European Committee of the Regions

Territorial Impact Assessment

Impact of RePowerEU on Europe's regions

Staff working document

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This territorial impact assessment report is the outcome of an expert workshop held by the European Committee of the Regions on 9 June 2022.

The ESPON TIA Tool is designed to support the quantitative assessment of potential territorial impacts in line with the Better Regulation guidelines. It is an interactive web application that can be used to support policy makers and practitioners with identifying ex-ante, potential territorial impacts of new EU Legislations, Policies and Directives (LPDs).

This report documents results of the territorial impact assessment expert workshop about the impact of RePowerEU on Europe's regions. It serves for information purposes only. This report and the maps represent views and experiences of the participants of the workshop. It is meant to be used for decision support only and does not necessarily reflect the opinion of the European Committee of the Regions.

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Acronyms and legend

CoR	European Committee of the Regions
EP	European Parliament
ESPON	European Observation Network for Territorial Development and Cohesion
LRA	Local and Regional Authority
MS	Member State(s)
NUTS	Nomenclature of territorial units for statistical purposes
OIR	Austrian Institute for Spatial Planning (ÖIR)
TIA	Territorial Impact Assessment

Effects of the directives – colour code

- Positive effects
- Minor positive effects
- Neutral
- Minor negative effects
- Negative effects

Legend – direction of effects

- Increase
- Decrease

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1 Introduction to the topic

1.1 Context

Following the full-scale attack of the Russian Federation against Ukraine in February 2022, a number of sanctions against Russia have been put in place by the EU and other countries around the world. The crisis has led to considerable disruptions of trade relations with Russia, with strong effects on the energy sector (among others). The dependency of many EU Member States on gas imports from Russia has proven particularly problematic in that regard and poses a threat to EU energy security. As a reaction to this problem, the European Commission published the "REPowerEU Plan" in the form of a communication from the Commission.

The proposed actions in the plan include immediate reactions to rising energy prices and preparedness for the next winter, but also medium- to long-term actions aiming at eliminating the dependence on Russian gas before 2030. The actions also include both diversification of supply as well as general reduction in gas and fossil fuel usage. Dependence on such sources of energy is uneven across the EU, and implementation of the measures is likely to lead to territorially differentiated impacts across Member States. This study aims to analyse those territorial impacts. The overall objectives are:

- To develop scenarios of the evolving crisis and its implications for the EU and its regions
- To analyse potential territorial impacts of implementing the REPowerEU plan, in particular if they affect the competence of local and regional authorities
- To formulate policy recommendations to address such impacts

1.2 Political mandate

This workshop falls a.o. within one of the current priorities of the CoR: "Managing fundamental societal transformations: Building resilient regional and local communities". It was organised to support the opinions of the Committee of the Regions on *the Fit for 55 package,* a.o. the EPBD (Energy Performance of Building) and the "Gas package".

1.3 Past work of the CoR on this topic

Concerning RePowerEU the CoR has adopted a resolution in its 149th plenary session. Complementing this resolution, a series of opinions have been published and actions have been undertaken by the CoR in relation to the "Fit for 55 energy package" and the implementation of the European Green Deal at the local and regional level:

- Amending the Energy Efficiency Directive to meet the new 2030 climate targets, Rafał Kazimierz Trzaskowski (PL/EPP)
- Amending the Renewable Energy Directive to meet the new 2030 climate targets, Andries Gryffroy (BE/EA),
- Making ETS and CBAM work for EU cities and regions, Peter Kurz (DE/PES)
- Towards a socially fair implementation of the Green Deal, Csaba Borboly (RO/EPP)

2 Possible scenarios for the current crisis

RePowerEU is an ambitious policy which is also highly context depended. Overarching global and political developments may influence how this policy affects local and regional development in the EU.

While the territorial impact assessment is assessing potential policy impacts linked to the current state of play, the following sections provide some broader reflections on the highly volatile context of this policy. The following three alternative scenario sketches reflect on what may happen if the EU decides to become more, or less closed respectively open in the context of growing de-globalisation and protectionism and if pragmatic decision making or the idea of using the current crisis as a change to accelerate the green transition prevail. Different nuances of this come together in three scenario sketches:

- Green transition: in fast forward – driven by the energy crises and climate change, measures to accelerate a green transition are taken. The focus is on green and decentralised solutions, as they increase military, energy, economic and social resilience and security.
- Increasing autarky: dealing with slowbalisation – driven by shortages in the fields of energy and food supplies and the interruption of various international supply chains, the EU opts for a strong policy to reduce its dependency on third countries.
- Crisis management by markets: the political survival – driven by budgetary constraints to public spending and the idea that decentralised and market driven solutions are most effective, the EU lets the free markets address the issues of energy shortage and increasing price levels.

The societal, technological, economic, environmental and political consequences of these possible vary, as is shown in the following sections.

2.1 Green transition: in fast forward

Driven by the energy crises (due to the war in Ukraine) and climate change, measures to accelerate a green transition are taken within the EU. This concerns the exploitation of energy saving potentials both in industry, households and transport also through behavioural change. It also concerns considerable acceleration efforts to increase the production of renewable energy and phasing out non-renewable energy sources. This fast forward transition does not come without challenges. Governments need to provide substantial support to households to increase people's motivation towards greener solutions to avoid inequalities and avoid social unrest, as happened some years ago with the Yellow Vests (gilets jaunes) protests, when people oppose to rising fuel prices and high living costs. The energy supply and the production sector also come to various hiccups.

In this scenario, the war in Ukraine increased societal awareness about the grand societal challenges of our time and help to shifting mindsets. This helped to accept the necessity to approach the transitions necessary to deal with climate change and follow up on the UN sustainable development goals (SDGs). In short, the impacts of the war – in particular in the field of energy – served as accelerator for a green transition, as more sustainable solutions turned out to be also more secure and resilient in the light of external shocks.

It all starts with unprecedented increases of energy prices which even outdo the experience of the energy shock in the 1970s.

Societal consequences. The energy prices and their knock-on effects on increasing prices throughout the economy lead people to realise the necessity to cut down consumption of energy in the first hand, but also other goods. Over the past months, inflation has driven populations across Europe to experience various degree of sufficiency behaviours, cutting down energy demand where not strictly necessary and curbing material consumption were superficial. This is doable for people with good incomes and lifestyles and jobs fitting the green values. However, for people with lower levels of income and lifestyles and jobs strongly rooted in the "traditional" way of thinking, this is challenging and implies clear reduction in well-being and quality of life. Often it even increases the risk of unemployment when their employers need to reorganised or closed down in the wake of the green transition. In short, social fragmentation increases throughout Europe and risks of unrest or revolt are never far off, even as government spending on social issues is beefed up.

Technological consequences. The increasing prices levels and fast forward to a green transition may lead to a series of major innovations, mainly in the fields of energy saving and production technologies, but also more widely in the areas of green and blue technology. Europe faces an innovation boom involving research organisations and large corporates, but also many start-ups and SMEs. This is supported by subsidies for a green transition and more decentralised carbon neutral energy solutions.

Economic consequences. The rising prices levels, and the energy and green transitions imply that companies with green, agile and future-wise approaches will flourish. Indeed simple green-washing is no longer sufficient. At the same time, enterprises which cannot follow the need to reduced energy consumption and become more sustainable are struck by increasing production costs and difficulties to stay competitive. It all boils down to enterprises not able to "turn green for real" risking to be phased out in medium-term.

Environmental consequences. All the transitions bring a range of positive impacts for the environment. Climate change is actually addressed, and the UN sustainable development goals are reached or even exceeded. While pollution levels are declining, the loss of biodiversity and land use are still issues to be addressed. Government incentives towards more sustainable food production and consumption, lead to more extensive agriculture which is less polluting but more demanding in terms of land use. In addition, also the accelerated producing of renewable energy increases demands for land use – or in case of off-shore of maritime use.

Political consequences. To support the transitions and cushion social unrest – as far as possible – new investment national and European investment programmes are set up. Current programmes for just and green transition like Next Generation EU are widely surpassed by the new programmes. This leads to growing public debts both at national and EU level. Consequently, tax levels increase and other public spendings are squeezed. This may increase social disparities and unrest, fuelling a further rise of populism throughout Europe. Not all people and politicians agree on that more green and decentralised solutions increase Europe's military, energy, economic and social resilience and security. Decentralised structures which allow for some independency e.g. in terms of energy production are more resilient even in a case of war or military attacks.

2.2 Increasing autarky: dealing with slowbalisation

Driven by shortages in the fields of energy and food supplies and the interruption of various supply chains, Europe opts for a strong policy to become less dependent on third countries. This involves also the repatriation of various supply chains (a process which started in some sectors already during the COVID-19 pandemic), the focus on own energy resources even if they are less green, and also stronger

border controls for immigrations and refugees from third countries. This may come at a cost for a faster green and just transition, if sufficiency frameworks to reduce energy demand and increase savings are not adequately addressed.

Therefore, the war in Ukraine has shed light in the way globalisation has been functioning, exposing its risks and downsides and introducing a new way of thinking towards trade, international relations, economy and society. This accelerates protectionism and introversion of countries in terms of production, increasing at the same time their global autonomy, as countries may eventually become stronger economic powers. Selective partnerships with likeminded countries, where possible, may be envisaged to alleviate challenges of isolation. This scenario shows the different social, technological, economic, environmental and political consequences, if an increasing autarky and slowbalisation are in place by 2030.

Societal consequences. The disruption of global value chains, which started already during the COVID-19 pandemic and worsened during the war in Ukraine have shown how vulnerable markets are and how easily external shocks may challenge their existence. The soaring commodity and energy prices have already resulted in a decline of the product availability. This indicates that by 2030, people's needs and material standards will have to be adjusted and new lifestyles be introduced that are less dependent on materialism and ownership. Furthermore, the increase in autarky has implications in the openness of countries when it comes to in-migration and the influx of refugees. Stronger border controls and related policies hamper in-migration. Eventually by 2030, this may end up in even more increasing ageing population in Europe, which combined to the increasing depopulation may put at risk the labour and welfare system. Nevertheless, unemployment may be reduced as the available positions, may be covered by the available workforce, especially in low paid jobs. Main losers of this shift to autarky may be those working for global corporations, which may lose their jobs as the links to the global markets will be limited.

Technological consequences. In a world of autarky there will be limited room for innovation. Research and innovation will be rather focused on making use of existing technologies, impeding new steps towards greener solutions. This may have implications on the energy production, as no new ways for it will be developed and hence a revival of nuclear and fossil fuel energy may be expected.

Economic consequences. Increasing autarky and de-globalisation will bring tectonic shifts in the way the economy works. An overall slowdown of the economic progress is to be observed by 2030, as less global trade and competition will consequently mean, less exports, probably lower quality of products and in higher prices. Although companies may overall survive and go on, a repatriation of the economy and the employment is to be observed. With the reduction of in-migration and the with the global value chains being increasingly cut, a shift to national employment may be observed. This will lead to more jobs within the EU, which previously were invested elsewhere in the world. On the other hand, jobs that served global value chains, be that white- or blue-collar jobs, may be lost.

Environmental consequences. Slowbalisation and the renationalisation of economy will put a stronger focus on local production, especially, the production of local seasonal products, to deal with the food shortages and adapt to the food crisis consequences. This increased agricultural production in Europe also comes with environmental challenges, which are mainly linked to possible additional pressure put on biodiversity protection, increasing pollution of soil and sea and therefore exacerbating climate change on the long run. A growing demand to close the food-chain domestically, could be coming in conflict with the escalating deployment of renewables to increase energy independence, fomenting competition for land use in rural areas. On the positive side, some of the global transport emissions may

be reduced, as global trade will decrease. Nevertheless, this scenario shows a rather slower green transition in Europe and even in "greenwashing" the notion of "green" in this term. The definition of what is considered "green" may be put back on the table, while investing in nuclear power, prolonging or re-opening of coal production may worsen the situation.

Political consequences. Autarky will not only bring immense changes in the economic, social and environmental spheres, but can even pose substantial shifts to the EU political systems. In the name of protection and economic stability, global economic and trade links have been cut, increasing protectionism in the EU. With this being a result of an external shock, in this case the war in Ukraine, citizens seem to accept their fate and support closed global markets. Over time, this may result in the acceleration of this trend and in creating a "politically dumb" electorate, of uninterested and unengaged population in elections and decision making, a trend that is already observed in different elections today. In turn, this may lead to governments of technocrats, or even to more autocratic governments in the long-run.

2.3 Crisis management by markets: the political survival

Driven by insights that decentralised and market driven solutions are the best way forward to master the energy crises, energy prices in Europe increase to match supply and demand. Businesses need to reassess their profitability and households their lifestyles in light of longer periods of high energy prices. The adjustment comes with cut offs in some sectors and increasing poverty. Governments try to compensate through various support measures which in turn lead to higher tax levels. Europe remains open to global business and people, and faces a considerable migration wave due to increasing poverty in many African countries. Outmigration from Europe to other countries may also be a consequence.

