

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

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.

Contents

A. EXECUTIVE SUMMARY

B. ANALYZING THE ELECTRIC POWER INDUSTRY

B.1 Introduction

B.2 What is Electric Power Transmission?

B.3 Understanding Overhead Transmission

B.4 Understanding Underground Transmission

B.5 Electricity Generation

B.6 From Electric Transmission to Electric Distribution

B.7 Impacts on the Future of the US Electric Power System

B.7.1 Regulatory Factors

B.7.1.1 Restructuring of the Electric Industry

B.7.1.2 Regulation of the Environmental, Public Health, and Safety

B.7.1.3 Issues with National Security

B.7.2 Industry Drivers

B.7.2.1 Increasing Level of Competition

B.7.2.2 Aging Infrastructure of the US Electric Power System

B.7.2.3 Stronger Consumer Demands

B.7.3 Technology Drivers

B.7.3.1 Role of IT in Revolutionizing the Industry

B.7.3.2 New Materials for the Electric Grid

B.7.3.3 Advanced Materials: High Temperature Superconductors

B.7.3.4 Reduction in Costs of Electricity Storage Systems

B.7.3.5 High-voltage Power Electronics

B.7.3.6 Distributed Energy Generation & CHP Systems

B.8 Trends in Global Power Markets highway

C. ANALYZING THE SMART GRID

C.1 Overview of the Smart Grid

C.2 Smart Grid Developers

C.2.1 GridWise Alliance

C.2.2 Intelligrid

C.2.3 Others

C.3 Smart Grid Technologies

C.3.1 Distributed Resources

- C.3.1.1 Small-scale Distributed Generators
- C.3.2 Storage of Electrical Energy
- C.3.3 Managing the Power Grid
- C.3.4 Monitoring the Electrical Grid
- C.4.4.1 Automation of Transmission/Distribution
- C.4.4.2 Communications in Demand Response
- C.4.4.3 Broadband Networks
- C.4.5 Managing of Customer Power
- C.4.5.1 Usage of Smart Meters
- C.4.5.2 Energy Management Systems
- C.4.5.3 Smart Home Appliances
- C.4.5.4 Regulating the Voltage
- C.4.6 Wireless Technology: An Integral Part of the Smart Grid
- C.5 Using Smart Grid Technologies to Enhance System and Grid Interconnection
- C.6 Collection of Personal Information by the Smart Grid
- C.7 Securing Private Data
- C.8 Significant Developments

D. CONSTITUENTS OF THE SMART GRID

- D.1 Distribution of Electricity
- D.2 Transmission of Electricity
- D.3 Generation of Electricity
- D.4 Role of AMI
- D.4.1 What is Advanced Metering?
- D.4.2 Pros & Cons of Advanced Metering

E. ADVANTAGES OF THE SMART GRID

- E.1 Benefits of Emerging Energy Technologies
- E.2 Employment Boost in the Electricity Industry
- E.3 Lower Electric Infrastructure Prices
- E.4 Reduction in Losses from Blackouts and Power Fluctuations
- E.5 Increased Energy Efficiency
- E.6 Smart Grid is Environmentally Friendly
- E.7 Development of Green Power
- E.8 Integrating Renewable Energy Capacity
- E.9 Integration of Distributed Generation Technologies
- E.10 Pay Less for High-Quality Power

- E.11 Emergence of Microgrids
- E.12 More Efficient Power System
- E.13 Local Generation Giving Rise to CHP Operations

F. ACHIEVING ENERGY SAVINGS WITH THE SMART GRID

- F.1 Automated Diagnostics
- F.2 Price Signals and Power Savings
- F.3 Correct Information Providing Energy Savings
- F.4 Utility Programs Improving Energy Savings

G. ROLE OF UTILITIES IN THE SMART GRID

- G.1 Introduction
- G.2 Allowing More Control to Utilities
- G.3 How Utilities Benefit from the Smart Grid
 - G.3.1 Lower Cost of Operation
 - G.3.2 Lower Probability of Power Disturbances
 - G.3.3 Improved Quality of Power
 - G.3.4 Lower Instances of Power Blackouts
 - G.3.5 Mitigating the Rising Cost of Electricity
 - G.3.6 Opening up of New Market and Employment Avenues
 - G.3.7 Smart Grid is Environmentally Friendly
- G.4 Benefits for the Smart Grid from Utilities
 - G.4.1 Emergence of Dynamic Pricing
 - G.4.2 Smart Grid and Incentives
 - G.4.3 Net Metering Programs
- G.5 Capital Expenditure
- G.6 Rising Expenditures on the Part of Utilities

