

June 2016 Newsletter

Location, Economy May Bring Record Business Investment for TVA

The favorable location and lower costs for businesses in the Tennessee Valley are helping attract a record level of new investment to the region. Despite sluggish capital spending by many businesses across the country, the Tennessee Valley Authority is on pace to lure a record volume of business investment in its 7-state region during the current fiscal year.

In the first half of the current fiscal year, TVA attracted \$6.1 billion and at least 50,000 jobs to the Tennessee Valley. That pace exceeded last year's record high job generation and the recent announcement by General Motors of a \$788 million expansion at its Spring Hill, Tennessee site, projected to add at least 781 jobs which will push the investment this year to nearly \$7 billion.

"We're having another good year, but the only caution I would have is that businesses are sometimes reluctant to make capital investment decisions in a presidential election year when there may be some uncertainty about the future," said John Bradley, TVA's senior vice president of economic development for the past 14 years. "There could be some slowdown until after the election and businesses have a better idea about the future."

Bradley went on to say that one of the key attributes of the TVA region will never change; its central location within a day's drive of nearly half of the U.S. population. As more manufacturers and suppliers move toward faster delivery times, being centrally located and able to deliver your products to major U.S. markets quickly is a definite asset, even in an increasingly digital and information age where work can be done almost anywhere.

"From a logistics standpoint, you can't beat our location and access," he said. The Tennessee Valley also boasts relatively lower state and local tax rates, business regulations and labor costs than most manufacturing states to the north. Those factors have helped draw more automotive manufacturing to the region, including more than \$2 billion of announced investments by Volkswagen in Chattanooga, Nissan in Smyrna, GM in Spring Hill and all of their suppliers.

Tennessee has historically not fared as well as many states in the education and skills of many of its workers, but Bradley said the Tennessee Promise of two years of free community college is helping improve the reputation of the Volunteer State to business prospects. A new study by the University of Tennessee Center for Business and Economic Research said the top states for economic momentum so far in 2016 include Tennessee, ranked No. 6, and Georgia, ranked No. 8, among the 50 states.

"Tennessee is surging ahead of the nation's pace of growth," said Dr. Matt Murray, associate director at the UT Center Business and Economic Growth. "We're seeing broad-based growth across the board and there is a greater degree of economic confidence in the state." As more businesses move into the Valley, Bradley said the word is getting out about the region's comparatively low energy and tax costs and its attractive lifestyle options. "The momentum we've seen from having continuous years of success seems to be building on itself and getting better all the time," Bradley said. "We're seeing more activity and we're seeing more deals."

Since 2006, TVA has helped attract more than \$60 billion of new business investments that collectively have added nearly 500,000 jobs, according to TVA's compilation of business investments. Bradley is quick to call the economic recruitment in the Tennessee Valley "a team sport" among state and local governments, local chambers of commerce and other utilities.

For its part, TVA has cut its operating expenses by more than \$600 million a year and revamped its industrial power rates to be more attractive with other utilities. TVA rates now rank No. 16 among the 100 largest electric utilities in the price of its power, Bradley said.

Navy Eyes Miniature Nuclear Reactors to Power its Bases

Over the past five years, the Navy and Marine Corps have been busily issuing contracts for a mix of alternative energy technologies like wind and solar so that more than half of the electricity demands on its bases will no longer depend on public power grids. But Navy secretary Ray Mabus says there's another alternative his department's hasn't fully explored yet: nuclear, and its time may have come.

While nearly a fifth of the Navy's ships run on nuclear power, the only land-based nuclear reactors the service operates are for training purposes. But Mabus recently said he wants to explore the concept of installing small, modular nuclear reactors on bases to continue their push toward independence from off-base energy.

Rather than the large, utility-scale nuclear plants currently in use by civilian power companies, Mabus said he envisions a system of small, "distributed" nuclear generators networked together via a microgrid on a given base.

"With some of the new technology that's coming along, it's much safer, it produces far less residue and nuclear waste, and it is an option that I think we should explore," he said at the Council on Foreign Relations in New York. "In every source of energy, whether it's solar or conventional energy, it's becoming much more distributed where you generate and store energy exactly where you use it. We're looking at nuclear in the same way. In May, another federal agency, the Tennessee Valley Authority, asked the Nuclear Regulatory Commission for permission to begin testing small modular reactors at its Clinch River research site in Oak Ridge, Tennessee, saying research activities into the small reactors "support the agency's technology innovation mission and are consistent with TVA's vision to be one of the nation's leaders in cleaner, low-cost energy." The Department of Energy is contributing half of the funds for the project.

Mabus noted that while much of the basic research that ends up in commercial reactors was actually first conducted by the Navy. Although the nuclear power plants it's accustomed to building and using for ship propulsion purposes aren't a great match for what's needed for shore-based electric generation.

