# RENEWABLES INTERACTIVE MAP COUNTRY PROFILE: Romania

## 1. SUMMARY

### 1.1 Country Overview

| | |
|---|---|
| Country size | 238 391 km² |
| Population | 22 215 421 |
| GDP | 189 776 000 000 |
| Energy production | 28 782 ktoe/year |
| Energy consumption | 26 495 ktoe/year |

### 1.3 Policies Overview Table

| Financial Incentives | | | Public Financing | | Regulatory Policies | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Capital subsidy, grant, or rebate | Tax incentives | Energy production payment | Public investment, loans, or | Public competitive bidding | Feed-in tariff | Utility quota obligation | Net metering | Obligation and mandate | Tradable renewable energy certificate |
| | ✓ | | ✓ | | | ✓ | | ✓ | ✓ |

### 1.4 RE Status Overview (non-technology especific)

| | Primary Energy | Final Energy Consumption | Electricity Production | Heating/Cooling Production | Transportation | RE Installed Capacity |
|---|---|---|---|---|---|---|
| Share | 15.5 %<br>2011 | 22.9 %<br>2012 | 24 %<br>2012 | | | 6.4 GW<br>2010 |
| | 16.3 %<br>2010 | 21.2 %<br>2011 | 26 %<br>2011 | | | 6.4 GW<br>2009 |
| | | 15.1 %<br>2010 | 33.5 %<br>2010 | | | |
| | | 14.3 %<br>2009 | 27.3 %<br>2009 | | | |

* = Conflicting data exists (see respective table below)

## 2. Renewable Energy Policies

### 2.1 Obligation and mandate

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Non-Technology specific | 11.1 % | Industrial consumers quota obligation for renewable energy gross power consumption. | 2014 | Reuters. "Romania caps green energy quota to help large industrial firms," 26 March 2014 |
| Non-Sector specific | Non-Technology specific | | Biofuels mandates exist. | 2013 | Global Status Report (GSR) 2014. "Country Profile Romania" |
| Non-Sector specific | Non-Technology specific | | Biofuels obligation/mandate exists. | 2012 | Global Status Report (GSR) 2013. "Country Profile Romania" |

### 2.2 Public investment, loans, or financing

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | | Public investment exists. | 2013 | Global Status Report (GSR) 2014. "Country Profile Romania" |
| Non-Sector specific | Non-Technology specific | | Public investment, loans or grants exist. | 2012 | Global Status Report (GSR) 2013. "Country Profile Romania" |

## 2.3 Tax incentives

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | | Reductions in sales, energy, CO2, VAT or other taxes exist. | 2012 | Global Status Report (GSR) 2013. "Country Profile Romania" |

## 2.4 Tradable renewable energy certificate (REC)

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Wind | 0.75 certificates/MWh | Renewable Energy Certificate for wind power. | 2018 | Euractiv. "Romania slashes renewable energy subsidies," 18 December 2013 |
| Electricity | Wind | 1.5 certificates/MWh | Renewable Energy Certificate for wind power. | 2014-2017 | Euractiv. "Romania slashes renewable energy subsidies," 18 December 2013 |
| Non-Sector specific | Non-Technology specific | | Tradable RECs exist. | 2013 | Global Status Report (GSR) 2014. "Country Profile Romania" |
| Electricity | Solar PV | 3 certificates/MWh | Renewable Energy Certificate for solar power. | 2013 | Euractiv. "Romania slashes renewable energy subsidies," 18 December 2013 |
| Electricity | Hydropower | 2.7 certificates/MWh | Renewable Energy Certificate for hydropower. | 2013 | Euractiv. "Romania slashes renewable energy subsidies," 18 December 2013 |
| Electricity | Hydropower | 2 certificates/MWh | Renewable Energy Certificate for hydropower. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Hydropower | 0.5 certificates/MWh | Renewable Energy Certificate for hydropower. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Geothermal | 2 certificates/MWh | Renewable Energy Certificate for geothermal. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Biogas | 2 certificates/MWh | Renewable Energy Certificate for biogas. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Solid Biomass | 2 certificates/MWh | Renewable Energy Certificate for biomass. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Biofuels | 2 certificates/MWh | Renewable Energy Certificate for biofuels. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Biogas | 1 certificates/MWh | Renewable Energy Certificate for anaerobic digestion. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Biogas | 1 certificates/MWh | Renewable Energy Certificate for sewage gas. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 8.3 % | Tradable green certificates purchase quota. | 2010 | European Renewable Energy Council (EREC). "Renewable energy policy review" |
| Electricity | Non-Technology specific | 27-55 EUR | Price range for tradable green certificates. | 2009 | European Renewable Energy Council (EREC). "Renewable energy policy review" |

