

Saving Civilization

We need an economy for the twenty-first century, one that is in sync with the earth and its natural support systems, not one that is destroying them. The fossil fuel-based, automobile-centered, throwaway economy that evolved in western industrial societies is no longer a viable model—not for the countries that shaped it or for those that are emulating them. In short, we need to build a new economy, one powered with carbon-free sources of energy—wind, solar, and geothermal—one that has a diversified transport system and that reuses and recycles everything.

With Plan B we can change course and move onto a path of sustainable progress, but it will take a massive mobilization—at wartime speed. This plan, or something very similar to it, is our only hope.

The Plan B goals—stabilizing climate, stabilizing population, eradicating poverty, and restoring the economy’s natural support systems—are mutually dependent. All are essential to feeding the world’s people. It is unlikely that we can reach any one goal without reaching the others. Moving the global economy off the decline-and-collapse path depends on reaching all four goals.

The key to restructuring the economy is to get the market to tell the truth through full-cost pricing. For

energy, this means putting a tax on carbon to reflect the full cost of burning fossil fuels and offsetting it with a reduction in the tax on income.

If the world is to move onto a sustainable path, we need economists who will calculate indirect costs and work with political leaders to incorporate them into market prices by restructuring taxes. This will require help from other disciplines, including ecology, meteorology, agronomy, hydrology, and demography. Full-cost pricing that will create an honest market is essential to building an economy that can sustain civilization and progress.

Some 2,500 economists, including nine Nobel Prize winners in economics, have endorsed the concept of tax shifts. Harvard economics professor and former chairman of George W. Bush's Council of Economic Advisors N. Gregory Mankiw wrote in *Fortune* magazine: "Cutting income taxes while increasing gasoline taxes would lead to more rapid economic growth, less traffic congestion, safer roads, and reduced risk of global warming—all without jeopardizing long-term fiscal solvency. This may be the closest thing to a free lunch that economics has to offer."¹

The failure of the market to reflect total costs can readily be seen with gasoline. The most detailed analysis available of gasoline's indirect costs is by the International Center for Technology Assessment. When added together, the many indirect costs to society—including climate change, oil industry tax breaks, military protection of the oil supply, oil industry subsidies, oil spills, and treatment of auto exhaust-related respiratory illnesses—total roughly \$12 per gallon. If this external cost is added to the roughly \$3 per gallon price of gasoline in the United States, gas would cost \$15 a gallon. These are real costs. Someone bears them. If not us, our children.²

If we can get the market to tell the truth, to have market prices that reflect the full cost of burning gasoline or

coal, of deforestation, of overpumping aquifers, and of overfishing, then we can begin to create a rational economy. If we can create an honest market, then market forces will rapidly restructure the world energy economy. Phasing in full-cost pricing will quickly reduce oil and coal use. Suddenly wind, solar, and geothermal will become much cheaper than climate-disrupting fossil fuels.

We are economic decisionmakers, whether as corporate planners, government policymakers, investment bankers, or consumers. And we rely on the market for price signals to guide our behavior. But if the market gives us bad information, we make bad decisions, and that is exactly what has been happening.

We are being blindsided by a faulty accounting system, one that will lead to bankruptcy. As Øystein Dahle, former Vice President of Exxon for Norway and the North Sea, has observed: "Socialism collapsed because it did not allow the market to tell the economic truth. Capitalism may collapse because it does not allow the market to tell the ecological truth."³

If we leave costs off the books, we risk bankruptcy. A decade ago, a phenomenally successful company named Enron was frequently on the covers of business magazines. It was, at one point, the seventh most valuable corporation in the United States. But when some investors began raising questions, Enron's books were audited by outside accountants. Their audit showed that Enron was bankrupt—worthless. Its stock that had been trading for over \$90 a share was suddenly trading for pennies.⁴

Enron had devised some ingenious techniques for leaving costs off the books. We are doing exactly the same thing, but on a global scale. If we continue with this practice, we too will face bankruptcy.

