4 Europe
4.1 Eastern Europe

4.1.10 Ukraine
Pascal Hauser, International Center on Small Hydro Power

Key facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>44,854,065</td>
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<tr>
<td>Area</td>
<td>603,550 km²</td>
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<td>Climate</td>
<td>Temperate continental; Mediterranean only on the southern Crimean coast; precipitation disproportionately distributed, highest in west and north, lesser in east and southeast; winters vary from cool along the Black Sea to cold farther inland; summers are warm across the greater part of the country, hot in the south.³</td>
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<td>Topography</td>
<td>Most of Ukraine consists of fertile plains (steppes) and plateaus, mountains being found only in the west (the Carpathians), and in the Crimean Peninsula in the extreme south.¹</td>
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<td>Rain pattern</td>
<td>Rainfall is unevenly distributed, with more precipitation in the north and west due to the influence of the Carpathian Mountains. Regular snowfalls between October and April.</td>
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Electricity sector overview
In 2011, the total electricity production in Ukraine was 193,899 GWh with a total installed capacity of 53,490 MW. Ukraine exported electricity to Russia, Belarus, Moldova, Hungary, Slovakia and Romania, increasing its electricity exports to 6,430 GWh.² The bulk of electricity generation is based on fossil fuel and nuclear power plants (figure 1). The Ministry of Fuel and Energy manages the energy sector. UkrhydroEnergo is the main generating utility managing hydro plants.

Small hydropower sector overview and potential
Ukraine has a total of over 4,700 MW hydropower capacity, the majority being large hydro stations, eight of them on the Dnipro River with a total capacity of 3,907 MW and one on the Dniester River with 700 MW.⁴ Ukraine’s economically feasible hydro-energetic potential is 16,300 GWh, the big rivers’ potential now being almost fully developed.

Around 64 small hydropower plants (capacity less than 10 MW) were operating in 2011, with a total capacity of more than 104 MW, generating around 250 GWh/year (figure 2).⁵ There are also about 100 small hydropower stations that are not operational but could be restored.⁴ The potential of small rivers in Zakarpatska, Lvivska and Chernivetska Oblasts is barely used, over 10 Ukrainian as well as foreign companies have expressed the desire to build small hydropower plants in Ukraine.⁵ ⁶ Small hydropower potential is estimated at 2,900 GWh/year. Plans are there to develop small hydropower on Tissa river in the Carpathian mountains.

Figure 2 Small hydropower capacities in Ukraine
Source: Interfax⁷

Ukraine has a major hydropower resource in its nearly 63,000 small rivers; they totalled up to 28 per cent of the country’s total hydropower potential. Developing mini hydropower would encourage the decentralization of the country’s energy system and resolve the problem of providing power in hard-to-reach rural areas. For instance, in western Ukraine, micro-, mini- and small-hydropower plants could become the main source of power supply. Main direction for further hydro development will be the rehabilitation of existing hydro plants.

Renewable energy policy
The Ukrainian Government has launched various programmes to develop the use of renewable energies, for example the Energy Strategy presented in 2006, has included an improvement of the security of energy supply and a reduction in energy consumption.⁷ This was updated in mid-2011 and again in 2012, where the role of nuclear power was emphasized with 5,000 MW to 7,000 MW of new nuclear proposed by 2030.⁸ A law on a green tariff was adopted in 2008. It applies to electricity produced from renewable energy sources, including small hydropower but excluding blast furnace gas, coke oven gas.⁴
Barriers to small hydropower development

Small hydropower needs little capital input and provides both cheap and ecologically clean energy. However, it is not being developed in Ukraine at the moment because the Government is not offering any support.9

References