"Economics for Everyone:
How to Cut Through the Jargon

Later Life Learning, Innis College
Instructor: Dr. Jim Stanford
Fall 2021

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Session 7

The Economy and the Environment

Reading:
Chapter 16

Illustrations © by Tony Biddle

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Key Concepts

- Nature's role in the economy
- Ecological benefits and human well-being
- Sustainability
- Environmental inequality
- The environment and markets
- Climate change and the limits to growth

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Terms in Glossary

Environment; natural resources; ecological benefits; pollution; sustainability; climate change; greenhouse gases; imperfection; externality; carbon tax

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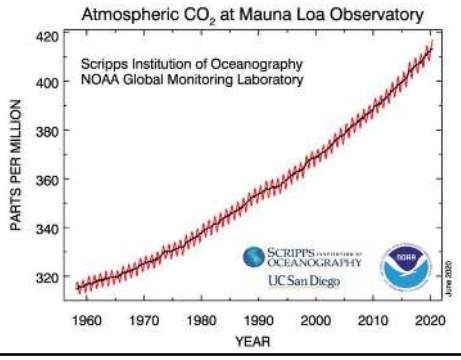
Steady Climb



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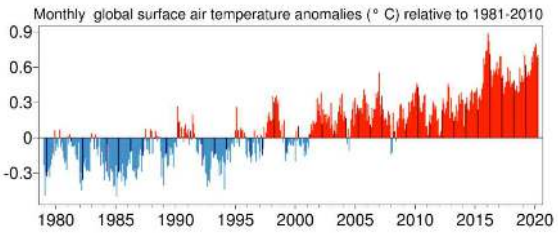

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Climate Change: The Greatest Environmental Challenge Yet

- Global temperatures up 1° C in 50 years
- Significant costs already being felt
  - severe weather
  - floods
  - droughts
  - rising sea levels
- Much more change will occur next 50 years
  - likely another 2-4° C
  - massive human displacement

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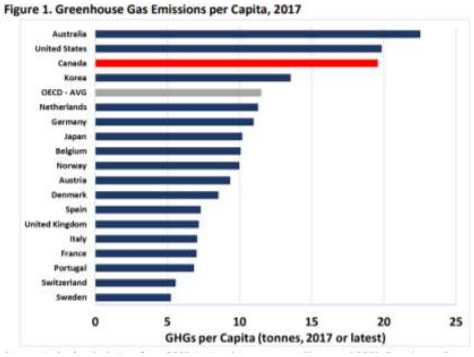
Nothing to Boast About

Figure 1. Greenhouse Gas Emissions per Capita, 2017



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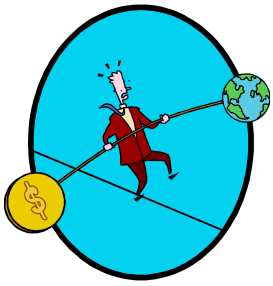
Finding the Balance



- We care about the environment: it affects our quality of life.
- We also care about employment, income, and materials consumtption.
- Can we do both? Break out of the "jobs vs. environment" box

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The Economy is Work



- Our capacity to work (brains & brawn) is the only force transforming what we harvest from nature (hopefully sustainably!) into useful goods & services.

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- Our capa the only force tra nature (hopefull & services.

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The Environment and the Economy

- All production involves work adding value to materials harvested from the natural world
- Requires 3 sorts of interactions with nature:
  1. "Ecological benefits" (land, air, water)
  2. Natural resources
  3. Pollution

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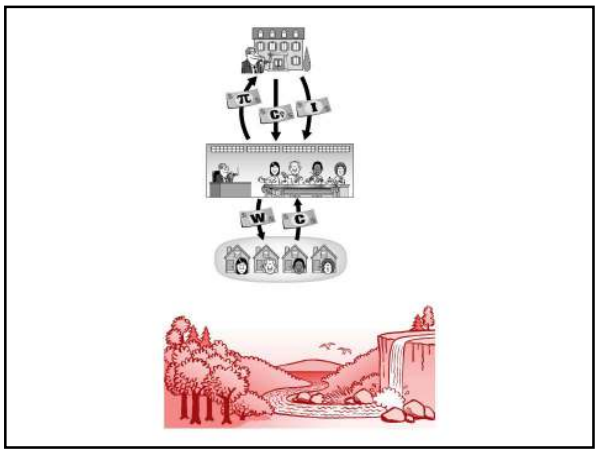

