

The Challenge of Energy During Turbulent Times: *The Western Balkans Case*

South East Europe Energy Outlook 2025/2026:

Study Presentation and Energy Markets Challenges

*conference organised by Institute of Energy for South-East Europe (IENE), in partnership with the
Chamber of Commerce and Industry of Serbia (CCIS)*

Thursday, October 1, 2026

Aleksandar Kovacevic

The Energy Challenge

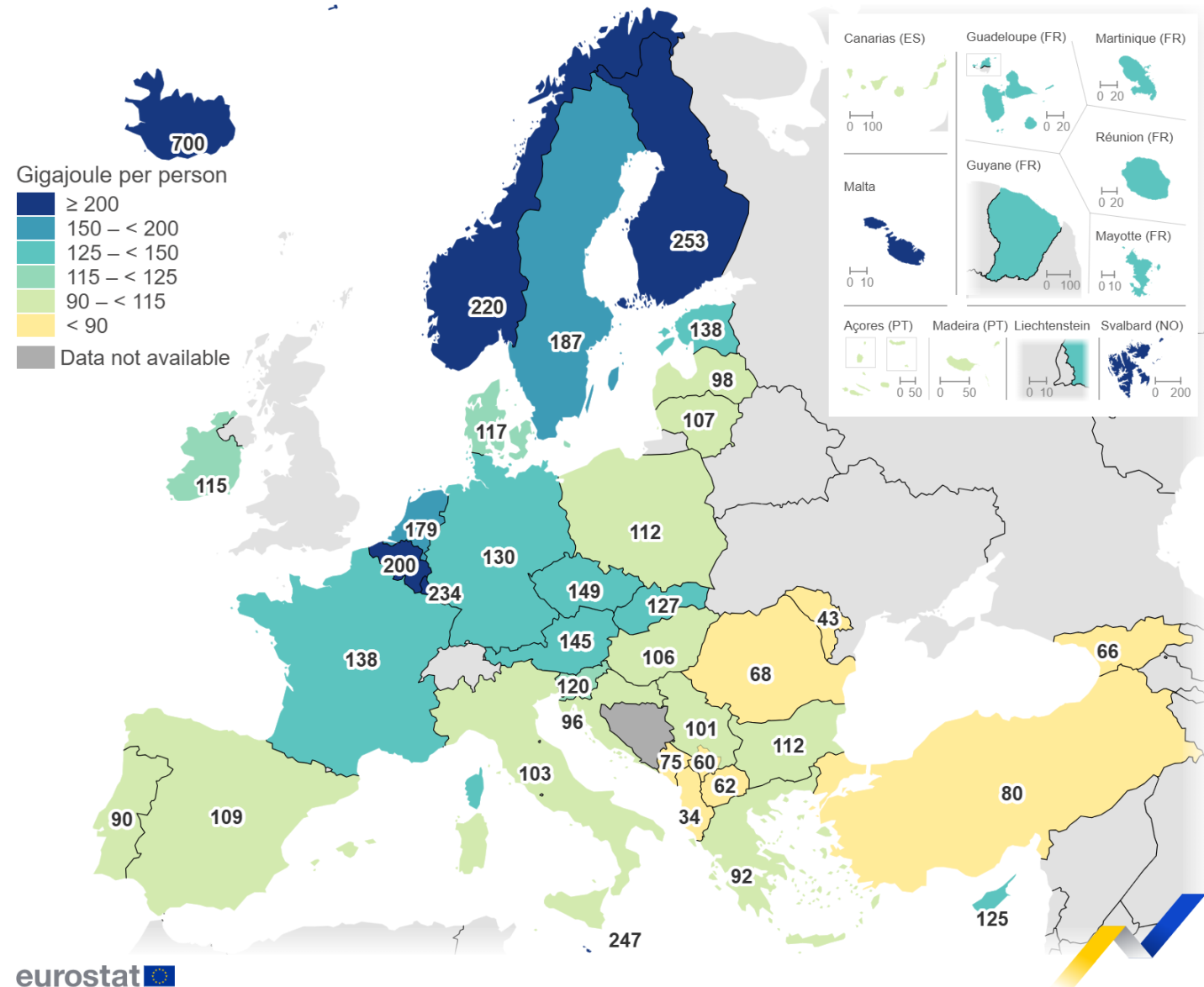
- Too little energy per capita to sustain economic convergence and development while its economic use is constrained
- Energy too expensive to support internationally competitive business
- Security of supply exposed on both sides — fragile import routes and fragile domestic energy supply chains – both exposed to climate risks: draughts, forest fires, floods and erosion; in addition.
- Investment constrained by high cost of capital and fragmented markets
- An outdated energy policy framework that perpetuates these constraints

