹
- Finally, without a special fund, it will be more difficult to provide reliable medium to long-term funding over the whole course of the transformation process. The use of the available funds would then have to be continually renegotiated on the basis of each funding body's own criteria, at the expense of reliability and planning security. It is not only those in the business world, however, who are rightly calling for greater reliability.^{70,71} Yet without a dedicated fund to tackle the consequences of the energy transition, this will remain elusive.

66 Markwardt et al. (2016), p. 7

67 Lusatia's Brandenburg and Saxony districts and the city of Cottbus thus justified their application for funding to support structural change management by appealing to the "experimental clause" in the coordination guidelines for GRW funding.

68 Markwardt et al. (2016)

69 Representatives of the Lusatiarunde have reported that local politicians' calls for additional GWR funding for Lusatia have been met with the argument that there are other structurally weak regions in the state that would then too demand an increase in aid.

70 Schäfer, K.; Sannig, J.; Krüger, W. (2017)

71 The debate on whether special support should be provided to Lusatia would now seem to have been decided, since in its Climate Action Plan 2050 the federal government has already approved such funding for affected regions

4.2. The Principles of Successful Structural Change for the 21st Century Looking to the Future and Joining Forces

The consequences of structural change processes in Germany's mining industry have often been mitigated through the investment of large sums of public money, even in cases where the number of people affected was higher than it currently is in Lusatia. This approach has been particularly successful in areas with strong trade unions and a highly organised workforce. For workers directly affected by structural change, such funding has helped to alleviate the attendant social hardships through severance payments, (early) retirement programmes, and training schemes to help people adapt to new working relationships. Structural change and regional reorientation projects have been less successful where political actors believed that such change and its consequences could be avoided or nipped in the bud simply by subsidising the modernisation of the coal and steel industry in its existing form.⁷² The large sums of money invested in such regions did not prevent them from losing their economic centres, without any comparable new centres arising to take their place. Though the Ruhr region's

(see Chapter 3 of the plan). Furthermore, the states of Brandenburg and Saxony have also vehemently demanded that the "federal government compensate for the disadvantages incurred by the area by committing to providing additional funding."

72 There are periodic proposals, for example to use lignite as a replacement for oil in the petrochemical industry or the fuel sector. Research and development projects in these areas, however, are not expected to yield any significant breakthroughs, particularly since the global oversupply of oil and natural gas calls into question the economic viability of lignite, which is a comparatively expensive fuel source. The same can be said of proposals, now rejected in political circles, to continue lignite mining and energy generation with the aid of CCS technology. These are not only unrealistic in light of the resistance that can be expected from parts of the population in a country with as high a population density as Germany's, but also because this method has not yet proved to be economically sustainable.

structural change policies have been greatly beneficial for the employees concerned (who were promised that “no-one will be left behind”), these policies have otherwise enjoyed a poor reputation since the 1960s and are considered in many respects to have failed.

In order not to repeat the mistakes of the past in Lusatia, we propose that structural change in the region should be regionally managed, involving bottom-up participation by those affected by it. Developing a sustainable energy system for the 21st century is a project that will take generations to complete. It will also require sustained efforts to address its social consequences for the workers and regions concerned. The transition to a 21st century energy system therefore needs to be accompanied by 21st century structural change.

As ever, such change must begin by alleviating social hardship, but it cannot end there. From the outset it will be important to ensure that business development funding is tied to quality standards, even where new jobs are concerned. Such standards may be ensured through collective agreements or similar provisions.⁷³

The debate on Germany’s energy transition has always been heated. In the country’s lignite regions, however, it has poured fuel on the fire of an often fierce conflict. Even before the energy transition, debates over the disappearance of centuries-old settlements on the one hand and the curtailment of authorised open-pit mining and lignite-fired power generation on the other had already split the local population into opposing camps. These divisions often ran right through village communities and even through individual families. The success or failure

73 Even where traditional funding instruments are concerned, such standards have long been called for by the trade unions. In light of the long-standing regional disputes over the burdens of structural change, which many see as being disproportionately borne by the lignite industry, it is important that these unions are given due consideration, while avoiding bureaucratic entanglements.

of ideas and proposals to manage structural change in lignite regions therefore depends on whether they prolong these long-standing conflicts and stoke existing divisions, or whether they offer new approaches to building broad-based consensus. Where the proposed lignite fund is concerned, it is crucial that the allocation of resources be regarded as “just” in the eyes of the conflicting parties. What must be avoided at all costs, however, is the continuation of these conflicts into the day-to-day process of awarding funding. On the contrary, it is vital to focus on the future and avoid falling into factional thinking, while continually seeking to unite forces that have previously been at loggerheads.

On the basis of these preliminary considerations, our proposal therefore seeks as far as possible to avoid prolonging the conflicts of the past, which are often based on deeply entrenched worldviews. In order to achieve this aim:

- *Local businesses* need to perceive the available funding and its method of distribution as a reliable and fair means of stimulating economically sustainable development in the region, and need to be motivated to partake in it.
- As an *academic and research centre*, Lusatia needs to develop a vision that allows its universities to constructively bridge the gap between cutting edge and applied research and to play a substantial role in the energy transition and the decarbonisation of German industry.⁷⁴
- *Regional politicians and administrations* need to receive sufficient funding to perform a guiding role in the region’s structural transition and to ensure the timely development of its transport and technical infrastructure.
- *Civil society initiatives and pioneering businesses that focus on sustainability, quality of life, and the common goods* need to be able to depend on a

74 This holds both for the region’s universities and for its very small number of non-university research institutions.

reliable institution for information about support for new ventures, funding for cultural and tradition-based projects, and cross-border structural development schemes.

