

**Tennessee Valley Authority
Regional Resource Stewardship Council
November 5-6, 2018
Meeting Minutes**

The Tennessee Valley Authority (TVA) Regional Resource Stewardship Council (RRSC or Council) convened for the second meeting of the tenth term at 10 a.m. EST on Monday, November 5, 2018 at the Tennessee Valley Authority Auditorium, 400 W. Summit Hill Drive, Knoxville, Tennessee 37902.

Council members attending:

Keith Carnahan	Robert Englert	Brock Hill
Richard Holland	Brad Kreps	Gary Myers
Danette Scudder*	Randy Wiggins*	

* Present Day Two

Designated Federal Officer: Dr. Joseph Hoagland

Designated Alternate Federal Officer: Amy Henry

Facilitator: JoAnne Lavender

Appendix A identifies the TVA employees, members of the public, and others who attended.

Appendix B is the agenda for the meeting.

Appendix C is the Sentiment Statement provided by individual members of the Council.

Copies of the presentations given at the meeting can be found at <http://www.tva.gov/rrsc>.

The majority of the meeting was devoted to presentations by TVA staff about Programmatic Agreements, Water Reliability, Archaeological Collection Management, Natural Resources Stewardship and River Management activities. Council members asked clarifying questions. Individual Council Member advice was provided by the RRSC Members, in their individual capacity, at this meeting.

1. Welcome and Introductions

A. Joe Hoagland, TVA's Designated Federal Official (DFO) and Vice President Innovation & Research, along with Amy Henry, TVA's Alternate DFO and Sr. Manager of Enterprise Relations & Innovation, welcomed the Council and summarized the purpose of the meeting which was to provide updates on TVA's Programmatic Agreement, Water Reliability, Stewardship of TVA's Archaeological Resources, TVA's River Operations and Dam Safety, and Natural Resources Stewardship. Ms. Henry thanked the 10th term members for their participation and noted that Chair Mark Iverson cannot be at the meeting due to a prior commitment and sends his regards.

B. JoAnne Lavender, Facilitator, welcomed the Council and reviewed meeting protocols and provided a safety moment. Ms. Lavender asked the Council to introduce themselves and provide a least favorite recreational activity, since TVA often asks for a favorite recreational activity from members. Ms. Lavender reviewed the agenda for Day One of the RRSC meeting and mentioned that Council does not have a quorum, so Council members can provide individual advice if desired. Ms. Lavender also reviewed meeting protocols for RRSC members to comment or asks questions.

2. FACA Briefing (Presentation can be found at www.tva.gov/rrsc)

Due to the time constraints, the Council members individually reviewed the information prepared by Kendra Mansur, TVA's Office of General Counsel, addressing Federal Advisory Act Committee (FACA) requirements. RRSC Membership is balanced and represents diverse viewpoints including recreational, agricultural, navigational, and public power concerns. Ms. Mansur was available throughout the meeting if Council members had questions relating to FACA or other legal issues.

3. Programmatic Agreements (Presentation can be found at www.tva.gov/rrsc)

Brenda Brickhouse, Vice President of TVA's Environmental Practice and Policy group, discussed TVA's programmatic agreements for Natural and Cultural Resources. Ms. Brickhouse stated that programmatic agreements are frequently established by federal agencies, such as TVA. Ms. Brickhouse indicated her team has presented to the Council previously on this larger project about cultural resources and the formal Programmatic Agreement. Ms. Brickhouse stated that she appreciated the Council's prior comments, and that during this presentation, that she hopes the Council understands how far TVA has come and where TVA is headed in establishing the Programmatic Agreement. Ms. Brickhouse discussed the slides in turn.

