



GREEN ENERGY AND CLIMATE CHANGE WORKING GROUP AGENDA

Friday, April 8th, 2022 - 10:00 a.m.
Via GoToMeeting

GoToMeeting - <https://meet.goto.com/242549741>

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Video Conference Participation Etiquette

- a meeting via video conference shall never be treated differently than a meeting in person, whereby all attendees shall abide by proper meeting procedure and etiquette;
- we ask that all public attendees mute their cameras and mics; doing so will eliminate any background noise and create a much more seamless process (for Members only - if/when you wish to speak during the meeting, you will simply unmute your mic and upon completion of your thought, please re-mute)
- the Chair will call the meeting to order at the time indicated on the agenda;
- roll call will be completed visually by the Chair;
- the Chair will then remind all attendees to place their devices on mute
- as the Chair moves through the agenda, he will call on the appropriate staff person to speak to their reports;
- we request that you retain your questions until the end of the report, at which time the Chair will ask if anyone has questions;
- just as during an in-person meeting, members will be required to raise their hand and the Chair will call on you to speak;
- when the Chair calls a vote, you will raise your hand for the vote in favour and then in opposition, if necessary.

Chair, Deputy Reeve Barrie Crampton

- 1. CALL TO ORDER**
- 2. AMENDMENTS/APPROVAL OF AGENDA**
- 3. DISCLOSURE OF PECUNIARY INTEREST AND/OR CONFLICT OF INTEREST AND GENERAL NATURE THEREOF**
- 4. APPROVAL OF MINUTES**

- i) **Minutes – February 25th, 2022 – *attached, page 5.***

Suggested Recommendation:

“THAT, the minutes of the Green Energy and Climate Change Working Group Meeting held on February 25th, 2022 be approved as circulated.”

5. DELEGATIONS & PRESENTATIONS

None.

6. BUSINESS

i) **Climate Action Plan**

- Climate Change Action Project List for 2022 – Noelle Reeve, Planner

ii) **Communications**

- Lanark County Climate Change Committee Update – Bob Argue
- Township Newsfeeds/Website – “Drawdown Stories” – Councilor, Rob Rainer
- Communication suggestions – Peter Nelson – *attached, page 14.*

7. NEW/OTHER BUSINESS

None.

8. NEXT MEETING DATE AND PROPOSED AGENDA ITEMS

Next Meeting: TBD

9. DEFERRED ITEMS

**The following items will be discussed at the next and/or future meeting:*

- *None at this time*

10. ADJOURNMENT

MINUTES

GREEN ENERGY AND CLIMATE CHANGE WORKING GROUP MINUTES

Friday, February 25th, 2022

10:00 a.m.

GoToMeeting

ATTENDANCE:

Members Present: Chair, Deputy Reeve Barrie Crampton
Councillor Rob Rainer
Bob Argue
Jennifer Dickson
Douglas Barr
David Poch

Members Absent: Peter Nelson

Staff Present: Noelle Reeve, Planner
Allison Playfair, Planning Administrative Assistant,
Recording Secretary

1. CALL TO ORDER

The meeting was called to order at 10:01 a.m.
A quorum was present.

The Chair overviewed the Video Conference Participation Etiquette that was outlined in the Agenda.

2. AMENDMENTS/APPROVAL OF AGENDA

i) Addition under New/Other Business: Climate Action Budget Items for 2023

The agenda was approved as amended.

3. DISCLOSURE OF PECUNIARY INTEREST AND/OR CONFLICT OF INTEREST AND GENERAL NATURE THEREOF

None at this time.

4. APPROVAL OF MINUTES

i) Minutes – November 12th, 2021.

The minutes of the Green Energy and Climate Change Working Group Meeting held on November 12th, 2021, were approved as presented.

5. DELEGATIONS & PRESENTATIONS

None.

6. BUSINESS

i) Climate Action Plan Implementation

- Specific projects to reduce GHGs – Noelle Reeve, Planner

The Planner updated the Working Group on the main targets for the Climate Action Plan under Corporate Emissions. These relate to Waste, Buildings and Vehicles.

Waste – The Planner advised the Working Group that Cambium Engineering is completing a Waste Audit to develop a Waste Management Plan for the Township. Fall and Winter audits have been completed. Additional audits will occur in the Spring and Summer of 2022 to complete sampling through a full year.

Once the audits have been completed (end of July 2022) the consultants will submit a report for review by the Public Works Manager in the fall of 2022. The Planner noted the timing may mean the Waste Management Plan may not be passed until after the municipal election in October 2022.

The Waste Management Plan is expected to link to the Climate Action Plan by recommending diversion of compostables to a separate waste management stream in order to reduce the release of methane (a significant climate change accelerant) from the waste site.

Building – the Planner reported that McIntosh Perry Engineering has completed a Buildings Condition Assessment for the Township. The Public Works Manager will bring a report to Council in May or June of 2022.

The Buildings Condition report is expected to link to the Climate Action Plan because when repairs are needed to the Township buildings, that is the time to incorporate energy efficiency upgrades. The Federation of Canadian Municipalities has federal funding available to increase the energy efficiency of municipal buildings that are open to the public.

