| Smart Grids | Renewables integration | Energy Management |

Training Services

Issue

The smart grid (SG) is a modern electric power grid infrastructure, introduced to improve efficiency, reliability and security by promoting the use of renewable energy resources (RES) and energy storage device, using automated control and modern information and communications technologies to achieve this. It coordinates the needs and capabilities of all power generators, grid operators, end-users, and electricity market stakeholders to operate all parts of the system as efficiently as possible while minimising the costs and environmental impacts and maximising system stability, reliability and resiliency.
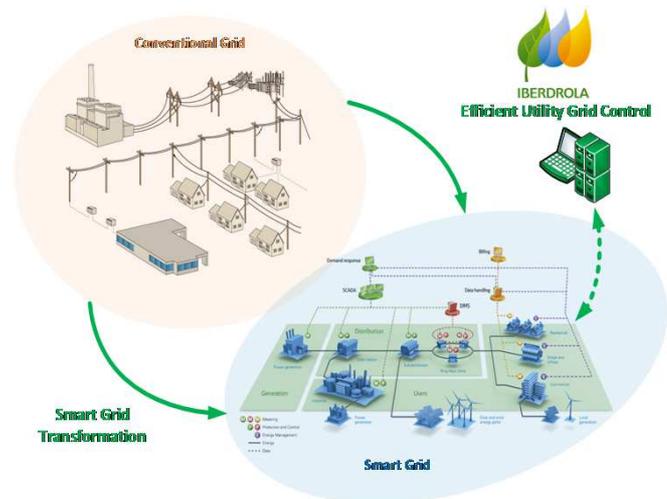
However, the implementation of smart grid concepts can be quite challenging due to the complexity of the power grids, increased communication requirements, consumer behaviour and the uncertain nature of RES and tight regulation of electricity markets. Understanding the SG requires knowledge of numerous key engineering topics in electrical and power engineering, telecommunications, and information technologies, as well as, combining them with other disciplines like cybersecurity, business strategies, and energy-related policies and regulation. According to many visions for the SG, consumers will come to play a more 'active' role in the energy systems of tomorrow; hence consumer behaviour and social sciences play an important role in smart grids.

Solution

Iberdrola Innovation Middle East currently has 4 full-time trainers available in Qatar, which can be complemented, depending on the topic, with specific professionals from either the Iberdrola group or one of our associate certification laboratories. The classes can be held at Iberdrola offices at QSTP (Qatar Science and Technology Park) or the location of choice. Our facilities at QSTP allow for classes with up to 20 people.

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We target our training towards professionals and engineers working in the power industry and information and communications technologies who want to upgrade and expand their practical skills to meet unprecedented market demand. With our training, we want to provide a basis for the new thinking and design methodology required by engineers and professionals for defining the digital grid.

Present the fundamental concepts associated with smart grids.	Analyse current electricity distribution networks and associated technologies.	Study the impact of integrating different distributed generation resources.
Study the impact of information, communication and cybersecurity technologies on distribution grids.	Perform evaluation of the energy efficiency of smart grid technologies and projects.	Perform a project cost-benefit analysis for different smart grid technologies projects.

The training can be custom made to target a focus area when needed as well as adapted to the knowledge level of the participants.

Impact

By better understanding power distribution networks and the context and challenges of implementing projects towards energy efficient smart grids, the process can be made quicker and easier as the knowledge allows for better planning and understanding of the obstacles that might occur. Enhancing the ability to apply new technological knowledge in the context of an existing grid and evaluate possible improvements provides the grid with a longer life span, higher efficiency and increased reliability.

The course gives you the ability to design and/or evaluate new smart grid projects relevant to energy efficient industry and in the context of economic benefits. We also provide an understanding of the need to consider and address human behaviour in smart grids and distribution networks, in order to reach the highest potential of the network of the future.