Even if Lusatia's structural change process is managed in accordance with the above principles, its success is not guaranteed, though it is far more likely. The project team from the BTU Cottbus-Senftenberg has rightly noted that the relevant state funding resources have not yet been exhausted and that in the past there have been insufficient numbers of business and civil society initiatives that were eligible for funding in Lusatia. Likewise, the federal government's demands, in its capacity as the medium and long-term funding provider, for a reliable coordination process and transparent decision-making structures in the allocation of funding, are all quite reasonable.⁷⁵

The readiness of many people in the region to help pro-actively shape its impending structural change process has nonetheless increased significantly within a comparatively short space of time. On the basis of the range of ideas and initiatives in the region and the strong engagement on the part of the regional authorities, regional business organisations, academic institutions, church representatives, environmental groups and civil society associations, one thing is clear: there is a widespread desire in the region to help shape Lusatia's post-lignite future. Away from the still bitterly fought public disputes over the future of lignite, there is clearly now a broad-based need to elaborate a regional identity that goes beyond Lusatia's historical association with coal. Social scientists would call that social capital, which they consider a precondition of any bottom-up development process. In shaping Lusatia's future, it is crucial to draw on and promote this capital. Nevertheless, providing long-term support for such engagement through generous federal funding also risks stoking new conflicts and competition, which

may be aggravated by the unhealed wounds of the past. This risk is heightened by the variety of competing interests in the area, in the spheres of commerce, academia and research, regional politics and civil society. A further difficulty is that Lusatia's various districts will not all be equally affected by the upcoming structural change. Even now there are significant differences between these districts with respect to unemployment levels, economic performance and immigration and emigration levels. In addition, Lusatia is divided between the states of Brandenburg and Saxony, which in itself presents a challenge when it comes to acquiring and distributing federal funding.

In light of all the above factors, there is then a real risk that the nascent process of structural change in the region – a process that has the potential to bring the community together – may inadvertently give rise to new conflicts. In the worst case scenario, these would draw attention away from the question of the future of the lignite regions, and foster an unsightly scramble for cash injections. This would not only have a detrimental effect on the dynamics of the transformation process itself, but may also reduce the willingness of federal decision-makers to adequately equip the structural change fund and ensure reliable medium and long-term funding.

Such an eventuality can nonetheless be prevented if the right structures are put in place. We can find an interesting example of such an approach in the structural change practices implemented in the Bonn region following the decision to move the federal capital to Berlin. Here too, the region in question spanned two federal states (North Rhine-Westphalia and the Rhineland-Palatinate). In the following, we shall therefore liberally borrow from this successful structural change programme.

75 Lusatiaer Rundschau (10 October 2016)

5. The Fund in Detail: Four Pillars of Structural Change

5.1. Establishing a Contract-Based Structural Change Fund for Lusatia

The first part of our proposal concerns the formal establishment of a Structural Change Fund for Lusatia and the contractual stipulation of its constituent elements. This includes the following: the legal process of establishing the fund; the key data pertaining to it (including the annual volume of federal investment); the duration of the fund; the division of the available resources between four sectoral “pillars”; and the coordination and monitoring of the fund.⁷⁶

The fund is to be established in recognition of the economic and non-economic consequences of Germany’s energy transition and early decommissioning of lignite mining and energy generation in the affected regions.⁷⁷ It is explicitly intended as a *regional fund* that will go beyond, without substituting without substituting the traditional means for, the traditional means of managing structural change, such as adaptation aid, early retirement programmes, social planning and other compensatory measures aimed at those directly affected. This means that, where possible and appropriate, the above measures will need to be negotiated elsewhere.⁷⁸

⁷⁶ The present paper expressly does not wish to exclude the adoption of similar procedures for the Rhenish and Central German mining regions. It upholds our original proposal for a 250 million euro annual Structural Change Fund for Lignite Regions. Yet since the three regions differ markedly in certain key respects (including their size, presumed phase-out roadmap, level of regional integration, economic structure, and so on), we have first of all chosen to present a Lusatia-specific proposal. The extent to which it might serve as a basis for similar solutions in the two other mining regions is not examined in the present paper.

⁷⁷ Agora Energiewende (2016a)

⁷⁸ For a more detailed consideration of the relation between

In order to establish the fund, the federal government will sign a **Lusatia Structural Change Fund contract** with the states of Brandenburg and Saxony, the districts of Bautzen, Dahme-Spreewald, Elbe-Elster, Görlitz, Oberspreewald-Lusatia, Spree-Neiße, and the city of Cottbus, which will be based on the preliminary work undertaken by a federal structural committee. The contract will be based on the practices adopted as part of the decision to move the German capital and parliament and parts of the federal government back to Berlin in 1994, following German reunification.⁷⁹

In addition, it will specify the key elements of the fund (including its total volume, its duration, and its division between four pillars, which may be administered in a flexible manner). Finally, the contracting parties will establish a twelve-member **coordinating committee**, whose head office will be based in Lusatia. The coordinating committee will be comprised of two representatives of the federal government, two representatives of the states of Brandenburg and Saxony, and two representatives from each of the four sectoral pillars. The local authorities (of the relevant municipalities and districts) will be represented through the pillar for municipal and regional infrastructure (please see below). The coordinating committee will ensure that the available resources are appropriately distributed and employed within the four pillars, and will monitor the progress that

the Structural Change Fund for Lignite Regions and other possible sources of assistance for affected workers, see Agora Energiewende (2016b), pp. 38 ff.

⁷⁹ Agreement on compensatory measures for the Bonn region of 29th June 1994, based on the Berlin/Bonn law of 26th April 1994. The signatories were the federal government, the states of North Rhine-Westphalia and the Rhineland-Palatinate, the city of Bonn, and the districts of Rhein-Sieg and Ahrweiler.

has been made in reaching their goals. It will also ensure that the projects to be funded by the Structural Change Fund for Lignite Regions (in this case Lusatia) are appropriately distinguished from any other existing or supplemental projects.

Subject to the agreement of all contracting parties, the coordinating committee may also be charged with other duties.

5.2. Four Pillars for Lusatia

The second part of our proposal for the establishment of a Structural Change Fund concerns the division and allocation of the total funding volume. The key data of our proposal are as follows:

- **Total funding:** 100 million euros per year
- **Duration:** 15 years (2019–2034), with the option of extending the project for a further 5 years in modified form.
- **Four sectoral pillars, each of which is to receive 25 per cent of the total funding:** business development; academia and research; municipal and regional infrastructure; and civil society. Funds that are not withdrawn will remain available for use in subsequent years, and funding can be transferred between pillars.
- **Pillar 1 – business development.** Maintaining Lusatia as an economic powerhouse and energy-focussed region (installing one gigawatt of renewable capacity for every gigawatt of decommissioned lignite-based capacity) and promoting innovation (particularly particularly but not exclusively in new energy and CO₂ technologies). The aim: to develop economic structures that are no longer dependent on lignite.
- **Pillar 2 – promoting academia and research.** Bolstering universities and research institutions in the region, in part by founding a Fraunhofer Institute for the Decarbonisation of Industry. The aim: to put Lusatia squarely on the map as a research centre.

