

# Renewable Energy Incentives in New Mexico and Bordering States

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## Table of Contents

1. [Overview](#)
2. [Definitions of New Policy-Based Incentives](#)
3. [Status of Renewable Energy Incentives in New Mexico](#)
4. [At-a-Glance Summary of \*all\* Renewable Energy Incentives in New Mexico and Neighboring States](#)
5. [Renewable Portfolio Standards in Arizona, Nevada, and Texas](#)
6. [Green Pricing Programs in NM and Bordering States](#)
7. [Rebate Programs for Renewable Energy](#)
8. [Tax Credit Incentives](#)
9. [Loan Programs](#)
10. [New Mexico's Wind Resource](#)

- [11. New Mexico's Solar Resource potential](#)
- [12. Some Renewable Energy Policy Organizations in New Mexico](#)

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## **1. Overview**

With the exception of Oklahoma, New Mexico is suddenly finding itself surrounded by neighboring states with aggressive policies and incentives for both utility and residential scale renewable energy development. Some of these incentives, mostly financial, have been in place since the late eighties or early nineties. More recently, very strong and relatively new types of incentives, in particular something called “portfolio standards” have been implemented. This has already led to *hundreds of megawatts* (a megawatt is enough to power roughly 1000 homes) of renewable electricity generation and is likely to lead to *thousands of new megawatts* of renewables by the end of the decade. Thus, the long predicted explosion in

renewable energy technology is now finally underway.

**Note:** *Most of the information on neighboring states quoted in this document was derived from the Database of State Incentives for Renewable Energy (DSIRE), which can be accessed online at <http://www.dsireusa.org>. Comprehensive information about state incentives can be found there, including links to relevant websites and names and information on contacts.*

The incentives mostly responsible for the existing *utility-scale* generation in neighboring states are:

1. **The Renewable Portfolio Standard (RPS) adopted by Texas**, which essentially mandates the addition of renewables to the mix in significant percentages, and
2. **Voluntary Green pricing programs in Colorado and Texas**, which rely on consumer demand and were initiated with the help of aggressive consumer recruitment campaigns. In Colorado, some of these campaigns were conducted by a nonprofit environmental group called the Land and Water (LAW) Fund of the Rockies, who worked with the utilities outside the of official regulatory process.

Both of these types of incentives are expected to elicit similar progress in Arizona and Nevada over the next year or two, and could easily do so if implemented in New Mexico because New Mexico has the necessary resources in spades.

In addition to policy-based incentives, a whole range of financial incentives, including rebates and tax incentives, are also in place in states bordering New Mexico. These are extremely important for the successful development of residential scale renewable energy businesses, as well as utility scale generation.

*New Mexico, lags significantly behind her neighbors.* New Mexico's deregulation legislation did mandate a systems benefit fund (see below), and made a weak recommendation that the PRC investigate the possibility of renewable portfolio standards. On this basis, the PRC promulgated a portfolio standard rule (see below). Following the deregulation disaster in California, the legislature has delayed the implementation time for electricity deregulation by five years, and this delay applies to both the systems benefit fund and the portfolio standard as well.

Moreover, despite some preliminary attempts in the last legislative session by some legislators to introduce bills to remedy this situation, financial incentives for renewable energy generation in New Mexico are simply nonexistent.

**The Solar Industry of New Mexico needs, and deserves, aggressive and effective legislative action to promote renewable energy development now.** The solar industry of New Mexico stands to suffer great harm if action is not taken soon, for the following reasons:

- Businesses tend to grow exponentially, because their growth rate is proportional to their income. Incentives in other states are now giving a major boost to their companies: It follows that New Mexico solar energy businesses will be hopelessly out-paced by their out-of-state competitors.
- Out-of-state companies are gaining an increasing share of renewable energy sales in New Mexico right now, particularly through online sales exempt from gross receipts tax. We need incentives such as a gross receipts tax exemption to keep New Mexico solar businesses competitive.

Finally, New Mexico needs good incentives for renewable energy generation as her electricity infrastructure will be growing substantially in coming years, i.e. new power lines, new distribution hardware, new power plants. Now is the time to promote renewable energy development, instead

of simply maintaining New Mexico's old pattern of total reliance on non renewable and non distributed energy sources. Future infrastructure development can then proceed in environmentally friendly and economically beneficial ways,

## 2. Definitions of New Policy-Based Incentives

In addition to conventional incentives, such as tax incentives, several new policy mechanisms have emerged in the 1990's to foster renewable energy. These have emerged mostly in the context of electricity generation, to promote adequate competition and customer choice. These are:

- **Renewables Portfolio Standards (RPS):** These are requirements that *mandate* utilities to add certain specified percentages of renewable energy to their mix. This is in response to overwhelming consumer interest in renewable energy. Characteristic features include:
  - Percentages typically range anywhere from a fraction of a percent up to several tens of percents.
  - A timetable is sometimes established for the gradual phasing in of renewable energy.
  - In some cases utilities are mandated to actually build the renewable energy generation themselves. In other cases, they have the option to purchase renewable energy from a wholesale supplier or to purchase renewable energy certificates. If the latter option is used, the renewable energy does not necessarily flow to the customer, but the customer is guaranteed that their rates are supporting renewable energy generation *somewhere*.
  - Penalties are usually established for utilities who lag behind, and sometimes special credits are awarded to utilities that meet targets ahead of time.
  - For many utilities, the cost of building new generation is simply

the cost of doing business – this is possible because the amount of new renewable energy generation is still a small fraction of their total generation. In other cases, the cost of building new generation is paid for through an extra tariff on electricity bills, which may be associated with a public benefits fund (see below), or a green pricing program.

So far, renewables portfolio standards have been implemented at the state level only, although proponents have been lobbying for a number of years for a federal RPS.

