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Development of energy projects using renewable geothermal resources involves questions of federal, state, and local law. This article provides an overview of the Colorado law as it relates to geothermal resource development.

Getting Into Hot Water: The Law of Geothermal Resources in Colorado

by Mark D. Detsky

Wind and solar energy resources have been featured in Colorado’s new energy economy, but another renewable energy resource boiling beneath the surface has the potential to add fuel to Colorado’s diversified portfolio of new energy technologies and companies. That resource is geothermal power.¹

Geothermal technologies use heat from the earth’s interior to generate electricity.² Sources of geothermal heat for power plants include hot water and steam at depth.³ There are three primary methods to convert geothermal heat into energy: dry steam, flash steam, and binary cycle.⁴ The Colorado Governor’s Energy Office (GEO) has identified binary cycle plants, or those that require less physical heat from areas of geothermal activity to create power, as those most likely to achieve commercial operation in Colorado.⁵ Binary cycle plants use geothermal resources—that is, water—to transfer heat to another “working fluid” with a lower boiling point, such as a

refrigerant. The working fluid then is converted to vapor, and this physical change provides the force to turn a turbine, after which process the hot water from the earth is reinjected.⁶

Colorado ranks fourth among Western states in the number of potential sites for geothermal power generation, according to a 2006 Western Governors Association report.⁷ Due to a variety of legal, policy, and economic factors, geothermal energy-fired electric power facility development in Colorado likely will see increased funding and project development opportunities in 2010–11. These opportunities include a mineral leasing program to be offered by the U.S. Bureau of Land Management (BLM), grants from the U.S. Department of Energy, and support from the current administration stemming from the American Recovery and Reinvestment Act (ARRA) administered by the GEO.⁸ This article explores the state of the law of geothermal energy development in Colorado.

A Confluence of Doctrines

Geothermal energy is found below the earth's surface and thus is considered under federal law to be a part of the mineral estate.⁹ All of the elements of geothermal energy systems—magma, porous rock strata, and even water—may be classified as “minerals.”¹⁰ Under federal law, geothermal resources are governed by the Geothermal Steam Act of 1970, as amended by the Energy Policy Act of 2005.¹¹ Under Colorado law, geothermal resources are considered water resources and are governed by the Geothermal Resources Act.¹² The Geothermal Resources Act was substantially amended in 2010 by Senate Bill (S.B.) 10-174. In Colorado, geothermal power development sits at the overlap of water law, energy law, and land use regulation.

Federal Jurisdiction Over the Resource

Approximately 90 percent of geothermal resources in the Western United States are located on federal lands.¹³ Ownership of actual geothermal resources beneath federal lands is retained in the federal mineral estate. Geothermal leases may be made where the United States no longer holds title to the surface estate, but has retained its interest in the mineral estate.¹⁴ Leasing of geothermal resources on federal lands is controlled by the authority of the U.S. Secretary of the Interior under the Geothermal Steam Act, codified at 30 U.S.C. §§ 1001 *et seq.*, as amended.

The Secretary of the Interior has delegated its geothermal leasing authority to the BLM. To lease the mineral rights associated with geothermal resources, a developer or other interested party may nominate a federal parcel for leasing and submit bids pursuant to a BLM-established bidding process through which leases are awarded to the highest responsible and qualified bidder.¹⁵ BLM and U.S. Forest Service lands are subject to leasing, but national park lands are not—for example, Yellowstone National Park is not subject to geothermal development.

If a competitive lease sale is nominated and held out for a given land tract, but no competitive bids are received, that particular tract will be available for noncompetitive leasing for a subsequent two-year period. Lands subject to existing mining claims also may be available for noncompetitive geothermal leases. Leases may be available for competitive bidding as a block.¹⁶

The Energy Policy Act of 2005 expanded the acreage limitation for geothermal leases to a single area up to 5,120 acres. Additionally, the limitation on total control and ownership of geothermal leases within a particular state was expanded from 20,480 acres to 51,200 acres.¹⁷ Geothermal leases have a primary term of ten years, which can be extended, provided that certain requirements are met toward development of the resource.¹⁸

The Energy Policy Act of 2005 led to restructured regulations concerning the general geothermal leasing process, as well as to revisions to the regulations that govern royalties and readjustment of lease terms, conditions, and rentals.¹⁹ The federal government retains 25 percent of revenues collected from royalty payments based on the lease, state governments receive 50 percent of royalty revenues collected, and county governments receive 25 percent.²⁰