- **Pillar 3 – developing and modernising municipal and regional infrastructure.** Rapidly improving the area's transport infrastructure (including the Berlin-Cottbus and Görlitz-Dresden rail links) and rolling out high-speed internet. The aim: to ensure the region has the most up-to-date infrastructure possible.
- **Pillar 4 – The Lusatia Future Foundation.** Supporting a wide range of civil society initiatives in the region, including in the areas of art, culture, local traditions and social modernisation. The aim: to raise the region's attractiveness.

Our proposal revolves around the distribution of funding through a fixed allocation system. This serves to reduce the risk of an unseemly scramble for Structural Change Fund resources by competing parties. Our pillar-based model divides up the Structural Change Fund into four clearly and transparently defined sectors. The amount allocated to each pillar will be determined in advance through an official resolution on the establishment of a Structural Change Fund for Lignite Regions. Once this resolution has been adopted, the federal government will then primarily assume a monitoring role in its capacity as funding provider. It will only become active again if the monitoring process reveals the funding has been used inefficiently or inappropriately in an area falling under the responsibility of the coordinating committee (comprised of representatives of the federal government, the affected states, and the four pillars).

The overall aim will be to ensure that the available funds are used as efficiently as possible within the four sectoral pillars, so as to leave behind transparent and professional structures in the region. Under our proposal, representatives from the affected sectors are to be given an important role in allocating funding within "their" pillars, alongside representatives of the federal government, i.e. the funding provider.

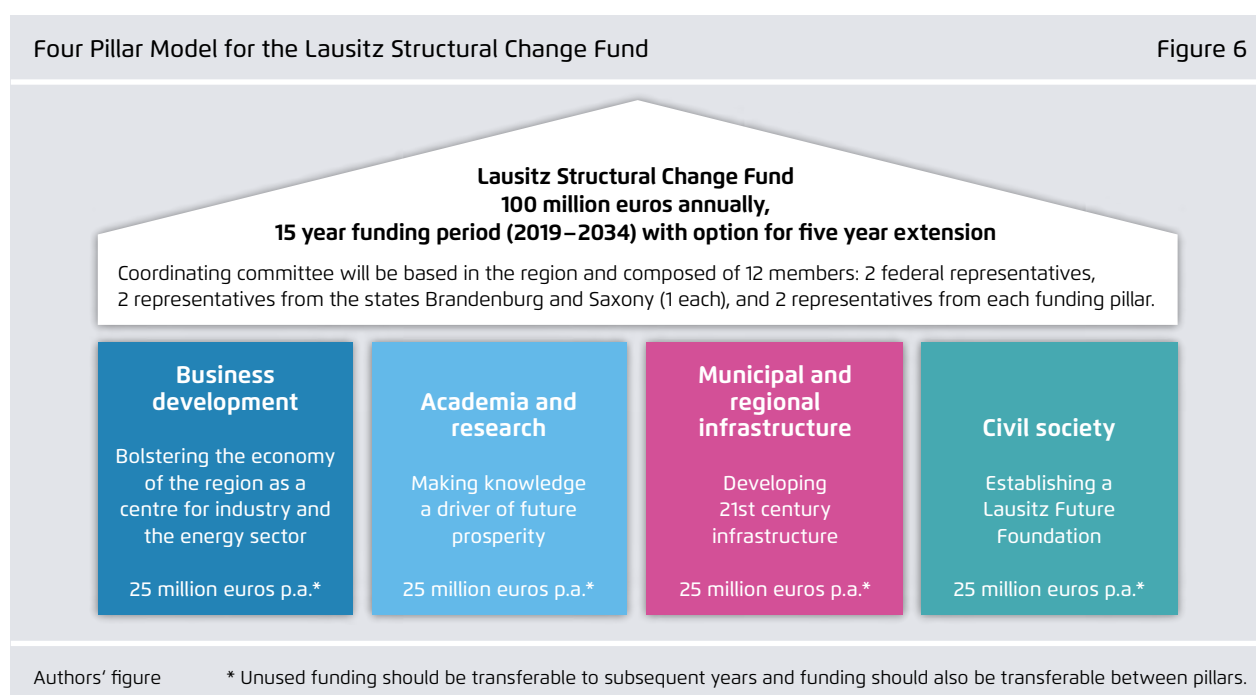
Within each pillar, the available funds will be independently managed and distributed. Each of the pillars will be organised on the basis of similar criteria.

One exception to this rule is the civil society pillar, which will take the form of a foundation established by the federal government. In this pillar, it will be the foundation committee that will determine which projects should receive funding, on the basis of its charter.

In its capacity as the funding provider, the federal government will have a seat and a vote on the committees of all four pillars, as will the state governments of Brandenburg and Saxony. In all other respects, the pillars will be organised in such a way as to best represent the interests of those affected by structural change in the region. In each pillar there will be a steering committee representing all of the relevant interests in that sector. These committees will be responsible for assessing funding applications and deciding which should be supported. The pillars will therefore be internally organised according to the principle that those with the relevant expertise in a given area should have the primary responsibility for deciding how funding is used within it.

To put this in concrete terms: representatives from the private sector and economic policy makers will decide how funds should be used for business development; representatives from academia will decide how academic and research funding should be used; selected representatives from Lusatia’s local authorities will set the priorities for regional infrastructural development; and foundation committees with a diverse make-up will decide which civil society initiatives should be allocated funding.

In the following, we shall describe the individual funding pillars in greater detail. The project ideas discussed below are based on discussions with stakeholders in the region. They are to be taken as examples of projects that could be financed within the different pillars, i.e. as a rough sketch of how successful structural change might look in the eyes of regional actors from the spheres of business and academia, and representatives of the local authorities and civil society groups.



5.3. Pillar 1: Lusatia as an Industrial and Energy-Focussed Region

In Lusatia, there is widespread agreement over the direction the region's post-lignite economic development should take: the various stakeholders are unanimous that the area should maintain its character as a centre of industry and energy generation. They hold that business development programmes and structural policies should focus on stimulating innovation among local businesses and on fostering cooperation and exchange between businesses and academic institutions in the energy sector and beyond. It is also widely held that relations with other economic regions inside and outside Germany should be intensified and markets should be strategically expanded. Finally, great emphasis is placed on the importance of maintaining and expanding the region's diverse economic and industrial structure.

