THIRD WORLD – RELIABILITY AND COST

I wrote about reliability and cost in the last issue, and on page 12 of this magazine you will read more. The premature transition away from coal and nuclear to natural gas and renewables continues to work wonders on the cost and now reliability of wholesale power. These "wonders" are far from beneficial. During the first two weeks of June, we had 58 hours of economic interruption during which we were buying energy through the MISO market. There were no particularly outstanding physical markers, such as extreme weather or unavailable generation, that accounted for this; it was pretty much strictly a factor of the market for natural gas. During these hours of economic interruption, our wholesale energy cost was roughly four times what we normally see.

There is no reason for folks to panic regarding this potential situation; however, there is no reason why we should be where we are other than current energy policy.

As I noted in previous articles, we expect to see these interruptions more and more as the price of natural gas drives the MISO market. With the price of diesel approaching $6 per gallon, the cost of running our engines makes the cost of these interruptions cheap. What used to cost approximately $0.50 per kWh to generate, is now approaching $3 per kWh. We have approximately 20,000 gallons of diesel on hand, but boy…we sure don't want to have to buy much more at these prices!

What might force us to run engines is the prediction that the Midwest may be subject to rolling blackouts this summer due to electric demand exceeding available generation. This is a nerve-wracking prediction for all of us and to be honest, we are unable to get answers from WE/WPS regarding their thoughts on the situation. In discussion with other cooperative managers, there is a feeling that the predictions, while based on real load calculations, are couched in a bit of drama in order to prepare people. Unfortunately, if this becomes a "cry wolf" situation there are serious consequences that come with that if there are indeed blackouts at a later date. There is no reason for folks to panic regarding this potential situation; however, there is no reason why we should be where we are other than current energy policy.

Our intent with rolling blackouts will be to run our engines and provide power should they occur. The problem for us is the cost of the power. You will remember that we ran for 12 days during the cable failure and even managed to weather engine problems, but the cost was high, even with diesel fuel at 1/5th of what it is now. If these rolling blackouts come to fruition, it is likely that the cooperative will have to institute some sort of a fuel surcharge based on actual costs, much as we might should these economic interruptions continue to increase in frequency and longevity.

For additional information on supply/demand of electricity and predicted generating shortfalls, you can read the summer reliability assessment prepared by the North American Electric Reliability Corporation (NERC).

https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2022.pdf

The situation is especially nerve-wracking for those of us in the industry, because the average person in the public will not point to energy policy as the culprit, but rather to the utility industry directly. The whole scenario is very Third World, and we should not be where we are today. Some of the action taken that has been touted by the press, such as the Biden administration's Defense Production Act, will likely have very little effect on reliability, in spite of what is being said.

Should it appear that these situations will occur, we are looking at using social media and email to communicate to our members to curtail usage (much like we did during the cable failure). In the case of our economic interruptions, which are market driven, hours are based on day-ahead predictions and we can send out notices requesting that people limit their usage during these times. However, in the case of a rolling blackout, we do not at this time know how these will be considered or scheduled (if at all).

WPS MAKE READY COMPLETE, NSIGHT SCHEDULING INSTALL

Wisconsin Public Service completed their "make ready" work the last week of May and Nsight has completed their engineering of the Northport to Gills Rock run. We met with Nsight engineering on June 9, and work to begin actually stringing fiber on both the mainland and on the Island will commence as soon as contractors can be scheduled. With any luck this work will be underway by the time you are reading this.

Karcz's cable-sneaking machine installing 1-inch conduit for fiber.

As part of the second grant (the first being related to the submarine cable), the backbone of the pilot area will be run and an initial 25 connections will be made. At the same time, we are working on the third grant which expands north and provisions 314 homes and businesses for connection. We feel that once Nsight's shared work is complete, things will move relatively quickly.

