

Welcome to a ***Climate Change Action Curriculum Guide!***

Attached for your immediate use and further dissemination is a ***Climate Change Action Curriculum Guide*** that Karl Perrin and Keith Wilkinson, both members of the Unitarian Church of Vancouver, developed in the spring of 2013 to support the education of CUC member congregations and others about climate change, and to help guide ethical action in relation to climate change in ways that are consistent with each individual's personal values.

The information available about climate change is vast and constantly changing. What we have attempted to do here is provide some starting points that groups and individuals can use to become more knowledgeable. We have pointed toward online and print resources that examine both scientific and social action dimensions of climate change. As you study these, individually and together, your explorations will undoubtedly lead you to additional useful resources. We would be happy to hear from you about them for a possible future edition of this guide. You can reach us through environment@cuc.ca, citing Curriculum Guide in the subject line.

We hope you'll take immediate steps to use this guide. We believe there is much to do and limited time, and that every person's efforts will be needed to make our planet safe for future generations.

In faith,

Keith and Karl

Climate Change Action Curriculum Guide

What, Why and How

What

This *Climate Change Action Curriculum Guide* is designed to introduce lay audiences to

- key facts and issues regarding climate change,
- policy options for mitigating, adapting to and ameliorating climate change impacts, and
- strategies for individual and collective action to reduce the harm from climate change to humans, other species and our planet as a whole.

Why

A central value underlying the curriculum is the importance for human beings to affirm and promote respect for the interdependent web of all existence of which we are a part.

How

Suggested Learning Process:

The curriculum consists of a series of self-directed discussions for small groups of three to twenty members. *Groups may be continuing education groups, book clubs, men's groups, women's groups, etc.* For most groups, we suggest that the core learning objectives can be achieved through **24 to 36 hours of study** comprised of:

- 2-hour seminars held once a week for 6 weeks, (a total of 12 hours), plus
- independent study of 2 to 4 hours per session (a total of 12 to 24 hours).

Groups may prefer to meet for a longer period of time in order to deepen their understanding of the issues and to provide support to one another in planning, implementing and evaluating actions. The *Guide* may also be used for independent study by individuals.

Suggested Learning Outcomes:

Upon completion of the minimum hours of study and discussion of the *Climate Change Action Curriculum*, participants will be able to:

1. Summarize the evidence showing that climate change is real;
2. Identify alternative strategies for responding to climate change; and
3. Choose actions from alternative strategies to suit their own circumstances and needs.

Credits, Contacts and Copyright:

The *Climate Change Action Curriculum Guide* was developed by Keith Wilkinson and Karl Perrin in cooperation with the Canadian Unitarian Council (CUC) *Environment Monitoring Group* (EMG) http://cuc.ca/social_responsibility_monitoring_groups/environment/ Special thanks also to Robin MacQueen, Department of Physics & Astronomy, Langara College. The curriculum is intended to be one course of study amongst many study options to help people everywhere understand, prepare for, and take action to reduce harm from the impacts of climate change. For more information about the *Climate Change Action Curriculum Guide*, please contact Keith or Karl through the CUC EMG at environment@cuc.ca

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Course Content:

Part A: Maintaining Motivation

Session One: What personal journey has brought each of us to be concerned about climate change?

Subsequent Sessions: “Open sentences” to help us maintain gratitude for our lives.

Part B: Increasing Knowledge: Based on how many sessions you plan to conduct, decide which topics can be combined into each session. If your group chooses to offer a short version of this curriculum we encourage you to pay special attention to the shaded sections.

1. The evidence for climate change
2. The nature, causes & impacts of climate change
3. Is climate change action a moral imperative?
4. Responding to climate change deniers
5. **Prevention & Mitigation:**
Strategies for slowing climate change
6. **Adaptation:**
Possibilities for adapting to climate change & actions to minimize the negative impacts
7. **Evaluating energy options**—sun, wind, tide, rivers, geothermal, biofuels, shale gas & oil, clean & dirty oil, clean & dirty coal, conventional & new nuclear...
8. **Geo-engineering:** Strategies for reversing global warming – evaluating the options
9. International approaches to climate change
10. Canadian approaches to climate change

Part C: Action Options – Education, policy development, activism, political action, civil disobedience, personal practice...

11. Environmental action - raising public awareness
12. Political action: Influencing government policy and election outcomes
13. Non-violent direct action
14. Personal actions to prevent or reduce the harms of climate change
15. **Action groups** in your area
16. **Ecospirituality:** The importance of gratitude and voluntary simplicity in planetary stewardship.
17. Resources

“In a nutshell, climate change occurs when long-term weather patterns are altered — for example, through human activity. Global warming is one measure of climate change, and is a rise in the average global temperature.”

—**David Suzuki Foundation**

“There is so much work to do that it doesn’t matter who does it. Large corporations making money doing the right thing is just fine. The United Nations sending black helicopters to do the right thing is just fine. Property-defending conservatives doing the right thing is just fine. Placard-waving leftists stopping the wrong thing is just fine. Paul Hawken’s myriad micro-organizations doing the right thing locally is the health of a system curing itself.”

—Stewart Brand, **Whole earth discipline**, p. 299.

“Do for the future what you’re grateful the past did for you.”

—Daniel Hillis, “the golden rule of time” (quoted by Stewart Brand in *Whole earth discipline*)

Part A: Maintaining Motivation

Discussions of climate change can be enriched by knowing seminar participants a little better and appreciating how each person came to be concerned about climate change. Discussion will also be enriched if participants take time to affirm together each session some things they treasure about their lives. Accordingly, we suggest that each session of the workshop open with short expressions of gratitude—and sometimes expressions of concern. Below are some “open sentences” we suggest be drawn upon for the various sessions. These exercises are drawn from Joanna Macy’s work: *Active hope* (2012), *The work that reconnects* (2006), and *Coming back to life* (1998).