Another major flaw in our market economy is that it neither recognizes nor respects sustainable yield limits of natural systems. Consider, for example, the overpumping

of aquifers. Once there is evidence that a water table is starting to fall, the first step should be to ban the drilling of new wells. If the water table continues to fall, then water should be priced at a rate that will reduce its use and stabilize the aquifer. Otherwise, there is a “race to the bottom” as wells are drilled ever deeper. When the aquifer is depleted, the water-based food bubble will burst, reducing harvests and driving up food prices.

Or consider deforestation. Proper incentives, such as a stumpage tax for each tree cut, would automatically shift harvesting from clearcutting to selective cutting, taking only the mature trees and protecting the forests.

Not only do we distort reality when we omit costs associated with burning fossil fuels from their prices, but governments actually subsidize their use, distorting reality even further. Worldwide, subsidies that encourage the production and use of fossil fuels add up to roughly \$500 billion per year, compared with less than \$50 billion for renewable energy, including wind, solar, and biofuels. In 2009, fossil fuel consumption subsidies included \$147 billion for oil, \$134 billion for natural gas, and \$31 billion for coal. Governments are shelling out nearly \$1.4 billion per day to further destabilize the earth’s climate.⁵

Iran, with a fossil fuel subsidy of \$66 billion, is a leader in promoting gasoline use by pricing it at one fifth its market price. Following Iran on the list of countries that heavily subsidize fossil fuel use are Russia, Saudi Arabia, and India.⁶

Carbon emissions could be cut in scores of countries by simply eliminating fossil fuel subsidies. Some countries are already doing this. Belgium, France, and Japan have phased out all subsidies for coal. Countries in the European Union may phase out coal subsidies entirely by 2014. President Obama has announced plans to start phasing out fossil fuel subsidies in 2011. As oil prices have climbed, a number of countries that held fuel prices

well below world market prices have greatly reduced or eliminated their motor fuel subsidies because of the heavy fiscal cost. Among those reducing subsidies are China, Indonesia, and Nigeria.⁷

A world facing economically disruptive climate change can no longer justify subsidies to expand the burning of coal and oil. A phaseout of oil consumption subsidies over the next decade would cut oil use by 4.7 million barrels per day in 2020. Eliminating all fossil fuel consumption subsidies by 2020 would cut global carbon emissions by nearly 6 percent and reduce government debt.⁸

Shifting subsidies to the development of climate-benign energy sources such as wind, solar, and geothermal power will help stabilize the earth’s climate. Moving subsidies from road construction to high-speed intercity rail construction could increase mobility, reduce travel costs, and lower carbon emissions.

Closely related to the need to restructure the economy is the need to redefine security. One of our legacies from the last century, which was dominated by two world wars and the cold war, is a sense of security that is defined almost exclusively in military terms. It so dominates Washington thinking that the U.S. foreign affairs budget of \$701 billion in 2009 consisted of \$661 billion for military purposes and \$40 billion for foreign assistance and diplomatic programs.⁹

Douglas Alexander, former U.K. Secretary of State for International Development, put it well in 2007: “In the 20th century a country’s might was too often measured in what they could destroy. In the 21st century strength should be measured by what we can build together.”¹⁰

The good news is that in the United States the concept of redefining security is now permeating not only various independent think tanks but the Pentagon itself. A number of studies have looked at threats to U.S. interests

posed by climate change, population growth, water shortages, and food shortages—key trends that contribute to political instability and lead to social collapse.¹¹

Although security is starting to be redefined in a conceptual sense, we have not redefined it in fiscal terms. The United States still has a huge military budget, committed to developing and manufacturing technologically sophisticated and costly weapon systems. Since there is no other heavily armed superpower, the United States is essentially in an arms race with itself. What if the next war is fought in cyberspace or with terrorist insurgents? Vast investments in conventional weapons systems will be of limited use.

