November 20, 2020

"When we look around us, at the state of our environment and our climate in 2020, things can seem pretty bleak. We all see the results of climate change in the terrifying orange skies in California, and temperatures of 38 degrees in Siberia. We feel the dirty air in our lungs that drives 400,000 early deaths in Europe every year. But very often, the darkest hour is before the dawn. Things are changing. Our world is coming to grips with the choices we need to make, to protect our environment, and keep climate change from running out of control … So the time has come to launch a European debate on how EU competition policy can best support the Green Deal … [and] apply our rules in ways that better support the Green Deal."

Competition Commissioner EVP Margrethe Vestager

Renew Seminar, 22 September 2020

THE "POLLUTER PAYS" PRINCIPLE AS A BASIS FOR SUSTAINABLE COMPETITION POLICY[1]

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I. The Writing on the Wall

We have known for decades that man destroys the environment. 150 years ago, George Perkins Marsh wrote his monumental book *Man and Nature: Or, Physical Geography as Modified by Human Action*, predicting that due to human depredation of the environment, *"The Earth is fast becoming an unfit home for its noblest inhabitant."* Svante Arrhenius calculated in in 1896 that doubling the concentration of CO_2 in the atmosphere would lead to global warming by four degrees. Revelle and Suess warned about the climate effect of CO_2 emissions in 1957.[2]

In spite of the writing on the wall, we are only starting to acknowledge the threat from extreme weather conditions, wildfires, exhaustion of resources, extinction of wildlife, pollution of air, land and water, the rise of sea levels, and desertification of land and seas. Climate science points unambiguously at the causes: emission of pollutants and greenhouse

[1] I am grateful for the thoughts of Simon Holmes, Nadine Watson, Julian Nowag, Areti Maria Kitsou, Quinten Dekeersmaecker, David Pérez de Lamo, and Luc Peeperkorn (who kindly commented without agreeing). Errors are mine. For more detail, see Dolmans, "*Sustainable Competition Policy*", CLPD Competition Law and Policy Debate Vol 5, Issue 4 and Vol 6 issue 1 March 2020, draft online at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3608023 Those who prefer video, see "Sustainable Competition Policy" webinar, Concorrenze, May 28, 2020, https://www.youtube.com/watch?v=0lG8_oSI0PY

[2] Revelle and Suess, "Carbon Dioxide Exchange Between Atmosphere and Ocean and the Question of an Increase of Atmospheric Increase of CO_2, During the Past Decades", Tellux IX (1957) 1, at http://www.rescuethatfrog.com/wp-content/uploads/2017/01/Revelle-and-Suess-1957.pdf.

gases (GHG), including methane and CO_2. We may have created a feedback loop, where temperature increases have triggered uncontrollable methane emissions from melting permafrost, and CO_2 emissions from wildfires and desiccating rainforests.

We must cut global net CO_2 emissions at least in half by 2030 (only nine years from now) and eliminate them altogether by 2050 to have a chance of limiting the average temperature increase to 1.5° C. Worse, just reducing net GHG emissions from human activity to zero is not enough. We need to *lower* GHG in the atmosphere to the levels prevailing before the sudden leap of carbon emissions in the 1950s. . That means recapturing and permanently storing not just GHG from 70 years of human activities, but also the methane emitted by melting arctic tundras, and the CO_2 emissions from wildfires and drying and dying rainforests that are turning from carbon sinks into carbon emitters. [3] Humanity needs to pull together.

1. Market forces alone cannot save us, because of market failures

Market forces are generally thought to lead to efficient outcomes, a proper allocation of resources, and innovation – leading to cheaper and cleaner production.[4]

Unfortunately, markets are characterized by **negative externalities**. The cost of pollution of air, water and land, and the damage wrought by GHG emissions today and in the future, are generally not included in the price of goods and services. Those costs are real, but are paid by people elsewhere, or our children, who incur medical costs resulting from pollution, lose their home to wildfires or flooding, or lose a sustainable environment. These costs are, in other words, borne by society as a whole ("social cost"). Because the market price of a polluting product excludes the social cost, production is higher than the social optimum.

