

First Regular Session
Sixty-eighth General Assembly
STATE OF COLORADO

INTRODUCED

LLS NO. 11-0197.01 Duane Gall

SENATE BILL 11-131

SENATE SPONSORSHIP

Williams S., Heath, Schwartz

HOUSE SPONSORSHIP

Solano,

Senate Committees

Agriculture and Natural Resources

House Committees

A BILL FOR AN ACT

101 **CONCERNING THE CREATION OF A SMART ENERGY GRID IN COLORADO,**
102 **AND, IN CONNECTION THEREWITH, IMPLEMENTING THE**
103 **RECOMMENDATIONS OF THE COLORADO SMART GRID TASK**
104 **FORCE.**

Bill Summary

(Note: This summary applies to this bill as introduced and does not reflect any amendments that may be subsequently adopted. If this bill passes third reading in the house of introduction, a bill summary that applies to the reengrossed version of this bill will be available at <http://www.leg.state.co.us/billsummaries>.)

Legislation adopted in the 2010 legislative session created an interim task force to study issues related to the development of a smart

Shading denotes HOUSE amendment. Double underlining denotes SENATE amendment.
Capital letters indicate new material to be added to existing statute.
Dashes through the words indicate deletions from existing statute.

energy grid in Colorado and to make recommendations for future legislation on this topic. The bill implements the task force's recommendations as contained in its report of January 20, 2011, by:

- ! Directing the division of employment and training to study the scope, magnitude, and impact of the development of the smart grid on jobs in Colorado;
- ! Directing the governor's energy office to establish an independent clearinghouse of information for consumers to supplement the information provided by utilities through their existing demand-side management programs;
- ! Creating a smart grid division within the office of economic development to promote entrepreneurship, technology transfers, and other economic development efforts related to the smart grid, together with a smart grid cash fund to finance these operations; and
- ! Authorizing and directing the Colorado public utilities commission to establish standards, classifications, and practices related to consumer protection, grid reliability and security, and the integration of distributed energy resources in connection with the smart grid.

1 *Be it enacted by the General Assembly of the State of Colorado:*

2 **SECTION 1. Legislative declaration.** (1) The general assembly
3 finds that:

4 (a) In Senate Bill 10-180, enacted in the 2010 regular legislative
5 session, the general assembly authorized the creation of the Colorado
6 smart grid task force and directed the task force to meet, gather
7 information, and report to the general assembly on issues related to the
8 development of a smart energy grid in Colorado; and

9 (b) The task force has met and has prepared an initial report
10 containing a broad range of recommendations for further action in the
11 critical areas of policy and technological needs for the future development
12 of Colorado's smart grid.

13 (2) The general assembly determines that this legislation contains
14 the general assembly's legislative response to the recommendations

1 contained in the task force's initial report.

2 (3) The general assembly further declares that the purposes of this
3 legislation are:

4 (a) To leverage Colorado's unique advantages in energy and
5 information technology, such as the presence of the national institute for
6 standards and technology and the national renewable energy laboratory,
7 Colorado's highly educated workforce and tech-savvy population, and the
8 leadership of Colorado's electric utilities in the development and use of
9 renewable energy, to give Colorado a premier role in the development of
10 integrated energy and communications infrastructure worldwide;

11 (b) To create additional jobs, educational opportunities, and
12 economic value for Colorado's citizens in the short term as well as the
13 long term;

14 (c) To guide the creation of an open, flexible, secure, and
15 technically advanced smart grid architecture that will allow multiple
16 entities to develop new and innovative products for job creation and
17 marketplace competition;

18 (d) To hasten the integration of renewable energy technologies
19 into the fuel mix of Colorado utilities through more efficient dispatch,
20 increased access to temporary energy storage, implementation of real-time
21 price signals, and appropriate use of distributed generation; and

22 (e) To collect and appropriately distribute helpful information to
23 system designers, consumers, producers of appliances and software, and
24 persons who install and maintain equipment that accesses the smart grid.

