



USAID
FROM THE AMERICAN PEOPLE

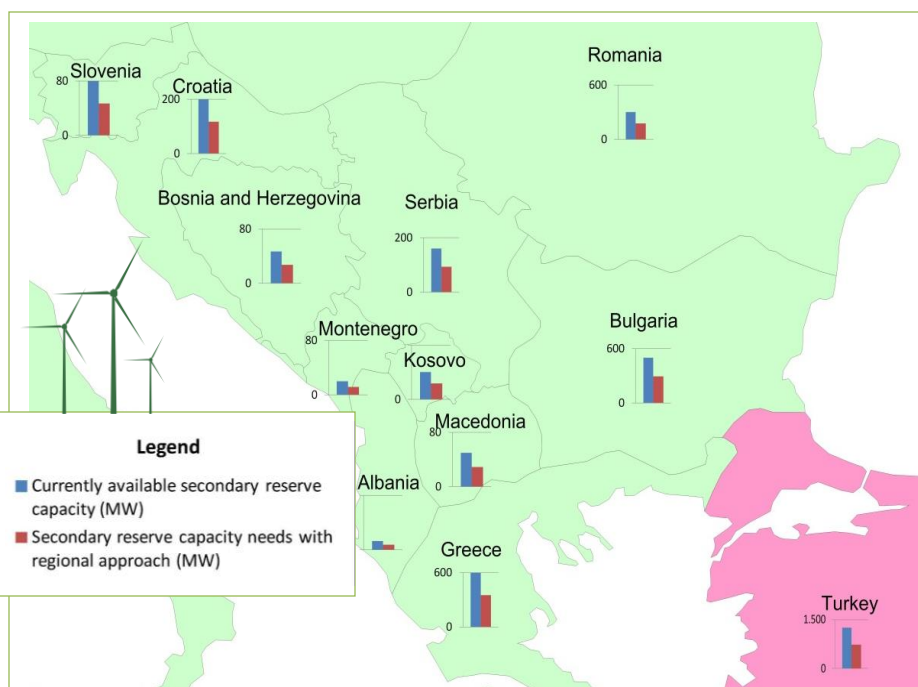


USEA
United States Energy Association

SUCCESS STORY

ENERGY TECHNOLOGY AND GOVERNANCE PROGRAM

Regional approaches to balancing intermittent wind resources enable greater wind power integration at lower costs and less reliance on fossil fuels



The Southeast Europe Cooperation Initiative (SECI) Transmission Planning Project supports a regional approach to network planning within the Energy Community in Southeast Europe (SEE) through the development of common transmission planning tools and methodologies.

In general, SEE countries have adopted EU renewable energy targets for 2020 with developers proposing integration of several thousand megawatts of wind power in the SEE region. This presents reliability and security challenges to the regional network. For example, Serbia's wind power plant (WPP) installed capacity is projected to reach 1,500 MW from its current base of zero and Romania's is projected to increase to 4,000 MW by 2020.

National grid codes require Transmission System Operators (TSOs) to maintain a reserve capacity for the worst case hour in each year when there is a sudden loss of WPP production either due to excessive wind speeds that force turbines to stop

rotating or when there is a sudden loss of wind. Typically, TSOs would rely on fossil fuel generators in the form of natural gas turbines to compensate for this contingency because they offer rapidly accelerating ramp up/ramp down rates. As a result, as more WPP capacity is installed on the network, there is a greater need for balancing reserve capacity from fossil plants.

The SECI Project has completed a study calculating the network's capacity to support large scale integration of wind power. The *Preparation for Large Scale Wind Integration in Southeast European Power System Study* calculated the necessary reserve requirements, on a country-by-country basis, by utilizing a regional approach to system balancing. The results indicate that a regional approach to reserve sharing reduces the need for reserves by 50%, when compared with an individual country-by-country basis. A regional approach provides each TSO the option to draw power from other systems when their own wind resources were unavailable due to variable wind patterns in the region. It is estimated that this regional approach would lead to a reduction of 2000 MW in the amount of (fossil) reserves needed to integrate wind. The result: establishing a regional balancing mechanism enables an increase in WPP capacity, reduces the need for fossil balancing plants and minimizes the cost of integration.

The study results provide a clear signal to the TSOs on the importance of establishing a regional balancing market that does not currently exist in SEE. The report also serves as an important source of information for engineers, policy and regulatory authorities, international donors, financial institutions, the European Union, and the Energy Community, among other stakeholders on transmission reinforcements necessary to support wind power development, increased trade and improve system security in the region.

The graphs demonstrate a comparison of currently available reserve capacities in each country vs. reserve capacities necessary for each country with a regional approach to reserve sharing.

“Study recommends that establishing a regional balancing mechanism will reduce fossil power reserves necessary to further accelerate wind power development”

Telling Our Story

U.S. Agency for International Development
Washington, DC 20523-1000
<http://stories.usaid.gov>