CURRENTS

Spring 2007

GRAND RIVER DAM AUTHORITY

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GRDA: *Power for progress in Oklahoma*

In the late 19th century, poet John Godfrey Saxe detailed an encounter between six blind men and an elephant. One brushed up against the elephant's side and thought the animal must resemble a wall. Another felt the elephant's tusk and concluded the animal was like a spear. Another, feeling the animal's trunk, determined it was most like a snake. The remaining three had similar experiences, each determining by feel that the animal resembled something different.

After their encounters, the men engaged in a long debate about the true likeness of the creature. Unfortunately, each only "saw" part of the picture. So as it turned out, each was partly in the right, but also in the wrong. There was simply no way for all of them to see the whole animal the same way.

Historically, the Grand River Dam Authority has faced a similar struggle. This organization — an Oklahoma state agency, an electric utility, a lake management agency, and an economic development engine for the state — is also many different things to many different people.

Kevin Easley
Chief Executive Officer
Grand River Dam Authority

Since coming to GRDA in March of 2004, one of my goals has been to help put an end to GRDA's "identity crisis." After all, despite how this organization may touch your life, the 485 Oklahomans who proudly comprise Team GRDA (myself included), want you to see what we know is true: GRDA is a valuable resource for its native state. On the lakes, across the electric lines, and along main street in the communities we serve, we believe GRDA is a powerful resource for Oklahoma.

What you now hold in your hands —the new GRDA *Currents*— is a new tool that will help us tell our story. Customer news, employee initiatives and spotlights, lake information and other important issues affecting the day-to-day operations of GRDA will fill this publication each quarter as we attempt to tell our story to our Oklahoma neighbors.

Another goal of mine for GRDA has always been greater openness and access. We want all our constituents to hear the GRDA story, to be introduced to the GRDA team and to understand why this organization really does mean power for progress in Oklahoma.

We appreciate you taking the time to read this publication. If you have any questions or comments about it, please feel free to email them to currents@grda.com. Also, please visit our Web site, grda.com, to learn more about our agency.

Thank you again. We hope what you find here will help you see the big picture of Oklahoma's GRDA.

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GRDA's ongoing efforts...

Comprehensive plan to manage resources

The story of the Grand River Dam Authority's ongoing efforts to complete a comprehensive shoreline management plan (SMP) for Grand Lake really began in June 2005. At its meeting that month, the Grand River Dam Authority Board of Directors approved a contract with Kleinschmidt and Associates to develop the plan.

"We're very appreciative to the GRDA Board for approving this contract to develop the plan," said GRDA Chief Executive Officer Easley at the time. "Not only because of its importance for the future of the area, but also because a comprehensive shoreline management plan was something the Federal Energy Regulatory Commission (FERC) had requested of GRDA."

That decision by the GRDA Board came one month after GRDA officials had visited with FERC staff and learned that most of the new GRDA lake management initiatives — put in place following the establishment of a GRDA Ecosystems Management Department in early 2004 — were well received by the federal agency with oversight over the nation's hydroelectric projects.

"GRDA realizes Grand Lake is the economic engine for Northeast Oklahoma; and our job is to be proper stewards of this tremendous resource..."

"During those meetings, FERC told us GRDA had exceeded expectations," said Easley. "In early 2004, they said we were one of the worst managed hydro projects under their regulation. But we were told at those meetings that GRDA is an example of how proper lake management should be done."

However, Easley noted at the time that developing a Grand Lake SMP was still on FERC's "to do list" for GRDA. "It was an area where FERC said we still had some work to do," said Easley, "and that's why the board's decision to move forward was so important."

An SMP is a comprehensive plan to manage the multiple resources and uses of Grand Lake's 1,300 miles of shoreline. The final plan will be designed to address the needs of the public and the operations of the shoreline in a manner that are consistent with GRDA's requirements to operate the Pensacola Dam (as outlined in a license from FERC).

With that in mind, Kleinschmidt, on behalf of GRDA, held the initial SMP public "listening sessions" in October 2005 to inform lake area residents and interested parties about the SMP and the development process. By December 2005, three stakeholder working groups were established: 1) Allowable Use; 2) Permitting; and 3) Land Use. Made up of volunteers with an interest in the SMP, these committees worked throughout 2006 to establish recommendations for inclusion in the SMP.