A goal of a programmatic agreement is to have alignment with the National Environmental Policy Act, Clean Water Act, Executive Order/Wetlands, Endangered Species Act, Executive Order for Migratory Birds, National Historic Preservation Act, and the Archaeological Resources Protection Act. TVA is looking at the next step involving migratory birds and the Migratory Bird Treaty Act. Ms. Brickhouse commented that TVA is trying hard to think holistically. When TVA thinks about compliance, it thinks about individual projects and TVA has found itself managing natural resources in that narrow context. When TVA folks typically think about projects, they may consult on individual laws and what the project is doing and not doing, and the mitigation involved. Folks may typically evaluate all of those items on an individual basis. The results can look different as folks from diverse groups address the issues. So TVA has taken a step back and looked at all the activities and started talking with the regulators in those areas in a more comprehensive manner, including having discussions with the state historic and tribal preservation officers and cultural resources folks, and especially the US Fish & Wildlife and State wildlife agencies. With bats, the biggest issue with the White Nose Syndrome is tree removal. TVA removes trees for the building and maintenance of transmission lines. TVA is also cutting trees for landfills associated with power plants to accommodate coal ash. TVA looked at the hundreds of projects, and TVA can plan ahead to work outside of roosting season, etc. TVA is focusing on the concept of taking a broader step in managing natural resources, and in the case of bats, TVA will have a more impactful analysis through the Programmatic Agreement.

The Council was very interested in the updates to the Programmatic Agreement and asked several questions about TVA's partnerships with other federal and state agencies and further collaboration in terms of funding and resources.

4. Water Reliability Study (Presentation can be found at www.tva.gov/rrsc)

a. David Bowling, Vice President of Land & River Management, attended the meeting and answered questions from the Council. He remarked that all of the issues that TVA brings to the Council involve a balancing of interests.

b. Gary Springston, Amanda Turk and Curt Jawdy provided a presentation on water reliability. Gary Springston, Program Manager for TVA's Water Supply group, began the presentation and discussed five global risks that keep global leaders up at night. Those five risks are water crises, failure of climate change, natural disasters, extreme weather events, and weapons of mass destruction. The results from the World Economic Forum, which involves high level people such as former Presidents and CEOs, get together every year and talk about the state the world. Some of the items they review are the global risks. Mr. Springston stated that four of the five risks in the slides related to water in some way. If you live west of the Mississippi River, you know that water resources are more limited. And if you review the slides, you understand that water touches many other risks including mass migration, instability, and many more items. Mr. Springston commented that when you ask folks about how valuable water is, you have varying opinions across the country. People will tell you that reliable water supply is necessary if you want sustainable growth in any region in the country, including the Tennessee Valley.

At TVA, we manage one of the largest river systems in the nation in an integrated fashion. TVA takes many new initiatives to comply with TVA's goals for water reliability and analyzes water use every five years. The National Resource Council thinks water supply is a big issue in this century. TVA provides drinking water for over 5 million people and have 700 intakes into our system. Sustainability of our water supply becomes more and more of a competitive advantage. TVA has several folks working on the Tennessee H2O plan. TVA wanted to do some research to set a mathematical foundation for making good decisions in the future around our water supply. Water reliability in the Tennessee Valley is very strong, and TVA receives a lot of rainfall. The rainfall is significantly more than the evaporation. TVA has a lot of storage, also known as dams. TVA runs the river system in an integrated fashion.

Ms. Amanda Turk followed Mr. Springston and provided more information. Ms. Turk, a TVA civil engineer, remarked that when beginning a water reliability study, it is to good to understand what is out there. Therefore, TVA sent letters to its utility and industries that have intakes in TVA water-controlled water bodies. TVA asked several questions: What do you need to operate? How much water do you need? TVA explained that it is conducting this study and that TVA would share the results with them. Two thirds of the entities responded.

Ms. Turk explained that TVA's historical record is only about 100 years, and it is important to understand the history in order to understand the risk associated with droughts. Therefore, the study is important to gage our past. Our largest drought of record was in 2007. Even in 2007, TVA was able to maintain water over all of the intakes, but there were some regions in the Tennessee Valley that could potentially have water shortages or water storage concerns in the future. Therefore, to embark on the study to understand past droughts, TVA is studying tree rings (a dendrochronology study). TVA has partnered with the University of Tennessee, and it is conducting the work. A dendrochronology study works by taking core samples of tree rings. The sample does not harm the tree. For each of the core samples, one will look at the width of the trees. The narrower the band, the drier the year. The wider the band, the wetter the year. One can correlate the tree ring samples with the water flow. There is at least 87 percent accuracy.

