ENSURING RELIABLE, BASELOAD RENEWABLE ENERGY FOR THE WEST BY 2015:

AN ELECTRICITY TRANSMISSON STRATEGY FOR MEETING CALIFORNIA AND NEVADA'S NEAR-TERM RPS REQUIREMENTS WITH GEOTHERMAL ENERGY

GEOTHERMAL ENERGY ASSOCIATION COMMENTS ON RETI DRAFT FINAL PHASE 2A REPORT

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GEOTHERMAL ENERGY ASSOCIATION

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Executive Summary

In June 2009, several western states and the Western Governor's Association (WGA) simultaneously released long-awaited studies[1] that show where the nation's best renewable energy resources are located, and how we might access these areas through an expanded electricity transmission grid. For instance, the stated goal of the WGA's "Western Renewable Energy Zones" Report was "to facilitate the construction of new, utility scale renewable energy facilities and any needed transmission to deliver that energy across the Western Interconnection…"

The proliferation of renewable energy reports underscores the urgency of the issue: several states are lagging behind their current targets for meeting renewable energy procurement mandates. In addition, both Congress and many states have identified "a clean energy future" as one of the cornerstone strategies for reducing greenhouse gas emissions and meeting the challenges of climate change. Even a quick look at these reports leads to one compelling question: if there is so much renewable energy resource potential out there, why haven't we developed these resources and integrated them into the electricity grid? **More urgently, where should we focus our priorities between 2009-2015 to access the most cost-effective and most-reliable renewable energy so that our "clean energy future" actually begins now?**

After a thorough review of the WGA, California and Nevada renewable energy reports, the Geothermal Energy Association (GEA) believes that the new economic and environmental data, and the long-understood value of grid reliability, should lead states such as California and Nevada to one, simple conclusion: if we are about to spend billions of dollars on developing new renewable energy projects and transforming our electricity grid to access "green electrons", **let's start our transmission planning with a focus on geothermal power as the resource that will serve as the reliable "backbone" for this new energy delivery system.**

[1] Western Governors' Association and U.S. Department of Energy, "Western Renewable Energy Zones, Phase 1 Report", June 2009; California's Renewable Energy Transmission Initiative (RETI) "Phase 2A Draft Report", June 2009; Nevada's Renewable Energy Transmission Access Advisory Committee (RETAAC) "Phase II Report", June 2009

These comments by the Geothermal Energy Association serve as formal comments on the Renewable Energy Transmission Initiative (RETI) Draft Final Phase 2A Report. More broadly, the release of the RETI Phase 2A Report has coincided with the release of Nevada's Renewable Energy Transmission Access Advisory Committee (RETAAC) Phase II Report which also proposes a specific plan for accessing renewable energy resources. Nevada has not initiated a formal public comment period on the RETAAC Report, yet GEA believes there are inter-state electricity transmission planning issues that require us to comment on both Reports.

Transitioning the California and Nevada Grid to Renewables: Geothermal Energy as the Baseload Capacity "Backbone" of a New Interstate Transmission System

I. Introduction

As Congress debates adopting a national "renewable electricity standard" as part of climate change legislation, many western states are nearing their first statutory milestones for what are frequently called "renewable portfolio standards" (RPS). These programs vary from state to state, but they all ensure that a minimum amount of renewable energy is included in the portfolio of the electricity resources serving a state.[2] In addition, the states that have adopted legislation to respond to the concerns of climate change, have integrated RPS programs into their greenhouse gas reduction strategies. In California, the state's plan is to reduce greenhouse gas (GHG) emissions by almost 30% from "business as usual" levels by 2020. Of the total reduction target of 174 million metric tons of "C02 equivalents" (MMTC02e), the plan assumes that a shift to renewable energy resources for electricity production and energy efficiency savings will result in over 29% of the needed GHG reductions.[3]

In June 2009, several western states and the Western Governor's Association (WGA) simultaneously released long-awaited studies[4] that show where the nation's best renewable energy resources are located, and how we might access these areas through an expanded electricity transmission grid. Based on the information provided by the WGA, California and Nevada renewable energy reports, if we look at the projected commercial potential of biomass, hydro, geothermal, solar and wind resources in the western states, and we don't apply rigorous environmental or economic filters, there is more energy production potential than we could ever use. As the WGA Report states:

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[2] The Department of Energy maintains an inventory of state RPS programs through it's EERE "State Activities and Partnerships" site. As of May 2009, 33 states have adopted RPS standards, and five have set voluntary goals for utilization of renewable energy.