During the same period, GRDA continued to seek public input through an email address (smp@grda.com) and written public comments. In early 2006, GRDA also held a series of public meetings to allow interested parties to comment and provide input on the SMP draft. A series of SMP newsletters also kept lake area stakeholders informed of the ongoing SMP process.

"GRDA has encouraged the public to comment on the SMP throughout the development process," said GRDA Community Relations Director Holly Moore. "Public input was not only requested, it was highly solicited and valued. The future vision for Grand Lake belongs to these stakeholders."

As of mid-March 2007, the public meetings were complete and stakeholder working group meetings had been scheduled to review public input and modify the latest SMP draft. After that is complete, the final draft will be submitted to the GRDA Board of Directors for approval before going on to FERC for final approval.

"GRDA realizes Grand Lake is the economic engine for Northeast Oklahoma; and our job is to be proper stewards of this tremendous resource," said Easley. "We believe the development of this SMP will be beneficial for Grand Lake in the coming years. I commend all those volunteers who have put in so many hours to help shape the future of Grand Lake."

Third rating upgrade in 24 months ...

Moody's affirms GRDA's A2, moves outlook to stable

Taking into account a tradition of competitive rates and several other factors, Moody's Investor Service affirmed an "A2" rating on the Grand River Dam Authority's outstanding electric revenue bonds on January 4. Moody's also announced it would change GRDA's rating outlook from negative to stable.

"This is great news for GRDA and reaffirms many of the decisions we've made over the last three years to make this agency more financially stable," said GRDA Chief Executive Officer Kevin Easley. "Our board and all our employees are to be commended for helping to make this possible."

In less than two months, all three major bond rating agencies upgraded GRDA's rating outlook.

In March 2005, Fitch Rating Services reaffirmed GRDA's "A-" (investment grade) rating while also upgrading the outlook from stable to positive. It marked the first improvement in GRDA's outlook ever by Fitch, which cited "recent initiatives undertaken by GRDA's new management (with board support) that strengthen its credit profile" as a factor in the decision. Then in March 2006, Standard & Poor's Rating Services (S&P) also affirmed GRDA's "BBB+" credit rating and improved the outlook from negative to stable. S&P cited GRDA's customer acceptance of rate increases that will improve finances and the utility's low-cost power supply among the factors in its decision.

According to the recent Moody's news release, "the change in rating outlook primarily reflects the Authority's improved debt service coverage after a period of very narrow margins." Moody's also listed GRDA's history of successfully operating within a competitive environment among its strengths, as well as the Authority's stable and strong liquidity position. The report also acknowledged that GRDA's focus continues to be "on supplying the native load of its Oklahoma customers."

"Good ratings translate to lower financing costs," said Easley, "and this news comes at a great time for GRDA, considering we are moving forward with the generation upgrade at our Robert S. Kerr Dam and other projects to better prepare our system to meet growing future customer needs."

According to Easley, changes and improvements made over the last three years have been good for business, which really means good for GRDA customers. "It gives us a lot of confidence to know that today's efforts continue to put us in a better position to meet the long-term needs of our native load tomorrow," he said.

The Moody's report did note some challenges for GRDA, including meeting contracted demand with purchased power or the development of new resources, and continued competition. However, it also added that its rating "has historically recognized GRDA's success at operating within a very competitive environment."

"...GRDA's focus continues to be on supplying the native load of its Oklahoma customers..."

GRDA's reliable supply and low prices were also underscored in a January 2 Standard and Poor's rating affirmation for a wholesale customer. According to the customer rating analysis, "The electric system's role as a power distributor of competitively priced Grand River Dam Authority … greatly reduces operating and financial risk to the city."

"Most of GRDA's partnerships with its wholesale municipal customers go back over half a century," said GRDA Chief Financial Officer Carolyn Dougherty. "And as we build this stability for our customers' futures, we also see it as an opportunity to build on the ideals of public power. City fathers in these communities decided they wanted municipally-owned electric systems for their hometowns. What GRDA is doing today helps reinforce those decisions for generations to come."

