

# Power shortage and production capacity loss after natural disasters

Yoshio Kajitani\*, Research Scientist, Central Research Institute of Electric Power  
Industry  
E-Mail:y-kaji@criepi.denken.or.jp

Hirokazu Tatano\*\*, Professor, Disaster Prevention Research Institute  
Kyoto University  
E-Mail:tatano@imdr.dpri.kyoto-u.ac.jp

\*1646 Abiko, Abiko-shi, Chiba, 2701194, Japan

\*\*Gokasho, Uji, Kyoto, 611-0011, Japan

## Abstract:

The study aims at presenting a methodology to estimate production capacity losses after the disaster to identify the major sources of impacts as well as to test the forecasting capability of available models. Remaining production capacity is indispensable information to estimate the economic losses by any econometric models such as I-O and CGE. In this study, data collected from pre- and post-disaster business surveys in Japan are utilized to develop empirical models for capacity loss estimation. The special focus is paid to assessing the impact of energy shortage following a natural disaster.

A case study is conducted for the Great East Japan Earthquake and Tsunami on March 11<sup>th</sup>, 2011. Validity of the proposed methodology is verified by checking the fitness between observed data represented by the industrial production index, and the estimated production capacity. In addition, the long-term impacts of power shortage to the production system, in other words, resilience of industrial sector under power shortages, are clearly demonstrated in this study.