

[home](#)[about](#)[publishers](#)[editorial boards](#)[advisory board](#)[for authors](#)[call for papers](#)[subscription](#)[archive](#)[online first](#)[news](#)[links](#)[contacts](#)


Your views on  
open access  
publishing  
are needed!

# THERM

## International S

[Naim H. Afgan, Dejan Cvetinović](#)

### WIND POWER PLANT RESILIENCE

#### ABSTRACT

A wind energy system transforms the kinetic energy of wind into mechanical or electrical energy that can be harnessed for practical use. Mechanical energy is most commonly used for pumping water in rural or remote locations. Electrical energy is obtained by connecting wind turbine with the electricity generation power plant depends on the wind kinetic energy. It depends on the wind turbine. For the wind power plant the wind kinetic energy average wind velocity, mechanical energy conversion into electricity. Resilience of the wind power plant is the capacity of the system following parameters: wind velocity, mechanical energy conversion efficiency and electricity cost. Resilience index consists of change in wind velocity, change in mechanical energy conversion efficiency, change in transmission efficiency, and change in electricity cost. Resilience index monitoring is presented by using following indicators: wind velocity, power production, efficiency of electricity production, and evaluation of the resilience index of wind power plants special determination of the resilience index for situation with priority.

#### KEYWORDS

[wind power plant](#), [wind kinetic energy](#), [electricity cost](#)

PAPER SUBMITTED: 2009-08-01

PAPER REVISED: 2009-12-09

PAPER ACCEPTED: 2010-02-25

DOI REFERENCE: [10.2298/TSC11002533A](https://doi.org/10.2298/TSC11002533A)

CITATION EXPORT: [view in browser](#) or [download as text file](#)

**THERMAL SCIENCE** YEAR **2010**, VOLUME **14**, ISSUE **2**, PAGES [53-58]

#### REFERENCES [view full list]

1. Ackerman, T., Soder, L., Wind Energy Technology and Current and Sustainable Energy Reviews, 6 (2002), 1-2, pp. 67-12

[www.geocities.com/windenergy.html](http://www.geocities.com/windenergy.html)

2. Rehman, S., Ahmad, A., Assessment of Wind Energy Potential in the Kingdom of Saudi Arabia, *Energy*, 29 (2004), 8, pp. 1165-1174
3. \*\*\* , Rayleigh flow, [http://en.wikipedia.org/wiki/Rayleigh\\_flow](http://en.wikipedia.org/wiki/Rayleigh_flow)
4. Muyeer, S. M., et al. Application of Energy Capacitor System in Wind Energy, *Energy*, 11 (2008), 4, pp. 336-350
5. \*\*\* , Wind Power Performance, General Electric, [www.ge-energy.com](http://www.ge-energy.com)
6. \*\*\* , World Wind Capacity in 2002, Earth Policy Institute, [www.earthpolicy.org/Updates/update5.htm](http://www.earthpolicy.org/Updates/update5.htm)
7. [www.earthpolicy.org/Updates/update5.htm](http://www.earthpolicy.org/Updates/update5.htm)
8. Zlomisica, E., Wind Power Plant Design, Ph. D. thesis, University of Herzegovina, 2007
9. Hughes, T., Environmental Verification and Analysis Center, Lesson Number 1, in an Oklahoma Wind Power Tutorial Series
10. [www.seic.okstate.edu/owpi/EducOutreach/Library/Lesson1.htm](http://www.seic.okstate.edu/owpi/EducOutreach/Library/Lesson1.htm)
11. Afgan, N., Carvalho, M. G., in: *Quality, Sustainability and Resilience*, Begell House Publisher, New York, USA, 2008
12. Afgan, N., Pilavachi, P., *Resilience of Energy Systems*, Elsevier, 2008