



OPALCO'S 80TH ANNIVERSARY

Renewing our Co-op Vows



2017 OPALCO ANNUAL REPORT

WE GET OUR POWER FROM YOU!

ORCAS POWER & LIGHT COOPERATIVE
183 MT. BAKER ROAD, EASTSOUND WA 98245

WWW.OPALCO.COM



OPALCO substation near Olga on Orcas Island



Shark Reef Sanctuary, Lopez Island

MISSION AND VALUES

MISSION STATEMENT

Orcas Power & Light Cooperative (OPALCO) serves our members with safe, reliable, cost-effective and environmentally-sensitive utility services.

ANNUAL REPORT CONTRIBUTORS

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VALUES STATEMENT

The OPALCO Board of Directors and Employees strive for excellence with a passion and determination that is founded on the following values. These values, which inspire, guide and determine our conduct in carrying out our mission:

- We are dedicated to the Seven Cooperative Principles.
- We are committed to building, nurturing and preserving lasting relationships with our member-owners and among ourselves.
- We hold ourselves accountable to the highest legal and ethical standards.
- We are dedicated to financial and environmental stewardship through sound governance, management and operating practices.
- We are a responsible, member-owned organization.
- We seek and implement innovative solutions.

TABLE OF CONTENTS

CONTENTS

Message from Leadership	1
Election Process Update	9
Energy	11
Energy Services	23
Communications	30
Finance	36
Co-op Team	45
Annual Meeting	49

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183 Mt. Baker Road, Eastsound WA 98245
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BOARD OF DIRECTORS

Vince Dauciuinas – President (San Juan)
Dr. Jerry Whitfield – Vice President (Shaw)
Winnie Adams – Treasurer/Secretary (Orcas)
Mark Madsen (San Juan)
Jim Lett (Lopez)
Brian Silverstein (Lopez)
Randy J. Cornelius (Orcas)

CO-OP LEADERSHIP

Foster Hildreth, General Manager
Russell Guerry, Manager of Operations & Engineering
Nancy Loomis, Manager of Finance & Member Services

Thanks to the entire Co-op Family of employees for the dedication, hard work and talent they bring to serve our membership every day. Please see pages 45-48 and meet the team!



MESSAGE FROM BOARD PRESIDENT: VINCE DAUCIUNAS

Our vision as a Board of Directors is to provide safe, firm, reliable energy resources at the lowest possible cost, while making smart investments for a sustainable future.

The power industry is evolving dramatically. The changes are driven by the need to improve the reliability and efficiency of the current grid while also rapidly increasing the amount of clean, renewable sources such as solar and wind.

As more local, distributed power and renewable generation become available to us, our communication infrastructure

and modernized grid will enable us to integrate those sources and improve overall reliability and availability. We'll be sourcing power from the mainland as well as managing our own local generation.

While our relationship with Bonneville Power Administration and the clean, cheap hydropower available through the federal system is and will remain one of our most valuable resources, we are part of an "incremental revolution" in the power industry aimed at securing a clean, efficient and more environmentally sustainable energy system to meet our needs for years to come.

The Board recognizes the key role OPALCO plays in the quality of life and long-term viability of our remote island communities. Our vow to the membership is to keep the cooperative principle "Concern for Community" first and foremost in the decisions we make today and for the legacy we leave to future generations.

On behalf of the entire Board of Directors, I would like to thank the engaged Co-op members who worked hard

in 2016 on the Member Review Committee on Elections to help us improve our governance process. As a result of their good work, we have a new member Elections & Governance Committee with a mission to continue building an effective and committed Board of Directors. They will

also serve as a member body to review governance issues as requested. This is co-op democracy in action, and we appreciate the dedicated time and effort these members are contributing.

ABOUT INDEX

- **208,350,294** total kilowatt hours purchased
- **\$25,154,811** in annual electric sales (2016)
- **\$1,857,846** paid out to members for FY 1990-91 in Capital Credits (2016)
- **15,009** meters connected (2016)
- **11,268** members (2016)
- **1,340** miles of power lines (87% underground) including 43 miles of overhead transmission lines (2016)
- **237** members attended the 2016 Annual Meeting on the ferry; 2,316 ballots (20.6% of membership) were cast for the Board election
- **51** employees (same as in 2008): all member-owner-operators
- **20** islands served
- **15** distribution submarine cables, covering 14 miles
- **11** transmission submarine cables, covering 2 miles
- **11** substations
- **7** OPALCO Board members, elected by Co-op members
- **4** warehouses
- **3** crew stations
- **2** public-access offices
- **1** healthy and financially stable cooperative



MESSAGE FROM GENERAL MANAGER, FOSTER HILDRETH

As OPALCO celebrates its 80th anniversary of delivering power and quality of life to 20 islands in San Juan County, I begin my second decade of serving you, the members, as a Co-op manager. In honor of our anniversary, we will renew our Co-op vows with you, our member-owners. OPALCO's leadership and staff team are committed to demonstrating how we live the Seven Cooperative Principles (see following page) in everything we do for our membership.

Our team of linemen, engineers, accountants, energy savings coordinators, communicators and front-line staff who serve the membership are all top-notch, and we are excited about the new generation that has joined our ranks. We experienced a lot of transition over the past couple of years and our team is now full of fresh new faces who are committed to bringing their expertise and

passion to serving the Co-op for years to come.

We vow to support our team so they can raise their families in our island communities, to provide the training necessary keep them safe, and to give them opportunities for continuing education and advancement for rewarding careers. I'm also proud of our dedicated Board of Directors who provide tremendous expertise and wisdom; their foresight and investments today position us for safe, sustainable and reliable utility services well into the future. I thank you, the members, for electing such excellent board members year after year.

The submarine cable replacement project from Lopez to San Juan, a construction project on an epic scale, is a unique opportunity for our team to collaborate and combine their various skills and expertise (see page 13). Every part of the team has a role to play as we balance our commitment to making the best use of member resources along with protecting our beautiful marine environment. Please follow us as we complete this exciting project in 2017.

SEVEN COOPERATIVE PRINCIPLES

Independent, democratically governed businesses electric cooperatives are organized under the Rochdale Principles, also known as the Seven Cooperative Principles:

- **Voluntary and Open Membership**—Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.
- **Democratic Member Control**—Cooperatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives members have equal voting rights (1 member, 1 vote) and cooperatives at other levels are also organized in a democratic manner.
- **Members' Economic Participation**—Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.
- **Autonomy and Independence**—Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.
- **Education, Training and Information**—Cooperatives provide education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their cooperatives. They inform the general public—particularly young people and opinion leaders—about the nature and benefits of cooperation.
- **Cooperation Among Cooperatives**—Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.
- **Concern for Community**—While focusing on member needs, cooperatives work for the sustainable development of their communities through policies approved by their members.