As Ms. Turk mentioned, TVA had only about a hundred years of records regarding droughts and now it has 1300 years of history, beginning in the 800s. In about the 1500s, there was a 50- or 60-year drought that TVA was unaware of. The dendrochronology work and looking back in time is not necessarily a predictor of the future, but it does provide TVA with an idea of what has occurred in our region. As Mr. Springston mentioned, this is not the first time that TVA has

embarked upon this type of work. TVA sponsored some ground-breaking work in the early 30s. Dr. Florence Holley, who was the first female dendrochronologists and one of the first dendrochronologists to work in the eastern United States. TVA has Ms. Holley's records, and they are held by the University of Tennessee. TVA can use her records in this project; she completed work at the Norris basin. TVA is able to use her work from the 1930s and incorporate additional studies throughout the region into this work as well. TVA is also engaging the public in this work. March of 2019 is Woman in Science month. To honor Dr. Holley's work, TVA has chosen that month to ask citizens and stakeholders to be involved. If you are recreating on our reservoirs or even in national forests, TVA is looking for big red cedar trees to be a part of the study. Scientists at UT will then determine if that tree will assist in this project. The study provides an opportunity to partner with the public and stakeholders and helps the university, which may only have limited resources.

The goal is to complete the two year project and then calculate the statistics and determine the water reliability on the various intakes and what years were dry years. This information will help everybody make better decisions. Duck River is one area that has some water stress, and the Duck River Agency has taken the lead in finding alternatives for its region. With information from the study, TVA might determine other regions are stressed (that TVA is not aware of) and it could validate the stress in other, known areas. TVA could potentially partner with those stakeholders.

Curt Jawdy, Manager, of TVA's Flood Risk program then discussed the water reliability study further. The study mostly impacts the Tennessee Valley watershed. There are places above our dams that TVA does not control. However, the data is valuable from other locations and other states and watersheds can use.

The Council asked questions about Section 26a permitting and water intakes. Ms. Turk responded that if a water intake wants to be placed in a TVA reservoir, the applicant must complete a Section 26a permit. A drought of record is a 1-in-100-year probability. And planning for flooding is a 1-in-500 year probability. TVA does not guarantee the water depth for the water intakes, but TVA does do as much as it can to keep the intakes from going dry. TVA does not want industry or municipality intakes to be without water. The Council also asked questions about the Tennessee water plan. Ms. Brickhouse responded that the official hand off for that plan has not happened yet and TVA is thinking about that issue. Tennessee has, in some ways, tried this water plan before. This information about the water reliability study helps folks better facilitate the water plan. Council was supportive of TVA's efforts and asked questions. Mr. Bowling, Mr. Springston and Mr. Jawdy also responded to Council questions. Several members indicated appreciation for the work involving water reliability.

6. Stewardship of TVA Archaeological Collections (Presentation can be found at www.tva.gov/rrsc)

Erin Pritchard, a TVA archaeologist, provided some context on TVA's archaeological collections. Ms. Pritchard explained that the McClung Museum that Council will visit in the afternoon largely contains artifacts located on TVA property. TVA was involved in archaeology back in the 1930's starting at Norris when it became clear to the archaeologists that sites were going to be permanently lost when TVA inundated these reservoir areas. Long before laws were passed to protect archeological resources, TVA archeologists conducted a substantial amount of excavation of archeological sites to be inundated by these reservoirs. As a result of the excavation, TVA accumulated a very extensive archeological collection. These archaeological collections are housed at approximately 14 repositories, mostly in the Southeast. There are

collections at the University of Michigan and University of Arizona. A ceramics expert is at the University of Michigan. TVA is working on a stewardship project to account for the artifacts to better manage them. TVA has over 11,500 archeological sites recorded on TVA property for the 293,000 acres. The funerary objects at the McClung Museum will be returned to the tribes. TVA has been a partner with the museum.

