

Job Well Done on Messages to the EPA

Over the last several months, we have been working together to send the EPA an important message about our concerns over their newly proposed green-house gas rules 111d or CO2. The message was simple and to the point. We believe that we need all forms of generation to keep electricity reliable and affordable, including coal. As of this writing you have sent approximately 3,000 messages on this effort and I wanted to say job well done! In the coming months into next summer, we will learn the final rule from the EPA. Our hope is they will dial back on the proposal to keep a good balance of current and future electric supply. If the rules go forward then we will not see any more new advanced coal-fired plants constructed; furthermore, existing coal-fired plants will see their costs rise and eventually be closed down. Considering Kentucky has a statewide moratorium on nuclear, this only leaves natural gas and renewables for future generation. In my opinion this is the wrong direction to go and will ultimately weaken our electric grid's reliability. We may have to petition the state to allow future nuclear plants if coal is ultimately removed in order to maintain long term reliability.

Real Costs of Various Forms of Generation for Electricity

It is important for each of us to have a fundamental grasp and understanding of costs for electricity. As you may recall Warren RECC receives its wholesale power from TVA, then we take that power and distribute it to your home, farm, or business. For every dollar you spend on electricity 75 cents goes to TVA for the cost to generate and transmit it to Warren RECC. We spend another 25 cents to get it from connections points with TVA to your location. Since much of your cost is from the generation sector the following will help you get an improved understanding of it.

In *Figure 1* the cost in cents per kilo-watt hour (KWhr) are shown for new generation of the various technologies. The costs shown include no tax payer incentives. When you compare costs it is easy to see the least to the most expensive; however, remember while cost is a big consideration other factors come into play. Some resources are noted as "base load" and these types of resources generate bulk or large quantities of electric power around the clock 10 or 11 months out of the year. A good example of base load generation would be nuclear and coal powered plants. Over all coal and nuclear produce power approximately 70-90% of the year. Another form of generation is for peaking or intermediate use, which is used when demand for power is high to extreme (*such as during the summer or winter*). Peaking and intermediate plants are typically powered by natural gas; moreover, these plants produce power approximately 5-50% depending on the designs. Large hydro dams (*which are not being constructed anymore so are left out of our figure 1*), are also used for peaking times as well and are very economical. Over all large hydro dams can produce power approximately 50% of the

year in the mid-western USA. When you speak of solar and wind these resources are defined as intermittent because they are more subject to Mother Nature. Solar generates well during sunlight, less on a cloudy day, and not at all during the night time. Over all solar produces power about 20-30% of the year. Wind is used in specific areas of the country, where enough wind blows on a consistent basis to make the project cost-effective. Wind is subject to the wind patterns of the seasons and regions of the country. For example wind does well during the winter and fall and less so during spring and summer. For example January is a great month for wind generation while August is very poor. Wind contributes better to winter use than it does summer. Over all wind produces power approximately 40% of the year and is mostly used in the middle of the country (*not Kentucky*).

While we did not talk about some other lesser forms of generation the ones listed in this article are the primary forms of generation we use today. Each generation resource has its pros, cons and costs. TVA has a very diverse fleet of generation such as nuclear, coal, natural gas, hydro, solar, and some wind. The concern we see today in our industry is the need to keep a diversified fleet of generation to insure reliability, cost, and the environment. The primary challenge for TVA and Warren RECC is to deliver power 24 hours a day and 365 days a year. Warren RECC tracks its reliability on a monthly basis and is proud to say we keep the system on 99.97% of the time. I know sometimes your area may have a problem but we commit to keeping the lights on as much as possible; even though, Mother Nature or human interference may put up a good fight trying to do otherwise with your electric service.

- 1) **Solar** (PV) **12** cents per kWh
 - 2) **Nuclear** **9** cents per kWh
 - 3) **Wind** **8** cents per kWh
 - 4) **Natural gas** **6.8** cents per kWh **(Add 4 for CO₂ *)**
 - 5) **Coal** **7.5** cents per kWh **(Add 5 cents CO₂ *)**
- * If EPA CO₂ rules go forward, coal & natural gas generation would increase 4 to 5 cents per kWh.**

Figure 1: Typical costs for new generation without taxpayer incentives. Additional costs for coal and natural gas are shown if EPA's CO₂ rules become final. Note there is no technology

available on new coal generation, which will meet the newly proposed EPA rules; thus, no new coal generation will be built. Transmission line costs are not shown to get the power from the plants to Warren RECC.

In closing on this subject it is important to understand each form of generation is different in cost and its availability. Coal and nuclear generation are used for bulk power production around the clock. Their fuels are stored onsite and provide an unmatched reliability attribute. Natural gas and large scale hydro are good for short to medium use, by filling in the need for extra power when you need it most in summer heat or winter's bitter cold. Natural gas is subject to pipeline availability for the fuel and large hydro is subject to seasonal rainfall forecasts. Solar and wind are intermittent (*you take the power when it's ready not necessarily when you need it*), resources subject to when the sun shines and when the wind blows. We cannot store sun or wind so we try to store the solar and wind energy with large batteries, but this has not proven to be cost effective compared to other resources.

