

MACRO-FINANCE CHALLENGES OF THE GREEN, POST-COVID TRANSITION

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MEASURES FOR FINANCING GREEN RECOVERY

- Credit market imperfections: soft and easy-to-access loans
- Part subsidy to internalise learning-by-doing externalities and to get things going (“social tipping”)
- Government as launching customer and finance facilitator, especially cities
- Spatial planning: central government, provinces, cities
- Golden Covid-19 opportunity: do not keep living zombies from the fossil era alive, but invest in the inevitable companies that are going to make the green transition possible (“never waste a crisis”)

WHAT TO LOOK AT?

- Low emissions per unit of value added
- Low emissions per job
- Value creation per green project
- For whom: shareholders, pensioners, workers, consumers, society at large?
- Green firms are newcomers: most affected by crisis
- Often good ESG factors imply good financial returns but danger of “green washing”
- Impact investing (cf. launching customer role for the government) – demonstrate that it can work
- Diversification: may need brown assets to diversify, but increasingly green assets add to a diversified portfolio
- See Dirk Schoenmaker and William Schramade for a nice background paper

SECTORS OF THE ECONOMY

- If a carbon-intensive sector cannot adapt or change, it is doomed to fail
- There will be shifts of labour and capital from carbon-intensive to green sectors of the economy
- There will be winners and losers
- At least make sure, policies do not hinder the green transition (e.g. prevalence of fossil fuel subsidies)
- Sectors: mobility/transport (air, ports, roads, cycle paths, rail), shift to electric vehicles, homes and buildings (get off the gas, energy-efficient retrofitting), power generation (moratorium on coal), agriculture (shift to sustainable agriculture), industry (circular manufacturing)

THESE MEASURES CAN ONLY BE TAKEN IF CARBON EMISSIONS ARE PROPERLY PRICED

- Get rid of all explicit and implicit fossil fuel subsidies
- First best is to put a uniform price on all emissions at home and those imported from abroad: carbon tax + BTAs
- Carbon price floor with gradual rising carbon price path (on top of ETS)
- Independent carbon central bank: carbon reductions are important to leave to the discretion of politicians (and lobby groups)
- If this is infeasible, one could tax those industries with the highest risk of import leakage somewhat less and give them a subsidy in line with their production (i.e. carbon tax plus output-based rebates for firms that suffer most from leakage)
- If carbon pricing is not feasible either, we must look at efficiency of implicit carbon prices in all aspects of the policy menu ...

EQUALISE CARBON REDUCTIONS PER BUCK

- Make a check list for every policy measure, for every sector of the carbon reduction per buck, i.e. the CRB's (cf. QUALY's in health care)
- If they differ per measure and per sector, then there are efficiency gains to be made by equalising them
- Take account of how tax revenue is recycled and include deadweight losses and gains

POLITICAL ACCEPTABILITY OF CARBON PRICING

(BASED ON VDP, REZAI AND TOVAR, 2020 – GERMAN HOUSEHOLDS)

- Avoid “yellow vests”: use revenues from carbon tax to lower income tax and hand out carbon dividends to get it across the line in most efficient manner
- Easier when trust is high
- One can only get majority support for green tax reform if part of revenue is used to lower income taxes and boost economic activity and the tax base

Table 3: Percentage of households benefitting (with positive equivalent variation)

	All HH	Rural HH	HH head male	HH with children	Single HH
<i>Carbon tax of € 100/tCO₂</i>					
Lowering public debt	0%	0%	0%	0%	0%
Carbon dividend, lump-sum	32%	45%	18%	12%	64%
Lowering income taxes	55%	52%	60%	77%	46%

Figure 6: Recycling options of pricing carbon at €100/tCO₂ and their aggregate effects