[3] AB 32 Climate Change Scoping Plan, California Air Resources Board, December 2008

[4] Western Governors' Association and U.S. Department of Energy, "Western Renewable Energy Zones, Phase 1 Report", June 2009; California's Renewable Energy Transmission Initiative (RETI) "Phase 2A Draft Report", June 2009; Nevada's Renewable Energy Transmission Access Advisory Committee (RETAAC) "Phase II Report", June 2009

"The original resource maps identified vast amounts of commercially viable renewable energy potential in the Western Interconnection, including more than two million megawatts of potential wind power resources and several million megawatts of potential solar energy resources. As a frame of reference, the peak load for the entire WECC in 2007 was approximately 150,000 megawatts."[5]

So where do we start? The June 2009 transmission reports seem to imply that we have numerous "interchangeable" options and resource mixes that will allow us to meet RPS procurement mandates for the western U.S. In addition, the California Public Utilities Commission (CPUC) has issued a recent report suggesting various "cases" illustrating how California might actually achieve a 33% RPS target by 2020. [6] The goal of the analysis was 'to provide new, in-depth analysis on the cost, risk, and timing of meeting a 33% RPS." The CPUC RPS scenarios include a "current procurement" scenario, a "high out of state delivered" case, a "high wind" case and a "high distributed generation" case.

A detailed review of the reports by GEA indicates that geothermal energy is not only the best source of renewable energy that mimics the "baseload" capacity values and attributes of coal, gas and nuclear power, but geothermal energy resources are actually currently available for significant, near-term development and deployment. [7] **In other words, GEA is proposing a "high geothermal" case for consideration by California and Nevada energy agencies, utilities, stakeholders and local communities as the most cost-effective means to get to 20%, and higher RPS targets.**

II. Compliance Status of RPS Programs in California and Nevada

California

Established in 2002 under Senate Bill 1078 and accelerated in 2006 under Senate Bill 107, California's Renewable Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires electric corporations to increase

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[6] CPUC, Renewable Portfolio Standard, Implementation Analysis Preliminary Results (June 2009)
[7] Baseload power or a baseload plant is the production facility used to meet some or all of a given region's continuous energy demand, and produce energy at a constant rate, usually at a low cost relative to other production facilities available to the system.

procurement from eligible renewable energy resources by at least 1% of their retail sales annually, until they reach 20% by 2010. California instituted its RPS Program in 2003, and data for 2007-2008 shows that, on average California is generating around 25,000 Gwh/yr of renewable energy. This translates to approximately 6,500 MW of operating renewable resources, providing for approximately 12 percent of California's energy needs.[8]

Senate Bill 107 (Simitian, Chapter 464, Statutes of 2006) obligates the investor owned utilities (IOUs) to increase the share of renewables in their electricity portfolios to 20 percent by 2010. Meanwhile, the publicly-owned utilities (POUs) are encouraged but not required to meet the same RPS. The governing boards of the state's three largest POUs, the Los Angeles Department of Water and Power (LADWP), the Sacramento Municipal Utility District (SMUD), and the Imperial Irrigation District (IID), have adopted policies to achieve 20 percent renewables by 2010 or 2011. LADWP and IID have established targets of 35 and 30 percent, respectively, by 2020.

To actually achieve the goal of meeting a 20% RPS for California's independently owned utilities, the California Public Utilities Commission has estimated that "California's IOUs would need about 3,000 more new MW in the next 2 years to be able to meet 20% in 2010."[9] The CPUC goes on to report that "Overall, RPS generation has not kept pace with overall load growth…"

To reach a goal of 33 % renewables by 2020, the CPUC has estimated that up to seven additional transmissions lines would need to be constructed at a cost of $12 billion to access between 15,000-20,000 MW of new power.[10]

Nevada

In June 2009, Nevada Governor Jim Gibbons signed legislation requiring the state to meet a 25% RPS target by 2025.[11] NV Energy supplies over 85% of the retail electricity sales in Nevada,