Watts Bar Unit 2 Begins Power Generation

The Tennessee Valley Authority's Watts Bar nuclear Unit 2 generated electricity onto its power grid for the first time on June 3rd.

Watts Bar Unit 2 is officially synced to the grid and licensed reactor operators have begun an initial test run of generation equipment. The team is using this run to collect data to be sure generating equipment is prepared for continuous full-power operation later this summer.

"This is another major step in fully integrating Watts Bar Unit 2 as the seventh operating unit in TVA's nuclear fleet," said TVA Chief Nuclear Officer Joe Grimes. "It is rewarding to see TVA taking the lead on delivering the first new nuclear unit of the 21st century and providing safe, affordable and reliable electricity to those we serve."

The next step is full-plant testing of systems and controls at increasing reactor power levels up to 100 percent power. These tests will be repeated multiple times to ensure the plant operates safely as designed.

Watts Bar Unit 2, like Unit 1, produces electricity using controlled nuclear fission to generate heat, which is used to produce steam to turn turbines and a single, large generator. More information about this process can be found on TVA's Watts Bar webpage.

Once all power ascension tests have been completed successfully, Watts Bar Unit 2 will provide up to 1,150 megawatts of safe, low-cost, carbon-free electricity to the Tennessee Valley. Combined with Watts Bar Unit 1, the plant will supply power to roughly 1.3 million homes in the TVA service area.

ATVG REPORT:

A quarterly publication of the Association of Tennessee Valley Governments:

P.O. Box 3578

Clarksville, TN 37043-3578

Telephone (931) 553-4265

Email: memberservices@atvg.org

ATVG is a 501(c)(4), not-for-profit, public interest organization. ATVG advocates for the interests of county and city/town governments residing within the seven-state TVA region and their partners in the public and private sectors.

For details about ATVG's mission and program of work, visit us on line at: www.atvg.org

TVA sees U.S. Natural Gas Prices Low for years, Adds Plants

The Tennessee Valley Authority, the biggest U.S. owned electric generator, expects natural gas prices to remain low over the next 20 years as the company expands its gas-fired power plant fleet and retires coal units.

"We made a bet when we started closing coal plants that gas prices would continue to be low and I think we are surprised at how low they have remained and now expect them to be low for 20 years," TVA Chief Executive Officer Bill Johnson said in an interview on Wednesday, June 1st.

U.S. gas prices at the Henry Hub benchmark in Louisiana averaged \$2.61 per million British thermal units (mmBtu) in 2015 as producers pulled record amounts of fuel out of the ground and storage levels hit all-time highs. Over the prior 10 years (2005-2014), gas prices averaged \$5.49.

Since the start of 2016, gas has traded at just \$1.94 per mmBtu, with most analysts projecting prices will average around \$2.28 for the full year, putting it just above the 1999 low of \$2.27, before rising to around \$3 in 2017.

"There is a lot of gas out there. If prices remain under \$4 until sometime between 2025 and 2030 and under \$6 after 2030, we will be well in the money in the generation space," Johnson said, noting TVA went from burning almost no gas 10 years ago to using about 600 million-700 million cubic feet per day now.

TVA expects to use even more gas when it finishes construction of two combined-cycle gas-fired plants in 2018. The plants, of about 1,100-megawatts (MW) each, will replace retiring coal units at the Allen power plant near Memphis, Tennessee, and at the Paradise plant in Kentucky.

In addition, Johnson said TVA will connect to the grid its new 1,150-MW Unit 2 at the Watts Bar nuclear station in Tennessee on June 1st. Watts Bar 2 will be the first new reactor to enter service in the United States since the first unit at Watts Bar entered service in 1996.

"While other nuclear reactors are facing a retirement crisis, we expect to add about 1,700 MW of new nuclear to our fleet by the end of the decade with the new unit at Watts Bar and uprates at our Browns Ferry plant in Alabama," Johnson said, referring to planned upgrades at Browns Ferry that will increase the facility's output.

TVA to Erect Sound and Light Barriers on Top of Boone Dam's Earthen Embankment

In an effort to ease the impact of construction on Boone Dam's neighbors, TVA will be erecting sound and light barriers on top of the dam's earthen embankment, the agency announced.

"We are trying to minimize the impact of our around-the-clock construction work on the surrounding homes by building the sound barrier," said Construction Manager Kevin Holbrook, in an update on the repair project at the dam.