MESSAGE FROM LEADERSHIP 6

Out of concern for our communities, OPALCO studied the needs of low-income households in San Juan County and created a monthly bill credit for qualified members (see page 39). In 2016, the pilot program Energy Assist served 279 members with a power bill credit of \$20-50 each month, helping to address growing affordability issues across all categories of expense in San Juan County. In addition, Project PAL continues to help members who have emergency needs during the heating season with individual grants of up to \$150 per year. Thank you to the more than 3,000 members who donated to Project PAL in 2016.

As a Co-op, we operate at cost-of-service. Weather fluctuations have challenged our revenue and sales, but we ended 2016 with a margin of \$3.06M. Revenue is up 1.6%, overall expense is down 1.5% and our equity is at 48.7% as a % of total capitalization. See page 41 for the annual financial report.

Rates continue to be a major topic of discussion as our Board works to find a structure that meets the needs of

the Co-op and keeps power affordable without sacrificing safety or reliability. The Board will study rate structure alternatives in 2017 in preparation for a full Cost of Service study in 2018. As an interim measure, the 2017 budget includes a rate increase to energy usage (kilowatt-hour) only and leaves the facility charge unchanged. Our vow to you is to share information on rates and rate structure alternatives, and to give you an opportunity to participate in the rate-shaping process at a member rate workshop in October.

In addition to maintaining our excellent service levels, we are actively engaged in preparing for our future power supply. Planning begins this year for two major capital projects that will bring immense benefits to our membership: our first large-scale community solar project (see page 22) and a new direct connection (“tap”) on Decatur island from BPA’s transmission system to our distribution system, which will give us the crucial ability to reroute power during system maintenance and outages. We are working with other co-ops in the region

through the Pacific Northwest Generating Cooperative to accomplish several goals: to plan for the most optimal, cost-effective future generation sources; to lobby for legislation that supports our cooperative; and to protect our access to clean and renewable hydropower as the Columbia River Treaty is renegotiated and we challenge threats to our Federal Columbia River Power System (see page 28).

After the major communications outage in 2013, our Board made a vow to the membership to make OPALCO's fiber available for internet services—and we are delivering. I am very proud of our gutsy start-up subsidiary, Rock Island Communications, and the 3,100 connections they are now serving in San Juan County. Back in November of 2013, it sounded incredibly ambitious to say that in less than three years we'd be able to offer world-class internet services to as much as 90% of San Juan County, solve the life-threatening problem of communication gaps for emergency first-responders, and provide a boost

to local economic development and real estate property values. And yet, here we are. Rock Island built a robust network of fiber and wireless connections on top of OPALCO's communications, and they were able to pay off their loan to us, their parent organization, ahead of schedule, which reduced our need to borrow in 2016. Our subsidiary's vow to you is to continue to upgrade internet and phone services to meet your needs and to provide excellent local customer care. I encourage you to support Rock Island—you own it and will benefit not only from its service offerings, but also its success. See page 31 for a report on Rock Island's 2016 progress.

In the face of all these big projects and the daily complexities of delivering power to twenty islands in the Salish Sea, our central vow to you remains our mission of providing our membership with safe, reliable, cost-effective and environmentally sensitive utility services. You can count on us.

Looking for something? OPALCO's award-winning website now offers a Resource Library, a searchable archive chock full of useful information, insight, board materials, and much more.

Start with the Insights section for a visual tour through key topics such as Energy Services, Co-op Finance, and Communication Services. Then, checkout the Board Meetings section to see the information Co-op staff and the Board use in their management and governance process.

The Resource Library is an incredible asset that inspires other electric co-ops. For a more complete overview, see the website tour video at www.opalco.com/website. In the video tour you can also take a look at other sections of the website that are popular with members, including energy saving tips, information on rebates, local renewable energy, jobs and member services.



Also new in 2016 is a robust outage map (www.opalco.com/outages) that allows our members to track planned and unplanned outages in real time (it is updated every 10 minutes). The map is part of our new Outage Management System, which was made possible through the reach of our fiber network connected to electrical devices and meters throughout our service territory. OPALCO also posts outage updates on Twitter (@OrcasPower) and on Facebook (Orcas Power & Light).

During the late summer and fall of 2016, OPALCO convened a Member Review Committee charged by the Board of Directors with conducting a comprehensive review of the Co-op election process. All of the members who applied to the Committee were accepted, and the seven Co-op members represent all four voting districts. The Member Review Committee members were:

- Wally Gudgeon – Co-chair (Orcas Island)
- Terry O’Sullivan – Co-chair (Orcas Island)
- Doug Marshall (Orcas Island)
- Ed Sutton (Orcas Island)
- Gabriel Jacobs (Shaw Island)
- Rob Thesman (Lopez Island)
- Stephen Shubert (San Juan Island)

They met over a period of more than six weeks and presented a series of recommendations for Board consideration. The committee adopted the mission statement “to support a transparent election process that

enables members to feel fairly and well represented” along with the core values fairness, transparency and member involvement.

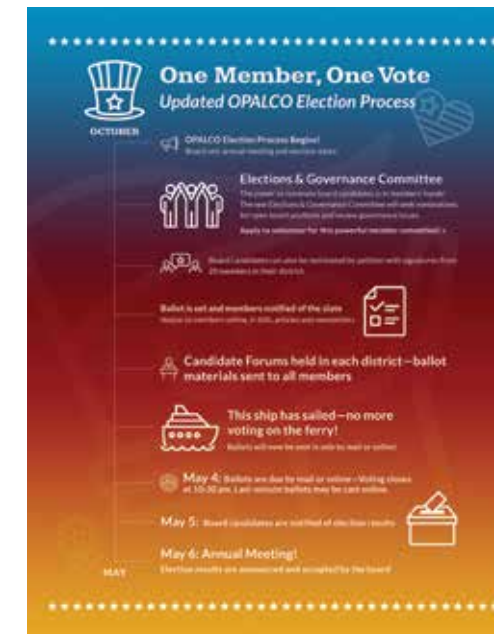
After the committee presented their recommendations to the Board in September, a series of open house events on four islands gave members a chance to review, discuss and give feedback. In November, the Board accepted the following recommendations:

- Hold more member information meetings during the year.
- Stagger the terms for each voting district (rather than electing all directors from each district during the same year), so that almost all members vote each year on at least one director position. (Note: to be phased in beginning in 2018)
- Create a standing Elections and Governance Committee to oversee board nominations and provide ongoing reviews of board compensation, bylaws and election process.

- Adjust the elections timeline to provide more time for nominating directors by petition and to update the required number of petition signers from 15 to 20.

In December, the bylaw changes required to enact the recommendations were approved and outreach began for the new Elections & Governance Committee. Five of a possible nine new Elections & Governance Committee members were appointed by the Board and applications will be accepted on an ongoing basis until the Committee positions are filled. The inaugural Elections and Governance Committee members are:

- Beverly Leyman (Orcas Island)
- Chom Greacen (Lopez Island)
- Doug Marshall (Orcas Island)
- Howard Barbour (Orcas Island)
- Rob Thesman (Lopez Island)



Additional EGC members are needed. Please go to www.opalco.com/elections to learn more and apply.