Suggested learning activities:

- **Session One:**
Take turns describing (2 minutes each) what has caused you to be concerned about climate change. If your group is small, do this in the whole group. If your group is large split the group into smaller groups.
- **Other Sessions:**
In pairs, take turns completing some of the following “open sentences.”
 1. Some things I love about being alive on earth are...
 2. A place that was magical to me as a child was...
 3. A person in my life who helped me believe in myself was/is...
 4. Some things that I appreciate are...
 5. My favourite activities include...
 6. Some things I appreciate about myself are...
 7. To be alive now in this time of global crisis, what is particularly hard for me is...
 8. What I appreciate about living in this time of crisis is...
 9. As I look at my life, it seems that some of the ways I take part in the healing of my world are...
 10. One of my worst fears about the future is...
 11. I empower myself by...
 12. What nourishes and energizes me is...
 13. The times I’m most enthusiastic are when...
- *Variation:* Individually, complete one or more of the “open sentences” in writing and then, in pairs or triads, take turns sharing what you’ve written.
- **Also...**for an inspiring look at what is possible, view Guy Dauncey, author of *The climate challenge: 101 solutions to global warming*, in a Vancouver TedX talk on YouTube <http://www.youtube.com/watch?v=ZEf4qzYsh5A>

Part B: Increasing Knowledge

1. The evidence for climate change

“Our understanding of climate change is largely the result of the [Intergovernmental Panel on Climate Change](#) (IPCC), the world's most authoritative voice on the topic. Established by the United Nations, the IPCC assesses the scientific and socio-economic information relevant to climate change. The IPCC also looks at the potential impacts of climate change, and options for slowing it down or adapting to it.

The IPCC has released several [assessment reports](#) over the years. More than 2,500 scientific expert reviewers, 800 contributing authors and 450 lead authors from over 130 countries contributed to the last one, the Fourth Assessment Report. The Fifth Assessment Report's Working Group I report is expected to be released in 2013.

Despite the international scientific community's consensus on climate change, a small number of climate change [deniers](#) continue to deny that climate change exists or that humans are causing it. However, these individuals are generally not climate scientists, and their arguments have been discredited by the scientific community at large. The debate is over about whether or not climate change is real; it is now time to act to solve the problem.”

– *David Suzuki Foundation* <http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/climate-change-101-1/>

Suggested learning activities:

- Review and discuss the **assessment reports** from the IPCC web pages: http://www.ipcc.ch/publications_and_data/publications_and_data.shtml#1
- Review and discuss selected **presentations and speeches** from IPCC conferences;
- Review and discuss selected IPCC **special reports**
- Review and discuss some of the **David Suzuki Foundation** explanatory webpages at <http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/climate-change-101-1/>
- If you're in a group, have each member review and report on a different IPCC report.
- For a less technical approach see entries at the **Climate Reality Project** <http://climaterealityproject.org/about/>

2. The nature, causes and impact of climate change

Suggested learning activities:

- Read and discuss the following:
 - ✓ Steward Brand, (2009). *Whole earth discipline*.
“Chapter 1, Scale, scope, stakes, speed”
- Specific Questions:
 - ✓ Brand describes his opinions as “strongly stated, loosely held”. What does he mean by this? How does it apply to subjects like genetically modified organisms (GMOs), nuclear power and planetary geo-engineering?
 - ✓ What does Brand mean by “planet craft”? [You may have to skip to the end of the book to learn about this!]
- Visit “Start Here” at the **Real Climate** website:
<http://www.realclimate.org/index.php/archives/2007/05/start-here/>
- Visit the **Climate Reality Project** website: <http://climaterealityproject.org/about-us/>

“Global warming has already begun. Since 1900, the global average temperature has risen by 0.6 degrees Celsius, and the northern hemisphere is substantially warmer than at any point during the past 1,000 years.”
—David Suzuki Foundation

Supplementary activities:

- Read and discuss one or more of the following:
 - ✓ Dyer, G. (2008). *Climate wars*.
 - ✓ Flannery, T. (2006). *The weather makers*
 - ✓ Flannery, T. (2011). *Here on earth: A natural history of the planet.*
 - ✓ Hansen, J. (2009). *Storms of my grandchildren.*

“The climate problem should not be the only debate.” Herman Scheer speaking on the risks of nuclear power.

3. Is climate change action a moral imperative?

Suggested learning activities:

- Read and discuss the following:
 - ✓ Brand, S., (2009). *Whole earth discipline*. “Chapter 9: Planet craft.”
Brand describes himself as an “ecopragmatist” and in his chapter on planet craft he makes a kind of pragmatic moral argument:
 - ✓ Brand quotes Paul Crutzen, an atmospheric chemist who won the Nobel Prize in 1995 for his work on ozone depletion who said “It seems appropriate to assign the term *Anthropocene* to the present, in many ways human-dominated, geological epoch.”
What evidence do you see that we are in an *Anthropocene* epoch, that is, that humans are affecting the geology of the planet? So what?
- Discuss the following questions:
 - ✓ Why should we care about future generations?
 - ✓ Why should we care about other species?
 - ✓ Why should we care about the planet?
 - ✓ What do the world’s religious traditions teach, if anything, about duty to other humans, compassion for other species, and stewardship of the planet?
- Canada Unitarian congregations and fellowships endorse the following principles:
We, the member congregations of the Canadian Unitarian Council, covenant to affirm and promote:
 - *the inherent worth and dignity of every person;*
 - *justice, equity, and compassion in human relations;*
 - *acceptance of one another and encouragement to spiritual growth in our congregations;*
 - *a free and responsible search for truth and meaning;*
 - *the right of conscience and the use of the democratic process within our congregations and in society at large;*
 - *the goal of world community with peace, liberty, and justice for all;*
 - *respect for the interdependent web of all existence of which we are a part.*
- ✓ Do these principles imply that members and adherents of Canadian Unitarian congregations and fellowships have a moral imperative to address climate change? (That is, is each one of us obliged to do his/her best to minimize the negative impacts of climate change?)

