

The Cost of Clean Air Is Going Up



Environmental Protection Agency headquarters in Washington, D.C. Photo courtesy NRECA

It is no surprise that times are changing. Some changes are front page news and other changes are not so publicized. Your co-op is being affected by a few issues that you will not likely see in bold text in any publication. We want to shed some light on these issues here, so please read on.

To begin, let's talk about some variables that go into the costs of making power. CVEA produces power based on several factors that include fuel prices, equipment replacement costs, transportation costs, and many, many, more variables. One of those variables that may not seem real obvious (but it is a significant factor) is the cost for clean air.

From a citizen's point of view, air is free isn't it? You don't have a meter attached to your mouth or a gauge in your lungs that measure the air you use. If you want, you can run a mile and use much more air than your neighbor who is sitting in front of the TV. You can

breathe as much as you want and you don't pay anyone. This is not quite the case for CVEA.

As a generator of power, CVEA must use some of the air you breathe to make electricity. Simply stated, electricity is most commonly generated by spinning a rotor inside a stator. To turn the rotor requires energy. For most of our electrical generation, CVEA uses the energy in elevated water to turn the rotor. This process uses no fossil fuels and no air.

About 40 percent (and climbing) of our electricity, however, is produced by using fuel. Energy from fuel is generated by a chemical process. Fuel is combined with air and compressed. Depending on the type of fuel, a very excited chemical reaction occurs with a spark, flame or just the compression itself. This chemical reaction releases energy in the form of expansion and heat. That energy transfer turns the rotor and electricity is produced.

The chemical reaction from fossil fuel needs air and then produces an array of different gasses and particles. Anyone that heats a home with fuel or drives a fueled vehicle similarly produces an array of gasses and particles.

The difference being; the exhaust emissions that CVEA produces are much more regulated than the exhaust you produce in your homes or vehicles.

Our emissions are carefully monitored by the employees of CVEA, the Alaska Department of Environmental Conservation, and the Environmental Protection Agency (EPA) of the Federal Government. CVEA must pay an annual fee to release these emissions, and we have strict limits on our total emissions allowed. Essentially, the air that CVEA uses comes with a price on the emissions we produce. That price is reflected in the cost of electricity and that price will be going up because of recent changes in Air Quality regulations.

The process that we use to measure, report, regulate, and minimize emissions takes people, equipment, resources and funds. It may not be obvious, but this cost is already built into your cost of electricity.

So what's new? Well, the EPA has passed new regulations and they are requiring CVEA to reduce emissions of Sulfur Dioxide and Carbon Monoxide. Despite an outstanding record of staying under our emissions permit limits, CVEA will need to switch our fuel type and modify our equipment to meet new requirements set by EPA.

This change must be completed by May 2013, and it will raise the cost of electricity produced with fossil fuel. CVEA and other co-ops have appealed to our Congressional Delegates and to the EPA, but we do not currently have any exemption from these new rules so, as of today, we must comply.

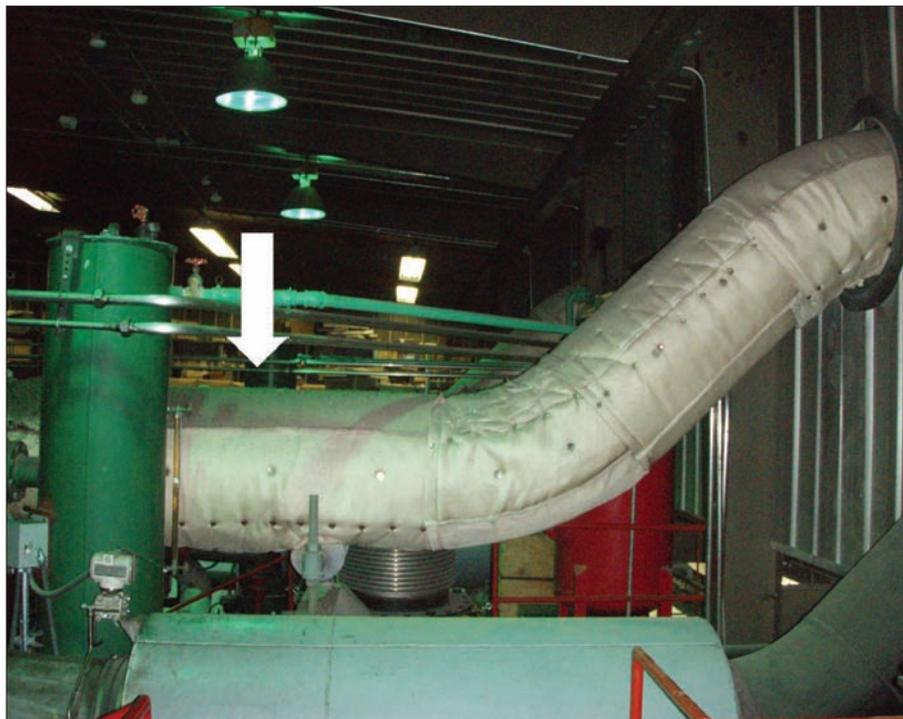
To meet the new requirement by May 2013, we need to take the following two actions:

First, we need to convert our diesel generators to Ultra Low Sulfur Diesel (ULSD). ULSD, when combusted in our generators, produces lower Sulfur Dioxide emissions and brings us into compliance with the new standards.

Unfortunately, ULSD is more difficult for refineries to make so it costs more. After we convert to ULSD, it will cost CVEA more than \$500,000 per year above the current cost we already expend on regular diesel. This would equate to about .6 cents more per kWh, or about 3% increase in your annual bill.

Second, to reduce Carbon Monoxide, CVEA will have to add catalysts to all our diesel generators. These catalysts utilize the heat of the exhaust and precious metals (such as platinum) in filters to strip away the Carbon Monoxide from our emissions.

The new EPA rules require us to reduce Carbon Monoxide emissions by 70 percent, so highly efficient catalysts must be installed. All diesel generator



Current generator exhaust stack with arrow demonstrating the future location of high efficiency catalyst housing and filter

exhaust stacks, like the one pictured here (without a catalyst), will need to be fitted with catalyst housings and filters.

These catalyst housings and filters are very expensive. The catalysts need to withstand temperatures over 1,000 degrees Fahrenheit and that takes high quality materials and manufacturing. In total, we roughly estimate the cost to CVEA to be over \$700,000 to modify all our diesel exhaust stacks by 2013.

For our members, that cost is spread out over the life of the capital project and will not be as noticeable to your monthly bill. There will; however, be added costs of changing out the filters periodically, depending on how long each generator operates per month, but we don't know the impact of that yet.

In addition, the EPA has now increased their role in the management of Green House Gases (to include Carbon Dioxide). If you remember from your biology class, humans and animals breathe out Carbon Dioxide in every exhale.

There is much debate over EPA's involvement in regulating such a naturally occurring gas but this is our future. For CVEA, there are no rules yet on Carbon Dioxide emissions but it appears that some type of modification may be needed in the future to reduce Carbon Dioxide.

Please note that the catalysts described above clean Carbon Monoxide, not Carbon Dioxide. Any limits to Carbon Dioxide emissions imposed by EPA will be another requirement and cost that we have not talked about here.

We are in a new world and the standards are constantly changing. Our current political climate is driving efforts to monitor, control, and reduce emissions. While these regulations are, for the most part, outside our control, we are doing our best to prepare for the new rules. Bottom Line: there is a cost for clean air and it is going up.