

CHANGE IS OUR CHOICE

CREATING CLIMATE SOLUTIONS



Northwest
Earth Institute
DISCOVER CHANGE, TOGETHER.

CHANGE IS OUR CHOICE

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Please contact us at contact@nwei.org if you have any questions. We'd love to hear from you!

Best regards,
Lacy Cagle, Curriculum Director,
and the NW Earth Institute Staff

D I S C U S S I O N C O U R S E O N

CHANGE IS OUR CHOICE: CREATING CLIMATE SOLUTIONS



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By



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CONTENTS

ABOUT THIS CURRICULUM	5
GUIDELINES	7
EVALUATION	9
INTRODUCTION	11
SESSION 1: CONNECTING TO THE SYSTEM	13
Video: Climate Science: What You Need to Know	15
Key Terms	15
Video: What We Know: Marshall Shepherd Interview	16
“Don’t Look Away Now: The Climate Crisis Needs You” by Naomi Klein	16
Video: Temperature Data 1880-2011	18
Video: Time History of Atmospheric Carbon Dioxide	19
“A Systems Thinking Model: The Iceberg”	22
“Sources of Greenhouse Gas Emissions”	23
“To Save the Future, Live in the Present” by Wendell Berry	25
Action Plan: Carbon Footprint Exercise	28
SESSION 2: THE CLIMATE OF DENIAL	29
Video: Why People Don’t Believe in Climate Science	32
“Why We All Believe Our Own Favorite Experts” by Chris Mooney	32
“How to Find Common Ground in the Bitter Climate Debate” by Yale Environment 360 Editors	34
“How to Judge an Argument about Climate Change” by Mike Berners-Lee	38
Action Plan: SMART Goals	40
SESSION 3: THE LOCAL-GLOBAL MOVEMENT	41
“Global Warming Solutions: Prepare for Impact” by Union of Concerned Scientists	43
“Why Climate Change Is a Human Rights Violation” by Janani Balasubramanian	45
“Gulf Coast Activists Band Together to Fight Climate Change and Extractive Industries” by Adam Federman	47
“Nebraska’s Community-Owned Energy” by Thomas Hanna	48
“Meet the Lobstermen Arrested for Blocking a Coal Freighter” by Natasha Donovan	50
“How to Be Hopeful” by Barbara Kingsolver	52
Action Plan: Outline Actionable Items	54

SESSION 4: CHANGE IS OUR CHOICE	55
Video: UN Climate Summit Poem “Dear Matafele Peinem”	57
“How Will Everything Change Under Climate Change?” by Naomi	57
“Cities Designed Like Ecosystems Offer Untold Gains” by Denis Hayes	62
“Five Big Considerations for the U.S. As Climate Change Sweeps the Globe” by John Light and Charina Nadura.	63
“Financial Statement “ by Reed McManus	66
“Get Intersectional! (Or, Why Your Movement Can’t Go It Alone)” by Kristin Moe	68
“Ways to Reduce Your Carbon Footprint”	71
“Placing Yourself” by Alex Steffen and Edward C. Wolf	73
Action Plan: Implement	76
SESSION 5: CONNECT, REFLECT, ACT	77
ENDNOTES	79
BECOME A MEMBER	80
PERMISSIONS	81

ABOUT THIS CURRICULUM

NW Earth Institute (www.nwei.org) was founded in 1993 with a simple objective: to give people a framework to talk about our relationship with the planet and to share in discovering new ways to live, work, create and consume. It turns out that within that simple objective is a recipe for powerful change. Over 160,000 people (and counting!) worldwide have discovered powerful change in their own lives through NWEI's discussion course programs and our annual EcoChallenge.

Lacy Cagle (Editor) is the Director of Learning and Engagement at NW Earth Institute, where she oversees the development of NWEI's discussion courses and other educational programs. She holds a MS in Educational Leadership and Policy with a focus on Leadership in Sustainability Education from Portland State University. Lacy is the Executive Director of the Zahniser Institute of Environmental Studies. She enjoys exploring her city by bike, gardening, cooking and playing trivia in St. Louis, Missouri.



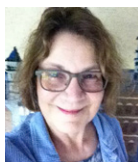
CURRICULUM COMMITTEE

This discussion course would not exist without the expertise and time volunteered by the people on our curriculum committee. NWEI would like to offer sincere and deep appreciation for the many hours of time they collectively invested in this project.

Ashley Johns (Curriculum Intern) is working on her Master's degree in Global Sustainability at Webster University in St. Louis, MO. She likes to volunteer in her free time and serves on the Young Friends Board of Brightside St. Louis and as a board member of the Bi-State Pet Food Pantry. She has two cats that she adores, likes to read, and goes to zumba class every chance she gets.



Margaret Parker (Layout Editor) is a freelance graphic artist in Portland, Oregon. She says that after taking several NWEI courses that were "life-changing," she jumped at the opportunity to be involved in the creation of NWEI course books. Margaret is a native of the Pacific Northwest, spent a year in Poland, and has lived in Portland for the past 11 years.



Lee Benson (Cover Designer) is a freelance graphic designer living in Portland, Oregon. After obtaining a Bachelor's degree in Film & Digital Media, he moved to Portland to study design, earning an AAS at Portland Community College. Since graduating, he has been sole proprietor of City Limit Design. He enjoys working with local non-profits that work to improve quality of life. In his spare time, he enjoys crafting cocktails, riding his bike and watching classic movies.



Tara Alatorre is a freelance journalist based in Arizona. Her work focuses on sustainability issues affecting the American Southwest, specializing in water, mining, and wildlife topics. She was the first-student-ever to receive a minor from Arizona State University's Global Institute of Sustainability while earning her Bachelor's in Journalism. She considers herself a scientist whisperer; putting meaning and context to important scientific works and data through clear and concise journalism. Her hobbies include hiking, dogs, traveling, and studying the craft of fermentation.



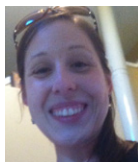
Sam Baraso is the technical lead at the Willamette Partnership (Oregon) where he adapts protocols and models for both the Partnership's biodiversity and water quality programs. Sam has managed the development of endangered species mitigation programs, adaptation of nutrient models for water quality, and exploration of new ecosystem service markets. With a background in finance and ecology, he brings an interdisciplinary perspective to the challenges of environmental management. Sam has a Masters in environmental management from the Nicholas School at Duke University and an undergraduate in finance from Washington University.



Lynette Cagle is a retired elementary school teacher and lifelong learner. Although she got roped into this work by her daughter, she enjoys it thoroughly and plans to use what she has learned through this course to gently persuade her friends and family to act on climate change. A Midwestern transplant from the Deep South, she currently lives with her husband Larry in Marion, Illinois.



Sharon Delcambre, PhD, is an atmospheric scientist living in Portland, OR. Her interests include community-based sustainability, regional climate impacts, and urban farming. Sharon is a jet stream expert, teacher, and volunteer at NW Earth Institute. She is inspired by people who thoughtfully articulate and then act out their beliefs. Follow her on Twitter @SharonDelcam.



Michelle Gabrieloff-Parish is the Energy & Climate Justice Manager at the University of Colorado Boulder's Environmental Center, where she manages a variety of energy, water, climate and equity-centered projects and services with student staff. She also recently launched and co-facilitates an "Eco-Social Justice Leadership Program" for students. She is a former US State Department BoldFood fellow and a former Center for Progressive Leadership fellow. Her favorite ecological term is "ecotome" (or ecotone), an especially diverse area where different ecological communities meet and overlap. Michelle is a multi-ethnic writer, project instigator, budding permaculturist, wife and mother of three.



Lawrence Jennings (GreenFaith '14) has worked in community development and organizing for more than three decades. These efforts led to a heightened awareness of the inter-connectedness, magnitude, and moral and scientific urgency of the environmental crisis. As a native New Yorker and a Mennonite, his work is rooted in a commitment to non-violence and creation care, and he now is actively engaged as a consultant and speaker on these topics. A member of the Thomas Berry Forum for Ecological Dialogue, he was one of the key organizers of the People's Climate March faith contingent, and works closely with faith communities and inner city and "frontline" groups that often are overlooked or excluded. He authored the Open Letter from African American clergy on Climate Change as part of the "Our Voices" campaign.



Nancy King Smith lives in Shaker Heights, a suburb of Cleveland, Ohio, and is active locally and nationally with Unitarian Universalist Ministry for Earth. Before retiring in 2005, she was Executive Director of the Nature Center at Shaker Lakes, and prior to that, Executive Director of the Cleveland Children's Museum. She is involved with community issues with Sustainable Cleveland 2019 and serves on the Shaker Heights Climate Change Task Force.



Rod MacDow was an Encore Fellow at NW Earth Institute in 2013-14, shortly after retiring from a career in high-tech. He has a deep interest in climate science and has been working with other Encore Fellows to amplify the impact of local environmental sustainability and climate change groups in the Northwest.



Jeremy Mohr is Director of Ecova's Energy & Sustainability Analytics, where he leads the Ecova's carbon management consulting and energy analytics organization. He is a LEED Accredited Professional whose background includes business and product development, strategic consulting, climate action planning, and a construction management career during which he led and supported the delivery of over \$150M of complex, commercial construction projects. Jeremy holds an MS in Mechanical Engineering from the Joint Institute for Advancement of Flight Sciences—a joint program between NASA and The George Washington University, and an MS in Carbon Management from the University of Edinburgh.



