100% RENEWABLE ENERGY: WHAT’S POSSIBLE IN 10 YEARS?

HOW FAR CAN WE GET WITHOUT AIRPLANES?

WHAT KEEPING OIL IN THE GROUND CAN DO FOR ECONOMIC INEQUALITY

RETROFITTING SUBURBIA
FROM SPRAWL TO VIBRANT VILLAGES

GETTING TO POST-CARBON
(EASY STUFF FIRST)
& WHAT OUR LIVES WILL BE LIKE
(BETTER THAN YOU THINK)

7 ways we’re already living differently

WHAT TO EAT TO BOOST YOUR IMMUNITY

FANIA & ANGELA DAVIS: WHEN REVOLUTION IS A SISTER ACT

BILL MCKIBBEN
RICHARD HEINBERG
DERRICK JENSEN

US $6.50  Canada $6.50

YesMagazine.org
Asking whether renewable energy could enable Americans to maintain their current lifestyle is therefore equivalent to asking whether renewable energy can keep us living unsustainably.

Richard Heinberg, page 23
FROM THE EDITORS

Life After Oil

We’ve all spent time stuck on a freeway—a six-lane parking lot with concrete and exhaust fumes extending to the horizon. If we’re concerned about climate change, those are moments that can push us into despair. Don’t these people know?

We often forget we’re right there on the freeway with them.

Now several generations into a fossil-fueled way of life that’s forgotten the difference between necessity and convenience, we’ve bought the line that the American way of life is not negotiable.

But that’s never been true. As climate activist Bill McKibben reminds us, when our way of life runs up against physics, there’s no negotiation—but it’s physics, not America, that’s calling the shots. If we want to leave behind a habitable world, we have only one choice: Leave the carbon in the ground.

How do we do that? We can move to 100 percent renewable energy within 40 years, says Post Carbon Institute researcher Richard Heinberg. We can retrofit our suburbs in ways that minimize sprawl and connect them to vibrant cities. Though our economy now runs entirely on fossil fuels, it’s worth remembering that it hasn’t always been that way. We shifted to this economy, and we can shift to a new one. As editor Yessenia Funes discovered in researching her article, the transition to renewables could provide the kind of economy that finally can address poverty and inequality.

We spent a lot of time imagining the world after oil—and discovered that many of the changes headed our way could improve our lives. And apparently that’s not a secret, because everywhere we looked, people were living more regionally already. NASA climate scientist Peter Kalmus in California explains how giving up airplane travel has not only cut his carbon footprint but kept him closer to home and focused on his community—and paradoxically enriched his relationship with his parents living in the distant Midwest.

Once we’ve left fossil fuels behind, it becomes possible to bring the planet and all its species back into balance, where Earth’s natural systems can replenish themselves. That will be the beginning of a new era of recovery, and poet, philosopher, and environmentalist Derrick Jensen describes what that could look like in poignant detail. He calls it “the time after.”

It starts simply enough, by getting off the freeway.

This issue’s In Depth section, “After Oil,” developed by Stephen Miller, Doug Pibel, and Tracy Loeffelholz Dunn
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Bill McKibben
Page 18
Bill McKibben is a leader in the climate movement. As the author of *The End of Nature* in 1989 and the co-founder of 350.org nearly 20 years later, McKibben has helped educate millions about the need to change our oil-dependent lifestyles to save the planet. He won the Right Livelihood Prize in 2014, as well as the Gandhi Prize and the Thomas Merton Prize in 2013. McKibben lives in Vermont, where he is the Schumann Distinguished Scholar of Environmental Studies at Middlebury College.

Derrick Jensen
Page 48
Derrick Jensen is a grassroots environmental activist and author of more than 20 books, including *A Language Older Than Words*, *Endgame*, *Dreams*, and most recently *The Myth of Human Supremacy*. He holds a B.S. in mineral engineering physics from the Colorado School of Mines and an M.F.A. in creative writing from Eastern Washington University. He lives in a redwood forest between a pond filled with northern red-legged frogs, Pacific tree frogs, and rough-skinned newts and a stream filled with coho salmon and Pacific lampreys.

Terrance Hayes
Page 56
Terrance Hayes is the author of *How To Be Drawn*, a finalist for the 2015 National Book Award, and *Lighthead*, winner of the 2010 National Book Award. His other books are *Wind in a Box*, *Hip Logic*, and *Muscular Music*. His honors include a National Endowment for the Arts Fellowship, a Guggenheim Fellowship, and a 2014 MacArthur Fellowship. He lives with his family in Pittsburgh, Pennsylvania.
Winter 2016

“Manning Up” Debated

Mark Greene’s take on masculinity (“Why Manning Up Is the Worst Thing to Do”) sent some sparks flying. Quoting Greene: “If you’ve grown up in the United States, then you’re familiar with the Man Box, the long-standing rules of how to walk, talk, and sound like a man in America.”

While commenters across social media (including a lively discussion in Reddit’s MensLib section) were generally appreciative of Greene’s insights …

“This is an important message for all men, across the range of experience. Men need to be encouraged that there is strength in vulnerability.” —reader Stephen Dynako

… others were unconvinced:

“If we lived in a society where being timid and emotional was lavishly rewarded, the ‘how to be a man’ advice would be all about how to be the most emotional, least dominant, least confident, least breadwinning man out there. The very second major corporations start hiring and promoting men like this and women start throwing themselves at them and the world starts praising them, we can start advising men to be more ‘healthy’ like this. But today, if you advise your sons to be less traditionally masculine, you’re doing [them] a huge disservice. My job as a parent is to teach my kids how to be successful under the current system.” —reader NCOS

Mark Greene is responding to reader comments on the YES! website. Search “Manning Up” if you’d like to join the conversation.

#MyClimateMoment

During the climate talks in Paris last December, news media were filled with stories about complicated international negotiations and frightening climate data. Our coverage tracked the policy solutions and climate science as well but also included many marginalized voices: indigenous-rights leaders, women, and local communities working to shift away from a fossil-fuel-based economy.

But we know that climate change gets personal too. And we wanted to hear about it. We asked readers, “When did climate change get urgent, deep, and personal for you?” —and the thoughtful, wry, often heartbreaking responses came pouring in on Twitter and Facebook with the #MyClimateMoment hashtag.

For many readers, climate change became personal when they had children; for others, it’s playing a role now in deciding whether to become parents. Many readers have been moved by dire and compelling reporting:

And still others have been transformed by what they’re seeing and experiencing firsthand:

It’s not too late to share your climate moment on Twitter. Use the hashtag #MyClimateMoment.

Send your updates and responses to our outreach manager Susan Gleason at sgleason@yesmagazine.org. Or mail to 284 Madrona Way NE, Suite 116, Bainbridge Island, WA 98110.
For the roughly 2.2 million people incarcerated in U.S. prisons and jails, daily life is often violent, degrading, and hopeless. In a 2010 study of inmates released from 30 prisons, the federal Bureau of Justice Statistics found that more than three-quarters were arrested for a new crime within five years of being freed.

But what if our approach to those behind bars were constructive, rather than destructive? What if correctional facilities provided programs and resources to educate and encourage? What if communities partnered with prisons not only to improve life on the inside, but also to increase the prospect of success on the outside?

Today, programs at jails and prisons across the country are demonstrating that this is possible. In these programs, inmates are finding compassion for others and purpose for themselves.
A dog’s companionship can never be undervalued, at least not to Susan Jacobs-Meadows.

“Dogs have the ability to see the good inside a human being, even when people can’t,” she says.

A dog-lover “since I could crawl,” Jacobs-Meadows possesses the same ability to see the good in others as the four-legged companions that share living quarters with Fulton County Jail inmates as part of the Canine CellMates program in Atlanta.

Believing all inmates have a capacity for good is what inspired the Army veteran to found the program at the jail 2 1/2 years ago. For 10 weeks, felons train dogs from local shelters to sit, stay, and fetch.

Serving mainly repeat offenders, Canine CellMates is designed to do more than provide obedience training to dogs before adoption by local families. The mostly volunteer-led endeavor puts a heavy focus on transforming lives through the unique bond developed between teacher and pupil, both of whom can be viewed as society’s castaways. More than 100 inmates have participated, and Jacobs-Meadows says it is extremely rare for an inmate to reoffend after completing the program.

Prior to participating in the program, Leon Jennings had to strain just to make eye contact with another person. Out of jail for more than 15 months, Jennings has an outgoing demeanor and a vow to never return. He credits the program, and the German Shepherd with whom it partnered him, for his own change in disposition.
Since 2009, inmates at Washington’s Stafford Creek Corrections Center have been reconnecting with nature. These inmates have transformed prairies once overrun with noxious bitterweed to lush pastures and have planted more than 1.5 million flowers as environmental stewards in the Sustainability in Prisons Project’s Prairie Conservation Nursery Program.

The program, also available at three other Washington state prisons, allows 45 Stafford Creek inmates per year to escape their cells for six hours a day, five days a week. For many of them, it also serves as their first connection to the environment.

One inmate said he used to love riding all-terrain vehicles, “tearing up” what he thought was simply wasteland. Since participating in the program, he said he’s “woken up” to the environment as a living thing deserving of care, helping to restore some of the very areas he once destroyed.

Researchers at The Evergreen State College, who help manage the nursery program, credit the program with a reduction in prisoners’ anxiety and aggressive behavior, and an increase in empathy.

The program also offers the potential for college credit, so inmates can apply skills learned “on the job” to a future career.

Solitary confinement at Oregon’s Snake River Correctional Institution used to mean a concrete cell, no bigger than a parking stall. Prisoners spent about 23 hours a day there, a prolonged isolation that often provoked aggressive behavior from prisoners, who sometimes tried to bite or hit the facility’s guards. So guards tried an experiment: Send inmates back to nature or, more accurately, bring nature to them.

The Blue Room, implemented in April 2013, immerses inmates in nature for an hour by playing videos of arid deserts, lush forests, and open oceans as they sit in a chair alone, imagining roaming the wide open spaces before them.

The room, named for the glare from the images projected on its wall, has been credited with a reduction in reported incidents of violence against guards. Prison officials in Nebraska, Michigan, Hawai’i, and Australia have shown interest in having their own Blue Rooms as a way to improve inmate moods. The project cost the Oregon prison about $1,500.

“Prisoners in solitary confinement are nature-deprived like no other human beings,” says Nalini Nadkarni, a forest ecologist at the University of Utah who came up with the Blue Room concept. “We know nature can affect human beings … it provides them with a sense of well-being.”
emotion and creativity. “Writing is where the human spirit truly and purely soars. Lack of self-expression, in the form of writing, kills the spirit,” says Brothers in Pen student J.B. Wells.

For him, and others, the class provides living proof that stories possess the power of transformation—but only when they’re allowed to be told.

Improving landscapes and designing striking skyscrapers are high priorities for the women sitting in Folsom Prison’s computer lab, but there’s a greater goal on their minds. These inmates are using the skills learned from the state’s Autodesk Authorized Training Center Program to craft something more important than buildings and computer code: a better life.

Instituted just over a year ago, this program is the only one in the nation to teach female inmates computer design skills used in architecture and engineering. The six-month class is taught by engineers with the California Prison Industry Authority, a state agency that provides productive work for inmates.

The goal is to provide participants with skills that can help them get jobs once they’re released. Many have found jobs in fields that would have been closed to them, including a recent graduate who landed a job in New York and has completed more than 100 design projects since her sentence ended.

With nearly 70 women graduating last June, the program’s 90 percent completion rate exceeds that of similar computer design programs available to vocational students on the outside, where the completion rate is about 50 percent.

Marcus Harrison Green is a YES! reporting fellow.

Stories can change lives. Just ask the inmates in San Quentin’s Brothers in Pen writing class. Every Wednesday night, some of the most hardened criminals in California’s notoriously tough prison meet to write, read, and critique their own fiction and memoirs.

A writer walks to the center of the room, nervous to read a story mined directly from his life. His fellow inmates eagerly form a circle of support around him, waiting for what was painstakingly put on paper to be read aloud. “I love so much that moment of suspense, and you have no idea what kind of creation he has made,” says Zoe Mullery, who has been teaching the class since 1999.

Whatever the writer’s skills, Mullery says her class responds with encouragement and thoughtful, specific critiques. This support becomes a powerful outlet of
WHEN REVOLUTION IS A SISTER ACT
Sarah van Gelder: You were both activists from a very young age. I’m wondering how your activism grew out of your family life, and how you talked about it between the two of you.

Fania Davis: When I was still a toddler, our family moved into a neighborhood that had been all white. That neighborhood came to be known as Dynamite Hill because black families moving in were harassed by the Ku Klux Klan. Our home was never bombed, but homes around us were.

Angela Davis: Fania is probably too young to remember this, but I remember that strange sounds would be heard outside,
and my father would go up to the bedroom and get his gun out of the drawer, and go outside and check to see whether the Ku Klux Klan had planted a bomb in the bushes. That was a part of our daily lives.

Many people assume that the bombing of the 16th Street Baptist Church was a singular event, but actually there were bombings and burnings all the time. When I was 11 and Fania was 7, the church we attended, the First Congregational Church, was burned. I was a member of an interracial discussion group there, and the church was burned as a result of that group.

We grew up in an atmosphere of terror. And today, with all the discussion about terror, I think it’s important to recognize that there were reigns of terror throughout the 20th century.

Sarah: So where were you when you heard the 16th Street Baptist Church bombing had happened?

Fania: I was attending high school in Glen Ridge, New Jersey. And I didn’t take no stuff from nobody. I was always talking about James Baldwin or Malcolm X, and always bringing up issues of racial equity and justice.

‘I heard about the bombing when my mother told me that one of the girls’ mother had called her up—because they were close friends—and said, “There’s been a bombing at the church. Come and ride down with me so we can get Carole, because Carole’s at church today.” And they drive down there together, and she finds that there is no Carole, she’s been ... there’s no body even. I think it fueled this fire, the fire of anger and just made me determined to fight injustice with all of the energy and strength that I could muster.

Sarah: Can you say more about what everyday life was like for you growing up?

Angela: We went to segregated schools, libraries, churches. We went to segregated everything!

Fania: Of course, in some ways it was a good thing that we were very tight as a black community.

When we went outside of our homes and communities, the social messaging was that you’re inferior: You don’t deserve to go to this amusement park because of your color or to eat when you go downtown shopping. You must sit in the back of the bus.