Headend equipment has been obtained and is being configured. One of the more surprising things was the difficulty (or rather, complexity) of the process to obtain the IPV4 addresses necessary for us to provide service. Because there is a shortage and because there has evidently been some profit-mongering going on with relation to IP addresses, the requirements are pretty stringent and, at least in my opinion, convoluted. The necessary IP addresses have been obtained in spite of this and we keep moving forward.

Work by Quantum is progressing at the school and has been completed now at the airport and the Visitor Center. In addition, Velkommen Apartments are being wired because each apartment is an individual customer in spite of each building only having one meter.

Karcz Utility Services has been here reinforcing poles as part of our own make-ready work, and we have worked on some of the underground installation that will be necessary for final drops to homes.

You will recall that we obtained a brand-new fiber splicing trailer at an excellent price because it had suffered damage during unloading. Steve Fisco has worked his magic, and while we would have been satisfied with the rear door of the trailer simply being weathertight and closed, he has repaired it to its full operational status.

We will communicate with you once we have the fiber installed and lit to the cooperative. Just as a reminder, the cooperative will be the internet service provider and we are provisioning every home and business for service. It will be up to the individual member if they wish to subscribe to the service, but this will be done through the cooperative and will be tied to your electric account.

Some of our continued make-ready work will require outages that we will schedule and communicate moving forward, and by being prepared, we hope to keep these to a minimum.

On a sour, but not unexpected note, we have been officially notified that we were not successful in our bid for the NTIA grant. We have requested a debrief and are hopeful that it will happen prior to when the next opportunity arises. We won't hold our breath though because timeliness and government do not seem to be compatible theories. To repeat what has already been reported: We do not need this grant to proceed as the economics of the project work. This does not mean that we are done pursuing grants to offset the cost, so stay tuned because our great-grandchildren have only just begun to throw their money around.

Mike Jorgenson at work with Karcz Utilities, using the cooperative's excavator to install conduit.

WIEC RESCUES UNITED STATES COAST GUARD

Okay, the headline here might be a "slight" exaggeration; however, there is more than just a little bit of truth to it. Unfortunately, the sequence of events is an example of "our government in action" that ranks up there with those expensive toilet seats and hammers that we seem to read about but never see an actual change.

In late February or early March, the ferry crew noted that the rear range light on Plum Island was not lit and reported it to the Aids to Navigation folks in Cleveland. Having assisted them on prior occasions, I received a telephone call from the Two Rivers station that is in charge of this area, asking for any insight. The electrical installation for this light (which is considered a critical aid to navigation) consists of a WPS pole-mount transformer (which also serves the ticket booth and dock at Northport) that backfeeds 240V to a pad-mount transformer just to the northwest of the dock. This transformer steps up the voltage to 2400V, which then feeds Plum Island via submarine cable where a second, identical pad-mount transformer steps the 2400V back down to 240V. From there power runs to a switch cabinet and then into a small breaker enclosure in the base of the 1896 rear range light.

As it happens, I was on my way to catch a return ferry to the Island when they called and I looked at the meter servicing this setup and it was active. All equipment (rightfully so) was padlocked, so I told the Two River crew that if they wanted to meet me at the dock at a later date, I would be happy to help them safely troubleshoot. I told them to bring keys to the padlocks (or a large bolt cutter) and a chainsaw since their transformer was unopenable due to cedars growing around it.

About two weeks later we met at Northport and after testing, found the main fuse in the transformer to be blown. Using our tester, the transformer tested okay. This meant that the transformer had seen load in excess of twice its rating (the entire system including the LED light draws very little), and, barring an issue with the transformer on Plum Island (unlikely), it appeared as if their cable had failed. I told them that if they got me over to Plum Island, I would troubleshoot there as well, but it was unlikely that I would find any problems. I also reminded them that we were positioned to connect them to our cable infrastructure on Plum Island. Upon return to the Island, I also wrote a note to the ATON folks in Cleveland explaining the troubleshooting we had done and also reminding them that we could connect them.

