

# Utah Alternative Energy Initiatives

INDUSTRY PROFILE

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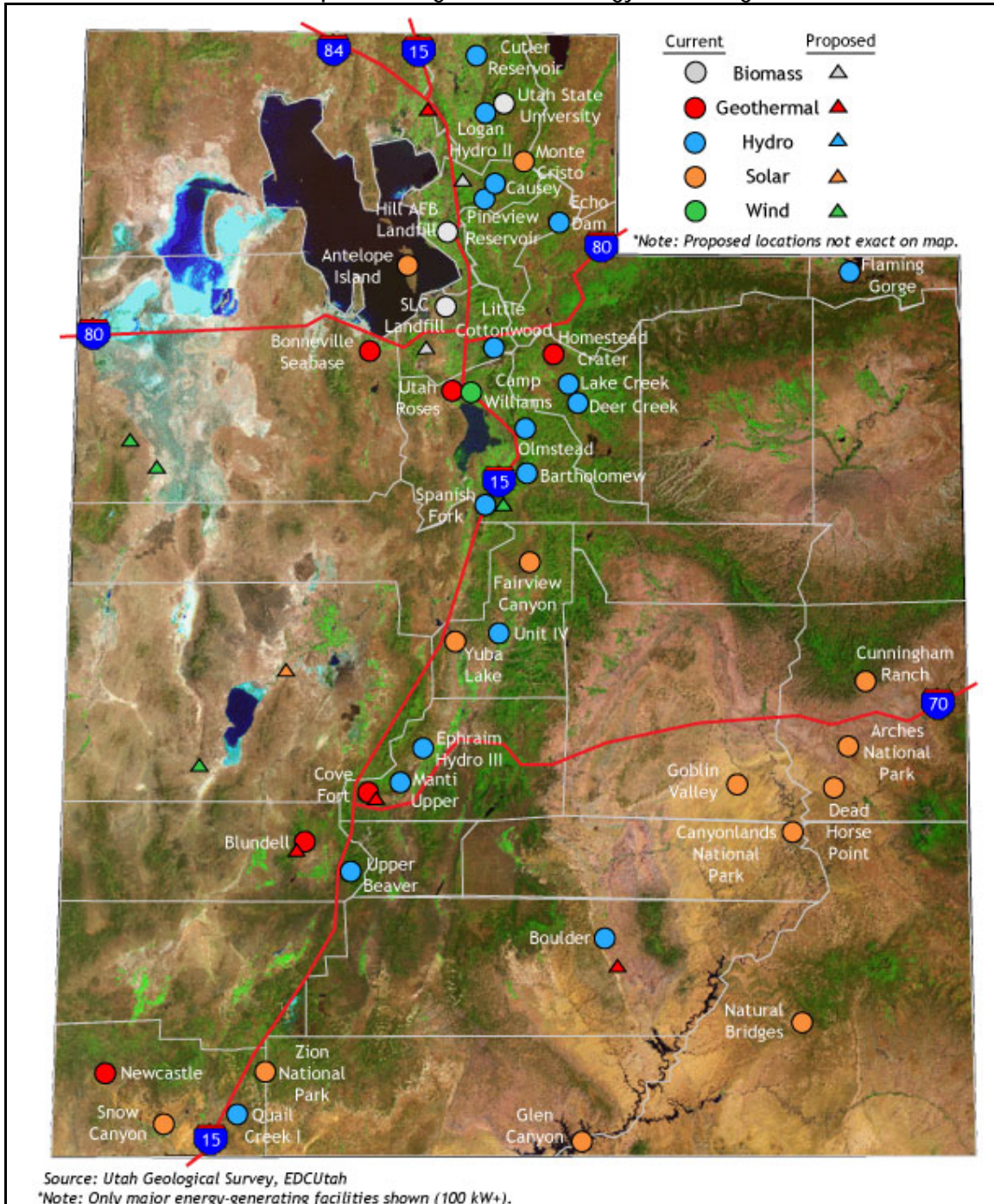
*Source: Spanish Fork Wind Project*

# Utah Alternative Energy Initiatives

## ALTERNATIVE ENERGY

This profile has been created and updated as a comprehensive source of Utah's green initiatives. The state is working on many projects and participating in many organizations for the research and development, education, utilization and understanding of sustainable energy.

State of Utah Map of Existing Renewable Energy-Generating Facilities



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## GOVERNMENT

### Governor's Energy Policy<sup>1</sup>

“Energy is a critical component in sustaining Utah’s vibrant economic growth and preserving our unparalleled quality of life. With just the right blend of ambition, brain power and diverse natural resources, Utah stands ready to lead the charge in energy efficiency, renewable and alternative energy development, and new and innovative technologies.”  
-Governor Jon M. Huntsman, Jr.

### Utah's Renewable Portfolio Standard (RPS)

The overall goal of the RPS is to increase energy efficiency across all sectors by 20% by 2015. Of this increase, 2% is to be provided by in-state renewable energy-generating facilities.

The state energy policy states that Utah will:

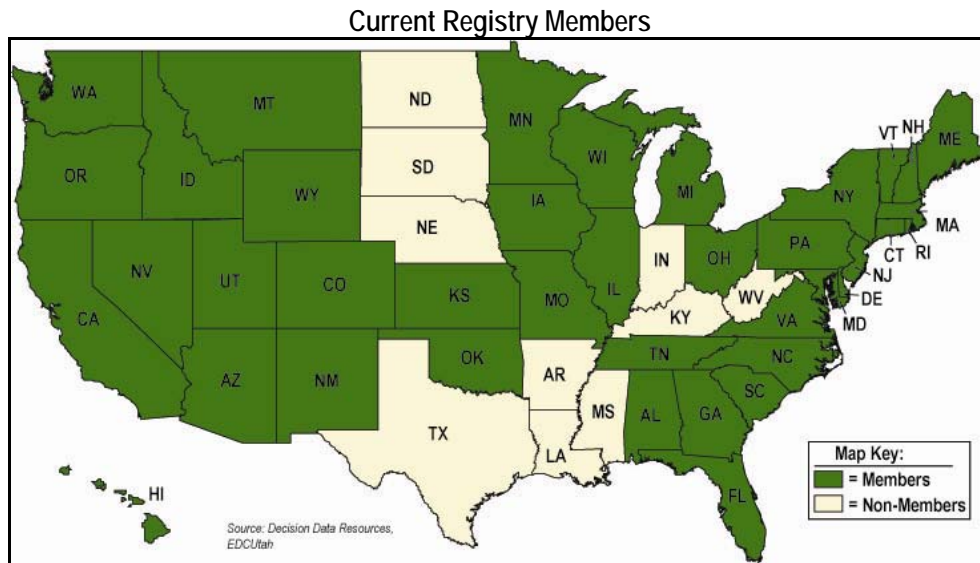
- (a) Have adequate, reliable, affordable, sustainable and clean energy resources;
- (b) Promote the development of renewable energy resources (geothermal, solar, wind, biomass, biodiesel, hydroelectric, and ethanol) and nonrenewable energy resources (natural gas, coal, oil, oil shale, and tar sands);
- (c) Promote the study of nuclear power generation;
- (d) Promote the development of resources and infrastructure sufficient to meet the state's growing demand, while contributing to the regional and national energy supply, thus reducing dependence on international energy sources;
- (e) Allow market forces to drive prudent use of energy resources;
- (f) Pursue energy conservation, energy efficiency, and environmental quality;
- (g) Ensure state regulatory processes will be streamlined to balance economic costs with the level of review necessary to ensure protection of the state's various interests and will encourage expedited federal action to expedite review;
- (h) Maintain an environment that provides for stable consumer prices that are as low as possible while providing producers and suppliers a fair return on investment, recognizing that:
- (i) Promote training and education programs focused on developing a comprehensive understanding of energy, including energy conservation, energy efficiency, supply and demand and energy-related workforce development.