Council asked questions about the repatriation. Ms. Pritchard explained that all human remains and funerary objects under the Native American Graves Protection and Repatriation Act (NAGPRA) will have to be returned to the tribes. Another question from Council concerned whether there was opposition from the tribes before TVA raised the water levels and created the dams. To the best of Ms. Pritchard's understanding, most tribes had been relocated to Oklahoma and it was not until the Tellico Dam project that TVA received a letter of opposition from the Eastern Band of Cherokee Indians located in North Carolina. TVA did not consult with the tribes back during the excavations. Council indicated that it was very appreciative of the information.

7. Day 2 Welcome and Discussion of Individual Questions

Ms. Henry and Ms. Lavender welcomed the Council to the second day of the second meeting of the 10th term. Ms. Lavender recapped yesterday's events. The Council heard about programmatic agreements, the water reliability study and the importance of water supply, and the economic development benefits in this region because of the reliable source of water. The Council visited the University of Tennessee dendrochronology lab and gained valuable insight about droughts by looking at tree rings, so TVA and others can be prepared for drought and water supply issues. The Council also learned more about TVA's archaeological artifacts and visited the McClung Museum. The Council commented that it really enjoyed the tours and yesterday's presentations. The Council participated in discussions to formulate individual advice and asked further clarifying questions.

8. Public Comment Period

No public comments.

9. Sentiment Statement from Individuals Members

There was not a quorum. Council Members provided individual comments and did not provide formal Advice.

10. River Operations Update

Tom Barnett, General Manager, River Management provided a River Operations update. Mr. Barnett stated that at the last Council meeting, he provided a River Operations 101 presentation, which included an overview of what and how TVA manages the river system for multiple benefits for the people of the Tennessee Valley. A recap of some of this information is that TVA operates 49 dams in an integrated fashion to benefit the people of the Tennessee Valley in six focus areas. Three focus areas for river operations were established by the TVA Act. TVA has gained additional responsibility since TVA's inception in 1933 for managing the river system. TVA gained additional focus areas through additional legislation: water quality, water supply and recreation. During the presentation, Mr. Barnett provided highlights from this past year:

- **Flood control:** TVA has a busy year. TVA averted about \$250 million in damages across the Valley. TVA is up to \$7 billion damages averted to date. TVA had higher-than-normal flows throughout the year, and TVA was able to manage it. Averted damages were about in the 30-40 million dollar range. TVA experienced 54 inches of rainfall this year so far.
- **Navigation:** In addition to working with our partners that include the Corps, the Coast Guard, and the tow industry to maintain navigability on the Tennessee river, TVA maintained over 3,000 aids to navigation on the secondary channels and tributary reservoirs. TVA experienced a very good year in the navigation space, even with all the rainfall. One might anticipate lock closures because of the rainfall, but TVA only had approximately five to six days of closures at Chickamauga and was able to maintain open locks everywhere else throughout the Valley. TVA did have some low-water issues below Kentucky Dam and on the Ohio River in dealing with the aging lock and dams earlier in the year. TVA worked with the Corps and helped coordinate releases out of Kentucky and Barclay to minimize those impacts.
- **Power:** TVA produced power this year as well. TVA produced 3600 megawatts of conventional capacity and 1600 megawatts at Raccoon Mountain. With the increased rainfall and runoff this year, TVA had a really good year for hydro power - about a 116 percent above normal so far. This allows TVA to offset more expensive generation resources. The customers will see positive result in fuel cost adjustments.
- **Power and water quality:** TVA had a really good hydrothermal year. The region experienced a warm and wet year, which is pretty rare. With the warm and high-flow event, TVA was able to manage thermal compliance at all of the thermal facilities and did not experience any derates. River Operations worked with its partners in nuclear and coal. TVA does a lot of work in the aquatic habitat enhancement through the Reservoir Release Improvement Program. TVA has over 36 miles of liquid oxygen diffuser at nine places. TVA has been working really hard. All of the lines had not had a major upgrade since installation in the early 90s. TVA is taking out the old lines and replacing it with new lines.
- **Recreation:** There are approximately 300 scheduled releases each year from our dams, and the most notable are, of course, on the Ocoee. TVA also balances water releases on its tributaries. TVA has 13 weeks typically through the summer to make sure all ten of the tributary reservoirs are balanced. TVA was able to maintain lake levels, at least on the tributaries, quite a bit higher than TVA normally would have in August and September. Maintaining at higher levels has helped alleviate a lot of other stakeholder concerns about drawing down "my lake". TVA has to draw down lakes to meet other objectives. TVA also conducts a lot of special operations to support recreational events like a fishing tournaments. The organizers are usually calling TVA to make sure that they can do it or to ask for a change in the flow regime to help them do it better.

