

# STATE OF COLORADO

## GOVERNOR'S ENERGY OFFICE

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Bill Ritter, Jr., Governor  
Tom Plant, Director

**Minutes<sup>1</sup> of the**  
**Colorado Clean Energy Development Authority**  
**Colorado Legislative Services Building**  
**220 East 14<sup>th</sup> Avenue, Denver 80203**  
**Thursday, November 1, 2007, 9:00 a.m. to noon**

The **meeting was called to order** by **Tom Plant**, Director, Governor's Energy Office; Chairman, Colorado Clean Energy Development Authority, at 9:00 a.m.

**Board Attendance:** Every member of the Clean Energy Development Authority (CEDA) Board was in attendance: **Cary Kennedy**, State Treasurer; **Don Elliman**, Director of Economic Development; **John Stulp**, Commissioner of Agriculture; **Lee White**, appointed by the Governor; **Jeffrey Nathanson**, appointed by the Speaker of the House; **Sam Weaver**, appointed by the President of the Senate; **Lola Spradley**, appointed by the Minority Leader of the House; **Joel Bladow**, appointed by the Minority Leader of the Senate.

**Members of the Public in Attendance:** Tom Long, Clear Creek Power; Beauden Boekhout, Clear Creek Power; Steve Rooney, citizen; Scott Prestidge, Rep. Mark Udall's Office; Warren Wendling, Energy Consultant; Ron Lehr, American Wind Energy Association; John Covert, Colorado Harvesting Energy Network; Larry Keith, EDAW; Robin Kittel, Xcel Energy, Doug Larson, Western Interstate Energy Board; Mark Sherberg, Bioenergy Investments LLC, Paul Nikitovich, Bioenergy Investments LLC; Mark Morley, H2O.PRO.com; Ned Farquhar, Natural Resources Defense Council and Chairman, New Mexico Renewable Energy Transmission Authority; Morey Wolfson, Utilities Program Manager, Governor's Energy Office; and Colorado State Representative Cory Gardner.

.Mr. Plant asked the **Members of the Authority to do self-introductions** and provide some information about their interest and background. Biographical sketches of the Board Members were contained in the binders provided to the Members.

The Board then **reviewed and approved the draft agenda**. It was noted that Morey Wolfson, Utilities Program Manager, Governor's Energy Office, would produce draft minutes of the meeting and distribute them. It was also noted that the draft minutes, once approved, and presentations will be posted on the Governor's Energy Office website.

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Mr. Plant then presented a **brief legislative history and background regarding HB07-1150**, which established the Clean Energy Development Authority. Mr. Plant described that the

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<sup>1</sup> The Board approved these minutes at its December 18, 2007 meeting.

legislation is complex and the bill went through several “strike below” changes. He invited a prime legislative sponsor, **Representative Cory Gardner** to share his perspectives and legislative intent. The primary thrust of Representative Gardner’s briefing to the Board was to reinforce the strong interest across the state and within Colorado’s agricultural communities, in particular, to develop renewable resources. There was an extended conversation between Representative Gardner and the Board. State Treasurer Kennedy offered to develop a **white paper** for the CEDA to clarify some of the technical questions that were raised. Mr. Plant identified that a **problem exists in the legislation**. The Authority’s fund was created within the Treasury. However, the Authority is not a governmental entity, so CEDA could not spend money from the fund. He said that this problem will require that a remedy in the 2008 legislative session.

Following the briefing on HB07-1150, the Board elected **Don Elliman as the Vice Chairman**, and **Sam Weaver as the Secretary**. By statute, the Director of the Governor’s Energy Office (Tom Plant) will chair the Authority.

The Board then heard **briefings by subject matter experts on Colorado’s transmission infrastructure and plans for transmission expansion**.

The first presentation was given by **Doug Larson**, Executive Director, Western Interstate Energy Board. Mr. Larson provided an overview briefing regarding transmission developments under consideration in the region. He made it clear that there has never been as much interest in transmission expansion in the West as there is at present. Mr. Larson’s PowerPoint will be posted on the GEO website.

The next presentation was by **Joel Bladow**, Senior Vice President of Transmission, Tri-State Generation & Transmission Association (TSG&T); and a Board Member of the CEDA. His presentation focused to the Eastern Plains Transmission Project. The EPTP is an approximate \$1.6 billion project that could carry approximately 2,400 megawatts. He suggested that the high voltage lines would likely be rated at 500 kilovolts. He referenced how EPTP fits into the larger regional multi-state transmission expansion plan, the High Plains Express. He referenced that the partners in the EPTP project (TSG&T and Western Area Power Administration) recently entered into a memorandum of understanding with Xcel Energy, as part of an effort to increase the number of partners in the project. Mr. Bladow’s PowerPoint will be posted on the GEO website.