**RUSSELL
GUERRY,
MANAGER OF
OPERATIONS &
ENGINEERING**

Keeping the lights on—and keeping everyone safe out there—are OPALCO's top priorities. We finished the year with 51,674 work hours without incident. In 2016, we completed a four year Construction Work Plan (2013-2016) which included preparing for our 2017 submarine cable replacement and replacing 15 miles of aging underground cable. We also added five miles of new service and expansion of our fiber network for greater control and monitoring of our automated electrical grid. These improvements allow us to greatly increase safety

and communications with field personnel while getting them the information they need to quickly resolve maintenance and outage events.

Our biggest capital expenditure in 2016 was the preparatory work for the submarine cable replacement project from Lopez to San Juan (see pg 13). We added redundancy for greater reliability and for the opportunity to reroute power in times of outages and maintenance. One great example of that redundancy is the work we did in Moran State Park to upsize power cables, which gives us much greater capacity to reroute power to and from Olga, Blakely and Decatur when needed. We increased our Right-of-Way Clearing program to keep tree branches and other obstructions away from power lines. Our team of linemen, engineers and communication technicians are highly trained, skillful and dedicated to serving the Co-op membership.

The advances we've made in system reliability and safety are due to the expansion of our fiber infrastructure,

including devices in the field and updated meters, now installed throughout our territory. This technology gives us a power platform to monitor, control and repair our system quickly and efficiently while keeping costs down.

2017 is a landmark year with the installation of the Lopez – San Juan submarine cable replacement. I invite you to follow our progress online at opalco.com/submarinecable.

PLEASE DO YOUR PART TO HELP OUR CREWS SAFE AND OUR SYSTEM UP AND RUNNING:

- Always call 811 before you dig – and paint “Locate Area” in white before calling
- Don't call 911 for outages – call 376-3599. OPALCO has a 24/7 call center which handles calls and updates our new outage map (www.opalco.com/outages). The local Sherriff Department is updated continually, but does not dispatch for outages.
- Please keep shrubs and structures at least 10 feet away from the front side and at least three feet away from all other sides of equipment, monuments, and cable facilities.



Keeping our Right-of-Way areas clear is essential for reliability.

In September of 2017, OPALCO will install 13,596 feet of submarine cable that will operate at 69 kilovolts in the crossing between Lopez and San Juan islands. This armored cable, manufactured by Sumitomo USA, replaces the existing 1977 cable, also made by Sumitomo. With layer upon layer of protection built in and the high quality of manufacturing, OPALCO expects this cable to provide more than 50 years of service.

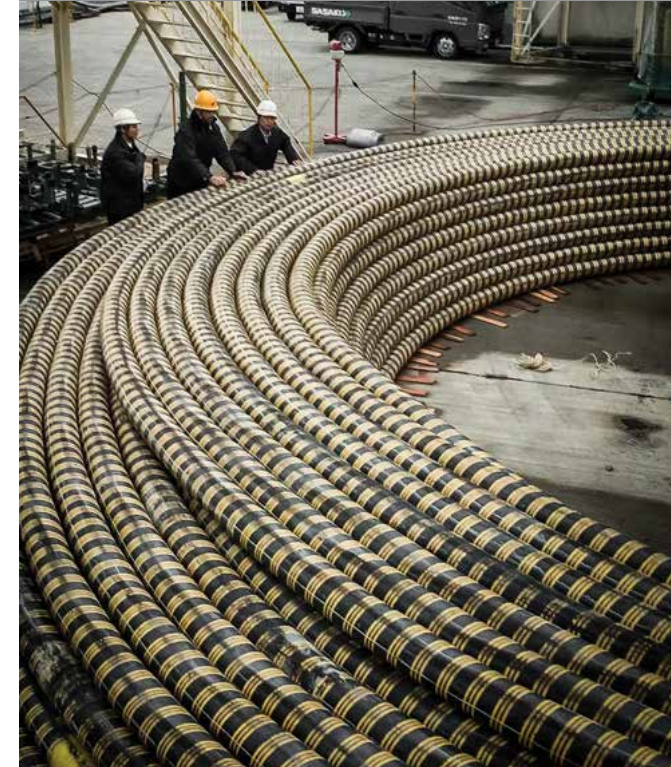
This submarine cable replacement project will be completed in 2018 when the new cable is energized and becomes an integral part of our power and fiber backbone. In 2016, the major construction effort was to install the 1,500-foot land portion of the cable from the submarine cable terminal on Lopez to a new vault at the shoreline. In 2015, a 350-foot bore was completed in order to connect the 2.6 miles of submarine cable, once it's installed, with the land cable at the vault. Manufacture of the submarine cable began in 2016 at the Sumitomo plant in Japan and, in December, OPALCO's system engineer Joel Mietzner visited the plant to meet with the design engineers and to



Land cable coming up at the shoreline vault after the big pull

verify testing and quality assurance of the finished cable.

Mietzner is leading this major capital project, which will take more than 100 engineers to bring from design to completion. "I'm drawing on all my life's learning experience for this single project, touching upon more than 50 different engineering disciplines to get it done." In addition to the engineering required, OPALCO is



coordinating this effort with dozens of governmental, environmental and regulatory agencies, local property owners and federal funders. "The engineering is the easy part," said Mietzner. "It's the cooperation among people that is key. The project couldn't go forward without all these relationships, cooperation between skillful people and the trust of the membership."

The work of removing and installing submarine cables comes with big challenges and risks. OPALCO bored 350 feet under the shoreline on Lopez to avoid eelgrass and sensitive archeological areas and is carefully extracting the mineral oil in the old cable before it is removed, in order to protect the marine environment. There are very narrow and highly regulated construction work windows due to weather, tides, boat traffic and fish protection in the sensitive marine environment. The cost of delays is huge; the tugboats and barges and their crews cost \$125k per day, whether at work or on standby. The barge carrying 400 metric tons of cable (on the spool) leaves Japan in August, and we must be ready.



Placing the new submarine cable conduit on Lopez Island in 2015

Removal of the old 1977 submarine cable, scheduled for 2017, has been complicated by the fact that CenturyLink's active cable in the same crossing has drifted over OPALCO's and is laying on top of our old Sumitomo cable in at least five places. Both cables are at risk of breaking upon removal if the situation is not resolved before the work window. OPALCO has been working with CenturyLink and the regulatory agencies to avoid the risk

of another major communications outage such as the one in November of 2013, when the telephone company's cable broke. OPALCO is taking every measure to protect our membership from another outage by cooperating with CenturyLink's efforts to remove and relocate their cable, and by installing additional redundancy in other crossings to carry some of the communications traffic, in case of an outage.



