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4 Europe
4.1 Eastern Europe

4.1.7 Romania
European Small Hydropower Association, Stream Map

Key facts

<table>
<thead>
<tr>
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<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>21,848,504</td>
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<tr>
<td>Area</td>
<td>238,391 km²</td>
</tr>
<tr>
<td>Climate</td>
<td>Temperate; cold, cloudy winters with frequent snow and fog; sunny summers with frequent showers and thunderstorms</td>
</tr>
<tr>
<td>Topography</td>
<td>Central Transylvanian Basin is separated from the Moldavian Plateau on the east by the Eastern Carpathian Mountains and separated from the Walachian Plain on the south by the Transylvanian Alps</td>
</tr>
<tr>
<td>Rain pattern</td>
<td>Total average precipitation is over 750 mm.</td>
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Electricity sector overview
The Romanian electricity market was fully liberalized in 2007. The Regulatory Authority for Energy (ANRE) regulates, monitors and controls the operation of the energy sector, electricity and natural gas markets under competition, transparency, efficiency and consumer protection. It implements and monitors measures of national energy efficiency and promotes the renewable energy use of end consumers. Total electricity production in the country was 60,385 GWh in 2011, 1,036 GWh of electricity was imported and 2,942 GWh were exported. Hydropower represents around 27 per cent of electricity generation (figure 1). Due to a major drought that impacted hydropower production, in October 2011, the force majeure clause was activated upon contractual hydro energy obligations.

Small hydropower sector overview and potential
In 2010, Romania had 274 small hydropower plants and a total installed capacity of 387 MW generating 719 GWh per year (see figure 2). By 2020, the aim is to double the number of plants to nearly 550 plants with a total installed capacity of 730 MW (generating 1,360 GWh).

Renewable energy policy
The renewable energy target by 2020 is 24 per cent, according to its National Renewable Energy Action Plan (NREAP). A tradable green certificates system exists to promote new renewable energy, particularly hydropower with capacity ≤10 MW, wind energy, biomass, biogas, biofuels, geothermal energy as well as solar energy.

Legislation on small hydropower
The residual flow is imposed by the Ministry of Environment and Forests through its administration the Romanian Waters National Association (ANAR) for each site in the permit of water use. As a common requirement, the reserved flow is imposed to be greater than 10 per cent of the mean flow.

The support scheme is built on mandatory quotas combined with tradable green certificates. For the green electricity produced by small hydropower plants, there are three options to be sold; by bilateral contracts at negotiated prices, on the day-ahead market or to distribution companies at a regulated price which is about €31/MWh with prices in the range of €27-€55 until 2014 and with a minimum guaranteed price of €27 for the period 2015 to 2030.
Small hydropower therefore receives green certificates (GC) according to the following scheme:
- 3 GC/MWh for new plants for 15 years.
- 2 GC/MWh for refurbished plants for 10 years.
- 0.5 GC/MWh for old plants for 3 years.

**Barriers to small hydropower development**

In Romania, the media is portraying small hydropower as having a negative impact on the environment, leading to low public support and social acceptance for small hydropower development.\(^6\)

The Renewable Energy Framework Directive pushes forward the development of small hydropower. But at the same time, the Water Framework Directive imposes the environmental flow from defining water body statuses and protected areas which could produce a loss in energy at some sites or completely block some small hydropower development. The harmonization of the two Directives remains one of most important goals of the Romanian Government.\(^6\)

For new projects, the developer must have an environmental impact assessment in order to obtain the environmental permit which stipulates all the demands in respect of the environment to be fulfilled by the small hydropower developer.

Stream Map recommends the creation of a ‘one-stop shop’ for small hydropower investors as well as more cooperation among the Ministry of Environment and Ministry of Economy, Commerce and Business Environment, respectively Romanian Waters National Administration and Hidroelectrica, when issuing new laws, decisions, regulations and for the re-evaluation of the small hydropower potential for all rivers.\(^6\)

**References**