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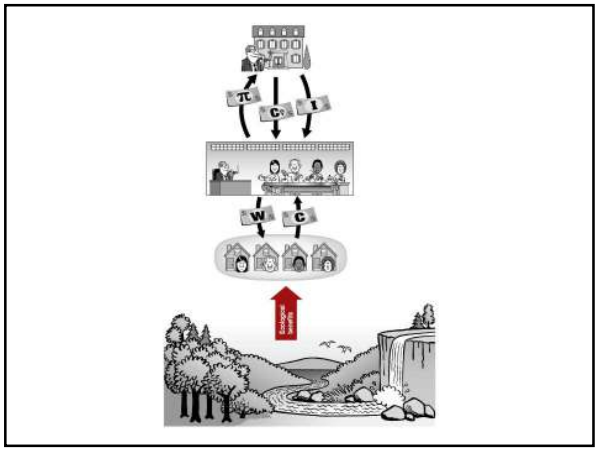

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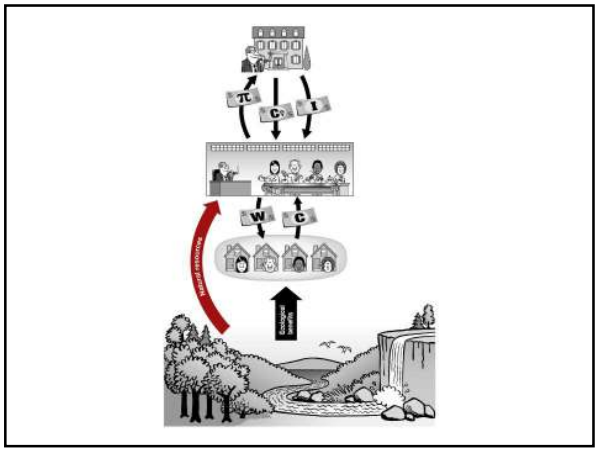

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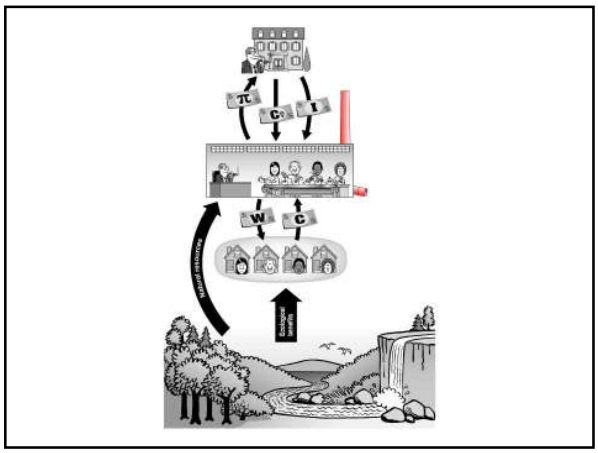
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Natural resources
Ecological surplus

