

HOT, FLAT, AND CROWDED: WHY WE NEED A GREEN REVOLUTION AND HOW IT CAN RENEW AMERICA. Thomas Friedman: NY: Farrar, Straus and Giroux, 2008
A Chapter Summary* for UUCB Green Discussion Group. (Dick Rehberg)

Chapter 1: “Where Birds Don’t Fly”. Because of 9/11 and ensuing US policies, the US has effectively insulated itself from much of the world, diplomatically and culturally. As a diplomat has observed, with fortress-like embassies abroad, “The upside is that we are more secure; the downside is you lost human contact and it makes it way harder to have interactions with people who are not part of the elite”. America has a problem: it has lost its way. The world has a problem: it is getting *hot, flat, and crowded*, i.e., climate change, globalized economically, and with a burgeoning population soon to rise from 6.2 to 9+ billion people.

The US could become a critical part of the solution to these two problems by implementing a project Friedman calls “Code Green”—making America the world’s leader in innovating clean power and energy efficient systems and inspiring an ethic of conservation toward the natural world.

In recent years, Friedman argues, the US has become a *sub-prime* nation that thinks it can borrow its way to prosperity.

However, as a nation we are still rich with innovators, entrepreneurs, and idealists—in these may lie our salvation.

The US lacks sustained focus on energy—a critical and major crisis for this nation. For two decades, until recently, CAFE standards have all but stagnated, solar panels were stripped from the White House, environmental regulations have been gutted, and energy priced too cheaply, thus encouraging its over consumption, especially when compared with Europe and Japan.

Moreover, since the 1980s, the US has embraced almost without qualification the dogma that “the market is *always* right; the government *always* wrong”.

Friedman writes that “The hallmark of those companies and countries that continually thrive is that they continually reinvent themselves”. We now need to reinvent ourselves as a green nation. “Making America the world’s greenest country is not a selfless act of charity or naïve moral indulgence. It is now a core national security and economic interest”.

Chapter 2: “Today’s Date: 1 E.C.E. Today’s Weather: Hot, Flat, and Crowded”. *Crowded:* Current world population is now ca. 6.7 billion. The UN projects it to increase by 2.5 billion over the next 45 years to 9.2 billion in 2050.

Flat: The global playing field has been leveled by a combination of technical, market, and geopolitical events. Technical forces include computers and the internet, easy and relatively inexpensive air travel.

Hot: Earth’s average temperature has risen ca. 1.6 degrees since 1890. Atmospheric concentrations of carbon dioxide, primarily from the combustion of fossil fuels, have risen from 280 ppm in 1890 to more than 384 ppm now and is now rising by 2 ppm per year. Before 2100 at current rates of increase the level will exceed 500 ppm, a level many scientists regard as the “point of no return”, that is, of irreversible climate change. Within this scenario, average world temperature may rise from 5 to 8 degrees F and world sea levels by 3 to 8 feet.

The convergence of global warming, global flattening, and global flattening is driving five big problems: energy supply and demand, petro-dictatorship, climate change, energy poverty, and biodiversity loss.

We now understand that fossil fuel resources are finite and exhaustible and will be increasingly expensive. As developing countries such as China and India generate ever larger middle classes with consumer wants,

energy demand will begin to exceed supply and prices will rise rapidly. The same pattern will prevail for other commodities including copper, iron, and food.

PETRODICTATORSHIP: As we enter the Energy-Climate Era, massive wealth is being transferred from the West to energy producing countries (Middle East, Russia, Africa, to a lesser extent South America). This unprecedented financial transfer gives power to leaders who have not earned it by actually building their economies or educating their people.

BIODIVERSITY LOSS: The economic development (consumption of consumer goods, urbanization, road building, resource depletion) driven by the flattening and crowding of the world devours open space, coral reefs, and tropical forests. In turn, this disrupts ecosystems and depletes species. An estimated 90% of the large predator fish are gone. Twenty percent of coral with another 20% threatened. “*Species are disappearing at rates about a thousand times faster than normal*”.

The future does not have to be a Malthusian nightmare—if we think strategically.

3. *Our Carbon Copies (or, Too Many Americans): Energy and Resource Supply and Demand.*

China, India, and parts of the Middle East illustrate what happens when flat meets crowded. We are transitioning from a world population in which perhaps one billion people live an “American” life style to one in which up to three billion live an “American” life style, i.e., one of high consumption.