At the same time, at home, our mother always told us, “Don’t listen to what they say! Don’t let anybody ever tell you that you’re less than they are.”

And so I found myself—even as a 10-year-old—just going into the white bathrooms and drinking out of the white water fountains, because from a very early age I had a fierce sense of right and wrong. My mother would be shopping somewhere else in the store, and before she knew it, the police were called.

Sarah: Let’s skip ahead to when it became clear that you, Angela, were going to need a whole movement in your defense. And Fania, you ended up spending years defending her.

Fania: Yeah, about two years.
Angela: In 1969, I was fired from a position in the philosophy department at UCLA. That’s when all the problems started, and I would get threats like every single day. I was under attack only because of my membership in the Communist Party.

Fania: Angela had been very involved with prison-rights activism at the time, leading demonstrations up and down the state. And then she was all over the news: “Communist Fired From Teaching at UCLA,” you know, “Black Power Radical.”

Angela: Then in August 1970, I was charged with murder, kidnapping, and conspiracy. And so I had to go underground. I found my way to Chicago, then to New York and Florida, and finally I was arrested in New York in October. It was during the time that I was underground that the campaign really began to develop.

Sarah: So, Fania, when did you turn your focus to supporting your sister’s cause?

Fania: The night before I left Cuba, I found out that she had been captured. So instead of going home to California, I immediately went to where Angela was in the Women’s House of Detention in Greenwich Village.

Angela: All of my friends and comrades began to build the campaign. Once I was arrested and extradited, they all moved up to the Bay Area.

We were active in the Communist Party, and, you know, whatever criticisms one might have of the Communist Party, we could go anywhere in the world and find people with whom we had some kinship, and people opened their homes.

It was the Party that was the core of the organizing for my release, and the movement was taken up by students on campus and church people.

This happened all over the world. Every time I visit a place for the first time, I always find myself having to thank people who come up to me and say, “We were involved in your case.”

Sarah: Did you know that there was that kind of support happening?

Angela: I knew, and I didn’t know. I knew abstractly, but Fania was the one who traveled and actually got to witness it.

Fania: Yeah, I was speaking to 60,000 people in France and 20,000 in Rome, London, and East and West Germany, all over the world, and seeing this massive movement to free her.

Angela: It was an exciting era because people really did believe that revolutionary change was possible. Countries were getting their independence, and the liberation movements were going on, and there was this hope all over the world that we would bring an end to capitalism. And I think that I was fortunate to have been singled out at a moment of conjuncture of a whole number of things.

Sarah: Your work since that time has centered on the criminal justice system. Are you both prison abolitionists?

Angela: Oh, absolutely. And it’s exciting to see that the notion of abolition is being broadly embraced not only as a way to address overincarceration, but as a way to imagine a different society that no longer relies on repressive efforts of violence and incarceration.

Abolition has its origin in the work of W.E.B. Du Bois and the idea that slavery itself was dismantled, but the means of addressing the consequences of that institution were never developed. In the late 1800s, there was a brief period of radical reconstruction that shows us the promise of what might have been. Black people were able to generate some economic power, start newspapers and all kinds of businesses. But all of this was destroyed with the reversal of Reconstruction and the rise of the Ku Klux Klan in the 1880s.

Sarah: Did you know that there was that kind of support happening?

Fania: Yeah, we abolished the institution of slavery, but then it was replaced by sharecropping, Jim Crow, lynching, convict leasing. The essence of the racial violence and trauma that we saw in the institution of slavery and in those successive institutions continues today in the form of mass incarceration and deadly police practices.

Angela: We’re taking up struggles that link us to the anti-slavery abolitionists, and the institution of the prison and the
death penalty are the most obvious examples of the ways in which slavery has continued to haunt our society. So it’s not only about getting rid of mass incarceration, although that’s important. It’s about transforming the entire society.

Sarah: How might restorative justice help with this transformation?

Fania: A lot of people think that restorative justice can only address interpersonal harm—and it’s very successful in that. But the truth and reconciliation model is one that’s supposed to address mass harm—to heal the wounds of structural violence. We’ve seen that at work in about 40 different nations; the most well-known is, of course, the South African Truth and Reconciliation Commission.

In South Africa, the commission invited victims of apartheid to testify, and, for the first time ever, they told their stories publicly. It was on all the radio stations, in all the newspapers, it was all over the television, so people would come home and tune in and learn things about apartheid that they had never known before. There was an intense national discussion going on, and people who were harmed felt vindicated in some way.

That kind of thing can happen here, also, through a truth and reconciliation process. In addition to that sort of hearing commission structure, there could be circles happening on the local levels—circles between, say, persons who were victims of violence and the persons who caused them harm.

Angela: How does one imagine accountability for someone representing the state who has committed unspeakable acts of violence? If we simply rely on the old form of sending them to prison or the death penalty, I think we end up reproducing the very process that we’re trying to challenge.

So maybe can we talk about restorative justice more broadly? Many of the campaigns initially called for the prosecution of the police officer, and it seems to me that we can learn from restorative justice and think about alternatives.

Sarah: Fania, you told me when we talked last year that your work on restorative justice actually came about after you went through a personal transition period in the mid-1990s, when you decided to shift gears.

Fania: I reached a point where I felt out of balance from all of the anger, the fighting, from a kind of hypermasculine way of being that I had to adopt to be a successful trial lawyer. And also from around 30 years of the hyperaggressive stance that I was compelled to take as an activist—from being against this and against that, and fighting this and fighting that.

Intuitively, I realized that I needed an infusion of more feminine and spiritual and creative and healing energies to come back into balance.

Sarah: How did that affect your relationship as sisters?

Fania: My sister and I had a period—right in the middle of that—when our relations were strained for about a year, due in part to this transformation. It was very painful. At the same time, I finally understood that it needed to happen because I was forging my own identity separate from her. I had always been a little sister who followed right in her footsteps.

Yeah, and so now we are close again. And she’s becoming more spiritual.

Angela: I think our notions of what counts as radical have changed over time. Self-care and healing and attention to the body and the spiritual dimension—all of this is now a part of radical social justice struggles. That wasn’t the case before.

And I think that now we’re thinking deeply about the connection between interior life and what happens in the social world. Even those who are fighting against state violence often incorporate impulses that are based on state violence in their relations with other people.

Fania: When I learned about restorative justice, it was a real epiphany because it integrated for the first time the lawyer, the warrior, and the healer in me.

The question now is how we craft a process that brings the healing piece together with the social and racial justice piece—how we heal the racial traumas that keep re-enacting.

Angela: I think that restorative justice is a really important dimension of the process of living the way we want to live in the future. Embodying it.

We have to imagine the kind of society we want to inhabit. We can’t simply assume that somehow, magically, we’re going to create a new society in which there will be new human beings. No, we have to begin that process of creating the society we want to inhabit right now.

Sarah van Gelder is co-founder and editor at large for YES! Magazine.
Pau. I stared hard at the word, written in Magic Marker on colored cardstock and tacked up on the bulletin board of my mom’s first-grade classroom, until it dawned on my 11-year-old brain that it wasn’t English.

It’s a word so common in Hawai‘i that I’d never recognized it as a word, distinct from its meaning (“finished” or “done”), and I’d never seen it written anywhere in any of the English-centric classrooms designed to wash the lo‘i and plantation off of us and make us American. As much as my schoolteacher mother tried to impress upon her children the importance of being able to speak “good English,” there I was, the son of two college graduates, the third generation of my family born in Hawai‘i, and, at the age of 11, unsure when I was speaking English and when I wasn’t.

It turns out that, most of the time, I wasn’t speaking “bad” or “pidgin” English, but Hawaiian Creole, a language all its own. I first learned this in grad school when, after reading a chapter on linguist Noam Chomsky’s theory of universal grammar, I half-jokingly, half-defiantly updated my resume and declared myself a native speaker of Hawaiian Creole and thereby, retroactively, proudly bilingual.

This past November, a U.S. Census Bureau survey included “Hawaiian Pidgin Creole,” which some linguists cite as a prime example of the brain’s innate capacity for language creation, as one of the 350 languages spoken in U.S. homes. This simple act gave the Creole, which researchers say emerged with remarkable speed and uniformity from the polyglot multietnic sugar plantations of the early 1900s, the imprimatur of federal recognition. It may be coincidence that this happened during the watch of our first Hawaiian-Creole-speaking president, but, regardless, the move helps vindicate decades of struggle.
by local educators, activists, and artists to elevate “Pidgin,” as it’s commonly referred to in the Islands, from its status as a dialect of the uneducated, “country,” lower classes. And with the stroke of a pen, some anonymous census bureaucrat helped me (and my resume) achieve what seven years of after-school Japanese language classes and many embarrassing oral examinations in college Spanish could not.

I wrote this while home for the holidays in Honolulu, where I found myself, as always, automatically code-switching to my native tongue. Partly because it’s a marker—one could argue the marker—of being local. And in this prideful, injured place, often wary of outsiders after so many decades of land grabs, militarization, and accommodating millions of tourists each year, I want to put people at ease. But partly, when I think about it, to align myself with all the nameless immigrants—the Chinese, Portuguese, Korean, Puerto Rican, Filipino, and my own Japan-born fieldworker-great-grandparents—whose children, along with those of Native Hawaiians, invented Hawaiian Creole (not a “pidgin,” which linguists would say lacks a complete and uniform grammar) out there amid the endless dusty rows of sugar cane. I’ve lived outside of my culture for too long, and I’m looking to get some of that plantation dirt back on me. These laborers and their families, segregated by the haole (white) American plantation owners but united by their shared station in life and inspired no doubt by the openness and generosity of the host Hawaiian culture, overcame their prejudices and grievances from the old country, mostly. And in a single generation, they forged a language. I don’t think they were intentionally trying to create a language—probably more just trying to share a musubi or avoid the luna’s whip—but that’s what ended up happening. Now there’s talk on the continent of building higher walls, religion tests at the borders, mass deportations—as if the problem with our country was freedom, liberty.

I once worked with a carpenter on the Big Island, a haole transplant from the mainland, who sardonically called white-led, anti-development protests on the island “last haole syndrome.” “After me, no more, this island is getting ruined,” he laughed. Too many haoles here, say the haoles. And we do have our problems: Native Hawaiians in the midst of a cultural renaissance but still struggling to find a path to sovereignty and justice in their own land, real estate prices floating ever higher in the backwash of money from the winners of global capitalism, the city and county of Honolulu struggling to come up with long-term solutions for the homeless as they chase people from one makeshift encampment to the next. We’re even grappling with fears about immigrants and terrorism, as evidenced by the furious backlash on social media at the governor’s extending a welcome to Syrian refugees.

Homelessness. Who belongs, who doesn’t belong. Last haole syndrome. The Census Bureau decision to recognize Hawaiian Creole as a language is a good reminder for us: that we have a language, and it is the big tent of languages, accepting all comers. We have a language that, as we already kind of know but are reluctant to say, makes us a people. You taste it in our food, hear it in our names, see it in our faces. Even Native Hawaiians, down to their last 24,000 in 1920, are today a powerful 300,000, mostly of mixed race, saved by this immigrant wave and decision to embrace rather than deny. It’s not an official language, but Hawaiian Creole is our language. And when I say “our,” I mean everybody who’s from here and everyone who chooses to live here. Immigrants to Hawai‘i, howzit, e komo mai, learn our language as soon as you can. It’s crowded here, but we can make room. Try to fit in. And you keiki at Kalihi Kai Elementary, learn English, or Japanese, or Mandarin, the language of whatever dominant power we’re going to have to befriend or fend off in the future; hold on to your native Tongan, Tagalog, or Thai; and by all means learn Hawaiian, our other official language and the mother tongue of the islands. But bus’ out da kine Pidgin or Creole or whatevah, whenevah can. No shame, eh! And no fohget. It’s your language. It belongs here and so do you. Dat’s it. Pau.
Percentage of cellphone owners who check their phone for messages even when they didn’t get a notification: 67%
Percentage of American Internet users who describe their usage as constant: 21%
Percentage of adults who struggle to restrict their phone use while supervising children: 44%

New cases of HIV in Portugal among injection drug users (IDUs) in 2000: 1,482
New cases of HIV in Portugal among IDUs in 2013 (12 years after decriminalizing all drugs): 78
Percent change in drug use among young people in Portugal between 2000 and 2013: -2%

Average price of solar panels for a U.S. home in 1998: $12/watt
Average price of solar panels for a U.S. home in 2014: $3.48/watt
Approximate number of U.S. homes generating solar energy as of 2015: 700,000

State abortion restrictions enacted between 2001 and 2010: 189
State abortion restrictions enacted between 2011 and 2013: 205
States that directly fund anti-abortion organizations through the sale of pro-life license plates: 15
Miles from Lubbock, Texas, to the nearest clinic providing abortion services: 290

Percent change in National Instant Criminal Background Check System (NICS) requests (the most reliable indication of U.S. gun purchasing trends) from 2005–2015: +258
Total NICS firearm checks in last 10 years: 160,303,181
Percent change in American households with guns from 2004–2014: -3.7%

Number of Netflix subscribers as of the end of 2015: 75 million
Total hours streamed during the first quarter of 2015: 10 billion
Hours a Netflix subscriber saves annually not watching advertisements: 130

Percentage of LGBT students who felt unsafe at school because of their sexual orientation in 2013: 55.5
Among LGBT students at schools with a Gay-Straight Alliance: 46
At schools with an inclusive curriculum (i.e., one with positive representations of LGBT people, history, or events): 34.8%

Lifespan of Pluto as a planet: 1930–2006
Expected lifespan of Pluto as a copyrighted character: 1930–2025
AFTER OIL

Bill McKibben

OUR FUTURE DEPENDS ON BURIED CARBON, SO HERE’S HOW TO KEEP IT IN THE GROUND
Physics can impose a bracing clarity on the normally murky world of politics. It can make things simple. Not easy, but simple.

Most of the time, public policy is a series of trade-offs: higher taxes or fewer services, more regulation or more freedom of action. We attempt to balance our preferences: for having a beer after work, and for sober drivers. We meet somewhere in the middle, compromise, trade off. We tend to think we're doing it right when everyone's a little unhappy.

