

Introduction to the Winter 2011 NREEL Newsletter

Josh Mann

This edition of the NREEL *Vista* begins with Joshua Granata's article covering an issue that has been getting a lot of media attention since Governor Martinez has taken office: the Environmental Improvement Board's recently adopted Cap and Trade Program. In the next article, Bridgette Mullins provides a compelling look at the lack of access to environmental justice for New Mexico's Colonias. Finally, John Verheul makes the case for increased small hydropower generation in New Mexico.

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New Mexico Adopts a Regional Cap and Trade Program

Joshua Granata

Introduction

The New Mexico Environmental Improvement Board ("EIB" or "Board") recently adopted a rule proposed by the New Mexico Environment Department ("NMED"), which is designed to cap greenhouse gas ("GHG") emissions in New Mexico as well as enable the State to participate in a regional cap and trade program under the Western Climate Initiative ("WCI"). Additionally, a GHG cap and reduction petition proposed by New Energy Economy ("NEE"), a local non-profit organization, was adopted by the Board as well. It is too early, however, to determine the outcome of the rules.

The fate of cap and trade in New Mexico depends on a number of factors. First, a new governor, Susana Martinez, who has indicated opposition to a cap and trade rule, will soon assume her office. Second, the fate of California's cap and trade program will largely determine whether New Mexico can participate in a regional plan. Lastly, a challenge to the rulemaking is likely in the near future. In this article I will explore New Mexico's regulatory response to climate change and the possibility of the state

entering the carbon trading market under the recently adopted rules. I will also consider some of the similarities and differences between the two rules.

The Climate Change Debate

For many years, scientists, policy makers, religious leaders, and political leaders of the world have joined in the global warming debate. The debate concerns whether human activity caused global warming by creating a "greenhouse effect" through the emission of GHGs. Through the combustion of coal, fossil

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fuels, as well as emissions of other gases, such as methane released from landfills and the agriculture sector, we have increased the atmospheric concentration of carbon dioxide (“CO₂”) by more than 35 percent from pre-industrial levels, from 280 parts per million (“ppm”) in 1750 to 381 ppm in 2005. Scientists, however, believe that we can avoid catastrophic global warming by stabilizing the concentrations of GHGs at a safe level.

In the past decade, the focus of the debate has changed from global warming to whether humans are causing more profound changes to the environment than just increasing average global temperatures; are we responsible for global climate change? After witnessing the devastation caused by hurricanes Katrina and Rita in 2005, as well as observing the alarming rate at which glacial ice is melting throughout the world, the debate seems to have entered a new phase. Scientists and policy makers, with the exception of a minority of climate skeptics, acknowledge that increased anthropogenic GHG concentrations are affecting the global climate. Now that society has largely acknowledged that we are contributing to global climate change, the question that we must ask is how do we respond to what we have done? Should New Mexico begin to regulate GHGs despite the federal government’s unwillingness to do so, or should the state wait until Congress passes GHG legislation so that all states are on equal footing?

New Mexico Environment Department’s Proposal

New Mexico leaped into the climate change debate when Governor Bill Richardson signed Climate Change and Greenhouse Gas Reduction Executive Order 2005-033 into law on June 9, 2005.¹ The order states that “atmosphere carbon dioxide levels are at the highest in more than 500,000 years and are projected to reach their highest level in four million years by mid-century.”² Governor Richardson created the New Mexico Climate Change Action Council to provide recommendations to the Governor’s Office regarding climate change policy. An advisory group was also created to present proposals to the Council

to “reduce New Mexico’s total greenhouse gas emissions to 2000 levels by the year 2012, 10% below 2000 levels by 2020 and 75% by 2050.”³

On June 4, 2010, pursuant to the Governor’s climate change policy, the NMED petitioned the EIB to adopt regulations to cap and reduce GHGs emissions in New Mexico as well as establish the requirements for participation in a regional GHG market.⁴ It is important to note that rulemaking procedures are not promulgated within the NMED. Instead, NMED, like any other party, must petition the EIB since it is the state agency responsible for promulgating rules and standards in a number of environmental areas, including air quality management.⁵ Thus, in order for NMED to have the authority to regulate GHGs in New Mexico, the Air Quality Control Act (“AQCA”) needs to be amended with the approval of the EIB.⁶

On November 2, after NMED held numerous public and stakeholder meetings, and after overcoming a preliminary injunction, the NMED released a press statement announcing that by a narrow vote of 4 to 3 the EIB adopted “the most comprehensive greenhouse gas pollution reduction regulations in the nation.”⁷ On November 10, the Board adopted the NMED’s Statement of Reasons filed with its petition and made additional findings.⁸ On January 1, 2011, the new regulation becomes effective provided NMED es-

establishes the administrative framework for free emissions allocations before the initial cap year of 2012.