It is possible that the Burgess Hall may not be able to be repaired and may need to be replaced. The Working Group discussed the possibility of converting the building into office space for the Township and apartments for affordable housing above. Working Group members advised if the building was built to LEEDS standards, the noise would not travel through windows of building. Deputy Reeve Barrie Crampton noted that maybe a good location for a municipal employee to rent to be close to their job.

Vehicles – The Public Works Manager will be preparing a Request for Proposal (RFP) for an electric vehicle for the Chief Building Official vehicle and will circulate to the Working Group before posting the RFP later this spring 2022. This was an action identified by the Township Climate Action Plan.

Bob Argue suggested to the Working Group that the Township should include in the RFP an extended period of time for pick-up of the vehicle because wait times for electric vehicles can be months rather than days or weeks. David Poch recommended that the RFP be based on performance criteria, not prescriptive.

It was noted that Lanark County has committed to \$5,000 towards the purchase of an electric vehicle by its lower tier municipalities. The County itself has put a down payment on an electric Ford Lightning truck for its fleet and is purchasing smaller electric equipment e.g., lawn mowers, etc.

Councilor Rob Rainer asked if it was possible for the Township to include an incentive to sellers to lower the price in return for allowing the dealership to be identified on the vehicle for advertising purposes. The Planner will ask the Treasurer to clarify if the purchasing by-law allows incentives/advertising.

The Planner also updated the Working Group on the main targets for the Climate Action Plan under Community Emissions. These relate to Transportation, Residential Buildings, and Education.

Transportation – This is the biggest sector of community emissions. It is expected that the natural aging of residents' vehicles will lead to purchases of electric vehicles (especially as the federal and provincial governments have set targets of 2035 for banning sales of internal combustion engine vehicles - gas/diesel powered).

The Township's Climate Action Plan committed to supporting this transition off of fossil fuels by installing a car charger at the municipal building at 217 Harper Road. This action will occur in this year later in 2022.

Residential – Reducing the use of oil for home heating is something the Township Climate Action Plan identified as important. The Township has been working with FCM and the Clean Air Partnership on creating a Property Assessed Clean Energy program (PACE) where residents can receive low interest loans as well as grants to upgrade their heating systems to be more energy efficient (e.g., using air source heat pumps) and cheaper to run. The loans are tied to the property and paid back over time rather than being tied to the owner. The Township hopes to have a program set up by the Fall of 2022.

On the new construction front, the Planner has been sharing information on Green Standards and federal grants with the Lanark Leeds Home Builders Association.

Education – The Township Climate Action Plan emphasized educating the community about what steps they can take as individuals to fight climate change.

The Planner noted that Council was interested in sharing information around the climate change impacts of idling.

Councillor Rainer brought up the topic of the impacts of food choices. While acknowledging that food choices are a personal issue, he thought the Township could provide information. The Planner noted the Township is hiring a Community Services Coordinator with interviews would be taking place in March. This position could coordinate some outreach to the community on this topic.

The Working Group would like to add a module to the Climate Action Plan look at food waste and Green House Gases under the Community Emissions section. They noted the graphs in the Climate Change Action Plan 2020 for the Community do not reflect the impact of food waste, nor the impact of various types of food choices, nor is food security addressed.

Councillor Rainer also noted that there is not enough detail on what individuals can do in a variety of areas. While FCM may have required the Township to use a template to meet its grant obligations, the Township should go beyond those requirements to provide more information to the public.

For example, the Climate Action Plan does not discuss the impacts of air transportation, consumer purchases, etc. These are all areas for education.

As a topic for public education, the Planner noted that Sue Brandum had shared a presentation by Ann Baird on Lanark Highlands' Carbon Budget and the Planner would like to present something similar to Tay Valley

Township Council to illustrate the urgency of taking action on Climate Change. Deputy Reeve Barrie Crampton would like the power point on the Carbon Budget to be circulated to the Working Group.

- FCM Loan Program Update – Noelle Reeve, Planner

The Planner provided more detail on the PACE program described above. Lightspark has identified 6 archetypes of housing in Tay Valley township (by age, heating fuel, and postal codes).

They have also identified the number of housing types and approximate cost of their energy upgrades and the amount of GHGs to be reduced. The FCM Loan Program would be substantial enough for larger energy retrofits (beyond window replacement) to heating systems with a portion of the proposed funding ear-marked for low-income households.

The next step is to work with the Clean Air Partnership to design the loan program.

- Waste Management Plan Timeline – Noelle Reeve, Planner

As stated above, the draft Waste Management Plan is expected to be ready by this Fall, 2022.

The Waste Management Plan will feed into the Asset Management Plan for all the Townships assets. The Asset Management Plan, in turn, will be viewed through a Climate Lens. A grant was received by the Township to hire an intern who will assist the Tay Valley Treasurer with preparing the information and software needed for a consultant to use to produce a robust Asset Management Plan.

Official Plan Growth Management Update – Noelle Reeve, Planner

The Planner updated the Working Group on the Official Plan Five Year Amendment. Growth management is an important part of the Official Plan as the Township has experienced a six-fold increase in growth (60 single family homes and 12 cottages were built last year). Growth management relates to the Climate Action Plan because clustering development reduces vehicle and heating GHG emissions. Clustered development also preserves biodiversity and retaining old trees and wetlands are goals of the Climate Action Plan.