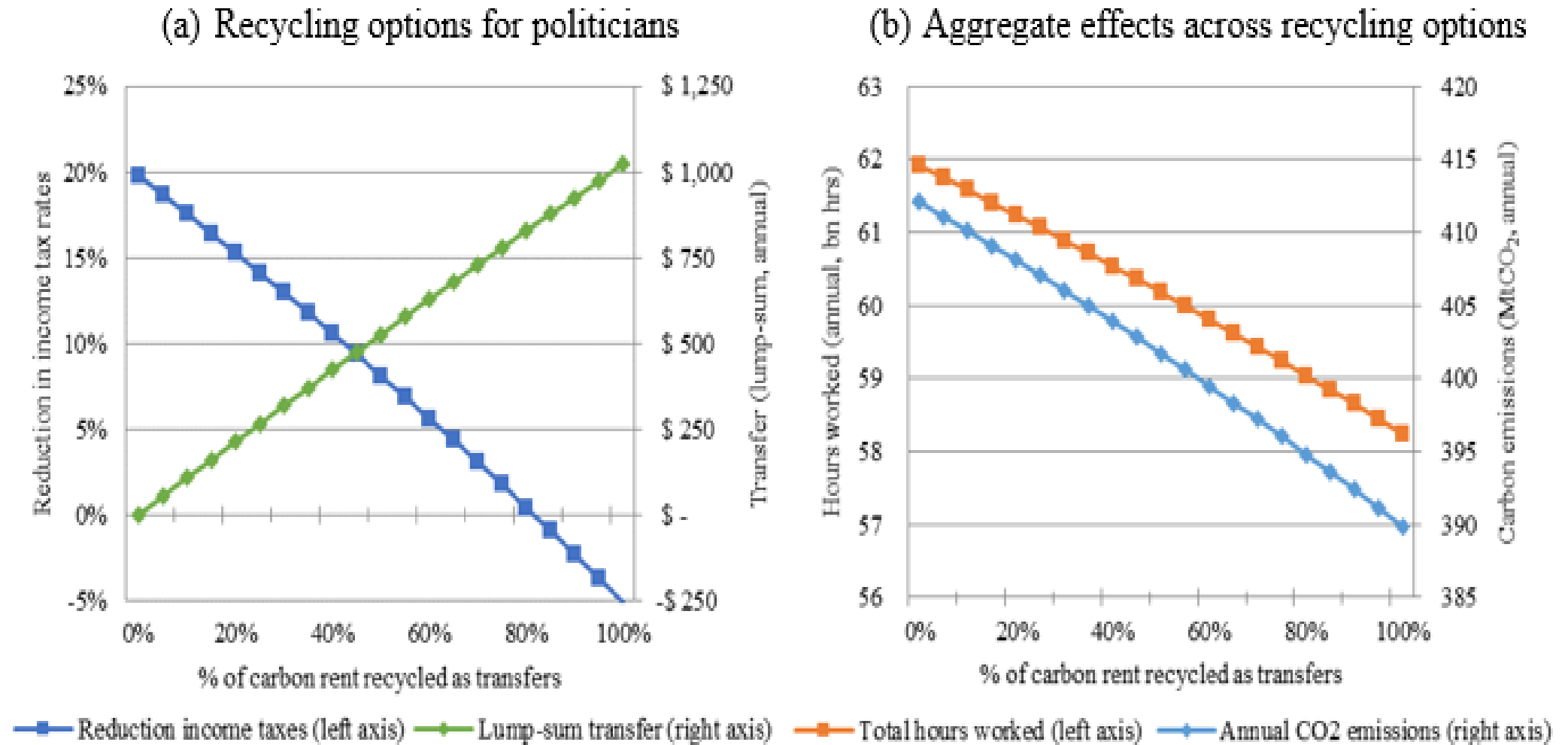
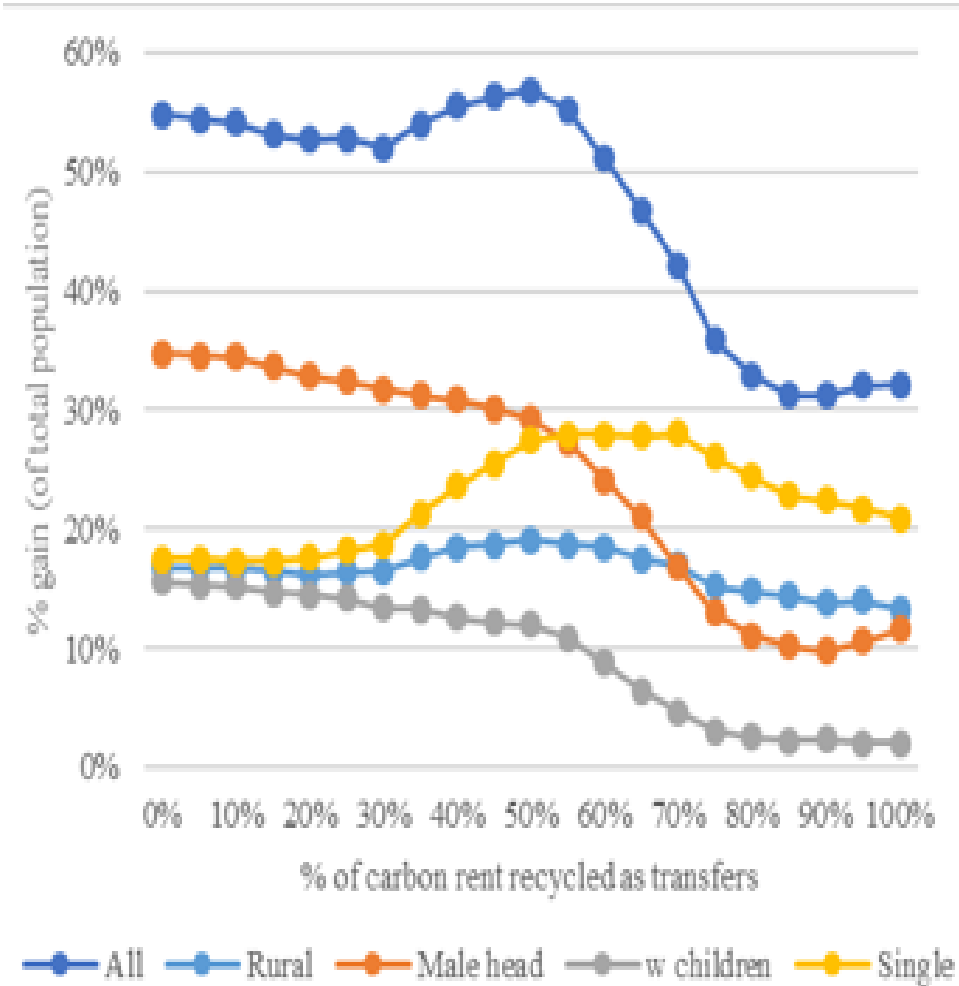