In addition to the six focus areas, Mr. Barnett briefly discussed dam safety. TVA's Dam Safety group has moved to a risk-informed, decision-making model to help them best determine how to spend TVA resources. If TVA invests to improve features, TVA wants to mitigate the most risks it can with the money it spends. TVA's River Management group does a lot of work to support dam safety. TVA has developed a new probable flood hazards model. With this model, TVA helps put some statistical numbers to hydrologic recurrence intervals. Mr. Barnett remarked

that what this means is that if someone has a dam out in the middle of nowhere that has a higher likelihood of failure, but very low consequences to the surrounding area, it can be ranked less on the risk map than a dam that is not as likely to fail, but where the consequences of a failure below the dam are higher.

11. Natural Resources Update (Presentation can be found at www.tva.gov/rrsc)

a. Jay Stowe, Senior Vice President of TVA's Resources and Operations Support, attended the Council meeting and thanked the Council members for participating and for their feedback. Mr. Stowe remarked that even though there was not a quorum today, the individual feedback members give helps staff make decisions and provides informal direction. He commented that it is very interesting listening to the presentations and Council questions relating to the competing interests of TVA's natural resources and river system.

b. Bucky Edmondson, Director of Natural Resources, provided Natural Resources updates. TVA manages 293,000 acres of reservoir lands owned by the United States of America. TVA has reservoir, corporate and power lands, and Natural Resources manages the reservoir lands. Mr. Edmondson reiterated that TVA is updating the Natural Resources 2020 Plan from six focus areas to ten areas to include Section 26a permitting, aquatic weeds and nuisance animals, and ecotourism. TVA did not receive a lot of public comments on the Plan. In the Public Land Protection space, several meetings ago, TVA presented to the RRSC on the public land protection policy. The TVA Board approved the policy and supports TVA efforts in protecting public lands entrusted to TVA. The RRSC provided advice about being clear and knowing TVA boundaries, incorporating new technologies and has other suggestions. Mr. Edmondson remarked that Natural Resources has incorporated that feedback. The Council also visited Chickamauga Dam and heard about Natural Resources' Inventory Asset program in the recent past. Fifty percent of the assets were in fair shape. TVA is in the processing of fixing other assets. Natural Resources is also working on floating cabin regulations for Phase Two. Phase One of the regulations has been published. Natural Resources is also a partner with U.S. Fish & Wildlife Services, TWRA, the States of Georgia and Tennessee are partners with trout fishing and supply. The Council has provided good advice, and this advice regarding Lands Planning, Public Land Protection and Floating Houses is coming to fruition. Further, past Council advice has included working with partners. Natural Resources supports partnerships and provides environmental education, as well as a host of other programs throughout the Valley.

Council asked questions about Natural Resources programs and complimented Natural Resources on the work it is doing and for incorporating the RRSC's past advice about public land protection, other activities and partnership and outreach opportunities.