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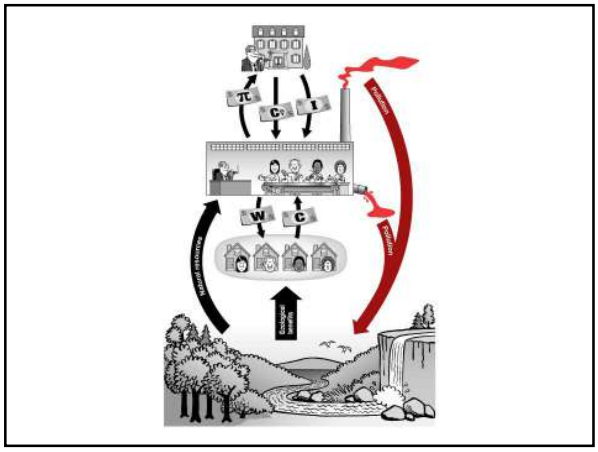
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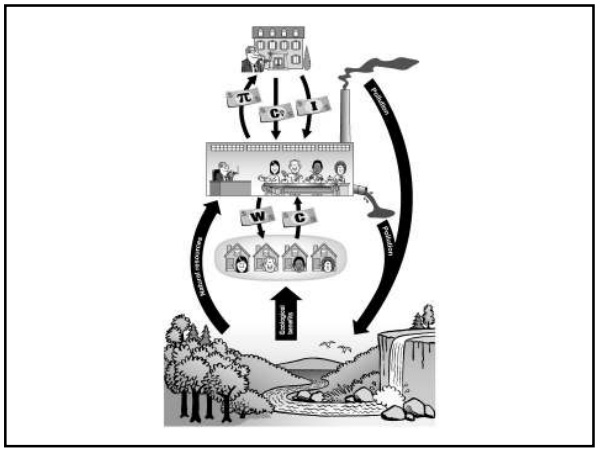
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Sustainability

- Manage interactions between the economy and the environment so that production can continue without causing ongoing degradation of the environment
  - Quality of ecological benefits
  - Ability to extract natural resources
  - Ability to absorb pollution
- Society cannot ultimately handle ongoing decline in those inputs.

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Are We All In This Together??

- In the past, wealthy people have been able to protect themselves from environmental degradation.
- And private companies may find ways to continue to profit despite a hellish climate.
- Honest question: Will capitalists suffer from climate change, and hence should want to prevent it??
- Put your answer in the Q&A…

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What is Growth?

- The economy = work we do to produce goods & services to meet human needs.
- Growth equals more work, and more production.
- Can involve:
  - Quantity or quality
  - Goods or services
  - Intensive or extensive

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Is Growth the Culprit?

- There is much work that needs to be done
- Environmentally benign work: quality not quantity; human services
- Environmentally helpful work: green energy, green transit, public transit, cleaning up pollution
- Wrong to blame growth: without it, unemployment would likely grow steadily (without continual reduction in hours worked).
- Need to control and manage growth, to get the right growth, and use it to improve our lives and the environment

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Work & the Environment

(p. 206)

Work that Does Not Harm the Environment:
Improving the quality rather than the quantity of manufactured products.
Providing more child care, youth services, education, elder care, neighbourhood recreation, and other human services.
Production of many private services.

Work that Helps the Environment:
Building expanded public transportation.
Retro-fitting homes and buildings for energy efficiency.
Production of fuel-efficient and alternative-technology vehicles.
Investment in non-polluting machinery and equipment.
Investment in clean energy generation.
Cleaning up industrial waste sites.
Construction of new parks.

Improving Living Standards Without More Work:
Consume more "leisure" and less "stuff," by equitably reducing working hours (less hours per week, per year, or over a lifetime).

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Doing Less… Or Doing More?

Option 1: Reduce pollution by reducing production
- Less work
- Less employment
- Falling incomes
- Political resistance

Option 2: Reduce pollution by *expanding* investment and production of "green" industries
- Create jobs
- Motivate growth, and regulate/control growth

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Pandemic: A Turning Point?

- Global energy demand was shocked.
- OPEC showed strains; price war.
- Oil price became negative (temporary).
- Renewables continue to fall in price.
- Politics changed:
  - Trump/Biden
  - Canada 2021 federal election.
  - Most governments aiming for net-0 by 2050.
- Governments see renewables as big part of recovery plan.

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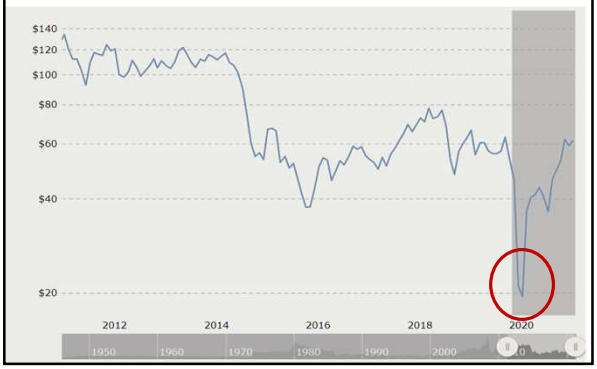
World Oil Price (WTI)



