

Ten Questions for Opalco Director Candidates

1. What qualifications, prior experience or contributions do you hope to bring to the position, which might add value to the Opalco Board of Directors?

I currently serve as the President of the OPALCO Board of Director. I was first elected to the Board in May 2011.

My education includes Bachelors and Masters Degrees in Electrical Engineering from the University of Notre Dame and UC Berkeley.

After working at NASA's Jet Propulsion Laboratory, I spent 26 years with Hewlett Packard and Agilent Technologies in Research and Development, General Management, and Business Development.

My experience includes development of systems for measurement, computation and communication in a wide variety of industries, including Power Generation, Telecommunications, Environmental Science, Water Quality, and Biotechnology. I was responsible for Strategic Planning in the Chemical and Life Sciences Group, which has grown to be a \$4.2 billion per year business today. In my last position, I was Vice President at Symyx Technologies; a company focused on discovering new materials for use in many areas, including fuel cells, advanced batteries, and renewable fuels.

Looking forward, OPALCO, like many other Cooperatives and Utilities, will be modernizing its electric grid infrastructure. The need for improved efficiency and reliability, and the growing amount of clean renewable energy added to the grid are driving this modernization. Much of the effort will go into upgrading the measurement and control devices used, connecting them to the communication backbone, and using the information to run the grid better. This is often referred to as Distribution Automation.

I have many years of experience designing and developing systems like this in diverse industries. I believe my knowledge of the technologies and applications has been of benefit to OPALCO's Board, and will continue to do so in the future.

2. Please tell us about any other experiences you have had, serving on a board of directors.

I was on the Board of Directors of the Palo Alto Chamber of Commerce while I was working at Hewlett Packard. Here on San Juan Island, I have been on the Board of the APSFH, the Animal Shelter, for 13 years, and have served as its Treasurer for 10 years. I serve on the Board of my local Home Owners Association, and was Chair of my Church council for 3 years.

3. As you look at Opalco, what do you see as OPALCO's strengths, weaknesses, opportunities and challenges?

OPALCO celebrates its 80th Anniversary this year. This year, just like every year before, OPALCO's primary strength is its people. They are a dedicated, competent, effective team who work for the good of the members. Compared to larger Investor Owned Utilities and Public Utility Districts, Coops have the ability to be more nimble and respond to opportunities or challenges.

A weakness or a challenge is our geography. Spread out over 20 islands, we have 1,340 miles of power lines, of which 87% are underground. We have 11 substations, 23 distribution feeders, 26 submarine cables and over 15,000 power meters. Compared to other Coops of our approximate size, we have a more

complex grid system to operate and maintain for the equivalent amounts of power delivered.

I'll address other opportunities and challenges together, because they are two sides of the same coin.

The entire Electric Utility Industry is facing a major challenge to "business as usual".

Simply put, there are three major drivers causing this.

First, the growth in the use of Electric Energy has slowed. Forecasts for the USA put it in the 1-2% per year range. We have seen this in San Juan County, and OPALCO's most recent Load Forecast shows 1% per year growth. This puts pressure on Utilities finances.

Second, the implementation by many states of Renewable Energy portfolio goals, and the rapid growth in distributed renewables such as solar and wind require utilities to figure out how to integrate this clean but intermittent resource. This in many cases requires investments in the grid to handle new generation and storage sources.

Third, there is the simultaneous opportunity and challenge to get people more interested in managing their own energy use, and in giving them the way to do so that is not burdensome. The industry is counting big on conservation as a way to avoid investing in new generating capacity.

4. What strategies do you have in mind to help OPALCO navigate through these challenges?

To cope with expected increases in the cost of power from BPA, there are two approaches. First, keep investing in conservation. The investment we make each year saves about 1,000,000 kWh. Each year's savings are cumulative, so the savings build up. The financials on conservation are very attractive. Second, our Construction Workplan for the next three years shows us installing or replacing a number of devices like switches, reclosers, fault interrupters, line monitors, and more. All of these devices will be connected to our fiber optic communication system, and our grid control system (called SCADA). We expect to see financial benefit by being better able to control power flows, reduce losses, and reduce the number and duration of outages. This is "getting more out of what you have"!