Lena Rotenberg, MS, LLB, MEd, is a Brazilian-born physicist turned educator turned community activist who moved from São Paulo to the US at age 33. She currently lives in Keedysville, Maryland, and has been involved with the NW Earth Institute for more than a decade. She is currently very involved in developing Valley Co-op, a local food cooperative in the outskirts of Hagerstown, MD.



Betty Shelley has been a NW Earth Institute volunteer since 1994. During that time, she has served on numerous discussion course curriculum committees. Betty often tells people, "NWEI has changed my life." She is a Master Recycler and a Recycling Information Specialist for Metro Regional Government in Portland, Oregon. She and her husband have produced just one 35-gallon can of garbage per year since 2006. Betty teaches "Less Is More" classes in the Portland area.



Mike Winslow retired from the corporate and legal profession in 2010, having the good fortune to enjoy 30 plus years of interesting work and delightful people. Since then he has been actively pursuing his passions for painting and Tibetan Buddhism, as well as hanging out in his home in southern Colorado and engaging in some memorable adventure travel (like kayaking the southern coast of Crete). He is married to a wonderful woman, Darcy, and together they have a remarkable son and two precious grandsons. Mike is on the board of NW Earth Institute and is chairman of the board for the Forest Park Conservancy. He'd like anyone not from the Portland area to know that Forest Park is a sparkling jewel that inspires us all.





GUIDELINES

FOR THE FACILITATOR, OPENER AND NOTETAKER

This discussion course is designed to be much more than a reader. We've put a lot of thought and time into designing this course as a guide for transformative learning.

When you break big issues into bite-sized pieces, and talk through them with people you trust, you discover insights and inspiration that's hard to find alone. You learn, together. You build a personal network of shared stories and support that makes it easy to take action. In short, you become part of a community for change.

Below you will find guidelines for three roles needed for each session of this course: the facilitator, the opener and the notetaker. For each session of this course, one participant brings an "opening," a second participant facilitates the discussion, and a third participant takes notes on each person's commitment to action. The roles rotate each week with a different group member doing the opening, facilitating and notetaking. This process is at the core of NW Earth Institute culture — it assumes we gain our greatest insights through self-discovery, promoting discussion among equals with no teacher. Learn more about organizing a NW Earth Institute discussion course at www.nwei.org/get-started.



FOR THE SESSION FACILITATOR

As facilitator, your role is to stimulate and moderate the discussion. You do not need to be an expert or the most knowledgeable person about the topic. Your role is to:

- Remind the designated person ahead of time to bring an opening.
- Begin and end on time.
- Ask the questions included in each chapter, or your own. The circle question is designed to get everyone's voice in the room-- be sure to start the discussion with it and that everyone answers it briefly without interruption or comment from other participants.
- Make sure your group has time to talk about their commitments to action — it is a positive way to end each gathering.
- Keep discussion focused on the session's topic. a delicate balance is best — don't force the group into the questions, but don't allow the discussion to drift too far.
- Manage the group process, using the guidelines below:
 - A primary goal is for everyone to participate and to learn from themselves and each other. Draw out quiet participants by creating an opportunity for each person to contribute. Don't let one or two people dominate the discussion. Thank them for their opinions and then ask another person to share.

Be an active listener. You need to hear and understand what people say if you are to guide the discussion effectively. Model this for others.

The focus should be on personal reactions to the readings — on personal values, feelings, and experiences.

The course is not for judging others' responses.

Consensus is not a goal.

- The facilitator should ensure that the action item discussion:
- allows each person’s action item to be discussed for 1-2 minutes;
 - remains non-judgmental and non-prescriptive;
 - focuses on encouraging fellow group members in their commitments and actions.

FOR THE SESSION OPENER

Bring a short opening, not more than a couple of minutes. It should be something meaningful to you, or that expresses your personal appreciation for the natural world. Examples: a short personal story, an object or photograph that has special meaning, a poem, a visualization, etc. We encourage you to have fun and be creative.

The purpose of the opening is twofold. First, it provides a transition from other activities of the day into the group

discussion. Second, since the opening is personal, it allows the group to get better acquainted with you. This aspect of the course can be very rewarding.

FOR THE NOTETAKER

At the end of each session, each participant will commit to one action item they will complete before the next meeting. They will share their action with the group, and it is your responsibility as notetaker to record each person’s commitment to action.

Each week the notetaker role will rotate. During the portion of discussion focused on action items, the notetaker from the previous meeting will read aloud each person’s action item, and group members will have the opportunity to share their successes and struggles in implementing their actions. The new notetaker for that week will then record each person’s commitment for the next meeting.

COURSE SCHEDULE FOR CHANGE IS OUR CHOICE: CREATING CLIMATE SOLUTIONS

This course schedule may be useful to keep track of meeting dates and of when you will be facilitating or providing the opening.

Course Coordinator : _____ Contact Info : _____

Location for Future Meetings : _____

SESSION	DATE	OPENER	FACILITATOR	NOTETAKER
Connecting to the System	_____	_____	_____	_____
The Climate of Denial	_____	_____	_____	_____
The Global-Local Movement	_____	_____	_____	_____
Change is Our Choice	_____	_____	_____	_____
Connect, Reflect, Act	_____	_____	_____	_____

CHANGE IS OUR CHOICE : CREATING CLIMATE SOLUTIONS

EVALUATION

You can choose to print out this evaluation or complete it online at www.nwei.org/evaluations

PART 1. PLEASE FILL OUT WEEKLY. Rate the five sessions.

	POOR CHOICE ----- EXCELLENT					COMMENTS:
1. Connecting to the System	1	2	3	4	5	
2. The Climate of Denial	1	2	3	4	5	
3. The Local-Global Movement	1	2	3	4	5	
4. Change is Our Choice	1	2	3	4	5	
5. Connect, Reflect, Act	1	2	3	4	5	

Were the following articles helpful? Circle "Y" if we should use the article next time or "N" if we should look for better reading material. Leave blank if you didn't read it or have no opinion.

COMMENTS:

1. Connecting to the System

Video: Climate Science: What You Need to Know Y N
 Key Terms Y N
 Video: What We Know: Marshall Shepherd Interview Y N
 Don't Look Away Now: The Climate Crisis Needs You. Y N
 The Iceberg: A Systems Thinking Model Y N
 To Save the Future, Live in the Present Y N
 Action Plan: Find Your Carbon Footprint. Y N

2. The Climate of Denial

Video: Why People Don't Believe in Climate Science. Y N
 Why We All Believe Our Own Favorite Experts Y N
 How to Find Common Ground in the Bitter Climate Debate .. Y N
 How to Judge an Argument about Climate Change Y N
 Action Plan: Brainstorm Possible Actions Y N

3. The Global-Local Movement

Global Warming Solutions: Prepare for Impact. Y N
 Why Climate Change Is a Human Rights Violation Y N
 Gulf Coast Activists Band Together Y N
 Nebraska's Community-Owned Energy Y N
 Meet the Lobstermen Arrested for
 Blockading a Coal Freighter. Y N
 How to Be Hopeful. Y N
 Action Plan: SMART Goals Y N

COMMENTS:

4. Change Is Our Choice

Video: UN Climate Summit Poem “Dear Matafele Peinem” ..	Y	N
How Will Everything Change Under Climate Change?	Y	N
Cities Designed Like Ecosystems	Y	N
Five Big Considerations for the US	Y	N
Financial Statement	Y	N
Get Intersectional	Y	N
Ways to Reduce Your Carbon Footprint	Y	N
Placing Yourself.....	Y	N
Action Plan: Timeline	Y	N

5. Connect, Reflect, ActY N

PART 2. PLEASE COMPLETE AT END OF COURSE.

Has the course made a difference in your life? Yes No Please describe what actions you are taking or you plan to take in response to this course. _____

What has been the most valuable aspect of this course? _____

Please list other articles or books that should be included in the course. Identify chapter(s)/page(s) and the session where they should be included. _____

Complete your evaluation online at www.nwei.org/evaluations, or send your completed evaluation via email to contact@nwei.org or via snail mail to NWEI, 107 SE Washington St., Suite 240, Portland, OR 97214.
Thank you for your participation!



INTRODUCTION

The release of the film *An Inconvenient Truth* in 2006 might be the best cultural marker of broad public understanding and engagement in climate change in the U.S. Many who viewed *An Inconvenient Truth* for the first time were blown away by the clear and urgent way in which Al Gore presented scientific data about global warming. His choice of words, his engaging presentation, the gravity of the situation he presented — the entire film was well-designed to inspire action. When Mr. Gore did present his call to action, though, many were underwhelmed — “you just told me the planet is on the precipice of devastation, so I need to change my lightbulbs?!”

The truth is, even if everyone in the world who has access to electricity changed their incandescent lightbulbs to LEDs today, we wouldn’t come close to reducing our carbon emissions enough to stop climate change. Climate change is here. It’s happening now. It will continue to happen, at least for a while, even if we stop emitting carbon this very moment. Our lifestyles are not only a contributing factor, but the root cause, despite what many politicians and talking heads would have us believe.

These are terrifying truths.

But here is another, more powerful truth: big changes start with small steps.

To run a marathon, you have to get up off the couch, put on your running shoes, and take the first step. Then you take the next step, and the next step, and the next. Changing

your lightbulbs won’t change the world if that’s also where you stop. But it’s a good place to start, a first step to bigger things.

Those of us hoping for real solutions often despair at the unnecessary political gridlock and the lack of traction for widespread solutions. But there is reason to hope: many ordinary citizens desire to make positive change in their daily lives, in their communities, and in the world at large. Yes, climate change is already happening. Yes, it is getting worse. But people working together to take action can find real solutions.