Further reading:

- ✓ Jaccard, M. (2013). “The accidental activist – How an energy economist, Nobel Laureate, and former government advisor found himself blocking a coal train”, *The Walrus*, March, pp 24- 28.
- ✓ “Will China save the world?” *MacLean’s Magazine*. (2013, February). pp 36-40.

4. Responding to climate change deniers

Suggested learning activities:

Statement: **“RealClimate** is a commentary site on climate science by [working climate scientists](#) for the interested public and journalists. We aim to provide a quick response to developing stories and provide the context sometimes missing in mainstream commentary. The discussion here is restricted to scientific topics and will not get involved in any political or economic implications of the science. All posts are signed by the author(s), except ‘group’ posts which are collective efforts from the whole team. This is a moderated forum.

The current permanent contributors to content on this site are:

- [Gavin Schmidt](#)
- [Michael Mann](#)
- [Caspar Ammann](#)
- [Rasmus Benestad](#)
- [Ray Bradley](#)
- [Stefan Rahmstorf](#)
- [Eric Steig](#)
- [David Archer](#)
- [Ray Pierrehumbert](#)
- [Thibault de Garidel](#)
- [Jim Bouldin](#)

[William Connolley](#) was a contributor, but has now left academia, although his posts are still online.”

- Study any question of interest to you at the **Real Climate** website:
<http://www.realclimate.org/index.php/archives/2004/12/index/#Responses>
- Discuss specific topics of interest in your group, or research together online what Real Climate has to say about the topic.
- Watch the video that compares the strategies used by tobacco companies to seed doubt about the impact of tobacco smoking on health to the strategies currently used by fossil fuel interest groups to seed doubt about the impact of fossil fuel use on climate change. Is the comparison reasonable? <http://climaterealityproject.org/the-deniers/>

5. Prevention & mitigation: Strategies for slowing climate change

Suggested learning activities:

- Research the web and recent print publications on each of the following themes and discuss what you discover:
 - ✓ Reducing carbon emissions for heating, cooling and lighting
See Dauncey, G. (2009). *The climate challenge: 101 solutions to global warming*.
 - ✓ Increasing use of renewable energy sources
See Monbiot, G., (2006), *Heat: How to stop the planet from burning*. Chapter 6, “How much energy can renewables supply?” and Chapter 7, “The energy internet”.
 - ✓ Reducing automobile use – See Monbiot, G., (2006), Chapter 8, “A new transport system?”
 - ✓ Flying less - See Monbiot, G., (2006), Chapter 9, “Love miles”
 - ✓ Carbon capture and storage (sequestration) options
http://en.wikipedia.org/wiki/Carbon_capture_and_storage
 - ✓ Lifestyle change: Reducing consumption & creating zero growth economies.
See Rubin, J. (2012). *The end of growth. *But is that all bad?*
 - ✓ Slowing climate change: politically who can do it?
 - ✓ Preventing climate change – Is it too late?

6. Adaptation: Possibilities for adapting to climate change & actions to minimize the negative impacts

Suggested learning activities:

- Research web and print publications on each of the following themes and discuss what you discover:
 - ✓ Municipal adaptations to climate change
 - ✓ Raising sea walls – Who can do it? What would it cost?
 - ✓ Changing food crops around the globe – Who can do it? What would it cost?
 - ✓ Lifestyle changes: Reducing consumption; creating zero growth economies
 - ✓ Protecting endangered species [See Brand, S. (2009), *Whole earth discipline*, Chapter 8 “It’s all gardening”]
 - ✓ Using Genetically Modified (GM) foods to adapt to climate change
 - ✓ Moving north – following the crops
 - ✓ Creating and maintaining north-south wildlife corridors
- Listen to and discuss the **CBC Radio As It Happens podcast** regarding environmental activist, Mark Lynas, who now supports GM food.
<http://www.cbc.ca/asithappens/features/2013/01/09/environmentalist-mark-lynas-on-the-need-for-gm-foods/>

7. Evaluating energy options –sun, wind, tide, rivers, biofuels, shale gas & oil, clean & dirty oil, clean & dirty coal, conventional & new nuclear...

Suggested learning activities:

- Agree on topics from the list below that are of interest to you, research them and discuss them in your group.
- You may wish to use a system of multiple voting (or multi-voting) so that the topics truly reflect everyone’s opinions and not just those of the most assertive amongst you. [One method of multi-voting is to have each person check off or place “sticky dots” beside the topics of most interest to them. Have each person choose roughly *one-third* of the topics listed. The topics with the most check-marks or dots are the ones to discuss.]

Solar

- Download, review and discuss the following report on **photo voltaic (PV) power**:
World Wildlife Fund. (2012). *Solar PV atlas: Solar power in harmony with nature*.
<http://thinkprogress.org/climate/2013/01/17/1460431/solar-world-land/>
- What are the barriers to generating, storing and distributing energy from this source?
- Review Monbiot, G. (2006). *Heat: How to stop the planet from burning*. Chapter 6, “How much energy can renewables supply?” and Chapter 7, “The energy internet”.
- View the film *The fourth revolution: Energy autonomy* (2010)
This is a documentary film based on the ideas of Hermann Scheer (1944--2010), former member of the German parliament. In 1999, Scheer was awarded the Right Livelihood Award for his "indefatigable work for the promotion of solar energy worldwide." He was President of Eurosolar (the European Association for Renewable Energy) and General Chairman of the World Council for Renewable Energy, and author of four books about renewable energy, including *Energy autonomy: The economic, social and technological case for renewable energy* (2006) and *The energy imperative: 100 percent renewable now*, posthumously published in English in 2011. See a trailer of film:
<http://youtu.be/unaY8mgo2S0>
- Scheer argued passionately that a total replacement of the fossil and nuclear energy system was both technically possible and urgently needed, and that the obstacles are political. He was a strong advocate for renewable energy and distributed generation as a solution to the problems of unequal access to energy globally. He was one of the initiators of the German feed-in tariffs that have led to a major rise in the use of renewable energies in Germany today.
- Discuss Dauncey, G. (2009). *The climate challenge: 101 solutions to global warming*.

