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SEVEN IDEAS
to Tackle Climate Change

Guy Dauncey
July 2010

"A new climate strategy should demonstrate convincingly to the people … that it is not about renouncing prosperity and comfort, but about positively transforming our accustomed lifestyles into a sustainable society, in which our quality of life and opportunities for participation will increase."

German Advisory Council on Global Change
Climate Policy Post-Copenhagen: A Three-Level Strategy for Success, April 2010

Seven Ideas
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Executive Summary

Following the failure of the 2009 Copenhagen climate talks, and continuing difficulties in persuading the world's nations to sign onto an effective new treaty to replace the Kyoto Protocol, fresh ideas are needed to explore new ways forward. This paper offers seven such ideas.

1. **Change the Story** to reflect an inspiring vision of a positive green future, not just an absence of greenhouse gas emissions.

2. **Integrate the Issues** to create a clear linkage between the solutions to climate change, the Gulf oil spill, air pollution, energy insecurity, energy poverty, peak oil, job creation, and the many benefits of clean energy and sustainable transport.

3. **Break Open the Kyoto Basket**, forging separate treaties to address black carbon, methane, and the F gases. Base the IPCC's future fossil fuel assumptions on geology, not economic forecasting, and integrate the data around climate change and peak oil.

4. **Launch a Series of Global Solutions Treaties** to accelerate the solutions as well as working to mitigate the problem.

5. **Create Descriptive Models of a Future Green World** that can inspire and motivate.

6. **Communicate with the Public** more clearly.

7. **Organize!** We need new organization on six levels to help us organize for success:

    - A Global Ecological Alliance of nations willing to take leadership on the issues;
    - A Global Alliance of Cities, Businesses and Organizations, uniting the efforts being made by sub-national groups around the world;
    - A Green Wikipedia;
    - Community-based Green Portals;
    - A Climate Solutions 101 on-line course; and
    - A Climate Deniers Push-Back Network.

Introduction

The past 20 years of international negotiations on climate change have delivered many good results, but little measurable reduction in global greenhouse gas emissions. Compared to the urgency of the warnings, our progress is nowhere near sufficient to safeguard our future. Instead of becoming easier as we gain experience, the prospects of negotiating a successful global treaty seem to become ever more difficult, as the world's leaders and the people they represent find new reasons to resist the changes that are needed.

The failure of the 2009 Copenhagen talks, and the resulting deadlock between the US, China, and the developing nations has led some to hope that something may be salvaged at the COP 16 talks in Cancun in December 2010, while others are less hopeful.

The failure invites us to ask, "What other ways might there be to tackle the problem?" The German Advisory Council on Global Change has proposed a worldwide competition for new ideas on the best solutions and best practices for climate protection.

To seek new ways forward, the IPCC has invited the InterAcademy Council to evaluate its processes and procedures, and seek ideas from knowledgeable experts and thoughtful observers. Many people are engaged in the broader discussion, including the German Advisory Council on Global Change, which published *Climate Policy Post-Copenhagen: A Three-Level Strategy for Success*[1] in June 2010, and the authors of *The Hartwell Paper: A new direction for climate policy after the crash of 2009*.[2]

These ideas are not all new; some have been floated before, and merit re-emphasis. I hope they may prove helpful as we seek new ways to achieve the changes that are so urgently needed.

Author's Bio

I am an independent author, speaker, consultant and organizer, with a degree in sociology (University of Nottingham, UK, 1970). I have been researching climate change and climate solutions since the late 1980s. My first book on the subject, *Stormy Weather: 101 Solutions to Global Climate Change* (New Society Publishers 2001) won a Nautilus Gold Award, and was praised by James Hansen (NASA): "*Stormy Weather* provides a sweeping vision of the issues and comprehensive, practical solutions. A must-read for anyone who wants a cleaner, healthier planet."

In 2008/9, I rewrote the book with completely new text as *The Climate Challenge: 101 Solutions to Global Warming* (New Society Publishers 2009). Bill McKibben (350.org) wrote "This is a joyous, hope-filled manual for facing the greatest crisis humanity has ever encountered", and John Schellnhuber, chief sustainability scientist for the German government and Founding Director of the Potsdam Institute, wrote "Guy Dauncey has created something unique in the current literature by blending a highly readable narrative on global warming, a rich picture book on climate solutions, and an up-to-date digest of the relevant heaps of climate change information that have grown into an electronic Himalayas. If you wish to grasp the mind-boggling complexity of the climate challenge, read this book."

I have been in touch with Canada's ENGO community for many years, and attended the 2005 COP 11 conference in Montreal. I live in Victoria, British Columbia, Canada, where I am President of the BC Sustainable Energy Association. I am also the author or co-author of seven other books. My website is www.earthfuture.com.

1: Change the Story

For twenty years, the fundamental framing of the story about climate change has seen it as a problem that we want to make go away. The very verb 'to mitigate' means 'to make less worse' or 'to minimize the amount of loss or damage suffered'. When applied to climate change, it sends a very unfortunate message, encouraging people to think of the world's current energy, forestry and farming regimes as normal, and just in need of some adjustments and emissions reductions to make the climate threat go away.

"The very verb 'to mitigate' means 'to make less worse' "

This encourages a defensive, unimaginative approach, akin to an imaginary Kyoto soccer team playing their entire game in defence in the hope that they can stop global warming from scoring too many goals. Using this analogy, a 0-0 draw would be seen as a victory.