The Board found substantial evidence existed to justify regulating GHGs under New Mexico statutory law. Under the AQCA, an “air contaminant” is a substance, such as, “particulate matter, fly ash, dust, fumes, gas, mist, smoke, vapor, micro-organisms, radioactive material.”⁹ The Board found the statutory language broad enough to classify anthropogenic GHGs (CO₂, as well as methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) as pollutants.¹⁰ The Board, therefore, can adopt GHG regulations since it has the authority to prevent or abate air pollution. NMED asserted, and four members of the Board found, that these regulations are needed since GHGs are causing or contributing to global warming which endangers the public health, welfare, property and environment of New Mexico. In particular, the NMED argued that global warming affects the state through “reduced snowpack, increased evaporation, earlier and more intense precipitation events, more severe flooding and drought, increased human morbidity and mortality, agricultural disruptions, and damaged ecosystems.”¹¹ The Board found that “[c]urrent levels of GHGs in the atmosphere, coupled with new emissions, will result in a rise in global temperatures between 3-7 degrees Celsius by the end of the century.”¹² To understand the implications of the rise in temperature, consider, for example, that a temperature increase of 3.8 to 5.8 degrees Celsius would reduce snowpack from 73 to 90 percent in California.¹³ New Mexico, like California and other states in the West, relies heavily on the snowpack for water throughout the year.

The NMED regulations apply to GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) emitted by facilities within the jurisdiction of the EIB. The facilities that are affected by the proposed regulation are those which exceed 25,000 metric tons of CO₂e per year, or a facility that “opts to become a cap facility.”¹⁴ There about 63 facilities under the EIB’s jurisdiction that would initially be affected by the rule; however the EIB does not have jurisdiction in Bernalillo County or on Indian lands.

The NMED petition proposes a regional cap and trade system “in which GHG emissions are limited or capped at a specified level, and those participating in the system can trade allowances.”¹⁵ A cap on overall GHG emissions in New Mexico is set by the NMED representing “the sum of the allowances issued to existing cap facilities and the new emissions set aside account in allocation year 2012.”¹⁶ Therefore,

the emissions from each covered facility could not exceed the amount of allowances allocated to the facility for that year without a penalty. An allowance is the emission of one ton of GHGs measured in CO₂e. In the initial year of implementation the cap would decrease by 1.5%. In the following years the cap would decrease by 2% per year allowing for a significant overall reduction in New Mexico’s contribution to atmospheric CO₂ and other GHG concentrations over time.¹⁷

The rule provides flexibility for compliance since a facility could emit without an allowance if the facility could “offset” those emissions with reductions elsewhere. NMED defines an offset credit is a “qualifying reduction...that occur[s] to non-capped emissions”.¹⁸ Thus, once a facility is allocated its emission allowances for the year, excess emission allowances could be traded in a carbon market. When the cap is reduced over time facilities will have to reduce their emissions, offset their emissions or purchase allowances through a trading market. It is noteworthy that the cap and trade program proposed by NMED is designed to work in conjunction with the regional cap-and-trade program that is being developed by the WCI. Therefore, a regulated facility in New Mexico could trade emission credits with a recognized facility in one of the participating seven states or four Canadian provinces.

While the NMED rule is permanent, a sunset provision is included, which provides that if the federal government adopts cap-and-trade regulations that are “as effective as” the proposed rule, then the state regulation would sunset and give way to the federal regulation.¹⁹

Finally, in order for New Mexico to be able to participate in the regional carbon market a threshold of 100 million metric tons of allowances needs to be established. Thus, if California does not participate in the regional carbon market, New Mexico will not be able to participate until that threshold is achieved. It appears that California is poised to be able to participate in WCI. In the recent November elections of this year California rejected a ballot initiative to suspend the introduction of the state’s global warming bill, AB-32. Then again, litigation, which would cause delay in implementation of any state’s GHG reduction plan, is always possible.

New Energy Economy’s Proposal

New Energy Economy also petitioned the EIB to adopt regulations to reduce GHG emission through cap and reduction regulations. On December 6, the Board voted 4-1 in favor of adopting the petition. Unlike the NMED petition, the NEE petition proposes a state-only market for carbon trad-

ing which initially seeks to limit the regulation of GHGs to CO₂ and not other GHGs that are included in the NMED rule. The NEE rule, like NMED's, would place a cap on three sources of GHG emission in New Mexico whose emissions exceed 25,000 metric tons per year of CO₂ per year: electric generation facilities, petroleum facilities and natural gas facilities, including refineries, processing and treatment plants, and compressor stations.

