BOARD OF DIRECTORS
REGULAR MEETING
OPALCO Board Room

183 Mount Baker Road, Eastsound

Thursday, July 17, 2014 8:30 a.m.

TRAVEL

Via Island Air

378-2376 / 378-8129 (cell)

To:

Leave FH 7:45 a.m.
Lopez 8:00 a.m. Arrive Eastsound 8:15 a.m.

From:

Leave Eastsound 12:00 p.m. Arrive Lopez 12:15 p.m.
FH 12:30 p.m.

Via Ferry:

To:

Leave Lopez 6:50 a.m.
Leave Shaw 7:15 a.m. Arrive Orcas 7:35 a.m.
Leave FH 8:30 a.m. Arrive Orcas 9:15 a.m.

From:

Leave Orcas 12:25 p.m. Arrive Shaw 12:40 p.m.
Lopez 1:00 p.m.
FH 1:55 p.m.

Orcas Power & Light Cooperative
Board of Directors
Regular Monthly Meeting
183 Mt Baker Road, Eastsound, WA
July 17, 2014 8:30 a.m.

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WELCOME GUESTS/MEMBERS

- Cameron Madill, PixelSpoke

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ADJOURNMENT

CONSENT AGENDA

MINUTES OF THE BOARD OF DIRECTORS MEETING

ORCAS POWER & LIGHT COOPERATIVE

Thursday, June 20, 2014

Vice-President Bob Myhr called the meeting to order at 8:40 a.m. at the Friday Harbor OPALCO office. Directors Winnie Adams, Vince Dauciunas, Glenna Hall, Chris Thomerson and Dr. Jerry Whitfield were present. Jim Lett was absent. Also present were General Manager Randy Cornelius, Assistant General Manager Foster Hildreth, Manager of Engineering and Operations Russell Guerry, Assistant Manager of Finance Nancy Loomis and Executive Assistant Bev Madan, serving as recording secretary.

Member/Guests

Steve Ludwig, Dwight Lewis, Gabriel Jacobs, Chom Greacen, Jack Cory of the *Island Guardian*, Gray Cope and Jay Kimball were welcomed.

Consent Agenda

- **Motion** made by Thomerson and seconded to approve the Consent Agenda, which included the April minutes and new members listed below. Motion carried by voice vote.

Center
Mead, Jeromie

Decatur
Drake, Tammy & Robert

Henry
Johnson, Jeff

Lopez
Blanchard-Smith, Beth & Smith, Felix Moser
Brower, Tyler
Butterfly Boutique
Danforth, Laura
Despain, Naomi & Phelps, Lisa
Dragseth, John A
Mitchell, Heather
Natapow, Kevin & Jennifer
Obleman, Karen
Obleman, Karin
Smith, Skyler
Wedaa, Mercedes R
Williams, John & Anne
Wilson, Deborah & Clay
Zapalac, Diana

Orcas
Aloha Spirits LLC
Burton, William
Carl, John
Cookston, Keegan
Crouzier, Wellesley
Dhaliwal, Karter & Harjeet
Dowling, Ciaran & Duke, Rachel
Doyle, Todd & Lori
Ferguson, Sherwin & Robert
Feuer, Carrie
Fugere, Jeremy & Autumn
Gentry, Marian M
Graber, James
Heidecke, Adam
Heitman, Grant
Hendrich, Susan M
Island Time Holdings,LLC
Kelly, Megan
Leimback, Vicki A
Limbach, Learner
Miller, Laura & Michael
Palmer, Gail & Richard
Pearl Summer Austin Mudd Settlement
Pechacek, Laine & Craig
Ramenofsky, Brent & Cisneros, Roxana
Rodriguez Valdez, Mauro & Ignacio Cruz Gonzalez
Rose, Kelly
Rosenkilde, Gavin
Santonocito, Robert
Shaffer-Bauck, James
Smith, Glenda
Smith, Micheal
Smith, Steve & Jennifer
Spain, Sam
Thibault, Alan & Shauna
Tucker, Melanie & Thomas
Vincent, Christine & Becker, William
Whitehead, Charles
Williams, Scott

San Juan
Albert, Peter
Atwell, Angela
Aubert, Dante & Massarat, Deborah
Bankruptcy Estate of Douglas & Susan Hayes
Boardman, Tyler
Boland, Joshua
Bowman, Blake
Buckwalter, Jesse & Maynard, Jill
Carpentier, Brandy
Columna, Derek & Knowles, Chelsey
Cuomo, Robert
Cuomo, Wendy
Davis, Birsen
Farr, Elizabeth
Felton, Dave
Fihn, Nathan & Hooper, Quinn
Finley, Doug & Pamela
Friday Harbor House Of Jerky
Gallaty, Blaine & De'An
Galli, Attilio
Garcia, Maria
Hand to Shoulder Therapy PLLC
Harada, Jenifer
Harbortyme LLC
Hemingway, Hyrum
Hennen, John & Nancy
Henrie, James Scott
Herdy, Amy & Claussen, Matt
Higgins, Ricky D
Hindle, Robert
Hoyne, Kathleen & Stringer, Roberta M
James, Tara
Kentner, Adrienne E
Kiser, Daniel
Kruse, Kimberly J
Kuller, Linda
Kyser, Brian
Lopez, Romulo

Lueders, John D & Larson, Elizabeth A
Masessa, Millissa L
Mayer, Paul C & Kimberly A
Meenan, Richard & Karen S
Milinsky, Mary Griggs
Miller, Kim
Neugebauer, Whitney
Newport, Sam
Owens, Brent
Pacheco, Antonio
Patrick, Danielle
Perren, Beverly
Potter, John M
Roark, Dennis
Roberts, Roy Leith
Ross, Nathan
San Juan Lots LLC
Sawyer, Katherine
Schmidt, Ethan
Serenbetz, Clay
Seubert, Michael O
Stehle, Carla
Thurling, Toni
Ulrey, Judi
Walsh, Kate
Ware, Gary
Wayner, Zachary Kyle
Weaver, Julie
Wehner, Holly
Whitis, Jessica
Whybren, Heather
Williams, Myron C & Penny
Yarborough, Glenn C & Victorio Austin
Yergenson, Pamela J

Shaw
Swanson, Chad
Wysocki, Anne Frances & Lynch, Dennis

Capital Credits

- **Motion** made by Thomerson to approve payment of capital credits to the estates of deceased members as listed below for a total of $7,155.92; motion was seconded and carried by voice vote.

Robert A. Anderson	$1,198.93
Jane Barfoot-Hodde	$786.43
George Bartell, Jr.	$415.19
Barbara E. Dann	$2,438.26
James M. Drake	$1,148.56
Avis A. Honaker	$59.90
Susan M. Ross	$301.67
Dion B. C. Sutton	$806.98

RUS 219s

- **Motion** made by Thomerson and seconded to approve submission of RUS Form 219s that include projects completed in March and April from the Construction Work Plan totaling $603,039. Motion carried by voice vote.

Resolution 5-2014 *Rural Electric Safety Achievement Program (RESAP)*

Staff is applying for membership in the RESAP program through NRECA. This resolution is one step in that process, which could take up to one year to complete.

- **Motion** made by Hall and seconded to approve Board of Directors Resolution 5-2014 *Rural Electric Safety Achievement Program (RESAP) Participation.* Motion carried by voice vote.

Project PAL

Cornelius reported that the PAL program is underfunded. The anonymous, volunteer committee has done their best to make the dollars stretch by reducing the maximum grant award from $250 to $150 per member per season. Putting $20,000 into the PAL account would help fill the gap between award requests and available funds. A needs assessment will be completed during the fall of 2014 to determine the amount needed in the account and to assist staff in developing a permanent solution to the PAL funding. In addition, a policy would be written that would inform how the funds were to be used. It was suggested also that other organizations could make grants to the program.

- **Motion** made by Thomerson and seconded to allow staff to put $20,000 into the PAL account for the 2014-15 heating season and to add $20,000 to the 2015 budget for PAL. Motion carried by voice vote.

WECPAC Contribution

Each member cooperative was asked to donate to the Washington Electric Cooperatives Political Action Committee (WECPAC).

- **Motion** made by Whitfield and seconded to contribute $1,000 to the WECPAC fund. Motion carried by voice vote.

NRECA Voting Delegate

The NRECA 2014 Regional Meeting will be held in Omaha, Nebraska October 15-16, 2014.

- **Motion** made by Hall and seconded to appoint Foster Hildreth the voting delegate to the NRECA Regional Meeting, with Chris Thomerson as the alternate. Motion carried by voice vote.

Cost of Service / EES Presentation
Anne Falcon, Managing Director of Economics and Rates for EES Consulting, presented a "Cost of Service and Rate Design" PowerPoint. This is the second step in the ongoing Cost of Service discussion.
The goal of the Cost of Service Analysis is that every member pays their fair share and cost allocations are driven by usage patterns (within the rate classes).
The next step in the process will be a proposed rate design presented to the Board by staff at the July meeting.

Community Solar for the Public Schools
San Juan Islands Conservation District (SJICD) is the umbrella organization working via Policy 28 *Collaborating with Nonprofits to Accelerate Energy Efficiency & Conservation.* They have been working with the Bonneville Environmental Foundation (BEF), the community and the public schools to have solar panels installed on each of the four main public schools in San Juan County. The total solar capacity for the project would be 40 kW with approximately 10kW being installed on each school. With installation costing $4 per watt (approximately), the project cost would be about $160,000. Funding will come from subscribers providing micro-loans. Subscribers will be paid back over a 10-year period using funds provided from BEF ($47,000) and the Washington State renewable energy production incentives (approximately $81,000 over a six-year period). These incentives should cover most of the cost. In the event grid-tied solar installations continue at the current growth rate, the maximum state incentive funds could be reached by June 30, 2015. If that happens, the state requires the incentive payments be reduced to each member. The SJICD is requesting OPALCO to guarantee a $0.30/kWh incentive for six years, at a potential cost of $30,000.

- **Motion** made by Thomerson and seconded to authorize the General Manager to guarantee an incentive of $0.30 per kWh for a six-year period for the community solar system to be mounted at the four public schools. Motion carried by voice vote.

Annual Meeting Review
A general review of the annual meeting was discussed. The miscommunication of members being given the message they would be allowed to speak and then only collecting written questions was discussed. This mixed message will be avoided in the future.

Policy Committee
A committee was appointed to continue work on Policies 1 *Functions of the Board of Directors* and Policy 23 *Conflict of Interest*, the Bylaws and any other policies including development of a new policy on rate design.

- **Motion** made by Adams to appoint Glenna Hall, Bob Myhr and Jerry Whitfield to the Policy Committee, with authority to contact the attorneys as needed. The motion was seconded and carried by voice vote.

REPORTS
First Quarter Financial Review
Hildreth reviewed the Statement of Operations, the Balance Sheet, the Statement of Cash Flow, the Capital Projects Budget, Island Network Statement of Operations and Balance Sheet and the draft Form 7 through March 2014. Notable was evidence of the new BPA billing determinants. Environmental permitting is becoming increasingly difficult as well.

Cash Recap
Hildreth reported General Funds of $1,371,393, Cash Reserve of $1,334,381 and Restricted Funds of $2,009,415 for a total fund ending balance on May 31 of $4,715,189.

Outages
A newly formatted report was reviewed by Hildreth. There were 6 unscheduled outages in May; most were caused by age or deterioration.

Safety
Total hours worked without time loss is 58,066.

General Manager
Cornelius reviewed the manager's report.
Jay Kimball is working with the MORE Committee to determine what has worked since their inception and what has not. The Committee may need to be restructured.

Myhr left the meeting; Dauciunas facilitated the remainder of the meeting.

The NRU Segmentation Update was briefly discussed, with Cornelius noting that the segmentation requested by Snohomish PUD likely will not happen.

The report also included an update on OPALCO's communication infrastructure.

Adjournment
The meeting adjourned at 1:25 p.m.

_____ _____

Bob Myhr, Vice-President Jerry Whitfield, Secretary-Treasurer

New Members June 2014

Blakely

1. Zech, Cynthia

Decatur

2. Brace, Colin & Milkana
3. Wallace, Tim & Beth

Lopez

4. Fletcher, Corey & Luckhurst, Jasmine
5. Gammill, Hilary & Kevin
6. Huff, Connie
7. Kent, Amilia & Nurczyk, Tim
8. Koening, Tai
9. Moilanen, David
10. Russo, Ambrose
11. Tri Grand Lopez Limited Partnership
12. Williams, John & Anne
13. Yalden, Victor

Orcas

14. 6543 LLC & Howard Wright III
15. Adam, Emmett
16. Boerstler, Diane & Philip
17. Carrion de Quintero, Cristal
18. Olmstead, Erin & Kintzele, Paul
19. Tonachel, Debra
20. Webb, Eric
21. Webster, Tim
22. Emerson, Susan
23. Whitley, Wesley

San Juan

24. Action 24 LLC
25. Allen-Tate, Ross
26. Baker, Dalton
27. Balster, Diane
28. Bartlett, Jessica
29. Billington, Carl
30. Cagwin, Tom
31. Churape, Santiago
32. Cole, James
33. Compton, Christopher & Anna
34. Dann, Tsolo & Janet M
35. Davis, Alex
36. Dick, Gordon W
37. Dutton, Ashley & Watts, Kevin
38. Easterbrook, Trevor
39. Edholm, Wesley
40. Gallaty, Ralph
41. Galluccio-Mott, Karen & Mott, Patrick
42. Good, Jonathan
43. Granger, Donald
44. Gustafson, David
45. Hanson, Jadin & Charisse
46. Knutson, Dana & McGillivray, Mike
47. Lautenbach Industries
48. Macaskill, Dawn
49. Martinez, Debbie & Kelly
50. McCullough, Annette
51. Peterson, Robert E
52. Plane House LLC
53. Randall, Jacob Ian & Michelle Renee
54. RIC Insurance General Agency
55. Robb, Laura & Paul
56. Roberts, Steven
57. Rollins, Shane
58. Scanlan Dressler, Emma & Dressler, Brian
59. Shih, Jenny
60. Slack, Jadyn
61. Stevens, Laurel & Sera, Jay
62. Storms, Pamela & Kevin
63. Sutherlin, Nickie
64. Wade, Dennis
65. Waite, Hannah & Lawson, Parker
66. Watson, Wesley
67. Weigeshoff, Raymond L
68. Zell, Van

Shaw

69. Messenger, Marcia & David

ACTION ITEMS

CAPITAL CREDITS

Application has been received for payment of capital credits to the estates of the following deceased members:

Joan Dexter Glidden	$1,402.52
Daniel D. Martel	$4,188.39
Edith E. Schwendeman	$622.45
Frank Sera	$981.55
Total	**$7,194.91**

MEMORANDUM

July 1, 2014

TO: Board of Directors

FROM: Randy Cornelius, General Manager

RE: RUS Form 219s *Inventory of Work Orders*

May projects completed from the Construction Work Plan:

Inventory # 201405..... $32,916.86
San Juan Island Transcloser replacement and URD cable replacement

Staff requests a motion from the Board to approve submittal of RUS Form 219s totaling $32,916.86.

RUS Form 219 Inventory Of Work Orders

Period: MAY 2014 System Designation: WA AH O9

Inventory : 201405

Budget

Loan	Project	Amount
1	601	9,279.50
1	608	23,637.36
	Total:	32,916.86

BORROWER CERTIFICATION

WE CERTIFY THAT THE COSTS OF CONSTRUCTION SHOWN ARE THE ACTUAL COSTS AND ARE REFLECTED IN THE GENERAL ACCOUNTING RECORDS. WE FURTHER CERTIFY THAT FUNDS REPRESENTED BY ADVANCES REQUESTED HAVE BEEN EXPENDED IN ACCORDANCE WITH THE PURPOSES ON THE LOAN, THE PROVISIONS OF THE LOAN CONTRACT AND MORTGAGE, RUS BULLETINS, AND THE CODE OF FEDERAL REGULATIONS RELATIVE TO THE ADVANCE OF FUNDS FOR WORK ORDER PURPOSES. WE CERTIFY THAT NO FUNDS ARE BEING REQUESTED FOR REIMBURSEMENT OF CONSTRUCTION WORK IN A CBRA AREA.

SIGNATURE (MANAGER) DATE

SIGNATURE (BOARD APPROVAL) DATE

ENGINEERING CERTIFICATION

I HEREBY CERTIFY THAT SUFFICIENT INSPECTION HAS BEEN MADE OF THE CONSTRUCTION REPORTED BY THIS INVENTORY TO GIVE ME REASONABLE ASSURANCE THAT THE CONSTRUCTION COMPLIES WITH APPLICABLE SPECIFICATIONS AND STANDARDS AND MEETS APPROPRIATE CODE REQUIREMENTS AS TO STRENGTH AND SAFETY. THIS CERTIFICATION IS IN ACCORDANCE WITH ACCEPTABLE ENGINEERING PRACTICE.

Joel Mietzner P.E — INSPECTION PERFORMED BY

OPALCO — FIRM

42902 — LICENSE NUMBER

3/16/2015 — DATE

P.E. — SIGNATURE OF LICENSED ENGINEER

EXPIRES 3/16/2015

06/20/2014 3:00:27 pm

RUS Form 219 Inventory Of Work Orders

Period: MAY 2014 System Designation: WA AH O9

Inventory: 201405

Loan Project	Year	Work Order Construction (1) Retirement (2)	Bdgt (3)	Gross Funds Required: Cost Of Construction: New Constr Or Replacements (4)	Gross Funds Required: Cost Of Removal: New Constr Or Replacements (5)	Deductions: Salvage Relating To New Construction Or Replacements (6)	Deductions: Salvage Relating To Retirements Without Replacements (7)	Deductions: Contrib In Aid Of Constr and Previous Advances (8)	Loan Funds Subject To Advance By RUS (9)
601	2014	1573 Trans closer							
		1573	1	8,728.93	576.97	26.40	0.00	0.00	9,279.50
				8,728.93	576.97	26.40	0.00	0.00	9,279.50
608	2013	1466 miller Rd							
		1466	1	23,151.89	636.15	150.68	0.00	0.00	23,637.36
				23,151.89	636.15	150.68	0.00	0.00	23,637.36
Grand Totals:				$ 31,880.82	$ 1,213.12	$ 177.08	$ 0.00	$ 0.00	$ 32,916.86

MEMORANDUM

July 8, 2014

TO: Board of Directors

FROM: Randy J. Cornelius

RE: Resolution 6-2014 *Load Forecast*

Attached please find Resolution 6-2014, approving the 2014 Electric Load Forecast as required by RUS.

This also satisfies any requirements for HB 1010 *Resource Plan*, which must be updated every two years by the Board and it is made public once submitted to the State.

As a small utility (fewer than 25,000 customers), we are required to develop a resource plan that estimates loads for the next five and ten years; enumerates the resources that will be maintained and/or required to serve those loads; and explains why the resources were chosen and, if the resources chosen are not renewable or conservation resources, why such a decision was made. The resources selected are the BPA full requirements agreement and small renewable local interconnects along with our energy efficiency/conversation program.

Staff requests that the Board make a motion to approve Resolution 6-2014 approving the 2014-2024 Electric Load Forecast.

ORCAS POWER & LIGHT COOPERATIVE

A Touchstone Energy Co-op

Eastsound Office
183 Mount Baker Road
Eastsound, WA 98245-9413
p:(360) 376-3500 f:(360) 376-3505
www.opalco.com

BOARD OF DIRECTORS

RESOLUTION 6-2014

2014-2024 ELECTRIC LOAD FORECAST UPDATE

WHEREAS, Joel Mietzner, System Engineer of Orcas Power and Light Cooperative, has been actively involved in the development of the Electric Load Forecast 2014-2024; and

WHEREAS, Joel Mietzner has reviewed and recommends the acceptance of the 2014 – 2024 Electric Load Forecast for Orcas Power and Light Cooperative; and,

WHEREAS, the preparation of the Electric Load Forecast 2014-2024 conforms to RUS requirements; and,

WHEREAS, the Board of Directors has reviewed the data for the Electric Load Forecast and finds that it meets the needs of Orcas Power and Light Cooperative.

NOW THEREFORE BE IT RESOLVED that the Board of Directors of Orcas Power and Light Cooperative accepts and approves the 2014-2024 Electric Load Forecast upon the recommendation of the System Engineer at a regular meeting held July 17, 2014 and directs the General Manager to execute and carry out its recommendations.

CERTIFICATION OF SECRETARY

I, Jerry Whitfield, Secretary of Orcas Power and Light Cooperative, do hereby certify that the above is a true and correct excerpt from the minutes of the meeting of the Board of Directors of the Orcas Power and Light Cooperative, held on the 17th day of July 2014 at which meeting a quorum was present.

SEAL

_____

Jerry Whitfield, Secretary

Orcas Power and Light Cooperative

Electric Load Forecast

Forecast for the Period 2014-2029

July 2014

By

OPALCO Engineering Department

Joel Mietzner P.E.

Washington State Registration # 42905

Exp. Date 03/16/2015

Table of Contents

I. Introduction and Overview

The Orcas Power and Light Cooperative (OPALCO) Electric Load Forecast provides a description of OPALCO's overall system, an estimate of the number of members, energy consumption per member, total energy sales, total energy system requirements and peak demand, on an annual basis, for the period 2014 through 2029. This forecast also looks at the effects of: demand side management programs; member owned power generation facilities; and use of electric cars may have on the system load.

OPALCO has three consumer classifications that are reported to Rural Utility Services (RUS) on the Financial and Statistical Report. These consumer classifications are: residential; commercial/industrial (1000kVA or less); and public street and highway lighting. Public street and highway lighting is largely disregarded in this forecast because it's slowly being phased out and has low usage (6 accounts with 1,153 kWh yearly sales in 2013 and declining). OPALCO has no large (over 1000kVA) commercial or industrial loads connected to its system, and little prospect of having any in the near future. This load forecast provides the most likely scenario rather than developing a 'high', 'medium' and 'low' scenario. The focus of this forecast is the number of members and energy sales for OPALCO's two major member classifications, residential and commercial/industrial sales. These two member classifications make up over 99.99% of OPALCO's energy sales.

A. System Description

San Juan County is comprised of a total land mass of 179 square miles. As such, it is the smallest of Washington's 39 counties and is comprised of approximately 200 islands. OPALCO provides electrical service to 20 of these islands; the four major islands served are San Juan, Orcas, Lopez and Shaw. With the exception of Decatur, Center and Blakely Islands, the other minor islands are served by distribution circuits from the four major islands and are treated as part of the four major island loads. Because we are surrounded by a large body of water that is constantly at 50°F, OPALCO's member's energy needs are reduced by these thermal effects.

According to OPALCO's December 2013 sales report, 1,938 commercial/industrial accounts were served. These accounts are made up of schools, banks, stores, marinas, restaurants, lodging (hotels, bed and breakfasts) establishments, medical facilities, county and state offices, and other businesses serving the needs of the county. There are a number of small scale agricultural and manufacturing businesses in the county, but none with large energy requirements at this time. Recreational marijuana grow businesses are beginning to come into operation on San Juan and Orcas Islands. At this time it is unknown what the true effect of these operations will be on the system. For the most part, Commercial accounts are commercial businesses which provide services to the local residential community year round and to the tourism business which is seasonal (May-September). Although tourism fuels the local economy in the summer months, in particular the marinas, lodging establishments and restaurants, tourists do not consume a lot of energy. Figure I-I shows monthly commercial energy sales for the years 2004-2013. Energy requirements peak in the winter, driven mostly by heating and lighting needs of schools, grocery stores, local county, and state government offices. In the summertime, when the schools are out and there is an abundance of natural light, and little heating or cooling, energy

consumption drops. There is no one main commercial entity which consumes more energy than the rest. The largest employer in the county is the government; in 2010 this sector accounted for 18.0 percent of the total employment in the county. This employment has remained steady and is not anticipated to drop dramatically.

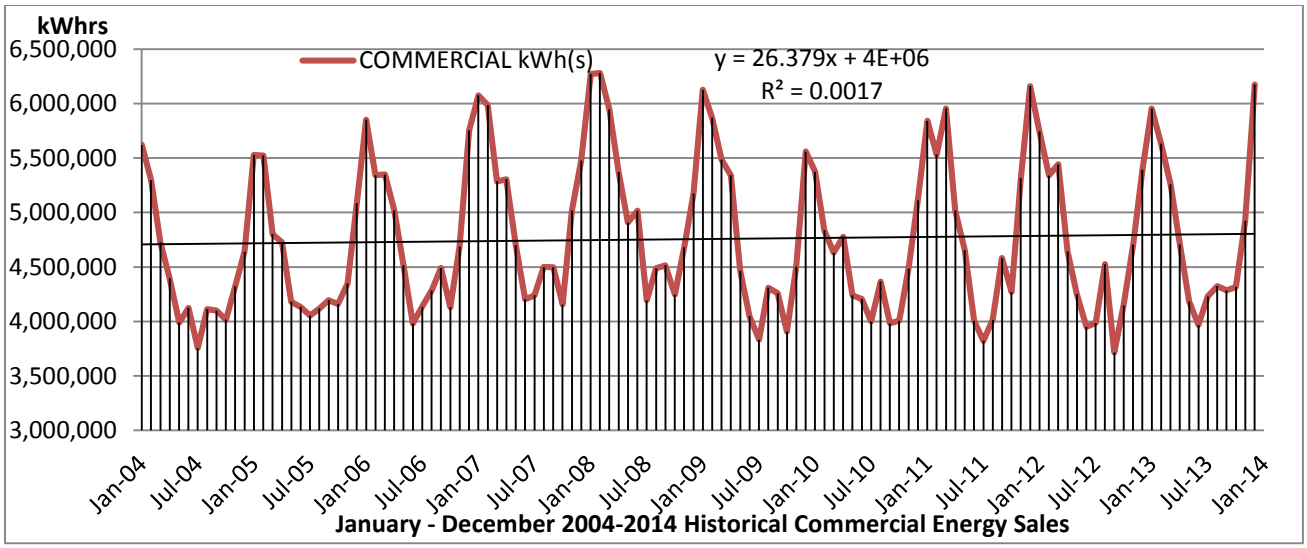


Figure I-I: Historical Commercial Energy Sales

Over the past 10 years, average commercial energy consumption has increased at a rate of less than 0.47% per year due mostly to growth in new commercial accounts, although the last 5 years have been trending 0.05% higher to 0.52%. The rate of consumption can be directly attributed to the growth in population in San Juan County. The drop in commercial energy sales from May 2009 to September 2010 is attributed to the effects of the recession, which has resulted in a decrease in marina usage, restaurant sales; and the population holding off on making property improvements. The mild winter temperatures in 2009, 2011 and 2012, which required less heating in the winter months, are also a large factor in the decrease of energy sales. Commercial sales in 2014 are following the present 5-year trend of around 0.5% growth, in part aided by recreational marijuana grow operations.

OPALCO's residential energy consumers make up the largest consumer classification. Residential energy consumers are made up of primary and secondary (vacation/summer) homes as well as rental and apartment housing units. Figure I-II shows Residential energy sales for the years 2004-2013. In December 2013, there were 12,801 metering locations under the residential sales classifications. This is down from December 2012's 12,803 metering locations by 2 meters. This decline in residential accounts was a result of a residential account audit which removed approximately 200 meterbase locations that were considered to be abandoned or inactive for at least 5 years. In 2013 OPALCO actually added 126 new metering locations. Yearly residential energy consumption has been increasing by approximately 1.45% a year since 2004, with OPALCO selling 148,603,549 kWh in 2013. This increased sales of residential energy in 2013 was driven by usage from January-March and in December due to colder than normal temperatures. Over the past 10 years the increase is attributed to new service connections and increased population. Peak energy usage occurs in the winter months to meet the lighting and heating load of the resident population and the minimum heating requirements of vacant vacation/summer homes. In 2010 and 2012, OPALCO residential energy consumption went down due to moderate temperatures in the winter and spring months.