[8] California Renewable Energy Transmission Initiative (RETI) Phase 1A Final Report, page 4-10. Please note that California's RPS does not apply to all electric utilities. Expansion of the RPS to all load serving entities is part of the legislative discussions to expand the RPS mandate to 33% by 2020.
[9] CPUC RPS Quarterly Report, July 2008
[10] CPUC, Renewable Portfolio Standard, Implementation Analysis Preliminary Results (June 2009)
[11] SB 395 (Nevada Statutes of 2009)

with a statewide peak load demand of approximately 7500 MW.[12] In 2009, NV Energy reported that "the company met our RPS milestone of 9 percent of retail sales from renewable energy and qualifying energy efficiency programs." NV Energy predicts that the state "will have more than 1,000 MW of solar, geothermal, wind, biomass and small hydro generation by 2012."[13] As Nevada Governor Gibbons has said "every year Nevada spends as much as $6 billion importing energy. Let's take up this "$6 billion opportunity" to change the energy face of Nevada [by] developing the state's renewable energy resources and to deliver the power to the grid."

III. California and Nevada Transition Away from Coal –Fired Power

The combination of a procurement focus on RPS eligible resources, climate change concerns, tightening environmental restrictions for permitting and siting energy development projects, much higher construction and operational costs and unpredictable swings in fuel prices have dramatically slowed the planning and construction of coal-fired power plants in the West.[14] With states such as California now prohibiting its utilities from signing new long-term contracts for power that generates high greenhouse gas emissions[15], we are beginning the long process of fundamentally altering the nature of our electricity delivery system.

How do we replace a fuel source that provides energy for about ½ of the electricity demand in the U.S.? As the Christian Science Monitor editorialized last fall, "The environmental cost of burning coal hasn't yet been reflected in the price consumers pay for electricity. That will change if Congress and the Obama administration combat global warming by capping CO_2 emissions in power plants, forcing plant operators into expensive technical solutions or into buying pollution permits on an open market. Under such a cap-and-trade system, coal plants could continue to operate while either cleaning up or facing a competitive cost disadvantage."

This is a particularly vexing problem for California and Nevada who rely heavily on out of state power plants for delivery of baseload power. California currently imports almost a third of its electricity from neighboring states, much of which comes from conventional coal-fired power plants. California currently gets about 16% of its electricity from coal-burning

[12] Public Utilities Commission of Nevada, Resource Planning 2007 Nevada's Electricity Future: A Portfolio-Focused Approach
[13] NV Energy "3 Part Strategy"
[14] "Uneasy lies King Coal's Crown," Christian Science Monitor, November 2008 Editorial
[15] SB 1368 (Perata, Chapter 598, Statutes of 2006) Emission Performance Standards

plants. Some utilities such as the Los Angeles Department of Water and Power (LAWDP) have a much greater reliance on coal, however, with over 40% of LA's power being provided by out of state coal plants. In July, Los Angeles Mayor Villaraigosa announced that "LADWP will eliminate the use of electricity made from coal by 2020, replacing it with power from cleaner renewable energy sources."[16]

Under California's Emission Performance Standard (EPS) regulations adopted in 2008, utilities must now effectively "divest" their investments or reliance on out of state coal power plants pursuant to statutory mandate. The CPUC and the California Energy Commission (CEC) jointly adopted a 2008 rulemaking that establishes a standard for baseload generation owned by, or under long-term contract to publicly owned utilities. The standard is set at a level of GHG emissions equal to those of a combined-cycle natural gas plant on a per megawatt-hour basis (1,100 lbs.CO_2/MWh). As the CPUC website states "This [standard] will encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of greenhouse gases."[17]

In Nevada, NV Energy announced in early 2009 that they were indefinitely putting on hold the Ely Energy Center project that would have constructed a new 1600 MW coal plant complex.[18] Citing pending climate change legislation in Congress, NV Energy stated that "The company will not move forward with construction of the coal plant until the technologies that will capture and store greenhouse gasses are commercially feasible, which is not likely before the end of the next decade." Again, Nevada and NV Energy are deliberately moving towards a direct replacement strategy for coal-fired electricity by shifting to a greater investment in renewables and natural gas. As the Utility warns, "By 2015, we expect that about 40 percent of our electricity will be produced using natural gas, 40 percent using coal and 20 percent from renewable energy. If we are too dependent on any one fuel to produce electricity it could mean that our customers are subject to less stable electric prices. It may also mean that we are unable to reliably produce electricity for our customers if the dominant fuel is scarce."