The choice is ours — take action now or react to even larger systemic problems later. *Change Is Our Choice* will help you and your community to do just that — take action in your own lives to increase resilience and mitigate the impacts of climate change.

“Hope is a verb with its sleeves rolled up. In contrast to optimism or despair, hope requires that one actually do something to improve the world. Authentic hope comes with an imperative to act. There is no such thing as passive hope.”

— David Orr, introduction to *Hope Is an Imperative: The Essential David Orr*

Change Is Our Choice is an interactive ebook, and includes video and web content, as well as ways to connect with other participants online and lots of opportunities to dive deeper into the subject matter with links to resources. We're excited to offer you this dynamic and interactive multimedia course experience.

Before you sit down to "read" the first session of *Change Is Our Choice*, here are some tips to ensure that you get the most out of the content:

- You'll notice that "read" is in quotes — that's because starting with the first session, you'll be doing some reading but also watching some videos, completing your personal action plan and viewing images too. Since you'll be interacting with the content in multiple ways, we recommend that you find a comfortable spot and use your technology of choice, ensuring that you can both read the text pieces and view videos. Since you'll be viewing some short videos, you'll need to make sure you're set up to hear the audio and that you're in a location where you can hear easily and not disturb others.
- Uberflip is the platform we use for publishing our ebooks. The most interactive experience will be possible using the Uberflip links, but you can also choose to download a PDF version of the course book if you'll be reading it

without internet access. Be sure to come back and watch the videos when you have an internet connection though; the video content is as important to the discussions as the text.

- If your group is meeting in a location with internet access, you can just pull up your copy of the ebook in Uberflip for reference during your sessions. If you don't have internet access while you're meeting, you might want to download a PDF copy to have with you on your tablet or computer during the meeting.
- Keep track of your action plans. You can download and print each action plan from the ebook, or you can find each action plan at www.nwei.org/change-is-our-choice-resources/.

Change Is Our Choice is designed for those who already have at least a general understanding of climate change and who want to take action in their own lives and communities. If you aren't familiar with the science of climate change, review some of the recommended resources below before the first session.

Thanks for participating in this course with us. We hope it will help you roll your sleeves up and get started taking action toward a better tomorrow.

— Lacy Cagle, *Editor and Director of Learning*

BEFORE YOU BEGIN

This course is designed for those who already have at least a very general understanding of climate change and who want to take action in their own lives and communities. For those who do not have a good framework on climate change or need a refresher, we recommend the following resources. They can also be found on our website at www.nwei.org/change-is-our-choice-resources/.

- Climate Change 101 video: www.smithsonianmag.com/videos/category/3play_1/climate-change-101-with-bill-nye-the-science/?no-ist
- Any of the episodes from the Green Ninja series (<http://greenninja.org/gn-academy/>), particularly episodes 3 and 4:
 - Episode 3: www.youtube.com/watch?v=NIqJzpXiFfA
 - Episode 4: www.youtube.com/watch?v=705PebbB77E
- Bill McKibben's powerful Rolling Stone article: www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719?page=5
- *Global Weirdness* by Climate Central, published 2012 by Pantheon Books.



CONNECTING TO THE SYSTEM

All we can do to prepare rightly for tomorrow is to do the right thing today.

— WENDELL BERRY

LEARNING OUTCOMES

- Get to know each other and plan for future meetings.
- Review basics about climate change and systems thinking.
- Explore your feelings about climate change.
- Start considering how climate change affects your local community and how your local community affects climate change.

ABOUT THIS SESSION

The first session of this discussion course serves as an introduction: both to introduce everyone to each other if you don't know each other already, and to get everyone on the same page about terms and basic understandings

of climate change. You'll start your action plan by finding out your carbon footprint and brainstorming ways to take action personally and locally. Additionally, this session serves as a way to "give you permission" to explore the often complex and difficult feelings people have about climate change in a safe and supportive space.



SUGGESTED GROUP ACTIVITY: YOUR CARBON FOOTPRINT

After you find your carbon footprint for your Action Plan this week, share your results with your group. How are your results similar? How are they different? Share strategies for reducing your carbon footprints. Consider how you can work together to reduce your collective footprints — be creative and think outside the box!

Circle Question

How does learning about climate change and its impacts make you feel? What do you worry about or fear?

Reminder to the facilitator: The circle question should move quickly. Elicit an answer from each participant without questions or comments from others. The facilitator's guidelines are on page 7.

DISCUSSION QUESTIONS

1. Why do you care about taking action on climate change? Why are you taking this course?
2. How do you address your own feelings of concern, fear or despair about climate change?
3. When it comes to addressing or adapting to climate change, what do you have hope for?
4. Marshall Shephard brings in his personal story and concern for his children in his interview. Does this feel like a powerful strategy to you? How could you incorporate your story into your communications/conversations about climate change?
5. What are your thoughts about Naomi Klein's assertion that if we the people decide that climate change is a crisis, the political class will have to respond? Do you agree with her that if climate change was treated as a true planetary emergency, it could become a "galvanising force for humanity?"
6. Which industries, policies and/or practices in your region contribute to climate change?
7. Wendell Berry introduces the idea of doing things "Nature's Way." What are some of nature's ways that could help us stop the degradation of Earth and all its peoples?
8. In some respects, authors Naomi Klein and Wendell Berry take completely opposite approaches to addressing climate change in their articles — Berry opts for local and a focus on doing good in the present; Klein prefers to focus on the future and the big, big

picture of radically changing society as we know it. Do you think these approaches are mutually exclusive? Explain the appeal of one or both of them.



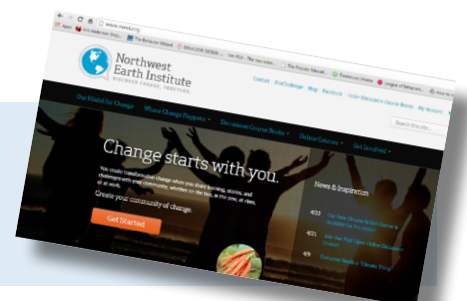
PUTTING IT INTO PRACTICE

Consider how you can apply what you learned in Session One to your own life right now, today or this week. Putting one thing into practice each week helps you feel empowered to make larger change and inspires new ideas for your Action Plan. Here are some categories and suggestions to get you started.

- ☐ **Transportation.** I will use a lower carbon form of transportation when commuting to work or running errands this week. Examples include: walking to the local market or the library, carpooling or taking the bus to work, biking to dinner or to get ice cream.
- ☐ **Water.** Where does my water come from? I will find out information about my watershed and any issues that threaten it.
- ☐ **Energy.** I will wash my clothes using cold water and/or air dry them.
- ☐ **Waste.** I will take my reusable water bottle and/or coffee cup with me wherever I go this week — and remember to use it!
- ☐ **Food.** Using the Environmental Working Group's Meat Eater's Guide (www.ewg.org/meateatersguide/eat-smart/), I will choose proteins this week that have less impact on the planet.
- ☐ **Connection.** I will watch one hour less of Netflix this week and will instead play a game with my family/roommates/friends.

ADDITIONAL RESOURCES

Interested in finding out more about the topics presented in this session?
Please visit www.nwei.org/resources for suggested resources.





WATCH THIS VIDEO!

Climate Science: What You Need to Know

<https://www.youtube.com/watch?v=ffjlyms1BX4>

DEFINITIONS

- **Anthropogenic Climate Change** is the scientifically observed rise in the average temperature of the Earth's climate system caused by human activity and its related effects. In scientific literature, **global warming** refers to rising surface temperature, while **climate change** includes global warming and everything else affected by increasing concentrations of greenhouse gases. Popularly, the terms are used interchangeably to refer to climate change.
- The **Greenhouse Effect** is the process by which heat radiated from the Earth's surface is absorbed by greenhouse gases in the atmosphere. This process is necessary to keep Earth life-sustaining. However, human activity (primarily the burning of fossil fuels) in the past few centuries has increased the amount of greenhouse gases in our atmosphere and has intensified the greenhouse effect.
- **Greenhouse Gases** are gases that absorb infrared radiation in the Earth's atmosphere, and are the primary source of the greenhouse effect. There are many greenhouse gases in our atmosphere, including water vapor, carbon dioxide, methane and nitrous oxide. Some occur naturally and some are produced or released by human activity. The burning of fossil fuels has substantially increased the concentration of carbon dioxide (CO₂) in the atmosphere.
- **Climate Models** simulate the interactions of Earth's systems (like atmosphere, oceans, ice and land surface) using quantitative data and computer modelling. Climate models help scientists study the dynamics of the climate system and make projections of future climate.
- A **Carbon Footprint** is the measure of a subject's impact on the planet based upon amount of carbon dioxide (or other combined greenhouse gases) emissions. Carbon footprint calculators estimate the tons of carbon dioxide (and/or other greenhouse gases) emitted by a particular person, business, product, event or activity.
- **Low-carbon** items or activities emit a minimal amount of greenhouse gases in their production, use and/or disposal.
- **Mitigation vs Adaptation:** Mitigation is the act of reducing the force, intensity or severity of something. When discussing climate change, mitigation refers to ways in which we can lessen the negative impacts of climate change. **Adaptation** is becoming adjusted to new conditions. In the climate change discussion, adaptation refers to transforming culture and/or developing new technologies to adjust to climate change's negative impacts.