These externalities can be quantified. Leading economist Sir Nicholas Stern wrote in his 2006 Report: '*estimates of damage could rise to 20% of GDP or more.*'[5] Since then, Stern has warned we are "*underestimating the risks of inaction and overestimating the cost of action.*"[6]

Negative externalities arise because of "**collective action problems**" (or "coordination problems"). When pricing goods (or making decisions that affect prices), firms tend to make independent choices designed to maximize their profits individually, based on perceived conflicting interests between them. For example, a firm may want to invest in clean production, but would worry that it would raise variable costs, exposing it to the risk of being undercut by rivals drawing on cheaper dirty technology or raw materials. The firm may want to engage in R&D in sustainable production, but worry that it will be unable to recover a

[3] Prof Myles Allen, Oxford Environmental Change Institute, "Achieving Net Zero – Challenges for Business and Investors", AEBA, 2020. IPCC Special Report on the impacts of global warming, 2018, p. 17, "*All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of carbon dioxide removal (CDR) on the order of 100–1000 GtCO2 over the 21st century*", at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf See also, Gasser et al., "Negative emissions physically needed to keep global warming below 2 °C", 2015, https://www.nature.com/articles/ncomms8958, and materials listed in Nature, "Permafrost collapse is accelerating carbon release", 2019, https://www.nature.com/articles/d41586-019-01313-4, Energy & Climate Intelligence Unit, "Negative emissions: why, what, how?", https://eciu.net/analysis/briefings/net-zero/negative-emissions-why-what-how

[4] See Peeperkorn, "Competition and sustainability: What can competition policy do?", Concurrences 4-2020.

[5] Stern, N. (2006), *Review of the Economics of Climate Change*, at: http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf.

[6] Stern, N. and Oreskes, N. (2019), "What's the Price of Climate Change?" *New York Times*, at: https://www.nytimes.com/2019/11/05/opinion/climate-change-economics.html.

return on the associated investment. Unless the innovation leads to lower costs, fear of a first mover disadvantage may lead firms to stay away from investing in the better alternative, even if this leaves everyone worse off. This is an example of a "tragedy of the commons" – the degrading of our environment, due to overuse, in the absence of individual incentives to integrate the true cost of production in the price.[7] Sir Nicholas Stern concluded in 2007 that "*Climate change is a result of the greatest market failure the world has seen*."[8]

Market failures do not exclude all competition on the basis of sustainability. As consumers become aware of climate change, environmental degradation, and loss of biodiversity, they may come to regard sustainability as a quality improvement. This opens up the possibility for firms to compete on the basis of being cleaner and greener than their rivals.[9] This can adequately address sustainability concerns only, however, if the greener production is also cheaper, or if:

(a) Customers' willingness to pay more for a green product ("WTP") must be enough to finance investments to avoid the environmental costs to society, *e.g.*, to cover the product's "True Price", including not just the market price but also the unpaid external cost of carbon (the "social costs of carbon," or "SCC");[10]

- Sufficiently reliable labeling and monitoring mechanisms must exist to allow consumers easily to determine which products are actually GHG-neutral, and to avoid misleading claims and greenwashing; or

(b) Individual firms must be able to achieve the minimum economies of scale and scope to justify an investment to eliminate the pollution or GHG emission.

In markets where WTP > True Price, or individual firms can achieve sufficient scale to eliminate carbon emissions and pollution individually, it may be enough to agree on objective, relevant, and effectively monitored criteria for a green label, and otherwise leave firms to compete.[11] In such markets, agreements on specific sustainability solutions may be counterproductive.[12]

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[7] Buchanan and Yoon, "Symmetric Tragedies: Commons and Anticommons", *Journal of Law and Economics*, Vol. 43, No. 1 (April 2000), pp. 1-13, at http://www.jstor.org/stable/725744. https://www.edf.org/sites/default/files/expertconsensusreport.pdf.

[8] Nicholas Stern: Climate Change, Ethics and the Economics of the Global Deal, November 29, 2007, https://economistsview.typepad.com/economistsview/2007/11/nicholas-stern.html.