A geothermal lease does not grant the lessee the exclusive right to develop a parcel of land, and does not grant the right to develop other types of minerals. Other developers can lease rights to materials within the same lease area. Each lessee is under a duty to not interfere with other types of mineral leases on a given parcel and must reasonably accommodate the surface uses in the area.²¹

The BLM completed a programmatic environmental impact statement (PEIS) for geothermal leasing and development in December 2008.²² The Record of Decision for the geothermal PEIS: (1) allocated BLM lands as either open to be considered for geothermal leasing or closed for geothermal leasing, and identified national forest lands that are legally open or closed to leasing; (2) developed a reasonably foreseeable development scenario that indicates a potential for 12,210

megawatts of electrical generating capacity from 244 power plants by 2025, plus additional direct uses of geothermal resources; and (3) adopted stipulations, best management practices, and procedures for geothermal leasing and development.²³ The analysis conducted by the PEIS will be tiered with analysis of site-specific environmental impacts necessary for development of individual leases. BLM hopes to expedite these decisions and analyses with more resources by opening its Renewable Energy Coordination Offices, which were announced in May 2009.²⁴

In addition, Chapter 24 of Title 30 of the U.S. Code promotes geothermal research, development, and demonstration projects through inter-agency collaboration and the provision of loan guarantees. The Geothermal Energy Coordination and Management Project has exclusive authority with respect to the establishment or approval of programs or projects initiated for research, development, identification of new areas of technology and resources, and the development of demonstration projects.²⁵ The Act also formed a loan guarantee program for qualifying projects.²⁶

With regard to water, the Geothermal Steam Act states that the U.S. Congress did not make an express or implied claim or denial on the part of the federal government as to its exemption from state water laws.²⁷ If demineralized water is a byproduct of the geothermal resource extraction process, such water is expressly susceptible to state water law and permitting.²⁸ This purposeful lack of position, however, arguably has left open the question of whether the United States holds reserved water rights for geothermal development.²⁹ Geothermal resources also are located on tribal lands, adding an additional layer of sovereignty to water and mineral development, which has been encountered in both the water rights and oil and gas contexts.

There are three distinct phases in the development of a geothermal power plant: (1) exploration; (2) confirmation; and (3) site development.³⁰ In addition to the rights to the use of the resource, each phase of development of a geothermal power plant may implicate federal land use policies and National Environmental Policy Act or Endangered Species Act review, and be subject to local land use permitting and regulations under House Bill (H.B.) 1041.

State Jurisdiction Over the Resource

State law governs the process of geothermal resource development and leasing of geothermal resources that are not located in the federal mineral estate. Pursuant to the Colorado Constitution,

the state of Colorado has jurisdiction over the waters of the state and state water rights issues.³¹ Colorado law also governs well drilling and operation.³²

In regulating geothermal resources, the Colorado legislature recognized that while the doctrine of prior appropriation is, and always has been, expressly recognized with respect to geothermal resources, such doctrine should be modified to permit the full economic development of the resource.³³

However, that statement resulted in an unclear relationship between the Act and the Colorado Water Rights Determination and Administration Act, which was partially resolved by passage of S.B. 10-174.³⁴

Colorado water law allows, but does not require, developers of geothermal wells for energy production to establish their rights by adjudication of a decreed water right. In 2010, the general assembly clarified that nonconsumptive geothermal power production wells may receive authorization based on a Division of Water Resources permitting system.³⁵ Geothermal resource development requires a finding by the State Engineer's Office (SEO) that no material injury will occur to vested water rights.³⁶ That injury finding can be made based on a "diminution or alteration in the temperature of water" only when the impacted water right is "adversely affected" and a "valid, prior" geothermal right.³⁷ Permits for diversions of groundwater for geothermal resources can be appealed to the Colorado Water Court.³⁸ Thus, as a practical matter, the legal right to beneficial use of geothermal water diversions is best preserved through the traditional water court adjudicatory process.

