

Carbon Neutrality And Basic Income

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Lagging behind in achieving carbon neutrality

- Moon Jae-in Government

- Committed to achieving carbon neutrality by 2050
- Committed to a 40% carbon reduction by 2030 compared to 2018 (upwardly revised NDC).
- 30% renewable energy by 2030.
- This plan falls far short of international carbon reduction standards.

- Yoon Seok-yeol government

- Announced an amendment to reduce the 2030 renewable energy share to 21.6%.
- In 2022, South Korea's renewable electricity generation share was 5.8% (8.9% from new renewables), lagging behind the global share of 28.7%.
- By 2030, South Korea will have the lowest share of renewable energy among the world's major manufacturing nations.
- Mandatory renewable energy curtailment, subsidy cuts, and termination of long-term contracts.
- Policies that encourage companies to move overseas
- Failure to invest in renewable energy will be the biggest cause of South Korea's economic decline.

Reasons for lagging behind

What energy experts say

- Electricity Times, 2023. 8. 11
 - The Moon government's carbon neutrality plan is impossible to realize as it caved in to environmental group pressure.
 - Yoon Seok government's neutrality plan is also unrealizable.
 - We don't have enough sunlight.
 - We don't have enough land. Land is too expensive in Korea.
 - It is impossible to reach an agreement with the residents near the power plant.
 - We don't have enough money to invest. We can't collect taxes.
 - We can't accomplish it because of politics, which changes its policies with every change of government.
 - We have no choice but to adapt to global warming.
- If we don't achieve carbon neutrality,
 - Subsequent generations must bear enormous damage.
 - Our country will be excluded from international trade.
 - Our company will move abroad due to a lack of renewable energy.
 - Our economy will fall on the path of decline.

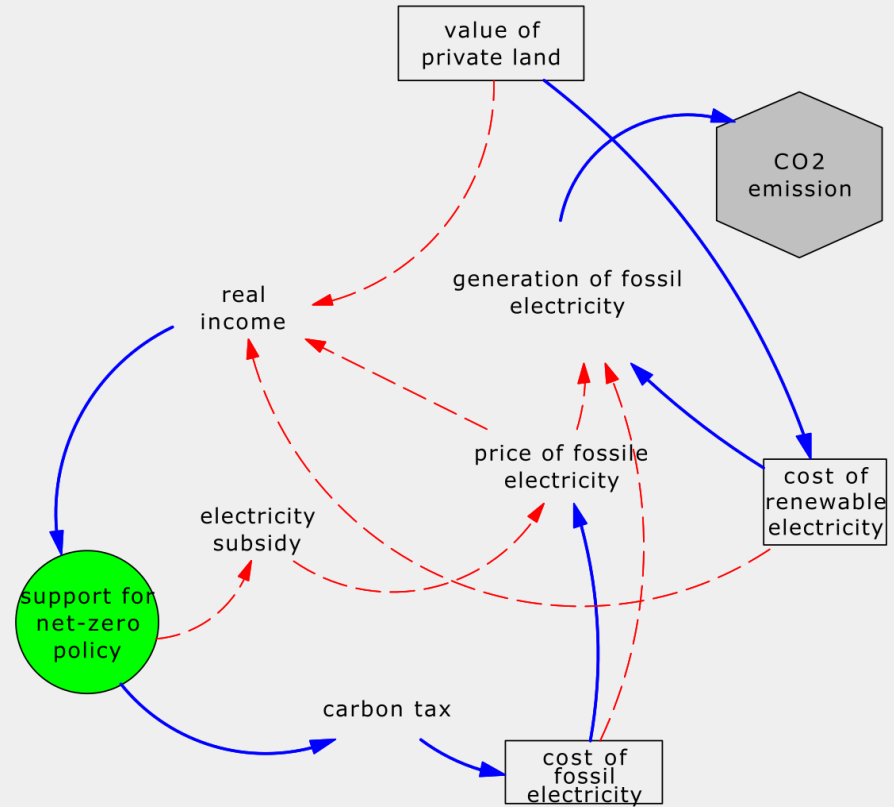
Mental model opposing net-zero policies

- **Global warming**
 - It won't be a big problem while I live.
 - It will be solved by nuclear power or new technology.
- **Carbon Tax, Fossil Fuel Subsidies**
 - A carbon tax increase is a loss to me because it lowers my real income.
 - If fossil fuel subsidies are reduced, my real income will decrease, which is a loss to me.
- **Land**
 - Land is private property, not common wealth.
 - If a solar power plant is built near my land, land prices will fall, which is a loss to me.
- **Government budget**
 - We must maintain a balanced budget.
 - Government debt should be repaid like an individual's debt.
 - Government debt is a burden on future generations

Economic system opposing net-zero policy

- **causal loop diagram**

- blue solid line ... move in the same direction
- red dashed line ... move in the opposite direction
- box ... exogenous variable
- An even number of red dashed lines around the loop indicates a reinforcing loop (high gets higher, low gets lower) and an odd number indicates a balancing loop (high gets lower, low gets higher).
- As you go through the loop, support for net-zero policies that raise carbon taxes or cut fossil fuel subsidies drops.