Numerous discussion papers from the spheres of politics and economics have offered variations on these topics and proposals in describing Lusatia's post-coal future.⁸⁰ Taken together, they show that the need for a new process of structural change is no longer seriously disputed. On the contrary, the papers' authors all express a readiness to help shape this change – most recently, through the “gigawatt for a gigawatt” scheme.

The latter was proposed at the beginning of 2017 by two key representatives of the region's business sector, the chief executive officer of the IHK Cottbus and the managing director of the *Innovationsregion Lusatia* association. The aim of the scheme is to replace every gigawatt of decommissioned lignite-based energy generating capacity with one gigawatt of new energy infrastructure. The proposal sends a clear sig-

nal that Lusatia is ready to play an active role in the modernisation and transformation of its old energy system into a system fit for the 21st century, and to incorporate valuable local expertise in this transition process. Structural change here consists in ensuring that what currently makes Lusatia a key energy region helps to make it a successful energy transition region in future.

Various approaches to structural change have been proposed from many different quarters, though these differ little in their essential outlook. The proposals presented in what follows are not to be considered exhaustive, but rather as examples and illustrations of possible approaches to structural change.

Lusatia as an Energy Transition Region of the Future

Even today, the dominance of the energy sector in Lusatia is only partially concentrated in the region's power stations and mining areas, and many proposals have called for the local economy to diversify into other sectors. At the same time, they have stressed that regional expertise in the energy sector should be incorporated as far as possible into any new or existing growth markets. These proposals and projects include:

- The renewable energy scheme (“1 GW for 1 GW”). This proposal recommends that any reductions in fossil fuel power station capacity should be offset by the creation of an equivalent level of climate-neutral capacity, which should be built in collaboration with medium-sized local businesses. Lusatia's existing grid infrastructure will be a significant advantage for this project. In addition, future competitive bidding for the construction of renewable energy capacity might also include a special subsection for lignite transformation regions, so as to spur additional renewable energy development, which may end up exceeding one gigawatt of new capacity for every gigawatt of decommissioned lignite-based capacity. Furthermore, support could be provided for the establishment of efficient wind energy and hybrid pho-

80 Lange, H. R.; Krüger, W. (2017); Energieregion Lusatia-Spreewald/Wirtschaftsinitiative Lusatia (2017); Landtagsfraktionen Brandenburg und Sachsen der CDU (2017); Landesregierungen Brandenburg und Sachsen (2017); Landtagsfraktionen Bündnis90/Die Grünen Brandenburg und Sachsen (2017)

to voltaic facilities on decommissioned open-pit mines, particularly if the grid connection were to be jointly used by wind and solar units.

- A gas-fired combined heat and power (CHP) station to cover the transitional period. In Jänschwälde, a gas CHP station with heat extraction facilities is being built to replace the existing lignite-based heat supply system for the city of Cottbus. This new facility could potentially be driven by ever greater quantities of climate-neutral gas from power-to-gas stations.
- Energy storage. The development and installation of modern energy storage systems, which will become increasingly important as the energy transition progresses. These may include production facilities for batteries, power-to-gas infrastructure, flywheel energy storage to regulate electricity systems, or seasonal heat storage systems.
- Designating Lusatia as a model region, e.g. "Green Lusatia", or "Smart City Cottbus." This includes developing an integrated power-heat-transport energy supply by digitally linking the regionally generated power and district heating supplies. The initiators of this project at the Institute for Climate Protection, Energy, and Mobility have put forward a regional energy proposal, whose legal basis is initially to be secured by the experimental clause contained in the SINTEG directive, which was approved in May 2017. The aim of the project is threefold: to establish a trading centre in Lusatia for the region's green energy, to provide a market for regional renewable energy producers once the EEG funding has been phased out, and to bring regionally controllable loads on to the market.
- Founding a centre of expertise on mine reclamation. This is a proposal to commercialise the expertise in reclamation of mines (including for other uses) that has been built up by the Lusatia and Central German Mining Society (*Lusatiaer und Mitteldeutschen Bergbau-Verwaltungsgesellschaft – LMBV*) over the last two decades. It has been suggested that this expertise could also be useful to regions with a strong mining history out-

side Germany, should the energy transition gather pace internationally.

Lusatia as an Innovative Region

As things stand in 2017, Lusatia cannot yet be considered an innovative region. This is a view confirmed by numerous scientific studies⁸¹ and also shared by many business leaders in the region. It was largely in response to this situation that the *Innovationsregion Lusatia* association (iRL) was founded in 2016. The long relationship that many medium-sized supplier companies have enjoyed with the lignite industry has led to the development of highly specialised expertise. In light of the future decline of the lignite industry in Germany, this expertise can only be maintained by seeking out markets in other countries – at least for as long as the latter maintain their lignite mining and electricity generation industries (see above). On the basis of the current expertise in the region, it has been estimated that 20 per cent of Lusatia's businesses can be described as potentially innovative. Nevertheless, only a fraction of these have sufficient personnel and financial resources to turn this potential into concrete projects and development prospects. This is where the iRL comes in.

- The iRL sees itself as a key partner to SMEs (small and medium-sized enterprises), particularly those that have to reorient themselves in light of the upcoming coal phase-out. The iRL's primary aim is to help maintain industrial jobs and to ensure that old industrial jobs are replaced by new jobs in the industrial sector. It focusses on companies affected by structural change and in its first year of existence initiated 87 structural change projects, some of which were presented to the broader public. In order to realise such projects and ensure that they can develop autonomously in future, start-up financing is often crucial; such funding could be provided via the regional fund proposed in the present paper.

81 Markwardt et al. (2016), pp. 69 ff.

- In the Lusatia region, there are already some activities devoted to advanced automation technologies. These are concentrated in the region's large industrial facilities, which in addition to the LEAG's open-pit mines and power stations include facilities operated by BASF in Schwarzheide and a number of paper factories and metal processing centres. Another important focal-point for automation research is the Innovation Centre for Modern Industry (IMI) at the BTU Cottbus-Senftenberg, with its chair for automation technology.
- Initiatives for new transport systems. Since most transport is expected to be electric in future, proposals in this area have stressed the importance of developing relevant technologies such as storage facilities and ultracapacitors. Individual show projects such as the "Lusatiaer Seenland Combustion Engine-free Area" are also expected to pave the way for future developments, particularly since they require the installation of the associated charging infrastructure, which can then be used by cars, buses and e-bikes.

