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America's Future Under 'Drill, Baby, Drill'

Where We'll Be in 2030 if We Stay
on Our Current Oil-Dependent Path

Jorge Madrid, Kate Gordon, and Tina Ramos

May 2012



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Contents

- 1 Introduction and summary**
- 5 Welcome to 2030: Life in America post-“drill, baby, drill”**
- 10 2030: America’s missed opportunities from “drill, baby, drill”**
- 14 2030: The developing world post-“drill, baby, drill”**
- 16 Choosing a different path to 2030**
- 18 Conclusion**
- 19 About the authors**
- 20 Endnotes**

Introduction and summary

When it comes to Big Oil, the latest news clips say it all—soaring gas prices topping \$4 a gallon; a record-high \$33.5 billion, or \$368 million per day,¹ in 2012 first-quarter profits for BP, Chevron, ConocoPhillips, ExxonMobil, and Royal Dutch Shell; the industry sitting on more than \$58 billion in cash reserves² as of the end of 2011 but still receiving \$2 billion in government subsidies; and a continued practice of bankrolling the campaigns of conservative lawmakers who then demand more drilling and less federal regulation and oversight.

These almost-daily news stories, however, are the tip of a much larger iceberg. Today the American Petroleum Institute (API) launches their long-term vision for the future, which to no surprise centers on “unleashing the full benefit of developing U.S. oil and natural gas resources.”³

Every day, Americans face decisions that will have a monumental impact on how we will generate and use energy in the future. As we write these words, policymakers in Washington, D.C., and across the country are debating whether to throw open the Arctic and our public lands to gas and oil drilling, whether to build a massive pipeline infrastructure that will bisect the entire country and import “tar sands” from Canada,⁴ and whether to weaken federal and state environmental protections against fossil fuel pollutants in the name of “economic growth.” These decisions will not only determine our short-term fuel choices, but they will also steer the course of our collective economic, political, and environmental futures. Which begs a crucial question for all Americans to consider: What kind of country will we be in in 2030 if we let Big Oil and their interests in Congress have their way?

We can’t pretend to be able to predict the future and truly answer this question. But even though we can’t summon H.G. Wells’s time machine or look into the future with a crystal ball, we do have some sobering scientific projections and analyses that can help us understand what the future might hold if we refuse to break our addiction to fossil fuels. This report is an attempt to use those data to envision that future.

And now, come with us into the future ...

The regression of 2012

The United States' prolonged unwillingness to develop a long-term, sustainable energy strategy has left us with a daunting challenge—the need to run a 21st century economy using 20th century energy sources and infrastructure. Our energy choices, or lack thereof due to the dominance of fossil fuels, have caused irreparable damage to the environment and public health, have caused our country to forego countless economic opportunities, and have made us far more vulnerable to fossil fuel price volatility than ever before. Not to mention that our relentless inaction on climate change mitigation and adaptation has left every state's communities, local economies, and natural resources at risk.

Things could have been different if, back in 2012, we had not made far-reaching choices about our energy future by choosing leaders who prioritized the short-term profitability of Big Oil over the long-term goal of developing a 21st century energy agenda. The result was an energy strategy focused on increased domestic production of a few fossil fuels rather than a more balanced approach including truly low-carbon energy sources and energy efficiency.

In short, we doubled down and chose the path of “drill, baby, drill.” We opted out of every opportunity to innovate and build a 21st century energy infrastructure and instead chose to maintain the dirty status quo of the 20th century.

The American public isn't stupid. We didn't deliberately choose the path of economic insecurity and climate instability. So how exactly did we get here?

Back in 2012 the oil and gas companies promised us millions of new jobs if we let them have their way and gave them carte blanche to exploit domestic fossil fuels.⁵ Big Oil said that drilling for domestic fossil fuels would shield our country from global conflict by breaking our dependence on foreign oil from the Middle East and reducing government spending on oil imports. The oil and gas companies promised us a safer, stronger, and more prosperous country.

We made decisions in 2012, especially during the November 2012 elections, that gave Big Oil enormous power and influence. We let Big Oil bankroll politicians who pretended that climate science wasn't real,⁶ called clean energy a “myth,”⁷ and

told millions of Americans holding green jobs that their livelihoods were “phony.”⁸ We let campaign consultants and pollsters tell us not to hold candidates accountable on their positions on global warming or government support for emerging clean energy industries.

