

Table of Contents

ACRONYMS AND ABBREVIATIONS 5

INTRODUCTION 8

WHY IS DEMAND RESPONSE NEEDED? 9

THE HISTORY OF DEMAND RESPONSE 12

TODAY’S DEMAND RESPONSE PROGRAMS 14

Characteristics of Contemporary Demand Response 14

The Relationship between Demand Response and Energy Efficiency 15

The Economic Rationale for Demand Response 15

CURRENT USE OF DEMAND RESPONSE 18

The Role of Demand Response in Regional Planning 19

Demand Response Statistics 22

KEY BUSINESS DRIVERS OF DEMAND RESPONSE GROWTH 27

System Reliability 27

Cost Effectiveness 27

System Efficiency 28

Environmental Concerns 28

Growing Energy Demand 30

BARRIERS TO IMPLEMENTATION OF DEMAND RESPONSE 31

What is Hindering Market Penetration for Demand Response? 31

How Can the Barriers to Demand Response be Overcome? 34

FERC Efforts to Encourage Demand Response 36

THE MULTIPLE FACES OF DEMAND RESPONSE 38

Direct Load Control 38

Interruptible/Curtailable Load 40

Time-of-Use 43

Real-time Pricing 44

Demand Bidding 47

Emergency Demand 49

Capacity Markets 50

Ancillary Services 51

POTENTIAL U.S. DEMAND RESPONSE 52

RTO DEMAND RESPONSE PROGRAMS 56

California ISO 57

Electric Reliability Council of Texas..... 59

ISO New England..... 61

Midwest ISO 64

New York ISO..... 65

PJM Interconnection..... 67

GLOSSARY 69