Climate club

- **Definition**
 - A group of countries that have agreed to cooperate on climate policy and impose sanctions on non-members (Nordhaus, 2015)
 - Nordhaus, William. 2015. "Climate Clubs: Overcoming Free-riding in International Climate Policy", AER
 - The Climate Club proposes to stop moral hazard by turning international trade from a public good to a club good. The only practical way to achieve carbon neutrality.
 - RE100, Carbon Border Adjustment Mechanism(CBAM), etc. are the beginnings of the climate club.
- **Designing the Climate Club**
 - Set an international carbon price target. Carbon pricing is more efficient than emissions reductions.
 - Carbon pricing can be any of the following: carbon tax, cap-and-trade, or a combination.
 - Non-members are penalized. Two forms of penalties: carbon tariffs or a single universal tariff on all trade.
- **Agreement to create the Climate Club**
 - G7 agrees to create a climate club at the insistence of Germany (2022.12)
 - Federal Ministry for Economic Affairs and Climate Action, "G7 establishes Climate Club"
<https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2022/12/20221212-g7-establishes-climate-club.html>
- **Climate trade system**
 - World trade system driven by the Climate Club
 - Germany, UK, US ... power sector decarbonization by 2035
 - We need to achieve power sector decarbonization in a similar time frame. Even a few years of sanctions would be devastating for export-oriented economies

Climate bond

- **How much investment is needed for the energy transition?**
 - Stiglitz estimates that investment must increase by 3 percentage points per year (Stiglitz 2023)
 - IEA estimates that investment should increase from the current level of 2.5% of GDP to 4.5% by 2030.
 - We need KRW 300 trillion in public investment and 100 trillion in private investment
 - Transmission and distribution facilities, ESS, public company renewable power generation capacities, and support for cooperative renewable power generation.
- **Problems with private finance capital-led energy transition**
 - Profits from investments are monopolized by a small number of financial capital. Windfall profits from international carbon border taxes. Rent-seeking economy prevails.
 - Real estate speculation due to investment in renewable energy. Energy prices rise to monopoly levels. Increased inequality.
- **Climate bonds**
 - Government issue zero-interest bonds, central banks buy them.
 - Profits from the issuance of money should belong to the sovereign. The right to issue money is our common wealth.
 - Climate bonds reduce costs for future generations. The sooner we achieve this, the faster we reduce future costs
 - Core inflation can be managed by financial authorities through interest rate policy, reserve requirement policy, etc.
 - Lincoln issued greenbacks during the Civil War. Climate crisis is a global war, surpassing the US Civil War.

Mandatory land use designation

- **Necessity**
 - Prevent unplanned and environmentally burdensome installations and install in a planned manner.
 - Sequentially install on land with low environmental impact, such as public buildings and roads.
 - Prevention of real estate speculation due to renewable energy.
 - Nationwide distributed generation. Minimizing the burden on the transmission grid.
 - Minimizing conflicts with local residents. Every citizen contributes a little.
 - Reduce land costs in renewables by offering reasonable compensation and encouraging people to form cooperatives.
 - Installing renewables fast enough to keep pace with leading countries.
- **International examples**
 - German Onshore Wind Energy Act. (2022)
 - Sets targets for each state to ensure 2% of Germany's land area is covered by onshore wind by 2032.
- **Suggestions**
 - Designates 1% of land (100,000 km²) and 1% of sea (440,000 km²) per municipality for renewable energy generation.
 - Allows for voluntary land trading between municipalities.
 - Installing farming-type solar panels on agricultural land. Encouraging residents to create cooperatives to provide land.

As Appeared In

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Original Co-Signatories Include (full list on reverse):

- 3500+** U.S. Economists
- 4** Former Chairs of the Federal Reserve (All)
- 27** Nobel Laureate Economists
- 15** Former Chairs of the Council of Economic Advisers

Economists' Statement on Carbon Dividends

Global climate change is a serious problem calling for immediate national action. Guided by sound economic principles, we are united in the following policy recommendations.

I. A carbon tax offers the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary. By correcting a well-known market failure, a carbon tax will send a powerful price signal that harnesses the invisible hand of the marketplace to steer economic actors towards a low-carbon future.

II. A carbon tax should increase every year until emissions reductions goals are met and be revenue neutral to avoid debates over the size of government. A consistently rising carbon price will encourage technological innovation and large-scale infrastructure development. It will also accelerate the diffusion of carbon-efficient goods and services.

