

Contents

I	Introduction	1
	1.1 Land Acknowledgment	1
	1.2 The Problems]
	1.3 The Solutions	3
	1.4 Official GND Websites	4
2	Food Security & Land Conservation	5
	2.1 Introduction	5
	2.2 Community Level Proposals	5
	2.3 Municipal Level Proposals	16
	2.4 Canadian Food Security	18
	2.5 Literature Cited	20
3	Housing	25
	3.1 Introduction	25
	3.2 Citations	30
4	Social Services	33
	4.1 Introduction	33
	4.2 Municipal Level Proposals	33
	4.3 Provincial Level Proposals	35
	4.4 Federal Level Proposals	40
	4.5 Literature Cited	43
5	Transit	47
	5.1 Introduction	47
	5.2 Municipal Proposals	47
	5.3 Provincial Proposals	51

	5.4 Federal Proposals								٠	•		٠	٠		52
	5.5 Literature Cited														
6	6 Energy Sector														55
	6.1 Introduction														55
	6.2 Municipal Level Proposal	s							٠	•		٠	•		55
	6.3 Provincial Level Proposals														57
	6.4 Federal Level Proposals .								٠	•		٠	•		59
	6.5 Appendix: Institutions do	ing Sus	taina	ble	Ene	erg	y R	&I)	٠		٠	•		64
	6.6 Literature Cited								٠			•	•		64
	6.7 Waste Management					•			٠			٠	٠		67
A	A GND City Council Proposals														68
A	4								•			•	•		68 68
A	A.1 Food Security														68
A	A.1 Food Security								•			•	•		68
A	A.1 Food Security		• • •	• • •		•	• •								68 70
A	A.1 Food Security		• • •	• • •		•			•	•	• •	•		• •	68 70 71
	A.1 Food Security		• • •	• • •		•			•	•	• •	•		• •	68 70 71 72
	A.1 Food Security				• •	•	• •	• •		•	• •			• •	68 70 71 72 74
	A.1 Food Security				• •	• •			•	•	• •	•	•	• • •	68 70 71 72 74 75 75

Chapter 1

Introduction

1.1 Land Acknowledgment

Before we begin, it is necessary for us to acknowledge that we are occupying Mohkinstsis, the unceded homelands of the Blackfoot Confederacy, including the Piikuni, Kanai, and Siksika nations, the Stoney Nakoda Nation comprising the Chiniki, Bearspaw and Wesley clans, the Tsuut'ina Nation, and the Métis peoples of Alberta (Region 3). These lands were stolen through bad-faith Treaty 7 negotiations conducted in the midst of genocides that are ongoing to this day. This is now, and will always be, Turtle Island.

1.2 The Problems

- Anthropogenic climate change is happening right now.
 - The last 5 years are the hottest 5 years on record.
 - The CO2 in the atmosphere has already exceeded 415 ppm, levels that were described as "the point of no return."
 - According to IPCC reports, carbon emissions must be reduced significantly by 2030, and globally we need to reach net-zero emissions by 2050 if we are to avoid warming in excess of 1.5 degrees Celsuis.
 - Without reduction in emissions and effective carbon sequestration we could see global temperatures increase by 4°C as early as 2060.
- Canada is one of the world's largest contributors to climate change, and its climate change plan was considered among the worst in G7.

I

- Canada was not on track to meeting Paris climate targets, let alone the goals outlined in the latest IPCC report.
 - * Alberta is not on track to meet federal goals; not under the NDP or IPCC targets. These targets are considered "doomed."
 - * Alberta & Saskatchewan are uniquely responsible for preventing Canada from meeting Copenhagen and Paris emissions goals, and have increased emissions as the rest of the country has reduced them.
 - * Oil Sands emissions reporting was incorrect; our current numbers put Canada's greenhouse gas emissions over 2 times what it was originally thought to be.

The people most affected by climate change & environmental destruction are the least responsible for emissions, including Indigenous communities in North America and the global south, marginalized populations, people of color, women, children, working people, and the poor.

- Indigenous peoples' traditional food sources are being contaminated, with skyrocketing cancer rates.
 - The oil & gas industry has gutted northern BC First Nations' economies & ecosystems. This Amnesty International report also looks at the intersection of gender and the flawed consultation process.
 - The incessant assaults on Indigenous sovereignty by pipeline and other dirty infrastructure development. Two prominent and pressing examples:
 - * The invasion of the Wet'suwet'en First Nation for the Coastal Gas Link pipeline (clans Unist'ot'en and Gidimt'en)
 - * The invasion of the Secwepemc First Nation by attempting to force the expansion of the TransMountain pipeline without their consent.

The number of Indigenous communities' receiving drinking water advisories has increased.

The Canadian government knew about Grassy Narrows' mercury poisoning since the 1960s, but kept it secret. It still has done next to nothing.
 The poisoning came from the dumping of a corporation.

- Because of the disproportionate impacts of climate change on the most vulnerable, the failure of the wealthiest people in the world to act amounts to genocidal activity.
- The Oil & Gas Industry has controlled economic & ecological narratives around climate change.
 - It is uniquely responsible for obstuficating and challenging attempts to convert to green energy.
 - The Oil & Gas industry deserves intense criticism for its contribution to climate change and environmental destruction.
 - * The industry is responsible for at least 33% of all carbon pollution should be held accountable to the people and environments they have harmed.
 - * Oil & Gas industry profits and tax cuts do not result in more jobs or better conditions for workers.
 - * Boom and Bust oil-patch economics harm Canadian families.

Market-based solutions will not save us.

- Carbon trading is a failure. Even if maximally implemented, energy corporations lobby aggressively to exploit its structure, or water it down to utter ineffectiveness.
 - The vast majority of oil sector emissions will be exempt from federal carbon pricing.
- Environmental destruction is expensive and not worth it.
 - The cost of cleaning up Alberta's oil patch is estimated to be about \$260 billion. The fossil fuel industry has only paid \$1.6 billion.

1.3 The Solutions

• A Green New Deal (GND) is the solution to the social and ecological problems we currently face.

- A GND would be a public spending initiative to rapidly transform our energy systems and develop climate-resistant infrastructure, all while employing millions of people and reviving our economy.
- A GND emphasizes timely, achievable, inclusive actions developed from successful examples from across the world. We aim to avoid insubstantial targets that popular political parties have developed to quell meaningful change. Maintaining the status quo is incompatible with impactful climate action.
- Integral to a GND is the respect of the sovereignty of First Nations, decolonization, and the effective implementation of the United Nations Declaration of the Rights of Indigenous Peoples, which recognizes that the protection of indigenous rights protects the environment.
- Ecological conservation and recovery work, and the role that worker cooperatives and unions can play in accomplishing this transformative change, create the foundational for a sustainable culture and economy.

Popular Support

- A majority of Canadians across all political orientations support a Green New Deal.
- More than 80% of registered American voters support a Green New Deal, with majorities among both parties.
- Major environmental NGOs and organizations have endorsed a Green New Deal, including the Sunrise Movement, Greenpeace, 350.org, and more. The rest of official endorsers can be found here.

1.4 Official GND Websites

- The Pact for a Green New Deal Coalition
- Our Time Youth Movement
- https://350.org/
- Sanders' Campaign GND

Chapter 2

Food Security & Land Conservation

2.1 Introduction

Food security is paramount with the growing threat of climate change. We must ensure that local sustainable food production provides egalitarian access to nutritious food. Our Maximum Program addresses food security, community empowerment, and conservation as a unified subject rather than as separate issues. We include proposals that are both locally specific and widely applicable so that these ideas may be replicated and adapted to local conditions.

2.2 Community Level Proposals

Local Food Production

Introduction

- Climate change will cause changes in rainfall, sea-level increases, and extreme weather events, threatening local, national, and international food security. Extreme weather events have nearly doubled since the 1990s, threatening food security on a global scale. Developing local food sources in Calgary will help mitigate rising food insecurity in the city and region.
- Local food production provides mitigates carbon production, democratizes food access, and establishes community-level organization absent in contemporary Canadian cities.³

¹ FAO, "Climate Change And Food Security: A Framework Document."

² "UN Warns Climate Change Is Driving Global Hunger."

^{3 &}quot;Local Food - Benefits."

- Gardening reduces anxiety, depression, and obesity while increasing perceived quality of life and sense of community.⁴
- 1. Supplying locally-grown food to food-insecure persons

1. Data

- 1. One in eight households in Canada is food-insecure.⁵
- 2. Food insecurity disproportionately affects people living alone, female lone parents, renters, those with chronic physical or mental health conditions, LGBTQ2+ identifying people, and indigenous people.^{6,7}
- 3. The rising cost of food worries nine in ten Canadians, with food prices expected to rise by \$400 per year for Canadian families.⁸

Proposals

- 2. 4. Distribute locally-produced food from community centres, revitalizing community centres as places to access social services. For example, Lambeth GP Food Coop⁹ in the UK has integrated healthcare services with local organic gardening co-ops. For more about community centres, see the Social Services section of the GND Maximum Program.
 - 5. Create food purchasing programs for community centres. To combat the high prices of expensive dietary staples, community centres could organize bulk food sales for community members. Community members who buy into these programs would receive dietary staples at a discounted price compared to conventional grocers or markets.
 - 6. Enable local food sovereignty by creating local gardening counsels, allowing for community-level coordination of planting, harvesting, and distribution of food. This will help minimize the labor cost of food production at a local level.

Prioritizing soil production

⁴ Soga, Gaston, and Yamaura, "Gardening Is Beneficial for Health."

⁵ "Household Food Insecurity in Canada."

⁶ "Household Food Insecurity in Canada."

⁷ "Inequalities in Food Insecurity in Canada."

^{8 &}quot;Rising Food Prices Worry 90% of Canadians as Federal Election Nears."

^{9 &}quot;Lambeth GP Food Co-Op."

2. 3. Data

- 7. Soil Erosion is outpacing soil production at alarming levels. 10
- 8. Soil with low organic content leads to lower yields, lower biodiversity, and higher sea levels with reduced water retention.¹¹
- 9. Using compost and other non-synthetic fertilizers can help sequester 43% more carbon. 12

Proposals

- 4. 10. Expanding composting capacity of city facilities.
 - 11. Providing compost equipment for interested person for free or at reduced prices.
 - 12. Using animal waste to produce high-quality compost.
- 3. Closing metabolic loop regarding waste management both human and animal
 - 5. Data
 - 13. Human Waste Processing, the production and distribution of "biosolids" is already a wide spread across much of North America and while concerns exist, humans have been using untreated and treated human waste for millennia. 13,14,15 There does not appear to be substantive indication that treated organic human wastes are much different than those from other sources of manure. 16

Proposals

6. 14. Examine Biowaste use in detail. Ideally bio wastes should go to food production and bioremediation purposes as a priority. Any unused biowastes should be redirected towards reforesting projects.

Green-space conversion

4. 7. Data

¹⁰ FAO, "Climate Change And Food Security: A Framework Document."

II FAO.

¹² FAO.

^{13 &}quot;Biosolids."

^{14 &}quot;FAQ - Biosolids."

¹⁵Durant, The Life of Greece.

^{16 &}quot;Biosolids."

- 15. Our GND is anti-lawn. In the United States, between \$47-82 billion dollars are spent on lawn care with 40 million acres dedicated to an inedible crop. The rise of lawns has caused the decline of pollinator species, the use of one to two thirds of municipal drinking water, and lawnmowers that emit forty times as much emissions as a car per gallon. 18
- 16. Food forests such as the Beacon Food Forest¹⁹ in Seattle, Washington or the Brown Mills Urban Food Forest²⁰ in Atlanta, Georgia are a low-impact sustainable agricultural method that has been practiced for millennia throughout the world to produce substantial amounts of food in otherwise unproductive areas.

Proposals

- 8. 17. Convert the Transit Utility Corridor for agriculture production. This currently unused greenspace is maintained by mowing and herbicide use, costing an estimated \$40 million per year. This land could be turned over to the surrounding communities with minimal costs. A map of the corridor is available on the City of Calgary website.²¹
 - 18. Incentivize the conversion of lawns, boulevards, and unused lots into community garden spaces. This program would mitigate the issue of garden care for elderly or disabled persons who otherwise cannot maintain their yard space.
 - 19. Create an open-source interactive map of Calgary showing all the available green space in Calgary including information about ecological regions within Calgary, climate data, and what plants thrive in the greenspace of interest.
 - 20. Food forests: convert existing greenspaces into woodland areas that produce food and herbs.

5. Native plants and pollinators

¹⁷ Graber-Stiehl, "Lawns Are and Ecological Disaster."

¹⁸ Graber-Stiehl.

¹⁹ "Beacon Food Forest Permaculture Project."

²⁰ Holcombe, "This Southern City Is Fighting Food Deserts with a Forest of Free Produce."

²¹ "Transportation Utility Corridor."

21. Cities provide a unique place for native pollinators to flourish, as rural areas are increasingly becoming crop monocultures managed with neonicotinoid pesticides.²²

Proposals

- 10. 22. Reroute funding for mowing/weeding to promote planting of native plants.
 - 23. Xericulture is the practise of growing plants, and landscaping with the intent to use little water, typically only that which falls a precipitation. By creating programs and information packets it can be relatively simple to begin converting costly and unproductive lawns into low water landscapes which efficiently store water that falls there, and replacing water intensive species with deeper rooting shrubs and trees, and ground cover of mulches, rocks, and plants with low water needs like juniper, or natives grasses.²³
 - 24. Abolish the use of pesticides. These harm native and domestic pollinators, causing the collapse of native plant populations and lower production yields for food crops.²⁴
 - 25. Encourage the proliferation of native pollinators by providing nesting sites and wildflowers in these converted green-spaces.

Urban Growing in Calgary

6. 11. Proposals

- 26. Passive and low input greenhouse design.²⁵ Low input and passive are highly possible in the Albertan climate. The largest challenge for winter growing is low light levels, but LED solutions are already available, and passive light collection through reflectors can be pursued in some situations.
- 27. AquaPonics.²⁶ Encourage the development of aquaponics farms throughout Calgary (such as in the +15 spaces) through municipal grants. Such systems combine aquatic species (fish, small crustaceans, and various

²² University of Bristol, "Cities Could Play a Key Role in Pollinator Conservation."

²³ Rutledge et al., "Xeriscaping."

²⁴ "Pesticides and Pollinators."

²⁵ Smith and Harlan, "Cold Climate Solar Greenhouse Design."

^{26 &}quot;What Is Aquaponics?"

- mollusks) with conventional annual crops to produce food, and greatly reduce waste and need for inputs such as fertilizer and water, and chemical filters and additives. It also prevents pollution of local watersheds.
- 28. Green Walls.²⁷ Retrofit buildings with green walls to reduce heating costs, produce food, and have aesthetic benefits.
- 29. Rooftop Urban Farming.²⁸ Retrofit buildings to have rooftop gardens that reduce heating hosts, produce food, and provide habitat for bird and pollinator species.

**This report covers some of the things already mentioned above but ties them together into a regenerative and circular economic system: https://www.ellenmacarthurfoundation.org/assets/downloads/Cities-and-Circular-Economy-for-Food_280119.pdf

Local Animal Agriculture

To ensure sustainable food security in Calgary and Alberta, responsible animal agriculture must be encouraged as part of the GND.