Given the enormity of the antiquated military budget, no one can argue that we do not have the resources to rescue civilization. The far-flung U.S. military establishment, including hundreds of military bases scattered around the world, will not save civilization. It belongs to another era. We can most effectively achieve our security goals by helping to expand food production, by filling the family planning gap, by building wind farms and solar power plants, and by building schools and clinics.¹²

During the years when governments and the media were focused on preparing for the 2009 Copenhagen climate negotiations, a powerful movement opposing the construction of new coal-fired power plants was emerging in the United States, largely below the radar screen. The principal reason that environmental groups, both national and local, are opposing coal plants is that they are the primary driver of climate change. In addition, emissions from coal plants are responsible for 13,200 U.S. deaths annually—a number that dwarfs the U.S. lives lost in Iraq and Afghanistan combined.¹³

Over the last few years the U.S. coal industry has suffered one setback after another. What began as a few local ripples of resistance to coal-fired power quickly

evolved into a national tidal wave of grassroots opposition from environmental, health, farm, and community organizations. Despite a heavily funded industry campaign to promote “clean coal,” the American public is turning against coal. In a national poll that asked which electricity source people would prefer, only 3 percent chose coal. The Sierra Club, which has kept a tally of proposed coal-fired power plants and their fates since 2000, reports that 139 plants in the United States have been defeated or abandoned.¹⁴

An early turning point in the coal war came in June 2007, when Florida’s Public Service Commission refused to license a huge \$5.7-billion, 1,960-megawatt coal plant because the utility proposing it could not prove that building the plant would be cheaper than investing in conservation, efficiency, or renewable energy sources. This point, frequently made by lawyers from Earthjustice, a nonprofit environmental legal group, combined with widely expressed public opposition to any more coal-fired power plants in Florida, led to the quiet withdrawal of four other coal plant proposals in the state.¹⁵

Coal’s future also suffered as Wall Street, pressured by the Rainforest Action Network, turned its back on the industry. In early February 2008, investment banks Morgan Stanley, Citi, and J.P. Morgan Chase announced that any future lending for coal-fired power would be contingent on the utilities demonstrating that the plants would be economically viable with the higher costs associated with future federal restrictions on carbon emissions. Later that month, Bank of America announced it would follow suit.¹⁶

One of the unresolved questions haunting the coal sector is what to do with the coal ash—the remnant of burning coal—that is accumulating in 194 landfills and 161 holding ponds in 47 states. This ash is not an easy material to dispose of since it is laced with arsenic, lead, mercury, and other toxic materials. The industry’s dirty

secret came into full public view just before Christmas 2008 when a Tennessee Valley Authority (TVA) coal ash pond containment wall in eastern Tennessee collapsed, releasing a billion gallons of toxic brew.¹⁷

Surprising through it may seem, the industry does not have a plan for safely disposing of the 130 million tons of ash produced each year, enough to fill 1 million railroad cars. The spill of toxic coal ash in Tennessee, which is costing the TVA \$1.2 billion to clean up, drove another nail into the lid of the coal industry coffin.¹⁸

An August 2010 joint study by the Environmental Integrity Project, Earthjustice, and the Sierra Club reported that 39 coal ash dump sites in 21 states have contaminated local drinking water or surface water with arsenic, lead, and other heavy metals at levels that exceed federal safe drinking water standards. This is in addition to 98 coal ash sites that are polluting local water supplies that were already identified by the U.S. Environmental Protection Agency (EPA). In response to these and other threats, new regulations are in the making to require an upgrade of the management of coal ash storage facilities so as to avoid contaminating local groundwater supplies. In addition, EPA is issuing more stringent regulations on coal plant emissions, including sulfur dioxide and nitrogen oxides. The goal is to reduce chronic respiratory illnesses, such as asthma in children, and the deaths caused by coal-fired power plant emissions.¹⁹

Another coal industry practice, the blasting off of mountain tops with explosives to get at coal seams, is under fire. In August 2010, the Rainforest Action Network announced that several leading U.S. investment banks, including Bank of America, J.P. Morgan, Citi, Morgan Stanley, and Wells Fargo, had ceased lending to companies involved in mountaintop removal coal mining. Massey Energy, a large coal mining company notorious for its violations of environmental and safety regulations

and the owner of the West Virginia mine where 29 miners died in 2010, lost all funding from three of the banks.²⁰