25 **SECTION 2.** Part 1 of article 71 of title 8, Colorado Revised
26 Statutes, is amended BY THE ADDITION OF A NEW SECTION to
27 read:

1 **8-71-107. Smart grid - potential opportunities and impacts -**
2 **study - report - funding - repeal.** (1) THE DIVISION SHALL CONDUCT A
3 STUDY DURING THE 2011 INTERIM TO IDENTIFY AND DEFINE THE SCOPE,
4 MAGNITUDE, AND IMPACT OF THE DEVELOPMENT OF A SMART GRID, AS
5 DEFINED IN SECTION 40-1-102, C.R.S., ON JOBS WITHIN COLORADO. AS
6 PART OF THE STUDY, THE DIVISION SHALL:

7 (a) EXAMINE THE NET IMPACT OF THE SMART GRID ON JOBS AND
8 WORKFORCE TRANSITION ISSUES;

9 (b) ATTEMPT TO VERIFY OR EXPLORE ALTERNATIVES TO ANY
10 AVAILABLE PRIOR STUDIES THAT RELY ON UTILITY AND UTILITY
11 SUPPLY-CHAIN JOB CREATION; AND

12 (c) IN COLLABORATION WITH THE COLORADO COMMISSION ON
13 HIGHER EDUCATION, IDENTIFY GIFTS, GRANTS, AND DONATIONS OR
14 PUBLIC-PRIVATE PARTNERSHIPS TO FUND PROGRAMS AND CURRICULA TO
15 SUPPORT THE DEVELOPMENT OF BUSINESS, PROFESSIONAL, ENGINEERING,
16 AND TECHNICAL SKILLS NECESSARY TO FACILITATE DEPLOYMENT OF THE
17 SMART GRID IN COLORADO AND ELSEWHERE.

18 (2) THE DIVISION SHALL PRODUCE AND DELIVER ITS REPORT UNDER
19 SUBSECTION (1) OF THIS SECTION TO THE GOVERNOR, THE COLORADO
20 PUBLIC UTILITIES COMMISSION, AND THE GENERAL ASSEMBLY ON OR
21 BEFORE JANUARY 20, 2012.

22 (3) **Funding.** (a) THE GOVERNOR'S ENERGY OFFICE MAY ACCEPT
23 PUBLIC OR PRIVATE GIFTS, GRANTS, AND DONATIONS FOR THE PURPOSE OF
24 PROVIDING SUPPORT TO THE DIVISION TO PERFORM ITS RESPONSIBILITIES
25 SPECIFIED IN THIS SECTION. ANY SUCH GIFTS, GRANTS, AND DONATIONS
26 MUST BE HELD IN A SEPARATE ACCOUNT WITHIN THE CLEAN ENERGY FUND
27 CREATED IN SECTION 24-75-1201, C.R.S., AND ARE AVAILABLE TO THE

1 OFFICE AND THE DIVISION, SUBJECT TO ANNUAL APPROPRIATION BY THE
2 GENERAL ASSEMBLY, FOR THE PURPOSE OF CARRYING OUT THE DIVISION'S
3 DUTIES UNDER THIS SECTION. THE ACCOUNT ALSO CONSISTS OF MONEYS
4 APPROPRIATED AND TRANSFERRED TO THE ACCOUNT. ANY UNEXPENDED
5 OR UNENCUMBERED MONEYS REMAINING IN THE ACCOUNT AS OF JUNE 30,
6 2012, REVERTS TO THE CLEAN ENERGY FUND TO BE USED BY THE
7 GOVERNOR'S ENERGY OFFICE.

8 (b) IT IS THE INTENT OF THE GENERAL ASSEMBLY THAT THE
9 GOVERNOR'S ENERGY OFFICE NOT BE REQUIRED TO SOLICIT GIFTS, GRANTS,
10 OR DONATIONS FROM ANY SOURCE FOR THE PURPOSES OF THIS SECTION
11 AND THAT NO GENERAL FUND MONEYS BE USED TO PAY FOR GRANTS
12 AWARDED PURSUANT TO THIS SECTION OR FOR ANY EXPENSES OF THE
13 DIVISION.