III. A sufficiently robust and gradually rising carbon tax will replace the need

for various carbon regulations that are less efficient. Substituting a price signal for cumbersome regulations will promote economic growth and provide the regulatory certainty companies need for long-term investment in clean-energy alternatives.

IV. To prevent carbon leakage and to protect U.S. competitiveness, a border carbon adjustment system should be established. This system would enhance the competitiveness of American firms that are more energy-efficient than their global competitors. It would also create an incentive for other nations to adopt similar carbon pricing.

V. To maximize the fairness and political viability of a rising carbon tax, all the revenue should be returned directly to U.S. citizens through equal lump-sum rebates. The majority of American families, including the most vulnerable, will benefit financially by receiving more in "carbon dividends" than they pay in increased energy prices.

George Akerlof/ Robert Aumann/
Angus Deaton/ Peter Diamond/
Robert Engle/ Eugene Fama/
Lars Peter Hansen/ Oliver Hart/
Bengt Holmström/
Daniel Kahneman/ Finn Kydland/
Robert Lucas/ Eric Maskin/
Daniel McFadden/ Robert Merton/
Roger Myerson/ Edmund Phelps/
Alvin Roth/ Thomas Sargent/
Myron Scholes/ Amartya Sen/
William Sharpe/ Robert Shiller/
Christopher Sims/ Robert Solow/
Michael Spence/ Richard Thaler/

- **Main arguments**
 - A carbon tax is the most cost-effective means to reduce carbon emissions at the scale and pace needed. Correct market failures and send a strong price signal
 - Carbon taxes should increase annually until emission reduction targets are met. Carbon taxes should be revenue neutral.
 - A carbon border coordination system should be established.
 - To maximize the **fairness and political viability** of an escalating carbon tax, all revenues should go directly to all U.S. citizens in equal amounts.
 - Most U.S. households will benefit financially by receiving more in "carbon dividends" than they pay in higher energy prices.
- **Two key strategies**
 - Fair transition: An energy transition that does not increase inequality.
 - Political viability: Majority of households should benefit financially.

The need for carbon dividend

- If carbon tax revenues are used to fund energy transition investments instead of carbon dividends, inequality increases by reducing the real incomes of middle and low-income people even more.
- Political pressure makes it difficult to raise carbon taxes quickly and sufficiently. to raise carbon taxes quickly and sufficiently due to political pressure.
- The result is a delay in achieving carbon neutrality.
- Carbon tax revenues are not enough to finance energy transition investments. Climate bonds are needed to finance sufficient investment.
- South Korean politicians have a history of reducing carbon taxes when energy prices rise. This incentivizes carbon emissions.
- South Korea should stop subsidizing fossil electricity (KEPCO deficit). It should end subsidies and raise electricity prices to European levels, which are currently 60% of the OECD and a quarter of Germany. It is difficult to raise electricity prices without a carbon dividend.
- One politically feasible way forward is as follows. The first step is to stop subsidizing fossil energy by raising electricity prices while distributing revenues from the existing carbon tax (Transport, Energy and Environment Tax), and the second step is to introduce a full carbon tax, raise electricity prices further, and pay a carbon dividend with the additional carbon tax revenues.

Essential reading on our long journey toward an "Earth for All" society.
—THOMAS PIKETTY, author, *Capital in the Twenty-First Century*



Earth for All

A SURVIVAL GUIDE for Humanity

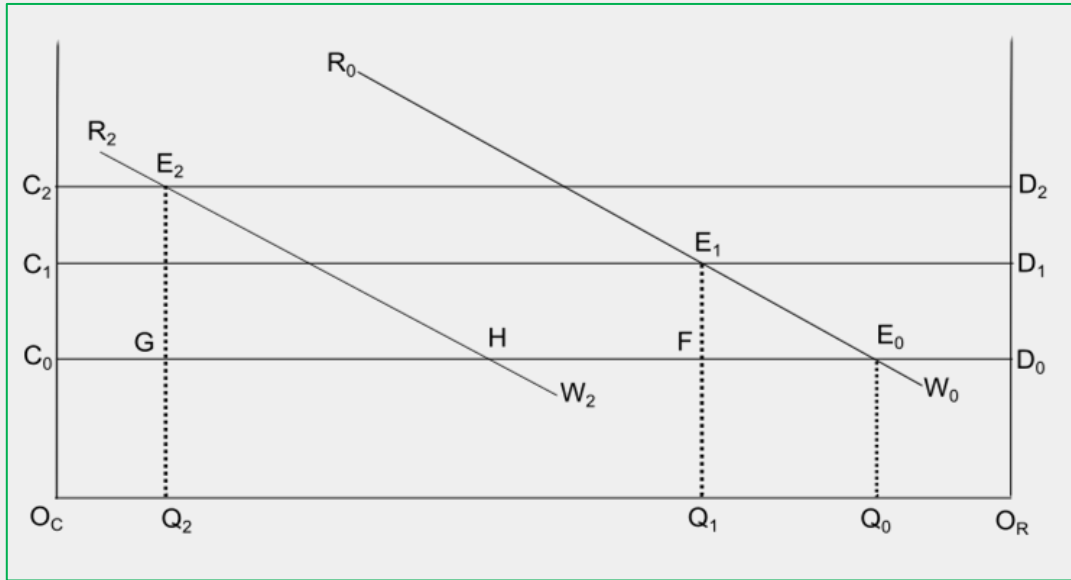
Sandrine Dixson-Declève | Owen Gaffney
Jayati Ghosh | Jorgen Randers
Johan Rockström | Per Espen Stoknes
Forewords by Christiana Figueres and Elizabeth Wathuti