Having a good defensive team is essential. The UNFCCC process has successfully engaged 120 nations in the process of treaty making, who have reached collective agreement that we must work together to keep the global temperature below the 2ºC guardrail. The physics of global warming is unchanged, despite the climate of the climate deniers, and without a strong team in defence working reduce our global emissions and establish strategies to adapt to the rising temperature, the game will be lost. We need to reduce our collective emissions by at least 1.5% a year if we are to achieve an 80% reduction by 2050, and the developed nations need to do more, to reflect their historic contribution to the problem.

None of the ideas presented here should be read as suggesting that we cease playing in defence, or cease working to reduce our greenhouse gas emissions.

"the ability to visualize and hold in mind a firm vision of success"

ZERO CARBON BRITAIN 2030
A NEW ENERGY STRATEGY
The second report of the Zero Carbon Britain project

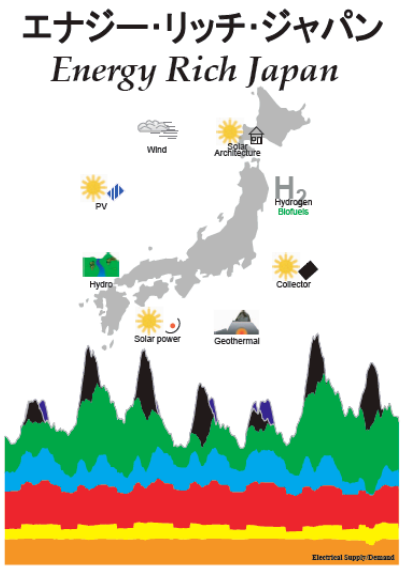
If we look back at our human history, however, or at any good sports contest, we can observe that almost without exception, success requires that as well as a good defensive game, the protagonists must be able to play in attack - and this requires the ability to visualize and hold in mind a firm vision of success, whether it is of slavery ended, democracy established, or a war won.

The climate challenge is no different. We need to reframe the global warming story from problem-avoidance and mitigation to a commanding vision of a world that can flourish and prosper without fossil fuels, deforestation, and wasteful consumerism - a vision that that will make people welcome the new technologies and lifestyle changes as harbingers of a sustainable green world, instead

of complaining about them as wearisome interferences with life-as-usual.

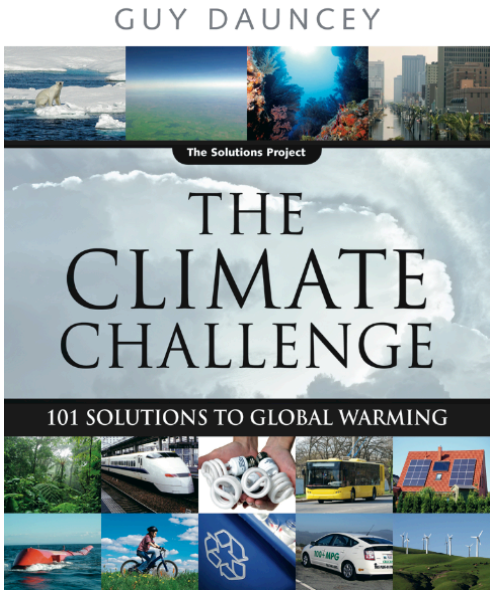
"it is a reasonable and realistic vision"

No-one has produced a definitive paper yet showing how the world as a whole could flourish without fossil fuels, but there is enough accumulating evidence to show that it is a reasonable and realistic vision.



The June 2010 EREC/Greenpeace paper *Energy [R]evolution: A Sustainable USA Energy Outlook* showed that the US could reduce its GHG emissions by 83% by 2050 without using new nuclear power or unproven technologies such as "carbon-free coal". Similar books and papers have been published by the New Apollo Alliance, Google.org, the Worldwatch Institute, Architecture 2030, the Earth Policy Institute, the Centre for Alternative Technology (*Zero Carbon Britain 2030: A New Energy Strategy*, June 2010), the Institute for Energy and Environmental Research[3], the University of Kassel Germany[4], Japan's Institute for Sustainable Energy Policies (*Energy Rich Japan*, 2003)[5], and Sweden's ambitious strategy to cut GHG emissions by 40% by 2020. *A Copenhagen Prognosis: Towards a Safe Climate Future*, from the Stockholm Environment Institute, the Potsdam Institute for Climate Impact Research and The Energy and Resources Institute explores the viability of a zero-carbon pathway by 2050 for several nations, and finds it achievable. In July 2010, Germany's Federal Environment Agency presented a study in which they found that a complete conversion to 100% renewable energy by 2030 was a realistic prediction, based on technology that already exists.

This new vision is especially important in the developing world, where many have bought into the belief that development without fossil fuels is impossible, and that it is their right to develop the way the West did. We need to show, among other things, that the Millennium Development Goals are compatible with a world that can flourish without fossil fuels without sacrificing the hopes and aspirations of four billion people.



Out of a new story, a new culture can be born that creates the energy needed to achieve success, just as it did during the long campaign to abolish the slave trade, and then slavery itself.

Who should be responsible for developing and promoting this new story? All of us, whether we are political leaders, engineers, city mayors, business leaders, activists, students or parents. And who should coach this higgledy-piggledy team? One answer may be whoever can produce a compelling enough vision that will encourage everyone to sing from the same songbook and share the same dream; some other answers are suggested in #7.