But when it comes to climate change, the essential problem is not one group’s preferences against another’s. It’s not—at bottom—industry versus environmentalists or Republicans against Democrats. It’s people against physics, which means that compromise and tradeoff don’t work. Lobbying physics is useless; it just keeps on doing what it does.

So here are the numbers: We have to keep 80 percent of the fossil-fuel reserves that we know about underground. If we don’t—if we dig up the coal and oil and gas and burn them—we will overwhelm the planet’s physical systems, heating the Earth far past the red lines drawn by scientists and governments. It’s not “we should do this,” or “we’d be wise to do this.” Instead it’s simpler: “We have to do this.”

And we can do this. Five years ago, “keeping it in the ground” was a new idea. When environmentalists talked about climate policy, it was almost always in terms of reducing demand. On the individual level: Change your light bulb. On the government level: Put a price on carbon. These are excellent ideas, and they’re making slow but steady progress (more slowly in the United States than elsewhere, but that’s par for the course). Given enough time, they’d bring down carbon emissions gradually but powerfully.

Time, however, is precisely what we don’t have. We pushed through the 400 parts per million level of CO2 in the atmosphere last spring; 2015 was the hottest year in recorded history, smashing the record set in ... 2014. So we have to attack this problem from both ends, going after supply as well as demand. We have to leave fossil fuel in the ground.

Most of that coal and oil and gas—most of that money—is concentrated in a few huge underground pools of carbon.

There’s oil in the Arctic, and in the tar sands of Canada and Venezuela, and in the Caspian Sea; there’s coal in Western Australia, Indonesia, China, and in the Powder River Basin; there’s gas to be fracked in Eastern Europe. Call these the “carbon bombs.” If they go off—if they’re dug up and burnt—they’ll wreck the planet. Of course, you could also call them “money pits.” Lots of money—that coal and gas and oil may be worth $20 trillion. Maybe more.

Because of that, there are people who say that the task is simply impossible—that there’s no way the oil barons and coal kings will leave those sums underground. And they surely won’t do it voluntarily. Take the Koch brothers, for instance: They’re among the largest leaseholders in Canada’s tar sands and plan nearly $900 million in political spending during 2016, more than the Republicans or the Democrats. Because they won’t be among the richest men on Earth anymore if that oil stays beneath the ground.

But in fact it’s not a hopeless task. We’ve begun to turn the tide, and in remarkably short order.

If you understand the logic of the Keep It in the Ground campaign, for instance, then you understand the logic of the Keystone pipeline fight. Pundits said it was “just one pipeline,” but efforts to block it meant that the expansion of Canada’s tar sands suddenly, sharply slowed. Investors, unsure that there would ever be affordable ways to bring more of that oil to market, pulled tens of billions of dollars off the table, even before the price of oil began to fall. So far, only about 3 percent of the oil in those tar sands has been extracted; the bomb is still sitting there, and if we block pipelines, then we cut the fuse.

And the same tactics are working elsewhere, too. In Australia, there was unrelenting pressure from indigenous groups and climate scientists to block what would have been the world’s largest coal mine in Queensland’s Galilee Valley. Activists tied up plans long enough that other campaigners were able to pressure banks around the world to withdraw financing for the giant mine. By spring 2015, most of the world’s major financial institutions had vowed not to provide loans for the big dig, and by summer the mining company was closing down offices and laying off its planning staff.

Money, in fact, is a key part of the Keep It in the Ground strategy. In fall 2012, students, faith leaders, and other activists launched a fossil-fuel divestment campaign in the United States, supported by 350.org (an organization I co-founded), that soon spread Down Under and to Europe. The argument was simple: If Exxon and Chevron and BP and Shell plan to dig up and burn more carbon than the planet can handle, they’re not normal companies.
If their business plan would break the planet, then we need to break ties with them.

At first, the institutions that joined in were small. Tiny Unity College in Maine was first, selling the fossil fuel stock in its $13 million portfolio. But the campaign accelerated quickly because the math was so clear, the physics so irrefutable. By now colleges from Stanford to Oxford, from Sydney to Edinburgh, have joined in, pointing out that it makes no sense to educate young people and then break the planet they’ll inhabit. Ditto doctors associations on several continents, which argue that you can’t pretend to be interested in public health if you invest in companies destroying it. Ditto the United Church of Christ and the Unitarians and the Church of England and the Episcopalians, who insist that care for creation is incompatible with such destruction.

These divestments are hurting companies directly—coal giant Peabody formally told shareholders in 2014 that the campaign was affecting its stock price.

But the fight remains damnably hard, because politicians are so used to doing the bidding of the oil companies. In fact, just days after the theoretically landmark Paris climate accord, the Obama administration and Congress gave the oil industry a much sought-after gift: ending the 40-year ban on crude oil exports. We’re making progress (it was something of a breakthrough, for instance, when cautious Hillary Clinton came out against Arctic oil) but not fast enough.

Which is why, this spring, the climate movement will be rallying on the sites of as many of those carbon bombs as possible, in massive peaceful resistance designed to slow extraction of fossil fuels, but even more to shine a light on these massive, remote deposits. The leaders, as always, will be the frontline communities that live nearby. Some of the rest of us will make the trek to these locations; others will rally at embassies and banks to bring the same point home. Because once we’ve marked them on the planet’s mental map as mortal dangers, our odds of winning go up.

If you’re still skeptical, consider what happened in the Amazon after the world’s scientists, in the 1980s, identified the rainforest as absolutely necessary to the planet’s survival. Much to the surprise of many, the government of Brazil moved to slow deforestation. Its efforts haven’t been perfectly successful, but they’ve kept those trees above the ground, just the way we need to keep that oil below it.

And we’ve got a couple of advantages in this fight the Brazilians didn’t. For one, they were a poor country. Many of the big carbon bombs lie in richer nations like Canada, the United States, and Australia; we can afford to let them be.

More importantly, it’s beginning to look like we don’t need to win this fight forever. That’s because alternatives to fossil fuel are becoming cheaper with every passing day. The price of a solar panel has fallen more than 70 percent in the last six years. That’s a mortal threat to the hydrocarbon tycoons. They know that they have to get new infrastructure in place in the next few years. If they can build those pipelines and mines, then for the next 40 or 50 years they’ll be able to get carbon out cheaply enough to compete (and to wreck the planet). If they can’t—if we can hold them off for just a few more years—then we’ll have made the transition to clean energy irreversible.

I don’t know if we’re going to win this fight in time. The flood of scientific data about the damage that’s already been done unnerves me. But I do know we’re now fighting on every front. And the most important one is the simplest: We can, and we must, and we will keep that coal and gas and oil underground.

Bill McKibben is a contributing editor for YES! Magazine. He is the Schumann Distinguished Scholar in Environmental Studies at Middlebury College, the founder of 350.org, and the winner of the 2014 Right Livelihood Award.
We’ll Have to Live More Regionally. Like This.

As a chain of volcanic islands, Hawaii doesn’t have coal and natural gas readily available to generate electricity. The state depends on oil, shipped in by tanker, to generate electricity. In 2002, Kaua’i Island Utility Cooperative (KIUC) became the first and only member-owned utility company in the state, aiming to solve this energy problem.

At that time, Kaua’i residents were 92 percent reliant on oil for their energy needs and had some of the highest electricity bills in the country. That reliance was a major problem—in some years, oil imports cost the island close to $100 million.

Renewable energy appealed to residents who wanted lower utility bills and were concerned about the environment. “People were tired of oil,” said Jim Kelly, the cooperative’s communications manager. “It was up to us to cut the cord and not be at the mercy of oil supply.”

KIUC has been working to do this by reducing fossil-fuel dependence while keeping money, jobs, and utility operations on the island. Fossil-fuel use has dropped to just 60 percent as solar, biomass, and hydropower investments take effect. Because of this, energy bills are expected to drop by at least 10 percent over the next 10 years—even as oil prices rise. Ideally, Kelly said, greater reliance on renewables will mean more stable utility rates, regardless of what happens to the cost of oil.

In the past few years, KIUC added two solar arrays—one is the largest in the state—along with a wood-chip burner that supplies 12 percent of the island’s power and smart meters that allow residents to track their energy usage and be smarter about their consumption. Kaua’i’s latest goal: 50 percent renewable energy by 2023. —Keith Barbalato

Hawai’i’s Kaua’i Island Utility Cooperative has helped the island move to stable renewable electricity production with projects like the Anahola array, which will reduce dependence on imported oil and coal for energy.

Community Cooperative Utilities

PHOTO FROM KAUA’I ISLAND UTILITY COOPERATIVE
If our transition to renewable energy is successful, we will achieve savings in the ongoing energy expenditures needed for economic production. We will be rewarded with a quality of life that is acceptable—and, perhaps, preferable to our current one (even though, for most Americans, material consumption will be scaled back from its current unsustainable level). We will have a much more stable climate than would otherwise be the case. And we will see greatly reduced health and environmental impacts from energy production activities.

But the transition will entail costs—not just money and regulation, but also changes in our behavior and expectations. It will probably take at least three or four decades, and will fundamentally change the way we live.

Nobody knows how to accomplish the transition in detail, because this has never been done before. Most previous energy transitions were driven by opportunity, not policy. And they were usually additive, with new energy resources piling onto old ones (we still use firewood, even though we’ve added coal, hydro, oil, natural gas, and nuclear to the mix).

Since the renewable energy revolution will require trading our currently dominant energy sources (fossil fuels) for alternative ones (mostly wind, solar, hydro, geothermal, and biomass) that have different characteristics, there are likely to be some hefty challenges along the way.

Therefore, it makes sense to start with the low-hanging fruit and with a plan in place, then revise our plan frequently as we gain practical experience. Several organizations have already formulated plans for transitioning to 100 percent renewable energy. David Fridley, staff scientist of the energy analysis program at the Lawrence Berkeley National Laboratory, and I have been working for the past few months to analyze and assess those plans and have a book in the works titled Our Renewable Future. Here’s a very short summary, tailored mostly to the United States, of what we’ve found.

Nearly everyone agrees that the easiest way to kick-start the transition would be to replace coal with solar and wind power for electricity generation. That would require building lots of panels and turbines while regulating coal out of existence. Distributed generation and storage (rooftop solar panels with home- or business-scale battery packs) will help. Replacing natural gas will be harder, because gas-fired “peaking” plants are often used to buffer the intermittency of industrial-scale wind and solar inputs to the grid (see Level Two).

Electricity accounts for less than a quarter of all final energy used in the United States. What about the rest of the energy we depend on? Since solar and wind produce electricity, it makes sense to electrify as much of our energy usage as we can. For example, we could heat and cool most buildings with electric air-source heat pumps, replacing natural gas- or oil-fueled furnaces. We could also begin switching out all our gas cooking stoves for electric stoves.

Transportation represents a large swath of energy consumption, and personal automobiles account for most of that. We could reduce oil consumption substantially if we all drove electric cars (replacing 250 million gasoline-fueled automobiles will take time and money, but will eventually result in energy and financial savings). Promoting walking,
bicycling, and public transit will take much less time and investment.

Buildings will require substantial retrofitting for energy efficiency (this will again take time and investment, but will offer still more opportunities for savings). Building codes should be strengthened to require net-zero-energy or near-net-zero-energy performance for new construction. More energy-efficient appliances will also help.

The food system is a big energy consumer, with fossil fuels used in the manufacture of fertilizers, food processing, and transportation. We could reduce a lot of that fuel consumption by increasing the market share of organic local foods. While we’re at it, we could begin sequestering enormous amounts of atmospheric carbon in topsoil by promoting farming practices that build soil rather than deplete it—as is being done, for example, in the Marin Carbon Project.

If we got a good start in all these areas, we could achieve at least a 40 percent reduction in carbon emissions in 10 to 20 years.

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The Harder Stuff

Solar and wind technologies have a drawback: They provide energy intermittently. When they become dominant in our overall energy mix, we will have to accommodate that intermittency in various ways. We’ll need substantial amounts of grid-level energy storage as well as a major grid overhaul to get the electricity sector close to 100 percent renewables (replacing natural gas in electricity generation). We’ll also need to start timing our energy usage to coincide with the availability of sunlight and wind energy. That in itself will present both technological and behavioral hurdles.

After we switch to electric cars, the

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Iowa’s “Community Wind” Leads the Nation

Kim Eckart

Nearly a decade ago, Iowa farmer Randy Caviness had an epiphany.

In the gas- and diesel-driven machinery that tilled his 4,000 acres of corn and soybeans, the propane tanks that flanked area farms, and the electricity that powered his entire property, he saw vast energy consumption. It was a way of life, replicated on farms throughout the region.

But what if, Caviness thought as the wind rippled over his rolling fields, he turned to a never-ending resource?

What if he and his neighbors harnessed the wind?

“With wind, you don’t buy any fuel, the resource never stops, the price doesn’t go up. There’s not going to be a strike or a shortage,” he explains. So a project to fund a wind turbine was born.

Since then, Caviness, his neighbors, and other local investors have installed nine wind turbines around their southwest Iowa county, with a total of 15 megawatts generating capacity. Theirs is one of at least 60 community wind projects around the state, which combined
with dozens of commercial projects run by large utilities, make
Iowa the national leader in the percentage of electricity generated
from wind. Nationwide, about 4 percent of electricity is generated
from wind—a fraction of what Iowa generates.

The state is typically considered conservative, but Iowa’s rise
to the top in wind energy is a story of bipartisan cooperation, of
a broad effort among industry, lawmakers, farmers, and environ-
mentalists to embrace the potential of a renewable resource. It’s
a story that ends where it begins: with the people.

In the early 1980s, electricity rates were increasing. The
Midwest struggled with the Farm Crisis, when rising debts forced
farmers to give up their land, and small towns withered. Iowa
legislators cast about for an economic bone to throw consumers.
With no significant oil or natural-gas interests to stand in the way,
Democrats and Republicans alike settled on a law that would
require the state’s two biggest utilities to buy or contract some of
their power from renewable energy.

The argument was about the economy, points out David
Osterberg, an associate clinical professor of occupational and
environmental health at the University of Iowa, which made it
easier to bring everyone to the table, including the powerful Iowa
Farm Bureau.

“Any time you can say something is good for the farmer, you
have a good chance of it passing,” he adds.