Both rules require a cap on GHG emissions for the state which will be reduced by a percentage annually. NEE, however, requires the regulated facilities to reduce their emissions by 3% per year from the 2010 levels. Thus, NEE proposes sharper GHG reductions than NMED. Similar to the NMED rule, a source that falls out of compliance would be subject to penalties imposed by the NMED.²⁰ Sources could petition the NMED for early action credit for voluntary emission reductions achieved during or after 2005, as well as use offsets approved by the NMED, or certified by the Climate Action Reserve, to meet their reduction credits. Interestingly, these offsets do not necessarily have to be for a reduction of CO₂ emissions, but can be for a reduction of other GHGs. Sources would also be allowed to bank credits indefinitely and borrow emission credits in order to meet compliance measures. While the NMED rule allows banking of allocations it does not mention borrowing.

Lastly, the NEE is set to expire on December 31, 2020. Like the NMED rule, the NEE rule will sunset if a mandatory federal GHG cap is established, although, the rule will sunset if a "multi-jurisdictional" GHG cap is established.

Conclusion

Ironically, the same day that New Mexico's cap-and-trade becomes law, Governor-elect Susana Martinez will replace Governor Richardson. Mrs. Martinez has stated that any regulations adopted by the EIB need to be based on "sound science" and that she "absolutely oppose[s] cap-and-trade."²¹ Therefore, the EIB's recent rulings may be in conflict with the new Governor's position. Additionally, litigation will likely continue since many in the oil and gas industry believe that the EIB has exceeded its authority. It will be interesting to see what happens to the two rules. Will the rules be harmonized to comprise the most comprehensive pollution reduction regulations in the nation? For now, all we can do is wait until the dust settles from the recent election. Once it does, we will see whether and to what extent GHGs will be regulated in New Mexico.

Endnotes

¹ CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION EXECUTIVE ORDER – 05-033, June 9, 2005.

² Id.

³ Id at 2.

⁴ IN THE MATTER OF PROPOSED NEW REGULATION, 20.2.350 NMAC – *Greenhouse Gas Cap and Trade Provisions*, No. EIB 10-04(R).

⁵ See Air Quality Control Act, NMSA (1978) §§ 74-2-1 *et seq.* Additionally, the State Environmental Improvement Act created the EIB as a Board of seven members appointed by the governor with the advice and consent of the senate, with any vacancies filled by appointment by the governor. NMSA (1978) §§ 74-1-1 *et seq.*

⁶ § 74-2-3.

⁷ Environmental Improvement Board Approves First-in-the-Nation Rules to Reduce Global Warming Pollutants from Multiple Sectors, November 2, 2010.

⁸ New Energy Economy Proposal to Reduce Green House Gas Pollution No. EIB 08-19(R).

⁹ § 74-2-2.

¹⁰ §74-2-2(A), See ORDER & STATEMENT OF REASONS FOR ADOPTION OF REGULATIONS, No. EIB 10-04(R), November 10, 2010.

¹¹ NMED petition, STATEMENT OF REASONS at 2.

¹² ORDER & STATEMENT OF REASONS FOR ADOPTION OF REGULATIONS, No. EIB 10-04(R), November 10, 2010.

¹³ See Katharine Hayhoe, et. al., *Emissions pathways, climate change, and impacts on California*, Proceedings of the National Academy of Sciences (August 2004).

¹⁴ Id.

¹⁵ NMED petition, STATEMENT OF REASONS at 2.

¹⁶ Id. at 6.

¹⁷ Id.

¹⁸ Id.

¹⁹ NMAC § 20.2.350.15.

²⁰ New Energy Economy Proposal to Reduce Green House Gas Pollution, Petitioner's Exhibit R10 (Revised Rule) 10/5/10.

²¹ Q & A on environmental issues, Santa Fe New Mexican. October, 7 2010.

Aquí No Hay Ni Agua:

Lack of Access to Environmental Justice in New Mexico Colonias

Bridgette Mullins



*What is a Colonia?*¹

The U.S. Department of Housing and Urban Development defines a Colonia as an identifiable community in Arizona, California, New Mexico, or Texas, located within 150 miles of the U.S.-Mexico border, that has been in existence since before November 1990 and that lacks a potable water supply, adequate sewage systems, and decent, safe, and sanitary housing.² Spanish-speakers predominantly populate most Colonias, and many of the families in Colonias are immigrant families. Colonias also have high rates of poverty and are mostly rural.³ There are more than 141 Colonias in New Mexico alone.⁴ New Mexico has additional communities that are located more than 150 miles from the border but share all of the other characteristics of a Colonia. One such community this article discusses is Pajarito Mesa on the southwestern edge of Albuquerque.

For the most part Colonias have remained on the fringe of our culture's awareness. They received some national attention in 1995 when *60 Minutes* did a show about Colonias in Texas entitled *The Other America*, highlighting the extreme

poverty and threat of communicable diseases in Colonia communities, most often associated with Third World countries.⁵ However, these communities still exist on the outskirts of society without many of the protections and privileges the majority of Americans enjoy. Colonias are vulnerable to environmental injustices of many types. This article focuses on the placement of hazardous waste facilities and the lack of access to potable water and sewage systems.