- **Green Pricing Programs:** These are programs in which utilities file tariffs (request permission to charge particular rates) for green power and then market and provide green power to customers who request it.

Characteristics include:

- These programs may be voluntary for utilities, or utilities may be mandated to offer these programs.
- Programs may involve both utility scale and/or residential scale systems.
- Nonprofit advocacy groups sometimes play a role in promoting these programs, and in signing up customers.

Green pricing programs have been enormously successful (see below), because consumers are truly interested in them.

- **Renewable Energy Certificates:** These are certificates which certify that given amounts of renewable electricity have been generated and transmitted to customers. Characteristics are:

- In some states utilities purchase these to satisfy their renewable portfolio standard requirements (Texas and Arizona).
- In some states (Texas) certificates are issued by a third party state agency, in others, the use of certificates is more informal and carried out by the utilities themselves (Arizona).

- **Public (or Systems) Benefit Funds:** These funds are generated by imposing an extra tariff on consumer's electric bills. They are then used for a variety of purposes, such funding renewable energy demonstration projects; building of large scale renewable energy

generation for RPS requirements; funding rebate programs for small scale solar systems; transmission line upgrades; studies of how best to upgrade the system; consumer education; and other similar purposes. The inspiration for these is the idea that under a deregulated electricity market, where competitive power suppliers can sell onto the open market and not necessarily to local customers, these suppliers will not have an sufficient incentive to make system improvements.

- **Disclosure Requirements:** These require all electricity generators who are selling electricity into a deregulated (competitive) market to disclose to potential customers the content of their mix according to generation source or sources, emissions, and possibly even environmental and health impacts. This is essentially just product labeling.
- **Net-Metering:** Net-Metering rules allow consumers to use their own on-site renewable energy generation to run their electricity meters backwards, i.e. generate a credit that can be used to offset their use of grid power.

### **3. Status of Renewable Energy Incentives in New Mexico**

- **Renewable Portfolio Standard (RPS):** In 1998, the New Mexico

Legislation passed electricity deregulation legislation that *recommended* that the Public Regulatory Commission (PRC) examine the *possibility* of an RPS for New Mexico. On this basis, the PRC developed an RPS Rule that would mandate the inclusion of some renewable electricity. This rule applies only to what is called the ‘standard offer service’. Standard offer service means the electricity service package that customers who do not opt to choose a specific provider would receive by default. Note that this RPS Rule will only go into effect if and when electricity deregulation goes into effect in New Mexico. Originally, New Mexico was scheduled to deregulate in January 2000. This was delayed, by the PRC until 2001, and then the New Mexico Legislature recently further delayed the onset of deregulation until 2007 (SB266).

Initially, the PRC proposed a rule that simply required that a minimum of 5% of renewable electricity. The Attorney General and others, however, complained that this did not adequately protect consumers from possible increased rates that could occur if the renewable energy available was of very high price.

The Coalition for Clean Affordable Energy (CCAIE), of which NMSEA is a member organization, agreed that cost should be an issue, and recommended that a price cap of \$.003 (“three mils”) per kilowatt-hour (kwh), on average, be imposed. For an average consumer who uses 500 kwh per month, this would cap the increase in monthly bills at 500 times \$.003 = \$1.50.

The PRC settled instead on a cap of \$.001 (“one mil”) per kwh. For an average consumer who uses 500 kwh per month, this would cap the increase in monthly bills at 500 times \$.001 = \$.50.

**Thus, in summary, the final RPS rule promulgated by the PRC mandated that the utilities would have add a percentage up to 5%**

**renewable energy as long as the average bill would not be increased beyond one mil per kwh, or roughly \$.50 per month per residential customer.**

It is interesting to ask how much renewable energy could actually be supported with this cap. Assume for the moment that wind power costs an *extra* two cents per kwh wholesale, which is reasonable if we assume that wind power costs 5 cents per kwh wholesale, a realistic figure these days, and also that coal fired electricity costs 3 cents per kwh, which is roughly what PNM has reported as their cost in recent years. Then each consumer who pays an *extra* \$.50 per month can in principle purchase  $$.50/$.02 = 25$  kwh of wind power each month. Since the average consumer in New Mexico uses about 500 kwh per month, so this represents  $25/500 = .05 = 5\%$  of the total amount of power they consume. Note that this percentage is actually in line with the target set by the RPS!

This suggests that the RPS standard issued by the PRC might be at least marginally effective. Since New Mexico's entire electricity load is approximately 1.9 Gigawatts (average – according to 1998 usage statistics), then the maximum amount of wind power that could be supported would be about  $.05 \times 1.9 = .095$  Gigawatts or 95 megawatts. Because utility-scale wind turbines are approximately 1 megawatt, and because they can produce power about 1/4 of the time, this is equivalent to about 380 turbines. The installation of 380 turbines in New Mexico would be a significant event! In practice, this estimate is probably very optimistic – a price cap of \$1.00-\$2.00 per month instead if \$.50 would probably stand a much better chance of actually getting new generation installed, especially at the start.

- **Systems Benefit Fund (SBF):** The 1998 Legislation also mandated the creation of a systems benefit fund to go into effect when deregulation starts. The SBF moneys would be gathered from a

\$.0003 (three tenths of a mil) per kwh added to all customer bills. This amount would be increased after five years to six tenths of a mil. During its initial period at 3 tenths of mil, the fund has been estimated to accumulate about \$6 million a year. The fund would be divided up and used for the following purposes:

- No more than \$100,000 annually to the Environment Department to administer the fund.
- \$500,000 annually to the PRC to for consumer education purposes
- No less than \$500,000 for low income energy assistance programs
- Not more than \$4 million for renewable energy projects proposed by schools, cities, towns, villages, counties or tribes.

