PRESS RELEASE

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Reverse Global Warming
GLOBAL FEED

the BA festival of science 4-11 sept 04

Sir David King, the UK Government's chief scientific adviser, wrote in *Science* magazine on 9 January 2004, "in my view, climate change is the most severe problem that we are facing today, more serious even than the threat of terrorism." Now that global warming has been officially recognised as “the biggest issue for us to face this century”, the question is how to begin to address this environmental crisis, as a matter of urgency. GLOBAL FEED is a new venture, based in Plymouth and New York, which attempts to show how, with renewable energy resources, the problem can be resolved. The exhibition, *Reverse Global Warming*, sets out a plan of action, in six parts:

1. INVENTORY OF THE WORLD’S RENEWABLE-ENERGY RESOURCES, USING OCEAN BASINS AS UNITS
Assuming that all “land” is essentially up-heaved ocean floor, and that the world would be covered by deep ocean if it had a smooth, round crust, then it is possible to map all of the world’s surface according to drainage, or slopes, into its saltwater bodies. At the centre of the world ocean is Antarctica, around which circulate the Atlantic, Pacific and Indian Oceans, and also inward-draining basins. In each region, each subset of territory, all land can be viewed as sloping down, or draining into a saltwater basin. By re-organizing geographical information according to ocean basins and their currents, rather than land masses or hemispheres, renewable resources of land and sea can be comprehensively assessed. With satellite imaging, GLOBAL FEED seeks out all areas of bio-productivity, then disseminates the information to decision-makers and the public. By identifying surplus run-off into the ocean, bay-by-bay, it is possible to assess how much offshore and lowland biomass can be collected to yield, on fermentation, hydro-carbons, as an alternative to fossil fuels. Similarly, through satellite imaging, sources of hydroelectric power can be identified.

2. POST-PETROLEUM / POST-DAM POWER
Currently the two main energy sources are fossil fuels and high dams, neither of which is sustainable. GLOBAL FEED proposes that we replace these with other sources of energy: renewable hydrocarbons, derived from biomass; un-depletable hydroelectric, enabled by undershot run-of-the-river wheel, as well as solar, wind and wave power. Various methods can be used to collect biomass, from freshwater and saltwater plants. The biomass rigs are graded Giant, Large, Medium, Small and Extra Small, according to the type of algae. Tens of thousands of semi-submerged algae rigs could replace the expensive, and near-obsolete, oil and gas rigs. Similarly, numerous precision-engineered undershot waterwheels could replace the massively-centralized (and highly vulnerable) high dams now in place, which block off nutrients from the sea.

3. EXPAND OCEAN VOLUME
Rather than build sea defences against rising seas (Sir David King recommends that £25 billion be spent on flood defences due to global warming), use a strategy innovated by earth artist Michael Heizer; the Double Negative. This is a large trough, or incision, cut across ridges and valleys, creating a gap between two zones. If the same cut is made in the ridges separating seawaters from nearby sub-sea-level basins, the sea area expands, and any rise in sea levels feared from global warming is allayed. GLOBAL FEED identifies zones for potential “negative” cuts; e.g. from the Mediterranean to the Quattara Depression, to the Chott-el-Hodna in Algeria; from the Red Sea and Gulf of Aden into deep salt-lake valleys immediately adjacent; from the Australian Bight through Port Augustus into Lake Eyre, etc.

4. A PENINSULA CAMPAIGN
The South West of England can provide a model for re-organising the EU, as a peninsula jutting out into the Atlantic. Following the strategy to divide land by its slopes to the sea and to make an inventory, bay by bay, of bio-productivity, the South West is divided into two halves, with the land draining into the Bristol Channel distinguished from that sloping into the English Channel. The same principles can be applied to divide all of Europe into the part with waters flowing south, into the Iberian Current and back towards the Americas, or into the North Sea or Norwegian Current, north to the Arctic Ocean. All of the EU (plus the few countries not joining it) can be thus divided in two halves, replacing the proposed federal, post-national Europe (dominated by France and Germany). The British Isles would

belong to the part of Europe that flows northward, with subsections for areas draining into the Irish Atlantic, the Irish Sea, the Channel and the North Sea.

