Energy Program
WASHINGTON STATE UNIVERSITY

The Renewable Energy System Incentive Program

Legislative Report: October 2019

Our Mission

To advance environmental and economic well-being by providing unmatched energy services, products, education and information based on world-class research.

About Us

Our staff of energy engineers, energy specialists, technical experts and software developers work out of Olympia, Washington. The WSU Energy Program is a self-supported department within the University.

Within WSU

We are part of the College of Agricultural, Human and Natural Resource Sciences. Our Director reports to the Dean of the College.

Contact
Todd Currier
Director
WSU Energy Program

Phone: 360-956-2000
Email: *curriert@energy.wsu.edu*
Website: *www.energy.wsu.edu*

WSUEP19-008 • October 2019

Energy Program
WASHINGTON STATE UNIVERSITY

Background

In 2005, a production incentive was established in the State of Washington as part of the Renewable Energy Cost Recovery Program (Legacy Program). It was for homeowners, businesses and local govern-ments that installed solar electric, wind power or anaerobic digester systems. The Washington State University (WSU) Energy Program provided technical support to the Department of Revenue in the administration of this program. In 2009, the program was expanded to include Community Solar Projects.

Then in 2017, Engrossed Substitute Senate Bill (ESSB) 5939 directed the WSU Energy Program to launch and administer a new program for citizens and businesses of Washington known as the Renewable Energy System Incentive Program (New Program).

New Program Elements

The New Program is different from the Legacy Program:

- Program term
- Additional data requirements
- Participation categories
- Declining incentive rates
- Total New Program incentive cap of $110 million

Program Term

- Eight years of incentive payments, up to 50 percent of the system price – whichever comes first
- Four-year enrollment through June 2021, or when the authorized funding is exhausted

Additional Program Data Requirements

- Interconnection Agreement
- System and operation data
- Total system price

Participation Categories

- Residential-scale – 12 kilowatts (kW_{dc}) or less, combined
  - Annual incentive limit is $5,000
- Commercial-scale – Greater than 12 kW_{dc}
  - Annual incentive limit is $25,000
- Community Solar Project – 1,000 kW_{dc} or less
  - Annual incentive limit is $5,000 per participant
- Shared Commercial Solar Project – one to five megwatts (MW_{dc})
  - Annual incentive limit is $35,000 per participant

Fiscal Year 2018 and 2019 Kilowatt Hours (kWh) Incentive Rates

	2018	2019
Residential-scale	$0.16	$0.14
Commercial-scale	$0.06	$0.04
Community Solar	$0.16	$0.14
Shared Commercial Solar	$0.06	$0.04
Made in Washington Bonus	$0.05	$0.04

The Caps

- $110 million statewide cap
- 1½ percent of each utility's taxable power sales generated in calendar year 2014, or $250,000 – whichever is greater – up to the utility's Public Utility Tax liability

New Program Results

(As of October 25, 2019)

Renewable Energy Systems certified:

7,461

- Residential-scale: 7,068
- Commercial-scale: 376
- Shared Commercial: 8
- Community Solar Projects: 9

(See Appendix A: Number of Residential-scale, Commercial-scale, Shared Commercial, and Community Solar Projects by Participating Utility.)

In addition, there are 30 Community Solar and Shared Commercial Projects that have been pre-certified, but not yet completed.

Number of utilities reaching/approaching credit limit or thresholds:

8

Five are over or near 90 percent, and three have exceeded their annual credit limit, including Orcas Power and Light Cooperative (OPALCO), Kittitas County PUD and the Okanogan County Electric Cooperative.

(See Appendix B: Percentage of Renewable Energy System Capacity by Type for Each Utility.)

Fast Fact

In 2019, the International Energy Agency expects global solar PV additions to increase by over 17 percent – resulting in 115,000 MW of new capacity. This is equivalent to 100 times the capacity of Washington's only commercial operating Nuclear Plant – Columbia Generating Plant.