More and more utilities are beginning to recognize that coal is not a viable long-term option. TVA, for example, announced in August 2010 that it was planning to close 9 of its 59 coal-generating units. Duke Energy, another major southeastern utility, followed with an announcement that it was considering the closure of seven coal-fired units in North and South Carolina alone. Progress Energy, also in the Carolinas, is planning to close 11 units at four sites. In Pennsylvania, Exelon Power is preparing to close four coal units at two sites. And Xcel Energy, the dominant utility in Colorado, announced it was closing seven coal units.²¹

These five are examples of a growing number of U.S. utilities that are closing coal-fired power plants, replacing them with natural gas, wind, solar, biomass, and efficiency gains. In an analysis of the future of coal, Wood Mackenzie, a leading energy consulting and research firm, sees these closings as a harbinger of things to come for the coal industry.²²

The chairman of the powerful U.S. Federal Energy Regulatory Commission, Jon Wellinghoff, observed in early 2009 that the United States may no longer need any additional coal plants. Regulators, investment banks, and political leaders are now beginning to see what has been obvious for some time to climate scientists such as James Hansen: that it makes no sense to build coal-fired power plants only to have to bulldoze them in a few years.²³

Given the huge potential for reducing electricity use in the United States, closing coal plants may be much easier than it appears. If the efficiency level of the other 49 states were raised to that of New York, the most energy-efficient state, the energy saved would be sufficient to close 80 percent of the country's coal-fired power plants. The remaining plants could be shut down by turning to

renewable energy—wind farms, solar thermal power plants, solar cells, and geothermal power and heat.²⁴

As noted earlier, the U.S. transition from coal to renewables is under way. Between 2007 and 2010, U.S. coal use dropped 8 percent. During the same period, and despite the recession, 300 new wind farms came online, adding some 21,000 megawatts of wind-generating capacity.²⁵

The bottom line is that the United States currently has, in effect, a near de facto moratorium on the licensing of new coal-fired power plants. Several environmental groups, including the Sierra Club and Greenpeace, are now starting to focus on closing existing coal plants. The movement is also going international, as campaigns are now under way in several countries to prevent the construction of new coal plants and to close existing ones.²⁶

With the likelihood that few, if any, new coal-fired power plants will be approved in the United States, this moratorium sends a message to the world. Denmark and New Zealand have already banned new coal-fired power plants. Hungary is on the verge of closing its one remaining coal plant. Ontario Province, where 39 percent of Canadians live, plans to phase out coal entirely by 2014. Scotland announced in September 2010 that it plans to get 80 percent of its electricity from renewables by 2020 and 100 percent by 2025, backing out coal entirely. Other countries are likely to join this effort to cut carbon emissions. Even China, which was building one new coal plant a week, is surging ahead with renewable energy and now leads the world in new wind farm installations. These and other developments suggest that the Plan B goal of cutting carbon emissions 80 percent by 2020 may be much more attainable than many would have thought a few years ago.²⁸

The restructuring of the energy economy will not only dramatically drop carbon emissions, helping to sta-

bilize climate, it will also eliminate much of the air pollution that we know today. The idea of a pollution-free environment is difficult for us even to imagine, simply because none of us has ever known an energy economy that was not highly polluting. Working in coal mines will be history. Black lung disease will eventually disappear. So too will “code red” alerts warning us to avoid strenuous exercise because of dangerous levels of air pollution.

And, finally, in contrast to investments in oil fields and coal mines, where depletion and abandonment are inevitable, the new energy sources are inexhaustible. While wind turbines, solar cells, and solar thermal systems will all need repair and occasional replacement, investing in these new energy sources means investing in energy systems that can last forever. These wells will not go dry.