[16] "Los Angeles will end use of coal-fired power", Reuters News Service, July 2, 2009
[17] SB 1368 Emission Performance Standards, CPUC & CEC
[18] "NV Energy Mothballs EEC plan", The Ely Times, February 11, 2009

IV. The Continuing Role of Natural Gas as a Baseload Resource in the California and Nevada Electricity Markets

Almost 30 years ago, California's serious air quality problems made natural gas the fuel of choice for electricity generation. Natural gas was cleaner, relatively cheap, and helped diversify the state's electricity generation system. In 1991, one-third of California's electricity came from natural gas-fired power plants. By 2006, this amount had increased to 41.5 percent. For California, only 13.5% of the natural gas consumed for power generation is produced from in-state resources.[19] As the Energy Commission pointed out, "While California's successful efficiency programs and its reliance on renewable sources of electricity should slow the demand for natural gas; competition for the state's imported supply is increasing. Our reliance on imported gas leaves the state vulnerable to price shocks and supply disruptions."

As part of their 2009 Integrated Energy Policy Report Update (IEPR) for 2009, the CEC is studying the impact of GHG reduction targets on coal use for electricity generation in the rest of the United States and the resulting impacts on demand for natural gas in California.[20] In addition, the Energy Commission is evaluating the impacts of a 33% RPS target on natural gas demand and prices, as well as the impacts of regional changes in natural gas supply and demand on California's natural gas market, to better understand the cost and price impacts of higher renewable targets. Suffice to say, all predictions are that natural gas "will continue to be a major fuel in California's supply portfolio."[21]

Through its main utility NV Energy and State of Nevada policy and investment support, Nevada has an ambitious plan to meet its RPS targets, and to change their basic market position to one of in-state "self-sufficiency." This strategy also includes a priority on expanding in-state natural gas power generation capacity. As NV Energy states, "Our strategy since 2003 has been to increase our ownership of power to avoid price spikes and reliability problems. As a result of this strategy, in 2006 we added 1800 MW of efficient natural gas facilities and by summer of 2008, we expect to bring that total to about 2,800 MW. The end result is that we will have more than doubled the amount of generating capacity owned by our company."[22]

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[19] 2007 Integrated Energy Policy Report, California Energy Commission
[20] 2008 Integrated Energy Policy Report Update, California Energy Commission
[21] 2007 Integrated Energy Policy Report, California Energy Commission
[22] NV Energy "3 Part Strategy"

V. Replacing Lost Baseload and Valuing Capacity: The Case for Prioritizing Development of Geothermal Energy Resources in CA and NV the 2009-2015 Timeframe

Geothermal Energy Benefits Grid Reliability and Capacity

Many forms of renewable energy that seem to generate the most optimistic projections of MW power potential are either intermittent in nature (wind), currently burdened with land use and permitting constraints (solar) or suffering from regulatory restrictions (hydro and biomass) that make their near-term deployment or expansion on a dramatically larger-scale in the next 5-7 years somewhat problematic. [23]

With or without a national "renewable electricity standard," there is no doubt that this nation will continue to develop wind, solar and other renewable resources at an unprecedented level[24]. However, as we begin the next phase of resource and transmission planning in California and Nevada, the available economic and environmental data requires us to adopt a **"geothermal-centric" strategy** for prioritizing which renewable energy zones should be considered as our top priorities for expanding or modifying our electricity transmission system in California and Nevada.

As a 2006 Western Governors' Geothermal Task Force Report pointed out,

> "One of the principal benefits of geothermal power plants is that they provide baseload power. Baseload power plants provide power all or most of the time and contrast with "peaker" plants which turn on or off as demand rises, or peaks, as dispatched. Geothermal plants contrast with other renewable energy resources like

[23] Other strategies complementary to utility scale energy production are also being implemented throughout California and Nevada. Energy efficiency programs and deployment of "distributed generation" technologies will clearly be part of the solution as well. For instance, California's Solar Initiative (CSI) was launched in 2006 with a budget of $2.167 billion over 10 years, and the goal is to reach 1,940 MW of installed solar capacity by the end of 2016. In recent months, Southern California Edison has announced that it has set a target of installing 500 MW of power through rooftop solar PV systems in its service area. "**California regulators give SCE ok for 500MW rooftop solar plan", Recharge website, June 22, 2009**