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<sup>1</sup> Source: Governor's Energy Policy

## The Climate Registry<sup>2</sup>

The Climate Registry is a national, non-profit partnership working to develop an accurate, complete and transparent greenhouse gas emissions measurement protocol. The system will support voluntary and mandatory greenhouse gas emissions reporting policies for both members and non-members. It will also provide a verified set of emissions data and a consistent accounting and verification infrastructure. The overall goals of such a partnership is to create a common measuring standard, standardize the best practices for emissions reporting, promote full and public disclosure, lower policy implementation costs and establish a single, common infrastructure. The Climate Registry is currently in a draft testing phase and is open for public review.



## Governor's Economic Cluster: Energy & Natural Resources<sup>3</sup>

The Governor's Office of Economic Development (GOED) has introduced economic clusters as key areas of core competencies that the state will focus on the further develop. "Energy and Natural Resources" is one of seven key areas labeled as economic clusters. This is one cluster with an existing commercial and academic base in the state of Utah and has the potential to impact every part of the state.

## Governor's Renewable Energy Task Force

The Governor has created Utah's first Renewable Energy Task Force. The task force will be charged with identifying key renewable energy locations in the state of Utah, identifying power requirements and capabilities and recommending new renewable energy state incentives to the Governor's office. The task force will be headed up by the Utah Department of Natural Resources.

## Mayors for Climate Protection<sup>4</sup>

Mayors for Climate Protection is a collaborative effort from mayors throughout the United States who have committed their cities or counties to reducing greenhouse gas emissions through the Cities for Climate Protection (CCP) Campaign and/or the U.S. Mayors Climate Protection Agreement. Presently, this organization is comprised of more than 500 mayors in all 50 states in the U.S. In the state of Utah, Moab, Park City, Salt Lake City and Salt Lake County communities and mayors are active members in this effort.

## Governor's Blue Ribbon Advisory Council (BRAC) on Climate Change<sup>5</sup>

Governor Huntsman created a twenty-five member council of select individuals. Its objective was to meet and discuss the science, economics and policy around climate change. The council was charged with understanding and recognizing what

<sup>2</sup> Source: *The Climate Registry*

<sup>3</sup> Source: *Governor's Office of Economic Development: Economic Clusters*

<sup>4</sup> Source: *Mayors for Climate Protection*

<sup>5</sup> Source: *Governor's Blue Ribbon Advisory Council on Climate Change*

the population is going to leave for the next generation and bringing back information and policy recommendations for review and consideration. The Utah Department of Environmental Quality is currently conducting a cost benefit analysis based on some of the council's recommendations.

#### **USTAR (Utah Science, Technology & Research) Initiative<sup>6</sup>**

USTAR, a bold and far-reaching initiative supported by Governor Huntsman, State legislature and Utah industry and business leaders with \$65 million in funding, aims to ensure that Utah remains a leader in the knowledge economy. USTAR is working with universities, businesses and energy working groups to assist businesses and colleges to commercialize cutting-edge research in the field of Alternative Energy Development. Key projects include the following:

- USTAR professors at Utah State University in the biofuels sector are developing commercial scale systems to grow algae and produce biofuels with the hopes of decreasing reliance on foreign oil and minimizing CO2 emissions that cause global warming.
- A USTAR professor at the University of Utah, in partnership with the Energy and Geoscience Institute, is developing new carbon capture and storage, or carbon sequestration, methods. The project, recently awarded a \$67 million grant from the U.S. Department of Energy, in addition to private and partner funding, will total \$88 million.

#### **Utah Energy Working Groups<sup>7</sup>**

Utah Clean Energy and the Utah State Energy Program have created four key working groups for sustainable energy: 1. Utah Solar Working Group (USWG), 2. Utah Geothermal Working Group (UGWG), 3. Utah Wind Working Group (UWWG), and 4. Utah Energy Efficiency Working Group (UEEWG). The objectives of each group are to generate awareness, identify key issues and barriers to development, and advance residential and commercial applications of technology. Stakeholders in each group include representatives from federal, state and local governments, utilities, advocates, industry leaders, environmental organizations, landowners and other entities interested in furthering development.

#### **Western Governors' Association<sup>8</sup>**

Governors from Utah, California, New Mexico, North Dakota and Wyoming are working collectively to move the region toward a cleaner, more diverse energy future. Through their efforts, the Western Governors' Association has outlined a resolution to achieve the following goals:

- 30,000 megawatts of new, clean and diverse energy generation by 2015
- 20% increase in energy efficiency by 2020
- Adequate transmission capacity for the region over the next 25 years

#### **Western Climate Initiative (WCI)<sup>9</sup>**

The WCI, launched in February 2007, is a collaborative effort by the Governors of Utah, Arizona, California, Montana, New Mexico, Oregon, Washington, British Columbia and Manitoba. WCI is working to identify, evaluate and implement collective and cooperative ways to reduce greenhouse gas emissions in the region. The partner states have created a mechanism and work plan to help achieve their reduction goal and are currently seeking public input regarding the process. Several other U.S. and Mexican states have joined WCI as observers only.

#### **Utah Geological State Energy Program (SEP)<sup>10</sup>**

The SEP, in conjunction with the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy, is working to support partnerships that promote and improve energy efficiency and turn sustainable energy resources into viable alternatives to fossil fuels.