14 (c) IF, BY JUNE 1, 2011, MONEYS IN THE ACCOUNT CREATED
15 PURSUANT TO PARAGRAPH (a) OF THIS SUBSECTION (3) HAVE NOT
16 REACHED AN AMOUNT SUFFICIENT TO PAY THE EXPENSES OF THE DIVISION,
17 THE DIVISION SHALL NOT MEET NOR UNDERTAKE ANY OTHER DUTIES
18 PURSUANT TO THIS SECTION, AND THE GOVERNOR'S ENERGY OFFICE SHALL
19 RETURN TO EACH GRANTOR OR DONOR AN AMOUNT EQUAL TO THE
20 GRANTOR'S OR DONOR'S CONTRIBUTION. THE STATE TREASURER SHALL
21 TRANSFER THE INTEREST, IF ANY, EARNED FROM THE INVESTMENT OF
22 MONEYS IN THE ACCOUNT TO THE GENERAL FUND.

23 (4) **Repeal.** THIS SECTION IS REPEALED, EFFECTIVE JULY 1, 2013.

24 **SECTION 3.** 24-38.5-102 (1), Colorado Revised Statutes, is
25 amended BY THE ADDITION OF A NEW PARAGRAPH to read:

26 **24-38.5-102. Governor's energy office - duties and powers.**

27 (1) The governor's energy office shall:

1 (u) ADOPT AND IMPLEMENT A CUSTOMER EDUCATION PROGRAM
2 FOR CUSTOMERS OF ELECTRIC UTILITIES THAT COMPLEMENTS THE
3 DEMAND-SIDE MANAGEMENT PROGRAMS AND OTHER INFORMATIONAL
4 PROGRAMS IMPLEMENTED BY ELECTRIC UTILITIES. THE PURPOSE OF THIS
5 PROGRAM IS TO ESTABLISH A CLEARINGHOUSE OF INFORMATION,
6 INDEPENDENT OF MARKETING PROGRAMS, WHERE CUSTOMERS MAY LEARN
7 ABOUT THEIR ENERGY USAGE OPTIONS.

8 **SECTION 4.** Article 48.5 of title 24, Colorado Revised Statutes,
9 is amended BY THE ADDITION OF A NEW PART to read:

10 PART 4

11 SMART GRID DIVISION

12 **24-48.5-401. Smart grid division - powers and duties -**
13 **definition - smart grid cash fund - creation - repeal.** (1) (a) THERE IS
14 HEREBY CREATED WITHIN THE COLORADO OFFICE OF ECONOMIC
15 DEVELOPMENT THE SMART GRID DIVISION, WHICH SHALL BE REFERRED TO
16 IN THIS PART 4 AS THE "DIVISION". THE DIRECTOR OF THE COLORADO
17 OFFICE OF ECONOMIC DEVELOPMENT SHALL APPOINT THE DIRECTOR OF THE
18 DIVISION.

19 (b) THE DIVISION IS AUTHORIZED AND DIRECTED TO PROMOTE THE
20 ENTREPRENEURIAL CREATION OF NEW SMART GRID BUSINESSES AND TO
21 ASSIST EXISTING BUSINESSES AND BUSINESS RELOCATIONS WITH
22 PROOF-OF-CONCEPT SEED GRANTS, TECHNOLOGY TRANSFER PROGRAMS,
23 AND OTHER ENTREPRENEURIAL INITIATIVES. AS USED IN THIS SECTION,
24 "SMART GRID" HAS THE MEANING SET FORTH IN SECTION 40-1-102, C.R.S.

25 (2) (a) THERE IS HEREBY CREATED IN THE STATE TREASURY THE
26 SMART GRID CASH FUND, REFERRED TO IN THIS SECTION AS THE "FUND".
27 THE FUND CONSISTS OF GIFTS, GRANTS, OR DONATIONS FROM PRIVATE OR

1 PUBLIC SOURCES, WHICH GIFTS, GRANTS, AND DONATIONS THE DIVISION IS
2 HEREBY AUTHORIZED TO SEEK AND ACCEPT.

3 (b) THE GENERAL ASSEMBLY SHALL ANNUALLY APPROPRIATE THE
4 MONEYS IN THE FUND TO THE DIVISION FOR THE OPERATION OF THE
5 DIVISION AND TO FURTHER THE PURPOSES OF THE DIVISION AS SET FORTH
6 IN PARAGRAPH (a) OF SUBSECTION (1) OF THIS SECTION.

