



Building on local assets to create a new economy: A report on the municipality of Megalopolis and eligible area

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1.0 Introduction

The European Union (EU) aims to be carbon-neutral by 2050¹. Greece, in line with this vision, as part of its National Energy and Climate Plan, aims to stop the use of lignite for power generation in the country by 2028². This commendable and ambitious undertaking will adversely impact the region of Western Macedonia as well as the municipality of Megalopolis and its surrounding area. In Megalopolis, the last lignite unit, Megalopolis IV, is expected to be withdrawn by 2023.

The report has been prepared through START³ support to the Megalopolis eligible area. It is informed by the prevailing Greek context of transition from lignite mining and power generation, especially at the sub-regional level, including related economic, social, industrial, and institutional factors.

The report presents and considers evidence from other regions and localities which have undergone, or are undergoing transition, to assist Greek policy makers and other Greek transition actors consider approaches and options to assist transition in the Megalopolis eligible area, with a focus on **investment attraction and technology transfer, enterprise development and employment and skills**.

In this regard, Megalopolis and the affected area is not alone in aiming to develop a new development pathway. Currently, there is a wide range of good practice examples that the area can use to inspire and support its transition^{4 5 6 7 8}. Where possible, this report utilises proven, relevant and innovative examples of good practices of transition at the regional and local levels, to bring fresh perspectives to the process of change in the Megalopolis eligible area.

Specifically, the report highlights nearly fifty good practice examples that relate to the needs of the affected area. The examples demonstrate how other regions and localities have coped with the transition from lignite and other fossil fuels and / or created new sectors, relating to clean energy, small industries and trade, smart agricultural production, and sustainable tourism. These growth sectors are recognised in the Greek Government's 'Just Transition Development Plan' and 'Territorial Just Transition Plan' as offering opportunities to restart the local economy based on productive, future-oriented sectors (see Section 5.0).

The report is not intended to be prescriptive or offer definitive policy recommendations. Rather it provides insights of successful examples of transition - especially regarding investment, technology transfer,

¹ COM/2019/640 final. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS The European Green Deal.

² European Commission. National energy and climate plans. Available at: https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

³ Secretariat Technical Assistance to Regions in Transition (START) is a support programme of the EU Initiative for Coal Regions in Transition.

⁴ WWF (2016). Roadmap for the transition of the Western Macedonia Region to a post-lignite era. Available at: https://regionsbeyondcoal.eu/wp-content/uploads/2019/02/Roadmap_PostLignite_EN_FINAL-1.pdf

⁵ Tracer-h2020.eu (n.d.). Transition in coal intensive regions. Best Practice Platform. Available at: <https://tracer-h2020.eu/best-practice-platform/>

⁶ ub-cooperation.eu (n.d.) Case studies. Available at: <https://ub-cooperation.eu/index/casestudies>. University-Business Cooperation is an initiative of the European Commission.

⁷ Center for Environmental Initiatives Ecoaction, K: ALT Company (2019). Transformation Experiences of Coal Regions: Recommendations for Ukraine and other European countries (full study). Available at:

https://germanwatch.org/sites/default/files/Study_Transformation_Experiences_Coal_Regions_EN.pdf

⁸ It is also worth noting that JTP and JTTP also take stock of good practice examples from European, and third countries found in ΣΔΑΜ (2020). Σχέδιο Δίκαιης αναπτυξιακής μετάβασης των λιγνιτικών περιοχών. Υποστηρικτικό υλικό δημόσιας διαβούλευσης. Διεθνείς Βέλτιστες Πρακτικές. 17 Σεπτεμβρίου 2020 and IOBE (2020)

enterprise, employment and skills, and transition governance and capacity development - to inform comprehension, discussion and planning amongst local, regional, and national stakeholders.

The report has the following sections.

- ▶ **Section 2** presents an underlying conceptualisation of economic change in Megalopolis and the eligible area, premised on the notion that successful local economic development, especially in mono-industrial economies undergoing restructuring, is contingent on the effective utilisation of local assets.
- ▶ **Section 3** presents the socio-demographic profile of Megalopolis. As this section shows, Megalopolis shares similar sociodemographic trends and challenges with its neighbouring localities and other regions in transition, in Greece and Europe.
- ▶ **Section 4** presents the economic profile of Megalopolis. The section starts with the historical manifestation of coal mining as a mono-industry in the municipality and then discusses the current and future implications of moving away from lignite mining for the economy and employment.
- ▶ **Section 5** outlines the developmental axes of Greece's Just Transition Plan for coal regions, and Megalopolis specifically.
- ▶ **Section 6** provides an overview of the main proposed measures to support a just transition.
- ▶ **Section 7** sets out the key changes for the region, examining strengths, weaknesses and opportunities and threats.
- ▶ **Section 8** examines potential approaches and good practice examples for attracting inward investment and transfer of technology to locations undergoing industrial transition.
- ▶ **Section 9** examines potential approaches and good practice examples for encouraging the emergence and supporting the development of microenterprises and business start-ups in transition and rural areas.
- ▶ **Section 10** examines the ways in which workers can be supported via financial support, skills development, matching jobseekers to vacancies, and tailoring support to individuals and their needs.
- ▶ **Section 11** considers issues relating to governance of transition actors at the local level and considers the case for creation of a Local Transition Partnership for Megalopolis.
- ▶ **Section 12** presents the concluding remarks of the report. This section concludes on a positive note: while it is true that the transition from coal will have consequences for the municipality, if appropriate steps are taken, it can also help it move towards a more economically and environmentally sustainable future.

It should be noted that due to the Covid-19 situation and the inability to travel to the affected area, this report was based on desk research and interviews with stakeholders who were recommended by the START recipient. However, the authors believe that the rich and diverse examples of good practice can represent a meaningful resource for Greek policy makers and transition actors at the local, regional and national levels.

2.0 Conceptual and analytical framework

2.1 Our conceptualisation of economic development in Megalopolis and eligible area

*“It is imperative to strengthen and diversify the local production system by exploiting the **intrinsic strengths** of the wider region by turning it into a pole of business development” (TJTP Megalopolis, 2021)*

This paper is built on the premise that successful local economic development, especially in mono-industrial economies undergoing restructuring, is dependent on the effective valorisation of local assets (i.e., the intrinsic strengths referenced in the above quote from the TJTP). Local assets are utilised and exploited by linking them with industrial and technological opportunities and socio-economic drivers of change.

This interplay of local assets with economic opportunities and drivers of change is enabled by the mobilisation (agency) of a variety of economic actors, namely in government and business. These actors use a variety of mechanisms (instruments) to utilise and exploit these assets for economic advantage.

In this paper, the mechanisms that are considered for the valorisation of local assets are: **inward investment, technology transfer, enterprise development, and skills and employment measures**.

Critically, sub-national, national, and supra-national institutions and their policies play a key role in shaping and regulating the interplay of local assets, actors, and mechanisms, and in turn, the resulting scale, nature and timing of new economic activities and local transformation. When this institutional environment changes, so does the interplay of assets, actors, and mechanisms.

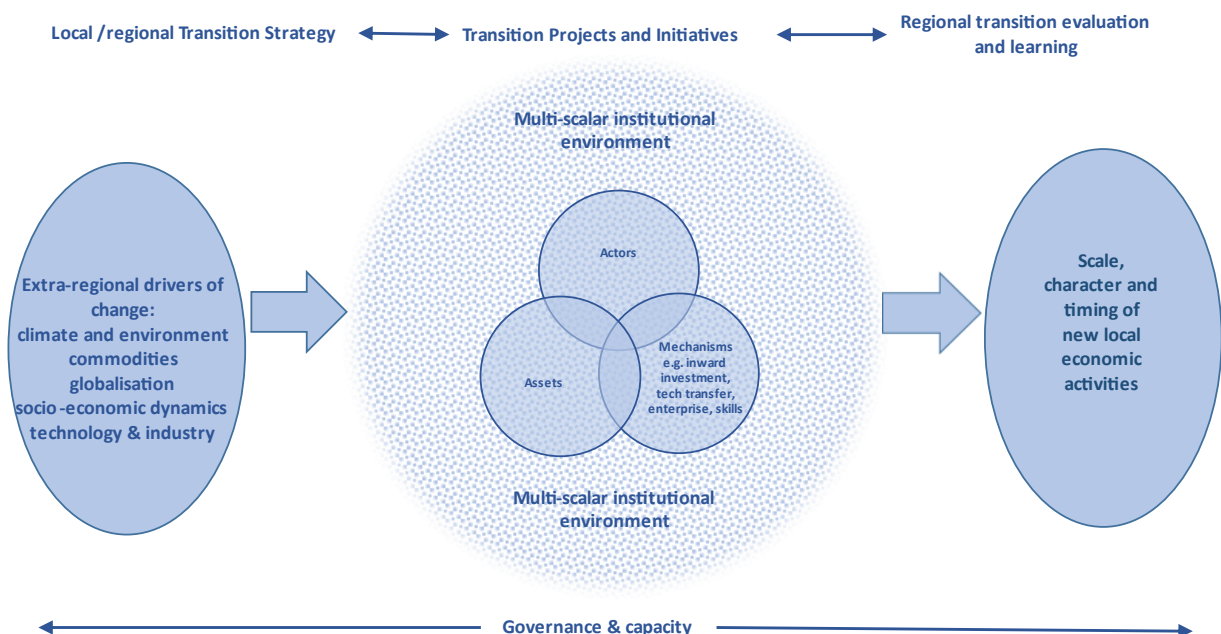


Figure 1. Overview of conceptual framework

At this juncture, it is appropriate to define what is meant by assets in the context of this paper. As is evident, coal regions contain a variety of depleted, un-reconfigured and latent assets, such as physical and natural assets; industrial, energy and transport infrastructure; and organisational and human capital, including skills and knowledge.

Levering such assets is one of the key five principles of the “next day vision” as set out in the Greek Government’s ‘Just Transition Development Plan of lignite areas’ (hereafter the “Master Plan”) i.e., “utilisation of the inherent advantages of the affected areas”.

Megalopolis eligible area’s assets include⁹:

- A surplus of labour, with a concentration of energy and technical related skills
- Established power grid which facilitates integration of renewable energy and storage solutions
- High level of solar energy resource
- A surplus of land that, even if degraded, can be repurposed to accommodate industrial solar (PV) installations, agriculture and leisure activities
- Nearby mature tourism destinations
- Central regional location with proximity to highways and the coast, and large urban markets
- Low cost of living
- Presence of major national organisation, PPC, with technical skills and expertise, resources and capacity, and influence (although its land asset will transfer to the state).

In addition, according to the Master Plan, significant new assets will be created in the Megalopolis eligible area in the near future, notably digital 5G and transport connectivity.

The absence of certain local assets will also determine development options. Given a narrow economic base and the near absence of a local innovation system (common features of coal localities), the scope for smart specialisation and broad-based economic diversification are limited. The scarcity of these assets determines the efficacy and utilisation of the mechanisms of economic change.

Therefore, this paper focuses on four broad, primary mechanisms (instruments) for the valorisation of local assets. It is the contention of this paper that the Master Plan and TJTP are correct in identifying inward investment, along with technology transfer, as first-order mechanisms for utilising local assets to create a new development path and significant job creation. Additionally, skills and employment measures represent a cross-cutting mechanism required to support the operation of all mechanisms, as does micro-enterprise development and start-ups. Thus, the mechanisms in this paper are considered in the following order:

1. Inward investment and technology transfer (considered in unison given level of co-dependence)
2. Micro-enterprise development and start-ups
3. Skills and employment measures

⁹ See, also, Section 7.0 of this report, which presents a SWOT analysis.

In this paper, nearly fifty empirical examples will consider how these mechanisms have linked economic opportunities and drivers of change to territorial assets to enable local economic development in other regional and local economies undergoing transition.

The relevance of these examples for delivering the “next day vision” of the Master Plan, particularly the five principles of the “next day vision” (see Section 5.0) will be assessed. The relevance of each example is recorded using a colour-coded ranking system (see below). It should be noted that the assessment is generally subjective and relative.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it’s a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

3.0 Social profile of Megalopolis

This section presents key demographic and social characteristics for Megalopolis¹⁰ and the surrounding area. The section shows that the population in Megalopolis and the wider area has a downward trend, low educational attainment high age- and old-age dependency projections and an increased risk of poverty and social-exclusion (AROPE). These demographic and social characteristics are not particular to Megalopolis but are consistent with similar trends in neighbouring localities and regions in transition.

The section also shows how coal mining came to be a mono-industry in the region and crystallised in the collective consciousness of the local people as the only viable pathway to prosperity for both individuals and the community, to the disadvantage of other sectors.

3.1 Population trends

According to the 2011 Census, Megalopolis has 10,687 permanent residents with a roughly equal share between male (5,538) and female (5,149) residents. While time-series data regarding population change for the municipality are not available, it is worth noting that the region of Arcadia, in which the municipality is situated, has seen a 12% decrease in its population between 2002 and 2019. As Figure 2 below shows, this downward trend is likely to continue in the future for the broader region.

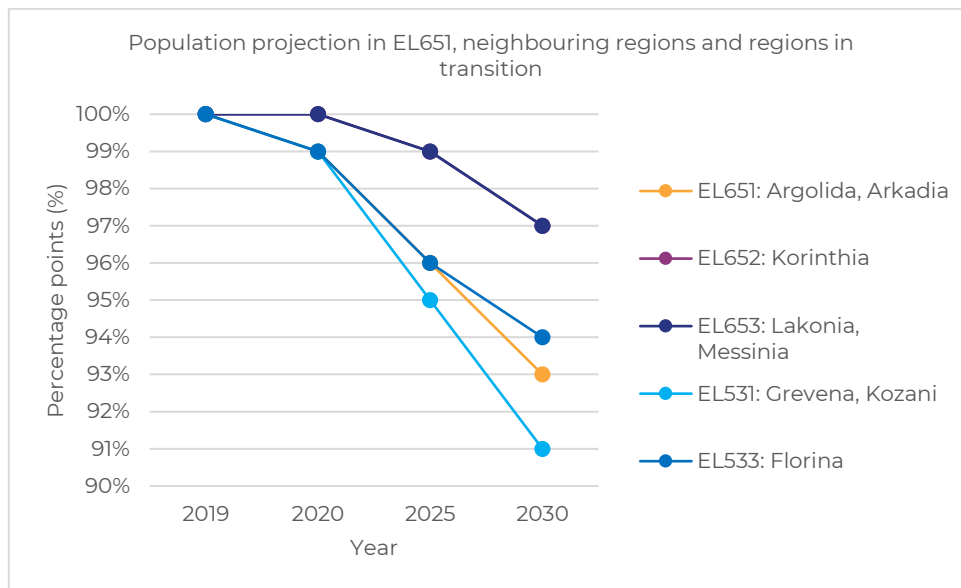


Figure 2. Population projection in EL651, neighbouring regions and regions in transition¹¹.

The first observed trend is then that the population in Megalopolis and the wider area has a steady, downward trend that is likely to continue in the future.

¹⁰ The unit of analysis is the municipality of Megalopolis. When data are unavailable for the municipality of Megalopolis, the section uses data from the Hellenic Statistical Authority for the region of Arcadia and Eurostat data for the NUTS 3 Region EL651 (Argolida, Arcadia).

¹¹ Source: Eurostat (online data code: PROJ_19RP3)

3.2 Educational attainment of the population

This subsection presents educational attainment in the municipality of Megalopolis. As Figure 3 below shows, educational attainment in Megalopolis is very low. In the municipality, the highest educational attainment for roughly 50% of the population is primary school, with roughly only 1 out of 10 persons holding a tertiary-level qualification. The situation is similar to neighbouring municipalities and municipalities in transition. In the neighbouring municipality of Gortynia, the highest educational attainment for over 85% population is also secondary school, with only 5% of its population holding a tertiary-level qualification. It should be noted that this data relates to 2011 but this is the most recent available data at this granular level. Figure 3 shows the educational attainment distribution across the whole population in these areas. Data for those who are six years old are not available, as schooling in Greece starts at six.

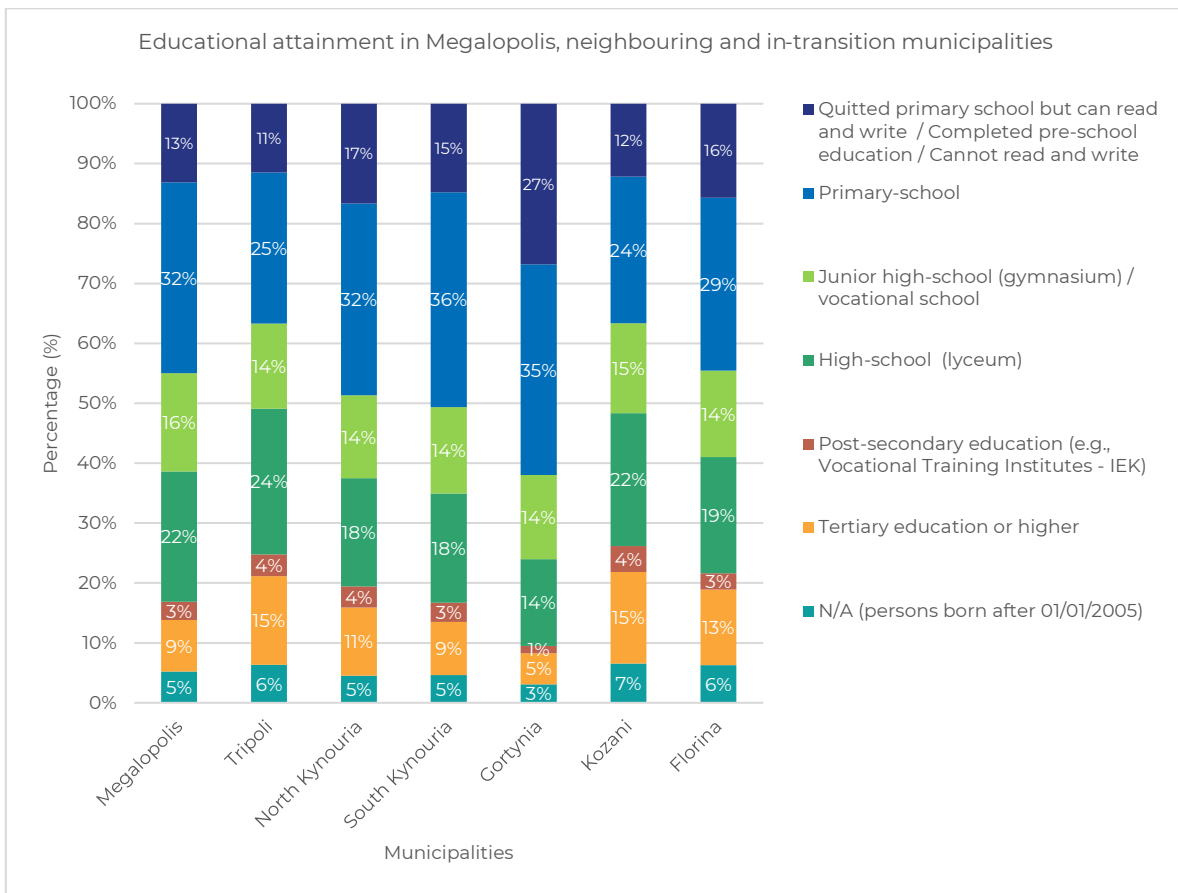


Figure 3. Educational attainment in Megalopolis, neighbouring and under-transition municipalities in 2011¹².

¹² Source: Hellenic Statistical Authority. Census data. Reference year: 2011.

3.3 Age distribution of the population

Megalopolis has a relatively old population. While data are not available for the municipality, in the region of Arcadia in 2011 almost one in two persons (44%) was over 50 and one in 10 (21%) over 70¹³. Both percentages are in line with, although relatively higher than those found in other municipalities in transition, as shown in Figure 4 below.

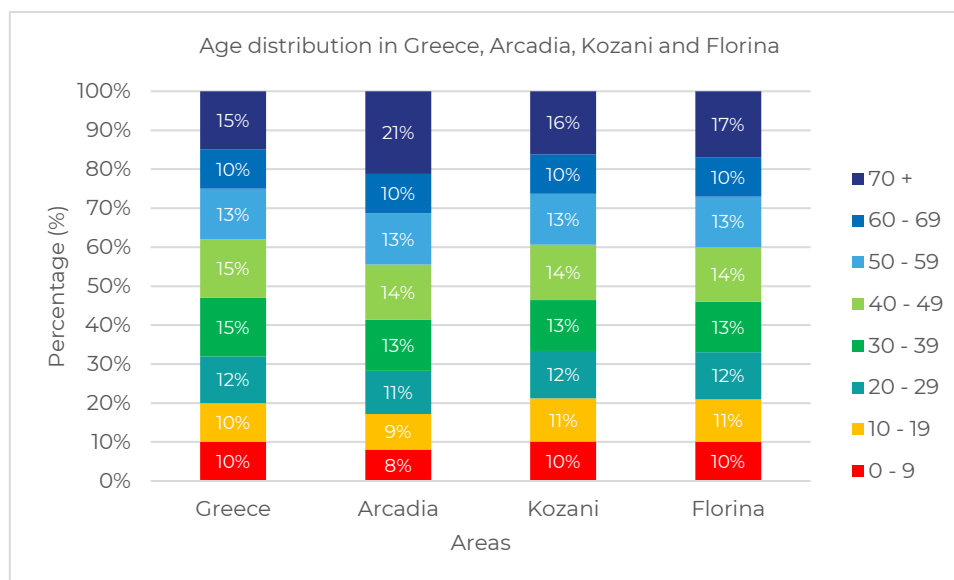


Figure 4. Age distribution in Greece, Arcadia, Kozani and Florina¹⁴

While data are not available at the level of the municipality, data for the NUTS 3 Region EL651 (Argolida, Arcadia) suggest that the ageing of the population is likely to continue. In particular, the percentage of the persons over 65 is expected to rise from 25% in 2020 to 29% in 2030, with the median age in the population rising from 48 to 51.1 years in the same reference period¹⁵.

3.4 Age and old-age dependency

This section shows the age- and old-age dependency indexes for the region. The increasingly ageing population of the region and particularly the forecast regarding its demographic ageing and dependency indexes warrant policy interventions to change its demographic balance. However, it is worth noting that these forecasts exhibit similar trajectories to those for Greece and the European Union.

¹³ Source: Hellenic Statistical Authority. Census data.

¹⁴ Adapted from: IOBE (2020). Απολιγνιτοποίηση της ηλεκτροπαραγωγής: Κοινωνικοοικονομικές επιπτώσεις και αντισταθμιστικές δράσεις. Available at: <https://sdam.gr/>

¹⁵ Source: Eurostat (online data code: PROJ_19RDBI3). Reference year is 2020.

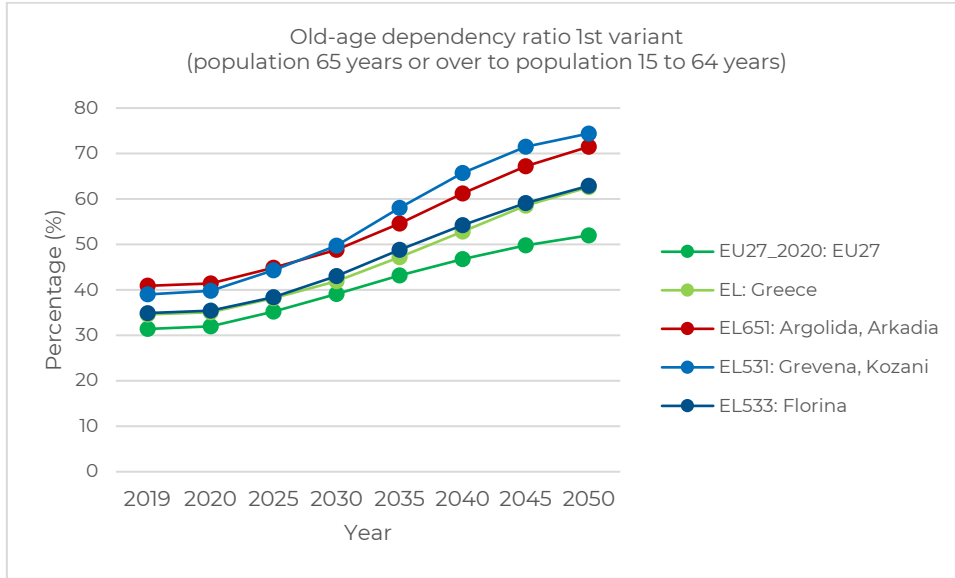


Figure 5. Old-age dependency ratio 1st variant¹⁶.

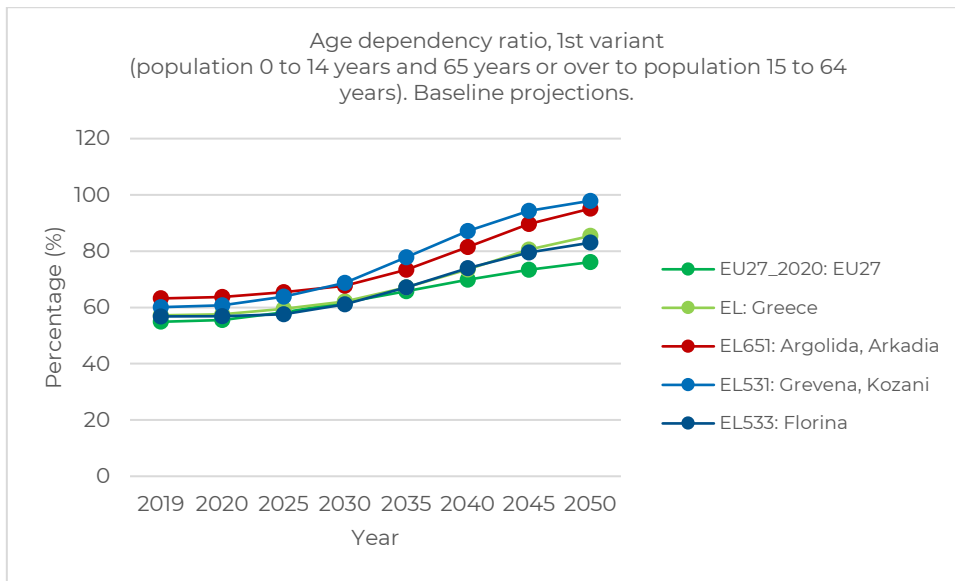


Figure 6. Age-dependency ratio 1st variant¹⁷.

¹⁶ Source: Eurostat (online data code: PROJ_19RDBI3, PROJ_19NDBI)

¹⁷ Source: Eurostat (online data code: PROJ_19RDBI3, PROJ_19NDBI)

3.6 People at risk of poverty and social exclusion (AROPE) and special needs groups

Finally, the region exhibits a high risk of poverty and social exclusion (AROPE). Although for the last reference year for which data are available there seems to be a decline in the AROPE in the Peloponnese region, in the region still more than out of three persons are at risk of AROPE, a percentage which is slightly higher than the region of Western Macedonia (30.3%) and the average for Greece (27.5%).

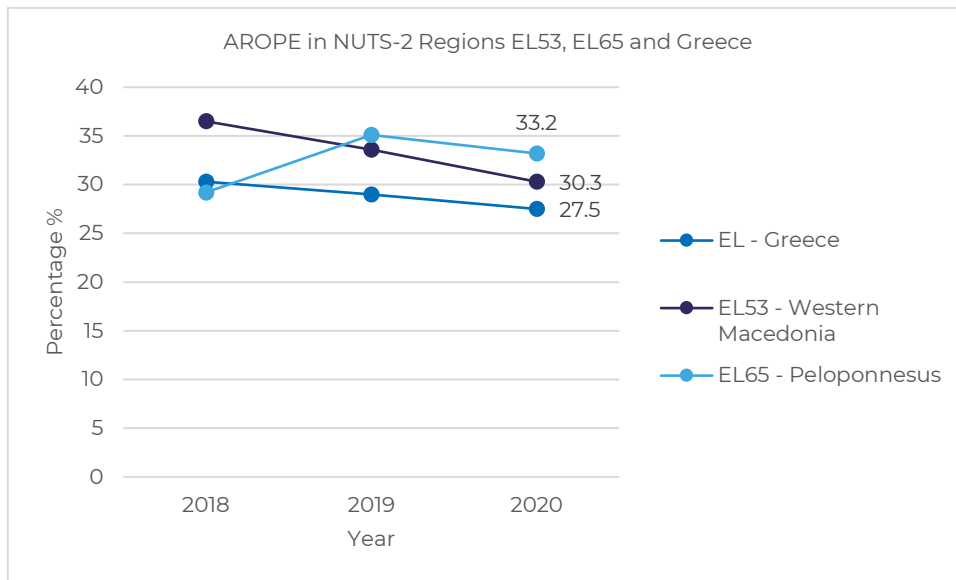


Figure 7. AROPE in Peloponnesus, Western Macedonia, and Greece¹⁸

¹⁸ Source: Eurostat. People at risk of poverty or social exclusion by NUTS regions - new definition. (online data code: ILC_PEPS11N)

4.0 Economic overview

This section provides an overview of the economic profile of Megalopolis. The section begins with a brief overview of the history of coal mining in Megalopolis. It then examines the current employment situation and considers the implications of the coal transition for the workforce in the area.

