

Encouraging Low-head Hydro Development in Irrigation Canals

Commissioner Philip D. Moeller brings a real eastern Washington understanding of hydropower to the Federal Energy Regulatory Commission (FERC). Having grown up on a ranch near Freeman, Washington, he is now a two-term commissioner, serving under Presidents Bush and Obama. Prior to his work on the commission, Mr. Moeller worked in energy in the private sector, advised U.S. Senator Slade Gorton (R-WA) on energy issues, and served as staff coordinator for the Washington State Senate Committee on Energy, Utilities and Telecommunications. Irrigation Leader's magazine editor-in-chief, Kris Polly, and VanNess Feldman's Rick Agnew, in his capacity as a member of the Low Head Hydro Working Group, talked with the commissioner about the role of hydropower in FERC's portfolio, the untapped potential of low head, and ways to facilitate the growth of America's biggest renewable resource.

Kris Polly: Please tell us about your background and your career prior to becoming a commissioner for FERC.

Commissioner Moeller: My family moved from Chicago to eastern Washington State when I was seven years old. I grew up on a ranch—we didn't live on an irrigated piece of land, but we did a bit of self-irrigation. My dad was with the Farm Credit system. Much of the success of eastern Washington agriculture is based on irrigation and the Columbia Basin Project. I always had an interest in energy. Even in high school, it was the national debate topic when I was a senior on the debate team. I also studied it a little bit when I was at Stanford.

I ended up working for the Washington State Legislature doing energy issues—I was the lead energy analyst in the state senate early in my career. I also did utility issues there, including telecom, water, and nuclear. I would often drive and see the canals and the full extent of irrigation projects. Some of the utilities, namely Seattle City Light, have some hydropower resources tied into irrigation canals. It was something I was very comfortable with and associated with.



FERC Commissioner Philip D. Moeller.

I then went on to work with [Washington's] U.S. senator, Slade Gordon, on water, appropriations, and energy issues. Subsequent to the senator leaving office, I worked in the energy industry for a power developer and an integrated utility. I came to the commission in 2006.

Kris Polly: As a commissioner for FERC, what are your responsibilities?

Commissioner Moeller: FERC's main responsibility is to ensure that the nation has reliable, safe energy production in the areas the commission regulates. The commission also ensures that the rates FERC regulates are just and reasonable so that consumers don't pay too much and that the people providing the service have adequate returns on investment to continue to provide safe, reliable, and affordable service. FERC is an economic regulator of oil and natural gas shipped in pipelines. FERC has the authority to grant certificates that allow for the construction of both natural gas pipelines that cross state

lines and on-shore liquefied natural gas facilities. We also regulate electric wholesale markets, which takes up most of our time—part of that is ensuring the reliability of the bulk power system. We are a major enforcement agency. We have penalty authority ranging up to \$1 million per day per violation.

Then, of course, FERC regulates the hydropower industry in this country, except dams owned by the federal government. FERC regulates the safety of dams producing energy going out to the grid. In addition, part of the commission's hydro responsibility encompasses the newer technologies of hydrokinetics. Canal irrigation is, perhaps, a traditional type of hydropower, but it also represents a new and exciting technology as people try to harness gravity moving water from one place to another.

Rick Agnew: Do you think there has been a change in the public perception of hydropower?

Commissioner Moeller: I still think we have a long way to go. Most people are influenced by what they've experienced. When you come from the West, particularly the Pacific Northwest, hydro is just a way of life. There is a lot of hydro around, and people are comfortable with it. The same is true with irrigation, which has provided the livelihood of farmers . . . including farmers I've known, particularly in the Columbia Basin. When you grow up recognizing that value, it is second nature to you.

For residents in the East, who rarely see an irrigation canal, it is a situation of "out of sight, out of mind." We have a lot of education to do, but that is what your readers can help do. Getting their elected officials out, certainly the ones who represent their areas, to see what this infrastructure can provide and to understand hydropower's potential. I certainly want to do my part to promote it both at FERC and in a larger setting.

Kris Polly: What are your thoughts regarding the development of small-scale, or what engineers typically call "low-head," hydropower within existing irrigation district canals and systems?

Commissioner Moeller: I am excited about it and want to promote it as best we can within our legislative jurisdiction. I think there is enormous potential there. Using this position to promote it and highlight it is something I would like to do more of because it is an incredible resource. The fuel is free, as your readers know. It is often in a facility, unlike a free-flowing river or even a river that has a dam on it, that is contained. There are fewer environmental issues related to it. The potential is so big that I'd like the nation to be promoting the development of this resource.