In this scenario, the impacts of the war in Ukraine on energy provision and global value chains lead to an increasingly pragmatic search for solutions, which do not require too much state intervention as public resources are limited. This implies that in a short-term the overall situation deteriorates and becomes rather challenging. However, once the "valley of tears" has been passed, the future looks are bright, as a number of painful adjustments are made and finally will pay off.

Social consequences. Within Europe, the market-based adjustments to energy shortages and the consequences of value chain disruptions lead to social conflicts. Increasing disparities fed by higher energy prices, higher costs of living etc. produce winners and losers facing increasing poverty. This puts pressure on the social welfare system and risks to become a growing ground for social fragmentation and revolt. In a global perspective, the situation in Europe is still rather comfortable. This is the reason for refugee and migration waves from countries in Africa and the middle East, where people experience famine and economic collapse. At the same time, highly skilled European's start to out migrate to countries where they have better prospects.

Technological consequences. The increasing energy and general cost levels spur a range of innovations, as many enterprises need to find new solutions to stay competitive. This brings a wave of diversifications for many small and big companies, as many competing and decentralised solutions for new green technologies come to place. This decentralisation and regionalisation of innovation makes in the long-run Europe more resilient.

Economic consequences. A wave of green technology innovations and emerging new companies in the field make Europe more resilient and increase the demand for highly skilled labour force, which not always can be met. At the same time, Europe also sees a rather harsh market adjustments. Companies

which cannot cope with the increasing energy and general price levels go out of business and Europe faces a wave of bankruptcies of more traditional companies. This implies also increasing unemployment levels. All these processes also imply changing attitudes to globalisation, where no longer just the financial most profitable aspect prevails but also other considerations play in, e.g. concerning the resilience of value chains. Diversification of processes and value chains becomes a leading idea – related to energy production but also all other types of productions.

Environmental consequences. The market driven need to adjust to increasing energy and general price levels generates a series of environmental benefits. New innovations lead to reduced energy demands, more renewable energy production and also generally more resource efficiency. Indeed, the crisis brings a considerable shift towards the circular economy. However, at the same time everything that is not directly linked to energy and resource efficiency becomes secondary. Consequently, broader environmental protection is increasingly side-lined. This aspect is further accelerated by a shift away from organic to traditional food production, as prices levels for organic agriculture and food production are too high for many consumers. This shift comes with increasing levels of pollution through agriculture. At the same time, increasing price levels also lead to reductions in meat consumption with positive impacts on the environment.

Political consequences. The strongly market driven response to the energy and economic challenges, leads also geopolitically to increasing pragmatism. Firstly, this implies a diversification of diplomatic relations. This includes cooperation with and new dependencies on countries for e.g. energy which are not necessarily democratic, i.e. an indirect support of undemocratic regimes. Within Europe, risks of conflicts are growing. This concerns conflicts between social groups, but also conflicts concerning the use of limited resources. One example for this are growing land use conflicts, e.g. between renewable energy production and agriculture.

2.4 Conclusions from a foresight perspective

The current energy crisis can point us different directions – the above scenarios are just some of a wide range of possible directions. Each direction will have its own specific implications for Europe's future societal, technological, economic, environmental and political development. The above texts provide some teasers on this. These different developments in turn will result in different territorial impacts for local and regional development.

The short scenario sketches show that it matters to Europe's development what choices we take in the context of the current energy crisis and by what underlying ideas or visions they are driven. Taken together they also underline the risk that the crisis drives the EU, its places and people further apart, as decisions are taken on a "day to day basis" and lack a shared underlying overall vision about Europe's future. For this, a shared vision about the future might help to ensure that the ad hoc decision taken to respond to the crisis incrementally fits to a larger picture. In other words, a shared vision for the future which implicitly guides decision making helps to ensure that the flexibility and fast responses needed in a time of crises do not lead to random decision making. Good governance and government can react promptly to new situations given a clear vision which is shared by large parts of our society and provides indications on the desired general direction of travel. This concerns Europe overall, but individual cities and regions also need to have visions for their territories and how they see themselves in a wider European context. Nevertheless, having a shared vision may be one thing forward. Visions are important, only if they are followed. The most important thing is to be committed to the vision and true to its values, even in times of crisis. Often overall strategies and goals are carried away, in the name of

crises and emergencies. An example is the current developments in relation to the Green Deal, the overarching guiding policy for the EU until 2050, which is currently at risk, with the restarting of coal plants as a response to energy shortages. Staying true to the vision, does not only provide a direction and reasoning of the choices made, but also shows the firm joint decision of policy makers and citizens on the future they wish to build.

On the other hand, the key characteristic of crises is that their consequences are usually unexpected. Therefore, it is important for the EU to stay flexible, robust, and adaptable to changes and be able to adjust to different shocks in its benefit and the prospect of its people. Only then, a crisis can be turned into an opportunity, instead of a catastrophe.

3 Methodologies applied

3.1 Foresight methodologies

Territorial foresight provides a framework to support people concerned with a common issue to jointly think about possible futures and its territorial consequences in a structured and constructive way. It can be conducted at any geographical level, from the very local to the European or global level and can be applied to any future trends, policy objectives, visions, utopias or dystopias.

In this study, the focus is on EU-wide scenarios. Scenarios are a plausible description of how the future might develop, based on a coherent and internally consistent set of assumptions about the key relationships and driving forces. In that sense, scenarios are tools to raise awareness about the possible future developments and their implications, helping relevant key players to understand them and recognise how their decisions relate to them. Scenarios support thinking out of the box and can bring an added value when it comes to dialogue on policies affecting the territorial development or different policy options

There are different approaches to developing scenarios. For this study we have opted differentiate the scenarios along a "scenario cross" with the following two axes:

- Closed EU to Open EU
- Realistic to Idealistic

The impacts of the scenarios are discussed following the STEEP approach, i.e. looking at societal, technological, economic, environmental and political consequences of the scenarios. The scenario work has been conducted as desktop study, rather than the usual co-creative scenario elaboration process drawing on lateral thinking of a wider range of relevant players. The desktop study involved research on existing sources and material for a collection of relevant trends. These trends were also linked to the STEEP approach, so as to cover the topic as broadly as possible. As a next step, the trends were used and grouped to develop some first assumptions into a scenario cross, a visualisation of contrasting extreme trends for the future to give different directions and provide different narratives. Taking this information into account, the narratives were then transformed into three plausible and possible scenarios. Unlike this case, very often, this process takes place as a co-creative scenario elaboration, as mentioned above, where relevant players contribute to the collection and selection of the relevant trends, as well as to giving a direction of the different narratives and thinking of possible consequences through a participatory approach.

3.2 ESPON Quick Check

The concept of territorial impact assessment (TIA) aims to show the regional differentiation of the impact of EU policies. The ESPON TIA Tool[1] is an interactive web application that can be used to support policymakers and practitioners in identifying potential ex-ante territorial impacts of new EU Legislation, Policies and Directives (LPDs). The "ESPON TIA Quick Check" approach combines a workshop setting for identifying systemic relations between a policy and its territorial consequences with a set of indicators describing the sensitivity of European regions.

[1] https://www.espon.eu/main/Menu_ToolsandMaps/TIA/

This approach helps to steer an expert discussion about the potential territorial effects of an EU policy proposal by checking all relevant indicators in a workshop setting. The results of the guided expert discussion are judgements about the potential territorial impact of an EU policy, in different thematic fields (the economy, society, the environment, governance) for a range of indicators. These results are fed into the ESPON TIA Quick Check web tool.

The web tool translates the combination of the expert judgements on exposure with the different sensitivity of regions into maps showing the potential territorial impact of EU policy at the NUTS3 level. These maps serve as a starting point for further discussion of different impacts of a specific EU policy on different regions. Consequently, the experts participating in the workshop provide important input to this quick check on the potential territorial effects of an EU policy proposal.

The workshop on the impact of RePowerEU plan(hereafter: RePowerEU) was held on 9 June 2022 and brought together a number of experts representing different organisations and LRAs.

Two moderators from the OIR prepared and guided the workshop and handled the ESPON TIA tool.

Figure 1: Workshop discussion

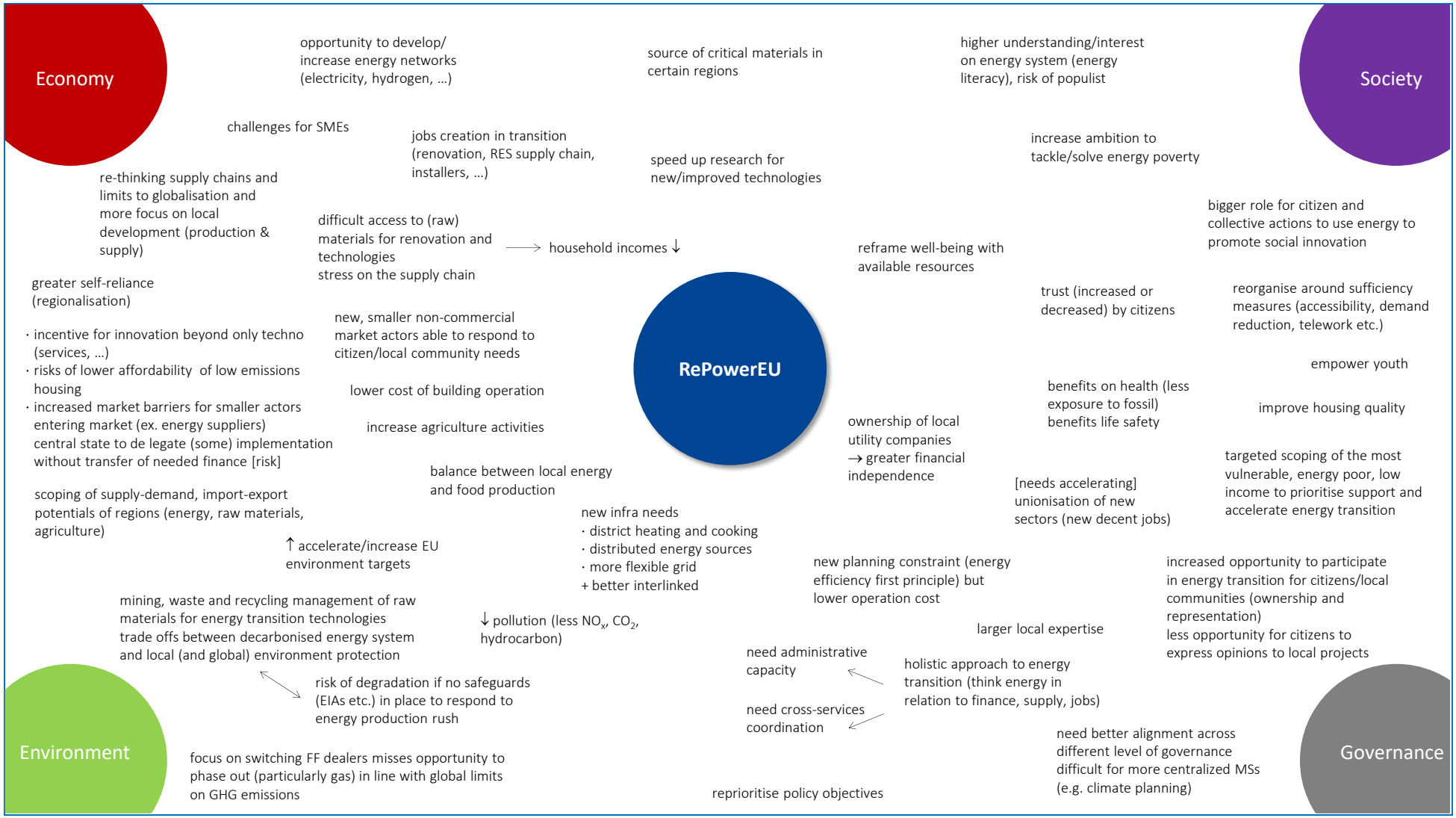
Source: Territorial impact assessment expert workshop, 9 June 2022, OIR

3.3 Identifying the potential territorial effects in terms of economic, societal, environmental and governance-related aspects – drafting a conceptual model

In the first step of the TIA workshop, the participating experts discussed the potential effects of RePowerEU, using a territorial or place-based approach.

This discussion revealed potential territorial impacts of RePowerEU, using economic, societal, environmental and governance-related indicators. The participants identified potential linkages between implementation of the strategy and the effect on territories, including interdependencies and feedback loops between different effects (see figure below).

Figure 2: Workshop findings: Systemic picture



Source: Territorial impact assessment expert workshop, 9 June 2022, OIR

3.4 Picturing the potential territorial effects through indicators

In order to assess the potential effects pictured in the conceptual model, suitable indicators need to be selected for the parameters that the experts discussed in the fields of the economy, the environment, society and governance. The availability of data for all NUTS 3 regions poses certain limitations on the indicators that can be used. From the available indicators that the ESPON TIA Quick Check web tool offers, the experts chose the following indicators to describe the identified effects.