Hazardous Waste

The community of Chaparral in southern New Mexico is a good example of how hazardous waste facility placement disproportionately affects Colonia communities in this state. Chaparral is a Colonia located

on the border of Doña Ana County and Otero County. The 2000 census had the number of Chaparral residents as 6,117, with 64.5% of the population being Hispanic or Latino, but the population is surely much higher than that now.⁶ More information about the demographics of the Chaparral Colonia can be found in Kristina Fisher's article discussing the *Rhino* case.⁷

Multiple undesirable and hazardous sites are clustered around Chaparral. Located within a ten-mile radius of the community are "a petroleum-contaminated soil remediation site...; the McCombs Municipal Landfill; the El Paso sewage sludge monofill; the Newman Power Plant; the Fred Hervey Water Reclamation Plant; an abandoned, illegal landfill containing primarily construction and demolition debris; the Chaparral Sand and Gravel Quarry...; the Otero County Prison; the White Sands Missile Range; and the Rinchem Hazardous Waste Container Storage Facility."⁸ In order to operate in New Mexico all of these facilities were able to obtain permits allowing for the contamination of air or water that will hap-

pen in the course of their business. A number of large dairies also surround Chaparral and are associated with undesirable living conditions like odor, flies, danger of water contamination and flooding, ground water contamination, and many others.⁹

In 1999, Rhino Environmental Services applied for a permit that would allow them to open a 135-acre landfill that would accept “petroleum-contaminated soils, sewage sludge, slaughterhouse offal, industrial solid waste,” and other types of hazardous waste.¹⁰ Because the residents of Chaparral had a vested interest in not allowing another hazardous waste facility to be constructed near them, they challenged Rhino Environmental through the administrative permitting process.¹¹ In 2001, despite very strong opposition to the landfill at the permit hearing, the New Mexico Environment Department granted the permit.¹² A community organization made up of residents of Chaparral appealed the decision, claiming that the Environment Department did not consider the social impact the landfill would have on the community. The case reached the New Mexico Supreme Court, and the permitting decision was overruled.¹³ This was a huge win for the Chaparral community and possibly opened the door for further environmental and community protections in the future. However, big companies have an incentive to seek ways around the *Rhino* Court’s holding, and many Colonias remain burdened by a disproportionate number of hazardous waste facilities near their communities.

Water

In addition to being subject to what can be called environmental racism¹⁴ in the form of hazardous waste exposure, Colonias are also lacking in the most basic form of infrastructure: running water and adequate sewage systems, not to mention electricity.¹⁵ The *New York Times* recently wrote an editorial¹⁶ discussing how these issues affect the community of Pajarito Mesa, a community of about 400 families that sprung up on the southwestern outskirts of Albuquerque in the early 1980s.¹⁷ After years of incessant advocacy by the Pajarito Mesa Mutual Domestic Water Consumers Association, the community’s first water supply, a water station, was opened on the Mesa in April 2010. The station does not provide heated, or even running, water to residents’ homes that would facilitate showers or dishwashing, but instead consists of a huge tank near the entrance to the community where residents can enter a code and fill up gallon drums to take back to their homes.¹⁸ Before the water station was installed, Pajarito Mesa residents were driving the half-hour into Albuquerque and often buying water from people who would illegally sell them water.¹⁹ While most New Mexico

Colonias now have access to running water, many still battle for adequate sewage and road systems, as well as the other advantages associated with developed infrastructure that most people living in the United States take for granted.²⁰

Unclear Legal Title to Real Estate Inhibits Development

Numerous factors contribute to the lack of infrastructure development in the Colonias, including the residents’ lack of access to the political process, the counties’ budget and funding problems, and environmental and geographic issues. But perhaps the biggest obstacle, which has remained almost entirely unaddressed in New Mexico, is that most Colonias are illegally constructed suburbs created through the use of unregulated real estate contracts.²¹

Currently, if you drive up Pajarito Road towards the Mesa you will see a sign put up by Bernalillo County that says that no one should seek to buy land on Pajarito Mesa, but that does not do much to address the problems current residents face. The county has mostly denied responsibility for setting up running water and sewage systems on Pajarito Mesa because there are no legal easements on the properties and many of the land holdings have unclear title.²²

Real estate contracts differ from mortgages in that the seller holds the title to the land until the buyer has completed all of the payments.²³ Additionally the payments are often lower than a traditional mortgage and include no or a very low down payment. This makes it possible for low-income people, who would not qualify for a loan to obtain a traditional mortgage, to have a change at home ownership.