Europe and Japan demonstrate that it is possible to live a middle-class life with much less per capita consumption than the United States. If Americans do not redefine what a middle-class lifestyle is, three more planets will be required to support a world middle-class population of two to three billion.

“Our prosperity is now threatened by the very foundation of that prosperity”—the nature of American capitalism (Friedman quote from Jeff Wacker, futurist for Electronic Data Systems Corp).

The energy, food, and natural resource implications of so many people becoming “Americans” is simply staggering, writes Friedman. He also writes that: “The old way is not replicable on the China-India scale in a flat world, without irreparable harm to planet earth”.

How can we encourage economic growth in a world in which natural resources are limited?, asks Friedman. One way would be to adopt “cradle-to-cradle” policies, i.e., “All product components [should] be designed for continuous recovery and reutilization as biological nutrients, eliminating the concept of waste.”

The International Energy Agency predicts that world oil demand will grow to 116 million barrels a day by 2050—up from 86 million in 2007. About two-fifths of the increase will come from China and India. If China and India consumed oil on a per capita basis equal to the US, world oil consumption today would be ca. 200 million barrels per day, compared with the actual of 86 million.

When flat meets crowded . . . China will not be able to be China if it continues to copy American-style consumption.

We know that the Energy-Climate Era, if all the world’s people start to live like Americans, would herald a climate and biodiversity disaster.

4. *Fill’Er Up With Dictators.* In this chapter, Friedman argues that petroleum states absent democratic forms of government tend to become and persist as authoritarian states. He quotes Larry Diamond of Stanford as noting that of the 23 nations that derive a clear majority of their export incomes from oil and gas, not a single one is a democracy. Examples include Saudi Arabia, Nigeria, Russia, Kazakhstan, Azerbaijan, Indonesia, the UAE, *inter alia*. Friedman writes that “This massive transfer of wealth (from the west to the petro-states) for oil is tilting not just the Muslim world, but also global politics at large. Wherever governments can raise most of their revenues simply by drilling a hole in the ground rather than

tapping their people's energy, creativity, and entrepreneurship, freedom tends to be curtailed, education underfunded, and human development retarded. This is what I call the First Law of Petropolitics".

Very often in petroli states writes Friedman, the public develops a distorted notion of what development is all about. The people conclude that their country is poor and the leader, or some group, are rich not because the country has failed to promote education, innovation, rule of law, and entrepreneurship, but only because someone is stealing the oil money and depriving them of their due. Operative also is the "taxation effect". Oil-rich governments tend to use their revenues to relieve social pressures that might otherwise lead to demands for greater accountability from—and representation in—the government.

5. *Global Weirding: Climate Change.* When a major hurricane such as Katrina strikes, the rather definitive state of climate science now leads humans to ask us to ask "Did we do that? Or did God do that".

Those who deny human caused climate change, argues Friedman, come in three basic varieties: 1) those paid by fossil fuel energy companies, 2) scientists, independent of fossil fuel payments, who truly accord different interpretations to climate data, and 3) political conservatives who for ideological reasons simply refuse to believe the data. The net effect of these persuasive lobbies, however, has been to "muddy" the issue and delay action to reduce greenhouse gases.

The "Really Scary Stuff" We Already Know. A summary from Friedman:

Earth's climate does change over long period of geological time because of changes in tilt of earth's axis vis a vis the sun and in the orbit of the earth (Milankovitch cycles of ca. 21,000 yr.)

- a. Atmospheric concentrations of carbon dioxide, among the most critical of greenhouse gases, has increased from 280 ppm ca. 1790 to >384 ppm ca. 2008. Average (mean) Earth temperature has risen during this time by ca. 1.6 F since 1800s and unless emissions are dramatically reduce may rise another 5 – 8 F by 2100.
- b. Increasing atmospheric carbon dioxide also raises the acidity (carbonic acid) of the oceans and create a threat to marine life.
- c. The rapid economic growth of China and India with their resulting emissions constitute a climate game changer.
- d. There are positive feedback loops that accelerate climate change and in a non-linear way, including:
 - 1) Reduced albedo (less sunlight reflected from surface back to space) from melting of ice caps and glaciers, hence more heat accumulation.
 - 2) Outgassing from melting tundra of carbon dioxide and methane.
 - 3) Rapid changes in forest tree varieties and loss of forests because of climate induced drought and insect infestation.
- e. Evidence for climate change is overwhelming: E.g., changes in climate in American west (and east), in Arctic, drying of north Africa. rising sea levels, increased volatility/extremes of global weather *inter alia*.