Although some of the prospects look good for moving away from coal, timing is key. Can we close coal-fired power plants fast enough to save the Greenland ice sheet? To me, saving Greenland is both a metaphor and a precondition for saving civilization. If its ice sheet melts, sea level will rise 23 feet. Hundreds of coastal cities will be abandoned. The rice-growing river deltas of Asia will be under water. And there will be hundreds of millions of rising-sea refugees. The word that comes to mind is chaos. If we cannot mobilize to save the Greenland ice sheet, we probably cannot save civilization as we know it.²⁸

Similarly, can we eradicate poverty and fill the family planning gap fast enough to help countries escape the demographic trap? Can we halt the growth in the number of failing states before our global civilization begins to unravel?

The overarching question is, Can we change fast enough? When thinking about the enormous need for social change as we attempt to move the world economy onto a sustainable path, I find it useful to look at three models of social change. One is the Pearl Harbor model,

where a dramatic event fundamentally changed how Americans thought and behaved. The second model is one where a society reaches a tipping point on a particular issue often after an extended period of gradual change in thinking and attitudes. This I call the Berlin Wall model. The third is the sandwich model of social change, where there is a dedicated grassroots movement pushing for change that is strongly supported by political leadership.

The surprise Japanese attack on Pearl Harbor on December 7, 1941, was a dramatic wakeup call. It totally changed how Americans thought about the war. If the American people had been asked on December 6th whether the country should enter World War II, probably 95 percent would have said no. By Monday morning, December 8th, 95 percent would likely have said yes.

When scientists are asked to identify a possible “Pearl Harbor” scenario on the climate front, they frequently point to the possible breakup of the West Antarctic ice sheet. Sizable blocks of it have been breaking off for more than a decade already, but far larger blocks could break off, sliding into the ocean. Sea level could rise a frightening 2 or 3 feet within a matter of years. Unfortunately, if we reach this point it may be too late to cut carbon emissions fast enough to save the remainder of the West Antarctic ice sheet. By then we might be over the edge.²⁹

The Berlin Wall model is of interest because the wall’s dismantling in November 1989 was a visual manifestation of a much more fundamental social change. At some point, Eastern Europeans, buoyed by changes in Moscow, had rejected the great “socialist experiment” with its one-party political system and centrally planned economy. Although it was not anticipated, Eastern Europe had an essentially bloodless revolution, one that changed the form of government in every country in the region. It had reached a tipping point.

Many social changes occur when societies reach tip-

ping points or cross key thresholds. Once that happens, change comes rapidly and often unpredictably. One of the best known U.S. tipping points is the growing opposition to smoking that took place during the last half of the twentieth century. This movement was fueled by a steady flow of information on the health-damaging effects of smoking, a process that began with the Surgeon General’s first report in 1964 on smoking and health. The tipping point came when this information flow finally overcame the heavily funded disinformation campaign of the tobacco industry.³⁰

Although many Americans are confused by the disinformation campaign on climate change, which is funded by the oil and coal industries, there are signs that the United States may be moving toward a tipping point on climate, much as it did on tobacco in the 1990s. The oil and coal companies are using some of the same disinformation tactics that the tobacco industry used in trying to convince the public that there was no link between smoking and health.

The sandwich model of social change is in many ways the most attractive one, largely because of its potential for rapid change, as with the U.S. civil rights movement in the 1960s. Strong steps by EPA to enforce existing laws that limit toxic pollutants from coal-fired power plants, for instance, are making coal much less attractive. So too do the regulations on managing coal ash storage and rulings against mountaintop removal. This, combined with the powerful grassroots campaign forcing utilities to seek the least cost option, is spelling the end of coal.³¹

Of the three models of social change, relying on the Pearl Harbor model for change is by far the riskiest, because by the time a society-changing catastrophic event occurs for climate change, it may be too late. The Berlin Wall model works, despite the lack of government support, but it does take time. The ideal situation for rapid,

historic progress occurs when mounting grassroots pressure for change merges with a national leadership that is similarly committed.