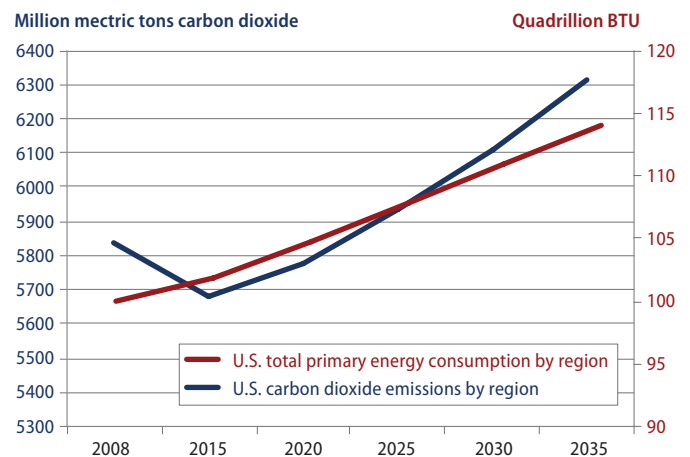
These decisions had major consequences in the ensuing decades. After the 2012 elections Congress pushed to open the Gulf of Mexico, the Atlantic and Pacific Outer Continental Shelves, major swaths of public lands, and the Arctic National Wildlife Refuge for oil drilling. They dismantled the Environmental Protection Agency and refused to regulate natural gas fracturing, or fracking, and other controversial drilling practices.⁹ Federal lawmakers killed all existing efforts to increase fuel efficiency in vehicles and sabotaged long-planned environmental controls on power plants that would have protected public health.

Remarkably, Congress listened to a small, self-interested group of oil companies when it came to making plans for America’s energy future instead of heeding the concerns of the 98 percent of climate scientists and experts who warned us that burning fossil fuels for energy was accelerating the pace of a shift in our global climate.¹⁰ Congress and the voting public listened to ultra-wealthy multinational oil and gas companies instead of small-business owners, community activists, environmentalists, and workers across all the myriad industries and occupations that made up the clean energy sector.

The promise of abundant oil jobs was dangled before us as an incentive—despite the fact that clean energy industries were some of the only sectors to show strong growth at the height of the Great Recession,¹¹ and 3.1 million jobs in the United States were associated with the production of green goods and services in 2010.¹² In contrast the single-largest category of people working directly for the petroleum industry in 2011 was cashiers at gasoline stations and stations with convenience stores.¹³

So what did we get for our fidelity to Big Oil back then? Instead of choosing to invest in clean and efficient energy solutions post-2012, giving consumers and businesses a choice in what kind

FIGURE 1
U.S. energy consumption, CO2 emissions increase



Source: Based on data from Energy Information Agency, “Annual Energy Outlook” (2011) (http://www.eia.gov/forecasts/ieo/pdf/ieoreftab_10.pdf)

of electricity and fuel to produce and use, we committed ourselves to a carbon-intensive, extractive economic future. We kept drilling and burning, and we kept spewing noxious CO₂, smog, and other pollutants into the air at exponential rates. (see graph)

While professing our desire not to leave a worse future to our children, we chose the path guaranteed to do exactly that. We went against the beliefs and best interests of the Millennial generation, 71 percent of whom believed that America's energy policy priority should be developing alternative sources of energy.¹⁴

And so we arrive in 2030, where we increasingly struggle to deal with the consequences of our shortsightedness in 2012.

Life in America post- “drill, baby, drill”

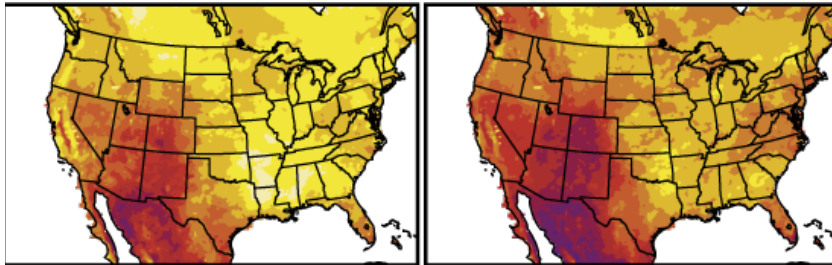
You wake up in the morning and get ready for work partially in the dark to save a bit of energy. But you can't turn off the air conditioner: The news has reported another day of record heat. Severe heat is only one type of extreme weather side effect. In 2030 what once was considered “extreme weather” is now the norm.¹⁵ More frequent hurricanes, exacerbated by rising sea levels, damage cities and small towns. Increased drought and extreme heat have led to fiercer wildfires, which have become harder to fight in a cost-effective manner.