2: Integrate the Issues

Climate change is one symptom of a much larger problem, and we can't make the symptom go away unless we solve the core problem, which is our unsustainable way of living. This is demonstrated by our unsustainable use of unsustainable energy; our unsustainable relationship with the world's forests; our unsustainable ways of farming, fishing and consuming food; our unsustainable habits of consuming the Earth's resources and discarding them as wastes; and our unsustainable use of fluorine gases.

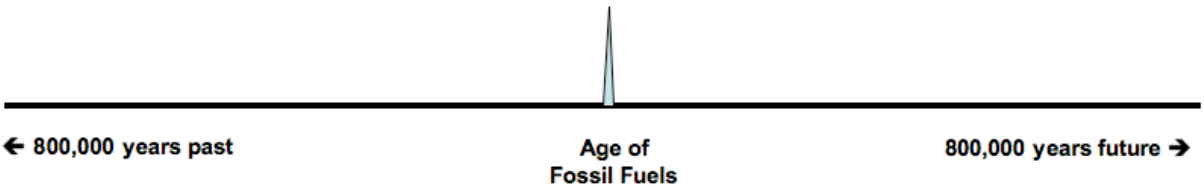
Our unsustainable energy habits, as well as causing climate change, are also the cause of the Gulf oil spill, air pollution, water pollution, landscapes devastated by coal-mining, money wasted through energy inefficiency, radioactive nuclear wastes, and foreign policies distorted by dependence on unsavory oil-exporting regimes.

All of these symptoms have people troubled and concerned. There is equal concern about the looming impact of peak oil, which even the conservative International Energy Agency has admitted will occur by 2020.[6] There is also concern about energy poverty in the developing world, and conflict over scarce fossil-fuel energy supplies and energy-related water use.

"As long as we think defensively, we will fail"

As long as we think defensively, in an effort to make the symptoms go away, we will fail. Only when we look at the many symptoms together, and realize that they share a common cause, will we become motivated enough to start visualizing victory in the form of a sustainable world that can flourish without the use of fossil fuels. At the same time, we need to be far more bullish about the many benefits that will flow from the solutions, including job creation, technological innovation, health benefits, and financial savings from greater energy and transport efficiency.

When we consider our civilization's use of energy from a deep-time perspective, it becomes clear that the current age, during which we are harvesting solar energy from the scrunched-up remains of 300 million year old trees and sea creatures, is the tiniest 200-year slice of time, sandwiched between 800,000 years in the past when we harvesting solar energy from firewood and many million years in the future when we will be able to harvest it from renewables.



The Age of Fossil Fuels may be the tiniest slice of time, but we live in its midst, and like fish in water, we have little ability to imagine life without it. We have been hypnotized and seduced by the satisfying immediacy of the comforts, commodities and conveniences that it provides.

All around the world, however, people are distressed at BP's Gulf oil spill, which, unlike climate change, is immediate, painful and dirty. We will be able to engage many more people if we integrate the many concerns and frame the climate solutions as smart ways of making an orderly transition into a future that can flourish without fossil fuels, both in the developed and the developing world. We need to use thoughts and language that address the many concerns people have about our whole unsustainable way of living and the multiple benefits of a green future, not just climate change alone.

Who should undertake this re-integration? Initially, the current leaders of the nations, cities, businesses, colleges and organizations that are already providing solid climate leadership. As the vision is articulated clearly and wins support around the world, more widespread leadership will emerge.

3: Break Open the Kyoto Basket

When the Kyoto Protocol was devised, the decision was made to package the six greenhouse gases into one basket, and render them interchangeable by assigning each a Global Warming Potential (GWP) number based on its radiative forcing, averaged out over or compressed into 100 years, with CO_2 being assigned the value 1. This has the merit of convenience, as it enables a country's or a household's greenhouse gas reduction efforts to be assigned a single score, measured as CO_2 equivalent (CO_{2e}).

The disadvantages of this approach may outweigh the benefits, however. The first associated problem is that **black carbon** (soot) from diesel pollution, traditional firewood cooking stoves and open biomass burning, which may be causing as much as 21% of global warming and be responsible for half the Arctic melting, is not being addressed under Kyoto at all. Since black carbon is a short-lived particulate (5-6 days), the results of a workable global commitment to reduce black carbon pollution would be felt very quickly, while providing air quality benefits in cities and villages throughout the developing world.[7] A separate Black Carbon Treaty could lay down global plans to reduce it in a relatively short timeframe, and engage all the nations involved. Many organizations have recommended separate regulation of the non-CO_2 forcing substances, including the German Advisory Council on Global Change, in their seminal paper *Solving the climate dilemma: The budget approach*.[8]

"Methane is not receiving the attention it merits"

Methane may also merit separate treatment. In the Kyoto basket, it has been assigned a GWP of 25, though for legal and carbon trading purposes it is counted as 21, the GWP it was assigned in the 2001 IPCC report. In reality, however, its heat-trapping life in the atmosphere is under ten years, after which it degrades into CO_2 and other molecules, so the real impact of its reduction is being severely undervalued by being smeared out over 100 years. Over ten years, it traps 100 times more heat than CO_2, and yet because of the 100 year GWP time span it is not receiving the attention it merits in national or global policy-making, even though there is an urgent need to achieve a turnaround in global emissions by 2015, within methane's short time frame.