Whenever I begin to feel overwhelmed by the scale and urgency of the changes we need to make, I reread the economic history of U.S. involvement in World War II because it is such an inspiring study in rapid mobilization. Initially, the United States resisted involvement in the war and responded only after it was directly attacked at Pearl Harbor. But respond it did. After an all-out commitment, the U.S. engagement helped turn the tide of war, leading the Allied Forces to victory within three-and-a-half years.³²

In his State of the Union address on January 6, 1942, one month after the bombing of Pearl Harbor, President Franklin D. Roosevelt announced the country's arms production goals. The United States, he said, was planning to produce 45,000 tanks, 60,000 planes, and several thousand ships. He added, "Let no man say it cannot be done."³³

No one had ever seen such huge arms production numbers. Public skepticism abounded. But Roosevelt and his colleagues realized that the world's largest concentration of industrial power was in the U.S. automobile industry. Even during the Depression, the United States was producing 3 million or more cars a year.³⁴

After his State of the Union address, Roosevelt met with auto industry leaders, indicating that the country would rely heavily on them to reach these arms production goals. Initially they expected to continue making cars and simply add on the production of armaments. What they did not yet know was that the sale of new cars would soon be banned. From early February 1942 through the end of 1944, nearly three years, essentially no cars were produced in the United States.³⁵

In addition to a ban on the sale of new cars, residential and highway construction was halted, and driving for

pleasure was banned. Suddenly people were recycling and planting victory gardens. Strategic goods—including tires, gasoline, fuel oil, and sugar—were rationed beginning in 1942. Yet 1942 witnessed the greatest expansion of industrial output in the nation's history—all for military use. Wartime aircraft needs were enormous. They included not only fighters, bombers, and reconnaissance planes, but also the troop and cargo transports needed to fight a war on distant fronts. From the beginning of 1942 through 1944, the United States far exceeded the initial goal of 60,000 planes, turning out a staggering 229,600 aircraft, a fleet so vast it is hard even today to visualize it. Equally impressive, by the end of the war more than 5,000 ships were added to the 1,000 or so that made up the American Merchant Fleet in 1939.³⁶

In her book *No Ordinary Time*, Doris Kearns Goodwin describes how various firms converted. A sparkplug factory switched to the production of machine guns. A manufacturer of stoves produced lifeboats. A merry-go-round factory made gun mounts; a toy company turned out compasses; a corset manufacturer produced grenade belts; and a pinball machine plant made armor-piercing shells.³⁷

In retrospect, the speed of this conversion from a peacetime to a wartime economy is stunning. The harnessing of U.S. industrial power tipped the scales decisively toward the Allied Forces, reversing the tide of war. Germany and Japan, already fully extended, could not counter this effort. British Prime Minister Winston Churchill often quoted his foreign secretary, Sir Edward Grey: "The United States is like a giant boiler. Once the fire is lighted under it, there is no limit to the power it can generate."³⁸

The point is that it did not take decades to restructure the U.S. industrial economy. It did not take years. It was done in a matter of months. If we could restructure the

U.S. industrial economy in months, then we can restructure the world energy economy during this decade.

With numerous U.S. automobile assembly lines currently idled, it would be a relatively simple matter to retool some of them to produce wind turbines, as the Ford Motor Company did in World War II with B-24 bombers, helping the world to quickly harness its vast wind energy resources. This would help the world see that the economy can be restructured quickly, profitably, and in a way that enhances global security.³⁹

The world now has the technologies and financial resources to stabilize climate, eradicate poverty, stabilize population, restore the economy's natural support systems, and, above all, restore hope. The United States, the wealthiest society that has ever existed, has the resources and leadership to lead this effort.

We can calculate roughly the costs of the changes needed to move our twenty-first century civilization off the decline-and-collapse path and onto a path that will sustain civilization. What we cannot calculate is the cost of not adopting Plan B. How do you put a price tag on social collapse and the massive die-off that it invariably brings?

