

July 25, 2017

Dear Mayor and Council Members,

Thank you for allowing us to present our views on renewable energy costs at your work session this week. Dick Parker, Jay Hasheider, Nick Peckham and I worked closely together to put together the presentation you heard Monday. I wanted to reinforce some of the points that were articulated by Dick and Jay.

1. Our view is that all renewable energy costs should be compared to all fossil fuel costs. Why not add up everything spent to purchase fossil fuels in one column and then add up everything spent for renewables in another column and then divide by the number of megawatt hours purchased to come up with an average cost?

$$\frac{\text{Actual \$\$ paid for fossil fuels}}{\text{Number of megawatt hours purchased}} \quad \text{vs} \quad \frac{\text{Actual \$\$ paid for Renewables}}{\text{Number of megawatt hours purchased}}$$

2. The utility has come up with a rather complicated way to figure out the cost of renewables, based on an arbitrary 3% that was included in the original ordinance as a safeguard to prevent skyrocketing rate hikes for consumers due to the purchase of renewables. It is clear that renewables are here to stay. The costs for consumer installed solar are consistently decreasing, and more and more wind farms are coming online. Batteries are being developed that will enable storage of solar and wind energy. It is also clear that climate change demands that we increase our use of renewables as quickly as possible.

The Renewable Energy Report published by the Utility only exists because the Utility has to show that 1) renewable goals were met and 2) that purchases of renewables did not increase rates more than 3% of the cost of fossil fuels. I'm not speaking for EEC or WLAB when I say this, but it's my own opinion that it is now feasible remove the 3% cap from the ordinance because we know that renewables will continue to get less costly and that we must continue to increase our use of them.

Below, I've included an interesting excerpt from an article on EnergySage.com about comparing the cost of fossil fuels with solar; interesting because the article correctly notes that solar and wind are not energy, but are a technology. And this is the reason we can't properly or accurately compare the cost of fossil fuels to renewables. We feel that our utility is trying to fit a square peg into a round hole by trying to force a comparison of renewables to a legacy energy market because this is the way they've always done it. We are concerned that the way the utility is reporting the cost of renewables could have an effect on how quickly we can add more renewables into our infrastructure. In addition, it's possible we could reach the 3% limit before we reach our goals.

Excerpt from article on EnergySage.com, "Comparing fuel to technology: why the difference matters":

"The benefits of solar energy vs. fossil fuels offers a long list of reasons for a home or commercial property owner to consider. However, like fossil fuels, solar energy offers both

pros and cons. On the positive front, the reality of solar as a source of green power and a non-pollutant is a major benefit for any mass energy source that will be produced at scale.

Additionally, renewable resources are ideal because they replenish and are not scarce resources, which can create conflict, cause price volatility or even lead to war. This aspect of solar power is evident, **but the fact that photovoltaics are a technology** – not a *fuel* – is not.

While fuels are tangible commodities and must be produced, treated and transported, solar PV is a technical innovation that involves silicon cells converting sunlight into energy at a highly efficient rate. This is why people are so excited about solar as an energy solution: fuels have an innovation cap **whereas technologies improve constantly over time.**

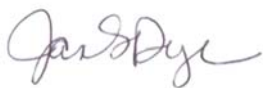
You may be familiar with Moore's Law observing that computer processing power doubles every year, which means that technical innovation will occur at an exponential rate over time.

In turn, the costs of that same technology will also exponentially decrease over time. A version of Moore's law can be applied to solar power as well, as illustrated by the "hockey stick" growth of PV that occurred in the past decade while prices have plummeted. The true excitement lies in solar's potential – **it is already cost-equivalent to fossil fuels without subsidies, and there are still cost-cutting opportunities to come through efficiency improvements.**

The same principle simply cannot apply to a fuel that must be burned; the natural chemical process of a resource being burned cannot "innovate" over time. Like whale oil before it, the value proposition of today's fossil fuels peaked many decades ago. This doesn't mean the world economy will stop relying on them tomorrow, but as renewable energy technology continues to dramatically improve, the end of fossil fuels approaches. . ."

Link to full article: <http://news.energysage.com/solar-energy-vs-fossil-fuels/>

Again, thank you for your time, and I hope you will continue to give this topic your thoughtful consideration.



Jan Dye, Chair

Environment & Energy Commission