# A Just Transition Fund for climate-neutral EU regions

The EU aims to cut greenhouse gas emissions by at least 55 % by 2030, and achieve climate neutrality by 2050. The transition to clean energy will be a challenge for those regions highly dependent on fossil fuels and high-emission industries, in particular regions with a high level of employment in the coal sector. The new Just Transition Fund, complementing the existing cohesion policy funds, will provide support to address the social, economic and environmental impacts of the transition in the most affected territories. This paper looks at the new fund and its allocation mechanism; it focuses on the EU coal industry and the potential for clean energy solutions in a selection of coal regions; and finally, it gives an overview of the level of greenhouse gas emissions in the EU by NUTS2 region.

Just Transition Fund – Territorial eligibility

The Just Transition Fund (JTF) is part of a broader Just Transition Mechanism, which also includes two other pillars: a scheme under InvestEU to attract private investment, and a public-sector loan facility to support public financing. Investments made through these three pillars should contribute directly to alleviating the impact of the transition in territories designated by EU Member States, by financing the diversification and modernisation of the local economy and by mitigating the negative repercussions on employment. The funding is available to all EU countries. The European Commission has identified a list of eligible areas for each Member State[1] in a preliminary analysis. This list includes regions, municipalities, cities and even ports. The map on the right shows in which NUTS3 regions these areas are located.
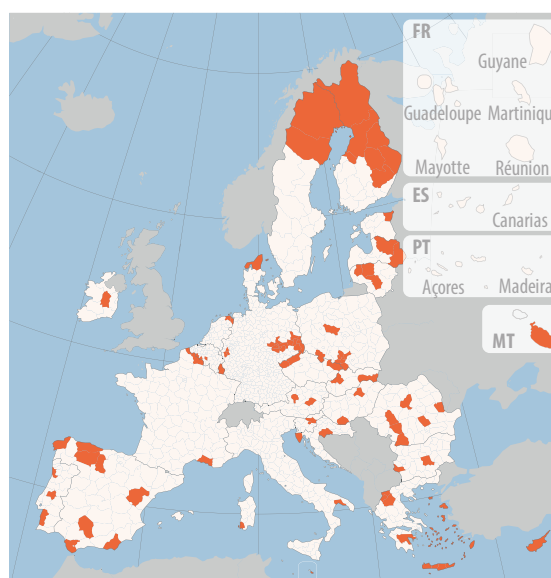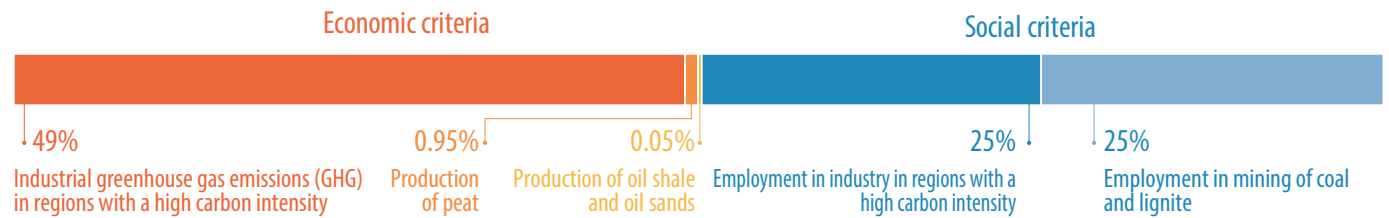
JTF allocation by Member State

The July European Council conclusions propose an allocation for the JTF of €7.5 billion under the core EU budget (the multiannual financial framework, or 'MFF'), complemented with €10 billion from the new recovery fund (Next Generation EU, or 'NGEU').[2] The bar charts below show the budget allocation by Member State according to the European Council figures, based on the same distribution key as used in the Commission's proposal.[3] The map below shows the total JTF budget allocation for each Member State divided by its number of inhabitants.[4] The European Parliament, however, in its September resolution, is calling for an increased budget, of at least €25 billion for the JTF under the MFF.