The next presentation was given by **Jim Tarpey**, of Counsel, Holland & Hart; Member, Wyoming Infrastructure Authority (WIA). His briefing provided insights he has gained from the WIA and lessons learned from the WIA that could be useful for the CEDA to consider. He described the scope, authority, and facilitative function of the WIA. He referenced how WIA has assisted with the financing of a transmission line operated by Basin Electric. In this particular instance, the WIA was able to meet a niche need and was able to help obtain financing relatively quickly. He advised that the CEDA Board ought to consider spending time to familiarize themselves with one another, and build partnerships. He said that the Board should identify what elements of CEDA’s work would constitute success. He compared and contrasted the WIA with the CEDA. He referenced how state infrastructure authorities could be more effective in helping with finance if certain technical changes were made to the federal tax code. He described how he, and a number of individuals, has been working to effect that change. Mr. Tarpey’s PowerPoint will be posted on the GEO website.

**Mr. Tarpey** then provided information that was offered by **Jerry Vaninetti**, Vice-President Western Development, Trans-Elect Development Company, LLC regarding “Enabling

Renewables via Transmission WCI & HPX Examples.” (Mr. Vaninetti was unable to attend the meeting). Mr. Tarpey mentioned that the WIA has partnered with Trans-Elect to conduct a \$2-3 million feasibility study regarding a proposed Wyoming-Colorado transmission tie. The PowerPoint describes the opportunities and challenges associated with wind integration and transmission expansion, particularly between Wyoming and Colorado. Mr. Vaninetti’s PowerPoint will be posted on the GEO website.

The next presentation was by **Ned Farquhar**, Chairman of New Mexico’s Renewable Energy Transmission Authority (RETA). He described the RETA’s scope, authority, and facilitative function. He said that the RETA has a budget of \$1 million from the state’s general fund, spread over a three year period. Like CEDA, RETA was created in 2007. The New Mexico authority has had one meeting and is conducting a job search for their Executive Director.

At 11:00, the Board took a **break**, and reconvened at 11:15.

The next presentation was by **Robin Kittel**, Director, Regulatory and Strategic Analysis, Public Service Company of Colorado. She briefed the Board on SB07-100, regarding the identification of energy zones and the need to file applications at the Colorado Public Utilities Commission (PUC) to build new transmission to the zones. Xcel filed their plan with the PUC on October 31. She distributed an Xcel map showing the resource zones, and described the particulars of the findings. She subsequently sent the condensed version of the SB100 report to GEO, contained as an attachment to these draft minutes.<sup>1</sup> She described the stakeholder meetings Xcel convened since the passage of SB100. She also described the wind studies that were conducted within the three wind zones. She also described the solar resource and transmission studies conducted in the fourth zone- the San Luis Valley. She described Xcel’s short term and long term plans for transmission expansion in all four zones. There was an extended dialogue regarding cost allocation and different regulatory approaches, at the state, regional, and federal levels.

The next presentation was by **Morey Wolfson**, Utilities Program Manager, GEO; and Member of the SB91 Task Force. He briefed the Board on the 16-member SB07-91 Task Force, which is charged with the mapping of Colorado’s renewable resource generation development areas (GDAs). He displayed draft GDAs for wind and solar, and presented an outline of a report that will be submitted to the Colorado General Assembly and the Governor by December 31, 2007. He stated his expectation that the report will be a significant resource to help guide the work of the CEDA. He said that the Western Governors Association (WGA) may be sponsoring cooperation between the states in the region to identify renewable energy zones and the transmission required to connect the resources. If the WGA initiative goes forward, he anticipates that the SB91 mapping report will be applicable to that activity.

Mr. Plant then opened the meeting for **discussion and planning**. It was referenced that HB1150 requires the CEDA to **submit a report** to the Governor and to the Agriculture, Natural Resources, and Energy Committee of the Senate and the Transportation and Energy Committee of the House of Representatives no later than February 1 of each year. The report will include a complete operating and financial statement covering CEDA’s operations for the previous fiscal year. Mr. Plant offered that there will not be a lot to report by February 1, and that the GEO will prepare a draft report for the Board’s consideration in January. The remaining time was dedicated to sounding out the Board regarding their preferences for when **the next meeting** should be held and what topics ought to be covered. It was agreed that GEO will poll the Board to determine a time in the near future to hold a meeting.