6. *The Age of Noah: Biodiversity.* Economic and population growth are the primary causes of the 6th mass extinction. Conservation International estimates that one species now goes extinct every 20 minutes, a thousand times faster than the norm during earth's history. Consequences:

- a. Loss of aesthetic value of nature
- b. Loss of ecological services provided by species, e.g., pollination fo 1/3 of U.S. crops by bees.
- c. Loss of major source of new drugs.

Code Green must involve both a strategy for the *generation* of clean energy to mitigate climate change and its effects, *and* a strategy for the *preservation* of the earth's biodiversity.

Friedman notes that “We are the only species in this vast web of life that no animal or plant depends on for its survival—yet we depend on the whole web of life for our survival”.

7. *Energy Poverty.* Friedman notes the close association between prosperity and energy use. In this vein he observes the very low per capita energy availability/consumption of populations living in poor regions of Africa, Central and South America, and Asia: “Energy poverty”.

The poor developing regions of the world, currently both economically and energy poor, are also projected to be most adversely affected by climate change. Mass environmental migrations are one of the likely consequences. Examples of climate change affecting third world: rising sea levels, reduced stream flow from melting glaciers (Tibetan Plateau, Andes)

Yet, more energy, especially in the form of electricity, is essential for the development of these third world states. To some degree this may be possible by “leapfrogging”, e.g., rapid adoption of cell phones rather than land lines, rapid adoption of renewable energy generation, computers and wireless connections to increase connectivity.

8. *Green is the New Red, White, and Blue.* Today’s energy-climate challenge is the epitome of a great series of opportunities disguised as insoluble problems. Why an opportunity? Because the human race can no longer continue to power its growth with the fossil fuel based system that has evolved since the Industrial Revolution and thrust us into the Energy-Climate era.

To date we have largely “externalized” the costs of our fossil fuel growth by failing to include the real and true environmental costs into the market price of that fuel; the difference between that “real” price and the “market” price has been paid by the environment as well as by diminished human health of some sub-populations. Now, these costs are becoming visible.

Hence, green is no longer a fad: Green is the way we should grow, build, design, manufacture, work, and live. Friedman continues: “That is why I am convinced that the ability to develop clean power and energy-efficient technologies is going to become *the* defining measure of a country’s economic standing, environmental health, energy security, and national security over the next fifty years”. This is “Code Green”. “*Green is the new red, white, and blue*: because it is a strategy that can help to ease global warming, energy poverty, petrodicatorship, and energy supply shortages—and make America stronger at the same time”.

Because we (the west, the U.S. in particular) have a *moral* responsibility to embrace “green” because we have and we continue to consume the greatest portion per capita of the world’s resources, because we have more resources for innovation, because we have the standing to affect more people than any other country. Energy is part of the complex systems that include technologies, population, poverty, trade, species, biodiversity.

Other nations are awaiting America to lead. We need to move, systematically, away from fossil fuels and create new energy systems based on green sources of power. John Muir: “When we try to pick out anything by itself, we find it hitched to everything else in the Universe”. We need systems to produce in large quantities “clean electrons”.

Two elements to clean electrons: 1) technological innovation, 2) energy efficiency and natural resource productivity. We need a sense of stewardship (responsibility for the natural world); and trusteeship (preserving the natural world for future generations). We must develop new habits and attitudes toward consumption.

9. *205 Easy Ways to Save the Earth.* 1. Friedman is skeptical about some “green advertising” and green PR that suggests we can go green with little or no pain. “Green”, he notes, “was actually the single most trademarked term in 2007”. 2. “Have you”, he asks, “ever seen a revolution where no one got hurt? That’s the green revolution we’re having, everyone’s a winner, nobody has to give up anything, and the adjective that most often modifies ‘green revolution’ is ‘easy’. That’s not a revolution”, that’s a party!

What should a *systemic* green strategy look like? Our objectives include:

- a. *Changing the climate system—to avoid the unmanageable and manage the unavoidable.*
- b. *Preserve and restore the world's rapidly depleting ecosystems,*
- c. *Break a collective addiction to gasoline.*

“Rare is the political leader anywhere in the world who will talk straight about the true size of this challenge”.