H. ANALYSIS OF UTILITIES DEPLOYING THE SMART GRID

- H.1 Introduction
- H.2 Alliant Energy Corporation
- H.3 American Electric Power
- H.4 Arizona Public Service
- H.5 Austin Energy
- H.6 Baltimore Gas and Electric Company
- H.7 Bluebonnet Electric Cooperative

- H.8 Bonneville Power Administration
- H.9 Burbank Water and Power
- H.10 CenterPoint Energy
- H.11 Commonwealth Edison
- H.12 Connecticut Light & Power
- H.13 Consolidated Edison
- H.14 Dominion
- H.15 DTE Energy
- H.16 Duke Energy
- H.17 EnergyUnited
- H.18 Entergy
- H.19 Fayetteville Public Works Commission
- H.20 First Energy Corporation
- H.21 Florida Power & Light
- H.22 Hawaiian Electric Company
- H.23 Idaho Power Company
- H.24 Jersey Central Power & Light
- H.25 Kansas City Power & Light
- H.26 Long Island Power Authority
- H.27 Los Angeles Department of Water and Power
- H.28 National Grid
- H.29 NSTAR
- H.30 NV Energy
- H.31 Oklahoma Gas and Electric
- H.32 Oncor Electric Delivery
- H.33 Pacific Gas & Electric
- H.34 Pepco Holdings Inc
- H.35 PJM Interconnection
- H.36 Portland General Electric
- H.37 PPL Electric Utilities
- H.38 Progress Energy
- H.39 Reliant Energy
- H.40 Sacramento Municipal Utility District
- H.41 Salt River Project
- H.42 San Diego Gas & Electric
- H.43 Southern Company
- H.44 Southern California Edison
- H.45 Tacoma Power
- H.46 Tennessee Valley Authority

- H.47 Texas-New Mexico Power
- H.48 TXU Energy
- H.49 Westar Energy
- H.50 Xcel Energy

I. SECURING THE SMART GRID & PRIVACY ISSUES

- I.1 Introduction
- I.2 How to Ensure Smart Grid Cyber Security?
- I.3 Security Mechanisms for the Smart Grid
- I.4 Challenges Facing Security of the Smart Grid
 - I.4.1 System-level Threats
 - I.4.2 Theft of Service
 - I.4.3 Privacy Issues
 - I.4.4 Security Issues
 - I.4.5 Network Management Issues
 - I.4.6 Authentication Issues
 - I.4.7 Meter Data Tampering
 - I.4.8 Upgrading Issues
- I.5 Emerging Security Controls
- I.6 Best Suited Standard Protocol: Internet Protocol
- I.7 Ensuring AMI Security
- I.8 Ensuring Wireless Network Security
- I.9 North American SynchroPhasor Initiative
- I.10 Dealing with Cyber Attack Scenarios
- I.11 Regulatory Framework for Securing the Smart Grid

J. REGULATORY FRAMEWORK

- J.1 Financial Incentives
- J.2 Ratemaking: a Boost for Utilities
- J.3 Energy Throughput
- J.4 Becoming More Grid Efficient
- J.5 Economics of the Smart Grid
- J.6 Smart Grid Facilitation Act of 2007

K. DEPLOYING THE SMART GRID

- K.1 Overview

K.2 Challenges to the Process

L. ANALYZING THE SMART GRID IN ASIA

L.1 Introduction

L.2 Smart Grid in China

L.3 Smart Grid in India

L.4 Smart Grid in Japan

L.5 Smart Grid in South Korea

L.6 Current Projects

L.7 Smart Grid in Asia: Future Perspective

M. ANALYZING THE SMART GRID IN AUSTRALIA

N. ANALYZING THE SMART GRID IN EUROPE

N.1 Introduction

N.2 Why Europe Needs a Smart Grid

N.3 New Policies Driving the European Smart Grid

N.3.1 Smart Grid Technology and the EU Energy Package

N.4 Challenges Facing the Development of the European Smart Grid

N.4.1 Technological Barriers

N.4.2 Regulatory Barriers

N.5 Looking at the DESERTEC Project

O. ANALYZING THE SMART GRID IN LATIN AMERICA

P. ANALYZING THE SMART GRID IN THE MIDDLE EAST

Q. SMART GRID SUPPLY CHAIN ANALYSIS

Q.1 Electricity Value Chain

Q.2 Role of Advanced Metering Infrastructure (AMI)