She noted that the consultant from Jp2g has identified 600 vacant lots in the Township, and many more lots could be created by severance. This supply of lots exceeds demand and promotes scattered, sprawl development.

Council was provided three different options for growth management. One option is the status quo - to leave the date (January 1, 1991) and number of severances (3 plus the retained lot) as is. Another option is to move the date forward by 5 years (to allow a land holding that existed before January 1, 1996 to be severed) and reduce the number of severances to 1 plus the retained lot.

The third option is to focus growth on one or two existing hamlets to create more density to encourage micro transportation opportunities, a community store, a bakery, etc. A full comprehensive review of the Hamlet boundaries would be required to be undertaken after this Official Plan update. She noted the County will be doing a comprehensive review of its Official Plan and settlement areas in 2023 so the Township would receive population and job allocations as a result of that process.

The Township Official Plan Amendment will be ongoing for the next 2 or 3 months at least. Council will review proposed changes and will then hold public meetings in person in the three wards (likely at 217 Harper for Bathurst, the BVM Hall in Stanleyville for North Burgess, and the Maberly or ABC Hall for South Sherbrooke.)

The Planner advised the Working Group that the Ministry of Natural Resources and Forestry (MNRF) notified her that they will not be updating any new Provincially Significant Wetlands or Areas of Natural and Scientific Interest (ANSI) for the Official Plan.

The Planner explained that in the last Official Plan update they de-designated one of the largest wetlands in the Township (the Maberly Bog) as a regional ANSI. This is very disappointing as wetlands are substantial carbon sinks (see Attachment 1). MNRF stated the Maberly Bog could only be re-designated if the Township hires a biologist to determine through field study using the Ontario Wetland Evaluation System assessment that it is significant.

However, work on the Climate Action Plan goals for protecting natural assets has moved forward with respect to trees. Council passed a Tree Canopy Policy and the Planning Department is expecting to receive mapping from RVCA to show where there is less than 30% tree cover and retaining or replacing trees will then be incorporated into the approval of building permits.

ii) **Communications**

- Lanark County Climate Change Committee Update – Bob Argue
Bob Argue updated the Working Group on County actions. A special meeting was held in early February as well as a meeting on Tuesday February 22, 2022, to prioritize a long list of potential action items into a

short list. The Committee first focused on developing principles for assessing the actions.

The Committee asked the following questions for each proposed action:

Does the action reduce fossil fuel use?

Does the action reduce energy costs?

Does the action keep expenditures within the community?

Does the action build resilience?

Does the action promote co-benefits (e.g., jobs, natural assets, health, air quality)?

The Lanark County Climate Change Committee, therefore, identified the following priorities:

- 1) Eliminate fossil fuel use in new builds and in retro-fits
- 2) Maximize energy efficiencies and maximize generation of local renewal energy
- 3) Reduce waste
- 4) Create a climate conscious culture within the community
- 5) Increase funding and access to programs for residents to reduce GHGs
- 6) Sequester carbon in natural assets and maintain natural assets

The next step for the Lanark County Climate Change Committee is to discuss long term and short term actions.

- Educational Outreach about Idling – Noelle Reeve, Planner

From a previous meeting the Planner noted that when the Community Services Coordinator is hired they would be working on an Education Outreach in general and could incorporate information on idling to help educate the community.

- Follow up on ROMA Delegations – Noelle Reeve, Planner

The Planner commented that the Delegation meetings with the Minister of Environment, Conservation and Parks (MECP) and the Minister of Energy went well. The Minister of MECP stated the province's Climate Change Impact Assessment team was making progress; that electric car charging stations would be provided by the province in our area; and the province was committed to tree-planting.

The meeting with the Minister of Energy was more focused (see Attachment 2 delegation request)– *attached page 8*
In response to the Minister’s invitation, County councillors requested that the Working Group prepare a response to the Minister on Community Net Metering.

Deputy Reeve Barrie Crampton did not want to lose the momentum from the Minister’s meeting so with input from the Working Group, the Planner will draft a resolution for Tay Valley Township Council to discuss at the next Committee of the Whole meeting March 8, 2022 and Barrie would take the resolution to County Council and possibly beyond to the Eastern Ontario Warden’s Caucus.

- Tay Valley Township Guide – Noelle Reeve, Planner

The Planner advised the Working Group that a page on Climate Change has been submitted for the Tay Valley Guide.

7. NEW/OTHER BUSINESS

- i) **Climate Action Budget Items for 2023**
Deputy Reeve Barrie Crampton

The Deputy Reeve wanted to ensure that a Climate Change line item would appear in the next Tay Valley Budget (for 2023), similar to the \$200,000 line item in the 2022 County budget for Climate Change. The Working Group discussed what that line item could fund as follows:

- Future vehicle purchases identified by the asset management plan should be electric vehicles;
- New incentives could be given to residents to install solar panels to generate hydro to put back into the grid. Perhaps a property tax rebate could be offered?
- Tree planting and protection
- One suggestion was for a green revolving fund to be established from the savings the Township accrues from adopting energy efficient technology, e.g., solar panels at 217 Harper sending energy to Hydro could pay for Hydro costs at other buildings with funds left over.

The Planner will discuss a budget line item with the Treasurer and CAO (likely in May) once the Treasurer has completed the year end audit.