Too little energy per capita to sustain economic convergence and development

Produces too little GDP and too little purchasing power per capita to support EU integration, sustain social and political stability, maintain peace and prevent conflicts.

In parallel: GDP formation per unit of energy is way too low in international comparisons

Energy consumption per capita, 2023



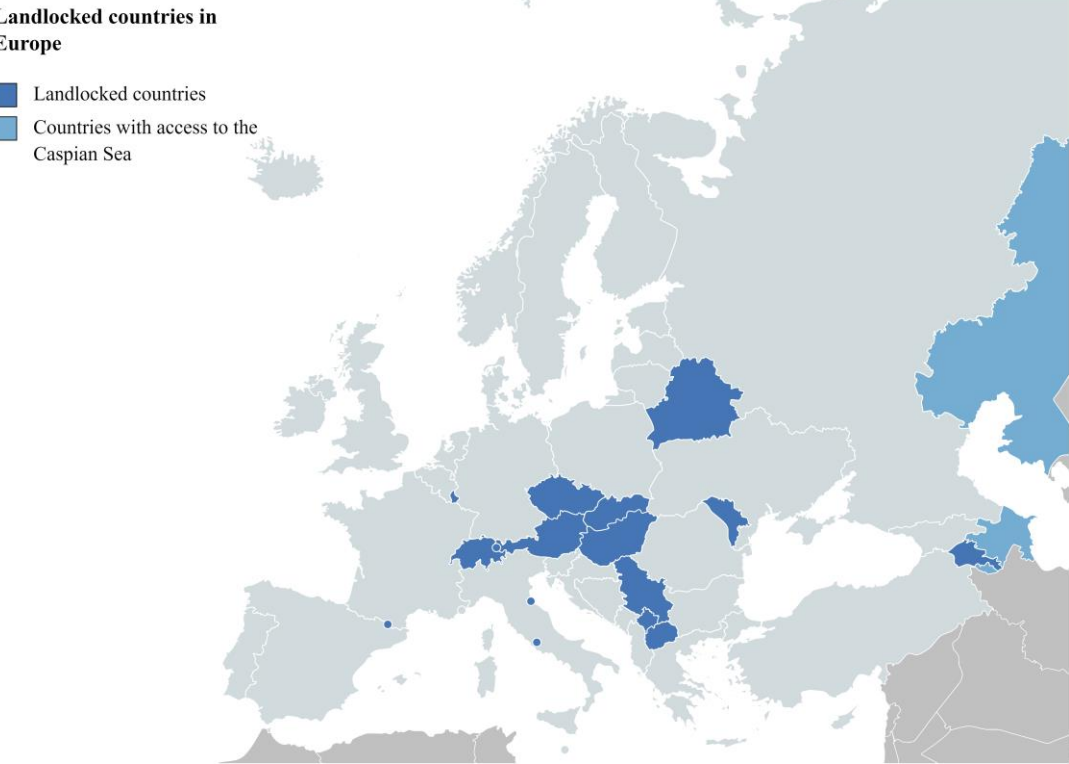
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Administrative boundaries: © EuroGeographics © OpenStreetMap

