

Transitioning to clean electricity production in every region (SDG 7)

Remote regions produce the most electricity using renewable sources and generate 36% of the clean electricity in OECD countries.

The transition to zero-carbon electricity production requires investing in renewable sources of energy and abandoning the use of fossil fuels. Among the main fossil fuels used in electricity generation, coal is particularly emission-intensive and its unabated use will need to be phased out first. In the Powering Past Coal Alliance, many OECD countries have committed to exiting all unabated coal-fired electricity generation by 2030 (unless CO₂ emissions are captured and stored) – consistent with the Paris Agreement. Although capturing and storing emissions is an option towards climate objectives, which has not yet been deployed at scale, the use of renewable sources is the main strategy to decarbonise electricity.

Regions located further away from metropolitan areas are leading in clean electricity. Such regions, which account for 27% of the electricity produced in OECD countries, generate 44% of their electricity using renewable sources. Among them, remote regions record a higher share of renewables (51% of total production) than regions that are close to a small or medium city (32% of total production). Taken together, regions far from metropolitan areas account for around half of the total electricity produced from renewable sources in the OECD, with hydropower being the most used renewable source (Figure 3.12-Figure 3.13).

Overall, the use of renewable sources tends to increase with distance to metropolitan areas. Metropolitan regions, which are home to around 70% of the OECD population, generate almost 60% of the total electricity in OECD countries but only 16% of their total electricity production comes from renewable sources. The dependency on fossil fuels (including coal) for electricity production in metropolitan regions remains high, raising their carbon emissions and associated long-term environmental risks. In 2017, metropolitan regions generated 29% of their electricity using coal and 37% using other fossil fuels (Figure 3.12-Figure 3.13).

Electricity production from renewable sources is also very unequal across regions of the same country. In 14 OECD countries, the use of renewable sources is particularly concentrated, with regions far from metropolitan areas generating twice as much of their electricity through renewable sources compared to metropolitan regions. The differences are largest in Canada, Finland, Germany and Latvia (Figure 3.14). Similarly, electricity production from clean energy sources is

also highly concentrated across large OECD regions (TL2). Available estimates indicate (see Annex C) that in around three-quarters of OECD countries, the share of electricity produced through renewable sources can be more than 50 percentage point higher than in the region with the lowest share in the same country.

Definition

Indicators on production of electricity are based on the Global Power Plant Database (GPPD). The GPPD provides information on power plants located in 164 countries all over the world, including the 37 OECD countries. For each power plant, the GPPD provides the geographic coordinates, the energy source, the generation capacity (the maximum power that the plant can deliver) and the gross annual electricity generation (i.e. the electricity consumption of the power plant for its operation is not deducted). See methodology to estimate electricity indicators at the regional level in Annex C.

Renewable energy sources include hydropower, wind, waste, biomass, wave and tidal, geothermal and solar.

Fossil fuels are divided into two subcategories: coal, which corresponds to the most carbon-intensive energy source; and the other fossil fuels, including oil, petroleum coke and gas.

Sources

Byers, L. et al. (2020), *A Global Database of Power Plants*, <https://www.wri.org/publication/global-power-plant-database>.

OECD (2020), *OECD Regional Statistics (database)*, OECD, Paris, <http://dx.doi.org/10.1787/region-data-en>.

See country metadata in Annex B.

Reference years and territorial level

See territorial grids and regional typology in Annex A.

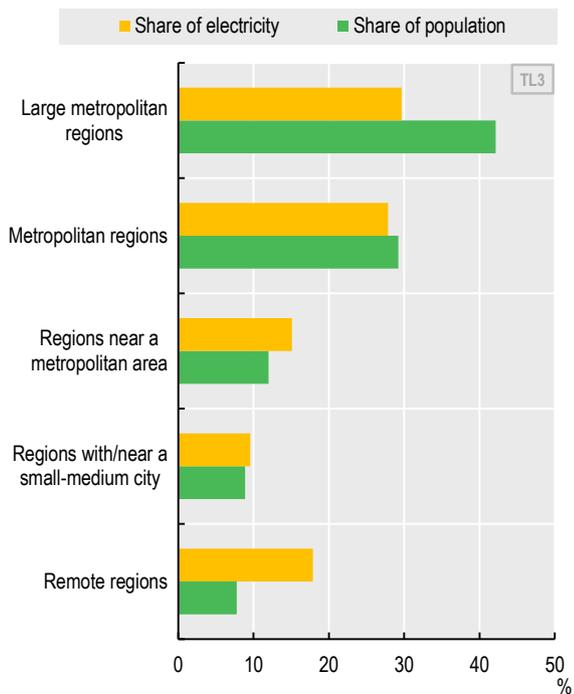
Figure notes

Figure 3.12-Figure 3.13: Weighted averages by type of small regions (TL3) across 35 OECD countries. COL and EST are not included.