Adaptation Plan for the Township

Councillor Rainer noted that the funding the Township received for its first Climate Action Plan was for a mitigation plan. However, an adaptation plan is needed to address such issues as the Township's response to heat domes; wildfire risk, droughts, floods, freezing rain, etc.

The Working Group agreed that an Adaption Plan is needed as climate change impacts are already affecting the Township. The Planner believes the FCM has funding for Adaptation Plans and she will look into it for the next meeting.

Some adaptation considerations may also be identified through the work of a consultant the Township will hire to update its Emergency Risk Management Plan by re-analyzing the Township's Hazard Identification and Risk Management assessment.

Perhaps funding to update the Climate Action Plan should be placed in a reserve as part of the 2023 Budget deliberations so that updates can be done on a regular schedule the way the Official Plan is updated.

8. NEXT MEETING DATE AND PROPOSED AGENDA ITEMS

Next Meeting: Friday, March 25th, 2022

9. DEFERRED ITEMS

**The following items will be discussed at the next and/or future meeting:*

- ***Presentation from the consultant on the update to the Official Plan.***

10. ADJOURNMENT

The Working Group adjourned at 11:32 a.m.

**Transcript from CBC Radio's *The Current*:
Interview with Sir Dieter Helm, March 15, 2022**

Posted: Mar 15, 2022 4:49 PM ET | Last Updated: March 15

CBC Host, Matt Galloway: At Sanna Marin, the Prime Minister of Finland last week, the U.S., the UK and Canada have all announced bans on Russian oil imports. But for many countries in Europe, cutting off Russian oil and gas isn't so easy. Sir Dieter Helm is a professor of economic policy at Oxford University. His latest book is *Net Zero: How We Stop Causing Climate Change*.

Sir Dieter Helm, Good morning.

SIR DIETER HELM: Hello.

MG: You just heard the Prime Minister of Finland there yesterday. The German energy minister was warning that banning Russian fossil fuels could lead to mass poverty and unemployment. How did we get to the point where Europe is so dependent on Russian oil and gas?

SIR DIETER HELM: It has a very long history. And Russia and Germany are the pivot of the relationship between our energy needs and Russia and what's going on in Ukraine at the moment. I mean, Russia's always been a country that exports its natural resources oil, gas, coal, but lots of other stuff too. And Germany, at the heart of Europe, has always been a manufacturing country, and that exchange of raw materials for manufactured goods goes back well over a hundred years. And right now, Germany has doubled down over the last five to 10 years with Nord Stream One and then building Nord Stream Two on the idea that if Russia is more integrated into the European economy and vice versa, that this will moderate Russian policy and make its government a normal government. It's been found to be a completely hollow view, but it's not something that's recent. It has a very long history.

MG: Do you think that this is a war -- people have said this is a war that's not about oil and gas -- but in many ways it's underwritten by oil and gas?

SIR DIETER HELM: Well, I think the position of Russia would be a lot weaker in Ukraine if it was unable to sell its oil and gas into the European market. And clearly, Putin bet on the Germans being very acquiesced. But roll forward. Of course, what will happen if Europe does indeed wean itself off Russian oil and gas, as I think it should, is that Russia will sell the stock to China. And there's a good chance that the net result of what's happening in Ukraine is that Russia will end up being a vassal state of China, and it will basically supply its raw materials to the industrial needs of China to its south.

MG: In the short term, when you hear the German Energy Energy Minister saying that there could be mass poverty and unemployment if you ban Russian fossil fuels, who's more likely to be hurt by a full blockade? Would it be Russia or would it be European nations?

SIR DIETER HELM: Well, it would be pretty much Armageddon for Russia. So if Russia was not exporting particularly gas, its revenues would collapse even further and it would have to get China to bail it out. But it would also be pretty catastrophic for, in particular, Germany; because what happens if

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you need all that gas to run your industry and much of your economy and tomorrow morning, it simply isn't there? And what happens is your economy stops. So this is a high poker game. If the West genuinely cuts off purchases of gas from Russia, it would probably bring Russia pretty close to its knees. But you have to have the nerve to do it and the ability to cope with the consequences that would follow in the short term. And I'm not at all sure that the European public would actually be prepared to go through what would be in the very short term, a really nasty and harsh period.

MG: Some have also suggested that you would see a return to coal, and again, coal is still a part of the German economy. They're trying to wean themselves off coal. But could you see a spike in coal use? Is that possible as well?

SIR DIETER HELM: Well, it's not only possible, it's happening. OK. I mean, you can't burn enough coal to solve the problem of getting out of gas from Russia because the coal is being burnt primarily for electricity and the gas is being used in industry. **But in Europe, the coal burn is going back up again and much more frightening because global warming is a global problem, not the European one.** The coal burning in China and South-East Asia is going through the roof because you have to remember these rising commodity prices, like gas and oil, started way before Russia invaded Ukraine. They are the product of the end of the pandemic, the stimulus mechanisms, the supply chain problems of last year. This is just giving it a further kick, but have no illusions that our current energy problems are purely the result of this ghastly invasion by Russia into a sovereign country.

MG: There are some people in this country who see this moment as an opportunity to make the case for expanding the production of oil and gas. Take a listen to the Premier of Alberta, Jason Kenney speaking at CERAWEEK, which is a major energy industry conference in Houston last week.