Left to right: Steve Dengler, General Foreman; Kai Burluson, Journeyman

The new submarine cable carries both power and fiber cables. Fiber is now an integral part of OPALCO's automated electrical distribution system, and equipment on either end of the cable uses the fiber to monitor and protect the cable itself. "We depend on fiber throughout our 20-island system to monitor power quality, identify



20-inch diameter conduit for land portion of the cable

faults and open and close circuits to reroute power during outages," said Mietzner. He credits the foresight of OPALCO's leadership and engineering teams for their decision to go with fiber optics back in 1999 and notes that this crossing is one of the last places in the entire system where fiber isn't installed.

The cost of the cable replacement project is estimated at \$15 million. "It's a major expense for the Co-op," said Mietzner, "but will pay for itself twice over in the first 20 years based on the power it will wield." To put the scale into perspective, Mietzner points out the price of the cable works out to roughly \$4.70 per pound (\$153.73 per foot, and 33 pounds per foot)—less than the cost of ground beef. The new cable is very low maintenance and highly efficient and will provide cleaner, more stable power, which, in turn, reduces system losses, equates to greater system reliability and results in significant cost savings, especially over the life of the cable.

"At the end of the day," said Mietzner, "I'll tell my kids, 'I put the cable between Lopez and San Juan' and be very proud of the fact that the cable is there and will be there 50 or more years from now."

FOLLOW OUR SUBMARINE CABLE PROJECT!
CHECK OUT PHOTOS AND VIDEO: www.opalco.com/submarinecable

NAME OUR NEW SUBMARINE CABLE AND WIN A CHANCE TO OBSERVE THE PROJECT UP CLOSE!

This major project is a historic moment for San Juan Islanders! The new cable will increase the reach and reliability of our power distribution and fiber optic communications for decades to come. You can win one of eight golden tickets to witness the cable installation in person in September 2017 as the barge and construction crew carefully lay down the approximately 230 tons of cable between Lopez and San Juan. Send your choice of a name for our cable to solson@opalco.com and post it on our Facebook (Orcas Power & Light) page with the tag: #MYsubmarinecable. Details and contest rules available at www.opalco.com/MYsubmarinecable.

Joe Thoron and Lisl Thomsen of Orcas Island made the move to an all-electric Nissan Leaf with four kids and an exchange student in tow. In their first month after switching from a gas to an electric vehicle, the family logged 1,000 miles on Orcas island. The family made as many as four round trips a day between home, work and school, plus 4H meetings, sports practice and games, Cascade Lake for crew practice, and weekend activities. Joe has calculated that on gas expense alone, they saved \$100 in the first month. At that rate, their total energy bill will be lower by \$1,200 in a year, plus additional savings in avoided car maintenance and repairs.

“The Leaf is the perfect island car,” said Joe. “We can get everywhere we need to each day on a single charge, and it’s easy to charge up at home overnight. As much as we

drive our kids around, I’m more comfortable knowing I’m not putting out tailpipe emissions.”

Joe and Lisl purchased a 2013 lease return. “It was surprisingly affordable,” said Lisl. The five teens in the household love having what’s essentially a new car, with heated seats, Bluetooth and great sound system.

“I’ve wanted an electric car for a long time,” said Lisl. “It’s important to me to do what I can to limit or eliminate oil consumption and the need for pipelines. It’s not just the cost savings—we’re doing our part for the environment.”

While the family does still own a gas-powered van with enough seatbelts to fit the whole family, the race is on every morning to see who gets to drive the Leaf and, more often than not, the gas powered car stays in the driveway.

Joe & Lisl with their four children, Sparkle the goat and their new Leaf



OPALCO's Member Owned Renewable Energy (MORE) Program is designed to support the growth of locally generated power. The Program is funded by voluntary member contributions and coordinated by a committee of dedicated Co-op members.

In 2016, the MORE Committee reports:

- 223 interconnected member generators (some member generators pre-date the MORE program)
- 149 MORE generators
- The MORE renewable portfolio includes:
 - Solar: 1305.26 kW (kilowatt hours)
 - Micro-hydro: 80.24 kW
 - Wind: 5kW

- Approximately 1,285 MWh (megawatt hours) of total renewal production
- 988,908 kWh of MORE production were incentivized

OPALCO remains committed to rooftop solar for those members who are able to install. With the development of our first Community Solar Project in 2018, any and all members who want to participate in local distributed power will be able to purchase panels in the system and earn credits based on production and their investment. Member contributions to MORE are declining, which will affect the amount of incentives available to MORE generators.

OPALCO continues to advocate in Olympia to raise the \$100k Washington State cap on solar incentives and sends a shout out to Senator Kevin Ranker and Representatives Jeff Morris and Kristine Lytton for their support of more solar deployment.



While many Co-op members are interested in solar energy, a 2008 study by the National Renewable Energy Laboratory found that only about 27% of residential rooftops are suitable for hosting a solar array. Even if the sun exposure is optimal, many rent, don't want the solar to affect their home's look, or can't afford the upfront cost of an array.

Community solar makes it easy for all Co-op members to get into solar, support local energy, and get a monthly credit on their bill. Members simply buy a share in a

community array at a level that works best for their budgets. The bigger the share, the larger the monthly solar production credit to their electric bill.

Community solar arrays are located at optimized grid locations, take advantage of economies of scale to keep costs down and provide more reliable operation than rooftop solar systems. The array will be backed up with a 2 MWh (megawatt hour) utility scale battery storage system. The battery is funded by a \$1 million Clean Energy Fund grant from the Washington Department of Commerce, awarded for OPALCO's innovative approach to combining solar and storage in a way that improves grid reliability and efficiency.

Members will be able to pre-subscribe to Community Solar later this year in anticipation of roll-out in 2018. Watch for updates, and let us know if you are interested in subscribing at jblongren@opalco.com.



**LINDSAY,
CURTIS,
ENERGY
SERVICES
COORDINATOR**

REBATES

Our members continue to value energy efficiency. More than 60 Home Snapshot Energy Assessments were delivered in 2016, and OPALCO paid out nearly \$144,000 to Co-op members in BPA-funded incentives for Energy Star appliances, heat pump water heaters, heat pumps, and commercial lighting. Those measures equate to over 600,000 kWh saved!

After a year on hold, weatherization rebates are back for 2017 and OPALCO is offering new incentives for members who switch from fossil fuels to more efficient electric equipment for home heating and cars. Members who switch from propane or wood furnaces to a ductless heat pump can get a rebate of \$1,500; members who install a home EV (electric vehicle) charger can get a rebate of \$500. Learn more at www.opalco.com/rebates.



EV ownership is growing rapidly in the islands.