FIGURE 2
Heat waves increase

Most of Southwest to endure at least seven seasons of intense heat waves every decade

2020-2029

2030-2039



events per decade

Source: Chart from Stanford University, "Intensification of hot extremes in the United States" (2009), p.15 (<http://woods.stanford.edu/docs/focal/DiffenbaughGRL.pdf>)

Most of the Southwest, in addition to Utah and Colorado, will endure at least seven seasons of intense heat waves per decade between 2030 and 2039.¹⁶

By 2030 the area burned by wildfires in Western states like Montana has increased up to 300 percent,¹⁷ costing state and federal governments billions of dollars.

You step into your bathroom and take the quickest shower possible. Unlike the days of long, luxurious showers in 2012, you have to stop and think about your water use and whether you can afford to use as much water as you'd like or need.



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U.S. Navy barge YOGN-115 carries 275,000 gallons of fresh water to support cooling efforts at the tsunami-damaged Fukushima Dai-ichi nuclear power plant in 2011. We will see more barges like this in America if we keep mismanaging water.

Water isn't cheap in 2030: In Western states urban water prices have soared, increasing 41 percent (in constant dollars) since 2005.¹⁸

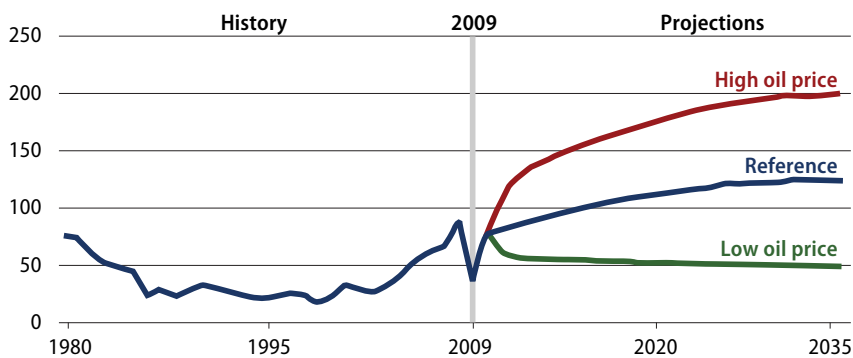
In 2030 the United States spends an extra \$200 billion a year to provide water to the driest and most water-stressed parts of the country.¹⁹ By 2050 that price will be \$336 billion every year, and more than one in three U.S. counties will face water shortages.²⁰

On your way out of the door, you notice your gas-station credit card bill sitting on the counter and cringe at the thought of paying it. Fuel prices continue to soar and spike just like they did 20 years ago. Weren't we told that drilling for oil and gas in this country would bring down fuel costs and make energy cheaper? Clearly we were lied to. All of the domestic drilling has had no impact on the skyrocketing price of oil.²¹ As economists have told us for years, oil is a world commodity, sold on the global market, and adding domestic supply to the global pot has not significantly brought down the price of oil.

FIGURE 3

Oil price uncertainty in world oil markets

Average annual world oil prices in three cases, 1980-2035 (2009 dollars per barrel)



Source: Chart from Energy Information Agency, "Annual Energy Outlook" (2011), p. 23 ([http://www.eia.gov/forecasts/archive/aeo11/pdf/0383\(2011\).pdf](http://www.eia.gov/forecasts/archive/aeo11/pdf/0383(2011).pdf))

Americans spent \$23 trillion on all fossil fuels between 2010 and 2030—an amount equivalent to three years' worth of income for the entire American workforce.²²

Oil prices have skyrocketed to \$200 a barrel, causing spikes in gas prices and costing us \$1.3 trillion in 2030 alone.²³ Gas prices have crippled small businesses and low-income families who spend a greater portion of their income on fuel.²³

You're nearly at work and drive by what used to be a pristine public beach. But 20 years of "drill, baby, drill" have seriously compromised our oceans and public lands.