€ per inhabitant
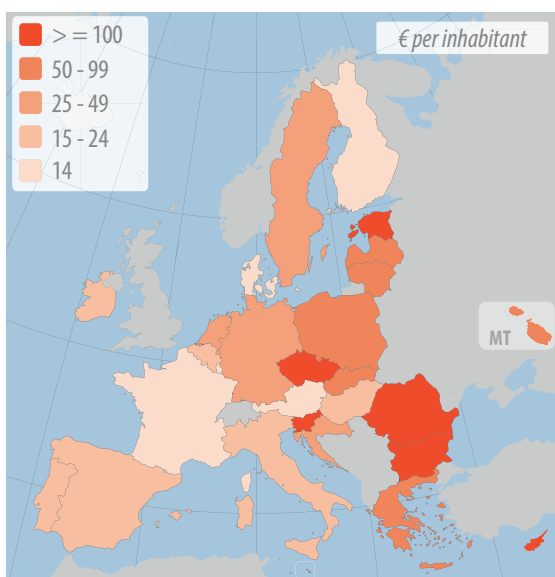
	MFF € Million	Next generation EU € Million	Total
PL	1 500	2 000	3 500
DE	966	1 288	2 254
RO	834	1 112	1 946
CZ	640	853	1 493
BG	505	673	1 178
FR	402	535	937
IT	401	535	936
ES	339	452	791
EL	324	431	755
NL	243	324	567
FI	182	242	424
SK	179	239	418
EE	138	184	322
LT	107	142	249
HU	102	136	238
SI	101	134	235
PT	87	116	203
LV	75	100	175
HR	72	97	169
BE	71	95	166
SE	61	81	142
AT	53	71	124
CY	39	53	92
DK	35	46	81
IE	33	44	77
MT	9	12	21
LU	4	5	9

MFF: € 7 502 million

Next generation EU € 10 000 million

Legend (€ per inhabitant):
- >= 100
- 50 - 99
- 25 - 49
- 15 - 24
- 14

How the Just Transition Fund is distributed among Member States

The distribution of the JTF budget to the Member States is based on five socio-economic criteria, each of which has a different weighting factor in the calculation method: half of the allocation is based on economic criteria (greenhouse gas emissions, production of peat, and of oil shale and oil sands), with the other half based on social criteria (employment data). The values by Member State for each of these five indicators are presented in the graphs below.[5]

Economic criteria | **Social criteria**

- 49% — Industrial greenhouse gas emissions (GHG) in regions with a high carbon intensity
- 0.95% — Production of peat
- 0.05% — Production of oil shale and oil sands
- 25% — Employment in industry in regions with a high carbon intensity
- 25% — Employment in mining of coal and lignite

Industrial GHG emissions from regions (NUTS2) with a high carbon intensity (2016)

Million tonnes CO$_2$ equivalent

DE	PL	NL	IT	FR	CZ	ES	EL	FI	BG	RO	BE	SE	EE	PT	SK	HU	AT	IE	LT	SI	CY	HR	DK	LV	LU	MT
251	153	78	59	51	46	43	35	29	23	22	16	13	13	11	11	9	6	6	5	5	5	5	2	2	1	0.1

49%

Carbon-intensive regions are those regions where the amount of greenhouse gas emissions divided by the gross value added of the industry is more than twice the EU average. Germany emits by far the highest levels of industrial greenhouse gas, followed by Poland. Together these two countries represent almost 45 % of the total emissions taken into account for this indicator.

Production of peat (2017)

| IE (744) | FI (731) | SE (113) |

EE (8)
LT (7)
RO (1)
LV (0.5)

Total production: 1 604

1 000 tonnes

0.95%
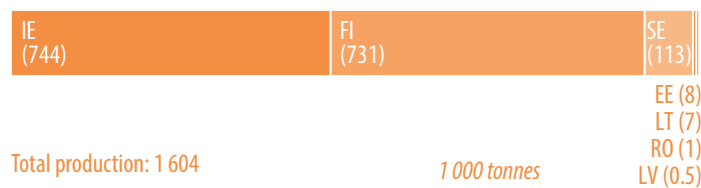
The production of peat has similar features to coal in terms of CO₂ intensity. The production of peat is only applicable to a limited number of countries, in particular Ireland and Finland. Although it has a very low weighting in the allocation method, it constitutes a significant amount of the JTF allocation for these two countries.

Production of oil shale and oil sands (2017)

4 147 1 000 tonnes
Estonia

0.05%

This factor represents the production of oil shale and oil sands, which has similar features to coal in terms of CO₂ intensity. It is only relevant for Estonia, for which this indicator also only forms a minor part of its overall allocation (representing some 4 % of the total allocation for the country).