Picturing potential territorial impacts in terms of societal indicators

- Disposable income
- People affected by lack of adequate heating
- Composite indicator: fossil energy consumption and lack of adequate heating

Picturing potential territorial impacts in terms of environmental indicators

- Renewable energy use in the residential building sector
- Emissions of CO_2 per capita (tonnes)
- Emissions of NO_x per capita (kilotonnes)
- Urban population exposed to PM10 concentrations
- Land use: Share of heavy environmental impact

Picturing potential territorial impacts on the basis of economic indicators

- Employment in technology and knowledge-intensive sectors

Furthermore, the experts agreed that the following indicators, which are not included in the ESPON TIA Quick Check web tool, are also relevant to describe the identified effects:

- Renewable energy use in residential buildings (gas, electricity, biomass) by type of source
- respiratory diseases per capita
- Share of agricultural land use for food/energy production (energy crops)
- trust in energy transition
- willingness to pay for energy transition
- Providers for material use in circular economy
- localisation of supply chains
- Administrative staff per capita for a city/region

3.5 Judging the intensity of the potential effects

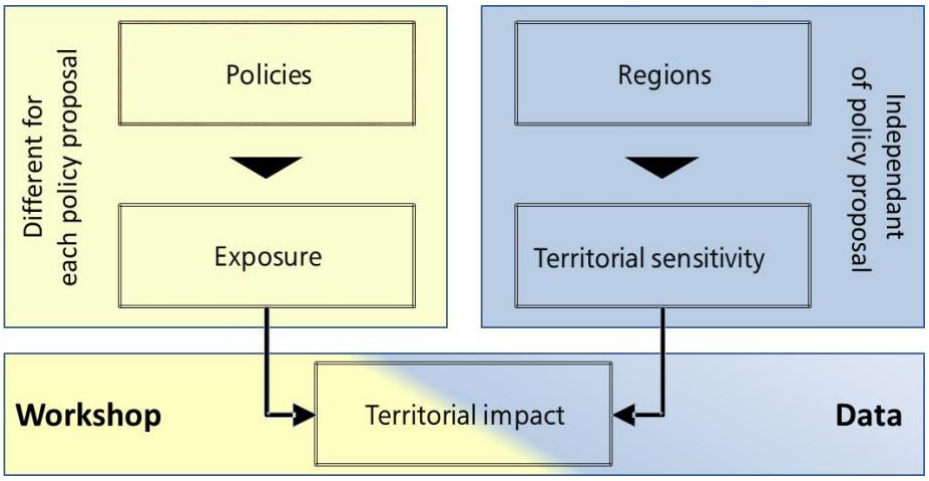
The workshop participants were asked to estimate the potential effects of RePowerEU. They judged the potential effect on the territorial welfare along the following scores:

- ++ strong advantageous effect on territorial welfare (strong increase)
- + weak advantageous effect on territorial welfare (increase)
- o no effect/unknown effect/effect cannot be specified
- - weak disadvantageous effect on territorial welfare (decrease)
- -- strong disadvantageous effect on territorial welfare (strong decrease)

3.6 Calculating the potential "regional impact" – Combining the expert judgement with regional sensitivity

The ESPON TIA Quick Check combines the expert judgement on the potential impact of RePowerEU **(exposure)** with indicators describing the sensitivity of regions, resulting in maps showing a territorially differentiated impact. This approach is based on the **vulnerability concept** developed by the Intergovernmental Panel on Climate Change (IPCC). In this case, the effects deriving from a particular policy measure (exposure) are combined with the characteristics of a region **(territorial sensitivity)** to produce potential territorial impacts (see illustration below).

Figure 3: Exposure x territorial sensitivity = territorial impact



Source: OIR, 2015.

- "Territorial Sensitivity" describes the baseline situation of the region according to its ability to cope with external effects. It is a characteristic of a region that can be described by different indicators regardless of the topic analysed.
- "Exposure" describes the intensity of the potential effect of RePowerEU on a specific indicator. Exposure illustrates the experts' judgement, i.e. the main findings of the expert discussion at the TIA workshop.

3.7 Mapping the potential territorial impact

The result of the territorial impact assessment is presented in maps. The maps displayed below show potential territorial impacts based on a combination of the expert judgement on exposure with the territorial sensitivity of a region, described by an indicator on NUTS3 level. Whereas the expert judgement is a qualitative judgement (i.e. a strong advantageous effect on territorial welfare/moderate advantageous effect/no effect/moderate disadvantageous effect/strong disadvantageous effect), the sensitivity is a quantitative indicator.

4 Debate and qualitative analysis

4.1 Introductory remarks

The workshop started with a statement from Thomas Wobben of the CoR, who pointed out the crucial importance of the topic for Europe as a whole, related not only to mitigate short-term challenges but also as a long-term strategic question. He underlined that while such strategic questions will be discussed at all levels of governance, critical short-term pressure will be felt especially by the local and regional level, where smaller actors in the energy sector are impacted. Addressing such challenges requires immediate reaction to short-term impacts. However, such reactions should ultimately aim to contribute to a sustainable transformation of our energy systems.

Following the introductory statement, Mr Hans Van Steen from the European Commission (DG Energy) introduced the proposal of the Commission to the participants of the workshop. Besides outlining the main strands and action fields, he underlined the urgent nature of the proposal. Independence from Russian fossil fuels is not only a strategic necessity in the light of the current situation, it can also be of immediate importance as especially gas supply is reduced and might even be totally cut in the ongoing conflict. The need for such quick implementation of actions also leads to an unfortunate situation where ordinary legislative procedures, including impact assessments for shaping a policy with considerable effects on Europe, cannot be followed.

While the proposal is ambitious and is expected – if fully implemented – to contribute considerably to the efforts regarding energy independence, it was also remarked that further actions both in policies on the EU level as well as the national and regional level are crucial for achieving the set goals. Furthermore it was stressed, that not only is there a need for policy action, but complementing that individual effort by the citizens, citizen driven organisations and other economic actors is needed.

Following the introductory remarks, the workshop proceeded with the experts conducting a brainstorming session.

4.2 Multilevel governance and local capacities

The experts strongly confirmed the previously mentioned important role of the local level in implementing the proposal and welcomed the Commissions position in recognising this. Experts also underlined that citizen empowerment will play a major role in implementation. However, the question of how to motivate individual action is not yet totally clarified. It was underlined that it will not be enough to plea to citizens and leave it to bottom-up movements, but some incentives and structured approaches from the European- and national level are warranted.

As for most policies, the different governance levels will all have to contribute to the overall targets and take over certain roles. Some actions will require coordinated approaches centralised at the national or the EU level, while others will require local and regional level action.

The participants emphasized that a holistic approach to energy transition is crucial for the success of the proposal. Energy is important across different sectors, which is an aspect to be considered in finance, in industry, in transport as well as in administration etc. To deal with this complexity, both an improvement of administrative capacity as well as cross-service coordination is called for.

The local level faces particular challenges from a political and administration standpoint in implementing the actions related to the proposal. Considerable expertise is required in the implementation (and supporting the implementation) of innovative approaches in the energy sector, which in many cases local authorities cannot provide. Furthermore, certification and permitting processes currently take a long time. Additional staff is therefore likely to be needed, which can be challenging especially for smaller municipalities and regions with considerable budget constraints.

Moreover, the data availability on resource use and energy sources for specific purposes (e.g. type of heating systems, PV infrastructure for specific houses or households) can create considerable difficulties for the local administration in charge of energy grid management. Transforming grids to be able to cope with the demands that decentralised, renewable-based energy systems create, requires detailed knowledge in a high geographical resolution. In many cases, current grids are not fit to handle the types of loads decentralised renewable energy production creates. However, it is not possible to identify the bottlenecks without detailed data.

The experts agreed that while implementation of the proposed actions requires decisive action on the EU- and national level (e.g. large-scale infrastructure projects), the local level will be crucial in transferring high-level policy decisions "on the ground". It is therefore important to already consider adequate support to the local level in the high-level policy decision-making processes and to that end involve and consult local governments.

4.3 Societal and territorial cohesion

The participants discussed the potential effects of the implementation of RePowerEU on different types of cohesion. While it was universally agreed that the overall goal is worth trying to achieve, the implementation modes can create negative effects in some areas.

Instruments funding territorial cohesion of the EU are among the largest budget items of the Union and are important for implementing policy objectives in the Member States and regions. Due to their established structure and management, they are oftentimes used as "vehicles" for new funding instruments which come up during a programming period. For example, the REACT-EU instrument was designed to be an add-on to existing funds, which were amended to disperse the new funding. The participants remarked that topics which can currently be addressed by cohesion funds, e.g. in the field of Policy Objective 2*, a greener, low-carbon Europe transitioning towards a net zero carbon economy*, are highly relevant for the implementation of RePowerEU as well. While existing programmes implementing this PO can complement the efforts under RePowerEU, the participants also saw the risk, that already existing funding priorities would be redesigned and funding re-allocated to allow for a stronger support of RePowerEU. This could lead to negative effects on the original goal of those funds, which is supporting territorial cohesion. The experts thus underlined that it is crucial to make "new money" available for supporting the proposals goals and not simply reallocate existing funds.

Another risk that was identified by the experts is related to low-income households and energy poverty. Fossil fuels for individual households have considerable use-based costs, apart from the external costs they create. In a given system they are oftentimes the cheapest option available to households – at least in the short-term. Switching to a low-carbon source can be linked to considerable up-front investments, e.g. exchanging a heating system, buying an electric car etc. Low-income households might not be able to afford such one-time investments, even if they are cheaper over their life-cycle. Furthermore, participants considered additional pressures, such as rising energy prices due to short-term reduction of the supply side, rising of food prices and consumer goods in general linked to this etc., all of which

particularly impact low-income households. It was discussed that without countermeasures and targeted support schemes, this poses a considerable risk to societal cohesion throughout the Union.

4.4 Addressing conflicting goals

The experts believe that the independence from Russian fossil fuels creates conflicts with other goals which are pursued on the EU level, but also on lower levels. In particular in relation to the environment the issue of "global/EU wide vs. local" was discussed, where oftentimes positive impacts on a global perspective can be carried by negative impacts on the local level.

One key issue mentioned by the experts were land-use conflicts, in particular in relation to energy production. Mining activities for example are expected to be sped up or prolonged in the short term, which will negatively impact a range of environmental aspects from biodiversity to groundwater and landscape. Not only mining and fossil fuel related activities can create undesirable effects however. In relation to the production of renewable energy, negative impacts on landscape (e.g. through wind- or solar energy) or on biodiversity and water quality (e.g. through hydropower plants) will also be increasing with the uptake of those technologies. Furthermore, biomass as an important energy source can also lead to negative impacts on local emission levels and related effects on human health or biodiversity.

In particular in relation to biomass and energy crops, conflicts in the agricultural sector were identified by the participants. Increased production of energy crops – especially in relation to a "boom" in the wake of the proposal – can have significant impacts on food prices and negatively impact the economic viability of farms in the medium term, if farming activities are not diversified enough. The potential for self-sufficient food production of the EU is also hampered by these expected boom phenomena, creating or increasing dependencies on other countries in that regard.

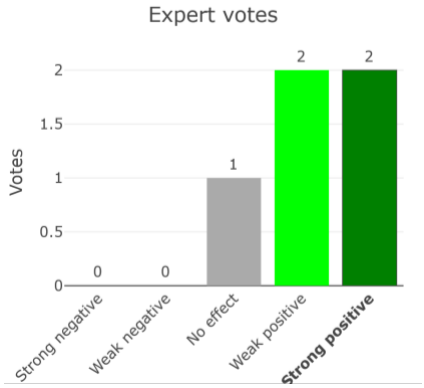
The experts underlined, that while it is not possible to achieve all goals, and it is to be expected that some policy goals will be in contrast with each other, it is important to carefully consider these conflicts and strike a balance. Especially in cases where Union-wide positive effects are linked to localised negative effects, it is crucial to involve the local level in the decision-making processes and in policy design "on the ground".

5 Expected societal effects

5.1 Disposable income

One major aim of REPowerEU is taking measures such as lowering energy costs or making sustainable energy or energy renovation affordable. Most the experts agreed that especially low-income households could benefit from actions of REPowerEU, however limited this assessment to the long-term perspective. In the short term, rising costs and increased challenges for low-income households were discussed, however the consensus of the group was to focus on the long-term impacts. As a consequence, two saw a strongly positive and two a weakly positive effect. One experts did not see this effect as relevant.

