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Analyzing the Smart Grid

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Abstracts

Today’s electric power grid is primarily composed of central generating stations and electromechanical power delivery systems operated from control centers. However, the system is transforming itself into a smart grid that integrates a multitude of distributed energy resources, uses solid state electronics to manage and deliver power, and employs automated control systems.

The smart grid will achieve greater throughput, thus lowering power costs. Grid upgrades that increase the throughput of the transmission grid and optimize power flows will reduce waste and maximize use of the lowest-cost generation resources. Better harmonization of the distribution and local load servicing functions with interregional energy flows and transmission traffic will also improve utilization of the existing system assets.

Aruvian’s R’search presents a comprehensive analysis of the global smart grid in its research report – Analyzing the Smart Grid.

The report Analyzing the Smart Grid begins with a basic analysis of the global electric power industry. This section gets the reader familiarized with the terms in use in the industry and also about the basic structure of an electric power industry. The impacts on the electric power system in the United States, the regulatory factors, industry drivers, technology drivers, and trends in the global power markets are all analyzed in this section.

Section C of the report analyzes the concept of the smart grid. It explains what a smart grid is, who the developers of the smart grid are, the various technologies involved in the smart grid such as small-scale distributed generators, storage options, etc. are analyzed in section C. Automation of transmission/distribution services, communications technologies, smart meters, wireless technologies, all are discussed in this section. The

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securing of privacy is also analyzed.

Section D looks at the constituents of the smart grid, namely distribution, transmission and generation of electricity. In this section, we also look at the technology of advanced metering. Moving on, we analyze the benefits of the smart grid such as a rise in employment, development of renewable energy, reduction in the cost of power, benefits of the environment, and much more are discussed in the advantages of the smart grid section.

A significant role is played by utilities in the smart grid. Section G is focused on this and we analyze the role of utilities in the smart grid. The manner in which utilities derive benefits from the smart grid and vice versa is also discussed. Net metering, dynamic pricing, and other benefits for the smart grid from utilities is analyzed in this research report. Utilities that are a part of the smart grid are analyzed in the following section.

Regulatory framework impacting the development of the smart grid including financial incentives for the smart grid is analyzed in Section J.

This research report from Aruvian's R'search also presents an analysis of the smart grid in Asia, Australia, Europe, Latin America, and the Middle East. China, India, South Korea, Japan, the UK, and many other countries are analyzed.

An analysis of the smart grid supply chain sets apart this research offering. This section includes an analysis of the electricity value chain, the role of AMI in the supply chain of the smart grid, the importance of the communications backbone in the smart grid, management of the grid, the role of energy storage, demand response mechanisms, and many more components of the smart grid supply chain are analyzed in the research report Analyzing the Smart Grid.

The environmental impact of the smart grid and the integration of renewable energy in the smart grid is analyzed in the report. The emergence of national scale transmission plans in the United States is also discussed.

Summing up, the major technology providers for the smart grid such as ABB, Advanced Control Systems, IBM, Microsoft, GE Energy, and many other companies are analyzed in this research offering from Aruvian's R'search.

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Contents

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F. ACHIEVING ENERGY SAVINGS WITH THE SMART GRID

G. ROLE OF UTILITIES IN THE SMART GRID

H. ANALYSIS OF UTILITIES DEPLOYING THE SMART GRID

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R. ENVIRONMENTAL IMPACT OF THE SMART GRID

S. SMART GRID AND RENEWABLE ENERGY

T. SMART GRID: FUTURE PERSPECTIVE

U. TECHNOLOGY PROVIDERS INVOLVED IN THE SMART GRID

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