The meeting was **adjourned** at 12:00.

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## **i Summary Information Submitted by Xcel Energy Regarding SB07-100:**

The Colorado Legislature passed SB 07-100, codified, in relevant part, at C.R.S. § 40-2-126, implementing measures to ensure the adequacy of Colorado’s electric transmission infrastructure. As relevant to this filing, SB 07-100 requires rate-regulated electric utilities, such as Public Service, on or before October 31 of each odd-numbered year, to do the following:

- (a) Designate “Energy Resource Zones”;
- (b) Develop plans for the construction or expansion of transmission facilities necessary to deliver electric power consistent with the timing of the development of beneficial energy resources located in or near such zones;
- (c) Consider how transmission can be provided to encourage local ownership of renewable energy facilities, whether through renewable energy cooperatives as provided in section 7-56-210, C.R.S., or otherwise; and
- (d) Submit proposed plans, designations, and applications for certificates of public convenience and necessity to the commission for simultaneous review.

In the months between passage of SB 07-100 and this filing, Public Service met five times with stakeholders interested in the Company’s designation of Energy Resource Zones and related transmission plans.<sup>i</sup> In addition, the Company provided all the materials presented in the stakeholder meeting on a public website.

Just yesterday, Public Service submitted, 1) its designation of Energy Resource Zones; and 2) its proposed transmission plans that support access to and delivery of electric power in or near such energy zones, and 3) a separate Application for a Certificate of Public Convenience and Necessity for the Pawnee – Smoky Hill 345kV Transmission Project, also in compliance with Section 40-2-126.

## **II. DESIGNATION OF ENERGY RESOURCE ZONES**

### **A. Four Colorado Energy Resource Zones**

Legislation defines an Energy Resource Zone as “a geographic area in which transmission constraints hinder the delivery of electricity to Colorado consumers, the development of new electric generation facilities to serve Colorado consumers, or both.”

Public Service identified four geographic zones in which transmission constraints adversely affect the ability to develop new generation resources where development interest has been shown in the past, and where there is significant renewable generation potential for wind, solar, or geothermal resources.

We have proposed four large geographic areas in the State of Colorado that meet the definition under statute that have potential for the development of new beneficial electric resources and where the delivery of such electricity is hindered by transmission constraints. Three of the Zones are in eastern Colorado and one is in southern Colorado in the San Luis Valley.

**Zone 1:** In Northeast Colorado, Zone 1 includes all or parts of Sedgwick, Phillips, Yuma, Washington, Logan, Morgan, Weld and Larimer Counties.

**Zone 2:** Zone 2 is in East Central Colorado, and includes all or parts of Yuma, Washington, Adams, Arapahoe, Elbert, El Paso, Lincoln and Cheyenne Counties.

**Zone 3:** Zone 3 is in Southeast Colorado, and includes all of parts of Baca, Prowers, Kiowa, Crowley, Otero, Las Animas and Pueblo Counties.

**Zone 4:** Zone 4 is in the San Luis Valley, and includes all or parts of Costilla, Conejos, Rio Grande, Alamosa and Saguache Counties.

Next, Public Service identified both short-term and long-term transmission expansion plans that will alleviate transmission congestion in all four of these geographic zones. Mechanically, we used existing data to the extent possible to quantify where the Company might expect to acquire additional renewable resources, both renewable and non-renewable, in the future, and presented this geographically on maps.

The bubbles on the map represent:

- Generation interconnection requests
- Bids received in response to Public Service’s 2005 All Source Request For Proposals (RFP)
- Information provided to Public Service by developers through the SB 07-100 stakeholder process

Use of these LGIP requests results in a total of 54 data points on the map. Which was a combination of PSCO, TriState and WAPA Queue.

2. All Source RFP

Public Service received over 90 individual proposals in response to the RFP. However, a number of these proposals were eliminated from inclusion in the map mostly due to duplication.<sup>i</sup> As a result of these exclusions, there are 34 projects included in the maps from the 2005 All Source RFP.

3. SB 07-100 Stakeholder Comments

As I mentioned we held stakeholder meeting and solicited information about projects that are not already included in the existing bubbles. Approximately 23 additional projects were included in the maps from this effort.

