



# **FFP/NREL Collaboration on Hydrokinetic River Turbine Testing**

**Cooperative Research and Development  
Final Report**

**CRADA Number: CRD-12-00473**

NREL Technical Contact: Frederick Driscoll

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**CRADA Report**  
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## Cooperative Research and Development Final Report

In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

**CRADA Number:** CRD-12-00473

**CRADA Title:** FFP/NREL Collaboration on Hydrokinetic River Turbine Testing

**Parties to the Agreement:** Free Flow Power Corporation

### **Joint Work Statement Funding Table showing DOE commitment:**

<b>Estimated Costs</b>	<b>NREL Shared Resources</b>
Year 1	\$ 55,000.00
Year 2	\$ 00.00
Year 3	\$ 00.00
TOTALS	\$ 55,000.00

### **Abstract of CRADA work:**

This shared resources CRADA defines collaborations between the National Renewable Energy Laboratory (NREL) and Free Flow Power (FFP) set forth in the following Joint Work Statement. Under the terms and conditions described in this CRADA, NREL and FFP will collaborate on the testing of FFP's hydrokinetic river turbine project on the Mississippi River (baseline location near Baton Rouge, LA; alternate location near Greenville, MS). NREL and FFP will work together to develop testing plans, instrumentation, and data acquisition systems; and perform field measurements.

### **Summary of Research Results:**

NREL participated in the deployment of FFP's hydrokinetic river turbine in the Mississippi River near Plaquemine, LA under this CRADA. A detailed testing plan was developed for loads and performance testing. NREL's MOISyt instrumentation system was customized at the NWTC then installed and calibrated at the FFP mobilization site near Port Allen, LA. MOISyt was configured to measure:

1. structural loads in the hub supporting the rotor blades
2. the 6 DOF motion of the turbine
3. 3 orthogonal vibrations of the turbine
4. water velocity and direction
5. voltage and current on all three phases of the output power

MOISyt was also configured to operate a pan and tilt video camera and deliver streaming video. Shortly after deployment of the turbine, the turbine was recovered because of structural problems and it was subsequently returned to the mobilization site in Port Allen. All of the MOISyt system was recovered in working order.

**Subject Inventions Listing:** None

**Report Date:** 2/1/2013

**Responsible Technical Contact at Alliance/NREL:** Frederick Driscoll

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