The Environment Department has already conducted a series of stakeholder meetings and has drafted a procedure for the evaluation of renewable energy project proposals. NMSEA and CCAE, among others, participated in these meetings. Of course, the SBF cannot be implemented as things currently stand until New Mexico proceeds with electricity deregulation.

- **Disclosure Requirement:** The 1998 New Mexico deregulation legislation did suggest that competitive power suppliers disclosure their generation sources and emissions to potential customers, so as to give them adequate information to make informed choices. The PRC did begin rulemaking proceedings, and proposed a rule that would also inform consumers of CO<sub>2</sub> and mercury emissions as well as regulated pollutants such as SO<sub>x</sub> and NO<sub>x</sub>, and potential health and environmental impacts as well. Inclusion of these additional elements were challenged, by the Western Fuels Association among others, on the basis that CO<sub>2</sub> and mercury are not regulated and that environmental and health impacts are incompletely and inconclusively known. CCAE argued that these elements should be included. No final ruling on disclosure has been made by the PRC to date.

- **Net-Metering:** New Mexico does have a net-metering rule on the books which is pretty good for residential scale PV systems. It has a cap of 10 kilowatts per customer, which severely limits large scale systems- the Indian Pueblo Cultural Center, for example, probably would have installed a 5 kw system if allowed under the rule. In any case, this rule is probably the best incentive New Mexico has to date.
- **Financial Incentives:** Finally, as noted previously, there are basically no financial incentives for renewable energy in New Mexico whatsoever.
- **Green Power Programs:** Southwest Public Service has a small green power program in eastern New Mexico involving one wind turbine (with one more on the way). See the description in the section below on green power programs.
- **Education, Outreach, Etc:** There are a number of organizations dedicated to promoting renewable energy development in New Mexico. See the section below for descriptions of some of these groups.

#### 4. At-a-Glance Summary of *all* Renewable Energy Incentives in New Mexico and Neighboring States

The following table summarizes the incentives in neighboring states, as obtained from the Database of State Incentives for Renewable Energy (DSIRE), which can be accessed online at <http://www.dsireusa.org>.

Incentive	Arizona	Neveda	Colorado	Oklahoma	Texas	New Mexico
Public Benefit Fund						1-S (delayed)

Generation Disclosure	1-S	1-S			1-S	1-S (delayed)
Portfolio Standard	1-S	1-S			1-S	1-S (delayed)
Net-Metering	1-S	1-S	1-S,2-L	1-S	1-S, 1-L	1-S
Line Extension Analysis	1-S		1-S		1-S	1-S
Solar Contractor Licensing	1-S	1-S	1-L			
Renewable Energy Equipment Certification	1-S		2-L	1-S	1-S	
Solar & Wind Access Laws	1-S	1-S	1-S,1-L			1-S
Construction and Design Policies	1-S, 2- L		1-S,3-L		1-S,1- L	
Green Power Programs						
Green Pricing	4-U	1-U	3-U,6-L		3-U, 3-L	1-U
Green Power Purchasing/Aggregating	1-L		3-L			
Public Education/Assistance	2-L		3-L		2-L	1-L, 1-S
Demonstration Projects	2-L		2-L		2-L	2-L
Research and Outreach						1-S
Personal Tax	2-S					
Corporate Tax					1-S	
Sales Tax	1-S					
Property Tax		1-S			1-S	
Rebates	1-L	1-L	1-S		1-L	
Grants						
Loans	1-S				1-L	

Industry Recruiting		1-S			1-S	
Leasing Programs	1-U				1-U	
Equipment Sales					1-U	

Key: S-State, L-local, U-utility

Note that New Mexico has only a few listings, and is conspicuously lacking in both conventional financial incentives such as tax incentives, and strong policy incentives such as renewable portfolio standards and systems benefit (except for, as described above, some of these would be provided for to some extent if New Mexico's deregulation legislation were to put into effect).

## 5. Renewable Portfolio Standards in Arizona, Nevada, and Texas

The following table compares the renewable portfolio standards of states bordering New Mexico in more detail. This data was compiled from the dsire databased referenced above and from more detailed information published online by the various public utility commissions and legislatures involved.

Provisions	Arizona	Nevada	Texas
Total Amount Mandated by percent	1.1%	15%	(about 3.3%)
Total Amount Mandated in megawatts	(about 180 MW)		2000 MW
Effective Date	3/30/01	1/1/03	1/1/02
Target Date for Total Amount	2009	2013	2009

Trading Credits Program	Yes	Yes	Yes: Administered by state
Eligible Technologies	Solar Thermal Electricity, Photovoltaics, Wind, Biomass, Hydro, Geothermal Electric, Waste,	Solar Thermal Electricity, Photovoltaics, Wind, Biomass, Geothermal Electric	Solar Thermal Electricity, Photovoltaics, Wind, Biomass, Hydro, Geothermal Electric, Wave, Tidal, Landfill Gas
Applicable Sectors	Utility, Investor-Owned Utility, Publicly-Owned Utility, Rural Cooperative,	Utility, Investor-Owned Utility, Publicly-Owned Utility,	Utility
Initial Minimum	0.2%		400 MW
Year Enacted	2000	2001	1999
Existing Renewables			880 MW
Penalties	Yes	Yes-administrative fines	lesser of \$50 per MWh or 200% of the average cost of credits traded during the year
Minimum required amount of solar	solar must make up 50% in 2001, increasing to 60% for 2004 through 2012	Solar must be 0.5% of total electricity delivered, to be achieved beginning 2004 by adding at least .01% annually	Solar must make up at least 5% of the renewable energy generated

Funding for building of new generation	Funding from existing system benefits charges and a new surcharge to be collected by the state's regulated utilities.	Cost of doing business	Cost of doing business
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Note that although Arizona's program has roughly a factor of ten times smaller target in terms of total number of megawatts, most of Arizona's renewable energy will be solar, which is about 10 times as expensive as wind, geothermal, and other renewables. Therefore, on a cost basis, Arizona's standard is quite comparable to the others.