"Geothermal resources" are defined under Colorado law as the natural heat of the earth, including the energy that might be extracted from the natural heat, the material medium used to extract the energy from a geothermal resource, and geothermal by-products.³⁹ If geothermal fluid (described in the Geothermal Resources Act as "groundwater, brines, vapor and steam") constitutes groundwater that is tributary to a stream, the usufructuary rights that flow from such an appropriation may be established only according to the procedures of the Act, as opposed to normal tributary well diversions under Article 90 of Title 37.⁴⁰ No correlative property right to such a geothermal resource in place is recognized as an incident of ownership of an estate in land.⁴¹

If geothermal resources were vested, either by being employed or having been awarded by court decree before July 1, 1983, the Geothermal Resources Act does not infringe on those vested rights.⁴² In addition to the federal leasing procedures, the Colorado State Board of Land Commissioners may issue leases for state lands holding geothermal resources either by competitive bidding or by negotiation.⁴³ The operator of the geothermal well need not be the same entity or person as the owner of the well.⁴⁴

Colorado permitting of geothermal resources. Permitting authority for geothermal wells involving liquid is vested in the Office of the State Engineer (SEO), with consultation by the Colorado Water Quality Control Commission and the Colorado Oil and Gas Conservation Commission.⁴⁵ The SEO has promulgated rules governing geothermal well permitting.⁴⁶ Under the SEO rules, permits must be obtained prior to production of a geothermal well.⁴⁷ The SEO rules also govern the drilling, monitoring, and operation of geothermal wells, including those that reinject water into the aquifer.⁴⁸ A permit is required for each exploration, production, or reinjection well, whether operated independently or as part of an interconnected system, and for associated replacement wells or increased production of existing wells, including conversion of a well built for another purpose.⁴⁹ In addition, reinjection wells need to comply with the U.S. Environmental Protection Agency's Underground Injection Control Program.⁵⁰

At the request of any person owning an interest in the land or a geothermal right within the area of a proposed geothermal management district, or on his or her initiative, the State Engineer may establish a geothermal management district.⁵¹ The purpose of a district is to prevent the waste of the geothermal resource, to maximize the economic recovery of a proven and delineated geothermal resource, and to protect vested or correlative water and geothermal rights.⁵² In such district, the State Engineer has the authority to control well spacing, to control the quantity of geothermal fluids extracted, to require the reinjection of the produced fluids, and to adopt plans for the most efficient use of geothermal energy.⁵³ The SEO reports that no geothermal districts have been formed to date in Colorado.⁵⁴

Water rights issues. The Geothermal Resources Act states that an application to appropriate groundwater to use its geothermal energy will be considered an application to appropriate geothermal fluid.⁵⁵ Non-tributary geothermal wells are governed by the corresponding statute for

non-geothermal water wells, CRS § 37-90-137. Extraction of energy from geothermal sources of water is considered a beneficial use of water.⁵⁶

Depending on the method of geothermal resource extraction, the water used for electricity production purposes may involve consumptive or non-consumptive uses of water. Binary power production forms of geothermal resource development—most likely the type of development to occur in Colorado—are non-consumptive, with water being re-injected into the aquifer after its heat has been transferred.

A permit to appropriate geothermal groundwater required by the SEO rules may be waived by the State Engineer for a diversionary utilization method, which is shown by engineering analysis to be non-consumptive and will not impair valid, prior water rights.⁵⁷ Consumptive uses of water that represent new appropriations to stream systems that are over-appropriated can divert water only pursuant to an approved augmentation or substitute water supply plan.⁵⁸ For a plan for augmentation to be approved by a district court for one of Colorado's seven state water divisions, the plan must use an approved substitute supply of water to replace depletions to the stream in location, time, and amount such that there is no injury to vested or decreed conditional water rights.⁵⁹

Groundwater protection. Because conventional geothermal resources⁶⁰ involve groundwater, virtually all Western states have laws that protect groundwater from the effects of geothermal exploration and production. The SEO rules require drillers to install casings to seal off any strata containing fresh water, and operators are normally liable, by statute, for any damage resulting from contamination or depletion of groundwater resources.

Injection wells are subject to similar and more stringent requirements. Abandoned wells must be plugged and sealed, to prevent freshwater contamination and to protect against blowouts. The Colorado Water Quality Control Commission may exercise its authority to prevent contamination of surface water or ground water discharge based on any byproducts of the geothermal extraction process.⁶¹

Geothermal Power as an Energy Source

It is likely that an independent power producer will develop and sell developed geothermal power to a utility under a power purchase agreement. Independent power producers are

outgrowths of the Public Utility Regulatory Policies Act of 1978, and generally produce competitively priced power generation opportunities for utility companies.⁶²