Total dollar amount of incentive payments committed to New Program participants:

$110 million

Because of significant interest in the program, the statewide cap was reached nearly two and a half years earlier than anticipated by the legislation. As noted above, this statewide commitment under the New Program is paid out over a number of years.

The amount of incentives paid out each year is based on commitments under the Legacy Program and commitments under the New Program. Payments under the Legacy Program end after Fiscal Year 2020.

Total Dollar Amount for Incentive Payments Authorized:

Fiscal Year 2018

- Legacy Program – $ 32,055,372
- New Program – $ 8,521,048

Fiscal Year 2019 (estimated)

- Legacy Program – $ 35,968,151
- New Program – $ 10,794,556

Total number of MW of solar photovoltaic (PV) capacity installed by program participants:

102.7

This does not include pre-certified, but not yet installed capacity.

- Residential-scale: ..... 60.4 MW
- Commercial-scale: ..... 13.2 MW
- Shared Commercial: ..... 27.8 MW
- Community Solar Projects: ..... 1.3 MW
- Pre-certified projects ..... 8.7 MW

(In addition to the figures above, there is another 2.5 MW of Commercial-scale capacity installed for 3 anaerobic digesters.)

Participation Fees Benefit State Budget

So far, the WSU Energy Program has placed nearly one million dollars back into the general fund from participant fees associated with the Renewable Energy System Incentive Program.

Fast Fact

Utilities are Key Program Delivery Partners

Despite the fact that participation is voluntary, 49 of the state's electric utilities decided to engage in the program and support the installation of solar systems by customers in their service territories.

Roles that utilities play in the New Program include:

- Agreeing to support the program
- Making payments to participants annually and collecting the energy output data on which payments are based
- Marketing the program and answering questions from customers and installers

Some are also sponsors or administrators of Community Solar Projects.

Utility Highlights

- Utility collaboration was essential to the successful transition of nearly 15,000 Legacy Program participants to WSU Energy Program oversight and tracking – since new administrative requirements meant all Legacy Program participants had to reapply to continue to receive payments
- Puget Sound Energy added nearly 2,700 new systems to the approximately 5,000 systems that they supported under the Legacy Program
- The largest system is in the Avista Utilities service territory – nearly 28 MW
- Very small utilities are also participating, including Nespelem Valley Electric Cooperative and the City of McCleary
- The first certified Community Solar Project under the New Program was sponsored by OPALCO – 504 kW_{dc} with 274 participants

OPALCO Solar Farm

OPALCO Encourages Low and Moderate Income Participation

OPALCO's Community Solar Project is one of the biggest in the state, and was the first one completed under the New Program. The utility reserved 10 percent of its Community Solar system's production to benefit established low income households that are participating in the Energy Assist program through OPALCO. This Energy Assist program is dependent on participation in some other vetted low income federal assistance programs or local financial assistance.

OPALCO also offers a program where members or non-members of the Cooperative can donate a Solar Unit to any existing member - including low or moderate income households. This "Gift of Power" is a sustained donation of the Community Solar Array's monthly production for the 20-year term of the project. Local non-profit businesses or any other member that would qualify under the eligibility guidelines can participate.

Fast Fact

Solar is increasingly being incorporated as a component of resilience strategies for communities, businesses and utilities.

Spotlight on Community Solar and Low Income Participation

No specific income data was collected on participants in the New Program. However, since the average Residential-scale system cost is nearly $30,000, and no specific subsidized funding was provided for low income participants, it is unlikely that the Residential-scale incentive resulted in significant penetration into low to low-moderate income communities.

The primary ways that benefits are provided to low income communities is the installation of Commercial-scale systems on low income housing and through the Community Solar effort.

Community Solar Deployment in Washington Many of the Community Solar Projects certified and operating today have been implemented to create low income benefits, and some of the pre-certified projects have identified ways in which low income benefits will be provided.

Two different Community Solar models emerged. One is utility-led Community Solar – typically open to all customers. It tended to be larger, ground-mounted, and often incorporated a set-aside to provide benefits to low income community members or supporting organizations.