The U.S. Coast Guard cable has always been visible in the shallow water off of Plum Island and, when the water was low in 2015, was actually lying fully exposed on the beach. When we installed our new cable to the south of theirs, the diver saw not only numerous older cables on the bottom (including telephone and telegraph cables), but we also dug up five different power cables on the Island. This latest cable was installed sometime around 2005.

Meter pedestal installed in 2018 in anticipation of USCG cable failure as well as potential USF&W use.

Contrast their installation with ours, where our cable is housed in a 10-inch heavy wall HTPE conduit buried 3-4 feet beneath the bottom out to a water depth of approximately 25–30 feet (over 450 feet from shore on this side of the Island). At the time that we installed our cable, we were in regular contact with Cleveland and when we laid out our right-of-way with USF&W on Plum Island, we included a path to the range light and to the lightkeeper's house in addition to the life-saving station. At that time, we also installed meter pedestals and attempted to get the USCG to sign on to the project. They declined.

Sometime in late April or early May, the helicopter from Traverse City, MI was dispatched to, I assume, attempt to troubleshoot the problem on

Plum Island. Unfortunately, not only did they not have keys to the transformer and switch cabinet, but they failed to bring bolt cutters large enough to cut them and rather than call us here to help, they flew back to Traverse City without accomplishing anything other than verifying that there was no power on Plum Island, which we already knew because of the blown fuse at Northport. Had they called, I would have been happy to help them and at the very least I could have loaned them bolt cutters. It was a pretty expensive trip to accomplish nothing other than to irritate the USF&W that they did not inform them they were coming to the Island. But wait! There's more!

Again, sometime later in May, the Coast Guard again returned to Plum Island to set up a temporary solar arrangement at the rear range light. Not only did they again fail to inform USF&W, but they set it up in such a way that the doors to the light had to be left open. This was only discovered when one of the Friends of Plum and Pilot Island happened across it. Keep in mind, USF&W and the friends spent nearly $250,000 restoring the upper part of the structure last year and now it was wide open to the weather.

I was asked by USF&W to again contact the USCG with my proposal to connect the light to our infrastructure, and finally there seemed to be some sense of urgency to finish the task.

The 1896 rear range light on Plum Island prior to restoration.

I rode over to Plum Island with USF&W on June 3. We were met by USCG personnel from Two Rivers, who dismantled the temporary installation after I connected the light to the meter pedestal we had installed at the base of the light in 2018. This service was actually used to provide power for the restoration work previously mentioned. There will be a small amount of work to do to make this connection permanent, which we will accomplish at a later date when we are on the Island assisting USF&W with some of their needs.

While we may not have actually physically rescued the Coast Guard, we certainly were successful in coming to their aid. Now if we can just convince them to spend more than just weekends on Washington Island…

OTHER DUTIES AS ASSIGNED

Amid all the hubbub of fiber and Coast Guard and other such activities, we continue to maintain and build our system although like that job description you have all read, sometimes our primary function gets the attention of "other duties as assigned."

Your crew continues to work on line extensions and right-of-way maintenance in addition to fiber work. We are reaping the benefit of some of the equipment that we purchased as part of the fiber grants. The skid loader, in conjunction with Mike Jorgenson's brush cutter, has been used to clear rights-of-way that were almost impassible due to small growth (and in some cases larger growth) trees.

The hydraulic rock breaker that was purchased as part of the mini excavator part of that equipment has been used to break rock to install a number of poles that in previous years would have required blasting or beating the heck out of the digger derrick to grind through the rock.

Surprisingly, even in today's economy, we have had a number of new line extension requests and expect to be out with potential new members who intend to build within the next couple years looking at their needs.

We are still plagued with supply chain issues, although some of the material that we ordered in 2021 is trickling in.

We also continue to assist with community service work such as wiring, verifying operation, and installing the new scoreboard the Lion's Club acquired for the Little League field.

Right-of-way cleared using the skid loader purchased with fiber grant.

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