[9] This section reflects portions written by the author for an ICC paper on "Competition Policy and Sustainability Goals".

[10] See "A Roadmap for True Pricing", True Price Foundation, June 2019, at https://trueprice.org/a-roadmap-for-true-pricing/. The ACM uses the abatement cost (the cost to prevent and remove pollution and GHG emissions) as a shadow price. See ACM, draft *Guidelines, Sustainability agreements; Opportunities within competition law* June 11, 2020 ("ACM Draft Guidelines"), pp. 15-16.

[11] If the average WTP >True Price but there are a significant number of consumers unwilling to pay as much as the average consumer, cooperation may still be needed.

[12] Schinkel and Spiegel find that if consumers are willing to pay fully for sustainability, an agreement to coordinate on sustainability may create less sustainability than a traditional price/quantity cartel. See Schinkel and Spiegel, "Can Collusion Promote Sustainable Consumption and Production?", *International Journal of Industrial Organization*, 53, 2017, 371-398; Schinkel and Toth, "Public Goods Provision by a Private Cartel", Dec 2019, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2723780

Unfortunately, when assessing WTP, we see market failures on the demand side, too, which mean that the WTP may not be enough to support greener production.[13] Consumers may resist paying more for green products when others don't pay, and thus free ride at their expense. Their expectations are "anchored" by past experience of not paying a True Price, and paying for externalities may be perceived as "unfair" even if it is rational. Other market failures include irrational conduct like "hyperbolic discounting" (underestimating the importance of future environmental damage), and lack of accessible and reliable information about future costs of continuing emissions.

Competition policy should take these points into account when assessing sustainability agreements. Where WTP < True Price, or economies of scale or scope are needed, antitrust authorities should permit agreements that effectively pursue sustainability goals even if they lead to higher market prices, so long as they lower the True Price at least in equal measure, and meet the conditions of proportionality or individual exemption (as discussed below). Before discussing this, the following sections discuss why reasons often invoked against integration of sustainability goals in competition policy are deficient.

2. Regulation alone cannot save us, because of government failures

Those who oppose sustainability goals in competition policy argue that the most effective and efficient form of coordination is regulation. Examples are bans on polluting production, emission limits, carbon taxation, or emission rights trading systems ("ETS"). The idea of taxation and ETS is to integrate the social costs of production in the "true price", avoiding price externalities, and so to encourage cleaner forms of production.

Regulation and taxation are needed, but it is unfortunately too late to rely *solely* on "true price" to address climate change.[14] GHG emissions since the industrial revolution have unleashed runaway climate feedback processes that lead to GHG emissions from nature, such as the methane from melting permafrost and the CO_2 from wildfires and drying rainforests. This requires a combination of GHG reduction and innovation to extract and permanently sequester carbon – a *negative* carbon policy – at potentially huge expense.

Second, taxation or ETSs to achieve a "true price" are necessary, but not sufficient, since price increases lead to a reduction of demand and substitution at the margin.

Moreover, funds raised by taxes are not necessarily used to mitigate and adapt to climate change, and to avoid pollution.

Third, only few countries have adopted carbon taxes and ETSs, and those that exist cover only a portion of the economy (in the EU, ETSs cover about 45% of GHG emissions).[15] The EU Green Deal proposes lowering caps and reducing free ETS allowances allocated to

[13] Other factors affect the willingness to pay, including the concern that the margin over the cost of production will be pocketed by the producer rather than used to avoid pollution and GHG emissions, or used for effective carbon offset. Many consumers may be unable to pay. A climate change policy leading to a "true price" must therefore encompass a social justice element that includes a living wage adjusted to account for internalization of SCC in the price of goods.

[14] See, e.g., Pratt, "*The case against carbon prices*", Joule 2, 2487–2510, December 19, 2018 ("*carbon prices are outdated. They made sense as our primary tool against climate change when our climate policy ambitions were limited and the greatest barrier was cost. Today our ambition is to eliminate CO2 emissions entirely, and the greatest barriers are associated with infrastructure and institutions.*").