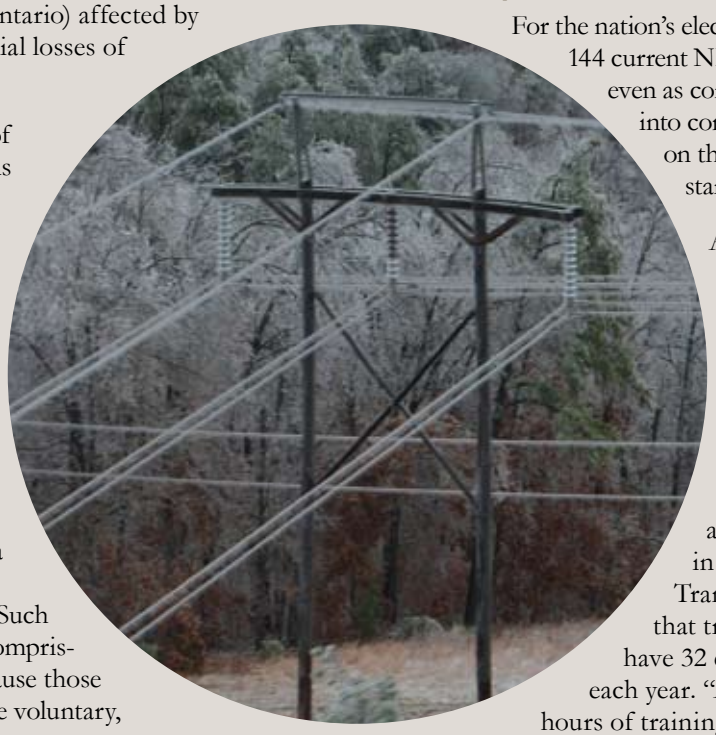
"The most important point is that a stronger GRDA can provide more reliability and security," added Dougherty. "We are pleased that the financial community has given us a good evaluation on our ability to repay our outstanding debt while continuing to focus on and meet customers' long-term needs."

Right: Robert S Kerr Dam Aerial: An aerial view of GRDA's Robert S. Kerr Dam (Locust Grove) and Lake Hudson. GRDA will soon be moving forward with plans to began a major upgrade of the facility's four hydroelectric turbine-generators. An announcement that Moody's Investor Service has improved GRDA's credit rating outlook, as well as GRDA's efforts to reinvest in its generation resources like Kerr, are among the ways the Authority is preparing to meet the long-term needs of its customers.

Facing changes in the nation's bulk electric system...

Operators meet NERC standards

In the wake of a multi-state blackout that hampered a large portion of the Northeast United States in August 2003, the reliability of the nation's electric grid was again thrust into the national spotlight. After all, that '03 outage was the largest in North American history with close to 50 million people (across eight U.S. states and stretching into the Canadian province of Ontario) affected by the event, resulting in outage-related financial losses of approximately $6 billion.



As the investigation surrounding the cause of the outage moved forward, so did discussions surrounding the need for more authority to oversee the grid's reliability. At that time, the Grand River Dam Authority and the nation's other electric utilities took part in the North American Electric Reliability Council (NERC) and its voluntary system of compliance. The process helped ensure each utility operated its control area —tied to the rest of the nation's grid— by the most reliable means possible. The GRDA control area includes over 1,900 miles of high-voltage transmission lines in Oklahoma and over 60 interconnect points, where the GRDA control area is tied to other utilities. Such patterns are repeated all across the nation, comprising the national electric grid. However, because those original reliability standards for the grid were voluntary, the system may have lacked some authority.

Establishment of NERC

"NERC was first established in 1968 and was originally a voluntary system of compliance," said GRDA Superintendent of Operations and Off-System Marketing Mike Stafford. "However, with the changes in the nation's bulk electric system, voluntary was no longer adequate."

The Federal Energy Regulatory Commission (FERC) took a long look at the system following the 2003 blackout and sought stiffer enforcement. Lawmakers also responded, and in August 2005, President George Bush signed the 2005 Energy Policy Act into law.

"That legislation created the Electric Reliability Council, which was then appointed to NERC," said Stafford. "This gave NERC the leverage to enforce its reliability standards, with federal backing."

NERC Requirements

For the nation's electric utilities, that means compliance with 144 current NERC standards is now mandatory. And even as control area operators bring their operations into compliance, 26 more NERC standards are on the way. Eventually, NERC will have 170 standards in place, said Stafford.