SOUNDCLIP:

"We are a natural answer to the challenge of global energy security. Some of the world's worst regimes have had a growing presence in global energy markets, with radically lower levels of transparency of environmental standards, not to mention labour and basic human rights standards. Revenues generated from those sales have been converted into violence, terrorism, conflict and global instability."

MG: What role do you think Canada could or should play in helping to fill the gap left by Russian oil?

SIR DIETER HELM: Well, in those comments that were made, **there is a deeper climate-change story**, and that's the following: we are 80 percent the world economy dependent on fossil fuels, oil, gas and coal – 80 percent and the rest – nuclear, hydro and a few other bits and pieces. Oh, and a little bit of renewables, perhaps 1.5 percent of the world's energy. So we are going to go on burning a lot of oil and gas and coal for a long time to come unless the demand stops for it. **And the people who are the polluters are you and me!** We buy the stuff that these oil, gas and other companies produce for us. **So if you're not prepared to get out of your fossil fuel car**, if you're not prepared to stop using plastics, **if you're not prepared to completely change your clothing, your lifestyle or travel, or get off the aeroplanes**, et cetera, then the the corollary of that is **you're going to go on being responsible for demands for more oil and gas.** And then the question comes if you're not prepared to stop using the stuff, where would you prefer it to be produced? And that's where the power of what the previous contributor just said is actually uncomfortably true. And we have the same debate in the UK. Should we all demonstrate and blow the doors off Shell and BP to stop them producing oil and gas

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in the North Sea and just buy the stuff from Saudi Aramco or Rosneft or someone else instead? **There's a hypocrisy at the heart of this because it's ultimately us, the consumers**, and that's what my net-zero book is all about: who -- we are the polluters -- and we have to change our ways. And there's not much evidence that when push comes to shove, we're actually prepared to do that.

MG: I guess, in the face of this, people -- and there are many people, environmentalists, Bill McKibben and others -- who have said that this is the opportunity to reduce our dependence, not just on Russian oil and gas, but on fossil fuels overall. What does this moment tell you about how difficult that's going to be?

SIR DIETER HELM: Well, it could be the moment. And indeed, there are very serious discussions, even in Germany, where the Greens are part of the government on, for example, the role of nuclear in this frame **as the role of hydrogen**. But right now, the chances of getting out of the coal, oil and gas into a renewables [future?] is a long way off. And it comes back to this point that if you are a major economy, do you really think that you can run a major economy on wind and solar alone? Or do you have to have a more nuanced discussion about how you make this transition in a way that actually has some impact? Remember, for the last 30 years and 26 COPs* every single year, including last year, we added two parts per million carbon to the atmosphere -- even with the lockdowns! What that tells you is, since **the only thing that matters in climate change is the concentration of carbon in the atmosphere**, one more heave or one more slight push of the tiller is not going to crack this disastrous prospect: a really substantive climate change within the lifetime of people actually already alive on this planet.

MG: Sir Dieter Helm. Good to speak with you. Thank you very much.

SIR DIETER HELM: Thank you.

MG: Sir Dieter Helm is a professor of economic policy at Oxford University and the author of *Net Zero: How We Stop Causing Climate Change*.

* Footnote: COP = Conference of the Parties (to the United Nations' Framework Convention on Climate Change). A further note: Russia did not participate in the most recent COP, held in Glasgow, Scotland, October-November, 2021.

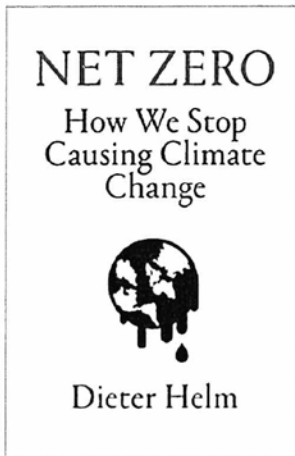
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Highlighting and footnote by PJN, for TVT's GE&CC Working Group.

[See following pages for a brief synopsis and also an extensive review of Helm's book, *Net-Zero*.]



Net Zero: How We Stop Causing Climate Change

By Dieter Helm. Published by William Collins (Jan. 5 2021); 304 pp.
ISBN-13: 978-0008404468

One reader's opinion, from Goodreads:

Sir Dieter Helm is on a mission. This very accessible, excellent and well researched (if polemical) book is sort of the entry point to a great deal of his thinking about energy policy, agriculture policy, environment policy and his groundbreaking work on natural capital. Sort of a gateway to his career, but also a book of the moment. He debunks a whole ton of received wisdom about environment policy over the past 30 years (30 wasted years!) and wishes to point out a bunch of uncomfortable home truths. We aren't paying for the damage we're causing. Those who pollute (externalise their costs) need to be made to pay. We need to pay a carbon tax. We need to take a hard look at the micro choices we make every day. We need to actively rebuild the natural

capital around us. Nothing particularly new here, but it's delivered with such urgency and clarity of thought that this deserves a very wide readership. I had the good fortune of seeing Prof. Helm speak recently - he's just as urgent and compelling in real life. He's not without controversy and there'll always be those who'll pick apart his thinking. But I really appreciate his attitude - better to be roughly right (and act) than to be precisely wrong (and just debate). Paraphrasing slightly but that's the attitude we need for these times when so much needs to change.