[15] EU Emissions Trading System, https://ec.europa.eu/clima/policies/ets_en

airlines and extending emissions trading to the maritime sector and perhaps to construction, but will leave many sectors of the economy unaffected. Moreover, existing regulation appears to be inadequate – the right to emit a ton of CO_2 trades at around € 25, well below an effective carbon emission price, which should equal at least the social cost of carbon of $47-130 (depending on the discount rate applied).[16]

Environmental regulation is, moreover, time consuming – EU directives and regulations require years from conception to effective implementation, if adopted at all.
The reality is that taxation and regulation remain inadequate because they are politically controversial until it is too late. There are several causes for this "government failure", including: [17]

> *"governments may lack incentives for climate mitigation action, since the benefits of these mostly accrue to citizens of other jurisdictions or countries … Economic agents gaining from the status quo may have the incentive, the means and the ability to coordinate targeted lobbying of government and influencing media … Democratically elected governments are subject to election cycles and can have limited ability to make long-term commitments…"*

Some opponents of integrating sustainability and competition policy invoke Nobel Prize winner Jan Tinbergen. According to Tinbergen, a regulator should have one policy goal, and if a government pursues various policy goals, it should have separate instruments for each goal.[18] But sustainability is not *separate* from competition policy.[19] The two goals should be *integrated*, recognizing that a fully effective competition policy cannot ignore market failures and external effects, and should take account of the costs of climate change and pollution, just like it takes account of effects on price, quality, innovation, and consumer choice. Certainly where these costs can be quantified. We cannot afford the spectre of different Government agencies pursuing goals that are perceived as inconsistent, with antitrust authorities rejecting arrangements that environmental authorities would encourage. Antitrust authorities should perhaps worry more about another concern of Tinbergen, namely that *"personal or institutional inertia and the tendency to maintain the existent are other frequent factors which often impede the execution of a rational policy."* [20]

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[16] NYU, "Expert Consensus Report" 2015, at https://www.edf.org/sites/default/files/expertconsensusreport.pdf (emphasis added). The social cost of methane and nitrous oxide is up to $3,200 and $39,000 per ton, respectively. "The Social Cost of Carbon; Estimating the Benefits of Reducing Greenhouse Gas Emissions" at https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html. See also Kaufman, "A new way to calculate the price of carbon pollution", August 17, 2020, https://blogs.ei.columbia.edu/2020/08/17/new-way-calculate-price-carbon-pollution/

[17] Krogstrup and Oman, "Macroeconomic and Financial Policies for Climate Change Mitigation: A Review of the Literature", IMF Working Paper, September 2019.

[18] Tinbergen, *On the Theory of Economic Policy*, 1952, available at https://repub.eur.nl/pub/15884/. Peeperkorn, above.

[19] According to the Commission, Article 101(3) TFEU provides *"…a legal framework for the economic assessment of restrictive practices and not to allow the application of the competition rules to be set aside because of political considerations…"* (White Paper on the Modernisation of the Rules Implementing Articles 85 and 86 of the EC Treaty, OJ 2000 C132/1, para. 57.) But see Joined Cases T-528/93, etc., *Métropole Télévision v Commission*, [1996] ECR II-649, para 118 ("*the Commission is entitled to base itself on considerations connected with the pursuit of the public interest in order to grant exemption*").

[20] Tinbergen, *On the Theory of Economic Policy*, 1952, above, p. 76.

In addition, some argue that competition authorities should ignore sustainability goals because if they do, they should also consider the 17 UN Sustainable Development Goals,[21] all of the twenty-odd goals listed by the EU Treaties or national Constitutions, or industrial policy concerns, and doing this is not realistic.[22] That is not a reason not to integrate climate change mitigation in competition policy, however. The climate crisis and looming environmental disasters like the decline of pollinators pose a unique, existential threat to humanity, and (contrary to many other objectives) the damage can be quantified.[23] The European Parliament has declared a climate emergency,[24] and the Commission has recognized it as a top priority.[25] Article 191(2) TFEU mandates that EU policy on environmental sustainability should be based on the "*precautionary principle*", *i.e.*, requires the EU to take appropriate measures "*by giving precedence to the requirements related to the protection of those interests over economic interests*."[26]