## RPS Implementation Schedules:

### Arizona Schedule:

% Renewables	-----Date
0.2%	-----2001
0.4%	-----2002
0.6%	-----2003
0.8%	-----2004
1.0%	-----2005
1.05%	-----2006
1.1%	-----2007 - 2012

Caveat – Arizona's standard also specifies that if the cost of solar technologies do not decrease to a Commission determined cost/benefit point by the end of 2004, the portfolio requirement will not continue to increase.

## **Texas Schedule:**

MW New Renewables-----	Date
400 MW -----	01/01/2002
400 MW -----	01/01/2003
850 MW -----	01/01/2004
850 MW -----	01/01/2005
1,400 MW -----	01/01/2006
1,400 MW -----	01/01/2007
2,000 MW -----	01/01/2008
2,000 MW -----	01/01/2009 – 2019

## **Nevada Schedule:**

% Renewables --	Date
5% -----	01/01/2003
7% -----	01/01/2005
9% -----	01/01/2007
11% -----	01/01/2009
13% -----	01/01/2011
15% -----	01/01/2013

**More on Arizona's RPS funding surcharge:** The new surcharge is capped at 35¢ per month for residential customers, \$13/month for non-residential, and \$39/month for customers with loads over 3 MW. In total, at least \$15 - \$20 million is expected to be collected annually for the EPS.

## **6. Green Pricing Programs in NM and Bordering States**

Green pricing programs are one of the great successes of the 1990s for

renewable energy, and many now exist in the United States. Roughly one in five Americans can now choose to have some or all of their electricity supplied by renewable energy sources. Public support for these programs was established through many surveys of public opinion. Public Service Company of New Mexico (PNM) has even conducted a small focus group study in Albuquerque, which indicated strong support comparable to that found in other states. What follows is are fairly detailed descriptions of green pricing programs in New Mexico and neighboring states: the main things to note here are the prices being charged and the success of the programs to date in signing up customers. This data illustrates overwhelmingly that customers not only say they want green power, but that they buy it when it has been *properly* marketed to them (the latter is not always the case!).

- **New Mexico:**

- SPS presently has a single 660 kilowatt turbine installed near Clovis, New Mexico. Recently, the DOE agreed to purchase much of the power from the first turbine, triggering the building of a second turbine. SPS agreed to a 15-year deal with wind power supplier Cielo Wind Power, LLC, of Austin, Tex., to buy electricity generated from the turbine. The generator is a Danish-made Vestas wind turbine, with a tubular tower reaching 230 feet, and featuring blades 80-feet long. The wind farm developer Cielo (which means "sky" in Spanish), and turbine manufacturer Vestas constructed the \$1 million project four miles east of Clovis in southern New Mexico. The wind generation is supported by SPS customers in New Mexico who choose to pay a little extra each month, to sponsor generation from wind.

SPS offers the wind-generated energy in blocks of 100 kilowatt hours. Each block of wind-generated electricity costs \$3 more than power purchased at southwestern public service company's standard rates. SPS customers in new mexico who want to support the renewable energy project should call (800) 750-2520, which is the listed SPS service number. SPS contact: Bill Crenshaw, (806) 378-2120.

- **Arizona:**

- In 1997, the Arizona Corporation Commission approved

Arizona Public Service's (APS) green pricing tariff to develop 400 kW of centralized, grid connected photovoltaic systems for interested commercial as well as residential customers. APS now has 1 MW of installed solar generating capacity and will add another MW in 2001. Solar power will be sold to participating residential customers in 15-KWh increments. The premium will be \$2.64 per month per 15 KWh block.

- Salt River Project (SRP) is the nation's third-largest public power utility and one of Arizona's largest water suppliers, providing power to customers throughout a 2,900-square-mile service territory in central Arizona.
  - SRP's first green pricing tariff program, named Solar Choice, began accepting subscribers in October of 1998. Solar Choice allows customers to voluntarily pay a premium for renewable energy generated from renewable electric generating stations. SRP customers subscribe to the Solar Choice program by paying \$3/month for a 100-W block, which is approximately equivalent to a 15-kWh block. Currently the Solar Choice program is fully subscribed with about 1,000 participants and others on a program waiting list.
  - SRP's second green pricing tariff program, named EarthWise Energy, began accepting participants on March 1, 2001. The program allows customers to voluntarily pay a premium for renewable energy generated from renewable electric generating stations. SRP customers can subscribe to the EarthWise Energy program by paying \$3/month for a 100-kWh block.
- The Arizona Corporation Commission approved Tucson Electric Power (TEP) Company's green pricing tariff in January of 2000. The program, named GreenWatts, allows customers to voluntarily pay a premium for renewable energy generated from burning methane gas from the Los Reales Landfill in Tucson. TEP customers can subscribe to the GreenWatts program by paying \$2/month for the first 20-kWh block, and \$1.50 for each additional block. TEP has 180,000 20 kWh blocks available each month.

- **Colorado:**

- Public Service Company of Colorado's (PSCo) WindSource, has had a great deal of success since marketing began in the

spring of 1997. Both residential and commercial customers are invited to participate in this program which supports grid-connected wind turbines. Residential customers can sign up for one year periods and buy wind energy at \$2.50/month for 100 kWh blocks; commercial customers can sign up for three year periods and buy their wind generated electricity in 1000 kWh blocks for \$25. The program is projected to support 10 - 20 MW of wind capacity from turbines located in northern Colorado. As of August, 1997 PSCo had approximately 3,000 residential customers sign up for a total of 6.85 MW. Additionally, half a dozen major commercial electric customers have signed up. PSCo's corporate "champions," who have committed to purchase at least 15% of their energy from wind turbines, include the city of Boulder, the city and county of Denver, CF & I Steel, Coors Brewing Company, IBM, and US West. Notably, Colorado Governor Roy Romer has announced that the governor's mansion will begin purchasing wind power through the Windsource program, and the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL), in Golden, Colorado, has committed to purchasing 4,000 kilowatt hours.