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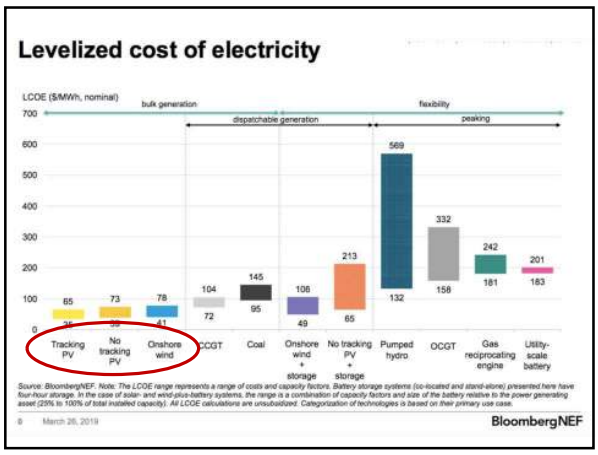

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Climate Change and "Market Signals"

- Conventional economics see pollution as a "market failure."
  - Imperfect property rights allow polluters to impose a cost on others who aren't compensated ("externality").
- Their solution: impose a price on carbon, then markets will find most efficient solution.
  - Carbon tax. – Emissions trading.
- A price on carbon can help, but we need other measures too (eg. direct regulations).

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Jobs and Climate Transitions: The Scale of the Challenge

- Direct fossil fuel jobs are a small part of total employment: under 1% and falling.
- Indirect jobs: Many depend on fossil fuel work (especially in remote areas).
  - That means we can't just eliminate fossil fuel work; we must replace it with something else.
  - That will protect (or strengthen) indirect jobs.
- Regional concentration of fossil fuel jobs makes it more challenging.

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Table 1
Fossil Fuel Payroll Employment, 2019

	2019	Change from 2014
Oil and Gas	55,853	-8,453
Mining Services[1]	36,369	-21,842
Petrochemicals	17,901	-1,201
Fossil Electricity (share)[2]	17,794	-491
Natural Gas Dist.	16,959	+1,317
Coal Mining	7,434[3]	-2,357
Pipelines[4]	7,000?	?
Total Fossil Fuel	**159,310**	**-33,028**
Canada: All Industries	16,962,603	+1,353,075
Fossil Fuel Share	0.94%	-0.29%

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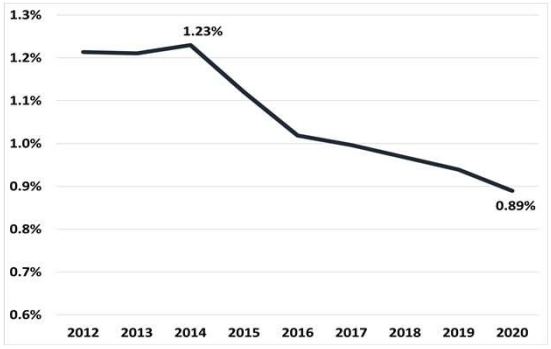
Share Direct Fossil Fuel Jobs in Total Employment



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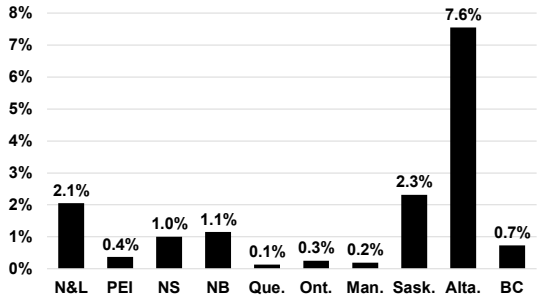
Regional Distribution of Fossil Fuel Jobs