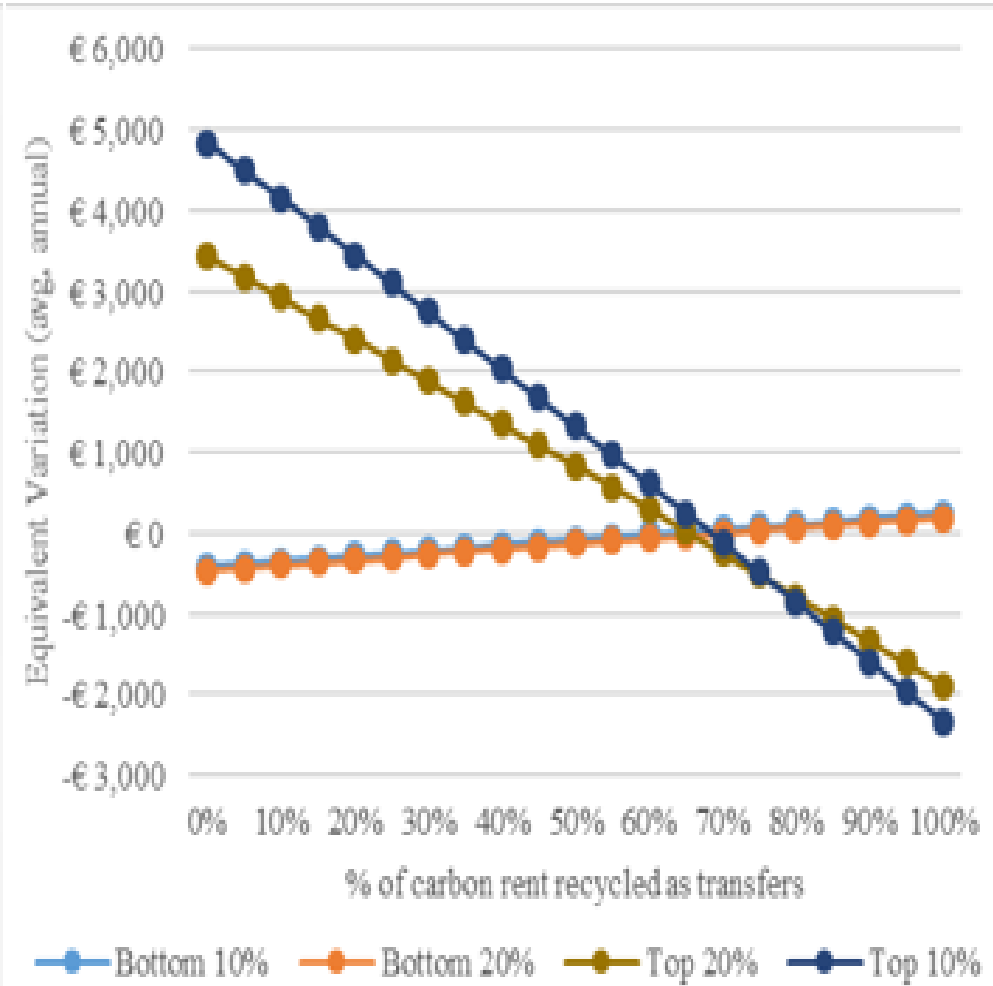