Diversifying Lusatia's Regional Economy

- Economic diversification depends on the development of transitional and future proposals for the former suppliers of Vattenfall's and EPH's lignite facilities, who stand to lose more business at every stage of the coal phase-out. "Innovation scouts" may help these businesses expand their markets abroad and develop and market new products on the basis of their existing expertise. The Structural Change Fund could also be useful here in assisting such suppliers to look beyond their traditional horizons.
- Where other businesses are concerned, new projects can be opened up by more closely intertwining the activities of the region's companies and its academic institutions. The same holds at the national and international levels. (It is currently rare for local business expertise to match up with the research specialisms of the region's universities).

- Drives to initiate and support the founding of new businesses in Lusatia. These activities are to be supported by measures to stem and ultimately reverse the emigration of skilled workers from the area.
- Developing Lusatia's connections with the nearby metropolitan centres of Berlin, Dresden, Leipzig, and, across the border, Liberec and Wrocław. This proposal is a response to the increasing gap between property prices in metropolitan and peripheral areas.
- Developing local tourism. Although this is still a relatively new economic sector for the region, it already employs similar numbers of people to the lignite industry. Pay in the former nonetheless tends to be far lower than in the latter. Lusatia's key tourism areas are the river Spree and the Lusatiaer Seenland.
- Developing Lusatia's regional agricultural markets by expanding the relevant logistic structures.

Closing Remarks on the Business Development Pillar

Lusatia's energy transition is supported by a wide range of stakeholders in the region. Yet however successful this transition is, it will not suffice by itself to offset the economic impact of the decline in the region's lignite industry. This gap can only be closed by innovative approaches to industrial development in and beyond the energy sector.

Such projects are already emerging but will need to be further developed and given greater financial support. It should nevertheless be borne in mind that even public initiatives supported by a Structural Change Fund are not guaranteed to succeed. The same is true of private initiatives and start-ups developed in collaboration with or as offshoots of the regional universities, which are treated in detail in pillar 2.⁸²

⁸² Berger, W.; Schnellenbach, J. (2017)

5.4. Pillar 2: Academia and Research – Driving Future Growth

Academic and research institutions have a long history of contributing to economic development and facilitating new growth potential. Investing in such areas is therefore crucial when it comes to promoting successful regional and structural change. And in contrast to state sponsorship of particular technologies or branches, the risks of investing in academia and research are extremely low. This is why promoting research and developing Lusatia's existing academic and research environment is the second of our four key pillars for successful structural change.

In light of the significant medium and long-term benefits of investing in these areas, we propose that a substantial proportion of the Structural Change Fund should be devoted to the strategic development of Lusatia's research environment, in order to strengthen and expand the existing infrastructure in this area.⁸³

The starting point for this investment of course has to be the region's existing research institutions, which in both Brandenburg and Saxony have particular specialisms in the fields of energy, transformation and innovation research.⁸⁴ BTU Cottbus-Senftenberg resulted from the 2013 merger of the former BTU Cottbus and Lusatia University. From the outset, it has been known as an "energy university." The Zittau/Görlitz University of Applied Sciences⁸⁵ has similar research specialisms, as does the International Institute (IHI) Zittau. The "Future Research Fields"

established at the BTU Cottbus-Senftenberg, which include "Energy Efficiency and Sustainability," are intended to play an important role in disseminating knowledge and new technologies within the region.⁸⁶

Despite the regional universities' research specialisms, their heads' often active engagement in the area, and their cooperation with institutions elsewhere, Lusatia is still in need of a holistic strategy to help orient its overall research development. Thus far, its academic and research institutions have not been explicitly tasked with helping to shape the region's present and upcoming structural change processes.

Across Lusatia as a whole, there is an especially strong need for non-university research institutions, particularly in the areas of applied and market-led research. Not one of the 80 independent institutes operated by the Fraunhofer group, for example, is located in Lusatia, and the region is almost completely lacking in other state-funded, non-university research institutions. This is surprising insofar as numerous studies have pointed to the region's fragmented yet nonetheless marked and diverse industrial structure.⁸⁷ Since their economies and industrial sectors have been dominated by the lignite industry for decades,⁸⁸ however, Brandenburg and Saxony belong to a group of former East German states in which very few new research institutions have been founded in recent years – despite the existence of comparatively high levels of funding for new universities.⁸⁹

In terms of its overall research outlook, then, Lusatia is marked on the one hand by the relative dominance of traditional energy and technology research, which helps to finance its broader research programmes. On the other hand, however, the region has already wit-

83 Berger, W.; Schnellenbach, J. (2017)

84 Alongside investment in collaborative projects between businesses and research institutions, which are intended to strengthen the innovative capacities of the regional business sector.

85 Particularly noteworthy is the TRAWOS Institute (for Transformation, Housing, and Regional Development), which examines transformation processes from a social scientific perspective and has addressed the decarbonisation of Zittau's energy supply.

86 Wissenschaftsrat (2016)

87 Markwardt et al. (2016)

88 Stifterverband für die deutsche Wissenschaft (2015)

89 Metzger, G. (2015)

nessed a shift toward more forward-looking research fields focussed on the development of sustainable and efficient energy systems for a post-fossil fuel era. Its future lies in part in the expansion of commercial collaboration programmes that address the new research and development challenges generated by the energy transition. Yet it is also crucial for Lusatia, whose academic institutions have traditionally focussed on energy research, to strive to play a key role in the transformation of energy systems in Germany.

Alongside this intensification of commercial collaboration and applied research, however, it is no less important to promote the strategic, forward-looking development of Lusatia as an independent location for research. One ambitious proposal for the region is to establish Germany's first Centre for Energy Transition Research.

Promoting Research and Knowledge Dissemination

There are thus a wide range of academic and research projects to which the Lusatia Structural Change Fund could make a crucial contribution. These not only include projects that compensate for the consequences of structural change, but also those that tie in with or extend existing projects, and those that indirectly secure or enhance financing for existing institutions.⁹⁰

As with pillar 1, the following list of proposals should be seen merely as illustrative rather than systematic and exhaustive. These include:

- Securing financing for existing universities, professorships and university-led innovation clusters that have thus far been co-financed by the private sector or lignite industry. These might otherwise have to be scaled back or discontinued altogether

as a result of falling revenues and changes in corporate policy under the regional mining industry's new owners.