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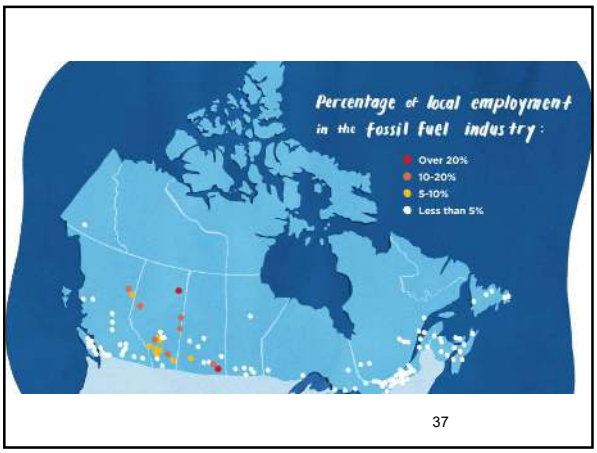

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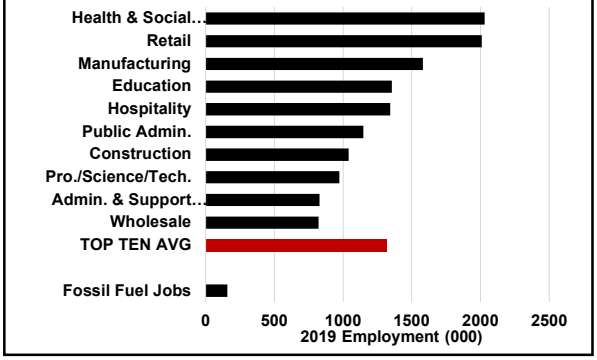
Sector Employment Comparisons



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A Constant Hum of Change

- Labour market adjustments occur constantly over time.
- Key task is to harness those ongoing adjustments to facilitate gradual transition.
- Key dimensions of flux in fossil fuel jobs:
  - Retirement: 55% of FF workers are over 40.
  - 17-18% have been in their jobs less than 1 year.
  - Annual "churn" in FF jobs over 20%.

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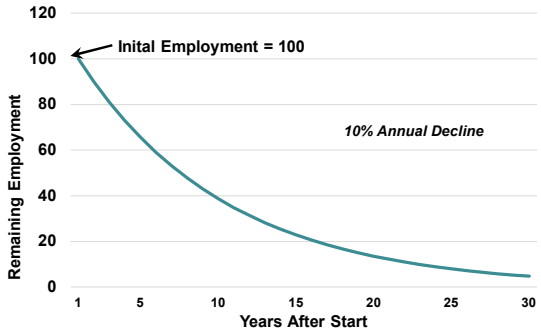
Time and Transition



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A Gradual, Affordable Transition

- Phase-out FF jobs over 20 years ≈ 8,000 jobs per year.
  - Economy normally produces 8,000 new jobs every 10 days
- More than half through retirement.
- 4,000 jobs per year or less need to shift.
- $250,000 per job = $1 billion / year.
  - Early retirement / voluntary severance.
  - Retraining.
  - Relocation (incl. moving costs).
  - Income insurance.

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Where are the Alternative Jobs?

Renewable energy jobs will help.

Remediation jobs will help.

But all other sectors (98% of the labour market) will be crucial.

And remember: most FF workers won't NEED to move to a new job.

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Precedents

- Ontario Hydro (mobility, retirement incentives, no lay-offs, staged closures).
- Germany coal mining (mobility, retirement incentives, no lay-offs, staged closures, alternative job-creation).
  - Similar in Netherlands, Spain.
- Other jobs plans (Alberta/Canada coal, U.S. states, Australia).

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A Real Plan

- Set a time-table: global goal, annual timeline.
- Facilitate mobility / pref. hires across locations.
- Serious retraining / relocation supports.
- Commit to no forced lay-offs and full income protection.
- Renewables, remediation jobs can play a supporting role.
- Most transitions won't require a new job.
- $1 billion/year to worker transition.
  - Target most vulnerable regions / communities.

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Conclusion: The Economics of Green Jobs

- Growth per se is not the problem.
- Profit-led production is the problem: inspires firms to produce more, produce useless/wasteful stuff, and externalize costs.
- Green investment (protect environment by doing more, not doing less) could be huge job-creator.

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Thank You!

Let's take 5 minutes…

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