The tan, fabric wall will be 16 feet high, 900 feet long and will run the length of the earthen embankment, Holbrook said, and it will be 4-6 feet wide. Project Manager Sam Vinson recently told reporters that the project remains on schedule for the five-seven year timeline. "Safety is always our overriding priority and the actions we take every day are intended to help ensure the safety of the public as well as our own team members," Vinson said. "The Boone Project remains on schedule to safely complete the proposed repair in the 2020-2022 timeframe, as discussed during the July 2015 public meeting."

Last week TVA opened "Boone Beach," at 685 Minga Road. It proved popular over the Memorial Day weekend, as families, fishermen and boaters flocked to the new Boone beach and boat ramp, putting those facilities, picnic areas, grills and walkways to good use, according to TVA. "We want everyone to know that Boone Lake is open for public recreation and enjoyment," said Natural Resources Director Bucky Edmondson.

TVA is First Mover for SMR Early Site Permit

The Tennessee Valley Authority (TVA) has submitted an application for an Early Site Permit (ESP) to the U.S. Nuclear Regulatory Commission (NRC) for a small modular reactor (SMR) which could be built at the Clinch River site in Tennessee. It is the first application of its type to be submitted to the regulatory agency. The ESP is for a 1,200 acre site about 25 miles southwest of the Oak Ridge National Laboratory and nearby Knoxville, TN.

While approval would speed up processing of a follow-on application for a combined construction and operating license (COL) for an SMR, the ESP itself does not authorize TVA to build and operate an SMR. The ESP has a "shelf life" of 10-20 years as long as there are no major changes to the conditions cited in the permit once it is issued by the NRC. Typically, the agency takes about 1-2 years to complete its review of an ESP application.

Also, the ESP does not require TVA to reference a specific reactor design other than its approximate power rating or size. TVA has cited four SMR light water design concepts without stating a preference for any of them. Typically, SMR's are rated at 300 MW or less (electrical) as compared to full size reactors like the Westinghouse AP 1000 which is rated at 1150 MW.

TVA's senior manager for SMRs, Dan Stout, told World Nuclear News on May 16 that the utility is "several years away" from a decision to actually proceed with a COL application. Earlier this year TVA published an updated Integrated Resource Plan which said that it could be as long as 20 years before it would need new nuclear capacity.

What may not be well known is that TVA's work on the SMR ESP is being co-funded by the U.S. Department of Energy under a five-year program. DOE is also supporting via cost sharing NuScale's work on design and licensing of its 50 MW SMR which is slated to be located at a site at Idaho National Laboratory.

Wilson Dam Arches, Bridge Deck Slated for Repairs in 2019

Shoals residents, visitors and anglers are undoubtedly familiar with the spillway arches on the downstream side of Wilson Dam. The dam, which holds back the waters of Wilson Lake on the Tennessee River, was constructed in the neo-classical style, integrating themes of Greek and Roman architecture into what was a modern structure when construction began in 1918. The dam was completed in 1924 and turned over to the Tennessee Valley Authority in 1933.

The arches that form the spillways are impressive from a distance, but a closer view shows chipped and cracked concrete around the edges. The damaged concrete on the arch faces will be addressed in a major rehabilitation project TVA has slated for fiscal year 2019, Bridge Program Manager Ben Byard said.

"It needs to be stopped, so it does not get deeper into the bridge structure," Byard said of the chipping and cracking. He said the concrete around the arches is more of a decorative concrete, similar to stucco on the exterior of a building. He said the chipped concrete will be repaired and the cracks will be filled.

"We'll chip off the bad concrete and form it up and recast it with fresh concrete," Byard said. In addition to the work on the arch faces, Byard said TVA will redeck the more than one-mile long two-lane concrete road and steel flyover bridge that spans the locks. Byard said a contractor will mill about 2 inches of concrete surface on the roadway and overlay it with new concrete.

Hydrodemolition, using high-pressure water to remove old concrete, will be utilized on the flyover bridge's concrete deck. New concrete will then be added, Byard said. Byard said he does not know how long it's been since the dam road and bridge was last redecked.

"The refacing and decking are kind of related," Byard said. "Water coming from the deck is seeping out into the (arch) faces. Fixing the deck will probably solve the problem." The refacing will also improve the appearance of the arches. "We're giving it a cosmetic makeover," Byard said.

Another project that will be taking place is a major bridge inspection of the road and flyover bridge, he said. The dam will be closed to traffic from June 20-24 during the inspection. "Those are usually done in-house by me and other bridge staff," Byard said of the inspections. Inspectors will check for corrosion on the steel members on the flyover bridge, and check for issues around the arches on the concrete portion.

"We do this every two years," Byard said. "We haven't had anything alarming come up. It's normally for identifying maintenance issues we need to put on the list." He said TVA has 95 bridges in its system that it inspects, 43 of which are open to the public.

