



G R E E N

The Global Renewable Energy Electricity Network

One World. One Energy. One Per Cent.

Manifesto and Business Plan

SUMMARY

1. GREEN stands for the “Global Renewable Energy Electricity Network”
2. GREEN is a global grid linking together the world’s abundant sources of renewable energy, delivering clean energy to every country on the planet.
3. GREEN addresses climate change, poverty and sustainability.
4. GREEN costs 1% of global GDP per year and will take 20 years to complete.
5. GREEN is spending better not more: we already spend more on polluting and finite conventional energy and subsidies.
6. GREEN is co-operative and equitable: each country pays for and receives energy in direct proportion to its needs.
7. GREEN is already happening: DESERTEC in EU-MENA. The Repower Initiative in the U.S. GCCIA in the Middle East.
8. GREEN’s network is already 75% complete: existing national grids only need to be linked together by long distance transmission lines.
9. GREEN will be public commons: paid for, constructed and managed by an independent supervisory body; funded by individual tax contribution delivered by national governments.
10. GREEN’s vision: “One World. One Energy. One Per Cent.” A renewable energy network for the entire planet. Paid for equitably by all. Used by and shared between the entire global population.

MANIFESTO

This manifesto is a call for the creation of global clean energy network, permanently linking every country to a Global Renewable Energy Electricity Network - GREEN.

GREEN is based on renewable energy mega-projects situated according to geographic appropriacy, irrespective of political boundaries: Solar energy from deserts, wind energy from the steppes and coasts, and geothermal energy from the tectonically active areas of the world.

These projects are then connected to a global ultra-high voltage long distance transmission grid, delivering clean energy to every country on the globe.

The manifesto is a call for each country to commit 1% of GDP to the construction of GREEN from now until its completion, and then to continue to spend this fixed amount to fund local energy generation and clean water projects, energy efficiency measures, eco-conservancy and clean up for critical ecosystems. GREEN itself will cost about \$15 trillion, and, at 1% of global GDP per year generating \$0.65 trillion, will take approximately 20 years to complete.

Given the close correlation between energy consumption and GDP, a 1% contribution from every country is proportional to the energy demands of each country. As each country's economy grows, so does its demand for electricity, and thus its proportional contribution to the construction and maintenance of the grid.

Regional peaks in energy consumption correspond to peak renewable energy generation during daylight hours. The grid allows each country and region to receive energy from other areas of the grid during the night, when local energy generation is low.

This network will not be owned by any government or private agency, but supervised and managed by a specifically created global body funded by contributions from national tax revenue. Independently awarded maintenance and management contracts will be delivered by a global board of technical experts without political, national or commercial affiliation. The network is public property, while funds for it will generate interest only for subsequent clean energy generation and development.

GREEN makes the provision of free, clean energy to the world's population our highest human priority.

The GREEN manifesto vision is: "One World. One Energy. One Per Cent." A renewable energy network for the entire planet. Paid for equitably by all. Used by and shared between the entire global population.

WHY BUILD GREEN?

Climate Change

As a direct result of human activity, average temperatures are expected to rise globally by at least 2°C in the next 50 years with cataclysmic impacts on global ecosystems and human society.

The principal cause of this substantial increase in temperature are CO₂ together with other greenhouse gas emissions from energy production, transport and industry. While the industrial revolution has permitted extraordinary development in human society, there is now consensus that continued greenhouse gas emissions at current and predicted levels will cause further global warming with extreme weather systems, rising sea levels and the destruction of natural habitats and species. GREEN would immediately impact on the two main causes of manmade greenhouse gas emission, transportation and energy generation.

The creation of GREEN would reduce emissions derived from energy production, using renewable sources which do not generate greenhouse gases, and lead to greater use of electric vehicle transportation as electricity becomes more economic than fossil fuel alternatives.

Poverty Alleviation

There is a direct correlation between access to energy and poverty, observable in all comparative human physiological statistics of life expectancy, health and mortality. For all intents and purposes, access to energy literally means access to health, long life and the ability to achieve self-determination. While 1 billion people take this freedom for granted, approximately 4-5 billion people currently live without access to energy, and consequently access to basic human necessities of clean water, medicine, and dependable food supplies.

Current methods of energy production and distribution do not permit access to energy for a large proportion of the world's population because they are simply too expensive for developing countries to buy and deliver to their populations.

