NUVISTA

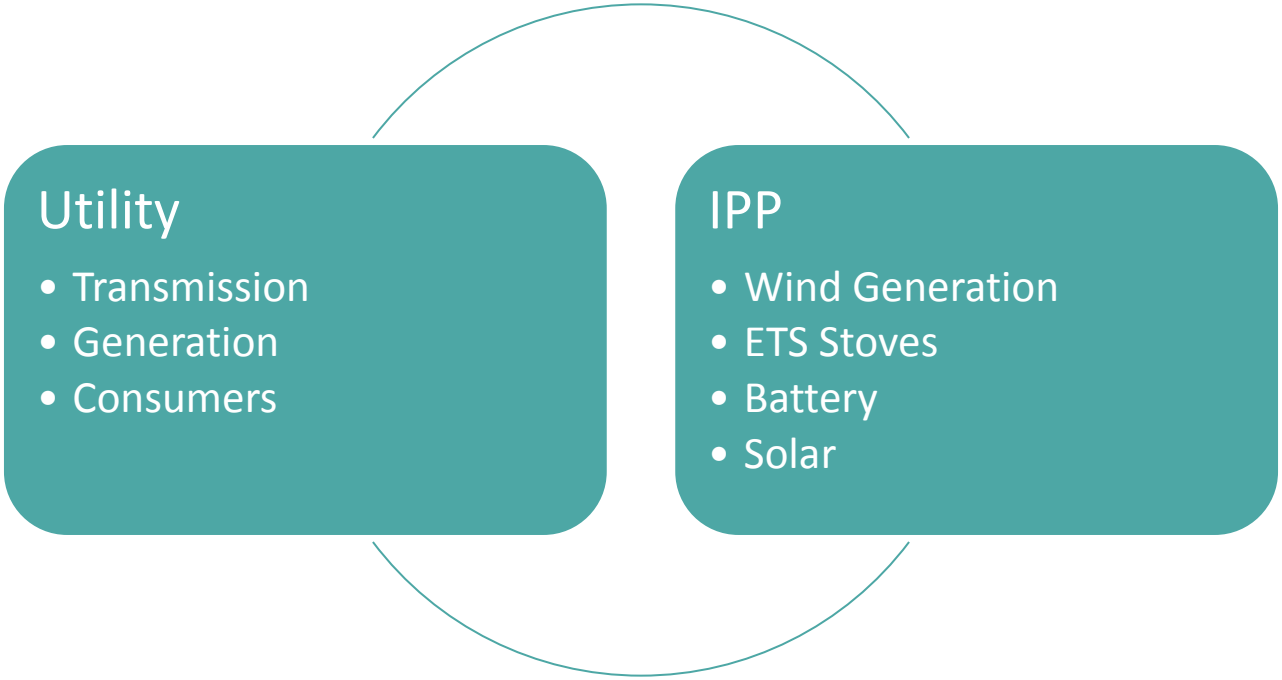
Independent Power Producer and Rural Utilities

Nuvista Light & Electric Company, Incorporated is a non-profit organization serving the Yukon-Kuskokwim region on renewable energy, and an upcoming Independent Power Producer (IPP).

- Explore benefits of an IPP with Renewables
- Maximizing PCE Rate and Renewables

Explore ways to streamline alternative energy revenue with your PCE reporting on a monthly basis and annual basis

Power Cost Equalization and Renewable Energy for IPP's



Factors to Consider When Adding Renewables for Utilities

- Adding renewables will reduce your utility fuel consumption (monthly and annually)
- Customer rates will most likely remain the same
- Your monthly and annual fuel expenses will decrease which in return will affect your Total PCE reimbursement amounts

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PCE Utility Rates are

- Affected by line loss and fuel efficiency
- Determined by Non-fuel and Fuel Expenses
- Can be limited by Customer Rates

WHAT IS AN IPP?

An Independent Power Producer is a non-utility energy generator that owns the energy generating systems (wind turbines, solar panels, BESS, ETS) and sells it to the utility at a certain kwh rate

Establishing a PPA with IPP

An IPP can establish a **Power Purchase Agreement (PPA**) between itself and the utility company at a certain price to sell power back to the utility.

- Provide opportunities to leverage the PCE program
- Provides revenue to both utility and IPP
- Provide a process to manage the distribution of excess wind
- Provides transparency between the distribution of benefits
- Provides both companies to reevaluate and negotiate rates

TARGET: Keep PCE Reimbursement Rate at the current level

UTILITY MONTHLY REPORTS

- Fuel Expenses are less
- Reduces your RCA/PCE reimbursement to utility

Section B (2)												
1.	kWh Generated and Purchased:											
		Diesel:	123,950	Hydro:		Wind:	27,766	Natural Gas:				
		Total kWh Purchased:		Purchased From / Vendor:								
		Other:				Total kWh Available For Sale =	151,716					
2.	Price of fuel used by RCA to determine PCE rate: $/gal.			$	5.2476	Date Aprv.	7	/	8	/	2022	
3.	Fuel Used (Gallons) (2)		9,353	Total Fuel Cost		$	49,080.80					
4.	Total Non-Fuel Exp:		$									

Changes to PCE Reporting for Wind to Heat Sales

Wind to heat sales will require monthly/annual reporting changes

- Purchased power reporting
- Customer meter reading
- Non-fuel expenses
- Fuel Report Review
- Fuel Invoices

Section D						
1. Current Residential price per kWh prior to PCE Credit (i.e., .4823 per kWh)				0.7400		
2. PCE Eligible kWh:						Totals
Residential kWh: (3,4)	49,866					49,866
Comm. Facility Max kWh = 30,310						
Community Facilities kWh (5,6)	3,450					3,450
Total Eligible kWh:	53,316	0	0	0		53,316
Present PCE Rate: (¢ per kWh)	0.4162					
** 3. Total PCE credit ($)	$ 22,190.12	$ 0.00	$ 0.00	$ 0.00		$ 22,190.12

** This amount should reconcile to the amount the utility expects to be reimbursed, as shown on your back up documents. (Total eligible kWh x present PCE rate ((¢/kWh)) = PCE credit)

Quyana!

