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Arkansas  
Professional

# ENGINEER

Official Magazine of the American Council of Engineering Companies of Arkansas & the Arkansas Society of Professional Engineers



## Engineering a great new year

ACEC/A's new president, Dee Brown, P.E., of Brown Engineers and ASPE's new president, Brad Peterson, P.E., of Crafton Tull plan to lead an active, involved membership.



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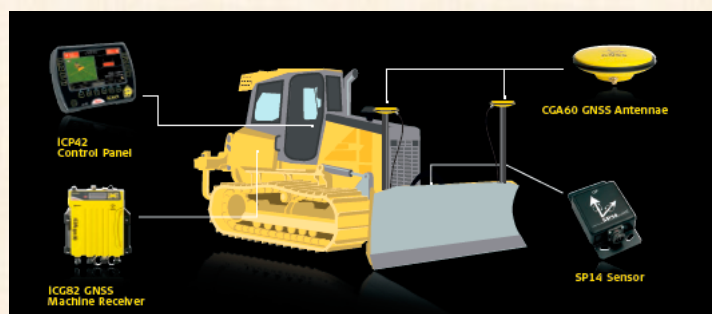


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# Arkansas Professional / ENGINEER

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**24-26** Dee Brown, P.E., left, of Brown Engineers is the new president of ACEC/A, while Brad Peterson, P.E., CFM, LEED AP, of Crafton Tull is leading ASPE.

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# The year ahead: politics, PR, and membership



**Dee Brown**  
ACEC President

Having just completed our annual two-day planning retreat, I can say that I'm very excited about the year ahead for ACEC Arkansas – and about the year that we just had.

Our board has worked to maintain a balanced budget and completed this year in the black. The charters for our liaisons to the government agencies in Arkansas are strong. The Government Affairs Committee reviewed many pieces of legislation earlier this year, which was a huge benefit to the construction industry in Arkansas and the public welfare.

This brings me to our theme for the upcoming year. Government advocacy has always been an important part of ACEC/A's mission. But one might ask, how do you actually go about accomplishing that? Well, it can be a lot of work, but it is worth it. As illustrated in the graphic above, we have a three-pronged approach:

- Government Affairs
- Public Relations
- Membership

First, we plan to continue to be strong in reviewing legislation at both the state

and national levels for items that impact engineering and construction.

Second, we plan to be more active with our website, [ArkansasEngineers.com](http://ArkansasEngineers.com), and social media. Follow us on Facebook at American Council of Engineering Companies of Arkansas to stay in touch with the association's activities, and engage with us on Twitter at @ACECArkansas, which is seeing increased traffic for businesses and individual members who want to stay in touch.

Third, we are actively recruiting new members by explaining the benefits of ACEC Arkansas, including our significant government relations and political action.

Our board members often make statements like, "If only our members understood the benefits of ACEC." That's a problem that's much easier solved than,

for example, figuring out how to pay for highway construction.

I know of very few places where I can have as much impact and influence as my involvement in ACEC. The benefits to Arkansas are huge. Just ask anyone

who has served in this capacity. I have personally had opportunities to sit down face to face with my congressional representatives and hear what is on their mind and ask them any question that I want. But we need more people to continue to help with the workload by serving our country and our local communities in this way.

I'm excited about the year ahead. Our planning retreat confirmed to me that our board has a unified vision and that being a member of ACEC is one of the best ways we can be involved in our government processes each and every day.



# ACEC

American Council of Engineering  
Companies of Arkansas  
Officers 2015-16

## President

Dee Brown, P.E.  
Brown Engineers, LLC  
17200 Chenal Parkway, Suite 300, PMB 324  
Little Rock, AR 72223  
501.448.0100

## President-Elect

Andy Dibble, P.E.  
Mickle, Wagner, Coleman, Inc.  
3434 Country Club Ave.  
Fort Smith, AR 72903  
479.649.8484

## Secretary

Mike Burns, P.E.  
Crafton Tull  
901 N. 47th Street, Suite 200  
Rogers, AR 72756  
479.636.4838

## Treasurer

Byron Hicks, P.E.  
McClelland Consulting Engineers  
900 West Markham St.  
Little Rock, AR 72201  
501.371.0272

## State Director

James Montgomery, P.S.  
B&F Engineering  
928 Airport Road  
Hot Springs, AR 71913  
501.767.2366

## State Director

Stephen Beam, P.E.  
Burns & McDonnell  
6815 Isaac's Orchard Road, Suite B3  
Springdale, AR 72762  
479.725.560

## National Director

Dan Williams, P.E.  
Garver  
4701 Northshore Drive  
North Little Rock, AR 72118  
501.376.3633

## Immediate Past President

Brad Hammond, P.E.  
McGoodwin, Williams and Yates, Inc.  
302 East Millsap Road  
Fayetteville, AR 72703  
479.443.3404

## Arkansas Professional Engineer

### Editor & Publisher

Steve Brawner  
Steve Brawner Communications  
501.794.2012  
[brawnersteve@mac.com](mailto:brawnersteve@mac.com)

### Executive Editor

Angie Cooper  
[awcooper@arkansasengineers.org](mailto:awcooper@arkansasengineers.org)  
ACEC/A - ASPE  
900 S. Shackleford, Suite 300, Little Rock, AR 72211  
Phone: 501.978.1157  
[arkansasengineers.org](http://arkansasengineers.org)

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**Arkansas Society of  
Professional Engineers  
Officers 2015-16**

**President**

Brad Peterson, P.E., CFM, LEED AP  
Crafter Tull  
10825 Financial Center Parkway, Suite 300  
Little Rock, AR 72211  
501.748.8269

**President-Elect**

Alan Pugh, P.E., CFM  
City of Springdale  
201 Spring Street  
Springdale, AR 72764  
479.750.8105

**Secretary-Treasurer**

Paul Speers, P.E.  
Entergy Arkansas  
P.O. Box 1330  
Hot Springs, AR 71902  
501.620.5744

**State Director**

Fred Harper, P.E.  
Michael Baker International  
1400 W. Markham St., Suite 204  
Little Rock, AR 72201  
501.244.1006

**National Director**

Clint Bell, P.E.  
CWB Engineers, Inc.  
104 Tulaka Blvd.  
Heber Springs, AR 72543  
501.362.3744

**Past President**

Rob Bullen, P.E.  
Mid-South Engineering Company  
1658 Malvern Ave.  
Hot Springs, AR 71901  
501.321.2276

**Executive Director**

Angie W. Cooper  
Arkansas Society of Professional Engineers  
and American Council of Engineering  
Companies of Arkansas  
900 S. Shackleford, Suite 300  
Little Rock, AR 72211

# Define. Promote. Protect.



**Brad Peterson**  
**ASPE President**

Define. Promote. Protect. Those of you who have had an opportunity to review the NSPE Strategic Plan know that these words have been adopted as the organization's Statement of Principles. I wanted to begin my tenure as ASPE president by giving my take on the benefits of having a simple, unifying message for ASPE and engineers in general. It is easy to become distracted by the many differences between disciplines. However, learning to focus instead on the numerous similarities is critical to maintaining relevance.

The strategic plan is designed to do just that: Put the spotlight on member engagement and involvement. The reality is that membership numbers are slipping across the board. This is partly due to other organizations offering places for engineers to spend their time and money. In order to stop the trend currently splintering our membership, it is essential that we deliver this concise new message explaining who we are and what we do.

**DEFINE.** In order to successfully implement a strategy based on raising awareness about being a professional engineer, you must first have a clear and concise definition of what it means to be a P.E. Along with the requisite education, technical competence, and registration maintenance, a P.E. has an obligation to the health, safety, and welfare of the public. This responsibility calls for a high measure of professionalism and dedication to quality service – not only to clients, but also to improving communities through public involvement, volunteerism, and philanthropic acts.

**PROMOTE:** Engineers don't just drive trains. We know this because it is our

chosen profession. As such, it is our job to educate the public on the dozens of practices that fall in the category of professional engineer. When professional engineers become involved in programs such as Engineers Week and Project Lead the Way, they help shape the public's understanding of the role engineers play in providing meaning and value to communities where they live and work. Social media is becoming an indispensable tool for exposing students, educators, and the general population to opportunities in science, technology, engineering, and math (STEM). Twitter campaigns like #BeAnEngineer and #ilooklikeanengineer are promoting the profession's diversity of people and careers.

**PROTECT:** Perhaps the most important of these principles is our responsibility to defend the engineering profession through active opposition to practice by unlicensed individuals. As professional engineers, we must educate lawmakers from all levels of government on the fundamental need for P.E. registration. We must protect and support high standards for obtaining licensure. Just as critical is supporting high standards in ethics and professionalism. The NSPE is the only professional engineering organization made up of engineers from any discipline. A desire to maintain the integrity of our profession is a common thread among all areas of practice.

We know that ours is a profession that, when practiced properly, often goes unseen by the public. Many outside the industry are unaware of the education, training, and experience required for licensure. Nor do they realize the potential consequences of allowing unqualified practitioners. The NSPE's primary goal is to draw attention to the benefits of licensure and advocate for the licensure of all engineers directly affecting the public's health, safety, and welfare. NSPE uses its national platform to encourage leadership training, multidisciplinary networking, and education to effectively raise awareness. It is then up to us to strengthen that impact through involvement on the national, state, and local levels.

## In the News

### Tickets for ACEC/PAC gun raffle still on sale

Tickets are still being sold for a gun raffle to benefit the ACEC's political action committee.