12. Designated Federal Officer's Report

Ms. Henry thanked the Council for its prior advice and relayed that she wanted to make sure that the Council had time for the presentations, discussions and field trips during this meeting, and she therefore provided general TVA updates at the conclusion of the meeting. Since the RRSC last met, Ms. Henry remarked that TVA has concluded its fiscal year 2018. The TVA Board of Directors met in August and approved the new FY19 budget. TVA is reducing its Operation and Maintenance expenses, which has been in TVA's long-range financial plan for the last five years. TVA has reduced over 800 million in operating costs over the past five years, so TVA is feeling good about where it is in the long-range financial plan. TVA's CEO encouraged TVA to keep working hard. TVA has also had some executive management changes to include Mike Skaggs becoming TVA's Chief Operating Officer and Jacinda

Woodward becoming the Senior Vice President of TVA's Power Operations group. Externally, TVA will still appear the same and TVA is still aligned with its three E's: Energy, Environment and Economic Development. TVA is also in the middle of the Integrated Resource Plan. For more information, please go to <https://www.tva.com/Environment/Environmental-Stewardship/Integrated-Resource-Plan>. TVA has had a very successful year in economic development. Facebook chose to construct a facility in Huntsville, Alabama. Please see <https://www.tva.gov/Newsroom/Press-Releases/TVA-Announces-Largest-Valley-Solar-InstallationsBuilt-for-Facebook>. TVA is also partnering with two different solar developers to create solar power generating facilities that will support Facebook's operations.

13. Closing Comments

Ms. Henry and Ms. Lavender thanked the Council for its efforts and advice. They reiterated that the meeting was very productive and generated great ideas. TVA will finalize the minutes for the meeting and submit it for approval. The meeting adjourned at approximately 11:07a.m. ET.

Minutes Approved:


Amy Henry, Alternative DFO, acting as Chair for
Mark Iverson, RRSC Chair

Appendix A
Non-Council Meeting Attendees

Dr. Joe Hoagland, DFO and Vice President, Enterprise Relations & Innovation	Jay Stowe, Senior Vice President Resources and Operations Support
David Bowling, Vice President, Land & River Management	Brenda Brickhouse, Vice President, Environment & Energy Policy
Amy Henry, Alternate DFO and Sr. Mgr., Enterprise Relations & Innovation	Bucky Edmondson, Director of Natural Resources
Facilitator, JoAnn Lavender	Barbie Perdue
Cathy Coffey	
Kendra Mansur	
Liz Upchurch	
Gary Springston	
Kurt Jawdy	
Amanda Turk	
Erin Pritchard	
Tom Barnett	

Members of the Public	
None	

Others	
Jennifer Short, Elite Reporting	

**Appendix A - Agenda 10th Term Regional Resource Stewardship Council (RRSC)
November 5-6, 2018**

Day 1 – November 5

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|--------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|
| 10:00 | TVA Welcome | Joe Hoagland, Enterprise Relations and Innovation and Designated Federal Officer- |
| 10:10 | Introductions and Agenda Review | Jo Anne Lavender, Facilitator |
| | FACA Slide for individual review | Kendra Mansur |
| 10:20 | Programmatic Agreements | Brenda Brickhouse |
| 11:00 | Break | |
| 11:15 | Water Reliability Study | Gary Springston, Curt Jawdy, Amanda Turk |
| 11:55 | Stewardship of TVA Archeological Collections | Erin Pritchard |
| 12:15 | Wrap Up and Adjourn | JoAnne |
| | Lunch – for Council members | |

Day 2, November 6

8:30	Welcome and Recap	Jo Anne, Facilitator
8:35	Council Discussion	Cathy, JoAnne and Council
9:25	Prepare for Comment Period/ Break	
9:30	Public Comment Period	Jo Anne
10:30	Break	
10:45	River Operations Update	Tom Barnett
11:05	Individual Member Discussion / Finalize Sentiment Statement	Jo Anne and Council
11:15	Natural Resources Update	Bucky Edmondson
11:30	DFO Update	Amy Henry, Alternate DFO
12:00	Wrap Up and Adjourn (lunch available for Council Members)	Jo Anne/ Amy

Appendix C
Sentiment Statement
Regional Resource Stewardship Council
November 6, 2018
Approved by individual Council members*

* The Council did not have a quorum and did not provide Council Advice. Rather, the Council Members provided individual opinions.