The cost of this systemic energy revolution? In excess of \$1 trillion. Among the tasks must achieve are:

- a. Doubling CAFÉ from 30 to 60 mpg.
- b. Drive less, much less
- c. Raise efficiency by 40-60% of coal fired power plants
- d. Retrofit coal and other carbon emitting generating facilities with carbon sequestration technology
- e. Add to current nuclear capacity
- d. Increase wind power by 40 fold to displace all coal plants
- e. Increase wind power by 80 fold to make hydrogen for clean cars
- f. Halt deforestation—a major carbon source
- g. Adopt conservation tillage to cut carbon emissions from agriculture
- h. Cut electricity use by 25%.

This is where politics meets energy technology. Do we have the political courage to achieve these goals and will we allocate the necessary resources?

10. *The Energy Internet: Where IT Meets ET.* In this chapter, Friedman promotes” smart” energy systems where, in the home for example, all energy using systems were interconnected electronically and was connected electronically with the larger grid. He advocates “REEFIGDCPEERPC < TTCOBCOG “, i.e., a renewable energy system for innovating, generating, and deploying clean power, clean power, energy efficiency, resource productivity, and conservation < the true cost of burning coal, oil, and gas.

Electric generating companies currently make money by adding power plants, customers, and generating ever more power because their rates are based on capital expenditures. This provides little if any incentive to conserve or enhance efficiency. Moreover, this system externalizes environmental costs, meaning that electricity is priced lower than its true cost thus encouraging greater power consumption.

The Electricity Grid: “dumb”, not built with any intelligent design, and prone to reliability failures. We have no truly national grid, just a patchwork grid.

The Smart Grid: Some characteristics

- a. The “Smart Home” Every electric device in the home is connected with every other and each is programmed for highest efficiency of use.
- b. Cars are now plug ins”, rolling storage units that can both take and give energy to the grid. At night at home, the unit would charge. At work, during the day, the unit would be plugged in and the utility could tap it for electricity, thus helping feed daytime demand and even out the daily load.
- c. Electricity to the home is monitored in real time by the utility company with adjustments to the home and appliances made in accord with demand load. This enables the control of demand with minimum inconvenience to the customer.

Under this systemic approach, building construction would be green. Cement use would be minimized (fly ash can be used in making cement thus reducing production need). As Friedman notes:

The production of cement worldwide—the heat that has to be generated to roast the limestone and the CO₂ that is emitted in the process—releases almost as much CO₂ into the atmosphere as all the passenger cars in the world.

11. *The Stone Age Didn't End Because We Ran Out of Stones.* This chapter explores the coming energy crisis (demand for oil in excess of supply, the urgent need to reduce carbon emissions) and the effects of emerging economies on energy use and the environment.

Friedman observes that China has and is making significant strides in green power; albeit somewhat offset by a surging economy (growth ca. 8-12% a year) and huge population (ca. 1.3 billion).

Friedman asserts that we *haven't really tried* to achieve the needed exponential innovations in energy and engineering.

The free market has a role in these processes. To do so, however, markets must be designed intelligently and fertilized with the right regulations, incentives, and disincentives.

To date, however, our markets have been “designed by the oil, coal, and natural gas interests”. We “are not going to get energy innovations at a scale [needed] when a barrel of oil is cheaper than a barrel of water or a barrel of milk”. We need, at least, a price floor, i.e., a base price, for oil, say a minimum price of \$50 per barrel. This provides stability and predictability for the economy and green energy innovation.

We need, says Friedman, a government policy “to stimulate exponential innovation by shaping the market”.

Today, compared with an R&D rate of ca. 8-10% in most competitive industries, for electric utilities it is only 0.15% of total revenues.

The US should create for oil “our own price signal to trigger the market to launch those 10,000 innovations in clean energy garages and 10,000 laboratories. The method to achieve this: a carbon tax, a gasoline tax increase, a renewable energy mandate, or a cap-and-trade system, or some combination of these. We must incorporate the full price of carbon in all fossil fuels.

Fossil fuel must be priced to include all costs, including and especially environmental costs. The market must be forced to tell the ecological truth.

Two policy instruments to control and reduce carbon emissions: 1) cap and trade, and/or 2) carbon tax. Friedman argues for a carbon tax.

And, writes Friedman, we need to build more than 100 nuclear power plants.

12. *If It Isn't Boring, It Isn't Green*

1. Innovative engineering creates products that can be fuel efficient and fuel efficiency sells on the world market. Increasing the energy efficiency of US products would enhance our exports and benefit the US economy. E.g., GE's highly efficient diesel-electric locomotive—stimulated by federal emission policy.
2. Appropriately planned environmental regulations can stimulate technological innovation leading to reductions in expenses and improvements in quality.
3. E.g.: The difference between a 20% and a 30% efficient air conditioner (for the US) is about 12 400-megawatt power plants!
4. Those who oppose energy efficient legislation often overstate the costs of change and understate the benefits. E.g.: US automobile manufacturers, electric utilities, coal mining, appliance manufacturers.