Table 1  
Number of Data Points by Generation Technology

Zone	Gas	Coal	Wind	Solar	Geothermal	Biomass, Landfill	Zone Totals
1	15	9	31	0	0	4	59
2	9	1	13	0	0	2	25
3	0	3	22	0	0	0	25
4	1	0	0	1	0	0	2
Totals	25	13	66	1	0	6	111

B. Wind Capacity

During the stakeholder meetings, Public Service heard the suggestion that it should focus more on “where the wind is” than “where generators have asked to interconnect.” To be responsive and to more closely define the goals of “where the wind is,” Public Service contracted with WindLogics, Inc. to perform a county-by-county capacity factor analysis of eastern Colorado using existing wind data in the WindLogics databases. Which we have included in our SB100 Report on file at the Commission as well as on our Website.

C. Solar and Geothermal Resources

I have not provided a copy of the solar map, but if go to our website or look in our filing it is obvious that Zone 4 contains the best solar resources in the state. Zone 4 also correlates well with the most concentrated locations for known geothermal production capability.

**III. TRANSMISSION PLANNING**

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A. Introduction

Public Service identifies both short-term and long-term transmission expansion plans that will alleviate transmission congestion in all four of the Energy Resource Zones.

Public Service was able to identify one project that is ripe for an application for Certificate of Public Convenience and Necessity (CPCN) – the Pawnee Smoky Hill 345kV Transmission Project. The Pawnee – Smoky Hill Project is consistent with the Company’s vision of creating a transmission highway for delivering cost-effective and environmentally-friendly energy resources to Colorado consumers. Even though the Pawnee – Smoky Hill Project is located in Zone 1, Public Service has plans for transmission development for each of the designated Energy Resource Zones. Specifically, Public Service has executed a Memorandum of Understanding with TriState to begin the assessment of participating in the East Plains Transmission Project. Depending upon the results of the feasibility studies, Public Service expects to join in the EPTP to expand transmission into Zones 2 and 3.

Public Service believes it is in the best interests of Colorado consumers to pursue opportunities for joint transmission development and not pursue duplicative transmission facilities in and around these zones.

Additionally, in order to expand transmission capacity to Zone 4 in Southern Colorado, the Company will pursue a short-term project that should facilitate the development of new solar generation from that area in the fairly near term.

1. Zone 1 – Northeast Colorado

- (a) Short Term (expected in 2008): Pawnee Region Upgrade 230kV Pawnee– Smoky Hill and Pawnee – Daniels Park lines to 735 MVA (\$3.54 million)

Considering the current transmission constraints from the Pawnee area to the Denver Load center, Public Service has initiated a project to upgrade two 230 kV lines. This project was evaluated during the studies and it was concluded that by raising structures and replacing termination equipment, the Pawnee Substation can accommodate at a simultaneous level all existing generation resources at maximum output capacity and deliver electrical power to the Denver-metro area loads reliably. The cost for these upgrades is \$3.5 million and the work is in the Public Service capital budget process. The work has been started with completion expected in 2008.

- (b) Long Term:
  - (i) Pawnee to Smoky Hill 345 kV Transmission Project

Contemporaneous with this filing, Public Service is filing an Application for CPCN for the Pawnee to Smoky Hill 345 kV Transmission Project.

- (ii) Plans for generation up to 600 MW to be interconnected at Ault substation (northeast of Ft. Collins)

Public Service studied generation interconnection request GI-2007-4, which was a proposed 600 MW wind project in Northern Colorado that would serve customers in metro Denver. A summary of the transmission Study plan is as follows:

The recommended network upgrades for delivery that will accommodate the full 600 MW from this combined project has an estimated total cost of the upgrades at approximately \$69.57 million. The required network upgrade for delivery includes constructing a new 85-mile 230 kV transmission line from the Ault Substation to Cherokee Substation rated at 800 MVA. This will consist of a single 59-mile line from Ault to just outside of Ft. Lupton. From this point the existing 115 kV line from Ft. Lupton to Cherokee will be rebuilt such that one side will continue to operate at 115 kV for the TriState load serving substations, and the other side will operate as a 26-mile double circuit 230 kV line, completing the circuit from Ault to Cherokee.

The estimated length of time required to complete the project is 60 months after a CPCN.