Large Community Solar was developed by utilities that:

- Have easier access to potential participants
- Have easier access to capital
- Have systems that can be used for distributing benefits to participants
- Were still challenged by the one-year time limit specified in the law on the time from when the project is proposed (pre-certified) to the time it is completed (certified)

Central Plaza

King County Housing Authority

The King County Housing Authority (KCHA) provides rental housing and assistance to over 55,000 county residents with incomes below the county median. KCHA embraced the incentive program, and has completed four Community Solar Projects, as well as projects that were standard commercial-scale systems. The Community Solar Projects were developed with the assistance of Spark Northwest, which worked with KCHA to explore different strategies for developing Community Solar Projects on its housing properties that would enable KCHA to direct the financial benefits of the systems to the residents of the host properties.

The four Community Solar Projects that resulted from these efforts to-date total approximately 100 kW of solar capacity. While the systems will not provide energy directly to individual residents, KCHA is exploring different ways of delivering the energy production and incentive value of the systems to the residents of the properties that are hosting the systems – such as providing gift cards, conducting events, or developing resident directed property enhancements

Fast Fact

Nationally and in the State of Washington, the cost per watt of residential-scale roof-top systems is about three times the cost of large ground-mount systems.

Snohomish County PUD

Snohomish County PUD's Community Solar Project – currently the state's largest Community Solar Project – launched in April 2019 on Earth Day. The 615 kW project was over 50 percent reserved within the first day of launching, and 100 percent reserved within a month. The PUD sold 76-watt units at $120 each, capping purchases at 130 units, or $15,600. The most popular purchase amount was $600 for five units (equivalent to one module) followed by one unit for $120. Approximately 20 customers purchased the maximum 130 units.

PUD staff implemented an outreach campaign that included four open houses throughout the PUD's service territory. The solar array is located at the future home of the Arlington Microgrid, which will include a 1 MW battery storage system and vehicle-to-grid technology. The site will also host a Clean Energy Technology Center, local office, and back up data center that will serve as critical loads to the microgrid.

Supported by a grant from the Bonneville Environmental Foundation, the PUD reserved approximately 10 percent of the Community Solar Project for a pilot to benefit income-qualified customers. Through a Request for Applications process, the PUD will select two local agencies/ non-profits who serve the income-qualified community to receive solar units from the Community Solar Project with the expectation that the clients they serve will benefit from the credits and incentives generated by the units. The PUD anticipates the selection process to be complete by the end of 2019. More information is available at *www.snopud.com/communitysolar.*

Because the utilities got an earlier start in the develop-ment of Community Solar Projects, the first five were utility sponsored projects. They are hosted by:

- Benton PUD
- Clallam County PUD
- OPALCO
- Snohomish County PUD
- Vera Water & Power

Since then, four projects developed by the King County Housing Authority have been completed.

The other model is non-profit-led Community Solar, which was generally smaller, rooftop-mounted and often – but not always – targeting all or a substantial portion of benefits to low income individuals or supporting organizations.

Community Solar on rooftops of housing facilities is hard for non-profits to develop because of the lack of existing business models and streamlined legal and financial documents. These and other challenges drive up the costs for smaller projects with a number of partners. Some of the other challenges include:

- Administrative
- Engineering
- Development of a benefit flow model and marketing of the project to the target population
- The one-year time limit
- Trying to improve project economics by taking advantage of the federal investment tax credit that is only available to entities with tax liability that can be reduced

(See Appendix C: Community Solar Deployment by Utility Service Territory.)

Moving Forward

The single-family market appears to have momentum beyond the incentives, but neither type of Community Solar does. There is a need for successful models for Community Solar that can develop in a post-incentive environment.

The WSU Energy Program appreciates the opportunity to continue to manage the Renewable Energy System Incentive Program and contribute to the growth of renewable energy in the State of Washington.