But some renewable-energy plans struggled to gain traction.
Solar never took off, and hydro projects proved difficult to exe-
cute. And so Iowa, one of the windiest states in the country, where
windmills are part of its heritage, cultivated an industry. Over
time, utility giants such as MidAmerican Energy jumped in the
game, as did municipalities, schools, and farms. Today, Iowa has
more than 3,400 wind turbines, generating 5,710 megawatts—28
percent of the state’s total electricity generation, the equivalent
of 1.5 million homes powered by wind. Community colleges have
created wind-technology programs. Wind-technology manufac-
turers and suppliers have opened plants.

Tom Wind, a central Iowa farmer, longtime wind-industry
consultant, and investor in two community wind projects,
credits a receptive public—and resource abundance—with
the renewable’s success. “We can use this to benefit the world,
to reduce our reliance on fossil fuels, and to be more energy-
independent. It all works together.”

Kim Eckart is an associate editor for YES! Magazine.
rest of the transport sector will require longer-term and sometimes more expensive substitutions. We could reduce our need for cars (which require a lot of energy for their manufacture and decommissioning) by increasing the density of our cities and suburbs and reorienting them to public transit, bicycling, and walking. We could electrify all motorized human transport by building more electrified public transit and intercity passenger rail lines. Heavy trucks could run on fuel cells, but it would be better to minimize trucking by expanding freight rail. Transport by ship could employ sails to increase fuel efficiency (this is already being done on a tiny scale by the MS Beluga Skysails, a commercial container cargo ship partially powered by a 1,700-square-foot, computer-controlled kite), but relocalization or deglobalization of manufacturing would be a necessary co-strategy to reduce the need for shipping.

Much of the manufacturing sector already runs on electricity, but there are exceptions—and some of these will offer significant challenges. Many raw materials for manufacturing processes either are fossil fuels (feedstocks for plastics and other petrochemical-based materials) or require fossil fuels for mining or transformation (e.g., most metals). Considerable effort will be needed to replace fossil-fuel-based industrial materials and to recycle non-renewable materials more completely, significantly reducing the need for mining.

If we did all these things, while also building far, far more solar panels and wind turbines, we could achieve roughly an 80 percent reduction in emissions compared to our current level.

The communications sector—which uses mining and high-heat processes for the production of phones, computers, servers, wires, photo-optic cables, cell towers, and more—presents some really knotty problems. The only good long-term solution in this sector is to make devices that are built to last a very long time and then to repair them and fully recycle and remanufacture them when absolutely needed. The Internet could be maintained via the kinds of low-tech, asynchronous networks now being pioneered in poor nations, using relatively little power. An example might be the AirJaldi networks in India, which provide Internet access to about 20,000 remote users in six states, using mostly solar power.

Back in the transport sector: We’ve already made shipping more efficient with sails, but doing away with petroleum altogether will require costly substitutes (fuel cells or biofuels). One way or another, global trade will have to shrink.

The communications sector—which uses mining and high-heat processes for the production of phones, computers, servers, wires, photo-optic cables, cell towers, and more—presents some really knotty problems. The only good long-term solution in this sector is to make devices that are built to last a very long time and then to repair them and fully recycle and remanufacture them when absolutely needed. The Internet could be maintained via the kinds of low-tech, asynchronous networks now being pioneered in poor nations, using relatively little power. An example might be the AirJaldi networks in India, which provide Internet access to about 20,000 remote users in six states, using mostly solar power.
We’ll Have to Live More Regionally. Like This.

We’ll Have to Live More Regionally. Like This.

Mikaela Nichols, a manager at Seattle E-Bike, commutes 13 miles to and from work during the summer. The city is notorious for its steep hills and standstill traffic, perfect conditions for a thriving e-bike ridership.

An Electric Bicycle Commute

Cycling brings better health to people and neighborhoods alike. Studies show that cycle-friendly infrastructure has positive effects on local economies: When people bike, they’re better able to connect with and do business in their communities. But for many people, the effort of cycling holds them back. Sweating and the physical inability to climb hills or cross bridges is a barrier.

E-bikes may be the solution. Think hybrid car, but applied to a bicycle. Depending on the e-bike, you control the motor either with a button or based on how hard you pedal. Users enjoy the functional advantage of increased power, but also the pure joy of riding a bicycle.

E-bikes have been commercially available since the 1990s, but have been slow to catch on in the United States, where bikes are recreation rather than transportation. But in recent years, sales have grown, from about 70,000 in 2012 to 270,000 in 2014. The growth comes as e-bikes get sleeker, prices drop, and technology advances.

According to Stefan Schlesinger, owner of Seattle Electric Bike, many buyers are looking to get out of their cars but also stay off buses. Businesses and delivery services see potential in e-bikes because of their speed and reliability, he adds. “Bikes are the most efficient vehicles on the planet. In a place like this,” Schlesinger says, referring to Seattle’s hills, “e-bikes make it the most efficient way to get around.” —Keith Barbalato
THE RENEWABLE ECONOMY WILL LIKELY BE SLOWER AND MORE LOCAL; IT WILL PROBABLY BE A CONSERVER ECONOMY RATHER THAN A CONSUMER ECONOMY. IT WILL ALSO LIKELY FEATURE FAR LESS ECONOMIC INEQUALITY.

tavel. Paving and repairing roads without oil-based asphalt is possible, but will require an almost complete redesign of processes and equipment.

Great attention will have to be given to the interdependent linkages and supply chains connecting various sectors (communications, mining, and transport knit together most of what we do in industrial societies). Some links in supply chains will be hard to substitute, and chains can be brittle: A problem with even one link can imperil the entire chain.

The good news is that if we do all these things, we can get beyond zero carbon emissions; that is, with sequestration of carbon in soils and forests, we could actually reduce atmospheric carbon with each passing year.

Doing Our Level Best

This plan features “levels”; the more obvious word choice would have been “stages.” The latter implies a sequence—starting with Stage One, ending with Stage Three—yet accomplishing the energy transition quickly will require accelerating research and development to address many Level Two and Three issues at the same time we’re moving rapidly forward on Level One tasks. For planning purposes, it’s useful to know what can be done relatively quickly and cheaply, and what will take long, expensive, sustained effort.

How much energy will be available to us at the end of the transition? It’s hard to say, as there are many variables, including rates of investment and the capabilities of renewable energy technology without fossil fuels to back them up and to power their manufacture, at least in the early stages. This “how much” question reflects the understandable concern to maintain current levels of comfort and convenience as we switch energy sources. But in this regard, it is good to keep ecological footprint analysis in mind.

According to the Global Footprint Network’s Living Planet Report 2014, the amount of productive land and sea available to each person on Earth in order to live in a way that’s ecologically sustainable is 1.7 global hectares. The current per capita ecological footprint in the United States is 6.8 global hectares. Asking whether renewable energy could enable Americans to maintain their current lifestyle is therefore equivalent to asking whether renewable energy can keep us living unsustainably. The clear answer is: only temporarily, if at all. So why bother trying? We should aim for a sustainable level of energy and material consumption, which on average is significantly lower than at present.

One way or another, the energy transition will represent an enormous societal shift. During past shifts, there were winners and losers. In the current instance, if we don’t pay great attention to equity issues, it is entirely possible that only the rich will have access to renewable energy, and therefore, ultimately, to any substantial amounts of energy at all.

The collective weight of these challenges and opportunities suggests that a truly all-renewable economy may be very different from the American economy we know today. The renewable economy will likely be slower and more local; it will probably be a conserver economy rather than a consumer economy. It will also likely feature far less economic inequality. Economic growth may reverse itself as per capita consumption shrinks; if we are to avert a financial crash and perhaps a revolution as well, we may need a different economic organizing principle. In her recent book on climate change, This Changes Everything, Naomi Klein asks whether capitalism can be preserved in the era of climate change. While it probably can (capitalism needs profit more than growth), that may not be a good idea because, in the absence of overall growth, profits for some will have to come at a cost to everyone else.

This short article only addresses the energy transition in the United States; other nations will face different challenges and opportunities. Poor nations will have to find ways to provide all their energy from renewable sources while advancing in terms of the U.N. Human Development Index. Nations especially vulnerable to sea level rise may have other immediate priorities to deal with. And nations with low populations but very large solar or wind resources may find themselves in an advantageous position if they are able to obtain foreign investment capital without too many strings attached.

The most important thing to understand about the energy transition is that it’s not optional. Delay would be fatal. It’s time to make a plan—however sketchy, however challenging—and run with it, revising it as we go.

Richard Heinberg is Senior Fellow of the Post Carbon Institute and is widely regarded as one of the world’s foremost advocates for a shift away from our current reliance on fossil fuels. He is the author of 12 award-winning books, including six on the subject of fossil fuel depletion. He has written for Nature, The Wall Street Journal, Reuters, and The Christian Science Monitor, among other publications, and has delivered hundreds of lectures on energy and climate issues to audiences around the world.
We’ll Have to Live More Regionally. Like This.

Perennial Grains

Living regionally requires farming closer to home, but with current farming methods—especially when it comes to grains, that’s a challenge. America’s wheat and corn spread over vast, uninterrupted fields far from urban centers.

Grains are an essential part of our diet: 70 percent of our calories come from them, writes Wes Jackson of The Land Institute. But we need to change how we grow them. For 12,000 years we’ve farmed annual grains, and since the mid-20th century, we’ve bolstered production with pesticides and nitrogen fertilizer. This was known as the Green Revolution, and it fed the world. Only now do we see the costs clearly: eroded topsoil, thousands of dead zones in the ocean (where fertilizer runoff gathers and suffocates marine life), and dependence on fossil fuels. The American Midwest is now defined by dusty swaths of monocrops dotted with anhydrous ammonia tanks.

Enter perennial grains. Where annuals leave the soil bare, according to Siegg Snapp, a researcher at Michigan State University, perennials build it. Their roots, staying longer and growing deeper, hold the soil together, and rely on little to no fertilizer. And they can be grown on less desirable farmland, potentially closer to larger population centers.

The University of Michigan is developing perennial strains of wheat, which Snapp says could be farm-ready within five years, depending on research funding. Agricultural research investments tend to fund commodity crops or organics, not this kind of holistic sustainability.

“Organic can only go so far,” says Snapp. “This changes how agriculture is done entirely.” —Joe Scott
Can 54 million people and the world’s fifth largest economy challenge the political might of Big Oil?

Arun Gupta

ex Parris, the three-term Republican mayor of Lancaster, California, is no squishy liberal. “I believe when you walk out the door of your home, you should be safe. I think capitalism is the best economic system we have available, and the United States should have the strongest military in the world.”

But when it comes to climate change, Parris calls it “the greatest threat facing the human race since the beginning of time.” He’s a rarity in a party in which nearly all presidential candidates in the 2016 race denied the existence of man-made climate change or the need to halt fossil-fuel production.
Parris has broken ranks with the denialists by signing a “no new fossil fuels infrastructure” pledge. Prior to the Paris climate summit in December, a dozen mayors from Santa Barbara, California, to Vancouver, British Columbia, and more than 20 other elected officials endorsed a prohibition on exporting oil, coal, and natural gas through the region. The pledge is inspired by a resolution passed by the city of Portland, Oregon, in November that relies on local powers over public safety, health, and land zoning to obstruct the siting of fossil fuel export terminals.

A coalition of environmental, labor, faith-based, and indigenous communities backed that resolution and a second one aimed at preventing oil trains from passing through Portland. Daphne Wysham, a coordinator with the Sustainable Energy and Economy Network, says that after the resolutions passed, she initiated the pledge to help spread the anti-fossil-fuel movement along the West Coast.

Portland Mayor Charlie Hales championed the resolutions alongside City Commissioner Amanda Fritz. The measures are designed not to encroach on federal powers to regulate interstate commerce, which prevents states and cities from banning the transport of fossil fuels outright. Hales says once they are translated into land use code, “if a company wants to open a new terminal for exporting oil or compressed natural gas or propane or, even worse, coal, the answer is going to be, ‘No, that’s not a permitted use in industrial and commercial zones in Portland.’”

It’s one sign of how the West Coast is leading the fight against global warming even as many countries lag behind. The governors of California, Oregon, and Washington and the premier of British Columbia launched the Pacific Coast Collaborative (PCC) toward that end in 2008. Recently the PCC released an Action Plan on Climate and Energy to green the region’s economy by prioritizing solar and wind power, low-carbon transportation, and energy efficiency. With 54 million people and $3 trillion in gross domestic product, effectively the fifth-largest economy in the world, the Pacific Coast has the might to reshape the U.S. economy.

U.S. politics and social movements, says, “The fossil fuel industry has enormous resources. They have staying power.” He says energy companies promise struggling cities that “[they’ll] make money quickly. People are willing to buy it because they feel vulnerable.”

If all else fails, many predict, the oil industry will try to bulldoze opponents. The American Legislative Exchange Council (ALEC), funded by oil giants like ExxonMobil and the Koch brothers, is notorious for rejecting climate change science while pushing pro-oil policies at the state level. Now that Asian markets are open to U.S. energy production, Hales says he is “very concerned about ALEC throwing money around to influence cities” as well. In California, a tidal wave of oil lobbying and money—$10.7 million in three months alone—sank Governor Jerry Brown’s bill to halve oil consumption in vehicles by 2030. Around the same time, Washington state’s plan for a carbon tax was likewise shredded by a buzzsaw of oil-funded opposition.

But First Nations and environmental activists in the Pacific Northwest have spun a web of resistance by delaying oil refineries and fracking over time.

Oil and gas companies have been eyeing the West Coast as the gateway to Asia, with plans to lace the region with more than two dozen natural-gas pipelines, oil terminals, and coal depots. Cities reliant on heavy industry or desperate for jobs, like Washington’s Tacoma and Kalama, are green-lighting projects like methanol plants, and Coos Bay, Oregon, is banking on employment from a natural-gas pipeline snaking 230 miles through the Cascade Mountains.

Joseph Lowndes, an associate professor of political science at the University of Oregon, who studies Asian markets and oil refining, responds, “The anti-fossil-fuel movement comes at a crucial time. Despite the historic Paris accord on climate change signed by 196 nations, some nations are still on a hydrocarbon binge. Canada is allowing for a 43 percent rise in tar sands production. India said it would double coal production, and the U.S. Congress lifted a 40-year-old ban on the export of domestic fossil fuels, which is expected to boost mining and fracking over time.