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The Yellowstone River flows past the Exxon Mobil refinery in Billings, Mont. In July 2011, an Exxon Mobil pipeline near Laurel, Montana ruptured and spilled an estimated 1,000 barrels of crude into the Yellowstone.



THE ASSOCIATED PRESS/MICHAEL A. MARIANT

With offshore oil platforms seen in the distance, a group of students from the Crane Country Day School surf team play in the water Wednesday, Jan. 28, 2009 in Santa Barbara, Calif.

Once, when you could afford vacations, you used to make rafting trips to the Grand Canyon, but now you can't. The Colorado River is closed to public use because of pollution caused by the vast uranium mining operations that were proposed by Congress 20 years ago.²⁵

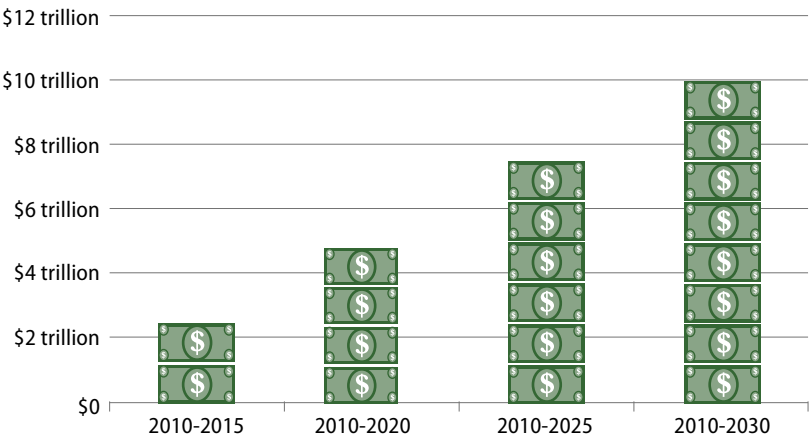
You used to love visiting Yellowstone National Park, but now the air and scenery around the greater Yellowstone area is polluted with gas and oil wells.

And you used to enjoy the beaches off the coast of Virginia. Now there are drilling rigs obstructing your view and tar balls wash up daily from periodic oil spills.²⁶

The everyday hardships that Americans face in 2030 could have been lessened or avoided with a smart, forward-looking energy plan beginning in 2012.

FIGURE 4
Cost to bring CO2 emissions to safe levels increase

Total costs to take action against CO2 (USD)



Source: Based on data from the International Energy Agency, "World Energy Outlook" (2009) (http://www.worldenergyoutlook.org/2009_excerpt.asp)

We were told back in 2009 that every year we delayed action to curb deadly carbon emissions would cost us an additional \$500 billion of investment per year.²⁷

By 2030 the total has ballooned to \$10 trillion!

2030: America's missed opportunities from "drill, baby, drill"

While the United States chose to drill our way into the future, China and Europe moved far beyond the United States in expanding their clean energy mix.

The global clean-technology market, which is worth \$650 billion in 2030,²⁸ was once a beacon of hope in the United States as we made historic investments and showed global leadership.²⁹ But investment followed market demand and as a result Europe, China, and others reaped the rewards of their forward-looking policies to increase their clean energy portfolios.

Even though much of the early clean energy technology was invented in the United States, we refused to put a price on carbon and failed to pass legislation to promote renewable energy investments and we now have essentially lost our share of the market. Not only is advanced manufacturing and assembly done in other countries, which control the clean energy supply chains, but these countries are doing the cutting-edge innovation that we once considered one of America's strongest assets.³⁰

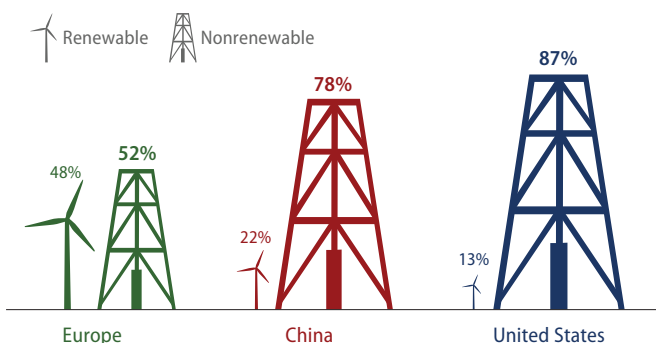
The United States missed an even simpler and more obvious economic opportunity in implementing energy-efficiency measures. These relatively simple and cost-effective solutions could have saved households \$1,200 per year,³¹ and \$1.3 trillion for the overall U.S. economy over the last two decades.