5. Negawatts (electricity *not* consumed because of enhanced efficiency) are the most environmentally friendly and often the least expensive form of electricity.
6. Enhancing the energy efficiency of all residential buildings in the US could, according to an estimate by McKinsey Global, save an amount of energy equivalent to the production from 110 new coal fired power 600 megawatt power plants!
7. California has the lowest electric use per capita of any US state—because of strict efficiency and conservation regulations.
8. LEED (Leadership in Energy and Environmental Design) has great potential for commercial building energy conservation.
9. For electric power generation, we must *decouple* profits and rising sales. Utilities would be reimbursed for any out of the pocket losses resulting from decreased demand and rewarded in proportion to reductions in customer costs delivered by the utility's conservation program.
10. One utility estimates the average cost of saving a kilowatt-hour through efficiency is 1.7 cents per KWHr while the cost of generation a new KWHr today is over 10 cents.
11. We should electrify transportation—moving automobiles, rail, buses, and trains away from combustion engines. About 30% of greenhouse gas emissions are from transportation.
12. We will be successful, write Friedman, when “the term ‘green’ will go the way of the term ‘civil rights’”.

13. *A Million Noahs, a Million Arks.*

1. In this chapter, Friedman discusses the criticality of bio-diversity. “Trees, maids, education, governance, economic development. They’re all interconnected”, he writes.
2. Focus on Indonesia: Extensive deforestation: more than 70% of CO2 emissions from Indonesia come from the cutting and clearing of forests. Coral reefs off the coast are seriously endangered.
3. The earth's bounty is not, contrary to a prevailing belief, “inexhaustible”. Energy use, economic growth, species loss, deforestation, petropolitics, and global warming are all interconnected.
4. The more we get into the Energy-Climate Era, the more we need natural habitat—forests that hold soil and provide homes for endangered species and healthy reefs to protect coastal areas — from being swamped by sea level rise and to nourish fish stocks that provide much food for coastal peoples.
5. To achieve sustainability, we are going to need a million Noahs and a million arks.
6. All conservation is local: global treaties are necessary but they will not solve the problem. You need coalitions bound together by an interlocking web of self-interest.
7. If, in Indonesia for example, an orangutan is to survive, the forest must survive. And if the forest is to survive, the villages contained therein must survive; the village must have a stakeholder role in sustaining the forest.
8. The world's long-term health depends upon healthy ecosystems: forests, rivers, ocean, and air.

14. *Outgreening al-Qaeda (or Buy One, Get Four Free.*

1. Friedman argues that “outgreening could be a military strategy” because, in the United States, few institutions realize more than the military the US dependence on fossil fuels and the vulnerability of the Defense Department, a major user of fossil fuels, to this vulnerability.
2. Friedman, noting the toll that IEDs take in Iraq on military units transporting fuel, cites a Sergeant Major as saying “If the army had distributed solar or wind power, it would eliminate putting soldiers on the road and that is the most dangerous thing we do”.
3. The “fully burdened cost of fuel” (cost of fuel plus transport costs to deliver that fuel to the end user” in Iraq is ca. \$20 per gallon.
4. An important benefit of the military using renewables is that troops, seeing its effective use on the battlefield, will return home and demand the same thing for their communities.
5. “Outgreening” involves creating a different kind of environment—a collaborative environment in which you, your company, and your community are consistently thinking about how to generate more growth, more mobility, more housing, . . . from the most innovative use of the cleanest electrons and the fewest resources.
6. Solar and wind power may be more expensive to install today, but the price of the fuel—sun and wind power—are fixed. Uncertainty costs money and today it is the current and future price of fossil fuel that is uncertain (and trending upward).
7. We need companies that view climate change not as a threat but as an opportunity; that will seek to go beyond carbon neutrality to what Friedman calls “the carbon advantage”.
8. Friedman cites New York City as an example of a municipality seeking to seize the green advantage; e.g., requiring use of hybrid taxicabs and minimum fuel efficiency for limousines (“black cars”).
9. Energy efficiency has had a major payoff for some corporations. E.g., given the huge energy appetite of computer server farms, manufacturers of servers (e.g., Sun Microsystems) who produce energy efficient units.
10. The more we make tax incentives available for retrofitting homes to make them energy efficient and to encourage the use of solar technologies, the more we strengthen the ability of the poor to stay in their homes and secure their neighborhoods.