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<sup>6</sup> Source: USTAR

<sup>7</sup> Source: Utah Clean Energy

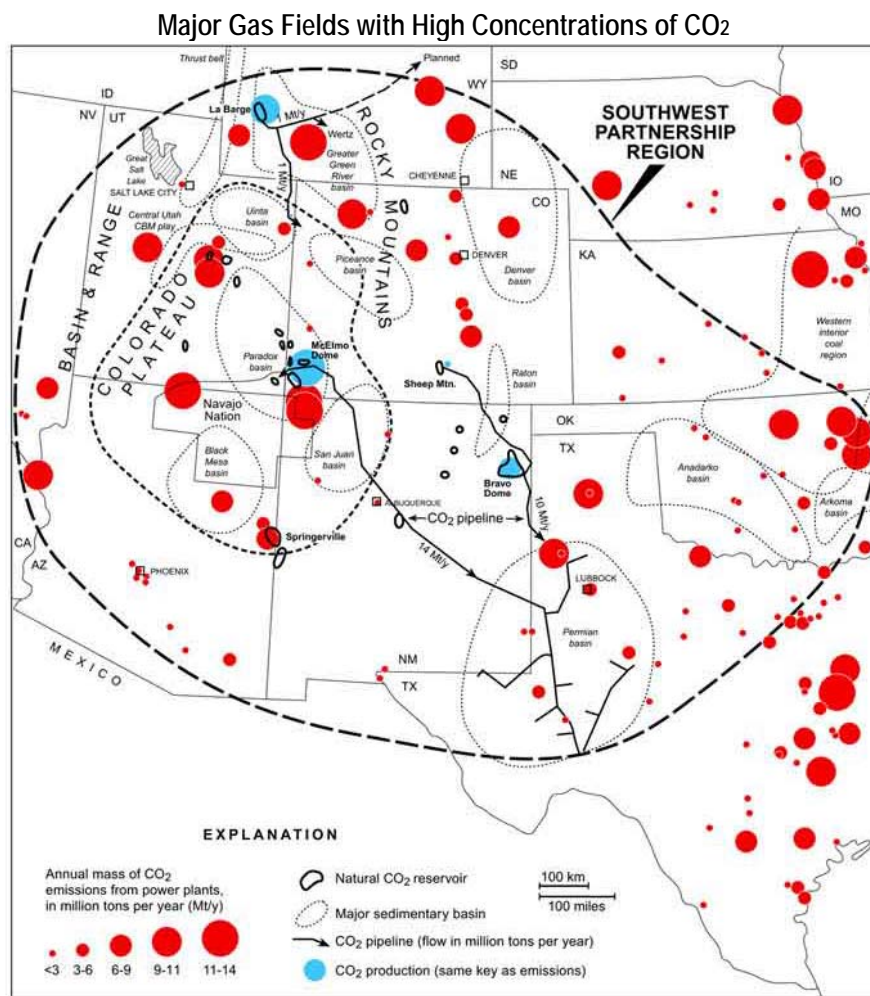
<sup>8</sup> Source: Western Governors' Association

<sup>9</sup> Source: The Western Climate Initiative

<sup>10</sup> Source: Utah Geological Survey: State Energy Program

### CO<sub>2</sub> Sequestration Project<sup>11</sup>

The Utah Geological Survey (UGS), the Energy and Geoscience Institute (EGI) at the University of Utah and the Industrial Research Limited (IRL) of New Zealand are working together to discover the potential of carbon sequestration in saline aquifers beneath the Colorado Plateau. This project is the first of its kind to move forward in testing carbon sequestration. Key project goals include: identification of reactions for CO<sub>2</sub> sequestration in potential reservoirs, assessment of the ultimate fate of injected CO<sub>2</sub> and its distribution and evaluation of other flue gas constituents. Effective sequestration requires a 1,000-year time scale without significant leakages back to the surface. The Colorado Plateau is an attractive site for the sequestration project due to its broad, simple structure with rock layers and its large storage capacity.



### UTAH ENERGY EFFICIENCY GOAL

The state of Utah has substantial alternative energy possibilities offering areas with geothermal, wind, biomass and solar power potential throughout the state. With two operational geothermal sites, Utah is one of a few states with electricity generation from geothermal power sources.<sup>12</sup> The State Energy Advisor's annual report states that Utah has increased its proposed sustainable energy production by 710,083 kilowatts. This will be a key element in attaining the Governor's energy efficiency target of 20% by 2015, which is equivalent to reducing overall energy use by 16.7%.

<sup>11</sup> Source: Utah Geological Survey: Carbon Sequestration Project

<sup>12</sup> Source: Energy Information Administration: Utah State Energy Profile

### Utah Energy Efficiency Strategy<sup>13</sup>

The Utah Energy Efficiency Strategy contains 23 major policies, programs and initiatives that are being considered to accelerate energy efficiency improvements in the state of Utah. This will contribute to achieving the state's energy efficiency goal. The policies will save electricity, natural gas, motor vehicle fuel and other petroleum products. Presently, these energy sources represent roughly 85% of primary energy use in the state.

### State Bill 202<sup>14</sup>

During the 2008 legislative session, S.B. 202, an Energy Resource and Carbon Emission Reduction Initiative, was passed creating a defined statewide Renewable Portfolio Standard (RPS). The bill states that 20% of all retail electric sales in the state of Utah must be provided from renewable energy sources by 2025. Utah's energy goal has no interim targets, but utilities must file regular progress reports.

### PowerForward<sup>15</sup>

PowerForward is a public-private partnership sponsored by the Utah Department of Environmental Quality and Utah's electric utility companies. It exists to promote energy conservation and efficient use of electricity in Utah homes, businesses and state-owned buildings. A key function of the campaign is the color-coded alert system used during the summer months to alert citizens and businesses through the state of Utah when additional conservation measures are necessary. This code ranges from "normal conservation" (color green) to "extra conservation" (color yellow) to "critical conservation" (color red).

### Utah's Anemometer Loan Program<sup>16</sup>

The Utah State Energy Program offers assistance to individuals and businesses interested in installing a wind turbine on their property by lending out anemometers through the Utah Anemometer Loan Program. Landowners typically assess their wind resources through the use of anemometers to determine whether the wind measurement is sufficient to invest in a wind turbine. All Utah residents and businesses are eligible to apply and several factors are considered prior to loan approval.

## PUBLIC TRANSIT & COMMUTING

76.1% of the state's total population lives along the 90-mile corridor known as the Wasatch Front, an urban stretch of land comprised of Weber, Davis, Salt Lake and Utah Counties. Utah Transit Authority (UTA) is working to expand and improve the current public transit system and connect these counties through commuter rail, Trax lines, bus systems and highway improvements.

### UTA FrontLines 2015 Project<sup>17</sup>

UTA accelerated its FrontLines 2015 rail construction project from a 30-year timeline to a 15-year timeline. This project encompasses all current and proposed TRAX light rail lines and FrontRunner commuter rail lines in the state of Utah. This system totals 70 miles of rail along the Wasatch Front. Planned extensions of the current public transportation systems include new TRAX lines to the Salt Lake City International Airport, Draper, South Jordan and West Valley City (located in Salt Lake County). The newly completed FrontRunner, extending north from Salt Lake City through Weber County into Pleasant View, will also extend south from Salt Lake City through Utah County to Provo.

### *Commuter Rail / Front Runner<sup>18</sup>*

UTA has been constructing the new FrontRunner line connecting Weber County to Salt Lake County, which just began operation in April 2008. UTA commenced construction on the next addition to the FrontRunner line, connecting Utah

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<sup>13</sup> Source: Governor's Energy Policy: Utah Energy Efficiency Strategy

<sup>14</sup> Source: Utah State Legislature, 2008 Legislative Session, State Bill 202

<sup>15</sup> Source: Utah PowerForward

<sup>16</sup> Source: Utah Geological Survey: Utah's Anemometer Loan Program

<sup>17</sup> Source: UTA FrontLines 2015 Project

<sup>18</sup> Source: UTA FrontRunner Commuter Rail

County to Salt Lake County. This system will greatly decrease the current volume of privately-owned vehicles traveling into and out of Salt Lake County during peak commute times.

#### *TRAX Lines<sup>19</sup>*

UTA has vigorously expanded the existing TRAX line system throughout Salt Lake County, offering a free-fare zone in the central business district in downtown Salt Lake City to further encourage ridership. Several proposed line extensions are currently under economic and environmental studies. With the addition of the proposed lines, the TRAX system would allow for a massive increase in passenger ridership from the southern and western parts of the county and, in turn, cut down on traffic and the pollution caused by vehicles cluttering the roads.