- (iii) Public Service received a generation Interconnection request (GI-2007-6) for 200 MW additional wind at Cedar Creek that would be interconnected to the Keenesburg Substation (northeast of Rocky Mountain Energy Center (RMEC))

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Public Service evaluated the Public Service transmission network to determine the upgrades required to deliver the full 200 MW expansion of wind generation to Public Service native load customers during peak periods. The total estimated cost of the recommended system upgrades to accommodate the project is approximately \$37.50 million. The basic upgrades including interconnection would consist of constructing a new 230 kV transmission line from the Keenesburg Substation to the Cherokee Substation, which can be divided into two sections: 1) a 20-mile, 230 kV line from Keenesburg to Ft. Lupton Substation, and 2) a 26-mile, 230 kV line from Ft. Lupton to Cherokee Substation. The new transmission line construction can be described as follows:

- String a 3<sup>rd</sup> circuit, approximately 4-miles long, using the existing 345 kV triple circuit steel structures in the existing right-of-way for the Ft. St. Vrain to Green Valley 230 kV transmission line.
- Rebuild 16-miles of the existing Ft. Lupton to Pawnee 230 kV transmission line to double circuit 800 MVA rated from Ft. Lupton to the point adjacent to the new 3<sup>rd</sup> circuit described above.
- Rebuild the existing 26-mile 115 kV transmission line from Cherokee to Ft. Lupton to double circuit: operate the existing circuit at 115 kV and operate the 2<sup>nd</sup> circuit at 230 kV (this circuit will be a new 230 kV Ft. Lupton to Cherokee transmission line)

The estimated time required to engineer, permit, and construct the 230 kV transmission expansion for the Network Upgrade facilities for delivery of power to Public Service's loads as a Network Resource (NR) is at least 54 months after approval of a CPCN.

## 2. Zone 2 – East Central Colorado

Public Service is actively working with TriState in partnering on the EPTP. The EPTP is joint transmission project between TriState and Western Area power Administration. Our understanding of the EPTP project would consist of approximately 1100 miles of high voltage backbone electric transmission facilities and associated substations. Public Service and TriState have executed an MOU providing the commitment for joint planning and ultimately the ability to co-own new transmission facilities. The benefits to a joint project would be Transmission for Public Service to gain access to the Energy Zone 2 and 3 and the potential generation resources in those area.

Currently Public Service has transmission constraints from the southeast portion of the state, which limits the ability to transfer additional resources from there, including from the HVDC tie which can transfer power from the eastern interconnection, as well as two current wind project that can produce 237 MW of capacity. Currently those resources depend on a single 230 kV line from Lamar to Boone substation. When this line is unavailable Public Service has no method to transmit those resources to customer load

## 3. Zone 3 – Southeast Colorado

- (a) Short-Term (potential in-service by end of 2008): Boone/Lamar Substation:  
Upgrade terminations at Boone and Lamar to increase line rating from 478 to 620 MW

The thermal capability of this line is 478 MVA, and capacity is limited by termination equipment. Public Service has proposed a project to uprate the termination equipment at Lamar and Boone substations. These upgrades would increase the capacity to 620 MVA. This can be accomplished by capital budget expenditures at Lamar substation of \$90,000 and an Expenditure of \$893,000 at Boone substation. Once these uprates have been completed the thermal rating of the line will be 620 MVA.

- (b) Long-Term:

(i) EPTP: Possibility of Partnership with Tri-State and WAPA: Eastern Plains Transmission Project - Public Service would own up to 1000 MW interest in EPTP. (See description in Zone 2, above.)

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(ii) Lamar Substation: 57 miles of new 230 kV transmission into area south of Lamar to gain access to Baca County wind resources, and new switching station, costing approximately \$27 million. This would be the next phase after the implementation of the EPTP project.

4. Zone 4 – San Luis Valley, Colorado

Public Service has evaluated system capacity of injection of generation resources at San Luis Valley Substation (jointly owned by Public Service and Tri-State) with the existing transmission system. Stakeholder input indicated that there is potential solar capacity in this area and potential for large generation in the next 5 to 10 years. Preliminary studies indicate that Public Service could accept approximately 200 MW at the San Luis substation, located near Moffat, CO. The proposal would be to add a 230 kV terminal to the San Luis valley substation, in which case a potential generation resource or Public Service would build a 230 kV line from the resource to the San Luis substation. The San Luis substation is a joint facility between Public Service and TriState. The estimated cost for both terminals would be \$1.9 million, and Public Service and TSG&T would split the cost evenly.