4.1 History of the coal sector in the region

Lignite mining started in Megalopolis in 1969 and since then became its main economic activity in the absence of a development model that encouraged economic diversification and protection of the environment¹⁹. This resulted in the neglect of other economic activities and sequentially, the reliance of the local community on jobs within or closely affiliated with lignite mining. In addition, this led to a consolidation in the collective consciousness that lignite mining is the only viable pathway to individual and community prosperity. This is one factor that explains local resistance to the transition away from coal²⁰²¹.

This historical over reliance on coal holds to the present day. In the regional unit of Arcadia, the lignite sector generates 50% of jobs and 64% of the Gross Value Added in the energy sector in the Peloponnese region²². In the region of Arcadia, this translates to 1,600 direct jobs, or 3,100 jobs when taking into account the total lignite-fired value chain (60% of the jobs in the energy sector in the region). The administrative region of Messinia that is in close proximity to the administrative region of Arcadia also exhibits a high proportion of its workers in the sector, namely, roughly one in five (21%).

However, as Table 1 below shows, although the number of jobs in the lignite sector in Arcadia is significantly higher in comparison to those in neighbouring regions, they still represent a small share of the total jobs both within Arcadia but also within the broader region of the Peloponnese. Across the different regional units, ‘agriculture, forestry and fisheries’, as well as the ‘retail, hotel, catering, transport and communications’ sectors appear to be the most prevalent non-energy sectors.

¹⁹ Τσίγκανου, Ι. (2018). Στα πρόθυρα της μετάβασης της μεταλιγνιτικής εποχής. Η περίπτωση της Μεγαλόπολης. Περιλαμβάνεται σε Τσίγκανου Ι. και Κιντή Ρ. (επιμέλεια), Ενέργεια και Τοπικές Κοινωνίες. Εθνικό Κέντρο Κοινωνικών Ερευνών - Έρευνες 18. Αθήνα, 2018. Σελίδες 490-531.

²⁰ Τσίγκανου, Ι. (2018). Στα πρόθυρα της μετάβασης της μεταλιγνιτικής εποχής. Η περίπτωση της Μεγαλόπολης. Περιλαμβάνεται σε Τσίγκανου Ι. και Κιντή Ρ. (επιμέλεια), Ενέργεια και Τοπικές Κοινωνίες. Εθνικό Κέντρο Κοινωνικών Ερευνών - Έρευνες 18. Αθήνα, 2018. Σελίδες 490-531.

²¹ Καρτσώνης Βασίλειος (2019). απελευθέρωση της αγοράς ηλεκτρικής ενέργειας και το καθεστώς εκμετάλλευσης λιγνίτη στην Ελλάδα. Η περίπτωση της λιγνιτικής μονάδας Μεγαλόπολης – Μελέτη των κοινωνικοοικονομικών επιπτώσεων με χρήση ερωτηματολογίου. Διπλωματική Εργασία. Ελληνικό Ανοικτό Πανεπιστήμιο.

²² ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης

Table 1. Economic activity in Peloponnesus²³

Region	Agriculture, Forestry and Fisheries	Energy, Mining, Water Supply	Processing	Manufacturing	Retail, Hotel, Catering, Transport and Communications	Financial and insurance services	Other services	Total
Argolida	22%	1%	5%	6%	33%	1%	32%	100%
Arcadia	22%	5%	5%	6%	33%	1%	28%	100%
Korinthia	23%	1%	8%	5%	28%	2%	32%	100%
Lakonia	31%	1%	4%	5%	31%	1%	27%	100%
Messinia	31%	1%	4%	5%	31%	1%	26%	100%
Peloponnesese (total)	26%	2%	5%	6%	31%	1%	29%	100%

4.2 Employment statistics

This section presents employment statistics for Megalopolis and the neighbouring municipalities that have been as identified as the most affected by the coal transition²⁴. An overview of employment statistics for the years 2018 - 2020 is shown in Table 2 below, which distinguishes between two types of unemployment: active (up to five years) and non-active (over five years).

Table 2. Unemployment in coal transition municipalities²⁵.

Municipality and active population	% unemployed 2018 (non-active)	% of unemployed 2018 (active)	% unemployed 2019 (non-active)	% of unemployed 2019 (active)	% unemployed 2020 (non-active)	% of unemployed 2020 (active)	Registered unemployed (2020) median
Megalopolis (3,735)	26%	12.36%	24.22%	14.74%	25.52%	18.19%	953
Tripoli (19,837)	19.99%	17.05%	20.93%	16.99%	21.96%	17.90%	4,356
Oichalia (3,632)	12.58%	10.55%	15.53%	13.57%	17.54%	15.35%	637
Gortynia (2,677)	11.95%	8.72%	12.36%	9.41%	13.28%	10.65%	356

The Table shows that Megalopolis and Tripoli have the highest unemployment rate in the area across both unemployment categories²⁶. In Megalopolis, one out of every four persons is registered as unemployed

²³ Source: Authors' elaboration of Eurostat, Employment by NUTS-3 Regions, 2020, IOBE 2020, cited in ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης. * These services include property management, professional and scientific services, public administration services, services in arts and entertainment

²⁴ ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης

²⁵ Source: National Institute of Labour and Human Resources (NILHR). More information available at: https://public.tableau.com/app/profile/vaios.kotsios.eiead/viz/_16271577894290/sheet0

²⁶ The Table classifies as active unemployed those who are registered as job seekers and who are in unemployment for a period up to 5 years.

while in Tripoli, one out of every five persons is registered as unemployed. The Table also points to a discrepancy between the two employment categories. This is illustrated for Megalopolis in Figure 8 below.

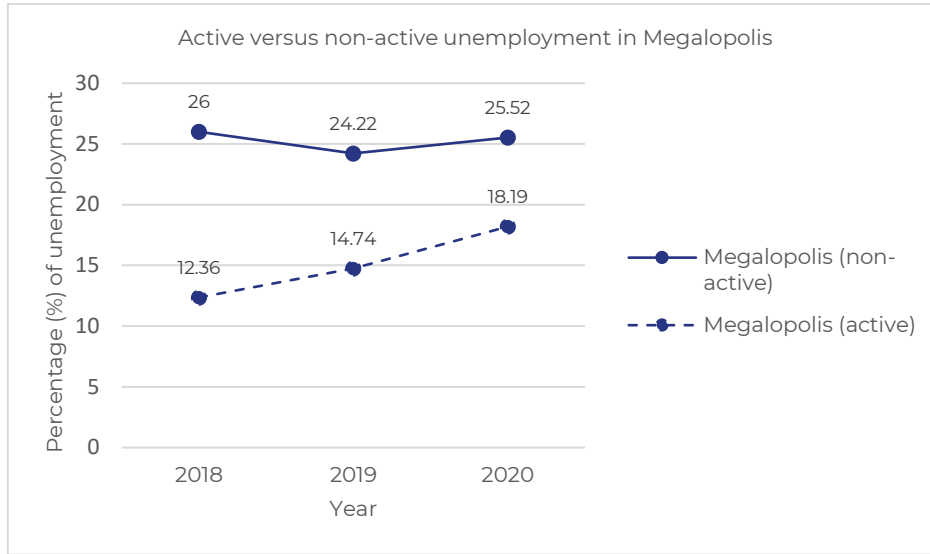
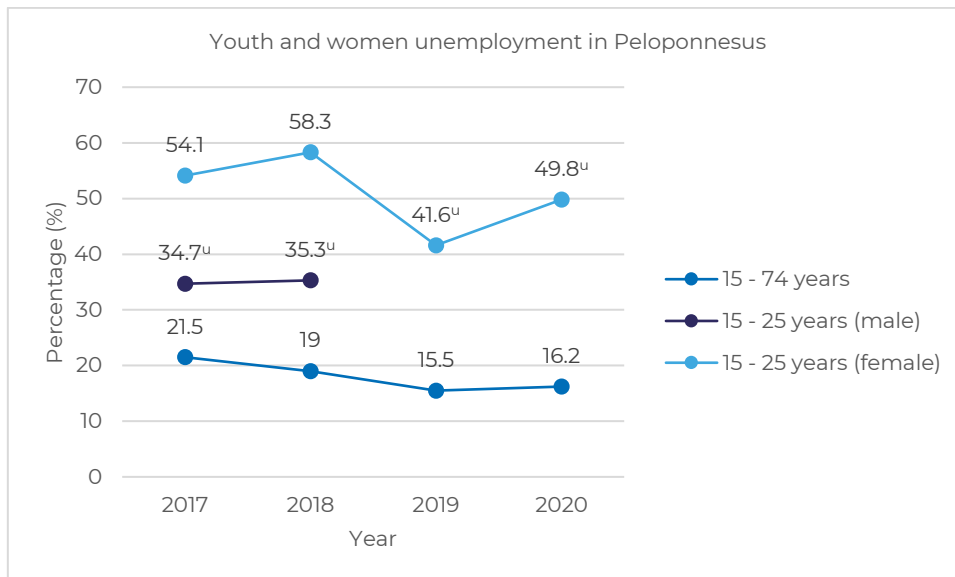


Figure 8. Active versus non-active unemployment in Megalopolis²⁷.

To add another layer of comprehension, Figure 9 below shows the percentage of youth unemployment and within this youth unemployment rate, the percentage of women in unemployment in the broader region of Peloponnese. As the Figure shows, young women’s unemployment is consistently higher than the rate for young men and for the overall population. In the latest reference year in which data are available (2020), almost half (49.8%) of young women in the Peloponnese region were unemployed.



²⁷ National Institute of Labour and Human Resources (NILHR). More information available at: https://public.tableau.com/app/profile/vaios.kotsios.eiead/viz/_16271577894290/sheet0

Figure 9. Youth and women unemployment in Peloponnesus²⁸

Many factors contribute to unemployment. The first is the reality of the prevailing economic structure, and relates to the absence of viable employment opportunities for persons with low educational attainment, which can often lead them to seek exclusively short- or longer-term contracts in the public administration to try to move out of being at risk of poverty and social exclusion (AROPE)²⁹. Another practical explanation is that many persons might not be actually looking for employment and rely on the Hellenic Manpower Employment Organisation's (OAED) unemployment benefit package. In certain cases, this can amount up to over 70% of the minimum wage³⁰.

All in all, the above trends point to a need to create jobs matching the low educational (yet often resourceful, as will be shown below) profile of the workforce of the region and which focus on the inclusion of youth and particularly women in the labour market.

4.3 Employee flow 2018-2020

In Megalopolis, between 2018 and 2020, the (net) number of new vacancies was 426. The overwhelming majority of the new jobs (447) were in power supply, confirming the dominant position of the public power supply company in the local economy. In addition to new jobs in power supply, several new jobs were created in the retail and repair sector³¹. An indicative list with the main types of new jobs per type of worker is shown in Figure 10 below.

²⁸ Source: Eurostat. Unemployment rates by sex, age, educational attainment level and NUTS 2 regions (%). (online data code: LFST_R_LFU3RT). Estimates with (u) have low reliability.

²⁹ Spyridopoulos, K. (2020). The new trajectory of social policy in Greece: An ambulance service or a sustainable pathway to social policy improvement at the local level?. *Social Cohesion and Development*, 15(1), 31-47. doi: <https://doi.org/10.12681/scad.25020>

³⁰ OAED.GR (n.d.). Ανεργία και Παροχές Ασφάλισης Μισθωτών. Available at: <https://www.oaed.gr/anergia-kai-paroxes-asfalishs-misthwtnwn?tab=taktiki-epidotisi-anagerhias&tab2=koini-anagerhoi&tab3=yposos-epidotisis>

³¹ Source: National Institute of Labour and Human Resources (NILHR). Available at: https://public.tableau.com/app/profile/vaios.kotsios.eiead/viz/2_16084778056110/sheet0

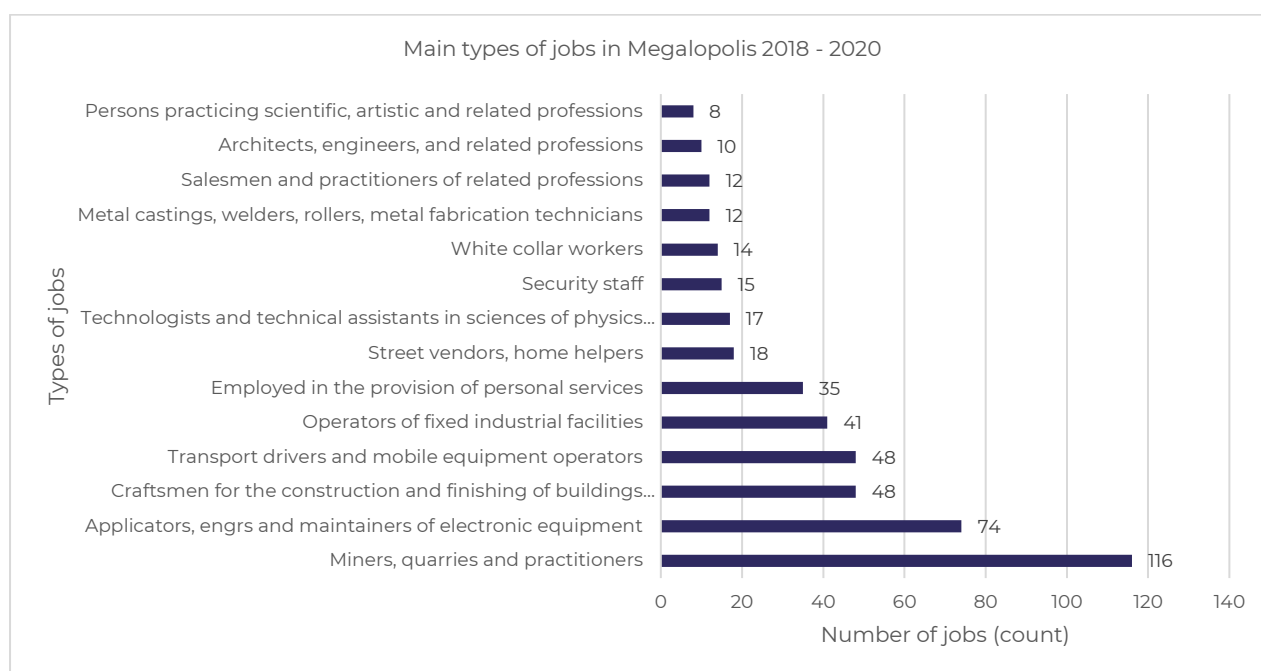


Figure 10. Main types of new jobs in Megalopolis 2018 - 2020³².

It is worth noting that, excluding jobs in retail, office or in the provision of personal services³³, all other jobs have a direct or indirect link with the power supply company. The data suggest that even some street vendors or home helpers are working in the power supply company. This confirms the company's major role as a direct and indirect employer in the region, which is further discussed below.

In 2020, the power company PPC employed a total of 1,113 persons in the lignite plants of Megalopolis³⁴. This includes permanent, temporary staff and contractors.

Table 3. Number and median age of PPC staff in Megalopolis plants³⁵

Staff category	Staff number	Staff (as % of total)	Median age
Permanent	737	66%	50
Temporary	12	1%	41
Contractors	364	33%	41
Sum	1,113	100%	-

Across the permanent staff, the majority (around 80%) holds technical occupations (technicians, engineers) while the minority (around 20%) is support staff³⁶. Across all three staff categories (permanent, temporary, contractors), most employees (90% to 100%) do not hold a tertiary education degree.

³² Source: *ibid.* Categories not entirely visible in the Figure are the following: Technologists and technical assistants in sciences of physics and engineering and practicing related professions, Craftsmen for the construction and finishing of buildings and other construction works

³³ salesmen, white collar workers, and persons employed in the provision of personal services)

³⁴ ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης. 2η Διαβούλευση, σελ. 104-106.

³⁵ Source: *ibid.*

³⁶ For example (e.g., non-specialised workers, security, cooks, health professionals)

Finally, in view of the transition it is worth mentioning that out of the 737 members of the permanent staff, 195 (26%) and 58 (8%) will have a right to retirement in 2022 and 2023 respectively, with the plan for the remaining 484 members (64%) being to either retire or transfer to another operation / post.

4.4 Potential impacts of the transition away from coal

The narrow economic base³⁷ and dependence on one economic driver in the Megalopolis eligible area mirrors the reality in many coal regions and localities. Megalopolis has historically been a mono-industry economy with a major employer. Apart from the public power company, its economy relies on a relatively weak wholesale and retail sector, including essential services such as the postal service, retail, pharmacy and medical, food and drink, and local private services. These sectors are embedded in the local economy and are therefore also likely to be subject to the implications of the transition away from coal. In total, the net impact of the transition is estimated to affect in the region of Arcadia around 116 businesses with a turnover of EUR 28 million³⁸. In light of this, one possible future scenario is that of an already narrow economy that is decreasing in size and vulnerable to depopulation as residents will need to migrate³⁹. Moreover, as evidenced in the OECD Regional Profile for the Peloponnese (2020), Megalopolis and the eligible area are located in a wider regional economy with multiple challenges.

Therefore, a major co-ordinated, resourced re-orientation of the local economy is necessary to mitigate the adverse impacts of transition. The next sections discuss existing initiatives that are in place and then identifies a number of good practices and instruments that the affected area and policy makers can refer to and potentially adapt in order to mitigate the economic and social effects of the transition from lignite.

³⁷ Stanley, Michael C.; Strongman, John E.; Perks, Rachel Bernice; Nguyen, Helen Ba Thanh; Cunningham, Wendy; Schmillen, Achim Daniel; McCormick, Michael Stephen (2018). *Managing Coal Mine Closure: Achieving a Just Transition for All* (English). Washington, D.C.: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/484541544643269894/Managing-Coal-Mine-Closure-Achieving-a-Just-Transition-for-All>

³⁸ ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης. 2^η Διαβούλευση, σελίδα 113. Έτος αναφοράς 2019.

³⁹ Γαβριέλα Γεωργακάκη, Έλενα Κασσελούρη (2018). *Μεταλλαγές του παραγωγικού τοπίου Μεγαλόπολης: Από την ανάλυση στο σχεδιασμό στο Ιωάννα Τσίγκανου, Ρόη Κιντή (2018), Ενέργεια και τοπικές κοινωνίες, ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΚΟΙΝΩΝΙΚΩΝ ΕΡΕΥΝΩΝ, ISBN: 978-960-6834-25-7*

5.0 Just Transition Plan (JTP)

The Greek government, as a response to the challenges faced by the region of Western Macedonia and the municipality of Megalopolis and surrounding area, and to facilitate a just transition, has created a Just Transition Plan (Master Plan)⁴⁰. This Master Plan is the key reference document for the just transition of Western Macedonia and the Megalopolis area. Drawing on international experience, current literature⁴¹ and consultation of institutional, social, and economic partners, the Master Plan sets out the vision for the future, backing this with financial and tax incentives, upskilling and reskilling initiatives, financial instruments and investments from the public and the private sector⁴². The Master Plan is further refined in three specific Territorial Just Transition Plans (TJTJs), one for each area undergoing transition (i.e., Western Macedonia, Megalopolis, South and North Aegean Islands and Crete). These TJTJs will feed into the preparation of the country's Just Transition Development Programme (JTDP) which will fall under its Partnership Agreement (PA) 2021 - 2027. Until the PA comes into effect, the technical secretariat of the JTP has designed a bridge programme (special transition programme) for the period 2020 – 2023, leveraging funds of the PA 2014-2020, the Green Fund and other financial instruments such as the EU Recovery Fund⁴³. The special transition programme will help the areas with a package of concrete measures in the short and mid-term period that can help mitigate the impacts of the transition. These measures draw on a range of other documents and research, including on the World Bank's Road Map⁴⁴.

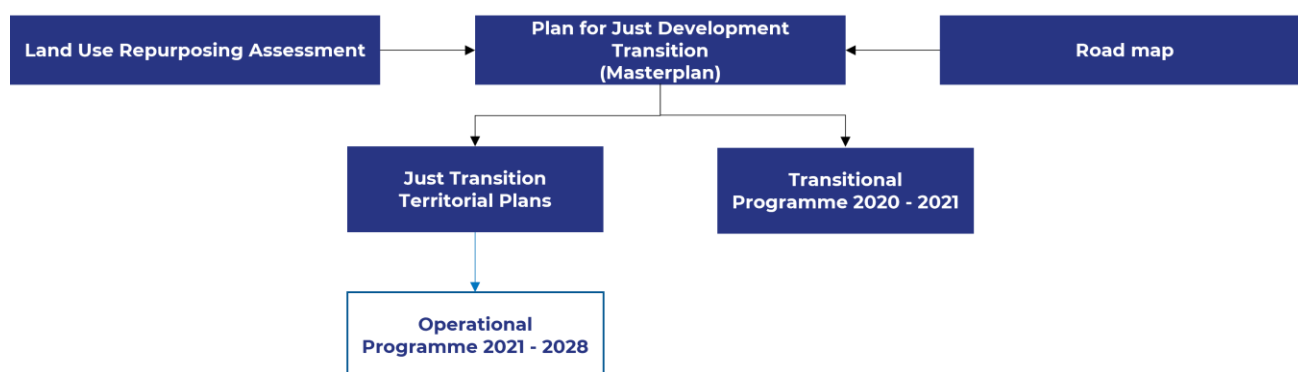


Figure 11. Planning of Just Transition in Greece⁴⁵.

⁴⁰ ΣΔΑΜ (2020). Επικαιροποιημένο Master Plan Δίκαιης Αναπτυξιακής Μετάβασης των λιγνιτικών περιοχών. Available at: <https://sdam.gr/node/252>

⁴¹ In particular, the Regional Government of Western Macedonia sought the assistance of the World Bank to develop a Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia. The output of the assistance was 11 standalone reports which are also brought together under a Road Map for a Managed Transition of Coal-Dependent Regions that was used to inform the Master Plan.

⁴² ALEXANDRA MAVROGONATOU (2021). Greek Regions in Energy Transition – Progress Update in Planning, Implementation and Combining Recourses. Technical Secretariat of the Greek JTDP Steering Committee. PowerPoint Slides.

⁴³ Sdam.gr (n.d.). Ειδικό μεταβατικό πρόγραμμα Δ.Α.Μ. 2020 - 2023. Available at: <https://sdam.gr/node/253>

⁴⁴ A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/103611593562422573/A-Road-Map-for-a-Managed-Transition-of-Coal-Dependent-Regions-in-Western-Macedonia>,

⁴⁵ Adapted from: A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/103611593562422573/A-Road-Map-for-a-Managed-Transition-of-Coal-Dependent-Regions-in-Western-Macedonia>, page 53.

The Master Plan’s vision for the future is to promote sustainable development through leveraging the competitive advantages of each area with the aim of fostering prosperity and the improvement of citizens’ lives. Intrinsic to the “next day vision” are five development principles:

- Utilization of the inherent advantages of the affected areas
- Emphasis on labour-intensive areas to create employment opportunities in local communities
- Ensuring a quick transition with an emphasis on quick wins
- Promoting social and environmental sustainability with an emphasis on sustainable development
- Integration of modern technology and promotion of innovation

To realise this vision, the Master Plan foresees five key growth pillars and a number of horizontal actions which will help rebuild the developmental pathway of coal regions in Greece (see Figure 12).

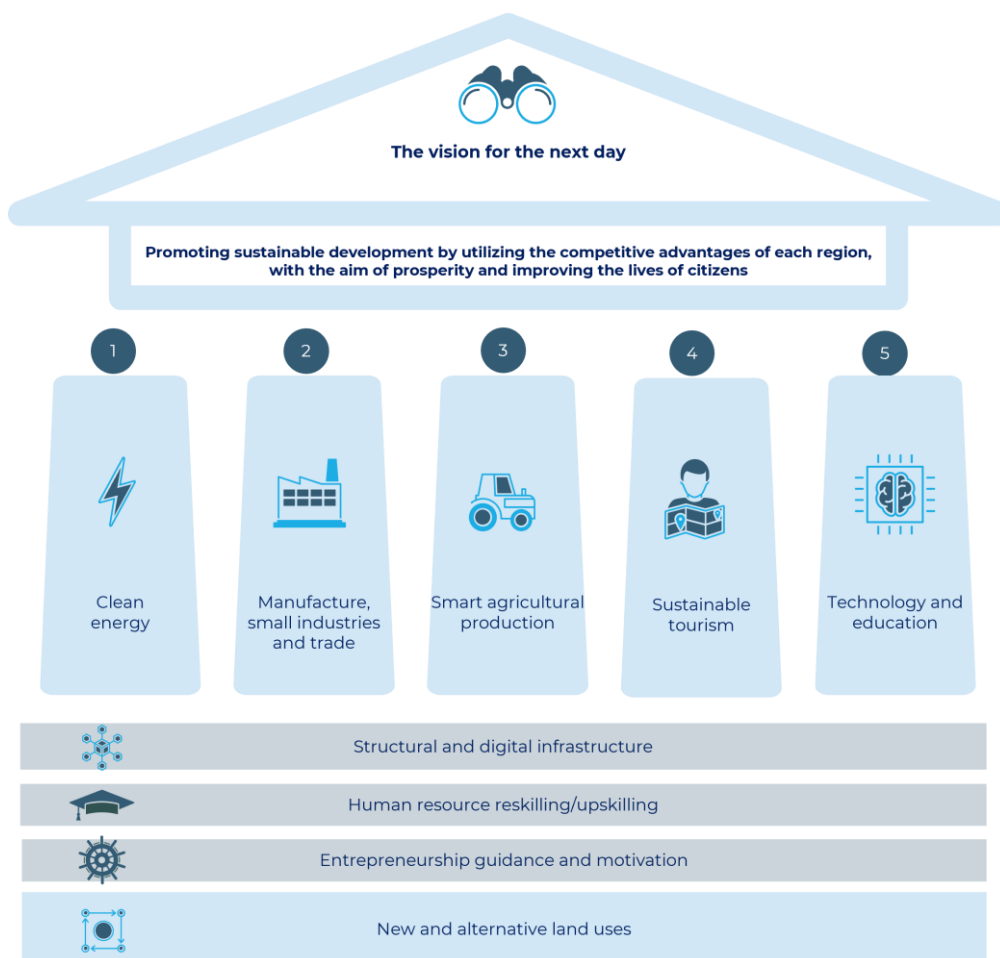


Figure 12. Vision for next day for coal regions in Greece⁴⁶

For Megalopolis, the current investment interest fitting into this vision is shown in Table 4.

Table 4. Current Investment Interest for Megalopolis⁴⁷

Axis	Investment	Investment Value
Clean Energy	Photovoltaic parks (≈ 0.6 GW) from PPC	≈ EUR 250M
Manufacture, small industries & trade	Pharmaceutical industry	≈ EUR 90M
Smart Agricultural Production	Smart livestock and animal feed unit and smart agricultural production units	≈ EUR 40M
Smart Tourism	Entertainment, Adventure and Education Park ⁴⁸	≈ EUR 40M
Other	Other public investments via PPP	≈ EUR 40M

These development pillars have shaped the emergence of development objectives in the Megalopolis eligible area. These main territorial specific objectives for Megalopolis are:

- Diversifying local production system and strengthening research, technological development, and innovation.
- Green transformation of businesses.
- Radical upgrading of local capabilities, focussed on energy (especially PV), agri-food (smart agriculture and creating added value), information and communication technologies, sustainable tourism and culture (e.g., relating to adventure, theme parks and education), creative industries.

