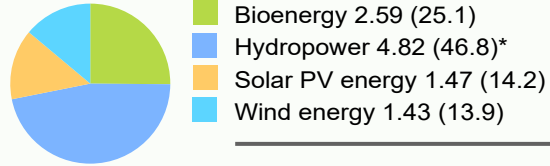


# Bulgaria • Renewable energy

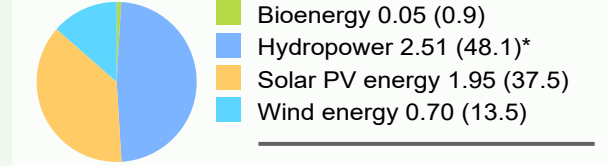
## Gross electricity generation from renewable sources by 2021, TWh (%):



**Total: 10.31 (100)**

Source: Renewable Energy Statistics 2023 © IRENA  
\* excluding pumped storage

## Total installed renewable energy power capacity by 2022, GW (%):



**Total: 5.21 (100)**

Source: Renewable Energy Statistics 2023 © IRENA  
\* excluding pumped storage

## Key solar PV power plants over 11.0 MWel, MWel:

- 1 Karadzhhalovo, 60.4
- 2 Pobeda, 50.7
- 3 Cherganovo, 29.3
- 4 Kazanlak, 25.0
- 5 Vratsa, 25.0
- 6 Zlataritsa, 25.0
- 7 Samovodene, 21.0
- 8 Malo Konare, 18.9
- 9 Kaolinovo 1-2-3, 14.7
- 10 Dobrich, 14.1
- 11 Letnista, 14.0
- 12 Hadjidimovo 1-2, 11.0

## Key bioethanol plants:

- 1 Alfatar, Evroetil
- 2 Ihtiman, Almagest
- 3 Katunitsa, Essentica

## Key wood pellet plants:

- 1 Kyustendil, Eco Bio Pellet
- 2 Plovdiv, Ahira
- 3 Etropole, AVIA Pellets
- 4 Most (Kardzali), Most Ltd.

## Key biodiesel plants:

- |                                  |                              |
|----------------------------------|------------------------------|
| 1 Brussartzi, SAMPO              | 6 Pleven, Green Oil          |
| 2 Karapelit, Klas Olio           | 7 Provadia, Slunchevi Luchi  |
| 3 Kozarevets, Rapid Oil Industry | 8 Silistra, Green Oil        |
| 4 Lovech, Biodriyms              | 9 Slivo Pole, Astra Bioplant |
| 5 Opan, Agro Garanti             |                              |