Employment in industry in regions with carbon-intensive industry (2016)

1 000 persons

PL	DE	IT	RO	CZ	FR	NL	ES	LT	BG	FI	LV	EE	SI	SK	AT	IE	BE	HU	EL	HR	SE	PT	DK	LU	CY	MT
1 953	1 289	395	374	355	353	289	276	183	177	166	141	131	128	128	114	105	100	97	94	85	54	41	40	36	35	25

25%

This factor represents the level of industrial employment in those same regions that were identified as carbon intensive for the indicator representing industrial greenhouse gas emissions. Again, the same two countries, Germany and Poland, represent almost half of the total value of this indicator.

Employment in mining of coal and lignite (2018)

1 000 persons

PL	RO	CZ	DE	BG	SK	EL	ES	SI
139	36	24	17	15	5	4	3	2

25%
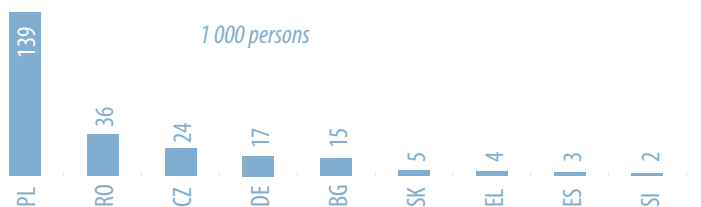
This factor represents the level of employment in coal and lignite mining. Coal regions will be the most affected by the transition, due to the number of jobs in this sector. Poland has by far the most jobs in the mining sector, more than half of the EU-27 total, most of which are located in the Silesia region (Śląskie). This indicator also accounts for almost half of the JTF allocation for Poland.
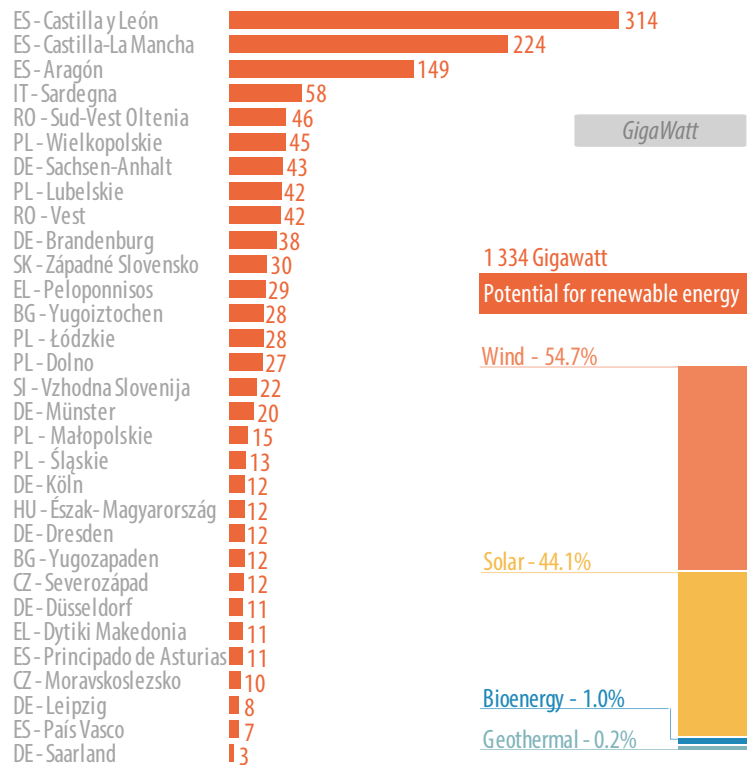
A focus on coal regions

Coal infrastructure (i.e. coal mines and coal-fired power plants) is present in 96 EU-27 NUTS2 regions, directly employing some 231 000 people. It is estimated that around 160 000 direct jobs may be lost by 2030 (JRC study, 2018). However, potentially up to 315 000 jobs might be created by 2030 by deploying clean energy production technologies (JRC study, 2020).

