

BRIEF

Regional energy transition



WESTERN MACEDONIA



CONTENTS

Western Macedonia

Description of the region	2
Coal mining	3
Social aspects and employment	4

Policy affecting the transition 5

Assessment of the Territorial Just Transition Plans 7

1. Western Macedonia

1.1 Description of the region

According to the Hellenic Statistical Authority, since 2001, the population of Western Macedonia is constantly dropping, from 210,092 in 2001 to 201,160 in 2011 and then to 182,363 in 2021.

From a financial perspective, in 2001 the region's GDP was 2,792 million euros (1,83% of Greece's GDP) and by 2008 it increased to 3,724 million euros (1,54% of Greece's GDP). 2008 was a pivotal year for Greece since it was the last year before the financial crisis began, in which Greece's GDP dropped by 22% in just 4 years. On the other hand, in 2012 Western Macedonia recorded its highest GDP, reaching 4,438 million

euros (2,36% of Greece's GDP), but since 2013 it started to significantly drop, reaching 3,096 million euros in 2019, whereas Greece's GDP was almost stable in the period 2013-2019. It must be noted that in the same period, lignite electricity generation in Greece significantly decreased from 50% in 2012 to just 20% in 2019. This indicates that the regions economic activity is heavily linked to activities associated with electricity generation. Such activities increased resilience by helping the region navigate the crisis, while the progressive phase-out of lignite has its toll on the economy of Western Macedonia.

The region of Western Macedonia is divided into 4 regional units (Kozani, Florina, Grevena, and Kastoria), with the former two (Kozani and Florina) possessing lignite resources, hence in this analysis when referring to Western Macedonia, only the regional units of Kozani and Florina are mostly considered. These two regional units are further divided into 8 municipalities: Kozani, Eordaia, Voio, Servies, Velvendo (Regional Unit of Kozani), Prespes, Florina and Amyntaio (Regional Unit of Florina). The main decision-making authority is the Regional Authority of Western Macedonia, which cooperates with local municipalities for more spatial-specific issues or with governmental ministries (i.e., Ministry of Environment and Energy and the Ministry of Development and Investments) for nation-wide matters, the plan for a just transition being one of these issues.

Area	5,482 km ²	4.15% of the country
Population (2021)	182,363	1.75% of the country
GDP (2019)	3,096 mln. euros	1.69% of the national GDP
People in working age (15-64 years old)	63,82%	1.85% of the country

Source: Hellenic Statistical Authority

1.2 Coal mining

Coal mining in Greece started in the 1950s and specifically, in 1959 the PPC (Public Power Company) acquired the majority of the shares of the mining company (LIPTOL) in Western Macedonia, in the town of Ptolemaida, to power its first lignite power plant in Ptolemaida. In the next decades, PPC built various lignite power plants in the region, making lignite the main fuel for Greece's electricity generation. By 1990, 20 lignite-fired power plants had already been constructed, and up to 2008 three more were built, reaching a total installed capacity of 4.78GW. Moreover, according to the International Energy Agency (IEA) and the Independent Power Transmission Operator (IPTO) in 1990 electricity generation from lignite accounted for 72% of total electricity generation, before dropping to 50% by 2008. After 2008, lignite electricity generation has seen a huge decline reaching 20% in 2019. Regarding lignite mining, according to the Greek TJTP production peaked around 2012 reaching 61.7 million tonnes, before decreasing to 25.6 million tonnes by 2019.

Until 2022 the production of lignite in Western Macedonia had decreased to 12 million tonnes annually (1 million tonnes per month) but due to the energy crisis caused by the Russian invasion of Ukraine, [the Greek government set a target to increase production to 1.5 tonnes per month](#). Regarding regional total installed capacity, lignite power plants accounted for 1.75GW by the end of 2022 (the 5 power plants in Agios Dimitrios and the power plant in Meliti), generating 5.34 TWh of electricity in 2022.

According to the Greek government's master plan for delignitisation (2019 National Energy and Climate Plan-NECP), the five plants in Agios Dimitrios and the plant in Meliti were supposed to shut down by 2023 and the Ptolemaida V lignite plant (660MW), the newly constructed power plant, would have started operating in the same year and until 2028, which was the original target for completing the phase-out of lignite in Greece. Nevertheless, this plan has been disrupted by the energy crisis, hence delays in the shutdown of power plants are expected, with the Greek government considering postponing their shutdown until 2025, also pending the latest revision of the NECP in 2023.

The importance of lignite is also evident in the region's economy. Specifically, the energy and mining sector accounts for 51.5% and 39,9% of Kozani's and Florina's GDP respectively, according to the TJTP.

Greek lignite power plants are characterised by high levels of pollution (SO₂, PM, and NO_x emissions) due to the low quality of lignite, the hours of operation as well as the age of the infrastructure. Moreover, lignite mining has led to several landslides in nearby villages due to increased mining depths.

1.3 Social aspects and employment

According to the TJTP, from 2008 to 2017 the number of people working in the energy and mining sector in the region of Western Macedonia and the regional unit of Arcadia (where 1,000 workers are occupied out of the total 7,283 workers in both regions) has dropped by 20%. According to the TJTP for the region of Western Macedonia around 2,600 workers (47% of the total workforce occupied in the energy and mining sector) will need to get reskilled mainly in the fields of agriculture, tourism, and administration. To this end, the region of Western Macedonia has prepared a Regional Strategy Plan for Social Inclusion, which aims to mitigate social exclusion and support vulnerable groups in having the same opportunities for finding a job or being involved in business.