- Colorado Springs Utilities (CSU) offers its residential and commercial customers a wind power green pricing program called Green Power. CSU purchases about 1 megawatt of wind-generated energy from the Public Service Company of Colorado WindSource program to supply its customers' demands. Green Power drew a strong response from CSU customers -- the utility had to establish a waiting list after selling out all available slots in 1998. CSU increased its wind purchases in 1999 to meet demand. The program currently has 1,100 participants. CSU charges a premium of \$3.00 per month for a 100 kWh block of wind power. There is a one-year commitment period, but it is not rigidly binding on the customer. The utility promotes the program through local media, the utility newsletter, local environmental groups and events.
- Estes Park Power & Light offers a green pricing program through its Wind Power purchase option. Under the program, residential customers can sign up to purchase 100-kWh

blocks of wind energy for an extra \$2.50 each month or 2.5¢/kWh. Business customers can participate by purchasing a minimum of ten, 100-kWh blocks for \$12.50 per month. There are 400 blocks available and they are being awarded on a first-come, first-served basis. To-date, there are 52 residential subscribers and three business subscribers. Customers are required to make a year-long commitment to purchase the wind energy.

- The Wind Power Program is a green pricing program offered by the City of Fort Collins Utilities and Platte River Power Authority (Platte River), the utility's power wholesale supplier. All residential and commercial customers are allowed to participate by purchasing all or a portion of their electricity needs with wind power. Businesses may purchase electricity in any number of 1,000-kWh blocks for \$25 per block per month. Residents may purchase blocks of wind-generated electricity for \$10 per block per month. The program currently has approximately 715 residential and 23 commercial subscribers.
- Holy Cross Electric Association, which serves part of the City of Aspen and surrounding areas, started marketing its green pricing program in February, 1997. Holy Cross is a wholesale customer of Public Service Company of Colorado (PSCo) and will purchase wind power from PSCo directly. Holy Cross Electric customers can pay \$2.50/month for 100 kWh blocks of wind generated power. As of January, 1997, Holy Cross Electric Association had garnered subscriptions from 877 residential and commercial customers for a total of 1800, 100-kWh blocks of wind power; enough to cover the first megawatt of wind power the association will purchase from Public Service Company of Colorado.
- Longmont Power & Communications (LPC) offers customers a green pricing program called Wind Energy. Power is supplied by Platte River Power Authority's Medicine Bow Wind Power Project in Wyoming. Under the program, residential customers can sign up to purchase 100-kWh blocks of wind energy for an extra \$2.50 each month. Business customers can participate by purchasing 500-kWh blocks for a premium of \$12.50 per month. Participating customers must commit to the wind purchases for a minimum of one year. An option

available to both residential and business customers is to have wind energy provide all their monthly energy needs.

LPC launched its Wind Energy Program on November 1, 1999, when 142 residential customers and 2 business customers began receiving 40,000 kWh of wind energy each month. The program was expanded on February 1, 2000, when an additional 15,000 kWh of wind energy began flowing to 58 more homes in Longmont. In the summer of 2000 LPC was able to offer additional subscriptions for 25,000 kWh of wind energy as PRPA installed two additional 660-kW wind turbines at its Medicine Bow site, bringing the total number of turbines to ten. As of October 2000, the Wind Energy Program serves 293 residential and 2 business customers.

- The City of Loveland Water and Power Department offers a green pricing program to residential, commercial and industrial customers. The Wind Energy Premium, initiated in February 1999, offers customers the option to purchase 100-kWh blocks of wind energy for \$2.50/month. The utility began signing up customers in early 1999. As of October 2000, 248 customers purchase 55,600 kWh of wind energy each month. Kinko's Copies purchases the largest block. Each month, Kinko's buys 45 blocks of wind energy.
- Public Service Company of Colorado's SolarSource program is the utility's fourth green pricing program. SolarSource is a pilot program to install 15 to 25 rooftop solar energy systems on customers' homes at below-market prices during 1997. The systems will typically range in size from 2kW to 3kW. The program is funded through Colorado SunService, a unique collaboration between PSCo, other Colorado utility companies, the U.S. Department of Energy, the Utility PhotoVoltaic Group, the Colorado Governor's Office of Energy Conservation, and Solarex. By the year 2000, Public Service Company of Colorado and their partners expect to install over two hundred roof-top systems. SolarSource is currently awaiting approval by the Colorado Public Service Commission.
- Public Service Company of Colorado's first green pricing program, the Renewable Energy Trust, was established in 1993 to help develop renewable energy use through voluntary customer contributions. The program supports a

variety of technologies, although most are off-grid photovoltaic demonstration projects. All of the installations through the Renewable Energy Trust have been deployed on nonprofit and government buildings, and PSCo expects to soon shift its efforts to installations on school buildings. To date, a total of 15 kW of capacity has been installed through the program. Customers can contribute to the fund through one of two ways: pledging monthly amounts directly to the trust or agreeing to have their monthly utility bill rounded up to the next highest dollar amount. This latter option is called the "Round Up for Renewables." PSCo has received direct pledges from 5,500 customers with total annual contributions averaging \$53,000, while over 10,000 customers have signed up for Round Up for Renewables which has generated \$102,000 per year. Public Service Company of Colorado has promoted the Trust and Round Up for Renewables through bill inserts, direct mail, articles, and print and radio advertisements.