7 (c) ALL MONEYS NOT EXPENDED OR ENCUMBERED, AND ALL
8 INTEREST EARNED ON THE INVESTMENT OR DEPOSIT OF MONEYS IN THE
9 FUND, REMAIN IN THE FUND AND DO NOT REVERT TO THE GENERAL FUND
10 OR ANY OTHER FUND AT THE END OF ANY FISCAL YEAR. ANY MONEYS NOT
11 EXPENDED OR ENCUMBERED FROM ANY APPROPRIATION AT THE END OF
12 ANY FISCAL YEAR REMAIN AVAILABLE FOR EXPENDITURE IN THE NEXT
13 FISCAL YEAR WITHOUT FURTHER APPROPRIATION.

14 **SECTION 5.** 40-1-102 (6), Colorado Revised Statutes, is
15 amended, and the said 40-1-102 is further amended BY THE ADDITION
16 OF A NEW SUBSECTION, to read:

17 **40-1-102. Definitions.** As used in articles 1 to 7 of this title,
18 unless the context otherwise requires:

19 (6) "Demand-side management programs" or "DSM programs"
20 means energy efficiency, conservation, load management, and demand
21 response programs or any combination of these programs. "DSM
22 PROGRAMS" INCLUDE EDUCATION AND TRAINING PROGRAMS, PILOT
23 PROJECTS, AND TECHNOLOGY DEMONSTRATIONS RELATED TO THE
24 DEVELOPMENT OF A SMART GRID IN COLORADO.

25 (12) "SMART GRID" MEANS A STATEWIDE OR REGIONAL SYSTEM
26 FOR ELECTRIC TRANSMISSION OR DISTRIBUTION, OR BOTH, THAT
27 INCORPORATES ONE OR MORE OF THE FOLLOWING FUNCTIONALITIES:

1 (a) ENABLING CONSUMERS TO PARTICIPATE ACTIVELY AS PART OF
2 AN ENERGY MARKET USING INFORMATION, CONTROL, AND OPTIONS FOR
3 ENERGY EFFICIENCY NOT PREVIOUSLY AVAILABLE TO CONSUMERS;

4 (b) INTEGRATING DIFFERENT TYPES AND SIZES OF ELECTRICAL
5 GENERATION SYSTEMS USING SIMPLIFIED INTERCONNECTION PROCESSES
6 AND UNIVERSAL INTEROPERABILITY STANDARDS;

7 (c) LINKING ENERGY BUYERS AND SELLERS THROUGH
8 TECHNOLOGIES ALLOWING CONSUMERS AND THIRD PARTIES TO BID THEIR
9 ENERGY RESOURCES INTO THE ELECTRICITY MARKET;

10 (d) MONITORING, DIAGNOSING, AND RESPONDING TO POWER
11 QUALITY DEFICIENCIES;

12 (e) OPTIMIZING THE USE OF SYSTEM ASSETS AND ENHANCING
13 OVERALL EFFICIENCY THROUGH IMPROVED LOAD FACTORS AND BETTER
14 MANAGEMENT OF OUTAGES;

15 (f) ANTICIPATING AND AUTOMATICALLY RESPONDING TO SYSTEM
16 DEFICIENCIES;

17 (g) OPERATING RESILIENTLY WHEN CONFRONTED WITH A
18 CYBER-ATTACK OR NATURAL DISASTER; AND

19 (h) MAXIMIZING EFFICIENCY AND DEMAND RESPONSE.

20 **SECTION 6.** Article 4 of title 40, Colorado Revised Statutes, is
21 amended BY THE ADDITION OF A NEW SECTION to read:

22 **40-4-108.5. Standards for implementation of the smart grid -**
23 **legislative declaration.** (1) THE GENERAL ASSEMBLY FINDS,
24 DETERMINES, AND DECLARES THAT IT IS IN THE PUBLIC INTEREST TO
25 FOSTER THE DEVELOPMENT OF A FLEXIBLE, OPEN, SECURE, AND
26 TECHNICALLY STANDARDIZED ARCHITECTURE FOR THE DEPLOYMENT OF
27 SMART GRID TECHNOLOGIES. IN ADDITION, IT IS THE POLICY OF THE STATE