Two hundred tickets are being sold at \$20 apiece in order to raise \$4,000 for the ACEC PAC. Tickets will be sold as long as they remain until the drawing on Oct. 22. As of Sept. 4, 48 had been sold.

The winner will receive a Super Vinci REALTREE Max-5 Comfort-Tech Plus, 12-gauge with a 28-inch barrel. The rifle, which retails for \$1,899, features an in-line inertia-driven system, a three-piece modular design for easy assembly and disassembly, and Crio barrel and choke tubes. It shoots cartridges up to 3 1/2-inch Magnum loads. Due to state and federal laws governing the ownership and transfer of firearms, tickets may only be sold to Arkansas residents.

For more information, contact Jeff Geurian, CEI president and CEO, at 479.273.9472, or ACEC/A Executive Director Angie Cooper at 501.978.1157, or visit the ACEC/A website, [arkansasengineers.com](http://arkansasengineers.com).

### NWA chapter splits meetings; attendance rises

The ASPE's Northwest Chapter began in the spring having separate monthly lunch meetings in Northwest Arkan-



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sas and Fort Smith with a joint evening meeting every third month.

The chapter's president, Jim Vetter, P.E., staff engineer with McGoodwin, Williams and Yates, reports in the chapter's newsletter that the change has achieved its goal of increasing attendance and will be continued in the fall.

Vetter reported that the chapter had met its goal of raising \$1,000 for its scholarship program this spring through a raffle fundraiser. One of its student members won a Yeti cooler.

The chapter is planning its fall fundraiser, the 18th Annual "Swingin' for Scholarships" Golf Tournament.

Other officers are, vice president, Kale Farmer, P.E., C.F.M., FTN Associates; and interim secretary-treasurer, Jeff Dehnhardt, Engineering Services, Inc.



### Conway airport, a Garver project, wins award

The Southeast Chapter of the American Association of Airport Executives recently named Conway Municipal Airport at Cantrell Field its General Aviation Project of the Year. Garver provided property acquisition, design, bidding, and construction administration and observation for the airport, which opened last year.

"This award recognizes the efforts of everyone who worked on this project," said Garver Project Manager Blake Roberson. "Conway now has a safe, top-quality airport that will serve the city and the surrounding area for years to come."

### Garver's Wallace is state head of military engineers

The Arkansas Post of the Society of American Military Engineers (SAME) recently elected Garver Director of Federal Services Wallace Smith to serve as post president.



Smith

Wallace has been involved in SAME around the country for more than 20



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years, serving in various leadership roles, but this will be his first time to serve as a post president. The term will last one year.

"I'm honored to have this opportunity to play an integral role in carrying out the mission of such a prestigious organization," Wallace said. "SAME makes a positive impact on the many lives it touches through its enhancement of the military engineering community."

## Garver awarded grant to research oxidation process

WateReuse Texas has awarded Garver a \$50,000 grant to research advanced oxidation processes for potable water reuse.

The six-month study began in July. Garver and its partners will compare the efficiency of removing contaminants of emerging concern from sampled mem-

brane permeate- and conventional media-filtered effluents with a UV advanced oxidation pilot reactor. The reactor is located at the Cypress Water Treatment Plant in Wichita Falls, Texas.

Wichita Falls currently is permitted to treat secondary effluent for direct potable reuse (5 million gallons per day) with an advanced separation system consisting of series microfiltration and reverse osmosis membranes. For comparison purposes, conventional media-filtered effluents will also be sampled from a nearby plant in Lawton, Oklahoma.

"This type of research will provide meaningful data to help communities and regulatory agencies determine the health and safety of potable reuse water supply alternatives," said Garver Vice President Michael Graves.

The Texas Section of the WateReuse Association was formed in 2005 to support the increasing focus on water recycling.

## Staggs joins Hawkins-Weir's Little Rock offices

Bill Staggs, P.E., C.F.M.® has joined the staff of Hawkins-Weir Engineers, Inc., in its Little Rock office.

Staggs' broad range of experience includes municipal water and wastewater utility planning, design, and project management. He has been involved in long-range planning for infrastructure improvements and has expertise in hydraulic analysis for water distribution, wastewater collection, and stormwater.



Staggs

*Continued on next page*



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He also has extensive experience in pavement evaluation and research as a pavement management engineer in the public and private sectors.

Staggs received his Bachelor of Science degree in Civil Engineering from the University of Arkansas in Fayetteville, and he has a dual professional registration in sanitary and structural engineering. He also maintains professional certifications as a FEMA certified floodplain manager, ADEQ Class III wastewater operator, and is licensed as a stormwater site inspector and state plumbing inspector.

## Hawkins-Weir's Durham attains Oklahoma license

Hawkins-Weir Engineers' Joshua S. Durham, P.E., has attained his Oklahoma professional engineering license.

Durham works in the firm's Van Buren office, where he specializes in wastewater treatment process design and plays a key role on many projects for Hawkins-Weir. Working with public sector projects, he has been responsible for conceptual design, cost analysis,



Durham

computer modeling, environmental assessments, water and sewer master plan development, and construction management. He is an Arkansas Department of Environmental Quality licensed Class II wastewater treatment operator. He also helps implement the firm's IT initiatives.

A graduate of the University of Arkansas, he received his M.S. in Civil Engineering in 2009 and B.S. in Civil Engineering in 2007. He joined Hawkins-Weir in June 2009.

## Hawkins-Weir congratulates firm pro for licenses

Hawkins-Weir Engineers congratulates James Hamilton for maintaining his many professional licenses.

Hamilton works in the firm's Van Buren office, where he serves as a field inspector for water distribution, water pumping station, wastewater collection system, and roadway, drainage, and bridge construction projects.

He holds the following licenses: American Concrete Institute Grade I concrete field testing technician; Arkansas Department of Health Class IV water distribution operator; Arkansas Department of Environmental Quality Class II wastewater treatment operator; certified flood plain administrator; journeyman plumber; and plumbing inspector.

He joined the firm in 2011 after working as a municipal water distribution operator, a municipal wastewater treatment operator, and a commercial plumber.



Hamilton

## MCE welcomes Watkins, landscape architect, to staff

Landscape architect David Watkins, PLA, has joined the staff of McClelland



Watkins

Consulting Engineers, Inc., a consulting firm that provides civil and geotechnical engineering, survey, planning and landscape architecture services.

In this position, he will focus on project management for site design, land planning and landscape design.

Watkins brings 10 years of experience to the firm in a wide variety of markets. His previous project experience includes site development, park and recreation facilities, trails, streetscape improvements, and environmental enhancement projects. He has been involved with the design of such high-profile projects as the Crystal Bridges Museum in Bentonville and both Conway Station Park and City of Colleges Park in Conway.

Watkins is a graduate of the University of Arkansas with a Bachelor of Landscape Architecture and is a registered landscape architect in Arkansas and Missouri.

## Crafton Tull helps with Walton Arts expansion project

Ground was broken in Fayetteville this June for the expansion of the Walton Arts Center, a project involving several design firms including Crafton Tull's Rogers office. The project is expected to be completed in 2016.

Among the planned updates are increased accessibility, an expanded atrium and event space, and more integration between the Center and the streetscape right outside the existing structure on Dickson Street. Crafton Tull was chosen to provide the civil engineering and surveying services for this important project.

Zak Johnston, P.E. a project manager at Crafton Tull, said, "The Walton Arts Center expansion will play an integral role in enhancing and fostering the already vibrant art scene in Northwest Arkansas."



One design feature was the need to protect an unnamed, underground tributary of Skull Creek running under the site. The stream currently feeds a koi pond located on the property. Crafton Tull worked with Martin Smith and the Ecological Design Group to implement multiple low impact development approaches in an effort to ensure the protection of these and other natural features.

Other Arkansas design firms involved in the project include Polk Stanley Wilcox, and Engineering Consultants, Inc. The official groundbreaking took place in June of this year and is expected to be completed in 2016.

## Crafton Tull's Peterson leads tour of Creative Corridor

Crafton Tull Vice President of Infrastructure Brad Peterson, P.E., CFM, LEED AP, led the U.S. Green Building



**CREATIVE CORRIDOR.** A rendering of Little Rock Main Street's Creative Corridor project, which uses design elements to filter rainwater before it makes its way to the Arkansas River.

Council Central Chapter on a walking tour of Little Rock's Main Street Creative Corridor Sept. 17.

The team at Crafton Tull provided civil engineering, landscape architecture, and planning services for the project, whose purpose is to improve water quality by slowing down and filtering storm water before it makes its way to the Arkansas River. One of the most innovative elements of the Creative Corridor is the

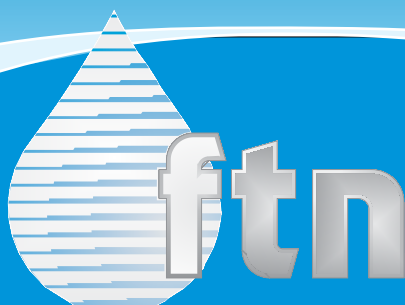
included rain gardens, porous pavers, vegetated walls and filter strips, and bioswales.

Planning for the Corridor began in 2011 when the National Endowment for the Arts awarded an Our Town grant to fund the revitalization of Little Rock Main Street. The idea was to attract businesses and residents to the area by focusing on the arts instead of a more conventional

*Continued on next page*

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## In the News (Cont'd)

approach to economic development. Crafton Tull became involved in the project when the EPA announced the desire to obtain a demonstration project for water quality best management practices in an urban environment.