Among those, the most notable may be the one dealing with system operator certification. NERC requires the personnel who actually operate the energy delivery system—balancing generation and monitoring transmission paths— to complete at least 168 hours of training every three years. At GRDA, all 13 system operators are NERC-certified with certificates in either "Balancing, Interchange and Transmission" or "Reliability." Along with that training, each system operator must have 32 emergency operations training hours each year. "And that doesn't even include the many hours of training that is specific to the GRDA system," said John Kerr, GRDA System Operations Supervisor and Operations Training Coordinator (see sidebar for more on GRDA's in-house NERC-certification training program).

Still, while the bulk of compliance issues may center around the 24/7 operations at GRDA's Energy Control Center, NERC standards cast a broad shadow across electric utilities, said Steve Rockey, GRDA Superintendent of Transmission Operations. Everything from substations and rights-of-way to future engineering projects may need to align with NERC standards.

"It goes well beyond system operations," said Rockey. "We have cyber security standards, physical standards and communications standards that also have to be met. Really, its important for every department at GRDA to understand NERC and how it operates."

GRDA's Participation in NERC Readiness Audit

In December 2006, personnel from several GRDA departments took part in the Authority's NERC readiness audit. For four days, a six-member audit team comprised of NERC, Southwest Power Pool (SPP) and at-large representatives was on site at GRDA's Energy Control Center to interview key personnel, observe operations and gather data.

"...it's important for every department at GRDA to understand NERC and how it operates."

"The team was here to assess GRDA's ability to reliably operate the bulk electric system," said Rockey. "They reviewed our facility, spent time with our system operators, reviewed documentation and interviewed several employees during the four-day audit." Along with system operations, personnel representing GRDA engineering, information technology, vegetation management, relay and substation maintenance were all interviewed during the audit.

Although the audit's final report will not be available for some time, Stafford said GRDA felt very confident in the information it was able to present to the team. Although it has undergone similar reviews from other organizations like SPP, this represented the first NERC readiness audit for GRDA.

"We were pleased with how it went," said Stafford. "A lot of GRDA personnel came together to provide the information the NERC team needed and made themselves available for any interviews or questions that might have come about during the audit. It took a lot of teamwork on everyone's part, and that is something that will be vital for GRDA, as we go forward with the new NERC standards."

Left: Ice covers a transmission structure along GRDA's Feeder 105 in Mayes County during the January 2007 ice storm.

John Kerr
GRDA System Operations Supervisor
NERC-Certified Trainer

NERC certification training

Since 1995, the North American Electric Reliability Council (NERC) has required certification for all electric system operators. Initially, training and certification for Southwest Power Pool (SPP) utilities, including GRDA, was handled through the Power Pool. However in 1998, NERC took the process over nationally and today all system operators are required to pass a NERC-approved certification test every three years.

After passing the test, system operators are also required to maintain their credentials with continuing education classes. All GRDA system operators are either NERC-certified in Reliability or Balance, Interchange and Transmission (BIT), with either 200 or 160 continuing education hours required annually. In addition, system operators are required to complete 32 hours of emergency operations annually.

NERC standards also require entities to have a dedicated trainer, and at GRDA, John Kerr fills that role. A 34-year GRDA veteran, Kerr is a system operations supervisor at the GRDA Energy Control Center and has developed over 38 NERC-approved Continuing Education Hours (CEH) for GRDA operators.

"It takes approximately 50 to 180 hours of research and development to create one in-house CEH," said Kerr, who also serves on NERC's Continuing Education Review Panel (CERP).

"And those hours don't include the time it takes to deliver the training," he said. Nevertheless, he said it is still more feasible to create and deliver the modules in-house than it is to purchase the modules from an outside vendor. Some examples of the modules Kerr has created include GRDA Blackstart/Restoration Drill, GRDA Capacity and Energy Emergency Drill, Back Up Control Center (BUCC) Drill, Basic Elements of System Protection, Certified Switching Course 1 and 2 and a SPP West Sub-Region Blackstart and Restoration Drill

While it all equals to a lot of training, Kerr said the right attitude can make all the difference.

"System operators have to have the attitude that they want to train," said Kerr. "And our system operators enjoy it."

From paper to products in less than one year...

