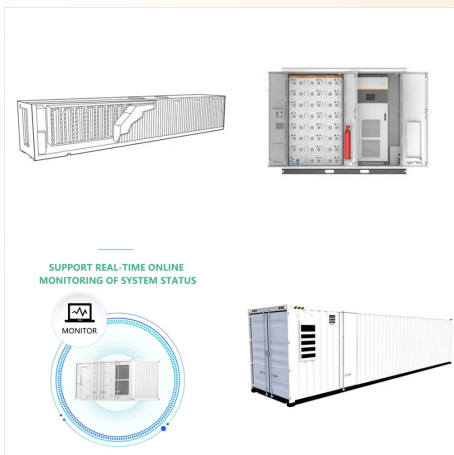




Implementation of renewable energy sources into the electric network is one of the current essential requirements. The process is assumed to be assisted by smart grid solution. The Slovak Republic



On the internal energy market, the draft updated NECP provides information on pro-jects of common interest on cross-border smart grids and planned infrastructure invest-ments to enable the penetration of hydrogen in Slovakia's energy market. On energy security, the plan outlines measures to expand underground gas storage ca-



Last month, we visited the infrastructure sites of two flagship projects supported by CEF Energy: ACON Smart Grids (Czechia-Slovakia) and Danube InGrid (Slovakia-Hungary). Both share the common goals of fostering the integration of the electricity market across borders; ensuring quality, safety and reliability of electricity supply; and



As part of Danube InGrid, technology in 150 HV/LV transformer stations in Slovakia will be modernised, new substations will be constructed along with 320 km of optical network, and IT solutions enabling the Smart Grid concept operation will be implemented.



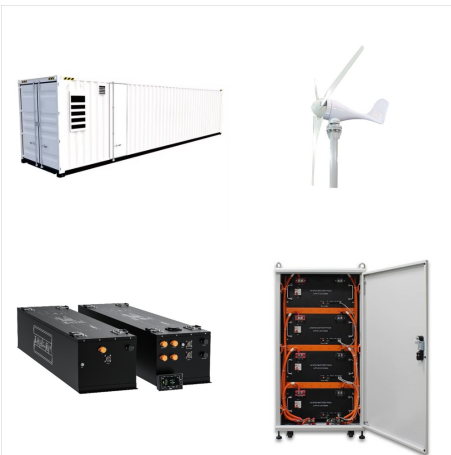
The aim of the article will be to evaluate the current state of systems and production sources of electricity in the Slovak Republic and to provide a better insight and suggestions for rebuilding current networks on a ???



Smart grids are one of the technological answers to the "3 x 20" objective of the 2020 climate and energy package of the European Union: 20% renewable energies, saving energy and reducing



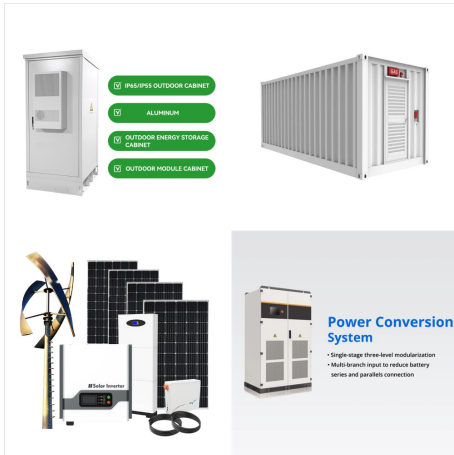
The aim of the article will be to evaluate the current state of systems and production sources of electricity in the Slovak Republic and to provide a better insight and suggestions for rebuilding current networks on a smart grid. The proposals will also include models of some RES in the Matlab/Simulink software.



In the Western and Southwestern Slovakia, smart grids are being constructed thanks to the PCI (projects of common interest) ACON and Danube InGrid, co-funded by the EU. PCI projects are key infrastructure projects aimed at interconnecting European energy systems and achieving energy and climate targets of EU.



The Slovak Republic is obliged to increase the total share of renewable energy to 14 and 24 % (international system of units and ISO 31???0) in electricity generation in 2020 as a result of the European Union policy.



There is a clear significance of district and community-level renewable energy systems, such as microgrids and smart grids, in promoting energy autonomy, reducing transmission losses, and ensuring energy resilience during grid disruptions (Martinot, 2016).