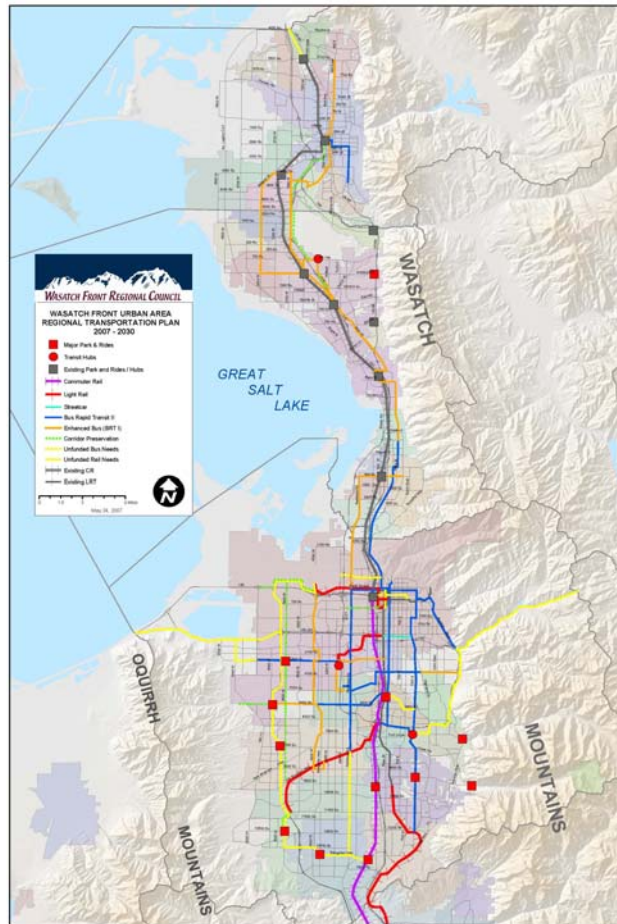
#### *UTA Bus Transit<sup>20</sup>*

UTA runs an extensive bus transit system throughout much of the northern part of the state. Many of the public transit buses are natural gas vehicles. UTA has also started the Bus Rapid Transit (BRT) program as an enhanced service providing faster, prioritized bus service in specific high-use corridors.

#### *UTA Rideshare<sup>21</sup>*

UTA provides a Rideshare program consisting of park and ride lots and an online carpool site. UTA also rents 15-passenger vans at an affordable cost to groups that are dedicated to carpooling daily to and from work locations. The Rideshare website offers discount transportation program passes, tips for bicyclers and teleworkers and their employers, and vanpool and carpool information.

Utah 2030 Regional Transportation Plan Map



<sup>19</sup> Source: UTA TRAX

<sup>20</sup> Source: UTA

<sup>21</sup> Source: UTA Rideshare

## UTAH EDUCATIONAL INSTITUTIONS

### College / University Graduates in Environmental Science

College / University	Location	Environmental Studies Grads*
Salt Lake Community College (SLCC)	Salt Lake City	2
University of Utah (U of U)	Salt Lake City	51
Utah State University (USU)	Logan	17
<b>TOTAL</b>	<b>UTAH</b>	<b>70</b>

\*Environmental Studies includes the following areas of study: Environmental Studies, Environmental Science, Energy, Environment & Natural Resources Law, Environmental Engineering, Environmental Technicians

Source: Utah System of Higher Education

### Salt Lake Community College (SLCC) Class Offerings<sup>22</sup>

Beginning fall 2008, SLCC will start offering energy efficiency and sustainability courses. This is the first school to offer such tailored courses for the alternative energy industry. The Energy Efficiency Management Training course will introduce energy efficiency job skills to local contractors. The Solar Photovoltaic Installation Training course is more hands-on and teaches the basic topics associated with design and installation.

### University of Utah Alternative Energy Efforts<sup>23</sup>

In 2005, students at the University of Utah established a fund that allows 10% of the university's electricity to be purchased from wind-generated sources. This fund covers the small incremental cost required to displace coal-generated electricity with electricity from new wind farms and already makes the university the largest purchaser of sustainable electricity in the region. Because the new wind electricity is delivered to the grid, rather than specifically to the university, there is no alteration in the reliability or delivery of electricity. Importantly, the program is rigorously accounted by certification through Green-e, an independent consumer protection program for the sale of sustainable energy and carbon offsets in the retail market.

### Utah State University (USU) Alternative Energy Efforts<sup>24</sup>

USU operates a stand-alone water research facility along the Logan River in Northern Utah. The Utah Water Research Laboratory (UWRL) operates within an academic environment and collaborates with government and private sectors to address technical and societal aspects of water-related issues. The UWRL includes a state-of-the-art laboratory that is over 100,000 square feet. The UWRL maintains several key partnerships with other organizations, businesses and government entities to excel the research and discovery process and share its findings.

Also, USU received a federal grant of \$761,385 as part of a \$23 million fund for the Joint Biomass Research and Development Initiative (BRDI). USU was funded to explore technical systems and market analyses of a full-scale anaerobic digester dairy farm system that generates significant amounts of electricity, which, in turn, would be added to the power grid. This is one of 19 projects being funded by the U.S. Department of Agriculture and U.S. Department of Energy in an effort to develop new alternative energy resources from the agricultural and agroforestry industry sectors.

### Westminster College Alternative Energy Efforts<sup>25</sup>

Westminster College, located in Salt Lake City, is the first solar-producing higher education institution in Utah. Through Rocky Mountain Power's Blue Sky program, the college was awarded a grant to purchase 42 solar panels that are being used to provide electricity to the campus. Westminster College is meeting 11% of its energy needs with pollution-free sustainable energy through Rocky Mountain Power's Blue Sky program. The college's use of sustainable energy equates to the same environmental benefits as planting 176,775 trees or taking 200 cars off the roads, which equates to avoiding emitting over 1,160 tons of carbon dioxide. Westminster College is now challenging its students, faculty and staff to

<sup>22</sup> Source: Salt Lake Community College: Energy Efficiency & Sustainability Courses

<sup>23</sup> Source: USTAR

<sup>24</sup> Source: USDA: Biomass Research and Development Initiative

<sup>25</sup> Source: Rocky Mountain Power

choose clean energy in their own residences. As a follow-up, in April 2007, President Michael Bassis signed the American College and University Climate Commitment, pledging to eliminate or offset all campus greenhouse gas emissions.

#### **East High School & Entheos Academy Alternative Energy Efforts <sup>26</sup>**

East High, located in Salt Lake City, received a 1.7-kilowatt rooftop solar array through funding from the Rocky Mountain Power's Blue Sky program. The 190-watt photovoltaic panels were installed on the school's roof to generate power as part of the Renewable Synergy's Utah Solar Schools Initiative. Aside from energy supply, the panels and process are also being used as a learning tool for students. Two months after the January 2008 installation, the panels have generated 10 kilowatt hours of electricity, enough to power four homes for one day. Renewable Synergy is currently preparing for a solar panel system for Ecker Hill International Middle School in Park City. Entheos Academy, located in Kearns, was the first Utah school to have a solar panel array installed. Likewise, Entheos utilizes the solar technology to teach its students about the process and importance of alternative energy.

### **TAX CREDITS, INCENTIVES & REBATE PROGRAMS**

#### **Clean Fuel Vehicle Grant and Loan Fund<sup>27</sup>**

Funded through the Clean Fuels and Vehicle Technology Fund, this grant and loan program provides assistance to businesses and government entities for: 1. the cost of converting vehicles to operate on clean fuels, 2. the incremental cost of purchasing clean vehicle fuel, and 3. the cost of retrofitting diesel vehicles. This program is on hold pending final development of administrative rules. Application and grant proposals will start being accepted in the early fall of 2008.