Unemployment in the region (2020)	26% in 2020
Direct employees in the coal sectors (2017)	4,556
of which with higher education	519
Indirect employees in the coal sector (est.) (2017)	1,727



Source: Just Transition Plan for the region of Western Macedonia

2. Policy affecting the transition

The Greek government in accordance with EU targets aimed to achieve a 40% reduction of GHG emissions by 2030, by completely phasing out lignite by 2028 and reaching a 65% share of RES in the electricity generation mix. Following the European Green Deal's (EGD) enhanced ambition, the newly passed Climate Law in Greece set a goal for reaching carbon neutrality by 2050, which in the latest NECP (still in the draft phase) is expected to entail a goal for a 55% emissions reduction (in line with EGD's target) and 80% RES electricity generation by 2030. However, the timeline for the phase-out of lignite is still unknown, with delays (possibly until 2030) due to the recent energy crisis being expected. At a regional level, these targets are complemented by the proposition of a just transition plan aiming to support the lignite-dependent regions, which will be mostly affected by the delignitisation.



An issue regarding energy and environmental policy in Greece is that targets (and policymaking in general) are set mainly by policymakers in a top-down manner. This means that mainly national, and then regional or local authorities propose draft versions of plans and then a deliberation process takes place in order that civil society and other stakeholder groups can express their opinions and suggestions on the proposed policies. Nevertheless, the impact of this process in the final versions is not

always clear, leading to policymakers and local stakeholders occasionally not having the same visions (and on some cases these different visions can be found between the different levels of governance). For example, on top of the undisputed benefits of lignite phase-out for the transition, local stakeholders may pose several underrepresented issues, including socioeconomic implications regarding employment and the region's economy in general, as well as broader environmental concerns such as the impact of life on land from wind turbines. Such escalating concerns, when not adequately addressed have led to resistance and slow down of policies towards achieving a fast lignite phase-out (from NIMBY to an overall rejection of the transition itself). From an institutional perspective, the lack of political will to face these stakeholders and negotiate with them (e.g., insufficient deliberation processes), further perpetuates such divergences in the vision for the transition.

Policy Document	Short description
<p>National Energy and Climate Plan</p>	<p>The main strategic policy document, setting out a map for achieving the country's energy and climate targets. The current version is in force since 2019, pending an update in 2023</p>
<p>National Recovery and Resilience Plan</p>	<p>The document governs the main reforms, actions and investments to be made in response to and to drive the recovery from the COVID-19 pandemic</p>
<p>Territorial Just Transition Plan</p>	<p>The main plan for the just transition and the phase-out of lignite in the regions of Western Macedonia, Megalopolis and Crete. Sets out the goal for delignitisation by 2028 and describes the absorption of funds through the EU Just Transition Mechanism based on detailed actions.</p>



3. Assessment of the Territorial Just Transition Plans

In the majority of the assessment's questions, the TJTP of Western Macedonia obtained a median score, as also reflected in the final evaluation of the plan as a whole. Therefore, focus will be given to principles and specific questions that the assessment was above or below the overall plan rating. The TJTP obtained a low rating on Principles 6 and 10 regarding the polluter pays principle and the objective analysis of the challenges and opportunities of the examined region. Specifically, regarding Principle 6 there is no indication of who is responsible for the current situation of the region (the PPC is only mentioned as the owner of the lignite mines and plants with no further accountability) and there is no mention of the possible responsibilities of PPC on a "polluter pays" logic. Regarding Principle 10, the main issue is related to the fact that there is no direct mention that the plan will be revised if necessary. There are only vague assumptions based on the fact that the plan's implementation will be monitored by the Coordination Committee and that its main objectives are drawn from the NECP (which is currently under revision).

Regarding the rest of the 10 Principles the TJTP has received a mediocre rating, but some questions' assessments are worth mentioning. For example, regarding Principle 8, the plan lacks details regarding stakeholder engagement apart from the deliberation process that has already taken place. Despite extensive deliberations as described in the table, a key caveat is that there is no explanation of how it has affected the plan development. On the other hand, regarding Principle 4 (focusing on the plan's efficacy to address social inequalities) there are some answers that got a high assessment. For example, the plan demonstrates specific numbers for new jobs created, also examining indirect job losses, as well as the number of workers that will need to be reskilled.

Lastly, WWF's assessment includes Principles 1 and 2 focusing on the plan's sustainability targets. Regarding Principle 1, the plan (drawing its target from the NECP) fails to meet the aim of the EU's Green Deal. Nevertheless, it proposes significant RES electricity generation projects as well as energy storage and green hydrogen infrastructure, actions that aim at a sustainable



energy mix. Similar insights can be observed in Principle 2 as well. The TJTP does not consider any plan for a natural gas phase-out but proposes a very ambitious goal for delignitisation by 2028, although the region is heavily dependent on lignite since it used to be Greece's electricity powerhouse. This however could spark fear over a shift to natural gas, and a consequent gasification of the energy mix.

More information

ieecp.org/projects/justem

Partners