By 2030 our economy could have grown 70 percent with the right efficiency programs in place,³² while using 11 percent less electricity and 296 fewer coal-fired power plants than we did in 2008. Alas, even that simple energy fix was attacked

FIGURE 5

U.S. behind in growing clean energy mix

China and Europe have moved far beyond the U.S. in 2030



Source: U.S. data: Energy Information Agency, "Annual Energy Outlook" (2011) ([http://www.eia.gov/forecasts/archive/aeo11/pdf/0383\(2011\).pdf](http://www.eia.gov/forecasts/archive/aeo11/pdf/0383(2011).pdf)). China data: China Renewable Energy Development Center, "Renewable Energy Roadmap for China in 2030" (2011) (http://csmres.co.uk/cs.public.upd/article-downloads/Executive_Summary_a16433.pdf). EU data: European Renewable Energy Council, "2030: toward a truly sustainable energy system in the EU" (2011) (http://www.erec.org/fileadmin/erec_docs/Documents/Publications/45pctBy2030_ERECReport.pdf)

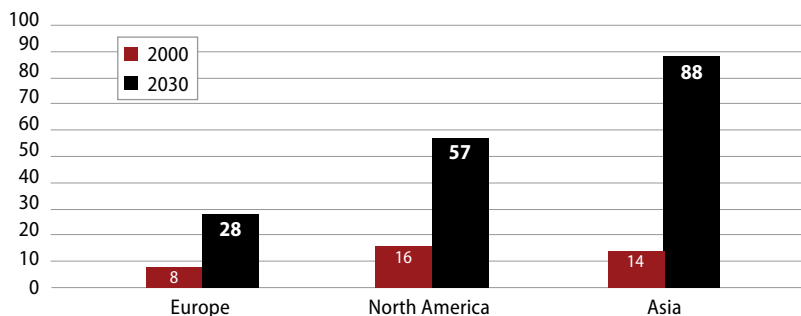
by special interests and the conservative media, who spun a false tale of the high cost of saving energy and creating good-paying jobs.³³

But didn't we win by getting big government out of our lives? That's what Big Oil kept telling us about clean energy investments and policies: Transitioning to cleaner energy would impose unwanted government control and lead to more expensive and wasteful bureaucracy. In contrast Big Oil promised that more drilling and extraction would lead to greater liberty and freedom from big government.

In fact the reverse is true: In 2030 government is more involved in our lives than ever and we are spending far more than we ever have before to fix mistakes that could have been avoided. All the pollution from fossil fuels has led to spiraling health care costs, and since conservatives repealed the Affordable Care Act,³⁴ millions of Americans are without health coverage and only receive medical attention in the emergency room at four times the cost to taxpayers.

FIGURE 6
Premature deaths quadruple

Deaths from urban ozone exposure for 2000 and 2030 per million habitants



Source: Chart from Organization for Economic Cooperation and Development, "OECD Environmental Outlook to 2030" (2011), p. 5 (<http://www.oecd.org/dataoecd/29/33/40200582.pdf>)

Premature deaths from respiratory and cardiovascular disease as a result of ozone exposure have quadrupled in the United States since the year 2000.³⁵

Twenty years ago we could have replaced dirty coal with clean energy and avoided 6.4 million additional asthma attacks in the United States, but we did nothing.³⁶

In the United States we've spent \$2.4 trillion dollars treating victims of air pollution going back to the year 2010 and we are on pace to double that cost by 2050.

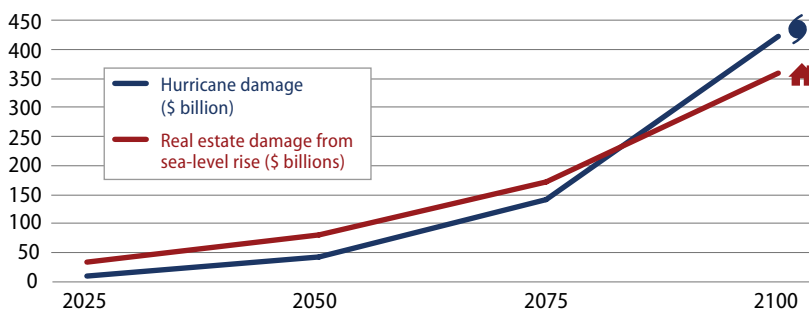
What's more, the federal government now has to intervene in even the most local planning decisions to help communities adapt to extreme weather events and other impacts of global warming. In 2012 only 13 states had completed climate change adaptation plans that mapped out their vulnerabilities to the effects of climate change and provided a plan of action for adaptation.³⁷ With no other states developing plans by 2030—including at-risk states such as Louisiana, Mississippi, and New Jersey—the federal government is more involved than ever.