1 OF COLORADO:

2 (a) TO SUPPORT A VENDOR- AND PLATFORM-INDEPENDENT
3 STRUCTURE FOR THE SMART GRID THAT ALLOWS MULTIPLE ENTITIES TO
4 DEVELOP NEW AND INNOVATIVE PRODUCTS FOR JOB CREATION AND
5 MARKETPLACE COMPETITION, INCLUDING ELECTRIC VEHICLES AND
6 CHARGING STATIONS;

7 (b) TO INCORPORATE, AS PART OF COLORADO'S SMART GRID,
8 COMMUNICATIONS SYSTEMS CAPABLE OF LINKING ALL CONNECTED
9 INFRASTRUCTURE, FROM CONSUMER-END EQUIPMENT TO SUBSTATIONS
10 AND THE ASSOCIATED CONTROL SYSTEMS; AND

11 (c) THAT THE COMMISSION AND THE GOVERNING BODIES OF ALL
12 ELECTRIC UTILITIES IN COLORADO, BOTH JURISDICTIONAL AND
13 NONJURISDICTIONAL, SHOULD COLLABORATE WHENEVER POSSIBLE TO
14 ADOPT UNIFORM TECHNICAL STANDARDS AND PROTOCOLS, INCLUDING
15 METERING PROTOCOLS.

16 (2) IN ADDITION TO THE POWERS AND DUTIES CONFERRED BY
17 OTHER LAWS, THE COMMISSION, AFTER HEARING UPON ITS OWN MOTION OR
18 UPON COMPLAINT, MAY ASCERTAIN AND FIX JUST AND REASONABLE
19 STANDARDS, CLASSIFICATIONS, REGULATIONS, PRACTICES,
20 MEASUREMENTS, OR SERVICE TO BE FURNISHED, IMPOSED, OBSERVED, AND
21 FOLLOWED BY ALL ELECTRIC PUBLIC UTILITIES IN DEVELOPING
22 COLORADO'S SMART GRID. IN DOING SO, THE COMMISSION SHALL BE
23 GUIDED BY THE POLICY GOALS STATED IN THIS SUBSECTION (2) AND, IN
24 PARTICULAR, SHALL STRIVE TO ACHIEVE THE FOLLOWING:

25 (a) **Consumer protection.** ELECTRIC PUBLIC UTILITIES SHOULD:

26 (I) GUARD CUSTOMER INFORMATION IN A MANNER THAT ENSURES
27 THAT PERSONALLY IDENTIFIABLE INFORMATION IS NOT ACCESSIBLE;

1 (II) PROVIDE CONSUMERS READY ACCESS TO DATA CONCERNING
2 ENERGY USAGE, PRODUCTION, PRICING, AND TIME OF USE; AND

3 (III) DISSEMINATE EDUCATIONAL COMMUNICATIONS TO
4 CONSUMERS ON A COMPREHENSIVE, STATEWIDE BASIS.

5 (b) **Grid reliability and security.** (I) UTILITIES SHOULD
6 CONTINUE TO ADHERE TO FEDERAL AND STATE RELIABILITY STANDARDS
7 FOR ANY SMART GRID DEVELOPMENT. TO ESTABLISH A BASELINE AGAINST
8 WHICH TO DETERMINE RELIABILITY IMPROVEMENTS AND TO INCREASE
9 TRANSPARENCY AROUND ELECTRIC SYSTEM PERFORMANCE, APPLICABLE
10 SYSTEM AND INDIVIDUAL OPERATION METRICS, AS WELL AS LESSONS
11 LEARNED THROUGH DEMONSTRATION PROJECTS, SHOULD BE SHARED
12 WHENEVER POSSIBLE.