- Developing and intensifying existing expertise in the fields of: power-to-x technology, energy storage, the provision of energy supply system services, and the management of integrated regional energy systems.
- Developing expertise in research areas that are not directly concerned with energy/energy transition technologies (such as the BTU Cottbus Senftenberg's research on communications technology and multi-parameter diagnostics).
- Providing Brandenburg's Innovation Center for Modern Industry (IMI) at the BTU Cottbus-Senftenberg with sufficient resources to act as a port of call for businesses on the path toward digitalisation.
- Establishing "Future Research Chairs" at existing universities.

Germany's Newest Research Centre

A further crucial task is to develop Lusatia into a key location for research on the energy transition, climate protection, and regional development, and in doing so to generate a new sense of regional identity. The following proposals are particularly important in this regard:

- Establishing a Fraunhofer Institute for the Decarbonisation of Industry in Cottbus. Alongside the phasing-out of coal, oil, and gas in the energy industry, managing climate change in the industrial sector as a whole is set to become an enormous challenge. In order to phase out production processes that currently generate significant CO₂ emissions, new solutions will need to be found in power-to-x technologies and new production methods. In building on the current research specialisms of the BTU Cottbus-Senftenberg, the new institute would function as a centre for research on the ecological and economic dimensions of a decarbonised industrial sector. Global demand for such applied research is set to rise significantly in

⁹⁰ Though the federal Structural Change Fund certainly cannot substitute for basic university funding on the part of the federal states concerned, it can make up for deficits in certain areas; see also Berger, W.; Schnellenbach, J. (2017), pp. 27–28

future. In light of the scientific expertise already concentrated in the region, Lusatia therefore has the chance to become one of the leading research centres in the sector.

- Founding a non-university research institute on the transition to a post-fossil fuel era. Building on the work of the Research Institute for Post-Mining Landscapes (FIB) at Finsterwalde and the BTU Cottbus-Senftenberg, the institute would act as a centre for research on the technological, ecological, and economic dimensions of the coal phase-out. These are topics that are set to become increasingly important in many areas of the world in future.
- Founding a non-university research institute for demography and peri-urban areas in Görlitz. As transitional spaces between the countryside, former industrial and mining regions, and metropolitan areas, peri-urban spaces perform a complex role. In industrial nations across the world, they face significant challenges at the hands of demographic upheavals, migratory movements, ongoing digitalisation processes, and the transformation of industrial structures that have traditionally been dominated by fossil fuels. In such cases, municipal authorities, regional planners, and operators of public infrastructural facilities are faced with the difficult task of shaping parallel transformation processes and stimulating endogenous growth potential with the aid of limited resources and outdated business models. The new, non-university institute would be devoted to developing economically sustainable solutions for such areas that would bring together public, private, and community initiatives. It could potentially work closely with institutions such as the Zittau/Görlitz University of Applied Sciences.
- Founding a federal academy for energy partnerships. As part of its energy transition foreign policy, Germany's federal government has established intensive energy partnerships with a range of states. This has resulted in many delegations being sent to Berlin. On account of its proximity to the capital, Lusatia can function as an "energy transition laboratory," showcasing energy transition

technologies and local transformation processes to Germany's partners from around the world. The primary goal of these partnerships is to promote the expansion of renewable energy and to help disseminate efficient energy technologies. Each of these partnerships takes a different form, yet they all involve significant bilateral exchange, consultation, and peer-learning processes that bring together representatives of governments, local authorities, businesses, and civil society groups.

Closing Remarks on the Academia and Research Pillar

Academic and research institutions in Lusatia are faced with two competing demands, both of which are made more difficult by the impending phase-out of coal-fired energy generation. On the one hand, the universities are expected to strengthen the region's innovative capacities through the commercial dissemination of knowledge, while on the other they are called upon to demonstrate academic excellence, so as to enhance the attractiveness of the area in other ways. These competing demands force Lusatia's universities to attempt to bridge a gap that is only widened by the present funding shortfalls. An independent pillar addressing the needs of academia and research is therefore a crucial element of the Structural Change Fund.

In practice, there will likely be project proposals that could be financed by both the business development pillar and the academia and research pillar. Such joint financing should nevertheless be possible in principle.

5.5. Pillar 3: Infrastructure for the 21st Century

Up-to-date public infrastructure is a necessary if not sufficient condition of the long-term sustainability of any industrial region. This holds not only for Europe and Germany as a whole, but also for smaller regions such as Lusatia – particularly when these are exposed to, or wish to actively shape, a process of struc-

tural change. Modern infrastructure makes everyone's lives easier, and ensures the smooth running of trade and industry. It also significantly increases the attractiveness of an area.

This is why infrastructure projects are often used to send strong signals and why they are so popular with political decision-makers. They mark a new departure and tend to serve the population as a whole rather than any specific interest groups or social segments (unlike, for example, commercial innovation funding).

The Core Focus: Transport and High-Speed Internet

Lusatia is a small region surrounded by the metropolitan regions of Berlin, Dresden, and Leipzig and the neighbouring EU countries of Poland and the Czech Republic. It therefore goes without saying that its transport links and digital connections with these other regions are key to its successful future development. Almost all regional demands on the federal government have therefore focussed on the improvement of public transport and road and rail links with the surrounding metropolitan regions, and the establishment of modern digital infrastructure (i.e. high-speed internet). The relevant proposals have differed only in terms of their priorities.

Those concerned with the development of the regional infrastructure have primarily focussed on improving transport links with other regions. In a joint statement, the governments of Brandenburg and Saxony called for "extensive and well-developed transport infrastructure," which would help secure the medium and long-term attractiveness of the region. To this end, they called on the federal government to invest "at a far greater pace" in "railway infrastructure, motorways and digital infrastructure."^{91, 92}

Not all such infrastructure projects would need to be (co-)financed by the proposed Structural Change Fund. Infrastructure projects are of course primarily financed by the federal government, with their details being specified by the Federal Transport Infrastructure Plan. Nevertheless, additional resources from the proposed Structural Change Fund may help to bring such projects on line along more quickly.