As noted in earlier chapters, the external funding needed to eradicate poverty and stabilize population requires an additional expenditure of \$75 billion per year. A poverty eradication effort that is not accompanied by an earth restoration effort is doomed to fail. Protecting topsoil, reforesting the earth, restoring oceanic fisheries, and other needed measures will cost an estimated \$110 billion in additional expenditures per year. Combining both social goals and earth restoration goals into a Plan B budget yields an additional annual expenditure of \$185 billion. (See Table 13–1.) This is the new defense budget, the one that addresses the most serious threats to both national and global security. It is equal to 12 percent of

Table 13–1. *Plan B Budget: Additional Annual Expenditures Needed to Meet Social Goals and Restore the Earth*

Goal	Funding (billion dollars)
Basic Social Goals	
Universal primary education	10
Eradication of adult illiteracy	4
School lunch programs	3
Aid to women, infants, preschool children	4
Reproductive health and family planning	21
Universal basic health care	33
Total	75
Earth Restoration Goals	
Planting trees	23
Protecting topsoil on cropland	24
Restoring rangelands	9
Restoring fisheries	13
Stabilizing water tables	10
Protecting biological diversity	31
Total	110
Grand Total	185
U.S. Military Budget	661
Plan B budget as share of this	28%
World Military Budget	1,522
Plan B budget as share of this	12%

Source: Military from SIPRI; other data at www.earth-policy.org.

global military expenditures and 28 percent of U.S. military expenditures.⁴⁰

Unfortunately, the United States continues to focus its fiscal resources on building an ever-stronger military, largely ignoring the threats posed by continuing environmental deterioration, poverty, and population growth. Its 2009 military expenditures accounted for 43 percent of the global total of \$1,522 billion. Other leading spenders included China (\$100 billion), France (\$64 billion), the United Kingdom (\$58 billion), and Russia (\$53 billion).⁴¹

For less than \$200 billion of additional funding per year worldwide, we can get rid of hunger, illiteracy, disease, and poverty, and we can restore the earth's soils, forests, and fisheries. We can build a global community where the basic needs of all people are satisfied—a world that will allow us to think of ourselves as civilized.

As a general matter, the benchmark of political leadership will be whether leaders succeed in shifting taxes from work to environmentally destructive activities. It is tax shifting, not additional appropriations, that is the key to restructuring the energy economy in order to stabilize climate.

Just as the forces of decline can reinforce each other, so too can the forces of progress. For example, efficiency gains that lower oil dependence also reduce carbon emissions and air pollution. Eradicating poverty helps stabilize population. Reforestation sequesters carbon, increases aquifer recharge, and reduces soil erosion. Once we get enough trends headed in the right direction, they will reinforce each other.

One of the questions I hear most frequently is, What can I do? People often expect me to suggest lifestyle changes, such as recycling newspapers or changing light bulbs. These are essential, but they are not nearly enough. Restructuring the global economy means becoming politically active, working for the needed

changes, as the grassroots campaign against coal-fired power plants is doing. Saving civilization is not a spectator sport.

Inform yourself. Read about the issues. Share this book with friends. Pick an issue that's meaningful to you, such as tax restructuring to create an honest market, phasing out coal-fired power plants, or developing a world class-recycling system in your community. Or join a group that is working to provide family planning services to the 215 million women who want to plan their families but lack the means to do so. You might want to organize a small group of like-minded individuals to work on an issue that is of mutual concern. You can begin by talking with others to help select an issue to work on.⁴²

Once your group is informed and has a clearly defined goal, ask to meet with your elected representatives on the city council or the state or national legislature. Write or e-mail your elected representatives about the need to restructure taxes and eliminate fossil fuel subsidies. Remind them that leaving environmental costs off the books may offer a sense of prosperity in the short run, but it leads to collapse in the long run.

During World War II, the military draft asked millions of young men to risk the ultimate sacrifice. But we are called on only to be politically active and to make lifestyle changes. During World War II, President Roosevelt frequently asked Americans to adjust their lifestyles and Americans responded, working together for a common goal. What contributions can we each make today, in time, money, or reduced consumption, to help save civilization?

The choice is ours—yours and mine. We can stay with business as usual and preside over an economy that continues to destroy its natural support systems until it destroys itself, or we can be the generation that changes

direction, moving the world onto a path of sustained progress. The choice will be made by our generation, but it will affect life on earth for all generations to come.

Data, endnotes, and additional resources can be found on Earth Policy's Web site, at www.earth-policy.org.