Figure 7: Approval of recycling schemes across household types and income groups

(a) Approval across household types



(b) Equivalent Variation across income groups



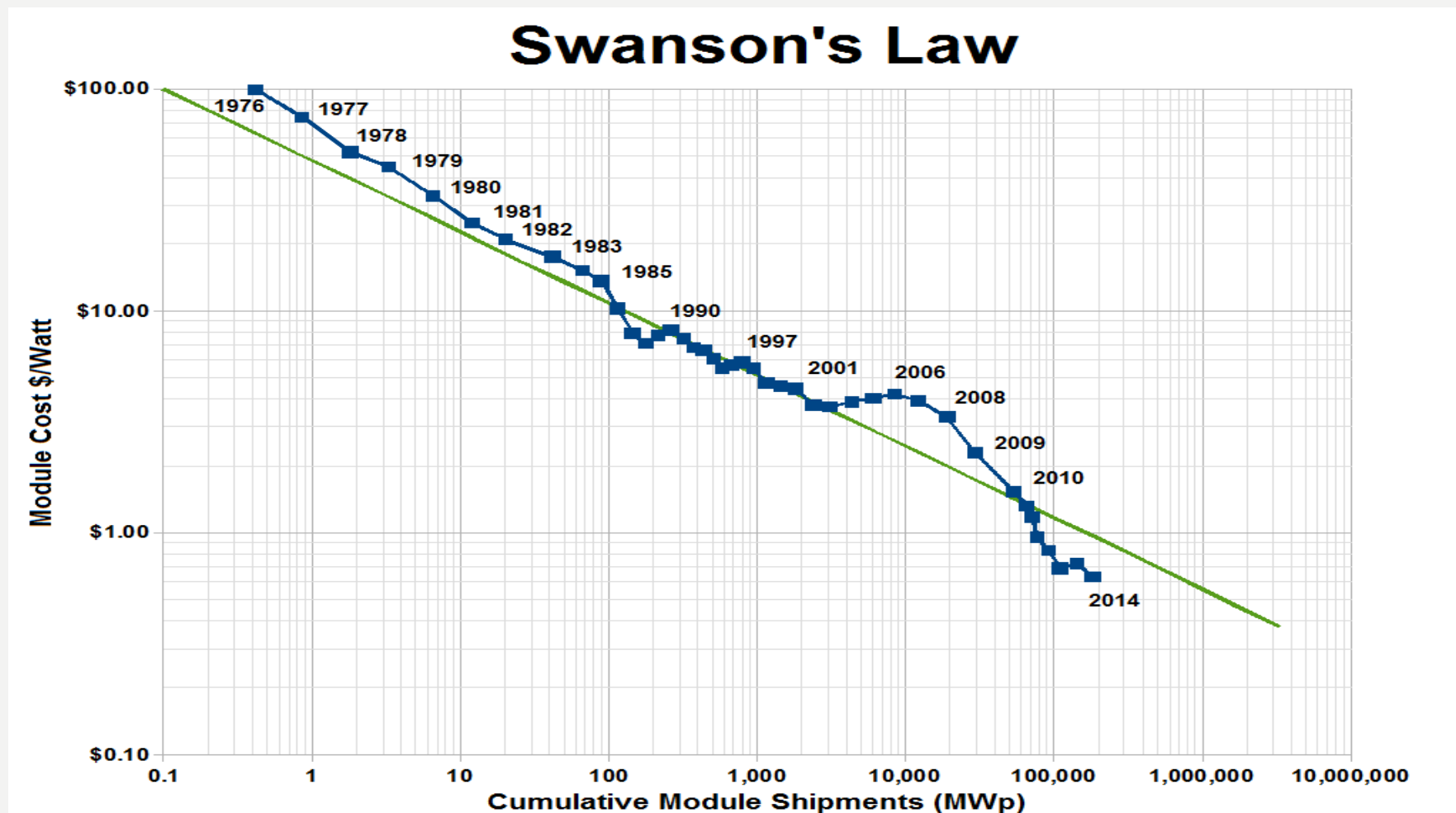
NEED FOR CARBON ACCOUNTING

- Already taking place at firm level: True Cost and True Price initiatives
- And many companies have internal carbon pricing
- Need business model: more long-term, more emphasis on circular, less polluting
- Avoid stranded assets (clarity about future climate policies; forward guidance)
- Continuing the work of James Meade and Richard Stone on the U.N. System of National Accounts:
 - Rutger Hoekstra in his *Replacing GDP by 2030* has broader perspective: environmental, societal, economic, distributional and quality accounting
 - World Bank building on Arrow, Dasgupta and Weitzman: genuine accounting & “true” income, comprehensive wealth – allow for resource depletion and environmental degradation
- Need to work on connecting the micro (firm and household) level and macro (based on U.N. S.N.A.) of integrative reporting

NEED TO LEARN FROM EACH OTHER

- Firms in a particular sector can learn from each other
- But they can also create synergies: if they all go green, there is less incentive to stay dirty
- Cities and regions can learn from each other (e.g. C40 and R20) and governments can learn from each other
- Let many different flowers blossom: preferably in a controlled experimental setting so we can really measure and learn what works best
- Experiment and roll out: as gains from scale and learning by doing kick in, subsidies can be phased out
- Role of disruptive technologies

LEARNING CURVE: COST OF SOLAR PANELS DROPS 20% FOR EVERY DOUBLING OF CUMULATIVE SHIPPED VOLUME SIMILAR GAINS FOR WIND TURBINES AND BATTERIES SO TECHNOLOGICAL PROGRESS IS IMPORTANT DRIVER



GREEN DEAL, COVID-19 AND MACRO RECOVERY