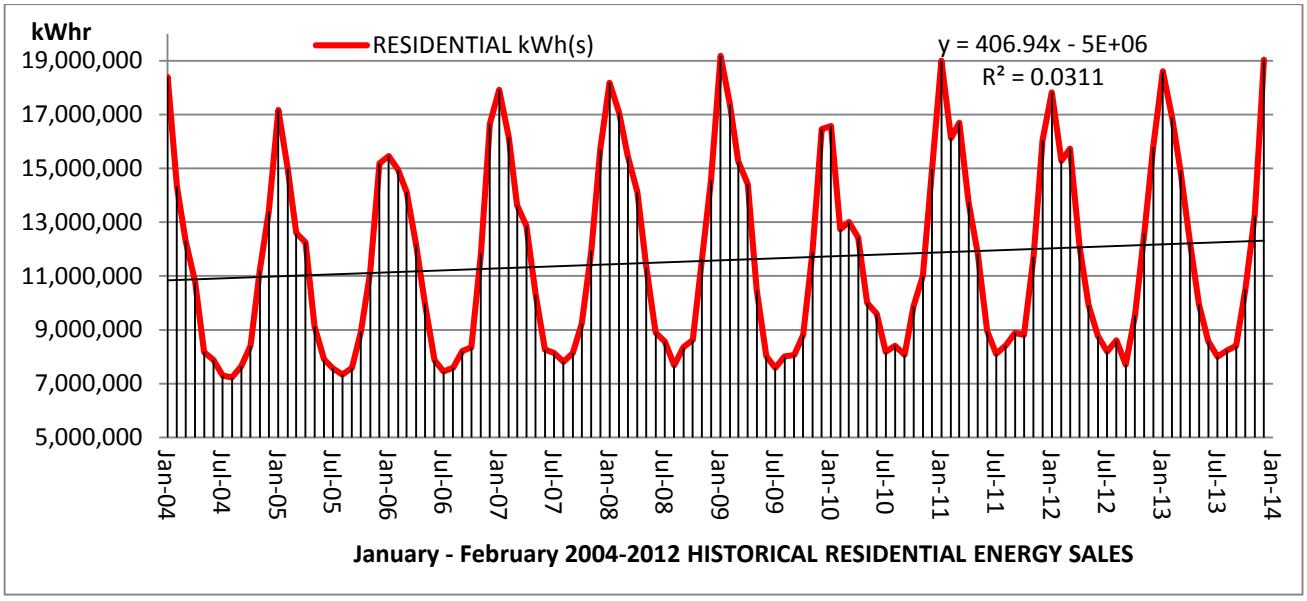


Figure I-II: Historical Residential Energy Sales

OPALCO has been growing by 139 new services a year over the past 5 years, although there has been a downward trend in new service connections since the late 1990's, with 2013 new service numbers (126 new services) being the second lowest in the last 20 years. OPALCO is presently supplying energy to a total of 14,745 consumers in all billing categories. This is an increase of 435 active accounts since 2009. OPALCO's 2013 energy requirements average 23,579 kW of hourly power with a peak demand of 63,800 kW and a minimum demand of just below 11, 000 kW.

The 2014 forecast has been developed focusing on residential and commercial/industrial accounts as they have been trending over the past 10 years. Although relationships between the number of members and several variables were considered, the most significant correlations were established with new services, population growth in San Juan County, and ambient temperature conditions.

B. New Member Account Forecast

Over the last 15 years the number of installations of new services has been declining, as seen in Figure I-III: Historical New Services. This trend is predicted to level off in the next 2 to 3 years and then start to slowly increase. The cost of land, construction materials, labor and county permitting are all barriers to new service growth. The recent recession and housing "bust" has had an impact on the 2009-2012 new service numbers. In 2013 126 new services were installed. It is anticipated that 2014 and 2015 new service numbers will be between 130 and 140 based on San Juan County Building Permitting Department records.

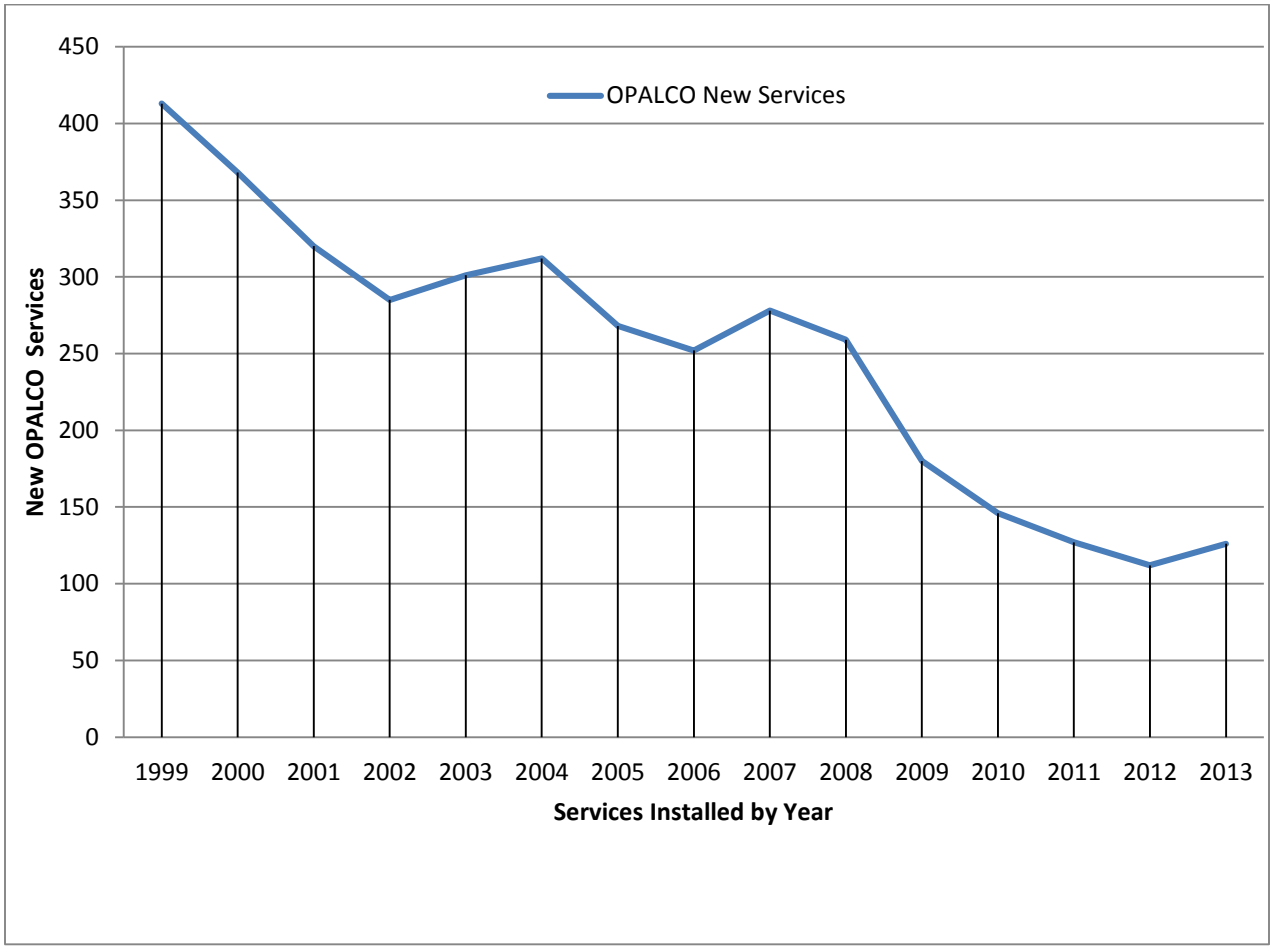


Figure I-III: Historical New Services

An analysis of the development patterns in the county indicates that there are approximately 15,794 parcels of which just over 50% are developed. Based on the ability to further subdivide, the County appears to have the capacity for approximately 8,935 more housing units. According to the 2010 census, the population of San Juan County was 15,769 and the average household was 2.13 persons. The Office of Financial Management (OFM) predicts that the San Juan County population will grow at a 1.6% annual rate between 2010 and 2033. The projected population increase of San Juan County between 2014 and 2024 is estimated at 3,818, as seen in Table I-I: San Juan County Population Growth. To meet the needs of a growing population, the San Juan County Department of Affordable Housing estimates that 3,365 new homes will be built over the next 20 years. This equates to an average of 168 new services per year over the next 20 years, most of which will be residential dwelling units.

SAN JUAN COUNTY POPULATION GROWTH PREDICTIONS				
		Rate of Population Growth		
		1.60%	1.80%	2.00%
	Year	Population Based on % Growth		
Based on 2010 Census Data:	2010	**15,769**	15,769	15,769
Estimated	2011	**15789**	16,053	16,084
Estimated	2012	**15791**	16,342	16,406
Estimated	2013	**15875**	16,636	16,734
Projected	2014	**16,403**	16,935	17,069
Projected	2015	**16,872**	17,240	17,410
Projected	2016	**17,345**	17,551	17,758
Projected	2017	**17,622**	17,866	18,114
Projected	2018	**17,904**	18,188	18,476
Projected	2019	**18,191**	18,515	18,845
Projected	2020	**18,482**	18,849	19,222
Projected	2021	**18,777**	19,188	19,607
Projected	2022	**19,078**	19,533	19,999
Projected	2023	**19,383**	19,885	20,399
Projected	2024	**19,693**	20,243	20,807

Table I-I: San Juan County Population Growth

C. Energy Consumption per Member

A number of factors such as: weather conditions; per capita income; home size; member owned generating facilities; electric rates; and propane costs have an effect on electrical energy consumption per member. In OPALCO's case, residential energy consumption per member has remained relatively constant over the past 7 years, as can be seen below in Figure I-IV Monthly kWh Usage per Residential Account 2007-2013.

Some change from year to year is noted, most likely due to periodic changes in weather, but overall the lack of a trend up or down indicates that increased electrical loads for computers, telecommunication devices and other new appliances are being countered by improved energy related construction standards and more efficient appliances.

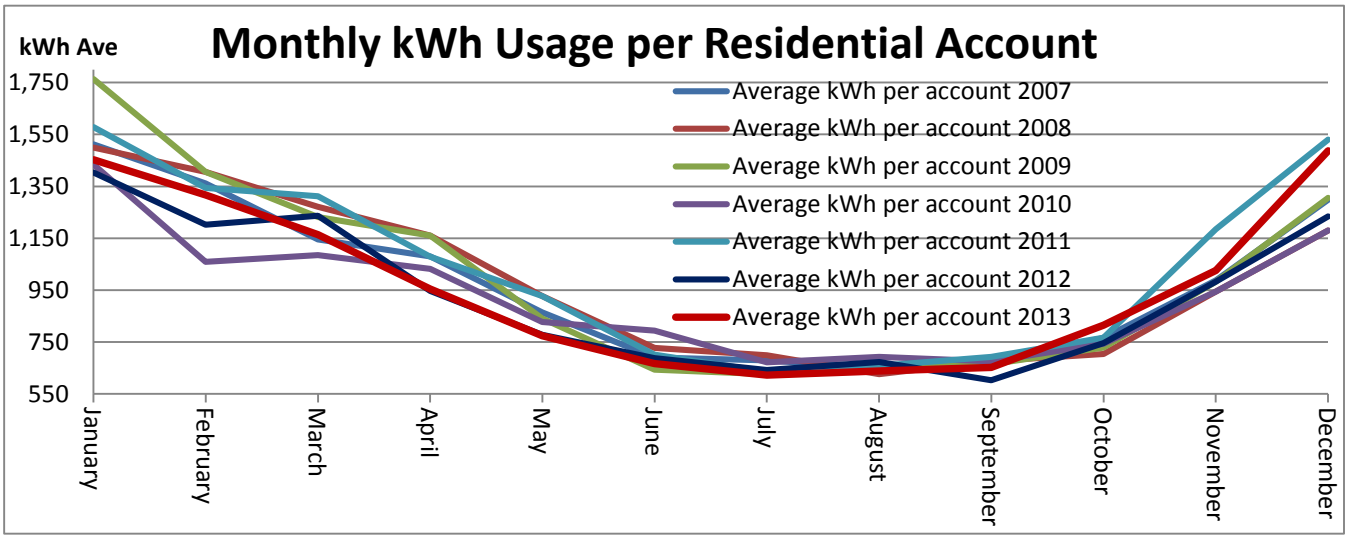


Figure I-IV: Monthly kWh Usage per Residential Account 2007- 2013

The average monthly residential energy usage over the past 7 years is 960 kWh per consumer. The peak in 2009 and the low in 2010 and 2012 are attributed to the cooler winter in 2009 and the milder winter and spring in 2010 and 2012 when the total heating degree days were significantly lower than normal (see Figure I-VIII: Heating degree Days vs. Energy Purchased). Economic factors effected residential energy sales, but to a much lesser extent than commercial/industrial energy usage.

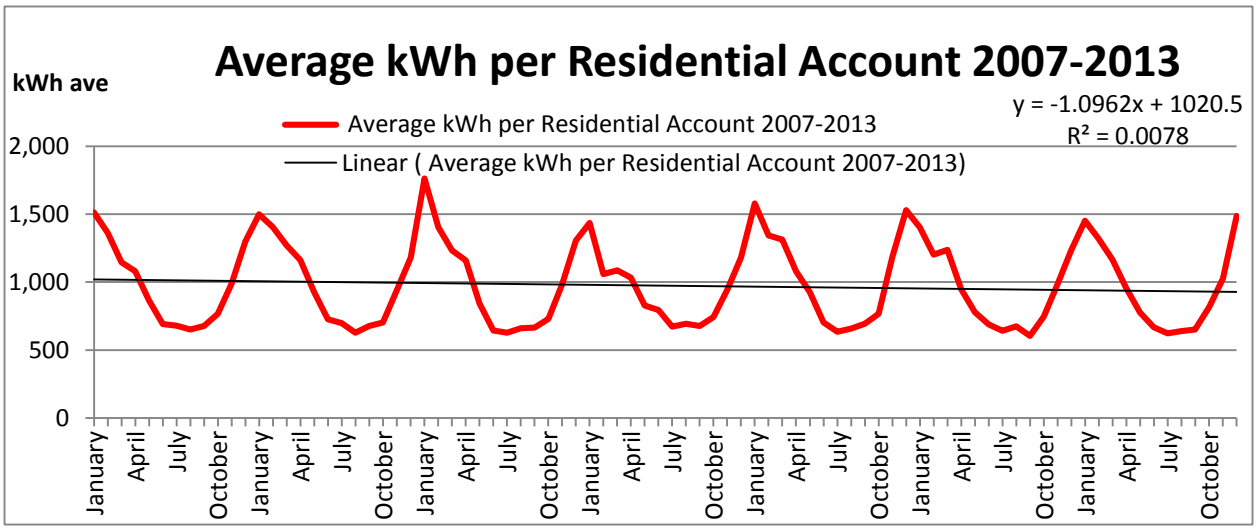


Figure I-V: Average Energy per Residential Account 2007 -2013

Energy usage per commercial account has been flat or slightly declining over the past 5 years although the number of commercial accounts has been increasing. Most school, grocery stores, and state and local government offices have been modified to be more energy efficient.

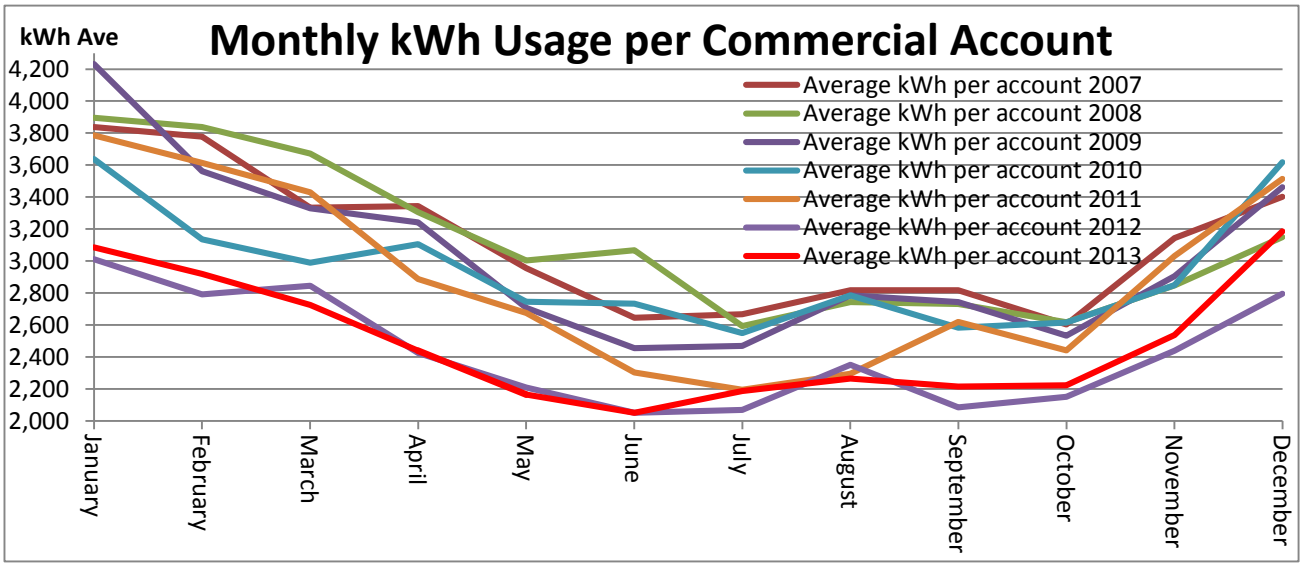


Figure I-IIII: Monthly kWh Usage per Commercial Account 2007-2013

The average monthly commercial energy usage over the past 5 years is 31,792 kWh per consumer. The April-October 2011 and 2012 decline is attributed to the drier weather conditions which allowed vacationers to spend more time outdoors while schools and local government office buildings reduced energy costs by lowering temperature and lighting levels in their buildings. OPALCO did add around 150 small commercial accounts in 2012. These accounts were mostly small office suites, well pumps and marina slips that were metered as part of a larger commercial account in the past. In 2013 only 9 new accounts were add. Four of these accounts were for recreational marijuana grow operations. These marijuana grow operations will most likely add approximately 400,000 kWh of yearly load on the system.

Most all of the schools, grocery stores, and government buildings have taken advantage of window, insulation, heating equipment, lighting upgrades, and new energy savings technology to reduce energy costs. Although commercial accounts will continue to grow, commercial account energy usage will continue to trend flat to slightly lower over the next 10 years due to these new energy savings technologies.

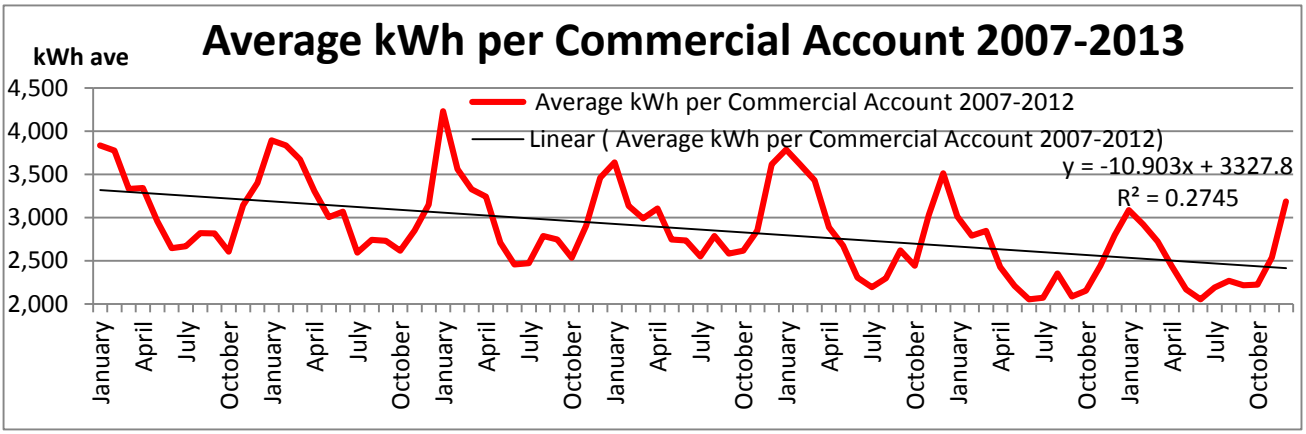


Figure I-IVII: Average Usage per Commercial Account 2007 -2013

The data shown in the graph below indicates that the annual energy purchased from BPA has some relation to heating degree days (HDD). Since 2007, OPALCO has been averaging 1,489 Heating Degree Days per year. When the yearly HDD number increases above 1,550 HDD's, OPALCO tends to sell more Energy and when the HDD number is less than 1,200 a noticeable drop in Energy sales occurs. It is assumed for this forecast that over a 10 year period OPALCO would have as many mild winters as it does cooler winters and that the average HDD yeas will be 1485.

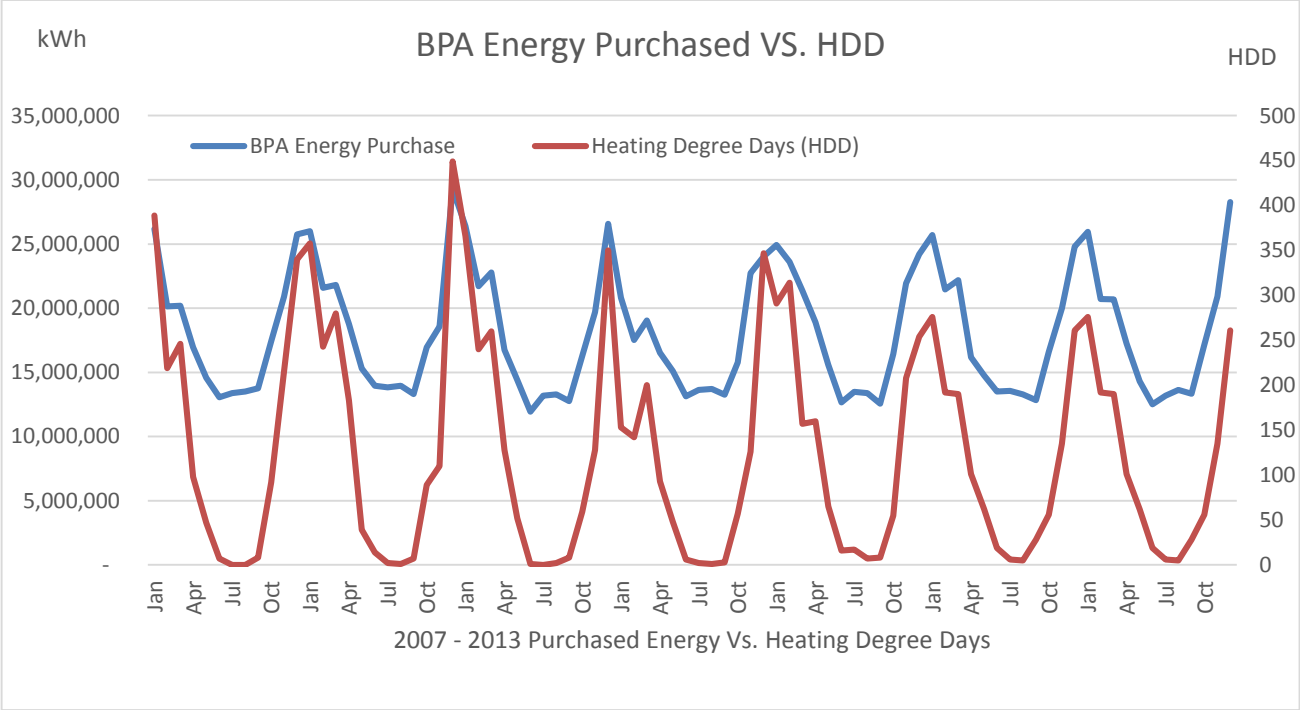


Figure I-VII: Heating Degree Days vs. Energy Purchased 2007 -2013

HDD in Year 2007 to Present								
	2007	2008	2009	2010	2011	2012	2013	2014
Month								
Jan	389	358	366	153	291	276	342	245
Feb	219	243	240	142	314	192	202	326
Mar	246	280	260	200	157	190	209	168
Apr	98	183	128	93	160	101	110	83
May	47	39	52	48	65	62	31	24
Jun	7	14	1	6	16	19	57	11
Jul	0	2	0	2	17	6	7	
Aug	0	1	2	1	7	5	3	
Sept	8	7	8	3	8	28	7	
Oct	92	89	59	57	55	56	76	
Nov	215	110	128	126	208	135	198	
Dec	340	449	350	347	254	261	378	
Yearly Total	1,661	1,775	1,594	1,178	1,552	1,331	1,620	857

Table I-II: Heating Degree Days 2007- to Present

D. Total Energy Sales

Total energy sales will most likely follow the patterns of the past 10 years. The average growth rate of residential, commercial and all other energy sales is around 0.89%. Sale of energy due to electric vehicles (EV) will slowly increase energy usage, but some of this usage will be offset by new member owned photovoltaic (PV) systems and demand side energy management programs. New member services will stabilize at up to around 168 new units per year in the future, but for the next 5 years remain around the 120 to 150 range due in part to a surplus of existing housing units. It is expected that more of the estimated 5,700 vacant homes in San Juan County will become occupied which will increase the energy consumption.

Figure I-IX below shows the past 10-year monthly OPALCO energy sales trend. Table IV-II and Table IV-IV, found in Appendix I, provides the historical and forecasted energy trend data. Most load growth is associated with new residential dwelling units, and an increased summertime use of vacant dwelling units. There will be some commercial growth due to recreational marijuana grow operations. Presently there are four known operations in the county. Because of recreational marijuana grow operations small numbers and size their success or failure will not greatly impact this forecast over the next 10 years.

San Juan County has little cooling load in the summer and a potentially large heating load in the winter. The winter heating and lighting loads can affect the total energy purchase per year by +/- 5%. Over the past 10 years ambient temperatures, precipitation and wind have been the three factors that most influence the variability of yearly kWh sales in San Juan County.