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swept to victory in 2014 despite being outspent 20-to-1 by Chevron. Mayor Butt, who signed the “no new fossil fuels infrastructure” pledge along with predecessor Gayle McLaughlin, says Chevron has “a long history of controlling the city council.”

Because the energy industry can successfully pit jobs against climate justice, Hales says, the West Coast must go beyond the “thou shalt not” pledge.

Cities and states are taking action, sometimes reluctantly. Under threat of lawsuits from environmentalists, San Diego passed a plan for 100 percent renewable energy for electricity and a 50 percent cut in greenhouse gas emissions by 2035. Parris claims Lancaster will be the first “net-zero city in the world.” Butt says Richmond is shifting consumers to electricity that is 56 percent renewable, and less than 20 percent of residences are opting out. Hales says cities could combine purchasing power to convince manufacturers to develop electric trucks for municipal services, transforming the overall car market.

PCC partners envision turning Interstate 5, which connects Baja California to British Columbia, into a “West Coast Green Highway” through alternative fuels and 1.5 million zero-emission vehicles on California’s roadways by 2025. Utilities serving PCC states and Utah, Wyoming, and Idaho are studying how to integrate their power grids so sun-powered electrons from California or wind-powered ones from Wyoming can zip to states dependent on coal-fired electricity. The PCC is also pushing for a high-speed rail network, with work underway on the $68 billion section between Los Angeles and San Francisco.

Although important, these plans are first steps. Physics does not care about our promises and pledges. Many scientists say the world must reach net-zero emissions by 2050 to avoid disaster, but elected officials say they have little power to directly affect the private sector. Plans rely on market mechanisms involving taxation or zoning to encourage low-carbon solutions. Proposals include cap and trade for carbon pollution, backed by Washington Governor Jay Inslee, and a fee on carbon in Oregon that would be returned to households and businesses. California’s cap-and-trade program went into effect in 2012, but critics slam it for rewarding polluters by providing free emission allowances to utilities that they can sell. Distributing carbon taxes is a mixed bag as well because it deprives local governments of funding for new jobs, aid to hard-hit communities, and adaptation of industry needed in a post-carbon future.

Wysham advocates measures such as requiring energy companies to purchase “climate-risk bonds,” which would factor in all the social costs of greenhouse gases. Making polluters pay upfront for the damage they create would render fossil fuels uneconomical.

It’s the type of bold move the West Coast needs on the road to a low-carbon future. Governors, legislators, and mayors will have to wrest the steering wheel from energy companies to prevent heading into the worst-case climate change scenarios.

Lowndes says the crucial missing element is “a broad campaign and direct action that can draw reformists and radicals into a coalition that can win the public to its side.” One model, he says, is the anti-nuclear-power campaign of the 1970s, which “stopped 150 plants that were set to go online.” If people power can be combined with elected power, then it could finally be lights out for the fossil-fuel era.

In Alaska Schools, It’s Fish for Lunch

The University of Alaska Fairbanks’ Center for Alaska Native Health Research is pushing local fish for school lunch—and it’s not talking fish sticks.

Since 2009, Andrea Bersamin has been leading the center’s Fish to School program, which serves locally caught fish, primarily salmon, in school lunches statewide. Made possible with a $1.1 million grant from the U.S. Department of Agriculture, the program grew out of a concern for Native health and food sovereignty and draws upon Yup’ik culture, which emphasizes subsistence fishing. Alaska’s climate limits its agricultural capacity, so 95 percent of its food is imported. That won’t be possible in a post-carbon world.

Yup’ik public schools were the first to try the program, during the 2013–14 school year. Along with lunch-menu changes, students learned that food choices influence more than their health: They also influence the environment’s health too, especially if the kids’ food relies on carbon-releasing fuel to travel hundreds, even thousands, of miles to reach them.

Now, Bersamin and her research associate, Jennifer Nu, are finalizing the last piece of the project: a toolkit of lessons teachers need to implement an associated curriculum in their classrooms. The toolkit is expected to be distributed among interested Native and non-Native Alaska schools beginning in February. —Yessenia Funes

PHOTO BY DESIGN PICS INC / ALAMY STOCK PHOTO
When my great-grandfather began his career as an underground coal miner, the United States was averaging 2,000 coal-mining deaths a year. It was a hard and dangerous life, the existence left for Appalachian mountaineers once outside companies had harvested the hardwood forests and swindled everyone’s mineral rights. Families that had once sustained themselves on their own farms became more and more dependent on coal-mining wages.

I was raised in a union home in southwestern Virginia and, like most kids of my generation, was encouraged to do well in school to avoid a life in the mines. For a while, it seemed possible. But when the coal markets failed in the early 1990s, my father was laid off, and our family was forced to use what little savings we had just to survive.

Over the coming years, the coal companies closed their large union mining complexes, putting thousands of miners out of work. What remained were small nonunion mines and strip mines that scraped at what was left. In 1998, A&G Coal Company took the top off the ridge behind our home and dumped it into the valley, destroying nearly 400 acres of woodlands and the spring that provided our water.

In an effort to alleviate unemployment following the downturn, local and state leaders negotiated the construction of two Supermax prisons and a variety of call centers, some of which stuck around only as long as the tax breaks lasted. Having no desire to be a prison guard, I spent several years working in one of the more stable call centers.

I received accolades and was promoted to supervisor, but, as with most call center “careers,” there was little hope for advancement or a decent retirement. Coal markets had since rebounded, creating a high demand for coal miners to work in seams once too deep and costly to mine. Out of options and tired of being unable to afford the “best” for my small family, I went to work in the mines, becoming the fourth generation of my family to face the long days beneath our mountain home.

When I entered the industry, decades of successful union busting had created a new landscape concerning labor rights and worker solidarity. Companies and local businesses played upon the instant-gratification lifestyle led by young miners, encouraging high levels of debt and creating an extreme dependency on mining wages. Any threat of performance-based layoffs sparked fear and competition among miners already working in a dangerous environment.

Then, in the summer of 2010, my family’s life changed forever. In the course of one night, a fire consumed our home and everything we owned. As we sifted through the remains, we began to reflect and re-evaluate. I realized that the best life I could give my children wasn’t one full of “things,” but was one of clean health and a simpler path to happiness.

Friends and family encouraged me to think about life outside the mines, having never wanted to see me there in the first place. I took their advice to heart and eventually left behind a family tradition. I wasn’t entirely sure what we were going to do. I just knew that we could do something different, that we had to for our children’s sake. We left the valley that was home to my family for 10 generations and moved to central Kentucky in search of a healthier place for our children, one without the impacts of mining.

Today, my wife and I attend Berea College, where we’ve been learning to advocate for change in Appalachia and everywhere resource extraction threatens people’s health and happiness. Over the past two years, we’ve traveled the United States and Canada, telling our story and connecting the dots between energy use and the devastation it leaves behind. While I was making high wages in the mines, it seemed as though we could never live without them. Now, we’ve learned how to live with less and to appreciate the simpler things. We learned that we could live without coal.

Nick Mullins is a writer, public speaker, and advocate for sustainable living practices. He grew up in the coalfields of southwestern Virginia where he was the fourth generation of his family to work in underground coal mines. Today, he enjoys spending time with his wife and their two children as well as contributing to his blog thethoughtfulcoalminer.com.
Bringing Young People Back to the City

Not an issue facing troubled metropolitan cities—population decline, skyrocketing unemployment, decaying buildings—and chances are high that Cleveland suffers from it.

However, Alonzo Mitchell, with his Village Project, is doing everything in his power to change that. The project launched in 2012, not long after the 34-year-old returned from a stint in the health care industry in Washington, D.C. The goal was simple, if audacious: transform Cleveland into a hub of entertainment and culture to lure bright young professionals back into the city.

Mitchell and other volunteers faced a daunting task. The city has a child poverty rate of 54 percent (second only to Detroit), a median household income little more than half the national average, and an abundance of eyesores dotting its streets.

But the love of home has been a driving force for Mitchell and others associated with the Village Project as they use some creative methods to make a vision of a thriving Cleveland a reality. They have thrown birthday parties for the city, staged New Year's Eve celebrations in its public square, and raised money for local charities.

Another goal is to relocate “villagers”—entrepreneurs and successful artists—to poverty-stricken parts of the city in order to nurture these areas back to health. Mitchell and company believe concentrating the villagers' wealth and talent within communities long deprived of both will lead to an expansion of the local economy and knowledge base.

A collective approach is central to the project’s long-term turnaround strategy, which Mitchell dedicated himself to in a July 2013 Facebook post he addressed to the city.

“It is total commitment to the city that raised us that keeps us moving when folks say we should give up. I know that when you truly believe in a cause, walking away is never an option.”

The project’s motto, “It Takes a Village to Raise a City,” is a play on the African proverb “it takes a village to raise a child.” —Marcus Harrison Green
Linking Affordability With Access to Transit

Los Angeles’ Chinatown is transit-rich, with bus lines, light rail, and an Amtrak line. But its residents are far from rich: Chinatown’s median annual income is $19,500, compared to Los Angeles County’s $56,000.

Often too poor to own cars, these residents rely on transit to get around. And the transit system, in turn, relies on that customer base. Northeastern University research showed that most transit users are low-income people of color and immigrants. In Chinatown, immigrants make up 91 percent of the adult population.

So getting around wasn’t a concern for Chinatown residents—until the city proposed a transit-oriented development plan in 2007. The Cornfield Arroyo Seco Specific Plan changed parking and building regulations to design streets where bicyclists, pedestrians, and transit riders could coexist. This satisfied environmentalists who wanted to see better transportation planning, but it worried Chinatown residents who didn’t want to get displaced by development. The Northeastern University research showed that housing prices in 42 neighborhoods in 12 metro areas around the country rose after similar projects.

Sissy Trinh and her colleagues at the Southeast Asian Community Alliance campaigned to address these concerns—and won. The final text of the plan required any development to include affordable housing units for “extremely low-income households,” defined as a four-person household earning $25,600 or less, which didn’t qualify for affordable housing before.

Now, Chinatown’s core transit users, its poor, won’t be replaced by newcomers who typically choose to drive (emitting more greenhouse gases). Trinh explained that when core users abandon transit lines, transit agencies tend to cut service, further encouraging car use. And with the loss of transit also comes the loss of job opportunities for poor residents.

Chinatown, meanwhile, has piqued the interest of surrounding neighborhoods: The Alliance for Community Transit is campaigning to use Chinatown as a model of equitable transportation for all of Los Angeles. —Yessenia Funes
What Leaving Fossil Fuels Behind Can Do For Inequality

Yessenia Funes

Our lifestyle is inextricably linked to fossil fuels. We pay the industry to heat our homes and power our cars. Though driving might be optional where public transit is available, heat is not during harsh winters. We know about the effects on the climate of burning oil, gas, and coal for energy, but we don’t know what turning our backs on them will do to our economy. Some worry that closing our oil refineries and shutting down our mines would throw the market into a dangerous vortex. That doesn’t need to be the case. A successful energy transition could actually benefit the economy and reduce inequality.
The economy relies on a number of things, including spending, manufacturing, trade, and personal income. The availability of fossil fuels has largely driven these for 150 years. “[Oil] is the world’s first trillion-dollar industry in terms of annual dollar sales,” environmental author Jack Doyle wrote in 1994. In North Dakota, a major oil- and gas-producing state, an oil boom created the $53.7 billion gross domestic product the state sees today.

But booms often have downsides. When the journal *Energy Economics* compared six states that produced the vast majority of the West’s crude oil and natural gas, it saw per capita income decrease by as much as $7,000 more financial pressures to an already stressed group.

What about jobs? Extractive industries currently employ nearly 200,000 Americans and pay some employees as much as $42.90 an hour. These jobs are a valid concern. The U.S. unemployment rate is finally down to about 5 percent. Surely we don’t want all those people put out of work.

That won’t happen if we launch the renewable energy sector in sync. Economists at the University of Massachusetts Amherst’s Political Economy Research Institute (PERI) have studied this topic since the early 2000s. Their research shows how a transition to renewables can lead to a post-carbon world and a fairer economy.

Robert Pollin, PERI’s co-director, began researching green job opportunities about seven years ago. In 2014, he and a few of his colleagues released *Green Growth: A U.S. Program for Controlling Climate Change and Expanding Job Opportunities*, which looked at the economic potential of a renewable energy sector if the United States worked toward the emissions-reduction goal that the Intergovernmental Panel on Climate Change has proposed. This means reducing CO2 emissions by 40 percent over the next 20 years.

According to PERI, a renewable energy transition would be chock-full of jobs—about 2.7 million new ones. Pollin is quick to point out that these jobs wouldn’t require any more public or private investment dollars, as the model the report used looked at moving current fossil-fuel investments toward renewables.

This is just one part of the equation. A transition toward clean energy would also create more new jobs than dirty energy currently does. Comparing the two sectors, *Green Growth* shows that renewables create an average of 12.6 jobs per $1 million in investment. Oil, coal, and gas, on the other hand, average about 10.6.

The study highlights that a transition should include energy efficiency, too. The labor necessary to retrofit and improve infrastructure would add another 14.6 jobs per $1 million in investment. And coupling the transition with energy efficiency updates would address a concern we see with fossil fuels and renewables: that communities lacking these energy sources would miss out on jobs. Not all communities are rich in sun, wind, or oil, but every U.S. community is poor in efficient infrastructure.

The transition away from fossil fuels would offer a wide range of jobs, Pollin explained. There will be something for people with and without high school diplomas, those who have partial college educations or college degrees, and some with post-college credentials. This means more engineers, more construction workers, more lawyers, and more truck drivers. Building the green economy requires more people per dollar of expenditure than maintaining the fossil fuel economy, he said.

Labor-intensive employment sectors, like renewables, can decrease inequality by creating employment opportunities for the poor. The fossil fuel industry, on the other hand, invests
more on machines and tools than hiring employees.

Robin Hahnel, a director of the Economics for Equity and the Environment Network, says the job market needs a huge transformation: a program similar to President Franklin D. Roosevelt’s New Deal, a series of federal programs that created jobs and labor laws during the Great Depression.

As seen with the New Deal, economic success isn’t just about the jobs; it’s about the policies that accompany them, too. An energy transition would help our economy, but it wouldn’t necessarily reduce poverty or inequality. At least not by itself.