Geo-Thermal (deep earth) and Ground Source (shallow earth) heat

- Study and discuss recent web and print publications about geothermal energy sources in Canada and globally and the geothermal policies of various political parties.

As an example, the Green Party of Canada renewable energy policy states that a Green Party Government would:

“4.14. Work with the geothermal energy industry and the oil industry (for their drilling expertise) in a well-funded R & D program to develop Enhanced Geothermal Systems (EGS), drilling down to 10 km to extract 25 GW of power by 2040. In January 2007 a major MIT study (The Future of Geothermal Energy) reported that the USA’s extractable EGS reservoirs contained 2,000 times more primary energy than the USA uses yearly, and that with technology improvements, this could be expanded 10-fold. The resulting energy would have an energy cost in the 6-9 cents kWh range.

4.15. By 2040, if these policies are successful, Canada’s power mix would be:

Hydro:		68 GW firm power
Wind:	50 GW (=	17 GW firm power equivalent)
Solar:	25 GW (=	5 GW firm power equivalent)
Ocean:	12 GW (=	4 GW firm power equivalent)
Biomass, biogas and microhydro:	3 GW (=	1 GW firm power equivalent)
Geothermal:		25 GW firm power
Total:		120 GW firm power equivalent “

Shale Gas:

- Study and discuss the following infographic from the David Suzuki Foundation on the cost of exporting natural gas.

<http://www.davidsuzuki.org/publications/downloads/2012/LiquidNaturalGas-Infographic.png>

- What are the alternatives?
- Fracking for gas trapped in shale can result in fugitive escape of methane and contribute to global warming and possibly other harm. How probable is fugitive escape of methane from fracking? Can fracking for shale gas be adequately controlled?
- Undersea sources of **methane hydrates** could outpace shale gas if developed. What would the environmental impact be? <http://www.transitionnc.org/node/53/2889#comment-2889>

Clean Coal:

- Is any coal clean? Review and discuss these provocative websites:

<http://www.coalisclean.com/#>

<http://www.coal-is-dirty.com/the-coal-hard-facts>

Nuclear & New Nuclear

Suggested learning activities:

- Research discuss web and print publications on the following themes:
 - ✓ Thorium – An alternative nuclear fuel (feasibility, advantages, disadvantages)
 - http://en.wikipedia.org/wiki/Thorium_fuel_cycle
 - http://www.ted.com/talks/kirk_sorensen_thorium_an_alternative_nuclear_fuel.html
 - ✓ Compare and contrast views of different commentators concerning nuclear options:
 - Nuclear Energy Industry NEI blog <http://neinuclearnotes.blogspot.ca/>

8. Geo-engineering: Strategies for slowing or reversing global warming—evaluating the options

Suggested learning activities:

- Research the web and recent print publications on each of the following themes and discuss what you discover. What are the pros and cons of each? Are they affordable? What bodies would have enough political influence to implement them?
 - ✓ Introduce sulfur dioxide aerosol at high altitudes to reflect solar radiation into space
 - ✓ Generate heat reflective clouds using solar, tide or wind-powered ocean pumps
 - ✓ Create carbon sinks by raising cold ocean water with tidal pumps
 - ✓ Create carbon sinks by adding iron sulphate to the oceans:
e.g. experiment in 2012 in Hadia Gwail:
http://www.huffingtonpost.ca/2012/10/19/iron-sulfate-haida-gwail-dump-defended_n_1984574.html
- Exploit “metagenomics” (See Brand, S. (2006). Chapter 6, “Gene dreams”.)

9. International approaches to climate change

Suggested learning activities:

- Start by reviewing the policy documents located on the David Suzuki Foundation website:
<http://www.davidsuzuki.org/publications/reports/climate-change/>
- Locate summaries of the following UN Framework Convention on Climate Change (UNFCCC) documents online, then study and discuss them. What were their strengths and weaknesses? What’s next in this area of work?
 - ✓ The Kyoto Convention (2002)
- The Copenhagen Accord (2009) <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>
 - ✓ The Doha Agreement (2012)
- Review renewable energy country profiles – International Renewable Energy Agency (IRENA)
<http://www.irena.org/menu/index.aspx?mnu=cat&PriMenuID=47&CatID=99>

10. Canadian approaches to climate change

- See the Government of Canada Climate Change website
<http://www.climatechange.gc.ca/default.asp?lang=En&n=E18C8F2D-1>
- Read and discuss Canadian approaches to climate change policy in the David Suzuki Foundation report: *All over the map 2012: A comparison of provincial climate change plans*
 - ✓ <http://www.davidsuzuki.org/publications/reports/climate-change/>
- Read and discuss Canadian political party platforms on climate change and energy in **Section 12** of this curriculum. Which policies seem best? Which are most achievable?

Part C: Action Options

11. Environmental action - raising public awareness

An engaged populace can influence government policy. This can be done through the use of normal political processes—party policy formulation and elections—or by shaping public opinion through education, media and demonstrations. This section invites participants to identify areas outside of politics where initiative can be taken to influence public opinion about climate change.