- Covid-19: both a negative supply shock and negative demand shock
- Poorest with no buffers in frontline jobs and vulnerable get hit hardest
- Mary Robinson: need to link recovery plan and Covid-19
- Boris Johnson: “build back better”
- Keynesian multiplier effects: lower or bigger for green investments
- High multiplier and climate improvement potential: clean physical infrastructure, building efficient retrofits, investment in education and training, natural capital investment, and clean R&D (Hepburn et al, 2019, OXREP)
- Non-conditional airline bailouts have the worst climate and multiplier effects!
- Pre-existing levels of green skills matter (Popp et al., 2020) and also green capabilities matter in economic complexity (Mealy and Teytelboym, 2020)
- Co-benefits of green investment: for economy and health
- Golden rule for green investments?
- Green investments by governments and cities might unlock private investments

MESSAGE

- Do not bailout carbon-intensive firms unless they fundamentally reform
- Invest in clean infrastructure, efficient retrofitting of buildings, investment in education and training, natural capital investment, and clean R&D
- Also invest in control of pandemic (test, track and contain), vaccines, border checks & safe travel and trade, food security and shorter local supply chains including sanitary standards, renewable energy (batteries, solar, wind, electric vehicles), circular economy, and secure ICT networks
- Make sure new jobs and sectors are wherever possible Corona-proof:
 - part-time in office, part-time at home, less commuting – win-win
- “Let's create an army of zero carbon workers, retraining and redeploying those who can't work into different industries, from home insulation to wind turbine manufacture to tree planting”
- Be aware: fossil fuel incumbents time and time again frustrate any green plan (witness Netherlands)