- 7. Calgary Urban Animal Agriculture
 - 12. Honey bees
 - 30. Data
 - 1. Urban beekeeping benefits the community by providing crop pollination and honey/wax production. Honeybee pollination is beneficial or even essential for many food crops grown in Alberta.²⁹ Honey has less fructose than high-fructose corn syrup and is a source of antioxidants.³⁰ Additionally, honey bees kept in urban environments are often healthier than their rural counterparts, preventing the collapse of domestic honey bee populations seen elsewhere in the world.³¹

²⁷ "Green Wall - Function."

²⁸ "Rooftop Republic Urban Farming."

²⁹ "List of Crop Plants Pollinated by Bees."

³⁰ Whitaker, "The Sweet Science of Honey."

^{31 &}quot;Bees Reared in Cities 'Healthier."

Proposals

- 31. 2. Eliminate barriers to be ekeeping: restrict the ability of homeowner's associations and insurance companies to prevent people from beekeeping on their property.
 - 3. Encourage responsible beekeeping through the existing free provincial registration system and education through local beekeeping organizations.³²

Chickens, quail, and other small fouls.

13. 32. Data

- 4. Urban chickens provide protein (eggs and meat), consume some table scraps, and produce compost.³³
- 5. Chicken keeping is currently banned in Calgary, but loopholes exist for chicken keeping via support animal bylaws, but this requires a letter from a licensed psychologist or psychiatrist which overburdens our existing healthcare system.³⁴

Proposals

- 33. 6. Lift restrictions on urban chicken keeping in Calgary: establish a free permit system for up to four hens (no roosters) per suitable sized properties in Calgary following similar programs to Vancouver,³⁵ Toronto,³⁶ and Edmonton.³⁷
 - 7. Eliminate barriers to chicken-keeping: restrict the ability of homeowner's associations and insurance companies to prevent people from keeping chickens on their property.
 - 8. Provide information to new chicken owners to prevent abandoned chickens.
- 14. Small ruminants: goats and sheep

34. Data

9. Small ruminants such as goats and sheep provide sources for milk, fibre, and meat.

^{32 &}quot;Getting Started."

³³ Page, "5 Surprising Benefits of Owning Chickens."

^{34 &}quot;Livestock Émotional Support Animals."

³⁵ "Learn the Rules for Backyard Chickens, and Register Your Chickens with the City."

³⁶ "UrbanHensTO Pilot Program."

³⁷ "Urban Hens Program."

- 10. Small ruminants are grazers, controlling grasses and weeds without the use of herbicides that are toxic to birds³⁸ and amphibians.³⁹
- 11. Goat weed-management projects have occured in Calgary parks since 2018.40
- 12. Small ruminant keeping in Calgary is currently banned in Calgary, but loopholes exist for miniature goat keeping via support animal bylaws, but this requires a letter from a licensed psychologist or psychiatrist which overburdens our existing healthcare system.⁴¹

Proposals

- 35. 13. Expand the current small ruminant weed-management program to include the transit utility corridor and other unused green-spaces in Calgary. Offer permits and incentives to local goat and sheep producers in and around Calgary to manage these areas.
 - 14. Offer pilot permits to study the viability of backyard miniature goat keeping in Calgary along the lines of the Miniature Goats Pilot Project in Saanich, British Columbia.⁴²

Aquaculture

15. 36. Data

- 15. Aquaculture is the agricultural cultivation of aquatic organisms (red/green algae, crustaceans, molluscs, and fish).⁴³
- 16. Aquaculture is the fastest growing agriculture sector and accounts for over 50% of global fish production.⁴⁴
- 17. Examples of successful aquaculture implementation incorporating plants and fish exist in Calgary, such as Deepwater Farms.⁴⁵

Proposals

37. 18. Research the viability of large-scale aquaculture in Calgary and Alberta, whether this will be sustainable, and how this can be imple-

³⁸ Blus and Henny, "FIELD STUDIES ON PESTICIDES AND BIRDS."

³⁹ Hayes et al., "Hermaphroditic, Demasculinized Frogs after Exposure to the Herbicide Atrazine at Low Ecologically Relevant Doses."

^{4°} Bell, "Weed-Managing Goats Are Back and It's Win-Win for Calgary Parks."

⁴¹ "Livestock Emotional Support Animals."

^{42 &}quot;Miniature Goats."

^{43 &}quot;Aquaculture."

^{44 &}quot;Aquaculture."

^{45 &}quot;Deepwater Farms."

mented.

19. See above for aquaponics in public spaces.

16. Veterinary Involvement

38. Data

- 20. Most veterinarians in Calgary practice on dogs, cats, and rabbits. Urban animal agriculture will require the cooperation and participation of veterinary professionals to treat honey bees, chickens, and small ruminants.
- 21. As of December 2018, all medically important antibiotics in Canada must be sold by prescription only.⁴⁶ Thus, urban animal producers need veterinarians to access antibiotics for all animal species including honey bees.
- 22. Many urban veterinarians are not experienced working with chickens, small ruminants, and honeybees.

Proposals

- 39. 23. Offer continuing veterinary education programs to veterinarians and veterinary technologists about urban agricultural animals via the ABVMA and CVMA.
 - 24. Coordinate with the University of Calgary Faculty of Veterinary Medicine to include urban animal agriculture in the curriculum, particularly as part of the distributed veterinary learning community in the fourth year rotations.
 - 25. Ensure biosecurity in the City of Calgary through disease monitoring, food safety, and public education via the University of Calgary and ABVMA.

Wildlife Management

17. 40. Data

26. Calgary has one of the worst cases of urban sprawl in North America. Low-density housing has contributed to Calgary's standing as Canada's second-highest emitting city, largely due to commuting

⁴⁶ "Responsible Use of Medically Important Antimicrobials in Animals."

to far-flung communities.⁴⁷ This urban sprawl encroaches on rural areas, causing wildlife to move into urban areas.⁴⁸

Proposals

- 41. 27. Establish protected areas along the periphery of Calgary with corridors for wildlife. These protected areas will discourage further urban expansion and allow living space for wildlife away from the suburban and urban areas. Similar passageways exist in London for bees.⁴⁹
 - 28. Limit rezoning for peripheral farmland to remain farmland or become nature preserves.

Plant-Based Diets

8. Plant-Based Diets

- 42. Animal agriculture is one of the leading causes of climate change, accounting for 80% of human land use and 18% of all carbon emissions.⁵⁰ Livestock account for 30% of all anthropogenic methane emissions.⁵¹
- 43. Global transition to low-meat or meatless diets could result in 2.8 Gha of reclaimed land that could be used as cropland or as a natural vegetation carbon-sink.⁵² The cost of maintaining CO2 below 450 ppm by 2050 would be 55% less if we shifted toward a plant-based diet.⁵³ The individual difference in shifting toward a plant-based diet is similar to the difference of a sedan versus an SUV.⁵⁴ Meat-consumption in the United States is equal to the carbon dioxide produced by 60 million vehicles.⁵⁵

⁴⁷ Lawrynuik, "The Climate Cost of a Sprawling City."

⁴⁸ Lawrynuik.

⁴⁹ "Bee Corridor' Planted in London to Boost Insect Numbers."

⁵⁰ Stehfest et al., "Climate Benefits of Changing Diet."

⁵¹ FAO, "Climate Change and Food Security: A Framework Document."

⁵² Stehfest et al., "Climate Benefits of Changing Diet."

⁵³ Stehfest et al.

⁵⁴ Eshel and Martin, "Diet, Energy, and Global Warming."

⁵⁵ Eshel et al., "Environmentally Optimal, Nutritionally Sound, Protein and Energy Conserving Plant Based Alternatives to U.S. Meat."

- 44. Livestock populations suffer enormous losses during droughts and famines. For example, during droughts in Africa from 1981 to 1999, between 20% and 62% of cattle died.⁵⁶ Climate change will exacerbate these trends in the future, making livestock agriculture potentially untenable on a large-scale.⁵⁷ The FAO recommends that we should "shift away" from grain-fed livestock species as a matter of global food security.⁵⁸
- 45. Livestock grazing is one of the leading causes of global deforestation, destroying important habitats and removing carbon sinks.⁵⁹
- 46. Plant-based diets confer numerous prevent obesity, cardiovascular disease, and diabetes. The World Health Organization classifies processed meats as a group 1 carcinogen ("carcinogenic to humans") and red meat as a group 2A carcinogen ("probably carcinogenic to humans"). Thus, widespread adoption of plant-based food would decrease the burden on the healthcare system.
- 47. Nearly 43% of Canadians are currently shifting to a partly or completely plant-based diet, largely for health and wellness reasons.⁶²
- 48. Canadian agricultural subsidies were worth \$6.9 billion in 2011 with the majority of the money going toward beef, egg, and pork production.⁶³ In Alberta alone, the Canadian Agricultural Partnership invested \$406 million in the agricultural sector, largely for meat and egg production.⁶⁴
- 49. Canadians consumed 94 million Kg of beef less beef in 2019 than in 2010 and prices are on a steady decline while plant-based sources are increasing in price.⁶⁵ Unfortunately, producers are not adapting to this change (or acknowledging the change), threatening their livelihoods

⁵⁶ FAO, "Climate Change and Food Security: A Framework Document."

⁵⁷ FAO.

⁵⁸ FAO.

⁵⁹ FAO.

⁶⁰ Tuso, "Nutritional Update for Physicians."

⁶¹ Bouvard et al., "Carcinogenicity of Consumption of Red and Processed Meat."

^{62 &}quot;Plant-Based Proteins Are Gaining Dollar Share Among North Americans."

⁶³ McKenna, "Taxpayers Oblivious to the Cost of Farm Subsidies."

⁶⁴ McKenna.

⁶⁵ Stevenson, "2019 Canada Food Price Report: Meat Prices to Decline."

- being crowded out by plant-based alternatives.⁶⁶
- 50. Slaughterhouses are one of the most dangerous workplaces, with a greater than 100% turnover rate annually (sometimes up to 250%), a 25% rate of serious injury requiring medical attention, and a greater than 60% prevalence of carpal tunnel syndrome. Most slaughterhouse workers are people of color of largely immigrant and uneducated backgrounds, paid minimum wage. 68

Proposals

- 19. 51. End federal and provincial subsidies to animal agriculture.
 - 52. Tax processed meat to reduce meat consumption and reobtain healthcare funds lost from treating diseases associated with eating processed meat products.⁶⁹
 - 53. Include plant-based alternatives in school lunches and hospital meals.
 - 54. Education about plant-based alternatives. A good example of this was the inclusion of a general "protein" category in Canada's food guide.⁷⁰
 - 55. Support a Just Transition for beef, dairy, poultry, and pork producers in Alberta. Emphasize using their transferable skills such as producing silage/hay for growing food crops or creating pensions for producers nearing retirement.
 - 56. Support a Just Transition for slaughterhouse workers. Create job retraining opportunities and pension programs for injured workers. Emphasize using transferable industrial skills for building green technology and plant-based agriculture.

2.3 Municipal Level Proposals

Greenbelt Legislation

11. Greenbelt Legislation

⁶⁶ Stevenson.

⁶⁷ Dorovskikh, "Killing for a Living: Psychological and Physiological Effects of Alienation of Food Production on Slaughterhouse Workers."

⁶⁸ Dorovskikh.

⁶⁹ Carrington, "Taxing Red Meat Would Save Many Lives, Research Shows."

⁷º "Canada's Food Guide."

1. Data

1. A greenbelt is permanently protected land surrounding urban areas to limit urban growth, preserve and revitalize plant and wildlife, and repurpose land for agriculture and food growth.

In 2005, the Government of Ontario established a greenbelt surrounding the Golden Horseshoe, a densely populated and quickly growing urban region in southern Ontario which includes the Greater Toronto Area.⁷¹

- **3.** The total area of Ontario's greenbelt is 7,284km², making it one of the largest greenbelts in the world.⁷²
- 4. Ontario's greenbelt provides over \$9.1 billion in economic benefits and 161,000 full-time equivalent jobs.⁷³
- 5. Ontario's greenbelt includes the Niagara Peninsula, a region that hosts about 2.1 million tender fruit trees (peaches, pears, plums, cherries, grapes). These trees produce over 800,000 baskets of fruit per year.⁷⁴
- 6. Another highly fertile special crop region within Ontario's greenbelt is The Holland Marsh ("Ontario's vegetable basket").⁷⁵ The Holland Marsh produces lettuce, celery, potatoes, cauliflower, beets, parsnips, and other world crops. The value of these crops is in excess of \$50 million per year.⁷⁶
- 7. In addition to being highly productive agricultural regions, greenbelts also preserve biodiversity and can sequester large quantities of carbon.⁷⁷

Proposals

- 12. 8. Establish "urban growth boundaries" around major cities in Alberta. Limiting urban sprawl makes cities easier to access by transit and reduces the use of private single-occupant vehicles.
 - 9. With urban growth boundaries in place, establish greenbelts surrounding major cities in Alberta. Where possible, use greenbelt areas for agricul-

^{71 &}quot;Ontario's Greenbelt."

^{72 &}quot;The Greenbelt."

^{73 &}quot;The Greenbelt."

^{74 &}quot;The Greenbelt."

^{75 &}quot;The Greenbelt."

⁷⁶ "The Greenbelt."

^{77 &}quot;The Greenbelt."

ture, rewilding, preservation and cultivation of biodiversity, and carbon sequestration.

2.4 Canadian Food Security

- 1. Over 30% of all food consumed in Canada is imported, particularly fruits and vegetables, causing the production of 3.3 million tonnes of CO2.⁷⁸ Not only is this pattern of consumption ecologically unsustainable, but economically unsustainable when faced with increasing global food insecurity.
- 2. Climate change will cause extreme weather events that may jeopardize global food security, endangering Canadian food security.⁷⁹
- 3. Canada's North is highly food insecure. Nearly 70% of households in Nunavut are food insecure.⁸⁰ Most households in the Territories rely on a mix of wild-caught game/fish and store-bought goods.⁸¹ Game is sporadic (particularly with a changing climate) and shipped food is prohibitively expensive.⁸²
- 4. Canada has lost 70% of its farmers aged 35-50 in the last twenty-five years. 83
- 5. The largest barrier to young farmers is the cost of land, making farming a profession that is improbable for many would-be farmers.⁸⁴
- 6. Female farmers are more likely to rent land and use outside work to pay for land compared to male farmers, increasing the overhead of women farmers.⁸⁵
- 7. Animal agriculture accounts for 80% of human land use and 18% of all carbon emissions. 86 If we do not cease the production of grazing animals,

⁷⁸ Kissinger, "International Trade Related Food Miles – The Case of Canada."

⁷⁹ FAO, "Climate Change and Food Security: A Framework Document."

^{80 &}quot;Affordable Food in the North."

^{81 &}quot;Affordable Food in the North."

^{82 &}quot;Affordable Food in the North."

⁸³ Stevenson, "Does Canada Have Enough Young Farmers?"

⁸⁴ Graves, "Back to the Land: Are Young Farmers the New Starving Artists?"

⁸⁵ Shumsky and Nelson, "Female and Young Farm Operators Represent a New Era of Canadian Farmers."