DON'T LOOK AWAY NOW; THE CLIMATE CRISIS NEEDS YOU

By Naomi Klein

A voice came over the intercom: would the passengers of Flight 3935, scheduled to depart Washington DC, for Charleston, South Carolina, kindly collect their carry-on luggage and get off the plane. They went down the stairs and gathered on the hot tarmac. There they saw something unusual: the wheels of the US Airways jet had sunk into the black pavement as if it were wet cement. The wheels were

lodged so deep, in fact, that the truck that came to tow the plane away couldn't pry it loose. The airline had hoped that without the added weight of the flight's 35 passengers, the aircraft would be light enough to pull. It wasn't. Someone posted a picture: "Why is my flight cancelled? Because DC is so damn hot that our plane sank four inches into the pavement."

Eventually, a larger, more powerful vehicle was brought in to tow the plane and this time it worked; the plane finally took off, three hours behind schedule. A spokesperson for the airline blamed the incident on "very unusual temperatures."

The temperatures in the summer of 2012 were indeed unusually hot. (As they were the year before and the year after.) And it's no mystery why this has been happening: the profligate burning of fossil fuels, the very thing that US Airways was bound and determined to do despite the inconvenience presented by a melting tarmac. This irony — the fact that the burning of fossil fuels is so radically changing our climate that it is getting in the way of our capacity to burn fossil fuels — did not stop the passengers of Flight 3935 from re-embarking and continuing their journeys. Nor was climate change mentioned in any of the major news coverage of the incident.

I am in no position to judge these passengers. All of us who live high consumer lifestyles, wherever we happen to reside, are, metaphorically, passengers on Flight 3935. Faced with a crisis that threatens our survival as a species, our entire culture is continuing to do the very thing that caused the crisis, only with an extra dose of elbow grease



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behind it. Like the airline bringing in a truck with a more powerful engine to tow that plane, the global economy is upping the ante from conventional sources of fossil fuels to even dirtier and more dangerous versions — bitumen from the Alberta tar sands, oil from deepwater drilling, gas from hydraulic fracturing (fracking), coal from detonated mountains, and so on.

Meanwhile, each supercharged natural disaster produces new irony laden snapshots of a climate increasingly inhospitable to the very industries most responsible for its warming. Like the 2013 historic floods in Calgary that forced the head offices of the oil companies mining the Alberta tar sands to go dark and send their employees home, while a train carrying flammable petroleum products teetered on the edge of a disintegrating rail bridge. Or the drought that hit the Mississippi river one year earlier, pushing water levels so low that barges loaded with oil and coal were unable to move for days, while they waited for the Army Corps of Engineers to dredge a channel (they had to appropriate funds allocated to rebuild from the previous year's historic flooding along the same waterway). Or the coal-fired power plants in other parts of the country that were temporarily shut down because the waterways that they draw on to cool their machinery were either too hot or too dry (or, in some cases, both).

Living with this kind of cognitive dissonance is simply part of being alive in this jarring moment in history, when a crisis we have been studiously ignoring is hitting us in the face — and yet we are doubling down on the stuff that is causing the crisis in the first place.

I denied climate change for longer than I care to admit. I knew it was happening, sure. Not like Donald Trump and the Tea Partiers going on about how the continued existence of winter proves it's all a hoax. But I stayed pretty hazy on the details and only skimmed most of the news stories, especially the really scary ones. I told myself the science was too complicated and that the environmentalists were dealing with it. And I continued to behave as if there was nothing wrong with the shiny card in my wallet attesting to my "elite" frequent flyer status.

A great many of us engage in this kind of climate change denial. We look for a split second and then we look away. Or we look but then turn it into a joke ("more signs of the Apocalypse!"). Which is another way of looking away. Or we look but tell ourselves comforting stories about how humans are clever and will come up with a technological miracle that will safely suck the carbon out of the skies or magically turn down the heat of the sun. Which, I was to discover while researching this book, is yet another way of looking away.

Or we look but try to be hyper-rational about it ("dollar for dollar it's more efficient to focus on economic development than climate change, since wealth is the best

protection from weather extremes") — as if having a few more dollars will make much difference when your city is underwater. Or we look but tell ourselves we are too busy to care about something so distant and abstract — even though we saw the water in the subways in New York City during Superstorm Sandy, and the people on their rooftops in New Orleans after Hurricane Katrina, and know that no one is safe, the most vulnerable least of all. And though perfectly understandable, this too is a way of looking away.

Or we look but tell ourselves that all we can do is focus on ourselves. Meditate and shop at farmers' markets and stop driving — but forget trying to actually change the systems that are making the crisis inevitable because that's too much "bad energy" and it will never work. And at first it may appear as if we are looking, because many of these lifestyle changes are indeed part of the solution, but we still have one eye tightly shut.

Or maybe we do look — really look — but then, inevitably, we seem to forget. Remember and then forget again. Climate change is like that; it's hard to keep it in your head for very long. We engage in this odd form of on-again-off-again ecological amnesia for perfectly rational reasons. We deny because we fear that letting in the full reality of this crisis will change everything. And we are right.

We know that if we continue on our current path of allowing emissions to rise year after year, climate change will change everything about our world. Major cities will very likely drown, ancient cultures will be swallowed by the seas, and there is a very high chance that our children will spend a great deal of their lives fleeing and recovering from vicious storms and extreme droughts. And we don't have to do anything to bring about this future. All we have to do is nothing. Just continue to do what we are doing now, whether it's counting on a techno-fix or tending to our gardens or telling ourselves we're unfortunately too busy to deal with it.

All we have to do is not react as if this is a full-blown crisis. All we have to do is keep on denying how frightened we actually are. And then, bit by bit, we will have arrived at the place we most fear, the thing from which we have been averting our eyes. No additional effort required.

There are ways of preventing this grim future, or at least making it a lot less dire. But the catch is that these also involve changing everything. For us high consumers, it involves changing how we live, how our economies function, even the stories we tell about our place on earth. The good news is that many of these changes are distinctly uncatastrophic. Many are downright exciting. But I didn't discover this for a long while.

In 2009, when the financial crisis was in full swing, the massive response from governments around the world showed what was possible when our elites decided to declare a crisis.

We all watched as trillions of dollars were marshaled in a moment. If the banks were allowed to fail, we were told, the rest of the economy would collapse. It was a matter of collective survival, so the money had to be found. In the process, some rather large fictions at the heart of our economic system were exposed (Need more money? Print some!). A few years earlier, governments took a similar approach to public finances after the September 11 terrorist attacks. In many western countries, when it came to constructing the security/surveillance state at home and waging war abroad, budgets never seemed to be an issue.

Climate change has never received the crisis treatment from our leaders, despite the fact that it carries the risk of destroying lives on a vastly greater scale than collapsed banks or collapsed buildings. The cuts to our greenhouse gas emissions that scientists tell us are necessary in order to greatly reduce the risk of catastrophe are treated as nothing more than gentle suggestions, actions that can be put off pretty much indefinitely. Clearly, what gets declared a crisis is an expression of power and priorities as much as hard facts. But we need not be spectators in all this: politicians aren't the only ones with the power to declare a crisis. Mass movements of regular people can declare one too.

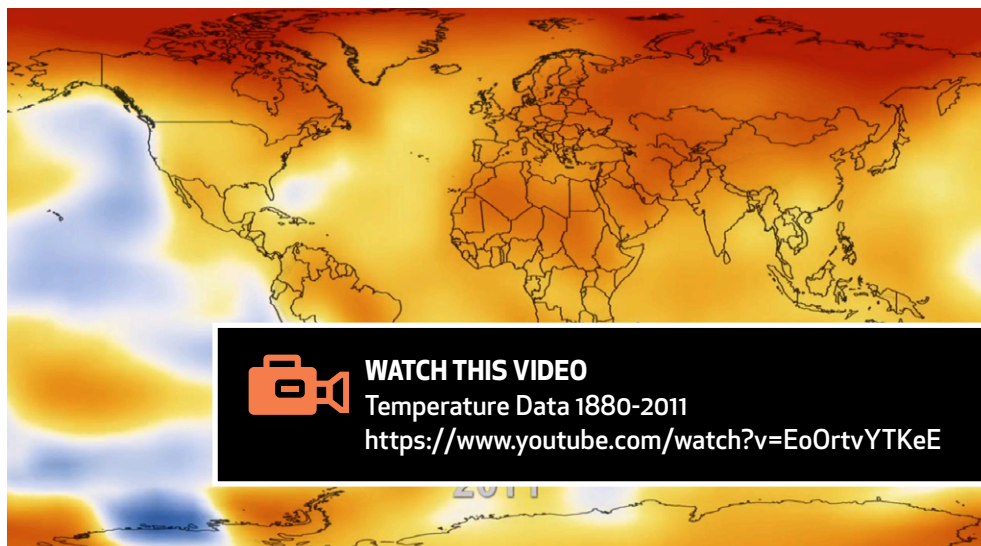
Slavery wasn't a crisis for British and American elites until abolitionism turned it into one. Racial discrimination wasn't a crisis until the civil rights movement turned it into one. Sex discrimination wasn't a crisis until feminism turned it into one. Apartheid wasn't a crisis until the anti-apartheid movement turned it into one.