American Castings

The effects of extreme heat and intense pressure are seen every day. The landscape continues to be formed and shaped by these powerful forces. Dry land emerges from the troubled sea, valleys are formed as the internal pressure lifts the earth skyward and the resulting basins are fashioned to receive the falling rain.

Following the same principles-applying extreme heat and intense pressure-American Castings, a Grand River Dam Authority industrial customer located in the MidAmerica Industrial Park, creates castings of ductile and grey iron. The company's 400,000 square foot world class facility has the capacity to take ideas and cast them in iron, from paper to product in less than one year.

According to the company, their state-of-the-art metallurgical and sand laboratory provides the ability to perform all spectrographic and tensile tests in-house which assures the customer of immediate certification of the chemical and physical properties of their castings. American Castings has invested over $10 million in the last two-and-a-half years on infrastructure and equipment.

The 2000 tons of sand purchased each month is used in one of the company's two molding processes. The greensand mold is formed by a combination of water and two types of Bentonite (clay). The mixture is squeezed, with hydraulic pressure, against a pattern at 1,200 pounds per square inch (PSI). The No-Bake mold is resin-set sand, actively bonded with a catalyst.

"We have one of the largest automatic No-Bake molders in the country," said Mike Fuller, plant manager. "The machine does most of the work, so while others are making three or four molds a day, this makes 80."

Iron melted at 2,850 degrees Fahrenheit is poured into molds to create the castings. Each metal treatment is inspected to verify the integrity of iron poured into the mold. All together, 1,700 tons of steel is melted per month, combined with pig iron and return metal, for a total of 3,500 tons melted per month.

American Castings competes in the global market by producing quality product that meets the international standard: QS 9000. This certification assures the customer the castings will be produced to the international metallurgical and dimensional standard.

"The ISO 9000 means we have been certified by an outside source; people can trust our product," said Fuller.

Consistently producing quality product at the lowest cost to customers has secured American Castings a wide and diverse market, serving the construction, agriculture, waterworks, fork lift, and oil field industries.

American Cast Iron Pipe Company (ACIPCO) purchased the existing Pryor facility in September 2003. Acquiring the existing foundry eased the difficulty ACIPCO was having getting the needed castings for their valve plants in Beaumont, Texas, and St. Paul, Minnesota, and gave them domestic ownership as well as assurance of a dependable product.

"They buy several hundred castings per day, and they were having trouble getting it purchased overseas. They wanted ownership of a domestic that they could rely on," explained Fuller.

Meanwhile, the existence of a low-cost, reliable electric supplier, like GRDA, also helped ACIPCO in its decision to acquire a Northeast Oklahoma facility.

"GRDA played a major role in our decision to come to Oklahoma," said American Castings President Dalton Babineaux. "They gave us a rate that helped us get started and has allowed us to grow the business and manufacture a competitive product for the marketplace. Everyone we dealt with at GRDA was wonderful to work with and gave us tremendous support."

Left: An American Castings employee uses a chain to move a finishing casting inside the company's MidAmerica Industrial Park facility.

"...*Fortune* magazine has recognized ACIPCO as being one of "The 100 Best Companies to Work For," and the MAIP facility has more than tripled its workforce in less than four years, with more than 200 men and women now at work."

Above: The American Castings sign located in front of their facility.

Right: An aerial of the American Castings facility located in the MidAmerica Industrial Park in Pryor..

Above: Isocure cores in line to be used.

Commitment to customers as well as employees has set ACIPCO apart from its competitors since John Eagan established the company in 1905. Eagan lived his life by and founded his company on The Golden Rule; neither moved from its moorings. The philosophy is echoed in the core values and guiding principles of American Castings mission statement, which states, "Value, Delivery, Quality on American Soil…the right people are highly valued."

"They built their business on The Golden Rule, and they live it," said Fuller. "It is really impressive. They will tell you it's not the money; it's the people-the most important asset is the people. ACIPCO gives us all the tools, but it's up to us to make it a success."

Babineaux echoed Fuller's comments. "Our goal is to continue to grow this facility, to add more employees and to be a real partner in community development," he said. "We want our employees to feel like they have a fair wage and benefits. We want them to be able to take care of their families and support the community as well."

Apparently, that philosophy is time-tested and proven because Fortune magazine has recognized ACIPCO as being one of "The 100 Best Companies to Work For," and the MAIP facility has more than tripled its workforce in less than four years, with more than 200 men and women now at work.

