

David Vaglia
2015-2016 IAS Distinguished Lecturer
Resume



David Vaglia has his roots in the energy engineering. He began his career in the coal mining industry, working as an applications engineer in power distribution, and electric train haulage systems, both above and below ground. He has also worked in the renewable energy sector, investigating new concept wind generation applications and solar thermal systems. Mr. Vaglia transitioned to instrumentation and control working with supervisory control and data acquisition systems, and then to the Man-Machine Interface design of nuclear power plant control rooms.

Mr. Vaglia has a Bachelor of Science in Electrical Engineering and a Bachelor of Arts in General Arts and Sciences, both from the Pennsylvania State University, and a Master of Business Administration from the University of Pittsburgh. He is a registered Professional Engineer working in the state of Pennsylvania.

Mr. Vaglia has been an active in the IEEE for nearly 40 years. He is a Senior member serving the Pittsburgh Section (Region 2) in various capacities. Mr. Vaglia's volunteer positions have included Section Awards Chair, Treasurer, and Section Chair. In the IAS-PES Pittsburgh Joint Chapter, he has served as Secretary, Treasurer, and Chair. He has also served as the General Chair of the 2008 PES Annual Meeting. Mr. Vaglia is presently Chair of the joint chapter of the IAS and PES, Pittsburgh Section.

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Abstracts

1. Why Nuclear, Why Now

This presentation provides an informative view of the benefits of working in the nuclear industry. It discusses the importance and opportunities in the industry for employees, the energy sector, a nation's electrical infrastructure and the world in general. The presentation also looks at the problems and opportunities created by the aging nuclear workforce, the safety of nuclear facilities, the drive to extend the life of current plants, and the challenges of building new reactors. These topics are discussed along with their relationships to global warming, sustainability, the growing demand for electrical power, and electrical grid size.

2. -"A Nuclear Primer" - Nuclear Technology And How It Generates Electricity

This presentation is a crash course on nuclear power plants and how they generate electricity. The discussion begins with the key to nuclear power, the uranium atom. Uranium Isotopes, Thermal Neutrons, Fission Fragments, and Chain Reactions are explained. Combustion versus Fission energy levels are discussed. The talk then moves on to the major plant components and their functions, including the Fuel Assemblies, Control Rods, Reactor Vessel, Pressurizer, Reactor Coolant Pump, Steam Generator Turbine, and Electrical Generator. What happens to Spent Fuel and basic Plant Safety are covered. Finally, new plant designs with improved safety functions are reviewed.

3. Nuclear Energy Today And The Future - What In The World Is Going On?

This presentation provides an excellent overview of the status of electricity generating nuclear power plants around the world. It discusses the current status and probable future of nuclear power in those countries. This talk also covers the different nuclear power plant designs in relation to recent nuclear incidents and the impacts those incidents have had on the industry.

4. Nuclear Energy – What Happened At Fukushima

This presentation covers the history and background necessary to understand what happened at the nuclear power plants at Fukushima Daiichi. It reviews the sequence of events, starting before the earthquake, when the tsunami struck the plant sites, and in the following days. Also presented are the status of the plants today, ongoing work, and the probable future of the plants. Lastly, the impact on the Japanese nuclear industry, the economy in general, and the probable future energy options are presented.

5. Then and Now – A Look At The Differences Between Existing Nuclear Plants And The Next Generation

This presentation provides an easy to follow look at the basic elements and functions of the nuclear power plants that are currently in operation, followed by a comparison to the next generation of nuclear power plants that are being built. The presentation also covers the enhanced safety features, new construction methods, and simplification schemes that will improve the next generation of nuclear power plants.

6. Electrical Energy Generation - What Are The Options

This presentation provides an overview of the current and prospective methods used to generate electricity. Each generation method is discussed along with its upsides and downsides. An examination where and why various methods (Coal, Natural Gas, Nuclear, Oil, Hydro, Solar, Wind, Bio, etc.) are used follows. This presentation closes with a look at trends in the energy sector.

7. Consequences From The Fukushima Daiichi Event

This informative presentation looks at the impact that the Fukushima Daiichi accident had on Japan and the nuclear industry. It covers the Japanese Government's response as well as the reaction of Japan's Nuclear Energy Industry to the accident. It looks at lessons learned and reviews changes made that enhance plant safety. Lastly, it provides a present day status of the reactors at Fukushima Daiichi and their projected future.

8. Evolution Of Control Rooms In Nuclear Power Plants

This presentation looks at the evolution of nuclear power plant control rooms and the resources that the plant operators have to start up, monitor, control, and shut down the plants. The talk reviews original control room designs that used discrete indicators, meters, lights, switches, and paper recorders. Next, the Three Mile Island incident and resulting Government regulation, NUREG 0700, Human-System Interface Design Review Guidelines are discussed. The presentation ends with an overview of the Human Factors Design and layout of the soft-control based compact control room supplied with the new nuclear power plants.