This is particularly relevant in discussions about **natural gas**, since natural gas is 90% raw methane, and the industry allows an average 1.4% leakage rate that is almost completely ignored, even though it can now be detected and photographed.[9] If methane emissions were managed under a separate treaty commitment, or within the Kyoto basket but using a revised GWP measured over ten years, we would see far more effective action to stop the venting and seal the leaks, as well as to capture landfill gas, reduce bovine emissions, and change traditional methods of rice-farming.

This is extremely topical, given the market excitement that is being drummed up for natural gas derived from the hydraulic fracturing (fracking) of shale deposits, for which great claims are being made.[10] Like the other fossil fuels, this form of extraction brings its own environmental costs - each well requires 11.5 million litres of water that goes in pure and comes out polluted, carrying traces of 260 chemicals used in the fracking process. If those who are so bullish about the future of natural gas knew that they would need to offset the hidden atmospheric cost of the associated fugitive methane emissions, they might be less confident in their belief that gas could provide a "bridge" to a clean energy future.

The same argument for separation from the Kyoto basket can be applied to the **fluoride gases** (F gases), including CFCs, HFCs, PFCs and SF6, some of which trap heat for thousands of years. With the long-lived gases, the 100-year GWP causes the impact of their removal to be compacted and exaggerated, resulting in a carbon market trade in F-gas removal that looks fine on paper, but is almost useless in terms of reduced radiative forcing.

HFC-134a, on the other hand, increasingly used in air-conditioning, has a life of only 14 years, during which time it traps an estimated 5,000 times more heat than CO_2.[11] Each kilogram of leaking or escaping HFC-134a traps as much heat as five tonnes of CO_2, and industry data shows that as much as 30% of the HFC-134a may be leaking into the atmosphere every year.

Globally, no effective legislation is governing its use. The sensible thing might be to pull the F-gases out of the Kyoto basket and regulate them under the Montreal Protocol, which has proved effective at controlling the ozone-depleting F gases.

If we are regulating black carbon separately, and pulling methane and the F gases out of the Kyoto basket, it may also make sense to consider separate treaties to regulate and reduce nitrous oxide emissions (from fertilizers, manure, transportation and industrial processes), and to tackle tropospheric ozone.

Tropical deforestation may or may not also merit being governed under a separate treaty, retaining the achievements negotiated under REDD, with targetted participation by the nations concerned, identified in the WBGU paper as Indonesia, Brazil, Papua New Guinea, and Democratic Republic of the Congo, with bilateral partners to help them develop new methods of sustainable forest management, rather than being bundled into a single complicated carbon market mechanism.

For **carbon dioxide**, the UNFCCC/Kyoto framework continues to be important, and continued efforts to persuade the world's nations to sign onto verifiable carbon reduction targets are essential. The world's climate solutions soccer team needs to sustain a good defense, as well as moving into offense. If efforts under UNFCCC fail, or will clearly deliver insufficient reductions to keep Earth's temperature below the 2ºC guard rail, unilateral national and regional commitments, such as the European Union's 20:20:20 commitment (20% GHG reduction, 20% renewable energy, and 20% increase in energy efficiency by 2020) must be supported, even without wider global support. The WBGU has proposed that EU push ahead with a 30% GHG reduction commitment, given the urgency of the situation and the need for sub-global leadership.

400 people link up in a Hands Across the Sand protest against offshore oil drilling Willows Beach, Victoria BC, June 26th 2010

Base Future Fossil Fuel Assumptions on Geology, not Economics

Within the UNFCCC process, this is a good place to highlight an adjustment that is needed in the way future fossil fuel reserves are assessed in the IPCC's Special Report on Emissions Scenarios (SRES).

When climate science and geological energy analyses are not integrated, the outcome can be misleading projections, such as those used in some IPCC scenarios that assume a future level of fossil fuel consumption that would appear to contradict geological expectations.

In a paper published in the peer-reviewed journal *Natural Resources Research in* June 2010, Mikael Höök and others from Uppsala University, Sweden, argue that the IPCC's scenarios are "underpinned by a paradigm of perpetual growth and technological optimism as well as old and outdated estimates regarding the availability of fossil energy."[12] If the SRES scenarios that predict the future level of CO_2 in the atmosphere are being based on geologically unrealistic assessments of the amount of energy that can be obtained from oil, coal-to-liquids, and gas hydrates, the whole discussion about our world's climate and its energy future is being skewed.[13]

An effort to achieve consensus between energy analysts who are often dismissive of climate change and climate scientists who are often dismissive of peak oil is needed to achieve a integrated analysis of the world's future coal, oil and gas supplies, and their impact on the likely future level of CO_2 in the atmosphere.

4: Launch a Series of Global Solutions Treaties

This may be the most significant new idea, and it follows directly from the proposal to change the global warming story to a positive vision of a world that can flourish without fossil fuels, rather than a valiant effort to mitigate the problem of rising greenhouse gases emissions.

A Global Steel Industry Efficiency Treaty, for instance, would see the world's steel-making nations commit to work together to share and implement the best energy efficiency practices, accelerating their diffusion, reducing their emissions per tonne of steel by up to 30% - the level the Japanese steel industry has achieved over the past 30 years - and reducing global CO_2 emissions by 340 million tonnes a year.[14]

A Global Solar Treaty would see the world's nations agree to install an increasing amount of solar photo-voltaics every year, knowing that mass production will drive the price down faster and accelerate the arrival of price parity, at which point the solar industry would no longer need support.