Moreover, climate change mitigation is an obligation under international law: the 2015 Paris Agreement requires signatories to restrict the increase in the global average temperature to "*well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C*" (article 2(1)(a)). The EU Charter of Fundamental Rights requires the EU to protect the fundamental right to life (Article 2(1)) and provides that "*a high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development*" (Article 37).[27] The Dutch Supreme Court held in *Urgenda* that Articles 2 and 8 ECHR mandate a "*positive obligation*" for governments "*to take appropriate steps to safeguard the lives of those within its jurisdiction*" in view of a "*real and immediate risk*" from climate change. Antitrust authorities would violate these obligations if they did not integrate climate change and environmental protection in competition policy.[28]

In sum, we cannot wait for regulation, taxation, and carbon trading to provide a perfect solution. We need all hands on deck now. That includes competition authorities enabling private initiative. Taking environmental goals into account in competitive analysis is necessary, proportionate, legal, and required by law. Other, less urgent objectives should be assessed on their own merits. We cannot let the perfect be the enemy of the good.

3. Innovation may save us, but we cannot just bet on that

The EU Green Deal includes support for Important Projects of European Interest,[29] and rules for State aid to foster innovation and transition away from hydrocarbons. Jonathan Foley's

[21] "Make the SDGS a reality", at https://sdgs.un.org/.
[22] See, *e.g.*, Peeperkorn, above, para 37 ff.
[23] See, for instance, CE Delft, Environmental prices Handbook 2017, https://www.cedelft.eu/en/publications/2113/envionmental-prices-handbook-2017
[24] European Parliament resolution of 28 November 2019 on the climate and environment emergency (2019/2930(RSP)), 28 November 2019, at https://www.europarl.europa.eu/doceo/document/TA-9-2019-0078_EN.html .
[25] Ursula von der Leyen, *A Union that strives for more, My agenda for Europe*.
[26] Joined Cases T-74/00 *et al Artegodan* EU:T:2002:283, ¶184.
[27] Opinion of Advocate General Kokott in Case C723/17 *Craeynest v Brussels Hoofdstedelijk Gewest* [2020] Env. L.R. 4
[28] Peeperkorn, above, correctly points out that "*under the ECHR, it is states—and not firms—that are obliged to protect their citizens*". This means that there is no *obligation* on firms to take action, but if they do, the *antitrust authorities* are *bound* to allow them if the conditions of proportionality or Art 101(3) are met,
[29] Communication from the Commission — Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest

"Project Drawdown" provides a great inventory of innovation.[30] Some advocate "Los Alamos"-style research labs, staffed by researchers from various countries, all working on carbon capture.[31] Others speculate about "solar radiation management" and geo-engineering.[32]

An effective competition policy encourages innovation, to abate and undo climate change and pollution. Some of the market failures mentioned above play a role also in innovation policy, including coordination problems, first mover disadvantages, and the need to achieve scale and spread risks. The EU and other jurisdictions recognize this and have adopted precedents, guidelines, and block exemptions to encourage cooperation in R&D. But mere techno-optimism will not save us. Given the risks involved, the exponential increase of problems and possible tipping at unpredictable moments, we cannot sit back and wait for engineers to produce a *deus ex machina*. Until viable technological solutions are proven fully effective and scalable, we must do all we can to abate and undo GHG emissions. That includes effective and efficient cooperation between market players.

4. Sustainability agreements can benefit consumers

While some sustainability agreements may lower costs or increase production as a result of innovation, the expectation is that they will often raise price and lower output. That does not necessarily mean they harm consumers, for the following reason.