**BRIAN MOORE** is sworn in by Judge Jeff Harper of the Springdale Department of the Washington County District Court.

### ESI's Moore named to PELS board

Brian Moore, P.E., of Springdale-based Engineering Services, Inc., was appointed to the Arkansas State Board of Licensure for Professional Engineers and Professional Surveyors by Governor Asa Hutchinson. His term runs through 2019.

### Grigg joins PELS as chief investigator

Grant Grigg is the new chief investigator for the Arkansas State Board of Licensure for Professional Engineers and Professional Surveyors.

Grigg, whose first day was Aug. 24, was senior investigator at the Arkansas Real Estate Commission for five years. He previously worked 12 years for the land commissioner's office, where he first was an assistant to Land Commissioner Charlie Daniels and then was responsible for tax delinquent auctions.



**Grigg**

### Rep. Westerman on NSPE website as P.E. in Congress

Rep. Bruce Westerman, R-Arkansas, is one of nine elected officials who are also professional engineers who are featured on the NSPE's website, [www.nspe.org](http://www.nspe.org).

Westerman, who previously was an engineer with Mid-South Engineering in Hot Springs, is the only member of Congress on the site.

"An engineer who's considering running for office, I would encourage them to just find a place where they can serve," Westerman said in a featured video. "It doesn't have to be Congress, and it doesn't have to be some long-term ambition, but we need people to serve at all levels."

Westerman said he hadn't thought much about politics until he was asked to run for the Fountain Lake School Board. His engineering background helped with projects there. He later served in the Legislature and then Congress.

He said it gave him a unique perspective on certain legislation, such as one that came through the Arkansas Legislature that would have exempted buildings of less than \$100,000 from requiring an engineer's stamp. "You want to protect the public's safety, and it's not a dollar amount that makes something safe or unsafe," he said.

He said his background and training help him address issues in Congress not directly related to engineering.

"I think engineers bring a unique problem-solving set of skills to the table that a lot of people don't have," he said.

### Westerman asks EPA if PEs in loop before mine spill

Rep. Bruce Westerman, R-Ark., has filed a complaint with the Colorado Department of Regulatory Agencies regarding whether or not the EPA had a licensed engineer working to design and implement a project that led to a spill polluting rivers in Colorado and New Mexico.

On Aug. 15, workers at the Gold King Mine near Silverton, Colorado, were assessing continuing water releases from the mine, treating mine water, and considering further remediation when they accidentally spilled three million gallons of toxic waste into nearby waterways.

Westerman, a P.E., believes EPA workers were involved in the "practice of engineering" under Colorado state law but were not competent or licensed to practice, he said in a press release.

"Because the EPA has not demonstrated a Colorado licensed professional engineer was engaged during the planning and design stages nor part of the site removal team that was responsible for the Gold King Mine spill, the EPA was in direct violation of the Colorado statute, and should be subject to the same consequences any other entity in violation of this law would face," the complaint said. "I believe the spill could have been prevented, or at the very least, significantly mitigated, if the EPA had followed the engineering practice laws established to safeguard life, health, and property and to promote the public welfare."

He said the EPA did not design a reclamation plan and that a licensed P.E. would have done the necessary work to prevent the accident from happening.

Westerman's office said EPA Administrator Gina McCarthy did not answer his questions during a committee meeting under oath regarding whether a P.E. helped plan the project or was present when the accident occurred.

EPA spokeswoman Liz Purchia told the Arkansas News Bureau, "Regarding Rep. Westerman's question about occupational licensing, EPA did have an engineer licensed by the state of Colorado working on the response."

Westerman responded in a press release, "Working to clean up a mess is different than working to prevent one, and



**Westerman**



the American people need to know if the EPA (was) negligent in following laws and taking the necessary actions to prevent the spill.”

Sen. Tom Cotton, R-Ark., told the Arkansas News Bureau that he will introduce legislation to prevent the EPA from claiming sovereign immunity regarding paying for damages.

## Brown Engineers' Richardson speaks to female students

Melanie Richardson, P.E., LEED AP BD+C, a lead mechanical engineer at Brown Engineers, discovered her aptitude for mechanical design by working on cars as a teenager. Now, she encourages like-minded girls to consider careers in engineering, too.

Richardson led several one-hour workshops for young women in grades

9-12 at the 2015 STEM Leadership for Girls Conference at Henderson State University.

STEM stands for “science, technology, engineering, math.”

Richardson opened each session with a roundtable discussion of engineering disciplines, career opportunities, and the hows and whys of getting into an accredited engineering program.

Afterward, attendees split into teams of 3 or 4 students each. Richardson charged each team with building the tallest free-standing tower possible in 10 minutes, using only pipe cleaners.

To simulate challenges faced by design engineers, she introduced unexpected obstacles for the teams: changing floor plans, eliminating spoken communica-



Richardson

tion, and shortening the deadline by a full minute.

The project succeeded in demonstrating the importance of collaborative problem-solving and teamwork in engineering, and all participants enjoyed the “creative chaos.”

Richardson currently serves as the sustainability chair for the Arkansas Chapter of ASHRAE.

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# PELS chief: Build on past success

Heather Richardson moves into new position from chief investigator post

By **Steve Brawner**  
Editor

For the first time in a long time, the executive director of the Arkansas State Board of Licensure for Professional Engineers and Professional Surveyors is not an engineer or an attorney.

Instead, Heather Richardson is a capable administrator eager to build on the accomplishments of her predecessors.

Richardson, who started her job May 6, leads her staff of five employees with powers to grant, deny and remove engineering and surveying licenses. Unlike many licensing boards in Arkansas, it can investigate professionals and firms practicing without a license and can take action in an administrative hearing procedure.

The firm currently administers 8,181 active and exempt P.E. licenses, two-thirds of which involve out-of-state professionals. Meanwhile, 1,861 design firms, many of them from out of state, have certificates of authority in Arkansas.

The job is easier because of the work of her two long-serving predecessors – most recently, Steve Haralson, P.E., and before him Joseph Clements, P.E., both engineers and both attorneys. Clements purchased the board's stately white facility in a prime location across the street from the State Capitol. Haralson led the development of the board's website, [www.pels.arkansas.gov](http://www.pels.arkansas.gov), and took the office paperless so that all renewals and payments can be done online and all records are available there.

## AG experience

Richardson served as the board's chief investigator starting in November. In that capacity, she investigated various applicant issues. She came to the board after spending 17 years in the attorney general's office, where she was the chief investigator and worked in the Public Protection Department, which included consumer protection, environmental, utility and antitrust issues.



**BEFORE COMING** to work for the Arkansas State Board of Licensure for Professional Engineers and Professional Surveyors, Heather Richardson spent 17 years at the attorney general's office. She previously worked for what is now the Arkansas Department of Environmental Quality and two consulting firms.

She doesn't see it as a problem that, unlike Haralson and Clements, she's neither an engineer nor an attorney. The board knew of her qualifications and unanimously hired her because this is an administrative position. But she wants to



manage the office as capably as they did, and she wants to communicate well with the professionals she serves.

"I don't have to sit down and make a plan for a building or anything like that. I just have to make sure that the rules and the statutes for our board are kept and met, and that our applicants follow those rules and make sure that all of our needs are met as a profession," she said.

A native of Little Rock, she earned her bachelor of science in environmental science and natural science from the University of Arkansas. She then worked for two consulting firms, one of which gave her the chance to help Alltel install cell towers in about 20 states. After that, she was a hazardous waste inspector at what is now the Arkansas Department of Environmental Quality before moving to the attorney general's office.

Richardson in those different jobs had many opportunities to work with engineers, including twice with Haralson – once when he was an engineer at what is

## Online PE test: Coming, eventually

The Fundamentals of Engineering exam already is available online, while the Principles and Practices of Surveying exam will go online in October 2016. Eventually, the Principles and Practice of Engineering exam will follow, but it will be a while before that happens, Richardson said.

Engineers will take a test from a convenient location and be licensed elsewhere. An engineer who knows he

or she will be moving to Virginia can take the test for licensure from their home in Little Rock, and then apply for another license in Arkansas as well. While the test will allow for more mobility, it still will be administered only within certain time frames and not at home to avoid copy collusion.

But don't get in a hurry. "That's so far off in the future, there's not even a date for that," she said.

now ADEQ, and then later when he was a staff attorney at the attorney general's office. Those jobs also gave her a chance to work with legislators, lawyers, judges and other professionals. She has relationships in the government and private sector. She's also a court-appointed expert witness on recreational navigability.

Richardson said she realized how advanced Arkansas' board is while attend-

ing a recent annual National Council of Examiners for Engineering and Surveying meeting. Most states are not paperless, for example. She's proud to have a chance to build on that success.

"It's a good place to be," she said. "I am thrilled to be here, and I did do my research before I applied, and it really is something to be proud of. This board is really a great place."

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# From Slide Rules to Simulators:

As a civil engineer today, you don't have to look very hard to appreciate the fact that we are standing on the shoulders of giants. Thoughts of civil engineering marvels may quickly bring to mind images of the Hoover Dam, St. Louis Arch, or the Golden Gate Bridge. But you don't have to travel outside of Arkansas to find magnificent accomplishments in our field such as the McClellan-Kerr Navigation System or the Cotter Bridge. With handheld scientific calculators making their debut in the 1970s and personal computers a decade later, these iconic civil engineering projects were designed with slide rules and drafted by hand. You certainly can't criticize the methods used when you consider the results, but like most other technical fields, our profession has been forced to evolve. From slide rules, to calculators and spreadsheets, to the latest in computer software, the practice of civil engineering has taken advantage of technological advancements to become more efficient and cost effective. The increasing cost of construction and more limited capital resources have required cities and utilities to do more with less. One way they accomplish this is through more aggressive design.