Appendix A

Number of Residential-scale, Commercial-scale, Shared Commercial, and Community Solar Projects by Participating Utility

ALDER MUTUAL LIGHT 1
- Residential-scale 1

AVISTA 419
- Commercial-scale 18
- Residential-scale 393
- Shared Commercial Solar 8

BENTON COUNTY PUD 1 229
- Commercial-scale 9
- Residential-scale 220

BENTON RURAL ELECTRIC ASSOCIATION 109
- Commercial-scale 9
- Community Solar 1
- Residential-scale 99

BIG BEND ELECTRIC COOPERATIVE 27
- Commercial-scale 1
- Residential-scale 26

CHELAN COUNTY PUD 1 7
- Commercial-scale 1
- Residential-scale 6

CITY OF CENTRALIA 18
- Residential-scale 18

CITY OF ELLENSBURG 36
- Commercial-scale 5
- Residential-scale 31

CITY OF MCCLEARY 1
- Residential-scale 1

CITY OF PORT ANGELES 23
- Residential-scale 23

CITY OF RICHLAND 102
- Residential-scale 102

CLALLAM COUNTY PUD 1 78
- Commercial-scale 1
- Residential-scale 77

CLARK COUNTY PUD 1 575
- Commercial-scale 9
- Residential-scale 566

CLEARWATER POWER COMPANY 1
- Residential-scale 1

COLUMBIA RURAL ELECTRIC ASSOCIATION 37
- Commercial-scale 6
- Residential-scale 31

COWLITZ COUNTY PUD 1 89
- Commercial-scale 2
- Residential-scale 87

DOUGLAS COUNTY PUD 1 4
- Commercial-scale 1
- Residential-scale 3

ELMHURST MUTUAL POWER & LIGHT 5
- Commercial-scale 1
- Residential-scale 4

FERRY COUNTY PUD 1 12
- Residential-scale 12

FRANKLIN COUNTY PUD 1 160
- Commercial-scale 2
- Residential-scale 158

GRANT COUNTY PUD 2 25
- Commercial-scale 1
- Residential-scale 24

GRAYS HARBOR COUNTY PUD 1 30
- Residential-scale 30

INLAND POWER & LIGHT 96
- Commercial-scale 2
- Residential-scale 94

JEFFERSON COUNTY PUD 1 103
- Commercial-scale 8
- Residential-scale 95

KITTITAS COUNTY PUD 1 49
- Commercial-scale 11
- Residential-scale 38

KLICKITAT COUNTY PUD 1 28
- Commercial-scale 1
- Residential-scale 27

Appendix A, Continued

LEWIS COUNTY PUD 1. 61
Residential-scale 61

MASON COUNTY PUD 1 3
Commercial-scale 1
Residential-scale 2

MASON COUNTY PUD 3 42
Commercial-scale 2
Residential-scale 40

NESPELEM VALLEY ELECTRIC COOPERATIVE 1
Residential-scale 1

OHOP MUTUAL LIGHT COMPANY 5
Residential-scale 5

OKANOGAN COUNTY ELECTRIC COOPERATIVE 27
Residential-scale 27

OKANOGAN COUNTY PUD 1 14
Commercial-scale 1
Residential-scale 13

ORCAS POWER & LIGHT COOPERATIVE 59
Commercial-scale 5
Community Solar 1
Residential-scale 53

PACIFIC COUNTY PUD 2 18
Commercial-scale 1
Residential-scale 17

PACIFIC POWER & LIGHT COMPANY 432
Commercial-scale 82
Residential-scale 350

PARKLAND LIGHT AND WATER COMPANY 4
Commercial-scale 1
Residential-scale 3

PEND OREILLE COUNTY PUD 1 4
Commercial-scale 1
Residential-scale 3

PENINSULA LIGHT COMPANY 70
Commercial-scale 1
Residential-scale 69

PUGET SOUND ENERGY 2697
Commercial-scale 137
Residential-scale 2560

SEATTLE CITY LIGHT 951
Commercial-scale 30
Residential-scale 921

SKAMANIA COUNTY PUD 1 2
Residential-scale 2

SNOHOMISH COUNTY PUD 521
Commercial-scale 19
Community Solar 1
Residential-scale 501

