

## **City of Golden Renewable Energy Projects**

### **Public Works LEED Platinum building**

The proposal is to expand an existing 4200 sq. ft. office building to 9,067 square feet and use the USGBC LEED Platinum as a benchmark for green construction. The building will become a renewable energy demonstration site open to the public and to developers who may learn from the City's examples. The site will not only feature all elements of sustainable construction, but also solar photovoltaic, solar thermal, small wind, and green roof systems. The building will use a heat exchanger system to take advantage of the super-cooled water flowing in from Clear Creek to the adjacent water treatment plant to cool a new consolidated server room and use waste heat to condition the office area. The building will also feature a raw water system for both flush fixtures and fire suppression – the first of its kind. In the planned conference area, members of the public can learn from monitors which will reflect real time energy consumption with payback calculations and adjustable energy price information.

### **Municipal PV projects**

The City is drafting criteria for bids on a Request For Proposals to construct solar systems utilizing the roofs of all municipal buildings. This contract may also consider prototype solar technologies, to measure long-term efficiency.

### **Pumped hydroelectric**

The City of Golden owns three water storage reservoirs to provide drinking water for Golden residents. At the Upper and Lower Urad reservoirs, there is an opportunity to take advantage of gravity-fed flows and generate energy through the use of water turbines and large wind turbines. Approximately 700 acre feet would flow from Upper Urad to Lower Urad during peak periods and then be pumped back up to Upper Urad using large wind turbine energy at night, during low peak periods. This project is estimated to cost between \$20M and \$50M and generate 20MW and \$3.9M per year in revenue from produced energy.

### **Small Hydro projects**

At the City's third reservoir, Guanella Reservoir, we can capture the in-stream and in-pipe flows for a much smaller, but effective energy generation. This project, estimated at \$250,000 can generate enough energy to provide electricity to the water storage pumps and adjacent private rock operation, who currently relies on diesel generators.

### **Alternative Fuel stations and vehicles**

Proterra, a local Golden firm, develops and manufactures battery dominant hybrid- and battery-electric drive solutions and complete vehicles for commercial applications. The City is currently underway with a transit study to determine necessary transit facilities leading up to the 2013 opening of the West Line light rail corridor to Denver. A fuel cell bus could be implemented along with the recommendations contained within the new transit study.

In addition, the City could partner with existing private property owners interested in hosting alternative fuel recharging stations. At least three stations are feasible, two for electric vehicles and one for the fuel cell bus. The Colorado legislature is also considering a bill to allow NEV (neighborhood electric vehicles) on roads less than 35 mph, to which recharging stations could become needed in the near future.