## 2.5 Utility quota obligation

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Non-Technology specific | 20 % | Utility quota obligation. | 2020 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 19.5 % | Utility quota obligation. | 2019 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 19 % | Utility quota obligation. | 2018 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 18 % | Utility quota obligation. | 2017 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 17 % | Utility quota obligation. | 2016 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 16 % | Utility quota obligation. | 2015 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 15 % | Utility quota obligation. | 2014 | Res Legal. "Quota System," updated 5 November 2013 |
| Non-Sector specific | Non-Technology specific | | Renewable Portfolio Standards exist. | 2013 | Global Status Report (GSR) 2014. "Country Profile Romania" |
| Electricity | Non-Technology specific | 14 % | Utility quota obligation. | 2013 | Res Legal. "Quota System," updated 5 November 2013 |
| Non-Sector specific | Non-Technology specific | | Renewable Portfolio Standards exist. | 2012 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Electricity | Non-Technology specific | 12 % | Utility quota obligation. | 2012 | Res Legal. "Quota System," updated 5 November 2013 |
| Electricity | Non-Technology specific | 10 % | Utility quota obligation. | 2011 | Res Legal. "Quota System," updated 5 November 2013 |

# 3. Renewable Energy Targets

## 3.1 Electricity

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Wind | 4,000.00 MW | Targeted total wind installed capacity. | 2020 | EurObserv´ER. "The state of renewable energies in Europe - 10th EurObserv'ER Report" |
| Electricity | Non-Technology specific | 43 % | Targeted share of renewable in electricity generation. | 2020 | Austrian Energy Agency. "Renewable Energy Action Plan. Romania Country Profile" |
| Electricity | Non-Technology specific | 35 % | Targeted share of renewables in electricity generation. | 2015 | Global Wind Energy Council (GWEC). "Global Wind Report - Annual market update 2010" |
| Electricity | Non-Technology specific | 33 % | Targeted share of renewable energies in gross electricity consumption. | 2010 | Europe - Summaries of EU legislation. "Promotion of the use of energy from renewable sources" |

## 3.2 Final energy

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | 24 % | Targeted share of renewable energies in gross final energy consumption. | 2020 | Europe - Summaries of EU legislation. "Promotion of the use of energy from renewable sources" |
| Heating/Cooling | Non-Technology specific | 22 % | Targeted share of renewable energies in gross final heating/cooling consumption. | 2020 | Romania Ministry of Economy, Commerce and Business Environment. "National Renewable Energy Action Plan (NREAP)" |
| Electricity | Non-Technology specific | 43 % | Targeted share of renewable energies in gross final electricity consumption. | 2020 | Romania Ministry of Economy, Commerce and Business Environment. "National Renewable Energy Action Plan (NREAP)" |

### 3.3 Heating/cooling consumption

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Heating/Cooling | Non-Technology specific | 22 % | Targeted share of renewable in final heating/cooling consumption | 2020 | Austrian Energy Agency. "Renewable Energy Action Plan. Romania Country Profile" |

### 3.4 Not specified

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | | Renewable energy targets exist. | 2013 | Global Status Report (GSR) 2014. "Country Profile Romania" |