These objectives are allied to the proposal for flagship development projects:

- Business and freight park (entrepreneurship)
- Innovation hub (entrepreneurship)
- Green school (just labour transition and empowerment of human capital)

At the same time, recently, there has been a preliminary agreement for the creation of an industrial park in the area of Megalopolis⁴⁹ and discussions regarding the creation of an exhibition park⁵⁰. Furthermore, the municipality has also highlighted interest from private parties for the creation of manufacturing units for Electrical Vehicles (EVs) or their spare parts, optic fibres, as well as the interest from recycling companies in a potential circular economy park⁵¹. Finally, the municipality has a number of ideas to diversify its developmental model which might in turn, spur further investments. These include, amongst other ideas, the following:

- Rail, road, and cycling infrastructure projects
- Development of livestock, smart-agriculture and biogas units
- Creation of an elderly care centre and a rural corrective centre

⁴⁶ Adapted from: ΣΔΑΜ (2020). Επικαιροποιημένο Master Plan Δίκαιης Αναπτυξιακής Μετάβασης των λιγνιτικών περιοχών. Available at: <https://sdam.gr/node/252>

⁴⁷ ΣΔΑΜ (2020). Επικαιροποιημένο Master Plan Δίκαιης Αναπτυξιακής Μετάβασης των λιγνιτικών περιοχών. Available at: <https://sdam.gr/node/252>

⁴⁸ Interest expressed from international entertainment company

⁴⁹ Megalopoli.gov.gr (2021). Available at: <https://megalopoli.gov.gr/10982-2/>

⁵⁰ Συνέντευξη Δημάρχου Μεγαλόπολης στο δελτίο ειδήσεων του BEST TV. Available at: <https://www.youtube.com/watch?v=o7p-RNYHsiU>

⁵¹ ΣΔΑΜ (2021). Ερωτηματολόγιο διαβούλευσης εδαφικού σχεδίου δίκαιης αναπτυξιακής μετάβασης Δήμου Μεγαλόπολης. Φεβρουάριος 2021.

6.0 Support measures

This section discusses different measures to support workers who will be made redundant or who are at risk of losing their job. In particular, the section presents how the Greek government (also through OAED) and the PPC are trying to mitigate unemployment. It also considers issues relating to skills development, complementing this information with international approaches, and brings forward cross-cutting issues that are important to consider during the transition process.

6.1 Tax and investment incentives

The Greek government, upon consultation with relevant parties (e.g., local actors, potential investors), has designed a holistic package of 15 tailor-made incentives targeting both businesses and individuals. These are shown in the Table below:

Table 5. Tax and investment incentives for businesses and workers

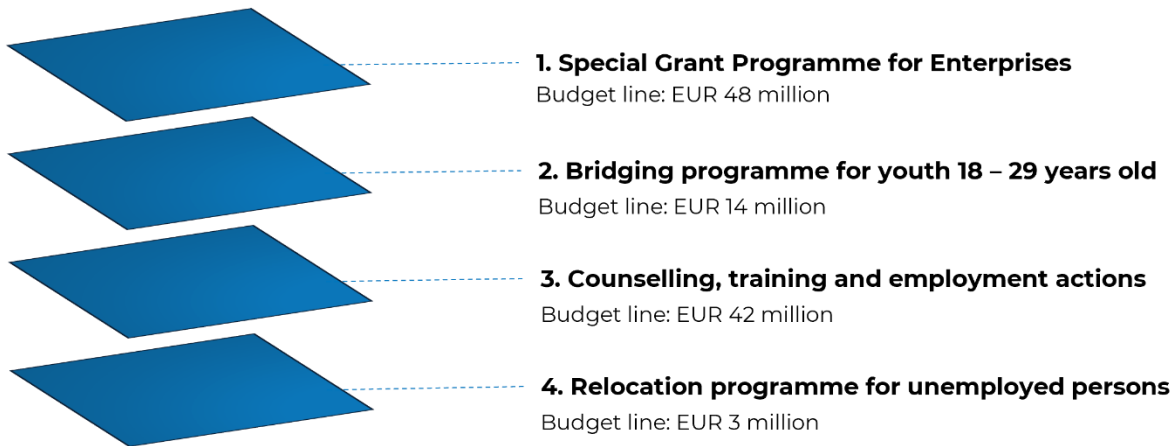
2 bundles of incentives for businesses		1 bundle of incentives for workers
Incentives to attract new businesses	Incentives to retain existing businesses	Incentives to support natural entities (individuals)
<ul style="list-style-type: none"> • Grants • Tax exemption • Tax relief • Fee exemption • Loans with favourable terms • Guarantees • Subsidies for insurance contributions 	<ul style="list-style-type: none"> • Grants to upgrade businesses • Loan disbursement • Payroll subsidy • Equity participation • Loans with favourable terms 	<ul style="list-style-type: none"> • Income tax reduction • Mortgage subsidy • Strengthening of planned subsidies and reskilling programmes

In addition to the above, a series of specific incentives, including tax incentives and fast-track procedures for businesses in the renewable energy sector that wish to install in the lignite areas, have been foreseen⁵².

6.2 OAED support for businesses and workers

The Hellenic Manpower Employment Organisation (OAED) will be one of the key players in terms of providing support to both businesses and workers. In particular, OAED has a €107 million programme (the social package), which has four pillars. At the time of writing, two out of the four pillars of the package are active. Figure 13 below summarises the main objectives of the programme, which are in turn discussed in more detail.

⁵² ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης. 2η Διαβούλευση.

Figure 13. OAED Social Package for Megalopolis and Western Macedonia⁵³

6.2.1 Support for businesses

Special Grant Programme for Enterprises

This Grant will subsidise up to 3,400 vacancies in the region of Western Macedonia and the municipality of Megalopolis and its neighbouring municipalities (Tripoli, Gortynia, Oichalia, Kalamata and Sparta) for persons previously employed in the fields of: (a) energy, (b) transport and earthmoving work related to the extraction of lignite, (c) wholesale and retail trade, catering and tourism, (d) other. The Grant will last from 12 to 18 months and its amount will range from 75% to 100% of the cost of the employment post.

6.2.2 Support for employees

Bridging programme for 18-29 year-olds

This programme will subsidise up to 550 vacancies in the municipality of Megalopolis (including its neighbouring municipalities of Tripoli, Gortynia, Oichalia, Kalamata and Sparta) regardless of their educational attainment for a period up to 7 months. The programme is open to both private and public enterprises (including municipalities). Its amount will be equal to the minimum wage (including full insurance contributions, holiday gifts and annual leave allowance).

Counselling, training, and employment actions

This pillar has a budget line of EUR 42 million and it includes three combined actions aiming to provide counselling, training, and employment services to unemployed persons. The pillar will be run in collaboration of the municipalities that are under the coal transition. Below, each action is described in more detail.

⁵³ Source: Ecorys, based on OAED (n.d.) Δράσεις προώθησης της απασχόλησης και στήριξης της αγοράς εργασίας στο πλαίσιο της Δίκαιης Αναπτυξιακής Μετάβασης. PowerPoint Slides.

Action 1: Provision of individual and group counselling sessions

Provision of individual and group counselling sessions will be in-person and/or online. During individual sessions, candidates will have the opportunity to sit down with a labour market specialist, design an individual action plan and receive support in acquiring the necessary skills to think about materialising a business idea. During group sessions, candidates will learn how to improve their job searches and they will also form business initiative teams.

The services have a budget of EUR 1.2 million and are targeted at 3,000 unemployed persons aged 18 - 64 in the region of Western Macedonia and the municipality of Megalopolis.

Action 2: Vocational training programmes to upgrade the skills of the workforce in de-ligation areas

These services aim to train unemployed persons in basic skills and offer them an internship of four months in local businesses. The areas of training will be fully in line with the new developmental pathway set in the JTP and they will integrate health and safety modules, basic knowledge of computer and foreign language terminology and they will be subject to certification in accordance with ISO IEC 17024. Training areas will include the development of ecosystems for production of electric products, smart agricultural production units, standardisation of agricultural products, the green economy, the tourism sector, the food sector, sales, e-commerce, administrative services, and customer service.

The services have a budget of EUR 18 million and are targeted at 3,000 unemployed persons aged 18 - 64 in the region of Western Macedonia and the municipality of Megalopolis.

Action 3: Business Subsidies

Business subsidies will provide a grant to businesses to hire beneficiaries of the above-mentioned actions for a period up to 8 months. The amount of the grant will cover from 75% to 100% of the costs for the business. This aspect is particularly positive, as there is now a sound evidence base suggesting that training-only programmes have low effectiveness⁵⁴.

Business subsidies have a budget of EUR 22.8 million and are targeted at 3,000 unemployed persons aged 18 - 64 in the region of Western Macedonia and the municipality of Megalopolis.

6.2.3 Relocation programme for unemployed persons

The relocation programme will be available for up to 200 unemployed persons wishing to relocate to the municipalities of Kozani, Florina and Megalopolis to work. To be eligible for the programme, individuals must live at least 100 kilometres away from the municipalities. The relocation subsidy will be a one-off payment of EUR 1,000 and follow-up monthly payments of EUR 200 for a period up to 12 months.

⁵⁴ World Bank (2021). Supporting Transition in Coal Regions : A Compendium of the World Bank's Experience and Guidance for Preparing and Managing Future Transitions. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/35323> License: CC BY 3.0 IGO.

7.0 Summarising the key challenges (SWOT)

Megalopolis shares some of the typical characteristics of coal regions, amongst others these include a coal-mining identity, a narrow economic base, and vulnerability to direct and indirect job losses when transition away from coal begins⁵⁵. At the same time, several specific strengths, weakness, opportunities and threats can be identified. These have been the subject of analysis in the municipality's Territorial Just Transition Plans (TJTP) and are shown in Table 6 below. This section provides some examples on how Megalopolis can tap into its strengths and weaknesses and redress its existing and forthcoming challenges with the view to successfully managing its coal transition.

Table 6. SWOT Analysis for Megalopolis⁵⁶

Strengths	Weaknesses
<ul style="list-style-type: none"> • Solar power potential • Production of local products • Proximity to ports • Transport Infrastructure • Specialised workforce • Rich natural landscape • Rich natural and religious heritage • Central geographical location in the region of Peloponnese • Proximity to the cities of Kalamata, Tripoli, Sparti 	<ul style="list-style-type: none"> • High dependency of local economies on lignite activity • Low educational attainment of the workforce • Limited digital infrastructure • Lack of entrepreneurial spirit • Lack of businesses with higher added value • Low performance in research, technological development, and innovation
Opportunities	Threats
<ul style="list-style-type: none"> • Use of Just Transition Fund and related financial instruments • Re-definition of land use and decontamination of areas • Use of natural environment and development of primary sector and local products • Stimulation of entrepreneurship • Enhancement of innovation, research and technology • Energy and digital transformation • Development of infrastructure and networks 	<ul style="list-style-type: none"> • Delignification of power generation • Limited mobilisation of competent local authorities • Ineffective cooperation of stakeholders • Complex licensing process • Low adaptability of existing workforce • Outflow of human resources (workforce) • Limited opportunities for ambitious & qualified people • Funding being absorbed mostly by bigger cities

⁵⁵ Stanley, Michael C.; Strongman, John E.; Perks, Rachel Bernice; Nguyen, Helen Ba Thanh; Cunningham, Wendy; Schmillen, Achim Daniel; McCormick, Michael Stephen (2018). *Managing Coal Mine Closure: Achieving a Just Transition for All* (English). Washington, D.C.: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/484541544643269894/Managing-Coal-Mine-Closure-Achieving-a-Just-Transition-for-All>

⁵⁶ Territorial Just Transition Plans (TJTP)

7.1 Strengths and opportunities⁵⁷

7.1.1 Renewable energy

Megalopolis has several inherent strengths and opportunities. The region has a solar potential of 1,700 kWh/m²/year⁵⁸, which is beneficial for installing photovoltaic parks. In this respect, PPC has already made public its plans to install a photovoltaic park of 500 Megawatt in the area⁵⁹. At the same time, Megalopolis has a relatively high wind power potential, with average annual wind speeds of 7.5 - 9.0 meters per second and power density 500 - 950 W per square meter⁶⁰, which can potentially benefit the creation of wind parks. Finally, exploring the potential of other renewable sources such as biomass or hydropower is also worth investigating in Megalopolis and the broader region, with some small-scale projects already in place⁶¹. Using renewable sources can be the first step towards helping the municipality to re-invent its identity and to follow a greener pathway. For example, using local renewable energy, the municipality can power public and municipal buildings as part of a broader retrofit and upgrade of its energy efficiency. Investments in the thermal retrofit of buildings, solar, and onshore wind capacity can be low-hanging fruits (i.e., easy wins) and have proven to have great job potential in other countries facing transition away from coal, such as Poland⁶². Finally, using the same local power, Megalopolis could also possibly make a business case for promoting the use of electric vehicles and/or bicycles and mobility-as-a-service (MaaS). A MaaS network could service the tourism sector, but also intra-municipality and intra-regional mobility (e.g., incoming workers).

7.1.2 Agri-food

Another key-strength of Megalopolis is the climate and terrain of the area, which is beneficial for the development of the agri-food sector. In particular, a significant area of arable land for cereal and livestock, as well as for melon production, is located in the broader geographical area of Megalopolis. In addition, the area can produce agricultural products such as olive oil (vanilla Mainalou), organic honey, walnuts, wine (Moschofilero Mantineias) with export potential to European and third countries.

To tap this potential, the Bioeconomy Hub 360° has been proposed. Ambitious in scope, the project aims to help the community re-invent its identity in sustainable, circular and organic agriculture and create added value across the agri-food sector, leveraging the opportunities of Industry 4.0. To materialise this vision, the Hub envisages a multistakeholder partnership. In this Partnership, the University of Peloponnese will be the scientific leader and develop an open collaboration network for bioeconomy with enterprises, research and design intermediaries, municipalities the civil society, and others. The scope will be to develop an agri-food sector that can serve as the testbed, leveraging cutting-edge technologies and

⁵⁷ Unless otherwise stated, the information in this section is found in the TJTP and the municipality's consultation re. the TJTP.

⁵⁸ IENE (2020). Υφιστάμενη Κατάσταση και Προοπτικές για τις περιοχές σε ενεργειακή μετάβαση στην Ελλάδα. Σελ. 17. Available at: <https://www.iene.gr/articlefiles/final%20report.pdf>

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Czyżak et al. (2020). Green jobs in coal regions. Case study: Bełchatów. Instrat Policy Paper 04/2020. Publication available under: www.instrat.pl/belchatow-2020 Study commissioned by: Fundacja ClientEarth Prawnicy dla Ziemi

multistakeholder partnerships to improve circularity and add value across the agri-food value chain (also through branding, traceability and certification).

The Bioeconomy Hub 360° is a holistic pilot-project including 12 actions with cross-cutting impact both to the vertical and the horizontal axes of the next day vision of the Master Plan. These activities are shown in Table 7 below:

Table 7. Megalopolis bioeconomy hub actions⁶³

1	Installing of demo facilities for smart-farming, hydroponic cultivation, and compost production.
2	Supporting start-ups and spin-offs (EU Regulation 651/2014) via state funds
3	Upgrading / Modernising existing enterprises (choosing to invest) via state funds
4	Supporting large enterprises (choosing to invest) via state funds
5	Operating an incubator & accelerator for new businesses in knowledge-intensive sectors
6	Developing a digital platform to support research, innovation and collaboration in the bioeconomy
7	Establishing collaboration partnerships between businesses and research centres
8	Creating internship opportunities in cutting-edge technologies
9	Creating knowledge-transfer partnerships to disseminate research results & empower businesses
10	Creating entrepreneurship and innovation Master and PhD scholarships for students of Uni. Peloponnese
11	Creating industrial Master's and PhD programmes with beneficiaries employers of post-graduate students
12	Providing additional support to improve research infrastructure & labs in the indicative areas of Smart & Sustainable Agriculture, Biotechnology and Arts, Agro-logistics, Energy Management, Solar cooling

7.1.3 Tourism, recreation, and culture

Another axis for development for Megalopolis could be the tourism sector. Megalopolis has a rich natural, cultural and religious heritage. This heritage, along with a renewal of the environment stemming from land restoration, could become an attraction for alternative forms of tourism such as agricultural, sports, walking, hiking and ecotourism. Further, Megalopolis boasts the oldest ancient theatre in Greece. Other important points of historical interest include the ancient city of Lycosura⁶⁴ and Mount Lykaion, where in ancient times, the Lykaion Games, the precursor of Olympics, were held. On Mount Lykaion, hiking tourism already takes place⁶⁵. Building appropriate infrastructure to connect intra-municipal areas of tourist interest with one another^{66,67} but also with other areas in the broader region will be important in terms of developing the tourism sector in Megalopolis. This could include walking, cycling and road infrastructure. However, beyond physical infrastructure, a significant branding effort might be necessary to boost the reputation of the region as a tourist destination.

⁶³ Source: Internal documents

⁶⁴ Lycosoura which is said by Pausanias to be the oldest city in the world -

⁶⁵ Topoguide.gr (n.d.) Hiking on Lykaio. Available at: https://www.topoguide.gr/mountains/peloponnese/hiking_on_lykeo.php

⁶⁶ For example, walking or cycling pathways. The municipality in its consultation document for the JTDP notes that it has already come in touch with the international organisation city and bikes.

⁶⁷ In the same document, the municipality cites that a study is on the pipeline regarding the creation of a cycling network, within the city, but also connecting the city with big and neighbouring provinces and local landmarks.

7.2 Weaknesses and threats

7.2.1 Neglecting the long-term over the short-term

The most pressing priority in the context of the transition away from coal of a mono-industry economy suffering from an ageing population, depopulation and low educational attainment is absorbing the immediate impact on the workforce. However, at the same time, cumulative evidence suggests that prioritising the short-term over the long-term management of social impacts might perpetuate social ills resulting from an idle workforce and communities that are under-occupied⁶⁸. In practice, this means that Megalopolis (notwithstanding pressing needs) should give medium-to-long term growth opportunities the same weight as short-term social protection measures⁶⁹. In this context, one important dimension is determining post-mining land-use to avoid excessive spending in areas that could be repurposed in a more cost-efficient manner for more optimal use⁷⁰ with the tools to do so being available⁷¹.

7.2.2 Attracting inward investment

In the context of its transition pathway, Megalopolis will have to create favourable conditions to attract inward investments. The current mix of investment incentives is positive but might not be sufficient to address shortcomings of the municipality, such as lack of digital and physical infrastructure, innovation and an adaptable workforce. This points to the following needs:

First, Megalopolis should address pressing infrastructure issues as well as step up its re-skilling and up-skilling efforts in partnership with OAED and with the University of Peloponnese (UoP). The UoP through the Bioeconomy Hub 360° and similar actions can promote entrepreneurship and address the skills shortages in the area (for example, in future economic activities such as smart livestock, smart farming). The UoP can also form partnerships with business and other academic institutions both in Greece and the EU / third countries and help retain highly qualified staff in the broader region, thus addressing outward migration or brain drain.

Second, Megalopolis should think about its development, especially in sectors such as tourism, in the context of the broader region's development and seek synergies with neighbouring municipalities and regions that can be mutually beneficial.

7.2.3 Setting clear leadership and coordination

Thus far it has been made clear that Megalopolis, notwithstanding the challenges it faces, has a positive opportunity to set the foundations of an economic model that is diverse and forward-looking by investing

⁶⁸ A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/103611593562422573/A-Road-Map-for-a-Managed-Transition-of-Coal-Dependent-Regions-in-Western-Macedonia>.

⁶⁹ *ibid*, page, 12

⁷⁰ *ibid*. page, 17

⁷¹ Worldbank.org (2021). Tell Me How: 'Just' Transitions in the Coal Sector. Podcast. Available at: <https://www.worldbank.org/en/news/podcast/2021/03/09/tell-me-how-to-do-just-transitions-in-the-coal-sector>

in infrastructure, utilising innovation and strengthening its partnerships with academic and non-academic partners. Despite the large and possibly overwhelming nature of this task, to be successful, it is crucial that it begins locally and that it looks beyond the question of energy⁷². This calls for substantial involvement of local actors in the planning and implementation phase and strong coordination and alignment with national and European competent authorities regarding priority-setting and execution of projects.

With the risk of oversimplification, this section notes the essential steps of this process in Table 8 below:

Table 8. Three essential steps to walk towards transition

Step	Questions & Considerations	Who
	What do we want the future to look like?	
1	Ensuring stakeholder involvement (incl. women and vulnerable groups) Ensuring a set number of ideas that can be discussed with national / regional bodies	Municipality
	What investment actions are more feasible and value-adding?	
2	What are the priorities that should be set? Ensuring bold thinking, feasibility and alignment with national / regional bodies	Municipality National Stakeholders Regional Stakeholders Other
	How can we realise these priorities?	
3	Ensuring buy-in from and strong coordination with partners that can materialise priorities ⁷³ .	Municipality National Stakeholders Regional Stakeholders Other

The main suggestion of the Table is that transition starts with the municipality, which, in synergy with the local community, sets the vision. Then, the vision moves forward through strong alignment with national, regional, and other types of stakeholders who can help via administrative, advisory and financial services / investments.

The issues of leadership, partnership and co-ordination are further considered in Section 11 (Governance and Capacity Building: The Case for a Local Transition Partnership).

⁷² A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/103611593562422573/A-Road-Map-for-a-Managed-Transition-of-Coal-Dependent-Regions-in-Western-Macedonia>., page 6.

⁷³ For more information in relation to stakeholders that can be relevant for a coal region, refer to the stakeholder engagement plan for Western Macedonia: Asta Olesen (2020). Stakeholder Engagement Plan for Western Macedonia. Available at: [https://www.sdam.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_\(SEP\)_for_WM_June_2020_Final.pdf](https://www.sdam.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_(SEP)_for_WM_June_2020_Final.pdf)

8.0 Investment attraction and technology transfer

8.1 Introduction

All coal regions and localities have different types and combinations of assets which provide a basis for economic diversification and reinvention. This section provides examples of the utilisation of former mining and industrial assets and territorial assets by using two specific mechanisms - inward investment and technology transfer – to create new development paths and jobs. It is the contention of this paper that the Master Plan and TJTP are correct in identifying inward investment, along with technology transfer, as first-order mechanisms for reinventing the economy of the Megalopolis eligible area.

This section broadly groups the illustrative examples of inward investment and technology transfer by sectors that are of relevance to the Megalopolis eligible area. The sectors are:

- renewable energy and storage
- agri-food
- tourism, recreation, and culture
- green economy

The examples are followed by an example of the redeployment of public services to a relatively disadvantaged rural location to diversify the local economy and create jobs. Finally, the section concludes by looking at the scope for adoption of mobility technologies, which is of potential relevance both to local citizens and as part of the development of tourism.

Before considering these examples of inward investment and technology transfer, it will be useful to define these mechanisms.

- **Extra-regional business investment.** Extra-regional business investment facilitates wealth and job creation and infrastructure development in the targeted territory by supplementing local private and public investment or acting as a replacement where there is limited local capital. In the context of this paper, there are two forms of extra-regional (inward) business investment:
 - Foreign investment consists of foreign private entities utilising foreign capital to invest in local economies. More specifically, foreign direct investment (FDI) is a particular type of inward investment, relating to establishing new operations for existing businesses or mergers and acquisitions. Such investment can be incentivised or undertaken in partnership with public funding from the host location.
 - National investment consists of non-local national private entities utilising capital to invest in local economies. As above, such investment can be incentivised or undertaken in partnership with public funding from the host location.
- **Technology transfer.** Technology transfer improves local economies by introducing novel technologies from outside a locality which, in turn, stimulate local economic development. In the context of this paper, technology transfer relates primarily to the introduction of novel technologies and processes to stimulate new economic activities and enhance productivity.

It should also be noted that the relocation of public services can represent an effective means for government to directly invest in a local economy to stimulate wealth and job creation, diversification and the transfer of new technologies and practices. In several EU coal mining localities, government investments have related to the establishment of national training centres (e.g., wind turbine technician training academy in the Jiu Valley (RO) and police training academy in Karlovy Vary (CZ)).

8.2 Renewable energy

A clearly relevant opportunity is the renewable energy sector; for example, through investments in (photovoltaic) solar farms, which have been widely deployed in former coal mining areas⁷⁴, or development of biomass and geothermal capabilities in former open-cut coal mines. Moreover, power transmission and generation infrastructure used by coal-fired power stations can be relatively easily substituted by renewable energy sources or deployment of storage solutions.

Visonta (Hungary)

Together with a move towards greater use of renewable sources in energy generation – utilisation of biomass produced on decommissioned mine sites and deployment of photovoltaic panels – the Matra power plant developed an industrial business park to attract companies, with the aim of establishing a green industry cluster at the site of the power plant. The longer-term aim is to reduce use and reliance on lignite while securing cost-effective heat and power supply, and employment opportunities.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation			✓

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Örnsköldsvik (Sweden)

Having undergone several rounds of structural transition, the latest transition of the forestry industry in Örnsköldsvik region was driven by a decline in demand for printed and increased prices for biomass feedstock. Businesses were faced by a need to diversify their product portfolios, resulting in the development of the biorefinery concept, whereby forest biomass is not only used for paper and pulp but (after applying biorefinery technologies for conversion) also for the production of a low-carbon fuel, green chemicals, and substances for use

⁷⁴ See, for example: Bódis, K.; Kougias, I.; Taylor, N.; Jäger-Waldau, A. *Solar Photovoltaic Electricity Generation: A Lifeline for the European Coal Regions in Transition. Sustainability* 2019, 11, 3703. Retrieved from: <https://www.mdpi.com/2071-1050/11/13/3703>; Watson, J. “Solar Energy Potential in Coal Regions: Opportunities and challenges”. Retrieved from: https://ec.europa.eu/energy/sites/ener/files/documents/8-3_solarpower_europe_-_james_watson.pdf.

in construction and pharmaceutical, food and textile industries. A targeted initiative ('Biorefinery of the future') was implemented, with the aim of transforming the region into a world-leading research and innovation hub for developing solutions based on biorefineries and cutting-edge technologies.

Relevance for delivering principles of "next day vision"	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it's a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Loos-en-Gohelle (France)

With the decline of coal mining activities, the town of Loos-en-Gohelle has pursued a road to renewable energy through active involvement of citizens, aimed at achieving 100% of electricity from renewable energy sources by 2020 and to rely 100% on renewables by 2050. The city has pursued a 'Solar Plan', incorporating installation of photovoltaic panels on communal buildings, co-construction and citizens participation in the project implementation and financing, and creation of a local company bringing together public-private financing. In the last 10 years around 350 direct and indirect jobs have been created in the field of eco-activities and renewable energies. Loos-en-Gohelle is now considered a "pilot city for sustainable development" in France and a textbook case for how a city can free itself from fossil fuel dependency.

Relevance for delivering principles of "next day vision"	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it's a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Mega-electrolyser for green hydrogen, Hamburg (Germany)

In January 2021, the companies Vattenfall, Shell, Mitsubishi Heavy Industries and Hamburg's municipal heat supplier Hamburg Wärme signed a letter of intent to build one of the world's largest electrolyzers for production of green hydrogen in the Port of Hamburg. Hamburg Wärme will use the waste heat from the electrolyser. The new scalable electrolyser is to have a initial capacity of 100 megawatts and will be built on the site of the former Moorburg coal-fired power plant, from where it has direct access to the supply of green electricity from wind

power. The site is seen as ideal for development of a hydrogen sector due to its proximity to pipelines and transport routes and the HHWIN hydrogen network and its large industrial companies

In addition, further development of the site into a so-called “Green Energy Hub” is planned. This includes the exploration of the extent to which the existing infrastructure of the Moorburg location can be used to produce energy from renewable sources. In this context, concepts for the necessary logistics chains and storage options for hydrogen will also be considered. Subject to final investment decision and according to the current state of planning, once the site has been cleared, the production of green hydrogen is anticipated during 2025.

Further, the municipal gas network company intends to expand a hydrogen network in Hamburg port area within ten years and is already working on the necessary distribution infrastructure. Numerous potential customers for green hydrogen are located near the site, thus enabling the project to cover the entire hydrogen value chain - from generation to storage, transport, and utilisation in various sectors, thus enabling Hamburg to become a potential starting point for the development of a hydrogen economy. To accelerate the transition process, twelve Hamburg-based stakeholders have joined forces to establish the Hamburg Hydrogen Network (Wasserstoffverbund Hamburg) and have applied for European funding under the IPCEI program (Important Projects of Common European Interest).