Hawkins-Weir Engineers employs many of the most advanced computer design systems available today to produce not only efficient lower-cost projects for our clients, but to also deliver operations and maintenance-friendly

facilities that meet our clients' immediate objectives and fit well within their long-term goals. This article will briefly introduce a few of those tools.

The physical, chemical, and biological reactions that occur within a wastewater treatment plant have been modeled over the past century with a series of calculus and differential equations. Civil engineering has reduced many of these equations to algebraic approximations to simplify the calculation process. Some of the physical and biokinetic relationships have been further streamlined into empirical loading rates for a more "one size fits all" approach to design. These loading rates, many of which can be found in the 10-States Standards, may produce acceptable results in certain cases, but they are often overly conservative. In many circumstances the use of these empirical approximations will unnecessarily drive up the project costs. Conversely, there are also situations where this simplified approach is not conservative enough. The truth is, every wastewater plant is different and should be designed based on its specific influent characterization and effluent requirements. Advanced biological simulators such as GPS-X™ and BioWin™ produce more precise determinations of a plant's biokinetics by applying simultaneous differential equations that are too complex and time consuming to solve by



*From slide rules to the latest in computer software, civil engineering has taken advantage of technological advancements.*

other means, such as a spreadsheet. The result is a better understanding of how a treatment plant will perform. Our designers use this information to minimize the size of tanks and specify efficiently sized aeration equipment among other things. The simulator software can also be used to determine what the impacts of a specific waste stream might be on an existing plant before it is introduced and to perform a rapid forensic analysis of why a plant is failing to meet permit.

Anybody that has gone through the iterative process of designing water distribution system improvements with the Hardy-Cross Method has an immediate appreciation for the value of hydraulic modeling software such as WaterGEMS™ or InfoWa-





# Advances in Civil Engineering

ter™. Utilities should also be made aware of the value that a computerized hydraulic model can bring to their system by providing them the ability to quickly check available pressure across their system, determine the impacts of adding a new significant user, simulate a large leak anywhere within the distribution system, and perform a fire flow analysis for a new planned development.

Computerized modeling of gravity sewer collection systems using software such as InfoWorks™ and SewerCAD™ is becoming more popular as utilities work to find cost-effective ways to eliminate sanitary sewer overflows. These models allow engineers to simulate rainfall events of differing intensities and durations to determine how a collection system will respond and identify potential bottlenecks.

Sewer collection system models save utilities money by pinpointing problems and aiding in the design of precise solutions.

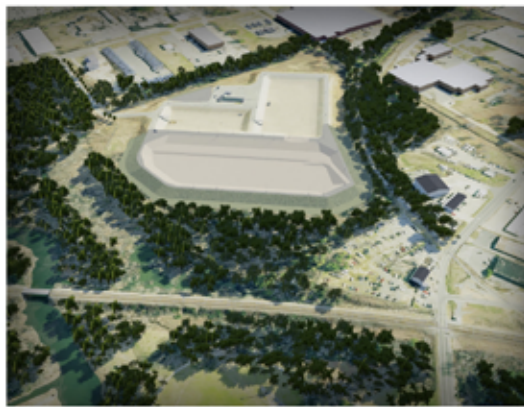
Three-dimensional modeling software such as AutoCAD®'s Civil3D® and Revit® have also become invaluable tools in civil engineering design. These programs not only improve the efficiency of the design process, but they also help eliminate interdimensional conflicts and present results in a format that can be easily understood by clients and the general public. Hawkins-Weir Engineers recently used this software to generate renderings for Little Rock Wastewater's Cantrell Road Pump Station and Scott Hamilton Drive Peak Flow Facility projects. These renderings were used to clearly communicate the scope of the projects to city officials, surrounding land owners, and the general public.

At Hawkins-Weir Engineers, we understand the importance of leveraging the latest civil engineering tools for the benefit of our clients. We have invested in a wide array of industry-leading software systems including:

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- Innowyze® InfoWorks®
- Revit® Structure
- Trimble® Survey Link

Everyone has heard the sayings "the right tool for the right job" and "you are only as good as your tools." These sayings are

very true when it comes to the choice and use of civil engineering software. Our profession has seen great advances, but we must continue to improve to meet the challenges of the 21st century. If you are still designing based on the old rules of thumb or with multipage spreadsheets, perhaps it is time for you to take a closer look at what these and other software systems have to offer. **HW**



*Hawkins-Weir Engineers recently used three-dimensional modeling software to generate renderings for Little Rock Wastewater's Cantrell Road Pump Station (left) and Scott Hamilton Drive Peak Flow Facility (right) projects.*



# Highway funding will grow economy

**How to pay for it? Ending government waste, like the president's stimulus package, would be a start**

*Editor's Note: Arkansas Professional Engineer periodically invites members of Arkansas' congressional delegation to write about issues relevant to engineers. Rep. French Hill represents central Arkansas' Second Congressional District. He is serving his first term after being elected in 2014.*

People all across our state want to know what their government is doing to improve the economic situation in Arkansas. Over the past few years, we have seen modest increases in our state's gross domestic product (GDP) and a dip in the unemployment rate, but Arkansas still falls in the lower one-third of economic growth among the 50 states.

There are many things that can be done to help grow our local economy, but none are as imminent as the effort of Congress to reauthorize and adequately fund the Highway Trust Fund (HTF).

Arkansans are already feeling the effects of not having a long-term solution for replenishing the HTF. The uncertainty about the funding has caused the Arkansas Highway and Transportation Department to delay or cancel several important infrastructure developments. As a representative from a state whose plans for economic growth includes major upgrades to our more than 16,000 miles of highway, finding a solution for funding the HTF is one of my top priorities.

Overwhelming majorities in both parties support reauthorizing the HTF, and there is not a member of Congress who doesn't believe a 21st century economy can exist without a 21st century infrastructure.

But despite the consensus, like many problems in Washington, lawmakers cannot agree on how we are going to pay for a long-term highway bill. The gridlock on this particular issue is frustrating, but it does indicate a level of accountability towards spending that has not existed in previous years.



**By French Hill**  
**U.S. Congress**

As someone who ran for Congress on the principles of promoting economic growth, balancing the budget, and increasing layers of government accountability, I take pride in our work to develop pro-growth legislation in a way that won't add any additional burden to the taxpayer.

This is a sign of good governance, and it is the antidote for our decades-long obsession with haphazardly spending hard-working taxpayers' money.

## **"Golden Fleece" Award**

As a member of Congress – and more important, a taxpayer – I get frustrated when I hear about the thoughtless ways government throws around money, and, as a way to voice these frustrations, I instituted the Golden Fleece Award. Originally created by the late-Senator William Proxmire (D-WI) in the 1970s, the Golden Fleece Award highlights examples of frivolous government waste.

To date, I have awarded four different federal agencies with the "Golden Fleece Award," and the total cost of these failures is estimated around \$16.7 billion. With proper oversight, this money could have been spent more fittingly on critical projects, like our federal highways.

For some perspective, a seven-year highway bill would cost around \$112 billion, or \$16 billion each year.

However, as egregious as the \$16 billion of waste highlighted by the Golden

Fleece Award is, it pales in comparison to the grandfather of government waste: the President's American Recovery and Reinvestment Act of 2009, also known as the "stimulus package."

Passed in February 2009 in the middle of the Great Recession, the stimulus was marketed by the White House as a pro-growth recovery package that would jump-start our economy and stop the unemployment rate from exceeding 8 percent. But, the stimulus failed to live up to this billing, and unemployment remained above 8 percent for the next four years while economic growth averaged just 2.4 percent over the same time period.

This \$830 billion "recovery" package could have paid to revamp our highways seven times over. Instead the money was used to fund many irrelevant projects like interactive dance software and determining the best way to freeze rat DNA. The president's shortsightedness caused us to miss a great opportunity to work with state and local governments to fund infrastructure enhancements that were needed over the next 10 years.

Now, six years later, this Congress is tasked with fixing the mistakes of the past. I am hopeful about the future of the Highway Trust Fund because the successes of our first eight months have shown we can come together and pass a commonsense plan that improves our infrastructure without creating any additional taxpayer burdens.

In fact, the current 114th Congress is responsible for the fastest start to the appropriations process in 30 years, the first real entitlement reform in two decades, and reforming the Patriot Act. In addition, we passed Trade Promotion Authority and have signed into law a comprehensive veterans' suicide prevention bill to provide essential care for our nation's heroes.

Arkansans want responsible government to lead in meeting core functions such as public infrastructure. I am prepared to work for a solution that will eliminate wasteful spending and ensure that all federal dollars are being appropriated in a way that truly benefits the taxpayer and boosts our economy.



# New Emerging Leaders begin classes

Classes began Sept. 29 for the seventh annual Emerging Leaders program, a joint effort of the ACEC/A and the ASPE that trains engineers and design professionals in leadership, communication and other so-called “right-brain” skills.

The first of eight classes was a leadership and team-building exercise on a challenge course at Northwest Arkansas Community College in Bentonville. Future classes will cover public speaking; contracts and risk reduction at Little Rock’s BancorpSouth offices; a senior leadership roundtable; Business 101; conflict resolution; and state government.

The class concludes with graduation at the ASPE State Conference in April 2016. Graduates of the class may attend all classes except the leadership and training course at no charge and earn professional development hours credit.

“Emerging Leaders is a great way to equip and encourage the future leaders



**THIS YEAR'S EMERGING LEADERS** lower a hoop to the ground together, making sure it stays in contact with everyone's fingers, during an exercise Sept. 29.

of our industry,” said Steven Beam, P.E., a 2011 graduate and business development manager at Burns McDonnell. “The sessions provided tools to improve team

performance and foster personal and professional growth in many of the skills traditionally lacking within our industry. I’m glad I got to be a part of Class II.”