That’s where James Boyce, PERI’s director of its Program on Development, Peacebuilding, and the Environment, comes in. His economic research focuses on poverty reduction and environmental protection, and has led him to support a cap-and-dividend program. Like cap and trade, this sets an annually decreasing limit to the amount of carbon companies that use carbon-based fuel can emit. It then requires those companies to purchase permits to match their emissions. But, unlike cap and trade, these permits can’t be exchanged if an emitter reaches its limit. The dividends—collected from the sales of the permits—are given back to the people as rebates. Every man, woman, and child.

Critics say that the policy isn’t aggressive enough, that we would still be emitting. They also say cap and dividend doesn’t provide incentives to move toward renewables. To that, Boyce responds: “Cap and dividend would raise the price of oil, coal, and natural gas. As prices go up, households and businesses consume less. The fact of higher prices, and the knowledge that prices will rise further as the cap tightens, is the key incentive that will spur investment in renewables and energy efficiency.”

These higher prices would be offset by the dividends, so people are more likely to accept the idea. These people include politicians. Bipartisan support is critical. “Climate policy is not something you can pass one fine day, and then the problem is solved,” Boyce explains. “We’re going to have to maintain the policy in place for three or four decades during the clean energy transition, and that means it has to be popular, right?”

The idea should be most popular among low-income households. Even though increased energy costs would take a larger portion of their income compared to high-earning households, Boyce’s research shows low-income households ultimately win. The poor consume much less energy than the rich, so once the dividends are distributed, they would see a nearly 15 percent increase in their net incomes. The net incomes of the rich would decrease by 2.4 percent because of their higher energy consumption. This is according to a model Boyce created, where the permits cost $200 per ton of emissions.

Ideas similar to cap and dividend are gaining traction in states like Oregon and on the federal level with bills like the Healthy Climate and Family Security Act of 2015 and the Managed Carbon Price Act of 2014. Alaska already has a dividend program, which pays residents yearly, based on oil extraction in the state.

So—about oil: This is where environmentalists and workers sometimes disagree. What will happen to people already employed by oil and gas? How would a renewable energy transition be more equal if it disproportionately affects the current energy sector?

Well, let’s make it a just transition. Jeremy Brecher co-founded the Labor Network for Sustainability in 2009 with that transition in mind. He recognized that environmentalists and fossil fuel industry workers could solve climate change and inequality working together, but not if they treated one another as opposition.

“Any job is important if it is your job,” Brecher emphasizes. If fossil fuel employees feel their livelihood is being threatened, they’ll likely “serve as poster children for people who oppose climate protection for other reasons.” They’ll support the renewable energy revolution’s millions of new jobs as long as they get first dibs.

President Barack Obama apparently sees that logic. He included a $55 million plan for declining coal communities in his 2016 budget. The POWER (Partnerships for Opportunity and Workforce and Economic Revitalization) Plan invests in workers, communities, and their health. Funding is devoted to increasing job opportunities through training and cleanup of hazardous sites for communities to redevelop.

This is the sort of policy Brecher approves of. However, he would like to see a program go as far as the GI Bill of Rights, with employees eligible for full wages and benefits for at least three years, education and training expenses (including tuition and living) for up to four years, and decent pensions with health care for those ready to retire.

“That’s where it’s due. Justice made it into the national political agenda. That’s something. That’s what it all boils down to: justice. New jobs mean little if they don’t bring a newfound commitment to justice as well. Sure, our economy would thrive, but if the transition isn’t accompanied by policy to include everyone, we’re back where we started.”

Yessenia Funes is an assistant editor at YES! Magazine. A New York native, she covers inequality, poverty, and climate justice. Follow her on Twitter @yessfun.
**JUST THE FACTS**

Peter Kalmus

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**EACH DAY, AMERICANS CONSUME 3.5 GALLONS OF PETROLEUM PER PERSON.**

Petroleum products consumed in 2014 as fraction of crude oil

<table>
<thead>
<tr>
<th>Product</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jet fuel</td>
<td>8%</td>
</tr>
<tr>
<td>Liquified petroleum gases</td>
<td>13%</td>
</tr>
<tr>
<td>Fuel oil</td>
<td>22%</td>
</tr>
<tr>
<td>Gasoline</td>
<td>47%</td>
</tr>
<tr>
<td>Still gas</td>
<td>4%</td>
</tr>
<tr>
<td>Asphalt and road oil</td>
<td>2%</td>
</tr>
<tr>
<td>Naptha</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
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5 Petroleum Products Deeply Entwined With Modern Life

- Asphalt and roofing
- Medicines and antiseptics
- Lubricating oils
- Agricultural pesticides
- Rubber tires and shoe soles

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5 Petroleum Products We Could Easily Do Without

- Food colorings and waxes
- Artificial fragrances
- Body care products
- Fleece, nylon, and vinyl textiles
- Single-use plastic

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Ingredient “Poloxamer 407” in some toothpastes.

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Research by Peter Kalmus

Source: U.S. Energy Information Administration

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WITHOUT FOSSIL FUELS, A NEW POPULATION PUZZLE

Laurie Mazur

How many people can the Earth support? It’s a question that’s been asked for centuries, generating wildly divergent answers—from less than a billion to more than a trillion. Today, the question arises with new urgency as we contemplate life after oil.

Perhaps the best answer comes from Joel Cohen of Rockefeller University, in his aptly titled *How Many People Can the Earth Support?* It’s an exhaustively researched 532-page book, but his conclusion can be summarized in two words: It depends.

That is, the planet’s capacity to sustain human life depends on how resources are used and distributed and on the values and social structures that shape the way we live.

Take food, for example. The number of mouths we can feed depends on what’s for dinner. If all of the world’s people ate like carnivorous Americans—1,763 pounds of grain each per year, some eaten directly, but most fed to livestock—then the 2-billion-ton world grain harvest would support only 2.5 billion people. That’s a problem, since there are now 7.4 billion of us. But if we all ate like people in India—a mostly vegetarian diet of just 440 pounds of grain per person each year—then the same harvest would support a population of 10 billion.

Certainly, there is some elasticity in the planet’s carrying capacity; better, fairer resource use could help expand it. But, in a world where fossil fuels were in short supply, that capacity would likely contract.

Again, consider food. In recent decades, food production has more than kept pace with skyrocketing population growth, partly thanks to mechanization and cheap oil. Indeed, modern agriculture is so dependent on fossil fuels that the food we eat is practically “marinated in crude oil,” says environmental activist Bill McKibben. The vast quantity of oil required to maintain Western consumption is at least partially to blame for its leading per capita carbon footprint. Reductions in the oil supply would curtail food production—at least in the short term.

Shortages of natural gas would also make it harder to synthesize nitrogen fertilizer, which has helped triple crop yields since 1950. Vaclav Smil of the University of Manitoba told *The New York Times* that, without nitrogen fertilizer, there would not be enough food for 40 percent of the world’s current (much less future) population.

And that’s without considering climate change, which could dramatically reduce crop yields in many parts of the world at a time when global food production must increase by 70 percent to keep pace with current trajectories of growth and consumption.

So, how many people can the Earth support? The fact is, we just don’t know. But, given the uncertain supply of fossil fuels and the grim realities of climate change, it makes sense to aim for the low end of the United Nations’ population projections—about 9 billion people, rather than 13 billion—by the end of this century.

The good news is that we actually know how to do this. A half-century of experience has shown that the best way to slow population growth is by ensuring that all people can make real choices about childbearing. That means, for example, ensuring access to voluntary family planning services, educating girls, and providing opportunities for women.

We may not know how many people the Earth can support, or what will happen in a world of dwindling fossil fuels and a changing climate. But we do know this: The best means to slow population growth are also important ends in themselves. And together, they can help build a sustainable, equitable future.

Laurie Mazur is the editor for the Island Press Urban Resilience Project and has written extensively about environment, health, and social justice issues.
How Far Can We Get Without Flying?

Peter Kalmus

I’m a climate scientist who doesn’t fly. I try to avoid burning fossil fuels, because it’s clear that doing so causes real harm to humans and to nonhumans, today and far into the future. I don’t like harming others, so I don’t fly. Back in 2010, though, I was awash in cognitive dissonance. My awareness of global warming had risen to a fever pitch, but I hadn’t yet made real changes to my daily life. This disconnect made me feel panicked and disempowered.

Then one evening in 2011, I gathered my utility bills and did some Internet research. I looked up the amounts of carbon dioxide emitted by burning a gallon of gasoline and a therm (about 100 cubic feet) of natural gas, I found an estimate for emissions from producing the food for a typical American diet and an estimate for generating a kilowatt-hour of electricity in California, and I averaged the Intergovernmental Panel on Climate Change and Environmental Protection Agency estimates for CO2 emissions per mile from flying. With these data, I made a basic pie chart of my personal greenhouse gas emissions for 2010.

This picture came as a surprise. I’d assumed that electricity and driving were my largest sources of emissions. Instead, it turned out that the 50,000 miles I’d flown that year (two international and half a dozen domestic flights, typical for postdocs in the sciences who are expected to attend conferences and meetings) utterly dominated my emissions.

Hour for hour, there’s no better way to warm the planet than to fly in a plane. If you fly coach from Los Angeles to Paris and back, you’ve just emitted 3 tons of CO2 into the atmosphere, 10 times what an average Kenyan emits in an entire year. Flying first class doubles these numbers.

However, the total climate impact of planes is likely two to three times greater than the impact from the CO2 emissions alone. This is because planes emit mono-nitrogen oxides into the upper troposphere, form contrails, and seed cirrus clouds with aerosols from fuel combustion. These three effects enhance warming in the short term. (Note that the charts in this article exclude these effects.)

Given the high climate impact, why is it that so many environmentalists still choose to fly so much? I know climate activists who fly a hundred thousand miles per year. I know scientists who fly about as much but “just don’t think about it.” I even have a friend who blogged on the importance of bringing reusable water bottles on flights in order to pre-empt the miniature disposable bottles of water the attendants hand out. Although she saved around 0.04 kilograms of CO2 by refusing the disposable bottle, her flight to Asia emitted more than 4,000 kilograms, equivalent to some 100,000 bottles. I suspect that most people simply don’t know the huge impact of their flying—but I also suspect that many of us are addicted to it. We’ve come to see flying as an inalienable right, a benefit of 21st-century living that we take for granted.

The author’s emissions in 2010: 19,000 kg CO2-equivalent
Total excludes the small amount of new stuff he purchased during the year and his share in public infrastructure such as roads.
The quantitative estimates of my emissions guided me as I set about resolving the dissonance between my principles and my actions. I began to change my daily life. I began to change myself.

My first change was to start bicycling. I began by biking the 6 miles to work, which turned out to be much more fun than driving (and about as fast). It felt like flying. Those extra few pounds melted off. Statistically speaking, I can expect biking to add a year to my life through reduced risk of cardiovascular disease.

Other moves away from fossil fuels turned out to be satisfying as well. I began growing food, first in the backyard and then in the front, and I discovered that homegrown food tastes far better than anything you can buy. I began composting, an honest and philosophical practice. I tried vegetarianism and found that I prefer it to eating meat; I have more energy, and food somehow tastes better. I began keeping bees and chickens, planting fruit trees, rescuing discarded food, reusing greywater, and helping others in my community do the same.

I stopped taking food, water, air, fuel, electricity, clothing, community, and biodiversity for granted. I became grateful for every moment and more aware of how my thoughts and actions in this moment connect to other moments and to other beings. I began to experience that everyday things are miracles: an avocado, a frame of honeycomb crowded with bees, a conversation with my son. Now, I feel more connected to the world around me, and I see that fossil fuels actually stood in the way of realizing those connections. If you take one idea from this article, let it be this: Life without fossil fuels is fun and satisfying, and this is the best reason to change.

But none of these changes had the quantitative impact of quitting flying. By 2013, my annual emissions had fallen well below the global mean.

I experienced a lot of social pressure to fly, so it took me three years to quit. Not flying for vacations was relatively easy. I live in California, and my wife and I love backpacking. We drive on waste vegetable oil, but even normal cars are better than flying. Four people on a plane produce 10 to 20 times as much CO2 as those same people driving a 25 to 50 mpg car the same distance.

My wife and I drive 2,000 veggie oil miles to Illinois each year to visit our parents. Along the way, we sleep under the stars in the Utah wilderness. This is adventure travel, the opposite of fast travel, and it has deepened my relationship with my parents. After such a journey, I more easily see how precious my time with them is.

Not flying is an ongoing challenge as I progress in my scientific career, but I’m finding that I can thrive by doing good work and making the most of regional conferences and teleconferencing. Not flying does hold back my career to some extent, but I accept this, and I expect the social climate to change as more scientists stop flying.

In today’s world, we’re still socially rewarded for burning fossil fuels. We equate frequent flying with success; we rack up our “miles.” This is backward: Burning fossil fuels does real harm to the biosphere, to our children, and to countless generations—and it should, therefore, be regarded as socially unacceptable.

In the post-carbon future, it’s unlikely that there will be commercial plane travel on today’s scale. Biofuel is currently the only petroleum substitute suitable for commercial flight. In practice, this means waste vegetable oil, but there isn’t enough to go around.

In 2010, the world produced 216 million gallons of jet fuel per day but only about half as much vegetable oil, much of which is eaten; leftover oil from fryers is already in high demand. This suggests that even if we were to squash our limited biofuel on planes, only the ultra-rich would be able to afford them.

Instead, chances are that we’ll live nearer to our friends and loved ones, and we won’t be expected to travel so far for work. Those both seem like good things to me.

With the world population approaching 8 billion, my reduction obviously can’t solve global warming. But by changing ourselves in more than merely incremental ways, I believe we contribute to opening social and political space for large-scale change. We tell a new story by changing how we live. 

Dr. Peter Kalmus is an atmospheric scientist at NASA’s Jet Propulsion Laboratory (speaking on his own behalf) and a contributing editor for YES! Magazine. This article draws on material from a forthcoming book about our interconnected ecological predicament. A working draft is available to read at http://becycling.life.
Putting Down Roots

Moving away from your hometown widens your carbon footprint—most notably by setting you and family members up for frequent travel. It also separates you from the support of friends and relatives.

So it may be promising that the percentage of Americans moving away from their home counties is at its lowest point since the U.S. Census Bureau started keeping track in 1948. Economists say this is one effect of the recession: a decline in the number of people who move for better jobs or to buy homes.