⁸⁶ Stehfest et al., "Climate Benefits of Changing Diet."

it is unlikely that we can avert climate change.⁸⁷

8. For land use proposals, see also Monbiot et al., Land for the Many.⁸⁸

Proposals

- 14. 9. Create community land trusts in agriculturally productive regions that are commonly owned by the community, allowing for young farmers to own common stakes of land at a reasonable cost.
 - 10. Prevent the monopolization of agriculturally productive land caused by acreages and land-speculation to be bought, divided, and resold to young farmers at a fair price.
 - 11. Create planning committees for forestry and agricultural activities in rural areas, such as is already done for housing planning committees in urban and suburban areas.
 - 12. Prevent the use of farmland for pasture grazing by buying, dividing, and reselling land to young plant farmers.
 - 13. Offer a buy-back program of artificially cleared pasture or grazing land to be reforested as a carbon sink.
 - 14. Create an open-source weather monitoring platform for individuals and organizations to contend with extreme weather events that may occur as a result of climate change, using Environment Canada, university, and citizen scientist weather stations.⁸⁹
 - 15. Research and develop crop strains that can resist extreme weather events, are water-efficient, and help maintain a sustainable nutrient balance.⁹⁰
 - 16. Protect the right to use uncultivated land for agricultural production.
 - 17. Increase funding to research wildlife game populations in Canada's North to assess the sustainability of these resources.
 - 18. Regularly communicate research findings to Northern communities.
 - 19. Create and implement game sustainability programs advanced by indigenous leadership.

⁸⁷ Garnett et al., "Grazed and Confused?"

⁸⁸ Monbiot et al., "Land for the Many."

⁸⁹ FAO, "Climate Change and Food Security: A Framework Document."

^{9°} FAO.

2.5 Literature Cited

"Affordable Food in the North." *Food Secure Canada*, n.d. https://foodsecurecanada.org/rescnews/news-media/we-want-affordable-food-north.

"Aquaculture." Food and Agriculture Organization of the United Nations, n.d. http://www.fao.org/aquaculture/en/.

"Beacon Food Forest Permaculture Project," n.d. https://beaconfoodforest.org/.

"Bee Corridor' Planted in London to Boost Insect Numbers," May 7, 2019. https://www.blengland-london-48187846.

"Bees Reared in Cities 'Healthier." BBC, January 17, 2006. http://news.bbc.co.uk/2/hi/euro Bell, David. "Weed-Managing Goats Are Back and It's Win-Win for Calgary Parks." CBC, July 30, 2018. https://www.cbc.ca/news/canada/calgary/goats-weeds-calgary-1.4767547.

"Biosolids." EPA, September 27, 2019. https://www.epa.gov/biosolids.

Blus, Lawrence J., and Charles J. Henny. "FIELD STUDIES ON PESTICIDES AND BIRDS: UNEXPECTED AND UNIQUE RELATIONS." *Ecological Applications* 7, no. 4 (November 1997): 1125–32. https://doi.org/10.1890/1051-0761(1997)007[112

Bouvard, Véronique, Dana Loomis, Kathryn Z Guyton, Yann Grosse, Fatiha El Ghissassi, Lamia Benbrahim-Tallaa, Neela Guha, Heidi Mattock, and Kurt Straif. "Carcinogenicity of Consumption of Red and Processed Meat." *The Lancet Oncology* 16, no. 16 (December 2015): 1599–1600. https://doi.org/10.1016/S1470-2045(15)00444-1.

"Canada's Food Guide." Government of Canada, July 30, 2019.

Carrington, Damian. "Taxing Red Meat Would Save Many Lives, Research Shows," November 6, 2018. https://www.theguardian.com/environment/2018/nov/06/taxing red-meat-would-save-many-lives-research-shows.

"Deepwater Farms," n.d.

Dorovskikh, Anna. "Killing for a Living: Psychological and Physiological Effects of Alienation of Food Production on Slaughterhouse Workers." Honours Thesis, University of Colorado, Boulder, 2015.

Durant, Will. The Life of Greece. New York: Fine Publishers, 1993.

Eshel, Gidon, and Pamela A. Martin. "Diet, Energy, and Global Warming." *Earth Interactions* 10, no. 9 (April 2006): 1–17. https://doi.org/10.1175/EI167.1.

Eshel, Gidon, Paul Stainier, Alon Shepon, and Akshay Swaminathan. "Envi-

ronmentally Optimal, Nutritionally Sound, Protein and Energy Conserving Plant Based Alternatives to U.S. Meat." *Scientific Reports* 9, no. 1 (December 2019): 10345. https://doi.org/10.1038/s41598-019-46590-1.

FAO. "Climate Change And Food Security: A Framework Document." Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 2008. http://www.fao.org/3/k2595e/k2595e0o.pdf.

——. "Climate Change and Food Security: A Framework Document." Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 2008. http://www.fao.org/3/k2595e/k2595e00.pdf.

"FAQ-Biosolids." Canadian Water and Wastewater Association, n.d. http://www.cwwa.ca/faqbioso. Garnett, Tara, Cécile Godde, Adrian Muller, Elin Röös, Pete Smith, Imke da Boer, Erasmus zu Ermgassen, et al. "Grazed and Confused?" Food Climate Research Network, n.d. https://fcrn.org.uk/sites/default/files/project-files/fcrn_gnc_summary.pdf. "Getting Started." Calgary and District Beekeepers Association, n.d.

Graber-Stiehl, Ian. "Lawns Are and Ecological Disaster." *Gizmodo*, May 18, 2018. https://earther.gizmodo.com/lawns-are-an-ecological-disaster-1826070720.

Graves, Lucia. "Back to the Land: Are Young Farmers the New Starving Artists?," December 17, 2018. https://www.theguardian.com/environment/2018/dec/17/young-farmers-millennials.

"Green Wall - Function." In Wikipedia, n.d.

Hayes, T. B., A. Collins, M. Lee, M. Mendoza, N. Noriega, A. A. Stuart, and A. Vonk. "Hermaphroditic, Demasculinized Frogs after Exposure to the Herbicide Atrazine at Low Ecologically Relevant Doses." *Proceedings of the National Academy of Sciences* 99, no. 8 (April 16, 2002): 5476–80. https://doi.org/10.1073/pnas.082121499.

Holcombe, Madeline. "This Southern City Is Fighting Food Deserts with a Forest of Free Produce." CNN, May 24, 2019. https://www.cnn.com/2019/05/24/us/atlanta-food-forest-fighting-food-desert/index.html.

"Household Food Insecurity in Canada." PROOF: Food Insecurity Policy Research, n.d. https://proof.utoronto.ca/food-insecurity/.

"Inequalities in Food Insecurity in Canada." Public Health Agency of Canada, May 30, 2018. https://www.canada.ca/en/public-health/services/publications/science-research-data/inequalities-food-insecurity-canada-infographic.html.

Kissinger, Meidad. "International Trade Related Food Miles – The Case of Canada." *Food Policy* 37, no. 2 (April 2012): 171–78. https://doi.org/10.1016/j.foodpol.2012.01.002.

"Lambeth GP Food Co-Op," n.d. http://lambeth.gpfoodcoop.org.uk/.

Lawrynuik, Sarah. "The Climate Cost of a Sprawling City." *The Sprawl*, n.d. https://www.sprawlcalgary.com/calgary-climate-change-plan.

"Learn the Rules for Backyard Chickens, and Register Your Chickens with the City." City of Vancouver, n.d. https://vancouver.ca/people-programs/backyard-chickens.aspx

"List of Crop Plants Pollinated by Bees." In *Wikipedia*. Wikimedia Commons, n.d. https://en.wikipedia.org/wiki/List_of_crop_plants_pollinated_by_bees.

"Livestock Emotional Support Animals." *City of Calgary*, n.d. https://www.calgary.ca/CSI Services/Responsible-pet-ownership-bylaw-livestock.aspx.

"Local Food - Benefits." In Wikipedia, n.d. https://en.wikipedia.org/wiki/Local_food#Benefits." The Globe and Mail, n.d. https://www.theglobeandmail.com/report-on-business/taxpayers-oblivious-to-the-cost-of-farm-subsidies/article13055078/.

"Miniature Goats," n.d. https://www.saanich.ca/EN/main/community/agriculture-food-security/miniature-goats.html.

Monbiot, George, Robbin Grey, Tom Kenny, Laurie Macfarlane, Anna Powell-Smith, Guy Shrubsole, and Beth Straford. "Land for the Many." Labor Party of the United Kingdom, n.d. http://labour.org.uk/wp-content/uploads/2019/06/12081_19-Land-for-the-Many.pdf.

greenbelt.
Page, Danielle. "5 Surprising Benefits of Owning Chickens." USA Today, March

Page, Danielle. "5 Surprising Benefits of Owning Chickens." USA Today, March 12, 2018.

"Pesticides and Pollinators." *PennState Extension*, January 12, 2016. https://extension.psu.e and-pollinators.

"Ontario's Greenbelt." Government of Ontario, October 8, 2019. https://www.ontario.ca/

"Plant-Based Proteins Are Gaining Dollar Share Among North Americans," September 22, 2017. https://www.nielsen.com/us/en/insights/article/2017/plant-based-proteins-are-gaining-dollar-share-among-north-americans/.

"Responsible Use of Medically Important Antimicrobials in Animals." *Government of Canada*, n.d. https://www.canada.ca/en/public-health/services/antibiotic-antimicrobiasstance/animals/actions/responsible-use-antimicrobials.html.

"Rising Food Prices Worry 90% of Canadians as Federal Election Nears." *CI-SION*, June 17, 2019. https://www.newswire.ca/news-releases/rising-food-prices-worry-90-of-canadians-as-federal-election-nears-873951133.html.

"Rooftop Republic Urban Farming," n.d. https://www.rooftoprepublic.com/.

Rutledge, Kim, Melissa McDaniel, Diane Boudreau, Tara Ramroop, Santani Teng,

Erin Sprout, Hilary Costa, Hilary Hall, and Jeff Hunt. "Xeriscaping." In National

Geographic, January 21, 2011. https://www.nationalgeographic.org/encyclopedia/xeriscaping/.

Shumsky, Matthew, and Allison Nelson. "Female and Young Farm Operators

Represent a New Era of Canadian Farmers," December 13, 2018. https://www150.statcan.gc.ca/n1/pub/325-x/2017001/article/54925-eng.htm.

Smith, Andy, and Rob Harlan. "Cold Climate Solar Greenhouse Design." Grant

MacEwan University, April 27, 2011. https://solaralberta.ca/sites/default/files/events/documents/Colo

Soga, Masashi, Kevin J. Gaston, and Yuichi Yamaura. "Gardening Is Beneficial for Health: A Meta-Analysis." *Preventive Medicine Reports* 5 (March 2017): 92–99. https://doi.org/10.1016/j.pmedr.2016.11.007.

Stehfest, Elke, L Bouwman, D van Vuuren, M den Elzen, B Eickhout, and P Kabat. "Climate Benefits of Changing Diet." *IOP Conference Series: Earth and Environmental Science* 6, no. 26 (February 1, 2009): 262009. https://doi.org/10.1088/1755-1307/6/26/262009.

Stevenson, Lorraine. "2019 Canada Food Price Report: Meat Prices to Decline." *Manitoba Co-Operator*, n.d. https://www.manitobacooperator.ca/news-opinion/news/2019-canada-food-price-report-meat-prices-to-decline/.

——. "Does Canada Have Enough Young Farmers?" *Country Guide*, n.d. https://www.country-guide.ca/guide-business/does-canada-have-enough-young-farmers/.

"The Greenbelt." Friends of the Greenbelt, n.d. https://www.greenbelt.ca/about_the_greenbelt.

"Transportation Utility Corridor." City of Calgary, n.d. https://data.calgary.ca/Services-and-Amenities/Transportation-Utility-Corridor/hfu7-u9j5.

Tuso, Philip. "Nutritional Update for Physicians: Plant-Based Diets." *The Permanente Journal* 17, no. 2 (April 22, 2013): 61–66. https://doi.org/10.7812/TPP/12-085.

"UN Warns Climate Change Is Driving Global Hunger." September 12, 2018. https://unfccc.int/news/un-warns-climate-change-is-driving-global-hunger.

University of Bristol. "Cities Could Play a Key Role in Pollinator Conservation," January 4, 2019. https://phys.org/news/2019-01-cities-key-role-pollinator.html.

"Urban Hens Program," n.d. https://www.edmonton.ca/city_government/initiatives_innovation/fohens-project.aspx.

"UrbanHensTO Pilot Program." *City of Toronto*, n.d. https://www.toronto.ca/communitypeople/animals-pets/pets-in-the-city/backyard-hens/.

"What Is Aquaponics?" *The Aquapoonic Source*, n.d. https://www.theaquaponicsource.com/is-aquaponics/.

Whitaker, Evans M. "The Sweet Science of Honey." Sugarscience Blog, n.d. https://sugarscience-behind-honey.html#.XZ9MqGZ7lPa.

Chapter 3

Housing

3.1 Introduction

Housing is an essential human right, one that is neglected in Canada. This section of the Maximum GND focuses on ensuring sustainable, affordable access to housing for everyone. The following data and proposals demonstrate that ecological well-being and housing security are common goals and need to be emphasized in any complete GND.

Retrofitting and Constructing Green Homes

- 1. "Building the Retrofit Economy," a report commissioned by Ecology North, shows how retrofitting all the buildings in the NWT to more energy-efficient standards would actually generate revenue from fuel savings. This revenue could be put towards labor, training, construction expenses, and renewable energy for retrofitting buildings.¹
- 2. Housing accounts for 40% of carbon emissions from the urban consumption sector indifferent of housing density, identifying the need for more energy efficient buildings.²
- 3. LED lighting is 75% more energy efficient and lasts 25 times longer than traditional incandescent bulbs.³

¹ Gagnon et al., "The Northern Building Retrofit Economy."

² Heinonen, Kyrö, and Junnila, "Dense Downtown Living More Carbon Intense Due to Higher Consumption."

^{3 &}quot;LED Lighting."

- 4. Certain building materials have carbon-sequestering properties, such as hempcrete. Hempcrete is a renewable alternative to traditional building materials that hardens as it sequesters carbon, providing improved insulation and carbon sequestration over time.⁴
- 5. Using recycled car tires packed in adobe mud has been shown to be a safe, affordable, and sustainable building material when compared to traditional non-renewable construction materials.⁵

Proposals

- 2. 6. Undertake standard efficiency retrofits to improve operational performance.
 - 7. Undertake deep retrofits to high performance standards, focusing on carbon reduction.
 - 8. Incorporate Solar or other on site renewable energy systems in buildings.
 - 9. Switch to low carbon fuel sources in buildings.
 - 10. Ban incandescent bulbs and replace burnt-out bulbs with LEDs.
 - 11. Incentivising the usage of green materials in housing construction, such as hempcrete, or recycled materials, such as shredded car tires.
 - 12. Incentivising the building of green roofs in housing construction (see the Food Security section).

Land Proposals

- 13. In the UK, community land trusts are nonprofit institutions that reduce the downpayment of a house by having the Trust buy land beneath a house and then hold it in trust for the commons. Members pay rent to the Trust and use the land in common with other renters (see pg 67 of "Land For The Many").⁶
- 14. Nordic countries such as Sweden have "right of public access" or "everyman's right" guaranteed in their constitution, ensuring that everyone has

⁴ Arrigoni et al., "Life Cycle Assessment of Natural Building Materials."

⁵ "Building with Tires."

⁶ Monbiot et al., "Land For The Many."

the right to use uncultivated land so long as one does not cause land degradation, disturb wildlife, or remain longer than 24 hours.⁷

Proposals

- 4. 15. Create community land trusts and give them adequate funds to buy available land around rural areas.
 - 16. Make land ownership data more transparent and available to foster community led land acquisition.
 - 17. Establish democratic land councils that are answerable to the public rather than private land development companies.
 - 18. Enshrine the right to roam across all uncultivated land and water.