Cartography: Eurostat – IMAGE, 05/2025

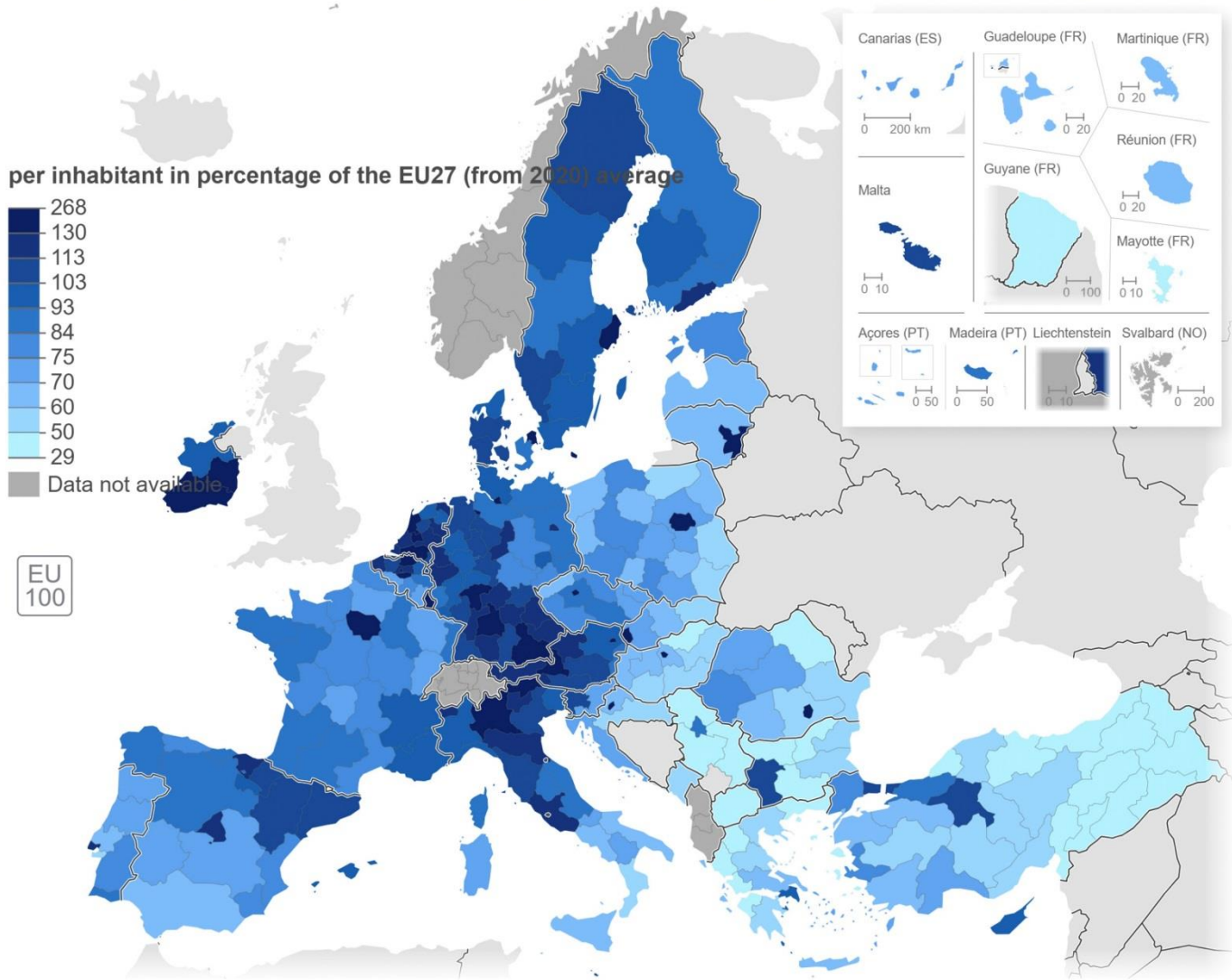
Kosovo* - This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

Central and South-Eastern Europe: Landlocked and effectively landlocked countries (due to lack of economy of scale at key ports or major transport routes) are failing to access seaborne energy markets



Source:
https://commons.wikimedia.org/wiki/File:Landlocked_countries_in_Europe.png

Gross domestic product (GDP) at current market prices
by NUTS 2 region, 2024 in Purchasing power standard (PPS, EU27 from 2020),