Remaining true to the mission statement, employees are given a voice and the promise it will be heard. The creation of self-directed teams speaks of the dedication to its employees. Teams are formed according to area and then work together on ways to improve efficiency and communications between the areas. The exchange has been very effective in generating ideas and initiating change.

"We employ a lot of good people. Right now we have 14 teams that are working together. We ask for their input; we need their input. They are the ones that know their jobs the best," said Fuller. "We each have a different job function; but the main goal is the same for everyone: to put quality castings on our shipping dock at the lowest cost, on time and on delivery."

"GRDA played a major role in our decision to come to Oklahoma," said Babineaux.

From the beginning of the relationship, GRDA was committed to helping American Castings achieve that goal. Together, the partners worked to institute a time of use program that offset the cost of the general service agreement, which is a big portion of the operating cost.

"We have a good relationship with GRDA. They have worked with us. I think we were the first to do the time of use, it has worked out well," said Fuller. "A large portion of the electric bill is demand-about 50 per cent. Here we may use a lot of electric, but in a short time frame, it's not constant use. The time of use works around GRDA's peak hours; between the hours of 4 PM and 11 PM, we run as little as we can."

The time of use rate translates into savings of 10 to 15 percent on the electric bill, which help American Castings to continue providing quality castings at the lowest cost to their customers.

"It all works together to benefit our business and the community as a whole," said Babineaux. "GRDA and the MidAmerica Industrial Park do a great job of helping to grow the tax base in Oklahoma, and American Castings appreciates the partnership."

Below: Finished castings are moved by conveyor through the facility. American Castings operates one of the largest automatic "No-Bake" molding machines in the country.


Altec

Remembering the '07 Ice Storm...

Ice storm blasts Oklahoma, freezing power for thousands

The ice storm of January 2007 may long be remembered as one of the most devastating weather events to ever affect electric utilities across Northeast Oklahoma. Certainly, the Grand River Dam Authority was not immune to Old Man Winter's display of ice, snow, sleet and then more ice across much of GRDA's 24-county service area. Under the weight of all that ice, transmission poles snapped, and electric lines fell.

In response to the ice storm, GRDA crews, and their counterparts at other utilities all across the area, worked around the clock in freezing temperatures, before returning to their own homes which were often in the dark and cold as well.

While damage to the GRDA system was spread across the service area, the most notable problems were along Feeder 105, a 161 kilovolt transmission line which stretches from the Robert S. Kerr Dam (north of Locust Grove) toward Arkansas, across southern Mayes and Delaware counties.

"Our first major outage occurred that Saturday night (January 13) when we had one of the phases on Feeder 105 drop across the Cherokee Turnpike," said GRDA Transmission Superintendent Jim Pierson, "but we were able to secure it that night."

Left: Following the January '07 ice storm, GRDA welders began to dismantle structural steel inside GRDA's Highway 412 substation. The steel was damaged when the feeder line into the substation fell under the weight of the ice.

Above: A boom truck is used to temporarily support power lines that fell across Highway 412 during the January '07 ice storm in Northeast Oklahoma.

However, as the crews were working to make repairs the next morning, things got worse. "Some anchors on adjacent structures gave way, and that caused a domino effect," said Pierson. Structures went down along a five-mile stretch, which included GRDA's Highway 412 Substation. Then, on Monday, the domino effect occurred again, as structures to the west of the already-damaged area fell under the weight of the ice and snow. When lines and structures finally stopped falling, a total of 27 wooden H-frame structures were on the ground along a 16-mile stretch of Feeder 105.

Meanwhile, the substation suffered its fair share of damage as well.

"When the feeder went down, it pulled over the dead-end structure inside the substation," said GRDA Project Engineer Bud Averill. "That fell on the high-side switches and damaged them as well."

While damage to the transformer was minimal, all the switches in the substation were a complete loss, Averill added. And because new components had to be ordered, permanent repairs could take more than six months. In the meantime, one of GRDA's mobile substations was placed on site as a substitute.

"We're trying to put it back together in such a way that it will eliminate the chances of this ever happening again," said Averill. As for the line itself, temporary repairs began the following week.