Alongside the need for improvements to the regional transport infrastructure and a faster digital infrastructure roll-out, many local authorities are also facing difficulties in maintaining and developing existing regional infrastructure. This is mainly due to the fact LEAG and its predecessor, Vattenfall, have paid far less local business tax (*Gewerbesteuer*) in recent years on account of their falling profits, and in some cases have even claimed back advance tax payments. In Lusatia's core industrial areas, the lost tax revenue can add up to tens of millions of euros per year.^{93, 94}

In 2016, a number of Lusatia districts and the city of Cottbus applied for funding in accordance with the experimental clause of the joint federal/state scheme for the improvement of regional economies (GRW). The application, since approved, also addressed infrastructural planning in the region, and explicitly stated that the extremely difficult budgetary situation of a number of districts and the city of Cottbus left "no financial leeway" for infrastructural measures beyond the local authorities' basic duties.⁹⁵ The allocation of funds from the infrastructure pillar thus aims to address this exceptional budgetary situation and its knock-on effects for the funding of infrastructural projects.

91 Landesregierungen Brandenburg und Sachsen (2017)

92 Brandenburg's minister-president, Dietmar Woidke (SPD), put this demand more precisely during the recent general election campaign, when he called for a "three-lane motorway from Berlin to the Spreewald triangle"; see the *Leipziger Volkszeitung*, 3rd August 2017.

93 Schwartzkopff, J.; Schulz, S. (2015)

94 Banse, P. (2017)

95 Lusatia-Landkreise (2016)

Rail Infrastructure Development Proposals

- Improving links with Berlin: Expanding the Cottbus-Lübbenau rail link into a double-track line and creating a direct link to Berlin's future BER airport.
- Improving links with Dresden: Expanding the Görlitz-Bautzen-Dresden line and electrifying the central North-South (Cottbus-Görlitz-Zittau) and East-West (Dresden-Görlitz) lines as a first step toward reconnecting Lusatia to the long-distance rail network. Speeding up the Cottbus-Dresden-Leipzig rail link.
- Improving transport infrastructure within Lusatia: Developing transport links between Brandenburg and Saxony in order to facilitate travel within Lusatia itself. This has been hindered by the fact that local public transport has almost exclusively served to connect Lusatia with the major surrounding cities.⁹⁶
- Improving cross-border links. Re-opening the long-distance rail links between Dresden and Wrocław and between Berlin and Wrocław. Use of these lines is currently restricted to special weekend trains, which has effectively cut Lusatia off from the long-distance network.

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Developing the Public Transport Network

- Ensuring basic public transport provision in rural areas faced with ongoing population decline, and optimally developing public transport provision across the Lusatia region via cross-state agreements.
- Developing an integrated transport strategy for Lusatia as a whole in order to facilitate commercial travel and enhance existing national and international transport links. The aim of this proposal is to optimise transport links for existing companies and raise the region's attractiveness for companies looking to relocate.⁹⁷

Motorways

- Improving Lusatia's links with the national motorway network and developing multi-lane main roads. The lack of motorway links with other regions has been a particular issue in relation to Lusatia's largest industrial site, the Schwarze Pumpe industrial park near Spremberg, and has been seen as an obstacle to attracting businesses to the area. The area's transport links have been historically shaped by the proximity of its lignite power stations to the local lignite mines. There is a particular need to improve links to the South (the Greater Dresden area), the Southeast (the Czech Republic) and the East (Poland).

Digital Infrastructure

- This includes rolling out high-speed broadband infrastructure across the Lusatia region, as a basic precondition of any future economic development.⁹⁸

Closing Remarks on the Infrastructure Pillar

Alongside their very real practical value, infrastructure projects that improve links between peripheral and metropolitan regions also have strong symbolic value. Unlike many other large-scale projects (such as the Lusatiaring), investing in infrastructure development tends to be uncontroversial, since it is regarded as preventing peripheral regions from becoming dependent on metropolitan areas. Up-to-date transport and digital infrastructure also helps to raise the attractiveness of a region, both for the local population and for businesses who wish to benefit from lower cost structures. With improved digital infrastructure and rail links (particularly to the new BER airport), Lusatia would be brought closer to Germany's booming capital, while enjoying much lower living costs. Infrastructural development is therefore one of the most important conditions of successful structural development.

96 Landtagsfraktionen Bündnis 90/Die Grünen Brandenburg und Sachsen (2017)

97 Lusatia-Landkreise (2016)

98 Lusatia-Landkreise (2016); Landtagsfraktionen Bündnis 90/Die Grünen Brandenburg und Sachsen (2017); Landesregierungen Brandenburg und Sachsen (2017)

5.6. Pillar 4: The Lusatia Future Foundation

Structural change in Lusatia cannot be successfully implemented solely through traditional measures such as adjustment assistance for those directly affected, business development programmes that incentivise investment, and infrastructural development. These are basic necessities, yet what really draws businesses and educated young people to an area is the promise of a high quality of life, the opportunity for social engagement, and a thriving cultural scene. In a nutshell: it is not business parks, but people, that really drive regional development. Students who finish their studies at the BTU Cottbus-Senftenberg will only want to stay in the area if they feel it offers them a vibrant social and cultural life.

All of the above social and cultural factors enhance an area's quality of life and strongly influence its inhabitants' sense of belonging. And when people are deciding whether to stay, return, or move to a region, it is also these factors that they look to in order to see what life there might be like.

Alongside business and innovation development, greater research funding, and up-to-date regional infrastructure, Lusatia therefore also needs a fourth pillar to really make a success of its structural change process. This pillar will need to address the widespread desire to participate in and help shape the region's future among the local population. It should also address the social rifts that have developed in recent decades between those employed in the lignite industry and those who have lost their homes due to forced relocations. In confronting these divides, it may gradually help to overcome them.

These goals can best be achieved through the gradual transformation of the old into the new via a range of initiatives, projects, and start-ups that raise the area's attractiveness – both for its existing population and for new arrivals who wish to work *and* live in the region. It is now time for the good intentions on all sides to be

turned into a positive new reality for the region as a whole. And this is the second reason why our proposal requires a fourth pillar addressing the needs of civil society. Maintaining Lusatia as an industrial region requires emigration from the region to be slowed, if not reversed. But in order for this to happen, Lusatia will first of all need to be made more attractive. This can only be achieved through greater participation in civil society initiatives, the elaboration of a new regional identity, and, if not a roadmap, at least a prominent public debate on Lusatia's post-coal future.