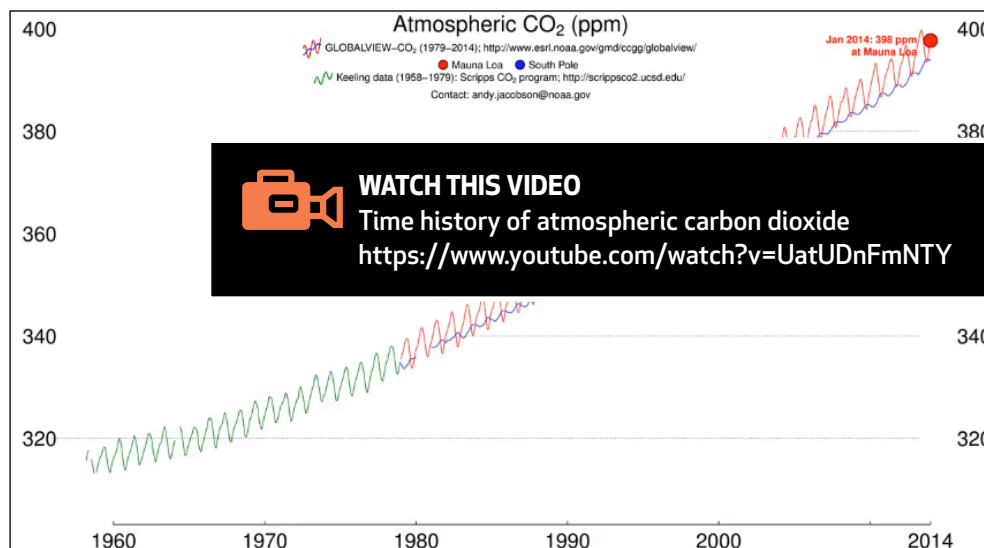
In the very same way, if enough of us stop looking away and decide that climate change is a crisis worthy of what some have called a "Marshall Plan for the Earth," then it will become one, and the political class will have to respond, both by making resources available and by bending the free market rules that have proven so pliable when elite interests are in peril. We occasionally catch

glimpses of this potential when a crisis puts climate change at the front of our minds for a while. "Money is no object in this relief effort. Whatever money is needed for it will be spent," declared British prime minister David Cameron — Mr. Austerity himself — when large parts of the UK were underwater from historic flooding in February 2014 and the public was enraged that his government was not doing more to help.

I have begun to understand how climate change — if treated as a true planetary emergency akin to those rising flood waters — could become a galvanizing force for humanity, leaving us all not just safer from extreme weather, but with societies that are safer and fairer in all kinds of other ways as well. The resources required to rapidly move away from fossil fuels and prepare for the coming heavy weather could pull huge swaths of humanity out of poverty, providing services now sorely lacking, from clean water to electricity, and on a model that is more democratic and less centralized than the models of the past. This is a vision of the future that goes beyond just surviving or enduring climate change, beyond "mitigating" and "adapting" to it in the grim language of the United Nations. It is a vision in which we collectively use the crisis to leap somewhere that seems, frankly, better than where we are right now.

Once the lens shifted from one of crisis to possibility, I discovered that I no longer feared immersing myself in the scientific reality of the climate threat. And like many others, I have begun to see all kinds of ways that climate change could become a catalyzing force for positive change — how it could be the best argument progressives have ever had to demand the rebuilding and reviving of local economies; to re-claim our democracies from corrosive corporate influence; to block harmful new free trade deals and rewrite old ones; to invest in starving public infrastructure like mass transit and affordable housing; and to take back ownership of essential services like energy and water. All of which would help to end grotesque levels of inequality within our





nations and between them.

There is a rich populist history of winning big victories for social and economic justice in the midst of large-scale crises. These include, most notably, the policies of the New Deal after the market crash of 1929 and the birth of countless social programs after the second world war. This did not require the kind of authoritarian trickery that I described in my last book, *The Shock Doctrine*. On the contrary, what was essential was building muscular mass movements capable of standing up to those defending a failing status quo, and that demanded a significantly fairer share of the economic pie for everyone. A few of the lasting (though embattled) legacies of these exceptional historical moments include: public health insurance in many countries, old age pensions, subsidized housing, and public funding for the arts.

I am convinced that climate change represents a historic opportunity on an even greater scale. As part of the project of getting our emissions down to the levels many scientists recommend, we once again have the chance to advance policies that dramatically improve lives, close the gap between rich and poor, create huge numbers of good jobs, and reinvigorate democracy from the ground up.

But before any of these changes can happen — before we can believe that climate change can change us — we first have to stop looking away.

“You have been negotiating all my life.” So said Canadian college student Anjali Appadurai, as she stared down the assembled government negotiators at the 2011 United Nations climate conference in Durban, South Africa. She was not exaggerating.

The world’s governments have been talking about preventing climate change for more than two decades; they began negotiating the year that Anjali, then 21 years old, was born. And yet as she pointed out in her memorable speech on the convention floor, delivered on behalf of all

of the assembled young people: “In that time, you’ve failed to meet pledges, you’ve missed targets, and you’ve broken promises.” In truth, the intergovernmental body entrusted to prevent “dangerous” levels of climate change has not only failed to make progress over its 20-odd years of work (and almost 100 official negotiation meetings since the agreement was adopted), it has overseen a process of virtually uninterrupted backsliding. Our governments wasted years fudging numbers and squabbling over start dates, perpetually trying to get extensions like undergrads with late term papers.

The catastrophic result of all this obfuscation and procrastination is now undeniable. In 2013, global carbon dioxide emissions were 61% higher than they were in 1990, when negotiations toward a climate treaty began in earnest. Indeed the only thing rising faster than our emissions is the output of words pledging to lower them. Meanwhile, the annual UN climate summit, which remains the best hope for a political breakthrough on climate action, has started to seem less like a forum for serious negotiation than a very costly and high-carbon group therapy session, a place for the representatives of the most vulnerable countries in the world to vent their grief and rage while low-level representatives of the nations largely responsible for their tragedies stare at their shoes.

Though momentum is picking up slightly ahead of December’s critical negotiations in Paris, this has been the mood ever since the collapse of the much-hyped 2009 UN climate summit in Copenhagen. On the last night of that massive gathering, I found myself with a group of climate justice activists, including one of the most prominent campaigners in Britain.

Throughout the summit, this young man had been the picture of confidence and composure, briefing dozens of journalists a day on what had gone on during each round of negotiations and what the various emission targets meant

in the real world. Despite the challenges, his optimism about the summit's prospects never flagged. Once it was all over, however, and the pitiful deal was done, he fell apart before our eyes. Sitting in an overlit Italian restaurant, he began to sob uncontrollably. "I really thought Obama understood," he kept repeating.

I have come to think of that night as the climate movement's coming of age: it was the moment when the realization truly sank in that no one was coming to save us. The British psychoanalyst and climate specialist Sally Weintrobe describes this as the summit's "fundamental legacy" — the acute and painful realization that our "leaders are not looking after us... we are not cared for at the level of our very survival." No matter how many times we have been disappointed by the failings of our politicians, this realization still comes as a blow. It really is the case that we are on our own and any credible source of hope in this crisis will have to come from below.

In Copenhagen, the major polluting governments — including the US and China — signed a nonbinding agreement pledging to keep temperatures from increasing more than 2C above where they were before we started powering our economies with coal. This well-known target, which supposedly represents the "safe" limit of climate change, has always been a highly political choice that has more to do with minimizing economic disruption than with protecting the greatest number of people. When the two degrees target was made official in Copenhagen, there

were impassioned objections from many delegates who said the goal amounted to a "death sentence" for some low-lying island states, as well as for large parts of Sub-Saharan Africa. In fact it is a very risky target for all of us: so far, temperatures have increased by just 0.8C and we are already experiencing many alarming impacts, including the unprecedented melting of the Greenland ice sheet in the summer of 2012 and the acidification of oceans far more rapidly than expected. Allowing temperatures to warm by more than twice that amount will unquestionably have perilous consequences.

In a 2012 report, the World Bank laid out the gamble implied by that target. "As global warming approaches and exceeds two degrees Celsius, there is a risk of triggering nonlinear tipping elements. Examples include the disintegration of the West Antarctic ice sheet leading to more rapid sea-level rise, or large-scale Amazon dieback drastically affecting ecosystems, rivers, agriculture, energy production, and livelihoods. This would further add to 21st-century global warming and impact entire continents." In other words, once we allow temperatures to climb past a certain point, where the mercury stops is not in our control.

But the bigger problem — and the reason Copenhagen caused such great despair — is that because governments did not agree to binding targets, they are free to pretty much ignore their commitments. Which is precisely what is happening. Indeed, emissions are rising so rapidly that

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CHECK OUT **NASA'S IMAGES OF CHANGE**, a gallery featuring photos of different locations on planet Earth, showing change over time periods ranging from centuries to days. Some of these effects are related to climate change, some are not. Some demonstrate human impact, or the ravage of natural hazards such as fires and floods. All show our planet in a state of flux.
http://climate.nasa.gov/state_of_flux

unless something radical changes within our economic structure, two degrees now looks like a utopian dream. And it's not just environmentalists who are raising the alarm. The World Bank also warned when it released its report that "we're on track for a 4C warmer world [by century's end] marked by extreme heat waves, declining global food stocks, loss of ecosystems and biodiversity, and life-threatening sea level rise." And the report cautioned that, "there is also no certainty that adaptation to a 4C world is possible." Kevin Anderson, former director (now deputy director) of the Tyndall Centre for Climate Change Research, which has quickly established itself as one of the UK's premier climate research institutions, is even blunter; he says 4C warming is "incompatible with any reasonable characterization of an organised, equitable and civilized global community."