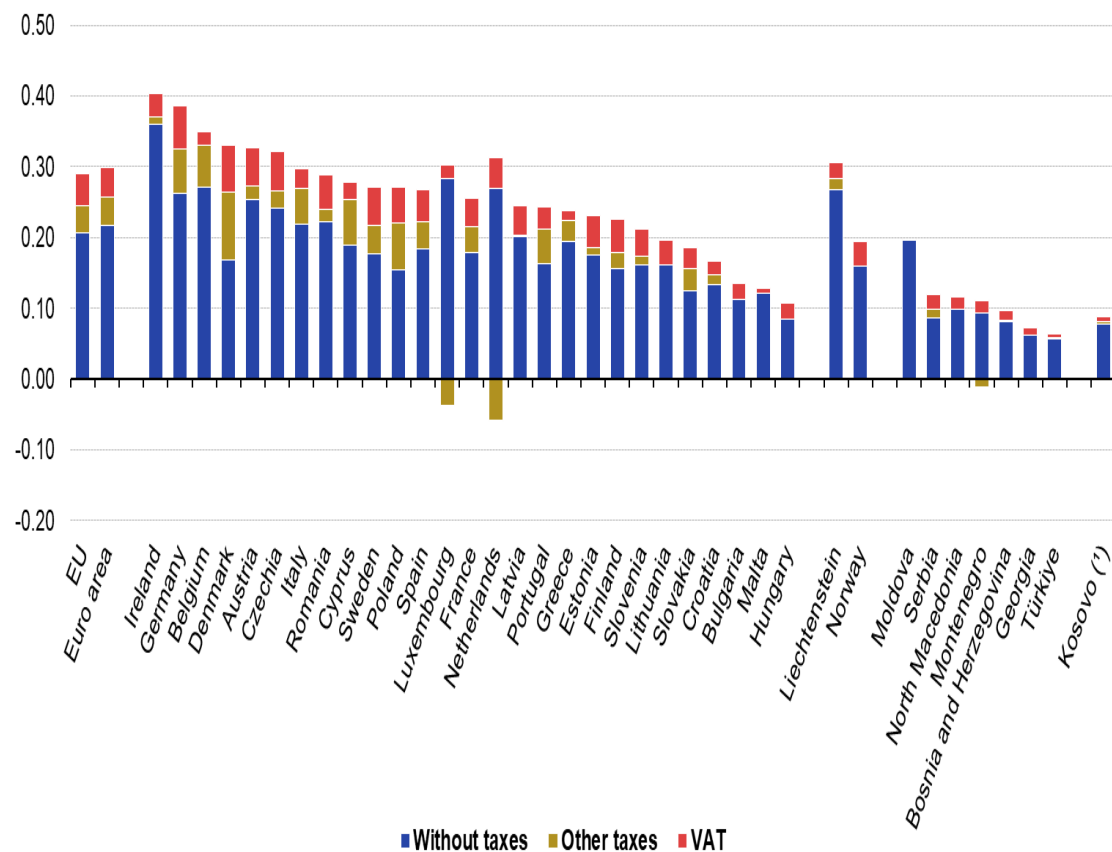


Source: Eurostat (dataset code nama_10r_3gdp)

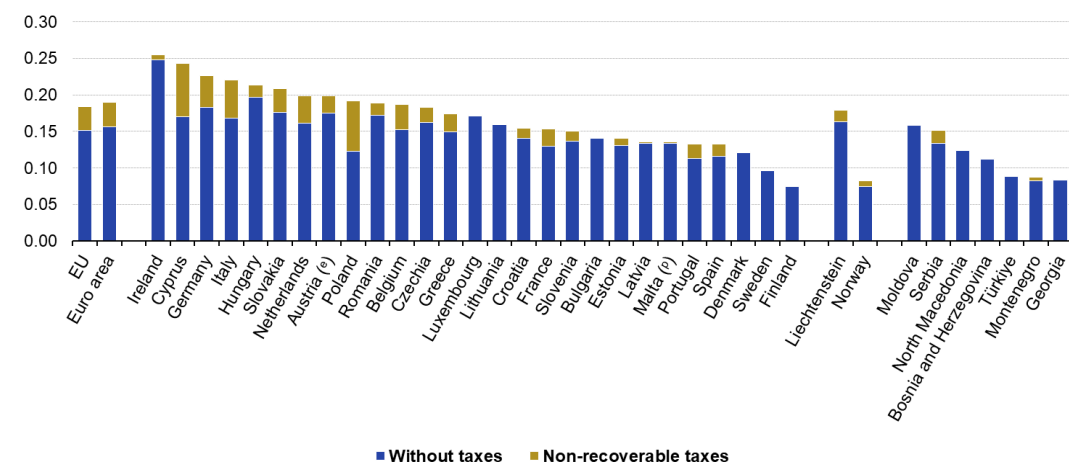
Administrative boundaries: © EuroGeographics © OpenStreetMap
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Even before application of CBAM, domestic power generation too expensive to offer competitive power to commercial consumers