[24] For instance, RETI continues to support the plan to bring up to 4000 MW of wind resources into production in the Tehachapi wind resource area and Interior Secretary Salazar recently announced his intention to speed permitting of at least 13 "commercial-scale" solar projects under construction by the end of 2010 in the Mojave Desert region of California.

wind and solar energy that generate power intermittently, or hydro whose availability peaks seasonally."[25]

The Report goes on to state that "**the reason geothermal energy should be the preference green renewable is that it is a base load resource that requires the firm transmission (highway) system**." [26]

As RETI and RETAAC have attempted to document the MW and GWh capacity of renewable energy resources in California and Nevada, there has not been a sufficient focus on how "capacity value" for the electricity grid should be factored in to prioritizing next-phase transmission planning. As a 2006 Western Governors' Geothermal Task Force Report pointed out,

> "The Western States share a capacity of almost 13,000 megawatts of geothermal energy that can be developed on specific sites within a reasonable timeframe. Of these, 5,600 megawatts are considered by the geothermal industry to be viable for commercial development within the next 10 years, i.e. by about 2015. This is a commercially achievable capacity for new generation and does not include the much larger potential of unknown, undiscovered resources."

The WGA Geothermal Task Force recommended that national and state transmission planning initiatives should:

1. Facilitate and promote integrated resource planning of base load resources that require firm transmission. Additionally incentives should be made available for entities pursuing integrated geothermal resource plans. This position would promote economies of scale by sizing geothermal plants and transmission correctly;
2. Support and promote transmission development by implementation of simple individual principles. Through the Western Interconnect there are different regional obstacles. The WGA should support generically sound principles that resolve discreet regional problems. One such principle that the WGA should specifically support is the PPIW (Public Power Initiative of the West) Transmission Initiative which encourages joint transmission projects in areas subject to tariff obstacles;

[25] Geothermal Task Force Report, Western Governor's Association (January 2006)
[26] Geothermal Task Force Report, Western Governor's Association (January 2006)

3. Promote socialization of geothermal transmission costs such that the actual energy user pays for the transportation costs.

Advantages of a "Geothermal-centric" RPS Transmission Strategy

A big part of the attraction of focusing the next phases of RETI and RETAAC's detailed transmission planning and permitting on geothermal energy resource areas is the now-documented cost-effectiveness and environmental advantages of this approach. **Specifically, this strategy would adopt a "system reliability" priority for planning and constructing new transmission lines to known geothermal energy resource areas.** This strategy has a number of advantages:

1. Geothermal energy is the most cost-effective renewable energy technology to justify the construction and financing of new transmission lines and minimize environmental constraints on siting new transmission. A typical 30% capacity factor intermittent renewable generator will require three times as much transmission capacity to deliver a like amount of energy as a typical 90% capacity factor geothermal generator.
2. From an operating standpoint geothermal energy is like a traditional baseload generator. Unlike some other types of renewable generation, it does not increase the energy demand ramp rate that system operators have to contend with or require additional ancillary service procurement by system operators including the CAISO. It does not require special scheduling and settlement procedures in the CAISO to shelter them from market rules designed to incent generators to perform in the most reliable manner.
3. As the Table 2.4 "bubble chart" in the RETI Draft Final Report illustrates, the economic and environmental data support a "geothermal first" approach to identifying the "competitive renewable energy zones" that are, on balance, the most cost-effective areas to access renewable energy with the least environmental impacts.
4. There are likely to be interstate supply shortage issues for baseload power that are going to be exacerbated by taking coal plants off line, and shifting to more in-state production. We have to prepare for CA losing 15% of its power from out of state coal, and the examination of the transmission system built to bring coal into CA give us some clear opportunities for transferring line usage to geothermal baseload sources (and other renewable energy sources) as well. Put simply, import lines vacated by coal generation

can be used by renewable generators, and the most reliable way to "keep the lights on" is to look at replacing coal-generated capacity with geothermal power..

