Pricing of Renewable Distributed Generation and Storage in Competitive Distribution Markets

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Abstract: A new methodology to calculate energy prices in the sense of locational marginal prices is introduced for future smart distribution systems with renewable energy resources as the primary energy supply. The proposed scheme calculates the marginal energy price for renewable generations and storage, as well as the marginal congestion and loss prices in order to determine optimal economic operations in the system. This price, called the distribution location marginal price or DLMP, can be used as a pricing signal to achieve maximum system social surplus and environmental benefits by encouraging utilization of renewable distributed generation and energy storage in a competitive distribution market.

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Host: Dr. Arye Nehorai

Short Bio: Dr. Badrul Chowdhury received his Bachelor’s degree in Electrical Engineering from the Bangladesh University of Engineering & Technology in Dhaka in 1981, his Master’s degree in 1983 and his PhD in 1987, both in Electrical Engineering from Virginia Tech, Blacksburg, VA. He is currently a Professor in the Electrical & Computer Engineering Department of Missouri University of Science & Technology, Rolla, Missouri, where he has been a faculty member since the fall of 1998. From 1987 to 1998 he was a faculty member with the University of Wyoming’s Electrical Engineering department.

Dr. Chowdhury’s research interests are in power system modeling, analysis, control and economics; system vulnerability assessment; and integration of distributed energy resources into the Smart Grid. He has directed more than 40 Ph.D. and M.S theses in these areas. He is a Senior Member of the IEEE.