Base Load Power

Geothermal energy provides base load power. That means a geothermal power plant has the potential to be operational and generate power close to 100 percent of the hours in a year.⁶³ Because it can operate at all hours of the day, the plant can serve the same function as coal-fired power plants on the electrical power grid, which is to serve the minimum load required to operate the system—for example, in the middle of the night when dispatchable power plants such as natural gas-fired plants are not operating. Base load power plants are capable of operating with minimal down time and thus provide predictability and twenty-four-hour service to utility customers. However, because geothermal power plants require little to no purchased fuel (compared to the constant fuel requirements of a coal plant, for example), a geothermal power plant amortized over time is a very economical base load resource.⁶⁴

Geothermal power plants have low emissions, but still may produce some emissions. Some geothermal power plants likely will require emissions permits administered by the Colorado Air Pollution Control Commission under the Clean Air Act. Binary geothermal power plants, have the lowest emissions profile of the three major types of geothermal power plants.⁶⁵

Geothermal power plant owners may take advantage of the federal Production Tax Credit (PTC).⁶⁶ The PTC is available as a means to spur investment of renewable energy resources; its current value (adjusted for inflation) is 2.1 cents per kilowatt hour produced.⁶⁷ The PTC is another mechanism to spur market development that has had tremendous success in the wind industry.

The Colorado Renewable Energy Standard

Colorado's renewable energy standard was passed by citizen referendum in 2004. Its purpose states that "it is in the best interests of the citizens of Colorado to develop and utilize renewable energy resources to the maximum practicable extent."⁶⁸ Under the renewable energy standard, investor-owned utilities must generate from renewable energy sources at least 30 percent of their retail electricity sold by 2020.⁶⁹ Most other types of Colorado utilities must generate 10 percent

by 2020.⁷⁰ Geothermal-based renewable energy resources qualify as a renewable energy resource under the renewable energy standard.⁷¹

Under the renewable energy standard, energy generated from locations within Colorado is subject to an “add-on” for purposes of compliance with the statute.⁷² The add-on multiplies the amount of renewable energy produced in kilowatt hours by a set factor, and then counts that new number as the effective energy generated. The add-on, by reducing the amount of investment required, is further incentive to utilities to contract with Colorado renewable energy electric generation projects to meet the renewable energy standard requirements more efficiently.

The renewable energy standard has been implemented by rules promulgated by the Colorado Public Utilities Commission (PUC) that concern the development and acquisition of renewable resources by utilities subject to the Commission’s jurisdiction.⁷³ The PUC rules also define and provide guidance regarding the system of tradable renewable energy credits (REC) that are derived from the development of renewable energy sources.⁷⁴

The PUC has defined RECs as contractual rights to the full set of non-energy attributes, including any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, directly attributable to a specific amount of electric energy generated from an eligible energy resource.⁷⁵ A REC therefore is a part of the bundle of sticks derived from exploitation of renewable resources. One REC results from one megawatt-hour of electric energy generated from an eligible energy resource. RECs are tradable commodities that can achieve significant value in secondary markets such as the Chicago Climate Exchange.⁷⁶

Current Issues Facing Geothermal Development

As with any energy infrastructure development, there is potential for conflict with geothermal energy development above and below ground. Geothermal resource development involves drilling to access deep aquifers. Groundwater resources in Colorado are a product of delicate balances of the earth’s resources, and new types of water development naturally raise concerns in the arid West. Geothermal power plants are industrial-sized operations that may be located in rural areas. The land surrounding areas rich in geothermal resources usually are mountainous. In Colorado, these scenic areas may be used for recreation, may be a part of wildlife corridors, or

may be associated with cultural resources. All of these issues must be given careful consideration.

One major concern in the development of geothermal resources is that conflicts may arise between existing geothermal resource users that rely on the hot water sources for commercial hot springs, home heating, or other established uses.⁷⁷ Many of the thermal springs and wells in Colorado currently are being used in direct applications, such as recreation pools and spas, aquaculture, greenhouses, and the heating of buildings. These entities have a vested interest in maintaining their current use of geothermal waters, which could be impacted or eliminated by development of the resource. Thus, a potential geothermal energy development will be scrutinized in an injury analysis not only by the SEO, but also owners of geothermal water rights, before a permit or decree are granted.

A second major concern is the possible incidence of surface subsidence, similar to what has occasionally occurred in areas where groundwater, oil, or gas has been pumped. Subsidence may be mitigated if thermal water is returned to the subsurface reservoir after extraction of heat.⁷⁸

All power production facilities require transmission interconnection to the grid to provide power.⁷⁹ Siting of transmission lines and substations can be a volatile issue to local communities. Some geothermal facilities located in rural areas may require construction of significant mileage of new transmission lines to connect to a utility grid system.

