

Report on 27th Thomas Alva Edison Memorial Lecture

Speaker: Kalyan K. Sen, PhD, PE, MBA, IEEE Fellow

Fulbright Scholar (U.S.), GIAN Scholar (India), IEEE PES Distinguished Lecturer
President & CTO, Sen Engineering Solutions, Inc. USA

Topic: "SMART Power Flow Controllers – A Necessity for Future Power Grid"

Venue: Department of Electrical Engineering, NIT Delhi

Date and Time: 22-11-2023, 2:30PM-3:30 PM.

Brief Report: Dr. Kalyan K Sen President & CTO Sen Engineering Solutions, Inc USA, was invited under the PES-IAS and PELS-IES Chapters to deliver a lecture at NIT Delhi on 22nd Nov 2023. The lecture was given in the Department of Electrical Engineering, NIT Delhi. He started his presentation with the topic of Power flow control techniques have been practiced, from using inductors, capacitors, transformers and load tap changers in the earlier days of electrical engineering to power electronics-based solutions in recent years. Even though the costs and complexities of the available solutions vary widely, the basic underlying theory of power flow control is still the same as it has always been. The question is which solution one should employ. The answer depends on knowing what the true need is. The power industry's pressing need for the most economical ways to transfer bulk power along a desired path may be met by building new transmission lines, which is a long and costly process. Alternately, it may be quicker and cheaper to utilize the existing transmission lines more efficiently. The key is to identify the underutilized transmission lines and harness their dormant capacities to increase the power flows to the lines' thermal limits using the most cost-effective and time-tested solutions. The lecture was designed to provide the basic principles of power flow control theory, an overview of the most commonly used power flow controllers, and future trends. The audience will hear from an expert who actually designed and commissioned a number of power electronics-based FACTS controllers since their inceptions in the 1990s. The lecture was attended by a combined 62 students and faculty. The attendees were open to ask questions after his presentation ended. Some of the photographs taken on that day are given below.