Staying put is an easy decision if you’re from a thriving city where employers and amenities abound. But what if your hometown isn’t thriving?

George Holland, the mayor of Moorhead, Mississippi, knows something about that. He was raised on a farm 3 miles east of Moorhead, where his parents worked as sharecroppers—meaning they got paid in cotton instead of money. Holland says he often missed school so he could work in the fields. Meanwhile, Mississippi was ground zero for the civil rights movement, and racial violence was erupting all over the state.

In 1967, when Holland was 18, he decided to leave. He settled in St. Louis, found work as a union truck driver, and raised three children.

He stayed there for 40 years until, he said, he felt a spiritual calling to return to Moorhead, where the county has a poverty rate of more than 36 percent and the mostly African-American population is barely holding on. Yet Holland is determined to make sure that younger generations don’t have to leave like he did.

“This is a great place to live or retire—or for a young family,” says the 66-year-old Holland. “That’s why we want to build it. After we finish school, we don’t have to go off to Chicago or Missouri or wherever. We can stay right here in our hometown and make a living.”

In 2009, Holland ran for mayor and won. Since then, he’s fought hard to make Moorhead a place people don’t need to escape. He transformed an abandoned downtown building into a historical museum and store, helped bring a credit union to town when a commercial bank closed its local branch, and got a grant to install streetlights on the road between the community college and downtown. —James Trimarco

Mayor George Holland returned to his hometown of Moorhead, Mississippi, after 40 years away.

We’ll Have to Live More Regionally. Like This.
In the time after, the buffalo come home. At first only a few,
shaking snow off their shoulders as they pass from mountain to plain. Big bulls
sweep away snowpack to the soft grass beneath; big cows attend to and protect their young. The young themselves delight, like the young everywhere, in the newness of everything they see, smell, taste, touch, and feel.

Wolves follow the buffalo, as do mallards, gadwalls, blue-winged teal, northern shovelers, northern pintails, redheads, canvasbacks, and tundra swans. Prairie dogs come home, bringing with them the rain, and bringing with them ferrets, foxes,
hawks, eagles, snakes, and badgers. With all of these come meadowlarks and red-winged blackbirds. With all of these come the tall and short grasses. With these come the prairies.

In the time after, the salmon come home, swimming over broken dams to forests that have never forgotten the feeling of millions of fish turning their rivers black and roiling, filling the rivers so full that sunlight does not reach the bottom of even shallow streams. In the time after, the forests remember a feeling they’ve never forgotten, of embracing these fish that are as much a part of these forests as are cedars and spruce and bobcats and bears.

In the time after, the beavers come home, bringing with them caddisflies and dragonflies, bringing with them ponds and pools and wetlands, bringing home frogs, newts, and fish. Beavers build and build, and restore and restore, working hard to unmake the damage that was done, and to remake forests and rivers and streams and marshes into what they once were, into what they need to be, into what they will be again.

In the time after, plants save the world. In the time after, the oceans are filled with fish, with forests of kelp and communities of coral. In the time after, the air is full with the steamy breath of whales, and the shores are laden with the hard shells and patient, ageless eyes of sea turtles. Seals haul out on sea ice, and polar bears hunt them.

In the time after, buffalo bring back prairies by being buffalo, and prairies bring back buffalo by being prairies. Salmon bring back forests by being salmon, and forests bring back salmon by being forests. Cell by cell, leaf by leaf, limb by limb, prairie and forest and marsh and ocean by prairie and forest and marsh and ocean; they bring the carbon home, burying it in the ground, holding it in their bodies. They do what they have done before and what they will do again.

The time after is a time of magic. Not the magic of parlor tricks, not the magic of smoke and mirrors, distractions that point one’s attention away from the real action. No, this magic is the real action. This magic is the embodied intelligence of the world and its members. This magic is the rough skin of sharks without which they would not swim so fast, so powerfully. This magic is the long tongues of butterflies and the flowers that welcome them. This magic is the brilliance of fruits and berries that grow to be eaten by those that then distribute their seeds along with the nutrients necessary for new growth. This magic is the work of fungi that join trees and mammals and bacteria to create a forest. This magic is the billions of beings in a handful of soil. This magic is the billions of beings that live inside you, that make it possible for you to live.

In the time before, the world was resilient, beautiful, and strong. It happened through the magic of blood flowing through capillaries, and the magic of tiny seeds turning into giant redwoods, and the magic of long relationships between rivers and mountains, and the magic of complex dances between all members of natural communities. It took life and death, and the gifts of the dead, forfeited to the living, to make the world strong.

In the time after, this is understood. In the time after, there is sorrow for those who did not make it: passenger pigeons, great auks, dodos, striped rocksnails, Charles Island tortoises, Steller’s sea cows, Darling Downs hopping mice, Guam flying foxes, Saudi gazelle, sea mink, Caspian tigers, quaggas, laughing owls, St. Helena olives, Cape Verde giant skinks, silver trout, Galapagos amaranths.

But in those humans and nonhumans who survive, there is another feeling, emerging from below and beyond and around and through this sorrow. In the time after, those still alive begin to feel something almost none have felt before, something that everything felt long, long ago. What those who come in the time after feel is a sense of realistic optimism, a sense that things will turn out all right, a sense that life, which so desperately wants to continue, will endure, will thrive. We, living now, in the time before, have choices. We can remember what it is to be animals on this planet and remember and understand what it is to live and die such that our lives and deaths help make the world stronger. We can live and die such that we make possible a time after where life flourishes, where buffalo can come home, and the same for salmon and prairie dogs and prairies and forests and carbon and rivers and mountains.

Derrick Jensen is a poet, philosopher, and environmentalist. He is the author of more than 20 books, including most recently The Myth of Human Supremacy.
RETROFITTING SUBURBIA

Can Wyandanch, Long Island, show other outside-the-city communities how to innovate their way out of sprawl?

Erin Sagen

The suburbs have lost a lot of luster in the past 70 years. What was once hailed as a refreshing alternative to the grittiness of city living has been tugged and pulled and paved into a series of brownfields and vacant parking lots that stretch for miles and miles. Public planners have been predicting “the end of suburbia” for at least a decade now, saying that peak oil will starve out those towns and subdivisions that subsist on sprawl.

Saddled with traffic congestion and infrastructural erosion, can suburbia be retrofitted into a sustainable model of development and adapt to a post-oil world?

When they emerged 150 years ago, suburban developments sat on the peripheries of cities like New York and allured the wealthy, who commuted by train to enjoy fresh air and privacy. Suburban train stations brimmed with activity and fed commercial centers around them. But when the automobile rolled off factory floors in the 1910s, it quickly seduced an eager public and transformed suburban downtowns built around the trains. Car ownership exploded, the concept of the suburban downtown disappeared, and Americans designed new communities around driving.

Today, the cost of that so-called freedom is clear: Suburbanites have twice the carbon footprint as city dwellers; they spend more on housing and transportation combined; and they’re more likely to struggle with obesity or die in car crashes. These realities paint a far
less rosy picture than the days of early commuters. But today an enthusiastic network of designers, city planners, lawmakers, and longtime locals are envisioning a new era for suburbia.

Transportation, specifically automobile traffic, is the most important reason to retrofit, because it directly impacts public health, affordability, and climate change, says Ellen Dunham-Jones, professor of architecture at Georgia Tech and co-author of Retrofitting Suburbia. Between 1990 and 2013, the number of people who drove to work alone increased by 25 million, and, in 2013, highway vehicles used 83.2 percent of total transportation energy, with personal vehicles accounting for 71.1 percent, according to the Bureau of Transportation Statistics.

“Development is pushing us farther and farther out, sometimes 10 to 12 miles outside a city. Savings get eaten up,” Dunham-Jones says. “Transit helps people walk more, and they spend less money. But [in the suburbs], those people who can’t commute—who can’t afford rising gas prices and car expenses—are out of luck because there’s limited access to transit.”

Most of this hasn’t eluded city-flocking millennials—almost two-thirds would prefer to live where driving is optional—or has it eluded more than half the country—54 percent of adults say it is too far to walk to shopping and entertainment, and 50 percent say that walkability is a top or high priority, according to a 2015 report by the Urban Land Institute.

But people live in the suburbs for many different reasons, despite the negative effects of sprawl. For one, rent is generally cheaper than in increasingly gentrified cities, especially in commercial centers; and two, it’s more spacious and closer to nature.

Because so many people, both young and old, value walkability, communities must invest in smarter, denser infrastructure, Dunham-Jones says. How ironic, then, that the future of suburban development seems to be pointing backward—to the pre-auto-mobile, train-based model.

The birthplace of modern suburbia is Long Island, New York, where the first mass-produced suburb, Levittown, started it all. Twenty minutes away in the town of Babylon lies a hamlet called Wyandanch. Conduct an Internet search, and you’ll come across a pretty bleak scene there—stories of gang violence, poverty (13.4 percent), and unemployment (12.2 percent) run down the screen. But Wyandanch is more than a small, distressed suburb where even a McDonald’s had to shutter. After all, it has a train station.

The train ride from downtown Wyandanch to Manhattan is only 50 minutes long. That is an incredible asset, says former Babylon Township Supervisor Steve Bellone, because it allows lower- and middle-income residents to work in the city but live in the suburbs, thereby financing their communities and bolstering their local economies.

Bellone had worked with community groups, and knew that, despite its boarded-up buildings and deadened parking lots, Wyandanch had a lot to offer. But he knew they couldn’t wait for private investors to swoop in and save the day.

“The only way to make this successful is to get the community involved,” says Bellone, whose team partnered with nonprofit Sustainable Long Island to kick off a three-day weekend of meetings and workshops with residents, planners, and local government officials.

After years of losing their younger residents to Brooklyn or Manhattan, dynamic places with walkability and abundant transit, the community concluded that what they needed was an affordable, transit-oriented downtown. The transformation would center around their train station, which required major upgrading. The 19th century septic system begged for some serious attention too. So with a low-interest federal loan and a state grant, in 2011 the community began construction on a 2-mile-long sewer line, with hopes of eventually attracting more investment. The sewer was step one in a plan called “Wyandanch Rising.” The $500 million project is backed by federal funds, state tax credits, grants, and low-cost financing and is expected to enhance the original business district, which dried up years ago.

Today, construction of the new train station is almost finished. Next door, ground has been broken on Wyandanch Village, a pair of five-story mixed-use buildings that will house 177 apartments, from studios to three bedrooms—123 reserved for lower-income tenants. The ground-floor commercial spaces will be no larger than 5,000 square feet each to discourage big-box stores, according to Sustainable Long Island’s website.

There’s still a long way to go—retrofitting doesn’t fix poverty or gang violence overnight—but there is hope.

“We’ll gain the benefits eventually,” says longtime local Phyllis Henry.

She’s lived in Wyandanch for 43 years and has been actively involved with community development for much of that time. “But people are excited. It’s come a long way, it really has. It’s not just developing the brick and mortar, but also the people.”

Bellone says he wants to see a community where innovation doesn’t push people out but lifts them up. Whether Wyandanch can retrofit itself into a model of equitable and sustainable suburban development is uncertain, but one thing is sure: A new era has been born, and driving it is no longer the car but the community. Soon, rather than “the end of suburbia,” planners may be predicting “the end of sprawl.”

Erin Sagen is an associate editor at YES! Magazine. She lives in Seattle and writes about food, health, and suburban sustainability. Follow her on Twitter @erin_sagen.
Every morning before the dawn, I awake to the acidic smell of fire and metal. It clings to my skin and hair; it seeps from my pores as I labor. It follows me to bed like an obedient lover and caresses me as I sleep.

In the dark, I dress in rough linen with rough hands. I go out into the rough air that lies heavy with salt. My sinews snap against simple movements as I warm the smelter, my skin still cracking and oozing with fresh burns from yesterday’s work, opening anew against the strain of the day’s demands. Sometimes it is cookware, sometimes some part to a greater machine; always an endless list of demands. It is hard work, but good work.

The city had been born in oil, and the city had died with it, leaving us to work among the remains—the monstrous skeletons of the refineries long still and silent. The empty echoing of a world gone.

And still we build.
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Fran Korten, Publisher

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When I asked my 12-year-old son to watch a documentary with me, he declined politely even before I said the film’s name or theme. He declined more formally when I told him it was about masculinity, but I made him watch *The Mask You Live In*, anyway. I lay on my bed with a pen and notepad, while he lay in the opposite direction with a pillow mashed beneath his chin, presumably to keep his head propped up should he begin to nod off. The YouTube trailer, viewed well over 4 million times, had knotted my heart. It showed boys intently staring into the camera, against an audio collage of men saying things like, “stop with the tears,” “stop with the emotions,” “don’t cry,” “man up.” A product of The Representation Project—the same filmmakers who created a 2011 documentary, *Miss Representation*, about the gender messages given to girls—*The Mask You Live In* appeared to have potential. I wanted to watch the film and talk to my son about it.

*The Mask You Live In*, it turns out, didn’t present many new ideas about manhood and masculinity, but it did stir up assorted memories, images, and opinions. I came away thinking of the masks I’ve experienced, myself—masks I’ve worn, and masks I’ve faced.

Now that I am older, I can imagine the weakness my father saw in me. I was afraid of dogs of all sizes; I was afraid of deep water; I was afraid of girls; I was just as afraid of boys my own age as I was of boys who were older; and I was afraid of my father. When he carried me out to the deep end at the Fort Jackson resident pool, I knotted my ropy arms and legs around him and after a few attempts, he gave up trying to unknot them. My father wore a mask, but even as a small boy I believed he was a good man for wearing it. It was the mask of patience—a mask I sometimes read as disappointment. It was the mask of stoicism—a mask I sometimes read as detachment. When the dogs, big or small, came barking, he lifted me away from them. When I wept in his presence, he waited quietly until I ceased. Not once did he snap, “Be a man.” But I always thought he was thinking it.

I know some parents and grandparents let their children call them by their first names. One of my childhood friends still calls his father Daddy. When I am home, I still call my father Sir and my mother Ma’am. My father retired from the Army after 25 years, and has been a prison guard now for nearly 20. Before any visit home, I remind my son of how they are to be addressed.