Housing Security

- 19. As of 2016, 1.35 million homes in Canada are vacant or temporarily occupied, 8.7% of the total number of homes.⁸
- 20. Canadians spent more than 30% of their income on housing. Canadians would have to make \$22.40/h to afford an average two-bedroom apartment or \$20.20/h to afford an average one-bedroom apartment.⁹
- 21. Over half of all Calgarians struggle to afford food and shelter.¹⁰
- 22. Approximately 235,000 Canadians experience homelessness each year. Shelter occupancy rose from 82% to 92% between 2005 and 2014.¹¹
- 23. Given soaring rent prices coupled with over 66,000 unoccupied homes, Vancouver implemented a ghost-tax for unoccupied dwellings. The scheme, projected to produce \$30 million in tax revenue annually for the city, targeted 8,500 dwellings. However, it seems that the tax has done little to decrease rent problems in the city, likely due to the high demand and the small number of dwellings targeted.¹²

⁷ "The Right of Public Access – What Is Allowed?"

^{8 &}quot;Tens of Thousands of Homes Are Sitting Vacant across Canada: Report | CTV News."

⁹Macdonald, Unaccommodating.

¹⁰ Yol, October 1, and 2019, "Vital Signs 2019 Report Shows Calgarians Feeling Financial Stress | Calgary Herald."

[&]quot;How Many People Are Homeless in Canada?"

¹² Estate, "Ghost-Home Tax Fills Vancouver Coffers but Rentals Remain Scarce | Financial Post."

- 24. Zoning regulations in North America are the direct result of racial segregation in the United States, with white families living in affluent low-density suburban neighborhoods and black families living in poor high-density urban neighborhoods.¹³
- 25. Urban Habitat filed a lawsuit against the City of Pleasanton, California for exclusionary housing policies that disproportionately affected non-white wage workers. The low-density housing in the city was unaffordable for workers, forcing nearly 90% of workers to commute from outside the city, generating huge amounts of greenhouse gases. In 2012, the lawsuit was settled and Pleasanton built 500 units of affordable housing, put in two rapid transit stations, and passed anti-discrimation housing legislation that rezoned suburban housing areas.¹⁴
- 26. Co-op housing in Canada are more cost-effective (14% less) to operate than non-profit housing. Co-ops strongly benefit women, with 58% of co-op housing residents being women and half of all co-op housing households being either single females or single-female parents.¹⁵
- 27. Rent control loopholes were closed in Ontario, capping rent increases at the rate of inflation and no more than 2.5% to combat ballooning housing prices.¹⁶
- 28. Gentrification in Vancouver's Downtown Eastside has endangered social housing, putting thousands of Vancouverites at risk of displacement and homelessness, particularly those affected by drug and alcohol addiction. This gentrification is driven by a mixture of aggressive condo-development, civic corruption, and disproportionate over-policing of the Downtown Eastside.¹⁷
- 29. Since 1981, Alpha House has existed in Calgary as a safe place to help people with alcohol and drug addictions access addiction-related healthcare and housing. Due to gentrification of the area, there has been a push by new residents to move the Alpha House, which could displace the detox

^{13 &}quot;Exclusionary Zoning Continues Racial Segregation's Ugly Work."

^{14 &}quot;Pleasanton: Lawsuit Lifts Barriers to Affordable Housing and Advances Environmental Justice | Urban Habitat."

^{15 &}quot;Facts and Figures."

¹⁶ Alex et al., "Bye Bye 1991 Loophole — Rent Control to Expand to All Rental Units in Ontario | CBC News."

¹⁷ Sep 1 and Facebook, "The Gentry Have Landed."

- residents that need healthcare and housing.¹⁸
- 30. Landlords in Canada use legal loopholes such as "renoviction" to evict tenants that do not comply to rent increases. 19
- 31. Companion animal pets provide numerous health benefits to pet owners including improved cardiovascular health, improved mental health, and increased opportunities for socialization and outdoor activity.²⁰
- 32. Despite the fact that pets are ubiquitous and are increasingly considered family members, pet owners have poorer housing security than non-owners and are more likely to seek poorer quality housing to accommodate their pets.²¹
- 33. Inuit communities are in an even deeper housing crisis than other people in Canada, with over 40% of Inuit living in overcrowded housing and one third of Inuit in need of suitable housing, largely due to the absence of public and private housing investment.²²
- 34. One in five trans* people in the US experienced homelessness and 20-40% of homeless youth are LGBT+, largely due to parental rejection and housing discrimination.²³

Proposals

- 6. 35. Implement an aggressive ghost-house tax of greater than 50% to unoccupied homes, with \$10,000 fine for each day of a false declaration of occupancy.
 - 36. Construct affordable housing projects in areas where people work in YYC.
 - 37. Rezone suburban areas to allow for the construction of affordable apartment housing and the end of class and economic segregation.
 - 38. Increase subsidies to housing co-ops in Canada.
 - 39. Establish rent control without loopholes, fixing rent at the cost of inflation and no more than 2.5%, with exceptions for new developments.

^{18 &}quot;Calgarians Petition to Move Alpha House Rehab Centre Because of Crime Concerns."

^{19 &}quot;Housing."

²⁰ "About Pets & People | Healthy Pets, Healthy People | CDC."

²¹ Power, "Renting with Pets."

^{22 &}quot;Housing."

²³ "Housing & Homelessness."

- 40. End gentrification of low-income housing by stopping upzoning. Special consideration should be given to areas that have homeless shelters and detox programs.
- 41. Mandate that all rental properties allow renters to have pets. All rentals should allow for at least one dog or cat per residence.
- 42. Expand temporary housing options for housing insecure persons and homeless people.
- 43. Invest in suitable housing for Inuit people living in Canada's North and for other indigenous people living in Canada.
- 44. Ensure housing protection for LGBT+ youth through establishing queer housing centres in major cities.

3.2 Citations

"About Pets & People | Healthy Pets, Healthy People | CDC," April 15, 2019. https://www.cdc.benefits/index.html.

Alex, ra Sienkiewicz · CBC News · Posted: Apr 20, 2017 11:54 AM ET | Last Updated: April 22, and 2017. "Bye Bye 1991 Loophole — Rent Control to Expand to All Rental Units in Ontario | CBC News." CBC, April 20, 2017. https://www.cbc.ca/news/carbyebye-1991-loophole-1.4077446.

Arrigoni, Alessandro, Renato Pelosato, Paco Melià, Gianluca Ruggieri, Sergio Sabbadini, and Giovanni Dotelli. "Life Cycle Assessment of Natural Building Materials: The Role of Carbonation, Mixture Components and Transport in the Environmental Impacts of Hempcrete Blocks." *Journal of Cleaner Production* 149 (April 2017): 1051–61. https://doi.org/10.1016/j.jclepro.2017.02.161.

"Building with Tires." Earthship Biotecture michael reynolds. Accessed October 8, 2019. https://www.earthshipglobal.com/building-with-tires.

"Calgarians Petition to Move Alpha House Rehab Centre Because of Crime Concerns." Global News. Accessed October 8, 2019. https://globalnews.ca/news/5427292/alphouse-rehab-centre-calgary-petition/.

Estate, Real. "Ghost-Home Tax Fills Vancouver Coffers but Rentals Remain Scarce | Financial Post," April 26, 2018. https://business.financialpost.com/real-estate/ghost-home-tax-fills-vancouver-coffers-but-rentals-remain-scarce.

"Exclusionary Zoning Continues Racial Segregation's Ugly Work." The Century Foundation, August 4, 2017. https://tcf.org/content/commentary/exclusionary-zoning-continues-racial-segregations-ugly-work/.

"Facts and Figures." CHF Canada. Accessed October 8, 2019. https://chfcanada.coop/about-co-op-housing/facts-and-figures/.

Gagnon, William, Eric Chisolm, Dave Thompson, and Lena Black. "The Northern Building Retrofit Economy - Building Energy Improvements in the Northwest Territories." Ecology North, 2019. http://northerncentreforsustainability.ca/resources/.

Heinonen, Jukka, Riikka Kyrö, and Seppo Junnila. "Dense Downtown Living More Carbon Intense Due to Higher Consumption: A Case Study of Helsinki." *Environmental Research Letters* 6, no. 3 (July 2011): 034034. https://doi.org/10.1088/1748-9326/6/3/034034.

"Housing." Accessed October 8, 2019. https://indigenouspeoplesatlasofcanada.ca/article/housing/.

"Housing & Homelessness." National Center for Transgender Equality. Accessed October 8, 2019. https://transequality.org/issues/housing-homelessness.

"How Many People Are Homeless in Canada? | The Homeless Hub." Accessed October 8, 2019. https://www.homelesshub.ca/about-homelessness/homelessness-101/how-many-people-are-homeless-canada.

"LED Lighting." Energy.gov. Accessed October 8, 2019. https://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/led-lighting.

Macdonald, David. *Unaccommodating: Rental Housing Wage in Canada*, 2019. https://login.proxy.bib.uottawa.ca/login?url=http://www.deslibris.ca/ID/10101297.

Monbiot, George, Robin Grey, Tom Kenny, Laurie Macfarlane, Anna Powell-Smith, Guy Shrubsole, and Beth Stratford. "Land For The Many." Labour Party of the United Kingdom, n.d. https://landforthemany.uk/preface/.

"Pleasanton: Lawsuit Lifts Barriers to Affordable Housing and Advances Environmental Justice | Urban Habitat." Accessed October 8, 2019. https://urbanhabitat.org/campaigns/plawsuit-lifts-barriers-affordable-housing-and-advances-environmental-justice.

Power, Emma R. "Renting with Pets: A Pathway to Housing Insecurity?" *Housing Studies* 32, no. 3 (April 3, 2017): 336–60. https://doi.org/10.1080/02673037.2016.1210095.

Sep 1, Dave Diewert, and 2013 7 min read Share Twitter Facebook. "The Gentry Have Landed." Accessed October 8, 2019. https://briarpatchmagazine.com/articles/view/thegentry-have-landed.

"Tens of Thousands of Homes Are Sitting Vacant across Canada: Report | CTV

News." Accessed October 8, 2019. https://www.ctvnews.ca/canada/tens-of-thousands-of-homes-are-sitting-vacant-across-canada-report-1.4621000.

"The Right of Public Access – What Is Allowed? - Naturvårdsverket," May 20, 2008. https://web.archive.org/web/20080520085813/http://www.naturvardsverket.se/en/In-English/Menu/Enjoying-nature/The-right-of-public-access/The-Right-of-Public-Access-what-is-allowed/.

Yol, e Cole Updated: October 1, and 2019. "Vital Signs 2019 Report Shows Calgarians Feeling Financial Stress | Calgary Herald," October 1, 2019. https://calgaryherald.com/news/vital-signs-2019-report-shows-calgarians-feeling-financial-stress.

Chapter 4

Social Services

4.1 Introduction

Climate Action depends on empowered, educated, healthy people. Without access to social services, mobilizing people against climate change will not be successful. Moreover, improving access to social services increases productivity, reduces lost labour time, and decreases healthcare costs through preventative care. With the aim of adapting to climate change and mitigating the negative consequences, we propose the shifting of social service access points to community centers, creating more self-sufficient and self-governed communities. This will help fight climate change in minimally two ways: by empowering people with the necessary skills and community connections to make adapt themselves and their communities to climate change, and by reducing travel time and carbon emissions for accessing social services. Community centers should live up to their name, and truly become the center of a community. With this in mind, we have formulated the Social Services section of the Maximum GND to best serve the people.

4.2 Municipal Level Proposals

I.

Revitalization of Community Centres as access points for social services

- 1. Participation in community centre activities is associated with improved general physical health, mental health, and social well-being, with greater benefits predicted from comprehensive well-being services.¹
- 2. Appropriate land use policies in Ontario are slated to reduce commuter emissions by reducing commuting times to access social services. Thus, putting services within walking/cycling distance would help combat climate change.²

Proposals

- 2. 3. Institutionalize neighborhood assemblies for decision-making on issues that directly impact the community.
 - 4. Guaranteed child care in community centres.
 - 5. Streamline elder care services with childcare services in facilities, breaking up age segregation.
 - 6. Establish free meal programs through community centres.
 - 7. Offer conflict resolution (mediation/arbitration) resource access through community centres.
 - 8. Run mobile medical/dental clinics on a rotational basis through community centres.
 - 9. Offer community health education programs through community centres.
 - 10. Offer free/reduced cost recreational centres and programs through community centres.

Water fluoridation

2. 3. Data

11. Despite popular approval of water fluoridation in Calgary after five plebiscites (the latest in 1998 voting to approve the practice), Calgary City Council voted to repeal water fluoridation in 2011, voting to review it as recently as 2016.³

¹ Jones et al., "The Role of Community Centre-Based Arts, Leisure and Social Activities in Promoting Adult Well-Being and Healthy Lifestyles."

²Pembina Institute, "Driving Down Carbon."

^{3 &}quot;Should Calgary Bring Fluoridated Water Back?"

12. In the three years since water fluoridation was discontinued in Calgary, tooth decay increased dramatically in children, with an increase in 3.8 tooth surfaces on average.⁴

Proposals

4. 13. Reinstitute water fluoridation in Calgary.

4.3 Provincial Level Proposals

3.

Healthcare Expansion

5. Data

- 14. Mental healthcare services are critically overburdened in Alberta, with long wait times and lack of services putting vulnerable Albertans at risk. ⁵
- 15. Dental costs in Alberta are the highest in Canada.⁶
- 16. 86% of Canadians support publicly funding dental care for families without insurance.⁷
- 17. In Ontario in 2014, preventable dental disease led to more than 60,000 emergency room visits and 230,000 family doctor visits, costing Ontario over \$40 million.⁸
- 18. The current substance abuse crisis costs Alberta over \$1 billion.9
- 19. Safe injection sites in Alberta have caused a plateau in the number of overdose deaths, despite funding freezes by the United Conservative Party.¹⁰

Proposals

⁴ "Fluoridation Cessation Impact in Calgary Children."

⁵ Sep 18, September 18, and 2018, "Alberta's Mental Health System 'cracking at the Seams,' Says Co-Author of Review | CBC News."

⁶ "Dental Fees in Alberta."

⁷ "Canadians Support Publicly Funded Dental Care for Those without Insurance, Ipsos Poll Finds."

^{8 &}quot;Canadians Support Publicly Funded Dental Care for Those without Insurance, Ipsos Poll Finds."

⁹ "Substance Abuse a Costly Issue in Alberta."

¹⁰ Balanko-Dickson, "How Does Calgary's Supervised Consumption Site Compare to Others?"

- 6. 20. Increase accessibility and number of walk-in clinics, prioritizing low-income areas.
 - 21. Expand dental, addiction, and mental health services under provincial healthcare.
 - 22. Expand safe injection sites and harm-reduction programs across Alberta, focusing intervention on low-income areas.

4.

Reform of foster care system

7. Data

- 23. In Canada, 52.2% of children in foster care are Indigenous, but account for only 7.7% of the child population according to Census 2016. This means 14,970 out of 28,665 foster children in private homes under the age of 15 are Indigenous.¹¹
- 24. Results from the 2011 National Household Survey also show that 38% of Indigenous children in Canada live in poverty, compared to 7% for non-Indigenous children.¹²

Proposals

- 8. 25. Address institutionalized racism as it impacts indigenous and immigrant populations by marginalized experts leading reform programs.
 - 26. Reroute funding for child displacement, provide more support for struggling families in home.
 - 27. Prioritize known alloparents and community connections in placement.
 - 28. Increase in-home monitoring of conditions in foster care to reduce suicide and abuse.