[Another review. This, rather extensive one, is by 'W. Sawyer' on Amazon.ca:](#)

[Reviewed in the United States on March 14, 2021. Verified Purchase; 5.0 out of 5 stars.]

The cold, hard reality about climate change mitigation

Depending on who you are, Net Zero may be the most significant book you can read today about mitigating climate change. If you are a climate change skeptic, probably not: In 2021 there is no need to rehash the fact that anthropogenic climate change is real: we humans are significantly altering the planet and our livelihoods through our own activities, particularly through the burning of fossil fuels. Helm wastes zero words explaining this unfortunate reality. If you are still one of those living in denial -- perhaps thinking climate change is due to other effects and the trend will soon change, or that even if we are warming our climate, perhaps the advantages will outweigh the disadvantages -- this book will make absolutely no sense to you. Why would we mete out so much pain for a crisis which you perceive doesn't exist? It is better for you to just stay in your bubble: events will overtake you soon enough.

On the other hand, if you embrace the Green New Deal as a development which will solve our climate ills at little cost but with great benefits, this book will be a rude awakening. The infosphere contains plenty of material extolling the virtues of the green economy: how it will generate jobs and sustainable growth, create healthier lifestyles, offer a higher quality of living and cost only a small fraction -- perhaps only one percent -- of GDP. You might prefer to stay in that bubble.

But if this storyline gives you that too-good-to-be-true queasy feeling, you will have some basic questions, e.g.: If the green economy costs basically nothing and solves our climate ills, why has it not evolved automatically in the current economy? If you are one not to look away from the unpleasant, Dieter Helm will explain to you, in succinct layperson's terms, what should be common sense: the reality is much more sobering and, frankly, at times unpleasant to read:

Politicians will have to stop promising a painless transition to a sustainable future, and economists will have to stop telling us that decarbonisation is going to be just a huge economic opportunity, all gain and no pain.

Helm readily admits that he is angry and frustrated with the mitigation efforts so far. Part One, aptly titled "30 Wasted Years", can be summarized as follows: if our goal was to mitigate climate change, we have done pretty much everything wrong in that time. While pessimistic, the preponderance of evidence is on his side. In spite of all those diligent efforts of reducing our carbon production over the past thirty years, global carbon emissions have increased every year, in fact at an accelerating rate. Since 1990 the burning of oil and gas increased dramatically; coal has as well, thanks largely to China. In short:

[The last 30 years] could not have been much better from the perspective of the fossil fuel industries; from the climate perspective it could not have been much worse.

What about international efforts like the Kyoto Protocol? Helm again points out the obvious: that reducing our national carbon production means nothing if we simply outsource it to nations like China which produce our goods with an even higher carbon footprint than we would. The key to mitigating the climate crisis is to focus on our carbon *consumption* from all the goods we consume, whether domestic or imported.

The Paris Agreement of 2015 is another top-down arrangement which is destined to fail. As a concession to the countries most hit by climate change, countries agreed on an aspiration of limiting global warming to 1.5C. But Helm assures us rather convincingly that Paris, like Kyoto, is not going to deliver:

Kyoto and now Paris have not made any real difference, and indeed to the extent that political leaders who signed their countries up to Paris tell their voters and citizens that they are therefore taking action, their pledges can become fig leaves for business as usual.

For those of us who felt that massive European investments in renewables have led, at the very least, to a dramatic price drop which can now help enable the transition to Net Zero, Helm shows no mercy:

As fast as renewables costs are falling, so too are fossil fuel costs (and prices), and although there is great and welcome progress in getting the costs of renewables down, they will require subsidies for some time to come.

Helm has damning words not only for China and the US, but also for the EU which was, in the end, the only active implementer of the Kyoto Protocol:

[The Europeans] tried to set an example by starting to decarbonise the domestic production. By ignoring carbon consumption, the efforts have been largely in vain. If this poor outcome had been achieved at low cost, if it had created create new global European renewables giants, and if it had avoided causing collateral economic damage, this might not matter too much. Europe failed on all three counts.

Particular ire is reserved for the Germans, who used their modest decarbonization gains to justify the expansion of electricity production from brown coal. This might assist with the decommissioning of nuclear power plants but achieves next to nothing in terms of overall carbon emissions and other pollutants.

Finished with his annihilation of the mitigation efforts up until today, Helm moves on to Part Two "The Net Zero Economy", which maps out what a serious and potentially viable climate response would look like. It is based on three principles:

- 1) The polluter pays;
- 2) Secure public funding for public goods;
- 3) Net gain: environmental loss must be more than compensated for.

These principles are all simply common sense. It boggles the mind that so few politicians, industrialists or environmentalists are willing to utter the first of these: whether they are called carbon taxes or greenhouse gas emission disposal fees, we all have to pay for the damage we cause through our consumption. Only then will less damaging, and therefore cheaper, lifestyles prevail. Next, public funding is clearly needed for crucial infrastructures (such as the national power grid, glass fiber for communication, and a car charging network) which build the playing field for legitimate and non-destructive competitive business interests. The last pillar is no less obvious if one really hopes to get the planet on the path to recovery; mitigation efforts must lead to a net positive gain in order to slowly repair the planet.