5. By looking at the most recent example of the approval of a major new transmission line to access renewable energy resources (the Sunrise Powerlink line from San Diego to the Imperial County, CA), geothermal energy provides a clear advantage to utilities and regulators to know with some certainty that a proposed renewable energy resource "zone" has both the energy capacity and project viability assurances that will justify the costs of planning and building the line to access a remotely located resource area.. The known availability of geothermal energy resources was essential in making the economic, project viability and RPS compliance requirements that San Diego Gas & Electric Company had to demonstrate to justify the construction of the Sunrise Powerlink Project.[27]
6. We can "build in" plenty of wind and solar projects to transmission line planning efforts that are focused **first** on accessing geothermal resources. Obviously other projects focusing on other technologies such as the Tehachapi Renewable Transmission Project[28] will continue to move forward.
7. Without geothermal energy serving as the load-balancing and firming source of energy, the other renewable energy technologies will not achieve their maximum value to the system. Put simply, there must be a renewable energy source to "firm" intermittent resources such as wind and solar generation.

VII. Next Steps for California and Nevada: Adopting the RETI Phase 2A Draft Report ; Increasing Inter-State Coordination; Moving to Detailed Transmission Planning

GEA has served on the RETI Stakeholder Steering Committee (SSC) since its inception, and, therefore, we are very familiar with the contents of the Phase 2A Report. We would like to thank the RETI coordinators, fellow members of the SSC and all the other individuals and parties who were part of the production of this Report. As the RETI Report notes, "Conceptual [transmission] planning is normally done by experts who have detailed knowledge of the

[27] **Decision Granting A Certificate Of Public Convenience And Necessity For The Sunrise Powerlink Transmission Project, California Public Utilities Commission (CPUC), December 2008**
[28] http://www.sce.com/PowerandEnvironment/renewables/Wind/

operational characteristics of individual transmission systems." What has made RETI unique is that all the major electric utilities, the relevant state regulatory agencies, renewable energy developers and interested stakeholders such as the environmental community have all been part of an effort to "fully consider the interests of all those constituencies who may be affected by, and whose support will be needed [for the] approval of new infrastructure."

The GEA supports the adoption of the Phase 2A Draft Final Report by RETI and the State of California, and we think it is now appropriate to engage in more detailed transmission planning. These comments by the Geothermal Energy Association (GEA) serve as formal comments on the Renewable Energy Transmission Initiative (RETI) Phase 2A Report. More broadly, the release of the RETI Phase 2A Report has coincided with the release of Nevada's Renewable Energy Transmission Access Advisory Committee (RETAAC) Phase II Report which also proposes a specific plan for accessing renewable energy resources. Nevada has not initiated a formal public comment period on the RETAAC Report, yet GEA believes there are inter-state electricity transmission planning issues that require us to comment on both Reports.

GEA General Comments on the RETI Phase 2A Draft Final Report:

1. After a thorough review of the Draft RETI Phase 2A revised "Competitive Renewable Energy Zones" that have been assigned new economic and environmental ranking scores, and new information from the RETAAC Report, GEA believes that the cumulative capacity from commercially available geothermal resources in the Imperial North A, Round Mountain A, Northern Nevada, Central Nevada and Oregon CREZ's is over 3500 megawatts (MW). According to the "CREZ Economic and Environmental Scores" bubble chart on Page 2-37, all of the CREZ's that contain high concentrations of geothermal resources are currently extremely competitive from an economic and environmental ranking standpoint.

2. RETI must take into consideration the recent release of the June 2009 California Public Utilities Commission Report "33% Renewable Portfolio Standard: Implementation Analysis and Preliminary Results" that compares different "reference cases" for meeting not just the 33% RPS target, but also meeting various other policy objectives created by

the state such as promoting in-state jobs and reducing local air quality impacts from power generation. According to the Report, the "High Out of State Delivered" case "provides the lowest cost strategy to achieve a 33% RPS…" with shorter development timelines and less market risk "since wind and geothermal are mature technologies." GEA acknowledges that this "case" does not necessarily meet other policy objectives as successfully as some of the other scenarios, but the cost savings, capacity value benefits of geothermal energy and avoided environmental concerns deserve much greater formal consideration in RETI.

3. After the approval of the Phase 2A Report, the next logical step is to devolve RETI into regional efforts that use the RETI model of transparency and stakeholder involvement to begin detailed transmission planning. As the RETI mission statement says, the main deliverable from Phase 2 is to create a statewide conceptual transmission plan, and then to focus on "priority CREZ's… and develop more detailed transmission corridors for consideration under the California Energy Commission's SB 1059 designation process."