Figure 4: Result of the expert judgement: disposable income and the impact of REPowerEU

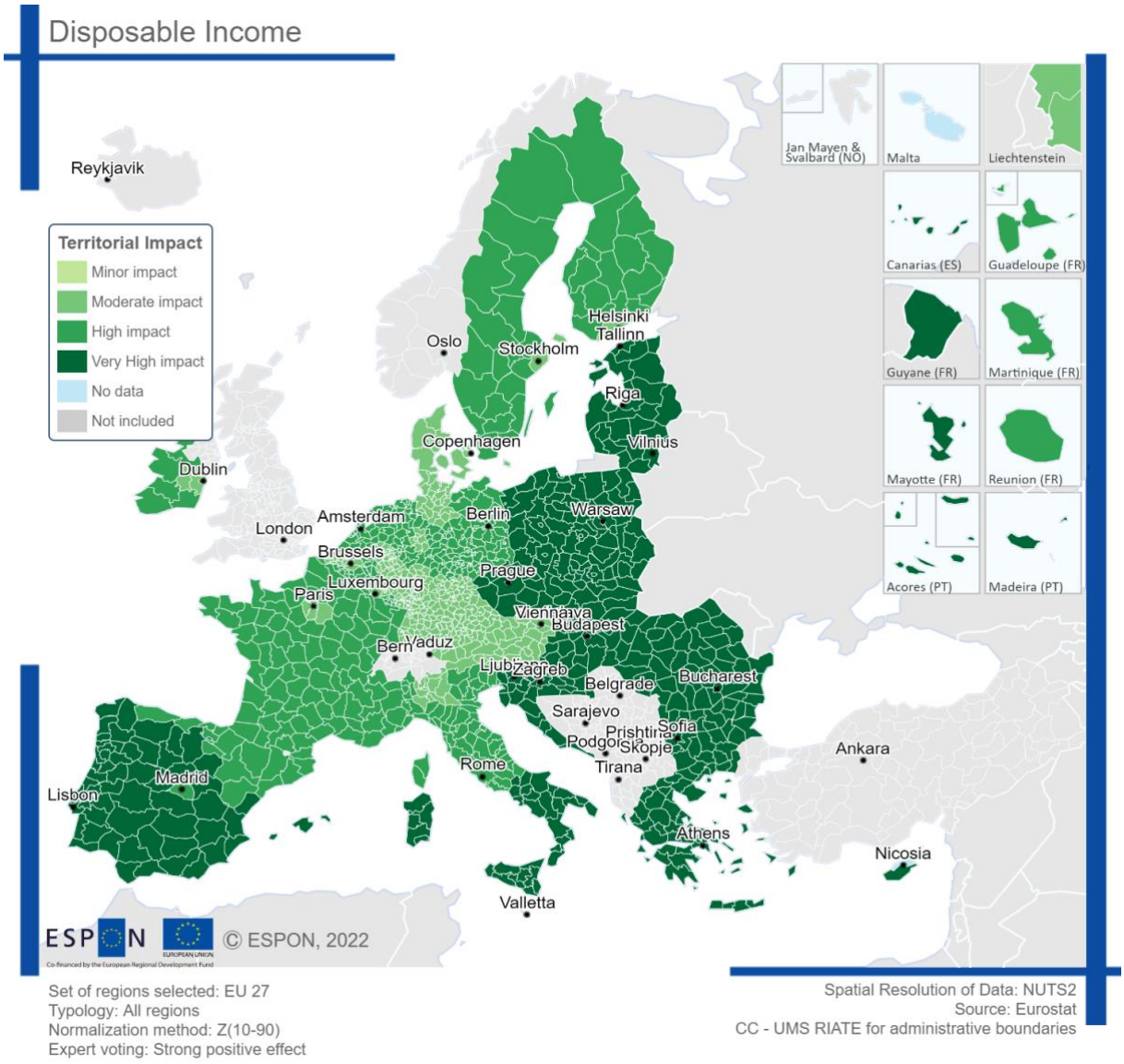


Source: Territorial impact assessment expert workshop, 9 June 2022

This indicator depicts the disposable income in Euro per inhabitant (reference year: 2018). Regions with a lower disposable income per capita are expected to be benefit more from REPowerEU in the long term. Sensitivity is thus invers proportional to the disposable income per inhabitant.

The following map shows the potential territorial impact from REPowerEU based on disposable income. It combines the expert judgement of a strongly positive effect with the given sensitivity of regions. 34% of the regions would get a very highly positive impact. These regions are in general economically less developed (e.g. Eastern and South-eastern Europe, Southern Italy, Portugal and parts of Spain), however the geographical patterns are dominated by the national borders and do not show a strong regional differentiation. 46% of the regions are expected to face a highly positive impact and 30% a moderately positive impact.

Map 1: Disposable income and the impact of REPowerEU – expert judgement: strongly positive effect

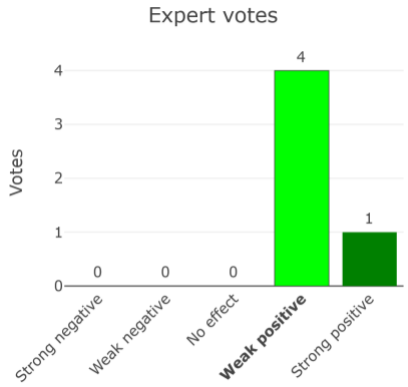


Source: Territorial impact assessment expert workshop, 9 June 2022

5.2 People affected by lack of adequate heating

As mentioned before, renovation measures and changed modes of heating provision could increase the affordability of energy for those purposes for low-income households. Due to the rising energy prices, people who have not been able to keep its home adequately warm are particularly affected negatively and their living conditions could get even worse, thus the actions to shift to more sustainable energy provision would benefit such households. The result of the voting was unambiguous: all experts saw a positive (one strong, four weak) effect of actions planned in REPowerEU.

Figure 5: Result of the expert judgement: people affected by lack of adequate heating and the impact of REPowerEU

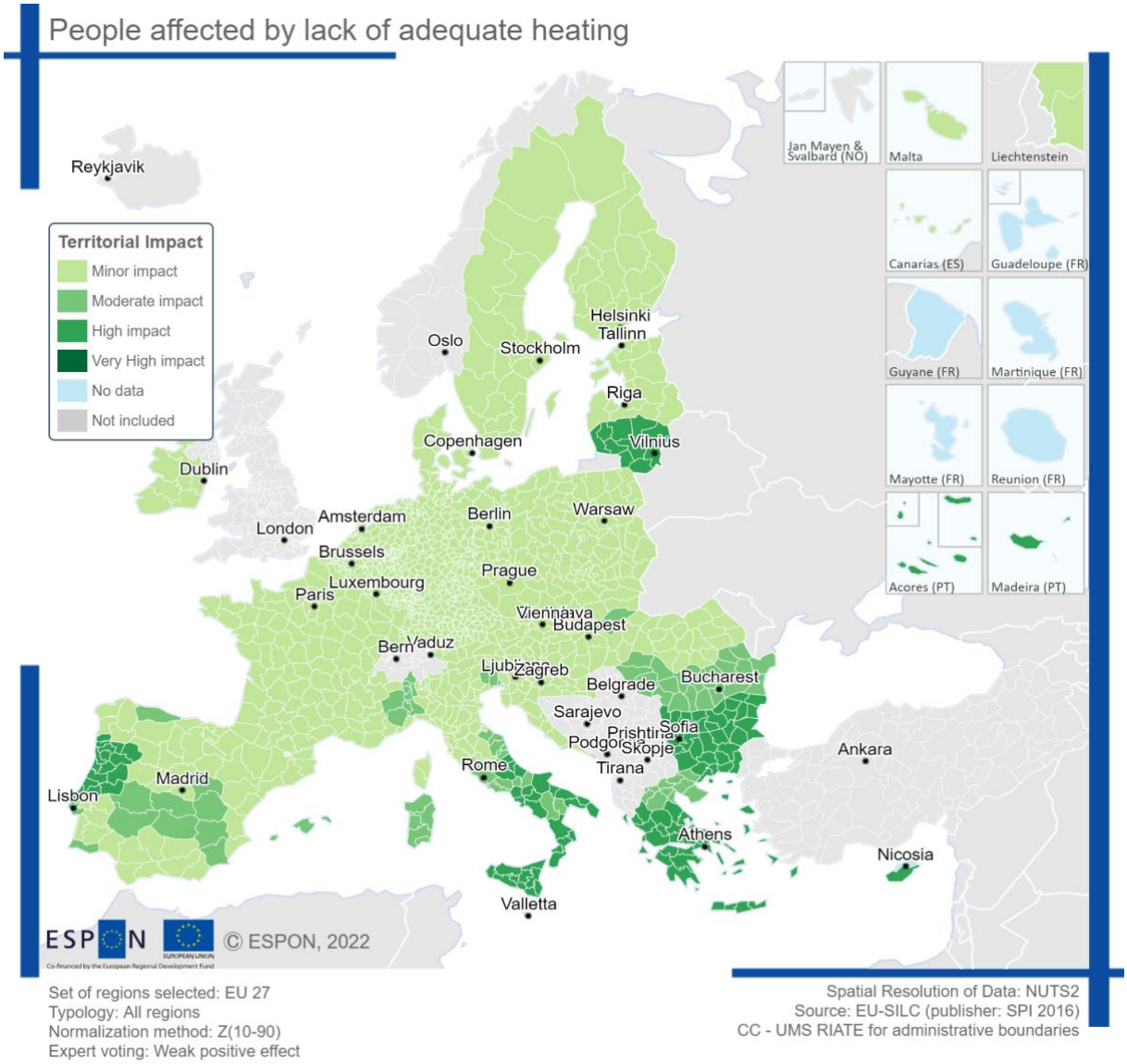


Source: Territorial impact assessment expert workshop, 9 June 2022

This indicator shows the percentage of people who stated living in a household which is not economically able to keep its home adequately warm (reference year: avg. 2017/18). Regions with a higher share of people who are affected by lack of adequate heating are expected to be more sensitive. Sensitivity is thus directly proportional to the percentage of this population group.

The following map shows the potential territorial impact of REPowerEU considering people affected by lack of adequate heating. It combines the expert judgment of a weakly positive effect with the given sensitivity of regions. 11% of the regions could gain a highly positive impact, located in particular in Eastern and Southern Europe. Lithuania, Bulgaria, Greece, Cyprus would be particularly positive affected, while Portugal and Italy would gain a highly positive impact at regional level. The vast majority of the regions would only have a moderately positive (7%) or a minor positive (82%) impact.

Map 2: People affected by lack of adequate heating and the impact of REPowerEU – expert judgement: weakly positive effect

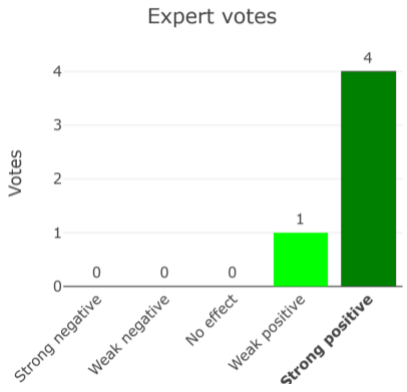


Source: Territorial impact assessment expert workshop, 9 June 2022

5.3 Composite indicator: fossil energy consumption and lack of adequate heating

Most of the experts agreed that REPowerEU could lead to an increase of the share of renewable energy sources and a decrease of fossil energy fuels in the building sector, respectively. Furthermore, measures implemented that lead to the improvement of the energy performance of buildings would decrease the energy costs. This would support people affected by lack of adequate heating in particular then if the energy sources are based on fossil fuels. Consequently, regions with a high share of fossil energy consumption in the residential building sector and a high share of people affected by burdensome cost of housing could get a positive impact. All experts voted for positive (four strong, one weak).