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <https://marketing.hamburg.de/aktuelle-pressemeldungen-detailansicht-221/hamburg-coal-fired-power-plant-to-be-converted-into-mega-electrolyser-for-green-hydrogen.html>
- <https://www.cnbc.com/2021/01/22/hamburg-hoping-to-repurpose-old-coal-plant-to-produce-green-hydrogen-.html>
- <https://future.hamburg/en/project-brief-elektrolyseur-green-hydrogen-moorburg>
- <https://hhla.de/en/company/news/detail-view/newly-established-hamburg-hydrogen-network-to-make-hamburg-greener>
- <https://www.hamburg-news.hamburg/innovation-wissenschaft/geplantes-hamburger-wasserstoff-netz-soll-erweitert-werden>
- <https://www.gasnetz-hamburg.de/ueber-gasnetz-hamburg/presse/pressemitteilungen/wasserstoffverbund-hamburg>
- https://ec.europa.eu/growth/industry/strategy/hydrogen/ipceis-hydrogen_en

EDP repurposing coal-fired powerplant sites for hydrogen (Spain and Portugal)

In Autumn of 2021, Portugal’s largest utility company, Energias de Portugal (EDP), announced two significant projects relating to the repurposing of energy assets on the Iberian Peninsula. Both projects focused on converting decommissioned thermal power plants into green hydrogen production facilities. Green hydrogen, which is produced using renewable electricity, is seen as a critical future power source for reducing pollution from transport, the steel and chemical industries and power generation. In addition, such green hydrogen production facilities are often viewed by many policy makers and industrial commentators as significant potential incentives for attracting new industries, especially those dependent on large supplies of green, affordable and secure energy, to disadvantaged local and regional economies.

EDP in September of last year announced a EUR 550 million investment to convert a 570 MW coal-fired plant and adjacent land, in Los Barros in southern Spain, into a green hydrogen hub with the objective of decarbonising nearby industries and attracting new industrial investments. The so-called Hydrogen Valley of the Bay of Algeciras will include green hydrogen, renewable energy production, and energy storage. The energy storage project is based on the development of 255 MW of lithium-ion batteries. The decommissioned coal-fired power plant is now being dismantled and its closure has been a major blow to the Los Barros economy.

One month after the Los Barros announcement, EDP unveiled plans to transform a decommissioned 1.2 GW coal-fired power plant in Sines in Portugal into a green hydrogen hub by 2025. EDP aims to transform the town of Sines into a centre of hydrogen related technological excellence with 200 MW of renewable capacity, 100 MW of electrolysers and a nationally significant R&D centre. Unlike in Los Barros, EDP did not reveal how much it plans to invest, although it did indicate its intention to explore these investment opportunities in partnership with Spanish oil & gas company Repsol.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <https://balkangreenenergynews.com/coal-power-plant-in-spain-to-be-turned-into-green-hydrogen-hub/>
- <https://www.reuters.com/business/sustainable-business/edp-transform-sines-coal-plant-into-hydrogen-hub-by-2025-2021-10-14/>
- <https://espana.edp.com/en/news/2021/07/06/edp-presents-industrial-projects-worth-1-billion-euros-andalusia>

Northern Netherlands (Netherlands)

As the traditional energy producers of the Netherlands and the hosts of the biggest gas field in Europe, the provinces of Groningen, Friesland, Drenthe have developed their economies around the production of natural gas. In 2019, faced by persistent earthquakes resulting from natural gas extraction and the challenges posed by climate change, the Dutch government decided to largely stop natural gas extraction in the Northern provinces by 2022. The provinces of Groningen and Drenthe joined forces and, in collaboration with over 30 companies, drew up an investment agenda for the development of a hydrogen system in Northern Netherlands with the ultimate aim of turning the region into Europe’s Hydrogen Valley. Building on existing energy expertise and pipeline infrastructure, the aim is to achieve emission-free hydrogen at a commercial scale by 2030, while creating up to 6,500 new jobs.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)	✓		
Promotes social and environmental sustainability			✓

Integrates modern technology & promotes innovation



Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Repurposing a brownfield site for Siemens' manufacturing investment, Hull (UK)

Due to declining coal imports and a declining fishing industry, the Humberside region suffered from under-utilised or derelict port infrastructure and related land. However, this infrastructure and land were successfully repurposed by exploiting an external opportunity, in this case energy transition (especially offshore wind) and attracting related private sector investment. Numerous inward investments (e.g. Siemens' wind turbine blade facility) were attracted by local and national government utilising their planning, regulatory and funding powers in a strategic fashion. The region is now a UK centre for green energy and industry.

Alexandra Dock was a 56-hectare brownfield site in Hull, a disadvantaged English city in a region associated with carbon-based energy production. In 2014, Siemens and Associated British Ports announced a €350 million investment to develop the site. The investment was focused on the transplantation of technologies relating to the manufacture of offshore wind turbine blades. The case is relevant given the role of new green energy technologies in utilising a large, redundant and degraded land asset. The investment directly created over 1,000 jobs on the former brownfield site and has given the area a new industrial role and a profile conducive to attracting green energy investments.

The Siemens investment was dependent on Hull City Council and Associated British Ports, the landowner, jointly scanning the horizon for new technologies that could offer new local economic and commercial opportunities. In 2010, they identified offshore wind energy as a small market but one with significant growth potential. In turn, they targeted a potential investor, Siemens. Associated British Ports (ABP) agreed that it would invest €150 million in site repurposing if Siemens located its manufacturing facility at Alexandra Dock (ABP is recovering this initial investment through future rental charges).

Another critical reason for Siemens choosing Hull as compared with other English locations was the use of local planning powers to simplify and expedite the construction of its manufacturing facility. Associated British Ports had previously been granted planning permission for reconfiguration of the site. This speculative, forward-looking act ensured that the site was primed for rapid redevelopment. In addition, Hull City Council, after signing a Memorandum of Understanding with Siemens and ABP, put in place a streamlined planning process which ensured outline planning consent for the Siemens facility was given within months of the investment being announced without the detailed plans of the factory being finalised.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it's a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en
- <https://greenporthull.co.uk/>

Further assessment and examples of opportunities and approaches linked to renewable energy and climate neutrality can be found in the following toolkit.

Technology options toolkit:

Transforming industries in coal regions for a climate-neutral economy

This toolkit from the Initiative for Coal Regions in Transition explores four key themes: the repurposing of infrastructure related to coal-fired power plants; the decarbonisation of coal-intensive industry with a focus on steel production; the role of hydrogen production for regional development; the potentials of non-energetic uses of coal.

Sources:

- https://ec.europa.eu/energy/sites/default/files/documents/technology_options_toolkit_-_initiative_for_coal_regions_in_transition.pdf

8.3 Agri-food

The agri-food sector represents a potentially important axis for development of the local economy and employment in the Megalopolis area. The Master Plan highlights development of intelligent livestock and animal feed units, together with smart agricultural units to produce exportable products, with emphasis on alternative forms of cultivation (e.g., hydroponics).

Hydroponic farming, Kentucky (USA)

In the US State of Kentucky, adjacent to a former coal mining area, a hydroponic farm that offers precise growing conditions for customised vegetables and fruits was opened in late 2020. The farm is dependent on the transfer of both new cultivation techniques and digital technologies (such as data analytics, bespoke software and machine-learning algorithms). The location of the \$150 million investment is dependent on the availability of cheap land and reliable, affordable electricity. The state-of-the-art greenhouse covers an area of 60 acres and is dependent on 30,000 LED and high-pressure sodium lights. In addition, although the cultivated plants require nutrient enriched water, it is estimated that the hydroponic drip system can significantly reduce water usage by as much as 90%.

Given that the growing cycle is non-seasonal and unaffected by extreme weather, hydroponic farming provides security of food-supply and employment. In addition, given the controlled environment, higher value fruit and vegetables can be grown thereby allowing faster investor return and higher local agricultural wages. Furthermore, given the technological aspects of the growing process, many of the jobs are relatively high skill ones.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation		✓	
Facilitates a speedy transition (i.e., it’s a quick win)			✓
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <https://www.nytimes.com/2021/07/06/dining/hydroponic-farming.html>
- <https://urbanagnews.com/blog/exclusives/what-will-appharvest-bring-to-appalachia-the-u-s/>

- <https://www.rollingstone.com/culture/culture-features/appharvest-hydroponic-greenhouses-kentucky-future-of-farming-1214262/>

Organic fertilizers (Spain & Italy)

In Spain, the rural SME Agroamb Prodalt SL provides agricultural services for farmers and organic fertilisers from biodegradable waste generated in the primary and agri-food sectors. Its process sanitises biodegradable waste and animal by-products with lime and produces organic fertilisers, turning these waste materials into resources⁷⁵

Another example of the circular economy in agriculture comes from the Italian company CIA, which has found that the most appropriate way to reuse coffee husks is as a fertiliser and soil conditioner by composting them in organic farms⁷⁶.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation	✓		
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <http://www.agroamb.com/>
- <https://www.icesp.it/buone-pratiche/riutilizzo-e-valorizzazione-delle-bucce-di-caffe>

8.4 Tourism, recreation, and culture

There are many examples of regions that have leveraged assets related to coal mining activities for tourism, recreation, and cultural purposes, whether through utilisation of the physical space available after rehabilitation of former mining areas (e.g., hotels and resorts, adventure sports and other outdoor activities), or through repurposing of physical infrastructure (e.g., hosting arts festivals and performances in former industrial infrastructure, or the establishment of museums).⁷⁷

Lusatia region (Germany)

The Lusatia region in eastern Germany has filled former open-cast mines with water to create a “lakeland”. As part of an extensive regeneration programme with a budget of over €10 billion, since the 1970s, old and abandoned pits have been flooded with water, resulting in Lusatia becoming Europe’s largest artificial lake district, featuring over twenty interconnected lakes, beaches, forests, cycle paths and water sports facilities. Plants and wildlife are also returning to the historical mining area, contributing to further reductions in carbon emissions. Moreover, former industrial infrastructures (e.g., a conveyor bridge, wastewater treatment plant, and viewing tower) have all

⁷⁵ For more information, see <http://www.agroamb.com/>

⁷⁶ For more information, see <https://www.icesp.it/buone-pratiche/riutilizzo-e-valorizzazione-delle-bucce-di-caffe>

⁷⁷ For an extensive list of case studies of investments in culture as part of urban and regional development strategies, see: Eurocities (2016).

“Successful investments in culture in European cities and regions: a catalogue of case studies”. Retrieved from: http://nws.eurocities.eu/MediaShell/media/Catalogue_09112016-2.pdf

been preserved as monuments of the region's industrial heritage, and tours of the still operational open-cut mines are offered.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)	✓		
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation		✓	

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Genk / Limburg region (Belgium)

In Genk and the surrounding region, discussion of a new potential use of the region's coal heritage and infrastructure came sometime after former mining sites had been closed down; for example, the Waterschei coal mine stopped operating in 1987, but the site was not bought by the city in 2006. Nevertheless, protection of coal mining heritage and infrastructure became one of the main guiding philosophies of the current and ongoing phase of transition, taking advantage of opportunities already present in the local area. Former mining spaces and infrastructure have been transformed into modern workplaces, including a state-of-the-art technology parks, a business park for SMEs and local entrepreneurs, and a creative hub and cultural centre. Of greatest relevance, the former Terhills mining site, which was heavily scarred by its former industrial use, has become a large holiday resort park and the nearby mining site of Zolder has become a centre for motorsports.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Steirische Eisenstrasse (Austria)

Steirische Eisenstrasse is a typical peripheral, heavy industry region in Austria that has suffered extensive job losses in the last decades. The region has integrated its industrial heritage already for a long time in its development plans; former industrial sites have been protected, preserved, and partly converted into museums and other utilisations. In recent years regional actors have also embarked on tapping on the intangible resource of

its industrial past, setting out to change the region's image, trying to stop the outmigration of the younger, skilled workforce or to attract new people, as visitors or residents from the nearest metropolis Graz.

Amongst many initiatives, one of the landmark events is the 'Rostfest', an annually creative, urban arts festival in the mining town of Eisenerz (www.rostfest.at). In general, the Rostfest plays with the industrial past and puts these traditions into new contexts – incorporating inhabitants, as well as outsider in the spirit of a place set deep into industrial culture. Another is the annual Erzberg-Rodeo motocross event (www.redbullerzbergrodeo.com) that takes place in an active open cast iron ore mining site, and which is now the biggest of its kind in Europe and led to the encouragement of adventure sports in the region.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation		✓	
Facilitates a speedy transition (i.e., it's a quick win)			✓
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation		✓	

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

Zasavje region (Slovenia)

The Zasavje region, which contains several previous coal mining towns, has focused on cultivating an image as a local tourist area. This included establishing festivals that use former industrial buildings as performance venues; encouraging mountain biking, rafting and hiking through improved tourist routes, visitor information and the use of remediated sites (such as the Europark, Zagorje recreational area); and integrating new tourist avenues with existing industries, such as enhancing tourist offerings at local glass manufacturing sites.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation		✓	
Facilitates a speedy transition (i.e., it's a quick win)			✓
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation		✓	

Sources:

- https://energy.ec.europa.eu/document/download/0dff72fe-d0e2-4e04-9441-592abafb35dc_en

8.5 Green economy - decarbonisation and sustainable transition

This sub-section provides inward investment and technology transfer examples which, alongside their contribution to economic development and employment, promote the ‘green’ potential of former fossil-fuel regions / localities and place them at the forefront of the transition towards a decarbonised economy. In each case, existing assets have been utilised to attract investments that can support transfer of technology and the development of research and innovation in otherwise technologically lagging regions.

BMW Group Future Mobility Development Center, Sokolov (Czechia)

On the site of a former lignite spoil tip, BMW is constructing a development centre for testing new automotive technologies (e.g., autonomous driving, electric and hydrogen vehicles) near Sokolov in the Karlovy Vary Region, Czechia. Although BMW already had three test facilities, they were created by rebuilding an original site (e.g., racetrack or an airport), which meant certain compromises due to previous use. BMW was therefore looking for a place where it could build a bespoke centre according to its needs.

The planned development centre will occupy 150 ha of the 600-ha site, replicating various road terrains and traffic situations, together with service workshops and offices. Although impacted by the Covid-19 pandemic, the Centre has the potential to eventually offer up to 700 jobs across a wide range of roles, from operators through to mechanics and technicians to highly skilled engineering positions. It is hoped that the Centre will transform the region into a hub for attractive, state of the art technologies. The carmaker has stated it wants to invest more than EUR 300 million euros in the project, which is considered highly strategic despite the economic downturn due to the coronavirus pandemic.

Construction of the site began in May 2020, with the first test modules planned to be operational by June 2023. The construction work is expected to employ around 400 people on the technically demanding engineering project, requiring special geotechnical solutions.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)			✓
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation			✓

Sources:

- https://www.bmw.cz/cs/topics/fascination-bmw/BMW-Polygon_en.html
- https://www.idnes.cz/auto/zpravodajstvi/testovaci-areal-bmw-sokolov-podkrusnohori.A190930_140321_automoto_fdv
- https://www.idnes.cz/auto/zpravodajstvi/bmw-sokolov-haidinger-autonomni-rizeni-polygon-test.A210303_160707_automoto_fdv
- <https://www.colas.cz/en/newsletter/colas-is-building-the-road-infrastructure-for-the-future-mobility-development-center-in-the-czech-republic/>

ČEZ Gigafactory, location to be determined (Czechia)

In July 2021, the Czech power producer CEZ and the Ministry of Industry and Trade signed a Memorandum on the preparation of a project for a factory (Gigafactory) to produce battery cells for electric cars. The proposed investment will amount to at least CZK 52 billion (around EUR 2 billion), with an annual production capacity of 40 GWh (potentially up to 55 GWh/year) and creating 2,300 jobs. The construction of the Gigafactory aligns with Czech ambitions for its automotive industry, which is a cornerstone of the Czech economy and accounts for nearly 10% of GDP, while also advancing its energy sector and putting the Czechia at the forefront of European electric vehicle production. The agreement between CEZ and the Ministry is seen as facilitating creation of a partnership to develop the Gigafactory, with press reports citing Skoda/Volkswagen and LG as potential partners.

It is proposed that the Gigafactory would make use of locally mined lithium. Czechia is home to Europe's largest lithium resource, with plans to develop lithium mining at Cínovec (Ústí nad Labem region) due to be decided in 2023 after necessary surveys and studies have been completed. If the project goes ahead, Czechia has the potential to become among the lowest cost hard rock lithium producers in the world.

A potential favoured site for the future Gigafactory is CEZ's Pruněřov coal power plant site in the north of the country, which has good road and rail links. The factory could be completed in 2025 and run at full capacity by 2027. As such, the project is seen as an important opportunity for transformation of a region structurally affected by the phase out the local coal industry

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area	✓		
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)		✓	
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation			✓

Sources:

- <https://www.cez.cz/en/media/press-releases/the-first-step-to-towards-the-construction-of-the-gigafactory.-the-mit-and-cez-sign-a-memorandum-147566>
- <https://www.innovationnewsnetwork.com/cez-and-czech-mit-make-a-significant-step-toward-czech-gigafactory/13817/>
- https://www.euractiv.com/section/politics/short_news/czechia-wants-to-build-a-battery-gigafactory/
- <https://www.spglobal.com/platts/en/market-insights/latest-news/metals/072721-czech-energy-company-cez-signs-gigafactory-agreement-with-government>
- <https://www.greencarcongress.com/2021/07/20210729-cez.html>

Bord na Móna, Brown to Green Strategy & Accelerate Green (Ireland)

Created in 1946, the semi-state company Bord na Móna (BnM) was created to develop Ireland's peatlands (primarily in the Midlands region) with the dual aims of providing economic benefit to communities and security of energy supply for the recently formed Irish Republic.

Brown to Green Strategy. In 2015, Bord na Móna announced that the harvesting of peat for power generation would be "phased out" by 2030. In 2018, Bord na Móna set out its "Brown to Green Strategy" to transform it from a traditional peat business into a climate solutions company. The plan encompassed a shift renewable energy generation, recycling (sustainable waste management), and the development of other low-carbon enterprises

(e.g., aquaculture, herb and plant cultivation, and birch water harvesting), together with restoration of peatland from fossil fuel sources to large-scale carbon capture sites.

Accelerate Green. In partnership with ERINN Innovation and Resolve Partners, and with funding support from the EU LIFE Programme, Bord na Móna has set up Accelerate Green, a scaling accelerator programme focussed on a sustainable transition to the green economy through developing products and services based on green innovation. The programme seeks to support established SMEs and high-growth, deep-tech ventures in areas such as energy, resources, waste management emissions, and carbon sequestration. The accelerator programme does not require supported participating companies to give up any equity. Rather, its main aspiration is that scaling companies will base themselves in the Midland, creating local jobs and thereby offsetting loss resulting from the transition away from peat use. The accelerator hopes to evolve to provide an incubator infrastructure to help businesses to test and adopt ideas and technologies for a Just Transition - ensuring the transition to a climate-neutral economy happens in a fair way. The programme will be run in a 375sq.m standalone premises located in a Bord na Móna complex, offering high quality office space with Wi-Fi, open plan desk space, meeting rooms and individual offices. It provides access to Bord na Móna for collaboration and as a reference customer and will open access to infrastructure and R&D test beds and will provide national and international expertise in commercial, financial, and technical areas of the climate change economy.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area (i.e., an anchor company)			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)			✓
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- https://en.wikipedia.org/wiki/Bord_na_M%C3%B3na
- <https://www.siliconrepublic.com/machines/bord-na-mona-peat-harvesting-green-energy>
- https://www.bordnamona.ie/wp-content/uploads/2021/03/Bord-na-Mona-Annual-Report-2019_FINAL.pdf
- <http://accelerategreen.ie/>
- <https://www.irishtimes.com/business/technology/bord-na-m%C3%B3na-looks-to-fast-track-innovation-journey-with-accelerator-1.4736338>
- <https://peatlandsandpeople.ie/news/accelerate-green-programme-to-boost-irish-smes-focused-on-sustainability>

8.6 Deployment of public services

The relocation of government services and activities can be a rapid and effective way of bringing new investment, people, employment, technologies and knowledge to an under-performing region or locality. In particular, the relocation of public educational / training facilities also addresses issues of skills and labour market development.

Crichton Campus, Dumfries (Scotland-UK)

The town of Dumfries in the south of Scotland, like many rural, relatively peripheral areas, had a limited offering of higher and further education opportunities. To address this situation, the local authority in 1995 bought the buildings and grounds of a former hospital beside the town. In turn, a trust was created with the purpose of transforming the site into an academic campus housing facilities for a range of university and college subjects and

a business park. The Crichton Campus project became famous nationwide as a model for both the re-purposing of a large legacy site and the development of education, training and enterprise facilities of regional significance. The Scottish Government played a central role in providing funding and co-ordinating the establishment of satellite facilities of two Scottish universities (both from outside the region) and two colleges on the Crichton site to create Scotland's first multi-institutional campus. There are now over 100 businesses located on Crichton Campus. The site is still owned by the local authority, but the trust is responsible for activities on the site and has a long-term lease until 2041.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)	✓		
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <http://www.crichton.ac.uk/>

8.7 Mobility as a service (MaaS)

Another relevant practice for Megalopolis could be the development of Mobility as a Service (MaaS) more broadly. MaaS can have cross-cutting impact both for the local community, and especially for people who might not own a car, and for tourism purposes. Below, some good practice examples across the board are shown, which can help the municipality think about the different ways it can use such services in the area.

In Belgium, the city of Antwerp's bike-sharing system is considered as a good-practice example, with the city taking part in knowledge-sharing activities to share its experience with other municipalities across Europe⁷⁸. This bike-sharing system is relatively inexpensive⁷⁹ and very easy to use, while new cycling pathways allow tourists and locals to visit all the architectural highlights of the city. At the same time, it is also open to business. While Antwerp is a much larger city and its bike-sharing system would therefore be operating in a context that is very different from that in Megalopolis, there are some factors that could be transferred. For example, Megalopolis could envisage a bike-sharing system that connects different architectural highlights in the region, making it easier for tourists to travel between these sites in an environmentally-friendly and fun way. However, it is advisable to create such a system within a broader strategy regarding cycling in the area, as was done in the case of Antwerp⁸⁰.

Other good practice examples include using MaaS in Trikala, Greece. Trikala, leveraging EU appropriations has created a smartphone app allowing its citizens to call for a taxi, carpooling services and get access to

⁷⁸ Interregeurope.eu (2018). An interesting Study Visit in Antwerp and Rotterdam. Available at: <https://www.interregeurope.eu/resolve/news/news-article/4951/an-interesting-study-visit-in-antwerp-and-rotterdam/>

⁷⁹ Average day, weekly and annual rates at EUR 5, 11 and 55 euros accordingly.

⁸⁰ ecf.com (2015). Antwerp's cycling policy plan 2015-2019. Available at: <https://www.ecf.com/news-and-events/news/antwerps-cycling-policy-plan-2015-2019-lot-ambition-and-good-plan>

services such as storage lockers that are available at an info-point in the city centre⁸¹. This is potentially very relevant for Megalopolis, as such a service can help different types of users. In a similar vein, the Brasov Metropolitan Area in Romania tried to reduce traffic and move towards more environmentally friendly solutions through encouraging its local communities and especially co-workers to carpool via a smartphone app⁸². Megalopolis could engage students / researchers from UoP in designing a similar app and linking it with incentivisation schemes, whereby frequent users benefit from local commerce or receive discounted rates for museums, etc. Other interesting examples of how areas with low population density are using MaaS that can inspire Megalopolis are readily available⁸³.

⁸¹ e-trikala.gr. Ανασκόπηση του Έργου SMARTA 2. Available at: <https://www.e-trikala.gr/news/validation-workshop-smarta-2/>

⁸² ruralsharedmobility.eu (n.d.) Demonstrators. Brasov. Available at: <https://ruralsharedmobility.eu/demonstrators/brasov/>

⁸³ ruralsharedmobility.eu (n.d.). Available at: <https://ruralsharedmobility.eu/>

9.0 Micro-entrepreneurship and start-up support

9.1 Context

Micro-entrepreneurship and start-up support can be a vital mechanism for utilising local assets and linking them with new economic opportunities to boost locally generated value-added and mitigate the negative impact of energy transition on the local economy. The Master Plan and the TJTP identify such support mechanisms as key priorities for Megalopolis, with strengthening and promotion of entrepreneurship⁸⁴ being progressed by:⁸⁵

- **Enhancing research and innovation capacities and advanced technological uptake** – support to link enterprises with research and innovation systems, especially in the context of the regional Smart Specialisation Strategy (energy, environment and circular economy, agro-nutrition, ICT, etc.)⁸⁶.
- **Reaping the benefits of digitalisation for businesses** –support to encourage the digital transformation of enterprises.
- **Enhancing the growth and competitiveness of MSEs and SMEs** –support to improve the competitiveness of SMEs and MSEs in their digital and green transformation.
- **Organising spatial receptors** –support the creation of Megalopolis Business Park.

These interventions are expected to contribute to the wider objectives of encouraging decarbonisation, productivity enhancement, diversification and resilience in the production system, as well as developing products and services with high added value. In addition, the creation of an Innovation Fund providing support to innovative companies active or intending to operate in the eligible area is anticipated.⁸⁷ Complementary to these interventions, the Master Plan⁸⁸ foresees five key growth pillars:

- **Clean energy** e.g., photovoltaic parks by PPC
- **Manufacture, small industries and trade** e.g., pharmaceutical production facility
- **Smart agricultural production** e.g., smart animal husbandry and smart agricultural production units
- **Smart tourism** e.g., entertainment, adventure and education park
- **Technology and education**

Informed by the aforementioned areas of intervention, actions and anticipated investments, this section identifies initiatives and projects across European rural communities which have assisted diversification, boosted entrepreneurial activity, and brought positive change at the local level. These examples have been tailored to their specific economic, social, and institutional context, meaning adjustments would be

⁸⁴ Reg. JTF, Art. 8 (a), (b), (c), (d), (h), (i), (k), (m)]

⁸⁵ Consolidated accompanying documents, ESDIM Megalopolis

⁸⁶ This action entails direct support to start-ups as well as actions to establish business incubators and consultancy services. A flagship activity under this area is the creation of a Biodiversity Hub focused on the agri-food value chain.

⁸⁷ SFC2021 Programme supported from the ERDF (Investment for jobs and growth goal), ESF +, the Cohesion Fund, the JTF and the EMFAF — Article 21 (3)

⁸⁸ Adapted from: ΣΔΑΜ (2020). Επικαιροποιημένο Master Plan Δίκαιης Αναπτυξιακής Μετάβασης των λιγνιτικών περιοχών. Available at: <https://sdam.gr/node/252>

required before introduction in the Megalopolis eligible area. For example, the relatively low expenditure on research, technological development and innovation, low percentage of the population with tertiary education and the reliance on mainly labour-intensive activities create a less favourable environment for entrepreneurial activities.

The examples of projects and initiatives which could be a source of inspiration for Megalopolis, include both horizontal initiatives supporting entrepreneurship and digital transformation generally (e.g., innovation hubs and business incubators) and examples that match more closely to entrepreneurial and start-up activities linked to anticipated investments and sectorial development areas for Megalopolis, such as smart agricultural production, tourism, recreation and culture, and ICT. Large scale investments in these areas could provide opportunities for the emergence and development of new business activities. Opportunities may arise within the supply and distribution chains associated to the foreseen investments (e.g., through supply or distribution service partnerships with the investing entity) or by exploiting new needs created as a result of these investments. Furthermore, the deployment of support schemes and the creation of a business park in the Megalopolis area, could be used to promote the adoption of more innovative business models and solutions within the local enterprise sector.

9.2 Support programmes for entrepreneurship, innovation and digitalisation

Digital Innovation Hubs. Digital Innovation Hubs are primarily focused on promoting digital innovation and the digitalisation of businesses and provide a format that could to some extent address at least three of the areas of intervention foreseen under the priority of strengthening and promoting entrepreneurship in Megalopolis. The Digital Europe programme aims in the mid to long term to provide support for one Digital Innovation Hub (DIH) per region. In this respect, as shown in Figure 14, although there is a DIH located in Patra, there are currently no DIHs in the NUTS2 defined region of the Peloponnese.⁸⁹ However, with the University of Peloponnese Schools of Economy & Technology located in Tripoli (and including a department of informatics and telecommunications, a department of digital systems and a department of management science and technology)⁹⁰ there is evident potential for establishing a DIH serving the Megalopolis region, whereby the University could play a significant role as a support centre in collaboration with other local actors.

Digital Innovation Hubs

The Digital Europe Programme aims to reinforce EU critical digital capacities in areas such as artificial intelligence, cybersecurity, advanced computing, data infrastructure, governance and processing, the deployment of these technologies and their best use for critical sectors like energy, climate change and environment, manufacturing, agriculture and health. With an overall budget for actions of EUR 1 383 million, the programme aims to achieve these objectives through the distribution of resources to Digital Innovation Hubs (DIHs).