TACOMA POWER 221
Commercial-scale 7
Residential-scale 214

TANNER ELECTRIC COOPERATIVE 8
Residential-scale 8

TOWN OF EATONVILLE 2
Residential-scale 2

TOWN OF STEILACOOM 9
Residential-scale 9

VERA WATER & POWER 10
Community Solar 1
Residential-scale 9

WAHKIAKUM COUNTY PUD 1 8
Residential-scale 8

Appendix B

Percentage of Renewable Energy System Capacity by Type for Each Utility*

	kW	Percent
ALDER MUTUAL LIGHT	**3.1**	
Residential-scale	3.1	100%
AVISTA	**31511.4**	
Commercial-scale	618.5	2%
Residential-scale	3112.2	10%
Shared Commercial Solar	27780.7	88%
BENTON COUNTY PUD 1	**2481.1**	
Commercial-scale	236.5	10%
Residential-scale	2244.5	90%
BENTON RURAL ELECTRIC ASSOCIATION	**1446.4**	
Commercial-scale	388.8	27%
Community Solar	30.8	2%
Residential-scale	1026.8	71%
BIG BEND ELECTRIC COOPERATIVE	**299.5**	
Commercial-scale	19.8	7%
Residential-scale	279.7	93%
CHELAN COUNTY PUD 1	**58.8**	
Commercial-scale	28.0	48%
Residential-scale	30.8	52%
CITY OF CENTRALIA	**151.6**	
Residential-scale	151.6	100%
CITY OF ELLENSBURG	**442.3**	
Commercial-scale	146.0	33%
Residential-scale	296.2	67%
CITY OF MCCLEARY	**4.8**	
Residential-scale	4.8	100%
CITY OF PORT ANGELES	**170.6**	
Residential-scale	170.6	100%
CITY OF RICHLAND	**926.1**	
Residential-scale	926.1	100%
CLALLAM COUNTY PUD 1	**708.4**	
Commercial-scale	14.6	2%
Community Solar	31.4	4%
Residential-scale	662.5	94%
CLARK COUNTY PUD 1	**5260.1**	
Commercial-scale	492.2	9%
Residential-scale	4767.9	91%
CLEARWATER POWER COMPANY	**8.1**	
Residential-scale	8.1	100%
COLUMBIA RURAL ELECTRIC ASSOCIATION	**532.4**	
Commercial-scale	213.3	40%
Residential-scale	319.1	60%
COWLITZ COUNTY PUD 1	**837.2**	
Commercial-scale	20.8	2%
Residential-scale	816.4	98%
DOUGLAS COUNTY PUD 1	**35.5**	
Commercial-scale	14.7	41%
Residential-scale	20.8	59%
ELMHURST MUTUAL POWER & LIGHT	**50.7**	
Commercial-scale	16.5	33%
Residential-scale	34.2	67%
FERRY COUNTY PUD 1	**114.0**	
Residential-scale	114.0	100%
FRANKLIN COUNTY PUD 1	**1574.9**	
Commercial-scale	38.0	2%
Residential-scale	1537.0	98%
GRANT COUNTY PUD 2	**303.9**	
Commercial-scale	103.7	34%
Residential-scale	200.2	66%
GRAYS HARBOR COUNTY PUD 1	**268.6**	
Residential-scale	268.6	100%