Because these contracts are basically unregulated in New Mexico, the buyers are often very vulnerable to exploitive selling practices.²⁴ Many times the interest is so high and the payments so low that buyers will pay for years and years and then, if they miss a payment, they can lose the land that they have been living on and paying on for decades because real estate contracts don’t require judicial foreclosure, there is very little statutory protection for buyers, and the majority of the contracts are written to heavily favor the sellers.²⁵ Additionally, in the meantime sellers often will give or sell their title to another person so that, even if the buyer is able to finish paying, the title no longer belongs to the original seller, making tracing the title and establishing the easements that the county needs for development nearly impossible.²⁶ To further complicate the issue many of these contracts are never recorded with the County Clerk and are often blatantly illegal. For example, many of the contracts are entirely verbal, which violates the Statute of Frauds for sale of land.²⁷

There has been almost no litigation on this subject in New Mexico. One of the major reasons for this is that many of the possible plaintiffs are reluctant to seek justice in the court system because of their immigration status or that of their family members. Additionally, because the outcome of such a suit is uncertain, many people are reluctant to risk losing the land they have invested so much in. There is an excellent summary of the barriers to representation for Colonia residents in the New Mexico Center on Law and Poverty's Colonias Report from 2010.²⁸

Conclusion

A lack of infrastructure results in multiple and cumulative problems for the families that live in Colonia communities. Undeveloped roads in the Colonias lead to dangerous driving conditions, inability of emergency vehicles to reach people, and harsh erosion and washout on the land.²⁹ School buses do not travel the unmaintained roads, making it challenging for the children living in the Colonias to make it to school.³⁰ It is difficult to maintain sanitary living conditions without adequate water and sewage systems; for example, because of the lack of easements the counties won't issue permits for septic tanks, so most Colonia residents install septic tanks themselves without adhering to the same safety measures required in the cities.³¹ These are just a few of the challenges faced by Colonia residents everyday. And for the most part they face these challenges alone, against huge obstacles and without any access to justice in the legal system.

Endnotes

¹ See Nancy L. Simmons, *Memories and Miracles—Housing the Rural Poor Along the United States-Mexico Border: A Comparative Discussion of Colonia Formation and Remediation in El Paso County, Texas, and Doña Ana County, New Mexico*, 27 N.M. L. Rev. 33, 33-34 (1997).

² 42 U.S.C. § 1479(f)(8) (2006).

³ N.M. CENTER ON LAW & POVERTY, LEGAL ISSUES IN NEW MEXICO'S COLONIA COMMUNITIES: A REPORT (2010), http://nmpovertylaw.org/WP-nmclp/wordpress/?page_id=1840 [hereinafter COLONIA REPORT].

⁴ U.S. Dep't of Housing & Urban Dev., Designated Colonias in New Mexico, <http://www.hud.gov/local/nm/groups/coloniasnm.cfm>.

⁵ *60 Minutes: The Other America* (CBS television broadcast, Oct. 8, 1995).

⁶ U.S. Census Bureau—Population of Chaparral, New Mexico, http://factfinder.census.gov/servlet/SAFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=chaparral&_cityTown=chaparral&_state=04000US35&_zip=&_lang=en&_sse=on&pctxt=fph&pgsl=010&show_2003_tab=&redirect=Y.

⁷ Kristina G. Fisher, *The Rhino in the Colonia: How Colonias Development Council V. Rhino Environmental Services, Inc. Set a Substantive State Standard for Environmental Justice*, 39 ENVTL. L. 397, 401 (2009).

⁸ *Id.* at 403.

⁹ See Diana M. Alba, *Vado Dairies Raise Stink*, Las Cruces Sun-News, May 3, 2006.

¹⁰ Fisher, *supra* note 7, at 404.

¹¹ Colonias Dev. Council v. Rhino Environmental Servs., Inc. (In re Application of Rhino Environmental Servs.), 2005-NMSC-024, ¶¶ 2-6, 138 N.M. 133, 117 P.3d 939.

¹² *Id.* ¶ 6.

¹³ *Id.*

¹⁴ See generally Robert W. Collin et al., *Environmental Racism: A Challenge to Community Development*, 25 J. of Black Studies 354 (1995).

¹⁵ Simmons, *supra* note 1, at 37-38.

¹⁶ Erik Eckholm, *On a Dusty Mesa, No Water or Electricity, but Boundless Space*, N.Y. Times, Apr. 18, 2010, available at <http://www.nytimes.com/2010/04/19/us/19mesa.html?pagewanted=1&sq=pajarito%20mesa&st=cse&scp=1>

¹⁷ COLONIA REPORT, *supra* note 3, at 25.

¹⁸ *Id.*

¹⁹ COLONIA REPORT, *supra* note 3, at 41.

²⁰ N.M. Center on Law and Poverty, http://nmpovertylaw.org/WP-nmclp/wordpress/?page_id=153.

²¹ COLONIA REPORT, *supra* note 3, at 17.

²² ADRIAN X. ESPARZA & ANGELA J. DONELSON, COLONIAS IN ARIZONA AND NEW MEXICO: BORDER POVERTY AND COMMUNITY DEVELOPMENT SOLUTIONS 69 (2008).