Rick Agnew: Readers of this publication—water districts, irrigation districts, leaders, general managers, commissioners—they hear a fair amount of this "all-of-the-above" federal energy policy, but don't quite know what to make of it. Does it mean that we are trying to encourage these newer energy sources like tidal and irrigation canals? Do irrigation canal generating units fall under the all-of-the-above philosophy?

Commission Moeller: Well certainly it fits into my all-of-the-above philosophy. I do strongly endorse the concept, although the details matter. We do want to have optionality on the table.

The nation has been blessed with this abundant supply of natural gas that we really didn't know was available until about five years ago. It has been a complete energy revolution based on hydrofracturing and horizontal drilling. Where just five years ago we were discussing importing liquefied natural gas, now we are discussing exporting it—a complete 180-degree turnaround based on this technology. The downside is that some people are concerned about price volatility of natural gas going forward, and from my perspective, even though I support it, there is an issue about being reliant on a pipeline versus a 90-day pile of coal from a reliability perspective.

The good thing about hydro generally speaking is that you can count on it. You have a much better idea about what the resource is on an hourly, monthly, and yearly basis. The nice thing with solar and wind is that fuel is free, but it is hard to predict when the wind will be there or when clouds will block the sun. With hydro, you just have a lot more certainty, which is what the system needs. To the extent that development costs might be higher for some hydro projects, they have a great advantage on the renewable front on being dependable.

Kris Polly: With that in mind, let's talk about some of the specific issues involved with irrigation districts developing hydropower. Some irrigation district canals and drains have been in place for nearly 100 years and move water to and from fields. Should hydropower projects in such facilities be treated the same as projects in natural streams or rivers?

Commissioner Moeller: No, I don't think so because [conduits and natural streams] are different. Because of these differences, hopefully canals and drains are resources that can be permitted in a more efficient and timely manner.

Kris Polly: Some irrigation districts have experienced interest from third parties in developing hydropower projects within their irrigation canal and drain systems. How can irrigation project systems be protected while ensuring third-party hydropower development opportunities?

Commissioner Moeller: We have a program in place that focuses on small and low-impact hydro. It was developed to ensure that the owners of the canal, and those that want to develop the hydropower, whether those parties are the same or different, have a good idea of what the process entails. Approval of those types of projects can happen in as little as two months as long as everyone is talking to each other, there is adequate stakeholder involvement, and required application information is vetted. The information is on our website, and it is intended to provide every entity involved with good information on how to apply, the process involved, which stakeholders have which rights and responsibilities, and how parties can go about expediting the process.

We do have a very competent and professional staff in our Office of Energy Projects. They are very motivated to try and help move people through the process. With respect to third-party developers, if the canal owner is either working with someone else coming in or working on his or her own to develop a project, and if there is an issue of a developer wanting to access a canal that he or she doesn't own, there are important property rights involved. That could be contentious if the property owner doesn't want to provide access. I would guess that, in those cases, the developer would want to go somewhere else. We haven't faced that situation yet, so I wouldn't

want to speculate on how we treat it. In these kinds of developments, it is always going to go a lot smoother if the project owner and the project developer are on the same page and have the same objectives.

Rick Agnew: It sounds like you think it is important, in the context of FERC permitting, for irrigation districts to work with local officials and neighboring landowners.

Commissioner Moeller: Absolutely. We are highly deferential to stakeholder support for just about anything that is brought to us, whether it is settlement on a wholesale electric case or the development of a new hydro project. If people are on board and supportive, it is a much easier decision for FERC than if it is contentious.

Kris Polly: What is your advice to irrigation districts interested in developing their own hydropower resources?

Commissioner Moeller: I am not sure where to send them in terms of developers. That is not really our job. But I do think they should talk to FERC and our staff. Our staff is very amenable to helping people through the process and pointing them in the right direction in terms of the issues and what they have to do. As with major, billion-dollar natural gas pipeline projects, it always behooves an applicant to talk to the staff early before he or she files something to get some guidance as to the most efficient and right way to propose something.

I think we have a staff that is eager to help people through the process and one that will help develop a resource when it makes sense. There is some legislation, as you know, in Congress that is sponsored by a very good friend, Cathy McMorris-Rodgers, from my home district. She is trying to promote [low-head] as part of a broader small hydropower bill that's had a lot of good bipartisan support through the process so far. The legislation, and the publicity that comes out of it, will help canal owners and developers better see the potential of this tremendous national natural resource.

For more information, go to the FERC website: www.ferc.gov. People can go to our hydropower page and learn about the process and about which projects fit into which categories, and hopefully find a lot of useful information that can inform their decision to potentially pursue a project.