The BLM planned its first contemporary offer to sell lease rights to develop geothermal energy in Colorado in November 2009, but the lease sale was delayed.⁸⁰ BLM spokesperson Jim Sample said the agency delayed the geothermal sale “to give us time to work on our agreement on how to handle geothermal with the state.”⁸¹ In February 2010, an additional review and delay was prompted by concerns expressed at a BLM public meeting held in Buena Vista. The lease/sale may involve roughly 800 acres near Mount Princeton west of Buena Vista, and is being closely monitored by interested stakeholders. The lease/sale has not been rescheduled as of the publication of this article.

Conclusion

All the issues surrounding geothermal resource development discussed in this article require coordination between federal and state agencies, balanced against the concerns of local communities. Affected communities and agencies must be included early in the planning process.

Geothermal resource development will require coordination of Colorado's water rights and water quality laws with federal law and procedures. Successful coordination will help maximize the beneficial use of the constant source of renewable energy provided by geothermal resources and allow developers to quantify the risk involved in potential conflicts.

Notes

1. See Colorado Governor's Energy Office (GEO), "Renewable Energy Development Infrastructure Report 20 (Dec. 2009) (installed capacity of renewable resources in Colorado), available at http://rechargecolorado.com/index.php/programs_overview/utilities_and_transmission/renewable_energy_development_infrastructure/.

2. GEO, *Connecting Colorado's Renewable Resources to the Markets* 20 (Dec. 21, 2007), available at www.energy.ca.gov/reti/documents/2007-12-21_CO_%20SB91_Task_Force_Report.pdf.

3. *Id.*

4. *Id.* This article does not discuss geothermal-based heat-transfer pumps, which can be used to create efficiencies in homes and buildings and are an important tool to reduce heating and cooling bills. See U.S. Department of Energy, "Geothermal Heat Pumps," available at www.eere.energy.gov/geothermal/heatpumps.html.

5. GeoPowering the West Colorado State Working Group, "Colorado Geothermal Development Strategic Plan" (Aug. 2007), available at rechargecolorado.com/images/uploads/pdfs/8f49aa534d853553c7762b4eef52d192.pdf.

6. *Id.* at 7. See also description of Chena Hot Springs Power Plant at www.yourownpower.com/Power.

7. GeoPowering the West, *supra* note 5 at 4.

8. See GEO website, www.colorado.gov/energy/index.php?/policy/state-energy-program-sep.

9. *United States v. Union Oil Co.*, 549 F.2d 1271 (9th Cir. 1977) (concluding that the mineral reservation in the Stock-Raising Homestead Act of 1916 was intended to include geothermal resources).

10. *Id.* at 1274.

11. Pub. L. 109-58 (2005).

12. CRS §§ 37-90.5-101 *et seq.*

13. See U.S. Bureau of Land Management (BLM), “Comprehensive Strategic Plan for Geothermal Management” 7 (2005).

14. See *Union Oil Co.*, *supra* note 9 at 1274. With respect to geothermal resources, this doctrine is codified at 30 U.S.C. § 1014. **[Is the 23 supposed to be there?] No, you are correct.**

15. 30 U.S.C. § 1003(b).

16. *Id.*

17. 30 U.S.C. § 1006.

18. 30 U.S.C. § 1005(a) and (b).

19. 72 Fed. Reg. 84 at 24358 (May 2, 2007).

20. *Id.*

21. See also CRS § 37-90.5-105(3)(a).

22. BLM, “Record of Decision for Geothermal Leasing in the Western United States” (Dec. 12, 2008).

23. *Id.*

24 See, DOI to Create Renewable Energy Coordination Offices, *available at* www.sustainablebusiness.com/index.cfm/go/news.display/id/18136

25. 30 U.S.C. § 1121.

26. 30 U.S.C. § 1141.

27. 30 U.S.C. § 1021.

28. 30 U.S.C. § 1008.

29. There are no reported cases where reserved water rights were claimed for geothermal resource development; neither the Geothermal Steam Act nor the EPA Act of 2005 took a position.