Q.3 Importance of a Communications Backbone

Q.4 Network Connections through AMI Software

Q.5 Managing the Grid

Q.6 Meter Data Management System

Q.7 Demand Response Mechanisms

Q.8 EnergyHub: Home Energy Management

Q.9 Energy Storage: Providing Dispatchable Power without Interruption

Q.9.1 Technologies for the Power Grid

Q.9.1.1 Compressed Air

Q.9.1.2 Pumped Hydro

Q.9.1.3 Ultracapacitors

Q.9.1.4 Flywheels

Q.9.1.5 Sodium Sulfur (NAS) Batteries

Q.9.1.6 Flow Batteries

Q.9.1.7 Lithium-ion Batteries

Q.9.1.8 Lead Acid Batteries

Q.9.1.9 Fuel Cells

Q.10 Paying Attention to Security

R. ENVIRONMENTAL IMPACT OF THE SMART GRID

R.1 Introduction

R.2 Connecting the Smart Grid with Automobiles

R.3 Managing the Carbon Footprint

R.4 Optimizing Wind Resources with the Smart Grid

R.5 Optimizing Solar Resources with the Smart Grid

R.6 Effect of the BP Oil on the Smart Grid

S. SMART GRID AND RENEWABLE ENERGY

S.1 Introduction

S.2 Is the Smart Grid a Renewable Energy Resource?

S.3 Integrating Renewable Energy in the Smart Grid

S.4 Emergence of National Scale Transmission Plans

S.5 Conclusion

T. SMART GRID: FUTURE PERSPECTIVE

U. TECHNOLOGY PROVIDERS INVOLVED IN THE SMART GRID

U.1 4Home

U.2 A123 Systems

U.3 ABB

U.4 Aclara

U.5 Advanced Control Systems

U.6 Advanced Telemetry
U.7 Aeris Communications
U.8 AlertMe.com
U.9 Ambient Corporation
U.10 Arcadian Networks
U.11 Arch Rock Corporation
U.12 Atheros Communications
U.13 AT&T Inc
U.14 Beacon Power Corporation
U.15 BPL Global
U.16 Cimetrics
U.17 Cisco Systems
U.18 Comverge Inc
U.19 Control4 Corporation
U.20 Cooper Power Systems
U.21 Coulomb Technologies
U.22 Current Cost
U.23 CURRENT Group
U.24 Dust Networks
U.25 Echelon Corporation
U.26 EcoLogic Analytics
U.27 Elster Group
U.28 Ember Corporation
U.29 eMeter
U.30 EnergyHub
U.31 Energate
U.32 EnerNOC Inc
U.33 Fat Spaniel Technologies
U.34 GE Energy
U.35 Google
U.36 Greenbox Technology
U.37 GridAgents
U.38 GRIDiant Corporation
U.39 Grid Net
U.40 GridPoint
U.41 IBM
U.42 Intelagrid
U.43 Itron Inc
U.44 Landis+Gyr

U.45 Microsoft
U.46 Onzo
U.47 PowerGrid Communications
U.48 Sequentric Energy Systems
U.49 Serveron Corporation
U.50 Silver Spring Networks
U.51 Site Controls
U.52 SmartSynch
U.53 Tantalus Systems Corporation
U.54 Trilliant Networks
U.55 Tropos Networks
U.56 Verdiem
U.57 Viridity Energy
U.58 VYCON Flywheel Energy

V. APPENDIX

V.1 Smart Grid Organizations
V.1.1 Consortium for Electric Reliability Technology Solutions
V.1.2 DRBizNet
V.1.3 Dynamic Energy Management Initiative
V.1.4 Galvin Electricity Initiative
V.1.5 GridApp Consortium
V.1.6 GridWise
V.1.7 GridWorks
V.1.8 Intelligent Utility Network Coalition
V.1.9 IntelliGrid
V.1.10 Modern Grid Initiative
V.1.11 OpenAMI
V.1.12 Smart Energy Alliance
V.1.13 UtilityAMI
V.2 Figures & Tables

W. GLOSSARY OF TERMS

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