5.

Childcare and Domestic Labor

¹¹ Canada, "Reducing the Number of Indigenous Children in Care."

¹² Canada.

- 29. Women perform 1.8 times more unpaid housework and care work than men in developed countries such as Canada.¹³
- 30. Unpaid domestic work is valued at 10-39% of national GDP, often contributing more economically than manufacturing, commerce, and transportation.¹⁴

Proposals

- 10. 31. Improve access to childcare services through community-centred childcare programs for working parents.
 - 32. Increase childcare subsidies to unpaid domestic laborers to compensate them for their labor.

6.

Elder Care

11. Data

- 33. Nearly half of all beds in Alberta for elderly people in need of 24 hour care do not have a nurse on-site and do not meet minimal staffing requirements.¹⁵
- 34. Publicly-run elder care facilities have a higher quality of care compared to for-profit facilities in Alberta, despite both being funded by provincial tax-payer dollars.¹⁶

Proposals

- 12. 35. Expand the number of long term care beds for elderly Albertans.
 - 36. End for-profit long-term care facilities in Alberta, moving these funds to support publicly-run facilities.

7.

^{13 &}quot;Redistribute Unpaid Work."

^{14 &}quot;Redistribute Unpaid Work."

^{15 &}quot;Losing Ground."

^{16 &}quot;Losing Ground."

Social and community Care workers

13. Proposals

- 37. Provide incentives for training for social and community care workers.
- 38. Establish social worker transition task force, led by marginalized experts, to create an action plan for Calgary and identify number of needed positions.
- 39. Expansion of child/youth, elderly advocacy positions.

8.

Education

- 40. In 2015, Alberta's New Democratic Party installed a tuition cap for 250,000 full and part-time students, saving these students \$16 million.¹⁷
- 41. The projected tuition hikes by the United Conservative Party will not only increase the cost of post-secondary education, but will decrease the quality of learning by increasing the student-teacher ratio of Alberta university classrooms.¹⁸
- 42. High tuition costs disproportionately oppress indigenous, PoC, disabled, and LGBT+ students, trapping these individuals in cycles of poverty.¹⁹
- 43. The total cost of free post-secondary tuition in Alberta would be \$918 million dollars, which could be easily reimbursed through corporate tax reforms.²⁰
- 44. Alberta needs 2000 to 3000 teachers to reach classroom size targets, particularly for K-3, particularly with increasing numbers of ESL and disabled students, leading to teacher burnout.²¹

¹⁷ "Alberta Students' Union Wants Action on Government Tuition Review."

^{18 &}quot;U of A President Says Tuition Hikes, Program Cuts Ahead after UCP Budget | CBC News."

¹⁹Harden, Time to Think Big.

²⁰ Harden, Time to Think Big.

²¹ November 1 and 2018, "Class Sizes Becoming Unmanageable, ATA President Says | Edmonton Journal."

- 45. 40 schools in Alberta are over 100% capacity, despite 85% being considered "full" by the Alberta government. Calgary Board of Education is facing \$1.3 billion in deferred maintenance costs.²²
- 46. Charter schools in Alberta divert funding from public schools while serving fewer students, thanks to limited enrollment.²³
- 47. Alberta is the only province in Canada that has charter schools.²⁴
- 48. High Schools are not preparing young people for entering the workforce as employers increasingly look for work experience, personal virtues, and sometimes nepotism when hiring.²⁵
- 49. Climate change education is insufficient in Canadian schools, with most provinces not emphasizing environmental stewardship or the negative consequences of climate change.²⁶

Proposals

- 15. 50. Free tuition for all post-secondary students in Alberta.
 - 51. Fund free tuition by closing tax loopholes, ending off-shore corporate tax dodging, and taxing e-commerce companies.
 - 52. Increase pay and incentives for teachers and educational support staff.
 - 53. End charter schools and all private education subsidies.
 - 54. Reform the primary education system by integrating occupational experience, intergenerational knowledge, and individual proficiencies into the curriculum.
 - 55. Update the curriculum of schools to emphasize the science of climate change, the negative effects of climate change, and environmental stewardship.

9.

LGBT+ Protections and Services

16. Transgender Healthcare and Discrimination

²² April 23 and 2019, "Charter Program Gets Government Funds While Public Schools Overflow | Calgary Herald."

²³ April 23 and 2019.

²⁴ "Charter Schools | The Canadian Encyclopedia."

²⁵ Paddon, "High Schools Not Preparing Students for Employment, Business Group Says."

²⁶ Willick, "How Climate Change Is Taught in Canadian High Schools — and How It Can Improve."

56. Data

- 1. Trans* individuals experience high rates of mental health disorders due to familial rejection and medical wait-times, which show improvement following gender-affirming care.²⁷
- 2. Wait times for gender affirming surgery in Canada are increasing, lasting up to several years.²⁸
- 3. The informed consent clinic proposed in Edmonton has not seen any progress since 2018.²⁹

Proposals

- 57. 4. Expansion of LGBT+ counselling for youth and adults.
 - 5. Creating an informed consent clinic in Calgary for access to genderaffirming hormonal therapy and counselling for trans* people.
 - 6. Opening the informed consent clinic in Edmonton for access to gender-affirming hormonal therapy and counselling.
 - 7. Increase the availability of gender-affirming surgeries for trans* Canadians by giving funding to Canadians outside of the country.

LGBT+ school protections

17. 58. Data

- 8. The United Conservative Party of Alberta scrapped Bill 24, which allowed students to form an independent GSA that protected the identities of students involved with GSA activities.³⁰
- 9. GSAs provide numerous mental health and social benefits to LGBT+ students and their allies, but having unprotected GSAs puts students at risk of bullying from peers and abuse from parents.³¹

Proposals

59. 10. Restore GSA protections as outlined in Bill 24.

4.4 Federal Level Proposals

10. Restorative Justice

²⁷ Dhejne et al., "Mental Health and Gender Dysphoria."

²⁸"Wait Times for Sexual Reassignment Surgery Outrage Transgender Community - May 22, 2015 | CBC Radio."

²⁹ "New Clinic for Transgender Albertans to Launch in Edmonton | Edmonton Journal."

³⁰ "What the United Conservatives' Education Bill Means for GSAs in Alberta | The Star."

^{31 &}quot;Gay-Straight Alliances."

18. Data

- 60. Indigenous persons, despite being 4% of Canada's population, represent over 20% of Canada's prison population and 33% of Canada's female prison population, with relative rates of indigenous incarceration increasing.³²
- 61. Despite being considered as a form of torture by the UN, solitary confinement above 15 days is being used in Canada (with some individuals being kept over four years in solitary confinement).³³
- 62. Food justice programs have been used to rehabilitate ex-offenders in Oakland, California, providing them with skills that led them to become productive members of society.³⁴
- 63. Restorative justice practices in Canada have been shown to decrease recidivism and decrease trauma to victims of crime.³⁵

Proposals

- 19. 64. End solitary confinement torture in Canadian prisons.
 - 65. Implement restorative justice practices in Canada, particularly for indigenous people vulnerable to recidivism.
 - 66. Use food justice as a template for restorative justice, giving ex-offenders the means to reenter society through tree-planting campaigns and food-production.

Water Security

11. 20. Data

- 67. At any given time, over 100 indigenous communities in Canada have water advisories.³⁶
- 68. Water privatization increases water costs and decreases water quality, disproportionately affecting women and indigenous peoples.³⁷

³² "Social Conditions of Indigenous Peoples in Canada | The Canadian Encyclopedia."

^{33 &}quot;Social Conditions of Indigenous Peoples in Canada | The Canadian Encyclopedia."

³⁴ Sbicca, "These Bars Can't Hold Us Back."

³⁵ Gaudreault, "The Limits of Restorative Justice."

³⁶ "Indigenous Communities and Water Crises — Is a Real Solution in the Works?"

³⁷ "Women and Water in Canada: The Significance of Privatization and Commercialization Trends for Women's Health."

- 69. One quarter of Canadian bottled water is from the tap. Bottled water is less regulated than tap water and is sometimes bottled with PET that leaches toxic antimony into the water.³⁸
- 70. Bottled water causes the release of 2.5 million tonnes of CO2 every year. ³⁹

Proposals

- 21. 71. End the indigenous water crisis by investing in water treatment facilities and infrastructure in indigenous communities.
 - 72. End water privatization in Canada.
 - 73. Ban plastic water bottles.40

12. Military

22. Data

- 74. NATO targets for defense investment would cost Canada \$6.5 billion, 2% of its GDP.⁴¹
- 75. The thirteen-year long Canadian War in Afghanistan cost Canada \$18 billion dollars, killed 165 Canadians, gave over 10% of combat veterans PTSD, and did not achieve its strategic goal of eliminating the Taliban and al-Qaeda or of stabilizing Afghanistan.⁴²
- 76. Afghanistan's strategic importance to the US and Canada was geographical: Afghanistan exists between the shipping lanes of the Persian Gulf and the rich oilfields of Turkmenistan. By stabilizing Afghanistan, NATO hoped it could build a pipeline through the country and reduce oil prices.⁴³
- 77. China has reassigned 60,000 soldiers to plant trees specifically to tackle air pollution.⁴⁴

³⁸ "Women and Water in Canada: The Significance of Privatization and Commercialization Trends for Women's Health."

³⁹"The Environmental Impact of Plastic Water Bottles"

⁴⁰"The Environmental Impact of Plastic Water Bottles [Infographic] | Greener Ideal."

^{41 &}quot;Feds to Invest Billions Less in New Military Equipment, May Fall Short on NATO Spending Target."

^{42 &}quot;Canada and the War in Afghanistan | The Canadian Encyclopedia."

^{43 &}quot;Pipeline Politics."

^{44 &}quot;China Has Sent 60,000 Soldiers to Plant Trees."

- 23. 78. Decrease military spending to fund the development of renewable energy in Canada.
 - 79. Learn from the mistakes of the Afghanistan War by foregoing future imperial wars for fossil fuels.
 - 80. Use existing Canadian military infrastructure to reforest and re-wild Canada.

4.5 Literature Cited

F

Global News. "Alberta Students' Union Wants Action on Government Tuition Review." Accessed October 8, 2019. https://globalnews.ca/news/4585652/alberta-students-union-government-tuition-review/.

April 23, Eva Ferguson Updated:, and 2019. "Charter Program Gets Government Funds While Public Schools Overflow | Calgary Herald," March 15, 2019. https://calgaryherald.com/news/local-news/charter-program-gets-government-funds-for-new-high-school-while-public-schools-overflow.

Balanko-Dickson, Bailey Gingras-Hamilton and Laura. "How Does Calgary's Supervised Consumption Site Compare to Others?" Calgary Journal Online. Accessed October 8, 2019. https://www.calgaryjournal.ca/news/4647-how-does-calgarys-s-supervised-consumption-site-compare-to-others.html.

"Canada and the War in Afghanistan | The Canadian Encyclopedia." Accessed October 9, 2019. https://www.thecanadianencyclopedia.ca/en/article/international-campaign-against-terrorism-in-afghanistan.

Canada, Government of Canada; Indigenous Services. "Reducing the Number of Indigenous Children in Care." Fact sheet, November 2, 2018. https://www.sac-isc.gc.ca/eng/1541187352297/1541187392851.

Global News. "Canadians Support Publicly Funded Dental Care for Those without Insurance, Ipsos Poll Finds." Accessed October 8, 2019. https://globalnews.ca/news/5273773/canad support-publicly-funded-dental-care-for-those-without-insurance-poll-finds/.

"Charter Schools | The Canadian Encyclopedia." Accessed October 8, 2019. https://www.thecanadischools.

World Economic Forum. "China Has Sent 60,000 Soldiers to Plant Trees." Accessed October 8, 2019. https://www.weforum.org/agenda/2018/02/china-army-soldiers-plant-trees/.

"Dental Fees in Alberta." Accessed October 8, 2019. https://www.alberta.ca/dental-fees.aspx.

Dhejne, Cecilia, Roy Van Vlerken, Gunter Heylens, and Jon Arcelus. "Mental Health and Gender Dysphoria: A Review of the Literature." *International Review of Psychiatry (Abingdon, England)* 28, no. 1 (2016): 44–57. https://doi.org/10.3109/09540261.2 Global News. "Feds to Invest Billions Less in New Military Equipment, May Fall Short on NATO Spending Target." Accessed October 8, 2019. https://globalnews.ca/news/5

government-military-spending-nato/.

"Fluoridation Cessation Impact in Calgary Children." Accessed October 8, 2019. https://obrieniph.ucalgary.ca/news/impact-fluoridation-cessation-seen-calgary-children.

Gaudreault, Arlene. "The Limits of Restorative Justice." *Proceedings of the Symposium of the École Nationale de La Magistrature*, 2005. https://www.victimsweek.gc.ca/sympcolloque/past-passe/2009/presentation/arlg_1.html.

"Gay-Straight Alliances." Accessed October 8, 2019. https://www.alberta.ca/gay-straight-alliances.aspx.

Harden, Joel. *Time to Think Big: The Case for Free Tuition*, 2016. http://proxy.library.carlet Global News. "Indigenous Communities and Water Crises — Is a Real Solution in the Works?" Accessed October 8, 2019. https://globalnews.ca/news/5671392/attawapiskat-state-of-emergency-clean-water/.

Institute, Pembina. "Driving Down Carbon." Pembina Institute. Accessed October 9, 2019. http://www.pembina.org/pub/1993.

January 25, Clare Clancy Updated:, and 2018. "New Clinic for Transgender Albertans to Launch in Edmonton | Edmonton Journal," January 25, 2018. https://edmontonjounews/new-clinic-for-transgender-albertans-first-of-its-kind-in-prairies-psychiatrist-says.

Jones, Mat, Richard Kimberlee, Toity Deave, and Simon Evans. "The Role of Community Centre-Based Arts, Leisure and Social Activities in Promoting Adult Well-Being and Healthy Lifestyles." *International Journal of Environmental Research and Public Health* 10, no. 5 (May 2013): 1948–62. https://doi.org/10.3390/ijerph1005194

Parkland Institute. "Losing Ground: Alberta's Residential Elder Care Crisis." Accessed October 8, 2019. https://www.parklandinstitute.ca/losing_ground.

May 22, Posted:, 2015 12:00 AM ET | Last Updated: November 28, and 2018. "Wait Times for Sexual Reassignment Surgery Outrage Transgender Community-May 22, 2015 | CBC Radio." CBC. Accessed October 8, 2019. https://www.cbc.ca/radio/thecurrent/waitimes-for-sexual-reassignment-surgery-outrage-transgender-community-may-22-2015-1.3083384.

November 1, Janet French Updated:, and 2018. "Class Sizes Becoming Unmanageable, ATA President Says | Edmonton Journal," November 17, 2017. https://edmontonjournal.com/news/large-class-sizes-becoming-unmanageable-says-alberta-teachers-association-president.

Oct 02, Michelle Bellefontaine \cdot CBC News \cdot Posted:, and 2019 3:08 PM MT \mid

Last Updated: October 2. "U of A President Says Tuition Hikes, Program Cuts

Ahead after UCP Budget | CBC News." CBC, October 2, 2019. https://www.cbc.ca/news/canada/edmoof-a-president-says-tuition-hikes-program-cuts-ahead-after-ucp-budget-1.5306449.