Sometimes I imagine my son talking to his mother in long, textured sentences. My wife tells me he talks considerably more when I’m not around. The mothers in *The Mask You Live In* recall the gentleness of their sons and the various changes their sons underwent navigating the masculine world. The fathers are mostly absent. The one young black father who is raising his 5- or 6-year-old son alone smiles hard throughout his scenes. He seems filled with either oblivious joy or plain old obliviousness. The tough and/or distant and/or alcoholic and/or abusive fathers are absent but frequently recalled. I wonder if, when my son is a man, he will recall the various ways I was absent.
So Many Masks
To “Be a Man”

Terrance Hayes

The documentary follows boys and young men as they struggle to negotiate Americans’ narrow definition of masculinity. National Book Award-winning poet Terrance Hayes writes about the day he watched it with his son.
The Mask You Live In
Directed by Jennifer Siebel Newsom, 2015, 97 min.

Terrance Hayes is the Pittsburgh-based author of several books. His most recent, How To Be Drawn, was a finalist for the 2015 National Book Award.

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What’s Wrong With This Picture?

To tell the real story of female friendship, we must leave behind familiar areas of Western history and literature.

Rachel Vorona Cote

have long been fascinated by female friendship. My favorite authors are those who embrace the subject in all its unwieldy, precious complexity: Charlotte Brontë, Audre Lorde, Elena Ferrante. But—perhaps as a means of self-preservation—I am chronically slow to understand how my passions are fundamentally self-interested. Loving women, I realize, has never merely been for me a natural inclination, but rather an urge tied up in life-sustaining necessity. I define myself through my love of women, and yet I’ve never been capable of grasping why this is the case.

And so I have turned to books in hopes that I would locate my impulses within them. Why have I always needed not just to cultivate relationships with other women but to actively love them, to seek the deep intimacy that I do? When I learned of The Social Sex: A History of Female Friendship, I was hopeful that the book might serve up the answers to these self-involved inquiries. But as I read, I found myself less and less invested in this question.
It is true that authors Marilyn Yalom and Theresa Donovan Brown deliver precisely the narrative of female intimacy that I should, as a middle-class white woman, find comfortably relatable. The book provides a Western-focused survey of familiar plot points from history and literature: the Bible and the Greeks (i.e., honorary white people) and then a warm amble through cozy tales of middle- and upper-class feminine comradeship, with a long linger in the 19th century. The circumstances surrounding the friendships Yalom and Brown explore often called to mind my own, historical differences notwithstanding. Even the book’s cover—four comely white ladies, bobbed and well-dressed—beamed at me with welcoming same-ness. My blinkered expectations were confirmed; I had found a narrative mirror. But I was not satiated so much as unsettled.

About a year ago, I began an essay series exploring different fictional female friendships, ones that have lingered in the cultural consciousness or are especially popular now. And each time I contemplate the subjects of the next installment, I am struck, though not necessarily surprised, by the overwhelming white heteronormativity of our most cherished fictional companions: Anne Shirley and Diana Barry from *Anne of Green Gables*; Angela Chase and Rayanne Graff from *My So-Called Life*; Daria Morgendorffer and Jane Lane from MTV’s *Daria*. For the sake of page views, I have more than once chosen to write my column on white cis women like the ones I have mentioned (indeed, I launched my column with an essay about Daria and Jane). It is not so much that I assume my readership is white and middle-class—indeed, I hope not—but I am making a dangerous and biased assumption that people would rather read essays about more widely known fictional female friends regardless of their skin color. Though I may sigh, hem, and haw, my resignation nonetheless signals complicity.

Yalom and Brown yield similarly in the face of a white-dominant archive. The book’s most glaring issue, as other reviewers have noted, is the near-erasure of nonwhite experience from its study. I have no room to condemn them, and indeed I do not. But the expansiveness of their study casts in sharp relief the injustice committed by those of us who write about female friendship when we seek only to understand ourselves as echoes of a white, middle-class past.

Throughout the book, Yalom and Brown implicitly yearn for coherence in female relationships and, through demonstrating that coherence, seek to posit female friendship as an institution of its own. But it does so at the expense of women who lacked the privilege to make themselves heard. “Look at the many ways we have always been the same,” they seem to remind us throughout the text. And so it’s true: Women have loved one another, held one another for thousands of years. But in 2016, and in our current sociopolitical climate, is it productive to focus on white women’s sameness across history? I argue no. We have tarried too long on this path, and the impact has been pernicious.

Of course there is comfort in understanding one’s tendencies as knit into a long historical or literary tapestry. As a girl, my mentors in female companionship were authors Lucy Maud Montgomery and Charlotte Brontë. I relished the way Montgomery’s Anne Shirley and Diana Barry created a world of their own through the passionate fusion of their imaginations. I longed to love and be loved like Jane Eyre and Helen Burns and was inconsolable when death wedged itself between them.
IN SHORT ::
Music inspiring us

Tuff Ruff
Mikael Seifu

Unless you live in Addis Ababa, Ethiopia, where you can listen to Mikael Seifu DJing weekly, only an EP and a limited number of singles are available to mesmerize you with Seifu’s sound. He occupies a unique place in electronic music, a genre dominated by American and European artists, fusing the spirit of traditional Ethiopian music with Western underground-electronic sound qualities. Seifu hopes to stretch the global reach of electronic music by inserting East Africa into the mix. Listen to his single “Tuff Ruff” for a sample of what Seifu brings to global ears.

Rachel Vorona Cote is a writer in Washington, D.C. She contributes regularly at Jezebel and has also written for a variety of other venues like Pacific Standard, the Los Angeles Review of Books, and The Rumpus. She is currently working on a book about women’s mental health and its connection with emotional “excess.”

Split
Tashi Dorji and Marisa Anderson

Listening to Split is like hearing two sides of the same American landscape. On the album, Tashi Dorji, a Bhutanese guitarist who lives in Asheville, North Carolina, and Marisa Anderson, of Portland, Oregon, each play a 16-minute side of solo guitar. Dorji’s tranquil rhythms are overlaid with offbeat, spontaneous strumming and quick slides up and down the strings, while Anderson’s musings are contemplative and melodic, accompanied by soothing fuzz from her electric guitar. A sequential listen offers a yin-and-yang perspective and a fresh take on the resonant power of the guitar’s place in American musical history.

—Keith Barbalato

The Social Sex: A History of Female Friendship
Marilyn Yalom and Theresa Donovan Brown

Harper Perennial, 400 pages

In familiar corners, appeased by the reflection that so much of Western history and literature provides to privileged white American women.

Indeed, there are so many histories of female intimacy that demand visibility in America alone. I think not only of Audre Lorde’s biomythography Zami: A New Spelling of My Name, but also of other women writers of color whose stories were suppressed until archival research made it possible for us to learn about them. “Just like the rest of us,” we might be inclined to say—and here is where we must pause. To seek commonalities with others can be a productive exercise in empathy, but empathy can also function as the mask of fear and self-centeredness. I wish Yalom and Brown had challenged us more to dwell in differences, had placated us less with antiseptic comparisons. I wish they had written about women whose lives and cultures are not respected and celebrated within a Western context.

For in a globe half-populated by women, we must be willing to encounter interpersonal relationships that are not immediately legible to us—that, in my case, will not necessarily draw nods of recognition from my readers. Even the history of the Western world offers far more opportunities for engagement with difference than we are typically willing to pursue. Yalom and Brown might have undertaken a more intersectional approach: writing about the relationships of slave women, say, rather than casually making reference to them. American Indians are only referenced as eroticized (male) threats who appeared unannounced in pioneer women’s kitchens. To so bluntly whitewash a history when we are every day confronted with heterogeneity suggests to me something desperate and fearful, a yearning for tidiness where there can and should be none.

Instead, let’s seek out the narratives that make us squirm without revising them to be more palatable. Let’s honor the so-frequent frustrations of history: its incoherence, its multitude of bodies that still do not understand how to share a planet. Histories of the Western world tell us nothing if they serve only to reassure us of imaginary homogeneity and the joys found in mutuality.

So then, what sorts of histories of female friendship do we need? To some degree, the answer is simple: histories far more self-aware of their dark underbellies and willing to lay them bare. If we are to continue writing Western histories, we must forgo the desire for pleasurable, predictable narratives. Indeed, better we cease writing them altogether and rigorously revise the ones that have skewed our vision for too long.
Eat to Boost Immunity

Keeping a healthy immune system is always important, especially during colder months when we’re often indoors, in closer contact with germs. The link between strong immunity and nutritional intake is clear: More whole foods, fewer processed foods, and a balanced intake of essential vitamins and minerals can keep you, and the people around you, from getting sick.

Find these micronutrients in a food near you:

Research and text by Keith Barbalato
Illustrations by Jennifer Luxton

VITAMIN D

WHAT IT IS: A nutrient that fosters production of the proteins that break down the cell membranes of bacteria and strengthens cells that maintain immunity for the body. Deficiency can increase infection, while healthy doses are believed to prevent autoimmune diseases.

WHERE TO GET IT: Sunshine, milk, mushrooms, and oily fish such as salmon, tuna, and herring.

DID YOU KNOW? Vitamin D is the only vitamin with its own Twitter account: @VitaminDCouncil.

VITAMIN A

WHAT IT IS: Fat-soluble compounds vital to the normal functioning of many immune cells including antibody generation and cellular reproduction; plays a crucial role in maintaining the health of your skin and mucous membranes, which act as the first lines of defense against infections.

WHERE TO GET IT: Animal livers, dark greens, and orange and yellow vegetables such as carrots and sweet potatoes.

DID YOU KNOW? It is possible to get too much vitamin A. Overdose, known as hypervitaminosis A, can cause nausea, vomiting, and dry skin. This was a common problem for Arctic explorers whose subsistence diet included seal and polar bear livers.
PROBIOTICS

WHAT IT IS: Bacteria for your digestive track that stimulate the production of antibodies and T cells and help cells communicate as they fight off infections.
WHERE TO GET IT: Yogurt. Check labels for “contains active/live cultures.” Also kimchi, kombucha, and other fermented foods.
DID YOU KNOW? In contrast to antibiotics, which means “life-killing” in the Greek etymology, probiotics means “for life” because they are organisms that stimulate growth for other substances.

VITAMIN E

WHAT IT IS: An essential antioxidant helping protect cell membranes from atoms that damage cells.
WHERE TO GET IT: Fatty foods such as seeds, nuts, and oils. Add sunflower seeds—one of the best sources—to salads, yogurt, or stir-fries.
DID YOU KNOW? Studies show that 90 percent of Americans don’t meet the recommended daily value for vitamin E.
CULTURE SHIFT

COMMENTARY :: Nyasha Laing

HOW TO CARRY FORWARD LESSONS FROM THE CIVIL RIGHTS PAST

Last September, at the 75th anniversary alumni reunion for the late Thurgood Marshall's NAACP Legal Defense and Educational Fund (LDF), former Director-Counsel Elaine Jones asked the gathering of civil rights attorneys if they were up to the task of building a new racial justice movement. Her call moved me—a lawyer turned writer and NGO consultant who had once turned down an internship at LDF to focus on repaying school debt.

Later in the evening, Jones told me one of her many stories. Once, in 1973, she found herself locked in a jail room for two hours with more than 40 male inmates whom she had come to counsel on resentencing. Jones feared for her safety but averted panic by focusing on what the prisoners had to say. This experience cemented her role of helping clients most in need. It reminded her that her calling was also a choice.

Marian Wright Edelman, founder of the Children's Defense Fund, had learned this a decade before when tapped by LDF to run its Mississippi office. Days after winning her first desegregation case, her plaintiffs' names were tacked up on a telegraph pole. They were forced off their plantation with no income, said Edelman.

Edelman and Jones were part of the vanguard of a quest for justice—one that a newer, younger cadre continues today. Since the 1970s, “critical race theory” scholars such as Derrick Bell and Michelle Alexander have inspired a generation seeking to dismantle systemic racial bias and navigate an increasingly sophisticated architecture of political and judicial opposition. Their writings inspired Justin Hansford to become a law professor.

But it was not until his arrest during protests in Ferguson, Missouri, that Hansford felt truly connected to a broader movement. “Ferguson was a moment,” he said. “As a young lawyer of color, you want to fight for this community.”

By working directly with organizers, lawyers “can actually be a part of the avenue of that movement,” said Hansford. Still, there is a void in leadership, meager training in social justice lawyering, and not much passage of the baton. Other young attorneys agree, saying that this and the adversarial nature of litigation turned them away. But with a resurgence of protest, there is hope for what Edelman calls “a new transforming movement” that is broader and more strategic than before.

This movement will require elite professionals to fit within a broader paradigm for social change, said Purvi Shah, director of the Bertha Justice Institute. To lead well, she added, we must explore how to work collaboratively, along with how the law relates to “social movements, the emotion and trauma of what’s happening.”

Colette Pichon Battle learned this on the ground. A New Orleans native, she was working a corporate job in Washington, D.C., when Hurricane Katrina hit. Her return home to work for the Gulf Coast Center for Law and Policy radicalized her and brought her closer to understanding the lawyer’s role in the community. Battle described herself as a “child of the civil rights era” who studied how its leaders perfected the strategic art of litigation, but this foundation was not enough to prepare her, she said. Her work to achieve justice exposed her to “some real political education.” Later, in environmental lawsuits to recover damages after the BP oil spill, Battle learned through a human rights lens to place the interests of poor black Louisianans at the forefront.

Leading well, it seems, requires a personal resolve and a selflessness that brings Elaine Jones to mind. As leaders, “we need you to actually love it and put your body on the line,” said Battle.

Battle’s mentor, Jaribu Hill, echoed this message when she appeared on a panel at a Law for Black Lives conference last July. “Take your sheepskins off!” she commanded, as the room erupted into cheers. I felt more ready than ever when I rose to my feet, in solidarity with the sum of our different paths.

Nyasha Laing is a lawyer, writer, and champion of social inclusion. She lives in New Rochelle, New York.
Why does a No! guy like me read YES! Magazine?

We are in a desperate place. There’s a lot we need to say “No!” to. In the middle of all that are opportunities to change in deep and meaningful ways. When we say “No!” to business as usual, then we say “Yes!” to a different way of doing things. And that different way is starting to emerge—the things YES! Magazine has been writing about for years, the things YES! has worked so hard to make happen.

Bill McKibben
Author, Activist, and YES! Contributing Editor