#### **Clean Fuel Vehicle Tax Credit<sup>28</sup>**

Taxpayers may claim a non-refundable credit on individual state income tax, corporate franchise tax or fiduciary tax returns for the purchase or conversion of vehicles to use cleaner burning fuels. A 50% cost savings for any converted vehicle and/or equipment and a 50% incremental cost minus any grant received for a new vehicle up to a max of \$3,000 or the cost of conversion equipment up to a max of \$2,500.

#### **Custom Fit Training<sup>29</sup>**

Custom Fit provides specialized training for companies. The program is administered through the Utah College of Applied Technology centers and state colleges and universities. This incentive typically subsidizes up to \$250 per trainee per year for professional training. This program requires a company match.

#### **Incumbent Worker Training<sup>30</sup>**

Utah Department of Workforce Services has created an educational initiative focused on training incumbent workers to improve their skills for the Utah workforce. This training program encourages and rewards workers already in the workforce to improve their knowledge and skills within their industry. Funding decisions are typically made within 90 days of submitting a completed application and eligible expenses include instructors/trainers' salaries, curriculum development, and materials/supplies.

#### **Investment Tax Credits (Installed in 2007 or Later)<sup>31</sup>**

The state of Utah offers state income tax credit for sustainable energy systems. For residential systems, the tax credit is 25% of the equipment and installation cost up to a maximum of \$2,000. For commercial systems, the tax credit is 10% of the equipment and installation cost up to a maximum of \$50,000. Sustainable energy technologies include: solar electric, solar thermal, passive solar, wind, hydropower, ground source heat pumps, water source heat pumps, direct use

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<sup>26</sup> Source: *Deseret Morning News*, "Solar panels enlighten East High curricula", February 29, 2008

Source: *Deseret Morning News*, "Sun producing energy at three Utah schools", February 27, 2008

<sup>27</sup> Source: *Utah Department of Environmental Quality*

<sup>28</sup> Source: *Utah Department of Environmental Quality*

<sup>29</sup> Source: *Utah College of Applied Technology*

<sup>30</sup> Source: *Utah Department of Workforce Services*

<sup>31</sup> Source: *Utah Geological Survey: Renewable Energy Incentives*

geothermal, geothermal for electricity and biomass. Systems eligible for Investment Tax Credits are not also eligible for Production Tax Credits.

### **Manufacturing Sales & Use Tax Exemption<sup>32</sup>**

The Utah State Tax Commission offers a sales and use tax exemption for manufacturing equipment, including energy related equipment and machinery purchases and leases and semiconductor manufacturing. The machinery and/or equipment must be used to generate electricity from wind, solar, biomass, landfill gas, anaerobic digestion, hydroelectricity or geothermal resources. A facility is eligible if it has a generation capacity of 20 kilowatts or greater or if it increases its generation capacity by one or more megawatts as a result of the machinery or equipment. This exemption expires on June 30, 2009.

### **Recycling Zones<sup>33</sup>**

The Utah Recycling Market Development Zone Program focuses on recycling as an economic development tool. The zone assists businesses that collect, process, distribute or use recycled materials in their manufacturing operations or compost. Eligible businesses located in designated zones may qualify for a 5% state tax credit on machinery and equipment, a 20% state tax credit, up to \$2,000 on eligible operating costs and technical assistance from a state recycling economic development professional.

### **Renewable Energy Production Tax Credit<sup>34</sup>**

The state of Utah offers a renewable energy production tax credit for wind, geothermal and biomass energy production systems that produce electricity and have a generating capacity of 660 kilowatts or greater. The tax credit is a 10% individual income tax credit for commercial systems up to a maximum of \$50,000 for wind, geothermal electric and biomass systems with a total capacity of less than 660 kW and for all other eligible renewable energy systems. For systems with a capacity greater than 660 kW, the credit is \$0.35 per kilowatt-hour of electricity produced for the first four years of a system's operation. Systems eligible for Production Tax Credits are not also eligible for Investment Tax Credits.

### **Rocky Mountain Power (RMP)**

A subsidiary of PacifiCorp, Rocky Mountain Power (RMP) is Utah's primary electric service provider, accounting for over 80% of electricity sales in the state. RMP has become a leader among established Utah utility companies and has gained national recognition for its efforts in alternative energy programs. Of note, PacifiCorp is the top utility company in the nation for the amount of purchased wind-generated energy.

### ***Energy FinAnswer<sup>35</sup>***

RMP provides high-quality engineering services and cash incentives to help upgrade a facility or new construction project to the most energy-efficient systems available. The incentive totals \$0.12 per kilowatt hour annually plus \$50 per kilowatt average monthly demand savings up to a maximum of 50% of energy efficiency project cost.

### ***Blue Sky Renewable Energy Program<sup>36</sup>***

RMP offers residential and commercial customers an opportunity to support the development of electricity generated from alternative resources in the region through its Blue Sky program. Once enrolled, RMP matches the Blue Sky purchase with sustainable energy credits from newly developed wind generation and other alternative energy facilities in the region. Customers support the Blue Sky program in 100 kilowatt-hour increments for \$1.95 per block per month. Each 100 kilowatt block represents roughly 14% of the average customer's monthly electricity usage. Rocky Mountain Power does not make a profit on this program. All costs associated with the Blue Sky program directly support alternative energy production in the region.

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<sup>32</sup> Source: Utah State Tax Commission

<sup>33</sup> Source: Governor's Office of Economic Development

<sup>34</sup> Source: Utah Geological Survey: Renewable Energy Incentives

<sup>35</sup> Source: Rocky Mountain Power: Utah Energy FinAnswer

<sup>36</sup> Source: Rocky Mountain Power: Blue Sky

### *Solar Incentive Program*<sup>37</sup>

Beginning in January 2008, RMP offers financial assistance to both commercial and residential customers for installing photovoltaic systems on homes and businesses. Incentive funds are based on the number of kilowatts allotted for the year, which are 57 kilowatts for residences and 50 for non-residential facilities. Currently, all residential kilowatts have been subscribed. The program is anticipated to run through January 2009 or until incentive funds run out.

### **Questar Gas**

Questar Gas services all but two of the 29 counties in the state of Utah and much of Idaho and Wyoming, accounting for more than 800,000 customers in the three-state region. Due to Questar Gas' focus on being environmentally conscious, the company offers numerous rebate and educational programs to incent residents and businesses alike to build and maintain more energy-efficient homes and businesses.

### *Thermwise*<sup>38</sup>

Questar Gas offers various appliance rebates for residential and commercial locations and construction and builder rebates for building more energy-efficient homes and installing more energy-efficient equipment. The Thermwise website also provides numerous residential and commercial energy-saving tips.

### **Net Metering Program**<sup>39</sup>

On March 15, 2002, former Utah Governor Mike Leavitt signed HB7, the net metering of electricity. This law requires all electric utilities and cooperatives in the state of Utah to allow customers to connect alternative energy systems to the grid for their own use and to supply excess electricity to the grid. The utility company will net the customer's electricity use and production over the monthly billing period and pay the customer the retail price for the electricity produced. If net metering results in excess customer-generated electricity over the billing period, the utility company will credit the customer for the electricity produced at the avoided cost rate. Customer generated electricity may be from solar, wind, hydropower or fuel cell systems of up to two megawatts in size.