A REPORT TO THE CLUB OF ROME

"You might ask, wouldn't it be fairer to just give the (carbon) dividend to the least well-off in society? It is important to bring everyone in society on this journey or it risks failing, so the solution has to work for the majority. We know that if the middle classes feel they are benefiting from a policy, then they will support it. We know if the middle classes feel others are benefiting from their hard work, then they are less likely to support a policy. A universal basic dividend also has the benefit of simplicity. It is easy to communicate and this increases its chance of broad support."

Dixson-Declève, Sandrine; Gaffney, Owen; Ghosh, Jayati; Randers, Jorgen; Rockstrom, Johan; Stoknes, Per Espen. *Earth for All* (p. 89). New Society Publishers.

The need for common wealth dividend



- Energy demand $O_C O_R$, assumed constant.
- The origin for fossil fuel energy is O_C , increases in the right direction.
- The origin for renewable energy is O_C , increases in the left direction
- The supply curve of FE is $C_0 D_0$
- The supply curve of RE is $R_0 W_0$.
- The original equilibrium is E_0
- When carbon tax is $C_0 C_1$, equilibrium is E_1 , carbon tax revenue is $C_1 C_0 F E_1$, energy expenditure increases by $C_1 C_0 D_0 D_1$.

- When carbon tax is $C_0 C_2$, we assume the supply curve of RE shifts to $R_2 W_2$. equilibrium is E_2 , carbon tax revenue is $C_2 C_0 G E_2$, energy expenditure increases by $C_2 C_0 D_0 D_1$
- $E_2 H D_0 D_2$ is increase in producers' surplus for RE companies due to carbon tax.
- Carbon tax revenues are only a fraction of increase in energy expenditures. To make a fair transition, a portion of the increase in producer surplus from the carbon tax must be recovered. It is necessary for the government to secure shares through public investment and pay common wealth dividends to everyone.

Carbon neutrality and 5 dividends

- **Carbon tax and carbon dividend**
 - Rapidly expand RE generation.
 - Fair transition. Political viability.
- **Common wealth dividend**
 - Public investment by governments in RE companies to create a national dividend.
 - Even with a carbon dividend, inequality is likely to increase
 - Recovering some of the windfall revenue (producer's surplus) from a carbon tax.
- **Land value tax and land dividend**
 - Securing land for renewable power generation
 - Reduce the cost of renewable energy generation
 - Land belongs to all. Expand the idea of common wealth.
- **Cooperative dividend**
 - Dividends based on shares in renewable power co-ops
- **Neighborhood dividend**
 - Compensation for the sacrifices of local residents. Can be paid differently depending on distance.
 - The Sunshine Pension(or the Wind Pension) in Shinan County combines two types of dividends: a cooperative dividend and a neighborhood dividend.

Carbon neutrality and commons mental model

- The air's ability to store carbon is an ecosystem sink service, our common wealth
 - The carbon resource is still abundant, but the carbon sink is rapidly depleting.
 - We need to prevent depletion by charging high fees for the sinks.
- Sun and wind are our common wealth
 - We need the sun and wind to generate energy without using carbon.
 - An infinite and inexhaustible commons
 - Sunshine dividend will prevent inequality from growing.
- Land is our common wealth.
 - The sun and wind are infinite, but land is scarce. We need land to receive the sun and wind.
 - A finite but inexhaustible commons. Most land is privatized.
 - A realistic way of commoning is to impose a land value tax, pay a land dividend, and designate some land for energy production.
- Money is our institutional common wealth.
 - We can reduce inequality by utilizing sovereign money to finance the energy transition.
- Government investment is an act of creating our common wealth.
 - Public companies are our common wealth.
 - Consolidate energy-producing public companies and put a portion of their profits into a common wealth fund.
- Creating a cooperative is an act of creating local common wealth.
 - Local residents participate in power plant cooperatives and receive cooperative dividends.