⁸⁹ Eurostat (2021), accessed on 09/02/2022 available here: <https://ec.europa.eu/eurostat/web/nuts/nuts-maps> and <https://ec.europa.eu/eurostat/documents/345175/7451602/2021-NUTS-2-map-EL.pdf>

⁹⁰ The University of Peloponnese is already actively involved in the design of the transition plans, through a dedicated technical committee established under the Rector, and responsible for providing a scientifically substantiated opinion on the investment and development of projects.

Digital Innovation Hubs are defined as single organisations or a coordinated group of organisations with complementary expertise acting as one-stop shops of a not-for-profit nature that help companies dynamically respond to the digital challenges and become more competitive. The services offered by a typical DIH include:

- Test before invest – i.e., testing and experimentation facilities
- Skills and training – i.e., in the area of advanced digital skills
- Support for capital expenditure– i.e., supporting access to finance for start-ups and SMEs
- Innovation ecosystem and networking – i.e., facilitating exchanges between industry, businesses, and administrations in need of digital solutions.

Sources:

- <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>

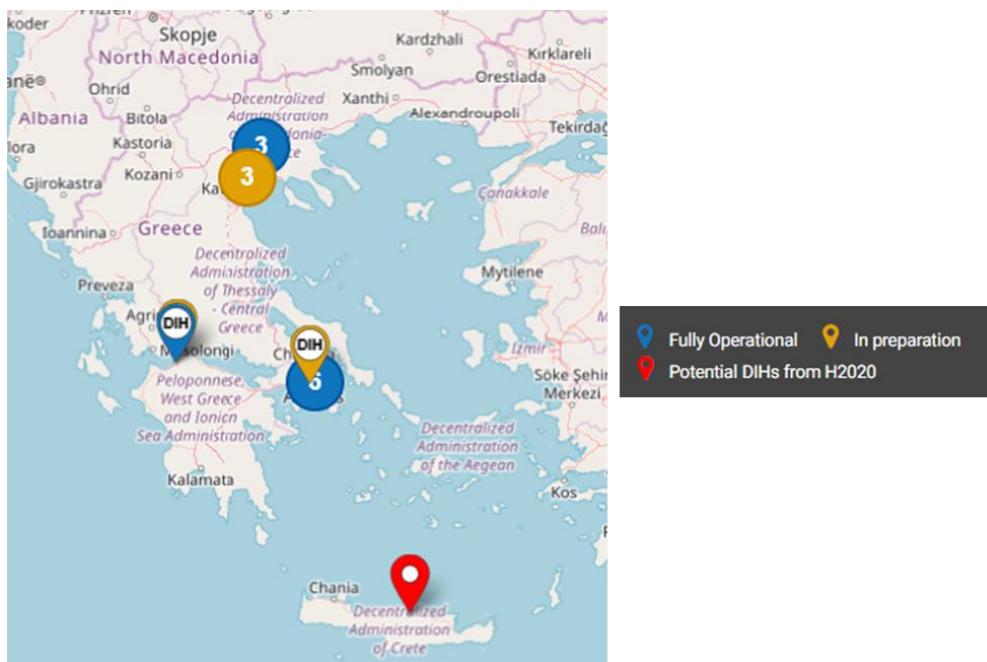


Figure 14. Map of self-identified Digital Innovation Hubs in Greece⁹¹

PISMO Business incubator (Croatia)



The metal industry has a long tradition in Sisak-Moslavina County and was the dominant economic sector. To diversify the economy and further utilise local assets in a largely rural area, an entrepreneurial incubator has been built to support and promote entrepreneurs in their business endeavours and create new employment opportunities. PISMO is the first digital innovation hub located in Sisak Moslavina county with the objective of supporting the successful shift of the local economy from traditional

industry to modern ones. PISMO aims to transform the area into a start-up hub for the gaming industry, through education initiatives, a focus on skills development, and the launch of a business incubator. In addition, PISMO also focuses on providing services for the metal processing sector. It is expected to improve the position and competitiveness of the Croatian fabricated metal products industry for the international market. The business incubator provides all the necessary equipment, such as a CNC machine, a 3D printer, a music and film studio and

⁹¹ Source: <https://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>

software in over 26 functional spatial units. Currently, PISMO is also engaged in creating technical documentation for a gaming campus (university, student dormitory, e-sport arena).

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation		✓	
Facilitates a speedy transition (i.e., it’s a quick win)			✓
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation			✓

Sources:

- <http://inkubator-pismo.eu/en/digitalinnovation-hub/>
- https://ec.europa.eu/regional_policy/en/projects/Croatia/pismo-croatias-sisak-moslavina-county-positions-itself-as-a-hub-of-gaming-expertise

Climate-KIC. Climate-KIC is another example of an initiative that supports entrepreneurs. It identifies, supports, and invests in entrepreneurs through every stage of innovation, helping them to move from initial concepts, through to testing and demonstration, and achieving commercial scale. This approach targets young entrepreneurs. Climate-KIC is active in many coal regions across Europe, offering support to individual start-ups, as well as to local initiatives that themselves support new entrepreneurs (e.g., so-called “impact hubs”). Programmes under the entrepreneurship pillar of Climate-KIC, such as the ClimAccelerator give start-ups access to innovate, catalyse, and scale the potential of their climate solutions. An example of an active programme in which Greece is involved is the “Beyond ClimAccelerator”, which focuses on cleantech and offers the opportunity for participating start-ups to enter a strong cross-border network, gain access to key experts available for consultations, develop their entrepreneurship skills through workshops, as well as secure access to matchmaking with investors and individual mentoring opportunities.⁹²

European Network for Rural Development. The European Network for Rural Development (ENRD) is a hub enabling exchange of information on rural development, for instance on policies, programmes, and projects. By generating and sharing knowledge and connecting rural areas, the ENRD supports the implementation of rural development programmes throughout the EU.⁹³ Under the ENRD, the LEADER programme brings together public, private and civil-society stakeholders to work towards the development of their specific rural areas.⁹⁴ In Greece, 23 projects and practices are listed in the LEADER database and can be found [here](#). Some of those are in Arcadia, such as the Leonidio Climbing Park and “Melitzazz” promoting Tsakonian heritage. Other examples from regions participating in the programme, include the GrowBiz project, described below, which is supporting businesses and entrepreneurship horizontally through community-based support services.

⁹² Source: <https://climaccelerator.impacthub.cz/en/>

⁹³ Source: https://enrd.ec.europa.eu/about_en

⁹⁴ Source: https://enrd.ec.europa.eu/leader-clld_en#_edn1

GrowBiz, Perthshire (Scotland-UK)

GrowBiz is a community-based support service for new and existing business in a rural area, aimed at increased employment, improved skills, and a stronger local economy. Since 2007, it has supported new and existing start-up businesses with comprehensive support services (one to one support, peer support, mentoring, training and networking opportunities). Supported through the LEADER programme between 2016-2019, it helped over 1,000 rural companies to start or grow their businesses and social enterprises, resulting in almost 300 learning and networking events with 4,000 attendees. The added value of the ‘relational’ approach is based on establishing long-term relationships with other businesses, encouraging collaboration and knowledge-sharing. This example shows how a more personal approach can be effective in helping local businesses. Megalopolis could develop a similar advisory social enterprise that could provide similar services to existing or new businesses in the area.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it’s a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- <https://www.growbiz.co.uk>
- https://enrd.ec.europa.eu/projects-practice/growbizenterprising-rural-perthshire_en

9.3 Innovative solutions and business models associated with planned investments

The Master Plan foresees significant investments in sectors such as pharmaceuticals and agriculture, and also smart tourism. Beyond their direct economic and employment impact, such investments have the potential to create a demand for more “traditional” outsourced supply chain and distribution support services. Typical examples include transportation services, provision of key resources and skills needed for production, and consulting services. Effort is required to nurture entrepreneurial spirit and skills and technological awareness in local communities to ensure that the opportunities that exist are taken.

This sub-section looks at innovative investment projects and support actions in the agri-food and tourism sectors. In addition, it includes projects providing co-working spaces in rural communities. These can be a means to attract and encourage entrepreneurial activities of young professionals, start-ups, and small business, and also of promoting technological awareness and adoption, and stimulating business networking.

9.3.1 Agri-food

Covered under the umbrella of Digital Innovation Hubs, the Tracelabs innovation experiment in Slovenia is an example of a specific sector initiative targeting agri-food supply chains. More information on a wide variety of similar projects and initiatives that could provide inspiration for Megalopolis is available on the

Agri-hubs network website.⁹⁵ The Coop initiative promoting cross-border business exchange in Estonia and Latvia, is an example of collaborative capacity building activity. Such targeted capacity building can be key in preparing stakeholders to participate in more innovative projects, that require not only an entrepreneurial leader but also technological preparedness of the potential adopters on both sides (i.e., farmers and consumers), and willingness amongst producers to work collectively and to collaborate on solutions delivering increased added value.

Tracelabs (Slovenia)

The Tracelabs experiment concerns implementation of a blockchain solution to improve the traceability of products across the poultry and dairy supply chain. The main objective of the poultry project is to provide proof of food provenance to end consumers through a reliable blockchain network, highlighting that goods are locally, ethically, and sustainably produced. In the dairy sector it was to optimise the payment process. The solution integrates data of several stakeholders (i.e., farmers, food producers and consumers), establishing a community and enhancing the agri-food value creation for the blockchain solution participants. The pilot was deployed in 29 poultry farms and 114 dairy farms. One of the main challenges to overcome was the non-digitised nature of the agriculture sector, as well as ensuring data privacy for sensitive data. A clear value proposition, and openness to innovation have been identified as key for the success of such an experiment.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation	✓		
Facilitates a speedy transition (i.e., it’s a quick win)	✓		
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation			✓

Sources:

- <https://www.smartagrihubs.eu/flagship-innovation-experiment/28-FIE-decentralised-trust-in-agrifood-supply-chains>

Coop initiative (Estonia and Latvia)

The Coop initiative aims to bring together farmers, handicraft sellers and other tradespeople from both sides of the border in regular networking events and seminars. Study visits and exchanges establish strong connections between entrepreneurs and owners of small businesses that voluntarily exchange knowledge and best practices for sales and marketing. A total of 43 cross-border events have brought together 230 Estonian and Latvian businesses and 370 local entrepreneurs, increasing their language and technology skills and building mutual trust. This enabled them to expand their businesses into new markets across the border, creating new jobs and building more sustainable economies. From 2017 to 2019, the project was supported through funds from the Estonian-Latvian EU cross-border programme.

Relevance for delivering principles of “next day vision”	Low	Medium	High
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⁹⁵ See: <https://www.smartagrihubs.eu/flagship-innovation-experiments>

Utilisation of assets of affected area		✓	
Significant employment creation		✓	
Facilitates a speedy transition (i.e., it's a quick win)		✓	
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation		✓	

Sources:

- https://ec.europa.eu/regional_policy/en/projects/Estonia/coop-new-businessopportunities-for-estonian-and-latvian-entrepreneurs
- <https://estlat.eu/en/estlatresults/coop-local.html>

Smart Farming Initiative (Greece)

In Greece, the supermarket chain AB Vassilopoulos, together with the American Farm School and Bodossaki Foundation, have launched the Smart Farming Initiative. This initiative aims to help Greek agriculture and livestock producers make best use of their resources using cutting-edge technologies. The programme, which has a hundred beneficiaries, has a holistic approach. It introduces new technologies such as weather stations and IoT (internet of things) cattle collars and helps agricultural and livestock producers to get acquainted with and make full use of these technologies to optimise resources. In parallel, the programme promotes study visits from university students and aims to create a community of practice, in which different beneficiaries can network and learn from one another using social media, as illustrated below.⁹⁶



weather stations and IoT cattle collars across different areas in Greece



training activities and study visits from university students



knowledge sharing between beneficiaries using social media platforms

Figure: Smart Farming Initiative: an example of a holistic approach to smart agriculture

Megalopolis would benefit from learning more about this initiative and contacting its beneficiaries to engage in knowledge-exchange. In this context, it is also worth noting that two out of the 12 weather stations of the Smart Farming Initiative are in olive groves in the region of Kalamata. At the same time, Megalopolis could explore opportunities at the European level. For example, Megalopolis could seek funding opportunities from Horizon Europe projects focusing on climate, energy, mobility as well as food, bioeconomy, natural resources, agriculture, and the environment⁹⁷. This will require strong administrative capacity and a strong network of partners.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓

⁹⁶ Based on smartfarminginitiative.gr. Images from the left to the right made by chattapat, freepick and surang from flaticon.com

⁹⁷ec.europa.eu (n.d.) Horizon Europe. Available at: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

Significant employment creation		✓	
Facilitates a speedy transition (i.e., it's a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓
Sources:			
<ul style="list-style-type: none"> • smartfarminginitiative.gr • https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en 			

9.3.2 Tourism, recreation, and culture

The tourism sector can be a source of innovative business models. Various types of entrepreneurial activities can be created to cater for an increased touristic interest in the area. International flights passenger arrivals in Kalamata airport are indicative of a trend of increasing tourist interest in the region of Peloponnese; for example, arrivals increased by 220% over the period 2011-2021 and removing the negative impact of Covid-19, arrivals increased by 433% between 2011-2019.⁹⁸ By investing in smart tourism through an innovative entertainment, adventure and educational park, as proposed under the Territorial Just Transition Plan, Megalopolis would have the potential to attract part of the touristic activity in the region. This would provide opportunities for small businesses in the food service (restaurant) sector, and the hospitality industry more widely, as illustrated by the Terhills project from Limburg, Belgium.

Terhills project (Belgium)

Terhills is located on the former Eisden mining site and covers an area of approximately 365 hectares, on the edge of Belgium's only National Park. Once known as an industrial mining and gravel quarrying site, Terhills NV, a subsidiary of the Limburg Investment Company LRM, made a EUR 75 million investment to transform the area and reconverthe mining site into a tourism hotspot. It hosts the Terhills resort and holiday park, including a cable park, the Terhills Hotel and the Elaisa Energetic Wellness complex. The area also has a Center Parcs investment. The resort itself now employs nearly 250 people.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			✓
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)		✓	
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation		✓	

⁹⁸ Eleftheria (2021), available here: <https://eleftheriaonline.gr/local/oikonomia/tourismos/item/261698-diplasiastike-i-epivatiki-kinisi-diethnon-ptiseon-to-2021-sto-aerodromio-kalamatas>

Sources:

- <https://www.lrm.be/en/nieuws/center-parcs-zet-terhills-resort-als-premium-park-in-demarkt>
- <https://terhills.be/en/terhills-resort/>

Increasing demand for outdoor leisure, recreation and cultural activities offers great potential for the development of tourism in rural areas. Megalopolis could take advantage of local landmarks, such as Karytaina and Dimitsana villages, Alfeios river and Neda waterfalls, cultural sites such as Ancient Megalopolis, Ancient Messini, the temple of Epikourios Appollo, together with existing infrastructure, such as the moto-cross track, to create and promote a broad touristic experience, as illustrated by the Mid-Ireland adventure project.

Mid-Ireland Adventure (Ireland)

Mid-Ireland Adventure is a start-up company that aims to supply the growing demand for outdoor activities in rural areas of the Midland region. It provides a wide range of activities, including mountain bike tours, guided walks, summer camps, stand up paddleboard safaris, as well as environmental and cultural education programmes. Through LEADER support, the start-up has been able to purchase further equipment. Not only has the start-up secured a permanent position, but it is also expected to expand with the growing demand and contributes to spin-off benefits to the rural communities, by attracting local, national, and international customers, which make use of local retail, hospitality, and accommodation.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation		✓	

Sources:

- <https://midirelandadventure.ie/>

9.3.3 ICT and Co-working spaces

Provision of co-working spaces, together with appropriate digital infrastructure and support services, can facilitate the emergence and development of independent workers and start-up businesses, and be particularly relevant in the context of rural areas. Megalopolis could examine whether establishing co-working spaces could add value to the area, especially considering the new flexible working arrangements, engendered by the pandemic. This type of business solution/model could sit alongside the proposed business park development and benefit from shared support structures and funding opportunities.

Ludgate Digital Hub, Skibbereen (Ireland)

The Ludgate Hub is a digital co-working space for young professionals, start-ups, and small business. The hub is in a repurposed, former derelict, commercial property in the town of Skibbereen. The town is a relatively peripheral and small rural community of 3,000 residents, 80 km from a large urban centre (Cork). Skibbereen was selected as a pilot town by a joint venture company between ESB (a state-owned electricity company that has phased out electricity generation from solid fossil fuels) and Vodafone (the telecoms company) to deliver a 100% fibre-to-the-building broadband network and to install, for the first time in an Irish rural town, 1GB of internet connectivity. Since its opening in 2016, the Ludgate Hub has created over a hundred quality jobs, created and attracted new businesses and enhanced the area's national profile.

The case demonstrates that the innovative adoption of new technologies, in this case ICT, linked to the repurposing of old commercial buildings, in relatively small, peripheral economies, can facilitate entrepreneurship, local development and diversification, and, in turn, resilience.

The Ludgate Hub offers hot desk space for 75 workers, in addition to private offices and meeting rooms. Combined with formal and informal opportunities for business networking, mentoring, support and events, these facilities have attracted 55 full-time members (entrepreneurs and young professionals who pay a fee for space and services) and created 146 jobs. 15 of the members are individuals who have permanently relocated, with their families, to the area from other parts of Ireland. The Hub has stimulated thousands of bed nights for local hotels and guest houses.

Before the project, the town had poor broadband and fibre connectivity, and was the only community in the region without a digital business centre or an enterprise park. There was also a lack of commercial property to attract or accommodate mobile workers. In 2014, a steering group was established - comprising local business persons (representing sectors such as professional services, retail, tourism, agriculture and food) and digital ambassadors (volunteers with an understanding of broadband technologies and related business opportunities). The steering group led the development of the concept and utilised local expertise (much of it provided on a pro bono basis) for financial and legal advice and consultation, promotion and communications. The local chamber of commerce also actively promoted the initiative. By developing vision, capacity and momentum, the town was selected by a joint venture between ESB and Vodafone as a pilot project for upgrading local broadband and installing 1GB of connectivity.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it's a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- <https://www.ludgate.ie/>
- https://enrd.ec.europa.eu/sites/default/files/tg_rural-businesses_case-study_ludgate-hub.pdf
- <https://myconnectedcommunity.ie/2021/05/news/ludgate-five-years-of-inspiring-digital-innovation-in-rural-communities/>

Cowocat Rural Network, Catalonia (Spain)

The Cowocat Rural Network, which is supported by the European Network of Rural Development, aims to attract young skilled professionals to rural areas to tackle out-migration. It champions co-working, supported by ICT, as a new way of working in rural areas. The Network hopes to boost the creation of employment and economic activity in remote areas and to promote the values of co-working and teleworking in the participating territories. Its concept is based on the need to promote entrepreneurship using information and communication technologies. Over 18 spaces and 130 professionals are currently part of the network and a total of 12 networking meetings have been organised with over 300 attendees.

The activities include designing a digital platform to encourage the networking of co-workers and rural coworking spaces, and developing and promoting coworking among different groups, such as young people, women, and professionals. It further encourages collaboration between the existing public or private co-working spaces and organises networking events and workshops. New co-working spaces can build on support material provided by the project, in terms of business development support and technical advice. In addition, the project has established programmes to promote co-working opportunities with universities and with high school students.

Further, the Co-working Rural Visa (also called RuralPass) promotes the mobility of professionals within and between rural and urban areas. The RuralPass facilitates and allows all co-workers who are part of the project to work for three days a quarter, free of charge, in another rural area with an affiliated co-working space or in one of the urban co-working spaces in Catalunya. Co-workers of urban spaces can also use this service to travel to rural areas. The Rural&Go programme offers a tourism package which combines work and holiday, making the co-working spaces available whilst offering the benefits of the rural areas for leisure and recreational purposes. The network has created a co-working space in a university and organised a training programme in two universities to promote the concept of co-working. It also organised a “Catalunya Co-working Day”, offering training to 50 participants and the opportunity to exchange experiences.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area			
Significant employment creation			
Facilitates a speedy transition (i.e., it’s a quick win)			
Promotes social and environmental sustainability			
Integrates modern technology & promotes innovation			

Sources:

- https://enrd.ec.europa.eu/sites/default/files/project/attachments/rr-es_rr-01_cowocat_ok_dl_cdp_ok_0.pdf

9.4 Agents of entrepreneurship and innovation

The strategic planning for the transition of Megalopolis eligible area has been established through the Master Plan and Territorial Just Transition Plan, with defined areas of intervention, identified investments based on expressed interest as well as pre-defined results and output indicators. While this sets a solid starting point, the successful implementation and deployment of the plans relies on interventions by multiple actors. The European Commission has produced a series of reports on entrepreneurial regions, one of which focuses on the neighbouring region of Western Greece that, to some extent, faces similar

structural characteristics as well as challenges and opportunities as the Peloponnese region.⁹⁹ The report identifies the following types of actors in the entrepreneurial ecosystem:

- **Entrepreneurs** – with one of the main identified needs being the creation of a forum for exchange
- **Large companies** – which in the eligible area seem to be too few to make a real difference in entrepreneurial and innovation activities
- **Research system and universities** – with a significant need for support in exploiting and commercialising their research knowledge.
- **Market services and ecosystem builders** – a lack of services falling under this category occurs in Western Greece region and the situation seems to be similar in Megalopolis/Peloponnese.

The research provides several suggestions for trans-regional cooperation, some of which could be applicable for Megalopolis/Peloponnese. For instance, investigating appropriate export support schemes for small agri-food companies, precision agriculture, joining forces to increase exports of specific products (e.g., honey), coordinating small farms for olives and olive oil production and exports.

The report also assesses the regional policies for entrepreneurship and points to some potential improvements. These include: the need to speed up the implementation of the Operational Programme, the need to better connect the Operational Programme with the Smart Specialisation Strategy of the region and the need to boost private funding opportunities (i.e., through better access to bank loans, and national or international Venture Capital). Given the similarity of the challenges and proximity of the two regions, interregional collaboration could help utilise a common framework for addressing similar issues.

⁹⁹ European Commission (2020), Regional ecosystem mapping : region of Western Greece, available here: <https://op.europa.eu/en/publication-detail/-/publication/cf82c68d-ba77-11ea-811c-01aa75ed71a1/language-en/format-PDF/>

10.0 Employment and skills support

10.1 Impact of energy transition on employment and skills needs in the short to medium term

The shutdown of Megalopolis' lignite plants and mining operations will have consequences for employment, both for employees of PPC (and its subsidiaries) and its sub-contractors and suppliers. It will also remove future employment opportunities for residents. Therefore, the local labour resource must be reskilled and supported to make it an asset for driving the diversification and development of the economy. This section considers how effective employment and skills measures could be provided based on international experience. Prior to this, there is a short assessment of the scale of the challenge.

In 2019-2020, the number of direct and indirect jobs in mining and power generation related activities in Megalopolis was around one thousand, of which ~750 at Lignitiki Megalopolis and ~300 among subcontractor companies.¹⁰⁰ Alongside a programme of voluntary redundancies, short-term energy transition-related employment opportunities in photovoltaics, land restoration, and gas distribution are expected to offset job and income losses to some extent.

Analysis from the Institute for Economic and Industrial Research (IOBE)¹⁰¹ suggests that, together with voluntary retirement and accompanying severance payments, opportunities from land restoration of former mining and industrial sites¹⁰², installation of PVs in lignite plants areas¹⁰³, and development of the gas distribution network¹⁰⁴ may be able to offset up to 48% of the cumulative job losses and up to 30% of the cumulative income losses in Arcadia for the period to 2029. The number of jobs and income from these activities are shown in Figure 15.

Initial analysis from the SDAM committee (based on unemployment and professional skills data from PPC and OAED) presented in the Just Transition Development Plan (JTDP) suggests that many of the shorter-term employment and skills needs associated to the restoration of the mine lands and to the construction phase of the emblematic 'flagship' investments (see Section 5.0) – expected to take till at least 2024 – can be covered from local human resources. This reflects the presence of large number of unemployed and potentially affected employees of PPC (Lignitiki Megalopolis and sub-contractors), with experience and skills related to electricity generation and lignite mining, earthworks, machinery handling and office work. Overall, SDAM estimates that ~67% of positions can be covered from human resources from Megalopolis, with the shortfall met by an influx of workers from neighbouring municipalities.

¹⁰⁰ Source: SDAM (2020), *Just Transition Development Plan: Current situation and prospects for areas in energy transition in Greece*, July 2020

¹⁰¹ Source: IOBE (2020), Απολιγνιτοποίηση της ηλεκτροπαραγωγής: Κοινωνικοοικονομικές επιπτώσεις και αντισταθμιστικές δράσεις. σελ. 98-108. Available at: <https://sdam.gr/>. Figures adapted from the same source.

¹⁰² Based on land restoration activities in former lignite plants areas undertaken by PPC with an estimated investment amount of approximately €150 million

¹⁰³ Based on installation of PVs in lignite plants areas that is in the planning and licensing phase with an estimated investment amount of approximately to € 380 million.

¹⁰⁴ Based on plans for a gas distribution network which will substitute district heating. The total investment will amount to € 2.5 million and will create 13 kilometres of new gas distribution networks in the region of Arcadia in 2023-2024.

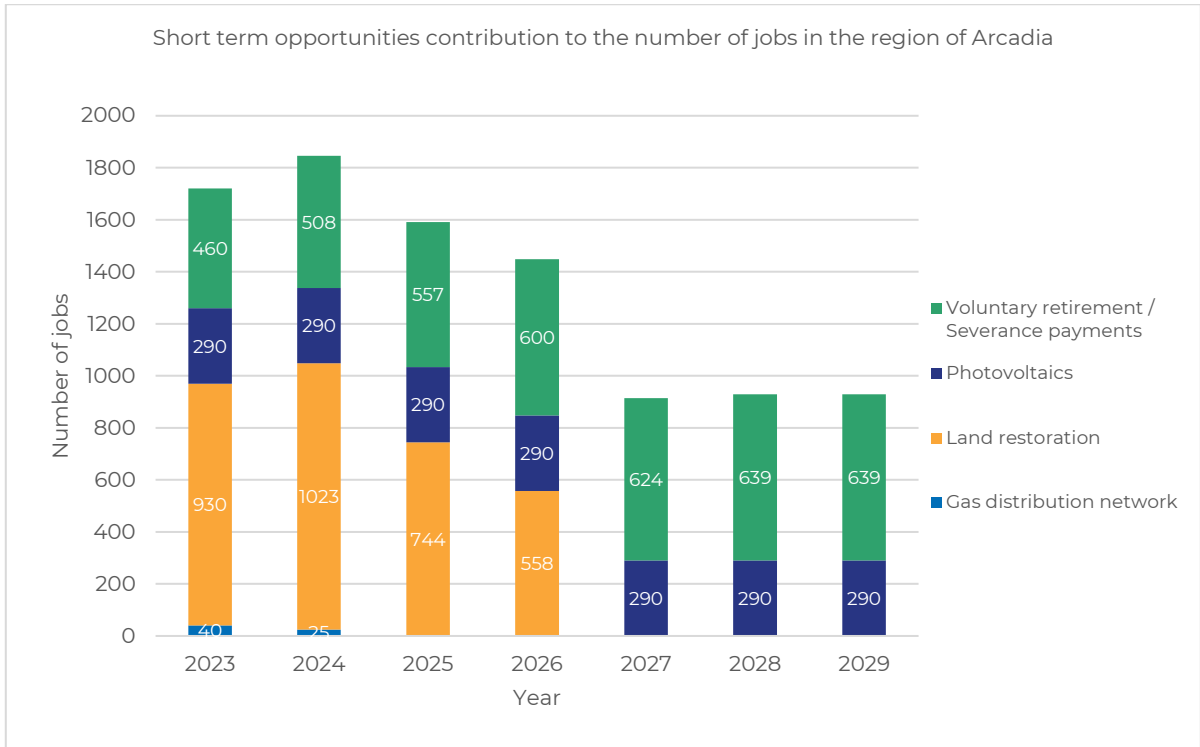


Figure 15. Short-term opportunities contribution to income from work in the region of Arcadia (2023-2029)

Over time, the reorientation of the local economy envisaged under the JTDP will lead to a transformation of professional skills demand in Megalopolis. As activity shifts from restoration and construction to the operational phase, the SDAM committee foresees both a net increase of jobs – with a possible influx of 1,200 employees to the Megalopolis area – and a significant need for reskilling actions for (former) lignite workers, unemployed persons, and others. Overall, the SDAM committee estimates that the proposed JTDP investments and actions will create circa 2 600 jobs in the medium to long term, absorbing circa 1 500 local workers. However, it is expected that significant reskilling efforts will be needed to meet the requirements of around 40% of the newly created positions, especially for workers currently in lower-skilled occupations. Specific areas of new skills identified by the SDAM committee that will require some form of formal skills training provided by a competent organisation include farmers and stockbreeders; horticulturists, agronomists, winemakers; catering and tourism professionals; and other administrative staff

In the above context, there is a need to match the local workforce – especially those displaced by the phasing out of lignite activities – to transition-related employment opportunities in the short-term (e.g., rehabilitation and construction activities). Further, skills development actions – both reskilling and upskilling – need to be initiated to ensure that the existing workforce, including local unemployed and other wishing to switch careers and sectors of activity, are equipped to meet the skills requirements of the future labour market. Actions towards this objective are foreseen within the JTDP as part of integrated interventions combining training and employment programs (incl. work subsidies) that it is hoped will also contribute to attracting investments to affected areas.

