

A BASIC PRIMER ON BOUNTIFUL'S ELECTRIC UTILITY SYSTEM FOR BOUNTIFUL CITY 2017 CANDIDATES

BOUNTIFUL CITY POWER COMMISSION, July 6, 2017

Background

Electric power in the U.S. is provided throughout the country by private utilities, like Rocky Mountain Power, and by municipal or public power systems. The power rates of private utilities are established by state public utilities commissions. The rates of municipal utilities are established by the elected officials of the owning cities.

Bountiful City has owned and operated its own electric utility system since 1935. Today, Bountiful City's 43,000 residents and its commercial customers receive reliable and competitively-priced electricity through 16,800 meter hook-ups from Bountiful City Light and Power (BCLP). BCLP is a \$34.5 million per year operation. Many Utah cities operate electric utilities, and state law requires that these "enterprise services" cover all expenses (operating, maintenance, and long-term capital) from rates, fees, and deposits collected from customers. BCLP does NOT operate on tax money. It is a stand-alone operation based on user fees and power sales. In addition, Bountiful City requires BCLP to distribute all operating expenses equitably among customer classes.

Whether an electric utility is private or municipal, it has one over-arching legal obligation to its customers: it is the provider of last resort, and it must be capable at all times of delivering electric power to meet whatever the customer demand is at any time of the day or night, 365 days each year, rain, snow, or shine.

The Utah Public Service Commission (PSC) regulates the rates that Rocky Mountain Power (RMP, a subsidiary of Berkshire Hathaway, which is primarily owned by Warren Buffet) may charge its customers. The PSC determines what the costs are for providing RMP's service, and then authorizes a percentage "return on investment" which is the source of Warren Buffet's RMP profits and the return to his shareholders.

What BCLP Power Rates Do for Customers and the City

Like RMP, Bountiful City Light and Power has many of the same kinds of costs of service, but BCLP provides a significant benefit to BCLP's customers and City taxpayers – at rates that are lower than the rates paid by Rocky Mountain Power's customers. BCLP has long term contracts and has access to less expensive hydropower produced mainly by the Colorado River Storage Project (CRSP). While CRSP power is a smaller slice of BCLP's power supply today than 20 years ago, it still provides about 40% of the City's total load. This cost savings goes directly into lowering BCLP rates. The "return on investment" profit that would otherwise go to Warren Buffet, instead goes right back to BCLP's customers in the form of lower rates, and to the City's taxpayers in the form of annual transfers to the Bountiful General Fund (\$2.4 million in the current FY) and franchise taxes on customer power bills. Without this "profit" from power sales, Bountiful City's property taxes would have to increase, or the level of services would have to be reduced. Power rates apply to all properties in Bountiful; there are no exemptions for schools, non-profits, or churches. While all of these "properties" still require the same level of municipal services the City provides, they are exempt from property tax and sales tax. In this respect, BCLP provides a modest measure of equalization among Bountiful property owners. BCLP also provides electric service with a greater degree of reliability than RMP, in part because much of BCLP's system is underground, and because BCLP maintains a more aggressive tree-trimming program.

The critical challenge for any electric utility is balancing or matching the power supply with customer usage or demand. The highest level of customer demand or usage for BCLP is in the month of July, which typically peaks at around 80 MW.¹ But that's only half the challenge. The other half is matching supply with customer demand as it varies hour by hour throughout each day. Customer usage in July will range from 25 MW to 80 MW on a daily basis. BCLP is required to balance power purchases with customer usage on an hourly basis. Bountiful is a bedroom community, with a relatively small commercial customer slice, resulting in a much lower usage period during the morning and afternoon versus the late afternoon or evening. The heaviest demands for power during the day are between 1:00 and 11:00 p.m. and particularly between 3:00 and 9:00 p.m.

Sources of BCLP Power

BCLP's least expensive source of power is hydropower purchased from CRSP, and from BCLP's ownership of hydroelectric facilities at Echo Dam and Pineview Dam. BCLP also buys power (and sells excess power) through a power exchange arrangement with the Utah Associated Municipal Power System (UAMPS). BCLP has other long-term contracts for power with the San Juan Power Station, and IPP. It also buys peaking power, when necessary, on the spot-market.² In addition, Bountiful owns two 13.5 MW gas turbine generators. If they operate full-time, they cover only 30% of the maximum summer load; BCLP minimizes that generator expense through long-term contracts with BP Energy. BCLP turns on its own generators whenever the cost of natural gas is less than the cost of other purchased power.

The biggest change in the electrical industry, nationwide, has been the steady reduction in the price of natural gas. The Intermountain Power Project, in which Bountiful has an interest, is currently converting from coal to natural gas. However, natural gas is a nonrenewable resource, and BCLP is looking to the future in order to continue to meet its service obligations to customers. Through UAMPS, BCLP has made a modest commitment to determine the feasibility of small scale, advanced technology, nuclear generation. The feasibility of this project is promising, and if the necessary water rights can be secured, the project will be built at the Idaho National Laboratory.

BCLP has investigated through UAMPS several renewable projects such as heat recovery, geothermal, and wind projects, but they have not been, so far, economically practicable. BCLP is also in the process of securing a long-term reasonably priced commercially-generated solar power contract that has a production capacity suited to BCLP's bedroom community load characteristics, and at a highly competitive price which is expected to be online in early 2019.³

Pricing Solar Power for BCLP Co-Generators

Presently, BCLP has 200 customers who have installed solar panels on the roofs of their homes (1% of BCLP's customers). A variety of solar companies have embarked on a very aggressive sales

¹ 1 Megawatt equals 1,000,000 watts. A 15-watt light bulb draws 15 watts of electricity any moment it's turned on.