We don't know exactly what a 4C world would look like, but even the best-case scenario is likely to be calamitous. Four degrees of warming could raise global sea levels by one or possibly even two meters by 2100 (and would lock in at least a few additional meters over future centuries). This would drown some island nations such as the Maldives and Tuvalu, and inundate many coastal areas from Ecuador and Brazil to the Netherlands to much of California and the northeastern US, as well as huge swaths of South and south-east Asia. Major cities likely in jeopardy include Boston, New York, greater Los Angeles, Vancouver, London, Mumbai, Hong Kong, and Shanghai.

Meanwhile, brutal heat waves that can kill tens of thousands of people, even in wealthy countries, would become entirely unremarkable summer events on every continent but Antarctica. The heat would also cause staple crops to suffer dramatic yield losses across the globe (it is possible that Indian wheat and US corn could plummet by as much as 60%), this at a time when demand will be surging due to population growth and a growing demand for meat. When you add ruinous hurricanes, raging wildfires, fisheries collapses, widespread disruptions to water supplies, extinctions, and globe-trotting diseases to the mix, it indeed becomes difficult to imagine that a peaceful, ordered society could be sustained (that is, where such a thing exists in the first place).

Keep in mind that these are the optimistic scenarios in which warming is more or less stabilized at 4C and does not trigger tipping points beyond which runaway warming would occur. And this process may be starting sooner than anyone predicted. In May 2014, NASA and University of California, Irvine scientists revealed that glacier melt in a section of West Antarctica roughly the size of France now "appears unstoppable". This likely spells eventual doom for the entire West Antarctic ice sheet, which according to lead study author Eric Rignot "comes with a sea level rise of between three and five metres. Such an event will displace millions of

people worldwide." The disintegration, however, could unfold over centuries and there is still time for emission reductions to slow down the process and prevent the worst.

Much more frightening than any of this is the fact that plenty of mainstream analysts think that on our current emissions trajectory, we are headed for even more than four degrees of warming. In 2011, the usually staid International Energy Agency (IEA) issued a report projecting that we are actually on track for 6C — 10.8F — of warming. And as the IEA's chief economist Fatih Birol put it: "Everybody, even the school children, knows that this will have catastrophic implications for all of us."

These various projections are the equivalent of every alarm in your house going off simultaneously. And then every alarm on your street going off as well, one by one by one. They mean, quite simply, that climate change has become an existential crisis for the human species. The only historical precedent for a crisis of this depth and scale was the Cold War fear that we were heading toward nuclear holocaust, which would have made much of the planet uninhabitable. But that was (and remains) a threat; a slim possibility, should geopolitics spiral out of control. The vast majority of nuclear scientists never told us that we were almost certainly going to put our civilization in peril if we kept going about our daily lives as usual, doing exactly what we were already doing, which is what the climate scientists have been telling us for years.

As the Ohio State University climatologist Lonnie G. Thompson, a world-renowned specialist on glacier melt, explained in 2010, "Climatologists, like other scientists, tend to be a stolid group. We are not given to theatrical rantings about falling skies. Most of us are far more comfortable in our laboratories or gathering data in the field than we are giving interviews to journalists or speaking before Congressional committees. Why then are climatologists speaking out about the dangers of global warming? The answer is that virtually all of us are now convinced that global warming poses a clear and present danger to civilization."

It doesn't get much clearer than that. And yet rather than responding with alarm and doing everything in our power to change course, large parts of humanity are, quite consciously, continuing down the same road. Only, like the passengers aboard Flight 3935, aided by a more powerful, dirtier engine. What is wrong with us?

This reading is excerpted from *This Changes Everything: Capitalism and the Climate* (2014). Naomi Klein is an award winning journalist, syndicated columnist, and world renowned author. Naomi is a board member of 350.org, a global grassroots environmental organization, and has made multiple best-sellers lists with her various publications and won various awards for her journalism. Currently she is a contributing editor for *Harper's*, a reporter for *The Rolling Stone*, and writes regular columns for *The Nation* and *The Guardian*.

A SYSTEMS THINKING MODEL: THE ICEBERG

A system is a set of interrelated components and the relationships among those components. Our climate is a system — a very complex system, in fact, composed of many other systems — the atmosphere, the oceans, the precipitation cycle, etc. Other systems in our world include natural systems and human-made systems — things like our economy, agriculture and food distribution, governments — the list can go on and on. Human systems and natural systems affect and influence each other.

Systems thinking is a way of approaching problems that asks how various elements within a system influence one another. Rather than reacting to individual problems that arise, a systems thinker will ask about relationships to other activities within the system, look for patterns over time, and seek root causes.

One systems thinking model that is helpful for understanding global issues is the iceberg model. We know that an iceberg has only 10 percent of its total mass above the water while 90 percent is underwater. But that 90 percent is what the ocean currents act on, and what creates the iceberg's behavior at its tip. Global issues can be viewed in this same way.

LEVELS OF THINKING

1. The Event Level

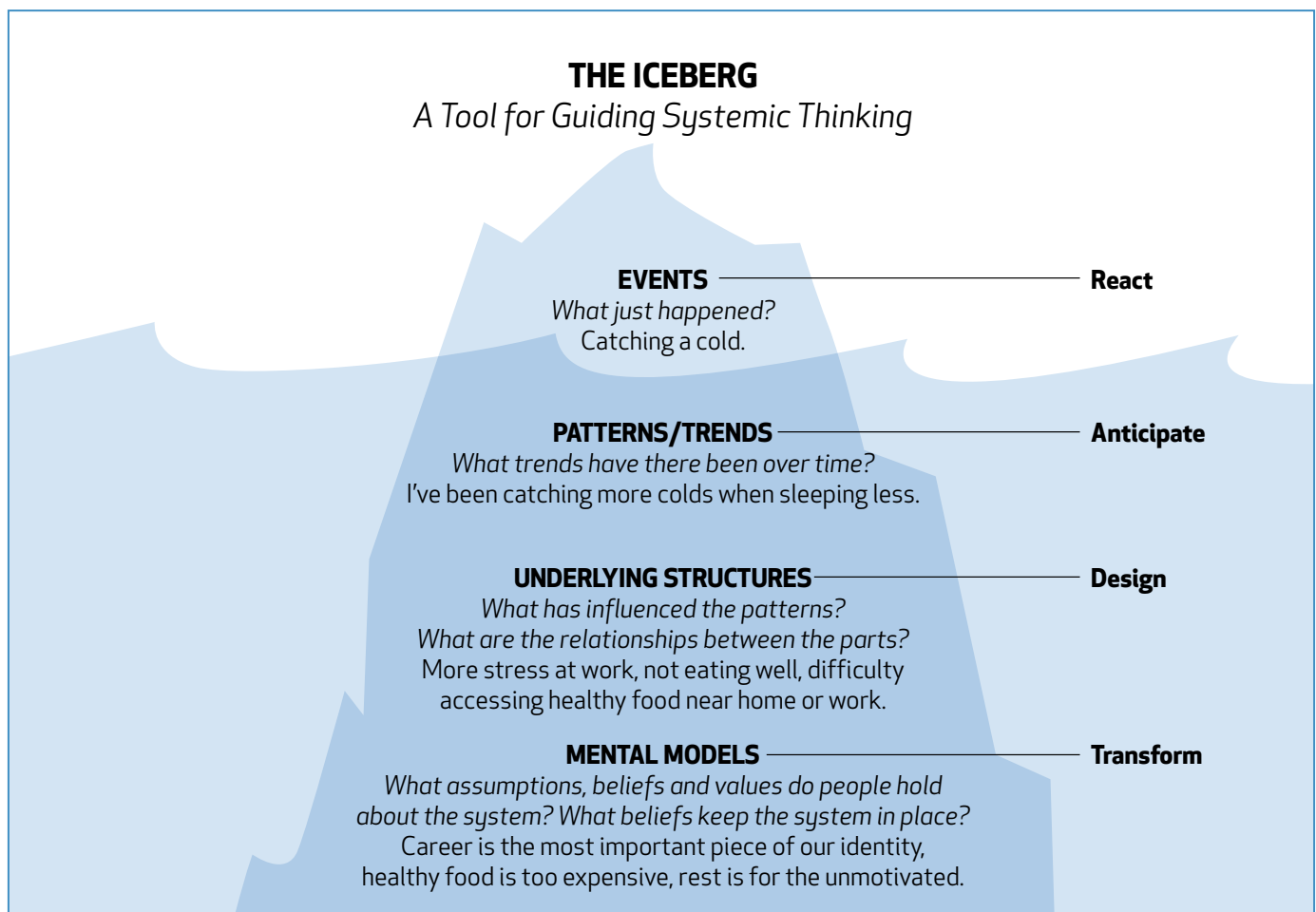
The event level is the level at which we typically perceive the world — for instance, waking up one morning to find we have caught a cold. While problems observed at the event level can often be addressed with a simple readjustment, the iceberg model pushes us not to assume that every issue can be solved by simply treating the symptom or adjusting at the event level.

2. The Pattern Level

If we look just below the event level, we often notice patterns. Similar events have been taking place over time — we may have been catching more colds when we haven't been resting enough. Observing patterns allows us to forecast and forestall events.

3. The Structure Level

Below the pattern level lies the structure level. When we ask, "What is causing the pattern we are observing?" the answer is usually some kind of structure. Increased stress at work due to the new promotion policy, the habit of eating poorly when under stress, or the inconvenient location of healthy food sources could all be structures at play in our catching a cold. According to Professor John Gerber, structures can include the following:



1. Physical things — like vending machines, roads, traffic lights or terrain.
2. Organizations — like corporations, governments, and schools.
3. Policies — like laws, regulations, and tax structures.
4. Ritual — habitual behaviors so ingrained that they are not conscious.