Winter is Upon Us

Unless you were living under a rock last winter you know all well what the coldest winter in 20 years brought to our region. Electric demand skyrocketed to new all-time records on several days with alerts being issued multiple times. TVA announced an alert it had not issued in many years, as the grid was pushed very close to the limit in January. Natural gas prices spiked nearly 25% from the fall of 2013 into January. Propane costs and demand also increased to a point where some companies ran out of fuel forcing many people into the cold. Having just mentioned the importance of keeping a diversified generation fleet, this concept can also be applied to your home or business. For example many people have both a heat pump and natural-gas or propane system and this is called a *dual fuel* heating system. The heat pump is used to cool your home in the summer and it handles partial heating of your house in the winter. However, once outdoor temperatures reach approximately 30 degrees, the gas furnace can be commanded to come on to assist the heat pump and eventually take over the heating if temperatures continue to drop lower. *Dual Fuel* can be adjusted to use more or less of the heat pump or gas furnace depending upon which one is the cheapest to run at the time. Another reason *dual fuel* makes sense is you only use the gas when it gets cold enough, saving the fuel for the coldest times of the year. I have such a system on my house and fortunately I did not run out of propane last winter, as it was only being used on days and hours below 30 degrees when I needed it most. Personally, I never knew when one system switched to the other, I was warm and at an affordable price. Warren RECC offers rebates for *Dual-Fuel* systems, so check with us before buying new or replacing your old system.

Of course winter also reminds us we should check windows and doors for cracks and missing weather stripping to prevent cold-air leakage. The best money you will ever spend toward efficiency will be added insulation; thus, your home should be examined to determine if you have adequate amounts of insulation in your attics, walls, and floors. Warren RECC can assist you in determining what things should be addressed to make your home more efficient than it is now. In December 2014 we began promoting and supporting TVA's new E-Score program. E-Score is a residential energy efficiency program, that provides members with a clear path to make their home a 10 (*best it can be*). It allows members to re-engage with the program as many times as needed to achieve their home's best possible energy performance. This can be achieved at the homeowner's own pace, earning rebates on qualified energy efficiency upgrades. The process begins with either a professional energy evaluation or the member may choose the path of working through a certified contractor. Please contact our Member Services group for more information on getting your home or business evaluated for potential improvements. You may also go to our website at www.wrecc.com to review tips to reduce your usage and keep out the cold. Now is the time to save, don't wait until after winter is over to use your dollars wisely.

Warren RECC Presented the 2013 TVA Top Performer Award

Warren RECC received the 2013 TVA Top Performer Award. It was presented by Ernie Peterson, TVA Customer Service General Manager, at the cooperative's Annual Member Advisory Dinner. Peter Mahurin, TVA Board Member, was also in attendance. The award was given in recognition to Warren RECC's accomplishments in the following categories:

1. **Residential – In Home Energy Evaluation Program** – The IHEE program concluded on September 30 in order to transition to the new *eScore* residential program. Warren RECC is clearly a leader with the IHEE Program. Warren RECC members participated in 1,573 evaluations with an 83% implementation rate. This resulted in almost \$600,000 in rebates that were earned by WRECC members and it represents over \$3.6 million in energy efficiency improvements that have been made by the homeowners. Warren RECC leads the Kentucky District and is ranked number 12 in the Valley for IHEE evaluations.
2. **EnergyRight Solutions for Business/Industry** – Fiscal Year 2014 can be described as a transition year for the commercial & industrial programs as we move to the redesigned program. In Fiscal Year 2013, Warren RECC ranked number 2 among Local Power Companies in the Valley for the energy saved by their industrial members. This resulted in Warren RECC being ranked number 6 in the Valley for FY2013 for Total Program

Savings which included all programs. Warren RECC has shown their commitment to their membership by being a strong supporter of the Comprehensive Services Program and also providing technical advice from their Member Services Team.

3. **Renewable Energy Programs** – For the Green Power Providers Program, Warren RECC currently ranks in the top ten Valley-wide of over 150 utilities within TVA, for both operating capacity and the number of installations for solar power. Warren RECC was also recognized by TVA for growing their Green Power Switch enrollment with a direct mail campaign.
4. **Demand Response** – Warren RECC continues to be a strong supporter of the EnerNoc Demand Response Program. WRECC currently ranks number 4 in the Valley for their 6.4 megawatts of capacity that is enrolled in the EnerNOC Program. This important demand response program gives TVA options for meeting the energy needs of the Valley on days with high energy consumption. This program over all strives to keep power available and costs down on high demand days or nights.

As another new year is upon us I want to encourage you to utilize your cooperative at Warren RECC. Our only mission is to keep you the member satisfied in the use of electric power. While it is at times a difficult task with weather and periodic regulatory challenges, we enjoy and accept our work in a humble but serious commitment to you. Thank you for letting us serve you, it is a privilege. Hope you had a Merry Christmas and may God bless your new year.