²³ COLONIA REPORT, *supra* note 3, at 18.

²⁴ *Id.* at 17.

²⁵ *Id.*

²⁶ *Id.* at 23.

²⁷ *Id.* at 22.

²⁸ COLONIA REPORT, *supra* note 3.

²⁹ *Id.* at 66.

³⁰ *Id.*

³¹ Simmons, *supra* note 1.

Small Hydropower in New Mexico

*John Verheul**



In 2007, hydropower generated over 247 million megawatt hours of electricity in the United States, more than twice the generation of all other renewable sources combined.² This energy source has been utilized in the United States since the first hydroelectric plant was built at Niagara Falls in 1879.³ One reason for its success is that hydropower is relatively cheap; it is produced for an average of 0.85 cents per kilowatt-hour. This is half the cost of nuclear, forty percent the cost of fossil fuel, and twenty five percent the cost of using natural gas.⁴

Hydropower's efficiency comes from how it is produced; it is generated by harnessing the kinetic energy of flowing water.⁵ One of the oldest examples of hydropower is a mill using the natural flow of a river or stream to turn a wheel, which in turn drives the actual machinery inside the mill to perform a task - like grinding wheat into flour.⁶ Hydroelectric power works similarly, except the energy of the water is used to generate electricity.⁷

To generate the optimum amount of electricity from an impoundment hydropower facility, water is dammed to create a pool of water at the site of the dam, which allows concentration of the falling water at the point of the power generating turbine as it falls down the dam's backside.⁸ The difference in elevation between the dammed body of water and the level

it eventually falls to is known as the head, while the volume of water falling per period of time is known as the flow.⁹ Together, head and flow are used to describe the potential power to be harnessed at a hydropower site.¹⁰ This simple technology makes hydropower an inexpensive source of power, especially when compared to other renewable, non-greenhouse gas emitting sources of energy.

Despite these apparent advantages, total hydroelectric generation in the United States dropped by thirty percent from 1997 to 2007; declining from over ten percent of domestic power to under six percent.¹¹ Because of this, conventional wisdom is that capacity for large scale hydropower has largely reached its potential.¹² However, there remain undeveloped resources in the form of small hydropower.

Small hydropower is defined by the United States Department of Energy as hydropower installations producing 100 kilowatts (KW) to 30 megawatts (MW) of power.¹³ Micro hydropower consists of installations producing less than 100 KW.¹⁴ In comparison, the Hoover Dam hydroelectric plant produces over 2000 MW.¹⁵ While small hydro is appropriate to power small communities or industrial plants, micro hydro is appropriate to power remote homes or small communities.

Despite its limitations, small hydropower is a good method for energy production for several reasons. First, small and micro hydro, like all hydropower, are renewable energy sources that emit no greenhouse gases.¹⁶ As a result, interest in these types of hydro projects has increased as some states have enacted renewable portfolio standards and greenhouse gas inventories or caps.¹⁷ Second, although hydropower uses water, it is a non-consumptive use. As water becomes more limited in the arid west, non-water-intensive ways of generating electricity become more attractive. Third, small hydropower is

well suited to a distributed generation model (DG) of energy production. DG uses small-scale power generation technologies (typically in the range of three to 10,000 KW) located close to where the electricity will be used.¹⁸ DG reduces reliance on the aging and inefficient United States power grid and is well suited to small, widely distributed communities and homes that are not fully served by the current centralized model.¹⁹ New Mexico is among the most arid states in the United States, and much of the state's population lives in rural, remote communities potentially well served by small-scale power generation such as small hydro.

Along with hydropower being a good option for a rural, arid state like New Mexico, the state also has infrastructure in place that would facilitate development of these projects. As an agricultural state, New Mexico has a plethora of in-place water diversions, such as lined ditches. In 2005, irrigated agriculture accounted for eighty two percent of surface water withdrawals in New Mexico.²⁰ The existence of these lined ditches makes small hydro attractive because, generally, it means there will be less environmental impact in developing these power projects as compared to the old, large scale hydro model of damming rivers and streams.²¹ For example, an irrigation district can install one or more small turbines within its already existing diversion or distribution network to use the flow of the water to generate electricity. Because it is a non-consumptive use, and the water eventually all makes its way to its originally intended beneficial use, irrigation, there is no change in the point of diversion, or in the purpose of use. The irrigation district can then use the electricity to run its own irrigation operation, power homes and farms in the district or sell the power to a utility. In New Mexico, as a result of the state's renewable portfolio standard (RPS), utilities such as Public Service Company of New Mexico and El Paso Electric are incentivized to purchase renewable energies such as hydropower.²²

While New Mexico's agricultural industry and RPS make hydropower attractive, the primary regulator of these facilities is the federal government. The Federal Energy Regulatory Commission (FERC) regulates hydropower facilities in the United States pursuant to the Federal Power Act (FPA).²³ Under the FPA, "non-federal hydropower projects must be licensed by the Commission if they: (1) are located on a navigable waterway; (2) occupy lands of the United States; (3) use surplus water from a federal dam; or (4) are located on non-navigable waters over which Congress has jurisdiction under the Commerce clause, involve post-1935 construction, and affect interstate or foreign commerce."²⁴ However,

not every project requires licensure if it fits within the limited exemptions to the licensing rules.