The following sub-sections address two relevant topics for the formulation of actions to support employment transition and skills development. First, sub-section 10.2 looks at actions and good practice examples to support workers affected (or potentially affected) by phasing out of lignite activities. Secondly, sub-section 10.3 takes a more sector-based perspective, to look at examples of skills development initiatives relevant to the context of Megalopolis and its transition ambitions. In this regard, skills issues are not limited to reskilling of the existing workforce to fill vacancies arising from foreseen larger scale ‘emblematic’ investments but, also, to support the digital and green transformation of businesses and the upgrading of local capacities – especially in SMEs – in key sectors that can leverage existing assets in capabilities following smart specialisation principles (e.g., renewable energy, agri-food, sustainable tourism and culture, metal fabrication etc.).

10.2 General skills development support for displaced and other workers

According to the Master Plan, the immediate needs for skills improvement and reskilling in the Megalopolis area concern primarily the temporary staff of PPC (~ 200 persons), the employees of PPC contractors (~ 300 persons), other workers in sectors related to lignite-fired activity, but also part of the unemployed in Megalopolis and affected neighbouring municipalities.

Assistance to develop skills that will facilitate transfer to new jobs and prepare for future employment opportunities is a key aspect of support that can be provided to workers affected by transition. This requires both an understanding of the current skill levels and competences of workers – whether formal or acquired through on-the-job experience – and an understanding of likely future skills needs of the labour market in short and medium term. From this, skills gaps at an individual and collective level can be assessed, and appropriate actions formulated to ensure that affected workers are equipped with necessary skills and competences to fill the vacancies that are expected to open-up in the local labour market (i.e., Megalopolis and eligible areas), or more generally in the economy.

Sustainable employment and welfare support toolkit:

How to accompany the labour market transition in coal regions in transition

This toolkit from the Initiative for Coal Regions in Transition gives practical guidance and examples on how to accompany labour market transition in coal and carbon-intensive regions, and focuses on providing short-term support for workers, and providing medium- and longer-term actions for employment and job creation. The toolkit is developed around the following themes:

- Skills
- Cooperation
- Support for workers
- Economic diversification and transformation

Sources:

- https://energy.ec.europa.eu/system/files/2020-05/sustainable_employment_and_welfare_support_toolkit_-_platform_for_coal_regions_in_transition_0.pdf

10.2.1 Assessing current skills levels, transferability, and reskilling needs

A first step towards the design and delivery of skills development support is to perform an assessment of current skills levels. This usually takes the form of a skills audit that looks both at formal skills levels and competences but also the skills and competences that have been learnt on the job without formal recognition. Skills audits are usually conducted through a survey of workforce to find out the skills that workers have, even if these skills are not being used in their current job. The survey should be short to make it easy for people to respond. Alternatively, employees can be asked to write a list of their main duties and estimate how much time they spend on each function. The results can then be compiled, both in terms of the skills for each person and the number of people who have each skill. Assessing current skills levels and formalising them as much as possible will help workers to move into alternative areas of the economy as quickly as possible, using skills that are transferable.

Assessing skills transferability is concerned with looking at how the skills of workers correspond to current and future labour market skills needs. In the case of mining and power plant workers, many occupations in these areas involve a high degree of physical tasks, requiring both strength and dexterity. Similar occupations could therefore be found in construction, agriculture and horticulture, manufacturing, and some service occupations that also include physical and practical tasks, such as caretakers. By way of illustration, Table 9 gives some examples of skills adaptations in various scenarios relating to sector, skills and region.

Table 9. Examples of skills adaptation¹⁰⁵

Sector	Skill	Region	Example
Same	Same	Same	Power plant operator working in biomass power plant after plant conversion. Former coal miner working in an underground copper mine in the same region.
Other	Same	Same	Geologist working in research centre in same region.
Other	Other	Same	Industrial electrician retrained as wind farm technician working in wind farm located on the site of the former coal mine
Other	Other	Other	Industrial technician retrained as wind farm technician working in wind farm located in another region.
Same	Other	Same	Geologist working as specialist tour guide with a museum after mine site reclamation.

As noted previously, at least in the short-term, the JTDP assumes that opportunities in site renovation, construction, and PV installation will absorb a significant proportion of workers displaced by the transition from lignite, with minimal need for reskilling because of the similarities in skills requirements (e.g., experience and skills related to electricity generation and lignite mining, earthworks, machinery handling and office work). Further, skills relevant to administrative, management, and sales and marketing roles may be relatively easily transferable to a range of other sectors. In addition, qualified technicians, craft workers, and operators of machinery and equipment are likely to find it easier to transfer to new sectors.

Looking beyond immediate and short-term employment opportunities, skills transferability (or lack thereof) needs to be viewed in relation to the jobs and corresponding skills requirements that are

¹⁰⁵ Source: European Commission JRC 2018

expected to open-up in the medium term (five to 10 years) as the economy of Megalopolis diversifies. Renewable energy is an easily identifiable sector where potential opportunities are foreseen for workers coming from the coal/lignite sector. For example, workers with electrical and mechanical skills, experience working under difficult conditions, and sophisticated safety experience are highly valued in the wind and solar energy industries. In this regard, OAED's and PPC's focus on reskilling the workforce towards the renewables and environmental sectors can be viewed as a positive development. As illustrated in section 10.3.1, examples already exist of initiatives to support the transition of miners towards the renewables sector, which could inspire the development of programmes to support the transfer of workers displaced by the phasing out of lignite activities to the renewables sector.

As already noted, the SDAM committee foresees significant number of jobs in the medium term for the skills of horticulturists, agronomists, winemakers, farmers, stockbreeders, catering, and tourism professionals as well as employees for other administrative tasks. It also expects increased demand for specialized personnel (researchers / scientists, business executives). It will be necessary, therefore, to assess both the possibilities for and the interest of displaced lignite workers – and other parts of the local workforce – to pursue career opportunities in these growth sectors and occupations, and to develop skills programmes accordingly. Section 10.3 provides some examples of reskilling and upskilling initiatives pertinent in this context.

At the same time, both workers and those responsible for designing and delivering skills training need to recognise the changing realities likely to affect the local labour market. For example, local job opportunities in activities such as land restoration, PV installation, or construction may be time limited. Thus, workers may find themselves needing to change jobs in the not-too-distant future and potentially more frequently thereafter, or they may need to accept that pursuing careers in these fields may require them to be more geographically mobile, carrying out work in different of multiple locations.

10.2.2 Developing a skills training programme

With the expected diversification of the economy of Megalopolis, it will be important to equip workers with the skill levels and competences to fill vacancies that will open out in the medium term (five to 10 years). Developing and implementing appropriate specialised skills training support will require foresight and cooperation between the parties involved in the development of the region. In the first instance, the existing skills portfolio will need to be assessed and mapped against the anticipated development of skills needs of the region. In this regard, frameworks exist at the EU level which can inform the design of appropriate processes and organisational structures. For example, Cedefop has developed a framework for assessing governance of skills anticipation and matching in EU countries¹⁰⁶, which identifies key elements of well-functioning skill needs anticipation systems. Training can then be organised to deliver the skills required, followed by some form of validation and recognition, for example by using the support of the Commission's initiative Upskilling Pathways¹⁰⁷.

It is important for assessing skills and designing and implementing skills training programmes to identify and then work with the right range of partners. Figure 16 sets out the potential range of partners in this

¹⁰⁶ https://www.cedefop.europa.eu/files/20171016-edefop_skills_governance_framework.pdf

¹⁰⁷ <https://ec.europa.eu/social/main.jsp?catId=1224>

process, including representatives from different levels of government, community representatives, public employment services, training providers, any funding bodies, the social partners (trade unions and employer organisations), individual companies and any other relevant experts. Involving a wide range of stakeholders and experts ensures that skills training programmes attract input from a variety of different standpoints and those with complementary types of expertise. For example, it is important to involve individual companies as they will be key in terms of offering training and will also be able to discuss the types of skills that they need in their workforce on an ongoing basis. It is also important to involve public authorities, particularly at regional level, as these will have a good overview of economic developments and skills needs in the region. Public authorities can also serve as a link between the various actors. Public employment services at regional and local levels may also be able to play a role in helping to match supply of and demand for employment and coordinating training needs and opportunities. It may also be relevant to work with funding bodies, as funds may be available to develop skills. All levels of funding could be relevant, from the EU level (ESF, ERDF and Erasmus+), to national-level funding and local and regional sources of funds. Funding can come from both public and private sources, or a mixture of the two.



Figure 16. Key stakeholders for skills development¹⁰⁸

The social partners are also important: trade unions have a key role to play in supporting and advising workers, both collectively and individually, and are key actors in terms of working with employees to help devise training. It is also important to involve training providers, both in the public and private sector, as they will have significant experience in helping to devise and implement training and skills development

¹⁰⁸ Source: European Union (2020). Toolkit. Sustainable employment and welfare support. How to accompany the labour market transition in coal regions in transition. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/sustainable_employment_and_welfare_support_toolkit_-_platform_for_coal_regions_in_transition.pdf

programmes. Finally, there may also be other experts who may have relevant expertise in areas such as reskilling and upskilling and working with employers to enhance skills development.

There are examples of successful cooperation between different actors that have resulted in significant skills development. For example, former coal workers were re-employed at Dortmund airport as part of a successful cooperation between public services and private companies. The airport developed a qualifying training course and hired 76 retrained former miners¹⁰⁹.

10.2.3 Developing a more comprehensive package of support services

Workers faced by the prospect of being displaced often have complex and diverse needs. Adopting an integrated approach to addressing those needs can therefore be effective in supporting their transition to alternative jobs or leaving the employment altogether. For example, in the Irish Midlands, Bord na Móna¹¹⁰ designed a comprehensive support package to help peat workers to navigate their future in the context of the discontinuation of peat harvesting. This support package included a basket of diverse services which went beyond the standard career counselling services and had in its mix tax briefings and job fairs, as shown in Figure 17.

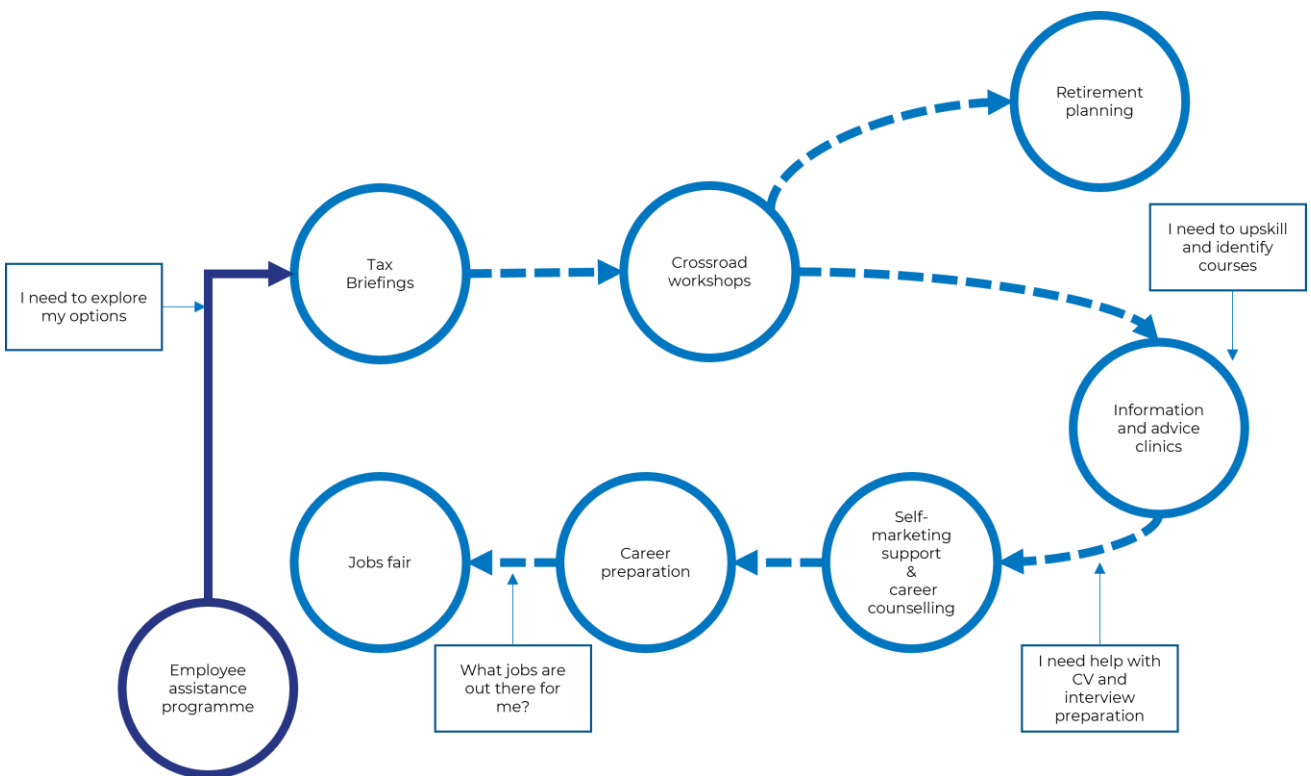


Figure 17. Employee support, Bord na Mona¹¹¹

¹⁰⁹ RECORE (2006). Boosting the regeneration process of Europe’s coalfield regions. Good practice guidelines.

¹¹⁰ Bord na Móna is an Irish semi-state company responsible for commercially harvesting peat. More information available at: <https://www.bordnamona.ie/>

¹¹¹ Authors’ recreation based on: Andrea Broughton and Paul Dowling (2020). Future employment and skills in the Irish Midlands, Briefing Paper. p. 13.

In the Czech Republic, the region of Karlovy Vary (see Box below), which is dealing with the employment and social consequences of the closure of lignite mines, has a similar system in place. This region is offering a basket of services including financial, legal, debt avoidance, management advisory and mental health services. The reasoning is that this mix of services will be able to address the manifold needs that can emerge from the loss of employment. In particular, mental health services were reported to be important for older workers, who were more likely to experience difficulties, compared with younger workers¹¹². Examples also exist from Scotland, with the Scottish Partnership Action for Continuing Employment (PACE)¹¹³ also serving as a useful reference point for mitigating redundancies.

Employment fairs and other outplacement activities, Karlovy Vary (Czech Republic)

Employment fairs helping workers in the lignite sector to learn about employment opportunities and connecting them to employers in the broader region can be a useful measure to mitigate unemployment, as they can reduce search times, match potential candidates to businesses and accelerate the hiring process. In the coal region of Karlovy Vary, the power company SUAS took part in such initiatives in addition to its participation in the implementation of an outplacement to support redundant workers. In the context of this project, among other things, SUAS invites a labour specialist onto its premises twice a week to deliver a seminar informing workers about the types of support available to them.

Sources:

- https://energy.ec.europa.eu/system/files/2021-05/employment_and_skills_in_karlovy_vary_-_part_i_0.pdf

In light of the above, effective integration of OAED's support for employees with a basket of existing or new services such as those highlighted in Ireland or the Czech Republic can be an important point to consider in terms of mitigating any negative repercussions of the transition away from coal on the local population. Equally, it is important to disseminate these opportunities using appropriate communication means (e.g., local media, role models) to increase their uptake and reduce potential feelings of stigma.

10.2.4 Tailoring services to different cohorts of workers and social groups affected by transition

It is important to recognise that support needs may vary for different types of workers, for example depending on factors such as age and skills level. Moreover, it should be recognised that impacts of transition may extend beyond directly affected workers, notably on their families and the wider community that may also require support to manage transition.

Older workers face specific challenges in terms of ability and willingness to participate in training and learning new skills, including digital skills. Many lignite workers are in their 50s and will have worked in the same role at the power company for their entire working lives; some may be just a few years from retirement and therefore would not have a high incentive to learn new skills and move to a different industry. Nevertheless, there are examples of initiatives that have been put into place in other countries to develop the skills of older workers.

¹¹² Marie Shaikovski and Andrea Broughton (2020). Employment creation opportunities and future skills requirements in the Karlovy Vary region. Part 1: Short Term Opportunities

¹¹³ PACE is the Scottish national strategic partnership framework for responding to redundancy situations.

Explore initiative - Bord na Móna (Ireland)

The Explore initiative for former Bord na Móna staff in Ireland focuses on upskilling older employees in manufacturing, in areas such as digital skills, personal development and preparation for change. The programme is reported to have been very well received by the participants and those involved in delivering the training, noting that it is important to encourage older workers in particular to take part in some type of training activity, 'to do something', rather than slip into a mentality that they are too old to engage in any further training or take further job opportunities. The programme was delivered by local Education and Training Boards (ETBs) following funding application by Regional Skills Forum

Sources:

- https://ec.europa.eu/energy/sites/default/files/documents/future_employment_and_skills_in_the_irish_midlands.pdf

Younger workers, by contrast, have the bulk of their working lives ahead of them and it is therefore crucial that they are equipped with the right skills to move forward into new sectors. Again, there are relevant initiatives from Ireland for former Bord na Móna staff. These offer, among other things, enhancement courses on basic IT, welding, industrial electrical skills, milling and turning skills, first aid, bicycle mechanics, and supervisory and management skills¹¹⁴.

Future generation of worker. When thinking about support for workers, it is also important to include opportunities for future generations. As the lignite mining industry in Megalopolis has traditionally provided employment to generations of workers, it is important to fill this gap by diversification so that the spouses, children, and grandchildren of current workers have secure employment in the region. This will prevent flight from the region to the surrounding areas in the search for employment. In this context, it is crucial to work with primary and post primary schools in the region to stimulate their interest in skills areas that can underpin future development of the region. Specifically, initiatives could be taken to support the development of young people in technical fields and the IT industry through the development of specialised education programmes, courses, competitions, and afterschool clubs.

VEX IQ is primary school level initiative, Midlands (Ireland)

Offaly County Council and the Department of Rural and Community Development rolled out a digital initiative to expose students in 16 primary schools to Science, Technology, Engineering, and Math (STEM) fundamentals within the context of a competition to build a robot using Vex IQ. The competition is delivered in collaboration with Cork Institute of Technology (CIT), with Offaly Local Enterprise Office, Offaly Library Service and the Council's Information Technology department also provide support for the programme. The initiative enables children to compete in the Offaly VEX IQ Championship each year and aims to foster a lifelong interest in the areas of STEM. Also, recognising that a gender divide persists in STEM education, and female interests in STEM lags their male counterparts, the initiative will encourage schools that participate to ensure that girls and boys are equally represented on the school teams where possible.

Sources:

- <https://www.offaly.ie/eng/News/Shaping-Offaly%E2%80%99s-Smart-Future-with-Primary-School-children-through-Science-Technology-Engineering-and-Mathematics-STEM-using-VEX-IQ-Robotics.html>

¹¹⁴ Source: https://ec.europa.eu/energy/sites/default/files/documents/future_employment_and_skills_in_the_irish_midlands.pdf

Children's Technical University, Plzeň (Czech Republic)

The Children's Technical University has been developed through a partnership between the Technical University of Plzeň and regional schools, was financially supported by Plzeň city, the BMW Group and other companies active in the region. The Children's Technical University enables children from the youngest school age to learn about various areas of technology. A cohort of children is recruited for a course, which is designed to be taught on weekly basis for a number of years in the form of an afternoon club. During the course, children are introduced to a wide range of technical topics, such as steam turbines, electromobility, 3D printing, production machines and robotics.

In the lignite mining area of Sokolov, where BMW is investing in a Future Mobility Development Center (see Section 8.5), the Technical University of Plzeň has teamed up with the BMW Group and the Sokolov Integrated Secondary School of Technology and Economics to deliver a program that will help children gain an insight into the field of technology in a fun and playful way and give them the opportunity to try many things.

Sources:

- <https://www.detskatechnickauniverzita.cz/sokolov>
- https://www.bmw.cz/cs/topics/fascination-bmw/BMW-Polygon_en.html

Vulnerable and other social groups. Thinking beyond directly impacted workers, consideration should be given to service design and provision to the wider value chain and social context. Coal transition in other countries has shown that it is useful to engage separately with vulnerable groups, as these often have different needs and call for tailor-made services (possibly including specific agencies) to address them. For example, the closure of mines and power plants and resulting inactivity of key (male) earners can be a cause of tension within households, increasing stress on other (female) household members and an increased burden of domestic responsibilities. Similarly, workers and families with a migrant background may be specifically affected in ways different from indigenous residents.¹¹⁵

10.3 Sector-specific skills development

The aim of this sub-section is to provide examples of skills development initiatives that may be relevant to the context of Megalopolis and its transition ambitions. In this regard, the section is organised on a sector basis, with a general attention to skills development actions that may be matched with the development of micro-enterprises and SMEs. To the extent that it provides good practice examples, the reader is directed towards the Initiative for Coal Regions in Transition's 'Sustainable employment and welfare support toolkit'¹¹⁶ for additional examples and guidance. In addition, various projects providing assessments of skills development needs and proposing relevant training curricula, or training materials and learning platforms, are highlighted. Several of these projects include Greek partners that could potentially advise or support the design and implementation of skills initiatives for Megalopolis.

¹¹⁵ World Bank Group (2021). Supporting Transition in Coal Regions : A Compendium of the World Bank's Experience and Guidance for Preparing and Managing Future Transitions. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/35323> License: CC BY 3.0 IGO.

¹¹⁶ https://energy.ec.europa.eu/system/files/2020-05/sustainable_employment_and_welfare_support_toolkit_-_platform_for_coal_regions_in_transition_0.pdf

10.3.1 Renewable Energy

Renewables and environmental sectors (e.g., solar power, retrofitting business premises and housing, waste management, and the circular economy) are widely considered to have the potential for employment creation in the medium and longer term that could more than compensate for job losses in coal/lignite mining and power generation. This has been the case in Germany, where the Institute for Ecological Economy Research (IÖW) has shown that in the Lusatian and Rhenish coal mining areas where respectively 3,900 and 4,500 coal jobs were fully offset by the renewable energy sector, albeit that most of the newly created jobs were outside the municipalities where coal mines are located ¹¹⁷.

RenewAcad (Romania)

The Romanian Wind Energy Association (RWEA) and the Renewable Energy School for Skills (RESS) took on the task of reskilling the mining workforce and direct it towards employment opportunities in the wind energy sector. Following an assessment of the skills-gaps of the mining workforce vis-à-vis the future skills-needs of the renewables sector, a nationwide reconversion project was set. After the success of the project in Constanta, a RESS centre was set in Valea Jiului, training on annual basis over 400 persons based on international standards. As a result, previous miners in Valea Jiului have now the possibility to receive training and find employment either within their region or nationwide. For example, many graduates of the project in Valea Jiului were recruited to work in Fantanele-Cogealac Wind Farm, which is currently the largest onshore wind farm in Europe.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it’s a quick win)		✓	
Promotes social and environmental sustainability			✓
Integrates modern technology & promotes innovation			✓

Sources:

- <https://rwea.ro/en/rwea-reskilling-program-for-mining-workforce-from-the-coal-regions-in-transition/>

RES-SKILL: Res-skilling coal industry workers for the renewable energy sector

Recognising that reskilling initiatives for the transition of coal workers to the Renewable Energy Supply (RES) sector are currently extremely limited, RES-SKILL aims to strengthen VET provision in the energy sector aimed at coal workers for compatible RES sector jobs, to increase their reemployment opportunities and, at the same time, cover skills demand in the RES sector.

The project’s specific objectives are to:

- Develop a novel curriculum & tailored training content to facilitate coal workers’ reorientation to the RES industry.
- Support VET providers to integrate the RES-SKILL materials into their VET & WBL offerings.

¹¹⁷ Source: NESC report: Four Case Studies on Just Transition: Lessons for Ireland. Report No. 15, May 2020 <https://www.nesc.ie/publications/four-case-studies-on-just-transition-lessons-for-ireland/>

- Improve cooperation between VET providers & businesses to provide opportunities that will enable coal workers to transition to the RES sector.

Among others, activities (→ results) of the project include:

- Identification of skill complementarities & mismatches between coal & RES sector workers' occupational profiles, leading to the development of learning outcomes
- Development of a novel curriculum to facilitate coal workers' reorientation to the RES industry (→ Learning units, career reorientation toolkit & guidelines to implement successful transitions)
- Creation of tailored pedagogical materials, offered as Open Education Resources (OERs) (→ Open Educational Resources in 6 languages)
- Development of transition profiles, self-assessment tools & skills portfolios to promote customised learning & career reorientation
- Development of resources for the establishment of Joint Competence Centres for the career reorientation of coal workers (→ Strategic & operational plans for the establishment of Joint Competence Centres; → Pilot run of a Joint Competence Centre for career reorientation & reskilling)

In July 2021 RES-SKILL produced a report “Skills matching analysis and development of transition profiles” ([here](#)) comparing occupation profiles of the coal industry and RES sector (Solar/photovoltaics; Wind) and outlining six transition profiles:

- Mining machine operators → machinist of road construction machinery (PV) and machine operators (wind)
- Fitters in the coal industry → PV fitter/installers and HVAC system installers
- Maintenance and repair workers → PV operation and maintenance technicians
- Construction equipment operators → Machinist of road construction machinery (PV), Machine operators (wind)
- Heavy vehicle & mobile equipment service technicians & mechanics → PV operation and maintenance technicians, Maintenance and repair electricians
- Mining electricians → PV electricians, Electricians (wind), Maintenance and repair electricians (wind)

Project Duration:	September 2020 until February 2023	
Lead Partner:	The Hellenic Society for Promotion of Research and Development Methodologies (PROMEA)	Greece

Website:

- <https://res-skill.eu/>

10.3.2 Tourism, recreation, and culture

In common with many coal regions undergoing transition, tourism has been identified as an important potential axis for development of the Megalopolis area. On the one hand, the development of an original theme park for adventure, entertainment and education is one of the hoped-for major investment projects, with interest having been expressed by an international entertainment company. On the other, there is scope to develop the underexploited potential of the Megalopolis areas' rich natural, cultural and religious heritage (See Sections 7.1.3, 9.3.2 and 8.4), opening opportunities for micro and small businesses.

As recently noted in the European Commission's report “Transition Pathway for Tourism”¹¹⁸, which focussed on green and digital transitions and improving the resilience of the tourism ecosystem, the need to develop skills and build capacity in tourism SMEs and destination management companies is

¹¹⁸ <https://ec.europa.eu/docsroom/documents/48697/attachments/1/translations/en/renditions/native>

substantial. Particularly, throughout Europe, low levels of digital skills and limited awareness and understanding of environmental sustainability are barriers to the development of tourism-related activities. Conversely, addressing skills deficiencies in digital technologies and sustainability should provide new opportunities with increasingly digitally-enabled and environmentally-conscious customers.

European Tourism Careers initiative

European Tourism Careers initiative has been developed through the EU-funded project IdEATE – Improved Employability and Apprenticeship in the Tourism Sector. The Initiative platform, addressed to job seekers, SMEs and training providers in the tourism sector, offers users information and updates on:

- Information on various career pathways (gastronomy, accommodation, travel and tours, guiding and experience, destination management, digital services and innovation)
- E-learning courses with a user-centred approach to actively involve the target groups to improve the qualification of human capital for the tourism sector and enhance and facilitate the presentation, communication and improvement of soft skills
 - For SMEs ([here](#))
 - For Jobseekers ([here](#))
- Videos with a variety of interactive learning tasks such as micro-simulations, questionnaires, discussions, study relevant resources and interactions with the content.
- A toolkit for training organisations and public authorities ([here](#))
- Information about different European initiatives concerning mobility and funding opportunities, apprenticeships and traineeships.)