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# For roads: To tax or not to tax?

Governor's highway group members agree that roads need more money, disagree on where to find it

By **Steve Brawner**  
Editor

Members of the Governor's Working Group on Highway Funding are considering competing draft packages to raise funding for highways, two of which would increase taxes and one that would be revenue neutral.

Task force members are focusing on a short-term goal of raising an additional \$110 million, with a five-year goal of \$250 million and a 10-year goal of \$400 million.

The working group is meeting amidst funding challenges at the national and state levels caused by the fact that motor fuels taxes have not increased nationally since 1993 and in Arkansas since 2001, and were not indexed to inflation. In the meantime, motor vehicles have grown more fuel efficient, which means drivers are paying less in fuel taxes. The Highway Trust Fund is no longer able to fund highway needs, forcing Congress to dip into the already strapped general fund. Members of Congress have been unable to agree on a long-term fix. Since federal funds pay for 70 percent of Arkansas' highway construction, the ripples have been felt at the state level.

The group is scheduled to present its options to Gov. Asa Hutchinson in December. The next meeting was scheduled to be Oct. 8.

## Option 1 – Tax + phased-in transfer

In a meeting Sept. 25, Craig Douglass, executive director of the pro-highway Arkansas Good Roads Foundation, advocated for his group's plan to increase the motor fuels tax by 10 cents. That tax gradually would be lowered and offset by a phased-in transfer from general revenues to highways of sales taxes collected on motor vehicle sales. That transfer would take five to seven years. The plan would index the fuel tax to the construction cost index. Currently, the gasoline tax of 21.5 cents per gallon and the diesel



**NOT FOR TAX HIKE.** Rep. Andy Davis, R-Little Rock, a professional engineer and member of the Governor's Working Group on Highway Funding, says legislators will only support additional highway funding plans that are "revenue neutral," meaning the extra money will be offset elsewhere in the budget so that taxpayers are paying no additional taxes. He's produced a package he says accomplishes the task force's short-term goal of raising an additional \$110 million per year.

tax of 22.5 cents are not indexed to inflation.

Douglass told the task force that this plan would provided needed immediate funding. Meanwhile, the phased-in motor vehicles sales tax would provide a better long-term solution than relying on the motor fuels tax, which is a declining source of revenue as cars become more efficient.

Bills to transfer vehicle sales taxes from general revenue to highways have been filed in the past two legislative sessions but have run into opposition from both Gov. Mike Beebe and Hutchinson, as well as other interests who worry about a loss of general revenue funding. In fact, this year's bill by Rep. Dan Douglas, R-Ben-

tonville, led to Hutchinson's appointment of the working group as a compromise. Douglas is a member of the task force.

Two members of the task force who also are members of the state's higher education community, Dr. Brett Powell, Arkansas Department of Higher Education director, and Dr. Robin Bowen, president of Arkansas Tech University, expressed concerns. Bowen said the state doesn't have enough money to meet current needs such as its foster care system. She said she was a foster parent for 12 years. She suggested raising registration fees.

"We've got to look at another way to get more money, or we will find ourselves here again in a couple of years saying we have a crisis in foster care, or we have a



crisis in prisons, and now we have to raise money for them," she said.

Raising the registration fee \$12.50 would collect \$24 million. To reach the short-term goal of \$110 million would require about a \$50 fee increase, said Arkansas Highway and Transportation Director Scott Bennett. That amount would be difficult for some drivers to swallow all at once. Regardless, Arkansans still would see it as a tax increase.

And any tax increase would have great difficulty getting past the Arkansas Legislature. Rep. Andy Davis, R-Little Rock, has told his fellow task force members that his fellow legislators will only support ideas that are revenue neutral, meaning they don't require any additional tax dollars. Rep. Douglas, meanwhile, told the working group, "If we think that we're going to get any type of tax increase passed through the Legislature at this time with the political makeup in it, we ought to be out selling beachfront property in Arizona or something because it's just not going to happen."

### Option 2 – Revenue neutral

Davis instead presented a package that would raise \$111 million through several avenues. His plan would raise the diesel tax by 10 cents, collecting \$60 million, at the same time that the grocery tax is scheduled to be cut once the state's desegregation payments to the Little Rock, North Little Rock, and Pulaski County School Districts end at the close of 2017.

With the end of the grocery tax saving taxpayers \$70 million, that would be a revenue neutral plan, he said.

"Conceivably the Legislature and the governor may decide to leave the grocery tax where it is and decrease something else, like an income tax, and offset that with an increase in the diesel tax," Davis said.

Other funding mechanisms in Davis' plan include creating a sales tax rebate for road construction materials, which would raise about \$20 million, and redirecting to highways \$4 million in diesel taxes that currently flow into the general fund. Davis also would redirect into highways the 3 percent of revenues from the state's half-cent sales tax passed by voters in 2012 that currently flow into the state central services fund. Voters approved that tax to fund highways, not increase those funds, Davis said. The Department of Finance and Administration has said that proposal would raise between \$5 and \$6 million a year.

Davis also suggested an income tax deduction of \$20 million "offset by some sort of user fee for highways."

Davis said that, unlike a motor fuels tax hike requiring 75 percent support in the Legislature, all but the diesel tax increase would be achievable with a simple majority.

### Option 3 – 15-cent tax hike

Political considerations were less important to task force member Frank Scott,

a highway commissioner. He would index the motor fuels tax to the consumer price index and increase the fuel tax by a nickel a year for three years, raising a total of \$460 million. He said doing this would require one legislative discussion that would solve the problem for "many, many, many, many years."

He said the task force's job is to recommend the best route for highway funding and let the policymakers decide from there. He noted that Republican officials in other states have recently approved motor fuels tax increases, and he advocated taking the proposal to a vote of the people if the Legislature would not approve it.

Larry Walther, Department of Finance Administration director, said legislators and the governor will consider the working group's recommendation in light of other needs. "A lot of our expenses in the budget has been covered by one-time dollars, and I don't know how long we'll be able to sustain that," he said. "For the last several years, the (general improvement fund) has sort of come in to save the day to allow us to improve different areas – the prisons, education, the private option. How long that will go on, I don't know."

General improvement funds are collected from surplus revenues and typically go to specific programs and one-time expenses, with a percentage distributed at the discretion of the governor and Legislature.

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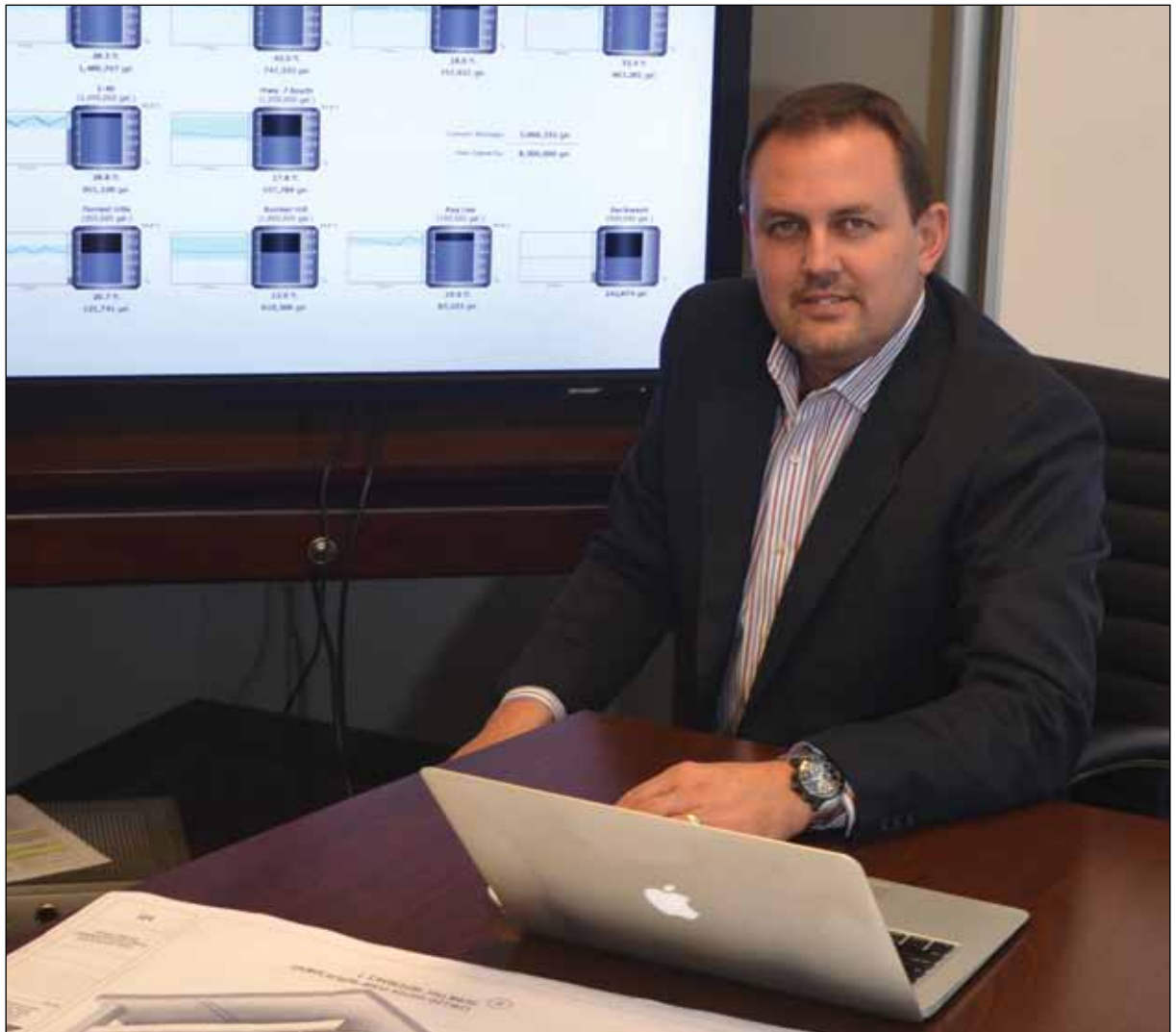
James Clark



Jeremy Cox, CIC

## New ACEC/A President

**DEE BROWN, P.E.**, co-founder of Brown Engineers, gets to do all kinds of cool stuff as an electrical engineer. As ACEC/A's president, his focus will be on government advocacy, public relations, and membership. "We think about our one vote in November and think, 'Well, that's the only influence I really have.' You can actually have a lot more influence if you want to get engaged in your industry and make a difference," he said.