Figure 6: Result of the expert judgement: Composite indicator: fossil energy consumption and lack of adequate heating and the impact of REPowerEU

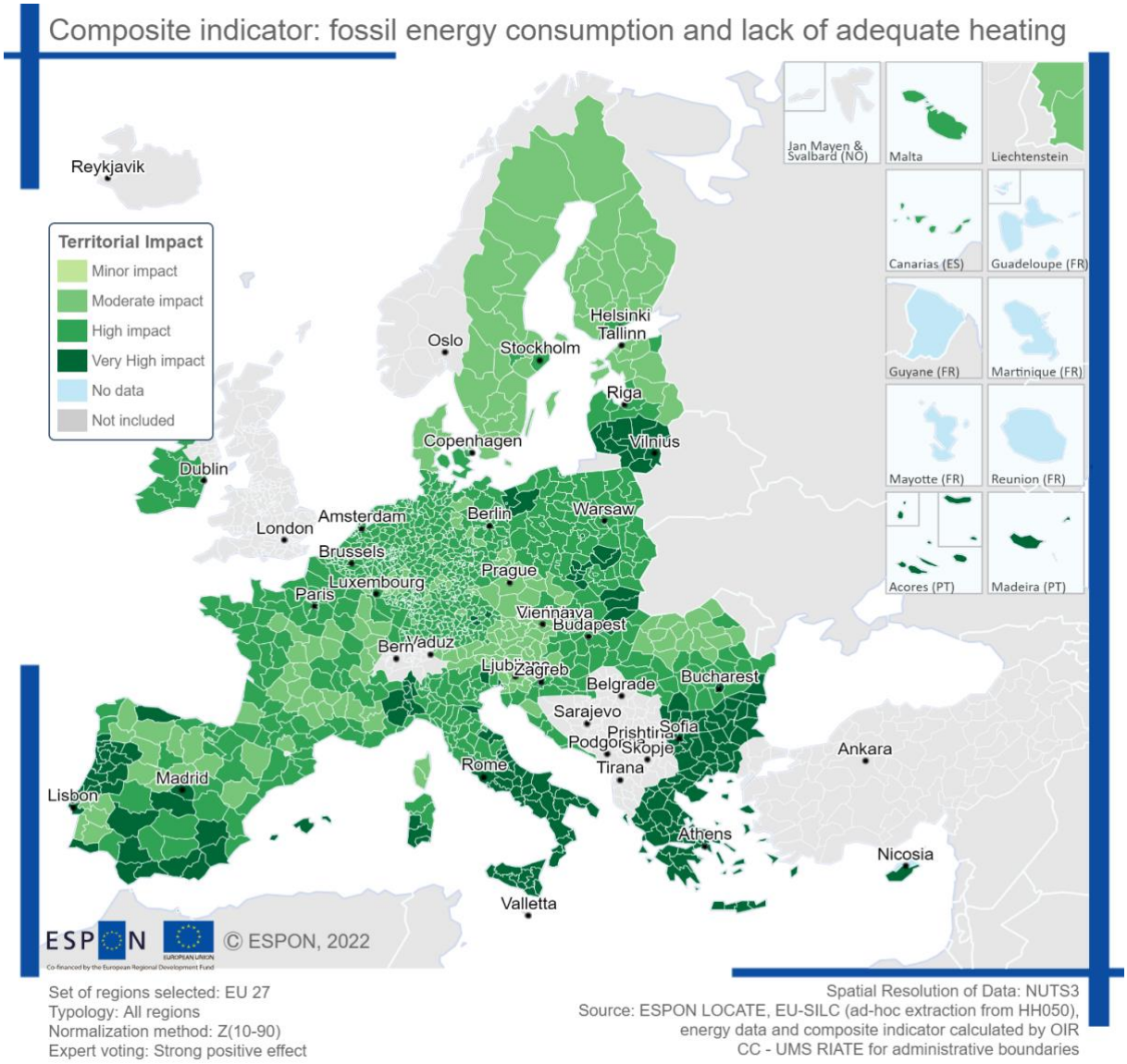


Source: Territorial impact assessment expert workshop, 9 June 2022

This composite indicator is the sum of the normalised share of fossil energy consumption in the residential building sector and the normalised share of people affected by lack of adequate heating .The first indicator is weighted with a factor 0.25 and the second with a factor 0.75 as the social effects are of core interest in this category. The share of fossil energy consumption is calculated by subtracting the share of renewable energy consumption in the residential building sector (ESPON LOCATE data) from the total energy consumption (100%). Regions showing a higher value of this composite indicator are expected to be more sensitive. Sensitivity is thus directly proportional to value of the composite indicator.

The following map shows the potential territorial impact of REPowerEU considering the composite indicator “fossil energy consumption and lack of adequate heating”. It combines the expert judgment of a strongly positive effect with the given sensitivity of regions. 18% of the regions could see a highly positive impact. Lithuania, Bulgaria, Greece, Cyprus would be particularly positive affected, while Poland, Slovakia, Italy, Spain and Portugal would gain a highly positive impact at regional level. 18% of the regions would get a moderately positive and 64% a minor positive impact.

Map 3: Composite indicator: fossil energy consumption and lack of adequate heating and the impact of REPowerEU – expert judgement: strongly positive effect



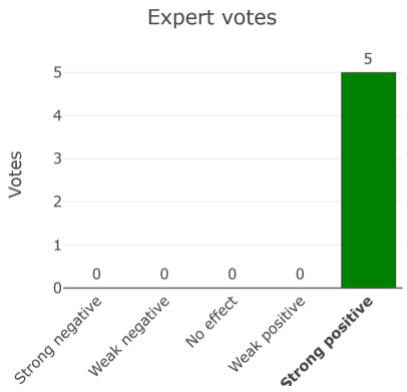
Source: Territorial impact assessment expert workshop, 9 June 2022

6 Expected environmental effects

6.1 Renewable energy use in the residential building sector

Most of the experts agreed that the action of REPowerEU would lead to a decarbonisation of the building stock in the EU, meaning in this context the share of renewable energy sources in the building sector would increase. However, they remarked that positive effects are more likely in tenant-owned than in rental properties as the likelihood of investment is higher. Furthermore, potentials for the building sector to actively contribute to production of renewable energy are also likely to be exploited in the context of renovation measures. All experts judged the effect as strongly positive.

Figure 7: Result of the expert judgement: renewable energy use in the residential building sector and the impact of REPowerEU

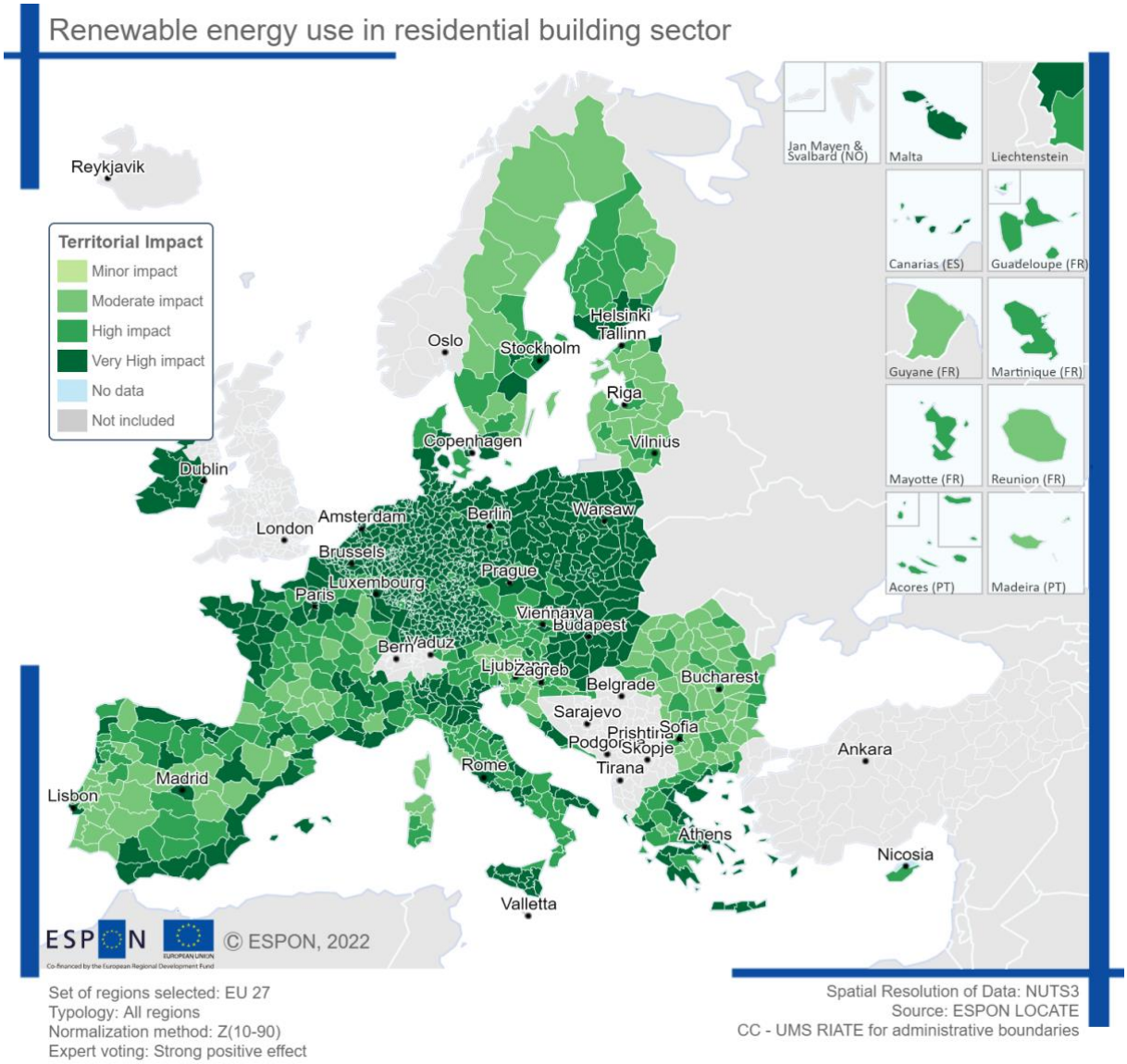


Source: Territorial impact assessment expert workshop, 9 June 2022

This indicator depicts the share of renewable energy carriers in the final energy consumption (excluding electricity) for space heating, cooling, and water heating in the residential building sector (reference year: 2012). Regions with a lower share of renewable energy carriers in this sector are likely to benefit more from actions implemented in relation to REPowerEU. Sensitivity is thus inversely proportional to the share of renewable energy use in the residential building sector.

The following map shows the potential territorial impact of REPowerEU considering the regional renewable energy use in residential building sector. It combines the expert judgement of a strongly positive effect with the given sensitivity of regions. 67% of the regions could gain a highly positive impact. These regions can be found in most of the Member States. Ireland, Germany, Poland, Slovakia and Hungary would be positively affected, though. 21% of the regions are expected to have a highly positive impact and 13% of the regions a moderately positive impact. Coastal and island regions are particularly likely to benefit in that regard.

Map 4: Renewable energy use in the residential building sector and the impact of REPowerEU – expert judgement: strongly positive effect

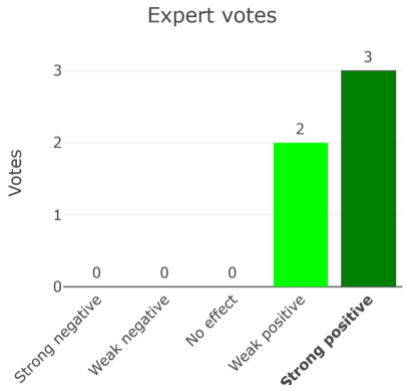


Source: Territorial impact assessment expert workshop, 9 June 2022

6.2 Emissions of CO_2 per capita (tonnes)

Energy production in its various forms as well as the use of fossil fuels for other means affected by the proposal are a major factor for overall emissions. Measures to increase energy efficiency or to reduce the energy use which are some of the main effects expected will in turn reduce the CO_2 emissions throughout the economy. While some activities have the potential to individually increase CO_2 emissions, the net benefit will still be considerable. Consequently, all experts saw the effect as positive (three strong, two weak).

Figure 8: Result of the expert judgement: emissions of CO_2 per capita (tonnes) and the impact of REPowerEU

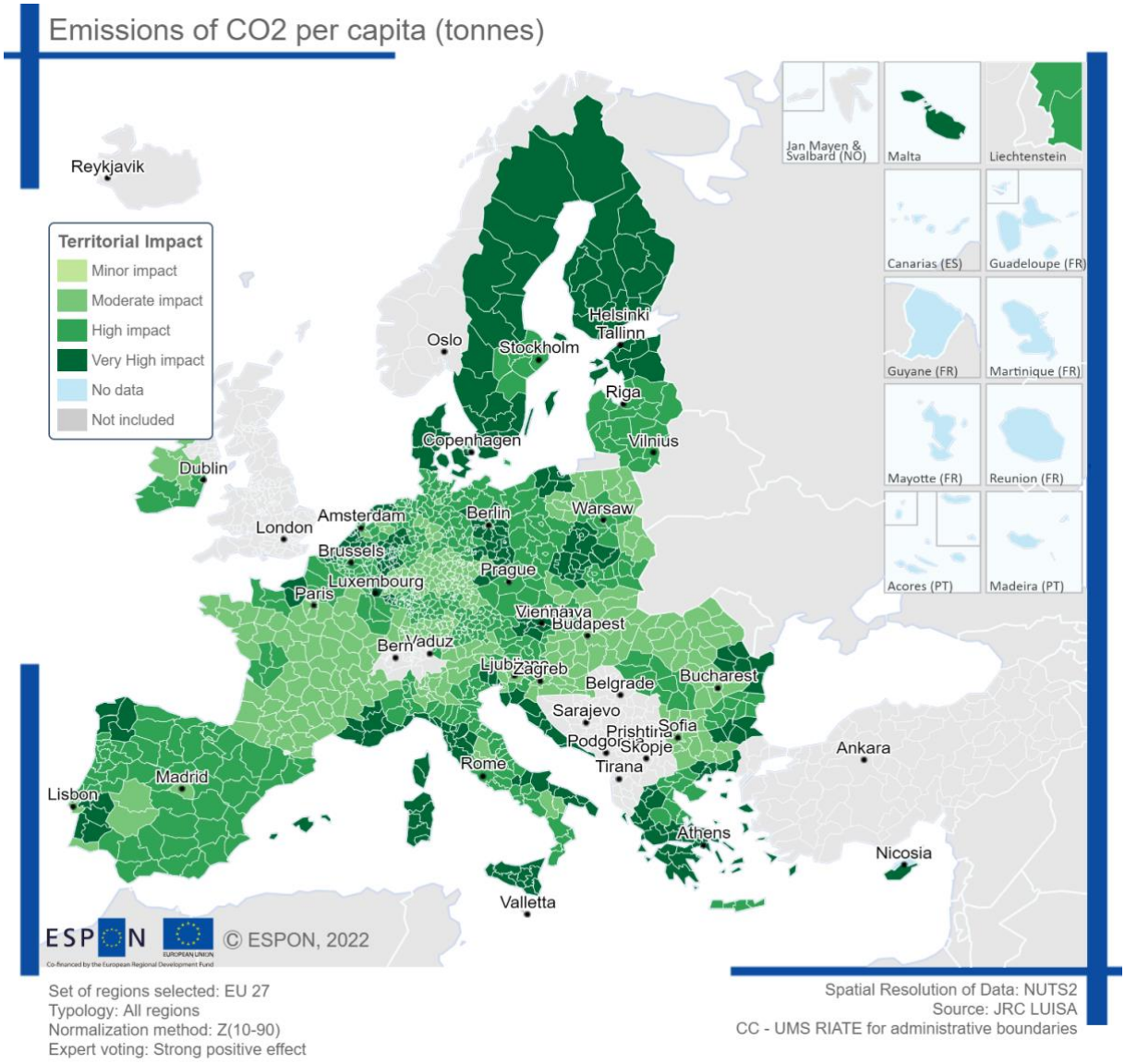


Source: Territorial impact assessment expert workshop, 9 June 2022

The indicator pictures the sensitivity of a region according to the yearly (2020, projected) emissions of CO_2 in tonnes per capita. Regions showing higher concentrations of CO_2 per capita are expected to be more sensitive. Sensitivity is thus directly proportional to the emissions of CO_2 per capita.