Direct employment in coal mines and coal-fired power plants
(2018, 1 000 persons)

Legend:
- More than 3 200
- 1 600 – 3 200
- 800 – 1 599
- 400 – 799
- 200 – 399
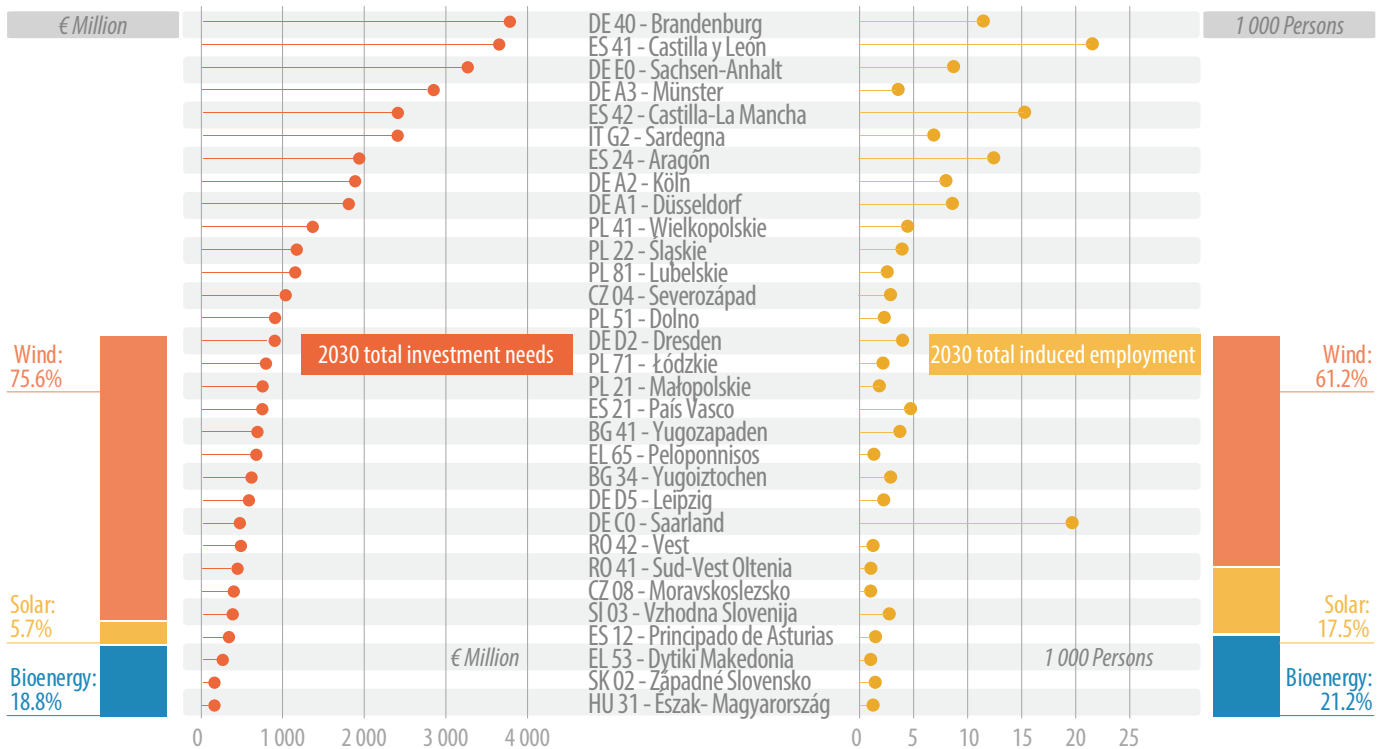- Less than 200

1 000 persons
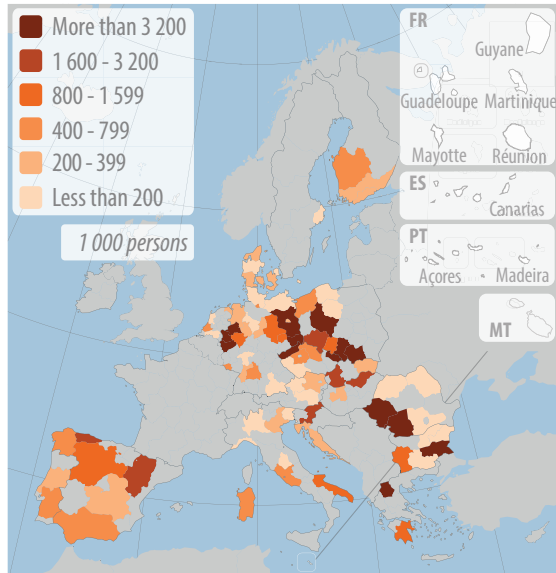
The map on this page shows the number of direct jobs associated with coal mining and coal-fired power generation in the EU-27 NUTS2 regions. Almost half of the employment is located in Poland, with the vast majority in the mining sector (mostly in the Śląskie region).