In addition to intervening on planning, the Federal Emergency Management Agency, or FEMA, is spending more money than it ever has before on disaster relief efforts in 2030. We didn't listen to FEMA Administrator Craig Fugate when he warned in 2012 that "we cannot afford to continue to respond to disasters and deal with the consequences under the current model ... and we will reach a point where we can no longer subsidize this."³⁸

Likewise, by 2030 the U.S. government's role in the insurance industry has ballooned. Private companies have refused to insure most coastal properties making it necessary for the federal government to underwrite a national disaster insurance program costing taxpayers billions every year.³⁹ The insurance industry warned us of this back in 2012, yet we did nothing.⁴⁰

FIGURE 7
Extreme weather and sea level rise cost billions

Hurricane damage and real estate damage due to sea-level rise



Source: Based on data from the Natural Resources Defense Council, "What We'll pay if Global Warming Continues Unchecked" (2008) (<http://www.nrdc.org/globalwarming/cost/cost.pdf>)

In 2030 economic losses from hurricane damages are topping \$12 billion every year.⁴¹

In 2030 real estate damaged caused by rising sea levels total \$34 billion every year.⁴²

Globally, damages caused by climate change amount to 20 percent of the world's GDP.⁴³

Finally, growth of domestic carbon emissions and inaction on climate change, fueled by the “drill, baby, drill” agenda, has contributed to loss of gross domestic product, or GDP, and other significant costs to our economy in 2030 and beyond.

These impacts are being felt in every state and community across the country. By ignoring climate change we are well on our way to seeing U.S. temperatures rise by anywhere from 7 to 11 degrees by the end of the century. This has already started to hit coastal communities due to sea-level rise and has affected public health, water resources, agricultural output, transportation and energy infrastructure, tourism, and wildfire frequency in inland areas as well.⁴⁴ By 2030 we’re well on our way to the situation that some predicted we’d only reach in 2100:

- In Boston 18 inches of sea-level rise are projected to increase flooding costs by \$13 billion, on top of \$7 billion in “normal” flooding costs.⁴⁵
- In California heat-related health costs could total \$14 billion by 2100 under a high-emissions scenario, and the number of large wildfires will increase by 12 percent up to 53 percent by the same year.⁴⁶
- In New Mexico reduced stream flows could cost farmers \$21 million per year by 2080.⁴⁷
- In Illinois a 4.5-degree increase in temperature and a 7 percent increase in precipitation, which will increase soil erosion by 19 percent to 38 percent, could push yearly costs of climate change for the state’s agricultural sector up to \$9.3 billion.⁴⁸
- In Alaska damage to roads, runways, water and sewer systems, and other infrastructure caused by thawing permafrost will add \$3.6 billion to \$6.1 billion to the cost of publicly owned infrastructure by 2030.⁴⁹
- Washington and Oregon will lose a combined \$1.7 billion in annual revenues from hydropower by 2080 because of declining snowpack and water shortages.⁵⁰
- In North Carolina a sea-level rise of 18 inches by 2080 is expected to cost the beach recreation industry \$11 billion in cumulative damage.⁵¹

These are only a few of the projected costs of rapidly rising carbon emissions caused by a “drill, baby, drill” future. Let’s next consider implications not only for America but for our planet as well.

2030: The developing world post-“drill, baby, drill”

The world in 2030 is a scary place.

While we are dealing with our own problems here in the United States, the global impacts of our poor choices have hit the developing world particularly hard.