The following map shows the potential territorial impact of REPowerEU on the employment in agriculture, forestry and fishing. It combines the expert judgement of a strongly positive effect with the given sensitivity of regions. 26% of the regions could benefit from a very highly positive impact. 42% would see a highly positive impact and 32% a moderately positive impact. Many of the regions that would experience the highest impact in terms of reduction of CO_2 emissions are port regions or industrial regions. Sparsely populated regions with high CO_2 emissions per capita in Sweden and Finland also showed high impacts due to the low numbers of inhabitants, resulting in a high level of CO_2 per capita.

Map 5: Emissions of CO_2 per capita (tonnes) and the impact of REPowerEU – expert judgement: strongly positive effect

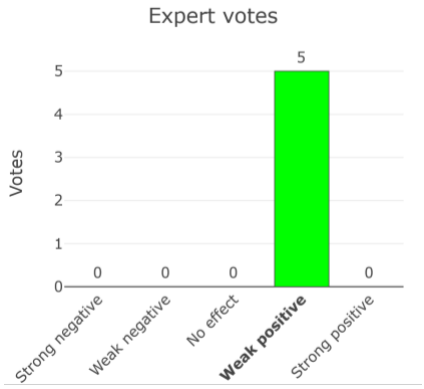


Source: Territorial impact assessment expert workshop, 9 June 2022

6.3 Emissions of NO_x per capita (kilotonnes)

The combustion of fossils fuels such as coal or petroleum causes NO_x emissions. Many households still use these energy carriers for heating, not only in detached homes but also in multi-family housing in cities. Measures that increase energy efficiency or promote the shift from using fossils fuels to renewable energy sources could decrease the emission of NO_x as a carry-over effect. Again, all experts deemed that the measures of REPowerEU will indirectly contribute to a reduction of this pollutant and therefore voted for weakly positive effects.

Figure 9: Result of the expert judgement: emissions of NO_x per capita (kilotonnes) and the impact of REPowerEU

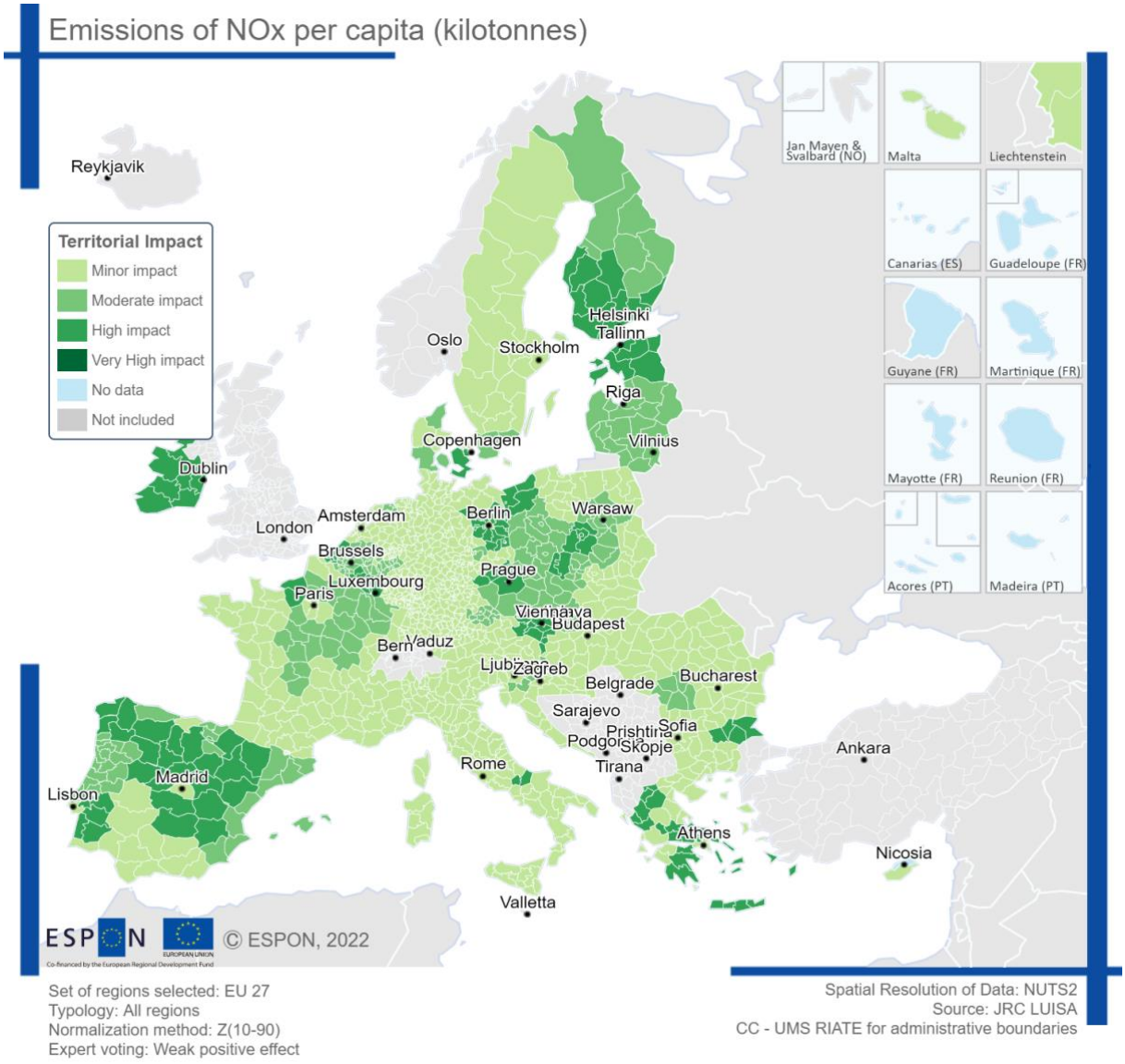


Source: Territorial impact assessment expert workshop, 9 June 2022

The indicator pictures the sensitivity of a region according to the yearly (2020, projected) emissions of NO_x in kilotonnes per capita. Regions showing higher concentrations of NO_x per capita are expected to be more sensitive. Sensitivity is thus directly proportional to the emissions of NO_x per capita.

The following map shows the potential territorial impact of REPowerEU on the emissions of NO_x per capita. It combines the expert judgement of a weakly positive effect with the given sensitivity of regions. 13% of the regions could see a highly positive impact. Apart from Ireland and Estonia, where all regions are highly affected, many regions in Spain, Finland and Greece would be also be affected highly positively. Furthermore, a cluster of regions getting a high impact can be found in e.g. Portugal, France, Belgium, Germany, Poland, the Czech Republic, Austria or Bulgaria. 17% of the regions would get a moderately positive impact and the majority a minor positive impact. A striking pattern is a lower strength of impacts in urban regions (especially capital regions such as Paris, Madrid, Athens or Berlin), while the surrounding suburban regions show a higher impact. The exceptions to this pattern such as Prague can be liked to the comparably larger NUTS3 region which also includes parts of the surrounding suburbs.

Map 6: Emissions of NO_x per capita (kilotonnes) and the impact of REPowerEU – expert judgement: weakly positive effect

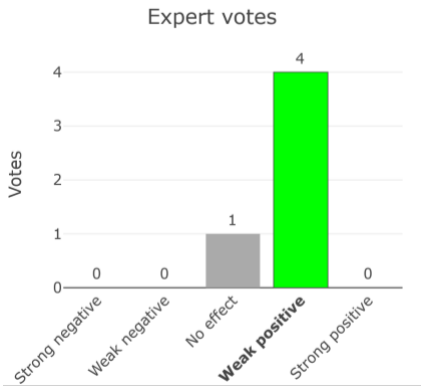


Source: Territorial impact assessment expert workshop, 9 June 2022

6.4 Urban population exposed to PM10 concentrations

As already mentioned before, one of the main effects of REPowerEU is the reduction of emissions originating from burning fossil fuels. In order to reach this objective, energy efficient measures will be promoted and the consumption of fossil energy sources (not only from Russia) will be reduced. This will lead to a decrease of the PM 10 concentration as well, as burning of fossil fuel is one of the main sources for that. The majority of the experts saw a weakly positive effect and one expert did not see a relevant effect.

Figure 10: Result of the expert judgement: urban population exposed to PM10 concentrations and the impact of REPowerEU

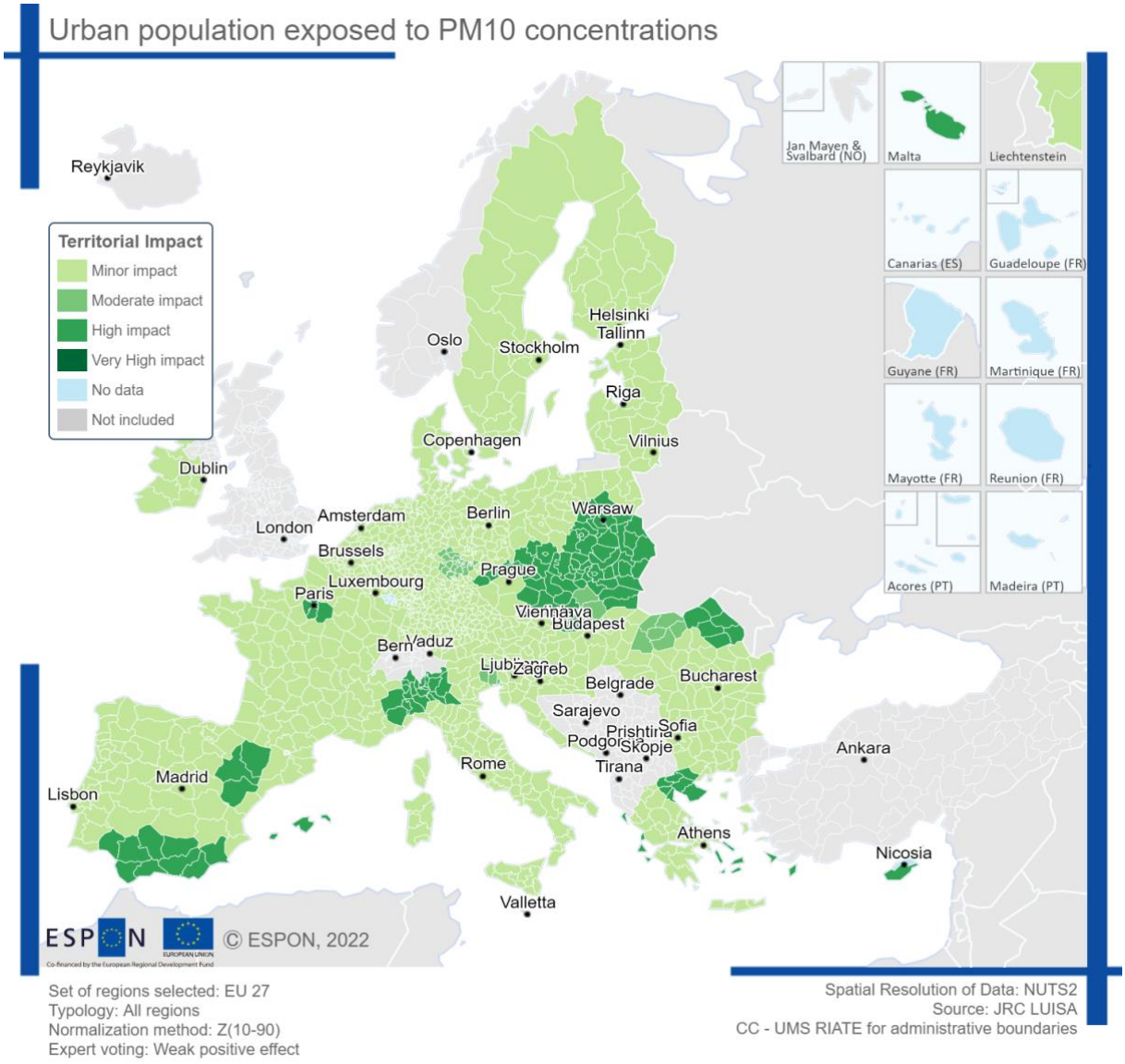


Source: Territorial impact assessment expert workshop, 9 June 2022

This indicator depicts the percentage of urban population exposed to PM10 concentrations exceeding the daily limit value (50 µg/m3) on more than 35 days in a year (reference year: 2020, projected). Regions with a higher percentage of this population group are expected to be influenced more by the implementation of decarbonisation initiatives. Sensitivity is thus directly proportional to the share of urban population exposed to PM10 concentrations.