A contractor will be brought in to help TVA form a game plan for the 2019 rehabilitation project. According to the TVA website, Wilson Dam is the largest conventional hydroelectric facility in the TVA system. Only Raccoon Mountain Pumped-Storage Plant near Chattanooga, Tennessee, can generate more hydroelectric power.

Alison Stanfield, director of operations for Florence/Lauderdale tourism, said the dam is one of the most inquired about landmarks in the Shoals. Unfortunately for the public, unescorted tours of the locks were suspended in December 2015 to review security at the facilities.

"We've had daily inquiries about visiting the lock and dam," Stanfield said. "Due to the popularity and historical significance, we chose to have an exhibit featuring the dam to accommodate guests who cannot visit the actual site." The exhibit is located in the tourism bureau's visitor's center in Florence's McFarland Park.

Stanfield said tourism officials will direct visitors to great vantage points, such as 360 Grille at the Marriott Shoals Hotel and Spa, the Rockpile Recreation Area on the TVA Muscle Shoals Reservation, and Florence's River Heritage Park. Lee Roberts, a public affairs specialist for the U.S. Army Corps of Engineers, said no decision has been made regarding when tours might be reinstated.

"In addition, TVA has been working on a stabilization project at Wilson's main lock," Roberts said. "It is not expected to be completed until August 2017." Wilson Dam was declared a National Historic Landmark on Nov. 13, 1966.

ATVG REPORT:

A quarterly publication of the Association of Tennessee Valley Governments:

P.O. Box 3578

Clarksville, TN 37043-3578

Telephone (931) 553-4265

Email: memberservices@atvg.org

ATVG is a 501(c)(4), not-for-profit, public interest organization. ATVG advocates for the interests of county and city/town governments residing within the seven-state TVA region and their partners in the public and private sectors.

For details about ATVG's mission and program of work, visit us on line at: www.atvg.org

Mark your calendar now for ATVG's final 2016 meeting:

Fall Meeting in Gatlinburg, TN, October 18, 19 & 20, 2016

Clarion Inn and Suites

1100 Parkway, Gatlinburg, TN, 37738

Association of Tennessee Valley Governments

Summer Meeting - July 20, 21, 2016

Double Tree by Hilton

1101 6th Avenue NE Decatur, AL 35601

Phone: (256) 445-3156

July 20, 2016 (Central Time Zone)

ATVG Program

11:30 a.m.	Lunch at Doubletree	- Included in your registration fee
12:45 p.m.	Welcome and Introductions	- Don Stisher, ATVG President
1:00 p.m.	TVA Update	- Bert Robinson, TVA
1:30 p.m.	Decatur Story; Pre and Post TVA	- Melinda Dunn, Director Decatur/Morgan County Convention & Visitor Bureau
2:00 p.m.	Alabama Regional Tourism	- Tami Reist, President Alabama Mountain Lake Tourist Association
2:30 p.m.	TVA Perspective	- Chairman Joe Ritch, TVA Board of Directors
3:00 – 3:15 p.m.	Break	
3:15 p.m.	Mars Manned Mission	- Marcia Lindstrom, NASA/Marshal Space Flight Center
4:00 p.m.	TVA Power Service Centers	- TVA Speaker
5:30 p.m.	Reception, dinner and live entertainment	- transportation will be provided <u>July 21, 2016</u>
7:30 a.m.	Breakfast at Doubletree	- Included in your registration fee
8:30 a.m.	ATVG Board Meeting	(Separate agenda will be distributed)
9:30 a.m.	Regional Windshield Bus Tour	(Nucore Steel, United Launch Alliance, Browns Ferry Nuclear Plant and other regional sites of interest)
11:15 a.m.	Return to Doubletree	

Please help us make necessary arrangements by letting us know if you will be attending. Send the enclosed registration form by email to: registration@atvg.org or by U.S. mail to: ATVG, P.O. Box 3578, Clarksville, TN 37043.

Association of Tennessee Valley Governments Meeting Registration Form

Registration Fee: \$40.00 for members and affiliates; \$75.00 for non-members

Name: _____

E-Mail: _____

Spouse's Name: _____

Registration Fee for spouse is included/No additional charge

Company/Organization: _____

Full Address: _____

Make checks payable to: Association of Tennessee Valley Governments- P.O. Box 3578 – Clarksville, TN 37043

ATVG REPORT:

A quarterly publication of the Association of Tennessee Valley Governments:

P.O. Box 3578

Clarksville, TN 37043-3578

Telephone (931) 553-4265

Email: memberservices@atvg.org

ATVG is a 501(c)(4), not-for-profit, public interest organization. ATVG advocates for the interests of county and city/town governments residing within the seven-state TVA region and their partners in the public and private sectors.

For details about ATVG's mission and program of work, visit us on line at: www.atvg.org