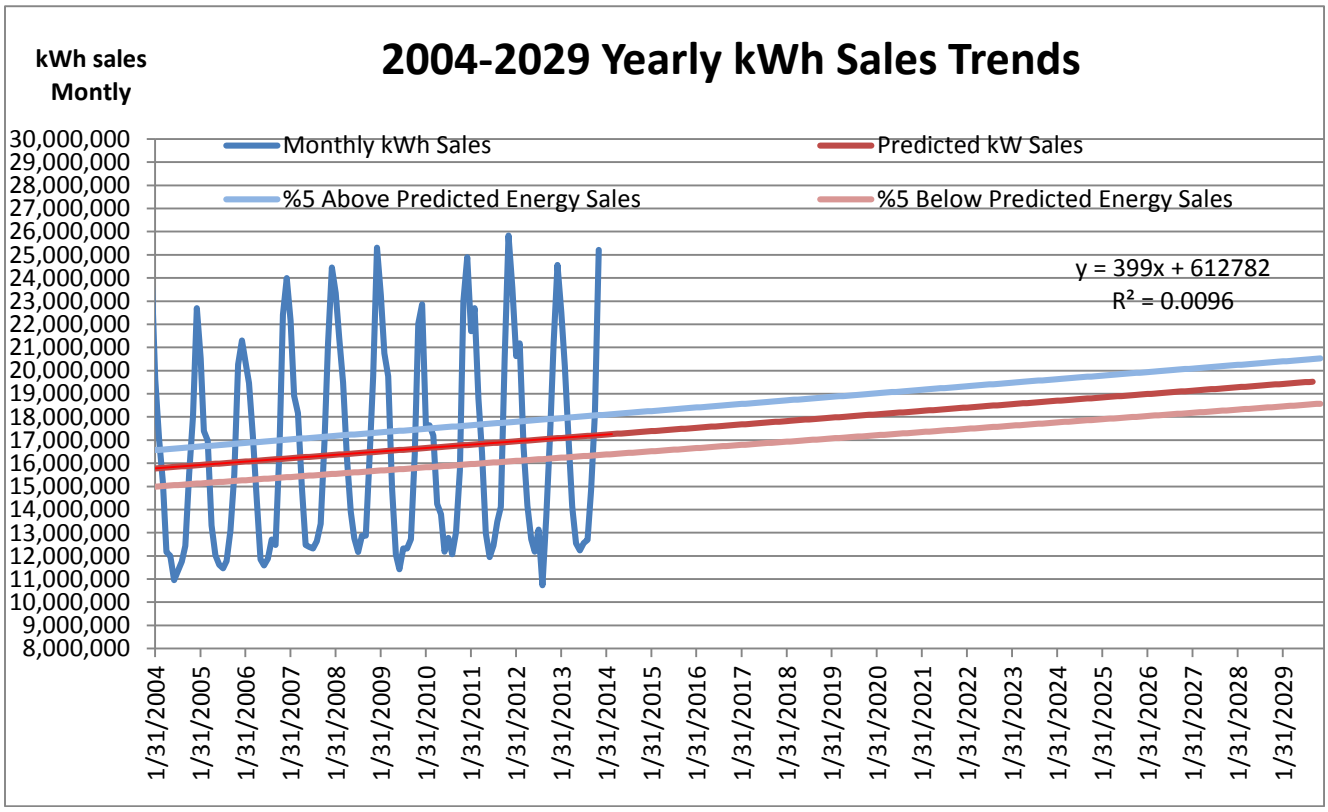


Figure I-IX: Monthly kWh Sales

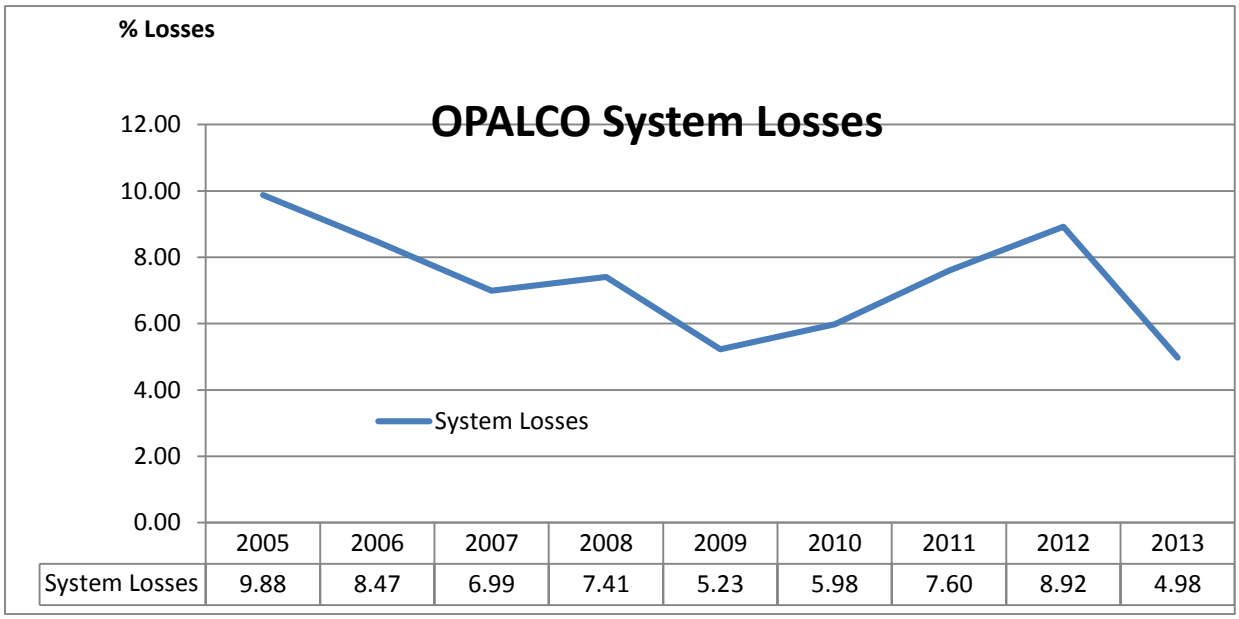
Based on the graph‘s trend line in Figure I-IX, Energy sales are projected for the next 15 years in Table I-III. The actual energy sold in 2013 calendar year was around 206,560,734 kWh or an average of 23.767 MW’s per hour. Energy sales for 2014 are forecast to be plus or minus 5% of 207,526,738 kWh(s).

Year	Predicted Energy Sales (kWh)	%5 Above Predicted Energy Sales	%5 Below Predicted Energy Sales
2013	205,778,242	216,067,154	195,489,330
2014	207,526,738	217,903,074	197,150,401
2015	209,275,234	219,738,995	198,811,472
2016	211,027,722	221,579,108	200,476,336
2017	212,777,016	223,415,867	202,138,165
2018	214,525,512	225,251,788	203,799,236
2019	216,274,008	227,087,708	205,460,308
2020	218,026,496	228,927,821	207,125,171
2021	219,775,790	230,764,580	208,787,001
2022	221,524,286	232,600,501	210,448,072
2023	223,272,782	234,436,422	212,109,143
2024	225,025,270	236,276,534	213,774,007
2025	226,774,565	238,113,293	215,435,837
2026	228,523,061	239,949,214	217,096,908
2027	230,271,557	241,785,135	218,757,979
2028	232,024,045	243,625,247	220,422,843
2029	233,773,339	245,462,006	222,084,672

Table I-III: Projected Energy Sales

E. Total Energy Requirements

OPALCO's total energy requirement is the sum of the total energy sales, OPALCO's own usage and energy losses. Energy losses experienced by OPALCO have averaged 6.56% per year the past 9 years. It is expected that OPALCO will continue to make transmission and distribution system improvements to reduce system loss equal to or greater than the increased losses due to load growth on the system. These system improvements should keep system losses at or below 6.56%. Figure I-X below shows the system loss trending for the past 9 years.



	2005	2006	2007	2008	2009	2010	2011	2012	2013
System Losses	9.88	8.47	6.99	7.41	5.23	5.98	7.60	8.92	4.98

Figure I-X: Historical System Losses

In 2013 OPALCO used 502,294 kWh of energy in support of its facilities. This is approximately 0.2% of the total energy purchased to operate its: 3 district offices; 3 electric vehicle charging stations; 11 substations; 12 submarine cable terminals; power consumed by field equipment for monitoring and protecting the transmission and distribution system. As OPALCO begins to build more facilities for Broadband and Wireless communication it is assumed that OPACLO will need to increase the amount of Energy needed to support these new facilities. Historical and forecast information regarding OPALCO's "own use kWh" data can be found in Appendix Table IV-II and Table IV-IV. For this report, OPALCO's own usage is assumed to grow to 0.7% of total Energy sales over the next 10 years.

The forecasted total energy requirements for the next 15 years are shown in Table I-IV. Total energy requirements for 2013 trended up by 5.52%, over 2012's actual total energy requirements. This increase was driven largely by residential usage and cold weather during the First Quarter (January – March) and again in December. However, past 10 year Energy trending indicates an average growth of around 0.7% will occur over the next 15 years in Energy Sales.

Year	Predicted EnergyPurchase (kWh)	%5 Above Predicted Energy Purchase (kWh)	%5 Below Predicted Energy Purchase (kWh)
2013	217,568,188	228,446,597	206,689,778
2014	219,416,863	230,387,706	208,446,020
2015	221,265,538	232,328,815	210,202,261
2016	223,118,434	234,274,355	211,962,512
2017	224,967,953	236,216,350	213,719,555
2018	226,816,628	238,157,459	215,475,796
2019	228,665,303	240,098,568	217,232,038
2020	230,518,199	242,044,109	218,992,289
2021	232,367,718	243,986,104	220,749,332
2022	234,216,393	245,927,213	222,505,573
2023	236,065,068	247,868,321	224,261,815
2024	237,917,964	249,813,862	226,022,066
2025	239,767,483	251,755,857	227,779,109
2026	241,616,158	253,696,966	229,535,350
2027	243,464,833	255,638,075	231,291,592
2028	245,317,729	257,583,615	233,051,843
2029	247,167,248	259,525,611	234,808,886

Table I-IV: Total Energy Requirements

Peak demand for OPALCO has been forecasted based on the total energy requirements through 2024 and an assumed annual load factor. Load factor is the ratio of the average demand to the peak demand during a particular period. In this case a 12 month period is used. From 1998 through 2013 the load factor on OPALCO's system has varied between 50% and 36%. In recent years the load factor has been trending close to 40%. Although OPALCO's annual load factor (12 month average) is 40%, the month by month load factor will vary between 27% in the winter and 75% in the summer. One reason for OPALCO's low load factor in the winter is the number of vacant (vacation/second) houses in San Juan County. The 2010 census shows that 42% of the dwelling units in San Juan County are vacant. This is an increase from the 2000 census that estimated 33% of dwelling units were vacant. Because these houses are unoccupied most of the year their load on the system is small until there is a power outage or a cold spell when the vacant dwelling unit's minimum temperature requires heating for freeze protection. OPALCO's peak demand occurs between November and March and is forecast to increase at a slower rate than energy (kWh) due to peak demand load management techniques. Figure I-XI shows OPALCO system peaks over the last 10 years. Table IV-II and IV-IV, in Appendix I, shows historical and forecast energy peak demand.

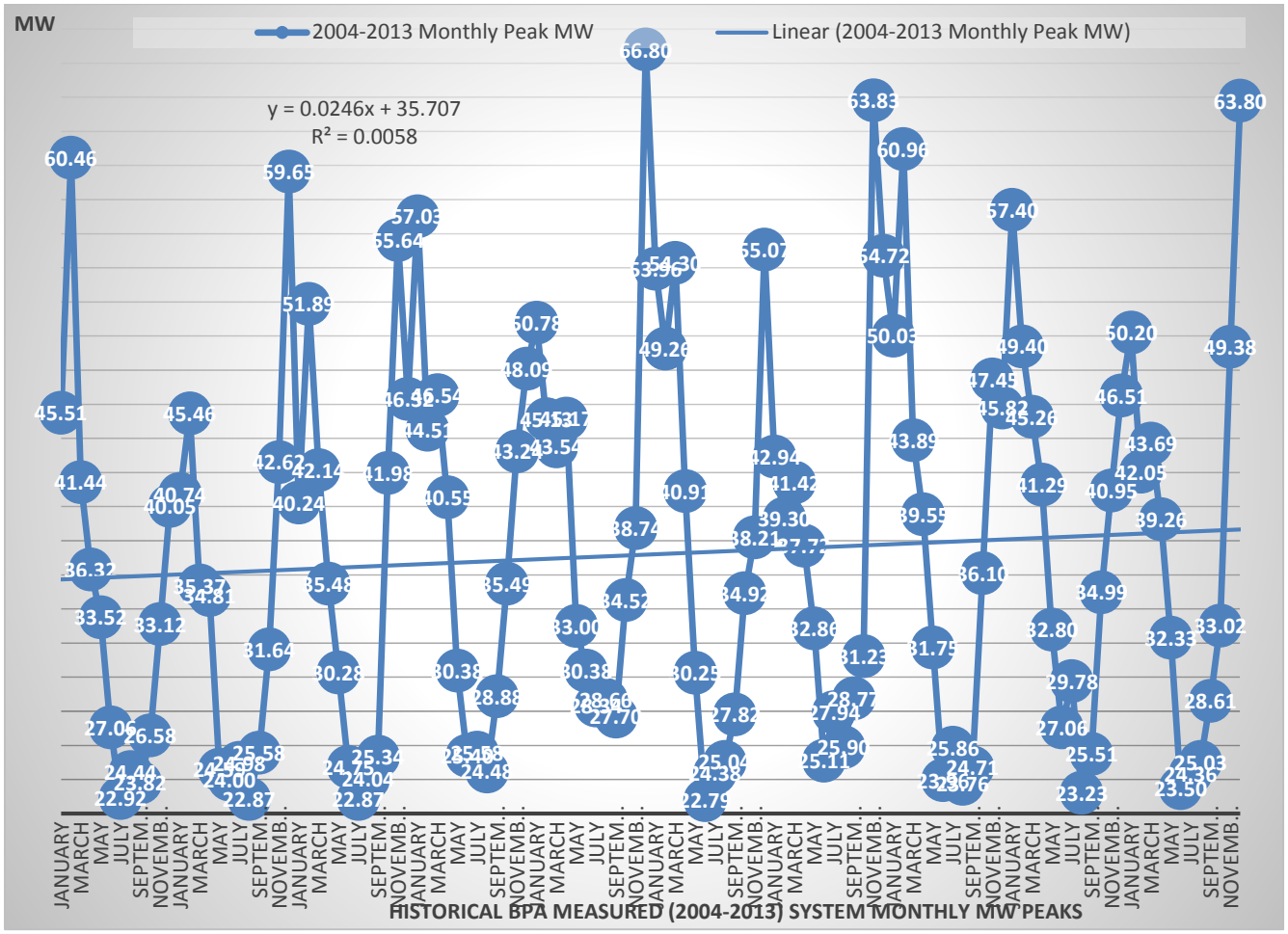


Figure I-XI: Historical Monthly Peak (MW)

F. Effects of Demand Side Management Programs

As a provision related to its power supply contract with BPA, OPALCO offers energy efficiency programs to its members. The programs which offer both residential and commercial rebates for energy efficiency retrofits have an impact on energy consumption in the county. In 2013 the estimated energy saving resulting from these programs was estimated by OPALCO to be 1,000,000 kWh. Most of these energy savings were from commercial consumers, such as grocery stores and schools. This amount represents approximately 0.485% of total energy sales in 2013. This is significant when you consider that OPALCO's Total Energy requirement have only increased by around 1.4% from 2012 to 2013.

Most of the schools, Local County, state and federal government buildings, along with the grocery stores in the county have, and continue to undergo, energy efficiency upgrades. It is anticipated that both commercial and residential consumers will continue to take advantage of new technology and the energy efficiency programs offered by OPALCO. For this report, it is assumed over the next 15 years OPALCO members will annually save 1,000,000 kWh of Energy through energy efficiency programs.

G. Member Owned Generation Facilities

As of January 1, 2014 OPALCO had 131 member owned power generating facilities that are authorized to be connected to the system. Of the 131 generation facilities: three are micro-hydro; one is a photovoltaic (PV)/micro-hydro; one is a 10kW wind generation with 25 kW of PV; and the other 126 are PV sites ranging from 1kW to 25 kW. Most all of the growth in member owned generating facilities is in the PV area. There are 755.43 kW of installed member owned power generation facilities, not including gas or diesel generators, on OPALCO's system. In 2013 these sites generated an estimated 450,000 kWh of energy. OPALCO has approximately 20 new PV systems being installed per year most in the 5 kW to 20 kW range. This growth is heavily dependent on future incentives. The limitation in the installed kW per site is largely due to the physical size of the solar panel, and cost. Another limiting factor is that San Juan County only averages 2.3 solar hours a day over a year's production time. As the cost of photovoltaic panels decreases and watts per photovoltaic cell increases larger PV sites will be installed.

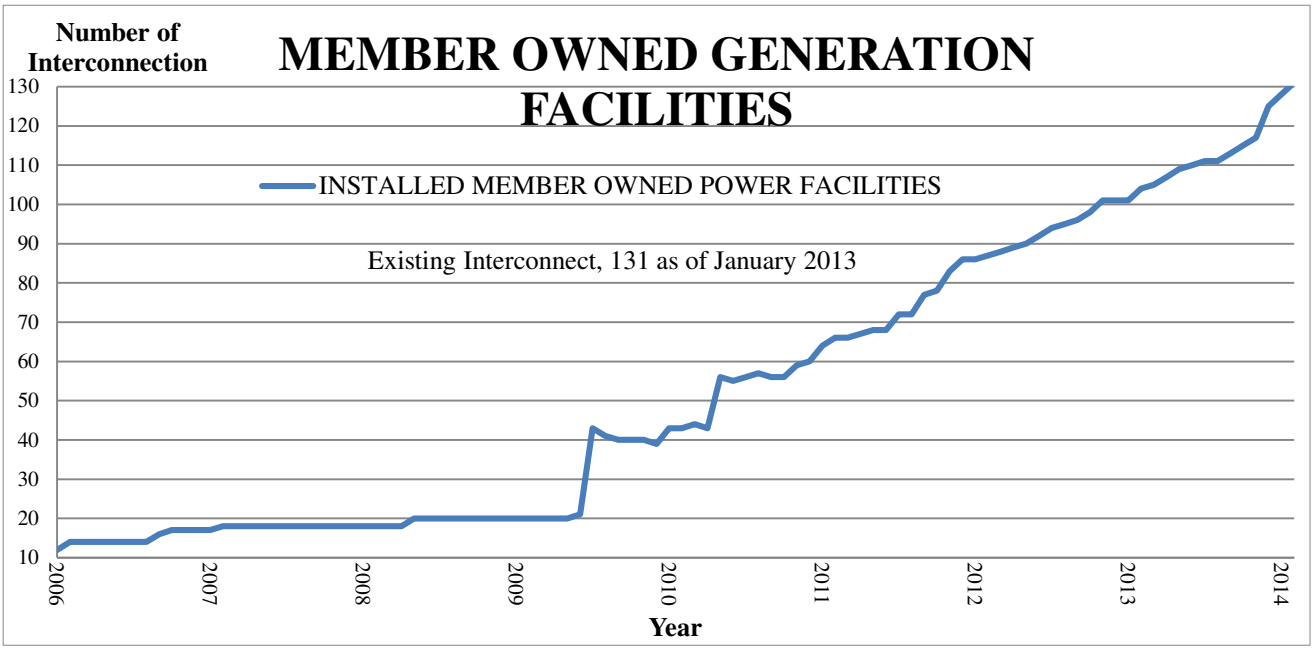


Figure I-XII: Member Owned Generation Sites

The energy generated at these PV sites is largely consumed at these sites. Very little of this power is available for resale on OPALCO's distribution system. Where it is seen that the average residential consumer consumed 960 kWh(s) per month of energy OPALCO's distribution system in 2013, the average member owned generation site with a PV array still consumes an average of 800 kWh(s) per month of energy from OPALCO's distribution system.

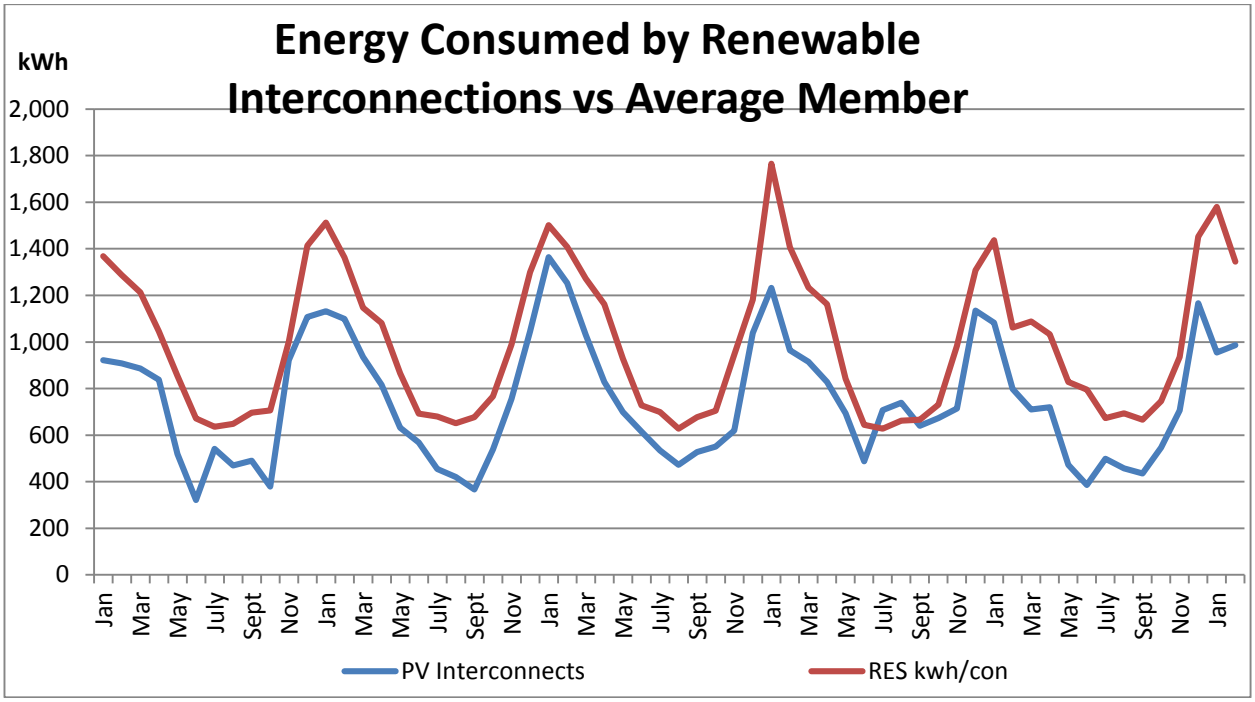


Figure I-XIII: Energy Consumed by Renewable Interconnection vs. Average Member

Two issues that are being seen with member owned power generation facilities are reliability and time of production. Since these systems are being managed and maintained by the member, a single component failure may bring down the PV system for months or cause the member to ”scrap” the PV array. Secondly, PV systems produce the bulk of their yearly energy in the summer when OPALCO’s energy (kWh) and demand (kW) needs are low. The result of this is that OPALCO’s energy (kWh) needs are lower but our peak demand (kW) is not altered and our per unit energy cost rises. The PV sites still add to OPALCO’s high energy uses in the early mornings and evenings thus not reducing the instantaneous peak demands on our transmission lines or at our substations. OPALCO has two main components on its energy bills: total energy consumed and peak energy consumed. The PV sites do help to reduce the total yearly energy bill for OPALCO, but have no effect on the peak energy bill which generally happens in the early mornings or late evenings.

H. Effects of Electric Cars on Electrical System

San Juan County is an excellent location for Electric Vehicles (EV). Short driving distances and low speeds make the limited driving range of the EV practical. According to the Washington State Department of Licensing, there are presently 96 EV registered in the county. Most of these vehicles are Level I (120 Volt) units with a battery capacity of under 13kWh. It is anticipated that a slow, but steady increase in EV will connect onto OPALCO's electrical system over the next 20 years. The effect of these EV's charging on OPALCO's system is estimated to be small in the short term (5 to 9 years). In the long term (i.e. 10 to 20 years out) the electric car may have a large impact on the amount of energy used and the peak energy usage time in the county.

Figure I-XIV shows a typical load on OPALCO's transmission system (shown in blue) over a 5 day period, as seen from BPA. If 400 EV, (Level II "240 Volt charging stations") were charging between 4:00 PM and 1:00 AM on the system, then OPALCO's purchase of energy from BPA would be affected as indicated by the red line on the graph below. The green line on the graph indicates the effect on the transmission system if 2000 Level II EV units were to be charged between 4:00 PM and 1:00 AM. Presently, OPALCO's daily energy peaks occur in the morning hours between 7:00 and 9:00. An increase in EV charging may result in OPALCO's daily energy peaks occurring in the evening.

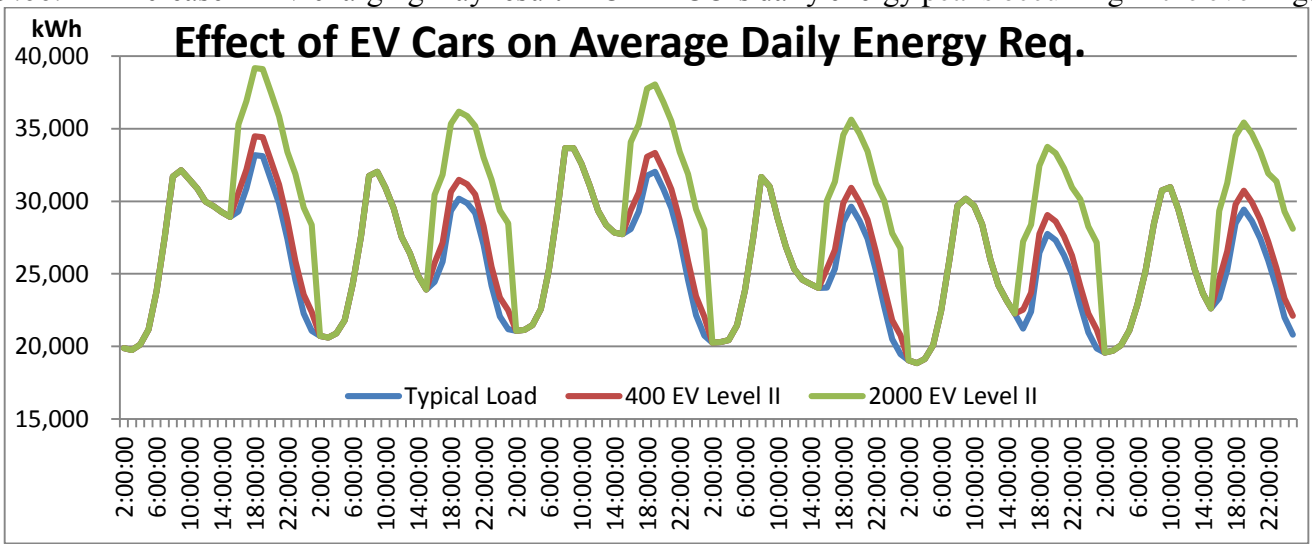


Figure I-XIV: Effect of EV Cars on Average Daily Energy Req.

In 2013 OPALCO purchased 217,913,854 kWh(s) of energy from BPA. The portion of that power which was used to charge the 96 EV units registered in San Juan County is estimated to be less than 40,000 kWh's per year. In 20 years (2033) EV cars may require up to 8,000,000 kWh(s) of yearly energy. The Figure I-XV indicates how daily EV charging may increase over the next 20 years.