Paddon, David. "High Schools Not Preparing Students for Employment, Business Group Says." *CTV News Tornoto*, n.d. https://toronto.ctvnews.ca/high-schools-not-preparing-students-for-employment-business-group-says-1.4130382.

https://www.outlookindia.com/. "Pipeline Politics: Oil, Gas And The US Interest In Afghanistan." Accessed October 8, 2019. https://www.outlookindia.com/website/story/pipelinepolitics-oil-gas-and-the-us-interest-in-afghanistan/213804.

UN Women. "Redistribute Unpaid Work." Accessed October 8, 2019. https://www.unwomen.org/focus/csw61/redistribute-unpaid-work.

Sbicca, Joshua. "These Bars Can't Hold Us Back: Plowing Incarcerated Geographies with Restorative Food Justice." *Antipode* 48, no. 5 (2016): 1359–79. https://doi.org/10.1111/anti.12 Sep 18, Reid Southwick · CBC News · Posted:, 2018 5:00 AM MT | Last Updated: September 18, and 2018. "Alberta's Mental Health System 'cracking at the Seams,'

Says Co-Author of Review | CBC News." CBC, September 18, 2018. https://www.cbc.ca/news/canada/health-system-cracking-seams-1.4827319.

Global News. "Should Calgary Bring Fluoridated Water Back? Council Expected to Review New Study This Month." Accessed October 8, 2019. https://globalnews.ca/news/534 fluoridated-water-city-council-new-study/.

"Social Conditions of Indigenous Peoples in Canada | The Canadian Encyclopedia." Accessed October 8, 2019. https://www.thecanadianencyclopedia.ca/en/article/native-people-social-conditions.

Staff, Greener Ideal. "The Environmental Impact of Plastic Water Bottles [Infographic]|Greener Ideal." Accessed October 9, 2019. https://greenerideal.com/infographics/the-

environmental-impact-of-plastic-water-bottles/.

Global News. "Substance Abuse a Costly Issue in Alberta: Study." Accessed October 8, 2019. https://globalnews.ca/news/4662145/alberta-study-substance-use-cost/.

"What the United Conservatives' Education Bill Means for GSAs in Alberta | The Star." Accessed October 8, 2019. https://www.thestar.com/calgary/2019/06/06/what-the-united-conservatives-education-bill-means-for-gsas-in-alberta.html.

Willick, Frances. "How Climate Change Is Taught in Canadian High Schools — and How It Can Improve." *CBC*, n.d. https://www.cbc.ca/news/canada/novascotia/climate-change-curriculum-canadian-high-schools-1.5221358.

"Women and Water in Canada: The Significance of Privatization and Commercialization Trends for Women's Health," n.d., 22.

Chapter 5

Transit

5.1 Introduction

Expanding public transit is an integral component of climate action. Not only does public transit reduce carbon emissions, it also reduces road maintenance and increases economic activity. The following data and proposals in the Transit section of the Maximum GND seek to optimize these effects in YYC and across Canada.

5.2 Municipal Proposals

1. Public Transit

- 1. The most effective way to combat urban sprawl is to improve transit accessibility, which in turn reduces vehicular emissions and the need for space-occupying parking lots.¹
- 2. Transit improves worker commutes, increasing the chances of workers staying employed, reducing societal reliance for unemployment insurance.²
- 3. Improved access to public transit fosters inclusivity to the elderly, students, low income/single income families, tourists/visitors, and the differently abled, fostering community integration.³

¹ Gershon, "Public Transportation."

² Gershon.

³ Gershon.

- 4. Transit is a safer form of travel when compared to private vehicles.⁴
- 5. Luxembourg has become the first country in the world to make all public transit free starting in 2020 to reduce traffic congestion. Currently, fares only generate 10% of the revenue for transit, making the switch relatively inexpensive.⁵
- 6. Transit boarding cards are being used across the world, such as in the Netherlands, London, and New Zealand. These systems are convenient, easy to use, eliminates change, reduces paper waste, and reduces overspending for tickets.
- 7. 24-hour transit availability offered in other cities, such as Berlin, 9 Copenhagen, 10 Chicago, 11 and NYC. 12

2.

Proposals

8.

Make transit free. Calgary already has partial free transit with the free fare zone downtown. These zones should be enlarged until they encompass the entire transit system within Calgary.

9.

Expand Calgary Transit System

I.

Include C-Train service to end of Memorial, south to Foothills

2. Include C-Train service to Country Hills (Green Line)

⁴ Gershon.

⁵ Auxenfants, "The Cost of Luxembourg's Free Public Transport Plan."

⁶ "OV-Chipkaart: Public Transport Smart Card in the Netherlands."

⁷ "Oyster Cards and Travelcards in London."

^{8 &}quot;What Is an AT HOP Card & How It Works."

^{9 &}quot;Night Buses & Public Transport at Night."

[&]quot;How to Get around Denmark with Public Transport."

^{11 &}quot;Night Owl Service."

¹² NYCgo.com Staff, "NYC Transportation: Getting Around."

- 3. Include C-Train service to surrounding First Nations
- 4. Increase frequency and coverage of municipal bus services

IO.

Switch to public transit chip cards instead of paper tickets in areas not served by the free-fare zone.

11. Offer 24-hour transit availability.

12.

Diversify city-supplied modes of transportation, such as bicycles and scooters.

- 13. Restrict non-transit traffic in the downtown core and beltline during peak daytime hours.
- 14. Consult with local transit unions to optimize transit expansion and updates.

2.

Cycling

- 15. Cycling in the Netherlands prevents 6500 deaths per year, increases life expectancy by half a year, and accounts for more than 3% of the GDP through health benefits.¹³
- 16. Cycling lanes reduce road fatalities for all users due to the "calming effect" that bicycle lanes have on automobile traffic.¹⁴
- 17. Opposition to bike lanes is partly conducted by small business owners who often underestimate the effect of bike traffic on business and worry about temporary loss of business during construction. However, these fears tend to be largely unfounded, so outreach with business owners with data from similar projects will help convince them.

¹³ Fishman, Schepers, and Kamphuis, "Dutch Cycling."

^{14 &}quot;Cycling Lanes, Not Cyclists, Reduce Fatalities for All Road Users."

Conservative bikelash tends to be founded on xenophobia and racism, so cultivating a friendly image of a cyclist helps combat fear campaigns.¹⁵

Proposals

4. 18.

Increase distribution and connectedness of bike lanes, such as between Tuscany and the University.

- 19. Dedicate a street downtown specifically for cyclists and pedestrians.
- 20. Promote cycling by emphasizing health and economic benefits with a wholesome angle.

Pedestrians

3. 5. Data

- 21. Increased linearity, continuity, coverage, and slope of sidewalks is correlated with a decreased risk of pedestrian accidents.¹⁶
- 22. Suburban neighborhoods were built to accommodate cars, but increasing poverty is forcing many individuals to walk, causing increased pedestrian accidents from inadequate sidewalk systems.¹⁷

Proposals

6. 23. Increase sidewalk coverage, linearity, and connectedness in Calgary neighborhoods, particularly in suburban areas.

4. Carpooling

- 24. Carpooling apps can encourage co-workers to carpool, reducing travel costs and carbon emissions for commuters.¹⁸
- 25. Carpooling significantly reduces vehicular emissions and HOV lanes encourage carpooling when population density is high.¹⁹

¹⁵ Wild et al., "Beyond 'Bikelash."

¹⁶ Osama and Sayed, "Evaluating the Impact of Connectivity, Continuity, and Topography of Sidewalk Network on Pedestrian Safety."

¹⁷ Benediktsson, "Beyond the Sidewalk."

¹⁸ Bruck et al., "Minimizing CO₂ Emissions in a Practical Daily Carpooling Problem."

¹⁹ Javid, Nejat, and Hayhoe, "Quantifying the Environmental Impacts of Increasing High Occupancy Vehicle Lanes in the United States."

Proposals

8. 26.

Develop a municipal app that streamlines car pooling services.

27. Increase the number and distribution of HOV lanes

5.3 Provincial Proposals

5.

High-speed commuter train service between Calgary and Edmonton

9. Data

- 28. HWY 2 currently trafficked by 32,000 vehicles per day on average or more throughout this corridor as of 2016.²⁰
- 29. A high-speed train could add anywhere between \$5.7 and \$41.5 billion to the Albertan economy (adjusted for inflation), create 3,400-7,162 permanent jobs, and decrease vehicular emissions.²¹
- 30. TransPod, a private corporation, will begin construction of a bullettrain in 2021 between Olds and Didsbury and will complete the Calgary-Edmonton line by 2030.²² The current construction project is valued at \$6 billion dollars.²³

- 10. 31. The Government of Alberta must invest in developing a high-speed rail system in the Calgary-Edmonton corridor.
 - 32. Run the high-speed train service as a public corporation rather than a private business.

²⁰ "ALBERTA HIGHWAYS 1 TO 986 TRAFFIC VOLUME HISTORY 2007 - 201."

²¹ "Economic Benefits for Development of High Speed Rail Service in the Calgary-Edmonton Corridor."

²² Lulla, "Edmonton-Red Deer-Calgary Bullet Train Waiting for Provincial Blessing."

²³ Lulla.

5.4 Federal Proposals

6. Trans-Canadian Railway

11. Data

- 33. Currently, one-way express passenger services between Vancouver and Toronto is a four-day trip costing upwards of \$2699 CAD²⁴ or a seven-day trip costing upwards of \$1660.²⁵
- 34. Non-stop one-way plane tickets between Vancouver and Toronto is a four-hour trip costing less than \$200.²⁶
- 35. Trains produce far less emissions per kilometer compared to planes, buses, and individual automobiles.²⁷
- 36. Rail privatization in the UK has led to increased prices, decreased punctuality, greater taxpayer cost, and reduced customer satisfaction. British rail privatization was done to undermine organized labor at the expense of an essential public utility.²⁸

Proposals

- 12. 37. Nationalize Canadian rail to improve the quality and price of traintravel in Canada.
 - 38. Research the feasibility of implementing high-speed rail between Vancouver and Toronto.

5.5 Literature Cited

"ALBERTA HIGHWAYS 1 TO 986 TRAFFIC VOLUME HISTORY 2007 - 201." Traffic Volume History. Alberta Transportation Strategy and Policy Branch, February 17, 2017. http://www.transportation.alberta.ca/Content/docType181/production/7 2016.pdf.

Auxenfants, Marc. "The Cost of Luxembourg's Free Public Transport Plan." *BBC*, January 29, 2019. https://www.bbc.com/worklife/article/20190128-the-cost-of-luxembourgs-free-public-transport-plan.

²⁴ "Trans Canadian Railway Tours."

²⁵ "Trans Canada by Rail."

²⁶ "Flights from Vancouver to Toronto."

²⁷ "Climate Change: Should You Fly, Drive or Take the Train?"

²⁸ Jones, "Why Britain's Trains Don't Run on Time: Capitalism."

Benediktsson, Mike Owen. "Beyond the Sidewalk: Pedestrian Risk and Material Mismatch in the American Suburbs." *Mobilities* 12, no. 1 (January 2, 2017): 76–96. https://doi.org/10.1080/17450101.2015.1019748.

Bruck, Bruno P., Valerio Incerti, Manuel Iori, and Matteo Vignoli. "Minimizing CO2 Emissions in a Practical Daily Carpooling Problem." *Computers & Operations Research* 81 (May 2017): 40–50. https://doi.org/10.1016/j.cor.2016.12.003.

"Climate Change: Should You Fly, Drive or Take the Train?" *BBC*, August 24, 2019. https://www.bbc.com/news/science-environment-49349566.

"Cycling Lanes, Not Cyclists, Reduce Fatalities for All Road Users." NewsRx Science, June 16, 2019. https://go-gale-com.ezproxy.lib.ucalgary.ca/ps/i.do?id=GALE%7CA5882433778 "Economic Benefits for Development of High Speed Rail Service in the Calgary-

Edmonton Corridor." Alberta Infrastructure & Transportation, February 2008.

Fishman, Elliot, Paul Schepers, and Carlijn Barbara Maria Kamphuis. "Dutch Cycling: Quantifying the Health and Related Economic Benefits." *American Jour-*

nal of Public Health 105, no. 8 (August 2015): e13-15. https://doi.org/10.2105/AJPH.2015.302724.

"Flights from Vancouver to Toronto," n.d. https://www.google.com/flights?q=plane+tickets+vancob-d&sxsrf=ACYBGNSjX6solJokfV27RWyfHqXLyEQRwQ:1570476408501&source=lnms&impre 11-28;c:CAD;e:1;sd:1;t:f;tt:o.

Gershon, R. R. M. "Public Transportation: Advantages and Challenges." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 82, no. 1 (February 28, 2005): 7–9. https://doi.org/10.1093/jurban/jti003.

"How to Get around Denmark with Public Transport," n.d. https://www.visitdenmark.com/denmark essentials/public-transport-denmark.

Javid, Roxana J., Ali Nejat, and Katharine Hayhoe. "Quantifying the Environmental Impacts of Increasing High Occupancy Vehicle Lanes in the United States." *Transportation Research Part D: Transport and Environment* 56 (October 2017): 155–74. https://doi.org/10.1016/j.trd.2017.07.031.

Jones, Owen. "Why Britain's Trains Don't Run on Time: Capitalism," April 4, 2017. https://www.nytimes.com/2017/04/04/opinion/why-britains-trains-dont-run-on-time-capitalism.html.

Lulla, Mamta. "Edmonton-Red Deer-Calgary Bullet Train Waiting for Provincial Blessing." *Red Deer Advocate*, July 16, 2019. https://www.reddeeradvocate.com/news/edmonton-red-deer-calgary-bullet-train-needs-ucp-blessing/.

"Night Buses & Public Transport at Night," June 27, 2019. https://www.berlin.de/en/public-

transportation/1859225-2913840-night-buses-public-transport-at-night-.en.html.

"Night Owl Service," March 2018. https://www.transitchicago.com/assets/1/6/ctamap_Or NYCgo.com Staff. "NYC Transportation: Getting Around," May 7, 2010. https://www.ntransportation-getting-around.

Osama, Ahmed, and Tarek Sayed. "Evaluating the Impact of Connectivity, Continuity, and Topography of Sidewalk Network on Pedestrian Safety." *Accident Analysis* & *Prevention* 107 (October 2017): 117–25. https://doi.org/10.1016/j.aap.2017.08.001.

"OV-Chipkaart: Public Transport Smart Card in the Netherlands," February 18, 2019. https://www.amsterdamtips.com/ov-chipkaart.

"Oyster Cards and Travelcards in London," n.d. https://www.visitlondon.com/traveller-information/getting-around-london/oyster.

"Trans Canada by Rail," n.d. https://www.vacationsbyrail.com/canada/trans-canada/trans-canada-by-rail-toronto-to-vancouver.

"Trans Canadian Railway Tours." *Canada Rail Vacations*, n.d. https://canadarail.ca/packagcanadian-railway-tours.

"What Is an AT HOP Card & How It Works." n.d. https://at.govt.nz/bus-train-

"What Is an AT HOP Card & How It Works," n.d. https://at.govt.nz/bus-train-ferry/at-hop-card/what-is-an-at-hop-card-how-it-works/.

Wild, Kirsty, Alistair Woodward, Adrian Field, and Alex Macmillan. "Beyond 'Bikelash': Engaging with Community Opposition to Cycle Lanes." *Mobilities* 13, no. 4 (July 4, 2018): 505–19. https://doi.org/10.1080/17450101.2017.1408950.

