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Sacramento, CA 95831
USA

March 9, 2007
Sacramento, CA
USA

For Immediate Release

**SACRAMENTO MAN CALLS FOR CONGRESS AND PRESIDENT
TO MAKE OCEAN ENERGY A TOP PRIORITY & TO INVEST
\$50 BILLION IN THE BATTLE AGAINST GLOBAL WARMING**

Global warming constitutes a major problem, and to fight it, a Sacramento man is calling on Congress and the Administration to take a bold step—similar to one taken, in 1961, by President John Kennedy with respect to the Apollo program—and declare **ocean-based energy** a top national priority and, over the course of a decade, transform **ocean power** from its present embryonic quasi-experimental stage to full-scale development.

According to Dr. Frank Trujillo (tru-HEE-yo), more than anything else America could do, **ocean energy** would represent a tipping point in the full-scale assault against global warming. It's possible in the future, by turning to clean **ocean power**, he contends, to freeze carbon dioxide emissions, to curtail exploitation of fossil fuels, to eliminate our country's dependence on foreign oil, and to eventually scale down America's coal-fired electrical plants. And, in doing these things, to help turn the tide on climate change. "It will not be easy—nothing worthwhile is easy—but these improvements are certainly within our reach," says Trujillo. "But only if we turn to the ocean."

In "An Open Letter to the President and Congress," a letter delivered to the Administration and members of Congress today, Trujillo says "There is an urgent need, worldwide, for a **new energy paradigm**," and he calls for an investment of a minimum of \$50 billion over the course of eight (8) years for research and development of ocean energy. The following *ocean-based* technologies comprise what he refers to as **the ocean energy matrix of the future**:

Marine Biomass Energy. *Marine farming* can capture incredible amounts of solar energy. It has been estimated that large, open ocean farms planted with giant kelp (as one example) could potentially provide *most if not all* of the energy needs of the United States. As contrasted with combustion of fossil fuels, *marine biomass energy* removes carbon dioxide from the atmosphere and converts it, via photosynthesis, into chemical energy.

Ocean Solar Energy. The ocean is the largest solar collector in the world.¹ It is estimated that 300 times what the entire world consumes in electricity is available by tapping the upper layers of the tropical ocean. An added benefit of *ocean solar power* is the production, via desalinization, of fresh water.

Marine Current Energy. Seawater is 800 times denser than air; hence water traveling at 12 mph exerts force comparable to a 110-mile wind. This power can successfully be harnessed, via turbine. Ocean current is of two types, two-way (ocean tides) and one-way (i.e., the Gulf Stream, for example) and can be used to generate electricity. Experts contend *the Gulf Stream alone* transports some 1.5 petawatts of heat, equivalent to 100 times the world energy demand. A *tidal fence* (between two land masses) can serve as a conduit for autos and trains (picture a high-speed bullet train linking Miami, Houston, and San Diego, for example). With regard to future water scarcity issues (rivers like the Colorado drying up, drought, etc.), a *tidal fence* could also be used for transporting desalinated water to shore.

Wave Power/Wave Energy. Using a variety of innovative technologies, electricity is today being generated, via *wave energy*, in dozens of locations throughout the world. Wave energy is pollution-free and entirely, persistently, renewable. It has been estimated that ocean waves are capable of producing between 2,000 and 4,000 gigawatts of electricity, the latter according to UNESCO. And, if that isn't enough, every 15 seconds, or so, here comes another wave!

Off-Shore Wind Energy. Most Americans are familiar with the land-based wind energy turbine. Fewer are acquainted with its off-shore cousin. The ocean makes up 73% of the earth's surface, hence *off-shore wind energy* potential is enormous—*several times again* the energy requirement of the entire world. A *wind farm* is unobtrusive, assuming placement of turbines 10 or 100 miles from shore. One *wind farm* complex alone—comprised of 250 or 300 wind turbines—can produce as much electricity as is produced annually in a nuclear power plant. *Off-shore wind energy* is clean and renewable. If implemented on a large scale, it *alone* could fulfill 100% of the energy requirement of the United States.

For many Americans, today will mark a very first glimpse of these newer, clean-energy, technologies. Some people are likely to register surprise, and Trujillo suggests this is only natural. Historically, information concerning these technologies has been suppressed. According to Trujillo, "*Ocean energy* may well represent the world's *last best hope* for combating global warming. It's hard to believe, but at this very moment in history, *ocean energy* is not even a tiny speck on our nation's radar screen! Given its potential, one would think it would merit serious discussion. But when is the last time you heard the merits of *ocean-based energy* debated on national television by the leading candidates for the presidency of the United States? Has it *ever* been debated? Little wonder so few people have even heard of it."

According to Trujillo, were the United States to pursue ocean energy, protection and nurturance of the ocean (inclusive of all marine animals, ocean habitat, and marine life) is an absolute imperative and the safekeeping of ocean resources for all future generations, to make use of and enjoy, must steadfastly be advocated and enforced. Today, he says, all over the world, society is guilty of doing very little in way of protecting the ocean. For too many years, Trujillo contends, the ocean has been relegated second-class status. There exists today a very real need for just one comprehensive law with respect to the ocean, and one department—and one only—overseeing exploration and protection of the ocean. To these ends, Trujillo is calling on the president and Congress to create a new, Cabinet-level, **United States Department of the Ocean**.

Trujillo readily admits he is no expert, but simply a deeply concerned citizen. A former school administrator and university professor, and owner of *ProTeach Publications*, a small company in Sacramento, Trujillo is a strong advocate for children and youth. "I am not an expert, not a scientist, not a politician. But you never know...maybe not being an expert is a good thing. It's time for reasonable people with common-sense ideas to step forward—people who are *not* part of the Washington establishment or organized lobby, people who are *not* beholden in any way to the vested interests."

In ocean energy, there are implications as well for the automobile. "My view is that combustion (of any type) is out, and that electricity is demonstrably the wave of the future," says Trujillo. "Electricity is much cleaner. What if, in 10 to 15 years, the power source (in other words, *ocean electricity*), and the vehicle are *both* absolutely 100% pollution-free?" he asks. "Zero emissions to produce; zero emissions to drive. Now just think about that!"

Trujillo realizes his ideas will spark both support and controversy. With climate change due to global warming, with the future of civilization as we know it at stake, he contends this is not the time for timidity. "Now is the time," he says, "for every one of us to take the very best look we can at a point in the distance some 25, 50, 250, and 500 years down the road. And then, paying absolutely no attention to the naysayers, or to those who lobby on behalf of vested interests, let us proceed to make the very best alternative energy decisions humanly possible on behalf of our children...and our children's children."

He relies on a good sense of humor to get him by. "It can certainly be hoped," he says, "to paraphrase Stephen Butler Leacock, a Canadian humorist and satirist, that once those in positions of power and influence latch on to the idea, they will not throw themselves from the room, fling themselves upon their horse, and then ride off madly in all directions!"

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