# Brown: Build on past successes

With ACEC/A's budget strong and its services solid, its new president wants to focus on advocacy

By **Steve Brawner**  
Editor

Here's what Dee Brown, P.E., said he does when he's not working at Brown Engineers, the company he co-founded.

"We live out in the country west of town, so we kind of like to go unplug at nights and weekends. Still heavily involved in church, so that takes up a chunk of time. And then just being out in nature and some quiet time away is kind of what I like to do to recharge the batteries, so to speak."

That's two electricity-related metaphors in three sentences, which isn't sur-

prising, because Brown has known he wanted to be an electrical engineer since he was eight years old. That's when his father, a Sears TV repairman, removed a sound oscillator circuit board from a broken toy, installed it in an empty peanut candy can, and connected it to a light and a speaker that made a siren sound.

"I was like, 'Man, nobody knows anything about electricity. I've got to learn about that stuff. That's too cool,'" he said.

When Brown asked how he could learn more, his dad told him about being an electrical engineer. "So from the time I was a kid all the way through, guidance counselors at school would say, 'So what do you want to be? A policeman, a fireman, whatever?' I'd say, 'I want to be an electrical engineer,'" he said.

He still has the can.

Just as Brown knew what he wanted to do with his life by the time he was eight years old, he also knows what he wants to do as ACEC/A's new president. In fact, he and Terri Potter, Brown Engineers' marketing coordinator, created a 3-D graphic that explains a three-pronged approach: an emphasis on government affairs, a focus on public relations, and a commitment to grow the membership by reaching out to firms that are not yet members of ACEC/A.

The three approaches are interconnected. Through its government affairs efforts, the ACEC/A will advocate for policies that will benefit the engineering profession. Increasing the membership gives engineers a louder voice in Little Rock and Washington. ACEC/A's Public Relations Committee will communicate





**ACEC/A'S THEME GRAPHIC** for 2015-16 emphasizes government affairs, public relations and membership.

the association's efforts to the membership and to others through social media, the ACEC/A's website, arkansasengineers.com and Arkansas Professional Engineer magazine.

Brown said his prior service on ACEC/A's board has taught him about the importance of its advocacy role.

"I've really come to appreciate the level of input that we really have in our government that I think most of us kind of either take for granted or just don't think about at all," he said. "We think about our one vote in November and think, 'Well, that's the only influence I really have.' You can actually have a lot more influence if you want to get engaged in your industry and make a difference."

Brown said recent ACEC/A leaders have strengthened its budget and established its member services, allowing it now to concentrate on advocacy, public relations and membership.

"So I think this is a really good opportunity to look forward to, 'OK, what's next? What can we do better? What do we want to do a better job of in terms of advocacy?' So it's an exciting time to look forward," he said. "These other problems have already been fixed, so let's think about what's next."

The Little Rock native graduated with an electrical engineering degree and then a master's degree from Louisiana Tech University. His bachelor's study focused on fault-tolerant computing and controls, while his master's degree focused on power systems.

Armed with that base of knowledge, he spent the next 15 years at Garver until he got the itch to open his own firm. Bruce Brown, P.E., another Garver engi-

neer who isn't related, also believed there was a niche for a firm that specialized in power and controls. With their families on board, they decided to take the plunge. The name was easy: Brown Engineers.

Leaving good jobs at Garver, an established, respected firm, was "like jumping out of a perfectly good airplane with a parachute and (thinking), 'I hope this thing opens,'" Dee Brown said.

But the parachute quickly opened. Brown Engineers was hired by several clients and then began growing. Later that first year, Nick McNeill, P.E., another Garver alum, joined the firm as its other principal. At first, the firm focused on electrical work but then added mechanical engineering, and it has always specialized in control systems and water and wastewater facilities. Today, it employs five other licensed professional engineers, including Rick Geraci, P.E., FACEC, who in 2013 was inducted into the prestigious ACEC College of Fellows.

Among the firm's signature projects was replacing the chiller in Little Rock's 43-story Simmons Tower. Because it was located in a tight basement area, the firm developed a 3D software model so new equipment could be installed while keeping the building heated and cooled. The company does most of its work in Arkansas and Oklahoma but is registered in 14 states. One longtime client is American Internet Services in San Diego, where Brown Engineers designs mission-critical system upgrades to data centers on 100,000 square feet of raised floor space.

In 2012, Brown Engineers won the ACEC/A's Grand Conceptor Award for reprogramming and repurposing inexpensive electric "smart meters" to monitor 3,000 residential grinder lift stations around Lake Hamilton in Hot Springs. Prior to the project, the utility trusted homeowners to report problems – a particularly unreliable method considering many of the residences were summer homes. Problems could fester for days and require expensive remediation. The project was expected to cost as much as \$60 million, but Brown Engineers helped it get done for \$1.3 million.

The next year, the firm won the ACEC/A's People's Choice Award for lighting Little Rock's Main Street Bridge, Junction

*Continued on next page*



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Brown said it was fun working on such a recognizable, eye-catching project, but no more fun than the Hot Springs grinder lift stations. One changed the land-

scape of Little Rock. The other helped Hot Springs provide sewage services for a fraction of the expected costs.

Wonder what that eight-year-old kid would say about that? Probably, “That’s too cool.”

## New ASPE President



**BRAD PETERSON, P.E.**, of Crafton Tull knows that engineers have many demands on their time. To keep them interested in ASPE, they have to see value in the organization, and that comes partly from worthy projects such as working with schools. He has a special place in his heart for Project Lead the Way, the school program provider that emphasizes engineering, science, technology and math.

# Peterson: Licensure a priority

New ASPE president says project managers need to mark work with their name

By **Steve Brawner**  
Editor

Until recently, Little Rock’s Main Street was a busy four-lane taking cars traveling between I-630 and the River Market district past decaying buildings from a bygone era. Now, thanks in part

to Brad Peterson, P.E., CFM, LEED AP, of Crafton Tull, it’s now a water quality demonstration project and the home of the city’s “Creative Corridor.”

Peterson, this year’s ASPE president, has been project manager for the \$1.9 million water quality project. Funded in part through a nonpoint source pollution grant from the Arkansas Natural Resources Commission and the Environmental Protection Agency, the project

uses design techniques such as pervious payment, swales and rain gardens to cleanse runoff water naturally before it flows into the Arkansas River.

The project is part of a larger redevelopment effort that is reinvigorating the street into the Creative Corridor, home of the Little Rock Technology Park. Instead of four lanes jutting against the buildings, the street will consist of two lanes with ample sidewalks and green space. That



will transform the street into an outdoor space populated by vendors, artists and entertainers, and used by students from the downtown eSTEM school.

Among the engineering challenges was remaking an existing corridor instead of starting from scratch on a greenfield. Rather than working on a static design, Peterson was part of a changing process where each block had its own identity. It was a rewarding assignment.

"You get to see how the development money can lead to an improvement in the community," he said. "You're not just spending the money to kind of patch things and hold things together. I mean, people have a vision. They have an idea, and so you become a part of that."

Peterson, 36, recently became office manager and vice president of infrastructure of Crafton Tull's Little Rock office, which puts him in charge of not only civil engineering and surveying work but also nondesign responsibilities such as keeping up with revenues and expenses.

"Engineers in our company are asked to wear a lot of different hats," he said. "It can be a challenge at times, but it gives you good perspective over our overall business and how we have to operate as far as marketing and business development and the other organizations in this office between planning and civil engineering and survey."

### Standing up for schools

Peterson has also helped design projects for the Bryant and Greenbrier school districts, which has been particularly rewarding because of his interest in education. In fact, outreach to schools will be one of his priorities as ASPE president. He'd like to see more professional engineers speaking in classrooms, volunteering at robotics competitions, and talking at career days. His highest goal is continuing the partnership the ASPE has with Project Lead the Way, the school program provider that emphasizes engineering along with science, technology and math. For that, ASPE needs more involvement at the local level. He'd also like to see engineers become more involved with the NSPE's Engineers Week next February 21-27.

Like most other professional and civic organizations, it's been a challenge for ASPE to maintain its membership in an era when people have so many choices and priorities pulling at their time. A trip to the NSPE's annual meeting in Seattle showed him that chapters across the country are facing similar problems. Getting engineers involved in such worthy purposes as Project Lead the Way is how they'll see value in ASPE, Peterson said.

ASPE's parent organization, the NSPE, has stated that its mission is to define, promote and protect. While there are other engineering organizations, it's the only one targeted specifically toward licensed professional engineers.