The traditional approach is that consumer surplus increases as quality increases (and WTP increases), or prices decrease, in which case output increases:

Overall Consumer Surplus = (WTP – Market Price) x Quantity Consumed

The problem is that where negative externalities arise, the market price is not the "true price". In accordance with the "polluter pays" requirement under Article 191(2) TFEU, producers should pay for consumption of public resources. The price taken into account in a calculation of overall consumer welfare therefore equals Market Price + SCC, and:

Overall Consumer Surplus = (WTP – Market Price - SCC) x Quantity Consumed

If the True Price decrease is more than the market price increase, consumers benefit overall.[33] But do private actors have sufficient incentive to pursue sustainability, and can this adequately compensate consumers who care little about sustainability (or cannot afford to pay

OJ C 188, 20.6.2014, p. 4–12, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014XC0620(01)

[30] Project Drawdown, The world's leading resource for climate solutions, at https://www.drawdown.org/

[31] Hsu, S., "Capital Transitioning: An International Human Capital Strategy for Climate Innovation", *Transnational Environmental Law*, 2016, at http://myweb.fsu.edu/shsu/publications/XXTransEnvtlLXX.pdf

[32] See https://www.carbonbrief.org/explainer-six-ideas-to-limit-global-warming-with-solar-geoengineering

[33] Some might argue that consumer surplus should be determined at an individual level, in part because individual consumers do not pay for externalities. (That is equivalent to saying a shoplifter should be allowed the surplus from not paying for his shopping.) See discussion below on non-market goods and how consumers benefit also from benefits accruing to fellow citizens.

more[34]).[35] The more consumers who attach little value to sustainability, the more difficult it is to compensate them for a price increase.

Much depends on whether consumers must be fully compensated for the price increase in quality or monetary terms, and whether that must be in the same product market. As explained below, that is current EU policy, but is not required by EU law – and violates the "polluter pays" principle under Article 191(2) TFEU. But even apart from that:

- Whether consumers are adequately compensated should not be assessed just on the basis of consumption in market goods – goods that have an observable monetary value. Models assuming that the benefit of sustainability is directly proportional to consumption of market goods are inadequate. Consumers derive utility from non-market goods, too, including clean air, water, an enjoyable natural and biodiverse environment, health, and the prospect of a sustainable and just future. Models based on purely rational, selfish, consumption-maximizing consumers and profit-maximizing producers (*homines economici*) do not fully reflect human reality. They attach a real value to non-market resources even if they do not (or not yet) consume these themselves – and that value increases the scarcer the non-market goods are. Informative economic models should at least build in a choice for non-market goods, so as to allow for tradeoff between consumption of market goods and access to non-market good.[36]

- When valuing the utility of non-market goods, WTP is assessed based on stated preferences (surveys), or revealed preference studies.[37] It is important, though, not to fall for demand-side market failures mentioned above. Many consumers underestimate the future cost of climate change, or the effects that imposing costs on others may have for themselves in the long run. A proper WTP study therefore needs explaining the social costs of GHG to survey participants, and the benefits of abatement (to reduce imperfect information, confirmation bias, and hyperbolic discounting), neutralize free rider concerns, and give the option of sacrificing consumption as an alternative to just paying more. Where future costs of current consumption can be objectively calculated, it is better to rely on that than on surveys reflecting subjective judgments. This may be considered paternalistic, but given the risks at stake, we cannot afford to ignore known cognitive biases and irrational behaviour.

II. A model for a "polluter pays" agreement

For the reasons explained above, especially in markets where WTP < True Price, competition policy should enable cooperation between market players, to overcome market failures and

[34] The solution is a proper social safety net and provision of affordable sustainable alternatives, not ignoring sustainability at the expense of everyone losing out.
[35] Schinkel and Spiegel (2017) "Can Collusion Promote Sustainable Consumption and Production?", *International Journal of Industrial Organization*, 53, 2017, 371-398.
[36] See also Stucke, "Should Competition Policy Promote Happiness," 81 Fordham Law Review 2575 (2013), University of Tennessee Legal Studies Research Paper No. 207, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2203533
[37] See, for instance, "Environmental Policy Analysis: A Guide to Non-Market Valuation," Australian Government Productivity Commission, 2014, at https://www.pc.gov.au/research/supporting/non-market-valuation/non-market-valuation.pdf. See also Kriström and Johansson, "Economic Valuation Methods for Non-market Goods or Services" (2019), at https://www.oxfordbibliographies.com/view/document/obo-9780199363445/obo-9780199363445-0044.xml

compensate for Government failures, or create a minimum efficient scale. Actual and potential examples are found in other chapters in this publication.[38]