In the context of the new economy, Helm comes up with an interesting description of the current one: it is staggeringly *inefficient*. This would come as a surprise to the aspiring industrialist who considers current processes as being mercilessly optimized to squeeze out the last penny of profit. In fact, these processes have been optimized with incorrect boundary conditions: the profit advantage comes at the destruction of natural capital which is ignored in the cost-benefit analysis. If the real costs of these externalities were properly assessed, the degree of inefficiency of the current economy would be witheringly apparent.

Helm only peripherally addresses the democratic viability of the new economy -- nay, in fact, the new society -- he is proposing. Several internet reviews have latched onto this; one even rather hilariously compares the government intervention implied in Principle 2 to the Pol Pot regime [link deleted as per Amazon guidelines, but easy to find]. But this is only a perceived deficiency: it is a book from a clinical economist, not a politician, sociologist or anthropologist. Much as climate scientists tell us the cold facts about what our continued polluting lifestyle will bring, Helm lays out the economic realities which are needed to address them. He frequently explains that "we will fry" if we don't change our society but concedes that this awareness still might not be a sufficient motivator. Realistically, people only change if their perceived prosperity arguably improves with change. Therefore Helm tries poetically to emphasize the 'no regrets' changes:

Imagine what you could do with full fibre in your home. Imagine all the businesses that could move out of crowded cities so that their employees need not commute on crowded trains. Imagine the air quality improvements that might follow from all these transport changes.

In the following six chapters, Helm goes into extensive detail about carbon fees, infrastructures, sequestration, agriculture, transport and electricity generation. Many of these solutions are based on blog postings and existing writings. None are original, and many are highly contentious, for example his view of agriculture:

In the case of British agriculture, the opportunities are great because the baseline is so bad: chronically inefficient; overwhelmingly dependent on subsidies; and with high levels of pollution for which it pays little or nothing.

All of that is true, but with BBC broadcasting "Farming Today" every morning, he has grabbed a national institution by the horns.

In the chapter "The Price on Carbon", Helm systematically builds his case for taxation based on total carbon consumption rather than, say, tradable permits for domestic carbon production like the EU Emissions Trading System (ETS). A tax on consumption necessarily implies a border correction on imports, assessed on their carbon footprint, which is often much higher than domestic production:

If we do not make the polluters -- us -- pay for the emissions that are caused by our consumption of carbon-intensive imports, we merely delude ourselves.

Not including a border correction necessarily encourages us to 'outsource' our carbon footprint and gives foreign industries which do not price in the damage to natural capital an unfair price advantage. Even more importantly, a border correction would encourage the foreign countries to introduce their own carbon taxation to motivate their industries to become more carbon efficient in order to reduce the correction on imports into the consumer's country. In this way, our unilateral action can lead to multi-national policy change, even without explicit international agreements.

Why would voters possibly choose to increase costs on all their carbon-intensive amenities, from SUVs and consumer electronics to vacations in the Maldives, from heating oil to non-renewable electricity? Here Helm cautiously suggests that voters need to be told the truth, rather than being fed fantasies about the low-cost of transition to net zero. But:

Once the truth is out, that decarbonisation is costly and will force us to live within and not beyond our environmental means, voters get higher bills.

This will lead to street protests, e.g. what happened in France with the Gilets Jaunes protests. The trick is, like British Columbia's Carbon Tax [Link deleted for Amazon review], to start low with a credible signal that the price will go up as high as needed. Sadly, Helm does not write about potentially politically palatable strategies (e.g., the Climate Leadership Council) which would, at least initially, redistribute carbon tax income back to the population on a per capita basis in an attempt to address the criticism that carbon taxation is regressive. While the sales pitch for the CLC's "climate solution" is clearly too good to be true, it could later transition to recipients who probably sequester carbon, either naturally or artificially.

Throughout the book the contentious statements just keep on coming: e.g., the (unproven) suggestion to operate empty gas and oil fields 'in reverse' to sequester carbon, or to use natural gas as a bridge fuel for electricity generation. The latter was one of the three pillars in *The Carbon Crunch* (2012) which Helm proposed to exit from coal more quickly. This idea riles scientists and authors who emphasize the 25x larger heating effect of methane than carbon dioxide. But the point is mute: for better or worse, the world economy, particularly the USA, is going down the natural gas path anyway.

In the chapter "The Electricity Future" Helm summarizes the concept of equivalent firm power (EFP), detailed in the Helm Review (2017), as a way to quantify the intermittency of the electricity provider, with solar or wind not being the same quality as baseload providers, such as nuclear. There would be EFP auctions to motivate providers to cluster intermittent producers and flexible consumers in order to improve the 'firmness' of their power offering. While again not original or universally agreed upon [Link deleted; reviews can be found on the internet], the depth and detail of these suggestions clearly shows that Helm has put extensive thought into the subject matter. Moreover, it becomes clear that there are technical

mechanisms which can actually be effective in mitigating climate change, even if they may cause considerable discomfort as we are forced to live within our planetary boundaries.