** System totals may not add up exactly due to rounding.*

	kW	Percent
GRAYS HARBOR COUNTY PUD 1	**268**	
Residential-scale	268.6	100%
INLAND POWER & LIGHT	**893.3**	
Commercial-scale	33.0	4%
Residential-scale	860.9	96%
JEFFERSON COUNTY PUD 1	**1102.9**	
Commercial-scale	369.2	33%
Residential-scale	733.8	67%
KITTITAS COUNTY PUD 1	**662.5**	
Commercial-scale	267.2	40%
Residential-scale	395.3	60%
KLICKITAT COUNTY PUD 1	**235.4**	
Commercial-scale	13.2	6%
Residential-scale	222.2	94%
LEWIS COUNTY PUD 1	**551.8**	
Residential-scale	551.8	100%
MASON COUNTY PUD 1	**158.5**	
Commercial-scale	138.2	87%
Residential-scale	20.3	13%
MASON COUNTY PUD 3	**383.6**	
Commercial-scale	40.5	11%
Residential-scale	343.1	89%
NESPELEM VALLEY ELECTRIC COOPERATIVE	**12.0**	
Residential-scale	12.0	100%
OHOP MUTUAL LIGHT COMPANY	**31.1**	
Residential-scale	31.1	100%
OKANOGAN COUNTY ELECTRIC COOPERATIVE	**169.5**	
Residential-scale	169.5	100%
OKANOGAN COUNTY PUD 1	**145.1**	
Commercial-scale	19.2	13%
Residential-scale	125.9	87%

	kW	Percent
ORCAS POWER & LIGHT COOPERATIVE	**1071.2**	
Commercial-scale	113.0	11%
Community Solar	504.0	47%
Residential-scale	454.2	42%
PACIFIC COUNTY PUD 2	**172.9**	
Commercial-scale	34.8	20%
Residential-scale	138.1	80%
PACIFIC POWER & LIGHT COMPANY	**5793.5**	
Commercial-scale	2533.3	44%
Residential-scale	3260.2	56%
PARKLAND LIGHT AND WATER COMPANY	**36.9**	
Commercial-scale	21.9	59%
Residential-scale	15.0	41%
PEND OREILLE COUNTY PUD 1	**36.9**	
Commercial-scale	12.5	34%
Residential-scale	24.4	66%
PENINSULA LIGHT COMPANY	**720.0**	
Commercial-scale	99.8	14%
Residential-scale	620.3	86%
PUGET SOUND ENERGY	**29799.4**	
Commercial-scale	8033.0	27%
Residential-scale	21766.4	73%
SEATTLE CITY LIGHT	**7905.7**	
Commercial-scale	721.0	9%
Residential-scale	7184.6	91%
SKAMANIA COUNTY PUD 1	**19.5**	
Residential-scale	19.5	100%
SNOHOMISH COUNTY PUD	**5743.2**	
Commercial-scale	791.3	14%
Community Solar	615.6	11%
Residential-scale	4336.3	76%

	kW	Percent
TACOMA POWER	**1732.0**	
Commercial-scale	134.6	8%
Residential-scale	1597.4	92%
TANNER ELECTRIC COOPERATIVE	**72.2**	
Residential-scale	72.2	100%
TOWN OF EATONVILLE	**13.7**	
Residential-scale	13.7	100%
TOWN OF STEILACOOM	**81.2**	
Residential-scale	81.2	100%
VERA WATER & POWER	**94.7**	
Community Solar	14.4	15%
Residential-scale	80.3	85%
WAHKIAKUM COUNTY PUD 1	**62.9**	
Residential-scale	62.9	100%

Fast Fact

Oregon has approximately three times the amount of installed solar capacity when compared to Washington.

Appendix C

Community Solar Deployment by Utility Service Territory

Certfied Systems	*Number of Systems*	*Total MW*
Benton Rural Electric Association	1	0.03
Clallam County PUD 1	1	0.03
Orcas Power & Light Cooperative	1	0.50
Snohomish County PUD	1	0.62
Vera Water & Power	1	0.01
Pre-Certified Systems, Not Yet Completed	*Number of Systems*	*Total MW*
Jefferson County PUD 1	1	0.11
Mason County PUD 1	1	0.06
Okanogan County Electric Cooperative	1	0.03
Okanogan County PUD 1	1	0.07
Peninsula Light Company	1	0.70
Puget Sound Energy	3	6.09
Seattle City Light	18	1.35
Snohomish County PUD	3	0.28
Tanner Electric Cooperative	1	0.04