Several such exemptions may apply to small hydro power projects in New Mexico. Perhaps most applicable to New Mexico is the "Conduit Exemption" whereby projects that produce 15 MW or less, or 40 MW for a municipal project and use a "man-made conduit operated primarily for non-hydroelectric purposes may be eligible for a conduit exemption."²⁵ While there are other requirements for the exemption, such as the facility not occupying federal lands, applications for exemptions of small hydroelectric conduits are categorically exempt from the requirement for an Environmental Assessment (EA) or Environmental Impact Statement (EIS).²⁶ The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies engaged in actions that significantly affect the environment to prepare a detailed EIS that examines the environmental consequences of agency decisions and actions, and considers alternatives.²⁷

Small projects may also be eligible for a "5MW Exemption", which applies to projects under 5 MW that are installed or added to an existing facility located at a non-federal dam built prior to 2005.²⁸ Both exemptions also involve waiver by FERC of certain sections of Part I of the FPA, although they are still subject to mandatory fish and wildlife conditions and the public safety requirements of the FPA.²⁹ Facilities not meeting either exemption may still choose to pursue a license from FERC. Such licensing may potentially be costly and time consuming, however it gives the licensee the power of eminent domain "to obtain lands or other rights needed to construct, operate, and maintain the hydroelectric project."³⁰

FERC is well aware of the increased interest nationwide in small hydropower - from 2007 to 2009 they saw more than a three-fold increase in the number of small hydropower permits issued.³¹ Currently, seventy-one percent of the hydropower projects FERC regulates have an installed capacity of 5 MW or less.³² FERC has been working to streamline the permitting process for these projects, and be more responsive to developers. Examples of actions taken by FERC include a dedicated hotline, an education and outreach program for small hydro developers, adding web-based resources to the FERC website to make it easier to understand the permitting process,³³ and entering into Memoranda of Understanding (MOU) with states and other agencies to improve coordination.³⁴

FERC also offers a “Preliminary Permit” option for potential developers. The benefit of these permits, which can be issued for a term of up to three years, is that they give the permittee the right to be the first to file a development application during the term of the permit.³⁵ This allows developers to conduct studies and perform other such preliminary activities (but not enter the land or begin construction), without losing their priority date for filing the application.³⁶

In conclusion, small hydropower is a rapidly growing part of the United States energy sector, particularly in the arid west. For several reasons, not the least of which is the existing network of lined irrigation ditches, New Mexico should move to increase the percentage of hydropower in its energy portfolio through small hydropower installations. While FERC continues to try to streamline the permitting and licensing processes for these projects, state government can increase coordination with FERC as has recently been done in Colorado.³⁷ Colorado entered into a MOU with FERC that allows the state to develop a program to test options for “simplifying and streamlining” procedures for authorizing projects eligible for the aforementioned exemptions, while still ensuring environmental safeguards.³⁸ Essentially, the state provides expert consultants to work with developers on their applications, meaning the applications are completed faster and more thoroughly, reducing the burden on developers and landowners.³⁹ New Mexico can look into a similar agreement to move small hydro ahead in the state.

Endnotes

¹ J.D. Candidate, May 2011, University of New Mexico School of Law.

² U.S. Energy Information Administration - Net Generation by Energy Source, http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html (Last visited Nov. 26, 2010). [hereinafter USEIA]

³ National Geographic - Hydropower - Going with the Flow, <http://environment.nationalgeographic.com/environment/global-warming/hydropower-profile> (Last visited Nov. 13, 2010). [hereinafter National Geographic]

⁴ Wisconsin Valley Improvement Company - Facts About Hydropower, http://new.wvic.com/index.php?option=com_content&task=view&id=7&Itemid=44 (Last visited Nov. 26, 2010).

⁵ U.S. Department of Energy - Wind and Water Power Program: How Hydropower Works, http://www1.eere.energy.gov/windandhydro/hydro_how.html (Last visited Nov. 26, 2010).

⁶ U.S. Department of Energy - Wind and Water Power Program: History of Hydropower, http://www1.eere.energy.gov/windandhydro/hydro_history.html (Last visited Nov. 26, 2010).

⁷ U.S. Department of Energy - Wind and Water Power Program: How Hydropower Works, http://www1.eere.energy.gov/windandhydro/hydro_how.html (Last visited Nov. 26, 2010).