- **Nevada:**

- In October 1997, Nevada Power Company applied to the Public Utilities Commission of Nevada for approval of its green pricing program. Today, Nevada Power Company, a subsidiary of Sierra Pacific Resources, and the Desert Research Institute's Research Foundation, a fund-raising and public outreach arm of the Desert Research Institute, have partnered together on the GreenPower program. Soon, the GreenPower program will be transferred to the Desert Research Institute's Research Foundation, enabling participants to take a tax deduction for past donations in this tax year, or receive a refund check. Nevada Power Company will continue to collect customer contributions through the electric bill statements. GreenPower is generated from a photovoltaic array located at the Desert Research Institute. Customers may contribute a specified whole dollar amount each month for a minimum 6-month participation commitment.

- **Texas:**

- Austin Energy kicked off the new millennium by inviting its 350,000 customers to sign up for GreenChoice. The program

aims to provide 5% of electricity from renewable resources by 2005. Under the GreenChoice program, residential and business customers opt to have the standard (fossil) fuel charge on their electric bill replaced entirely by the GreenChoice power charge of 2.85 cents per kWh. This charge will remain fixed for 10 years. If the current standard fuel charge of 2.68 cents per kilowatt-hour (kWh) rises in the future due to the increase of fossil fuel prices, the GreenChoice power charge will remain fixed for 10 years. Currently, a residential customer using the Austin average of 1,000 kilowatt-hours of electricity monthly will therefore pay an additional green power charge of about \$1.70 per month for their electricity as a GreenChoice member. Just 10 months after officially launching its GreenChoice green pricing option, Austin Energy had fully subscribed the initial 40 MW of renewable energy supply. The utility continues to seek additional renewable energy supplies to expand the program. In total, over 3,075 customers have signed up for the service. Unlike with many other utility green pricing programs, business customers have committed to purchase a majority of the available power -- nearly 85% -- with one company alone committing to 60% of the initial green power pool.

In 1999, the Austin City Council adopted a resolution calling for 5% of Austin's electricity to come from renewable sources by 2005 -- the GreenChoice program will raise the amount of renewable energy in the city's portfolio from 0.5% to about 2.5%. Austin Energy is committing to \$7.8 million in spending in each of the next 10 years to build its green power program.

Austin Energy orchestrated an aggressive advertising and grassroots marketing campaign that included billboards, brochures mailed to 30,000 members of Austin's environmental community, and GreenChoice booths staffed at community events and outside major businesses to sign up customers. Austin's environmental community has pledged to work diligently to ensure the program is a success.

- **Solar Explorer is a green pricing program created by Austin Energy, the City of Austin's municipal utility. It is designed to support photovoltaics installations on commercial sites around Austin, TX. The program is modeled after the SolarCurrents green pricing program offered by Detroit Edison. All of Austin Energy's customers are eligible to participate in Solar Explorer. The program officially got off the ground in 1998 and is expected to operate for six years.**

Approximately 1252 blocks of solar power have been sold to nearly 1000 participants to date. The utility is currently working on recruiting seventeen local commercial customers at 150-watt blocks each. Participants pay a monthly premium of \$3.50 per 50-watt block and make a two-year customer commitment. So far these contributions have gone towards the construction of three grid-connected PV systems.

- **City Public Service (CPS), serving more than 550,000 customers in San Antonio, began offering a wind power green pricing option to all of the city's retail customers in April 2000. Power for the Windtricity program will eventually be supplied from a 25-MW wind project planned for West Texas. In the meantime, CPS is purchasing 600,000 kWh of wind power each month from an existing wind project. Wind energy is available in 100-kWh blocks for an additional \$4.00 per month, or a premium of 4¢/kWh. Customers can choose the number of "blocks" they want up to their total monthly electric use. There is no minimum commitment. Participants receive a semi-annual newsletter relating to renewable energy and the environment, a Windtricity yard sign indicating that their home uses wind energy, and a Windtricity window cling for their vehicle.**
- **Texas-New Mexico Power Company (TNMP) provides service to more than 238,000 customers in 85 communities in Texas and New Mexico. TNMP's new green pricing tariff program, named Energy Ranch wind power, will begin accepting participants in July 2001. The program allows customers to voluntarily pay an additional 1¢/kWh for renewable energy generated from wind turbines. TNMP estimates that the average residential customer uses about 1,100 kWh of power**

per month. Participating in Energy Ranch wind power at 1 cent more per kWh will mean customers will pay approximately \$1 more per month. The wind power will be sold in blocks of 100-kWh.

- Clear Choice is a green pricing program introduced by West Texas Utilities in October, 1997. West Texas Utilities is owned by Central and Southwest Services (CSW), a holding company which also operates Central Power and Light, Southwestern Electric Power, and Public Service Company of Oklahoma. The program is initially only available to residents of San Angelo, but will likely be opened up to other cities in West Texas Utility's territory. Customers can choose to pay a monthly premium of \$5, \$10, or \$20 for 250 kWh, 500 kWh, or 1000 kWh, respectively, for renewable energy resources. Renewable energy for the program will be supplied by Small Hydro of Texas, Inc., from its 1.2 MW hydroelectric power generation facility near Cuero, Texas. In designing the Clear Choice program, CSW conducted direct surveys and followed up with a two day conference attended by over nine hundred of their customers. In the results of the survey and conference, over 80 percent of customers indicated that they would be willing to pay an extra amount in their utility bills to support renewable energy. Based on their market research, CSW projects roughly 5% of their customers will sign up for Clear Choice.

## 7. Rebate Programs for Renewable Energy

**Arizona:** Tuscon Electric Power is offering their customers who have qualifying solar access (southfacing roof, appropriate pitched, unobstructed sun) a rebate worth \$2000 per kilowatt of PV installed. The customer may either buy a system from a third party owner (in which case the utility will pay the customer \$2000 per kilowatt), or may buy one of two kits offered by the utility at \$6000 per 1 kW. The program has a net-metering option as well. The utility is having some problems with their kits at present due to lack of availability due to high volume sales in CA, and also due to problems with efficiency loss of panels in the hot AZ climate – they are presently developing a fix to this problem.

