Wave Energy Development

By Pete Stauffer
Photos courtesy Oregon State University

Of all the different forms of alternative ocean energy, perhaps the most intriguing to Surfrider Foundation members is wave energy. Wave energy refers to the conversion of energy from ocean waves – a resource that surfers understand well – to electrical power. Harnessing this energy is achieved through a wave energy converter (WEC) device which connects to a power grid onshore.

To date, a variety of WEC prototypes have been developed, encompassing a range of approaches to energy conversion. Among these include: the point absorber, the attenuator; and the oscillating water column. It remains unclear which of these may ultimately emerge as the industry standard.

By any measure, the wave energy industry is still in its infancy. With the exception of a few pilot deployments and overseas projects, wave energy remains largely in the conceptual and planning stages; a technology that offers promise, but has yet to be adequately tested in the ocean environment.

Now, as the United States moves to embrace renewable energy and reduce its dependence on fossil fuels, wave energy development is rapidly moving to the forefront. Since 2006, over twenty permit applications have been submitted to the Federal Energy Regulatory Commission (FERC) for wave energy installations. Most of these projects have been proposed in Oregon, Washington, and northern California where wave resources are rich.

Not surprisingly, this 'gold rush' to develop wave energy in the nearshore environment has elicited a strong response in many coastal communities. Stakeholders and other citizens have faced a steep learning curve and grappled with questions such as: How will this affect current human uses of the ocean? What impacts could this have on coastal ecosystems? What socioeconomic benefits (or costs) could result?

Within Surfrider Foundation's Chapter network, interest in wave energy development has been high from the start. As local voices for both conservation and recreational users, Surfrider Chapters have viewed themselves as key participants in the project planning process. Rightly so, our membership has recognized the value we can provide in evaluating complex tradeoffs, and ensuring that projects will minimize impacts to coastal ecosystems and ocean recreation.

In 2006, recognizing the need to develop guidance for Chapter engagement in wave energy, Surfrider began a grassroots dialogue with members in Oregon on the issue of wave energy. Feedback revealed that a significant majority of our constituents support the concept of ocean renewable energy– particularly as an alternative to offshore oil drilling and LNG facilities. At the same time, members expressed concern over potential impacts to ocean recreation, nearshore ecology, coastal processes, public safety, aesthetics and fishing access.

To address such concerns, Chapters and staff began developing a set of principles or 'best practices' to use when evaluating or planning for potential wave energy projects. This set of principles ultimately became the foundation for Surfrider Foundation's Policy Statement on Alternative Ocean Energy, adopted in 2008. The Policy Statement provides a framework for Chapters to engage in planning and permitting processes, and to evaluate the merits of individual projects.

Currently, Surfrider Chapters are engaged as formal stakeholders in a number of wave energy project proposals on the West Coast. We are increasingly recognized as an integral participant that can effectively represent the interests of our members, as well as the broader demographic of recreational ocean users. We have also emerged as an active participant in statewide and national discussions on this topic.

Clearly, the issue of wave energy development is a complex one, and something that will challenge us as an organization to seek appropriate balances between nearshore preservation and the careful development of a renewable source of energy. As a group of coastal activists dedicated to a sustainable future, we are perhaps as well positioned as anyone to reconcile these difficult tradeoffs and ensure that projects that go in the water happen in the *right* way.

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For more information or to share your thoughts on this topic, please visit the following links:

Policy Statement on Alternative Ocean Energy: *www.surfrider.org/policy_ocean_alt_energy.asp*

Wave Energy Blog and Toolkit: *http://surfriderwaveenergy.blogspot.com/*