### 3.5 Transport

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Transport | Biofuels | 10.0 % | Targeted share of renewables in transport. | 2020 | Bloomberg New Energy Finance. "Week in Review Vol. VI, Issue 201," 17 September 2013. |
| Transport | Non-Technology specific | 10 % | Targeted share of renewable in final transport energy consumption. | 2020 | Austrian Energy Agency. "Renewable Energy Action Plan. Romania Country Profile" |

## 4. Renewable Energy Shares

### 4.1 Electricity production

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Non-Technology specific | 24 % | Share of renewables in electricity generation. | 2012 | Global Status Report (GSR) 2014. "Country Profile Romania" provided by Ulrike Radosch, ENERCEE |
| Electricity | Non-Technology specific | 26.8 % | Share of renewables in electricity generation | 2011 | Observ´ER. "Worldwide electricity production from renewable energy sources" |
| Electricity | Solar PV | 0.0 % | Share of solar PV in electricity generation | 2011 | Observ´ER. "Worldwide electricity production from renewable energy sources" |
| Electricity | Solid Biomass | 0.0 % | Share of biomass in electricity generation | 2011 | Observ´ER. "Worldwide electricity production from renewable energy sources" |

| | | | | | |
|---|---|---|---|---|---|
| Electricity | Wind | 2.3 % | Share of wind power in electricity generation | 2011 | Observ´ER. "Worldwide electricity production from renewable energy sources" |
| Electricity | Hydropower | 24.5 % | Share of hydropower in electricity generation | 2011 | Observ´ER. "Worldwide electricity production from renewable energy sources" |
| Electricity | Non-Technology specific | 28.1 % | Share of renewables in electricity generation. | 2011 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Electricity | Non-Technology specific | 26 % | Share of renewables in electricity generation. | 2011 | Global Status Report (GSR) 2014. "Country Profile Romania" provided by Ulrike Radosch, ENERCEE |
| Electricity | Non-Technology specific | 34.0 % | Share of renewables in electricity generation | 2010 | Observ´ER. "Worldwide electricity production from renewable energy sources" |
| Electricity | Non-Technology specific | 33.5 % | Share of renewables in electricity generation. | 2010 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Electricity | Non-Technology specific | 27.3 % | Share of renewables in electricity generation | 2009 | Observ´ER. "Worldwide electricity production from renewable energy sources" |

## 4.2 Final energy

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | 22.9 % | Share of renewables in gross final energy consumption. | 2012 | Eurostat. "Share of renewable energy in gross final energy consumption" |
| Non-Sector specific | Non-Technology specific | 21.2 % | Share of renewables in gross final energy consumption. | 2011 | Eurostat. "Share of renewable energy in gross final energy consumption" |
| Non-Sector specific | Non-Technology specific | 23.2 % | Share of renewables in gross final energy consumption. | 2010 | Eurostat. "Share of renewable energy in gross final energy consumption" |
| Non-Sector specific | Non-Technology specific | 15.1 % | Share of renewable energies in total gross inland energy consumption. | 2010 | EurObserv´ER. "The state of renewable energies in Europe - 11th EurObserv´ER Report" |
| Non-Sector specific | Non-Technology specific | 21.4 % | Share of renewables in gross final energy consumption. | 2010 | EurObserv´ER. "The state of renewable energies in Europe - 11th EurObserv´ER Report" |
| Non-Sector specific | Non-Technology specific | 22.6 % | Share of renewables in gross final energy consumption. | 2009 | Eurostat. "Share of renewable energy in gross final energy consumption" |
| Non-Sector specific | Non-Technology specific | 14.3 % | Share of renewable energies in total gross inland energy consumption. | 2009 | EurObserv´ER. "The state of renewable energies in Europe - 11th EurObserv´ER Report" |
| Non-Sector specific | Non-Technology specific | 21.6 % | Share of renewables in gross final energy consumption. | 2009 | EurObserv´ER. "The state of renewable energies in Europe - 10th EurObserv'ER Report" |