CONSERVATION DISTRICT ACCOMPLISHMENTS:

- Electric vehicle charging stations installed throughout the Islands
- Green Home Tours
- Take Charge campaign
- Energy Fairs
- Georgetown University Energy Prize – still in the running
- Home energy efficiency and conservation
- Cool School Challenge
- Energy presentations

In 2016, in partnership with the San Juan Conservation District, OPALCO hosted Green Home Tours on Orcas, Lopez and San Juan islands. Before each tour, local vendors engaged the audience with interactive presentations on the energy efficiency resources available to them and how members can take the first step to a more sustainable home. Following the presentations, a parade of electric vehicles transported members to various homes and businesses to showcase their green features. Tour stops highlighted a wide range of examples, from DIY projects to high-end technology, and demonstrated what efficiency measures are working well in our community. We are planning more Green Home Tours this year. Learn more at www.greenhomesanjuans.org

When Steve Porten scheduled a Home Snapshot Energy Assessment in 2011, he was simply trying to increase the energy efficiency in their older home and make life a little more comfortable. The Snapshot results inspired them to add new insulation in the floor, replace some windows and switch from old baseboard resistance heat to a ductless heat pump. Less than five years later, Steve & Shann produce much of the power they need with solar panels that Steve installed himself. Their house is more comfortable, their power bill is lower and they have significantly lightened their energy footprint.

“There are too many of us on earth and our energy footprint is so big,” said Steve. “I feel a really strong obligation to lighten my impact on the environment wherever I can, for the next generation and the next.”

Steve and Shann lived in Alaska without power for years and enjoyed the simplicity of that lifestyle (and also recall a lot of hard work chopping wood and carrying water). “The

ductless heat pump is a great machine and super efficient,” said Steve. “We really appreciate the privilege of flipping a switch and coming home to a warm house. The OPALCO Energy Savings folks were very responsive and a great help to us. I was quite impressed. They helped me figure out what I could do and what incentives were available, and got the rebate forms into my hands.”

After many years of supporting other local renewable power generators through OPALCO’s MORE Program, Steven and Shann finally decided to “grow their own” power after attending an OPALCO Energy Fair. Loren Dickey of Streamside Renewables worked with Steve to do his own installation. “Loren was great—he designed the system, specified equipment and walked me through all of the steps.”

Installing a solar system, while not out of reach for homeowners, is a big project and the experience gave Steve a great sense of accomplishment. “My solar panels

just make me smile. I’m very proud of myself and I feel really good about doing my part for the environment. I track my meter readings and find it very satisfying to see the production results. I encourage others to go for it with solar—either on your own rooftop or through a community solar project!”

While not everyone can go from Snapshot to solar, everyone can benefit from a Home Snapshot Energy Assessment and find ways they can “soften their step on the environment.” OPALCO’s Energy Savings team is here to help and you can schedule a Snapshot online at www.opalco.com/snapshot.



Porten & Shann Weston of San Juan Island, Members since 1996

Rain or shine. Hydro has your back.

While wind and solar power grows, it's hydropower from dams that remains the renewable backbone of the Northwest. Constant and reliable, hydro works in concert with other renewables that fluctuate with the forecast, helping keep our region's carbon footprint small.

CLEAN  HYDRO
CleanHydro.com

“Let’s not remove the dams before we have a firm source of good, clean renewable energy to replace them with. We don’t want to add more carbon to our fuel mix. Our environment and the health of our communities is too precious.”

–Foster Hildreth, General Manager

Addressing the impact of climate change is a national and global priority. But as other regions scramble to reduce their dependence on fossil fuels for energy, the Northwest is in a very different—and enviable—position. The reason? Hydropower and the Columbia and Snake river system.

In the Northwest, we already meet nearly 60 percent of our electricity needs with a carbon-free, renewable

energy resource: hydropower. In years when rainfall and snowpack produce a higher water flow, that percentage rises even higher.

Hydropower, unlike coal-fired power or natural gas, produces no carbon emissions. As a result, our carbon footprint is half that of other parts of the country. However, some hydropower reservoirs that are rich in nutrients support the growth of large amounts of vegetation, which decompose and release methane gas. These emissions can contribute to climate change. Fortunately, dam reservoirs on the Columbia and Snake rivers don't produce measurable amounts of methane gas. This lack of measurable methane emissions is another reason why hydropower is the Northwest's largest source of clean renewable energy.

WHAT IT MEANS TO BE CARBON-FREE

- The power generated by the Snake River dams alone allows the region to avoid 3 to 4.5 million tons of CO₂ each year.
- The marine highway created by the Columbia and Snake system is the most environmentally friendly way to move cargo. It allows millions of tons of Northwest commodities and goods to travel to market in barges on rivers, instead of in trucks on roads. This system of rivers and ports keeps 700,000 trucks—and the CO₂ they would produce—off our highways each year.
- Hydropower dams store water from melting snow and rainfall in reservoirs, which is then released and passes through turbines to generate electricity. In the Northwest, management of these dams and reservoirs buffer the region from greater climate variability and warming.

RENEWABLE ENERGY BACKBONE OF THE NORTHWEST

Wind and solar tend to grab the headlines, but in the Northwest, it's hydropower that supplies 90 percent of the region's renewable energy. Because the rivers are constantly flowing, hydropower can always be relied on to meet the energy needs of Northwest citizens, even in low water conditions.

In the Northwest, hydropower is also a tool used to backup intermittent generators like wind or solar. Hydro generation can be quickly adjusted to follow changes in wind production. Simply put, when wind and solar can't show up for work, hydropower is always available at the flick of a switch.



**MEGAN HEINZ,
SOFTWARE
SPECIALIST**

Our amazing team of specialists at OPALCO made huge strides in technology and communications in 2016, and in 2017 our staff will continue their hard work on the fiber backbone that enables us to accomplish our internal and external communication goals. Our 2016 improvements

to communication infrastructure allowed us to roll out devices and applications that keep us connected to staff and crews in the field with real-time information and improves communications, safety and efficiencies for our members and staff. In 2017 we will complete the communications infrastructure expansion and realize the full benefits of all the devices in the field, our outage management system and, most importantly, increased safety for our crews working in our remote territory.

The greatest leap in 2016 was the implementation of our Outage Management System, built on the communications infrastructure and our partnership with CRC (Cooperative Response Center). This system provides 24/7 power outage call management and real-time updates via the new outage map on our website (www.opalco.com/outages).

ROCK ISLAND ACHIEVES FINANCIAL INDEPENDENCE

Thank you to all OPALCO members who helped fund the start-up of OPALCO's wholly-owned subsidiary, Rock Island Communications, to the tune of \$72 each (in 2015 and 2016 rates). We are proud that Rock Island was able to pay off their loan to OPALCO ahead of schedule in 2016 and no further member funding will be required. Rock Island met its budgetary and subscriber goals in 2016 and is on track to reach financial break-even in 2018.