Potential for renewable energy in selected coal regions
Gigawatt

Region	GigaWatt
ES - Castilla y León	314
ES - Castilla-La Mancha	224
ES - Aragón	149
IT - Sardegna	58
RO - Sud-Vest Oltenia	46
PL - Wielkopolskie	45
DE - Sachsen-Anhalt	43
PL - Lubelskie	42
RO - Vest	42
DE - Brandenburg	38
SK - Západné Slovensko	30
EL - Peloponnisos	29
BG - Yugoiztochen	28
PL - Łódzkie	28
PL - Dolno	27
SI - Vzhodna Slovenija	22
DE - Münster	20
PL - Małopolskie	15
PL - Śląskie	13
DE - Köln	12
HU - Észak- Magyarország	12
DE - Dresden	12
BG - Yugozapaden	12
CZ - Severozápad	12
DE - Düsseldorf	11
EL - Dytiki Makedonia	11
ES - Principado de Asturias	11
CZ - Moravskoslezsko	10
DE - Leipzig	8
ES - País Vasco	7
DE - Saarland	3

1 334 Gigawatt — Potential for renewable energy

- Wind – 54.7%
- Solar – 44.1%
- Bioenergy – 1.0%
- Geothermal – 0.2%

The 96 regions were further analysed considering their reliance on the coal sector in terms of jobs. By comparing the size of the regional coal sector and the expected growth in clean energy technologies and energy efficiency in terms of employment, 31 EU-27 NUTS2 regions have been identified as regions with 'decarbonising employment potential' (JRC study, 2020). The graphs on this page show the estimated technical potential from renewable energy sources,[6] and the estimated maximum investment needs and induced employment by 2030[7] in the 31 selected coal regions.

Estimated investments needs and induced employment in clean energy production in selected regions by 2030

€ Million — 2030 total investment needs

- Wind: 75.6%
- Solar: 5.7%
- Bioenergy: 18.8%

Regions:
- DE 40 - Brandenburg
- ES 41 - Castilla y León
- DE E0 - Sachsen-Anhalt
- DE A3 - Münster
- ES 42 - Castilla-La Mancha
- IT G2 - Sardegna
- ES 24 - Aragón
- DE A2 - Köln
- DE A1 - Düsseldorf
- PL 41 - Wielkopolskie
- PL 22 - Śląskie
- PL 81 - Lubelskie
- CZ 04 - Severozápad
- PL 51 - Dolno
- DE D2 - Dresden
- PL 71 - Łódzkie
- PL 21 - Małopolskie
- ES 21 - País Vasco
- BG 41 - Yugozapaden
- EL 65 - Pelóponnisos
- BG 34 - Yugoiztochen
- DE D5 - Leipzig
- DE C0 - Saarland
- RO 42 - Vest
- RO 41 - Sud-Vest Oltenia
- CZ 08 - Moravskoslezsko
- SI 03 - Vzhodna Slovenija
- ES 12 - Principado de Asturias
- EL 53 - Dytiki Makedonia
- SK 02 - Západné Slovensko
- HU 31 - Észak- Magyarország