## 4.3 Primary energy

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Non-Sector specific | Non-Technology specific | 15.5 % | Share of renewables in total primary energy supply. | 2011 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Non-Sector specific | Solid Biomass | 69.6 % | Share of biomass & waste in total renewables. | 2010 | Eurostat. "Renewable energy statistics" |

| | | | | | |
|---|---|---|---|---|---|
| Non-Sector specific | Geothermal | 0.4 % | Share of geothermal energy in total renewables. | 2010 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Hydropower | 29.5 % | Share of hydropower energy in] total renewables. | 2010 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Wind | 0.5 % | Share of wind energy in total renewables. | 2010 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Non-Technology specific | 16.3 % | Share of renewables in total primary energy supply. | 2010 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Non-Sector specific | Solid Biomass | 74.22 % | Share of biomass & waste in total renewables. | 2009 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Geothermal | 0.5 % | Share of geothermal energy in total renewables. | 2009 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Hydropower | 25.33 % | Share of hydropower energy in] total renewables. | 2009 | Eurostat. "Renewable energy statistics" |
| Non-Sector specific | Wind | 0.02 % | Share of wind energy in total renewables. | 2009 | Eurostat. "Renewable energy statistics" |

### 4.4 Transport

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Transport | Non-Technology specific | 3.1 % | Share of renewables in transport fuels. | 2011 | Global Status Report (GSR) 2013. "Country Profile Romania" |
| Transport | Non-Technology specific | 2.6 % | Share of renewables in transport fuels. | 2010 | Global Status Report (GSR) 2013. "Country Profile Romania" |

## 5. Installed Capacity

### 5.1 Installed capacity

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|
| Electricity | Wind | 2,599.0 MW | Total installed wind power capacity. | 2013 | World Wind Energy Association (WWEA). "World Wind Energy Report 2013 - List of Countries and Regions using Wind Power in 2013" |
| Electricity | Wind | 695.0 MW | Added installed wind power capacity. | 2013 | World Wind Energy Association (WWEA). "World Wind Energy Report 2013 - List of Countries and Regions using Wind Power in 2013" |
| Electricity | Solar PV | 1,100 MW | Total installed solar PV capacity. | 2013 | IEA Photovoltaic Power Systems Programme (IEA-PVPS). "PVPS Report Snapshot of Global PV 1992-2013" |
| Electricity | Solar PV | 1,150 MW | Added installed solar PV capacity. | 2013 | IEA Photovoltaic Power Systems Programme (IEA-PVPS). "PVPS Report Snapshot of Global PV 1992-2013" |
| Electricity | Wind | 695.0 MW | Added installed wind power capacity. | 2013 | Global Wind Energy Council (GWEC). "Global Wind Report 2013 - Annual market update," 9 April 2014 |

| | | | | | |
|---|---|---|---|---|---|
| Electricity | Wind | 2,600.0 MW | Total installed wind power capacity. | 2013 | Global Wind Energy Council (GWEC). "Global Wind Report 2013 - Annual market update," 9 April 2014 |
| Heating/Cooling | Solar heating/cooling | 89.99 MWth | Total installed glazed solar thermal capacity. | 2013 | European Solar Thermal Industry Federation (ESTIF). "Solar Thermal Markets in Europe. Trends and Market Statistics 2013," June 2014 |
| Heating/Cooling | Solar heating/cooling | 128,550 m² | Total installed glazed solar thermal collector area. | 2013 | European Solar Thermal Industry Federation (ESTIF). "Solar Thermal Markets in Europe. Trends and Market Statistics 2013," June 2014 |
| Heating/Cooling | Solar heating/cooling | 16,695 m² | Added installed glazed solar thermal collector area. | 2013 | European Solar Thermal Industry Federation (ESTIF). "Solar Thermal Markets in Europe. Trends and Market Statistics 2013," June 2014 |
| Electricity | Solar PV | 972.7 MWp | Added installed solar PV capacity. | 2013 | EurObserv´ER. "Photovoltaic Barometer," April 2014 |
| Electricity | Solar PV | 1,022 MWp | Total installed solar PV capacity. | 2013 | EurObserv´ER. "Photovoltaic Barometer," April 2014 |
| Electricity | Wind | 2,459 MW | Total installed wind power capacity. | 2013 | EurObserv´ER. "Wind Energy Barometer," February 2014 |
| Electricity | Wind | 637 MW | Added installed wind power capacity. | 2013 | EurObserv´ER. "Wind Energy Barometer," February 2014 |
| Heating/Cooling | Solar heating/cooling | 9,000 m² | Added installed flat plate-glazed solar thermal collectors area. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 14,850 m² | Added installed vacuum-glazed solar thermal collectors area. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 180.0 m² | Added installed unglazed solar thermal collectors area. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 24,030 m² | Added installed solar thermal collectors area. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 16.8 MWth | Added installed solar thermal collectors capacity. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 133,355 m² | Total installed solar thermal collectors area. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |
| Heating/Cooling | Solar heating/cooling | 93.3 MWth | Total installed solar thermal collectors capacity. | 2013 | EurObserv´ER. "Solar Thermal and Concentrated Solar Power Barometer," May 2014 |