We want to encourage Distributed Renewable generation and storage. Individual, Community, and Utility scale solar systems continue to come down in price. When they reach "grid parity" it becomes cheaper to add local solar than to buy from the mainland. Long term, we need to make sure the grid can handle these sources.

We should support an expanded Electric Vehicle charging infrastructure. EV's can save money, reduce CO2, and eventually act as a distributed storage capability for our grid.

We need to follow closely the experiments that various utilities are conducting in Distribution Automation, Demand Management, local Microgrids (a small collection of loads and generation sources that can stand alone from the grid for periods of time) and other techniques to see if they will work for us.

5. Opalco's 2015 Integrated Resource Plan addresses those types of planning issues. Are you comfortable with that document, or do you feel it is time to revisit and update it?

An Integrated Resource Plan (IRP) is a document which outlines an Electric Utility's view of how it will source power and distribute it to its customers over a 20 year forward span. This plan is required by the State of Washington for all utilities serving 25,000 or more customers.

Opalco's IRP was completed in 2015, and typically these plans are reviewed and refreshed every two years. We are well underway in implementing the first stages of this plan.

I feel that the IRP is comprehensive in its treatment of future load growth, the future sources of power and expected costs for that power. It discusses the importance of Conservation and details the amount of power that can be saved. There are sections which describe how Distributed Renewable Sources such as solar, wind, and tidal can be incorporated over time into our grid. Other sections talk about how modernizing our grid infrastructure can improve efficiency and decrease the number and length of outages.

This plan will serve well as a broad roadmap to guide the annual process of budgeting, and selection of the specific construction projects outlined in the Construction Workplan.

Where it can be improved is in taking the next steps to quantify the cost benefit analysis that the broad selection of possible choices presents. Here, OPALCO can benefit from a growing body of knowledge and case studies produced over the last several years. For example, Bonneville Power Administration has published "Pacific Northwest Smart Grid Demonstration Project: A Compilation of Success Stories". This was a multi-year project involving 11 utilities across 5 states to test 80 different grid improvement technologies. Another example is the NRECA's (National Rural Electrical Cooperative Association) project for the Department of Energy that involved 23 electric cooperatives in 12 states to evaluate emerging smart grid technology.

Our opportunity is to leverage reports and experiences like this to go the next steps in refining our specific projects and the benefits we expect to achieve.

6. What do you hope to accomplish if you are elected or re-elected?

During the next three years, there are a number of important projects that OPALCO will be working to make a success. As a Board member, I want to support the General Manager and Staff. First, we need to monitor the Undersea Cable Replacement project by asking intelligent questions, staying on top of progress, and offering an outside perspective. I want to see a successful design, implementation, and roll out of the Community Solar project in 2018. I want to see how the Community Solar Project can make a contribution to our Low Income Assistance Program. Next, I will participate actively in this year's study of our Rate Structures. This is a subject the entire Utility Industry is re-evaluating. I will push for taking the next steps in scoping out the types of projects we will select for improving our grid, and planning for more local renewable generation. And, I want to meet personally with more members to explain the what's and why's, and to get their inputs.

7. Do you feel it should be a priority to try to reduce our reliance on BPA as Opalco's primary source for our power?

The priority is to secure a highly reliable, affordable source of power, for both the short and long term. Bonneville Power Administration has served that role for OPALCO extremely well. Looking forward, I would say it is not so much a case of reducing our reliance on BPA as it is a case of expanding our options to meet our needs. Right now, 99.5% of our power comes from BPA via an undersea cable. And 0.5% is generated locally by about 200 member owned renewable systems, mostly solar. On the mainland, the future holds some uncertainty concerning power production and transmission. We know with certainty of the closure of a number of coal plants by 2025. There is the possibility of breaching the lower Snake River dams as a result of a required Environmental analysis. Pacific Northwest states continue to increase the amount of power that Utilities must provide from clean renewable sources. And California continues to add members from the Northwest to what is called the EIM, or Energy Imbalance Market. This will play a yet to be determined role in affecting power prices. These reasons, and more, are why OPALCO's IRP calls for increasing the amount of locally generated power. It is why we joined PNGC, the Pacific Northwest Generating Cooperative, to give us group leverage in future power purchases, and in negotiating with BPA when our current contract expires in 2028.