Adopting an idea that has already been put forward in this nascent debate, we propose that the fourth pillar of our Structural Change Fund should take the form of a Lusatia Foundation.⁹⁹ Such a foundation will be able to address a range of structural change issues.

- As an independent pillar of the Structural Change Fund with a fixed annual inflow, the foundation will ensure that an adequate share of the available resources is allocated to civil society initiatives.
- It will help lay the groundwork for a lively civil society in which ideas that enhance the attractiveness of the region and its quality of life can flourish.
- As a foundation it will receive a guaranteed annual sum, regardless of the volume of project funding it awards each year. This annual allocation will be used on the one hand to establish an endowment fund, and on the other to support projects, small, innovative businesses, and other such initiatives that have been assessed and approved by the foundation.
- The foundation will be allocated 25 million euros per year. In the initial phase of the Structural Change Fund's existence, there may only be a relatively small number of civil society initiatives capable of realising meaningful projects. At this point, the foundation may see relatively low cash outflow. Funds that have not been allocated, however, will help to grow the foundation's endowment fund and can then be drawn upon in later years.

⁹⁹ Lüdtke, H. (2017); Landtagsfraktionen Bündnis 90/ Die Grünen Brandenburg und Sachsen (2017)

The decision to develop the fourth pillar in the form of a foundation will therefore mean that civil society groups do not have to rush to develop as many projects as possible in a short time in order to avoid losing out on the available funding or see it reallocated for other purposes. Over the course of time, the foundation should aim to gradually increase the volume of resources allocated to project funding. This will help to prevent any initial difficulties and disappointments, since it is crucial to ensure that the civil society initiatives driving structural change are able to constructively and sustainably utilise the funding they are allocated.

Furthermore, as in the other three pillars, the projects, organisations and businesses supported by the foundation should aim to be self-financing. As far as possible, only projects that should fulfil this condition within the foreseeable future should be allocated funding.

A foundation of this kind is badly needed in Lusatia, which has Germany's lowest per capita number of non-profit foundations.¹⁰⁰ It will greatly strengthen the region's capacity to quickly and directly promote social and educational initiatives. Furthermore, it could play an important role in encouraging independent initiatives and social engagement among new businesses and in the areas of urban development and cross-regional collaboration. Establishing a federal Lusatia Future Foundation would significantly help to redress the lack of strong civil society structures and non-profit foundations in the region.

The proposed Future Foundation could either function as an umbrella organisation for three distinct regional foundations in Germany's main coal-mining regions, or it could be developed as a purely Lusatia-oriented foundation. In either case, such a foundation would allow local civil society initiatives

to stimulate structural change in Lusatia and remain a driving force in its development. The long-term growth of the foundation's endowment fund will also ensure that it can continue to support the region after the lignite phase-out and make an enduring contribution to raising quality of life in Lusatia.

It will focus on achieving what cannot be realised through infrastructural expansion, business development and research funding alone, and will thus supplement the other three pillars of the Structural Change Fund. In concrete terms, the foundation's project funding will help support and stimulate cultural initiatives, voluntary service programmes, urban and regional development, and environmental and social work. Its overall aim will be to enhance quality of life in a region that will remain dominated by the energy industry, while having shed its fossil-fuel past. This in turn will raise the attractiveness of the region as a whole and slow or even reverse the ongoing emigration of its workforce.

Prospective Initial Projects Include:

- Promoting participation in regional development and initiating a long-term discussion on the region's future.
- Supporting art and culture in the region, e.g. through film, theatre and music festivals, and cultural events.
- Supporting civil society-oriented start-ups (in the areas of agriculture and forestry, traditional crafts, tourism, and so on).
- Supporting *Landsmannschaften* (welfare and cultural associations), the Sorbian minority, and cross-border initiatives.
- Supporting initiatives concerned with local culture and Lusatia's cultural and technological history.
- Promoting initiatives by villages threatened with relocation, environmental and climate activists, and groups with particular experience in associated areas, such as churches.

¹⁰⁰ For more on the distribution of non-profit foundations across Germany, see the Association of German Foundations: www.stiftungen.org

- Establishing links with other mining regions and developing opportunities to exchange experiences.
- Supporting programmes to share successful examples of structural change, even beyond national borders.

Closing Remarks on the Lusatia Foundation

The Lusatia Foundation that is proposed under this fourth pillar truly distinguishes the Structural Change Fund from other investment programmes of the past. The foundation will seek to elaborate a collective vision so that the conflicts of the past give way to a structural change process from which a new Lusatia can emerge. The foundation will thus act as a lightning rod for efforts to shape the Lusatia of the future. It will not only support civil society projects in the cultural domain but will also be active in a wide range of other areas, so as to appeal to those who also wish to do business or launch start-ups in the region. In order for the foundation to meet the high expectations placed upon it, it will be essential for its committee to reflect the diversity of the region and enable consensus to emerge.

6. Summary: Looking to the Future

Our plan for a Lusatia Structural Change Fund should be understood as a proposal – one that is first of all addressed to the people of Lusatia themselves, who are coming forward in ever greater numbers to help shape the region's future. But it is also addressed to political actors at the federal level, and particularly to Germany's new government, which will need to actively guide the transition from fossil-fuel technologies to a renewable energy system. The four pillars of our Lusatia Structural Change Fund – business development, academia and research, infrastructure, and civil society – were developed based on intensive and in-depth discussions with stakeholders from the region. They serve to consolidate these discussions into a consensus-based, workable structure.

In its upcoming legislative session, the German Bundestag should make every effort to move from abstract discussions on climate policies and targets to concrete measures that can be implemented from 2019 onward. These measures should address both climate protection and structural change. At Agora Energiewende, we have called for this process to be based on a broad social consensus. Only in this way can a reliable foundation for planning be guaranteed for all concerned. A reliable foundation for investment decisions is essential for Germany to make the most of the economic opportunities presented by the energy transition. Yet every effort must also be made to ensure that structural change in the affected regions leads to a rise in employment and quality of life, rather than the opposite. Our Structural Change Fund for Lignite Regions aims to achieve these goals.

What matters now is not to revive the quarrels of the past but to focus on actively shaping Lusatia's future. In doing so, we can give rise to a structural change process that will not be collectively remembered as a traumatic rift, but that will allow regional actors themselves to prepare Lusatia for the structural and demographic challenges of the 21st century.

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