**Nevada:** The Conservation Department of the City of Boulder City Public Works offers renewable energy rebates to its customers under its Energy Efficient Appliance Program. Both commercial and residential customers located in Boulder City, NV, are eligible for this program. These rebates only cover conversions from existing electric water heaters to solar water heaters. The utility offers \$200 from its own funding reserves for each forty-gallon tank that is replaced. The rebates have only been in place since 1988. They are promoted by Boulder City Public Works through periodic new

releases and flyers distributed at credit unions, the local library, and the utility's office.

**Colorado:** The Governor's Office of Energy Management and Conservation (OEMC) in cooperation with the Colorado alternative fuels industry offers rebates to vehicle owners who convert their vehicles to cleaner burning alternative fuels or for the purchase of an alternative fuel vehicle. Eligible fuels include propane, compressed natural gas, methanol, ethanol, and electricity. The base rebate is 15% of the cost of the vehicle which may be increased up to a total of 50% depending on the type of vehicle and its use. For example, the rebate is increased by 10% for a new factory vehicle or engine installed by the Original Equipment Manufacturer (OEM). The maximum rebate amount is \$1,500 for passenger vehicles, \$2,500 for light-duty trucks (8,500 lbs. or less), \$3,500 for medium-duty trucks (between 8,500 and 14,000 lbs.), and \$6,000 for heavy-duty trucks (greater than 14,000 lbs.).

**Texas:** The Austin Home Energy Air Conditioning and Appliance Rebate program offers customers a rebate on solar water heaters and energy-efficient equipment, such as heat pump water heaters, heat recovery water heaters, and package air conditioners and heat pumps. Funding for the rebates comes from Austin Energy's revenues.

For solar water heaters, there are three rebate options available to customers:

- 16 square foot collector area or less: \$150;
- 16 to 35 square foot collector area: \$250; and
- 36 square foot collector area or more: \$350.

Austin Energy also offers a Home Energy Loan program. Customers choose one of two loan options to finance energy efficiency projects.:

- a 5.99% interest Home Improvement Loan: 3, 5, 7, or 10 year repayment periods,  
and \$6,000 maximum loan amount (\$9,000 for duplexes); or

- a 7.99% interest Major Home Improvement Loan: 3, 5, 7, or 10 year repayment periods, and \$9,000 maximum loan amount.

Austin Energy promotes both the Home Energy Loan and the Home Energy Air Conditioning and Appliance Rebates programs to the public through bill inserts, on billboards, and in advertisements for TV, newspapers, and magazines. The utility also publicizes the loans and rebates at presentations to neighborhood associations and businesses, and in literature distributed at home improvement shows and the Austin City Chamber of Commerce. Participating customers must choose to accept either the loan or the rebate, but not both.

## 8. Tax Credit Incentives

- **Arizona:**

- **Personal Tax:** This statute provides a credit against the personal income tax in the amount of 25% of the cost of a solar or wind energy device. The credit can be claimed in the year of installation and has a maximum allowable limit of \$1,000. If the amount of the credit exceeds a taxpayer's liability in a certain year, the unused portion of the credit may be carried forward for up to five years. Qualifying technologies include passive solar heating, active solar space heating, solar water heating, photovoltaics, and wind systems. Tax credit forms and guidelines can be found on the Arizona Solar Center "Benefits" webpage.
- **Sales Tax:** This retail sales tax exemption applies to solar and wind energy equipment. Solar includes passive solar heating, active solar space heating, solar water heating, and photovoltaics. Qualifying wind systems include wind electric generators and wind-powered water pumps. This exemption is allowed on equipment up to \$5,000.

- **Nevada**

- **Property Tax:** This statute states that any value added by a qualified renewable energy source shall be

subtracted from the assessed value of any residential, commercial or industrial building for property tax purposes. Qualified equipment includes solar, wind, geothermal, solid waste converters and hydropower systems. This exemption applies for all years following installation.

- **Property Tax:** Enacted in 1993, but most recently revised by SB 227 on June 1, 2001, this statute allows a property tax exemption for any business that: 1) uses a process where at least 50% of the material or product is recycled, or 2) includes a facility for the generation of electricity from recycled material, whose primary purpose is the conservation of energy or the substitution of other sources of energy for fossil sources of energy. The exemption applies to 50% of the business property – personal and real – for up to ten years. If a facility is generating electricity from renewable energy, then it uses renewable energy as its primary source of energy, and has a generating capacity of at least 10 kW. Facilities located on residential property are not included. Renewable energy means biomass, solar energy, or wind.

- **Texas:**

- **Franchise Tax:** Franchise tax is Texas's equivalent to a corporate tax; their primary elements are the same. This statute allows a corporation to deduct the cost of a solar energy device in one of two ways: (1) the total cost of the system may be deducted from the company's taxable capital; or, (2) 10% of the system's cost may be deducted from the company's income. Both taxable capital and a company's income are taxed under the franchise tax.
- **Franchise Tax:** For solar equipment manufacturers, Texas code states that "A corporation engaged solely in the business of manufacturing, selling, or installing solar energy devices . . . is exempted from the franchise tax." The franchise tax is Texas's equivalent to a corporate tax; their primary elements are the same. There is no ceiling on this exemption and thus is

a substantial incentive for solar manufacturers. This is the only such blanket exemption of its kind for solar manufacturers. Only Nevada makes a similar sort of exemption with a seventy-five percent (75%) property tax exemption--for all property--for producers of renewable energy.

- **Property Tax:** This statute exempts taxpayers from any value added by a qualified renewable energy source for property tax purposes. Qualified equipment includes any active solar equipment and any wind devices, as well as transmission equipment.

