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## WHITE PAPER ON CLIMATE PROSPERITY

©By Richard Swett and Michael Rowan August, 2009

### *Synopsis*

Two inter-dependent crises are converging against civilization--energy and poverty, which must be addressed together. In our view, the U.S. has a special responsibility to lead in addressing both crises because it can organize a globally integrated solution.

### *History*

The story of civilization and energy can be viewed as one. The histories of Mesopotamia, Rome, China, Europe and the New World, are the stories of gradual or dramatic improvements in energy productivity, which is another way to describe technological change.

As the source of energy evolved over 70,000 years -- first from fire to domestic animals to agriculture -- the human population was able to increase from around 50 million mostly hunters and gatherers in 2000BC, to 900 million people in 1800AD, including some in civilized settlements with densities rivaling those of today.

Nevertheless, GDP per capita was slow to improve. In the 800 years from the year 1000 to 1800, it barely increased, going from \$400 to \$600 in what we call the undeveloped nations of today, and from \$400 to \$1000 in the developed nations of today.

In fact, science shows that the standard of living of hunters and gatherers several millennia ago was probably superior to a big majority of humanity alive in 1800 as well as the "bottom billion" living today.

In other words, at the time Jefferson was president of the US, virtually everybody on earth was poor and not just in money terms. Life was miserable, brutal and short for almost all people living everywhere, as it had been for time immemorial beforehand.

The mental model this history produced has been called the Malthusian Trap by the historian Gregory Clark. The Malthusian Trap fosters the belief that we live in a zero-sum world with no reasonable hope for future change. This is the belief system that humanity has embraced for most of its existence and which still permeates big pieces of today's mental map – especially the undeveloped part.

With the advent of electricity and then cheap oil to power machines and inventions, the math of Thomas Malthus was proved wrong when he postulated in 1798: population growth must outpace food production; therefore humanity faces immediate starvation, warfare and doom. At the time, doom and gloom were proved inevitable by mathematics.

Instead, population soared 7.5 times in only eight generations from 900 million in 1800 to 6.75 billion people in 2009, and today's people live on average twice as long as their forbears of 1800.

Similarly, in the same two centuries, GDP per capita income soared 20 times in today's developed countries and 6 times in today's developing countries – after being flat in both for the millennium beforehand.

The explanations for these soaring increases in life and income are found in the steady spread of civilization's toolbox: democracy, law, education, technology, free markets and trade – along with the energy to allow them to function and grow.

The mental model this positive change generated in civilization is what informs the belief in progress or modernization. It fosters the belief that we live in a win-win world with great hope for future change – and for everyone, not just the elites.

Whether one believes the glass is half full or empty has global implications for humanity.

However, the unequal distribution of wealth-creation tools between 1800 and the present established the rich/poor gap on earth that underlies a fundamental misunderstanding leading to conflicts among people and nations today.

The jury is out on which mental model will dominate the future of humanity: the Malthusian Trap or modernization.

What we know is that the toolbox for “life, liberty and the pursuit of happiness” was not distributed evenly on the planet, which has made all the difference in local and global politics ever since.

How to universalize wealth-creation tools where they have not been accessible is the obvious solution, but the question is whether we can beat the clock of energy and poverty and realize a win-win strategy while there’s still time.

From the United States, where 4.6% of the planet’s population lives, where 26% of the world’s energy is consumed, where 24% of global economic exchanges occur, and where the global recession of 2008 was initiated, the world is looking for solutions.

### *The Situation today*

We are facing a Malthusian crisis in energy and poverty.

The human need is obvious: 1.3 billion people are hungry; 1.6 billion people have no access to electricity; 1 billion people live in urban slums; and over 90% of the next 2 billion births will come from mothers now living in those dire circumstances.

As if poverty and its consequences were not enough of a challenge, the 2 billion people living in rich countries consume fossil fuel energy at an unsustainable rate which, when imitated by the developing world, becomes more unsustainable every day that passes.

The 20<sup>th</sup> century was powered by fossil fuels, especially cheap oil, which peaked in the 1970s. Since then, oil price spikes or oil wars contributed mightily to all five recessions that the world has experienced. Left unattended, oil recessions, wars and volatility will increase in the short term, because 90% of the remaining oil reserves are in possession of non-OECD countries that are particularly vulnerable to the Malthusian Trap mental model: the Middle East, Russia and Venezuela.

With India and China joining the rich countries to drive the demand for fossil fuels ever skyward, the addiction to oil seems to be gripping the planet in a stranglehold.

### *Climate Prosperity*

Regardless of the effects of climate change, the carbon footprint of the rich countries must be significantly reduced while development in the poor world is primarily powered by clean technology and renewable energy sources.

If these solutions are not applied, the global population is headed toward a predictable catastrophe far beyond anything Malthus ever feared might happen.

Further, if climate change exacerbates the food-water-and-energy fundamentals of the planet, which moderate scientific calculations do indicate, the catastrophe will be sooner and greater. These are the facts shorn of ideology, false science, and scare rhetoric.

Facing the fact that climate prosperity is the only alternative may be difficult in the rich countries and more complex in the poor countries, especially when people there are caught in the Malthusian Trap. If people believe that oil is the only way out of the energy and poverty mess, they are truly trapped.

Actually, the sweeping change toward climate prosperity, clean technology and renewable energy is driven by a bottom-line, pragmatic, and very conservative business decision, and for a good reason: “There is no alternative,” as former Prime Minister Thatcher liked to say about her solutions.