Chapter 6

Energy Sector

6.1 Introduction

Fossil fuels are the primary cause of climate change. While sustainable energy generation exists, ending fossil fuel industry strangleholds, expanding renewable energy generation, ensuring a Just Transition for workers are the primary hurdles sustainable energy development. These measures require not only infrastructural changes, but corporate restructuring and employment transition for energy sector workers. The following data and proposals of our Maximum GND emphasize how this is not only feasible in, but beneficial for, our current economic and social paradigm.

6.2 Municipal Level Proposals

Microgrids

1. Microgrid Power Generation

- 1. Microgrids are local autonomous energy grids, connected to a main grid, but capable of generating electricity independently.¹
- 2. Microgrids are highly resilient to natural disasters, allowing communities to recover from power outages that may result.²

¹ "How Microgrids Work."

² "Is There a Role for Microgrids in the Energy Future of Quebec and Canada?"

- 3. Using a decentralized optimization algorithms, excess electricity can be shared with other members of the microgrid when energy yields are higher.³
- 4. Reduced spending on energy from microgrids keeps wealth within the community.⁴
- 5. Edmonton has increased rebates for solar power to \$0.40/Wt, covering about 15% of the cost of installing a solar system on an existing home.⁵

Proposals

- 2. 6. Create community projects, co-operatives, and trusts to install renewable energy generation and storage capacity.
 - 7. Offer educational opportunities and job retraining to individuals interested in microgrid installation and maintenance.
 - 8. Offer tax deductions for new buildings with microgrid solar generating capacity.
 - 9. Offer rebates and grants for solar retrofits, similar to the Edmonton's solar energy rebate program.
 - 10. Mandate smart meter installation to allow buildings to send electricity back to the grid.
 - 11. Streamline approval process for businesses installing local generation.

Worker Cooperatives

2. Worker Co-ops

- 12. Worker co-ops are more productive than conventional firms and increase employment security for workers.⁶
- 13. Worker co-ops can help localize neighborhoods by pooling resources to purchase or lease property in the city, allowing for mutual benefit for all in the co-op.⁷

³ "Microgrids Can Help Maximize Efficiency of Renewable Energy Consumption."

⁴ Canada, "Picturing Canadian Communities in 2050."

⁵ "Edmonton Boosts Its Solar Energy Rebate, Helping Fill Gap from Stalled Alberta Program | CBC News."

⁶ Chen, "Worker Cooperatives Are More Productive Than Normal Companies."

⁷ Stumo-Langer, "Five Ways Co-Ops Are Countering Corporate Power in Cities."

- 14. Despite their reputation for small-scale ventures, worker co-ops can be large and successful. Mondragon in Spain is one of the most prominent worker coop examples, valued at €15 billion and employing 84,000 people. Evergreen Cooperative Laundry in Cleveland, Ohio is a recent success story that in the course of ten years became an \$8 million USD operation.⁸
- 15. Tax-breaks, funding, technical assistance, and legislation has helped establish worker's co-ops as economic mainstays in Italy, France, and Spain.⁹
- 16. Solar energy generation strongly benefits worker co-ops. Solar co-ops generate profit and help communities save on energy costs by up to 20%.¹⁰

17. Proposals

- 1. Offer tax breaks and funds to encourage the growth of worker's co-ops.
- 2. Offer technical assistance to start-up worker's co-ops, including offering publicly-available information for workers interested in starting a co-op.
- 3. Grant workers the right of first refusal so they can offer to buy-out companies that are closing, planning on going public, or planning on selling to larger companies. This will include low-interest loans and grants to facilitate this transition.
- 4. Provide information to worker co-ops to establish renewable energy generation

6.3 Provincial Level Proposals

Provincial Renewable Energy

3. Provincial Renewables

⁸ Tremlett, "Mondragon."

⁹ Tremlett.

¹⁰ Stumo-Langer, "Five Ways Co-Ops Are Countering Corporate Power in Cities."

- 18. Alberta emits 262.3 million tons of CO2 (as of 2016) annually, the most of any Canadian province. 48% of these emissions stem from the oil and gas industry, 17% stem from electricity generation, and 12% stem from transportation.¹¹
- 19. Alberta consumes most of its energy in the form of natural gas the majority of which is used to provide heat and electricity for extracting petroleum from the oil sands.¹²
- 20. Because of its reliance on coal for electricity generation, in 2016, Alberta's electricity sector accounts for 58% of CO2 emissions for Canada's electricity sector.¹³
- 21. Alberta's former renewable energy program resulted in the installation of 1,363 megawatts of wind energy, at an average cost of 3.84 cents per kilowatt-hour (c/kWh) ¹⁴. For reference, the average price of electricity in Alberta, from October 2 to 8, was 3.15 c/kWh. ¹⁵

Proposals

- 5. 22. Reinstate Alberta's renewable energy procurement program.
 - 23. Implement more aggressive renewable portfolio standards.
 - 24. Reinstate provincial carbon tax at 20\$ per equivalent ton of CO2.
 - 25. Freeze and progressively cap oilsands and natural gas extraction.
 - 26. Raise consumer E.V. incentives to meet the standards set by BC and Quebec.
 - 27. Mandate indigenous (per UN Declaration on the Rights of Indigenous Peoples) and local consultation on energy projects. Expand the qualifications specified by the REP to all energy infrastructure projects, and require that companies invest in local communities by hiring locally, creating local projects, or by direct and fair compensation.

Provincialize Non-Renewable Energy

4. Provincialize Non-Renewable Energy

¹¹ Canada, "Greenhouse Gas Emissions."

¹² Government of Canada, "NEB – Provincial and Territorial Energy Profiles – Alberta."

¹³Government of Canada.n

^{14 &}quot;REP Results."

^{15 &}quot;Market and System Reporting."

6. Data

- 28. Declaring an intention to nationalize fossil fuel industries would decrease the cost of the shares in fossil fuel companies and disincentivize private investment.¹⁶ Precedent for such a drop in share value was when the Obama administration announced it would phase out private prisons.¹⁷
- 29. SaskOil is a precedent for a provincially owned oil & gas corporation, established specifically to prevent fossil fuel companies from controlling provincial politics.¹⁸

Proposals

- 7. 30. Declare an intention to provincialize fossil fuel companies to decrease the price of shares.
 - 31. Compulsorily buy 51% of shares and elect majority board dedicated to phase out fossil fuels.
 - 32. Profits from the corporations will be used to hold over costs, keep jobs until Just Transition is implemented.

6.4 Federal Level Proposals

De-Prioritizing Non-Renewable Energy

5. De-Prioritizing Non-Renewable Energy

- 33. Global fossil fuel subsidies cost \$373 billion USD per year. Canada itself pays \$3.3 billion in subsidies to the fossil fuel industry, or \$19/tonne of carbon pollution.¹⁹
- 34. Cutting fossil fuel subsidies and carbon pricing do not slow economic growth in over 70 different national and subnational economies.²¹

¹⁶ Gowan, "A Plan to Nationalize Fossil-Fuel Companies."

¹⁷ Ingraham, "Private Prison Stocks Collapse after Justice Department Promises to Phase Them Out."

¹⁸Eaton and Gray-Donald, "Socializing and Decolonizing Saskatchewan's Oil."s

¹⁹ Corfee-Morlot, Westphal, and Spiegel, "4 Ways to Shift from Fossil Fuels to Clean Energy."

²⁰ "The Elephant in the Room."

²¹ Corfee-Morlot, Westphal, and Spiegel, "4 Ways to Shift from Fossil Fuels to Clean Energy."

- 35. Investment in energy efficiency saves billions of dollars in energy waste and creates three times as many jobs as investing the same amount into the fossil fuel industry.²²
- 36. Investing in green energy training (such as solar technicians) for women has accelerated market growth and promoted a green energy transition.²³

Proposals

- 9. 37. End subsidies to non-renewable energy.
 - 38. Introduce carbon pricing to non-renewable energy.
 - 39. Invest capital in energy efficiency conversions.
 - 40. Invest in training women and indigenous people in green energy jobs.

Green Innovation Fund

6. Green Innovation Fund

- 41. Development of new renewable energy technologies is facing market-failure, where the risk of developing new technology is too high to be profitable, requiring government intervention.²⁴
- 42. The Clean Growth Hub is a Canadian agency that funds green energy R&D, with \$2.3 billion in funds during 2017.²⁵
- 43. Green New Deal Institutes could be used to subsidize the cost of developing mid-stage technology research tech.²⁶
- 44. Creating trusts in developing technology sectors has been done in the past to encourage economic participation, paying dividends to investors should the technology be successful and marketable.²⁷

²² Corfee-Morlot, Westphal, and Spiegel.

²³ Corfee-Morlot, Westphal, and Spiegel.

²⁴ Wells and Traficonte, "An Innovation Policy for the Green New Deal."

²⁵ Government of Canada, "Clean Growth Hub - Home."

²⁶ Wells and Traficonte, "An Innovation Policy for the Green New Deal."

²⁷ Wells and Traficonte.

45. Many tech companies notoriously avoid paying taxes, so making tech firms that use green energy technology pay royalties would be a way to co-opt funds that would otherwise be lost.²⁸

Proposals

- 11. 46. Expand the Clean Growth Hub by increasing funding to its projects and challenging the agency to help Canada develop green innovation through experimental green technology.
 - 47. Establish Green New Deal Institutes to subsidize the cost of R&D for mid-stage technology.
 - 48. Encourage investment of green innovation by setting up a public trust in green technology R&D.
 - 49. Encourage tech companies to invest in green technology by offering their proprietary use with small royalty payments rather than through low-interest loans, helping to recycle funds into more green innovation projects.

Just Transition

7. Workplace Transition Plans

12. Data

- 50. If allowed to "bust" by a sudden loss of investor confidence, fossil fuel workers could suddenly lose their jobs without skills or resources to access new employment.²⁹
- 51. Clear timelines will help mitigate economic turmoil from transitioning to renewable energy.³⁰

- 13. 52. Create clear timelines for reduction and closure of fossil fuel plants and projects.
 - 53. Create strategies for employee attrition well in advance of closures.

²⁸ Wells and Traficonte.

²⁹Cooling et al., Just Transition.

³⁰ Cooling et al.

54. Develop strategies for community resilience if extractive fuel industries no longer operate in a community, particularly through renewable energy systems.

Retraining and Job Transfers

8. 14. Data

- 55. Decarbonization will create millions of new jobs by 2050.31
- 56. The fossil fuel industry today accounts for only 1% of jobs and 8% of the national GDP.³²
- 57. Employment Insurance would not be sufficient for former fossil fuel workers exiting the industry.³³
- 58. Alberta is the only province that has taken steps to create a Just Transition for coal workers, with \$195 million allocated to help communities transfer to renewables and later an additional \$30 million to support fossil fuel workers.³⁴
- 59. Quebec has a payroll tax levy on companies that do not train apprenticeships to at least 1% of their workforce.³⁵
- 60. China has delayed or stopped development of 151 coal power plants, instead investing \$15 billion USD into job retraining, relocating, and retirement to coal workers.³⁶

- 15. 61. Create a coordinated plan to transfer and retrain individuals in all fossil fuel industries.
 - 62. Allocate funding to retrain and transfer fossil fuel workers to renewable energy industries or to other areas where their skills are transferable, such as truck drivers transferring to urban transit or electrical technicians transferring to renewable energy.

³¹Mertins-Kirkwood, Making Decarbonization Work for Workers.

³² Mertins-Kirkwood.

³³ Mertins-Kirkwood.

³⁴ Mertins-Kirkwood.

³⁵ Cooling et al., Just Transition.

³⁶ Corfee-Morlot, Westphal, and Spiegel, "4 Ways to Shift from Fossil Fuels to Clean Energy."

- 63. Allocate funding to communities that rely on fossil fuel employment to establish alternative industries, such as renewable energy generation or agriculture.
- 64. Invest in expanding apprenticeship programs in energy related fields.
- 65. Encourage indigenous retraining and job transfers by setting aside a retraining fund specifically for indigenous workers.

9. Pensions

16. Data

66. Older workers are often passed over for up-training and retraining, due to their shorter span in the industry.³⁷

Proposals

- 17. 67. Governments should provide funding to "bridge" older workers to retirement. Bridging is easier and more cost-effective than training workers for jobs they will only briefly perform before retiring. This can be done through already-existing infrastructure found in EI.
 - 68. Develop pension criteria in partnership with employers, unions and government stakeholders.
 - 69. Audit existing pension to ensure adequate funding exists for both income and benefits if the underlying firm or industry disappears.
 - 70. Offer early retirement for workers nearing retirement age.

Community Transition

10. 18. Data

71. Most transition plans neglect to account for cases where a worker loses their job in a household, but another household member does not.³⁸

- 19. 72. Offer employment and mental health counselling services to workers who are transitioning out of the fossil fuel industry.
 - 73. Help families with dual-incomes find employment through in new communities via family employment counselling.

³⁷Cooling et al., Just Transition.

³⁸ Cooling et al.

6.5 Appendix: Institutions doing Sustainable Energy R&D

• Fraunhofer Institute (Germany): A multidisciplinary research institute in Germany tackling many modern problems including transitioning to renewable energy sources. Has separate institutes specifically for solar and wind energy. https://www.fraunhofer.de/en/research/fields-of-research/energy-resources/renewable-energy.html
https://www.ise.fraunhofer.de/en.html

https://www.ise.fraunhofer.de/en.html https://www.iwes.fraunhofer.de/en.html

- Centre for Renewable Energy Systems Technology at Loughborough University (UK): A renewable energy research and development lab from the UK out of Loughborough University.
 https://www.lboro.ac.uk/research/crest/research/
- UK Energy Research Centre (UKERC): The UK Energy Research Centre (UKERC) carries out world-class research into sustainable future energy systems. http://www.ukerc.ac.uk/about-us.html

6.6 Literature Cited

"Edmonton Boosts Its Solar Energy Rebate, Helping Fill Gap from Stalled Alberta Program | CBC News." CBC, August 14, 2019. https://www.cbc.ca/news/canada/edmonton/esolar-power-rebate-alberta-energy-efficiency-1.5246743.

Canada, Environment and Climate Change. "Greenhouse Gas Emissions." Research. aem, January 9, 2007. https://www.canada.ca/en/environment-climate-change/service indicators/greenhouse-gas-emissions.html.

Canada, Natural Resources. "Picturing Canadian Communities in 2050," September 18, 2009. https://www.nrcan.gc.ca/energy/publications/efficiency/cem-cme/6545. Chen, Michelle. "Worker Cooperatives Are More Productive Than Normal Companies," March 28, 2016. https://www.thenation.com/article/worker-cooperatives-are-more-productive-than-normal-companies/.

Cooling, Karen, Marc Lee, Shannon Daub, Jessie Singer, and BC Office. *Just Transition: Creating a Green Social Contract for BC's Resource Workers.* Canadian

Centre for Policy Alternatives, 2015. https://central.bac-lac.gc.ca/.item?id=ccpa-bc_JustTransition_&c

Corfee-Morlot, Jan, Michael I. Westphal, and Rachel Spiegel. "4 Ways to Shift from Fossil Fuels to Clean Energy." World Resources Institute, January 15, 2019. https://www.wri.org/blog/2019/01/4-ways-shift-fossil-fuels-clean-energy.

Eaton, Emily, and David Gray-Donald. "Socializing and Decolonizing Saskatchewan's Oil." briarpatch, April 30, 2018. https://briarpatchmagazine.com/articles/view/socializing-and-decolonizing-saskatchewans-oil.

Government of Canada, Innovation. "Clean Growth Hub - Home." Home page. Accessed October 9, 2019. https://www.ic.gc.ca/eic/site/099.nsf/eng/home.