⁸ U.S. Department of Energy - Wind and Water Power Program: Types of Hydropower Plants, http://www1.eere.energy.gov/windandhydro/hydro_plant_types.html (Last visited Nov. 26, 2010).

⁹ U.S. Department of Energy - Wind and Water Power Program: Glossary of Hydropower Terms, http://www1.eere.energy.gov/windandhydro/hydro_glossary.html (Last visited Nov. 26, 2010).

¹⁰ Oregon.gov - Renewable Energy - Micro Hydroelectric Systems, http://www.oregon.gov/ENERGY/RENEW/Hydro/Hydro_index.shtml (Last visited Nov. 13, 2010).

¹¹ USEIA, *supra* note 1.

¹² U.S. Department of Energy - Wind and Water Power Program: Hydropower Resource Potential, http://www1.eere.energy.gov/windandhydro/hydro_potential.html (Last visited Nov. 27, 2010).

¹³ U.S. Department of Energy - Wind and Water Power Program: Types of Hydropower Plants, http://www1.eere.energy.gov/windandhydro/hydro_plant_types.html (Last visited Nov. 26, 2010).

¹⁴ *Id.*

¹⁵ U.S. Department of the Interior - Bureau of Reclamation - Hoover Dam Powerplant Deals, http://www.usbr.gov/projects/Powerplant.jsp?fac_Name=Hoover+Powerplant (Last visited Nov. 3, 2010).

¹⁶ National Geographic, *supra* note 2.

¹⁷ Pew Center on Global Climate Change. U.S. States and Regions—Greenhouse Gas Reporting and Registries. 2009, http://www.pewclimate.org/what_s_being_done/in_the_states/reporting_map.cfm (last visited Jan. 29, 2010).

¹⁸ The California Energy Commission - California Distributed Generation Resource Guide, <http://www.energy.ca.gov/distgen> (Last visited Nov. 3, 2010).

¹⁹ *Id.*

²⁰ JOHN W. LONGWORTH, P.E. ET AL. NEW MEXICO WATER USE BY CATEGORIES 2005. (New Mexico Office of the State Engineer, 2008). Available at http://www.ose.state.nm.us/publications_technical_reports_wateruse.html.

²¹ Recharge Colorado - Small Hydropower Program, http://rechargecolorado.com/index.php/programs_overview/renewable_energy/small_hydropower_program (Last visited Nov. 27, 2010). *See also* U.S. Department of Energy - Wind and Water Power Program: Hydropower Research and Development, <http://www1.eere.energy.gov/windandhydro/>

hydro_rd.html (Last visited Nov. 27, 2010). [hereinafter Recharge Colorado]

²² N.M.S.A. § 62-16-1 et seq.

²³ 16 U.S.C. § 791 et seq.

²⁴ *Id.* at § 23(b)(1).

²⁵ FERC - Small/Low-Impact Hydropower Projects, <http://www.ferc.gov/industries/hydropower/gen-info/licensing/small-low-impact/get-started/exemp-licens.asp> (Last visited Nov. 14, 2010) [hereinafter FERC]

²⁶ *Id.*

²⁷ 42 U.S.C. § 4321 et seq.

²⁸ *Id.*

²⁹ *Investment in Small Hydropower: Prospects of Expanding Low-Impact and Affordable Hydropower Generation in the West. Oversight Hearing Before the H. Comm. on Nat. Res., Subcomm. on Water and Power*, 111th Cong. (2010) [hereinafter *Hearing*] (Testimony of Jeff C. Wright, Director, Office of Energy Projects, Fed. Energy Reg. Comm.)

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *See* FERC, *supra* note 24.

³⁴ *Hearing*, *supra* note 28.

³⁵ *Id.*

³⁶ *Id.*

³⁷ Press Release, Federal Energy Regulatory Commission, FERC, Colorado Sign Agreement on Small Hydropower Development (Aug. 25, 2010). Available at <http://www.ferc.gov/media/news-releases/2010/2010-3/08-25-10.pdf>.

³⁸ *Id.*

³⁹ Recharge Colorado, *supra* note 20.

Introduction

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interested in submitting a short article for our next newsletter, which we aim to publish again this summer.

Lastly, I would like to thank Sally and Kim Bannerman for their fantastic editorial work.

Thanks for your support,
Josh Mann, Editor

A Message from the Chair

NREEL Section Members,

Our annual NREEL CLE program on December 19 and this issue of *Vista*, our second during 2010, complete our year-long focus on “When Agendas Collide: New Mexico’s Natural Resources and Its Threatened and Endangered Species.” Many thanks to the members of your section board for their inspired leadership and steady work throughout the past year.

And now for 2011. Would you drop me an e-mail and tell me what natural resource, energy or environmental law CLE topics would be the most useful to you in your practice. This will be one of our principal agenda items during our next board meeting in January and will be the theme throughout the year ahead.

Best wishes for a joyous holiday season.

Tom Paterson, Chair
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