3. ENVIRONMENTAL RESILIENCE AND SUSTAINABLE DEVELOPMENT

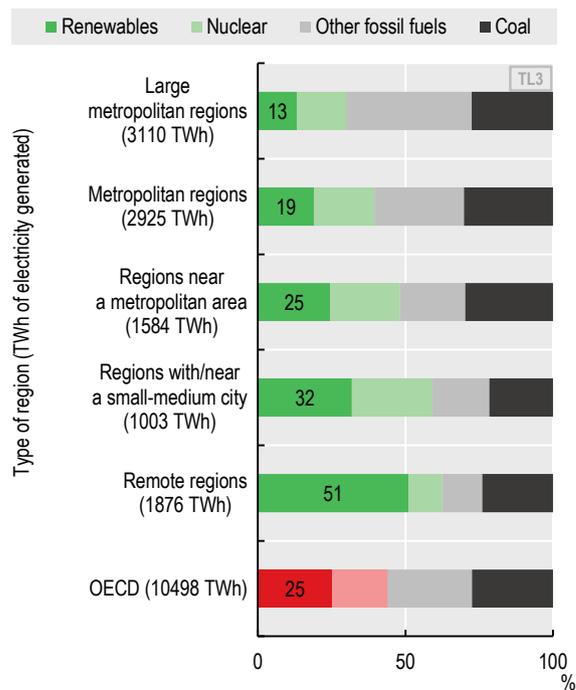
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3.12. Share of total electricity production by type of small regions (TL3), 2017



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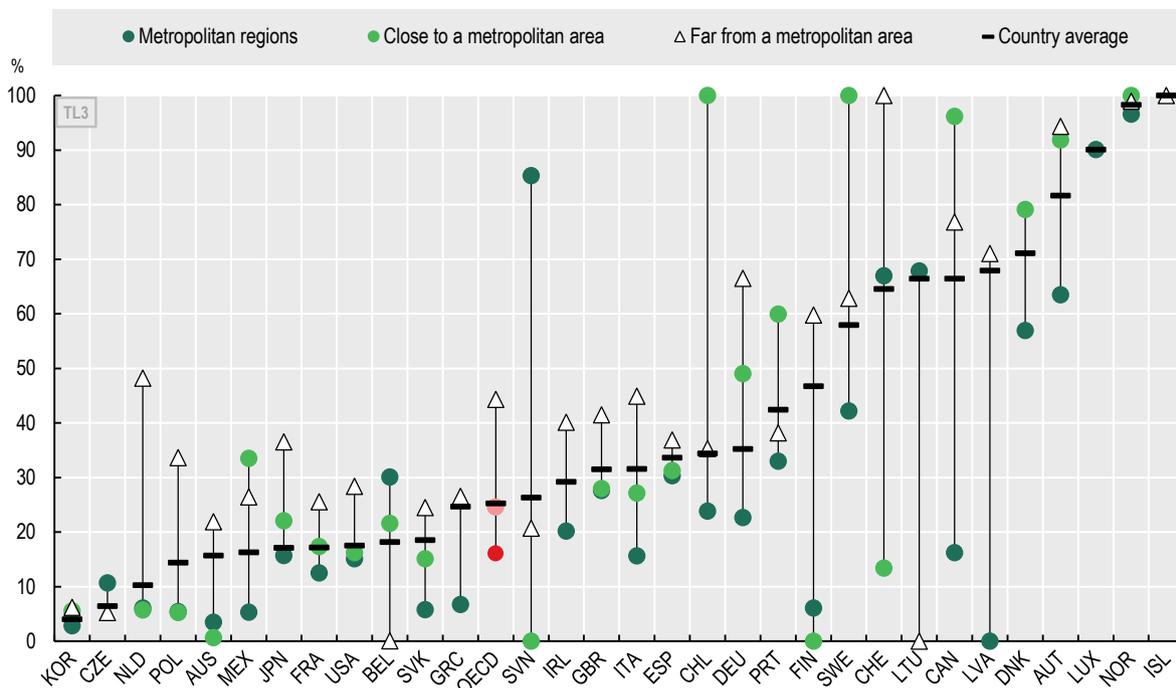
3.13. Sources of electricity production by type of small regions (TL3), 2017



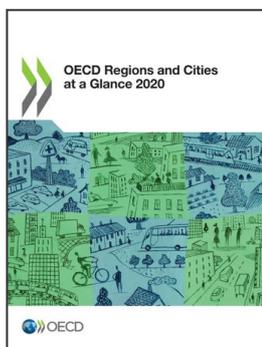
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3.14. Regional differences in electricity production from renewables, 2017

Electricity from renewable sources as a percentage of total electricity production, by type of small regions (TL3)



StatLink <https://doi.org/10.1787/888934190286>



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