4. The California Independent System Operator (ISO) is charged with developing a statewide conceptual transmission plan through its Annual Transmission Planning Process. In its mission statement, the ISO clearly recognizes that RETI can help facilitate the second phase of the ISO Planning Process, namely the preparation of identified studies "to develop transmission plans, whether conceptual or detailed, to access the identified region."

GEA Specific Recommendations for RETI Phase 2B-Phase 3 Work Plans

As you will see from our comments below, GEA is advocating that specific work groups be formed to focus on the following CREZ areas as first tier, top priorities for SB 1059, ISO, RETI and California Public Utilities Commission (CPUC) transmission planning based on their economic and environmental potential for near-term development of renewable energy resources:

1. **Imperial Valley: Reconvene the Imperial Valley Study Group** to specify a phased development plan for the construction of transmission upgrades capable of exporting

2,000 megawatts (MW) of geothermal power from the Imperial Valley region of California. It is worth noting that the 2005 work of this group and the California Energy Commission estimated 2142 MW of geothermal capacity in the Imperial Valley, which is almost 800 MW more than the RETI estimate of 1370 MW.

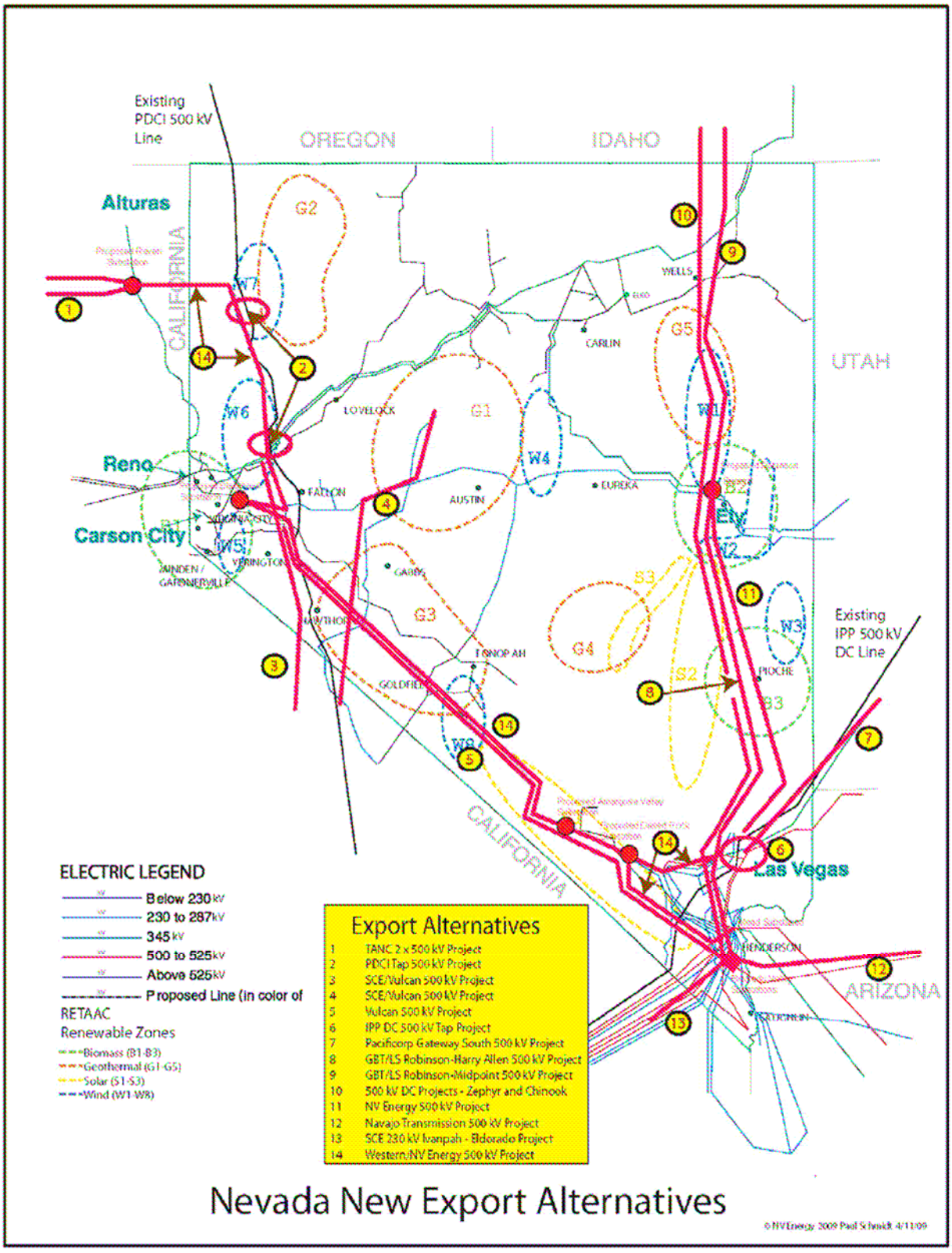
2. **Central Nevada/Eastern Sierra:** In cooperation with the RETAAC process, create a **Central Nevada-Eastern Sierra Transmission Study Group** that focuses on the southern and central Nevada transmission linkages identified in the RETAAC Report as the "Nevada New Export Alternatives" map (Figure 4, page 55 of RETAAC). With updated information from Nevada's RETAAC report for their geothermal energy zones (G1-G3), it would appear that there are actually approximately 700-900 MW of high-quality geothermal resources that should be considered by RETI as the NV CREZ capacity estimates. RETI should revise their Northern NV and Central NV CREZ numbers accordingly (See Table 7, Geothermal Zones Summary, Page 41 of RETAAC Phase 2 Report).