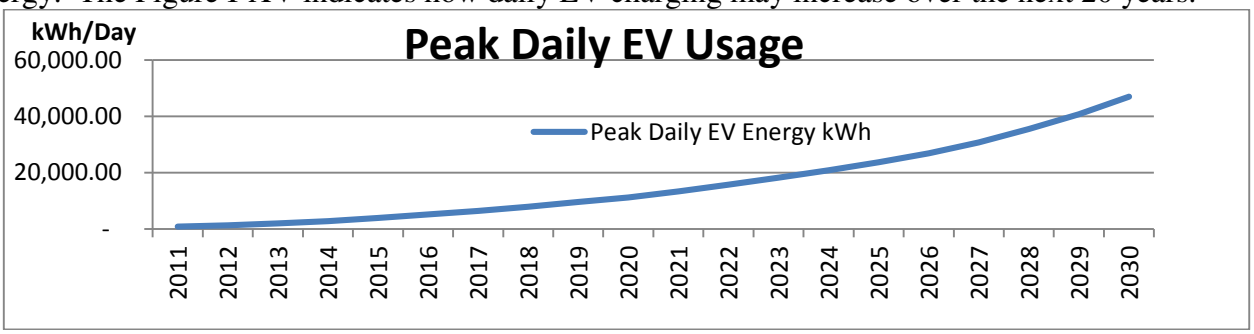


Figure I-XV: Peak Daily EV Usage

II. CONCLUSIONS

- In the short term, rate of addition of new services will remain low due to the ample supply of existing homes on the market. In the long term, the rate of new services will most likely stabilize at an average 10 year rate of 168 services per year.

- Energy usage per residential consumer will remain constant at around 11,622 kWh per year but residential total energy consumption may increase at a rate of 1.45% a year over the forecast period due to population growth.

- Energy usage per commercial consumer will most likely decrease or remain constant at 33,514 kWh per year but total energy consumption will increase at a rate of 0.84% a year over the next 10 years due to new commercial accounts being created to serve population growth.

- Overall energy sales (Residential, Commercial and Lighting) are predicted to continue to increase at a weighted average over the next 10 years at a rate of 0.89% a year.

- Transmission and distribution system losses will average 6.54% over the next 10 years.

- Demand side management programs will have a small dampening effect on total energy sales in the future, but will most likely have its biggest impact on dampening peak energy needs of the Utility.

- Member owned power generation facilities, mostly photovoltaic (PV) will continue to be installed at a rate of 20 per year. These installations will decrease energy sales growth by approximately 450,000 kWh per year.

- The impact of electric vehicles (EV) on the total energy sales will be offset partially by PV systems and demand side management programs. Due to the slow increase in sales of electric vehicles, the impact of these vehicles will not impact OPALCO's electrical system until after 2020.

- Recreational marijuana grow operations will increase commercial energy sales by over 400,000 kWh a year.

III. REFERENCES

1. Orcas Power and Light Cooperative 2005 Electric System Load Forecast, November 2005

2. Orcas Power and Light Cooperative 2013-2032 Load Forecast.

3. San Juan County Comprehensive Plan, Appendix 1- Population Projections, build out Analysis and Land use Inventory, San Juan County \Planning department, 2008 http://www.co.san-juan.wa.us/planning/compplan.aspx

4. 2000 and 2010 US Census; http://www.factfinder2.census.gov/

5. EC&M July 2010 Charging Ahead "Building the electric vehicle infrastructure"

6. OPALCO Form 7 (1998-2013)

7. Friday Harbor Airport Temperature data

IV. APPENDIX I

Orcas Power and Light Cooperative 2014-2029 Power Requirement Study
Table IV-I 1998-2013 Historical Number of Customer Accounts and Energy Use per Account

Number of Accounts									Average kWh per Account			
Year	Residential	Change	Commercial	Change	Ratio	Lighting	Total		Residential	Commercial	Lighting	Average kWh
1998	9,139		1,575		5.80	7	10,720		11,886	30,428	24,032	14,618
1999	9,430	3.09%	1,596	1.32%	5.91	7	11,033		13,005	31,819	15,762	15,728
2000	9,648	2.26%	1,603	0.44%	6.02	7	11,258		12,880	32,266	936	15,633
2001	9,935	2.89%	1,606	0.19%	6.19	7	11,548		12,473	32,146	792	15,202
2002	10,180	2.40%	1,634	1.71%	6.23	7	11,821		12,546	31,612	729	15,175
2003	10,427	2.37%	1,653	1.15%	6.31	7	12,087		11,876	30,471	828	14,413
2004	10,694	2.49%	1,690	2.19%	6.33	7	12,391		11,758	31,422	686	14,434
2005	10,962	2.44%	1,693	0.18%	6.47	6	12,661		12,025	32,398	517	14,744
2006	11,476	4.49%	1,501	-12.79%	7.65	5	12,982		11,732	38,331	455	14,803
2007	12,013	4.47%	1,590	5.62%	7.55	6	13,609		11,665	37,376	484	14,664
2008	12,292	2.27%	1,667	4.58%	7.37	6	13,965		11,754	36,656	609	14,721
2009	12,521	1.83%	1,696	1.72%	7.38	6	14,223		11,625	34,023	337	14,291
2010	12,739	1.72%	1,661	-2.09%	7.67	6	14,407		10,813	32,695	239	13,331
2011	12,858	0.92%	1,753	5.23%	7.33	6	14,617		12,308	33,754	213	14,875
2012	12,803	-0.43%	1,929	9.12%	6.64	6	14,738		10,937	28,584	195	13,242
2013	12,801	-0.02%	1,938	0.46%	6.61	6	14,745		11,609	29,905	192	14,009
	5 Year Member Growth Rate				Average	5 Year Growth Rate			5 year % Change			
1998-2003	2.04%		0.72%		6.03	0.00%	9.31%		1.05%	0.75%	-639.31%	0.73%
2004-2008	2.60%		-0.28%		6.86	-3.78%	11.19%		-0.01%	2.86%	-2.54%	0.39%
2009-2013	0.44%		2.50%		7.17	0.00%	3.54%		-0.03%	-2.75%	-15.11%	-0.40%

Table IV-I: 1998-2013 Historical Number of Customer Accounts and Energy per Account

Orcas Power and Light Cooperative 2014-2029 Power Requirement Study

Table IV-II 1998-2013 Historical Energy Sales, Own Use, Energy Requirements and Peak Demand (kWh) Requirment Study

Year	Residential kWh	Annual % Change	Commercial kWh	Annual % Change	Lighting	Total Sales kWh	Annual % Change	Own Use kWh	Losses	Total Energy Requirements	Loss % of Total Reqs.	Peak Demand (kW)	Annual Load factor
1998	108,629,717		47,924,231		144,191	156,698,139		790,934	11,919,450	169,408,523	7.04%	50,377	38.39%
1999	122,640,283	11.42%	50,783,536	5.63%	110,331	173,534,150	9.70%	789,541	12,728,972	187,052,663	6.81%	54,287	39.33%
2000	124,256,848	1.30%	51,722,261	1.81%	6,550	175,985,659	1.39%	925,807	8,042,833	184,954,299	4.35%	41,750	50.57%
2001	123,918,016	-0.27%	51,627,169	-0.18%	5,574	175,550,759	-0.25%	822,920	9,686,882	186,060,561	5.21%	47,480	44.73%
2002	127,719,130	2.98%	51,654,816	0.05%	5,545	179,379,491	2.13%	808,649	17,969,977	198,158,117	9.07%	49,750	45.47%
2003	123,829,432	-3.14%	50,369,110	-2.55%	5,793	174,204,335	-2.97%	770,117	12,603,954	187,578,406	6.72%	42,780	50.05%
2004	127,066,113	2.55%	53,103,761	5.15%	4,804	180,174,678	3.31%	803,836	11,399,192	192,377,706	5.93%	60,460	36.32%
2005	131,804,913	3.60%	54,850,097	3.18%	3,104	186,658,114	3.47%	697,862	20,623,361	207,979,337	9.92%	59,650	39.80%
2006	134,638,062	2.10%	57,535,531	4.67%	2,274	192,175,867	2.87%	789,547	18,430,889	211,396,303	8.72%	55,640	43.37%
2007	140,128,326	3.92%	59,440,635	3.21%	2,903	199,571,864	3.71%	1,171,963	15,091,039	215,834,866	6.99%	57,030	43.20%
2008	144,474,886	3.01%	61,096,451	2.71%	3,652	205,574,989	2.92%	1,232,434	16,917,203	223,724,626	7.56%	66,800	38.23%
2009	145,551,343	0.74%	57,703,601	-5.88%	2,024	203,256,968	-1.14%	1,217,696	11,535,069	216,009,733	5.34%	55,380	44.53%
2010	137,744,268	-5.67%	54,313,907	-6.24%	1,432	192,059,607	-5.83%	983,835	12,278,017	205,321,459	5.98%	59,200	39.59%
2011	156,790,066	12.15%	59,170,040	8.21%	1,278	215,961,384	11.07%	885,339	2,276,894	219,123,617	1.04%	61,030	40.99%
2012	140,025,358	-11.97%	55,139,046	-7.31%	1,171	195,165,575	-10.66%	523,291	19,176,211	214,865,077	8.92%	57,398	42.73%
2013	148,603,549	5.77%	57,956,032	4.86%	1,153	206,560,734	5.52%	502,294	10,850,826	217,913,854	4.98%	63,800	38.99%
	Annual Growth Rates									Growth	Average	Growth	Average
1999-2008	2.76%		1.69%		-292.11%	2.64%	11.11%			1.82%	7.65%	2.73%	43.11%
2004-2013	1.45%		0.84%		-7.60%	0.89%	10.28%			1.17%	6.54%	0.52%	40.78%

Table IV-II: 1998-2013 Historical Energy Sales, Own Use, Energy Requirements and Peak Demand

Orcas Power and Light Cooperative 2014-2029 Power Requirement Study
Table IV-III-Forecast Number of Accounts and Energy Use per Account

	Number of Accounts								Average Yearly kWh per Account			
Year	Residential	Annual % Change	Commercial	Annual % Change	Res/Comm Ratio	Lighting	Total		Residential	Commercial	Lighting	Total
2013	12,801		1,938		6.64	6	14,745		11,609	29,905	192	14,009
2014	12,916	0.90%	1,948	0.50%	6.70	6	14,870		11,600	29,875	189	14,005
2015	13,052	0.90%	1,957	0.50%	6.75	6	15,016		11,591	29,845	185	14,002
2016	13,190	0.90%	1,967	0.50%	6.81	6	15,163		11,583	29,815	182	13,998
2017	13,329	0.90%	1,977	0.50%	6.87	5	15,311		11,574	29,786	178	13,995
2018	13,470	0.90%	1,987	0.50%	6.92	5	15,462		11,565	29,756	175	13,991
2019	13,612	0.90%	1,997	0.50%	6.97	5	15,614		11,557	29,726	171	13,988
2020	13,756	0.90%	2,007	0.50%	7.02	5	15,768		11,548	29,696	168	13,984
2021	13,901	0.90%	2,017	0.50%	7.07	5	15,923		11,539	29,667	164	13,981
2022	14,047	0.90%	2,027	0.50%	7.12	4	16,078		11,531	29,637	161	13,977
2023	14,196	0.90%	2,037	0.50%	7.17	4	16,237		11,522	29,607	157	13,974
2024	14,346	0.90%	2,047	0.50%	7.22	4	16,397		11,513	29,578	154	13,970
2025	14,497	0.90%	2,058	0.50%	7.28	4	16,559		11,505	29,548	150	13,967
2026	14,650	0.90%	2,068	0.50%	7.34	3	16,721		11,496	29,519	147	13,963
2027	14,808	0.90%	2,078	0.50%	7.39	3	16,889		11,487	29,489	143	13,960
2028	14,968	0.90%	2,089	0.50%	7.44	3	17,060		11,479	29,460	140	13,956
2029	15,133	0.90%	2,099	0.50%	7.48	2	17,234		11,470	29,430	136	13,953
	Annual Growth Rates								Annual Growth Rate			
2013-2018	0.83%		0.41%			-3.33%			-0.06%	-0.08%	-1.67%	-0.02%
2019-2024	0.85%		0.41%			-4.17%			-0.06%	-0.08%	-1.90%	-0.02%
2014-2029	0.92%		0.45%			-12.50%			-0.07%	-0.09%	-2.41%	-0.02%

Table IV-III: Forecast of Member Accounts and Energy Use per Account

Orcas Power and Light Cooperative 2014-2029 Power Requirement Study
Table IV-IV-Forecasted Energy Sales, Own Use, Energy Requirements and Peak Demand (kWh)

Year	Residential kWh	Annual % Change	Commercial kWh	Annual % Change	Lighting	Predicted Total Sales kWh	Annual % Change	Own Use kWh	Losses	Total Energy Requirements kWh	Loss % of Total Reqs.	Peak Demand (kW)	Annual Load factor
2013	148,040,610		57,894,262		1,153	205,778,242		545,312	11,244,634	217,568,188	5.17%		
2014	148,167,925	0.086%	57,928,998	0.06%	1,153	207,526,738	0.84%	549,946	11,340,179	219,416,863	6.54%	63,800	39.26%
2015	148,295,349	0.086%	57,963,756	0.06%	1,143	209,275,234	0.84%	554,579	11,435,725	221,265,538	6.54%	64,157	39.37%
2016	149,926,598	1.088%	57,998,534	0.06%	1,133	211,027,722	0.83%	559,223	11,531,489	223,118,434	6.54%	64,517	39.48%
2017	151,575,791	1.088%	58,033,333	0.06%	1,123	212,777,016	0.82%	563,859	11,627,078	224,967,953	6.54%	64,878	39.58%
2018	153,243,125	1.088%	58,068,153	0.06%	1,113	214,525,512	0.82%	568,493	11,722,623	226,816,628	6.54%	65,241	39.69%
2019	154,928,799	1.088%	58,102,994	0.06%	1,103	216,274,008	0.81%	573,126	11,818,169	228,665,303	6.54%	65,607	39.79%
2020	156,633,016	1.088%	58,137,856	0.06%	1,093	218,026,496	0.80%	577,770	11,913,933	230,518,199	6.54%	65,974	39.89%
2021	158,355,979	1.088%	58,172,738	0.06%	1,083	219,775,790	0.80%	582,406	12,009,522	232,367,718	6.54%	66,343	39.98%
2022	160,097,895	1.088%	58,207,642	0.06%	1,053	221,524,286	0.79%	587,039	12,105,067	234,216,393	6.54%	66,715	40.08%
2023	161,858,972	1.088%	58,242,567	0.06%	1,023	223,272,782	0.78%	591,673	12,200,613	236,065,068	6.54%	67,088	40.17%
2024	163,639,420	1.088%	58,277,512	0.06%	993	225,025,270	0.78%	596,317	12,296,377	237,917,964	6.54%	67,464	40.26%
2025	165,439,454	1.088%	58,312,479	0.06%	963	226,774,565	0.77%	600,953	12,391,966	239,767,483	6.54%	67,842	40.34%
2026	167,259,288	1.088%	58,347,466	0.06%	933	228,523,061	0.77%	605,586	12,487,511	241,616,158	6.54%	68,222	40.43%
2027	169,099,140	1.088%	58,382,475	0.06%	903	230,271,557	0.76%	610,220	12,583,057	243,464,833	6.54%	68,604	40.51%
2028	170,959,231	1.088%	58,417,504	0.06%	873	232,024,045	0.76%	614,864	12,678,821	245,317,729	6.54%	68,988	40.59%
2029	172,839,782	1.088%	58,452,555	0.06%	843	233,773,339	0.75%	619,499	12,774,410	247,167,248	6.54%	69,374	40.67%
	Total % Change	Annual %	Total % Change	Annual %	Total % Change	Annual %		Total % Change		Total % Change	Average	Total % Change	Average
2014-2018	3.31%	0.66%	0.24%	0.05%	-0.91%	0.81%		0.652%		0.81%	6.54%	0.55%	40.07%
2019-2023	4.28%	0.86%	0.24%	0.05%	-2.22%	0.78%		0.627%		0.78%	6.54%	0.46%	40.55%
2014-2029	14.27%	0.89%	0.90%	0.056%	-2.45%	0.70%		0.702%		0.70%	6.54%	0.54%	40.01%

Table IV-IV: Forecast Energy Sales, Own Use, Energy Requirements and Peak Demand (kWh)

DISCUSSION ITEMS

MEMORANDUM

July 10, 2014

TO: Board of Directors

FROM: Randy J. Cornelius

RE: Rate Design

This is the third step in the process of designing new rates. Information from EES Consulting will be distributed prior to the Board meeting.

The full sequence of events for the new Rate Design is as follows:

A. ✓ Review of BPA billing determinants: April 2014 Board meeting: - COMPLETE
B. ✓ Cost of service review (revenue requirements/rates classes and cost allocations), with Member comment: COMPLETE
C. Review of new rate design proposed by Staff: July 2014 Board meeting
D. Board discussion/modification of proposed rate design, with Member comment: August & September 2014 Board meetings
E. ESS review of final rate design (first reading): October 2014 Board meeting
F. Final Board approval (second reading) of final rate design: November 2014 Board meeting
G. New rate design goes into effect with the March 2015 billing period

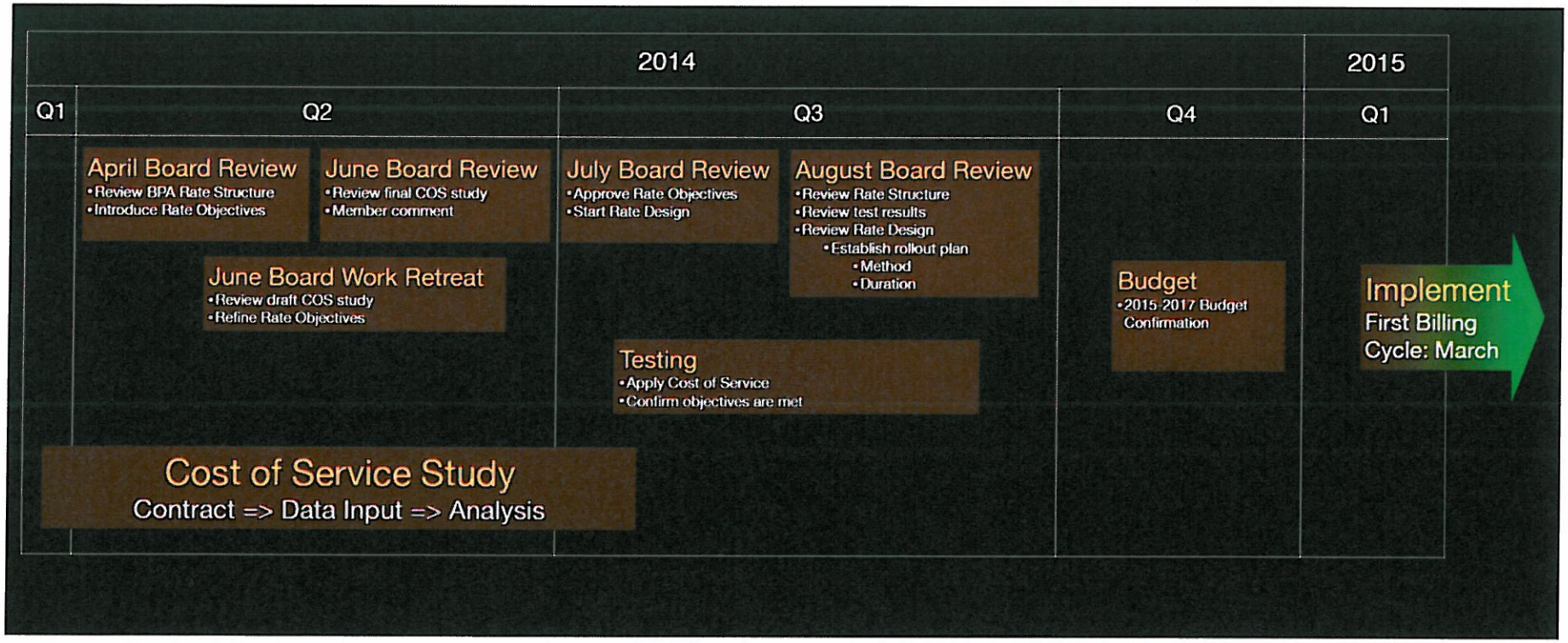
Orcas Power & Light Cooperative

Rate Objective Presentation

Agenda

- Where are we?
- Recap of Principles & Rate Setting Process
- Proposed Rate Design & Impacts
- Next Steps
- Questions / Answers

Expected Rate Design Time Table

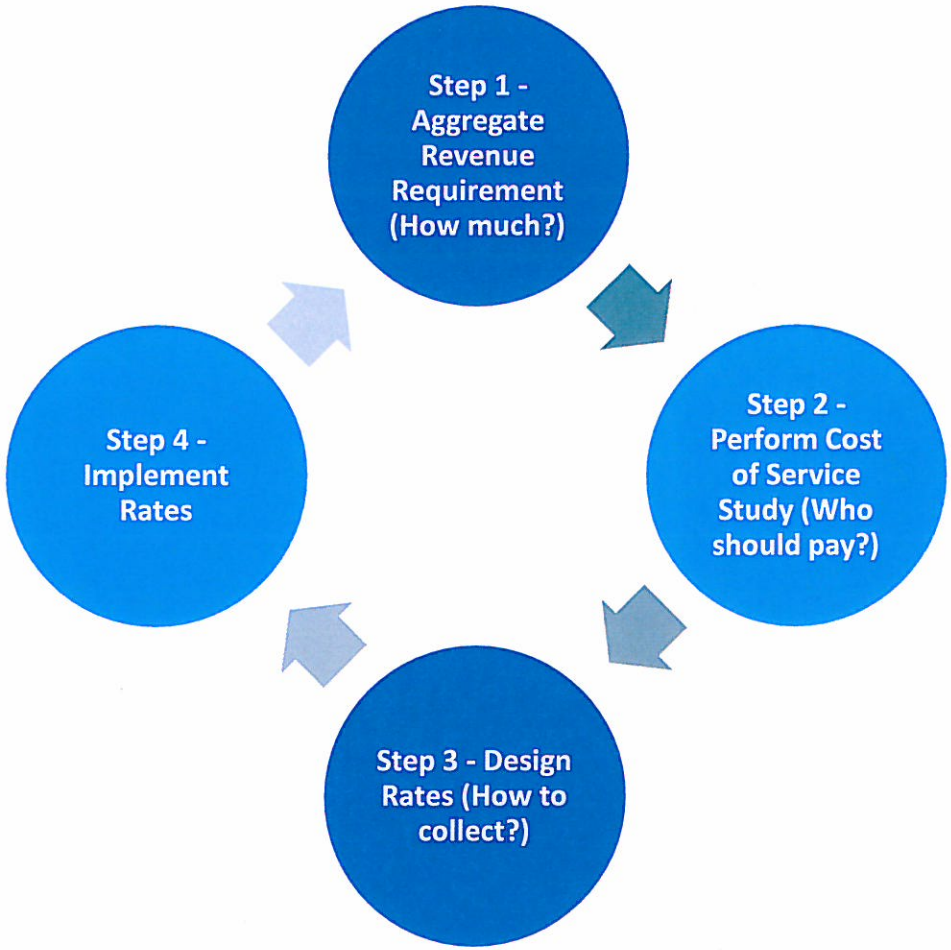


Recap of Rate Setting Process

Rate Setting Principles

- **Staff Proposed Principles**
  - Rates should meet revenue requirement
  - Rates should be cost based
  - Rates should be "Just, Reasonable and Not Unduly Discriminatory or Preferential" – "Fair and Equitable"
  - Rates should be easy to understand and administer
  - Rates and the cost allocation process should conform to generally accepted rate setting techniques
  - Rates should provide revenue stability to the utility and rate stability to the consumer

Rate Setting Process



COSA Results

Summary by Rate Class

Summary of CY 2014
Cost of Service Analysis

	Present Rate Revenues	Net Revenue Requirement	Surplus/ (Deficiency) in Present Rates	Revenue to Cost Ratio
Residential	$16,580,285	$16,183,057	$397,229	102.5%
Residential TOU	162,769	182,607	(19,839)	89.1%
Pump	276,720	330,155	(53,435)	83.8%
Commercial / Industrial	6,006,001	6,228,898	(222,896)	96.4%
Public Street/ Highway Lighting	31,108	36,781	(5,673)	84.6%
TOTAL	**$23,056,883**	**$22,961,498**	**$95,385**	**100.4%**

Rate Design Process

- **Determine Overall Rate Adjustment**
  - 6 percent by March 1, 2015
- **Determine Method for Allocating Rate Increase Across Classes:**
  - Across-the-board
- **Develop Proposed Rates**
  - Move towards demand charges
  - Consider conservation price signals – i.e. increasing blocks
  - Simplify rate schedules

Impact on Members

- **Changing the rate structure can impact members significantly**
  - I.e. implementing a demand rate, changing block design, etc.
- **Increasing facility charge vs. energy charge affects members differently**
- **Increase in rates + changing rate design = cumulative impacts**
- **Greater than 10% rate increase = Rate Shock**

Proposed Rate Design Concepts

Rate Design

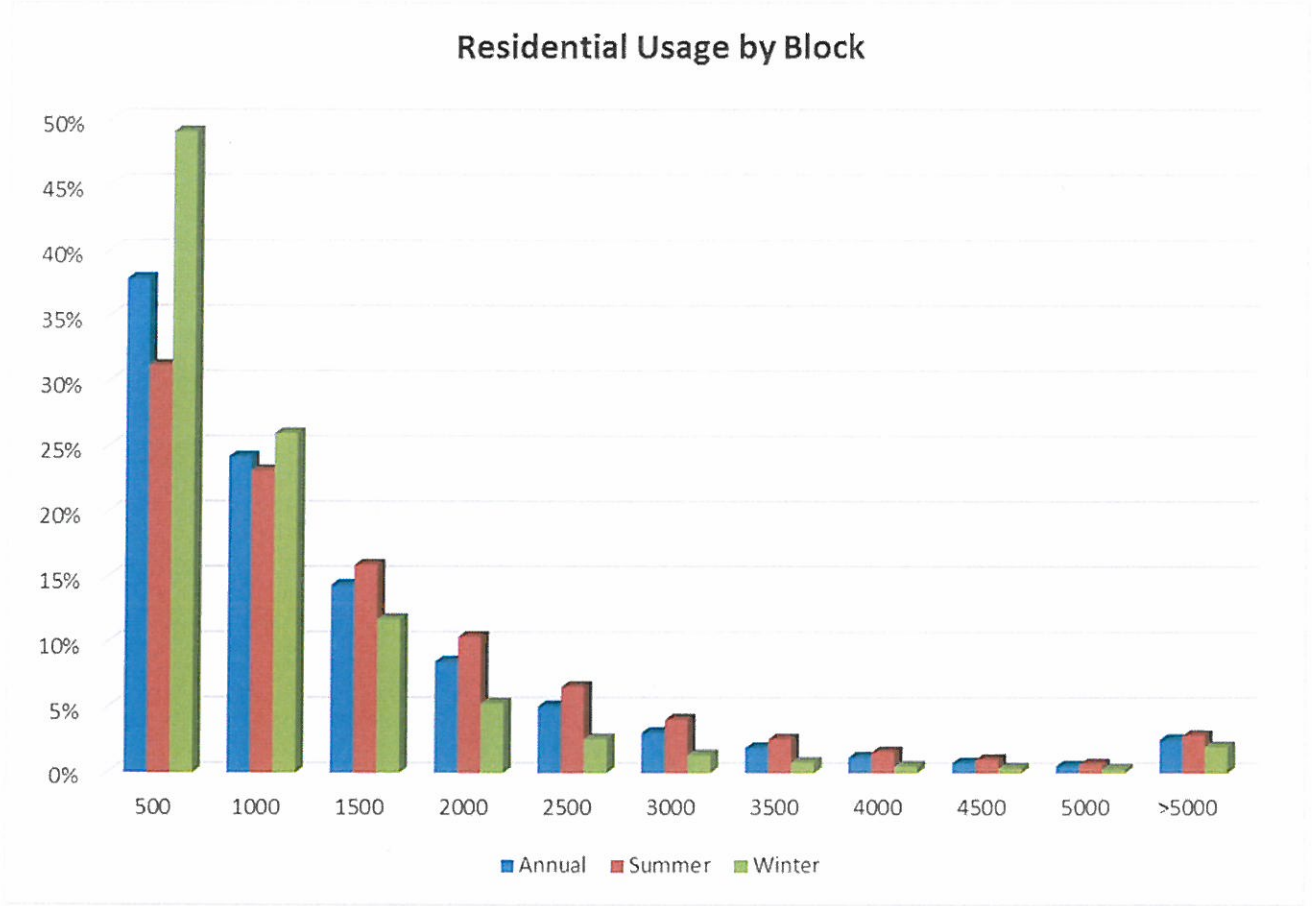
- **Ensure collection of sufficient revenues**
- **Monitor intraclass rate changes**
- **Reflect cost of delivering power in rates**
  - Facilities charge
  - Demand charge
- **Develop Tiered rates**
  - Aware of heat pump customers

Residential Rate Design

- **Current design**
  - Increase rates 6 percent
- **Current design with seasonal block**
  - Increase rates 6 percent
  - No demand rate
  - Develop seasonal blocks for energy rate
- **Add demand charge**
  - Increase rates 6 percent
  - Add fixed demand charge
  - Develop seasonal blocks for energy rate
- **TOU Rate**
  - Increase rates 6 percent
  - Reflect TOU cost periods

COSA Results and Unit Costs

Residential



COSA Results

Residential

Comparison of Rates to Unit Costs Residential			
	Present	**Minimum System**	**Fixed/Variable**
Basic Charge ($/month)	$28.60	$39.02	$78.33
Energy Charge ($/kWh)		$0.0772	$0.0370
First 5,000 kWh	$0.0852		
Over 5,000 kWh	$0.1006		
Rate Change over Present		***(2.40%)***	***(2.40%)***

Commercial Rate Design

- **Current design**
  - Increase rates 6 percent
- **Current design with demand for all**
  - Increase rates 6 percent
  - Demand charge to all (rate or fixed)
  - Reduce inclining block differential
- **Separate Small and Large Commercial**
  - Increase rates 6 percent
  - Demand Charge to all
  - No Inclining block

COSA Results and Unit Costs

Commercial

Comparison of Rates to Unit Costs Commercial		
	Present	**Minimum System**
Basic Charge ($/day)	$40.40	$40.85
Energy Charge ($/kWh)		$0.0313
First 5,000 kWh	$0.0866	
Over 5,000 kWh	$0.0781	
Demand Charge Over 20 kW ($/kW)	$3.15[1]	$14.51[2]
Rate Change over Present		*4.18%*

1. Over 20 kW only
2. All kW

Recommended Motion

- **Staff Recommends a motion to approve the application of the following rate principles for the upcoming rate design:**
  - Rates should meet revenue requirement
  - Rates should be cost based
  - Rates should be "Just, Reasonable and Not Unduly Discriminatory or Preferential" – "Fair and Equitable"
  - Rates should be easy to understand and administer
  - Rates and the cost allocation process should conform to generally accepted rate setting techniques
  - Rates should provide revenue stability to the utility and rate stability to the consumer

Questions / Answers

MEMORANDUM

July 9, 2014

TO: Board of Directors

FROM: Randy J. Cornelius

RE: Draft Policy 29 *Energy Rate Design*

The attached draft Policy 29 is simply a start to assist the Board in developing a policy on rate design.