Suggested learning activities:

- Research web and print publications on each of the following themes and discuss what you discover:
 - ✓ Mainstream and alternative media coverage of climate change policies and practice
 - ✓ Public school (K-12) curricula on climate change
 - ✓ College and university continuing education courses on climate change
 - ✓ College and university credit programs & courses on climate change
 - ✓ Divestment of investments in questionable companies
 - ✓ Non-violent direct action: demonstrations, marches, etc. with *no* property destruction
 - ✓ Social media coverage of climate change

Follow @UnitarianUCV <https://twitter.com/UnitarianUCV> on Twitter as one way to listen in on many voices supporting both climate change action and Unitarian Universalist values. In February 2013, the Unitarian Church of Vancouver Twitter account was following approximately 150 Twitter accounts promoting sustainable energy and climate change mitigation action, and approximately 150 Unitarian Universalist Twitter accounts across Canada, USA, Europe and Asia.
- Discuss what you might do to help influence climate change action through these avenues.

Some climate change advocacy groups to consider.

BC Sustainable Energy Association – BCSEA (BC based)

Mission: “The BC Sustainable Energy Association empowers British Columbians to build a clean, renewable energy future.”

Be the Change Earth Alliance (Canada based)

Statement: “Be The Change Earth Alliance (BTCEA) is a Canadian charitable organization founded in 2005 focused on the development of a citizen engagement program to support environmental, social and personal behaviour changes in community, the workplace, and in schools. Through our groundbreaking **community engagement** and **sustainability education** programs, we empower people of all ages to support and inspire one another in adopting sustainable lifestyles and creating healthy, thriving communities.”

COTAP - Carbon Offsets to Alleviate Poverty (USA based) <http://cotap.org/>

Mission: The mission of Carbon Offsets To Alleviate Poverty (COTAP) is to empower individuals in developed countries to simultaneously tackle the world’s biggest environmental challenge (global warming) and the world’s biggest humanitarian challenge (extreme poverty).

SolarBC (BC based) A BC Sustainable Energy Association program - <http://www.solarbc.ca/about>

Statement: “Our goal is to encourage people to be less reliant on fossil fuels, and to join the solar revolution by tapping into the free energy provided by the sun. Right now, solar is the leading alternative-energy industry in the world. Germany has installed over 150,000 solar hot water systems to date, while California has set a goal of a million solar roofs by 2017. Austria, Spain, China and many other countries are pioneering solar hot water as a viable, secure, reliable energy supply. B.C. has great potential to join this prestigious group. Our aim is to get solar technology installed on 100,000 roofs across BC by 2020.”

Tanker Free BC (Vancouver based) <http://www.tankerfreebc.org/>

Statement: “Tanker Free BC was founded in 2010 by a group of concerned citizens who discovered that tankers loaded with tar sands crude were passing through Vancouver Harbour. Since that alarming discovery we have worked to build a grassroots movement to protect our coast and keep Vancouver from being turned into a tar sands shipping port. Since the announcement in April of 2012 by Kinder Morgan that they plan to double the size of their Trans-Mountain pipeline and increase the number of tankers that pass through Vancouver Harbour to 360 a year, we have decided to step up our campaign. Look for us out in your community where we will be holding town hall meetings, going door to door to talk to folks and online where we will be launching a series of provocative videos and building our own online community.”

UBC Climate & Energy Campus Initiatives (Vancouver based)

<http://www.sustain.ubc.ca/campus-initiatives/climate-energy>

Statement: “In 2007, we met our Kyoto targets for academic buildings—five years early and in spite of growing our building floor space by 35 per cent and enrolment by 48 per cent. In 2010, our Climate Action Plan committed us to bold greenhouse gas (GHG) emission reduction targets—33 per cent by 2015, 67 per cent by 2020, and 100 per cent

by 2050, compared to 2007 levels. We're now investing in large-scale energy retrofits, alternative energy systems, and engagement strategies to meet these ambitious energy and climate goals."

Wilderness Committee (Vancouver, Toronto, Winnipeg & Victoria based; formerly known as the Western Canada Wilderness Committee) <http://wildernesscommittee.org/>

Statement: "The Wilderness Committee, founded in 1980, is a registered non-profit society with charitable status. With over 60,000 members, donors and volunteers, we are Canada's largest membership-based, citizen-funded wilderness protection group. Our head office is in Vancouver, with field offices in **Victoria**, **Winnipeg** and Toronto. We are united in our mission to protect Canada's biodiversity through strategic research and grassroots public education. We believe that the right, the duty and the ability to act are integral to citizenship. We value wilderness, with all its natural biodiversity, as absolutely vital to the health of people, communities and the planet. We act with integrity and courage to mobilize citizens to take lawful, democratic action to defend Canada's remaining wilderness and wildlife.

It is the combined voices of our thousands of supporters, in partnership with our dedicated board, staff, and volunteers that has allowed the Wilderness Committee to campaign successfully to protect millions of hectares of Canadian wilderness in over 55 key wilderness areas."

12. Political action: influencing government policy and election outcomes

Governments are empowered by the electorate to implement policy. By becoming involved in the political process you can help to change government policy on climate change, either by working within selected parties to help forge good policy, or simply by voting and mobilizing others to vote for parties whose policies are most progressive with regard to climate change.

Suggested learning activities:

- Obtain, compare and contrast federal, provincial & regional political party policies on climate change and renewable energy.
- Join or financially support political parties of your choice to influence policy in those parties.