The following map shows the potential territorial impact of REPowerEU in light of the population exposed to PM10 concentrations. It combines the expert judgement of a weakly positive effect with the given sensitivity of regions. 11% of the regions could gain a highly positive impact. These regions are located e.g. in Spain, the metropolitan region of Paris, in the North of Italy, Germany, Greece, Cyprus and Romania. A larger cluster of regions getting the highest impact can be detected in the area Poland, the Czech Republic and Slovakia. 3% of the regions are expected to get a moderately positive impact. 86% of the regions would have a minor positive impact. It has to be taken into account though, that many of those regions are located in more rural areas thus are not expected to have a high share of population exposed to PM10 in urban areas from the outset. Nevertheless it is striking that a large number of urban regions and capitals still falls into the minor impact category.

Map 7: Urban population exposed to PM10 concentrations and the impact of REPowerEU – expert judgement: weakly positive effect

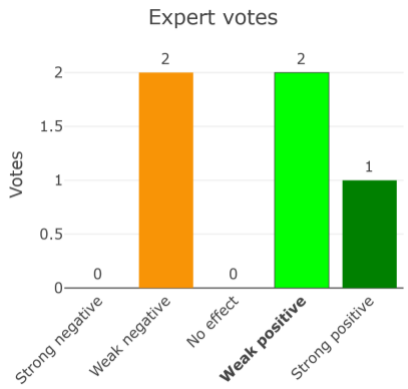


Source: Territorial impact assessment expert workshop, 9 June 2022

6.5 Land use: Share of heavy environmental impact

The experts assumed that measures of REPowerEU would contribute to increase industry production, however could also induce a shift in the type of industries. While it was expected by the experts that the construction sector and extraction activities might benefit from the implementation, on the other hand a shift from low- to high-tech industries was also deemed likely. The expert's voting therefore was ambiguous: while three experts saw a positive effect (one strong, two week), two experts voted for weakly negative.

Figure 11: Result of the expert judgement: land use: Share of heavy environmental impact and the impact of REPowerEU



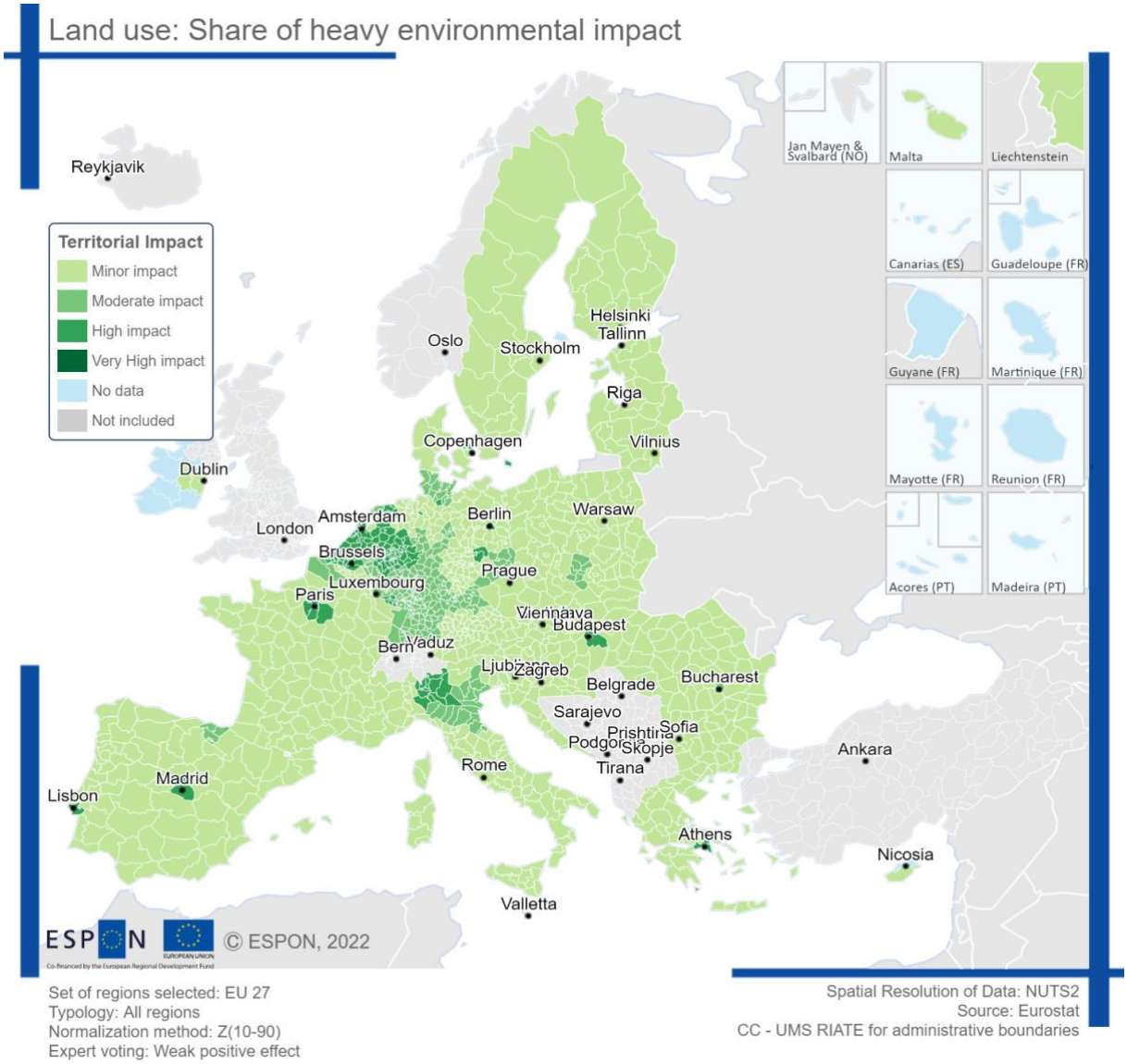
Source: Territorial impact assessment expert workshop, 9 June 2022

This indicator "land use with heavy environmental impact" depicts the share of land use with heavy environmental impact based on CORINE land cover data. Regions displaying a greater share of land use with heavy environmental impact are expected to be more sensitive in regard to the implementation of the proposal. Sensitivity is thus directly proportional to the share of artificial areas.

The following maps show the potential territorial impact of the measures linked to REPowerEU considering the share of heavy environmental impact. The first map combines the expert judgment of a weakly positive effect with the given sensitivity of regions. The impact on 13% of the regions could be highly positive. A large cluster facing the highest impact can be found in the area of the Netherlands, Belgium and Germany. Other regions getting a highly positive impact would be mainly metropolitan areas. 20% of the regions could see a moderately positive impact and the majority a minor positive impact.

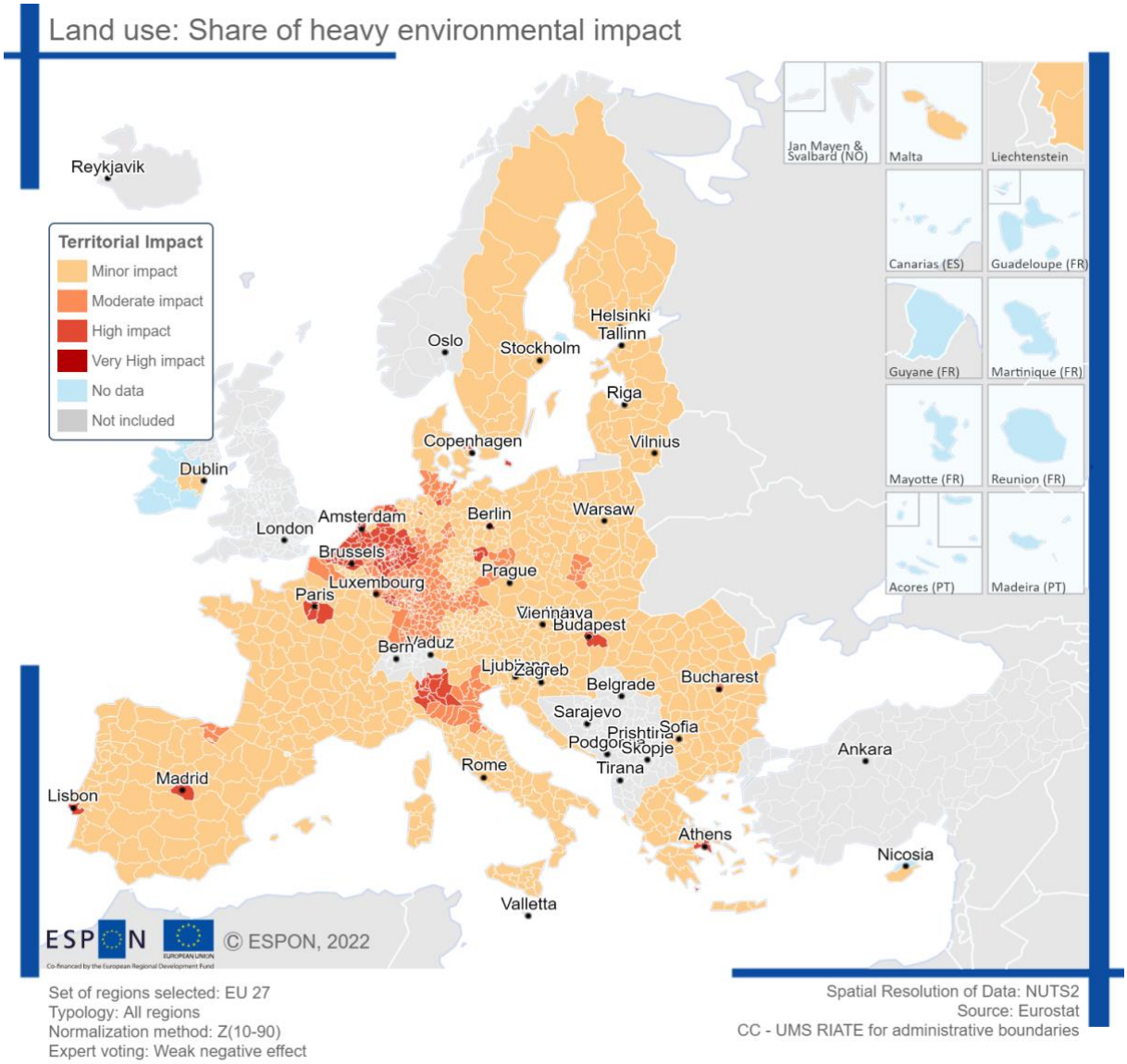
The second map combines the expert judgment of a weakly negative effect with the given sensitivity of regions. It shows the same distribution of the level of impacts as described in the previous map with only negative effects expected from REPowerEU.

Map 8: Land use: Share of heavy environmental impact and the impact of REPowerEU – expert judgement: weakly positive effect



Source: Territorial impact assessment expert workshop, 9 June 2022

Map 9: Land use: Share of heavy environmental impact and the impact of REPowerEU – expert judgement: weakly negative effect



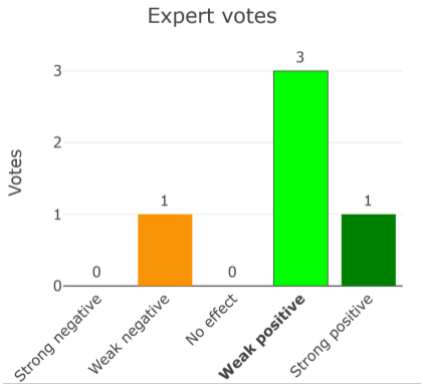
Source: Territorial impact assessment expert workshop, 9 June 2022

7 Expected economic effects

7.1 Employment in technology and knowledge-intensive sectors

The experts concluded that regions with a high level of employment in technology and knowledge-intensive sectors might benefit more from the implementation of decarbonisation initiatives than others in the short term and without external support. They were considered to have a “head-start” and are well prepared for picking up on innovation trends further strengthening the innovation sector in the region. The majority of the experts voted this effect as positive (one strong, three weak). On the other hand, one expert saw the opposite effect and judged the effect as weakly negative.