Electricity prices for household consumers, second half 2025
(€ per kWh)



Electricity prices for non-household consumers, second half 2025
(EUR per kWh)



(*) Estimate
(*) Provisional
Note: Data not available for Iceland, Albania
Source: Eurostat (online data code: nrg_pc_205)

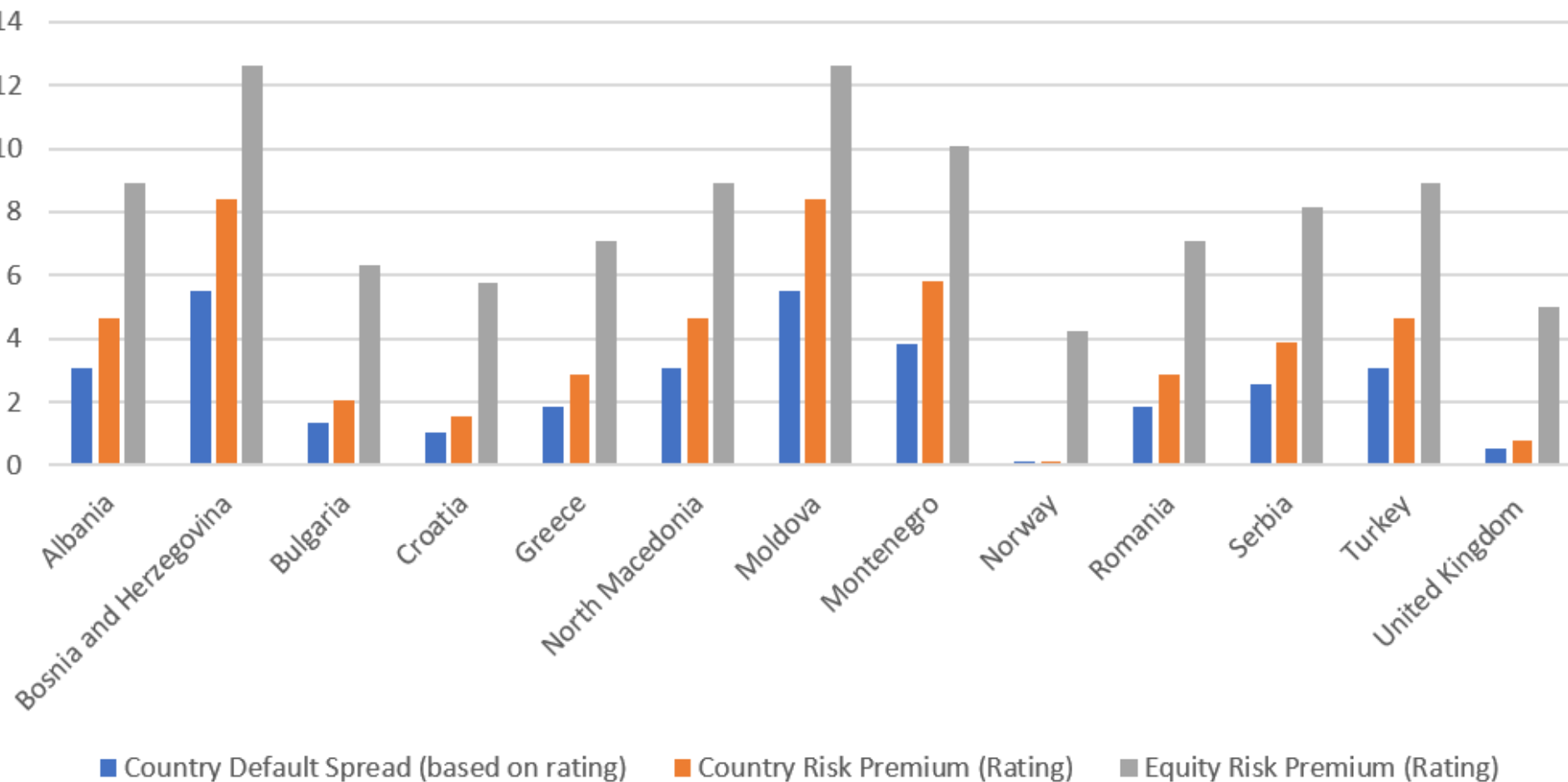
eurostat

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Source: Eurostat (online data code: nrg_pc_204)

Weighted Average Cost of Capital (WACC) is higher in this region than elsewhere in Europe

Cost of Capital Risk Premiums by Economy (%)



Source: Retrieved from https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

by Aswath Damodaran, New York University - Stern School of Business; New York University (NYU) - Leonard N. Stern School of Business

Despite major “integration” initiatives key policy instruments prolong market fragmentation...

Fragment	Key Issues and <i>Impacts</i>	Fragment
Black Sea & Central Asia commodity market	River-to-Sea going transport along Danube: Outdated Danube Convention: <i>Fertilizers, oil products, crude oil, coal, cereals, timber...</i>	Central Europe commodity market
Western Balkans electricity market	CBAM & Access to Modernization Fund: <i>Hydro power & grid stability, Decarbonization</i>	European electricity market
Mediterranean	Balkan railways, pipelines and port access combined with loss of economy of scale in ports: <i>Food, fertilizers, LNG, natural gas, industrial products, vehicles...</i>	Central Europe
Mediterranean	LNG transit through Bosphorus? <i>Integration to seaborne energy markets</i>	Black Sea & Central Europe Market