The permanent provision of electricity to all citizens of the globe is a fundamental tool for human development, fostering access to the basic prerequisites of healthy life, and thereafter the freedoms and benefits of modern life.

Sustainability

Current energy consumption patterns mean that the global population is already consuming more energy and resources than the planet's ecosystem can support. Within 30 years, it is estimated that we would need the equivalent of 2 planets to support consumption based on current practices. GREEN offers a sustainable method of energy production for our rapidly growing population while allowing the development of societies without current access to energy.

BENEFITS

Developed World

Citizens:

- No need to radically alter consumption patterns or behaviour
- Individual contribution to climate change stabilization
- Individual contribution to development of economies in transition
- Short term job creation in infrastructure
- Long term job creation in maintenance and industry development

Government:

- Relief from fossil fuel dependence
- Achievement of IPCC / national emission reductions targets
- Achievement of UNMP goals
- Employment generation
- Economic stimulation

Corporate:

- Construction contracts
- Maintenance contracts

Economies in Transition

Citizens:

- Poverty alleviation
- Secure energy supply
- Secure fresh water supply
- Short term job creation in infrastructure
- Long term job creation in maintenance and industry development

Government:

- National infrastructure development
- Secure energy supply
- Relief from fossil fuel dependence
- Poverty alleviation
- Employment generation
- Economic stimulation

Corporate:

- Technology transfer
- Maintenance contracts
- Secure and stable energy supply

HOW ?

The reserves of renewable energy that are technically accessible globally are large enough to provide much more power than the world currently or will ever consume.

A global model of renewable energy generation and distribution allows the harnessing of major concentrations of renewable energy resources according to geographic and climatic suitability for large scale energy generation. These are distributed equitably and efficiently around the world according to population centres and energy use.

For example, the world's deserts provide the ideal sites for concentrated solar power projects. Geothermically active areas can be harnessed to provide efficient large scale geothermal energy production. And the mountains, coastal areas and steppes of the world can be harnessed to provide reliable and consistent supplies of wind energy.

These large scale renewable energy projects are then linked by ultra-high voltage DC transmission cables. UHVDC grids now have a range of up to 7000 kilometres, allowing delivery of energy to all inhabited areas of the globe. This UHVDC backbone is then be linked in to existing national and regional transmission networks, feeding into existing energy transmission infrastructure. It is estimated that 75% of the global transmission network is already in place, simply requiring the addition of UHVDC power lines across continental and regional boundaries to join them all together.

By linking generating centres together, GREEN overcomes one of the principal drawbacks of renewable energy generation – peak production happens in daylight. A global grid will allow areas in daylight to transmit energy to areas in darkness, and then reverse the process when night falls, allowing consistent supplies of energy regardless of the time of day.

Furthermore by interlinking renewable energy resources, GREEN promotes co-operation between countries and regions through interdependence and mutual self-interest. This will ensure not only the efficient use and development of renewable energy resources, but the sharing of economic, political and infrastructure resources required to complete GREEN as efficiently and quickly as possible, and maintain it thereafter.

HOW MUCH AND HOW LONG?

A global network of renewable energy mega-projects situated in locations ideally geographically suited to energy generation, linked by long distance transmission network, would cost in the region of \$15 trillion.

One per cent of global GDP is approximately \$0.65 trillion per year, and thus the construction of GREEN will take approximately 20 years with sufficient resource allocation and global co-operation. Thereafter other measures such as decentralized energy generation, efficiency and conservation can be implemented on an ongoing basis.

This is against current projected overall global level of investment in new power plants alone over the next 20 years of in the region of \$ 11 to 14 trillion.

Historical dependence on fossil fuel, which has enabled humanity's extraordinary growth and development over the past few hundred years, is sustained by a system of subsidies to the fossil fuel industry as a whole. It is estimated that conventional energy sources receive an estimated \$250-300 billion in subsidies per year worldwide. In light of a concerted global programme to provide a worldwide renewable energy grid, these subsidies will quickly be phased out and reallocated. Furthermore, GREEN would almost immediately begin to lower fuel costs, saving billions of dollars in more efficient energy generation.