Project Duration:	November 2016 until June 2018	
Lead Partner:	Federturismo Confindustria	Italy
Other Partners (Greek)	Academy of Entrepreneurship (AKEP)	Greece

Website:

- <http://skilltour.eu/en>

SKILLTOUR: New Skills for Sustainable Rural Tourism

The aim of the Skilltour project was to develop the entrepreneurial skills of those who run/plan to run small rural tourism businesses in order to be able to deliver innovative, high-quality products and services and manage their businesses in a sustainable and responsible manner. The core target groups and beneficiaries of SKILLTOUR are:

- adults who run or plan to run micro/family rural tourism businesses (pensions, farm-stays, restaurants, village inns, camping or guest houses, etc.),
- adult education providers with high exploitation potential of the project output

Among others, outputs from the project include:

- Research study on needs for entrepreneurial and transversal skills development of adults who run small/family rural tourism businesses ([here](#))
- Good practice models (videos) for sustainable rural tourism businesses ([here](#))
- Curriculum ([here](#)) and training material ([here](#)) to support adult organizations in delivering high-quality key competence development trainings for adults disadvantaged
- An interactive virtual tour of competences (study video) and attractive multimedia materials to support and motivate the autonomous learning of adults learners ([here](#) and **in Greek here**)
- User friendly online learning space that will guide current and future rural tourism entrepreneurs in developing their competencies through a structured learning experience ([here](#) and **in Greek here**)

Project Duration:	September 2015 until August 2017	
Lead Partner:	Point Europa	United Kingdom
Other Partners (Greek)	Milos Educational Women's Collaboration for Activities in Tourism (MEWCAT)	Greece
Website:		
<ul style="list-style-type: none"> http://skilltour.eu/en and in Greek http://skilltour.eu/gr 		

SUSTAIN-T: Sustainable Tourism through Networking and Collaboration

The Sustain-T project was developed to enhance the sustainability performance of EU micro and small enterprises in the tourism sector by raising their managers' awareness of sustainable tourism practices and improving their networking and collaboration skills for establishing new green alliances and implementing joint sustainability initiatives. The project is targeted at owners and managers of EU tourism micro and small enterprises and at VET providers, trainers and learners interested in sustainable tourism issues.

Among others, outputs from the project include:

- Sustain-T curriculum, based on research into challenges tourism MSEs face in improving sustainability performance of their firms ([here](#))
- Sustain-T learning content, structured around the four main themes of GSTC criteria ([here](#))
- Interactive Self-audit, Resource-mapping & Ideation tools, allowing for: reflection on the current state of sustainability of a tourism enterprise; analysis of available resources for sustainability improvement; and collective idea generation for developing and undertaking joint sustainable tourism initiatives ([here](#))
- E-learning platform – a virtual learning environment, containing all Sustain-T training materials and e-tools ([here](#))

Project Duration:	November 2017 until October 2019	
Lead Partner:	Universitat Autònoma de Barcelona	Spain
Other Partners (Greek)	No Greek Partner	
Website:		
<ul style="list-style-type: none"> http://www.sustain-t.eu/ 		

CEnTOUR: Circular Economy in Tourism

Small and Medium Enterprises (SMEs), and especially those in the tourism sector, are slowly facing the challenges of moving from a linear to a circular economy model and, given their size, usually do not have the resources and skills to deal with it with the right tools and ways. CEnTOUR aims to support SMEs in the development and implementation of cyclical businesses (in terms of knowledge transfer, skills, innovation, certification) in an integrated system aimed at local development. More specifically, this project seeks to accelerate and support the capacity of SMEs in tourism to uptake sustainable solutions, proposing a focus on waste in food sector, plastic free offer and rethinking the packaging, and collaborative consumption.

It will develop and test an effective support scheme for SMEs including training, capacity building and knowledge transfer path focusing on the promotion of the best practices exchange, the creation of an enduring network, and a technical and financial support toward the uptake of innovative solutions and EU certifications. CEnTOUR will also work on the development of tourism marketing strategies based on circular economy for two Focus Regions. More specifically the project seeks to:

- Boost skills and knowledge transfer through developing a framework for capacity building, creating a supporting structure for SMEs; delivering an interactive training programme.
- Implement technical support activities for incubation, acceleration and scaling up of tourism SMEs (68 companies in 5 countries will be selected to implement pilot tests) including a Certification Scheme – ECOLABEL/EMAS - for a selection of participating SMEs.
- Create an enduring network of Institutions that can collaborate on CE support schemes for SMEs in the tourism sector and promoting the exchange of practices and results at EU level within a CE network of stakeholders and the development of an operational framework to replicate the business support scheme elsewhere.

Project Duration:	September 2020 until September 2023	
Lead Partner:	Chamber of Commerce of Marche Region	Italy
Other Partners (Greek)	Chamber of Commerce & Industry of Xanthi (EBEX)	Greece
Website:		
<ul style="list-style-type: none"> • https://circulartourism.eu/ and in Greek https://circulartourism.eu/el/%ce%b1%cf%81%cf%87%ce%b9%ce%ba%ce%ae/ 		

Tennent's Training Academy (United Kingdom)

Established in 2010, the Tennent's Training Academy (TTA) is a dedicated Hospitality Industry based Training Academy in Scotland that aims to offer a fresh approach to learning new skills, with a large range of over 40 accredited courses that support the hospitality industry by delivering courses for those just starting out in the sector or staff already working within it. The courses offered are delivered by Award Winning and Industry Experts.

The TTA works with a range of suppliers and trainers to deliver courses specifically designed to help young people, including school children, gain insight, skills, and the essential experience to find employment within the hospitality trade. Further, the TTA works closely with those who might face conventional barriers to work, in particular those with learning disabilities, recently re-homed, long-term unemployed and young people who are recently out of prison.

The Academy has been established in an empty building on the Wellpark Brewery site that has been converted and modernised to house four bespoke training rooms, including a wine and spirit room with a tasting table, a working bar and beer cellar, plus a large high-spec kitchen spec kitchen with chef's kitchen table – all designed to replicate facilities in the real working world.

Relevance for delivering principles of “next day vision”	Low	Medium	High
Utilisation of assets of affected area		✓	
Significant employment creation			✓
Facilitates a speedy transition (i.e., it's a quick win)			✓
Promotes social and environmental sustainability		✓	
Integrates modern technology & promotes innovation		✓	

Sources:

- <https://www.tennentstrainingacademy.co.uk/>
- <https://www.glasgowlive.co.uk/news/glasgow-news/tennents-training-academy-receives-gold-12602190>
- <https://www.leisuremanagement.co.uk/detail.cfm?pagetype=detail&subject=news&codeID=226573>

10.3.3 Agri-food

Agri-food and in particular smart agricultural production is one of the five key pillars of the Master Plan's vision for the next day. Currently, at EU-level there are several projects that can be relevant for the existing and future workforce of Megalopolis wishing to develop skills in the area. These are shown below.

NEXTFOOD: Educating the next generation professionals in the agri-food system

NEXTFOOD will drive the crucial transition to more sustainable and competitive agri-food and forestry systems development by designing and implementing education and training systems to prepare budding or already practicing professionals with competencies to push the green shift in our rapidly changing society. NEXTFOOD will challenge the linear view of knowledge transfer as a top-down process from research to advice and practice, and support the transition to more learner-centric, participatory, action-based and action-oriented education and learning in agri-food and forestry systems. More concretely, the following work packages of the project can be particularly relevant for Megalopolis:

Relevant outputs include:

- Inventory of skills and competencies for resilient agri-food and forestry systems ([here](#))
- Audit tool for education and research. This tool can help educational actors assess how their programmes, modules, courses, and other educational activities perform in relation to seven skilling pathways identified for the agri-food and forestry sector ([here](#))
- Review report of educational approaches ([here](#))
- Toolbox for teaching practitioners ([here](#))
- Report on diagnostics of existing policies ([here](#))
- Report on identification of strategies for improvements ([here](#))
- Plan for integrating gender equality (TBC)
- Report on new instruments design and implementation options (TBC)

Project Duration:	May 2018 until April 2022	
Lead Partner:	SVERIGES LANTBRUKSUNIVERSITET	Sweden
Other Partners (Greek)	American Farm School Post-Secondary Educational and Training Association	Greece
Other Partners (Greek)	Agro-nutritional Cooperation of the Region of Central Macedonia	Greece
Other Partners (Greek)	International Hellenic University	Greece

Sources:

- <https://www.nextfood-project.eu/>
- <https://www.nextfood-project.eu/deliverables/>

FAIRshare: Farm Advisory digital innovation tools realised and shared

Electronic data generation, analytics and communication technologies potentially enable more accurate, faster and better decision-making on farms, with huge potential to improve agricultural sustainability. There is a major focus on digitisation by EU and national/regional policymakers to ensure that digital innovation in agriculture keeps pace with other sectors and the benefits of digitisation are available to the wider farming community. However, there is a danger that digitisation and future innovations will be hampered unless the rural advisory community is mobilised to take ownership of digital tools and to advocate at the user interface. To respond to this issue, the project engages, enables, and empowers the independent farm advisor community

Relevant outputs include:

- Assessment tool that can help farm advisors to identify and select suitable digital advisory tools and services (DATS) to help them address the needs and challenges on the ground. The assessment tool allows farm advisors to compare different digital tools based on a uniform set of characteristics which can help them to select the most appropriate tools based on their needs ([here](#))
- Training modules. The project includes a longlist of training modules (e.g., a guide providing ideas for farmers who want to change their systems to use less herbicide).

Project Duration:	September 2018 until October 2023	
Lead Partner:	Teagasc - Agriculture And Food Development Authority	Ireland
Other Partners (Greek)	Agricultural University of Athens	Greece

Sources:

- <https://www.h2020fairshare.eu/>
- <https://www.h2020fairshare.eu/main-results/assessment-tool/>

10.3.4 Metalworking

Manufacture and fabrication of metal products is an important activity in the extended value chain of lignite mining and power generation that will be impacted by the transition. However, construction-related activities linked to foreseen investment projects in the Megalopolis area, together with the wider trend towards greater sustainability in construction and construction products may provide opportunities for transformation of enterprises in the metal working sector, requiring development of appropriate 'green' skills.

METVET: Joint Higher VET Course in the Metal Sector

The METVET project is set in the context of EU energy sustainability targets and the consequential demand for environmental skills in the construction sector. Recognising that training providers have not yet caught up with this new skills demand, thereby creating an important skills gap in the current labour market (e.g., for , "green" construction and installation technicians), the purpose of the METVET project is to create a European offer of adapted and innovative initial training and certification for skills development (fabrication and installation of aluminium frames), alongside international standards, regulations and certification awareness, based on common transnational curricula. The project's primary target groups are skilled workers and technical experts, related VET graduates and undergraduate students or unemployed related technicians. However, project's beneficiaries will be also, Chambers & Social Partners, VET providers and of course related technical companies.

Among others, outputs from the project include:

- Joint Curriculum for aluminium & metal constructions technicians at EQF Level 5, and proposals for appropriate teaching methodologies ([here](#))
- Modular training material for aluminium & metal constructions technician trainees and relevant trainers ([here](#))
- Training laboratory requirements ([here](#))
- Apprenticeship requirements - guidance for design of apprenticeship programmes in small and very small enterprises ([here](#))
- Plan for exploitation of project outcomes within the institutional context of each participating country (Greece, Italy, and Germany), including funding possibilities ([here](#)).

Project Duration:	September 2018 until December 2020	
Lead Partner:	Sivitanidios Public School of Trades & Vocations	Greece

Other Partners (Greek)	Small Enterprises' Institute of the Hellenic Confederation of Professionals, Craftsmen and Merchants (IME GSEVEE)	Greece
	Panhellenic Federation of Craftsmen in Aluminium and Metal Constructions (POVAS)	Greece

Website:

- <https://www.metvet.eu/>

11.0 Governance and Capacity Building: The Case for a Local Transition Partnership

11.1 Introduction

This section considers issues pertaining to governance of transition actors at the local (sub-regional) level, including their mobilisation and engagement, and the development of requisite local capacity for transition. In addition, it considers potential actions for the development of governance and capacity based on lessons from other EU regions undergoing transition, namely in Ireland and Romania. As noted in the conceptual framework (see section 2.0), activating the agency of actors and related capacity to utilise local assets is a key dimension for the creation of new local economic activities. However, in Megalopolis and the eligible area, as in many other mono-industrial localities, there is a deficit of local actor agency, social capacity, and institutional thickness¹¹⁹. In the interests of sustainable and legitimate development and diversification, this deficiency should be addressed.

11.2 Context

The development of the JTDP / Master Plan and TJTP has been managed by a detailed governance structure (see Figure 19). Notably the Government & Coordination Committee and the Steering Committee has brought together senior national and regional government actors and PPC. Also, Working Groups and Sub-Committees provide a technical and spatial focus, whilst a Technical Committee (TESDAM) has been established to evaluate investments.

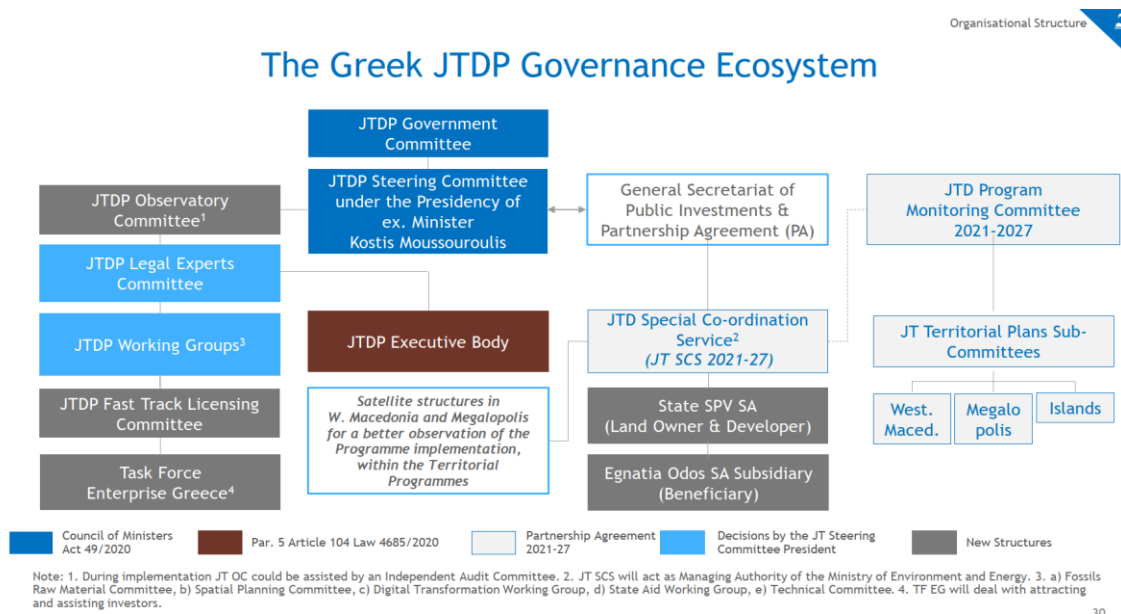


Figure 18. the Greek JTDP Governance Ecosystem

¹¹⁹ Many coal regions have limited institutional thickness i.e., a limited number of institutions and organisations, a paucity of social and economic networks; an absence of structures that promote collective expectations and collaboration; and limited mutual awareness of common purpose.

To manage the implementation of the transition process, the following entities are identified in the TJTP:

- Government Committee of the Hellenic Republic
- Coordination Committee
- Special Coordination Service
- Monitoring Committee
- Transition SA (a legal entity governed by private law to oversee land transferred by PPC to the State)

In addition, the TJTP notes the involvement of local actors in the implementation of the transition process via:

- Monitoring subcommittees for the three territorial project areas, chaired by local authorities
- Potentially through participation of a local representative on the Transition SA management board
- Transition SA supporting the beneficiaries at the local level in developing their projects
- The appointment of a Just Transition Officer for the Peloponnese ROP

It can be observed that, to date, there has been an emphasis on a top-down approach with less attention given to mobilisation and engagement at the local level. Although such an approach is understandable, given the need for rapid transition and diversification and the partial nature of local transition governance and capacity, greater attention should be given to fostering local structures, processes and resources to legitimise, sustain and optimise transition and diversification in the longer term. An explicit twin track approach, integrating complementary top-down and bottom-up approaches, should be considered.

The observation of Ziouzos, Karlopoulos, Fragkos and Vrontisi (2021) about Western Macedonia is also applicable to Megalopolis and its surrounding area¹²⁰:

“The cooperation of local authorities, communities, and organizations could assist with new initiatives, to ensure the effective orientation of the regional economy towards productive, sustainable and green activities. Therefore, a common vision should be carefully designed and shared by the local population and all relevant stakeholders aiming at the post-lignite future of the region.”

Moreover, as noted in the recent CINTRAN study of capacity in coal regions, including Greece¹²¹:

“There is a definite need for capacity-building on (socio-)economic issues and funding/financing issues, as well as distinct knowledge gap about engagement/governance.”

To counter this deficit in engagement, co-ordination capacity at the local level, formalised local partnership arrangements for Megalopolis and the eligible area that bring together key local public, private and civil society actors should be considered. The benefits and potential nature of such a local transition partnership are considered below.

¹²⁰ Challenges and Opportunities of Coal Phase-Out in Western Macedonia. Dimitris Ziouzos, Evangelos Karlopoulos, Panagiotis Fragkos and Zoi Vrontisi, Climate (2021)

¹²¹ CINTRAN, Capacity Building Needs Assessment and Programme Concept (2021)

11.3 A Local Transition Partnership for Megalopolis and the eligible area

What would be the benefits for Megalopolis and the eligible area?

A sub-regional partnership would bring key actors together in a structured, regular basis to promote:

- Common vision and expectations
- Networking and the sharing of knowledge
- Efficient use and synergy of resources and funding
- Consensus, transparency and legitimacy regarding analysis, planning and action
- Awareness and comprehension of regional / national policies and opportunities e.g., funding
- A critical mass of private, public, and civil society development actors

Successful local transition has a high degree of multi-scalar conditionality i.e., effective change at the sub-regional level is dependent on policies and actions at the regional, national and EU levels. A transition partnership for Megalopolis and its surrounding area which brings together key sub-regional actors would have a unified and more influential voice for engaging and informing higher levels of government (regional and national) and would provide structured access to political decision and policy making.

Designing a partnership adapted to local circumstances

A partnership should reflect its unique institutional circumstances. There is no ‘one size fits all’ partnership design. In Ireland (see Midlands’ case study), a regional transition partnership has brought together local, regional, and national government actors and representatives from industry and civil society. Whereas in Romania (see Jiu Valley case study), partnership working was initiated through a memorandum of understanding signed by six coal mining municipalities and enabled by the creation of a new local development association to manage the implementation of a local transition and development strategy.

If a partnership is primarily about public sector co-ordination, then the membership can be relatively narrow. If the purpose of the partnership is to mobilise diverse actors involved in or affected by transition, then the membership will be broader. Once the mission and membership of the partnership is clarified, an agreement (terms of reference) can be signed by all the partners.

In turn, the effective functioning of the partnership will require proportionate capacity. This will be informed by the partnership’s mission, work programme and frequency of meetings. Capacity should also reflect the structure; for example, if there are regular meetings and /or sub-groups for specific themes, these will require appropriate support.

It is important for a partnership to have a commonly agreed vision, priorities (reflecting both short and longer-term ambitions) and a plan for achieving them. In the Midlands (Ireland) and in the Jiu Valley (Romania) transition pathway planning was used to identify shared priorities and related activities. The process of transition and diversification is a long-term journey, therefore plans and partnerships can be reviewed regularly (e.g., every three years) and adjusted accordingly. In the case of Megalopolis and the eligible area, the starting point for such a transition pathway plan is the JTDP / Master Plan.

Further information on designing a governance to support transition in coal regions and localities, facilitating stakeholder engagement (including issues around gender and youth), and enhancing the role of social dialogue and of civil society in the transition process, can be found in the EU Coal Regions in Transition Initiative's Governance of Transitions toolkit.

Governance of transitions toolkit:

Design of governance structures and stakeholder engagement processes for coal regions in transition

This toolkit from the Initiative for Coal Regions in Transition provides a broader overview of governance issues in EU coal mining and related research and tools. The toolkit addresses the following key questions:

- How to build effective governance models?
- How to design and implement stakeholder engagement processes?
- What role does social dialogue play in the governance of the transition?
- How to increase the role of civil society in the transition?

Sources:

- https://energy.ec.europa.eu/topics/oil-gas-and-coal/eu-coal-regions/resources/governance-transitions-toolkit_en

Transition partnership case study #1: Midlands Regional Transition Team

Relevance of Case: The case study relates to the Midlands Regional Transition Team (MRTT) in Ireland. The partnership that was established in late 2018 to respond to the phase-out of peat harvesting and the related electrical power generation industry in the Midlands region. The ending of peat related economic activities affected communities in eight local authority areas. Although the institutional circumstances are different, there are several transition features that make the case relevant for Megalopolis and eligible area, namely: the rural nature and narrow economic base of the affected communities; the potential for agricultural development, RES, and tourism; the limited innovation and higher education / research base; the development of a multi-level partnership (local, regional, national) that brought focus to the transition process and coordinated resources.

Membership and structure: The membership and structure of the MRTT encourages inclusive transition planning and action and supports a top-down and bottom-up approach to policy making and implementation. The MRTT Steering Group, is a strategic body, consisting primarily of senior public sector representatives. The chairing of the group rotates amongst the local authorities. The members are:

- the Chief Executives (the highest officials) of the eight local authorities
- the political leaders of the eight local authorities
- three representatives of regional government
- local members of the national parliament
- the national Just Transition Commissioner
- Bord na Mona – the peat harvesting and power company
- ESB – the Electricity Supply Board
- trade union representation

Moreover, by having national and regional representation on the MRTT, the expertise and resources of national and regional government actors has been harnessed to assist transition and diversification at the local level (for example Enterprise Ireland and the Industrial Development Agency are active in enterprise development, inward investment and technology transfer in the affected area).

In addition to having representation from differing political levels, with respective responsibilities for policy making and resource allocation, there is also the presence of the principal power companies. By having the utility companies in the partnership, the plans and projects of these critical transition actors are transparent and shared (thereby facilitating partnership planning).

Given the seniority of the representatives on the Steering Group, its opinions and decisions carry significant influence at the local, regional and national levels.

In addition to the Steering Group, there are four Working Groups which are thematic and operational in nature, consisting of relevant officials and socio-economic and civil society actors. The outputs of the Working Groups feed into the deliberations and discussions of the Steering Group. The Working Groups relate to four themes:

- Education, training, research
- Employment generation
- Employment Continuity Pathways
- Community assistance / social enterprise and development

The Steering Group and the Working Groups meet every three to four months. As noted, the outputs of the Working Groups feed into the Steering Group for discussion and, when appropriate, approval. Experts and observers can be invited to these meetings. For example, national ministries and agencies can input to the business of the Steering Group and Working Groups, as and when required.

MRTT Work Programme: The work programme of the partnership (the Steering Group and the Working Groups) is shaped by the Midlands Transition Pathway that was approved by the MRTT in 2020. The Pathway document sets out the vision, objectives and related activities for transition in the Midlands in the short and longer term. It also identifies the local, regional and national organisations responsible for delivering these activities. The document also recognises wider spatial opportunities for the Midlands region, for example economic opportunities linked with the region's proximity to Dublin.

The Midlands Transition Pathway is available at:

- https://ec.europa.eu/energy/sites/default/files/documents/midlands_pathway_to_transition.pdf

Project Identification and Development: The MRTT maintains an inventory of public, community and private sector transition projects, thereby promoting transparency and co-ordination and minimising duplication amongst project promoters. This inventory was generated through an in-depth consultation process with communities and public and private actors in 2020. By having a detailed overview of projects and their level of readiness, the MRTT can consider the most appropriate funding sources for these projects in a holistic and co-ordinated manner.

The process and materials for undertaking the consultation and developing the project inventory are available at:

- https://ec.europa.eu/energy/sites/default/files/documents/midlands_engagement_process_document_-_start.pdf

Capacity for partnership working and community engagement: All MRTT members are committed to the implementation of the MRTT and make staff and resources available for the effective operation of the Steering Group and Working Groups. In addition, a small core team of three persons oversees the management and administration of the MRTT in terms of: managing and preparing meeting schedules, agendas and minutes; circulating papers; researching and drafting papers when required; media and communications. This core team also undertakes community engagement.

Transition partnership case study #2: Jiu Valley Local Development Association

Relevance of Case: The case study relates to the Jiu Valley Local Development Association in Romania. The association was established in 2021 to respond to the imminent, total phase-out of coal mining and related electrical power generation in the area. The ending of coal related economic activities affects communities in six local authority areas. Although the institutional circumstances are different, there are transition features that make the case relevant for Megalopolis and eligible area, namely: the narrow economic base of many of the communities; the relative peripherality of the Jiu Valley and its negative national profile; the need to identify a diverse range of projects to address interacting, complex development needs (energy transition, economic diversification and social development); and a deficit of local actor agency, social capacity and institutional thickness and an absence of a collaborative culture.

Membership and structure: The local development association (“*Association for Integrated Territorial Development Valea Jiului*”) was established by statute in 2021. The focus of the association is the implementation of the recently drafted local transition and development strategy, the development of related projects and co-ordinating resources and actions across the six localities of the Jiu Valley. Given its geographic focus and strong operational emphasis, the new association consists of 12 founding members:

- Hunedoara County Council, represented by the President of the County Council
- Petrosani Municipality, represented by the Mayor
- Petrila City, represented by the Mayor
- Aninoasa City, represented by the Mayor
- Vulcan Municipality, represented by the Mayor
- Lupeni Municipality, represented by the Mayor
- Uricani Municipality, represented by the Mayor
- University of Petrosani, represented by the Rector
- Jiu Valley Development Society Project, represented by the co-ordinator
- Jiu Valley Business Association, represented by Vice-president
- Autism Helping Hands Association, represented by NGO co-ordinator
- Jiu Valley Urban Lab, represented by co-ordinator

The governing body of the association is the General Assembly and consists of all the founding members. The Board of Directors is made up representatives of these members. Following an election of office-bearers for the new association in late 2021, the following were selected:

- President - Rector of the University of Petroșani
- Vice-Presidents - Vulcan City Hall and Autism Helping Hands
- General Secretary - Petroșani City Hall

Given the seniority and geographic and sectoral coverage of the General Assembly and the Board of Directors, their decisions will have significant influence on transition and development in the Jiu Valley. Also, by involving the County Council (the level of the Territorial Just Transition Plan), broader legitimacy and influence are secured. In addition, the regional development agency (RDA West) is providing capacity building support to the new organisation. Finally, a small, permanent core team to implement and manage the activities of the association and promote co-ordination across the members is being recruited.

Jiu Valley Local Development Association Work Programme: The work programme of the association is shaped by the local transition and development strategy. The strategy sets out the shared local vision, objectives and activities for transition and development in the short and longer term. A strategic planning document was developed in late 2021 to inform the new association’s work programme.

The strategic planning document is available at:

https://energy.ec.europa.eu/system/files/2022-01/From%20Strategy%20to%20Action%20%28Just%20transition%20in%20the%20Jiu%20Valley%29_0.pdf

Project Identification and Development: In 2021, the members of the local development association agreed a diverse list of twenty projects, relating to energy transition, economic diversification and social development, which will utilise a range of EU and national funding sources. This list of projects will be kept under regular review. Detailed project fiches for many of these projects have now been developed.

Further information on the projects is available at:

https://energy.ec.europa.eu/system/files/2022-01/From%20Strategy%20to%20Action%20%28Just%20transition%20in%20the%20Jiu%20Valley%29_0.pdf

Capacity for partnership working and community engagement: All members are committed to the shared goals of the local development association and are making staff and resources available for the operation of the General Assembly and the Board of Directors. As noted, a small core team will oversee the running of the association in terms of: managing and administering the organisation and its processes; project development and identification of related funding; co-ordinating activities across the members; engaging and communicating with local stakeholders; and working with development partners at the regional level.