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Left: GRDA Engineering Department personnel (from left) Nishi Ninan, Bud Averill and Phil Stokes, along with GRDA Welder Mike Harris and GRDA Substation Technician Jerry Johnson survey the damaged Highway 412 substation following the ice storm.

Combining forces to restore power

While some Mayes County residents spent the weekend preparing for the coming ice storm by stocking pantry shelves and testing batteries, Pryor's Municipal Utilities Board (MUB) General Manager Gary Pruett and his crew prepared for the aftermath.

"We fought it all weekend. Our emergency procedure had already been established," said Pruett, whose office was staffed 24 hours a day during that ice storm week. "There was more damage than I first thought; at one time. 60 percent of our customers were off; that's around 3,000 without electricity."

Pruett soon found he and his nine-man crew would not have to keep fighting it by themselves when help started arriving on Sunday, January 12. Tahlequah and Collinsville were the first to arrive. Mannford, Miami and Stilwell came on Monday, bringing men and trucks. Miami brought in an extra brush crew on Jan. 17 and were joined on that day by another crew from Siloam Springs, Arkansas. All are GRDA municipal customer communities, but more importantly, all are public power utilities.

The six crews remained in Pryor until January 21, staying until the system was back up and running.

"It is very important for public power communities to work together; mutual aid works."

"They were here for the entire week; everyone left the 21st. The system was back up; the feeder was stable. A lot of service was still down, but the primary was stable," said Pruett. "I'm proud of the guys; they did an excellent job on a limited amount of sleep."

Following the emergency procedure, crews first restored power to the core city—the hospital, nursing homes, police station, etc. Once the core was on, the crews were able to branch out to the rest of the community. Sectioning the system proved a good approach; Pruett sent one member of his crew with each visiting crew.

"Our emergency plan served us well, but you can only bring it up as fast as it's cleared. Everyone's power was back on, and no one was injured; that was my goal," said Pruett. "It is very important for public power communities to work together; mutual aid works."

The crews met each morning to go over the plans for the day and safety procedures. Offers of help continued to come in, but Pruett had all the crews working that he felt he could safely supervise.

Grand River Dam Authority assisted in the restoration efforts by digging anchors.

"It was truly a joint venture," said Pruett. "Everyone pitched in; everyone went above and beyond."

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"We were fortunate that we already had contractors working on our lines when the ice storm hit," said Pierson. "They were able to move in and work exclusively on Feeder 105. They repaired six miles of the line in eight days, which included tearing out the old and going in with the new, and that was pretty remarkable. Really, all our employees did an outstanding job in that weather, while working all those long hours."

Those comments were echoed by Albert Campbell and Stan Stockholm, GRDA system operators who were working at the GRDA Energy Control Center during the storm.

"It got very hectic," said Stockholm. "We had to call in an extra operator just to help us answer the phones. Guys stayed over their shifts and lent a hand. We just did whatever it took. One operator even came in on his day off just to help us."

Stockholm and Campbell's jobs, like other system operators, involve monitoring the portion of the electric grid under GRDA's control. And at a time when parts of that grid were failing, they spent a lot of time on the phone with line crews, directing them to trouble areas.

"It went fairly well because we were able to get guys in the field fairly quickly," said Campbell. "Sure it was a challenge, but overall I was very pleased with the way the system operators handled the situation. And I can say the same thing about the crews in the field."

GRDA estimates its total transmission system damages from the ice storm at approximately $10 million.

Above: An aerial view of the damage along GRDA's Feeder 105 in Delaware County.

Left: Josh Porter, a member of the GRDA Right-of-Way Crew, uses a side trimmer to clear ice-covered brush near the Highway 412 substation following the January ice storm.

Kenny Ackley, CFC Mechanical Maintenance, helped replace wiring as part of the remodel of the Scrubber Control Unit at the Coal-Fired Complex last fall.

FROM COAL TO KILOWATTS...

Crews at the GRDA Coal-Fired Complex use heavy equipment to sort coal before it is conveyed to the boilers to create steam for generation. In the fall of 2006, Unit 2 at the facility (which first began commercial operations in 1985) underwent the largest scheduled maintenance outage in the facility's history. GRDA took the opportunity to install new, state-of-the-art control equipment for the unit's flue-gas desulfurization (Scrubber) unit, which is designed to help clean air emissions from Unit 2. GRDA currently operates the only Scrubber in the state.

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