# 6. Energy Production

## 6.1 Energy production

| Sector | Technology | Value | Description | Year | Reference |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Electricity | Solar PV | 397.8 GWh | Total solar PV electricity generation. | 2013 | EurObserv´ER. "Photovoltaic Barometer," April 2014 |
| Electricity | Wind | 4,047 GWh | Total wind power electricity generation. | 2013 | EurObserv´ER. "Wind Energy Barometer," February 2014 |
| Electricity | Wind | 2.9 TWh | Wind power electricity generation. | 2012 | EurObserv´ER. "Wind Power Barometer" |
| Electricity | Solar PV | 2.0 GWh | Solar PV electricity generation. | 2012 | Eurobserver. "Photovoltaic Barometer" |
| Transport | Biofuels | 47.7 ktoe | Amount of bioethanol consumption for transport. | 2012 | EurObserv´ER. "Biofuels Barometer," July 2013 |
| Transport | Biofuels | 138.7 ktoe | Amount of biodiesel consumption for transport. | 2012 | EurObserv´ER. "Biofuels Barometer," July 2013 |
| Transport | Biofuels | 9.721 ktoe | Amount of others biofuel consumption for transport. | 2012 | EurObserv´ER. "Biofuels Barometer," July 2013 |
| Transport | Biofuels | 196.2 ktoe | Total amount of biofuel consumption for transport. | 2012 | EurObserv´ER. "Biofuels Barometer," July 2013 |
| Transport | Biofuels | 20 million liters | Bioethanol fuel output. | 2012 | EurObserv´ER. "Biofuels Barometer," July 2013 |
| Non-Sector specific | Solid Biomass | 3,470 ktoe | Primary energy production of solid biomass. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Non-Sector specific | Solid Biomass | 43 ktoe | Heat production from solid biomass heat plants. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Non-Sector specific | Solid Biomass | 5 ktoe | Heat production from solid biomass CHP plants. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Electricity | Solid Biomass | 95 GWh | Electricity production from solid biomass power plants. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Electricity | Solid Biomass | 116 GWh | Electricity production from solid biomass CHP plants. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Electricity | Solid Biomass | 180 GWh | Total solid biomass electricity generation. | 2012 | EurObserv´ER. "Solid Biomass Barometer," December 2013 |
| Transport | Biofuels | 71.6 ktoe | Amount of bioethanol consumption for transport. | 2011 | EurObserv´ER. "Biofuels barometer" |
| Transport | Biofuels | 125.8 ktoe | Amount of biodiesel consumption for transport. | 2011 | EurObserv´ER. "Biofuels barometer" |
| Transport | Biofuels | 197.4 ktoe | Total amount of biofuel consumption for transport. | 2011 | EurObserv´ER. "Biofuels barometer" |
| Non-Sector specific | Non-Technology specific | 5,028.0 ktoe | Primary production of renewable energy. | 2011 | Eurostat. "Primary production of renewable energy" |
| Electricity | Wind | 1.4 TWh | Wind power electricity generation. | 2011 | EurObserv´ER. "Wind Power Barometer" |