For Peterson, licensure was a priority. If an engineer is in charge of managing a project, he or she should be ready to stamp their name on it and accept the responsibility and liability that comes with that, he said.

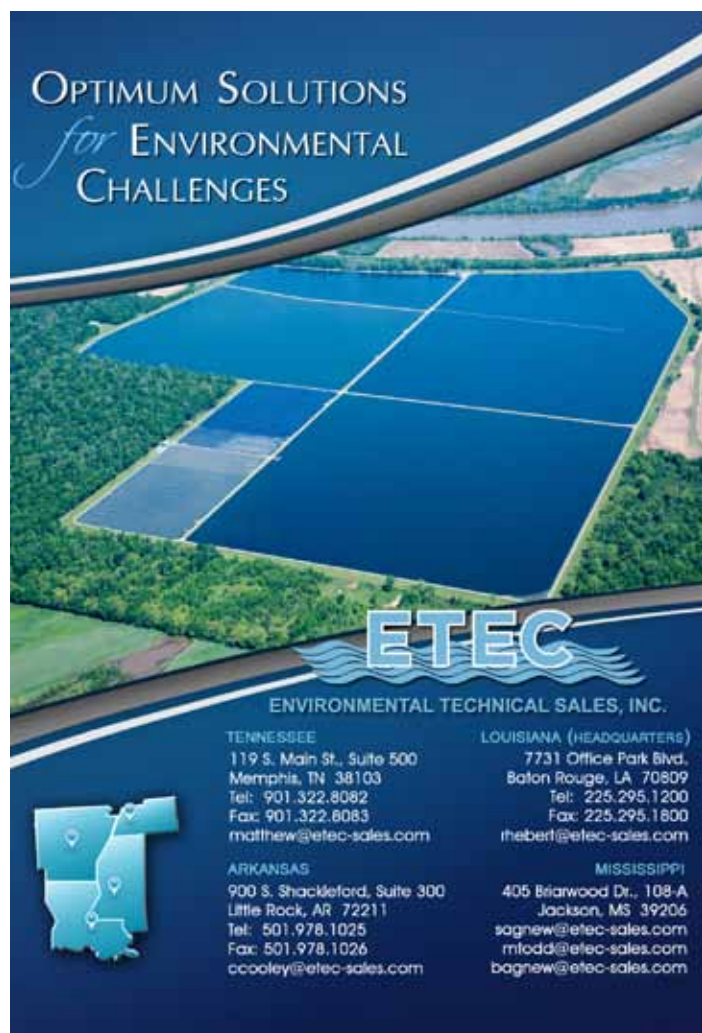
"Everyone understands engineers are licensed to protect the health, safety and welfare of the public," he said. "But bigger than that, maybe we have an obligation to further the profession, keep people interested in it to help protect our interests as

far as what service we offer, how our fees are structured, what liability protection we have and then promoting ourselves – I mean, going to people and having them understand why it's important to have an engineer working on a design. You know, it's not just somebody passed a rule and now you get your PE and you get to stamp a set of plans and send somebody a bill every time they need that done. As more of the general public understands what an engineer does and why they do it, it just helps grow the organization."

Peterson joined Crafton Tull in 2005 after working for Bonestroo and Associates in Wisconsin, the state where he spent his childhood. He grew up in Westby, a town of about 2,000 in the hills and valleys of southwest Wisconsin – a beautiful area similar to Northwest Arkansas. His junior year of high school, his physics teacher offered extra credit for him to job shadow an engineer at the corporate headquarters of HVAC equipment manager Trane in nearby La Crosse.

That day helped him decide on an engineering career. He attended college at the University of Wisconsin - Platteville, where he split his time between mechanical and civil engineering, eventually deciding on civil engineering.

Arkansas is now home. He married an Arkansas girl in 2013, and he and wife Ruth bought a house this summer that has kept them busy with projects. They have three dogs and a boat, and he's become a Razorbacks fan.



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## ACEC/A Member Spotlight

# FTN helps state plan future water needs

### State Water Plan looks 50 years into the future

For the next 50 years, Arkansas policymakers will be making decisions based on the work of FTN Associates.

FTN was one of two Arkansas firms that helped the Arkansas Natural Resources Commission update the State Water Plan. CDM Smith was the main contractor, while FTN Associates did a significant amount of work.

The \$4 million project involved listening to stakeholders and updating databases to determine how much water the state has at its disposal, how much it's using, and how much it will need to use decades from now.

The plan demonstrated what many already knew – that the state has serious issues with water use in the Delta. Ground water is being depleted as farmers dig deeper and deeper wells to irrigate their crops. There is plenty of water available on the surface, but diverting it will be costly and will require political will.

The plan attempts to help guide policymakers for the next 50 years. Dennis Ford, P.E., president of FTN Associates, said trying to forecast that far into the future is a challenge.

"Things change drastically," he said. "You know, when you look at it from an agriculture standpoint, 10 years ago, who would have thought everybody would be growing all this corn?"

The firm was started in 1981 by Dennis Ford, P.E., Kent Thornton, Ph.D., and Joe Norton – the "F," the "T" and the "N." Ford is an engineer, while Thornton is an ecologist and Norton was a chemist. The three had worked for the Army Corps of Engineers in Vicksburg, Mississippi.

"We were in the process of looking for different jobs and having different opportunities, so we thought it would be interesting and fun if we could work together, continue working together and form a consulting firm," Ford said.

They relocated to Little Rock in 1983. It was more centrally located to the many Army Corps of Engineers offices with which the firm was doing business in



**AWARD-WINNING DESIGN.** FTN has won engineering awards for its constructed wetlands wastewater treatment work and stream bank restoration, and the company is recognized as a leader in threatened and endangered species regulatory compliance. Top, FTN won an engineering award for the design of a constructed wetlands wastewater treatment facility for one of Arkansas' leading industries. Above left, FTN designed a project that provided stream restoration and stabilization of the east bank of Pleasant Ridge Road for the city of Rogers. Above right, FTN is recognized as a leader in regulatory compliance for threatened and endangered species, such as the American burying beetle.

Memphis, Tulsa and elsewhere. Originally named after its founders, the firm's name was shortened to FTN Associates that year after Norton left to pursue other opportunities.

The firm since has grown to about 70 people, about 20 of them professional engineers. It has offices in Little Rock, Fayetteville, Baton Rouge and Jackson, Mississippi. It focuses on water resources, water quality, wastewater and solid waste. It performs remediation work for the Department of Environmental Quality and performs brownfield studies for areas to be reclaimed. Ford is one of three Arkansas engineers to be selected to the prestigious ACEC College of Fellows.

FTN Associates has been involved in a number of coastal restoration projects. It modeled the impact of removing water from the Mississippi River to reclaim wetlands areas. It has been involved with several projects in Louisiana studying flooding issues that were intensified because of Hurricane Katrina. It worked for FEMA in Houston after Tropical Storm Allison in 2001.

The firm also does a significant amount of water and wastewater designs for the private sector. Clients include Tyson, Alcoa and Entergy. "Over 50 percent of our business is with private industry. ... We're a very, very different player in the engineering realm here," Ford said.



# Real participation trumps Trump

It's OK to be entertained by the campaign for now, but let's get serious when the time comes

If you're like a lot of us, during the past three or four months many of your conversations about politics have probably included the words "Donald" and "Trump."

That's fine for now. The primary election won't occur for months, and the Arkansas Legislature is not in session. The presidential campaign is the most entertaining reality show on the planet, and no reality TV show star is more entertaining than the former host of "Celebrity Apprentice."

However, there's a time to play and a time to get serious. While much of the country is watching the campaign show, the engineering community has been participating in the democratic process in order to achieve its goals. In recent months, ACEC/A has donated campaign funds to Rep. Steve Womack and Rep. Bruce Westerman. Both members of Congress have proven to be friends of infrastructure, and Westerman is (sadly) one of the few professional engineers in Congress. Meanwhile, we're keeping an eye on the Governor's Working Group on Highway Funding, which is looking for ideas to increase money for roads. The group includes two professional en-



**Angie W. Cooper**  
Executive Director

gineers: Rep. Andy Davis, R-Little Rock; and Scott Bennett, director of the Arkansas Highway and Transportation Department.

As we enter this election season, I shouldn't have to remind engineers to vote, and to vote for candidates whose values align with ours. But voting is the least that a member of a democratic society can do, which is why people who only vote get the least benefit out of the process. To be heard, we must be involved. Candidates pay closest attention to citizens who support their campaigns. Complain about that if you want, but it's still best to participate in a way that doesn't compromise your values or integrity.

Once the election is over, the squeaky wheel gets the oil, at least at the state lev-

el. In 2013, then-Rep. Jonathan Barnett, R-Siloam Springs, had 66 House and 23 Senate co-sponsors for a bill that would have dedicated to highways the sales taxes collected from new and used vehicles. However, Gov. Mike Beebe was opposed, and other interests – public schools, higher education, human services organizations – were united against it, calling it the "highway robbery bill." Meanwhile, supporters didn't do enough to help Barnett get it passed, and it went nowhere. A similar bill by Rep. Dan Douglas, R-Bentonville, met a similar response this year, except the governor this time appointed that working group, which is again considering the idea.

When it comes to politics, engineers should be able to get things done. We are accustomed to dealing with government. The members of our profession have the financial resources to donate to campaigns. More importantly, what's good for us is undoubtedly good for society. We want the state and nation to invest what is necessary in our infrastructure. We want to defend the practice of licensure in order to protect public safety. We want a business climate that encourages economic development and job creation.