5. TO REVERSE THE MELTING OF ANTARCTICA
As news media report, the greatest changes due to global warming appear around the Poles. However it is less well known that the prime impact on the South Pole comes from waters around the North Pole. These waters descend beneath the Gulf Stream and Kuroshio Currents, respectively in the Atlantic and Pacific Oceans, and then re-surface in the Weddell and Ross Seas, precisely where glacier break-off is occurring most dramatically. A key warming site in the southward polar flow of the Atlantic is the U.S. Northeast Seaboard. One of the key heated-water areas has been Jamaica Bay. This results partly from metropolitan combustion and from the traffic at JFK Airport, but also, very avoidably, from a simple physical act: the extension of a runway at JFK to an island within the bay, built first to accommodate the Concorde. This intervention has caused circulation through the bay to stop, in turn causing species loss and an up to 90% decline in marsh productivity, with heated, polluted water entering the NY Bight to eventually be swept into New York Canyon, diving beneath the Gulfstream towards the Southern Pole. The blockage of circulation in the Bay can be corrected immediately, perhaps with a multi-channel canal concept of Dennis Oppenheim.

6. STARTING IN THE GULF
If World Wars I and II, geo-strategically, were about who controls resources in and transport from the world's biggest oil fields, principally in the Gulf, then the current war, also centred on the Gulf and adjacent oil-rich areas like the Caspian Sea, can be re-focused. Attempts at control of territory can be directed, instead, at control of the water flows and attendant renewable-hydrocarbon and repeatable-hydroelectric potential. To achieve this, start with an existing US foreign ministry (State Department) practice of fostering scientific and technical exchange between comparable river basins, and foster an exchange—an ongoing long-term development comparison—between the Colorado River Basin and the Tigris-Euphrates Basin. Expand this immediately to include all of the saltwater body in which the Colorado and Tigris-Euphrates rivers are the principal source of freshwater: the Gulf of California and the Persian/ Arabian Gulf ("The Gulf"). Citing the UN Regional Sea law on such basins, particularly about "land-based sources" of pollution or disturbance, map out an extensive array of engineering works to restore one-time freshwater flows throughout the ocean catchment. Why rely on oil & gas if the price, both in global warming and in human blood, is so high? Let the shift to post-petroleum power, including also direct solar, wind, wave and micro-hydroelectric, be made now, before the wells run dry, or pressures for war increase.

Reverse Global Warming is curated by Tom Trevor. GLOBAL FEED is a co-copyright production of Ocean Earth Development Corporation and the University of Plymouth, in association with other members of the Plymouth Marine Sciences Partnership and scientists from the University of Exeter. It has been developed through an Arts Council England / Arts and Humanities Research Board *'Science and Art'* Research Fellowship at the Institute of Digital Art and Technology, University of Plymouth, awarded to Peter Fend.

The New York-based organisation Ocean Earth Development Corporation was established in 1980 as a corporate successor to the The Offices of Peter Fend, Coleen Fitzgibbon, Jenny Holzer, Peter Nadin, Richard Prince and Robin Winters. Satellite imaging for mass media was pioneered in the 1980s by Ocean earth shareholders Taro Suzuki, Eve Vaterlaus, Joan Waltemath and Wolfgang Staehle. Efforts by these artists are integrated within the exhibition.

The Plymouth Marine Sciences Partnership (PMSP) consists of the Plymouth Marine Laboratory, the University of Plymouth, the Marine Biological Association of the UK, the National Marine Aquarium and the Sir Alister Hardy Foundation for Ocean Science. The primary mission of the Plymouth Marine Sciences Partnership is to conduct world-class marine research to increase fundamental knowledge and to provide practical solutions to problems. Understanding and managing human impacts on the environment is an important element of its mission.

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