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INPUTS - Production and Cost Data for Calculator Set-up - Enter all values based on initial production estimates or last year's production.		
Cost of Diesel Fuel to Utility	$	3.0048
Cost of Residential Heating Fuel	$	5.5600
Electric Rates		
Utility's Full Electricity Rate for Residential Customers Before PCE ($/kV	$	0.5200
Commercial and Residential Electricity Rate above 500 kWh ($/kWh)	$	0.5200
Dispatchable Wind to Heat to Steffes Stives ($/kWh)	$	0.1552
Renewable Energy Production		
Wind Generation (kWh)		840,000
Excess Wind Generation (kWh)		210,240
Additional Station Service Associated with RE (kWh)		56,169
Renewable Energy Operations and Maintenance Cost Estimates		
Annual O&M Cost for Wind Turbines & Transmission Line (2% of Cap Ex)	$	69,600
Annual Battery Maintenance Cost ($800,000 Capital Cost $/100/yr)	$	8,000

Summary of Savings		
Gallons of Diesel Fuel Displaced		63,468
Annual Diesel Cost Savings	$	190,709
Gallons of Heating Fuel Displaced		6,995
Annual Heating Fuel Cost Savings	$	38,893

True-up Calculator	Base Case	New PPA
Sales Price for Renewable Energy - per kWh		$ 0.2313
Sales Price for Excess Wind for heat - per kWh		$ 0.1000
PCE Summary (Annual)		
PCE Fuel Rate	$ 0.2760	$ 0.2906
PCE Rate per kWh to the utility	$ 0.1722	$ 0.1722
Total Annual Payment of PCE to Utility	$ 119,862	$ 119,850
Increase in PCE		$ (12)
Annual Utility Cash Flow		
Total Expenses (PCE eligible only)	$ 653,133	$ 653,102
Purchased Generation	$ -	$ 194,292
Purchased wind to heat	$ -	$ 21,024
Cost of Diesel Fuel	$ 465,082	$ 274,373
Non-fuel expense total for the Utility	$ 188,051	$ 163,413
Total Revenue	$ 876,250	$ 887,865
Revenue from PCE customers	$ 242,030	$ 242,042
Total PCE reimbursement to Utility	$ 119,862	$ 119,850
Revenue from Commercial and Residential Sales Above 500 kWh	$ 514,359	$ 514,359
Revenue from Dispatchable Heat Sales	$ -	$ 11,614
Zero out utility cash flow (other non PCE related revenue)	$ (223,118)	$ (223,118)
Utility Cash Flow	$ -	$ 11,645
IPP Annual Cash Flow		
Total IPP Revenue		$ 215,316
Total IPP Expenses		$ 177,600
Wind System O&M		$ 69,600
Administrative		$ 48,000
Insurance		$ 20,000
Savings for Equipment Replacements		$ 30,000
Training		$ 10,000
Other		$ -
Excess to Return to the Utility		$ 37,716

Wind to Heat Rate Setting Calculator

Inputs		
Annual Excess Wind to Heat (kWh)	210,240	
Cost for the purchase of excess wind from the IPP	$ 0.1000	
Current Heating Fuel Cost ($/gallon)	$ 5.5600	
Percent of Savings to Consumer	35%	
Calculator Results	**$/kWh**	**$/gal**
Cost for the purchase of excess wind from the IPP	$ 0.1000	$ 3.0056
Current Heating Fuel Cost	$ 0.1850	$ 5.5600
Total Fuel Savings for Wind to Heat versus Heating Oil	$ 0.0850	$ 2.5544
Savings to the Consumer	$ 0.0297	$ 0.8940
Revenue to Utility	$ 0.0552	$ 1.6604
Final Wind-to-Heat Rate to the Consumer	**$ 0.1552**	**$ 4.6660**
Percent Savings to the consumer		**16.1%**
Revenue to Utility for Heat Sales		
Heat Sales revenue per kWh	$ 0.1552	
Heat Sales revenue per kWh	$ 32,638.14	
Utility Cost for Excess Wind to Heat	$ 21,024.00	
Utility Heat Sales Total Revenue	**$ 11,614.14**	
IPP Revenue from Excess Wind Sales	**$ 21,024.00**	

GENERATING AND DISTRIBUTING SUSTAINABLE POWER IN RURAL ALASKA IS NOT CHEAP. PCE MAKES HIGH PRICED POWER MORE AFFORDABLE. YOUR COMMUNITY COUNTS ON YOU TO DO IT WELL.

- Read all meters accurately on the same day each month (ok, weather permitting)
- Calculate Fuel Efficiency (Generated) and Line Loss monthly
  - Address implications once confirming out of range numbers are not mathematical or meter reading mistakes
- Document All Fuel and Non-Fuel Expenses (Keep invoices and payment information organized and easily accessible)
- Set rates to cover expenses, maximize PCE for customers, and save for the future
  - Explain rates to your customers at an annual meeting
- Encourage/incentivize operator(s) to be pro-active with maintenance and repairs