So it's OK for us to keep watching the campaign show for now, as long as we know when it's time to turn off the TV and participate. It's often that time.

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# Wind project: promising, controversial

Clean Line project could power 160,000 homes, but Congress, landowners skeptical

By **Steve Brawner**  
Editor

A Houston-based company is hoping to build wind power transmission lines across Arkansas that would provide enough electricity to power 160,000 homes in this state while also serving Tennessee. But it first will have to overcome the questions of the Arkansas congressional delegation and the objections of some landowners.

Clean Line Energy Partners would invest \$2 billion in the project, which would stretch the Plains & Eastern Clean Line Transmission Project, a single direct current power line, from the Oklahoma panhandle into Van Buren and across the state into Memphis. About half a billion dollars would be invested in Arkansas, including in a \$100 million, 500-mega-watt station in Pope County that would convert that direct current to alternating current. Utilities would sign power purchase agreements with wind farm developers who would pay a transmission service fee to Clean Line Energy.

According to Chris Hardy, a Clean Line associate, the project would double the amount of wind power available to Arkansas customers, who already are served by wind farms in Kansas and Oklahoma. The existing transmission grid is congested, and Arkansas lacks the wind resources to produce the power economically itself, he said.

The line would be 720 miles long, with 270 of that stretching through Arkansas. Most of the structures along the line except for those crossing the Mississippi River would be 110-150 feet tall.

Clean Line began seeking approval for the project in 2010 from both state and federal regulators. In Arkansas, the Public Service Commission denied its application requesting utility status in January 2011. At the same time, however, the company was seeking approval from the federal government under Section 1222 of the Energy Policy Act of 2005. Using that route, Clean Line would form a partnership with the Southwestern Power



**HUNDREDS OF WORKERS** will be required to construct the lines, and half a billion dollars will be invested in Arkansas. Enough energy will be produced to serve 160,000 homes in Arkansas alone. But members of Congress say the process is taking power from state and local governments, while landowners say the lines will affect how they can use their property, and what that property will be worth.

Administration, a federal agency that markets hydroelectric power in six states including Arkansas and Oklahoma.

Under that scenario, the Southwest Power Administration would own the lines, but Clean Line would be responsible for expenses and would receive the profits. Hardy said taxpayers would not be asked to pay for the project. Tennessee and Oklahoma, unlike Arkansas, did approve Clean Line Energy's request for utility status.

The environmental impact study is being conducted by the federal Department of Energy. Hardy said the company expects a decision by the end of the year. Then 2016 would be dedicated to meeting with landowners, with construction starting in 2017 and operations possible by 2019-20.

## Congressmen have concerns

But the process concerns the members of the Arkansas congressional delegation.

The six members wrote the Department of Energy a nine-page letter Sept. 14 to express their objections about the way the project is being approved.

The delegation's primary concern is that the use of Section 1222 infringes on the state and local governments' traditional roles in determining the location and permitting of electricity facilities. They wrote that the modern electric grid has been constructed without the federal government exercising eminent domain, which would be possible under this scenario. They noted that the Arkansas Department of Tourism has expressed opposition.

"We want to clearly give voice to these concerns, on behalf of our constituents who are alarmed by a process where the federal government may attempt to take private property based on decisions made in Washington, D.C., rather than in states and local communities," the members of the delegation wrote.



Under Section 1222, projects must be located in a “national interest electric transmission corridor” or necessary to accommodate an increased demand for electricity. The letter says that the project’s primary potential customer, the Tennessee Valley Authority, would not need the power until at least the 2030s, and that Clean Line has not identified any customers that are certain to use its offering.

Hardy acknowledged that the company doesn’t have confirmed customers yet, but he said that’s not surprising.

“We wouldn’t expect to get signed contracts between the developers and the utilities until we’ve gained all the necessary permitting and regulatory approvals,” he said.

The delegation has introduced the Assuring Private Property Rights Over Vast Access to Land (APPROVAL) Act in both houses of Congress. It would require the Department of Energy to gain approval from a state’s governor and public service commission before approving a Section 1222 transmission project and approving the federal use of eminent domain.

As for the project itself, “We recognize that in many contexts the development of new electric transmission infrastructure is necessary despite costs and adverse impacts,” they wrote. “We are not taking a position on whether this Project or any other should move forward under non-federal authorities.”

Tommy Folpz, executive vice president of the Consumer Energy Alliance, said the project would create more than 500 jobs during the construction phase. General Cable in Malvern will be supplying 100 million feet of cable. A French company, Sederer, announced it was investing in a manufacturing plant in West Memphis that would construct the insulators at the tops of the power poles. The project would benefit the concrete, steel, trucking and hospitality industries, he said.

“All of these benefits can come to the state if it’s fully permitted and allowed to go forward,” he said.

### **Landowners have concerns, too**

Hardy said Clean Line Energy is offering to pay 100 percent fair market value to landowners for a 150-200-foot-wide

easement, with landowners still able to use the land for hunting, farming and other activities, as long as they don’t do anything that would interfere with the operation of the line. That would mean they couldn’t construct any new buildings or grow trees more than 10 feet tall. Landowners also would be compensated for every structure or tower built on the property.

But grassroots organizations have sprung up to oppose the plan. One, Block Clean Line Energy, says on its Facebook page that it has efforts in nine states to contest this and other projects. In Arkansas, those opponents include Alison Millsaps and Dave Ulery, both from the Dover area. They say they are inclined to support renewable energy. However, they oppose this project and have been working with people across the political spectrum.

Their opposition stems from a variety of reasons both personal and political. The favored route would cut through Ulery’s property, which he said has left him unsure of whether or not to move forward on plans to build a house there. They say property values would decrease for landowners with property underneath or near the line. While Ulery would be compensated for his inconveniences, no money would be provided landowners whose property is very close to the line but not crossed by it. They say the project is not about serving a need for more energy but instead is about economic development via helping a big corporation. Millsaps said landowners “have really been powerless in this entire conversation.”

“It doesn’t make any more sense for a developer to have eminent domain over an entire project than it does for one holdout landowner to stop a good project,” Millsaps said.

### **County property taxes?**

Opponents also say that because the lines actually would be owned by a federal agency, the company would not have to pay county property taxes.

Hardy acknowledged that is correct. However, he said Clean Line has developed a binding local agreement into which it will enter with the 12 counties through which the line will traverse. Under the agreement, the company would

commit to provide revenues Hardy said would equal about \$5 million the first year and \$147 million over 40 years.

Hardy said the company is dedicated to minimizing the project’s environmental impacts. He pointed out that the pro-environment group Sierra Club is supportive. It’s possible that the project could take advantage of solar power later because, he said, “Where it’s very windy, the sun also shines a lot.”

“We are fully committed to staying engaged with the local communities, with local stakeholders, involving them in all of our processes to make sure that this is really a win-win for Arkansas and all the states that we serve,” he said.

Initial surveying work, including setting the primary control along the entire route and the groundwork involved in setting aerial targets to create a topographic map, has been performed by Crafton Tull. Once the environmental impact study is completed, then the firm hopes to continue its relationship, said its president, Matt Crafton.

Crafton said he grew up with a transmission line running through his parents’ property, and it did not affect the family’s quality of life.

“I think most people understand the benefit of having multiple sources of energy, and having wind available in the western part of the United States and building these wind farms seems to be a good thing,” he said. “It’s clean, but that energy has got to be transported to places where it’s needed, and so you’ve got to build transmission lines. If you’re going to have this clean energy source, you’ve got to be able to get that to a market that needs it.”

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### Van Horn installs pump for Clarksville Light and Water

All hands were on deck as the Van Horn Construction crew installed a backwash pump at Clarksville Light and Water's water treatment plant expansion.

The pump weighs 13,000 pounds and is 34 feet tall, according to CL&W General Manager John Lester. Installing the pump was a milestone for VHC, as it pushed the \$9 million project closer to completion.



ICM was awarded two Gold Pipe Lasers from AGI for being its number one pipe laser dealer for 2014. ICM CEO Bruce McFadden, left, accepts the award from Fred Cartan, vice president of sales and marketing, AGI/GEOMAX Corp.

### ICM honored for being top seller of AGI pipe lasers

Bruce McFadden, Improved Construction Methods founder and CEO, was awarded two gold pipe lasers by AGI for being the nation's number one pipe laser dealer for the year 2014. The award was presented at the World of Concrete Show.

Based in Jacksonville, ICM offers a variety of construction methods and equipment. AGI, which is also based in Jacksonville, produces rotating, pipe and grade lasers. It was founded in Jacksonville in 1964, making this the company's 50th anniversary.

Fred Cartan, AGI sales and marketing manager, presented the awards to McFadden at the World of Concrete Show.

The AGI pipe laser was one of the first three products added to the ICM family in 1974. ICM's first product when it was founded in 1970, also in Jacksonville, was its manhole forms.



### RP Power delivers backup generator for new hospital

RP Power delivered two Kohler 1500kW standby diesel generators to the new Baptist Health Medical Center currently under construction in Conway.

The generators will provide emergency power for the life safety, critical and equipment loads as required by NFPA-99. They will operate in parallel to feed three bypass-isolation, 4-pole automatic transfer switches. A generator docking station is being included that will allow easy connection to a portable resistive loadbank for onsite testing purposes. The generators will be housed in weather protective aluminum Level-II sound attenuated enclosures that are IBC/Seismic certified and fueled by a 20,000-gallon dual wall storage tank.

For more information about RP Power, call 501.658.3000 or go to [rp-corp.com](http://rp-corp.com).



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