### **Utah Clean Energy (UCE) Solar Training Scholarship**<sup>40</sup>

UCE is an organization working to speed the transition to a cleaner, more sustainable future. UCE works as a catalyst through advocacy, education and partnerships to advance sustainable energy efficiency. This scholarship program is offered to individuals interested in becoming installers of solar photovoltaic systems in the state of Utah. The scholarship award pays for 82% of the class and training costs. Trainees learn system sizing, site analysis, hardware specification and component selection of grid-tied systems.

### **Additional Incentive Information**

For additional state and local incentive information and financing options that may relate to your business, please follow the link to our website: <http://www.edcutah.org/businessincentives.php>

## **CONSTRUCTION / RENOVATION / REDEVELOPMENT**

### **LEED (Leadership in Energy and Environmental Design) Certification**<sup>41</sup>

Utah currently has the sixth highest LEED certifications per capita and ranks ahead of California. The state presently has 73 buildings registered on the LEED projects directory list on the U.S. Green Building Council website. These building projects are awaiting final certification to join the six members that have already received LEED certification in the state of Utah.

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<sup>37</sup> Source: Rocky Mountain Power: Solar Incentive Program

<sup>38</sup> Source: Questar Gas: ThermWise

<sup>39</sup> Source: Utah Geological Survey: Renewable Energy Incentives

<sup>40</sup> Source: Utah Clean Energy: Solar Training Scholarship

<sup>41</sup> Source: U.S. Green Building Council

### Salt Palace Convention Center<sup>42</sup>

Tradeshows and conventions represent the second most wasteful industry in the United States, according to the U.S. Environmental Protection Agency. Therefore, it is no surprise that convention centers are beginning to show increased interest in attaining LEED status. Of the 417 convention centers in the United States, only five have earned LEED certification, including the Salt Palace Convention Center in Salt Lake City.<sup>43</sup> The convention center also touts the addition of waterless urinals saving 40,000 gallons of water per day, installed solar panels to operate the lighting in the underground parking structure, single source recycling, motion sensor lighting systems for all offices – so lights won't be accidentally left on, and water efficient landscaping with drip irrigation water systems.<sup>44</sup>

### Swaner EcoCenter & Nature Preserve<sup>45</sup>

Swaner EcoCenter is Utah's first LEED platinum certified building and places 25<sup>th</sup> in the world for LEED platinum certified buildings. It is slated for completion with a grand opening celebration in September 2008. The Nature Preserve and Eco Center have been created to preserve the land and human connection, educate the local communities about the value of nature and to nurture the ecosystem and the people connected with it.

### Build Green Utah / Build Green Initiative<sup>46</sup>

Build Green Utah, an active council of the Home Builders' Association, is a member-driven organization comprised of proactive builders, architects and associates focused on investing in an environmentally sound, socially supportive and economically healthy future through conscientious building and construction. This group is leading the region in building and certifying green homes and practices.

### New Innovative Home & Office Heating System<sup>47</sup>

Residents of Salt Lake City have discovered a new way to heat homes by using warm gray water. The system works by using a secondary network of pipes carrying a water-based glycol that allows for heat exchange. This network of pipes surrounds a sewage pipe and absorbs the heat rapidly. Then the heated glycol is returned to the house, where the heat energy radiates from vents. During the summer, the system works in an opposite fashion. This new system uses 40% less energy than conventional heating and cooling systems and reduces carbon dioxide emissions by eight tons a year, equivalent to removing one car per household from the roads. This innovation is still being studied, but local public utilities directors are hopeful that similar systems may be installed in public buildings in the next few years.

## OUTSTANDING UTAH COMMUNITIES & INITIATIVES

### Alta Ski Area a Blue Sky Participant<sup>48</sup>

Alta Ski Area is a visionary partner with Rocky Mountain Power through the Blue Sky program. Through its participation, Alta has committed to purchasing 900,000 kilowatt hours of electricity, offsetting over 23% of Alta's energy consumption. The environmental impact is equivalent to avoiding 900 tons of carbon dioxide emissions annually, equivalent to eliminating 136 vehicles from the roads. Alta is currently working with Clif Bar and the Bonneville Environmental Foundation to make the Sugarloaf lift a "green" lift operating solely on sustainable energy. This will translate to an additional 11% of Alta's energy consumption offset, bringing the total to 34%.

### Go Green Initiative<sup>49</sup>

Founded in 2002, the Go Green Initiative is a simple, comprehensive program designed to create a culture of environmental responsibility on school campuses across the nation. This organization works to unite parents, students,

<sup>42</sup> Source: Salt Lake Convention & Visitors' Bureau

<sup>43</sup> Source: Tradeshow Week, "Sustainable Showfloor: How Green Are We?", December 10, 2007

<sup>44</sup> Source: Salt Lake Convention & Visitors Bureau

<sup>45</sup> Source: Swaner EcoCenter & Nature Preserve

<sup>46</sup> Source: Build Green Utah / Green Building Initiative

<sup>47</sup> Source: Popular Science, "How America's Greenest Cities Got Green", February 8, 2008

<sup>48</sup> Source: Alta Ski Area, Environmental Goals and Efforts

<sup>49</sup> Source: Go Green Initiative

teachers and school administrators in an effort to make real and lasting changes in campus communities to protect children and the environment for the present and the future. Presently, schools in Draper, Payson and Washington cities are active members in this initiative.

#### **Hill Air Force Base (AFB)<sup>50</sup>**

Hill AFB is the first federal facility with its own dedicated landfill gas-to-energy power plant. Located less than two miles from the Davis County landfill, Hill AFB is the perfect candidate for methane-generated energy. The new power plant will supply 1.2 megawatts of clean, alternative energy to the base and save approximately \$600,000 annually in energy costs. The power plant will also reduce annual carbon dioxide emissions by 5,000 tons (equivalent to 758 vehicles), carbon monoxide by 4.8 tons, sulfur dioxide by 19 tons and nitrogen oxide by 5.5 tons. Capital investment was funded from the private sector.

#### **Jordan Valley Water Conservancy District<sup>51</sup>**

*“Slow the Flow, Save H<sub>2</sub>O”* – formerly the key slogan for a water conservation goal in the Jordan Valley Water Conservancy District – this catch phrase was soon adopted by the Governor’s Water Conservation Team. In August 2001, the Governor brought together major water wholesalers to work toward a 25% reduction in per capita water use for the state of Utah. Since Utah is the second-driest state in the nation, the Governor hoped for Utah to be a model for water conservation.

#### **Kennecott Utah Land (South Jordan)<sup>52</sup>**

Kennecott Land, a Rocky Mountain Power Blue Sky Visionary Partner, has committed to purchasing 194,900 kilowatt hours of sustainable energy per month, enough to cover 100% of its electricity use. In turn, Kennecott Land has challenged its large residential development community, Daybreak, to also become Blue Sky Partners, providing incentive for those homes that join the program.

#### **Local Governments for Sustainability (ICLEI)<sup>53</sup>**

ICLEI is a membership association of more than 350 local governments in the U.S. committed to advancing climate protection and alternative energy development. Presently, Utah has three communities that participate in this association: Park City, Salt Lake City and Salt Lake County. These communities receive experienced support services and various training opportunities for such topics as sustainability, climate mitigation and tools for emissions software.