15. *Can Red China Become Green China?*

1. China has major environmental problems: fouled air, polluted water, toxic soil, threatened species, *inter alia*. These may be attributed to the rapid economic growth of China over the past 25 years (ca. 8% – 12% a year) and a large and still growing population (ca. 1.3 billion). Notable is the fact that China is building coal-fired power plants at the rate of 1 every 1 to 2 weeks!
2. China does view (at least for political consumption) demands by the west that it reduce its carbon emissions as an effort to reduce its economic growth. (NOTE: About 80% of current ambient atmospheric CO₂ is a legacy of economic growth in the United States and Europe.
3. The leadership of China, however, has begun to acknowledge that the world and China is becoming warmer and that anthropogenic causes are primary. For example:
 - a. The year 2007 was the warmest ever recorded in China.

- b. In the Tibetan highlands, glaciers that water some of China's (and India's) major rivers are melting at higher rates.
 - c. Continuing climate change, the leadership realizes, will have adverse effects on the ability of China to grow food and raise livestock.
4. Cognizant of its major pollution problems, the Chinese leadership has made significant strides in efforts to mitigate environmental insults. However, that leadership faces significant problems within China itself:
- a. Municipal officials are rewarded, in part, on increased production within the municipality creating a disincentive to reduce pollution.
 - b. China is just now beginning to develop an effective "civil society"
 - c. China does plan to reduce carbon intensity by 20% by 2010.
 - d. The IT revolution facilitates the efforts of civil society organizations to pressure government officials to reduce emissions, pollution.
 - e. Auto emission standards in China equal those of Europe.
5. SunTech is an industry leader and world-class producer of photo voltaic panels.
- China's wind turbine sector is experiencing major growth with major installed capacity within China itself.
6. Whether Red China becomes Green China depends in part on how China houses the 250 million people moving from rural to urban areas.
7. Friedman argues that "the greatest thing that the United States could do today for itself, for China, and the world is to publicly state its intention to 'outgreen' China—to let the Chinese know every day that we are going to clean their clock in the next great global industry: clean power.

16: *China for a Day (but Not for Two); and 17: A Democratic China or a Banana Republic.* In these two chapters, Friedman:

1. Laments that the U.S. government has failed to shape the market to engage in the green revolution. This is because:
 - a. The influence on government of the "legacy industries" from the "Dirty Fuels System". "The money from this "energy-industrial complex . . . has obscured our ability to tell the ecological truth . . . and undermined our ability to engineer smart policies . . . that are needed. . ."
 - b. "Coal is never going to be a clean coal in CO₂ terms".
 - c. Friedman writes in some detail about the tens of millions of dollars spent by the energy industry to influence public opinion ["greenwash"] and the government policy and legislation [lobbying or buying influence].
 - d. The US needs not only venture capital investments in energy and transportation but also substantial federal R&D funds.
2. Friedman notes in detail how basic renewable industries in solar PV and wind turbines have developed in Germany, Denmark, Germany, Japan, and China (some following initial R&D and innovating engineering in the United States because of the failure of US government policies. He also notes that Europe and Japan have far more progressive policies to support the utilization of renewables, e.g., "feed-in" tariffs in Germany to support consumer use of wind generated electricity.
3. Friedman notes China's significant progress in the development and production and use of renewables.

4. *About the US he writes: “As long as the public signals the politicians that it is only interested in the 205 easy ways to go green, no one is going to propose the one or two hard ways that could actually make a difference” (italics added)*.
5. The big challenge we have today”, writes Friedman, “in energizing a real green revolution is that the people most [adversely] affected by climate change are not likely to be ‘us’”. They are likely to be those who “haven’t been born yet”.
6. Toward the end of his final chapter, Friedman writes:

“We are going to be either a democratic China or a banana republic. Either we are going to generate, through our democratic system and its elected leaders, the will, focus, and authority to look beyond the latest news cycle and do whatever it takes to deploy a Clean Energy System . . . which is what China is trying to do through more authoritarian means—or we are going to end up as a banana republic”.

*NOTE: The above summary is, to the best ability of this writer, a fair and accurate summary employing both quotes and paraphrases of Friedman’s book. I have studiously avoided injecting any personal perspectives into this summary. Friedman is sufficiently articulate that he should speak only for himself. Thanks. RAR

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