Government of Canada, National Energy Board. "NEB – Provincial and Territorial Energy Profiles – Alberta," August 15, 2019. https://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/nrgsstmpreng.html.

Gowan, Peter. "A Plan to Nationalize Fossil-Fuel Companies." *Jacobin*, March 26, 2018. https://jacobinmag.com/2018/03/nationalize-fossil-fuel-companies-climate-change.

"How Microgrids Work." Energy.gov. Accessed October 9, 2019. https://www.energy.gov/articles/lmicrogrids-work.

Ingraham, Christopher. "Private Prison Stocks Collapse after Justice Department Promises to Phase Them Out." Washington Post, August 18, 2016, sec. Economic Policy. https://www.washingtonpost.com/news/wonk/wp/2016/08/18/private-prison-stocks-collapse-after-justice-department-promises-to-phase-them-out/.

"Is There a Role for Microgrids in the Energy Future of Quebec and Canada?" Trottier Institute for Sustainability in Engineering and Design. Accessed October 9, 2019. https://www.mcgill.ca/tised/events/past-events/2017/microgrids.

"Market and System Reporting." AESO. Accessed October 9, 2019. https://www.aeso.ca/market/mand-system-reporting/.

Mertins-Kirkwood, Hadrian. *Making Decarbonization Work for Workers*. Place of publication not identified: Canadian Centre for Policy Alternatives, 2018. https://deslibris.ca/ID/10

"Microgrids Can Help Maximize Efficiency of Renewable Energy Consumption." Accessed October 9, 2019. https://phys.org/news/2019-06-microgrids-maximize-efficiency-renewable-energy.html.

"REP Results." AESO. Accessed October 7, 2019. https://www.aeso.ca/market/renewable-

electricity-program/rep-results/.

Stumo-Langer, Nick. "Five Ways Co-Ops Are Countering Corporate Power in Cities." Accessed October 9, 2019. https://nextcity.org/daily/entry/5-ways-worker-cooperatives-counter-corporate-power.

"The Elephant in the Room: Canada's Fossil Fuel Subsidies." *Environmental Defence* (blog). Accessed October 9, 2019. https://environmentaldefence.ca/report/the-elephant-in-the-room-canadas-fossil-fuel-subsidies/.

Tremlett, Giles. "Mondragon: Spain's Giant Co-Operative Where Times Are Hard but Few Go Bust." *The Guardian*, March 7, 2013, sec. World news. https://www.theguaspains-giant-cooperative.

Wells, Ian, and Dan Traficonte. "An Innovation Policy for the Green New Deal." People's Policy Project, April 18, 2019. https://www.peoplespolicyproject.org/wpcontent/uploads/2019/04/GNDInnovationPolicy.pdf.

6.7 Waste Management

Biological waste in urban contexts: https://www.ellenmacarthurfoundation.org/assets/downloads/pulBiocycles_EllenMacArthurFoundation_21-06-2017.pdf

Plastics: https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundationLondon Case Study:

 $https://www.lwarb.gov.uk/wp-content/uploads/2015/04/LWARB-London\%E2\%80\%99s-CE-route-map_16.6.17a_singlepages_sml.pdf$

Appendix A

GND City Council Proposals

Rationale: The purpose of this document is to put forward immediate proposals for Calgary City Council from our comprehensive Green New Deal (hereafter GND). Through these proposals, we hope to foster prosocial, community-building, effective climate action. The following proposals in this document are

- Feasible: needing small investment in labor and capital.
- Immediate: can be implemented in one to three years.
- Local: designed specifically for the YYC area.

For more detailed background rationale and data on any of these points, please refer to the Permeate GND documents.

A.1 Food Security

Given that

- Climate change will increase the frequency and severity of extreme weather events, endangering food production.
- 30% of all produce is imported into Canada, generating 3.3 million tonnes of CO2 per year.
- One in eight households in Canada is food-insecure.
- Food insecurity disproportionately affects already vulnerable people like...

- Women
- Children
- Indigenous people
- People living alone
- People with disabilities
- LGBT2SQIA+ identifying people
- Nine in ten Canadians are worried about food prices.
- Food prices are rising by more than 400\$ per year.
- The biggest barrier to young farmers is access to land.

We propose that the City of Calgary

- Converting the Transit Utility Corridor for agriculture production. This currently unused greenspace is maintained by mowing and herbicide use, costing an estimated \$40 million per year. This land could be turned over to the surrounding communities with minimal costs. See a map of the corridor here.
- Incentivizing and allowing the conversion of lawns, boulevards, and unused lots into community garden spaces. This program would mitigate the issue of garden care for elderly or disabled persons who otherwise cannot maintain their yard space, promote prosocial community organization, and ensure access to nutritious food for the 1 in 8 Calgarians that are food insecure.
- Encouraging the development of indoor aquaponics systems throughout Calgary (such as in the +15 spaces, the University of Calgary, or in Calgary public schools) through existing municipal grants. Such systems combine aquatic species (fish, small crustaceans, and various mollusks) with conventional annual crops to produce food, and greatly reduce waste and need for inputs such as fertilizer and water, and chemical filters and additives. It also prevents pollution of local watersheds.

- Eliminating barriers to beekeeping. Restrict the ability of homeowner's associations and insurance companies to prevent people from beekeeping on their property.
- Abolishing the use of chemical pesticides in Calgary public spaces.
 These kill pollinators, birds, and amphibians.
- Lifting restrictions on urban chicken keeping in Calgary. Establish a free permit system for up to four hens (no roosters) per suitable sized properties in Calgary following similar programs to Vancouver, Toronto, and Edmonton.
- Expanding the current small ruminant weed-management program to include the transit utility corridor and other unused green-spaces in Calgary. Offer permits and incentives to local goat and sheep producers in and around Calgary to manage these areas.
- Offering pilot permits to study the viability of backyard miniature goat keeping in Calgary along the lines of the Miniature Goats Pilot Project in Saanich, British Columbia.
- Establishing protected green belt areas along the periphery of Calgary with corridors for wildlife movement. These protected areas will discourage further urban expansion and allow living space for wildlife away from the suburban and urban areas. Limiting urban sprawl makes cities easier to access by transit and reduces the use of private single-occupant vehicles.

A.2 Housing

Given that

- Housing accounts for 40% of carbon emissions in urban areas.
- Retrofitting buildings saves more money in energy costs than it takes to retrofit.
- Canadians spend more than 30% of their income on housing.

- Over half of Calgarians now struggle to afford food and shelter.
- Homeless shelter occupancy rose from 82 to 92 percent from 2005 to 2015.

We propose that the City of Calgary

- Undertake deep retrofits to high performance standards, focusing on carbon reduction and solar microgrid generation. This will decrease the cost of heating in the long run, create jobs, and decrease city-wide emissions.
- Ensure stronger tenant protections and rent controls. These measures help people stay in their homes, reduce potential future income streams from land and bring tenancy closer to ownership in terms of stability, security and control.
- Disincentivize owning unused housing in Calgary through a "ghost tax". Individuals who own more than two homes or do not live in their homes in Calgary would pay a substantial tax to help keep housing prices in check.
- End exclusive zoning. We can carefully dismantle the system of exclusion that maintains a false scarcity of land and keeps significant portions of our cities off limits to renters and workers. At the same time, we should introduce measures to capture any increases in land values to incumbent owners and redirect that money to the public good.
- End gentrification. Gentrification endangers the most vulnerable housinginsecure individuals, increases crime rates, and increases the cost of living for residents.
- Support housing co-ops in Calgary. Fair taxation and subsidization of co-op housing is strongly beneficial for single mothers and women.

A.3 Social Services

Given that

- Participating in community activities is associated with improved general physical health, mental health, and social well-being.
- Putting services within walking and cycling distance would help combat climate change.
- Mental healthcare services are critically overburdened in Alberta.
- Since water fluoridation has been removed, children are experiencing almost four times the rate of tooth decay.

We propose that the City of Calgary

- Allow child-care service providers to utilize community centres. Revitalizing community centres with access to daycares would allow parents to go to work and build our community. These services can be streamlined to include elder care services, breaking up age segregation.
- Expand counselling services by offering sessions in community centres. These programs can utilize community gardening therapy to help individuals with depression and anxiety.
- Create additional supervised safe-injection sites. Calgary only has one safe-injection site run out of the Sheldon M. Chumir Centre. More safe injection sites with narcan and clean needles would decrease the number of overdosing and intra-venous transmitted diseases in the city.
- Expand housing-oriented shelters. There are currently not enough places for individuals to sleep at night in a city that can go well below -30°C in the winter. This would help prevent cases of frostbite, violence, and substance abuse in individuals with poor access to housing.
- Reinstate water fluoridation in the city of Calgary.

A.4 Transit

Given that...

- The most effective way to combat urban sprawl is to improve transit accessibility which in turn reduces vehicular emissions and the need for space-occupying parking lots.
- Transit improves worker commutes, increasing the chances of workers staying employed, and reduces reliance on unemployment insurance.
- Improved access to public transit fosters community inclusivity and expands opportunities for the elderly, students, low income/single income families, tourists/visitors, and the differently abled.
- Taking transit is safer than driving private vehicles.
- Cycling lanes reduce road fatalities for all users due to the "calming effect" that bicycle lanes have on automobile traffic.
- Better-designed sidewalk systems decrease pedestrian accident rates.

We propose that we

- Expand the free fare zones in Calgary to reduce the use of personal vehicles in Calgary. Calgary already has partial free transit with the free fare zone downtown. This free fare zone can be expanded to include the major C-train routes throughout the city.
- Expand C-Train lines to serve the entire city. Include C-Train service to end of Memorial, south to Foothills, and to Country Hills (Green Line). Additionally, include C-Train service to surrounding First Nations
- Increase frequency and coverage of municipal bus services.
- Abolish or restrict non-transit traffic in the downtown core and beltline during peak daytime hours.
- Increase the distribution and connectedness of bike lanes, sidewalks, and HOV lanes.

A.5 Energy Sector

Given that

- Fossil fuels are the primary cause of climate change.
- Reduced spending on energy due to generating energy locally helps keep wealth within the community.
- Worker co-ops are more productive than conventional firms and increase employment security for workers.
- Solar co-ops generate profit and help communities save on energy costs by up to 20%.
- Decarbonization will create millions of new jobs across Canada by 2050.
- The fossil fuel industry today accounts for only 1% of Canadian jobs and 8% of the national GDP.

We propose that the City of Calgary

- Supports the development of sustainable microgrid generation in Calgary through training programs, tax breaks, rebates, smart meter installation, and a streamlined approval process.
- Supports worker's co-ops in Calgary through tax breaks, legal information, the right of first-refusal on all company sales or closures, and information on solar microgrid generation.
- Offers retraining opportunities to workers exiting the fossil fuel industry, particularly through adult education programs and in municipal services with transferable skill-sets.

Appendix B

Additional Content

B.1 Engaging Experts

 We need to identify local experts in each of the topics listed above, involve them meetings and organization as much as possible, so that they can answer questions at town halls, provide reliable information, and guide the revision and expansion of the GND towards the achievement of realistic, immediate goals.

B.2 Addressing Concerns about Jobs

Federally focused studies

- (Federally focused) This study discusses how we can create over one million decent jobs in the public sector.
- (Federally focused) "As many as 18,000 jobs are created for every \$1 billion of investment in energy conservation and renewable energy systems. The average renewable energy investment creates four times as many jobs as the same investment in the fossil fuel economy." Study
- (Federally focused) This Columbia Institute study found that Canada can create 3.9 million direct jobs with net zero building retrofits and new "green" commercial, industrial, and institutional building construction: building small district energy systems, building an almost completely renewable energy grid by 2050, and expanding and improving our public transportation systems.

- (Federally focused) This comprehensive study demonstrates the feasibility of federal free tuition and provides progressive fundraising mechanisms for presentation from a fiscally conservative.
- "Every \$1 million invested in efficiency programs generates 30 to 52 job-years." [Source p. 13]
- (Federally focused) This study discusses how we can create over one million decent jobs in the public sector.
- (Federally focused) "As many as 18,000 jobs are created for every \$1 billion of investment in energy conservation and renewable energy systems. The average renewable energy investment creates four times as many jobs as the same investment in the fossil fuel economy." Study

Provincially focused

• (Provincially focused) The 18,000 jobs per \$1 billion of investment does not just apply to one area. Such investments can be done on a provincial basis, with paid student jobs and internships made a priority. Our engineering students and research infrastructure can easily be applied to a Green New Deal program.

On pipelines

- Environmental Concerns
 - Canada and the world cannot meet any climate change targets if there is not an end to fossil fuel production.
 - There is no price advantage for bitumen in Asia.
 - Alberta has all of the pipeline capacity it needs, sells mostly to US markets, and seriously underuses the TransMountain pipeline at current capacity for shipments to Asia.
 - Lighter, cheaper, closer crude is available to Asia via Russia, the Gulf countries, Iran, etc.

Jobs

- Automation has made it so that even in the unlikely event of another oil "boom", there would be far less work.
 - Testimony from someone who works in the oil & gas industry and who supports a Green New Deal.

Taxes

"Canadian corporations increased the money they report in Canada's top
 12 overseas tax havens by almost 10% to a record high of \$353 billion in
 2018, according to Statistics Canada Foreign Direct Investment figures
 released...." - Canadians for Tax Fairness

B.3 On Worker Cooperatives

Worker cooperatives are employee-owned businesses in which decisions are made democratically: one worker, one vote. Worker coops are an innovative model of keeping wealth local and incomes high, while ensuring the energy grid of the future is accountable to the community.

- Efficiency, feasibility, profitability, potential
 - Worker coops are more productive than conventional firms.
 - A more in-depth study on worker coops that discusses their size, profitability, viability in different sectors, etc.
 - Mondragon is one of the most prominent worker coop examples: they compete globally, and have a university which welcomes students from GM and Microsoft.

The Evergreen Model is a prime example of how worker cooperatives can

- revive impoverished areas in an environmentally and economically sustainable way
 - naturally build wealth more equitably,
 - and provide a reliable tax base for local government.

• Policies

- Increased supportive policies must be made to encourage the growth of and educate people about worker cooperatives in order to build the sector.
- Allow workers "the right of first refusal": the right to refuse corporate buyout. article.
- More information may be requested by Students for Direct Action or the Canadian Worker Cooperative Federation on this topic.

Miscellaneous

- Commercial, industrial, and institutional building construction: building small district energy systems, building an almost completely renewable energy grid by 2050, and expanding and improving our public transportation systems.
- (Federally focused) This comprehensive study demonstrates the feasibility of federal free tuition and provides progressive fundraising mechanisms for presentation from a fiscally conservative.
- (Provincially focused) Free tuition is ideal for the facilitation of a Green New Deal program. Consider this study (p. 15) which finds that total public education (college, vocational, university all included) revenue amounts to about \$918 million. The province can pass legislation mandating the elimination of tuition fees for students that go to public institutions. How it could be paid for would be for an increase in corporate taxes of between 1.5-2%, using the following information: "The NDP says that corporate taxes generate \$316 million per tax point..." & "the net reduction from 2001-2006, when the corporate tax rate dropped by 5.5 per cent, saw the province lose \$3.7 billion."
- Other Justice Issues and Supplementary economic visions:
 - Eliminate homelessness like Medicine Hat (even with a fiscally conservative city council).
 - Medicare and pharmacare-for-all
 - Free public transit like Germany
 - Food and land sovereignty with projects like Grow Calgary