1 000 Persons — 2030 total induced employment

- Wind: 61.2%
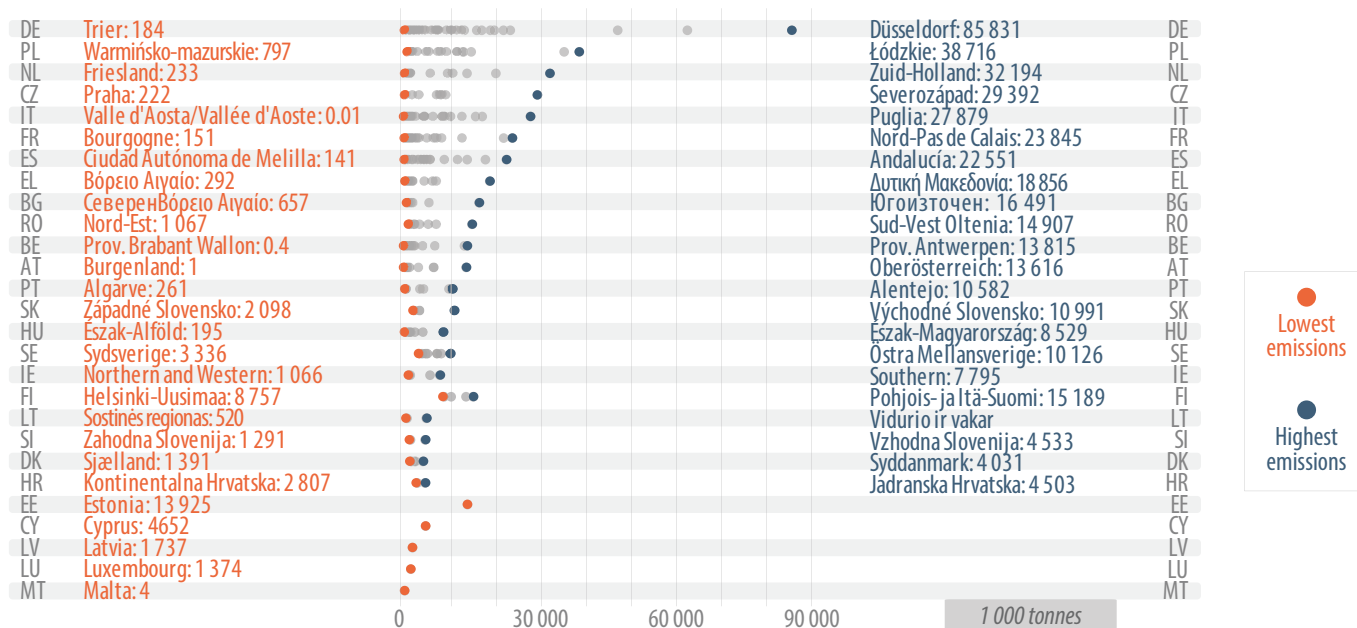- Solar: 17.5%
- Bioenergy: 21.2%

Industrial greenhouse gas emissions by NUTS2 regions
(as reported under the Industrial Emissions Directive and the European Pollutant Release and Transfer Register Regulation)

2016, KG per inhabitant

	KG per inhabitant
More than 8 000	
4 000 - 8 000	
2 000 - 3 999	
1 000 - 1 999	
500 - 999	
Less than 500	
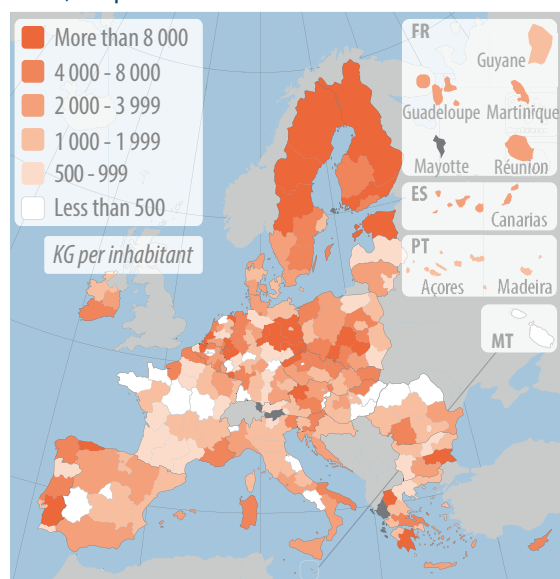
The map on this page shows the level of industrial greenhouse gas emissions per inhabitant by NUTS2 region, based on the 2016 data from the European Pollutant Release and Transfer Register (E-PRTR) of the European Environment Agency, which has been used as an input in the JTF allocation method to determine the carbon intensity of each region. The E-PRTR database contains data on the main pollutant releases of about 28 000 industrial facilities across the European Union and EFTA countries. It represents the total annual emissions released during normal operations and accidents. Important to note is that releases are reported on a voluntary basis and only if the facility falls under at least one of the 65 E-PRTR economic activities listed in Annex I of the E-PRTR Regulation, and exceeds at least one of the capacity thresholds set out in the regulation. The graph below shows the regions sorted from the lowest to the highest level of emissions per Member State. As can be noted from the graph, Germany and Poland contain the five regions with the highest level of emissions of all EU-27 NUTS2 regions (namely the regions of Düsseldorf, Köln and Brandenburg in Germany, followed by Łódzkie and Śląskie in Poland).