Potential lessons for a Local Transition Partnership for Megalopolis and the eligible area: promoting a twin track top-down and bottom-up approach

In the Greek context, current governance arrangements have been effective in developing the JTDP / Master Plan and the TJTP. However, there is still work to be done on building governance and capacity at the sub-regional level. To date, there has been an emphasis on a top-down approach. Therefore, attention should be given to fostering local structures and resources to legitimise, sustain and optimise transition and diversification in affected communities. Furthermore, such local arrangements will promote comprehension and confidence in affected groups and communities and support their engagement.

To counter this deficit in sub-national / sub-regional governance and capacity, formalised local partnership arrangements for Megalopolis and the eligible area should be introduced. If the partnership is primarily about public sector co-ordination, then the membership can be relatively narrow (but ideally multi-scalar i.e., bringing together local, national, and regional public actors). If the purpose of the partnership is to engage and mobilise transition stakeholders, then the membership will be broader, bringing together key local public, private and civil society actors. Once the mission, structure and membership of the partnership is clarified, an agreement (terms of reference) can be signed by partners. In turn, the effective functioning of the partnership will require proportionate capacity. This will be informed by the partnership's mission and work programme. Capacity should also reflect the structure e.g., if there are regular meetings and/or sub-groups for specific themes, these will require appropriate support.

Crucially, it is important for a partnership to have a commonly agreed vision and set of priorities at the local level. Such a document can be an adjunct to the JTDP / Master Plan, providing greater local detail and breadth, including a timeline of actions and activities. This document could adopt the transition pathway plan format as utilised in the Midlands and the Jiu Valley.

Given a limited history and experience of local partnership working, regional (and/or national government) may be best placed to initiate a process of local partnership creation, ideally as soon as possible. Consideration could also be given to this local partnership approach in Western Macedonia.

12.0 Concluding remarks

12.1 Our approach

The START report was developed in the context of the Greek Government’s commendable and ambitious undertaking to stop the use of lignite for power generation by 2028 and the need to consider options for the development and diversification of the economy in Megalopolis and the eligible area. As noted in the Territorial Just Transition Plan Megalopolis (2021): “*It is imperative to strengthen and diversify the local production system by exploiting the intrinsic strengths of the wider region by turning it into a pole of business development*”.

Therefore, the paper is built on the premise that successful local economic development, especially in mono-industrial economies undergoing restructuring, is dependent on the effective utilisation, repurposing and valorisation of local assets (*intrinsic strengths*) by linking them with new industrial and technological opportunities and socio-economic drivers of change.

Moreover, the analysis assumes that the interplay of territorial assets with these drivers of change is enabled by the mobilisation and partnership of a variety of actors (primarily private and public) and the utilisation of mechanisms, such as inward investment, technology transfer, enterprise development, and skills and employment measures. Therefore, the report considered these four mechanisms, in turn, and the means to which mobilise, utilise and co-ordinate related actors (governance and capacity for transition).

Given the Covid-19 situation and the lack of opportunity for field visits, the report was based on desk research and a limited number of interviews of stakeholders who were recommended by the START recipient. Critically, the research identified and considered evidence from other regions and localities which have undergone or are undergoing transition. Specifically, the START team considered *nearly fifty good practice examples*. To enhance their relevance, the cases are assessed, where possible, against the five principles for delivering the “next day vision” of the Master Plan / JTDP. Namely, investments should:

- Utilise assets of affected area
- Create significant employment
- Facilitate a speedy transition (i.e., it’s a quick win)
- Promote social and environmental sustainability
- Integrate modern technology & promotes innovation

The report is not intended to be prescriptive nor offer definitive policy recommendations. Rather, it provides insights on successful examples of transition to inform comprehension, discussion and planning amongst local, regional and national stakeholders.

12.2 Potential Transition Tensions

On reviewing current policy documents, stakeholder opinions and the experience of other regions and localities undergoing transition, several potential transition tensions could be identified. These tensions, noted below, are not a criticism of the Greek transition planning process, which has been progressed in a

professional, structured and committed manner. Rather they are points for consideration as planning evolves and implementation commences.

Short term v long-term employment creation: It is evident that the short-term employment impact of transition in Megalopolis and the eligible area can be mitigated by a programme of voluntary redundancies, and short-term energy transition-related employment opportunities in photovoltaics, land restoration, energy efficiency and gas distribution. In addition, both the JTDP and TJTP, estimate significant job creation linked to new economic activities over the coming decade. Both goals – short-term mitigation of labour market disruption and longer-term re-orientation of the local economy are critical.

However, the former goal (short-term job creation) needs to be clearly scoped, communicated and delivered as soon as possible, to give confidence and credibility to the latter goal (longer-term economic development and job creation); thereby encouraging residents to stay in the area and strengthening investor sentiment. Moreover, more could be done to understand the relationship between the two goals e.g., how will land restoration provide opportunities for tourism, as in the case of Belgium and Germany.

Top down / centralised versus bottom-up / dispersed approaches to development: Many of the projects which have been identified to create new jobs and economic activities are based on analysis and proposals by a narrow set of actors. Transition projects and investments in other transitioning regions (e.g., in Ireland, Romania and Spain) have often been based on a combination of both top-down and bottom-up identification and analysis (with an emphasis on engagement with local communities and civil society). This has led to greater consensus and buy-in from local actors and communities, allowing them to view themselves as agents of change rather than victims of change, thus ensuring the development process has harnessed the agency of local communities. It has also led to the development of a comprehensive pipeline of projects and investments of varying scales.

Narrow economic base versus broad, diversified economic base: The planning of the future economic development of the Megalopolis eligible area has placed notable emphasis on a few large investments e.g., business and freight park, pharmaceutical factory, tourism leisure park, conference centre, smart livestock and animal feed facility. Hopefully, such investments will occur on the scale anticipated. Further consideration should be given to the explicit identification and scoping of multiple smaller projects that accord with region's smart specialisation strategy and other regional and national strategies e.g., in relation to agro-food, culture, ICT, RES, machinery / metal fabrication, and tourism. This would de-risk dependence on a few large step-change projects.

Thinking outside the box versus conventional wisdom: As observed from the cases in this report, diversification, especially in mono-industrial economies undergoing restructuring, is dependent on the effective utilisation, repurposing and valorisation of local assets by linking them with new industrial and technological opportunities and socio-economic drivers of change. Many of the transition examples in this report - e.g., a BMW investment in Czechia, a Siemens investment in the UK, a Center Parcs investment in Belgium, EDP hydrogen investments in Portugal and Spain – were based on radical thinking by government, business and civil society that combined i) foresight regarding changes in international and national markets and technologies and ii) innovative thinking on the potential utilisation of local assets. Evidence based, radical thinking across diverse actors can often facilitate a paradigm shift in local economies.

12.3 Governance and Capacity

Just Transition is based on an inclusive approach to engage, not only consult, a wide set of affected actors at the local level. To counter any deficit, formalised partnership arrangements that bring together key local public, private and civil society actors and optimise capacity should be considered. In the Megalopolis eligible area, as is often the case in other mono-industrial localities, there is a deficit of local actor agency, social capacity, and institutional thickness. In the interests of sustainable and legitimate development and diversification, this deficiency should be addressed. This deficiency could be addressed via creation of a local transition partnership

Crucially, it is important for a such a sub-regional partnership to have a commonly agreed and documented vision and set of priorities. Such a document can be an adjunct to the JTDP / Master Plan, providing greater local detail and breadth, including a timeline of actions and activities. This document could adopt the transition pathway plan format as utilised in the Midlands and the Jiu Valley. Given a limited history and experience of local partnership working, regional (and/or national government) may be best placed to initiate a process of local partnership creation, ideally as soon as possible. Consideration could also be given to this local partnership approach in Western Macedonia.

What actors could be in the local transition partnership?

If a transition partnership is primarily about public sector co-ordination, then the membership can be relatively narrow (but ideally multi-scalar i.e., bringing together local, national, and regional public actors, including local and regional government, central government, higher and further education etc). If the purpose of the partnership is to engage and mobilise transition stakeholders, then the membership will be broader, bringing together public, private and civil society actors.

As demonstrated by the example of Ireland (Midlands Region Transition Team), the input of the power utility company to a transition partnership is very valuable. In the case of the MRTT, the utility company's proposed transition plans and projects (including utilisation of local assets) were shared with partners, thereby facilitating collective planning. Thus, there is a case for PPC to be involved in any future sub-regional partnership arrangements, along with Transition SA, the legal entity governed by private law to oversee land transferred by PPC to the State.

Given the potential role of academic institutions in the diversification regional economies^{122 123} and the role of academic-business cooperation¹²⁴, the current involvement of the local university in the transition process is welcome. Notwithstanding this engagement, the full potential of universities in revitalising regional economic development and diversification can often remain underexploited in the EU¹²⁵. This is also true for Greece, which has the lowest score in the EU when it comes to university-industry

¹²² Allison Bramwell, David A. Wolfe (2008). Universities and regional economic development: The entrepreneurial University of Waterloo, Research Policy, Volume 37, Issue 8, 2008, Pages 1175-1187, ISSN 0048-7333, <https://doi.org/10.1016/j.respol.2008.04.016>.

¹²³ European Union (2011). Connecting Universities to Regional Growth: A Practical Guide. Available at: https://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf

¹²⁴ ub-cooperation.eu (n.d.) Case studies. Available at: <https://ub-cooperation.eu/index/casestudies>. University-Business Cooperation is an initiative of the European Commission.

¹²⁵ Michael Porter (2007). Colleges and universities and regional economic development: a strategic perspective. Forum for the Future of Higher Education, Cambridge, Mass. Available at: <http://forum.mit.edu/wp-content/uploads/2017/05/ff0710s.pdf>

collaboration in research and development¹²⁶. The transformation of Megalopolis and the eligible area offers a unique opportunity to address this issue through further mobilising the University of Peloponnese (UoP) in the transition process and involving it in any local transition partnership. The potential role of the university is explored below.

Table 10. Mechanisms connecting universities to regional growth¹²⁷

		Transformation potential				
		Low (transactional)	Medium (in-between)	High (transformational)		
Complexity	•	Consultancy services	•	Staff spinouts	•	Research and Technology Centres
	•	Student volunteering and community network	•	Workforce development	•	Network and cluster development
	•	Graduate enterprise programmes	•	Staff Mobility	•	International linkages
			•	Widening student participation	•	Talent Attraction and retention
			•	Exploitation of IP	•	Cultural development and 'placemaking'

Despite the proximity of UoP to Megalopolis, further synergies with other academic institutions could be sought. One idea is to develop the relationship with the University of Western Macedonia (UoWM) through a joint degree with teaching and / or placement opportunities in the eligible area and Western Macedonia.

Finally, the Megalopolis eligible area / Peloponnese could also engage with other EU transition regions and localities or regions that are exemplars in economic activities that are in line with its priorities. The European Union offers such opportunities. For example, the affected area can benefit from EU-exchange, a networking programme for coal regions¹²⁸ which facilitates peer-to-peer learning activities between affected regions.

12.4 Mechanisms to valorise local assets

The many cases of successful transition identified in this report reveal that regional and local economies with depleted or latent assets can indeed create new areas of economic activity and new development paths.

Moreover, the examples indicate that there is no one single or primary mechanism to utilise and valorise local assets to enable diversification and transition. The evidence suggests that it is rare for a single mechanism or investment to deliver major outcomes across all the principles of the next day vision i.e., utilisation of assets; job creation; rapid transition; sustainability; and integration of modern technology and innovation.

¹²⁶ Govdata360.worldbank.org (n.d.) University-industry collaboration in Research & Development. Latest reference year: 2017. Available at: https://govdata360.worldbank.org/indicators/haa832e63?country=GRC&indicator=603&viz=line_chart&years=2007,2017&compareBy=region#table-link

¹²⁷ Authors' recreation based on European Union (2011). Connecting Universities to Regional Growth: A Practical Guide., p. 50. Available at: https://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf

¹²⁸ ec.europa.eu (n.d.). EU coal regions exchange programme. Available at: https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/eu-coal-regions-exchange-programme_en

Therefore, a transition strategy that promotes a diversity of mechanisms (inward investment, technology transfer, enterprise, skills development etc) is probably less risky than one that promotes a narrow set of mechanisms and related projects / activities.

Moreover, many of the cases of transition contained in this report indicate that the operationalisation of these mechanisms is dependent on the agency of a diverse set of multi-level - local, regional, national and international – actors in the government, business and civil society spheres. Therefore, transition should be an inclusive and open process (see 12.3).

12.5 Looking forward

This section provides some future facing commentary based on an overall assessment of the START exercise:

- ▶ **A cause for optimism.** The transition away from coal in Megalopolis and the wider area is creating a range of pressing and profound challenges for the future, including job losses in the short-term and longer-term economic diversification and social development issues. While this report does not maintain that the transition will be easy, there is cause for optimism. The study team in reviewing the specific local circumstances and local assets and the experience of other transition regions and localities did identify a wide range of illustrative opportunities, linked with priorities set out on JTDP and TJTP. The team believes that the area, notwithstanding the scale of challenge of the transition, has a unique opportunity to diversify its economic model, renew its demography and re-invent its identity as a smart, green locality that is a frontrunner and exemplar in terms of the decarbonised industries of the future.
- ▶ **An action plan with widespread comprehension and buy-in.** The eligible area could benefit from a succinct transition action plan which describes the journey of change over time: the vision for the future; investment priorities in the short, medium and longer term, including anticipated early wins; and respective responsibilities (see Section 11 references to Transition Pathway Planning). Such a document would act as a common and transparent reference point (augmenting the Master Plan and the JTTP) for local actors and communities, and for local, regional and national political stakeholders. It could also facilitate deeper, broader buy-in to the process of change and mitigate local anxiety and opposition^{129 130}.
- ▶ **Partnership, ensuring the whole is greater than the sum of the parts.** Transition and diversification are, more often than not, effectively progressed when multiple development actors and agents of change participate in transition planning and implementation¹³¹. Working within the framework of the Master Plan and the TJTP (and ideally the action plan noted above), local actors should have regular partnership meetings with appropriate regional and national actors - who have the capacity to deal

¹²⁹ World Bank (2021). Supporting Transition in Coal Regions : A Compendium of the World Bank’s Experience and Guidance for Preparing and Managing Future Transitions. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/35323> License: CC BY 3.0 IGO.

¹³⁰ Ziouzos, D.; Karlopoulos, E.; Fragkos, P.; Vrontisi, Z. Challenges and Opportunities of Coal Phase-Out in Western Macedonia. *Climate* 2021, 9, 115. <https://doi.org/10.3390/cli9070115>

¹³¹ *ibid.*

with the multi-level complexity of transition - to communicate, co-ordinate and direct transition activities and projects.

- ▶ **Raise awareness, tell a positive story.** Developing and promoting a new optimistic narrative for the area, one which highlights reinvention, innovation, enterprise, culture and heritage, and tourism, will be essential for attracting investors, entrepreneurs, workers and tourists¹³². Here, the competent regional and national authorities could play an important role by creating a marketing plan and increasing the visibility of the area through the media and targeted marketing. If there is no capacity, the area could outsource this activity to a marketing agency or work together with competent and engaged actors, e.g., academic institutions and business chambers, networks and associations. Megalopolis along with Western Macedonia should be a showcase for Greece's commitment to decarbonisation and the success of its transition policies and governance.

¹³² Center for Environmental Initiatives Ecoaction, K: ALT Company (2019). Transformation Experiences of Coal Regions: Recommendations for Ukraine and other European countries (full study). Available at: https://germanwatch.org/sites/default/files/Study_Transformation_Experiences_Coal_Regions_EN.pdf

13.0 Bibliography

English

1. Allison Bramwell, David A. Wolfe (2008). Universities and regional economic development: The entrepreneurial University of Waterloo, Research Policy, Volume 37, Issue 8, 2008, Pages 1175-1187, ISSN 0048-7333, <https://doi.org/10.1016/j.respol.2008.04.016>.
 2. Asta Olesen (2020). Stakeholder Engagement Plan for Western Macedonia. Available at: [https://www.sdam.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_\(SEP\)_for_WM_June_2020_Final.pdf](https://www.sdam.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_(SEP)_for_WM_June_2020_Final.pdf)
 3. Broughton, A., Dowling, P. (2020). Future employment and skills in the Irish Midlands, Briefing Paper. p. 13. Available at: https://ec.europa.eu/energy/sites/default/files/documents/future_employment_and_skills_in_the_irish_midlands.pdf
 4. Center for Environmental Initiatives Ecoaction, K: ALT Company (2019). Transformation Experiences of Coal Regions: Recommendations for Ukraine and other European countries (full study). Available at: https://germanwatch.org/sites/default/files/Study_Transformation_Experiences_Coal_Regions_EN.pdf
 5. Center for Environmental Initiatives Ecoaction, K: ALT Company (2019). Transformation Experiences of Coal Regions: Recommendations for Ukraine and other European countries (full study). Available at: https://germanwatch.org/sites/default/files/Study_Transformation_Experiences_Coal_Regions_EN.pdf
 6. COM/2019/640 final. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS The European Green Deal.
 7. Czyżak et al. (2020). Green jobs in coal regions. Case study: Bełchatów. Instrat Policy Paper 04/2020. Publication available under: www.instrat.pl/belchatow-2020 Study commissioned by: Fundacja ClientEarth Prawnicy dla Ziemi
 8. ec.europa.eu (n.d.) Horizon Europe. Available at: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en
 9. ec.europa.eu (n.d.). EU coal regions exchange programme. Available at: https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/eu-coal-regions-exchange-programme_en
 10. ecf.com (2015). Antwerp's cycling policy plan 2015-2019. Available at: <https://www.ecf.com/news-and-events/news/antwerps-cycling-policy-plan-2015-2019-lot-ambition-and-good-plan>
 11. eib.org (n.d.). Elena - European Local Energy Assistance. Available at: <https://www.eib.org/en/press-releases/2017/170514-elena>
- aEuropean Commission. National energy and climate plans. Available at: https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en
12. European Investment Bank (2021). Jaspers: helping to improve people's lives. PDF: QH-03-21-115-EN-N, ISBN 978-92-861-4939-9, DOI:10.2867/756435
 13. European Union (2020). Toolkit. Sustainable employment and welfare support. How to accompany the labour market transition in coal regions in transition. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/sustainable_employment_and_welfare_support_toolkit_-_platform_for_coal_regions_in_transition.pdf
 14. European Union (2011). Connecting Universities to Regional Growth: A Practical Guide. Available at: https://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf
 15. Eurostat. Demographic balances and indicators by type of projection (online data code : PROJ_19NDBI)
 16. Eurostat. Demographic balances and indicators by type of projection and NUTS 3 region (online data code : PROJ_19RDBI3)
 17. Eurostat. People at risk of poverty or social exclusion by NUTS regions - new definition. (online data code: ILC_PEPS11N)
 18. Eurostat. Population on 1st January by age, sex, type of projection and NUTS 3 region (online data code : PROJ_19RP3)
 19. Eurostat. Unemployment rates by sex, age, educational attainment level and NUTS 2 regions (%) (online data code: LFST_R_LFU3RT)
 20. Govdata360.worldbank.org (n.d.) University-industry collaboration in Research & Development. Latest reference year: 2017. Available at: https://govdata360.worldbank.org/indicators/haa832e63?country=GRC&indicator=603&viz=line_chart&years=2007,2017&compareBy=

[region#table-link](#)

21. Interregeurope.eu (2018). An interesting Study Visit in Antwerp and Rotterdam. Available at: <https://www.interregeurope.eu/resolve/news/news-article/4951/an-interesting-study-visit-in-antwerp-and-rotterdam/>
22. Jaspers.eib.org (n.d.). PPP waste-to-energy projects in different Greek regions. Available at: <https://jaspers.eib.org/follow-the-action/project/?id=11768>
23. Jaspers.eib.org. (n.d.). Novo Mesto - a smart regional hub. Available at: <https://jaspers.eib.org/stories/novo-mesto-%E2%80%93-a-smart-regional-hub>
24. Jaspersnetwork (n.d.). Municipality of Novo Mesto. Available at: <http://www.jaspersnetwork.org/download/attachments/23364212/4.Novo%20Mesto.pdf?version=1&modificationDate=149546607500&api=v2>
25. JRC (2018). EU coal regions: opportunities and challenges ahead. JRC Science for Policy Report <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/eu-coal-regions-opportunities-and-challenges-ahead>
26. Mavrogonatou Alexandra (2021). Greek Regions in Energy Transition – Progress Update in Planning, Implementation and Combining Recourses. Technical Secretariat of the Greek JTDP Steering Committee. PowerPoint Slides. Internal document.
27. Michael Porter (2007). Colleges and universities and regional economic development: a strategic perspective. Forum for the Future of Higher Education, Cambridge, Mass. Available at: <http://forum.mit.edu/wp-content/uploads/2017/05/ff0710s.pdf>
28. National Institute of Labour and Human Resources (NILHR).
29. NESC (2020). Four Case Studies on Just Transition: Lessons for Ireland. Report No. 15, May 2020. Available at : <https://www.nesc.ie/publications/four-case-studies-on-just-transition-lessons-for-ireland>
30. ruralsharedmobility.eu (n.d.) Demonstrators. Brasov. Available at: <https://ruralsharedmobility.eu/demonstrators/brasov/>
31. ruralsharedmobility.eu (n.d.). Sustainable rural mobility interconnected with public transport. Available at: <https://ruralsharedmobility.eu/>
32. Secretariat Technical Assistance for Regions in Transition (2021). Sokolov East : Local development and Employment Creation. Karlovy Vary, CZ.
33. Shaikovski, M., Broughton, A. (2020). Employment creation opportunities and future skills requirements in the Karlovy Vary region. Part 1: Short Term Opportunities. Available at: https://ec.europa.eu/energy/sites/default/files/documents/employment_and_skills_in_karlovy_vary_-_part_i.pdf
34. Spyridopoulos, K. (2020). The new trajectory of social policy in Greece: An ambulance service or a sustainable pathway to social policy improvement at the local level?. Social Cohesion and Development, 15(1), 31-47. doi: <https://doi.org/10.12681/scad.25020>
35. Stanley,Michael C.; Strongman,John E.; Perks,Rachel Bernice; Nguyen,Helen Ba Thanh; Cunningham,Wendy; Schmillen,Achim Daniel; Mccormick,Michael Stephen (2018). Managing Coal Mine Closure: Achieving a Just Transition for All (English). Washington, D.C.: World Bank Group. Available at: <http://documents.worldbank.org/curated/en/484541544643269894/Managing-Coal-Mine-Closure-Achieving-a-Just-Transition-for-All>
36. Tracer-h2020.eu (n.d.). Transition in coal intensive regions. Best Practice Platform. Available at: <https://tracer-h2020.eu/best-practice-platform/>
37. ub-cooperation.eu (n.d.) Case studies. Available at: <https://ub-cooperation.eu/index/casestudies> . University-Business Cooperation is an initiative of the European Commission.
38. World Bank Group (2021). A Road Map for a Managed Transition of Coal-Dependent Regions in Western Macedonia (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/103611593562422573/A-Road-Map-for-a-Managed-Transition-of-Coal-Dependent-Regions-in-Western-Macedonia>,
39. World Bank Group (2021). Supporting Transition in Coal Regions : A Compendium of the World Bank’s Experience and Guidance for Preparing and Managing Future Transitions. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/35323> License: CC BY 3.0 IGO.
40. Worldbank.org (2021). Tell Me How: ‘Just’ Transitions in the Coal Sector. Podcast. Available at: <https://www.worldbank.org/en/news/podcast/2021/03/09/tell-me-how-to-do-just-transitions-in-the-coal-sector>

41. WWF (2016). Roadmap for the transition of the Western Macedonia Region to a post-lignite era. Available at: https://regionsbeyondcoal.eu/wp-content/uploads/2019/02/Roadmap_PostLignite_EN_FINAL-1.pdf
42. Ziouzos, D.; Karlopoulos, E.; Fragkos, P.; Vrontisi, Z. Challenges and Opportunities of Coal Phase-Out in Western Macedonia. Climate 2021, 9, 115. <https://doi.org/10.3390/cli9070115>

Greek

1. e-trikala.gr. Ανασκόπηση του Έργου SMARTA 2. Available at: <https://www.e-trikala.gr/news/validation-workshop-smarta-2/>
2. IENE (2020). Υφιστάμενη Κατάσταση και Προοπτικές για τις περιοχές σε ενεργειακή μετάβαση στην Ελλάδα. Σελ. 17. Available at: <https://www.iene.gr/articlefiles/final%20report.pdf>
3. IOBE (2020). Απολιγνιτοποίηση της ηλεκτροπαραγωγής: Κοινωνικοοικονομικές επιπτώσεις και αντισταθμιστικές δράσεις. Available at: <https://sdam.gr/>.
4. Megalopoli.gov.gr (2021). Available at: <https://megalopoli.gov.gr/10982-2/>
5. Milia.gr (n.d.). Activities. Available at: <https://www.staging7.milia.gr/activities/>
6. OAED (n.d.) Δράσεις προώθησης της απασχόλησης και στήριξης της αγοράς εργασίας στο πλαίσιο της Δίκαιης Αναπτυξιακής Μετάβασης. PowerPoint Slides shared by OAED.
7. OAED.GR (n.d.). Ανεργία και Παροχές Ασφάλισης Μισθωτών. Available at: <https://www.oeaed.gr/anergia-kai-paroxes-asfalishs-misthwotwn?tab=taktiki-epidotisi-anagerhias&tab2=koini-anagerhoi&tab3=yposos-epidotisis>
8. Pathsofgreece.gr (n.d.) Available at: <https://www.pathsofgreece.gr/>
9. Smartfarminginitiative.gr. Available at: [Smartfarminginitiative.gr](https://www.smartfarminginitiative.gr/)
10. Topoguide.gr (n.d.) Hiking on Lykaiο. Available at: https://www.topoguide.gr/mountains/peloponnese/hiking_on_lykeo.php
11. Γαβριέλα Γεωργακάκη, Έλενα Κασσελούρη (2018). Μεταλλαγές του παραγωγικού τοπίου Μεγαλόπολης: Από την ανάλυση στο σχεδιασμό στο Ιωάννα Τσίγκανου, Ρόη Κιντή (2018), Ενέργεια και τοπικές κοινωνίες, ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΚΟΙΝΩΝΙΚΩΝ ΕΡΕΥΝΩΝ, ISBN: 978-960-6834-25-7
12. Καρτσώνης Βασίλειος (2019). απελευθέρωση της αγοράς ηλεκτρικής ενέργειας και το καθεστώς εκμετάλλευσης λιγνίτη στην Ελλάδα. Η περίπτωση της λιγνιτικής μονάδας Μεγαλόπολης – Μελέτη των κοινωνικοοικονομικών επιπτώσεων με χρήση ερωτηματολογίου. Διπλωματική Εργασία. Ελληνικό Ανοικτό Πανεπιστήμιο.
13. ΣΔΑΜ (2021). Εδαφικό Σχέδιο Δίκαιης Μετάβασης Μεγαλόπολης. 2^η Διαβούλευση.
14. ΣΔΑΜ (2021). Ερωτηματολόγιο διαβούλευσης εδαφικού σχεδίου δίκαιης αναπτυξιακής μετάβασης Δήμου Μεγαλόπολης. Φεβρουάριος 2021.
15. ΣΔΑΜ (2020). Επικαιροποιημένο Master Plan Δίκαιης Αναπτυξιακής Μετάβασης των λιγνιτικών περιοχών. Available at: <https://sdam.gr/node/252>
16. ΣΔΑΜ (2020). Σχέδιο δίκαιης αναπτυξιακής μετάβασης των λιγνιτικών περιοχών. Υποστηρικτικό υλικό δημόσιας διαβούλευσης. Διεθνείς Βέλτιστες Πρακτικές. 17 Σεπτεμβρίου 2020 and IOBE (2020)
17. ΣΔΑΜ (n.d.). Ειδικό μεταβατικό πρόγραμμα Δ.Α.Μ. 2020 - 2023. Available at: <https://sdam.gr/node/253>
18. Συνέντευξη Δημάρχου Μεγαλόπολης στο δελτίο ειδήσεων του BEST TV. Available at: <https://www.youtube.com/watch?v=o7p-RNYHsiU>
19. Τσίγκανου, Ι. (2018). Στα πρόθυρα της μετάβασης της μεταλιγνιτικής εποχής. Η περίπτωση της Μεγαλόπολης. Περιλαμβάνεται σε Τσίγκανου Ι. και Κιντή Ρ. (επιμέλεια), Ενέργεια και Τοπικές Κοινωνίες. Εθνικό Κέντρο Κοινωνικών Ερευνών - Έρευνες 18. Αθήνα, 2018. Σελίδες 490-531.