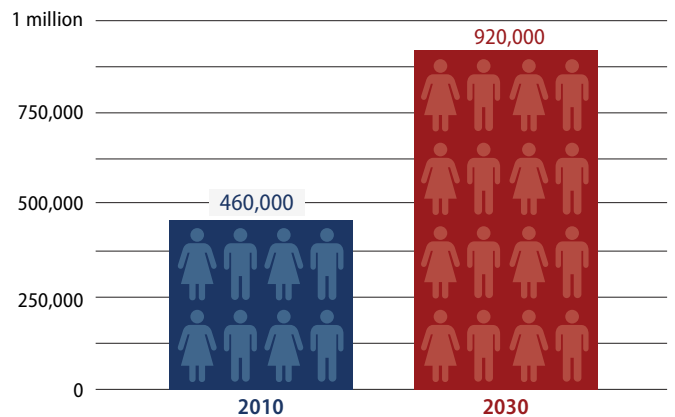
Countries and people that didn't have resources to hedge against disaster are hit the hardest. By 2030:

- Air pollution kills 3.1 million people worldwide every year,⁵² mostly in developing countries; almost half of these deaths are due to pneumonia in children under 5 years of age.⁵³
- Extreme weather has caused massive crop failure around the globe and the resulting scarcity has driven up food prices and plunged millions into desperation.
- The number of starving children in sub-Saharan Africa has doubled since 2010.
- Water supplies will satisfy only 60 percent of global demand and less than 50 percent in many developing regions including China, India, and South Africa.⁵⁴
- Vulnerable regions around the globe from sub-Saharan Africa, the Middle East, and South and Southeast Asia are facing food shortages and catastrophic flooding.⁵⁵

FIGURE 8

Number of starving children double

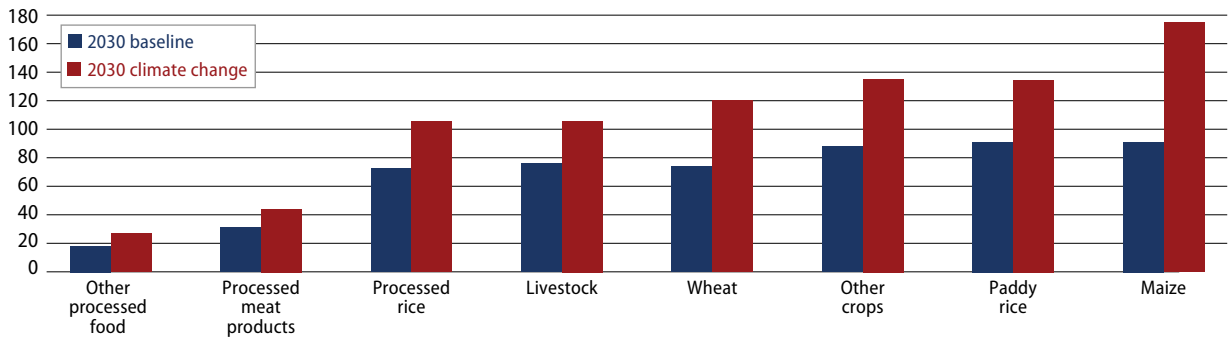
Starving children in sub-Saharan Africa



Source: Chart from Oxfam America, "Growing a Better Future: Food Justice in a Resource Constrained World" (2010), p.12 (<http://www.oxfam.org/sites/www.oxfam.org/files/growing-a-better-future-010611-en.pdf>)

FIGURE 9
Food prices will increase

Real food price changes predicted over the next 20 years



Note: Increase in world market export prices relative to 2010 (%) Source: Chart from Oxfam America, "Growing a Better Future: Food Justice in a Resource Constrained World" (2010), p.26 (<http://www.oxfam.org/sites/www.oxfam.org/files/growing-a-better-future-010611-en.pdf>)

Twenty years ago conflicts in the Sudan killed and displaced tens of thousands of people. In 2030 drought and the expansion of deserts in North Africa has replicated these tragedies many times over and on a much larger scale. Ethnic, racial, and religious clashes, exacerbated by severe resource depletion and displacement due to extreme weather, have torn the region apart.

The increase in migration in Central America during the 1980s and 1990s was driven by social and political unrest, violence, and massive economic disparity. But in 2030, severe climate events and food crop degradation has increased migration in the region by more than 50 percent.⁵⁶

And things will only get worse. By 2050 more than 1 billion people living in Asia will be affected by food shortages and catastrophic flooding.⁵⁷ In addition, by 2050, 200 million people will be climate refugees—more than double the number in 2010.⁵⁸

We could have prevented this, but we didn't. The same politicians who sabotaged efforts to fight climate change at home, along with the oil-funded organizations that supported them, refused to sign onto any international treaties to reduce global greenhouse gases and would not commit to finance climate-adaptation measures for the countries that would be the most severely impacted.