How can TVA best engage water utilities, industry, regulatory and other affected stakeholders in using the information from our water supply reliability study to enhance economic development and drought preparedness in the TVA region?

Randy Wiggins, County Manager, Cherokee County, NC - "...the last drought ... Yeah, people felt the effects of it...when you start seeing decisions made by municipalities to shut down carwashes, you know, things of that nature, well, now it's affecting people's lives. Nobody otherwise really thinks about it. So I think by having these other leaders (water utilities, industry tourism and economic development commissions, realtors, etc.) to use that study and rely upon it to make those decisions, your general public then comes along as well. They recognize why you're making the decisions you're making. TVA and Army Corp are the experts and should take the lead on water education with (those leaders). I think that's what we have to be careful of here, is that we don't get so complacent that we have all the water we need, that we fail to recognize we could have issues if we don't think ahead."

Richard Holland, Sr. Packaging Director, Packaging Corp. of America, Counce, TN - "I think that's going to be kind of critical is, who does take the lead? Well, there's the Tennessee Municipal League that is the organization of cities. There's a Tennessee Association of Utility Districts that are not municipally owned. But somebody's gonna have to take the lead in this thing. I mean, is you've got ...different groups. And they're going to be looking after one little thing here and one little thing there. I think Randy's right, somebody's got to take the lead on this thing and make sure, you know, that the water supply is there."

Brock Hill - TN Commissioner of State Parks - "When I was mayor, there were five rural utility districts in the city of Crossville, and everybody had their own idea about what they wanted to do. And it was always the one that was in their best interest, not in anybody else's best interest. So to your point, TVA needs to provide a clear focus on what options or option needs to be pursued for the various reasons for the state."

Robert Englert - Sr. VP, Operations, Crounse Corp, Paducah, KY - "From the river industry perspective, it has been cost prohibitive to ship above Chattanooga. Now that a larger lock is being built for Chickamauga using some industry fuel tax money from the inter-waterway trust fund, more industry can prosper going north. We need to maintain the depth (9 feet) up there too. Industry would definitely like to be involved in building other projects. We want to see more industry come into the Valley and it will certainly take water to do that."

Gary Myers - Retired TN Wildlife Resource Agency Commissioner - "...And so I guess what I would worry about is how much water more people need, how much water more industry needs, and how much water have we got. And when do you reach carrying capacity? And when do you say, that's enough industry? And I don't know that you can ever say that's enough people. I think they're just going to keep coming. So I think fish is on the bottom of the totem pole and, you know, we're going to have trouble down the road. But I don't think it'll be the

drought. I think it will be the carrying capacity for all the people and all the industry, and that sort of thing."

Diane Scudder - TVPPA - "...From an economic development perspective, who is being recruited and what are their priorities for water usage and what kind of industries and businesses is the focus. We need to identify who we really want to reach out to and know what their priorities are.

From a generation perspective, every time it rains it is new to the earth so it's considered renewable. While there are industries that have corporate goals in terms of their renewable generation, that has to be not new to the earth rain -- let's think solar, wind, whatever it happens it to be -- there are others that specifically look at our region because of the water resources that we have for generation capacity. So depending on where the priorities are in managing these resource, that, in turn, could point to the kind of industries that economic development should focus on."

Keith Carnahan - Meriwether Lewis Electric Cooperative - "I think one stakeholder that we need to make sure it gets this information is the agricultural business. We have so much ag business in West Tennessee and all parts of our seven states that depend on understanding about drought. Because the lack of rain or too much rain for some agriculture operations is a problem. So I think this information needs to be sure we get it to the farm bureaus and the different ag businesses with this information. Because it's very important to them to have irrigation wells that they use for their farming operations."

Randy Wiggins - "There might come a time where we have to assess how much water is being taken out of the river and where it is put back after treatment and just say no to new industry. How are minimum flows going to be met to ensure fish don't die during a drought. TVA needs to share this information with cooperative extensions, too. As a quasi-governmental state/local government type agency for your agricultural side as a good stakeholder to be involved. And I'm sure the university system that backs those agencies is probably heavily involved in these kind of studies anyway."

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