The template may be used to develop the new policy.

ORCAS POWER AND LIGHT COOPERATIVE

POLICY 29

ENERGY RATE DESIGN

DRAFT

29.1 PURPOSE

To set forth policy relating to the development and implementation of electric rates that matches the strategic objectives of the cooperative.

29.2 POLICY

29.2.1 Commitment to Rate Design

It is the policy of the Board of Directors of OPALCO to develop electric rates that allow the Cooperative to provide electricity that is reliable, cost-based, considerate of the environment and maintains the Cooperative's financial strength at the Cooperative's lowest cost.

29.2.2 Basic Fundamentals

29.2.2.1 The Cooperative will prepare revenue requirements and cost-of-service studies as required to have information needed to develop rates.

29.2.2.2 Rates will be developed and implemented that:

29.2.2.2.1 Allocate cost across rate classes in an equitable manner

29.2.2.2.2 Minimize subsidies between classes. (Exceptions may occur due to a specific strategic initiative such as providing a low-income rate)

29.2.2.2.3 Phase out subsidies within a class

29.2.2.2.4 Phase out declining block rates

29.2.2.2.5 Generate margins adequate to meet annual lender requirements and long-term financial objectives as per the cooperative's equity management plan

29.2.2.2.6 Coordinate local distribution rates with the rates of the Cooperative's power supplier.

29.2.2.3 Environmental Commitment

29.2.2.3.1 Develop and implement rates that encourage energy conservation and efficiency.

29.2.2.3.2 Promote the use of renewable resources.

29.2.2.3.3 Develop effective demand-side programs.

29.2.2.4 Technology

29.2.2.4.1 Invest in technologies that:

(a) Allow the Cooperative to properly signal the consumer as to the current price of energy;

(b) Implement demand-side management programs;

(c) Enhance customer service and reliability.

29.2.2.5 Monitoring

Management should be held accountable for implementing rates as approved by the Board of directors and routinely report to the Board as to the need to adjust rates to account for changes in cost or strategic initiatives.

29.3 Board Establishment of Policy

The initial policy was established by the Board of Directors at its meeting held _____.

_____ Effective Date: _____

Randy J. Cornelius, General Manager

MEMORANDUM

July 11, 2014

TO: Board of Directors

FROM: Randy J. Cornelius

RE: Island Network Proposed Cost of Service Review

Materials will be presented at the Board meeting for review of the proposed Island Network (IN) Cost of Service.

MEMORANDUM

July 11, 2014

TO: Board of Directors

FROM: Randy J. Cornelius

RE: Survey Results

Cameron Madill, CEO of PixelSpoke, will present the results of our member satisfaction survey at the July 17 board meeting. The following is a high-level overview:

- The survey ran from May 3 - June 20
- OPALCO offered a $5 bill credit in exchange for completing the survey
- Promotion began with the annual meeting advertising and publications and included newspaper ads, web presence, auto-dialer calls, targeted emails, fliers, bill inserts and visits to all three senior centers
- Staff assisted members to complete the survey by phone or in person upon request
- Approximately 2,300 completed the survey(roughly 21%)
- Participation reflected the population throughout the islands:

  San Juan Island = 39.6%
  Lopez Island = 18.6%
  Orcas = 36.3%
  Other = 5.4%

- Overall member satisfaction is 91% (only 2.7% are dissatisfied)
- Top 3 drivers of satisfaction: 1) Overall member service, 2) Communicating & keeping members informed, 3) Environmental concern
- Members top interests in topics are: 1) broadband, 2) energy efficiency & conservation, 3) rates & power supply, 4) renewable energy

A full report will be distributed with the presentation on July 17 and Cameron will be available to answer questions.

MEMORANDUM

Date: June 17, 2014

To: Board of Directors

From: Randy J. Cornelius, General Manager

Subject: Submarine Cable System Status

This is in response to the Board's request for a status update on OPALCO's submarine cables.

OPALCO owns and operates eight 69kV transmission submarine cables, four 25kV transmission submarine cables (2 leased from BPA), and fifteen distribution submarine cables (8 to single member owned islands). Staff consistently reviews timelines for replacement of all crossings. Attached you will find individual maps and information.

OPALCO Submarine Cable System

A look at the age, condition and replacement process of submarine cables

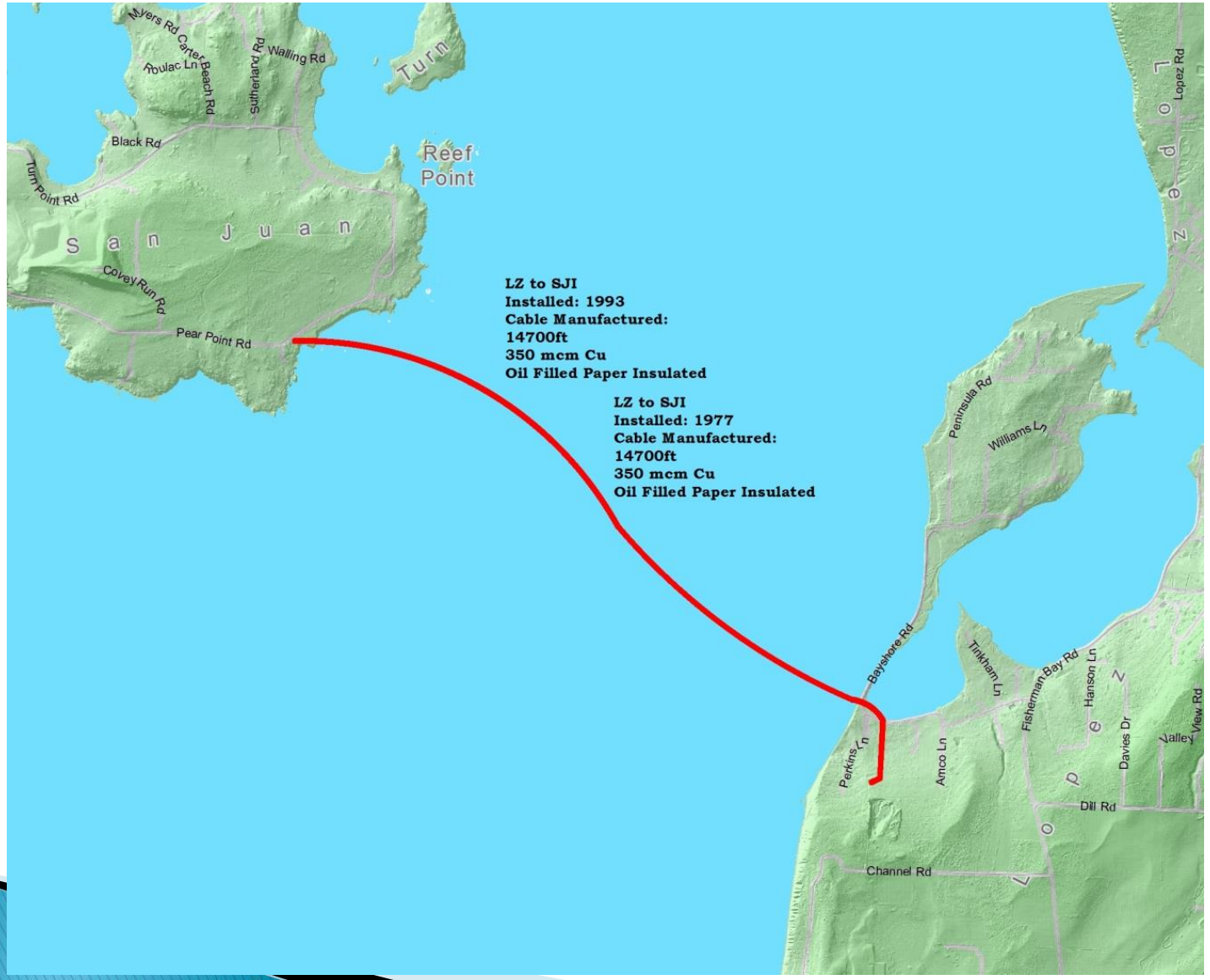
Submarine Cable Details

Crossing	Transmission / Distribution	Operating Voltage	Cable Rated Voltage	Own/Lease	Year Installed	Installation Cost	Inspection Date	Due for Replacement	Replacement Cost	Cable Cured	Footage	Faulted	Notes	Armored	Replacement Responsibility
SH to OR	Transmission	69 kV	69 kV	Own	1993	$ 788,780.21	2023	2033	$6M	-	6445	-	Oil Filled Paper Insulated	Yes	OPALCO
SH to OR 2	Transmission	69 kV	69 kV	Own	2000	$ 1,386,596.42	2030	2040	$3M	-	6445	-	Oil Filled Paper Insulated	Yes	OPALCO
LZ to SJI 2	Transmission	69 kV	69 kV	Own	1977	$ 758,122.52	2014	2016	$12M	-	14700	1	Spliced for Oil Leak	Yes	OPALCO
LZ to SJI	Transmission	69 kV	69 kV	Own	1990	$ 1,938,274.84	2014	2025	$12M	-	12120	-	Oil Filled Paper Insulated	Yes	OPALCO
LZ to SH	Transmission	69 kV	69 kV	Own	1993	$ 1,135,143.29	2023	2033	$8M	-	8006	-	Oil Filled Paper Insulated	Yes	OPALCO
LZ to SH 2	Transmission	69 kV	69 kV	Own	2000	$ 1,699,629.49	2030	2040	$4M	-	8006	-	Oil Filled Paper Insulated	Yes	OPALCO
BL to OR	Transmission	25 kV	25 kV	Own	1998	$ 382,748.72	2016	2018	$6M	-	7600	-	-	Yes	OPALCO
BL to OR 2	Transmission	25 kV	69 kV	Own	2004	$ 999,144.32	2034	2044	$6M	-	8100	-	-	Yes	OPALCO
LZ to DE	Transmission	25 kV	25 kV	Lease	1951	-	-	2016	$1.5M	-	11000	-	Replace with 69kV tap on Decatur	Yes	BPA
DE to BL	Transmission	25 kV	25 kV	Own	1990	$ 104,742.31	2016	2018	$1M	-	4000	-	-	Yes	OPALCO
DE to BL 2	Transmission	25 kV	69 kV	Own	2004	$ 808,078.12	2034	2044	$4M	-	4000	-	-	Yes	OPALCO
LZ to DE 2	Transmission	25 kV	25 kV	Lease	1951	-	-	-	NA	-	11000	1	Failed Cable	-	BPA
Obstruction Island	Distribution	7.2 kV	7.2 kV	-	1981	$ 8,522.59	2016	2018	TBD	1/25/1996	3986	-	Cable Cure Failed	Yes	OPALCO
Crane	Distribution	7.2 kV	7.2 kV	-	1997	$ 10,395.83	2015	2019	TBD	-	2071	-	No Easement Crowell - Spliced Cable	Yes	OPALCO
Pearl	Distribution	7.2 kV	7.2 kV	-	1982	$ 4,460.62	2013	2015	TBD	-	1007	-	-	Yes	OPALCO
Pearl to Henry	Distribution	7.2 kV	7.2 kV	-	1990	-	2013	2015	TBD	-	1250	-	-	-	OPALCO
SJ to Henry	Distribution	7.2 kV	7.2 kV	-	1967	$ 5,884.66	2013	2014	TBD	-	1120	3	-	Yes	OPALCO
Brown	Distribution	7.2 kV	7.2 kV	-	1987	$ 5,727.11	2014	2019	TBD	6/23/1995	1941	-	-	Yes	OPALCO
Center	Distribution	7.2 kV	7.2 kV	-	1967	$ 8,144.20	2014	2016	TBD	5/9/1995	3385	-	-	Yes	OPALCO
Big Double	Distribution	7.2 kV	7.2 kV	-	1984	-	-	-	NA	4/29/1997	1000	-	-	No	MEMBER
Little Double	Distribution	7.2 kV	7.2 kV	-	1993	-	-	-	NA	-	3324	-	-	No	MEMBER
Bell	Distribution	7.2 kV	7.2 kV	-	1982	-	-	-	NA	8/2/1996	2000	-	Can Not Cable Cure (Spliced)	No	MEMBER
Fawn	Distribution	7.2 kV	7.2 kV	-	1977	-	-	-	NA	2/19/1997	1200	-	-	No	MEMBER
Speiden	Distribution	7.2 kV	7.2 kV	-	2011	$ 75,938.94	-	-	NA	-	7600	-	-	Yes	MEMBER
Canoe	Distribution	7.2 kV	7.2 kV	-	1967	$ 7,442.96	-	-	NA	-	2200	-	Spliced Can not Cable Cure	Yes	MEMBER
Armitage	Distribution	7.2 kV	7.2 kV	-	1990	-	-	-	NA	-	1200	-	Installed 3 cables in Duct	-	MEMBER
Charles	Distribution	7.2 kV	7.2 kV	-	1985	$ 13,841.65	-	-	NA	6/1/1996	2400	-	-	-	MEMBER

Submarine Cables – Transmission

- 6 Transmission Crossings
- 8 – 69 kV Cables
- 4 – 25 kV Cables
  (2 – BPA Lease,1– Failed LZ to DE)
- 2 Fiber Optic Cables