2016 Year-End Subscribers:

- 3,100 total subscribers to Rock Island internet services
- 1,200 subscribers to Rock Island LTE (wireless)
- 1,000 subscribers to Rock Island Fiber
- 900 legacy DSL customers

2016 was a significant turning point in Rock Island's start-up operations. This was the first full year of complete service offerings including fiber, LTE, DSL and IT services and retail operations. Rock Island has distinguished itself from the competitors by providing fast, reliable, redundant and scalable service and local customer care. During a countywide outage event, Rock Island is the only provider that has built-in backup systems in place to keep their subscribers continually connected.

Our subsidiary ended the year with \$2.3M in gross revenues and \$4.6M in operating expense for a net loss of \$2.7M, which is 1.78% over projections. Rock Island accelerated LTE buildout in 2016 because of the opportunity and contractual obligations with T-Mobile. This caused greater expense, but also accelerated the completion date for the full LTE system.

In 2017, Rock Island has a full pipeline for both fiber and LTE customers, with an average of six new customers every

day. LTE buildout will be completed in 2017 and significant expansion of Rock Island's fiber network will be installed. In early 2017, Rock Island's Friday Harbor store will become a T-Mobile retail outlet.

OPALCO is proud of Rock Island's progress and excellent

service offerings. As Co-op members, you own this company. Not only does your support provide the benefits of the services you receive and quality of life improvements to our remote island communities, but you also share in the dividends of success as Co-op member-owners.

ROCK ISLAND BY-THE-NUMBERS SNAPSHOT (2/2017)

- **100%** wholly-owned by OPALCO and its members
- **3,100** customers and growing! (30% market share)
- **868** fiber vaults
- **112.9** miles of bundled fiber (enough fiber to wrap 1.6 times around the Earth!)
- **80.4** miles of underground distribution fiber
- **32.5** miles of overhead distribution fiber
- **26** active LTE poles installed countywide (+ final 12 poles coming in 2017)
- **26** full-time employees
- **20** islands served
- **6** redundant wireless radio connections
- **5** major fiber submarine crossings
- **2** retail locations on two islands
- **1** healthy and financially stable company

Did you know that Rock Island paid OPALCO more than \$300k for power, use of the fiber backbone and loan interest in 2016?



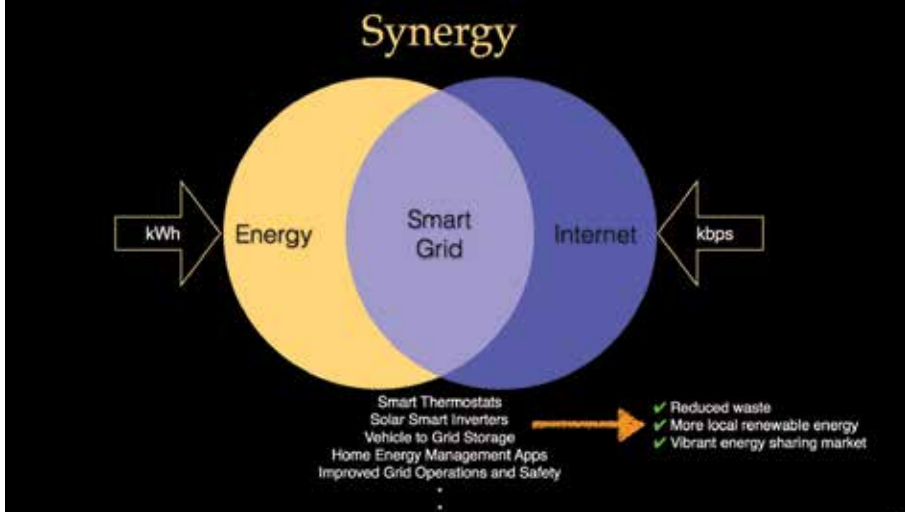
Your Local ISP
Reliable, fast, friendly,
local, redundant.
Solving the Internet
crisis in San Juan
County with fiber optic
and LTE fixed wireless
Internet service.

AN OPALCO COMPANY



Have you heard about the recent legislation before Congress, the New Deal Rural Broadband Act of 2017? It's an ambitious plan to connect every American home, business, and school to high-speed, reliable broadband internet. It's based on Roosevelt's New Deal rural electrification model, which fostered the start-up of OPALCO in 1937.

Thanks to OPALCO's leadership, most Co-op members now have access to fiber or LTE internet from the Co-op's subsidiary, Rock Island. But why is fast reliable broadband internet so important, and how does it relate to the future of our grid? One of the bill's sponsors, Rep. Jared Huffman, said "All Americans deserve the benefits of improved economic



development, as well as expanded public safety, health, and education services." But beyond those important benefits, the union of Internet and Energy lays a foundation for a remarkable transformation of the grid.

Dan Kammen, visionary Director of the Renewable and Appropriate Energy Laboratory, said “In order to make renewable energy into a stable energy resource, it is necessary to monitor power supply and demand in real time and to obtain a balance between supply and demand by integrating conventional electric grid with up-to-date information and communication technologies. The internet-enabled Smart Grid will foster a well-managed local energy generation portfolio of solar, wind, tidal, hydro and energy storage resources.”

Though OPALCO has used its fiber network since 2000 to control the grid more efficiently and safely, over the coming decades our energy resources will become more local, diversified and potentially more intermittent (e.g. solar), requiring a well-managed combination of firm energy

sources such as BPA, batteries, EVs, tidal, etc. As people shift from fossil fuel usage to clean affordable electric energy (such as heating, water heaters and cars) the grid is evolving into a two-way “inter-grid” that connects each of these resources and devices, to maximize reliability, safety and affordability of energy services.

This inter-grid uses a combination of fiber and wireless networks for home and business, connecting intelligent inverters, storage, and personal and utility energy management functions. Our use of this technology is the answer to keeping our costs as low as possible and still provide safe, reliable, efficient power to our remote island communities.

NANCY LOOMIS, MANAGER OF FINANCE AND MEMBER SERVICES

OPALCO’s Finance team works hard to balance the budget, control expenditures and manage all aspects of our Co-op’s financial health. Our excellent credentialed team consistently passes independent financial audits with flying colors. In 2016, total operating revenue was \$25.2M and total operating expense was \$21.5M, resulting in a margin of \$3.06M. A better weather year and Rock Island Communication’s loan payoff allowed us to catch up on capital credit distributions and we ended the year with a healthy equity ratio of 48.7%. See pages 41-44 for the 2016 Income Statement and Balance Sheet. While our Finance



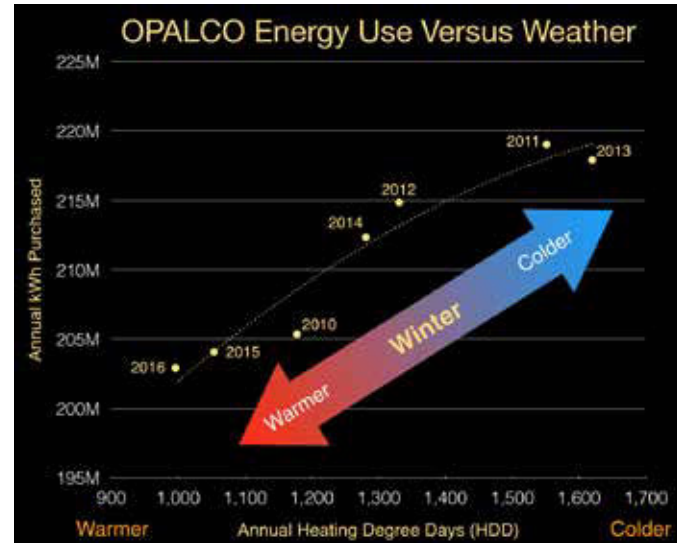
team’s efforts are often behind the scenes, all of the Co-op’s financial reports and documents are available in OPALCO’s Resource Library at www.opalco.com.