#### **Murray City Power<sup>54</sup>**

Murray City Power has received national recognition for its use of landfill gas from the Salt Lake Valley Solid Waste Management Facility to generate alternative energy. The system generates up to three megawatts of electricity, enough to power 2,000 residential homes. The total emissions reduction from this system is equivalent to 26,700 vehicles or planting 38,000 acres of forest or offsetting the use of 682 railcars of coal.<sup>55</sup>

#### **Powdr Corp to Offset 100% of Power from Sustainable Energy Sources<sup>56</sup>**

Powdr Corp, headquartered in Park City, announced it will offset 100% of the grid supplied electricity consumed at its seven ski and snowboard resorts and one tubing park (located across the nation) through the purchase of renewable energy credits (REC’s) beginning in June 2008. Powdr Corp’s purchase of nearly 50 million kilowatt hours of REC’s is the second largest in the travel and leisure industry. The Powdr Corp sustainable energy purchase will prevent an estimated 85 million pounds of carbon dioxide emissions annually – equal to removing 8,539 vehicles from the road. Park City Mountain Resort will be purchasing 1.8 million kilowatt hours of wind power, more than enough to power the resort’s

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<sup>50</sup> Source: *Energy Services Bulletin*, June 2005

<sup>51</sup> Source: *Slow the Flow, Save H<sub>2</sub>O*

<sup>52</sup> Source: *Kennecott Land*

<sup>53</sup> Source: *Local Governments for Sustainability*

<sup>54</sup> Source: U.S. EPA, *“Clean Energy Projects Turn Landfills into Community Assets”*, January 24, 2007

<sup>55</sup> Source: *Department of Environmental Quality*

<sup>56</sup> Source: *The Corporate Social Responsibility Newswire*, “Powdr Corp”, April 8, 2008

four six-seat lifts for the entire snow season and will offset the carbon emissions by 1,820 tons annually, equating to emissions reductions of 275 vehicles annually.

#### **Recycling Coalition of Utah (RCU)<sup>57</sup>**

RCU, a member to the National Recycling Coalition, is an association of municipalities, businesses and individuals committed to improving recycling, conservation and solid waste reduction in Utah. RCU has teamed up with the Southern Utah Recycling Coalition to further develop solid waste reduction, reuse and recycling programs and increase public awareness to the benefits of recycling in every community. Recycle Utah, the Park City community recycling program, operates under a similar association and mission. Recycle Utah has been very successful for both residents and businesses in the area.

#### **Salt Lake City Green<sup>58</sup>**

Salt Lake City Green is comprised of several environmental programs that continue to help conserve resources, reduce pollution, slow global climate change and ensure a healthy, sustainable future for Salt Lake City. Former Mayor Rocky Anderson launched this initiative in 2001. This initiative and related programs have brought Salt Lake City to the forefront in national and international environmental leadership. Part of the overall program includes the e2 (environmentally and economically sustainable) business, e2 citizen and e2 student to recognize and support efforts made within the community and economy. Also, downtown Salt Lake City offers free metered parking to any green vehicle, defined as any vehicle powered solely by alternative fuels or achieving a 41-plus miles-per-gallon city fuel economy.

#### **Southwest Energy Efficiency Project (SWEET)<sup>59</sup>**

SWEET, comprised of representatives from Utah, Arizona, Colorado, Nevada, New Mexico and Wyoming, is a high growth area where energy efficiency efforts are crucial. SWEET is focused on reducing the need for power plants, increasing the reliability of energy supply systems, reducing dependence on oil and natural gas imports and reducing emissions of air pollutants. To fulfill its mission, SWEET conducts research and publishes reports on cost-effective energy efficiency practices, engages in legislative processes to help enact sound energy policies, intervenes before state utility commissions to increase utility demand-side management and promotes building energy codes at the state and local level.

#### **Sundance Preserve<sup>60</sup>**

Founded by Robert Redford, the Sundance Preserve is a non-profit organization dedicated to the environmental stewardship of its own protected lands and for unprecedented collaboration on public policy, social issues, art and the environment. The 5,000-acre Sundance Preserve creates an opportunity to be an agent of change through collaborative discussions on preservation and environmental thinking.

#### **First Solar Powered Video Production Studio<sup>61</sup>**

Schreiner Productions, located in the Greater Salt Lake area, is the only known solar powered video studio in the world. Discussions with In Hot Water of Eden, Utah, a solar hot water and alternative power systems company, began in November 2006. Construction on the studio began in the spring of 2007. In Hot Water and J.C. Electric completed construction on the solar power system in March 2007.

#### **XMISSION<sup>62</sup>**

XMISSION, a large Internet provider in Utah, has become a Rocky Mountain Power Blue Sky program participant and committed to purchasing over 2,800 blocks of sustainable energy, allowing the company to operate on 100% sustainable energy. This purchase will offset carbon dioxide emissions by 3,391 tons annually, which is equivalent to planting 1,332 acres of trees or not driving 7.26 million miles annually. XMISSION has also worked to implement more environmentally friendly practices at its data center location.

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<sup>57</sup> Source: *Recycling Coalition of Utah*

<sup>58</sup> Source: *Salt Lake City Green*

<sup>59</sup> Source: *Southwest Energy Efficiency Project*

<sup>60</sup> Source: *Sundance Preserve*

<sup>61</sup> Source: *Schreiner Productions*

<sup>62</sup> Source: *XMISSION: Community: Green*

## UTAH ALTERNATIVE ENERGY PRODUCT MANUFACTURING COMPANIES

Company Name	Company Contact	Number of Employees	Brief Description
Aero Tech Manufacturing, Inc. 395 West 1100 North North Salt Lake, Utah 84054	(801) 292-0493	Unknown	Manufactures hydronic radiant heating systems.
Ciralight, Inc. 709 North 400 West, Suite 2 North Salt Lake, Utah 84054	Earl Houston CEO (801) 683-3596	Unknown	Manufactures active daylighting systems.
Heatizon Systems 4137 South 500 West Murray, Utah 84123	(801) 293-1232	Unknown	Manufactures radiant heating systems.
In Hot Water Systems P.O. Box 807 Eden, Utah 84310	Rod Hyatt Owner (801) 745-2009	10 to 19	Manufactures solar energy heating and cooling systems
Ortner USA, Inc. 8410 South 700 East, Suite 100 Sandy, Utah 84070	(801) 748-0476	Unknown	Manufactures photovoltaic equipment.
PowerStream Technology 140 South Mountainway Drive Orem, Utah 84058	(801) 764-9060	Unknown	Manufactures portable power systems and electric vehicle components.
Redi-Therm 3061 South 3600 West West Valley City, Utah 84119	Robert Reese President (801) 972-6551	50 to 99	Manufactures recycled fiber and paper products
Rocky Mountain Technologies 11850 South Highway 191 Moab, Utah 84532	(435) 259-4000	Unknown	Manufactures electric vehicle components, hybrid power systems and solar water pumping systems.
Sinergex Technologies 15529 Winged Trace Court Draper, Utah 84020	(801) 368-0034	Unknown	Manufactures portable power systems and power inverters.
Solar Design Tech 1841 East 1950 South Ogden, Utah 84401	James Miller Owner (801) 393-2730	5 to 9	Manufactures custom alternative power systems
SunSource Power 311 Winterwood Drive Summit, Utah 84772	(435) 867-8514	Unknown	Manufactures photovoltaic systems and solar heating systems.
Warmzone.com 2056 South 1100 East Salt Lake City, Utah 84106	(801) 326-5100	Unknown	Manufactures radiant heating systems and heated walkways.