Black Sea & Mediterranean	Belgrade intermodal transport hub functionalities? <i>Complex inter-related multi-commodity market integration</i>	Central Europe

“The greatest danger in times of turbulence is not the turbulence – it is to act with yesterday’s logic.”

Peter Drucker

Table A: Comparative density of GDP per unit of land area between gas import, gas transit and gas export countries

Gas import countries		Want-to-be Gas transit countries		Gas export countries	
Country	GDP Per Land Area (million USD per sq. km.)	Country	GDP Per Land Area (million USD per sq. km.)	Country	GDP Per Land Area (million USD per sq. km.)
Germany	11.300	Greece	1.691	Azerbaijan	0.568
Italy	7.085	Croatia	1.090	Iraq	0.517
European Union	4.428	Romania	1.041	Russia	0.101
Austria	5.517	Türkiye	1.002	Turkmenistan	0.087
Euro area	5.094	Bulgaria	0.600	Kazakhstan	0.066
Czech Republic	3.176	Serbia	0.579	Iran	No data
		Albania	0.551	Algeria	0.073
		North Macedonia	0.502		
		Montenegro	0.409		
		Bosnia and Herzegovina	0.394		
Ukraine	0.226	Moldova	0.348	World	0.675

Eventual new pipeline infrastructure: geopolitics beyond economics ?

Accumulation of strategic risks.

Extracted from: <https://ritijain.com/2018/07/30/gdp-per-unit-land-area.html>

Best Available Technology (BAT)



Most Appropriate Technology (MAT)

by BREnDA

Standardized Most Appropriate Technology (MAT) Power plant to use different local fuels: biomass, deep geothermal, gas, MSW

Bespoke implementation of the Best Available Technology (BAT)

- A lot of (expensive) capital
- +
- A lot of (scarce) human resources
- +
- A lot of time (borrowed on expense of energy security)
- =
- Problems (successfully) preserved