² Wholesale power markets allow utilities to buy peaking power on an hourly basis for whatever the on-the-spot price is.

³ This solar project is more suited to BCLP's power needs because: (a) it will be located in an area of Beaver County which has a higher average number of sunshine days than Bountiful and receives less snow than Bountiful, which together provide for more days per year of maximum generation; (b) the project is designed with rotating panels that track the sun's arc throughout the day and present panel angles that maximize all-day power generation; (c) the technology allows BCLP to take power later in the day as the load demand increases; and (d) the price of power from the project is highly competitive with BCLP's other power sources.

campaign over the last 18 months, and these 200 customers have made an investment in this technology for a variety of reasons. Whatever the reasons for such investments, BCLP still remains as the electric-provider of last resort whenever the sun isn't shining, day or night. These customers, when the sun shines, collectively generate about 1 MW of the 80 MW BCLP requires in July to meet customer demand for power. The problem for these customers and BCLP is that their 1 MW is mostly generated during a time of the day when it is least needed and, so far, cannot be stored.

The laws of physics play into the electric power business in one undeniable way: electricity can't be stored in industrial-strength quantities. When someone figures out how to do that, it will revolutionize the electric industry, but science isn't there yet. Until July 1, 2017, solar customers of BCLP used the same electric meter that all BCLP customers use. That meter can run backwards as well as forwards, and during the hours that a customer's solar panels produce electricity, the meter runs backwards; when the customer takes power from BCLP, the meter runs forward. At the end of the month, the customer and BCLP "settled up," using the cost of power that BCLP uses for all of its customer sales: 9.25¢ per KWH.⁴ That's called "net-metering." In other words, BCLP was paying 9.25¢ to the solar customers, for every KWH they generated, even though BCLP – at the time the power was generated – could buy it somewhere else for 4¢ per KWH. That turned out to be a good deal for the solar customers, but not so good a deal for the 99% of other BCLP customers. BCLP was buying power it didn't need, at a time it couldn't use it, for 9.25¢ per KWH, and then selling that excess for 4¢ per KWH, and losing money.

That makes no sense as a sustainable business model, and it makes no sense for the other 16,600 BCLP residential and commercial customers, nor for Bountiful City. BCLP cannot provide that kind of subsidy to solar customers and remain in business. If all 16,800 BCLP customers were solar customers on that same basis, BCLP would be bankrupt within a month.

The New Feed-In Tariff: Greater Equity for All Customers

Beginning July 1, 2017, BCLP will accept new solar customers based on what is called a "feed-in tariff." This arrangement uses two meters, and it allows for accurate measurement of KWH going into a customer's home from BCLP, and KWH going out of that home to BCLP. The power going into the home is sold at the same price per KWH as to all BCLP residential customers. The price paid to the solar customer by BCLP will be based on the time of day the solar customer is generating power. The price paid by BCLP will more closely match the equivalent rate BCLP has to pay for power at those times. It will allow for a more competitive rate during the time of day that it can actually be used by BCLP, rather than a 200% subsidy at a time when it can't.

BCLP Can't Guarantee Any Company a Profit

Some solar companies have complained that this arrangement will drive solar power out of Bountiful. This is not the case. BCLP is extremely interested in large-scale solar generation, because of its more efficient technology and competitive pricing throughout the day. BCLP's share in this facility could be online in early 2019. However, BCLP does not have an obligation to keep makers and sellers of solar panels profitable, particularly by offering a customer subsidy that makes zero economic sense even on a small scale, and which would be outrageous to the other 99% of BCLP's customers and Bountiful City taxpayers on an even larger scale. BCLP has grand-fathered the solar customers who have been installed or have a completed application by June 30, 2017. Even so, that will cause a continuing power sales loss to BCLP of \$100,000 or more annually. There will be a corresponding loss to Bountiful City in terms of lost franchise tax revenue and a smaller contribution to the General Fund via the annual contribution BCLP makes to Bountiful City. BCLP still has to serve all of its 16,800 customers, and it

⁴ One kilowatt hour equals power consumption of 1,000 watts for one hour.

still has to secure a base power load that will keep the lights on all the time, whether there is or isn't sunshine. It still has to maintain the distribution system. The feed-in tariff does more to keep rates fair for everyone.

Some have argued that the feed-in tariff is an effort by BCLP to prevent solar customers from using "free" solar power. That is misleading. Anyone who wishes to rely exclusively on free solar power to light their home and run an air-conditioner is not required to connect to the BCLP system. However, if a homeowner or business wishes to become, not just a BCLP customer but also a co-generator via solar power, then the obligation of BCLP is to ensure that the arrangement is fair, not only to the solar co-generator, but to all other BCLP customers as well. The feed-in tariff is the most equitable billing arrangement BCLP has examined to accomplish that. Paying someone twice as much for something that could otherwise be purchased at half the cost is no way to run a successful enterprise.

The staff at BCLP is available to respond to questions or provide additional detail about BCLP's operation. Please contact Mr. Allen Johnson, the BCLP Director, at (801) 298-6072.

BOUNTIFUL CITY POWER COMMISSION

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