"We need a constellation of treaties - not just a single shooting star that could burn out"

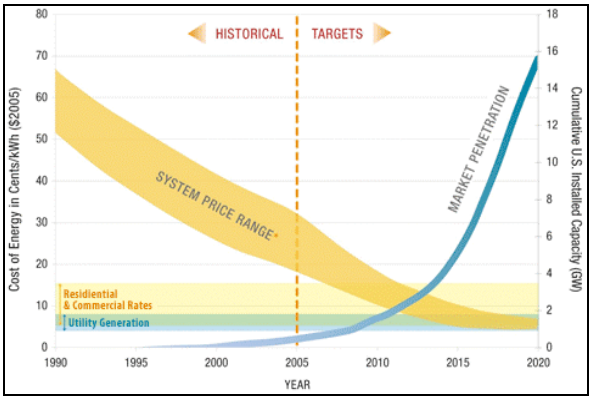
We need many such Solutions Treaties to reduce costs, spread best practices, and accelerate their diffusion around the world. We need a Global Energy Efficient Appliances Treaty, in which participating nations set standards for a wide range of appliances and agree on a timeframe to achieve them, based ideally on Japan's Top Runner program. We need a Global Geothermal Treaty, to speed the progress of hot rocks drilling technology and widen the industry's base of shared experience so that many nations become willing to open up this huge new energy frontier.

We need a Global Climate and Energy Solutions Finance Treaty to assist developing nations with the transition into sustainable energy and end fossil-fuel favoritism at the World Bank, export credit agencies and regional development banks. We need a Global Built Environment Treaty, to accelerate the drive towards zero-carbon buildings and share new technologies and best practices.

Solutions Treaties are also needed to address cement production, grasslands and farmlands carbon restoration, auto-efficiency, electric vehicles, best cycling practices, best transit practices, zero-waste, fossil fuel subsidies, carbon pricing, oil depletion, carbon sequestration, methane reduction, sustainable forest practices, and other solutions that will accelerate the global transition to a secure green future. As my friend Alex Boston said, "We need a constellation of treaties — not just a single shooting star that could burn out."

"What matters is a shared commitment to leadership"

It need not matter if some nations decline to sign onto some treaties. What matters is a shared commitment to leadership, with national governments working together to accelerate adoption. With each new Solutions Treaty, a goal would be scored against climate change and the other symptoms of our unsustainable way of living. Who should create these Treaties? Some suggestions are offered in #7.



Solar PV Market Penetration Curve. US Department of Energy

5: Create Descriptive Models of a Future Green World

The lack of a positive vision of our planet's future is a major handicap as we attempt to reduce our carbon emissions, and persuade others to do the same. *"The same as today, only worse, with more government regulations"* is the only idea some people have of such a future, and it clearly does not command much excitement, except negatively.

If we are to succeed in the transition to a green sustainable world, people must be able to visualize the future as clearly as African-American slaves were able to picture the promised land where they would finally be "Free - free at last!" Martin Luther King's famous speech was not, "Mitigation! I see mitigation for our many woes!" It was, "I have a dream."

Such a vision needs to be so clear and attractive that people all over the world will feel they can almost touch it, and be motivated to devote their lives to achieving it, both for themselves and for their children and grandchildren, dreaming of the day when they will be able to cry, "Green! Green at last!"

The vision needs to be accompanied by trustworthy analysis that shows how energy can be produced, farms operated, forests managed, steel made, and goods transported in a waste-free, sustainable future. It needs to show how businesses can prosper and create jobs without exploiting the world's natural resources, and it needs to be done for each of the world's nations, as well as for regions within the large nations such as the US, Russia, China, and India.

Right now, the positive visions being held by a tiny number of people are far outweighed by popular visions of collapse, disaster, gloom and doom, often spread by some of the same environmental and peak oil activists who say they want to save the world.

If we really want to *win* this struggle, and put our planet on a path to a safe, green, sustainable future, we need to paint an attractive, practical and well-analyzed picture of such a future that people can see, feel, understand, and fall in love with.

To whom should this task fall? To the world's governments, ideally, since they have been democratically elected to lead. Until they choose to do so, it should fall to the world's non-profit organizations, working closely with academic and energy researchers to put valid numbers on the table for the impacts of the best policies for renewable electricity, sustainably harvested biofuels, energy efficiency, smart grids, sustainable cities, green transport, green buildings, socially responsible businesses and industry, and all the other components of a successful green economy.

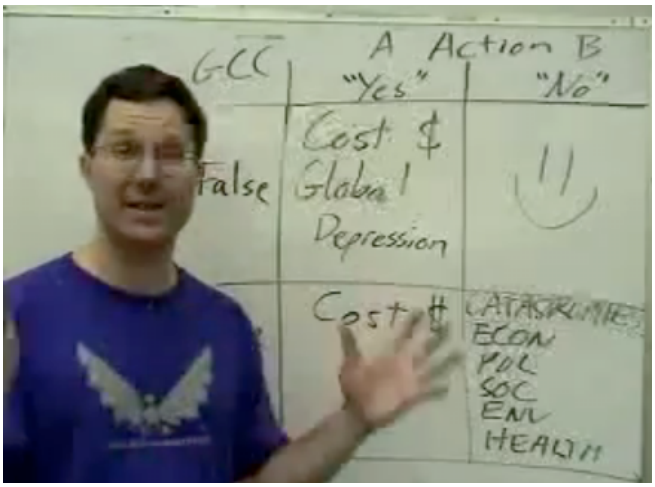
The Climate Challenge: 101 Solutions to Global Warming provides solutions for every sector of society, including individuals, climate champions, cities, businesses, farms, transport and energy companies, governments, the developing world, and globally, including 275 different policies that governments can adopt to speed the transition to a sustainable world. Details can be found at www.theclimatechallenge.ca.