Source: DirectoriesUSA

## ADDITIONAL INFORMATION RESOURCES

- **Acting for a Greener World** – An educational, non-profit program of the Blue Sky Institute based in Utah. This organization focuses on environmental and social justice issues and brings people together to discuss issues important to the State of Utah.
- **The Climate Registry** – Collaboration among states, provinces and tribes to develop and manage greenhouse gas emissions reporting.
- **Go Green Initiative** – Three Utah locations – Draper, Payson and Washington City – are involved in this program designed to create a culture of environmental responsibility on school campuses across the nation.
- **Governor’s Blue Ribbon Advisory Council** – This council is charged with better understanding how science, economics and policy can and will effect climate change and to provide policy recommendations on climate change for review.
- **Governor’s Energy Policy** – This policy is set in place to help Utah lead the charge in energy efficiency and sustainable energy development and new and innovative technologies.

- **Build Green Utah / Green Building Initiative** – A focus to build green homes in the State of Utah and educate citizens on the importance of building green.
- **Keep Utah Cool** – Ski Utah is working to inform winter sports recreationalists about global warming and improve the environmental impacts of recreationalists.
- **Local Governments for Sustainability (ICLEI)** – Three Utah locations – Park City, Salt Lake City and Salt Lake County – are members of this organization, committed to advancing climate protection and sustainable development.
- **Mayors for Climate Protection** – Four Utah city and county mayors are members of this organization and well recognized for their efforts in climate control.
- **PowerForward** – Utah’s summer power conservation program providing conservation tips and daily level of recommended conservation.
- **Questar Gas ThermWise Energy Conservation Program** – Questar Gas’ website for energy conservation tips and rebate programs.
- **Recycle Utah** – Park City’s extensive community recycling program and outreach services.
- **Recycling Coalition of Utah (RCU)** – Coalition of municipalities, businesses and individuals committed to improving recycling in Utah.
- **Rocky Mountain Power Blue Sky Renewable Energy Program** – Rocky Mountain Power’s renewable energy program, energy saving tips and incentives.
- **Rocky Mountain Recycling** – Recycling program for several Rocky Mountain States, including Utah, Colorado, Montana and Nevada.
- **Salt Lake City Green** – Former Mayor Rocky Anderson launched this program to focus on environmental protection and leadership. Successful programs include the e2 business program, LEED certification building requirements, conservation and recycling.
- **Southwest Energy Efficiency Project (SWEEP)** – A six-state region, consisting of Utah, Arizona, Colorado, Nevada, New Mexico and Wyoming, promoting greater energy efficiency.
- **Strategic Environmental Project Pipeline (StEPP) Foundation** – A non-profit organization dedicated to helping organizations and alternative energy projects match to an appropriate funding source.
- **Strategic Unconventional Fuels Task Force** – The U.S. Secretary of Energy has created the Energy Policy Act, which directs the Task Force to develop a program to coordinate and accelerate strategic unconventional fuels and make recommendations promoting development and key partnerships.
- **Sustainable Seasons** – An organization focused on promoting alternative fuel use and environmentally friendly practices in the winter sports industry. A pickup truck, powered solely by biodiesel, is driven by Jack Nelson and other key athletes around the mountain west to athletic events to help show the viability of alternative fuels, even for a rigorous traveling winter lifestyle.
- **Tree Utah** – Tree planting and related education for the State of Utah.
- **USTAR (Utah Science, Technology & Research) Initiative** – USTAR is a long-term, state-funded investment to ensure Utah remains a leader in the knowledge economy.
- **Utah Clean Energy (UCE)** – A non-profit organization working to advance energy efficiency and clean, sustainable energy technologies throughout the State of Utah.
- **Utah Energy Conservation Coalition, Inc.** – Provides energy education and conservation information.

- **Utah Geological State Energy Program** – Supports partnerships that improve energy efficiency and turn alternative energy resources into viable alternatives to fossil fuels.
- **Utah Geothermal Working Group (UGWG)** – Organization comprised of federal, state, and local governments, utilities and others to promote innovative development and utilization of Utah’s geothermal resources.
- **Utah Green Pages** – Provides green tips and various volunteer opportunities throughout the State of Utah.
- **Utah Healthy Hospitals Initiative / Utah Mercury Challenge** – Reduce and eliminate the use of mercury in the healthcare industry and improve environmental performance.
- **Utah Moms for Clean Air** – A non-profit group of women and mothers focused on changing to clean air condition in the state of Utah and providing information to Utah residents.
- **Utah Nursery & Landscape Association (UNLA)** – Works to advance the business interests of the green industry in Utah.
- **Utah Society of Environmental Education (USEE)** – Provides professional education and certification for Utah teachers/educators and the communities.
- **Utah Solar Schools Initiative** – Renewable Synergy, LLC, of West Jordan, is working with public schools to develop and install solar panel systems to provide renewable energy to the facilities and work as a teaching tool to students.
- **Utah Solar Energy Association (UtSEA)** – A local chapter of the American Solar Energy Society (ASES) promoting adoption of sustainable energy with a focus on solar.
- **Utah Wind Power Campaign** – Works with Utah businesses and residents to increase the number of people and companies purchasing sustainable power through green pricing programs.
- **Utah Wind Working Group (UWWG)** – Organization comprised of federal, state, and local governments, utilities and others promoting wind power development in Utah; emphasis on stimulating Utah rural economic development and promoting small-scale wind development.
- **Utah’s Watershed Restoration Initiative** – A partnership-driven effort to conserve, restore and manage ecosystems in priority in the State of Utah.
- **Western Climate Initiative (WCI)** – The Governor’s of Utah, Arizona, California, New Mexico, Washington and British Columbia are working together to set regional goals to reduce greenhouse gas emissions.
- **Western Governors’ Association** – The Governor’s of Utah, California, New Mexico, North Dakota and Wyoming are working collectively to move the region toward a cleaner more diverse energy future.
- **Western Resource Advocates (WRA)** – A non-profit environmental law and policy organization comprised of Utah, Arizona, Colorado and Nevada. This group is dedicated to restoring and protecting the natural environment.

## ADDITIONAL CONTACT INFORMATION

State of Utah  
 Dianne Nielson, Utah State Energy Advisor  
 324 South State Street, Suite 500  
 Salt Lake City, Utah 84111  
 Phone: (801) 538-8802  
 Email: dnielson@utah.gov

Utah Department of Natural Resources  
 Jason Berry, State Energy Program, Program Manager  
 1594 West North Temple  
 Salt Lake City, Utah 84114  
 Phone: (801) 538-5413  
 Email: jasonberry@utah.gov

**FOR ADDITIONAL INFORMATION**

Economic Development Corporation of Utah  
201 South Main Street, Suite 2150  
Salt Lake City, Utah 84111  
Phone (801) 328-8824  
Fax (801) 531-1460  
[www.EDCUtah.org](http://www.EDCUtah.org)



201 South Main Street, Suite 2150  
Salt Lake City, Utah 84111  
Phone 801-328-8824  
Fax 801-531-1460

[www.EDCUtah.org](http://www.EDCUtah.org)