

**Table of Contents**

Acronyms and Abbreviations..... 5

Introduction ..... 7

    Objective ..... 7

    Value..... 7

    Scope..... 7

Overview of the Smart Grid ..... 8

    What is the Smart Grid? ..... 8

    What are the Components of the Smart Grid?..... 11

    Why Is The Smart Grid Needed? ..... 13

Changes Brought About by the Smart Grid ..... 15

    Benefits of the Smart Grid..... 16

    Impact of the Smart Grid..... 19

Government Efforts to Legislate a Smart Grid..... 21

    Energy Policy Act of 2005 ..... 21

    Energy Independence and Security Act of 2007 ..... 21

    American Recovery and Reinvestment Act of 2009..... 24

    California SB 17 ..... 25

Utilities Implementing the Smart Grid ..... 26

    Baltimore Gas and Electric..... 26

    CenterPoint Energy..... 26

    Consolidated Edison ..... 27

    Denton Municipal Electric ..... 28

    Dominion Virginia Power..... 29

    Duke Energy Indiana ..... 29

    Glendale Water & Power ..... 30

    Lakeland Electric..... 31

    Oncor ..... 31

    Pacific Gas and Electric ..... 32

    PECO ..... 33

    Reliant Energy ..... 34

    Salt River Project ..... 34

    San Diego Gas and Electric..... 35

---

|   |    |
|---|----|
| Southern California Edison .....                              | 36 |
| Xcel Energy.....  | 36 |
| Industry Groups Working on the Smart Grid .....               | 38 |
| Advanced Distribution Automation.....                         | 38 |
| Consortium for Electric Reliability Technology Solutions..... | 38 |
| Dynamic Energy Management Initiative.....                     | 39 |
| Federal Smart Grid Task Force.....                            | 40 |
| Galvin Electricity Initiative .....                           | 41 |
| GridWise .....  | 42 |
| Intelligent Utility Network Coalition.....                    | 46 |
| IntelliGrid.....  | 46 |
| Modern Grid Strategy.....                                     | 48 |
| NIST .....  | 48 |
| OpenAMI.....  | 50 |
| Smart Energy Alliance .....                                   | 51 |
| UtilityAMI.....   | 52 |