Name: _____ **Date:** _____

White Paper Study Guide

Background research resources: Learn about Instream Energy Generation Technology (IEGT) as an innovative alternative energy solution by studying the information provided at www.verdantpower.com, especially the "Technology" pages and "Newsroom" articles:

Sixth-Graders Get a First Hand Look as Island Has a Role in Electric Power's Green Revolution http://nyc10044.com/wire/2310/verdant.html

Firm Plans to Tap Tides in East Channel for Power http://nyc10044.com/wire/2223/rivrpowr.html

Meetings this Week to Explain Underwater Power Generation Plan http://nyc10044.com/wire/2321/wire2321.pdf#page=7

Using your Internet research, answer the following questions on a separate sheet of paper.

The Problem

1. How many people in the world live without electrical power?
2. Imagine you lived without electricity. What would your life be like?
3. How is electricity produced?
4. What are some problems with **fossil fuels**?
5. What are some **alternative sources** of energy?
6. Why are these sources of energy **renewable**?

How the Technology Works

7. What does IEGT stand for?
8. What are some synonyms for IEGT?
9. How do Verdant Power's IEGT systems generate electricity? How are they like underwater "**windfarms**"?
10. How is that different from the way **hydropower dams** generate electricity?
11. Do Verdant Power's IEGT systems need to operate just in big rivers?
12. IEGT systems use **turbines**. How does a turbine work?
13. How many different types of turbines are used in Verdant Power's systems?
14. How fast do the blades spin?
15. How do lift or flutter vanes work?
16. Where are the systems placed?

How the Technology Solves the Problem

17. What does it mean if a technology has low **environmental impact**?
18. What is **installed capacity**?
19. In terms of a percentage, what would be the **capacity factor** of a Verdant Power system that is operating in a big river?
20. What is a **megawatt**?
21. How many homes will a ten-megawatt Verdant Power system in New York's East River serve?
22. How much is electricity generated by the East River projected to cost per **kilowatt-hour** (kWh)? How does it compare with the cost of traditionally generated power?
23. What is **peak-shaving** and how will this technology help?
24. How will excess power from the IEGT system be used?
25. What is a **distributed generation system**?
26. Why will IEGT technology be good in developing countries?