8. What role do you think Solar Energy should play in Opalco's future?

Solar is one of the clean renewable energy sources that will have a growing role in OPALCO's portfolio of power. In San Juan County, every 1,000 watts of solar panels will typically generate 1,200 kilowatt-hours of energy per year. About 1,200,000 kWh is produced annually by over 200 of the member owned renewable sources, the vast majority being solar. I expect that individual member owned systems will be added at an increasing rate. The prices for installed systems keeps dropping. The solar systems installed at the schools came in around \$3,500 per kilowatt. By 2020, this could be below \$2,200. The National Renewable Energy Labs (NREL) releases quarterly reports tracking installed system prices. The Department of Energy (DOE) has an aggressive program called "Sunshot" which has a goal of working with industry to get the installed cost of systems down to \$1 per watt. There will come a time when Residential, Community Solar, and Utility Scale solar will reach and pass "grid-parity", which is when it will be cheaper to generate a portion of our power locally than to buy it from the mainland. OPALCO is tracking this very closely, and making sure that our grid will be able to integrate an increasing amount of this energy.

9. What is your vision for OPALCO's subsidiary Rock Island?

OPALCO's Mission Statement states: "Orcas Power and Light Cooperative (OPALCO) serves its members with safe, reliable, cost effective and environmentally sensitive utility services". I view Rock Island as providing one of today's essential utilities, namely reliable, cost effective, and modern Broadband services that can evolve to meet customer's needs. Rock Island's current and future product offerings take advantage of a high performance fiber optic network, as well as a world class wireless infrastructure. Both of these technologies will continue to evolve, delivering higher levels of performance and functionality for San Juan County. Over the coming years, the combined fiber and wireless networks may provide most of the infrastructure necessary for implementing the local version of "FirstNet", which will be a nationwide Public Safety network for Law Enforcement and Emergency Services.

I see Rock Island continuing to add customers, and providing a high quality level of local support. Rock Island is on track to meet the objectives in its Business Plan. It is expected to start producing profitable quarters in 2018 and onward.

Rock Island, in my opinion, is one of the best providers among the over 100 Electric Cooperatives in the US that currently provide Broadband services.

10. Do you have any ideas about improving communications between Opalco and the membership, or about increasing member participation?

The NRECA (National Rural Electrical Cooperative Association) recently published a survey about turnout in Cooperative Elections. A staggering 72% of more than 900 Coops routinely have a turnout of 10% or less of their membership in elections. OPALCO gets closer to 20% of its membership. So, there is a lot of room for improvement in getting better member participation. There are so many changes happening in our energy infrastructure. These changes are complex. They involve technology, economics, societal impacts, environmental concerns, and politics. And none of this can be communicated easily with Tweets, posts on Social Media, inserts in power bills, or periodic press releases.

I believe one of the most successful methods to cover these topics is small group presentations, with plenty of opportunity for dialog. I have been participating in these meeting over the last year, and plan on doing it at least 4 times a year going forward. It gives us the opportunity to dive a little deeper into a number of subjects, and vary the discussion based on what members are most interested in.

I have researched what other Coops do with respect to member communication. A small number of them have formed what are called Member Advisory Councils (MAC's). These take the form of 15 to 30 members based on the size of the Coop membership. They meet quarterly with the General Manager and a subset of the Board to get updates on what is going on, and to convey member's views to the GM and Board. The MAC then reports back to the members in a number of ways. This may be an idea worth considering.