30. Sares and Morgan, Colorado Geological Survey, “Geothermal Energy in the Heart of the Rockies” presentation to Salida Sustainability Summit (Oct. 15, 2009), available at [/www.chaffee-county-energy-plan.com/wp-content/uploads/2009/10/Geothermal_Energy_in_the_Heart_of_the_Rockies_Text-document_v3.pdf](http://www.chaffee-county-energy-plan.com/wp-content/uploads/2009/10/Geothermal_Energy_in_the_Heart_of_the_Rockies_Text-document_v3.pdf).

31. Colo. Const., art. XVI, § 5.

32. *See generally, id.*; Water Rights Determination and Administration Act, CRS §§ 37-92-101 *et seq.*

33. CRS § 37-90.5-102(1)(c).

34. *See* Colorado Legislative Council Fiscal Note to S.B. 10-174 (March 5, 2010).

35. CRS § 37-90.5-107(2).

36. CRS § 37-90.5-107(8).

37. *Id.*

38. CRS § 37-90.5-107(6).

39. CRS § 37-90.5-103(3).

40. CRS § 37-90.5-104(1).

41. *Id.*

42. CRS § 37-90.5-103(3).

43. CRS §§ 37-90.5-105(1) and 36-1-147.

44. CRS § 37-90.5-104(4).

45. CRS § 37-90.5-106(1), (2), and (4).

46. 2 C.C.R. 402-10 (2004), available at water.state.co.us/pubs/rule_reg/geothermalrules.pdf. The Office of the State Engineer (SEO) has not promulgated rules concerning hot rock of non-liquid geothermal uses. The Geothermal

Rules do not apply to other types of wells governed by Articles 90 and 92 of Title 37 of the Colorado Revised Statutes.

47. CRS § 37-90.5-107(2)(a).

48. 2 C.C.R. 402-10, Rule 3.4.

49. 2 C.C.R. 402-10, Rules 6.1.2.1 *et seq.*

50. 40 C.F.R. Subpart G, § 144.

51. 2 C.C.R. 402-10, Rule 13.1.

52. *Id.*

53. *Id.*

54. Conversation with Kevin Rein SEO (Feb. 4, 2010).

55. CRS § 37-90.5-107(1).

56. *Id.*

57. §2(b)

58. CRS § 37-92-305. *See City of Aurora ex rel. Util. Enter. v. Simpson*, 105 P.3d 595 (Colo. 2005).

59. CRS § 37-92-305(8).

60. As opposed to hot dry rock or engineered geothermal systems, which involve rocks with little to no permeability and therefore little to no water content.

61. Colorado Water Quality Control Commission, *Colorado Water Quality Management and Drinking Water Protection Handbook* at Policy No. 98-2 (Nov. 13, 2006).

62. Pub. L. 95-617, 92 Stat. 317 (1978).

63. Energy Law Group, *Energy Law and Policy for the 21st Century* 12-2 (Rocky Mountain Mineral Law Foundation, 2000).

64. Sares and Morgan, *supra* note 30 at 29.

65. Sares and Morgan, *supra* note 30 at 13.

66. The production tax credit originally was passed in the Energy Policy Act of 1992 and quickly became one of the biggest drivers of renewable energy development. 26 U.S.C. 45 Ch. 1 Part IV Sec. 45.

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67. IRS Form 8835 (2009).
68. CRS § 40-2-124.
69. CRS § 40-2-124(1)(c). House Bill 10-1001, passed in 2010, increased the required generation of electricity from renewable energy sources to 30 percent for investor-owned utilities.
70. CRS § 40-2-124(1)(c)(V).
71. CRS § 40-2-124(1)(a).
72. CRS § 40-2-124(1)(c)(III).
73. 4 C.C.R. 723-3 3650 *et seq.*
74. CRS § 40-2-124(1)(d)
75. 4 C.C.R. 723-3 3652(n).
76. *See* Kenison and “Carbon Offsets from Soils and Forests—A Primer for Colorado Lawyers,” 38 *The Colorado Lawyer* 63-64 (Nov. 2009).
77. *See* Jaffe, “BLM to auction steam beneath Chalk Creek valley landowners,” *The Denver Post* (Jan. 24, 2010), available at www.denverpost.com/business/ci_14252604.
78. Sares and Morgan, *supra* note 30 at 30.
79. Energy Law Group, *supra* note 62 at 12-4.
80. *See* note 69, *supra*.
81. Webb, “BLM Considers Geothermal Leasing in Colorado” *Grand Junction Sentinel* (Nov. 7, 2009), available at www.gjsentinel.com/news/articles/blm_considers_geothermal_leasi.