3. **Northern California, Northern Nevada, and Oregon:** The recent announcement that the Transmission Agency of Northern California (TANC) has terminated its Transmission Project does not in any way diminish the need or attractiveness of a northern California transmission plan. As TANC's Board stated, "identifying solutions for providing reliable and cost-effective transmission service to customers throughout northern California, in accordance with California's energy goals and policies."[29] In the wake of the TANC Transmission Project termination, GEA recommends that California create a **Northern California/Out of State Study Group** that focuses on bringing geothermal power from Northern Nevada, Oregon and Northern California into the ISO system.

4. GEA would like RETI to **update the Draft Final Phase 2A Report to cite the publication of the RETAAC Phase II Report**, and specifically note the conclusions of the Report section on "Transmission for Export." The following map from the RETAAC

[29] http://www.tanc.us/

Report shows the spectrum of alternatives that relate to inter-state transmission options for CA and NV.



5. **GEA Support for Nevada Priority of North-South Transmission Line** As mentioned, the Nevada RETAAC process did not have a formal public comment period in conjunction with the June 2009 release of its Phase II Report. GEA would like to highlight and support a key conclusion of RETAAC that has direct bearing on the inter-related nature of transmission planning and RPS compliance in both CA and NV. GEA supports NV Energy's proposal to build a North-South Transmission line to link Northern Nevada Renewable energy resources with Southern Nevada load centers. As the RETAAC Phase I Report stated, "The Governor's Office support the construction of a transmission line to connect the state's northern and southern electric grids of sufficient capacity to provide Nevada Power with their non-solar renewable energy requirements from the abundant geothermal and wind resources in northern Nevada and provide Sierra Pacific Power access to the abundant solar resources in Southern Nevada."[30] RETI transmission planning that examines out of state resource scenarios should work with NV Energy and the state of Nevada to model the existence of this line by 2012.

VI. How Are We Going to Pay For Transmission System Upgrades and Expansion to Meet RPS Targets?

Of particular concern to GEA and many of our allies in the utility sector and public sector is the question of transmission financing and determining the economic feasibility of constructing new transmission projects. GEA would point RETI to Nevada Governor Jim Gibbons February 2009 letter[31] to President Obama, Senate Majority Leader Harry Reid and others proposing a very innovative strategy to address this issue (formation of a nonprofit corporation for transmission projects), and to the section on "Economic Feasibility" in the RETAAC Phase II Report.[32] GEA urges RETI to work with California's regulatory agencies with responsibility for transmission siting and approval to address this critical question of economic feasibility and financing. That should occur through a task force, committee or parallel effort to RETI Phase 2B and Phase 3 Work. Coordination with Nevada is also highly encouraged, as the states can share ideas and forge potential partnerships on transmission that benefits inter-state delivery or renewable energy.

[30] Page 15 RETAAC Phase 1 Report, December 2007. Please also note that since this was written, Nevada Power and Sierra Pacific Power formed NV Energy.
[31] See February 2009 Letter from Governor Gibbons
[32] See RETAAC Phase II Report, page 44.