However with a new focus on permanent and universal clean energy provision, spending from the other sectors directly affected by current resource use can be reapportioned. It is estimated that 2% of global GDP, approximately \$1.32 trillion, is currently spent on military expenditure every year. Given that a large proportion of this military expenditure is focused on the acquisition or defence of energy resources and territories containing them, the construction of GREEN will relieve the necessity of such high levels of competitive military expenditure given the co-operative and permanent nature of the clean energy supply delivered by the network.

Equally, it is important that funds from each country's contribution come from sectors directly affected (and improved) by the creation of GREEN, and does not impinge on other unrelated but critical sectors such as health, education, social security and aid.

This manifesto calls for the permanent allocation of 1% of global GDP, or \$0.65 trillion, first to the construction of GREEN, and thereafter on an ongoing basis, the maintenance of GREEN, decentralized energy generation, clean up and conservation and efficiency measures.

BUILDING BLOCKS ALREADY IN PLACE

There are already plans underway to supply clean energy to some of the most energy intensive regions in the world. If these were accelerated through massively increased funding and linked together, a large proportion of the world's energy needs would rapidly be met. The challenge is to communicate the benefits of linking them together and making their construction our highest priority.

Renewable Mega Projects Already Underway:

- President Obama is pushing for legislation to provide America with clean energy in 10 years. America consumes 25% of the world's energy.

- DESERTEC is a collaboration of EU and MENA countries to construct huge concentrated solar energy (CSP) projects in north Africa to provide 80% of Europe's energy needs by 2050, as well as clean water and energy to northern Africa and the Middle East.

- The Gulf Cooperation Council Interconnection Authority is a collaborative project between Kuwait, Saudi Arabia, Bahrain, Qatar, Oman and the United Arab Emirates aiming to build and oversee a regional grid, sharing energy throughout the Middle East.

Other key areas that could provide large scale energy generation for South America, Africa and Australia can quickly be identified and developed simultaneously, such as a series of large scale geothermal energy plants along the Australasian geothermal belt, the Andes or Rift Valley.

The Grid Is Already 75% Complete

According to experts in the energy transmission sector, the backbone of a global electricity transmission network is already in place, providing energy through existing national electricity networks. It is now possible to carry electricity up to 7000km using high-voltage DC transmission lines, which would be used to link appropriately located renewable energy projects to these national grids, ensuring that even areas long distances away from energy generation centres receive the benefit of the projects that their money helped to create. A state of the art long distance network linking each country's existing grid and regional grids would allow the efficient sharing of renewable energy mega project's generation across the planet and across time zones.

IMPLEMENTATION AND MANAGEMENT

GREEN will be funded by contributions from each country through the country's tax base. It is proposed that a fund be created under a new supervisory body, managed by independently elected technocrats, to collect and distribute these contributions.

This would facilitate the construction and implementation of GREEN by the independent body focused on simple efficacy and expedience not political or corporate interest. Tenders for the construction and management of the grid and all subsequent components of it will be awarded through a transparent and open contract process. The operation and conduct of this independent supervisory body will itself be subject to regular review and supervision.

This ensures all parts of the network remain in the ownership of the global commons – the citizens of the globe pay for its construction and management, and we retain ownership of the product – clean, free energy. No shares, no dividends, no corporate or national ownership, just clean, free energy.

This method of delivering and supervising the GREEN is preferable to existing international bodies and multilateral agencies such as the United Nations, World Bank or International Monetary Fund, whose history and structure permanently disadvantage non-colonial powers, perpetuating a polluting and unequal global economy and society.

Given the close correlation between GDP and energy consumption, there is no justification in claiming that countries contributing a larger amount of the funding to this project should be accorded more control than others over its implementation and operation.

Previous mega projects of this scale (such as ITER or CERN or any of the multi-lateral energy projects for example) are paid for by tax payers, constructed by private entities who then own the intellectual property and output derived from them. Thereafter any product of the new mega project is then sold back to the public who paid for it in the first place at a profit, while the project remains in private ownership.

GREEN does not involve any specialist intellectual property, being the amalgamation of existing technology already in the public domain. Companies contracted to construct elements of GREEN would be paid according to fair market rate for their expertise and time, but on completion of their work would not have any further stake or claim on the infrastructure developed. This is also the case with maintenance contracts. GREEN will be funded by public money, and then owned publicly with the provision of energy at cost to its consumers. Given the new and universal aims of the GREEN project, it is therefore appropriate to develop a new supervisory body to fairly oversee its delivery.