4. The Mental Model Level

Mental models are the attitudes, beliefs, morals, expectations, and values that allow structures to continue functioning as they are. These are the beliefs that we often learn subconsciously from our society or family and are likely unaware of. Mental models that could be involved in us catching a cold could include: a belief that career is deeply important to our identity, that healthy food is too expensive, or that rest is for the unmotivated.

PUTTING THE LEVELS TOGETHER

Take a look at the diagram to see the Iceberg Model applied to an instance of catching a cold.

GIVE IT A TRY!

Select a recent event related to climate change that strikes you as urgent, important or interesting. Some examples include a recent hurricane, drought, or winter storm; a controversial statement made by a politician or a local policy change; or an issue you've personally encountered in the last few weeks. Write the event (what is observable about the event) at the top of the blank iceberg below and work your way down through the patterns, underlying systems and mental models, adding as many as you can think of. It can also be useful to move up and down between levels as you think more about the event.

QUESTIONS TO CONSIDER AFTER TRYING OUT THE ICEBERG MODEL

1. Does the iceberg model help broaden your perspective? If so, how might this new perspective be helpful?
2. Consider the concept of entry, or “leverage” points. These are points at which to intervene in a system that could lead to systemic transformation. Does the exercise show you any new entry points at which you are inspired to intervene?
3. What issues that have frustrated you might be interesting to analyze with the Iceberg Model?

Adapted from *Escalated Thinking*. You can find this resource on our website at www.nwei.org/resources/iceberg/.



SOURCES OF GREENHOUSE GASES

Greenhouse gases trap heat and make the planet warmer. Human activities are responsible for almost all of the increase in greenhouse gases in the atmosphere over the last 150 years.^[1] The largest source of greenhouse gas emissions from human activities in the United States is from burning fossil fuels for electricity, heat, and transportation.

EPA tracks total U.S. emissions by publishing the *Inventory of U.S. Greenhouse Gases and Sinks*. This annual report estimates the total national greenhouse gas emissions and removals associated with human activities across the United States.

The primary sources of greenhouse gas emissions in the United States are:

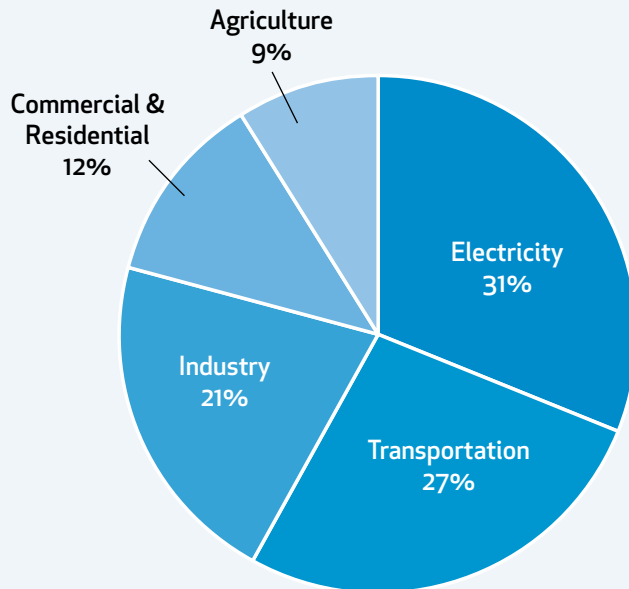
- **Electricity production** (31% of 2013 greenhouse gas emissions) — Electricity production generates the largest share of greenhouse gas emissions. Approximately 67% of our electricity comes from burning fossil fuels, mostly coal and natural gas.^[2]
- **Transportation** (27% of 2013 greenhouse gas emissions) — Greenhouse gas emissions from transportation primarily come from burning fossil fuel for our cars, trucks, ships, trains, and planes. Over 90% of the fuel used for transportation is petroleum based, which includes gasoline and diesel.^[3]
- **Industry** (21% of 2013 greenhouse gas emissions) — Greenhouse gas emissions from industry primarily come from burning fossil fuels for energy as well as greenhouse gas emissions from certain chemical reactions necessary to produce goods from raw materials.
- **Commercial and Residential** (12% of 2013 greenhouse gas emissions) — Greenhouse gas emissions from businesses and homes arise primarily from fossil fuels burned for

heat, the use of certain products that contain greenhouse gases, and the handling of waste.

- **Agriculture** (9% of 2013 greenhouse gas emissions) — Greenhouse gas emissions from agriculture come from livestock such as cows, agricultural soils, and rice production.

- **Land Use and Forestry** (offset of 13% of 2013 greenhouse gas emissions) — Land areas can act as a sink (absorbing CO₂ from the atmosphere) or a source of greenhouse gas emissions. In the United States, since 1990, managed forests and other lands have absorbed more CO₂ from the atmosphere than they emit.

TOTAL U.S. GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR IN 2013



Total Emissions in 2013 = 6,673 Million Metric Tons of CO₂ equivalent

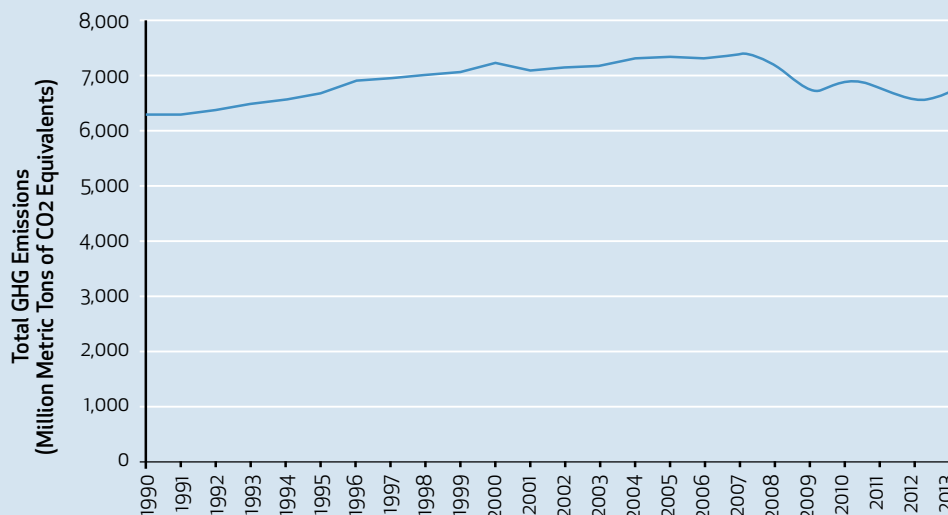
*Land Use, Land-Use Change, and Forestry in the United States is a net sink and offsets approximately 13% of these greenhouse gas emissions.

All emission estimates from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013*

EMISSIONS AND TRENDS

Since 1990, U.S. greenhouse gas emissions have increased by about 6%. From year to year, emissions can rise and fall due to changes in the economy, the price of fuel, and other factors. In 2013, U.S. greenhouse gas emissions increased compared to 2012 levels. This increase was primarily due to an increase in the carbon intensity of fuels consumed to generate electricity due to an increase in coal consumption, with decreased natural gas consumption. Additionally, cold winter conditions resulted in an increase in fuel demand, especially in residential and commercial sectors. An increase in industrial production across multiple sectors also resulted in increases in industrial sector emissions.

TOTAL U.S. GREENHOUSE GAS EMISSIONS, 1990-2013



Greenhouse Gas Emissions and Sinks: 1990-2013.

To learn about projected greenhouse gas emissions to 2020, visit the *U.S. Climate Action Report 2014* (PDF) (310 pp., 23.1 MB).

This information is shared courtesy of the Environmental Protection Agency. Endnotes available on page 55.

Find out more at <http://www.epa.gov/climatechange/ghgemissions/sources.html>



Elizabeth Zavodsky

TO SAVE THE FUTURE, LIVE IN THE PRESENT

By Wendell Berry

Editor's note: This excerpt consists of two parts. The first was written in 2013 and the second in 2014.

I. [2013]

So far as I am concerned, the future has no narrative. The future does not exist until it has become the past. To a very limited extent, prediction has worked. The sun, so far, has set and risen as we have expected it to do. And the world, I suppose, will predictably end, but all of its predicted deadlines, so far, have been wrong.

The End of Something — history, the novel, Christianity, the human race, the world — has long been an irresistible subject. Many of the things predicted to end have so far continued, evidently to the embarrassment of none of the predictors. The future has been equally, and relatedly, an irresistible subject. How can so many people of certified intelligence have written so many pages on a subject about which nobody knows anything? Perhaps we need a book — in case we don't already have one — on the end of the future.

None of us knows the future. Fairly predictably, we are going to be surprised by it. That is why "Take...no thought for the morrow..." is such excellent advice. Taking thought for the morrow is, fairly predictably, a waste of time.

I have noticed, for example, that most of the bad possibilities I have worried about have never happened. And

so I have taken care to worry about all the bad possibilities I could think of, in order to keep them from happening. Some of my scientific friends will call this a superstition, but if I did not forestall so many calamities, who did? However, after so much good work, even I must concede that by taking thought for the morrow we have invested, and wasted, a lot of effort in preparing for morrows that never came. Also by taking thought for the morrow we repeatedly burden today with undoing the damage and waste of false expectations — and so delaying our confrontation with the actuality that today has brought.