Canada

- **Canadian Chamber of Commerce** - comparative chart, pp 8-9,
http://www.chamber.ca/images/uploads/General/2011/110420_2011%20Federal%20Election%20grid.pdf
- **Sierra Club 2011 Environmental Report Card**
http://www.sierraclub.ca/sites/sierraclub.ca/files/election_report_card_april_20.pdf
- **Bloc Quebecois** – (climate change policies not located)
- **Conservative Party of Canada** - Page 41,
http://www.conservative.ca/media/2012/06/ConservativePlatform2011_ENs.pdf

- **Green Party of Canada** - Green Party Climate Plan: A New Energy Revolution to Avert Climate Catastrophe, 2007, 14 pages,
http://www.greenparty.ca/sites/greenparty.ca/files/Climate_Plan.pdf
- **Liberal Party of Canada** - *Environment Resolutions (5):*
<http://convention.liberal.ca/category/impact-analysis/>
Energy Resolutions (3): <http://convention.liberal.ca/category/energy/>
Energy policy resolutions submitted and voted on by Party members, 2012: MB-32, MB-33, AB-44, BC-51, YK-57, QC-SK-99, QC-101
- **New Democratic Party of Canada** - Pages 7 – 10,
http://xfer.ndp.ca/2012/2012-12-17-Email-Convention/Mtl2013_PolicyBook_E.pdf

BC

- **Conservative Party of BC** – (No policy link located.)
- **Green Party of BC** - *Green Book* http://www.greenparty.bc.ca/green_book_2013
- **Liberal Party of BC** –
http://www.bcliberals.com/bc_liberal_record/environment/
<http://www.bcliberals.com/media/FULLPLATFORM.pdf>
- **New Democratic Party of BC** – (No policy link located.)

Research political party policies in your province or territory:

- **Conservative Party** –
- **Green Party** –
- **Liberal Party** –
- **New Democratic Party** –
- **Parti Quebecois** –
- **Wild Rose Party** –
- **Other** –

- Study and discuss the range of international policies on climate change such as those noted in the links below.
- Start with Wikipedia entries and follow the links and those in the resources section of each site.
- What impact does proportional representation (use of transferable ballots in elections) have on national climate change policies?
- If you're part of a group, assign different members to read and report on different resources. For example:
 - ✓ **Germany's climate change initiatives** <http://www.umweltbundesamt.de/klimaschutz-e/index.htm> - The Federal Environment Agency (Umweltbundesamt)
 - ✓ **The Australian Climate Commission**
<http://climatecommission.gov.au/resources/recommended-reading/>

Developing methane hydrates would be "game over for the climate," writes green blogger Mat McDermott.

It's easy to see why he'd be concerned: methane hydrates contain more carbon than all the world's other fossil resources combined, according to USGS estimates.

Transition News, 2013.

<http://www.transitionnc.org/node/53/2889#comment-2889>

On 10 February 2011, Tim Flannery was appointed as the Chief Commissioner of the Climate Commission by the Australian Government. The Commission is a panel of leading scientists and business experts who provide an authoritative, independent source of information for all Australians. The Commission is an independent body which does not comment on government policy.

- ✓ **Tim Flannery** http://en.wikipedia.org/wiki/Tim_Flannery

13. Non-violent direct action

When political influence fails, many advocates for justice argue that it is highly ethical for citizens to oppose, through non-violent direct action, what they believe are unjust laws or discriminatory practices, and to be prepared to accept the full legal consequences of direct action—typically arrest, fines and imprisonment. *(In this curriculum guide we have not identified resources for education about the philosophy and ethical practice of non-violent direct action.)*

Suggested learning activities:

- Research and study the principles, ethics and best practices of non-violent direct action.
- Learn practical action strategies from experienced and ethical activists.
- Study examples of effective and ineffective non-violent direct action.

14. Personal actions to prevent or reduce the harms of climate change

Each person can have a small but positive effect on climate change by lifestyle changes.

Suggested learning activities:

- Listen to and discuss the Jeff Rubin and David Suzuki podcast “The end of growth” <http://www.cbc.ca/ideas/episodes/2013/03/13/the-end-of-growth/>

“We don’t need political leadership – all we need is triple-digit oil prices.” Jeff Rubin, “The end of growth”. CBC Radio Ideas, podcast, 2013-03-13.

- Discuss the following:
 - ✓ Ways to reduce our carbon footprints
 - Insulate buildings
 - Shop locally
 - Eat less meat
 - Reduce, reuse, recycle
 - Walk, cycle, use public transit
 - Reduce fossil fuel use in other ways: voluntary simplicity

- ✓ Study the **Transition Town Movement** which offers avenues toward a fulfilling life using less energy and living in greater harmony with the planet
<http://www.transitionnetwork.org/>
- ✓ Take economic action: divest investments in dirty energy, invest in clean energy with due caution to avoid fraud or taking unreasonable risks.
 - Identify what companies are engaged in questionable climate change practices
 - Identify what pension funds and mutual funds are invested in questionable companies
 - Take steps to divest your personal financial portfolio and those of organizations to which you belong of stocks in companies with questionable climate change practices
 - Take steps to encourage mutual funds and pension funds to divest themselves of investments in companies with questionable climate change practices

15. Ecospirituality: The importance of gratitude and voluntary simplicity in planetary stewardship

Suggested learning activities:

- Study and discuss the following work:
 - ✓ Macy, Joanna. **“The great turning”**
<http://www.joannamacy.net/thegreatturning/three-dimensions-of-the-great-turning.html>
 - ✓ Macy, Joanna. **The work that reconnects**
<http://www.joannamacy.net/theworkthatreconnects/the-wtr-spiral.html>

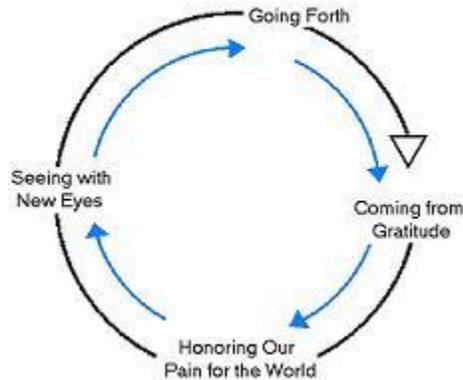
Specific Questions:

- ✓ Macy states: “...structural alternatives cannot take root and survive without deeply ingrained values to sustain them. They must mirror what we want and how we relate to Earth and each other. They require, in other words, a profound shift in our perception of reality—and that shift is happening now, both as cognitive revolution and spiritual awakening.” <http://www.joannamacy.net/thegreatturning/three-dimensions-of-the-great-turning.html>
How do you witness this, if at all, in your own life or the lives of those around you?