## 9. Loan Programs

**Arizona:** The Revolving Energy Loans for Arizona (RELA) Program is offered by the Department of Commerce for companies that either manufacture renewable energy, alternative energy, or energy conserving equipment or acquire such equipment for use in their own processes. Manufacturers can qualify for the loan only if they have at least two years operating experience in Arizona. Loan requests may range from \$10,000 to \$500,000, up to a maximum of 75% of total project costs. Fixed interest rates are 5% for conservation or retrofit projects and manufacturing. Projects must have seven years simple payback or less.

## 10. New Mexico's Wind Resource

New Mexico ranks in the big leagues with respect to wind power, having the twelve largest resource in the USA (much greater than California's resource - see the table below). The resource is estimated to be capable of providing roughly 435 billion kwh annually, enough to power 40 million households. Comparing this to New Mexico's total electricity use of about 17 billion kwh/yr, we find that New Mexico's wind resource potential is about 25 times larger than her usage.

## THE TOP TWENTY U.S. STATES for wind energy potential

as measured by annual energy potential in the billions of kWh, factoring in environmental and land use exclusions for wind class of 3 and higher.

Rank	State	B kWh	Rank	State	B kWh
1	North Dakota	1,210	11	Colorado	481
2	Texas	1,190	12	New Mexico	435
3	Kansas	1,070	13	Idaho	73
4	South Dakota	1,030	14	Michigan	65
5	Montana	1,020	15	New York	62
6	Nebraska	868	16	Illinois	61
7	Wyoming	747	17	California	59
8	Oklahoma	725	18	Wisconsin	58
9	Minnesota	657	19	Maine	56
10	Iowa	551	20	Missouri	52

Note that New Mexico has approximately one third the wind resource of the state with the largest resource, North Dakota. Also note that there is a dramatic decrease in wind power resource after New Mexico: Idaho, the next state after New Mexico, has less than one quarter of New Mexico's resource! That is not to say that wind power is cannot be a significant contributor in these states as well, however – not that California is also ranked lower than New Mexico.

## 11. New Mexico's Solar Resource potential

New Mexico's solar resource potential is essentially off the charts. Assuming 15% efficient solar (photovoltaic) collectors and factoring in the fact that the sun shines strongly roughly eight hours a day, one square kilometer of solar collectors can produce electricity equivalent to a *continuous* 50 megawatt generator (the actual total sunlight falling on a square kilometer on a clear day in New Mexico delivers 1 Gigawatt!). Given New Mexico's average electricity power consumption of 1.9

Gigawatts (average), then an area equal to  $1.9 / .05 = 38$  square kilometers, or a square equal to 6 kilometers on a side, could provide all of New Mexico's electricity needs with current technology.

## 12. Some Renewable Energy Policy Organizations in New Mexico

- **New Mexico Solar Energy Association ([www.nmsea.org](http://www.nmsea.org)):** Educational, some policy. SunChaser2 Education program takes renewable energy technology and concepts to schools and events (intersecting roughly 7000 students and 3000 adults per year). Home design competition, solar home tours, workshops, Large Solar Fiesta Event (exhibits and workshops), Taos Solar Village (exhibits). Makes various equipment available upon request (giant SunOven, courtesy of Sandia Labs, etc). Writes letters to legislatures, provides testimony, etc.
- **Coalition for Clean Affordable Energy ([www.cfcae.org](http://www.cfcae.org)):** A coalition of eight environmental groups:
  - New Mexico Solar Energy Association ([www.nmsea.org](http://www.nmsea.org) )
  - Rio Grande Chapter of the Sierra Club ([www.sierra.nm.org/](http://www.sierra.nm.org/) ),
  - Conservation Voters Alliance ([www.earthwaves.net/nmcva/](http://www.earthwaves.net/nmcva/) ),
  - NM Citizens for Clean Air and Water (<http://members.aol.com/nmcit/> ),
  - Southwest Research and Information Center ([www.sric.org/](http://www.sric.org/) ),
  - National Parks Association ([www.npca.org/home.html](http://www.npca.org/home.html) ),
  - Land and Water Fund of the Rockies ([www.lawfund.org](http://www.lawfund.org) ),
  - New Mexico Public Interest Research Group ([www.nmpirg.org](http://www.nmpirg.org) )

*Many of these groups are directly involved in renewable energy policy work, outside of the coalition.* CCAE lobbies the legislature, files comments at the PRC, participates on press releases on energy issues. Broad scope: concerned with all consumer and environmental

issues related to energy. CCAE played a role in crafting New Mexico's deregulation legislation, and in several of the rules promulgated by the PRC based on that legislation.

- **Energy Conservation and Management Division of the New Mexico Energy, Minerals and Natural Resources Department** (<http://www.emnrd.state.nm.us/ecmd/>): Provides testimony, public education and information, conducts research related to energy conservation, efficiency, and renewable energy. The current Director, Chris Wentz, chairs the New Mexico Sustainable Energy Collaborative (see below). The division also funds many projects by groups such as NMSEA, Rebuild New Mexico, and others.
- **New Mexico Sustainable Energy Collaborative** (email Chris Wentz: [cwentz@state.nm.us](mailto:cwentz@state.nm.us)): A large, informal collaboration between utilities, advocacy groups, solar businesses and other which formed following the Alternative Energy Symposium in December 2000 which was initiated by PNM. The collaborative includes many of the organizations listed here, including NMSEA and CCAE. The general purpose of the collaborative is to further renewable energy in New Mexico by formulating comments, draft regulations, and draft legislation that enjoys a broad consensus among stakeholders. The first official act of the collaborative was to file comments on renewable energy in response to the recent Notice of Inquiry from the NM PRC.
- **New Mexico Solar Industries Association** (Contact Chuck Marken at 505-243-4900): A collection of New Mexico solar companies that occasionally pursues policy work.