13 (II) THE COMMISSION AND THE GOVERNING BOARDS OF UTILITIES
14 SHOULD IDENTIFY AN INDUSTRY-STANDARD DEFINITION OF GRID
15 EFFICIENCY THAT INCLUDES, AT A MINIMUM, THE FOLLOWING ON A
16 CIRCUIT-BY-CIRCUIT BASIS:

17 (A) IDENTIFICATION AND REDUCTION OF TRANSMISSION AND
18 DISTRIBUTION LINE LOSSES;

19 (B) POWER FACTOR MANAGEMENT;

20 (C) VOLTAGE MANAGEMENT;

21 (D) PHASE BALANCING; AND

22 (E) DEMAND RESPONSE;

23 (III) RESEARCH ON, AND USE OF, IMPROVED FORECASTING FOR
24 BETTER INTEGRATION AND UTILIZATION OF INTERMITTENT RESOURCES
25 SHOULD BE ENCOURAGED.

26 (IV) THE GOVERNING BOARDS OF UTILITIES SHOULD BE
27 ENCOURAGED TO EXPLORE INCENTIVES FOR EFFICIENCY FROM INNOVATION

1 THAT DOES NOT PENALIZE OR HARM UTILITIES WITHIN THE GRID, SUCH AS:

2 (A) DEFINING DISTRIBUTED GENERATION AS A RESOURCE RATHER
3 THAN AS DROPPED LOAD;

4 (B) DEVELOPING, AT BOTH THE REGULATORY AND INDUSTRY
5 LEVELS, ALTERNATIVE BUSINESS AND REGULATORY MODELS THAT
6 ADDRESS COST RECOVERY AND RATE-SETTING ISSUES RELATED TO
7 DEMAND-SIDE MANAGEMENT, ACKNOWLEDGING THE PARADOX INHERENT
8 IN PROMOTING BOTH ELECTRICITY SALES AND ELECTRICAL EFFICIENCY
9 AND THE DISTINCTIONS AMONG INVESTOR-OWNED UTILITIES, MUNICIPAL
10 UTILITIES, AND RURAL ELECTRIC COOPERATIVES;

11 (C) DIFFERENTIATING END USER EFFICIENCY FROM GRID
12 EFFICIENCY; AND

13 (D) DIFFERENTIATING COST IMPACTS FOR UTILITIES AND COST
14 IMPACTS FOR CONSUMERS WITH REGARD TO EFFICIENCY.

15 (V) THE DEVELOPMENT OF INFRASTRUCTURE AND STANDARDS
16 DESIGNED TO SUPPORT SELF-HEALING NETWORKS, INCLUDING
17 CONFIGURATIONS FEATURING ISLAND SYSTEMS WITH THE ABILITY TO
18 SELF-START AND DYNAMICALLY RECONNECT, SHOULD BE ENCOURAGED.

19 (c) **Integration of distributed energy resources.** (I) THE
20 COMMISSION AND THE GOVERNING BODIES OF ELECTRIC UTILITIES SHOULD:

21 (A) RESEARCH AND PILOT-TEST INNOVATIVE FINANCIAL
22 INVESTMENT MODELS THAT REDUCE A UTILITY'S DISINCENTIVES TO INVEST
23 IN DISTRIBUTED GENERATION;

24 (B) EXPLORE THE FEASIBILITY OF ALLOWING UTILITIES TO
25 PARTNER WITH COMPANIES THAT AGGREGATE DEMAND RESPONSE TO
26 REDUCE TRANSACTION COSTS; AND

27 (C) SELECT AND ADOPT A NATIONALLY RECOGNIZED DISTRIBUTED

1 GENERATION INTERCONNECTION STANDARD ALLOWING NEW DEVICES SUCH
2 AS PLUG-IN HYBRID ELECTRIC VEHICLES TO CONNECT TO THE GRID.

3 (II) THE GOVERNING BODIES OF ELECTRIC UTILITIES SHOULD
4 CONSIDER EVOLVING THE USE OF STANDBY TARIFFS OR BACKUP SERVICE
5 FEES TO MORE EQUITABLY MAINTAIN THE DISTRIBUTION OF SYSTEM COSTS.

6 (III) BALANCING AUTHORITIES SHOULD BE CONSOLIDATED TO
7 DIVERSIFY THE INTEGRATION OF UTILITY-SCALE RENEWABLES.

8 **SECTION 7. Safety clause.** The general assembly hereby finds,
9 determines, and declares that this act is necessary for the immediate
10 preservation of the public peace, health, and safety.