Our task must be to widen our circle of compassion to embrace all living creatures and the whole of nature in its beauty.
— Albert Einstein (1879–1955)

- ✓ How do you understand the *Spiral of the Work that Reconnects* that Macy discusses:

Spiral of the Work that Reconnects



- If possible, participate in a Macy workshop on ***The work that reconnects***
<http://www.joannamacy.net/theworkthatreconnects/get-training.html>
- Discuss the following:
 - ✓ **Nurturing the spirit:** “Holding actions” (work to change current destructive policies practices) are exhausting, so those committed to climate change mitigation need to find practices that can nurture the spirit. What are some of those practices?
 - ✓ **Building for tomorrow:** The world will need new institutions for the future, institutions for sustainable food production, sustainable energy, and encouragement for sustainable lifestyles. What options are emerging or needed within our community?
- Discuss these additional ethical approaches to ecospirituality:
 - ✓ Hopkins, R. (2008). *The transition handbook: From oil dependency to local resilience*.
[http://www.mastt.org.uk/files/transition-handbook\[1\].pdf](http://www.mastt.org.uk/files/transition-handbook[1].pdf)
 - ✓ Smith, E. & Dauncey, G. (2007). *Building an ark: 101 solutions to animal suffering*. Gabriola Island, BC: New Society Publishing.
 - ✓ Thich Nhat Hanh on engaged Buddhism
<http://www.plumvillage.org/thich-nhat-hanh.html>
 - ✓ Voluntary simplicity – See the Canadian Earth Institute course at
<http://www.canadianearthinstitute.org/course.php?ID=7>

“Don’t expect governments to change their policies until you change.” Jeff Rubin, “The end of growth”. *CBC Radio Ideas*, podcast, 2013-03-13.

16. Action groups in your area

Finding groups in your geographic area whose values and action plans are compatible with yours can provide avenues of effective work as well as moral support for all the individuals involved.

Suggested learning activities:

Identify **local groups** doing education and environmental action work in your geographic area, study their policy statements and action plans and engage with one or more of them in a way that suits your own values. Following is a partial list of groups to consider.

The following resources are incomplete and provide only a starting point – the rest is up to you!

Consider what you might do within local organizations, churches and places of business:

- ✓ **Create** sustainable energy and ethical operations policies and procedures for the organization (For example, contact the Unitarian Church of Vancouver for a copy of its policies and procedures in this area.)
- ✓ **Donate** to your church's environmental protection and energy conservation programs
- ✓ **Help** your place of employment implement progressive environmental protection, energy conservation, and clean energy investment programs. See for example
 - **University of British Columbia Climate & Energy Campus Initiatives**
<http://www.sustain.ubc.ca/campus-initiatives/climate-energy>)
 - **VanCity Credit Union – Annual Report 2011**
Statement: "On behalf of VanCity Investment Management (VCIM) and the *IA Clarington Inhance SRI* family of mutual funds, the sub-advisory group leads corporate engagement and shareholder advocacy activities to champion change in the companies in which members and clients invest. Recent engagement areas include climate change, health and safety, ecosystem integrity, community relations, human rights and diversity."
- ✓ **Support** local farmers' markets and organic farming.

Here are links to a few climate-related advocacy groups in Metro Vancouver

- ✓ BC Sustainable Energy Association (local & provincial offices) <http://www.bcsea.org/>
- ✓ Be the Change Earth Alliance (local office)
http://www.bethechangeearthalliance.org/community_home
- ✓ Burnaby Pipeline Watch <http://burnabypipelinewatch.ca/> (regional group) part of BROKE (Burnaby Residents Opposed to Kinder-Morgan Expansion)
- ✓ Burns Bog Conservation Society (regional group) <https://www.burnsbog.org/>
- ✓ Dogwood Initiative <http://dogwoodinitiative.org/no-tankers/learn-more> (provincial group)
- ✓ Defend Our Coast <http://defendourcoast.ca/about-us/> (regional coalition)

Unitarian congregations and specialty groups within the Canadian Unitarian Council and the Unitarian Universalist movement can provide moral and social support for those involved in climate change action. Contact local, national or international Unitarian groups:

- ✓ Beacon Unitarian Church <http://www.beaconunitarian.org/>
- ✓ Canadian Unitarian Council Environment Monitoring Group (national group) http://cuc.ca/social_responsibility_monitoring_groups/environment/
- ✓ North Shore Unitarian Church <http://www.vancouverunitarians.ca/cms/site/lang/en/pid/301>
- ✓ South Fraser Unitarian Congregation <http://www.surreyunitarians.ca/>
- ✓ Unitarian Church of Vancouver Environment Committee (local group) <http://www.vancouverunitarians.ca/cms/site/lang/en/pid/301>
- ✓ UU Ministry for Earth <http://uuministryforearth.org/> (UUA organization)

Review and evaluate the following **international and national avenues for action** to determine how well they suit your interests and skills:

- Science of climate change
 - ✓ David Suzuki Foundation <http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/climate-change-101-1/>
 - ✓ Greenpeace <http://www.greenpeace.org/canada/en/About-us/Contact-us/> (national & international offices)
 - ✓ Energy BC <http://www.energybc.ca/index.html> (regional & global non-profit group)
- Ecospirituality
 - ✓ Joanna Macy, **Coming back to life** <http://www.joannamacy.net/theworkthatreconnects.html>
 - ✓ The Long Now Foundation: <http://longnow.org/>
Twitter @longnow
 - ✓ Engaged Buddhism – DharmaNet International <http://www.dharmanet.org/lcengaged.htm>
 - ✓ The Transition Town movement [http://www.mastt.org.uk/files/transition-handbook\[1\].pdf](http://www.mastt.org.uk/files/transition-handbook[1].pdf)
 - ✓ Canadian Earth Institute - <http://www.canadianearthinstitute.org/>
- Policy advocacy, lobbying, social action
 - ✓ WWF World Wildlife Fund <http://www.wwf.ca/>
 - ✓ International Greenpeace offices
- Financial
 - ✓ Donate to your church's environmental and energy conservation programs
 - ✓ Ask your personal financial advisor to help you divest your investments of dirty energy
 - ✓ Consider <http://www.iaclarington.com/en/iac/about-us/our-investment-philosophy.aspx>