Opponents of integrating sustainability in competition policy occasionally denigrate sustainability agreements as "cartels", and argue that one should not try to justify the price increase inherent in any cartel on the ground of reduced emissions, because that would just create a windfall for the cartelists, without adequate sustainability effort. This *reductio ad absurdum* is valid but does not invalidate real sustainability agreements. Consider the following thought experiment, involving a model for a "polluter pays agreement" within an industry sector (say, airlines flying a particular route).

Participants could commit for a period of time to spend an amount on effective GHG offset,[39] or on R&D to eliminate GHG emissions (*e.g.*, carbon neutral jet fuel[40]). They could engage in joint R&D to the extent permitted under the joint R&D Block Exemption Regulation and the Guidelines on Horizontal Agreements. The amount each commits is equal to the SCC of their individual GHG emissions (minus the cost of any GHG taxation or emission trading rights). Participants may pass all or some of their costs on their customers, but need not do so, and should avoid any understanding or information exchange to that effect. They are free, for instance, to lower their margins and absorb these costs. They retain an incentive to reduce these costs as much as they can through innovation or otherwise. To avoid cheating, they certify compliance with a green label, and charge an independent auditor to monitor and verify compliance (with an efficient penalty going to joint R&D or carbon offset).[41]

This is just a model. The agreement can take various forms, such as a commitment to achieve some standard to abate emissions or pollutions. Nowag and Teorell posit the idea of an online platform connecting buyers willing to pay a "true price" and sellers selling at a "true price".[42] They point out that the platform model offers vast opportunities, but entails high risks. These risks could be eliminated by structuring the platform in accordance with this model.

1. Restriction of competition and consumer harm?

The "polluter pays agreement" does not qualify as a hard-core cartel or a by object restriction, in that the parties do not agree to "*fix prices or output or to share markets*".[43] It could be argued that it "*enables the parties to maintain, gain or increase market power*", since it addresses a market failure that makes it difficult to make the investment independently, but query whether this is "*likely to give rise to negative market effects with respect to prices,*

[38] The ACM Draft Guidelines mentions codes of conduct for environmentally or climate-conscious market behaviour; agreements to stop polluting production; initiatives that create new products or markets or that require a joint initiative to achieve sufficient scale; and agreements to respect laws. See also Middelschulte, "Unilever submission to DGCOMP" (2020)..

[39] See *The Oxford Principles for Net Zero Aligned Carbon Offsetting* (2020), at https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf

[40] Beard, "A new jet fuel offers the prospect of no-carbon, "guilt-free" flying", Marketplace, 2019, at https://www.marketplace.org/2019/10/10/a-new-jet-fuel-offers-the-prospect-of-no-carbon-guilt-free-flying/

[41] For the penalty to be efficient and effective, it should be calculated by reference to the profits that the firm expected to obtain from the infringement, divided by the probability of detection. Becker, "Crime and punishment: an economic approach", Journal of Political Economy 76, 1968, pp.169-217.

[42] Nowag and Teorell, above. The concept already exists offline. https://trueprice.org/true-price-store-opening/

[43] Horizontal Guidelines para. 3 and 25.

output, product quality, product variety or innovation"? [44] That depends on whether the effect is on balance "negative".

On the one hand, the effect on price is desirable in that that it restores a "true price", solving a coordination problem and eliminating a market failure – which the parties could not do independently[45] – while enabling green innovation of carbon offset, and maintaining price competition. On the other hand, since marginal costs increase for all participants, there is a good chance that market prices will increase (and output will decrease), although this is not certain. Much depends on whether cost commonalities are significant, margins are enough to absorb the cost of paying for the SCC, or the market remains sufficiently competitive. Innovation may in time lead to lower production costs. If prices increase, they may be offset by price decreases for complementary products, immediately, or at a later stage. Even if there is no such offset, the effect may still be positive if consumers perceive the arrangement as a quality increase. A "willingness to pay" study could provide insight, provided that the study is organized and questions are phrased in a way that avoids demand-side market failures discussed above. This may involve explaining the social costs of GHG (to avoid imperfect information and hyperbolic discounting), explaining the benefits, and minimize free rider concerns. If the average WTP is equal to or greater than the expected market price increase, the agreement should pass.