	Lowest		Highest
DE	Trier: 184	Düsseldorf: 85 831	DE
PL	Warmińsko-mazurskie: 797	Łódzkie: 38 716	PL
NL	Friesland: 233	Zuid-Holland: 32 194	NL
CZ	Praha: 222	Severozápad: 29 392	CZ
IT	Valle d'Aosta/Vallée d'Aoste: 0.01	Puglia: 27 879	IT
FR	Bourgogne: 151	Nord-Pas de Calais: 23 845	FR
ES	Ciudad Autónoma de Melilla: 141	Andalucía: 22 551	ES
EL	Βόρειο Αιγαίο: 292	Δυτική Μακεδονία: 18 856	EL
BG	СеверенВόρειο Αιγαίο: 657	Югоизточен: 16 491	BG
RO	Nord-Est: 1 067	Sud-Vest Oltenia: 14 907	RO
BE	Prov. Brabant Wallon: 0.4	Prov. Antwerpen: 13 815	BE
AT	Burgenland: 1	Oberösterreich: 13 616	AT
PT	Algarve: 261	Alentejo: 10 582	PT
SK	Západné Slovensko: 2 098	Východné Slovensko: 10 991	SK
HU	Észak-Alföld: 195	Észak-Magyarország: 8 529	HU
SE	Sydsverige: 3 336	Östra Mellansverige: 10 126	SE
IE	Northern and Western: 1 066	Southern: 7 795	IE
FI	Helsinki-Uusimaa: 8 757	Pohjois- ja Itä-Suomi: 15 189	FI
LT	Sostinės regionas: 520	Vidurio ir vakar	LT
SI	Zahodna Slovenija: 1 291	Vzhodna Slovenija: 4 533	SI
DK	Sjælland: 1 391	Syddanmark: 4 031	DK
HR	Kontinentalna Hrvatska: 2 807	Jadranska Hrvatska: 4 503	HR
EE	Estonia: 13 925		EE
CY	Cyprus: 4652		CY
LV	Latvia: 1 737		LV
LU	Luxembourg: 1 374		LU
MT	Malta: 4		MT

0   30 000   60 000   90 000   **1 000 tonnes**

Lowest emissions

Highest emissions

Notes

1 Priority investment areas identified by the Commission's preliminary analysis based on 2020 European Semester country reports. **2** All budget amounts are expressed in terms of 2018 prices. **3** Totals may not tally due to rounding. Similar amounts are presented in the Council's partial mandate for negotiations with the European Parliament. **4** The value per inhabitant has been calculated as the total JTF allocation for each Member State divided by its number of inhabitants in 2018 (as in the initial Commission proposal allocation table). **5** Further, the allocation method as set out in the Annex to the Commission proposal also takes into account additional criteria (namely a minimum and maximum level of support and a prosperity criterion). **6** Namely from onshore wind, solar energy, bioenergy and geothermal energy. **7** In order to reach the EUCO3232.5 targets, namely to achieve a share of at least 32 % renewable energy in the EU energy mix and an improvement in energy efficiency of at least 32.5 % at EU level. The graphic shows the maximum deployment projection in order to reach the EUCO3232.5 target.

Data source

Page 1: Map on Just Transition Fund territorial eligibility: Commission preliminary analysis; Map on aid intensity and graphs on allocation: Commission May 2020 proposal (used for the distribution keys by Member State), European Council conclusions (paragraph A14 and 100 for the total NGEU and MFF JTF amounts respectively), Eurostat table demo_pjan (number of inhabitants, 2018). Page 2: Barchart on socio-economic weighting factors: Annex to the Commission proposal; Graphs on industrial GHG emissions and industrial employment in regions with a high carbon intensity: Commission JTM and JTF Allocation Table; Graph on peat and oil shale & oil sands: energy statistical country datasheets; Graph on employment in mining of coal and lignite: Eurostat table lfsa_egan22d ('15Y and over'). Page 3: map on employment in coal mines and coal-fired power plants: 2018 JRC study, EU coal regions: opportunities and challenges ahead (Annex 5); other graphs: 2020 JRC study, Clean energy technologies in coal regions: Opportunities for jobs and growth (Tables 17, 19, 20, 21 for the estimated technical potential in Gigawatts, and Table 30 for the maximum investment needs and induced employment); Page 4: Map and graph on industrial GHG emissions: the data are downloaded from the E-PRTR database as available on the EAA website (the Access version and the user-friendly Excel version, 2016) and further completed by EPRS where the NUTS code was missing (mainly via the Eurostat correspondence tables postal code to nuts code). The number of inhabitants used for the map is based on the Eurostat table demo_r_d2jan (2016 data).

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