6: Communicate with the Public More Clearly

The sixth idea concerns the need to improve the way we communicate with the public. Most scientists have developed a way of communicating that is born of the scientific need for technical precision and the careful articulation of evidence, with differing levels of certainty. That is how it should be, but with this approach, most ordinary people stop reading before the end of the first sentence.

The world's leading scientific bodies have done remarkably well in making short, clear, straightforward statements on climate change, supporting the scientific consensus,[15] but as soon as you plunge into the details, the norm prevails.

In the informational vacuum that this leaves, climate-denying bloggers and talk-show radio hosts have been happy to use everyday rhetoric and invective, insisting that their reading of the science is superior to that of the scientists, and many ordinary people have been happy to read, listen, and accept their plain English arguments. To many, the black and white clarity of the climate deniers is much easier to comprehend and accept than the complex terminology and statistical uncertainty of the climate scientists.



The fact that one of the most popular YouTube videos explaining the logic of climate action (*The Most Terrifying Video You'll Ever See*), with over 7 million views, is home-made, and features a high school science teacher (Greg Craven, see below) with a flipchart, speaks volumes to the paucity of good communication about the challenge, and the vision of a positive future we can aspire to. The video is great - but apparently, this is the best we can do!

Until the climate scientists come up with their own Carl Sagan, there is much that others can do to reclaim the communications initiative, using clear, positive language and images.

It is not the climate scientists who should be expected to step up to this challenge, but the journalists, film directors, animators, authors and leaders of civil society, who are free to adopt an easier touch in the way they communicate, while referencing the peer-reviewed scientific information in the footnotes.

7: Organize!

Who should take the lead? Our current failure is a failure both of vision and of organization. There are six levels on which new organization and leadership are needed: one global, one sub-national, and four to help the world's citizens become more organized.

A Global Ecological Alliance

At the global level, new cooperative national leadership is needed to champion the vision of a green, sustainable world and develop the Solutions Treaties. The UN might be involved, but a more powerful idea might be a new alliance of nations - a Global Ecological Alliance whose members would work together to champion the vision, craft the treaties, and work to bring them into effect.

The need for such an alliance is about more than climate change. It includes leadership on the related issues referenced in #2 - Integrate the Issues. Climate-friendly energy, forestry and farming will be only parts of a wider sustainable civilization, in which our whole way of living, working and consuming on the planet will be transformed.

"shared leadership for the advancement of a sustainable world"

As the North Atlantic Treaty Organization (NATO) enables its member nations to work together for their mutual defence in the event of an attack by an external party, the member nations of the Global Ecological Alliance would work together to provide shared leadership for the advancement of a sustainable world. They would share best practices, craft Solutions Treaties, develop technology and policy partnerships, work together in the United Nations, exchange their youth to participate in joint sustainability projects, and persuade other nations to join them.

Some might argue that it was for this that the United Nations was formed in 1948, but the prospects of reforming the UN quickly enough to take on this kind of role are remote, and time is not on our side. If 30 nations can agree on bold climate and other ecological goals, it is better that they should press ahead and organize on their own, than wait for all the world's nations to agree through the slow and formal UN process. The chance that the UN might adopt such a role in the future would be greatly enhanced by the presence of such an organization today.

Which countries might lead in creating such an Alliance? The German Advisory Council on Global Change, when proposing a sub-global climate alliance, suggested India, Brazil, Egypt, Indonesia, South Korea, Japan, and the Maldives - joined implicitly by Germany itself.

"a larger vision of a globally sustainable world"

The idea proposed here is premised on a larger vision of a globally sustainable world, addressing more than climate change. The challenge would be to set a high enough benchmark for entry to prevent grandstanding by nations whose leaders are happy to talk the talk, but less willing to walk the walk.

To kickstart the possibility, an informal group of green-minded diplomats from various countries would need to meet in private to articulate the ideas, and produce a compelling vision of what such an organization could represent and achieve, with the intention of motivating others to persuade their leaders to join, much as they persuaded them to join the International Renewable Energy Agency (IRENA). A core group of just five nations would be enough to get it going; others will join as the pressure to adopt a visionary approach and make the transition to a sustainable world grows.

A Global Alliance of Cities, Businesses & Organizations

There is some excellent climate leadership at the sub-national level in cities, universities, corporations, businesses and religious organizations, but they lack integration, and ways in which their collective voice can be heard.

When some of the world's leading climate scientists came under sustained and often vitriolic attack following the November 2009 University of East Anglia "climategate" email hack, almost no-one came to their defence. Where were the voices of the city mayors, college presidents, corporate CEOs and religious leaders who had previously been so vocal in support of the climate science? They were probably waiting for someone else to speak up first to validate the science, or hoping that someone else would take the initiative to create a public sign-on letter in support of the climate scientists.

"the urgent need for a single unifying network"

This indicates the urgent need for a single unifying network, with professional leadership, through which sub-national leaders and champions could work together to achieve a much greater impact than they can on their own.