## Major biomass gasification plants from biowaste, MWth:

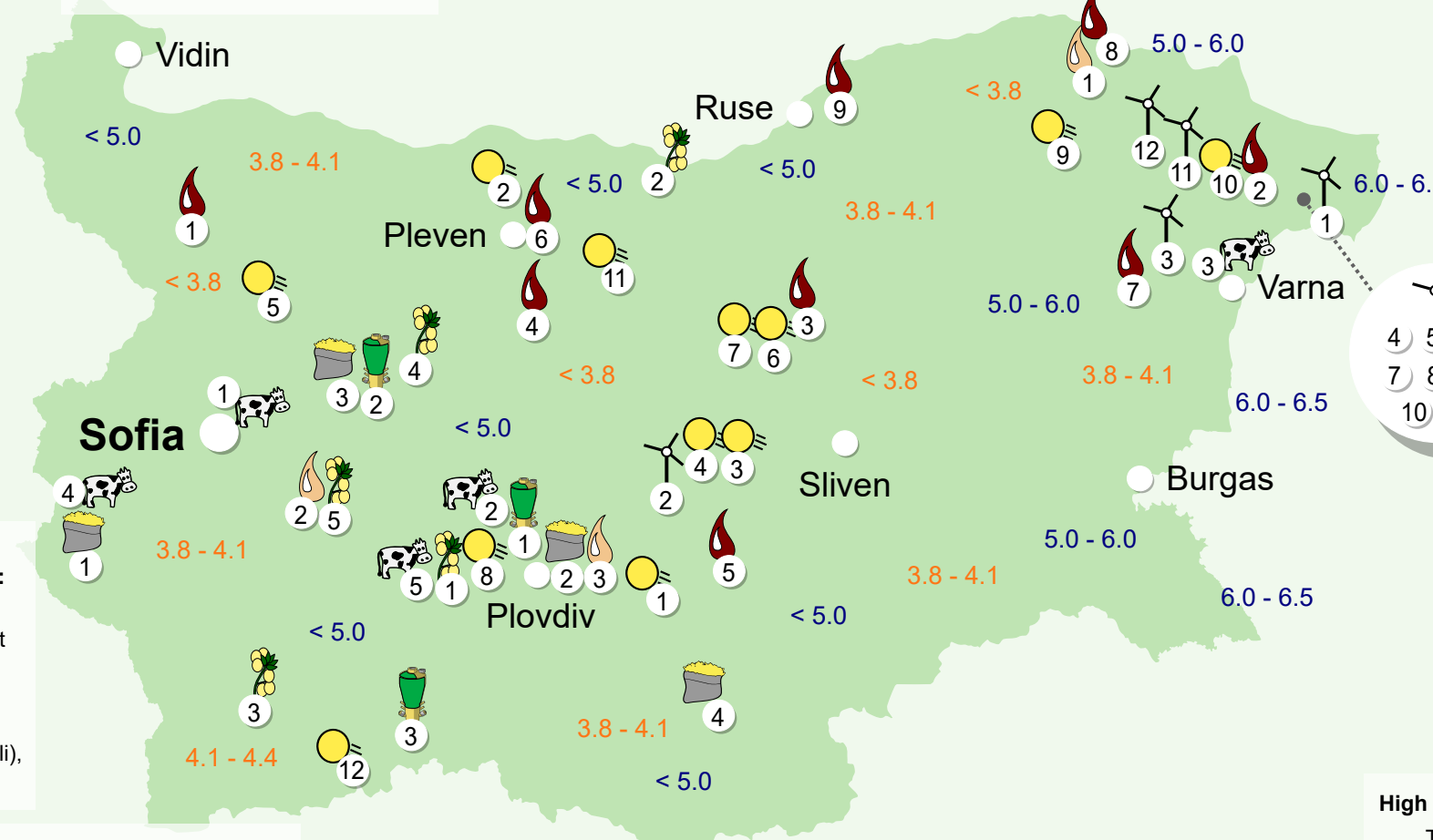
- 1 Karlovo Power Plant, 15.0
- 2 Etropole, 5.0
- 3 Dospat, 1.5

## Key biogas plants over 1 MWel, MWel:

- |                                       |                     |
|---------------------------------------|---------------------|
| 1 Kubratovo WWTP, 3.2                 | 3 Aksakovo, 1.0     |
| 2 Biona Gas Project (Tsalapitsa), 1.5 | 4 Brest, 1.0        |
|                                       | 5 Stambolijski, 1.0 |

## Key biomass power plants:

- |  |           |
|--|-----------|
| 1 Stambolijski, Mondi Group              | 3 Bansko  |
| 2 Svilosa Biomass Project, Svilocell EAD | 4 Teteven |
|  | 5 Ihtiman |



## Key wind farms over 12 MW, MW:

- 1 Saint Nikola, 156.0
- 2 Vetrocom, 72.5
- 3 Suvorovo, 60.0
- 4 Kavarna, LukErg Renew, 42.5
- 5 Shabla & Kamen Bryag, 42.0
- 6 Kaliakra, 35.0
- 7 Vranino, 18.0
- 8 Hrabrovo, 17.0
- 9 Seltse-Sever/Rakovski/Bozhurets/Kavarna-Sever, 16.5
- 10 Mogilishte-Zapad, 16.0
- 11 Kardam, 12.6
- 12 Karapelit, 12.0
- 13 Krupen, 12.0

## High activity areas:

The most common solar GHI intensity is 4.1 - 4.4 kWh/m<sup>2</sup> per day, distributed in the southwestern part of country, in Blagoevgrad province.

The most common wind speed is 6.0 - 6.5 m/s at 50 m are distributed in the eastern part of country, along coastal line with the Black Sea.

Source: Energydata.info