

**Title:** Application of Adaptive Neuro-Fuzzy Inference for Wind Power Short-Term Forecasting

**Author(s):** Pousinho, Hugo M. I.<sup>2,1</sup>; Mendes, Victor M. F.<sup>3</sup>; Catalão, João P. S.<sup>1,2</sup>

**Source:** IEEJ Transactions on Electrical and Electronic Engineering

**Volume:** 6 **Issue:** 6 **Pages:** 571-576 **DOI:** 10.1002/tee.20697 **Published:** Nov 2011

**Document Type:** Article

**Language:** English

**Abstract:** The increased integration of wind power into the electric grid, as nowadays occurs in Portugal, poses new challenges due to its intermittency and volatility. Hence, good forecasting tools play a key role in tackling these challenges. In this paper, an adaptive neuro-fuzzy inference approach is proposed for short-term wind power forecasting. Results from a real-world case study are presented. A thorough comparison is carried out, taking into account the results obtained with other approaches. Numerical results are presented and conclusions are duly drawn. (C) 2011 Institute of Electrical Engineers of Japan. Published by John Wiley & Sons, Inc.

**Author Keywords:** Wind Power; Forecasting; Neural Networks; Fuzzy Logic

**KeyWords Plus:** Arima Models; System; Speed; Anfis; Prediction; Turbines; Market

**Reprint Address:** Catalão, JPS (reprint author), Univ Beira Interior, Dept Electromech Engr, P-6200001 Covilhã, Portugal.

**Addresses:**

1. Univ Beira Interior, Dept Electromech Engr, P-6200001 Covilhã, Portugal
2. IST, Ctr Innovat Elect & Energy Engr, P-1049001 Lisbon, Portugal
3. Inst Super Engrn Lisboa, Dept Elect Engr & Automat, P-1959007 Lisbon, Portugal

**E-mail Address:** catalao@ubi.pt

**Publisher:** Wiley-Blackwell

**Publisher Address:** 111 River ST, Hoboken 07030-5774, NJ USA

**ISSN:** 1931-4973

**Citation:** POUSINHO, Hugo M. I.; MENDES, Victor M. F.; CATALÃO, João P. S. - Application of Adaptive Neuro-Fuzzy Inference for Wind Power Short-Term Forecasting. IEEJ Transactions on Electrical and Electronic Engineering. ISSN 1931-4973. Vol. 6, n.º6 (2011) p.571-576.