In the rich countries, the first step is to reduce energy waste, of which there is a lot. Over 40% of energy use (and CO<sup>2</sup> emissions) can be found in buildings, which can be reduced by half in new construction (the new Bank of America building in Manhattan is a good example).

One-third of US energy use in existing buildings can be reduced by renovations, meaning that a building owner can earn back a clean energy renovation investment in only three years. That change alone would save the US 13% of its energy use per year, which is equivalent to all the energy used and carbon dioxide produced by all the cars and trucks in the country.

Light bulbs alone use as much energy as cars and trucks in America and light bulb technology is far more advanced than the technical, logistical and behavioral changes required in switching fuels for America’s vehicles, which is another good idea but takes a longer time to realize.

All this makes common (business) sense to Wal-Mart, which has created a sustainability index for all its products to reduce environmental damage, climate impact, water usage, energy usage, pesticide usage, air pollution, water pollution and carbon footprint. Wal-Mart, which accounts for 3% of US GDP, is not taking a financial hit by going green, but demonstrating once again the viability of its business model ahead of its competition: “If you reduce packaging, if you reduce

energy,” Wal-Mart explained to The New York Times on July 16, 2009, “the costs go down.”

If climate prosperity makes business sense to Wal-Mart, the corporations, governments and public in America are likely to follow suit. The question is one of timing in recognizing the solution: how long does it take for the US government to get it?

The U.S. needs a breakthrough strategy such as a public and private partnership promoting the clean energy renovation of its entire built environment in five years. If the Obama Administration wants to wipe out 10% unemployment and generate positive GDP growth fast but which will also last for years, here’s a no-government-spending, no-taxation, no-brainer strategy to do just that.

### *Climate Prosperity in Poor Nations*

The sun produces six thousand times the energy that humanity uses every day. We mammals have to learn from vegetation how to make a respectful energy partnership with the sun. If photovoltaic technology were one percent as efficient for us as photosynthesis is for plants, the food-water-energy scarcity issues on earth would be dissolved for all its living creatures.

The sun created all the energy sources that exist, from geothermal, carbon fossils, wind, tidal or direct sunlight. It is not a lunatic notion that the sun holds the solution to the human quest, and not just for life, but for liberty and the pursuit of happiness.

Consider the 2.6 billion people on earth who in remote places have no access to an electricity grid or who live in a city slum where they have access but can’t afford it. They also have very little in the way of jobs, education, health services, sanitation, decent housing, security or hope.

We could change all that in one generation with a little help from our energy partner, the sun. Imagine that all 2.6 billion poor people lived under a solar roof, six to a family. That’s 433 million roofs which in the cities might be in tight assembly like town-houses and in villages might be scattered around various spaces where people work and farm. In fact, most of the poor live near the equator, where a solar roof is most productive.

Under current technology, each of those roofs could produce 1000 kWh per month, while the house underneath would need only 200 kWh for lighting, refrigeration,

appliances, TV, internet and cell phone. By selling the 800 surplus kilowatt hours per month at the market rate, each family under that roof could buy the house and have some funds left over to invest in an enterprise they own and operate. That is a self-help housing and business proposition which needs no government subsidy or philanthropic hand-out to succeed. It is an enterprise solution entirely owned and operated by the poor and which solves virtually all their economic problems.

But it's good for the other 6 billion on earth, too. The 346.4 trillion kWh per month produced by those 433 million solar roofs would transform the urban slums and poor remote villages everywhere into one of the most productive areas for climate prosperity on earth. It would be the end of the electricity brown and black-outs in the developing world and provide the key to meeting all the Millennium goals for reducing poverty, disease, and unemployment of places filled with those miseries today. The GDPs of poor countries applying this solution would soar.

The obstacles to this solution exist only in the mind. The sun will cooperate. Solar technology is improving every day. The demand for the energy exists. The roofs and houses can be financed, built, sold and paid for over time. The poor are dependable customers – look at the history of micro-lending, with debt payment performances way better than neighboring middle and upper class borrowers.

It is just a question of getting people to think about climate prosperity – about solving poverty and energy crises of the globe in an unexpected, painless way.

### *Escaping from the Malthusian Trap*

Humanity is extraordinarily adaptive. Evolution of thinking may proceed at email speed but evolution of our bodies can proceed only at snail mail speed. We've got to open the email channels.

We need to think our way out of the energy and poverty crises before they unravel all else to chaos, but anticipatory action is not our historical legacy or signature. We usually learn how to respond *after* the crisis and not before.

But maybe the fuss over Y2K was a precursor to what governance is really all about: not responding to the past but anticipating the future. Nevertheless, it remains to be seen whether we will act in time.

We know what life is like for the two billion people who live on \$2 per person per day and for the one billion people who live on just a little more than that. It's

horrible. And because of electricity (radio, TV, the Internet, the cell phone), they know that we know it's horrible; and they know that we know that we have it relatively easy.

This knowledge is not going to fade away: climate prosperity is a practical consideration for every person on earth. And from the pessimistic Malthusian Trap perspective, we could say: either we deal with their poverty or they will deal with our wealth.

Regardless of your mental model, one thing is clear. We are all in this boat together. We live on a planet, a spaceship, which is strong but not invulnerable. We have to take care of it if we want it to take care of us.

As for poverty, it's of recent vintage: it didn't exist when everybody was poor, which was only eight generations ago. To eliminate poverty, we have to stop thinking about it as a condition that needs money thrown at it to make the rich feel better and start thinking about the people who are poor and how they could get rich – all of them. And they can.

Finally, we leave you with this question: Imagine if you could warp back in time to 1798 and visit with Thomas Malthus. If he heard our modern story, what do you think he would advise us to do?