Each November, OPALCO tries to do the impossible: predict the weather for the following year. Co-op expenses, which are more fixed than variable, are paid by revenue, and revenue comes from energy sales, which vary significantly depending on the weather.

Typically, Co-op members use twice as much energy in winter as in summer. But if the winter is warmer or colder than normal, then revenue can be less or more than budgeted. To avoid this, we use weather and climate prediction models to make a best guess as to what will happen. In addition, in 2016 we created an Energy Charge Adjustment (Policy 29) in the rate structure to implement a credit or debit to member bills as needed to balance cooperative finances when an unexpected revenue shortfall or surplus occurs, usually because of weather.

One of the trends we watch is referred to as Heating Degree Days (HDD). The chart below shows how HDD and

energy use are less in warm years, and more in cold years. If we think the coming winter will be colder, we don't raise rates much compared to if we think it will be warmer.



Project PAL is our seasonal cooperative program that continues to aid members in need by helping to pay their winter heating bills. Funded through voluntary member contributions, members can round their bills up to the next dollar or make one-time donations to Project PAL.

An anonymous volunteer council of OPALCO members meets monthly from November through April to assess applications and award grants to members. Fifty percent of grants go to low income seniors and persons with disabilities, and the rest to members who meet income guidelines and are approved by the council.

In 2016, more than 3,000 members rounded-up their bills every month for a total of \$24,013 in contributions, plus another \$6,436 in additional one-time gifts. 2016 saw the greatest number of PAL grants awarded: 255 members with 142 grants going to low income seniors and persons with disabilities for a total of \$44,812.

Members can apply online through the OPALCO website, by mail, in the OPALCO offices, or at each island's Family Resource Center. Members helping members—are you in?

- Dear (Anonymous) Gift of Power: The donation that you have made in my name is precious, but the kindness in your heart is priceless. Thank you for being so very kind and generous. It's nice living in a community where people care. Thank you!
- Dear PAL project & OPALCO, staff & board, I am so grateful for the generous gift granted to me for assistance with my power bill. I strive to live a simple life with a small footprint. However, due to my age and because my income is very low, every bit of public assistance is embraced and appreciated.
- A heartfelt thank you for your generous support; a gift of being warm & dry on a cold winter's night!

Based on the findings of a 2015 Needs Assessment Work Group, OPALCO saw a need to help members who struggle to pay their monthly electric bill. In February 2016 we implemented the Energy Assist Program, a pilot program designed to assist OPALCO members with low income households.

At the beginning of the program, the bill credit ranged from \$10-25 per household. That was increased by Board approval later in the year. In September 2016, the credit was raised to \$20-50 per household.

The funding comes from every active OPALCO member on their monthly electric bill. In 2016, OPALCO collected \$94,400 and paid out \$28,626. Today we have 279 members that are utilizing the program.

If you know someone who would benefit from this program, please encourage them to apply! Call 376-3500 or apply online.



One integral part of operating as a non-profit Cooperative for the mutual benefit of all members is the concept of capital credits. It's the idea that your patronage (payments), furnish the working capital for Cooperative operations and you get credit for those contributions.

In line with this concept, each year the patronage earnings (margin) are equitably allocated to each member in proportion to the value of service paid for by the member during the fiscal year based on the Co-op current finances. In December of 2016 we distributed the capital credits for members who were active in 1991 and also repaid the remaining 50% of 1990 capital credit allocations, catching up with our 25-year distribution schedule. As the capital credit repayment cycles enters the mid-90's we will begin to see the largest annual capital credit allocations we have ever repaid yet, and thus the cash requirement for these repayments will be equally great. We have our sights on these targets and are coordinating cash planning efforts

in order to ensure that our members continue to receive their capital credit retirements for years to come. This 'cash planning' is critical for us to keep these large cash outflows out of members' rates.

Members can also apply for 'special retirements' of capital credits in events such as business dissolution or when representing a deceased members estate. All proposed retirements and distributions are at the discretion of our Board of Directors, who retains the overall discretion to determine the manner, method and timing of retiring and refunding these capital credits.

Capital credit planning will be an important topic as we discuss rate structure over the next 18 months." If you need to trim something out to make it fit, revise the opening sentence to read, "Capital credits are integral to our operation as a non-profit cooperative.

OPALCO BALANCE SHEETS

FOR YEARS ENDING DECEMBER 31, 2016 AND 2015 (IN THOUSANDS)

ASSETS	2016 UNAUDITED	2015 AUDITED	CURRENT ASSETS	2016 UNAUDITED	2015 AUDITED
Utility Plant	\$118,192	\$104,012	Cash and cash equivalents	\$3,907	\$1,697
Less accumulated depreciation & amortization	44,622	41,161	Accounts receivable	3,611	3,558
Net electric plant	73,570	62,851	Materials and supplies	3,711	3,342
			Other current & accrued assets	359	318
OTHER PROPERTY AND INVESTMENTS – AT COST			Total current assets	11,588	8,915
Investments in associated organizations	1,125	1,094			
Investment in Subsidiary	(2,389)	5,250	TOTAL ASSETS	\$83,894	\$78,110
Net Non-Utility Property	(1,264)	6,344			

EQUITIES & MARGINS	2016 UNAUDITED	2015 AUDITED
Memberships	\$57	\$56
Other equities	5,403	4,764
Subsidiary margins	(4,518)	(1,780)
Patronage capital—OPALCO	38,335	37,130

Equity & Margins 39,277 40,170

LONG-TERM LIABILITIES

RUS mortgage notes	31,370	25,095
RUS economic development	49	65
CFC mortgage notes	8,812	8,821
Other noncurrent liabilities	54	—