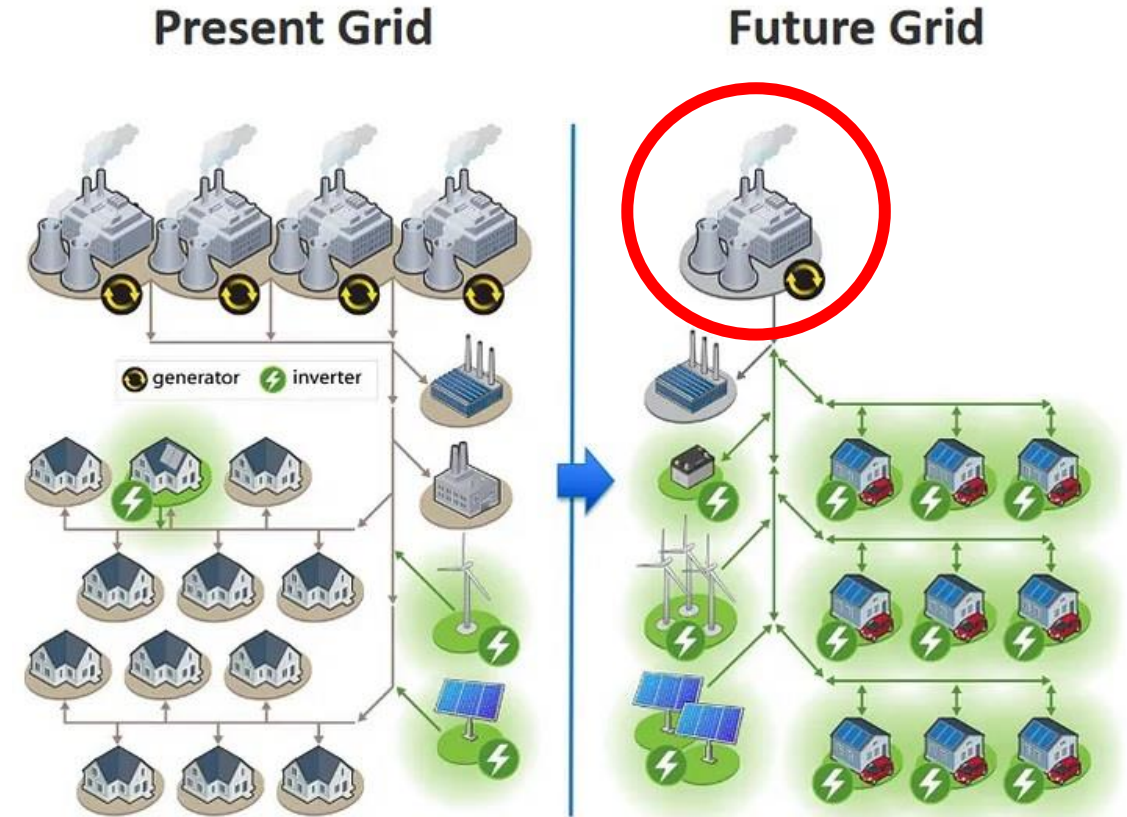
Replicable Most Appropriate Technology (MAT) by BREnDA

- A minimum of (expensive) capital
- +
- A focused deployment of (scarce) human resources
- +
- Rapid deployment to respond to energy security challenges
- =
- Problems resolved (by solving small failures along the way)

Investments by BREnDA to focus on synchronous generation plants

The future grid that will deliver appropriate security of supply is inevitably going to comprise dispatchable, flexible synchronous generation plants. These plants are intended to meet national electricity and heat demands while also providing a public service in the form of grid stability and balancing of *(much more)* intermittent renewable energy.

While intermittent renewable energy already attracts commercial investors, complex synchronous co-generation plants are **best developed by the public private partnership between private investor with specialist knowledge: the Balkan Renewable Energy Development Accelerator (BREnDA); and the incumbent utility that is responsible for security of supply able to mobilize domestic energy resources, industrial organization and (up)skilled labour.**



Source: B. Kroposki et al., "Achieving a 100% Renewable Grid: Operating Electric Power Systems with Extremely High Levels of Variable Renewable Energy," in IEEE Power and Energy Magazine, vol. 15, no. 2, pp. 61–73, March-April 2017, doi: 10.1109/MPE.2016.2637122. at <https://dannykusuma.medium.com/power-system-without-rotating-inertia-is-it-possible-ec510c66a85c>