Lopez to San Juan



Lopez to Shaw

Shaw to Orcas

Lopez to Decatur to Blakely

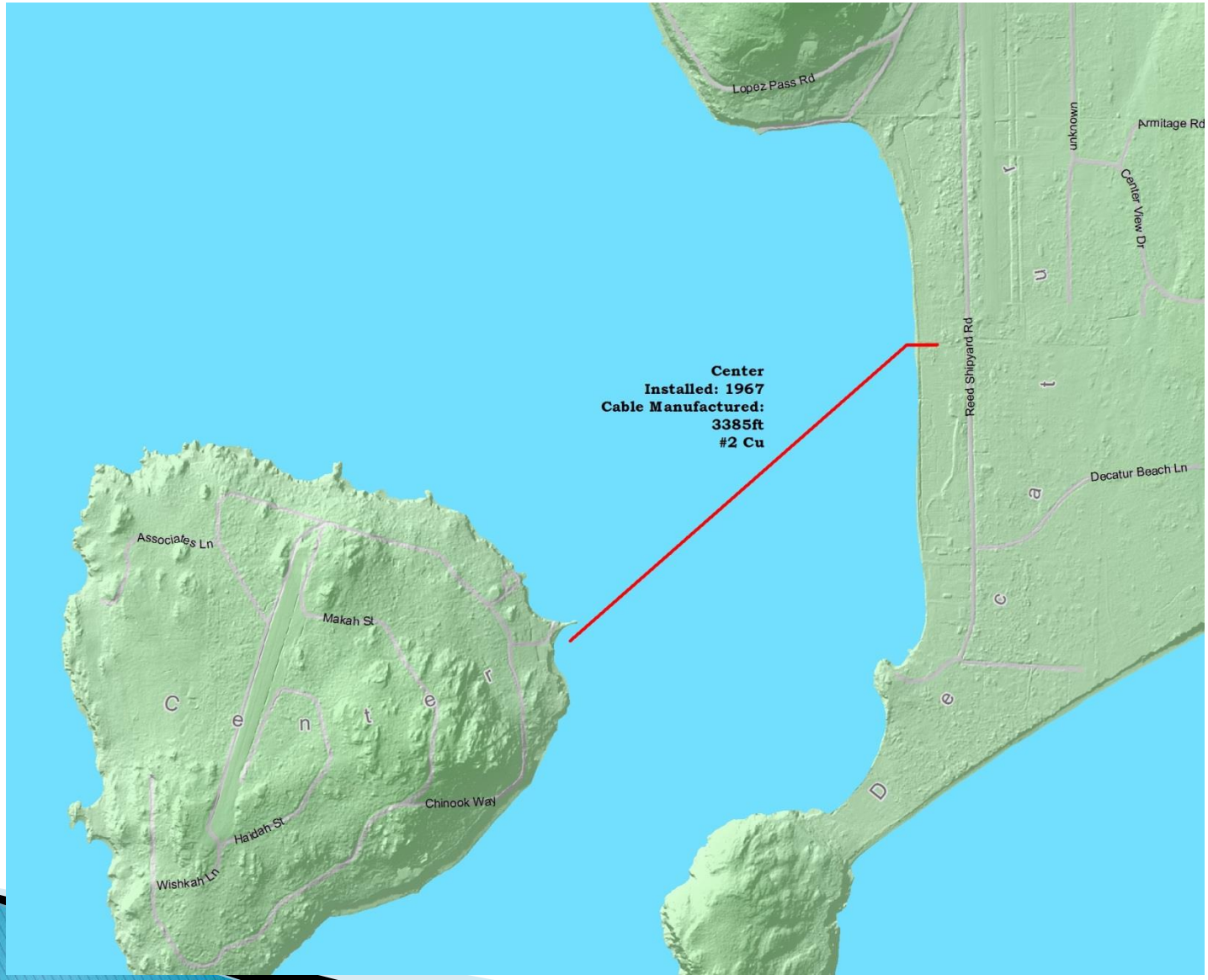
Blakely to Orcas

Submarine Cables – Distribution

- 15 Distribution Submarine Cables

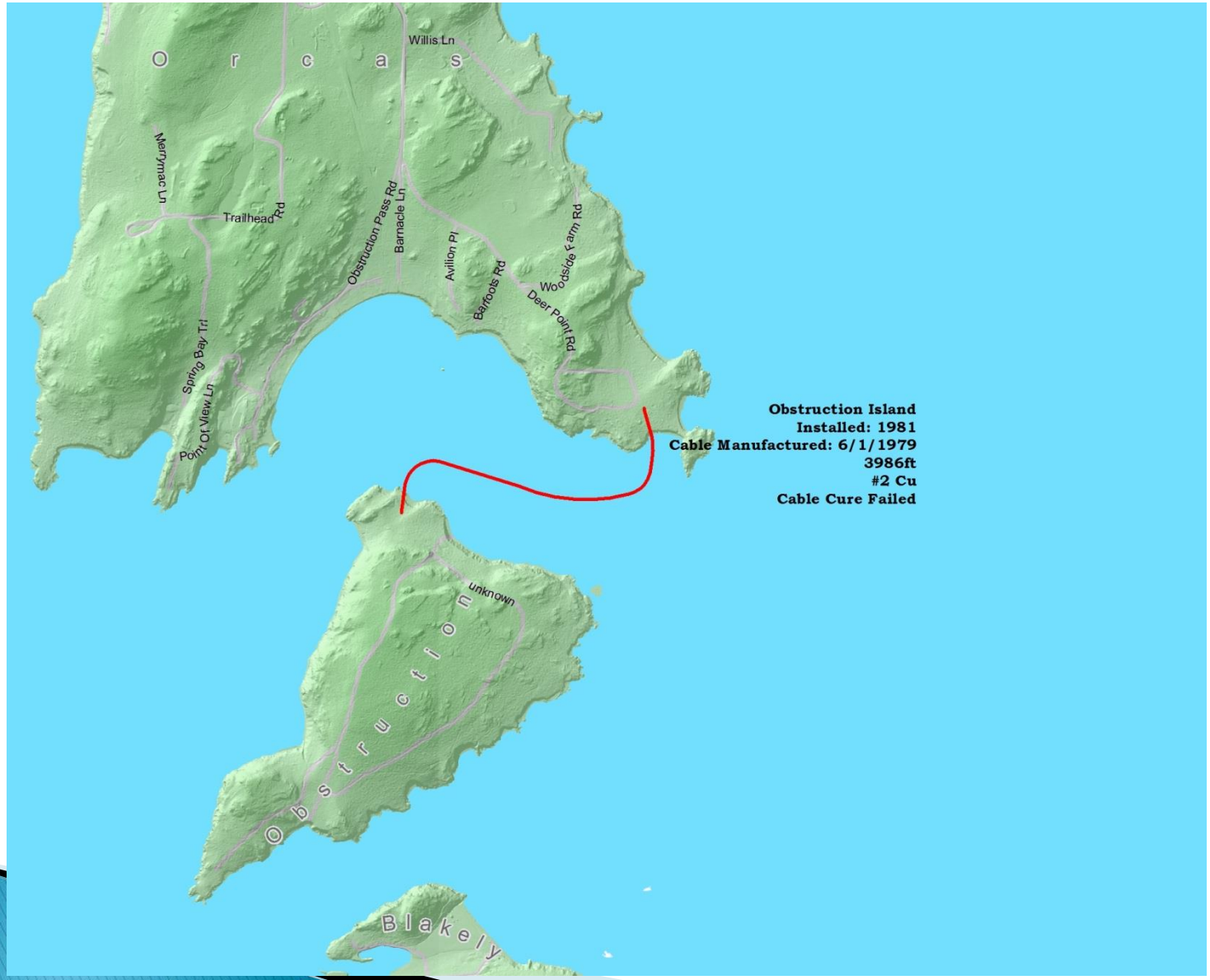
Charles Island

Center Island

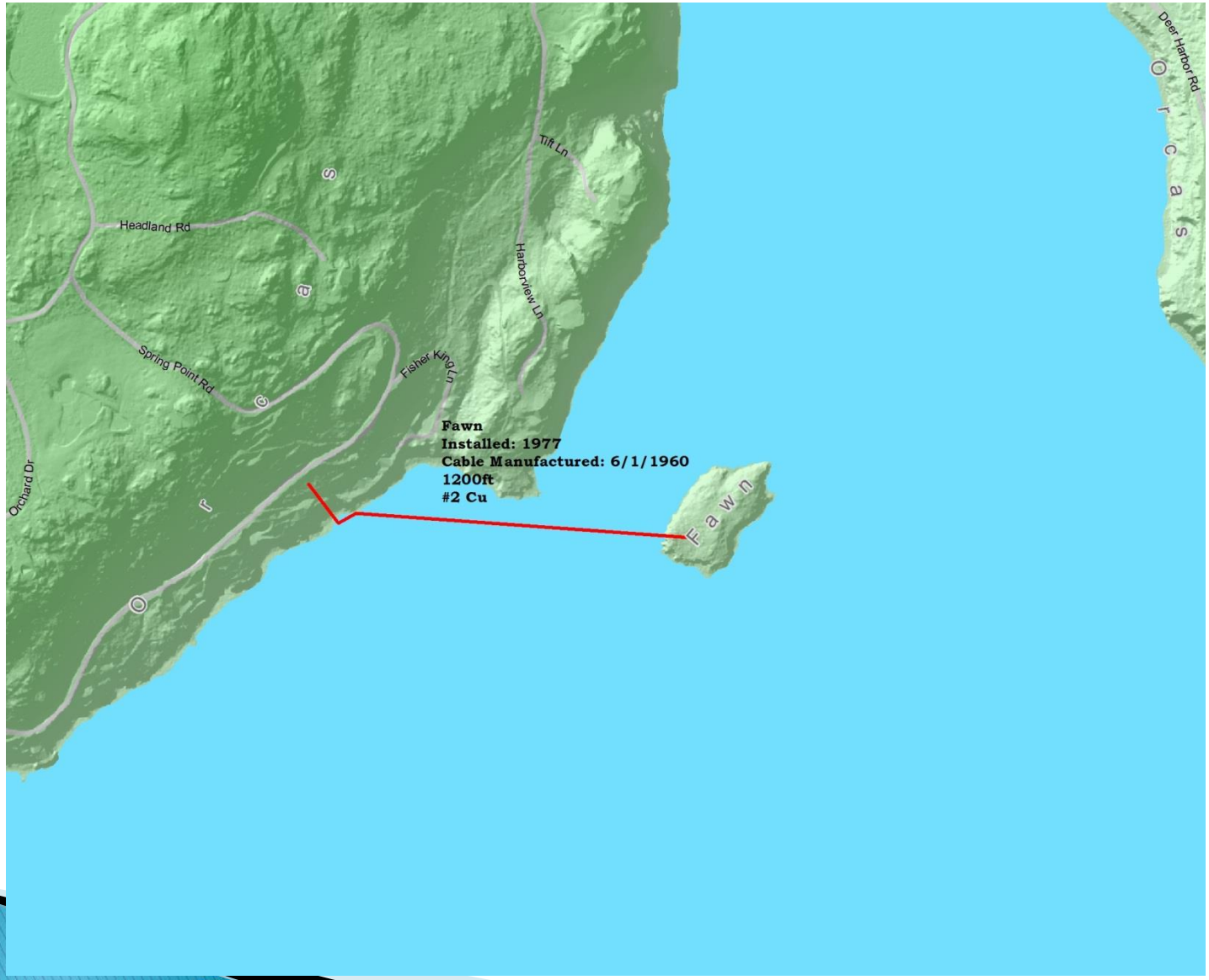


Armitage Island

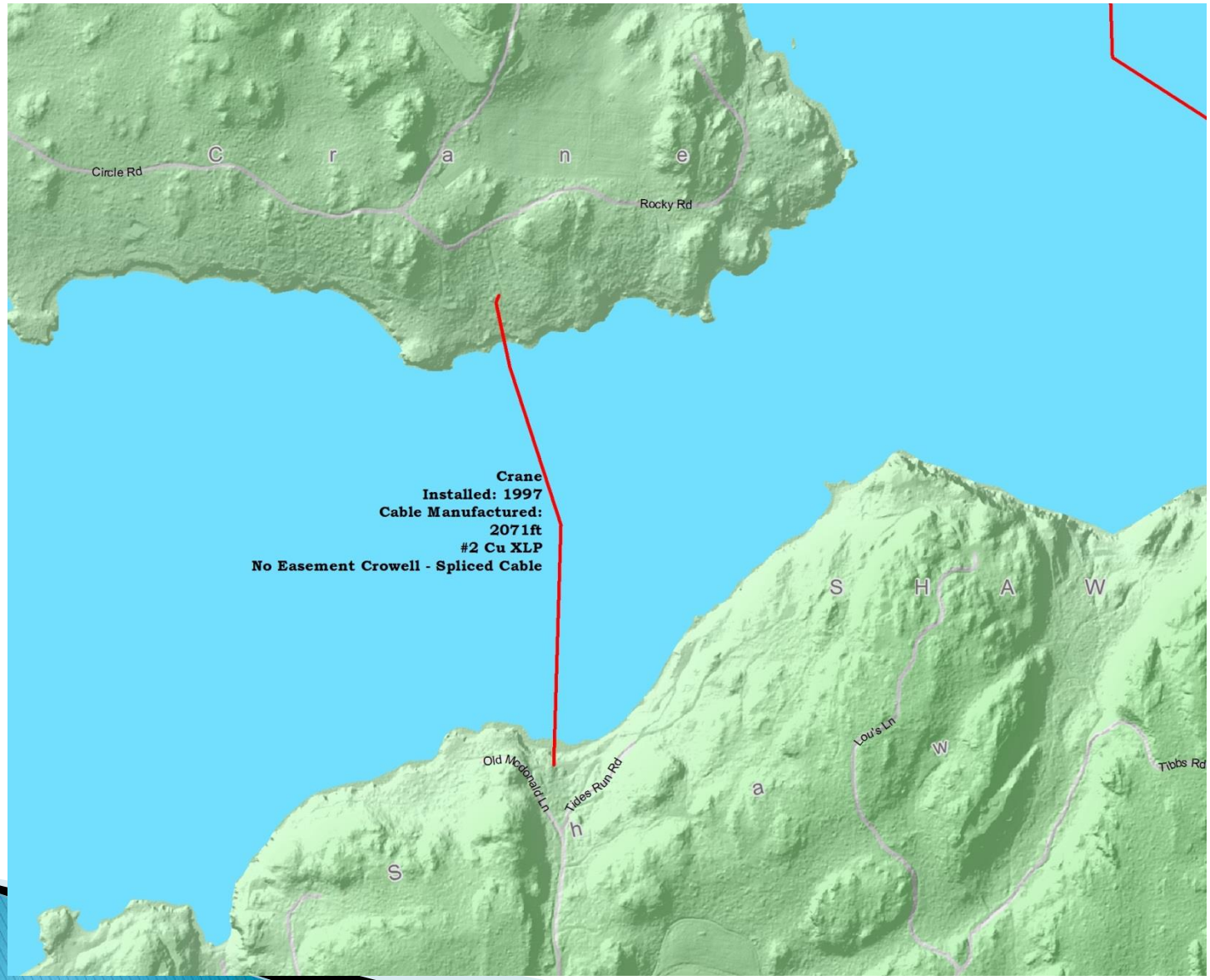
Obstruction Island



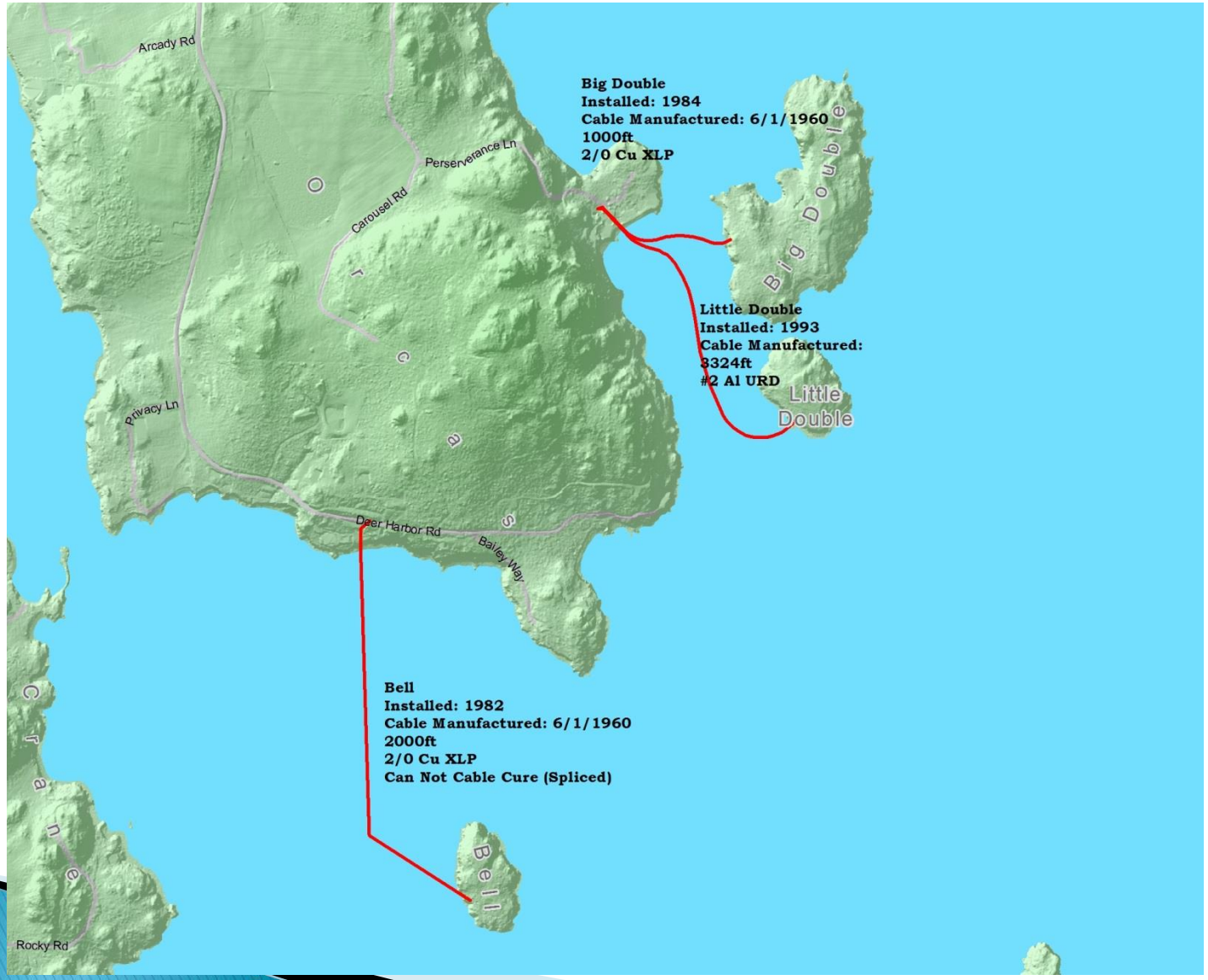
Fawn Island


Deer Harbor Rd
Tift Ln
Harborview Ln
Headland Rd
Spring Point Rd
Fisher King Ln
Orchard Dr
Fawn
Installed: 1977
Cable Manufactured: 6/1/1960
1200ft
#2 Cu
Fawn

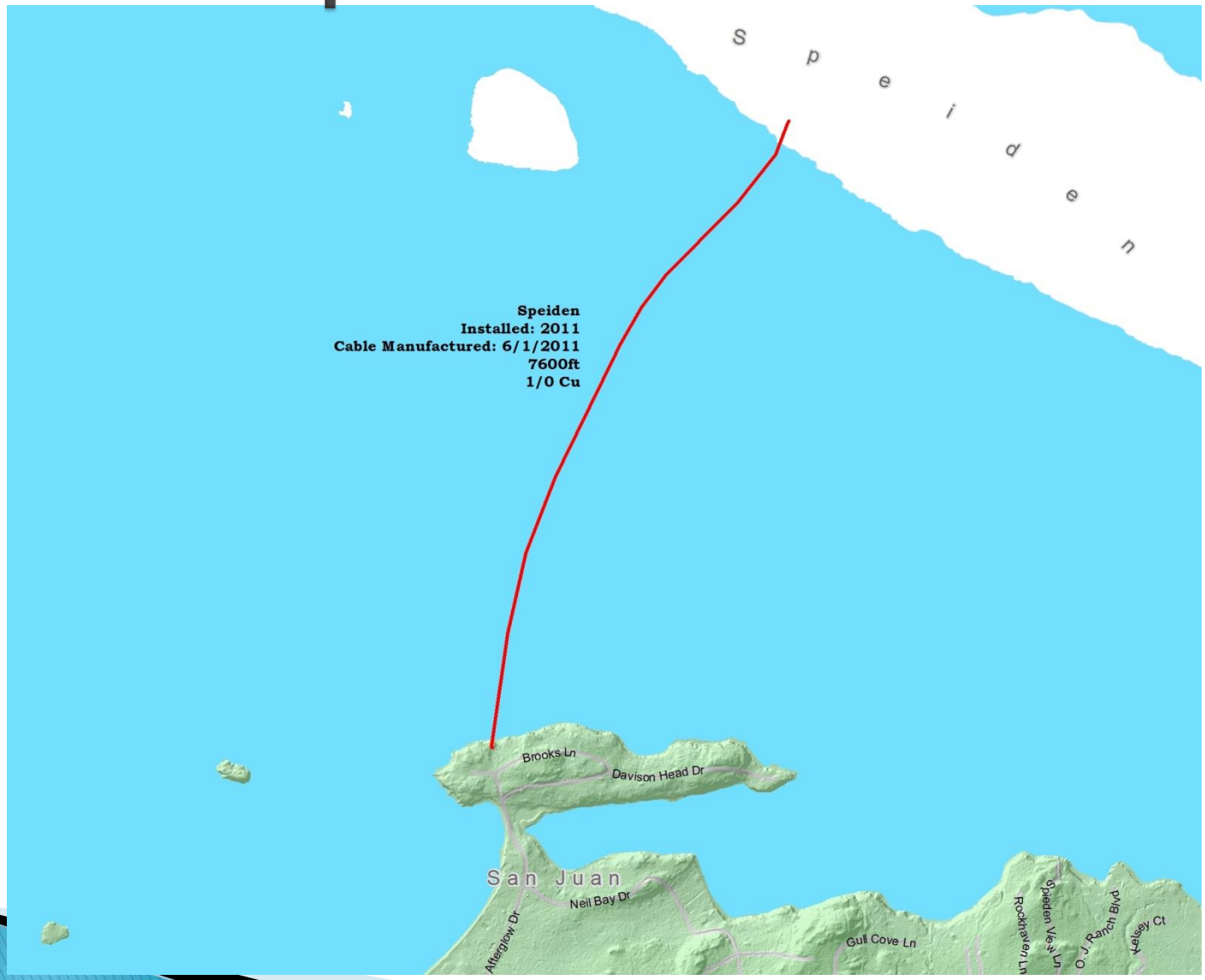
Crane Island



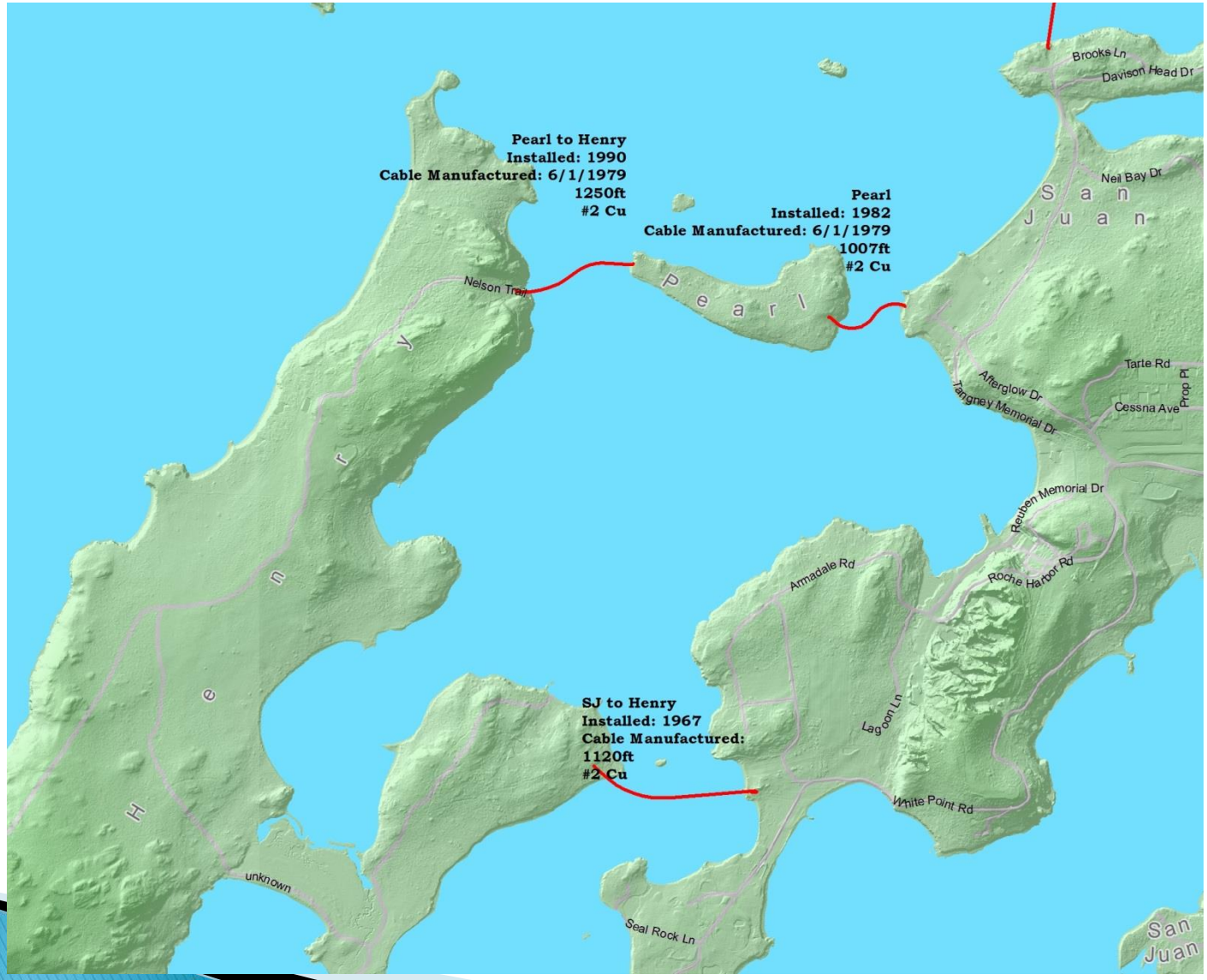
Little Double, Big Double, Bell



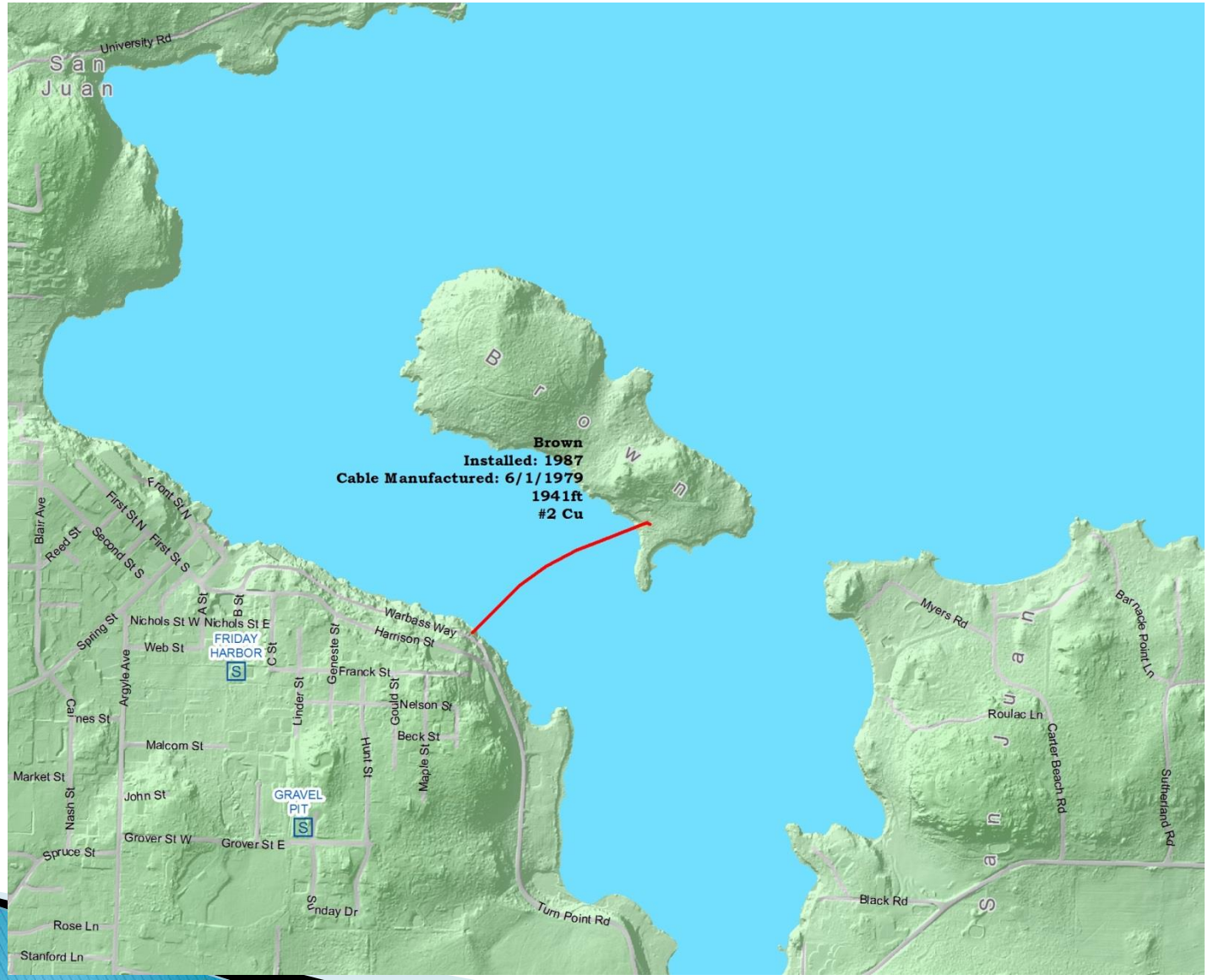
Speiden Island



Pearl, Henry Islands



Brown Island



REPORTS

Orcas Power and Light Cooperative
Cash Recap
June 30, 2014

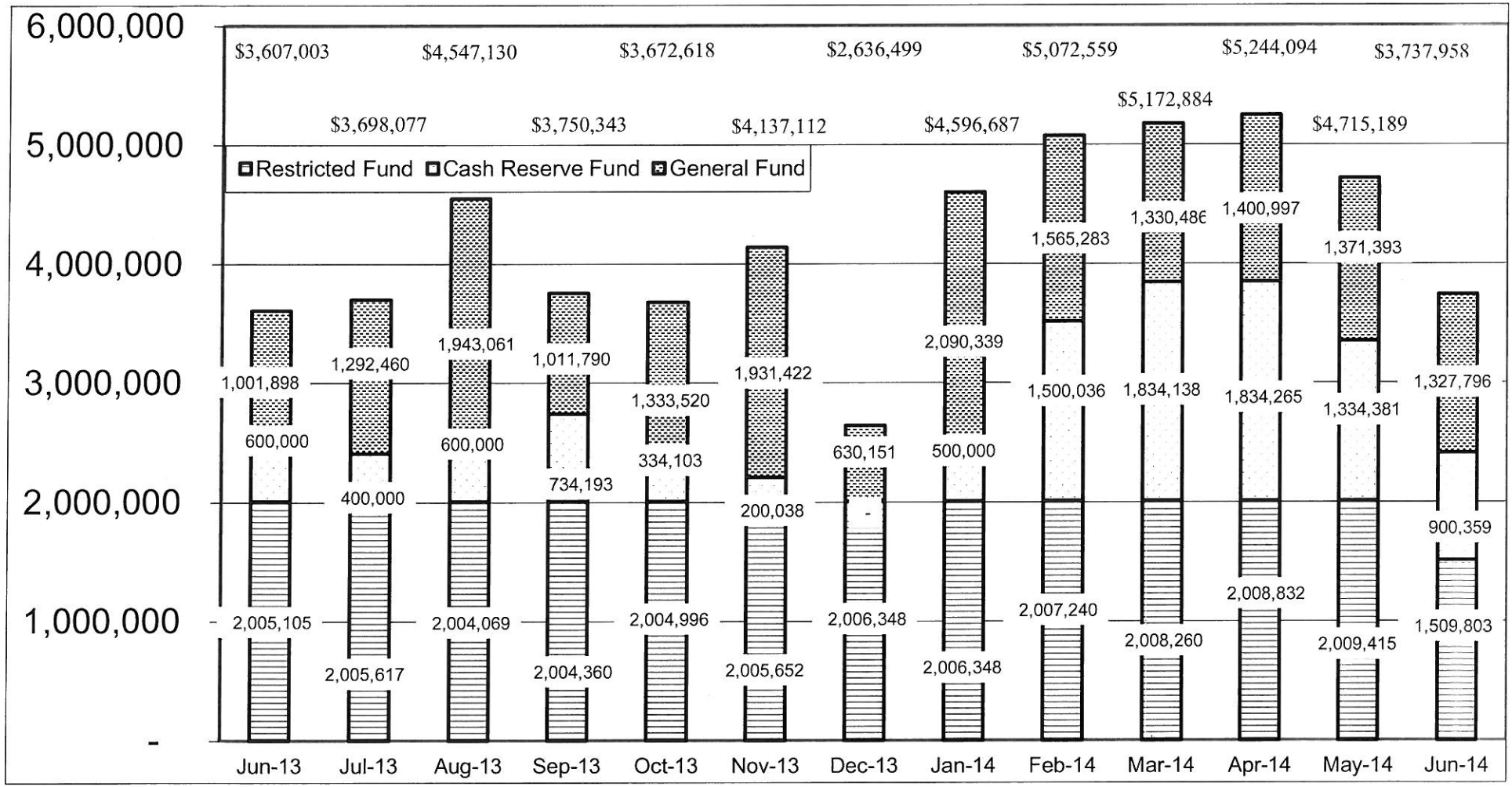
	Rate	Term	Due Date	Amount	Total Balance
GENERAL FUNDS:					
Cash on Hand				600	
Cash in Checking - Key Bank				83,207	
Cash in Checking/MMDA/Construction - Islanders Bank				975,240	
Cash in Checking/Savings/Payroll - Wells Fargo				268,750	
SUBTOTAL GENERAL FUNDS					1,327,796
CASH RESERVE FUND:					
CFC Commercial Paper	0.13%	35	7/11/14	400,098	
CFC Commercial Paper	0.13%	31	7/28/14	500,261	
SUBTOTAL CASH RESERVE FUND					900,359
RESTRICTED FUND:					
CFC Select Notes	0.3600%	159	7/14/14	200,324	
CFC Select Notes	0.3500%	160	7/14/14	350,568	
CFC Select Notes	0.3700%	158	8/29/14	352,091	
CFC Select Notes	0.3800%	160	12/4/14	132,958	
CoBank - AIM				151,642	
Home Street Bank	0.3490%	547	4/29/15	105,141	
Washington Federal Savings	0.4000%	395	12/29/14	107,998	
Washington Federal Savings	0.4000%	395	6/19/15	109,082	
SUBTOTAL RESTRICTED FUNDS					1,509,803
GRAND TOTAL FUND ENDING BALANCE 6/30/14					3,737,958
Project PAL: Islanders Bank				19,175	
MORE Program: Islanders Bank				172,495	
Estimated RUS Cushion of Credit *	5.000%			999,744	

CASH PROJECTION:
July 31, 2014

GENERAL FUNDS:			
Beginning Cash 6/30/14	1,327,796		
Estimated Revenue (based on 95% of billing)	1,402,593		
Estimated Other Revenue	20,000		
Transfer From Restricted Fund	0		
Estimated Transfer From Reserve Fund	0		
Estimated Transfer From RUS Cushion of Credit	19,129		
Subtotal Cash/Revenue		2,769,518	
Estimated Accounts Payable	(800,000)		
Estimated Payroll and Benefits	(648,500)		
Estimated RUS Principal and Interest Payment	(19,129)		
Power and Transmission Bill (June bill)	(473,272)		
Subtotal Expenses		(1,940,901)	
Projected Ending Balance 7/31/14			828,617
CASH RESERVE FUND:			
Beginning Cash 6/30/14		900,359	
Estimated Transfer To General Fund		0	
Projected Ending Balance 7/31/14			900,359
RESTRICTED FUND:			
Beginning Cash 6/30/14		1,509,803	
Transfer To General Fund		0	
Projected Ending Balance 7/31/14			1,509,803
PROJECTED GRAND TOTAL FUND ENDING BALANCE 7/31/14			3,238,779
PROJECTED CHANGE IN TOTAL FUND BALANCE ENDING 7/31/14			(499,179)
RUS CUSHION OF CREDIT*:			
Beginning Balance 6/30/14		999,744	
Transfer From General Fund		0	
Estimated Transfer To General Fund		(19,129)	
Projected Ending Balance 7/31/14			980,615

* represents advance payments unapplied for RUS long term debt

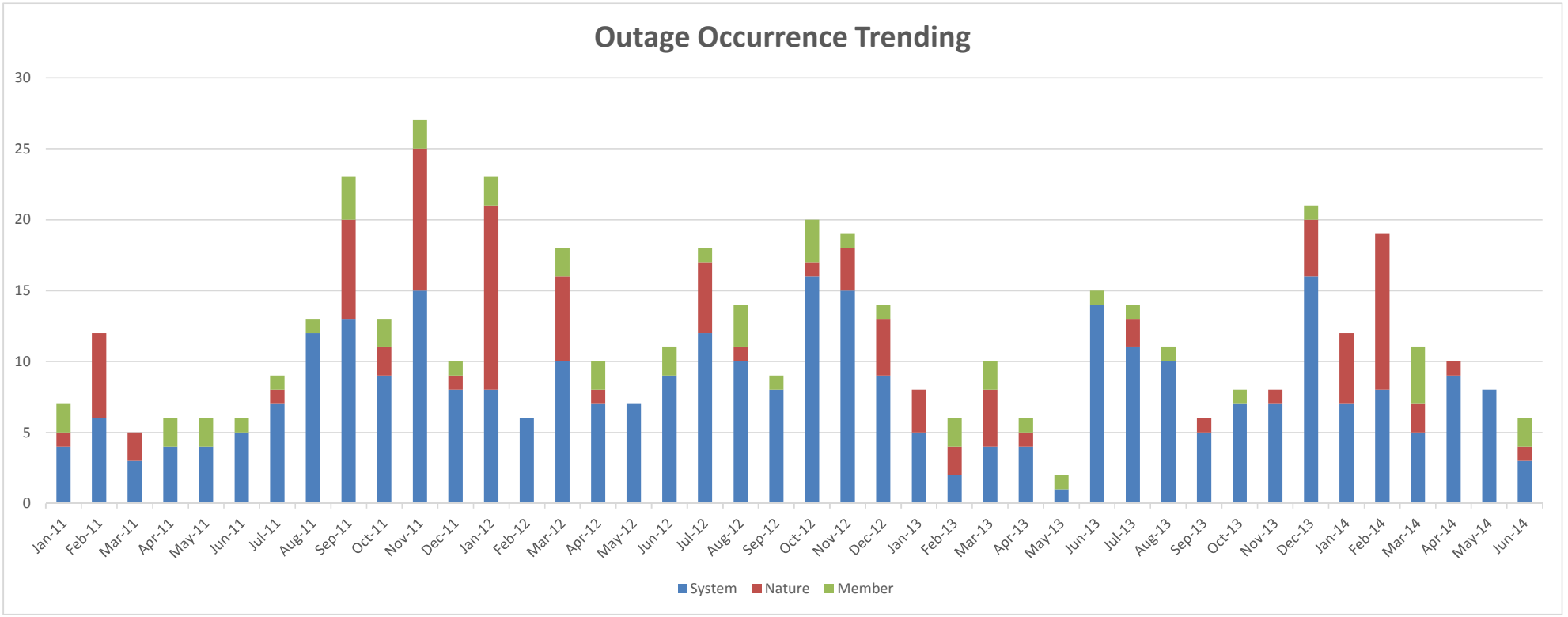
TOTAL FUND BALANCE



Notes:

1. Add'l liquidity:CFC $10M LOC, $5M PV line, and CoBank $5M LOC
2. 2014 - RUS loan draw $1.22M @ 3.456% (January 2014)
3. 2014 - RUS loan draw $878k @ 3.479% (January 2014)

Outage Report: Trending + YTD Summary



YTD Summary

Category Description	Group Description	June 2014			YTD 2014			YTD 2013		
		Occurrences	Members Affected	Duration (hrs.)	Occurrences	Members Affected	Duration (hrs.)	Occurrences	Members Affected	Duration (hrs.)
System	Scheduled	0	0	0	0	0	0	0	0	0
System	Faulty Equipment or Installation	0	0	0	6	183	23.5	0	0	0
System	System Issue	0	0	0	4	33	8	4	1188	3.5
System	Age or Deterioration (Failed URD)	6	1234	17	17	1519	110.5	8	1437	36.75
System	Right-of-way	1	3	10	1	3	10	2	27	3
System	Secondary	0	0	0	7	9	17.5	1	3	2.5
System	Unknown	1	24	3	2	36	3.5	1	556	3.33
Nature	Weather	0	0	0	18	1108	47.5	7	1269	10.44
Nature	Animal	0	0	0	1	10	1	3	118	5
Member	Member/Public	0	0	0	4	133	9	6	62	20.25
Totals		8	1261	30	60	3034	230.5	32	4660	84.77

MEMORANDUM

Date: July 7, 2014

To: Randy J. Cornelius, General Manager

From: Russell Guerry, Manager of Engineering & Operations

Subject: Safety Program – June 2014

Jeff Myers conducted enclosed space training during our June safety meeting.

