



Commissioners:
 Francis J. Hoey, III
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July 2, 2015

Subject: Pioneer Valley Renewables Hydrokinetic Demonstration Observations

To Whom It May Concern:

On November 21 and 22, 2014, Pioneer Valley Renewables (PVR) conducted a demonstration of its innovative hydrokinetic shroud designs within the Second Level of the Holyoke Canal System, which is owned by the City of Holyoke Gas & Electric Department (HG&E). This demonstration was authorized pursuant to an expedited permitting process for Holyoke Canal System demonstrations, which was approved by the Federal Energy Regulatory Commission under 146 FERC ¶62,195.

As part of this demonstration, PVR tested output from a control turbine (with no shroud) under multiple load conditions and then tested output from the same turbine with PVR's "c" and "f" shrouds. This test was conducted at two different locations having different flow velocities (one location each day), in the Second Level Canal. A member of HG&E's staff was onsite throughout the entire demonstration in order to observe activities and ensure compliance to HG&E's safety requirements. Pictures taken during the demonstration are attached.

On the first day of testing, PVR reports that the following results were obtained:

Turbine Only		
Load Condition	Average Output (W)	
P1	5.75	
P2	2.25	
P3	1.40	
P4	0.81	
Turbine with "C" Shroud		
Load Condition	Average Output (W)	Improvement (%)
P1	8.63	150
P2	5.63	250
P3	2.98	212.5
P4	2.38	292.31
Turbine with "F" Shroud		
Load Condition	Average Output (W)	Improvement (%)
P1	12.00	208.70
P2	5.25	233.33
P3	4.55	325
P4	2.89	355.38

These reported results appear to be consistent with HG&E's observations during testing.

According to PVR, between the first and second day of testing, a modification was made to the rudder on the demonstration turbine in order to optimize how the turbine was positioned in the water. PVR reports that on the second day of testing, the following results were obtained:

Turbine Only		
Load Condition	Average Output (W)	
P1	10.45	
P2	9.19	
P3	9.45	
P4	9.00	
Turbine with "C" Shroud		
Load Condition	Average Output (W)	Improvement (%)
P1	27.63	264.35
P2	34.13	371.43
P3	31.50	333.33
P4	21.50	238.89
Turbine with "F" Shroud		
Load Condition	Average Output (W)	Improvement (%)
P1	38.94	372.61
P2	31.73	345.31
P3	22.75	240.74
P4	30.45	338.33

Again, these results appear to be consistent with HG&E's observations during testing.

Please do not hesitate to contact me at (413) 536-9352 or by email at bbeauregard@hged.com if you have any questions.

Sincerely,

Brian C. Beauregard
Electric Division Superintendent