Figure 12: Result of the expert judgement: employment in technology and knowledge-intensive sectors and the impact of REPowerEU

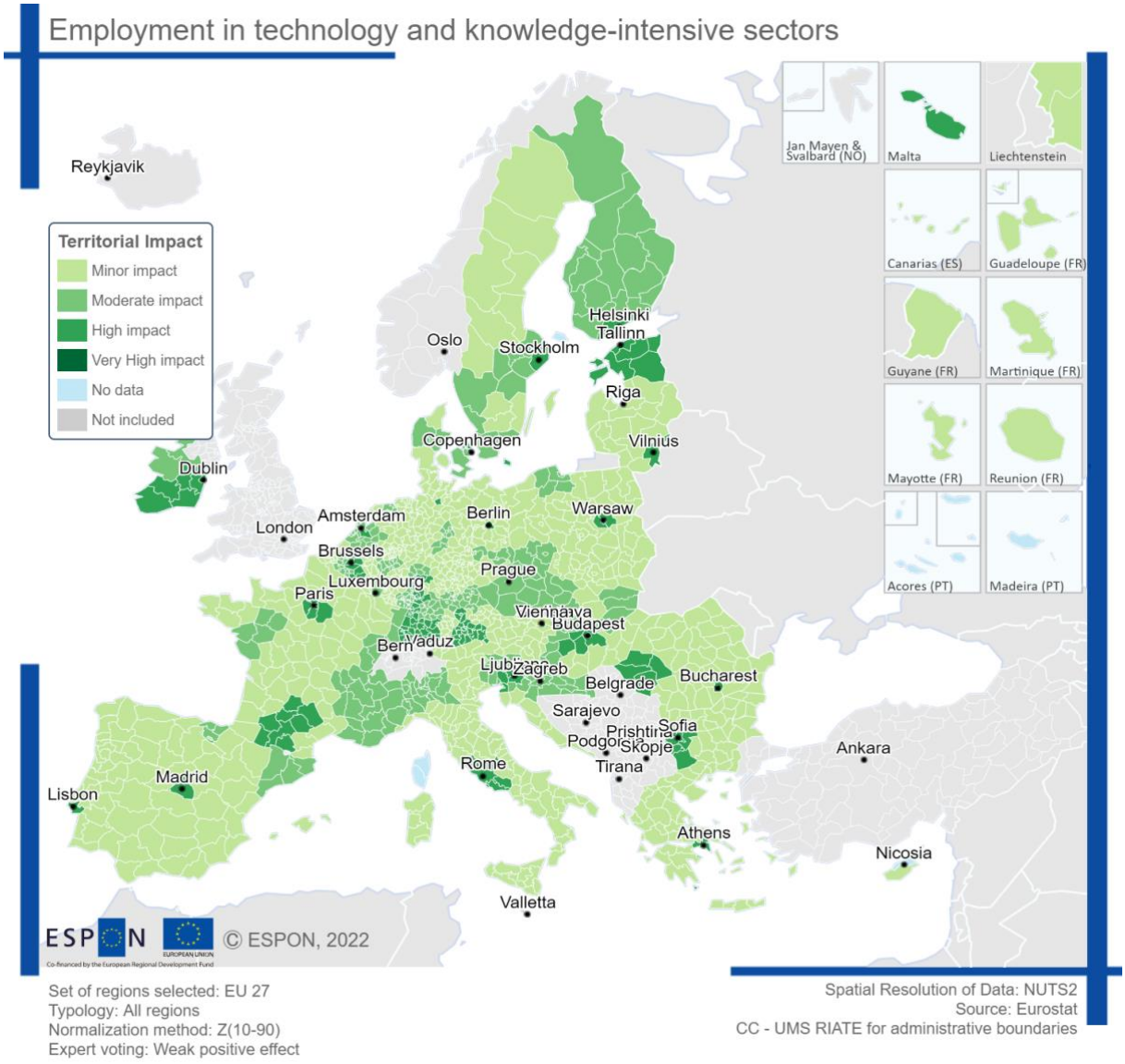


Source: Territorial impact assessment expert workshop, 9 June 2022

The indicator shows the share of employment in high-technology manufacturing and knowledge-intensive high-technology services on total employment (reference year: 2019). Regions with a higher share of employment in these branches are expected to be influenced more by the implementation of decarbonisation initiatives. Sensitivity is thus directly proportional to the share of employment in these sectors.

The following map shows the potential territorial impact of the measures linked to REPowerEU on employment in in technology and knowledge-intensive sectors. It combines the expert judgment of a slightly positive effect with the given sensitivity of regions. 14% of the regions could be affected highly positive. Unsurprisingly, most of these regions would be metropolitan areas. 24% of the regions would see a moderately positive impact and 63% a minor positive impact.

Map 10: Employment in technology and knowledge-intensive sectors and the impact of REPowerEU – expert judgement: weakly positive effect



Source: Territorial impact assessment expert workshop, 9 June 2022

8 Conclusions and policy recommendations

8.1 Conclusions

The implementation of the proposal, while serving an overall agreed upon and welcomed political objective, would create differentiated impacts across EU regions – with some regions benefiting (strongly) and others being negatively impacted. In particular short-term impacts can have negative effects on numerous regions, however in the long term most positive impacts materialise. Ultimately the impacts should be mainly positive in the long term in numerous policy fields.

Opportunities for regions

Based on the analyses conducted in the context of the workshop, it is apparent that different regions can benefit from the implementation of the proposal in different fields. In particular economic benefits and the potential for regions to pick up on new developments and technologies were discussed in the workshop, however also benefits related to governance and citizen empowerment were addressed.

One of the core effects of the policy considered were construction activities through additional infrastructure creation as well as renovations of existing infrastructure for energy-efficiency improvements, like repowering of existing plants etc. Specialised knowledge and skills are relevant for such high-technology construction activities, favouring specialised enterprises as compared to low-tech construction companies. Nevertheless, material providers as well as low-tech construction companies will benefit on a broader scale.

Agricultural regions are also especially likely to benefit, as energy crops are a core element of renewable energy. While trade-offs have to be considered from a societal perspective, agricultural regions will benefit both from the production of energy crops, even though energy crop production will create market pressure and raise prices for food production.

The third regional property considered especially relevant was the position in the innovation ecosystems. The potential to benefit from the transition is linked to regional capacity to participate or even lead in new developments, as such developments are oftentimes technologically demanding. Picking up on them requires a skilled workforce as well as the financial means for medium and long-term investments. Regions considered innovation leaders are likely able to benefit right away, while innovation followers will need additional support, e.g. through short-term or bridge financing or through capacity building.

Finally the explicit targeting of the local level combined with direct targeting of citizens as relevant actors is likely to lead to an improvement in governance systems. Workshop participants considered however that regions with an established tradition in citizen participation in political processes are more likely to benefit from those developments, as it oftentimes requires experience with political participation. This is especially true, if the issues to be addressed are abstract. However, the importance of the topic as well as the connected financial pressure carries the potential to improve participation of citizens throughout Europe even without or with very little prior experience in such processes.

Considering and accepting trade-offs

The implementation of RePowerEU including related measures towards independence from Russian fossil fuels and in the long-term independence from non-renewable energy sources overall will not only

lead to positive impacts but also include trade-offs which have to be considered. Such trade-offs will be linked in particular to societal as well as environmental aspects and can be differentiated between long- and short-term.

Renewable energy production, despite its obvious advantages over fossil fuels as energy source, also leads to negative impacts on the environment. While they do not outweigh the positive aspects, they do need to be considered before the roll-out on a large scale. The impacts are particularly relevant for the local and regional level, as negative effects oftentimes materialise there. Landscape related impacts of wind turbines or solar panels are the main examples of this. Hydropower plants can also create localised landscape impacts (e.g. alpine dams), but can also have far reaching impacts related to the bedload. The workshop participants considered this as a trade off between global environmental protection and local environmental protection.

On a broader scale, energy crop production can negatively impact the availability of agricultural land for food production. This effect can e.g. lead to increasing food prices, which will mainly affect people already struggling with disposable income due to high energy costs and other factors. When designing support schemes for renewable energies, particular attention has to be paid to avoid boom-bust phenomena regarding energy crops, and to avoid negative impacts on basic food supply and food prices.

While some negative impacts can be avoided or counteracted with immediate countermeasures (e.g. financial support to struggling households), other impacts require strategic long-term considerations. Some of the long-term impacts can be counteracted, however even with careful design of all policies, some negative impacts will remain.

Emphasize the importance of local solutions

It was agreed by the participants, that local level solutions are crucial for effectively implementing policy goals linked to both energy efficiency as well as diversification of energy supply. While being necessary from a technical perspective, emphasizing the importance of the local level is also likely to raise awareness and foster participation in energy saving and system transformation efforts by individual citizens.

On the local level, there are concrete needs for infrastructure creation and improvement. District heating systems as well as local energy networks can provide an improvement regarding the efficient use of energy compared to conventional solutions. The current infrastructure however is oftentimes made for centralised provision of heating and energy (mostly in denser populated areas) or set up for individual, building-based solutions (i.e. individual house/household heating systems). Transforming this system to a more decentralised, yet grid-based energy production, as is more common with the rise of renewable energies, creates the need for adapting the network infrastructure as well.

Energy communities in their variety of forms are considered highly relevant for the organisation of localised action in that regard. As citizen-driven initiatives they can contribute not only to the effective practical implementation of actions, but also increase awareness about needs related to energy saving and energy efficiency and therefore support the broader goals of the initiative.

Implementing solutions on the local level oftentimes requires at least initially external funding support. While long-term benefits are likely to materialise also economically, both local level initiatives as well as household-based solutions will need a form of knock-on financing in the short term. Even though willingness to invest will be quite high given the recent surge in energy prices, the ability to do so without

support (not necessarily in the form of grants, but maybe loans or other financial instruments) is likely limited. Furthermore, not only infrastructural measures will need support, but also capacity building to even be able to pick up on new developments. In particular local and regional authorities are in need of specialised personnel with advanced technical and organisational knowledge in that regard.

The workshop participants appreciated the fact that the local and regional level is already addressed in the policy, however saw the risk of it being used as a "buzzword". They underlined the importance of involving the local level as part of the "greater" solution.

Inadequate data

The participants stressed that for supporting localised solutions, a range of additional data are needed both to further analyse the impacts from a territorial perspective, but also to shape policy actions in a more targeted manner. The data inadequacies relate both to thematic coverage as well as to geographic resolution. While a range of topics are general "blank spots" of EU-wide data, a lot of information (especially regarding the supply side of energy) is already available. However, this information is almost exclusively collected on NUTS0 level, thus not accurate enough to cover the highly important regional and local aspects. The following indicators were not available at the time of the workshop, but were deemed important for work:

- Renewable energy use in residential buildings (gas, electricity, biomass) by type of source
- Respiratory diseases per capita
- Share of agricultural land use for food/energy production (energy crops)
- Trust in energy transition
- Willingness to pay for energy transition
- Providers for material use in circular economy
- Localisation of supply chains
- Administrative staff per capita for a city/region

8.2 Summary of recommendations

→ Involve local level administrations in the policy processes on higher governance levels
→ Foster citizen-driven organisations and actions, e.g. in the context of energy communities with guidance and administrative support
→ Provide support to local level administrations regarding additional personnel needed in order to support the transition processes
→ Provide financial support to local level regarding infrastructure creation, adaption and upgrade, especially in relation to energy grids
→ Develop financing/support schemes addressing energy poverty and low-income households in the context of implementing the measures
→ Develop or improve schemes for re-skilling the workforce in the energy transition, complementing JTF efforts
→ Pay particular attention to "innovation followers" and provide targeted support if needed
→ Consider policy conflicts and negative impacts on the local level, especially in relation to the environment when implementing policies supporting RePowerEU
→ Shape financial incentives and other policies in a way to prevent "boom-bust" phenomena regarding especially energy crop production
→ Improve the data situation regarding thematic and geographic resolution of energy-related statistics

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European Committee of the Regions

Created in 1994, after the entry into force of the Maastricht Treaty, the European Committee of the Regions is the EU's assembly of 329 regional and local representatives from all 27 Member States, representing over 447 million Europeans.

Its main objectives are to involve regional and local authorities and the communities they represent in the EU's decisionmaking process and to inform them about EU policies. The European Commission, the European Parliament and the Council have to consult the Committee in policy areas affecting regions and cities. It can appeal to the Court of Justice of the European Union as a means of upholding EU law where there are breaches to the subsidiarity principle or failures to respect regional or local authorities.

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