The question, of course, will come: If we take no thought for the morrow, how will we be prepared for the morrow?

I am not an accredited interpreter of Scripture, but taking thought for the morrow is a waste of time, I believe, because all we can do to prepare rightly for tomorrow is to do the right thing today.

The passage continues: "for the morrow shall take thought for the things of itself. Sufficient unto the day is the evil thereof." The evil of the day, as we know, enters into it from the past. And so the first right thing we must do today is to take thought of our history. We must act daily as critics of history so as to prevent, so far as we can, the evils of yesterday from infecting today.

Another right thing we must do today is to appreciate the day itself and all that is good in it. This also is sound biblical advice, but good sense and good manners tell us the same. To fail to enjoy the good things that are enjoyable is impoverishing and ungrateful.

The one other right thing we must do today is to provide against want. Here the difference between "prediction" and "provision" is crucial. To predict is to foretell, as if we know what is going to happen. Prediction often applies to unprecedented events: human-caused climate change, the end of the world, etc. Prediction is "futurology." To provide, literally, is to see ahead. But in common usage it is to look ahead. Our ordinary, daily understanding seems to have accepted long ago that our capacity to see ahead is feeble. The sense of "provision" and "providing" comes from the past, and is informed by precedent.

Provision informs us that on a critical day — St. Patrick's Day, or in a certain phase of the moon, or when the time has come and the ground is ready — the right thing to do is plant potatoes. We don't do this because we have predicted a bountiful harvest; history warns us against that. We plant potatoes because history informs us that hunger is possible, and we must do what we can to provide against it. We know from the past only that, if we plant potatoes today, the harvest might be bountiful, but we can't be sure, and so provision requires us to think today also of a diversity of food crops.

What we must not do in our efforts of provision is to waste or permanently destroy anything of value. History

informs us that the things we waste or destroy today may be needed on the morrow. This obviously prohibits the “creative destruction” of the industrialists and industrial economists, who think that evil is permissible today for the sake of greater good tomorrow. There is no rational argument for compromise with soil erosion or toxic pollution.

For me — and most people are like me in this respect — “climate change” is an issue of faith; I must either trust or distrust the scientific experts who predict the future of the climate. I know from my experience, from the memories of my elders, from certain features of my home landscape, from reading history, that over the last 150 years or so the weather has changed and is changing. I know without doubt that to change is the nature of weather.

Just so, I know from as many reasons that the alleged causes of climate change — waste and pollution — are wrong. The right thing to do today, as always, is to stop, or start stopping, our habit of wasting and poisoning the good and beautiful things of the world, which once were called “divine gifts” and now are called “natural resources.” I always suppose that experts may be wrong. But even if they are wrong about the alleged human causes of climate change, we have nothing to lose, and much to gain, by trusting them.

Even so, we are not dummies, and we can see that for all of us to stop, or start stopping, our waste and destruction today would be difficult. And so we chase our thoughts off

into the morrow where we can resign ourselves to “the end of life as we know it” and come to rest, or start devising heroic methods and technologies for coping with a changed climate. The technologies will help, if not us, then the corporations that will sell them to us at a profit.

I have let the preceding paragraph rest for two days to see if I think it is fair. I think it is fair. As evidence, I will mention only that, while the theme of climate change grows ever more famous and fearful, land abuse is growing worse, noticed by almost nobody.

A steady stream of poisons is flowing from our croplands into the air and water. The land itself continues to flow or blow away, and in some places erosion is getting worse. High grain prices are now pushing soybeans and corn onto more and more sloping land, and “no-till” technology does not prevent erosion on continuously cropped grainfields.

Climate change, supposedly, is recent. It is apocalyptic, “big news,” and the certified smart people all are talking about it, thinking about it, getting ready to deal with it in the future.

Land abuse, by contrast, is ancient as well as contemporary. There is nothing futurological about it. It has been happening a long time, it is still happening, and it is getting worse. Most people have not heard of it. Most people would not know it if they saw it.

The laws for conservation of land in use were set forth by Sir Albert Howard in the middle of the last century. They were nature’s laws, he said, and he was right. Those laws are the basis of the [50-Year Farm Bill](#), which outlines a program of work that can be started now, which would help with climate change, but which needs to be done anyhow. Millions of environmentalists and wilderness preservers are dependably worried about climate change. But they are not conversant with nature’s laws, they know and care nothing about land use, and they have never heard of Albert Howard or the 50-Year Farm Bill.

II. [2014]

If we understand that Nature can be an economic asset, a help and ally, to those who obey her laws, then we can see that she can help us now. There is work to do now that will make us her friends, and we will worry less about the future. We can begin backing out of the future into the present, where we are alive, where we belong. To the extent that we have moved out of the future, we also have moved out of “the environment” into the actual places where we actually are living.

If, on the contrary, we have our minds set in the future, where we are sure that climate change is going to play hell with the environment, we have entered into a convergence of abstractions that makes it difficult to think or do anything in particular. If we think the future damage of climate change to the environment is a big problem only solvable by a big solution, then thinking or doing something



in particular becomes more difficult, perhaps impossible.

It is true that changes in governmental policy, if the changes were made according to the right principles, would have to be rated as big solutions. Such big solutions surely would help, and a number of times I have tramped the streets to promote them, but just as surely they would fail if not accompanied by small solutions. And here we come to the reassuring difference between changes in policy and changes in principle. The needed policy changes, though addressed to present evils, wait upon the future, and so are presently nonexistent. But changes in principle can be made now, by so few as just one of us. Changes in principle, carried into practice, are necessarily small changes made at home by one of us or a few of us. Innumerable small solutions emerge as the changed principles are adapted to unique lives in unique small places. Such small solutions do not wait upon the future. Insofar as they are possible now, exist now, are actual and exemplary now, they give hope. Hope, I concede, is for the future. Our nature seems to require us to hope that our life and the world's life will continue into the future. Even so, the future offers no validation of this hope. That validation is to be found only in the knowledge, the history, the good work, and the good examples that are now at hand.

There is in fact much at hand and in reach that is good, useful, encouraging, and full of promise, although we seem less and less inclined to attend to or value what is at hand. We are always ready to set aside our present life, even our present happiness, to peruse the menu of future exterminations. If the future is threatened by the present, which it undoubtedly is, then the present is more threatened, and often is annihilated, by the future. "Oh, oh, oh," cry the funerary experts, looking ahead through their black veils. "Life as we know it soon will end. If the governments don't stop us, we're going to destroy the world. The time is coming when we will have to do something to save the world. The time is coming when it will be too late to save the world. Oh, oh, oh." If that is the way our minds are afflicted, we and our world are dead already. The present is going by and we are not in it. Maybe when the present

is past, we will enjoy sitting in dark rooms and looking at pictures of it, even as the present keeps arriving in our absence.

Or maybe we could give up saving the world and start to live savingly in it. If using less energy would be a good idea for the future, that is because it is a good idea. The government could enforce such a saving by rationing fuels, citing the many good reasons, as it did during World War II. If the government should do something so sensible, I would respect it much more than I do. But to wish for good sense from the government only displaces good sense into the future, where it is of no use to anybody and is soon overcome by prophesies of doom. On the contrary, so few as just one of us can save energy right now by self-control, careful thought, and remembering the lost virtue of frugality. Spending less, burning less, traveling less may be a relief. A cooler, slower life may make us happier, more present to ourselves, and to others who need us to be present. Because of such rewards, a large problem may be effectively addressed by the many small solutions that, after all, are necessary, no matter what the government might do. The government might even do the right thing at last by imitating the people.

In this essay and elsewhere, I have advocated for the 50-Year Farm Bill, another big solution I am doing my best to promote, but not because it will be good in or for the future. I am for it because it is good now, according to present understanding of present needs. I know that it is good now because its principles are now satisfactorily practiced by many (though not nearly enough) farmers. Only the present good is good. It is the presence of good — good work, good thoughts, good acts, good places — by which we know that the present does not have to be a nightmare of the future. "The kingdom of heaven is at hand" because, if not at hand, it is nowhere.

This article was originally published in the Spring 2015 issue of *YES! Magazine* entitled *Together, with Earth*. Wendell Berry is the author of over 40 works of fiction, non-fiction, and poetry and has received numerous awards and honors. He lives and farms in Kentucky with his wife, Tanya Berry.

*"Humankind has not woven the web of life. We are but one thread within it.
Whatever we do to the web, we do to ourselves. All things are bound together.
All things connect."*

— CHIEF SEATTLE

Action Plan

STEP ONE: CARBON FOOTPRINT EXERCISE



Before you meet your group for Session 1, measure your carbon footprint using the **CoolClimate Carbon Footprint Calculator** at coolclimate.berkeley.edu/carboncalculator.

On the CoolClimate website, you will also find carbon footprint calculators for business, as well as widgets to help calculate how much you'll save by implementing new habits.

Find a fillable pdf of this action plan at www.nwei.org/change-is-our-choice-resources/.



ASSESS YOUR CURRENT SITUATION.

In which areas can you achieve the most significant reductions?



IDENTIFY AREAS TO IMPROVE OR TRANSFORM.

Which areas are most meaningful to you and your community? Which areas are most appealing for you to work on?



BRAINSTORM REALISTIC ACTIONS.

What are some ways you can work toward climate literacy, adaptation, or resiliency within your community? Realistically consider your abilities, competencies, and resources.

TIP: KEEP TRACK OF YOUR ACTION PLAN!

Track your progress on a mobile app like Evernote or Productivity Wizard, Save paper, and share your progress with others.