Choosing a different path to 2030

The futuristic projections you just read are based on numerous credible and scientifically-based reports of what the world will look like if we continue down our current path of fossil fuel dependency.

The good news is we're not doomed yet, not by a long shot.

Fortunately, we're not yet living in 2030. Yet right now, in 2012, we face some critical choices. We can determine whether we will put ourselves onto a bright path toward a more sustainable energy future, with a diversity of energy and fuel choices and a wide range of competitive industries and occupations, or go down the road being paved by Big Oil.

That means embracing smart government investment programs for cutting-edge research and development, but also for the commercialization and installation of renewable electricity and fuel projects. It means marrying our export initiatives with our energy policies and scaling up the manufacture and sale of smart clean energy technologies that are made in America. And it means putting an actual price on carbon and beginning to even the playing field for low-carbon technologies and innovations.

But it also means ending the failures in our energy markets. No more \$4 billion a year in oil subsidies to an industry that's clearly doing just fine on its own. No more free polluting and exemptions from the Clean Water Act and other bedrock environmental laws for natural gas. No more opening up public lands and waterways to unlimited exploration and drilling.

If we choose the sustainable path now, by 2030 Americans could have the choice of whether to buy our fuel and electricity from Big Oil and big utilities or meet our energy needs with household or community-scale systems. We could actually be in the position to sell our excess power back into the grid. What's more, we could

be creating good jobs along the entirety of the energy value chain, from invention to production to installation and maintenance, in every state.

Sound impossible? It's not. Other countries, especially in Europe, are already on track to get there. Germany has set a goal of 45 percent renewable energy by 2030,⁵⁹ and Denmark is hoping to be completely fossil fuel free by then.⁶⁰ Even China has set a renewable energy standard, with a goal of getting 20 percent of its power from non-fossil fuel sources by 2020.⁶¹ And perhaps more important, China and EU countries are developing long-term energy plans that integrate competitiveness strategies,⁶² like export targets and industry-development plans, with energy and environmental goals along with investments in workforce training for the clean energy workers of the future.

Conclusion

We have the power to make sound energy choices. The United States is well positioned to be a key player in combating the worst effects of climate change and we have the opportunity to remake our economy from one that is reliant on dirty and unstable fossil fuels to one that is cleaner, safer, and more equitable. In early 2011 the United States did a staggering 85 percent of all venture capital investment in clean-technology companies (though in part because of our lack of any comprehensive energy policy, many of those investments were in technologies that were ultimately commercialized and manufactured overseas).⁶³ We still hold nearly 12 percent of the world's clean energy patents,⁶⁴ making us second only to Japan in number of clean-technology patents held by any one country. And a combination of state and local action, like the 29 states that have passed renewable energy standards, with federal support from the American Recovery and Reinvestment Act, have put us third in the world—behind China and the European Union—in installed renewable energy capacity.⁶⁵

Add to all those impressive numbers the fact that we have a public that strongly supports clean energy development.⁶⁶

We have the power. We have the will. We have the way. Let's start now—after all, 2030 is looming just around the corner.

About the authors

Kate Gordon is the Vice President for Energy Policy at the Center for American Progress. Most recently, Kate was the co-director of the national Apollo Alliance, where she still serves as senior policy advisor. She is nationally recognized for her work on the intersection of clean energy and economic development policy.

Jorge Madrid is a Research Associate for the Energy Policy team, focusing on local clean energy and efficiency deployment, as well as on the development of green jobs. Prior to joining American Progress, Jorge worked as a legislative fellow in the office of Sen. Robert Menendez (D-NJ), as well as in the office of Los Angeles Mayor Antonio Villaraigosa, where he assisted with energy, technology, environmental, and transportation policy.

Tina Ramos is a Research Associate in the Energy department. Prior to joining American Progress, Tina worked as a business development associate for a carbon investment fund in New York City, where she focused on investment in and carbon credit creation from emission reduction projects throughout the United States. She also worked as a research associate for a nonprofit business alliance and consulting firm in northern California and contributed to the development of a socially and environmentally responsible investment guide to the Sierra Nevada region. Tina graduated from Yale University in 2007 with a B.A. in history and focused much of her academic work on 20th century U.S. environmental policy and its economic and social implications.

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