A Global Alliance of Cities, Businesses and Organizations might emerge through the organized coordination of the proliferation of effective groups that include the Carbon War Room, the Soros Climate Policy Initiative, 350.org, the German Advisory Council on Global Change, the Business Environmental Leadership Council, the Global Roundtable on Climate Change, the US Climate Action Partnership, the WWF Climate Savers, Business for Innovative Climate and Energy Policy, the UK Carbon Trust, Architecture 2030, the Society of Environmental Journalists, The Climate Group, the C40 Climate Leadership Group, the Clinton Climate Initiative, ICLEI, UNEP Climate Neutral Network, Cities for Climate Protection, the US Mayors Climate Protection Center, the Campus Climate Challenge, the Presidents' Climate Commitment, University Leaders for a Sustainable Future, leading organizations in the environmental, religious and renewable energy fields, and a host of similar organizations in Europe and the rest of the world.

It would be a huge undertaking, but it would be very powerful, and an effective way also by which corporate sustainability leaders such as Nissan, Interface and DuPont, and the Mayors of leading cities such as Vancouver, Portland, Copenhagen and Freiburg could proclaim their support for strong climate leadership, invite others to step up to the plate, and challenge others over their financial and moral support for climate denial, misinformation and confusion, which is doing so much damage both in the public mind and by targeting campaign contributions to politicians, corrupting their ability to use their intelligence for the good of their electorate and the world as a whole.

Help the World's Citizens Become More Organized

We also need better organization for ordinary citizens. New tools are needed to enable the organization and coordination of millions of people around the world who know things are going wrong and want to make a difference, but lack the knowledge, confidence or contacts to know where to start.

The Internet is bursting at the seams with information and misinformation, but it has so far provided no unified way to enable people to tap into the movement and become involved. In Victoria, British Columbia, the literate, aware, progressive Canadian community of 330,000 people where I live, there are over 150 different environmental organizations, each with its own activities and Board of Directors. There are also 13 locally elected municipal councils, each with voluntary boards on which citizens can serve.

For a new person who wants to become involved, however, Victoria has no gateway to the knowledge, organizations or networks, and even within the organizations, there is often a very low understanding of the vision, solutions and activities that are needed to make the transition to a sustainable civilization. If this is true for Victoria, I am sure it is true for other villages, towns and cities around the world.

We need to create a collaborative culture, harnessing the power of the Internet to do four new things:

A Green Wikipedia

We need a Green Wikipedia, doing for green, sustainable policies, practices and know-how what Wikipedia has done for general knowledge, using an open source approach that is shielded against junk, as Wikipedia has done so effectively with climate change. www.appropedia.org or green.wikia.com might become the base from which this can happen, if either becomes more widely known and can attract more global content providers.

Green Portals

We need an on-line Green Portal in every community, to act as a doorway for people who want to become engaged, enabling them to find their way to organizations and businesses where they can make a difference. A common template would make it easier for the model to spread. Someone new could go to (eg) the New Delhi Green Portal, click on "Sustainable Energy", "Food and Agriculture" or any of a dozen major headings, and find their way to the local organizations, businesses, learning and volunteering opportunities that are working in areas where they want to contribute.

A Climate Solutions 101 On-Line Course

We need a competent, high quality Climate Solutions 101 online course that anyone in the world can study and receive recognition for completing. It is important that we advance the world's collective knowledge base of the best policies, technologies and programs that are available to create a sustainable civilization that can flourish without fossil fuels.

A Climate Deniers Push-Back Network

Finally, we need a Climate Deniers Push-Back Network consisting of people who are willing to learn all 117 of the climate denial arguments listed by John Cook at www.skepticalscience.com/argument.php, and become confident and able to respond to every blog, radio or TV appearance by a climate denier, challenging them in public so that they no longer get away with their nonsense. A peer-support process would be valuable, and a place to post the best climate push-back YouTube videos.

With these new six levels of organization in place, our efforts to tackle climate change would be much better equipped to embrace the vision of a climate-friendly, sustainable world and start scoring goals, instead of remaining permanently in defence.

Conclusion

We have faced many challenges during the long evolution of human civilization on Earth. Some we have lost, but many we have overcome - previous generations have done so much that we should be grateful for and stand in awe of. They have created the principles of science and clear rational thought. They have overthrown tyrannies, establishing freedom and democracy. They have ended the vile tradition of slavery. They have won the vote for women, and ended child labor. They have defeated the attempt to impose fascism on the world.