RESAP (Rural Electric Safety Accreditation Program) is in its infancy at OPALCO. Currently we are compiling historical records of personnel and vehicle safety programs.

Accidents/Incidents/Near Miss

Date: 6/27/2014
Type: Accident
Description: While removing a meter, the meter socket jaws lifted then arced to the faceplate. The resulting arc created minor first-degree burns to the left hand of the lineman removing the meter.
Action Taken: Crews were reminded to wear gloves while removing and installing meters and to inspect the meter base prior to handling.

	June 2014	**YTD (2014)**
Near Misses	0	1
Incidents	0	1
Accidents	1	1
Loss Time	0	0

Total Hours Worked without Loss Time Accident: 64,996

General Manager's Report
July 2014

FINANCE

2013 Year End Reporting

Staff continues to work on 2013 year-end reporting by the preparation and filing of the Annual Electric Power Industry Report Form EIA-861, whose filing has been delayed in order to incorporate revisions made by the US Energy Information Administration. The revised filing due date will be August 5, 2014.

2013 Form 990 Exempt Organization Return

Staff will provide Moss Adams their requested information for the preparation of the draft 2013 Form 990 Exempt Organization Return, currently extended until August 15, 2014. As part of the preparation process, staff will present, during an executive session of a future board meeting (date to be determined), the draft return filing for board discussion and approval.

NRECA Participant Review

Staff has been notified by NRECA that OPALCO will be part of the Region 7 & 9 (we are in Region 9) Participant Review of our NRECA 401(k) Pension Plan, Retirement Security (RS) Plan, and Medical Plan, designed to ensure that eligible participants are properly enrolled in the OPALCO benefit plans. The process is considered a routine review that takes place every four years for every NRECA participant. Since OPALCO is a cooperative with more than 26 employees, we are required to engage an independent accounting firm to conduct the NRECA Agreed-Upon Procedures. Staff has engaged Moss Adams to conduct the required procedures on September 2 and 3.

MEMBER SERVICES AND ENERGY SAVINGS

Rebates/EEI Funding Balance

For the period 10/1/13 – 6/30/14, the Energy Savings team has booked over 1 million kWhs saved as a result of efficiency rebate measures implemented by members. BPA has funded the 1,667 measures totaling $281,551 that were submitted. In addition to residential rebates, the staff is currently working on 30 commercial lighting and Energy Smart Grocer projects that total $180K. BPA funds allocated for FY 2014 and 2015 ($481,580) are estimated to be fully allocated by the end of September. Staff is working on alternative funding sources and will submit an analysis of funds required to continue the rebate program in September.

Nonprofit Partnership/Islands Energy

The Conservation District is currently collecting subscriptions for the Community Solar for Schools project and will continue outreach this summer at Farmer's Markets, the Climate Speaker Series, and the County Fair. A second residential Community Solar project will launch when the school project is fully subscribed. Staff and Linda Lyshall from the Conservation District attended a presentation by NRCO (National Renewable Cooperatives Organization) for possible funding strategies of the second project. The NRCO and other sources will need to be further evaluated for viability.

Discussions to develop a countywide energy plan launched in June. The newly formed leadership team, consisting of county leaders and OPALCO staff, will meet in early August to provide input and guidance on countywide strategic energy planning. This plan will also be part of the

Georgetown Energy Prize materials. The formal application for the Georgetown prize was submitted in June and a response is expected by mid-August.

Islands Energy and OPALCO staff continue to meet regularly to discuss and plan future outreach programs. A community energy challenge program will kick off with local schools this fall with a competition in January 2015. Plans are already underway for a second round of Energy Fairs next summer.

SmartHub/Wi-Fi Update
As of 6/30, Member Services staff has enrolled an average of seven members per day in SmartHub. Since we launched the WiFi/Paperless campaign, SmartHub enrollment has increased from 35% to 40% of our membership, with 554 new members enrolled in the program.

4th of July Parade
OPALCO had two entries in the Orcas parade. This year's parade theme was "Neighbors Helping Neighbors". The PAL-themed OPALCO truck received Honorable Mention and the Nissan Leaf, driven by Randy, carried a Community Solar and efficiency message.

ENGINEERING & OPERATIONS

WIP
As of July 2, there are 311 work orders open totaling $3,354,462. Operations has completed construction on 73 of those work orders, totaling $1,700,725. Cattle Point Road Re-conductor construction started on June 30. The contractor hit cable at two locations while digging (one power and one CenturyLink fiber) on July 1 and July 2 respectively. The investigation of circumstances is still underway.

Accident Investigation
L&I investigation is ongoing.

Submarine Cables
Lopez to San Juan: We have finalized environmental reporting, are awaiting agency response, and starting the loan application process. The requests for bids are out for cable supply and installation.

San Juan to Henry Island: Permitting is complete and contractor has been selected.

INFORMATION SERVICES

Vacant Positions
We are moving forward filling the vacant positions within Information Services.
1. The Software Specialist position is still open until filled. There are presently no candidates scheduled for interviews. The position is currently advertised through several job boards.
2. The Network Engineer position is ready for approval and advertising.

Grid Control Communication Expansion
The grid control communication expansion project is proceeding as scheduled. OPALCO IS and Engineering resources are moving forward with permitting, environmental requirements, and planning material resource lead times. Material is being ordered and contracts are going out this

month to begin work on the overhead fiber installations. Purchases of long lead-time items for the underground portion are beginning as well.

Island Network Website - Requests for New Service
The Island Network Website continues to process member requests for new broadband services at a growing pace. Since launching on March 15, the Web site has processed 326 member requests. A growing number of requests (22 to date) are for neighborhood connections, which range from 6 to 100 per request.

Island Network New Services
The number of member subscribers on Island Network continues to grow. We now have 45 members with a total of 85 connections. We have five additional members in the construction process and 31 more in various stages of the application process.

Island Network Broadband Cost of Service Study
We are working with the vendor EES Consulting to complete our Cost of Service Study and develop the Board presentation. The service/cost matrix has been enhanced to enable market scenario cost analysis by varying the numbers and types of customers. The project is proceeding on schedule and the presentation will be included with this month's Board materials.

Wi-Fi Hotspots at Interisland Ferry Terminals
In the first week of operation, nearly 200 member devices were authorized for Internet access through the Wi-Fi system. Member participation in this service is growing daily. To date, there have been 409 users accessing the system using 620 devices.

Funhouse Commons

Randy Cornelius, Outgoing General Manager
J. Foster Hildreth, Incoming General Manager
Amy Saxe, Energy Services
Orcas Power & Light Cooperative
183 Mount Baker Road
Eastsound, WA 98245-9413

June 26, 2014

Dear Mr. Cornelius, Mr. Hildreth, and Ms. Saxe,

As the key community investor in The Funhouse Commons' solar PV project, in partnership with Bonneville Environmental Foundation (BEF), we would like to inform you of recent project developments.

In May, BEF completed the site survey document, including an analysis of The Funhouse site and a building model depicting the potential system build out. With this document in place, BEF recently posted the project on its website as well as alerted potential Western Washington installers about the RFP opportunity.

Below is BEF's estimated timeline for our project:

Issue RFP	06/25/2014
Site visit	07/10/2014
Proposal Due	07/25/2014
Proposal approved	07/31/2014
Sign Contract	08/08/2014
Apply for permits and order Equipment	08/15/2014
Install system	09/01/2014
Project complete	10/03/2014

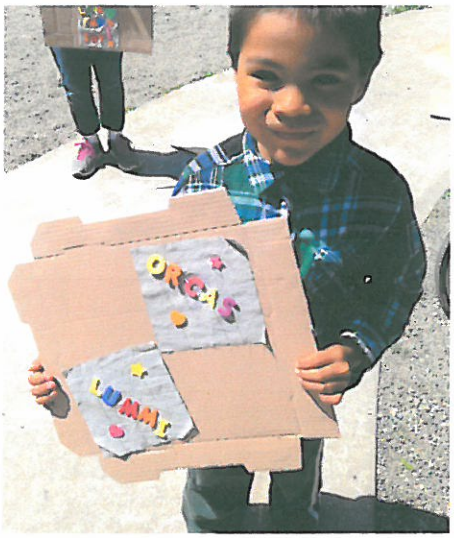
While we had hoped to have the system installed and inspected prior to June 30 to take advantage of the current production incentives, it appears the completion date is slated for early October. We are already teaching renewable energy to Funhouse kids (see enclosed photos from our Solar Science Summer Camp week), using the Orcas Montessori School (OMS) solar kits stored here at the Funhouse (we have an agreement with OMS to serve as the holding site for its BEF solar educational materials, as well as manage the loan of these materials to other community organizations).

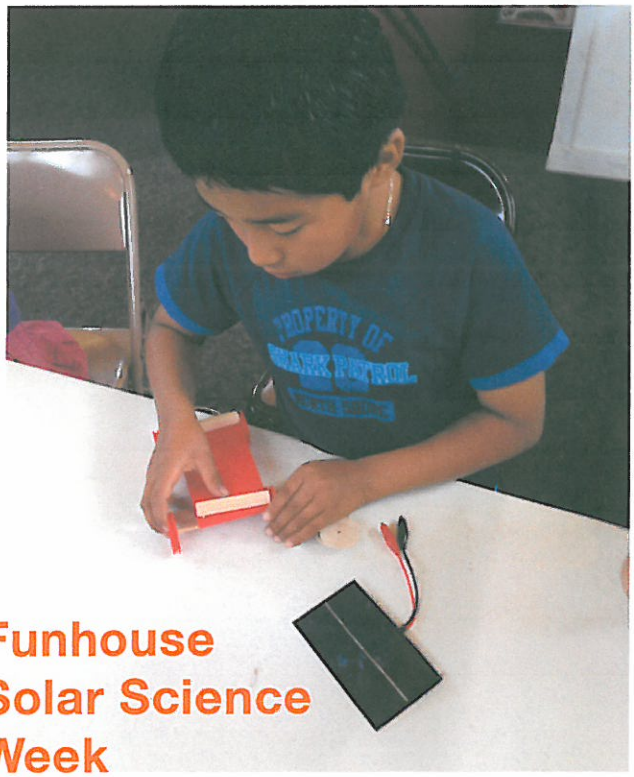
Thank you! We are most grateful to OPALCO for your financial support and special interest in our project. Should you have any questions regarding these details or require additional information, please do not hesitate to contact me at 376-7177 or krista@thefunhouse.org.

With warm regards,

Krista Bouchey
Funhouse Commons, Executive Director

Thank you for your support! It is a pleasure to watch our island kids explore solar science in a fun positive way!





Funhouse Solar Science Week

The Final Rule

Jun 20 Posted by Jim Vaughn, CUSP (/ip-articles/blogger/listings/jimvaughn-cusp) in May-June 2014 (/ip-articles/categories/may-june-2014)

We have been expecting it since 2005. It's here, and it's big. The OSHA final rule regarding 29 CFR 1910.269 and 1926 Subpart V was announced April 1, popularly known as April Fools' Day. The significance couldn't have been missed by those at the U.S. Department of Labor. Who says they have no sense of humor? The unofficial PDF version published April 1 has 1,607 pages. The official version – published April 11 in the conventional three-column Federal Register format – has a mere 429 pages. The final rule becomes effective July 10.

The first 313 pages of the final rule comprise the preamble. The regulatory standards begin on page 20629. The preamble is important to employers because that is where OSHA explains its rationale for the final form of the rules. For the uninitiated, OSHA issued a notice of proposed rulemaking in 2005, held hearings on the proposed rules for stakeholders and, some nine years later, has published the final result. The Federal Register is the U.S. federal government's lawful instrument for publication of the actions of the government. The Federal Register is continually updated in page order, so this final rule – entitled "29 CFR Parts 1910 and 1926, Electric Power Generation, Transmission, and Distribution; Electrical Protective Equipment" – begins on page 20315 and ends on page 20743. Throughout this article, where appropriate, we will cite page references by the Federal Register (FR) page number.

Since the introduction of the proposed rule in 2005, much has been said about harmonizing the 1910.269 and 1926 Subpart V standards to eliminate differences or confusion. Much of the discussion in the preamble is about revisions to 1910.269 and additions of rules to 1926 Subpart V so that Subpart V mirrors 1910.269. Many commenters from the industry urged OSHA to create one unified standard for the industry, but OSHA declined and is maintaining two separate standards that, for the most part, do mirror each other.

Much of the language has changed even where the standards have not. OSHA has modified language in many areas both to improve performance language, but also to raise awareness of and emphasize the employer's responsibility for worker safety. An example is rule 1910.269(q)(2)(vii).

- Old rule: "Pulling lines and accessories shall be repaired or replaced when defective."
- New rule: "The employer shall repair or replace defective pulling lines and accessories."

OSHA has widely used this language format in the rules regarding utility and contractor relationships where "utility" is now "host employer" and "contractor" is now "contract employer."

The final rule is not without controversy, most notably with the new minimum approach distances (MAD). Besides extensive revision to the MAD rules, there are four other major areas that we will discuss here: fall protection systems, new requirements for transferring information between host employers and contract employers, hazards of electric arcs and new training rules.

Minimum Approach Distances

(1926.960(c)(1) and 1910.269(l)(3))

Despite OSHA's action to simplify language across the final rule, the preamble and the MAD rules are highly technical and bound to create compliance confusion for many. Much of the delay in publishing the final rule seemed to surround the new MAD rules. The rulemaking process was reopened for discussion and comment for this particular topic (FR 20323), and many employers, industry experts and specialists argued against the need for the newly required utility-specific engineered MADs, insisting that the history of MADs and current MAD tables prove sufficient for industry safety. OSHA rejected the arguments,

relying on new IEEE data based on lab testing that indicated that the legacy MAD tables are derived from erroneous mathematical models. The final requirements surprised many. Employers can no longer rely on a universal table of approach, which has been the practice from the early days of safety regulations.

OSHA now expects employers to calculate minimum approach according to the risks posed by the circuits that the employee is exposed to (1910.269(k)(3)(ii)). The standard includes engineering formulas (Table R-3, FR 20644) for systems up to 72.5 kV and a formula (and Table R-4) for systems above 72.5 kV. OSHA has provided an alternate method of determining MAD in a very conservative Table R-6 for voltages up to 72.5 kV (FR 20645) and Table R-7 for voltages above 72.5 kV. The new tables have greatly expanded the minimum approach. As an example, the 500-kV phase-to-ground minimum approach in the current OSHA table is 11 feet 3 inches. The MAD for 500-kV phase-to-ground in Table R-7 regarding alternative MADs is 16 feet 8 inches, an increase of more than 5 feet.

Some comments noted that the alternative tables sometimes exceed the insulator string lengths used on their systems, while others noted that the alternative tables may prevent workers from climbing towers with energized circuits (FR 20449). In response, OSHA suggested that in those instances you could take an outage or install portable gaps to reduce MAD. Gaps and outages are easy to suggest, but not so easy to accomplish. If gaps are used, they will be calculated against these new transient computations with clearances much more conservative than ever used before. Few reliability engineers we talked with are fine with installing portable gaps, which would risk an outage to protect employees from a transient that seems unlikely based on industry experience with the tables in current use. Still, it is possible the commenter did not understand multiphase exposure and OSHA didn't point out its own definition to counter the concern.

On FR 20426, OSHA cites a 2005 letter to Edwin Hill in which the agency interprets multiphase exposure. Essentially, they explain that MAD – as held in IEEE 516 – is a combination of the electrical component (insulating air space) and the inadvertent movement component. For 15 kV, the electrical component is 2 inches, raised to the next inch from the decimal foot measure in the standard, and the inadvertent movement component is 2 feet. Multiphase exposure does not consider inadvertent movement – man, tools, structure or wire – as long as there is no risk of movement causing a contact. The multiphase exposure is based solely on the ability of the worker or tools being able to span or encroach into both of the opposite phase electrical components at the same time regardless of the inadvertent movement component. If tools or man cannot encroach on both electrical components of the opposite phases at the same time, there is no multiphase exposure.

OSHA has published a MAD calculator on the final rule website at www.osha.gov/dsg/mad_calculator/mad_calculator.html. Incident Prevention has heard unofficially that OSHA will release a smartphone app that will allow field calculation of MAD. We ran the calculation for 230 kV at 3.5 transient overvoltage, the default value if you don't have a determined value. The result was 5 feet 9 inches phase to ground (the actual results are in decimal feet). That is 6 inches more than the 5 feet 3 inches of the current tables, and 11 inches less than the 6 feet 8 inches of the new alternative MADs found in Table R-6 for those employers that don't calculate. Using the calculator with a 1.5 transient overvoltage, the distance was 3 feet 1 inch (up to the nearest inch) – far less than the currently used table. These results using the calculator are a far shorter distance than the tables R-6 and R-7 given for alternative use.

OSHA's intent is for employers to use their own tables engineered to their system specifications, or to use the alternative tables. In a May 6 EEI webinar with OSHA point man David Wallis, it was made clear that the agency thought it unlikely that anyone would use the new alternative tables for applying MAD. The alternative tables are so conservative that many employers and contractors will have to develop the engineered tables just to keep from having to replace all of their wire tongs and sticks that are now too short to be used under the new alternative tables.

OSHA did expand language on approach and rubber ratings for multiphase exposures and phase-to-ground exposures (FR 20427), clarifying what constitutes multiphase. Many employers consider the intersection of the MAD of two opposite phases at one time as multiphase exposure (FR 20426-20427). OSHA has clarified that multiphase exposure is the intersection of the electrical components of the MAD for different phase potentials at the same time by a conductive object. The purposes of this argument apply to employees covering phases and then working in gloves. An example in the preamble is a 23-kV phase-to-phase circuit in which the phases not being worked are covered with system-rated cover. The phase being worked is isolated from the other phases so that the employee is now only exposed to the phase-to-ground exposure. The net result is that a worker, properly isolated from a 23-kV phase-to-phase exposure, can work the phase-to-ground exposure in Class 2 gloves. The preamble also discusses the importance of approach during cover-up and movement between phases to assure that exposures are controlled and within the protective limits of the cover used.

Fall Protection Systems

(1926.954(b)(3)(iii) and (iv) and 1910.269(g)(2)(iv)(C) and (D))

The preamble discussion of fall protection changes begins on FR 20381. There are two significant changes to the fall protection rules. One is that all workers are covered and 100 percent fall protection is the rule. The language in the rule is the same as the current rule: "[A] qualified employee climbing or changing location on poles, towers, or similar structures need not use fall protection equipment, unless conditions, such as, but not limited to, ice, high winds, the design of the structure (for example, no provision for holding on with hands), or the presence of contaminants on the structure, could cause the employee to lose his or her grip or footing."

The rule allows the same exceptions as currently written where the employer can demonstrate that climbing or changing locations with fall protection is infeasible or creates more of a hazard than climbing without it. However, OSHA's intention is that workers be 100 percent protected from falls, so the exception is not without limits. The preamble discusses at length the need for the exception beginning on page FR 20399. Ultimately, the limitations are specific: Where there is no practical method for the conditions faced or, as described in the preamble, where a highly congested pole would create increased risks, a climber may free climb (FR 20401). However, once they are clear of the obstructions or congestion, they must use portable fall arrest equipment or work positioning equipment rigged to prevent a fall of more than 2 feet.

The preamble also discusses the limitations of work positioning equipment (FR 20396) as opposed to fall arrest. The existing rules have always limited body belts and safeties rigged for fall arrest. This is because any fall arrest over 2 feet would impress injurious forces at the waist of the worker who was arrested, as opposed to a fall being arrested in a harness. The industry has always recognized the limitations of work positioning equipment as a means of fall arrest. After all, anyone who cuts out with a safety around the pole will fall to the next obstruction, cleaning the pole surface of splinters on the way down. While work positioning equipment can be used under the new rules, it must be rigged so that the user can fall no more than 2 feet. In addition, the rigging for work positioning anchors must be able to withstand 3,000 pounds, so simply driving a screwdriver into the pole does not meet the requirement.

OSHA has also defined fall-restraint systems for use in the industry, adding fall restraint as a viable method of preventing falls (FR 20398). The fall-restraint anchor is not specified, but must be strong enough to restrain the worker from exposure to a fall hazard.

An addition to the current rule for fall protection equipment is ratings for fall protection exposed to electric arcs. The requirement is that the harnesses and/or lanyards exposed to the prescribed test of 40 cal/cm2 must pass the drop test post-exposure to assure that the equipment will not fail after exposure. It is important to note here that the equipment is not required to be arc rated, only that it not fail when subjected to the test. The preamble discusses the requirements for safety straps to be able to pass a flammability test again, specifically noting that there is no requirement to pass an arc rating test (FR 20390).

OSHA has also finally prohibited non-locking snap hooks on lanyards and safeties (FR 20391). While non-locking snaps have not been available for years, the rule as written was recommending locking snaps. They are now prohibited by both 1910.269 and 1926 Subpart V. Though many snaps on the market meet the new ANSI gate strength requirement, OSHA has declined to adopt the 3,600-pound gate side strength requirements, relying on the current drop tests to assure capability of the snaps. OSHA has also clarified that it is permissible to attach more than one snap hook to a D-ring as well to allow snaps to be connected to web loops as long as they are locking snap hooks. These were misunderstood in the past and assumed to be prohibited by the standard even where approved by a manufacturer. The rule now clarifies that unless the snap hook is a locking type and designed specifically for the following connections, snap hooks on work positioning equipment may not be engaged:

- Directly to webbing, rope or wire rope;
- To each other;
- To a D-ring to which another snap hook or other connector is attached;
- To a horizontal lifeline; or
- To any object that is incompatibly shaped or dimensioned in relation to the snap hook.

Host Employers and Contract Employers

(1926.950(c) and 1910.269(a)(3))

Since the rules were proposed, there has been concern about how to deal with the requirements of safety rules between utilities and contractors. OSHA originally proposed that utilities communicate special rules for operating on their systems and that contractors follow them as though they were regulatory. Many were concerned that this would create liabilities for the utility. The proposed rule was not carried over to the final rule, but new communications are required between the two entities as well as communications between contractors and subcontractors.

These communication rules are based on OSHA's Multi-Employer Citation Policy (CPL 02-00-124, December 10, 1999). That policy is designed to leverage relationships between employers to ensure all workers are protected from hazards in the workplace. OSHA has somewhat modified the proposed provisions, but has clearly described the means, methods and expectations of the newly required communications (FR 20351). In the preamble, OSHA defends the authority to establish these new communication rules against commenters' objections, citing both federal law and court decisions (FR 20353).

As always, it is imperative that employers read the notes to the rules. There are many in this final rule since OSHA uses notes to define its intent under the new rules. Notes to the rules require the host employer to obtain information regarding existing characteristics and conditions of electric lines and equipment that are related to the safety of the work, and to then share that information with the contract employer prior to the start of the work. This includes information about the nominal voltages of lines and equipment, the maximum switching-transient voltages, the presence of hazardous induced voltages, the presence of protective grounds and equipment grounding conductors, and the locations of circuits and equipment, including electric supply lines, communication lines and fire-protective signaling circuits.

Notes also require the host employer to obtain information about the design and operation of its installation that contract employers need to make required assessments, such as fault current ratings, and the information necessary to assess for arc hazards. OSHA included Table 2 (FR 20361), which lists the types of information that the host employer must provide to the contract employer so that the contractor can perform the analysis required of the standard.

The new relationship also has expectations for the contractor, including informing the host employer within two days of any unanticipated hazardous conditions found during the contract employer's work that the host employer did not mention. Additionally, the contract employer and the host employer are required to coordinate their work rules and procedures so that

each employee of the contract employer and the host employer is protected. This provision is in lieu of the proposed rule to require the contract employer to follow the rules of the host employer (FR 20635).