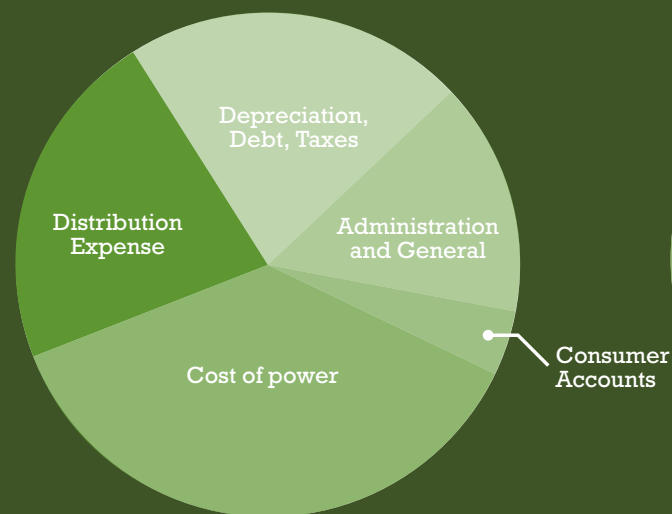
Long Term Liabilities 40,285 33,981

CURRENT LIABILITIES	2016 UNAUDITED	2015 AUDITED
Accounts payable	1,693	1,765
Customer deposits	90	82
Accrued liabilities	1,145	712
Current maturities of long-term debt	1,122	1,182
Total Current Liabilities	4,050	3,741

DEFERRED CREDITS 282 218

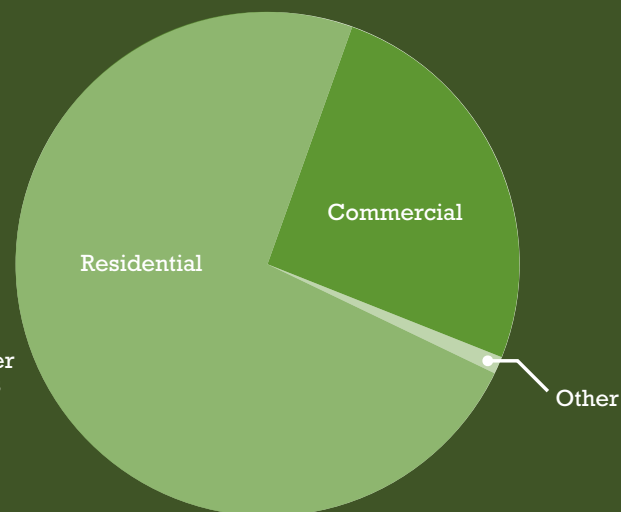
EQUITIES, MARGINS, AND LIABILITIES **\$83,894** **\$78,110**

2016 EXPENSES



Cost of Power	35%
Distribution Expenses	22%
Depreciation, Debt, Taxes	26%
Administration and General	13%
Consumer Accounts	4%

2016 REVENUE



Residential	73.1%
Commercial	26.2%
Other	1.1%

OPALCO STATEMENTS OF OPERATIONS

FOR YEARS ENDING DECEMBER 31, 2016 AND 2015 (IN THOUSANDS)

OPERATING REVENUES

	2016 UNAUDITED	2015 AUDITED
	\$25,249	\$24,582

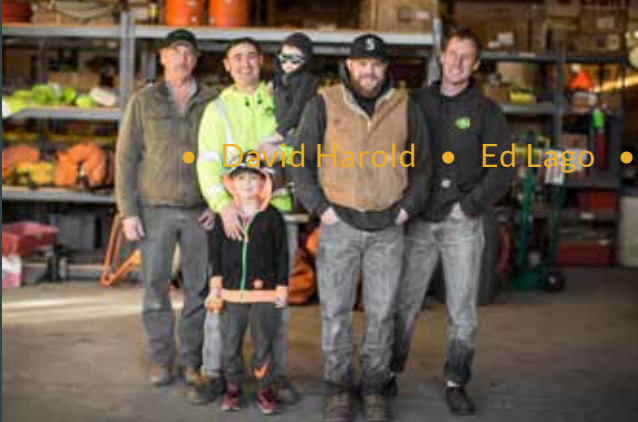
OPERATING EXPENSES

Cost of purchased power	8,037	7,967
Distribution expense	4,908	5,105
Consumer accounts	947	894
Administrative and general	2,892	3,610
Subsidiary charges	35	29
Depreciation and amortization	3,547	3,308
Taxes	1,137	1,047
Interest on long-term debt	1,095	1,047
Total Operating Expenses	22,598	23,007

	2016 UNAUDITED	2015 AUDITED
Operating margins	2,651	1,575
Non-operating margins OPALCO	61	41
Income from Subsidiary	269	158
Total Non-operating margins	330	199
Patronage capital credits	81	84

NET MARGINS	\$3,062	\$1,858
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Foster Hildreth • Anne Huhndorf • Becky Griswold • Bev Madan • Bob Belcher • Brett Deines • Brian Longworth • Brian Swanson • Dan Vekved • Dan Watters



• David Harold • Ed Lago • Jay Fowler • Jeff Tilstra • Joel Mietzner



• Jordan Ross • Judy Bossert • Kai Burleson • Karin Becker



• Katie Maxwell • Kevin Zoerb

• Daniel Martz • Danny Herbert

Kyle Stanley • Lindsay Curtis • Luke Furber • Madeline Danielson • Marilyn Goff • Matt Minnis • Megan Heinz • Michelle Beal • Nancy Loomis • Nathan Ahrens •

NEW STAFF IN 2016

Becky Griswold, Member Services Representative

Becky is a career Navy Officer, a veteran who deployed to Afghanistan for eight months, retiring from the position of Executive Officer of the Navy Magazine Reserve Unit in Port Hadlock, WA. She moved full-time to her property on Orcas in 2007, serving in the Navy Reserves until retiring in 2013. She joined the OPALCO team in May 2016. She loves living near her family and visits from her children.

Judy Bossert, Work Order Clerk

Judy grew up on Mercer Island and attended college at UCLA. Her first job was for the LA Dodgers! She moved to Orcas in 1992 and joined our team at OPALCO in June 2016 after working for Rosario and San Juan Title. She loves college football, hikes at Moran State Park and time with her family in the Seattle area.

Anne Huhndorf, Member Services Supervisor

Anne joined the OPALCO team in January 2016 after many years of service with a rural electric co-op in Kenai, Alaska. She is a devoted Seahawks fan and has always dreamed of living closer to her team. When not at work, Anne is likely playing with her dog Hazel on the beach.



Travis Neal • Trevor Steinbrueck •

Patty Kelly • Regina Penwell

Rex Guard • Roger Sandwith • Russ Hebert • Russell Guerry • Sean Parsons • Susan Evans • Suzanne Olson • Steve Dengler • Steve Eyler • Terry Turner •

The 2016 Annual Meeting was held on Saturday, April 30th aboard the WSF Elwha. A total of 374 people attended the meeting. Nourdine Jensen Cooperative Youth Scholarships were awarded to Anneke Fleming (Orcas), Tenley Nelsen (San Juan) and Ryanne Pluff (San Juan). Board Vice President Vince Dauciunas gave a presentation about the importance of OPALCO's electrical grid modernization for the future. General Manager Foster Hildreth gave a brief address and answered members' questions.