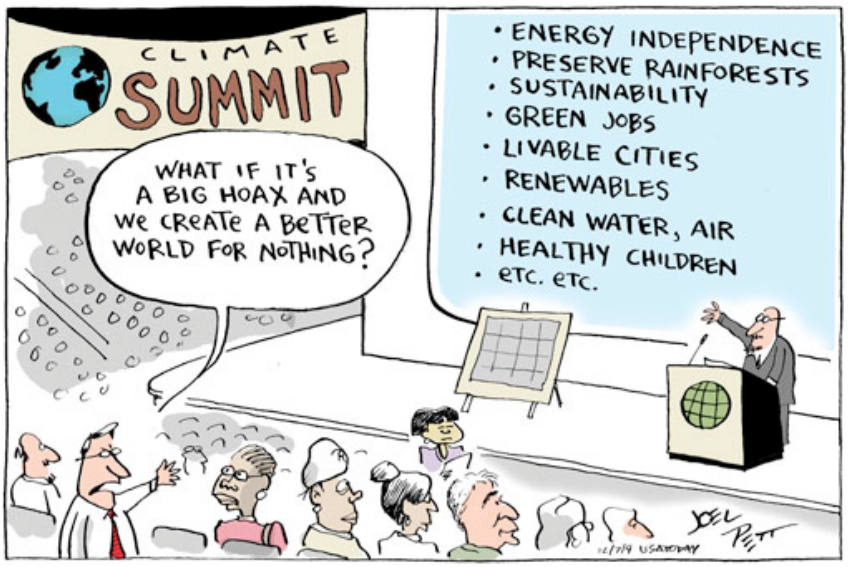
The challenge we face today is to live in harmony with nature, instead of exploiting her. This does not meaning turning back to a nostalgic view of a pre-industrial past. It means building on our past, and using our greatest strengths to get us there - our ability to dream, our ability to create new zero-carbon technologies, practices and lifestyles, and our ability to show leadership.

On March 26th each year, at 8:30pm, the World Wildlife Fund has established a new tradition called Earth Hour, when everyone is encouraged to turn off the lights as a token of our care for the Earth. The Competitive Enterprise Institute, perhaps in a fit of pique, has proclaimed the same hour as "Human Achievement Hour", and is encouraging people to turn on as many lights as possible in celebration of human achievement, claiming that Earth Hour is anti-man and anti-innovation.

Nothing could be further from the truth. The new challenge that we have embarked upon stands in a direct line of descent from the science and philosophy of ancient Babylon and Greece, and from the Renaissance, the Scientific Revolution, the Industrial Revolution, and all the achievements of the past 200 years. The key to victory is to create a very clear image of success, and then to go out there and make it happen. This short paper is dedicated to all those who are doing just this, right now.

Guy Dauncey, Victoria, July 5, 2010
guydauncey@earthfuture.com
www.earthfuture.com
250-881-1304

To offer comments, and a quick numeric response to the ideas, you can complete a Seven Ideas Survey Monkey evaluation *here*. The results will be summarized at www.blog.earthfuture.com in October 2010.



Joel Pett, Lexington (Ky.) Herald-Leader, Cartoonists and Writers Syndicate, for USA TODAY, Dec 7, 2009

Endnotes

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[2] Institute for Science, Innovation and Society, University of Oxford, May 2010
[3] Makhijani, Arjun. *Carbon-free and nuclear-free – A roadmap for U.S. Energy Policy*. A joint project of the Nuclear Policy Research Institute and the Institute for Energy and Environmental Research. 2007.
[4] Czisch , Gregor. *Low Cost but Totally Renewable Electricity Supply for a Huge Supply Area – a European/Trans-European Example*. IEE-RE, Universität Kassel, Germany.
[5] *Energy Rich Japan*, Institute for Sustainable Energy Policies, 2003. www.energyrichjapan.info
[6] For the full story, see *The IEA and World Oil Supply Projections* by David MacLeod, Energy Bulletin Nov 11, 2009. www.energybulletin.net/node/50698
[7] Estimates for black carbon's radiative forcing range from +0.5 (IPCC 2007 TAR) to +0.9 watts per square meter (Professor V. Ramanathan, *Role of Black Carbon on Global and Regional Climate Change*, testimony to the Congressional hearings on black carbon, October 18, 2007). If the actual figure is 0.8, this would represent 21% of the cause of global warming. See also *Black Carbon a Significant Factor in Melting of Himalayan Glaciers*, Science Daily, Feb 4, 2010.
[8] Berlin, 2009.
[9] A 2005 German study of Russian pipelines found an average 1.4% leakage rate; the US government and industry suggest a 1.5% loss; a 1990 British report suggested a leakage rate of 5.3 to 10.8%. If 1.4% of natural gas escapes as methane, 38 billion cubic metres of raw methane are being released every year (1.4% of 90% of 3,000 billion cubic metres). Measured for their impact over 8.4 years, 38 billion cubic metres produce around 10 Gt of CO_2e a year, increasing natural gas's carbon footprint to 16 Gt of CO_2e per year, equivalent to half the CO_2 emissions from all fossil fuels (31 Gt in 2007).
[10] David Biello, *What the Frack? Natural Gas from Subterranean Shale Promises U.S. Energy Independence--With Environmental Costs*. Scientific American, March 30, 2010
[11] HFC-134a's GWP over 100 years is 1,430. Over 20 years, it is 3,830. The IPCC does not assign GWPs for less than 20 years, so 5,000 is an estimate.
[12] Mikael Höök , Anders Sivertsson and Kjell Aleklett. *Validity of the Fossil Fuel Production Outlooks in the IPCC Emission Scenarios*. Natural Resources Research, online Feb 18, 2010. www.energybulletin.net/51798
[13] For a wider discussion, see *Fire or Ice? The role of peak fossil fuels in climate change scenarios*, by Ugo Bardi, The Oil Drum: Europe, March 9, 2009.
[14] Data referenced in *The Hartwell Paper: A new direction for climate policy after the crash of 2009*. LSE Institute for Science, Innovation and Society, May 2010. www.lse.ac.uk/collections/mackinderProgramme/theHartwellPaper/Default.htm
[15] For a good compendium of such statements, see en.wikipedia.org/wiki/Scientific_opinion_on_climate_change#Academies_of_Science

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