In the preamble discussion, OSHA promotes a new philosophy in rulemaking that has been the underlying purpose of the Multi-Employer Citation Policy. As stated, when OSHA promulgates new safety and health standards, it does so against this background principle that employers share responsibility for working conditions, and thus for OSHA compliance, at multiemployer work sites. Therefore, when OSHA issues a new safety or health standard, it is with the intention that creating, exposing and controlling employers at multiemployer work sites will exercise their respective responsibilities to ensure that affected employees are protected as required by the standard (FR 20354).

Hazards of Electric Arcs

(1926.960(g) and 1910.269(l)(8))

Until now, the rule for protection of employees from the hazards of electric arcs was to not wear clothing that would increase the severity of a burn (FR 20460). As the arc protective clothing industry evolved and consensus standards developed, OSHA began citing employers, including utility industry employers, under the General Duty Clause. The justification under the clause was that the hazards of electric arcs, as well as the means to protect employees from electric arcs, were well recognized. The final rule clearly establishes requirements for protection of electrical workers from the hazards of electrical arcs. As with all PPE analysis, the protection requirements and level of protection are based on the analyzed risk. Employees required to be protected from exposures exceeding 2 cal/cm2 must wear arc protective equipment to prevent burns.

The protection rules also require the employer to establish arc hazard risk categories for the workplace and to provide protection for the whole body. The final rule does provide a table for employers based on voltage level, fault current and clearing time. Table 6 in Appendix C provides pre-calculated exposure ratings for various combinations of time and current for 4, 5, 8 and 12 cal/cm2.

Final paragraph 1926.960(g)(5)(iv) permits the employer to protect the employee's head using a face shield with a minimum arc rating of 8 cal/cm2 if the employee is wearing a Type E electrically rated hard hat and the exposure is less than 13 cal/cm2 for single phase or 9 cal/cm2 for other exposures. Paragraph (g)(5)(v) permits a reduction of 4 cal/cm2 in the arc rating of head and face protection for single-phase arcs in open air. For example, if the estimated incident energy for an exposure involving a single-phase arc in open air is 13 cal/cm2, the head protection provided to the employee must have an arc rating of at least 9 cal/cm2 (FR 20489).

The rules don't require arc-rated gloves when workers are in rubber gloves with leather protectors, or arc-rated foot covers when workers are wearing leather boots. As to compliance dates for arc flash protection, OSHA did give extensions for both the arc hazard analysis and arc flash protection program. There has been some issue with whether employers have new arc flash protection obligations beginning July 10 because of a statement in the preamble, in particular because of the addition of the words "and continue to burn." The issue here is 1926, where OSHA has added the original prohibited fabrics rule. Some have read the first part of the preamble paragraph referring to no delay in implementation. However, the final part of the paragraph explains how OSHA will enforce the new rules: "... OSHA is not setting a delayed compliance date for final §§ 1926.960(g)(3) and 1910.269(l)(8)(iii) beyond the effective date for the final rule. Until the employer completes the estimates required by final §§ 1926.960(g)(2) and 1910.269(l)(8)(ii), OSHA will enforce §§ 1926.960(g)(3) and 1910.269(l)(8)(iii) as it does existing § 1910.269(l)(6)(iii); that is, the clothing must not ignite and continue to burn when exposed to electric arcs the employee may encounter" (FR 20628).

That existing 1910.269(l)(6)(iii) rule states, "The employer shall ensure that each employee who is exposed to the hazards of flames or electric arcs does not wear clothing that, when exposed to flames or electric arcs, could increase the extent of injury that would be sustained by the employee."

The existing rule that OSHA will enforce until the employer completes its January 1 arc hazard analysis does not state "continue to burn." It appears that the instruction means that if the employer currently allows employees to wear the prohibited fabrics, the practice must end by the effective date of July 10, 2014. OSHA will enforce the outer layer (g)(3) and (l)(8) rule after the employer finishes the analysis no later than January 1, 2015.

Lastly, arc protective clothing is PPE and as with all PPE, the employer does have to pay for it. In addition, when the weather gets cold or wet, the employer will have to provide arc-rated outerwear and, as with all PPE, the employer is required to provide it at no cost to the employee.

Training

1910.269(a)(2) and 1926.950(b)

For all the new rules and obligations OSHA has placed on the employer, it has reduced record-keeping requirements for employer safety training. Records have been a concern, especially for contractors who may turn over hundreds of personnel a year as projects end. There was also a wide disparity in how employers complied with the documentation rule that was burdensome for everyone. What is important here for employers is what has actually happened. What has changed is that employers no longer have to keep records to comply with an OSHA rule. That does not necessarily mean that you should not keep records. Employers still have to assure that workers have safety training with respect to the work that they do. They must have a plan to be able to show how they assure that training has been completed, and training records are a good way to do that.

OSHA did expand the requirements for training of line-clearance tree trimmers (FR 20342), but they clarified the level of safety training required to be considered a qualified person (FR 20345). OSHA has clarified training by stating that "[t]he degree of training shall be determined by the risk to the employee for the hazard involved." In addition, OSHA has removed the requirement to keep detailed records for employee safety training (FR 20349). The new requirement is that the employer ensure that each employee has demonstrated proficiency in the work practices involved before that employee is considered to have completed the required training. For those utilities that hate to give up the records process, OSHA notes that although they are not required by this paragraph, employment records that indicate that an employee has successfully completed the required training are one way of keeping track of when an employee has demonstrated proficiency.

For newly hired craft persons, OSHA also clarified the acceptance of previous training, making recommendations of what would constitute due diligence on the part of the employer. OSHA states that an employer may determine that the employee has demonstrated the proficiencies required by confirming that the employee has the required training, using an examination or interview to make an initial determination that the employee understands the relevant safety-related work practices before he or she performs any work, and closely supervising the employee until that employee has demonstrated the required proficiencies.

There are many other changes that we simply don't have room to cover here. As readers work their way through the details of the standard, we will be doing so, too. Over the next few installments of Incident Prevention, we expect to address the issues and compliance strategies being mounted across the industry. In addition, the magazine's Q&A section will deal with the rules as readers write to us with their questions.

Compliance Dates

Arc Flash Hazard Analyses

Must be complete by January 1, 2015.

Arc Flash Protection Programs

Must be in place by April 1, 2015.

Newly Calculated MAD Tables or the Alternative Tables

Must be in place by April 1, 2015.

Fall Protection Systems

Must be in place by April 1, 2015.

About the Author: *After 25 years as a transmission distribution lineman and foreman, Jim Vaughn has devoted the last 16 years to safety and training. A noted author, trainer and lecturer, he is director of safety for Atkinson Power. He can be reached at (mailto:<script type='text/javascript'> <!-- var prefix = 'ma' + 'il' + 'to'; var path = 'hr' + 'ef' + '='; var addy47431 = 'jim.vaughn' + '@'; addy47431 = addy47431 + 'atkn' + '.' + 'com'; document.write('<a ' + path + '\" + prefix + ':' + addy47431 + '\'>'+ addy47431+ '<\/a>'); //-->\n </script><script type='text/javascript'> <!-- document.write('<span style=\'display: none;\'>'+ 'This email address is being protected from spambots. You need JavaScript enabled to view it.'+ '</'+ 'span>'); //--> </script>.)jim.vaughn@atkn.com (mailto:jim.vaughn@atkn.com).*

VIEW THE IP UTILITY SAFETY PANEL'S OSHA RULES DISCUSSIONS HERE (http://incident-prevention.com/osha-rules-panel-discussion-video)

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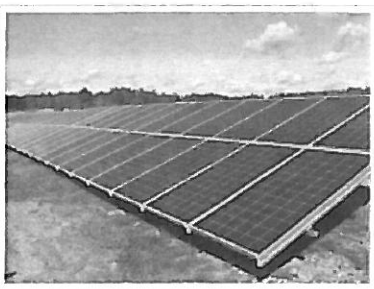
PRINT

RENEWABLE ENERGY

Co-ops Could Be Solar Power Players

By Derrill Holly | ECT Staff Writer
Published: June 25th, 2014

Electric cooperatives and other utilities have roles to play in the future of solar power and taking on the tasks could be good for consumers and the utilities' balance sheets, according to the Solar Electric Power Association.



Community solar fields like this one in Hughsville, Md., are among the options co-ops and G&Ts are providing for members interested in solar power. (Photo By: SMECO)

"As solar develops, it will become more efficient if utilities participate in the partnership," said Bob Gibson, the group's vice president of education and outreach.

"Utilities will be critical if solar is to meet its potential," said Gibson. He cited escalating deployment and capacity growth—74 percent of new generation added in the U.S. in the first quarter of 2014—as evidence of a shift from being a policy-driven resource to a competitive alternative to fossil fuels.

"Solar is becoming a customer choice in a pretty big way," Gibson told the G&T Communicators Summer Conference, at NRECA headquarters in Arlington, Va., June 17. He added that the U.S. Department of Energy's Sunshot Initiative projects a drop in rooftop solar prices to $1.50 per watt by 2020.

"Customers have the ability to choose to provide some of their own electricity needs through solar," said Gibson.

A former program manager at NRECA's Cooperative Research Network, Gibson noted that utilities, including co-ops, are increasingly interested in making solar "part of what we do." He cited work with regulators on public policies that support utility business models while providing value and reliability for consumers, as examples of such initiatives.

Related Content

- Leaders Join Obama at Announcement
- Co-ops Participate in White House Summit
- Illinois Co-op Launches Solar Farm

"Only 22 to 27 percent of utility customers have rooftops that can actually have solar," said Gibson. "If they want solar it's got to be made available in some other fashion."

Much of Gibson's presentation included options utilities are pursuing to create new revenue streams as more consumers add solar. Those include installation, sale and maintenance of inverters, and, in the future, energy storage technology.

Gibson suggested that community solar programs, being offered increasingly by both distribution co-ops and G&Ts, are among the options that could provide renewable capacity for co-ops and help meet consumer energy demand, particularly among members who cannot add renewable energy systems to their property.

NRECA is working with a number of member distribution co-ops and G&Ts on the Solar Utility Network Deployment Acceleration project, or SUNDA. That program, funded by the SunShot Initiative, is helping to provide a knowledge base for co-ops involved or considering design, deployment or operation of utility scale photovoltaic solar systems.

"We're looking to reduce barriers for co-ops who choose to get involved in utility-scale solar," said Doug Danley, CRN's technical liaison for renewable and distributed energy.

"We're working with co-ops that are implementing solar projects to develop a scalable suite of tools that include template engineering designs, models for financing, business plans, insurance, consolidated purchasing, relevant training and other best practices," said Danley.

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"We want to make sure co-ops have the information and tools they need to evaluate this technology and respond to its effects on their business."

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Tags: Renewable Energy, Solar Energy

INFORMATION ITEMS

NEW SERVICES

June 2014

	Orcas	San Juan	Lopez	Center/ Decatur	Blakely/Obstruction /Crane/Shaw	Total
Residential	4	7	2			13
Commercial	3	3				6
Line Retention						0
Other - OPALCO						0
Total*	7	10	2	0	0	19
2014 YTD	21	35	7	0	1	64
2013 YTD	18	28	6		1	53
2012 YTD	15	33	11	2	2	63
2011 YTD	18	29	7		4	58
2010 YTD	33	37	16		3	89

*Figures have been queried from the Service Order billing module and reconciled to the RUS Form 7 New Service numbers.

OPALCO

Historical MORE Revenue

(All Green kWh and MORE Blocks)

For Years 2012 - 2014 YTD

	2012 YTD							2013 YTD							2014 YTD						
	All Green			MORE Blocks				All Green			MORE Blocks				All Green			MORE Blocks			
Month	# Members	kWh	kWh Revenue	# Members	# Blocks	Block Revenue	Total Revenue	# Members	kWh	kWh Revenue	# Members	# Blocks	Block Revenue	Total Revenue	# Members	kWh	kWh Revenue	# Members	# Blocks	Block Revenue	Total Revenue
			$ 0.04			$ 4				$ 0.04			$ 4				$ 0.04			$ 4	
Jan	44	47,428	1,897	454	970	3,880	5,777	43	54,479	2,179	433	921	3,684	5,863	44	41,878	1,675	411	871	3,484	5,159
Feb	43	37,664	1,507	452	962	3,848	5,355	43	50,927	2,037	432	918	3,672	5,709	44	47,227	1,889	410	870	3,480	5,369
Mar	42	37,682	1,507	449	953	3,812	5,319	42	42,787	1,711	429	915	3,660	5,371	44	35,590	1,424	408	866	3,464	4,888
Apr	42	27,636	1,105	449	953	3,812	4,917	42	31,063	1,243	427	904	3,616	4,859	44	30,702	1,228	408	865	3,460	4,688
May	42	21,993	880	448	952	3,808	4,688	41	21,699	868	426	897	3,588	4,456	44	26,412	1,056	408	858	3,432	4,488
Jun	43	20,335	813	448	952	3,808	4,621	41	20,336	813	426	897	3,588	4,401	45	17,020	681	418	870	3,480	4,161
Jul	43	19,649	786	449	953	3,812	4,598	43	17,756	710	425	895	3,580	4,290		-			-		-
Aug	43	22,457	898	446	948	3,792	4,690	42	18,716	749	421	893	3,572	4,321		-			-		-
Sep	42	13,136	525	443	947	2,530	3,055	42	18,786	751	418	890	3,560	4,311		-			-		-
Oct	42	21,162	846	443	947	3,788	4,634	43	23,882	955	415	887	3,548	4,503		-			-		-
Nov	44	30,335	1,213	438	943	3,772	4,985	44	31,535	1,261	414	881	3,524	4,785		-			-		-
Dec	43	43,849	1,754	437	929	3,716	5,470	44	47,347	1,894	412	879	3,516	5,410		-			-		-
Total	**43**	**343,326**	**$ 13,733**	**446**	**11,409**	**$ 44,378**	**$ 58,111**	**43**	**379,313**	**$15,173**	**423**	**10,777**	**$43,108**	**$ 58,281**	**44**	**198,829**	**$ 7,953**	**411**	**5,200**	**$ 20,800**	**$ 28,753**

Notes: 2 members participate in both All Green and Green Blocks. Average blocks per member is 2.1.
Average kWh per month usage for All Green members is 750 kWh (below average for residential)
Beginning June 2011, report reflects combined data for the former Green Power program and MORE.
Beginning September 2012, half of the members were transitioned to a mid-month billing cycle; these members were billed for 15 days of consumption, a prorated basic charge, and prorated MORE blocks on 9/14/12.

OPALCO Member Billing Revenue History

Month	2010	2011	2012	2013	2014	Average
January	$ 2,091,129	$ 2,266,724	$ 2,203,319	$ 2,354,732	$ 2,294,020	$ 2,241,985
February	1,684,100	2,018,866	1,980,380	2,190,659	2,469,527	2,068,706
March	1,693,238	2,100,947	2,080,586	2,031,007	2,165,897	2,014,335
April	1,659,771	1,803,095	1,733,543	1,803,826	1,930,658	1,786,179
May	1,453,989	1,634,542	1,536,601	1,580,671	1,652,563	1,571,673
June	1,409,557	1,383,932	1,419,883	1,450,461	1,476,413	1,428,049
July	1,300,950	1,302,528	1,380,472	1,423,753		1,351,926
August	1,342,739	1,360,611	1,450,397	1,448,015		1,400,440
September*	1,297,936	1,421,174	1,005,902	1,458,553		1,295,891
October	1,389,529	1,483,658	1,499,863	1,636,955		1,502,501
November	1,584,909	1,977,782	1,779,353	1,923,857		1,816,475
December	2,123,602	2,375,284	2,085,584	2,480,061		2,266,133
Total**	$ 19,031,449	$ 21,129,143	$ 20,155,885	$ 21,782,552	$ 11,989,078	$ 20,744,295

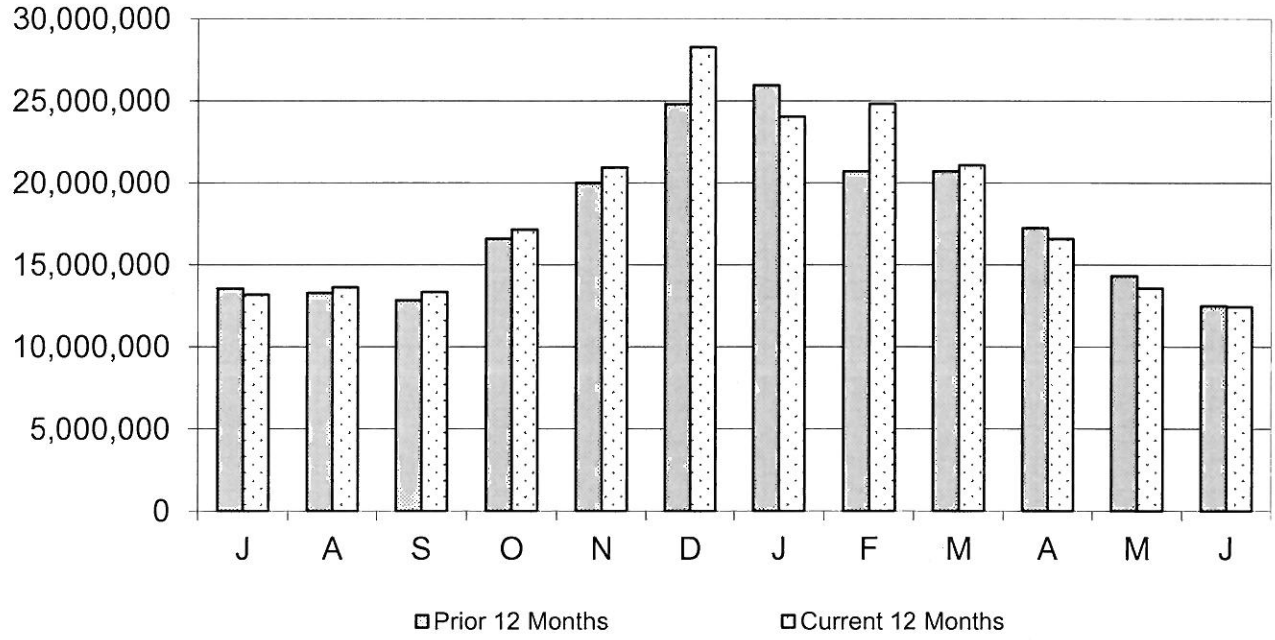
Notes:

* September 2012 excluded - half of the membership transitioned to a mid-month billing cycle. These members were billed for 15 days of consumption and a prorated basic charge on 9/14/12.

**Totals include Island Network billing

BPA Consumption Summary

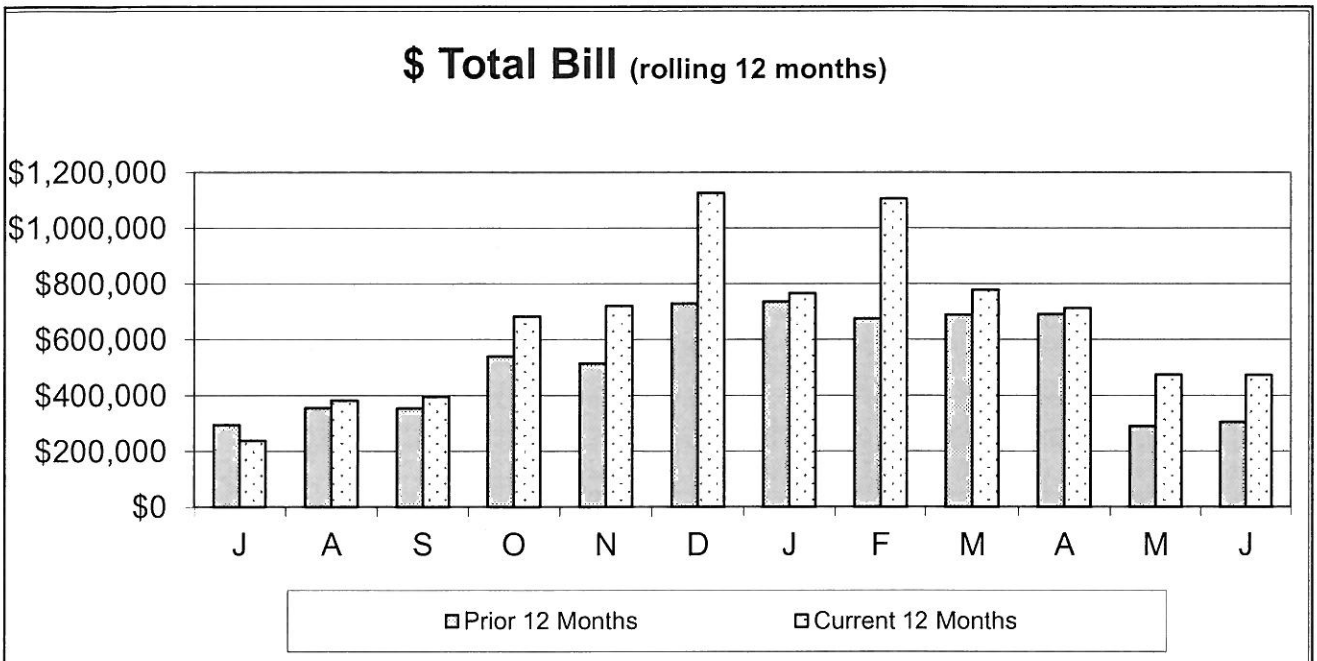
Through
June 2014



Prior 12 Months	Prior 12 Months	Current 12 Months	Current 12 Months
Jul-12	13,550,906	Jul-13	13,179,669
Aug-12	13,288,850	Aug-13	13,635,840
Sep-12	12,824,903	Sep-13	13,342,354
Oct-12	16,596,508	Oct-13	17,149,832
Nov-12	19,995,037	Nov-13	20,925,364
Dec-12	24,804,913	Dec-13	28,277,954
Jan-13	25,942,681	Jan-14	24,042,632
Feb-13	20,704,258	Feb-14	24,808,824
Mar-13	20,690,151	Mar-14	21,068,301
Apr-13	17,253,318	Apr-14	16,580,487
May-13	14,309,061	May-14	13,567,275
Jun-13	12,503,372	Jun-14	12,439,266

BPA Consumption Summary

Through
June 2014



Prior 12 Months	Prior 12 Months	Current 12 Months	Current 12 Months
Jul-12	$294,489	Jul-13	$238,152
Aug-12	$354,877	Aug-13	$380,699
Sep-12	$354,077	Sep-13	$395,230
Oct-12	$539,994	Oct-13	$683,267
Nov-12	$514,404	Nov-13	$720,443
Dec-12	$729,318	Dec-13	$1,125,500
Jan-13	$736,305	Jan-14	$765,166
Feb-13	$675,379	Feb-14	$1,105,673
Mar-13	$688,755	Mar-14	$778,706
Apr-13	$691,224	Apr-14	$713,126
May-13	$289,366	May-14	$473,739
Jun-13	$303,730	Jun-14	$473,272

DOE BAY
RESORT & RETREAT

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Hello Madeline

July 8, 2014

Greetings from your island neighbor, Doe Bay Resort and Retreat. As you know, your organization was selected as one of the recipients of our Pizza and Open Mic night which we host every Thursday from 5-10pm. Each month, one dollar from every pizza sold on Thursday night is donated to an organization that we feel is doing important work in our local community. It is our pleasure to present your organization with a check for $304.00 as a gesture of support for the contributions you are making with your efforts. Please keep up the good work!

These donations are just one of the ways that Doe Bay Resort supports our island community. We use almost 100% local produce and organic products in our Café, and we'd like you to come try it out! Besides our donation check, you will also find enclosed a coupon for a free pizza on Open Mic night and a free organic coffee with breakfast.

All the best! We hope to host you soon ☺

Alysha Sherburne

Alysha (Gilleland) Sherburne
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The Death Spiral

By **Michael D. Hervey**, *Navigant*

You have probably heard of it: The Death Spiral. Over the past year, numerous authors have opined about the oncoming doom for utilities as a result of cost-competitive renewable energy — primarily subsidized roof-top solar — that will accelerate a trend in decreasing utility sales, which will lead to utility fixed costs being spread across fewer customers, ultimately driving to a point that utility revenues cannot support the costs of building and maintaining the grid. As an extrapolation, profits dive, reliability crashes and the energy industry, a major driver for our economy and way of life, falls apart.

The Death Spiral concept touches a little too close to home for many companies as they have seen solar installations multiply and sales decrease, especially in some of the "solar-rich" areas of the country. In board rooms, anxiety sets in as they see growth slow and even reverse, all outside of their ability to control the situation. Activists leap for joy at the thought of giant monopolies dropping like poisoned flies in the bright afterglow of solar energy.

The truth is, when faced with uncertain futures at the time of dramatic change, our first reaction should be to rely on... wait for it... history! Yes, history provides remarkable perspective. Many of us have witnessed all sorts of perceived doomsday scenarios: the death of nuclear power, market deregulation (in many versions), environmental regulation, municipalization, offshoring of manufacturing, a stagnant economy followed by an economic boom, rate unbundling and increased consumerism, just name a few. Through all of these challenges, the electric industry adapted, grew stronger and most certainly survived. In fact, when considering other mega-trends outside of the narrow view presented by the Death Spiral cheerleaders, it becomes apparent that the energy industry is an essential primary driver of our economy. The product that our industry transports and delivers has become a necessity — even an entitlement — to our customers. And the demands for the quality of our service and the reliability of our systems have never been higher. That is why the Death Spiral ends in equilibrium. That's right, equilibrium.

Now, while my first reaction is to rely on history for perspective, my next thought is simple: Get a plan. Develop and implement a strategic plan that will help set the point of equilibrium between renewable energy and grid-supplied power, where all stakeholders will be better off. It is not a survival plan but, rather, an enhancement plan — one that is full of opportunity and ends in success.

In accepting the realities of decreasing solar costs, we, as an industry, must change. The actions that utilities need to take to adjust to this particular development are somewhat difficult to take and largely situational, depending on local characteristics and issues, regulatory constraints, individual company appetite for change and customer needs. Generally, however, opportunities fall into the following major categories:

- *Relentlessly driving for improvements in customer satisfaction.* Create customer trust and loyalty, which will inform and enable all other opportunities and keep customers from leaving the grid altogether. Partner with customers and regulators at every opportunity so that they consider the value of their relationship with the utility when they make energy decisions.
- *Unbundling rates.* Work toward covering fixed costs with fixed revenues as much as is possible, and move away from kilowatt-hour sales-based revenues. Relying on variable sales, especially those affected by heat and cooling peaks, is a familiar concept but it is inherently risky.
- *Participating in the renewable energy revenue stream.* Opportunities abound, including financing, owning revenue-producing assets, maintenance contracts and insurance.
- *Leveraging assets, especially technology, to develop non-kilowatt-hour sales revenue streams.* Services, central and community energy storage, data and information subscriptions, tiered levels of reliability and multiple-purpose land use are all concepts that just scratch the surface.
- *Improving system and component load factors.* Flattening the daily load cycle is perhaps the most underestimated and underdeployed opportunity in the utility arsenal. Normalizing load through load shifting, and adding new off-peak load, has the potential to create new revenues and tremendous economic benefits across the entire power-delivery industry.

So, there is no need to panic, but good business strategic planning is definitely in order. As distributors of, perhaps, the most important commodity in our economy, energy companies need to have a well thought out strategy for the changes that are currently happening and for the changes yet to occur. Many of these changes will likely require more time than we have to implement them, so there must be some sense of urgency. However, the good news is that the Death Spiral does not end in death for transmission and distribution companies, but instead, ends in stronger business portfolios. TDW

Mike Hervey (mike.hervey@navigant.com) has 32 years of experience in investor-owned and public utilities. He currently leads the T&D group in Navigant's Energy Practice in the areas of process improvement and emerging technology.