- Personal Action – a reminder again from Stewart Brand:
“There is so much work to do that it doesn’t matter who does it. Large corporations making money doing the right thing is just fine. The United Nations sending black helicopters to do the right thing is just fine. Property-defending conservatives doing the right thing is just fine. Placard-waving leftists stopping the wrong thing is just fine. Paul Hawken’s myriad micro-organizations doing the right thing locally is the health of a system curing itself.”
—Stewart Brand, *Whole earth discipline*, p. 299.
- Through discussion and personal research, identify non-violent direct action groups in your area.

17. Resources

Be the Change Earth Alliance. (2012). *Be the change action guide*.

http://www.bethechangeearthalliance.org/action_guide \

Brand, S. (2009). *Whole earth discipline: An ecopragmatist manifesto*. Viking.

http://www.amazon.ca/Whole-Earth-Discipline-RestoredWildlands-Geoengineering/dp/0143118285/ref=sr_1_3?s=books&ie=UTF8&qid=1357038770&sr=1-3

CBC Radio. (2013/03/13). *Ideas (podcast)*. “The end of growth: Jeff Rubin and David Suzuki”

<http://www.cbc.ca/ideas/episodes/2013/03/13/the-end-of-growth/>

CBC Radio. (2013/01/09). *As it happens (podcast)*. “Environmentalist Mark Lynas on the need for gm foods.” <http://www.cbc.ca/asithappens/features/2013/01/09/environmentalist-mark-lynas-on-the-need-for-gm-foods/>

Climate Progress (website) <http://thinkprogress.org/climate/issue/>

Dauncey, G. (2009). 15 minute TedX introduction to Dauncey’s work via YouTube

<http://www.youtube.com/watch?v=ZEf4qzYsh5A>

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http://www.earthfuture.com/theclimatechallenge/downloads/challenge_circles.pdf

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David Suzuki Foundation. (2012). *All over the map 2012: A comparison of provincial climate change plans*. <http://www.davidsuzuki.org/publications/reports/climate-change/>

Davidson, O. G. (2012). *Clean break: The story of Germany's energy transformation and what Americans can learn from it*. Kindle edition. <http://www.amazon.ca/Clean-Break-Transformation-Americans-ebook/dp/B00A4IEJ5K>

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<http://www.greenenergyfutures.ca/about-us>
A range of web-based articles on energy options.
- Dyer, G. (2008). *Climate wars*. Toronto: Random House.
- Earthfuture* (Guy Dauncey's website) <http://www.earthfuture.com/>
- Energy BC* <http://www.energybc.ca/index.html> (non-profit website)
- Flannery, T. (2011). *Here on earth: A natural history of the planet*. HarperCollinsCanada.
http://www.amazon.ca/Here-On-Earth-Tim-Flannery/dp/1554689821/ref=sr_1_3?s=books&ie=UTF8&qid=1357064343&sr=1-3
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http://www.amazon.ca/The-Weather-Makers-Tim-Flannery/dp/0002007517/ref=sr_1_1?s=books&ie=UTF8&qid=1357038474&sr=1-1
- Government of Canada. *Canada's action on climate change*.
<http://www.climatechange.gc.ca/default.asp?lang=En&n=E18C8F2D-1>
- Hansen, J. (2009). *Storms of my grandchildren: The truth about the coming climate catastrophe and our last chance to save humanity*. New York: Bloomsbury Press.
- Hawken, P. (2007). *Blessed unrest: How the largest movement in the world came into being and why no one saw it coming*. New York: Viking
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Monbiot, G. (2006). *Heat: How to stop the planet from burning*. Toronto: Anchor Canada.
http://www.amazon.ca/Heat-Stop-Planet-From-Burning/dp/038566222X/ref=sr_1_30?s=books&ie=UTF8&qid=1357038242&sr=1-30

Real Climate (website) <http://www.realclimate.org/index.php/archives/2004/12/about/>

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Scheer, H. (2012). *The energy imperative: 100 percent renewable now*. London, Toronto, New York: Earthscan.

Scheer, H. (2010). *The fourth revolution: Energy autonomy*. [Film available from the European distributor and in Metro Vancouver from Langara College.]

Scheer, H. (2006). *Energy autonomy: The economic, social and technological case for renewable energy*. London: Earthscan.

Smith, E. & Dauncey, G. (2007). *Building an ark: 101 solutions to animal suffering*. Gabriola Island, BC: New Society Publishing.

The Climate Challenge (website) <http://www.earthfuture.com/theclimatechallenge/index.html>

The Daily Climate (website) <http://www.dailyclimate.org/about>

Statement: "**Mission:** The Daily Climate is an independent media organization working to increase public understanding of climate change, including its scope and scale, potential solutions and the political processes that impede or advance them. The Daily Climate does not espouse a political point of view on the news but instead reports the issue to the best of our ability. Editorial integrity is the foundation of our mission."

Transition Network: <http://www.transitionnetwork.org/>

Statement: "supports community-led responses to climate change and shrinking supplies of cheap energy, building resilience and happiness"

World Wildlife Fund. (2012). *Solar PV atlas: Solar power in harmony with nature*.
<http://thinkprogress.org/climate/2013/01/17/1460431/solar-world-land/>



Anything else you're interested in is not going to happen if you can't breathe the air and drink the water. Don't sit this one out. Do something. You are by accident of fate alive at an absolutely critical moment in the history of our planet.

— Carl Sagan