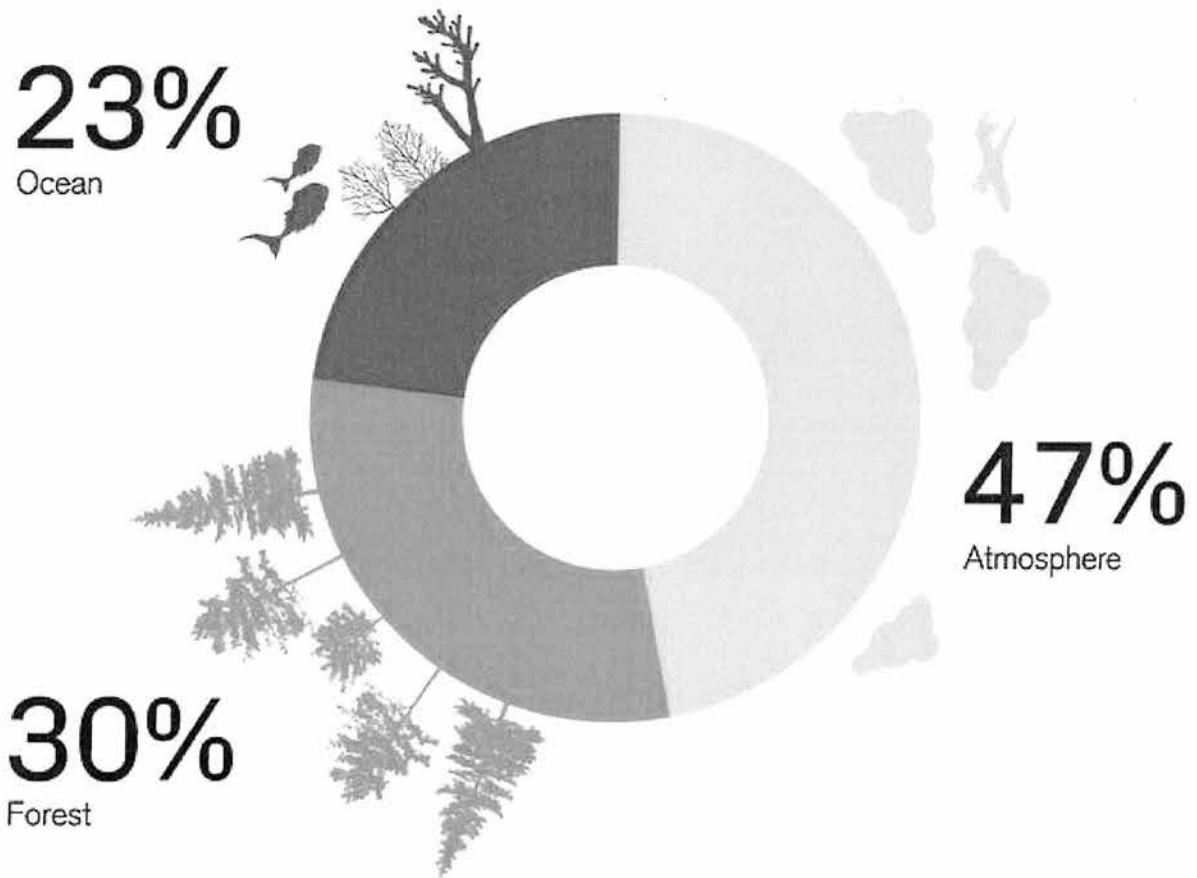
In his writings over the last decades, Helm has emerged as one of the key economists with real ideas about addressing the climate crisis. He has managed to criticize all of us in some way -- consumers, capitalists, environmentalists, politicians, scientists, and indeed economists -- so no one constituency will be able to call him one of its own. For example, he has vigorously criticized the 'one-percenters' such as Nicolas Stern (Stern Review (2006), *Why Are We Waiting?* (2015)) for their adherence to rosy projections about the cost of mitigation. But he arguably shares their larger objective more than that of the forces which lock us into the fossil fuel economy. Helm refuses to pander to neo-liberal doctrine: "The idea that, left to the markets, climate change could be cracked is nonsense." But he also does not burnish any socialist credentials, insisting that the solution is about balance: "Use the State where it has ... the advantage; and use the market where it has been adjusted to deal with market failures."

Net Zero incorporates concepts from *Carbon Crunch* (2012), *Natural Capital* (2015), *The Helm Review* (2017), *Green and Prosperous Land* (2019) and many short works which can be found on his home page [Link deleted]. In all of these works, there are statements with which to take issue. My personal peeve is his aligning himself with the sustainable growth crowd and referring to the limits of growth crowd [Malthus, Jackson, the Club of Rome, etc.] as 'too pessimistic':

There is one resource which we continually invent and do not run out of. It is ideas, and these lead to new technologies which are passed down the generations... There needs to be a rebasing, to a sustainable consumption level, and then growth can continue as ideas, science and technology increase human possibilities.

It is clear that our society is exceedingly inefficient; Its carbon efficiency can and should improve, perhaps even by orders of magnitude. But by definition growth is not limitless: it will always ultimately push against the boundaries of finiteness. It is not a question of if, but when. But in the shorter term, we can hope that applying Helm's principles might stave off the carbon boundaries which are now making themselves so evident, giving us breathing room to address the next limits.

Forests absorb 30% of CO₂ emissions



Source: Credit Suisse

Carbon Storage

Tonnes of Carbon per Hectare*

The world's forests absorb around **15.6 gigatonnes** of CO₂ each year. That's around 3X the annual CO₂ emissions of the United States.

However, around **8.1 gigatonnes of CO₂** leaks back into the atmosphere due to deforestation, fires and other disturbances.