2. Ancillary restraints, proportionality and Constitutional principles

If prices increase and sustainability benefits arise, the current Guidelines on Horizontal Agreements provide that "*The balancing of restrictive and pro-competitive effects is conducted exclusively within the framework laid down by Article 101(3)*". [46] The reason so to limit the analysis seems to be administrative convenience, yet CJEU case law permits a balancing test also as part of an ancillary restraints analysis under Article 101(1) TFEU.

In *Albany*, for instance, collective labour agreements fell outside Article 101(1) TFEU.[47] The CJEU reviewed "*the objectives to be pursued by the Community and the Member States*" set out in Article 2 EC (now Article 3 TEU), and other provisions on social policy. It "*follows from an interpretation of the provisions of the Treaty as a whole which is both effective and consistent that agreements concluded in the context of collective negotiations between management and labour in pursuit of such objectives must, by virtue of their nature and purpose, be regarded as falling outside the scope of Article [101](1).*"[48] The keys were the "nature" of the agreement (a multi-stakeholder arrangement), and its "purpose" (an EU goal of constitutional importance).

In *Wouters*, a prohibition of partnerships of lawyers and accountants fell outside Article 101 TFEU.[49] The prohibition restricted competition, but Article 101 did not apply in view of its "*overall context*" and "*objectives*". The former included "*the need to make rules relating to organisation, qualifications, professional ethics, supervision and liability*", and the latter was

[44] Horizontal Guidelines para. 3. A restriction by effect requires "*an appreciable adverse impact on at least one of the parameters of competition on the market, such as price, output, product quality, product variety or innovation*" (para 27).
[45] Horizontal Guidelines, para, 30.
[46] See *Guidelines on the application of Article 81(3) of the Treaty*, C 101/97, 27.4.2004 ("Exemption Guidelines"), para. 20 and 43. Article 101(3) TFEU does not mention "*pro-competitive effects*".
[47] Case C-67/96, *Albany*, 21 September 1999, ECLI:EU:C:1999:430
[48] *Albany*, para. 60.
[49] Case C-309/99, *Wouters*, 19 February 2002, ECLI:EU:C:2002:98, paras. 86 and following.

a public policy interest "*to ensure … integrity and experience*". The Court analysed whether the restrictions were "*inherent*" in or "*necessary*" for the public policy interest. The Court concluded that the measure "*could therefore reasonably be considered to be necessary in order to ensure the proper practice of the legal profession*".

Finally, in *Meca-Medina*, restrictions on athletes to penalize them for doping escaped Article 101 TFEU.[50] The court again referred to the "*overall context*" and "*objectives*", and "*whether the consequential effects restrictive of competition are inherent in the pursuit of those objectives … and are proportionate to them*".[51] Anti-doping rules were "*inherent in the organisation and proper conduct of competitive sport and its very purpose is to ensure healthy rivalry between athletes.*"

These cases have in common a restriction of competition that was inherent[52] in, and proportionate to, an objective not merely of commercial nature or efficiency-related, but reflecting important public policy. This same could apply to agreements pursuing environmental goals and climate change mitigation, which are core EU objectives.

- Art. 3(3) TEU requires that the Union shall work for "*the sustainable development of Europe based on […] a high level of protection and improvement of the quality of the environment […].*" The word "improvement" means mere stability is not enough, and "*shall*" indicates a mandatory goal. Art. 3(5) TEU clarifies this is not limited to EU territory, stating that the EU "*shall contribute to […] the sustainable development of the Earth".*
- Article 7 TFEU confirms that these are not isolated objectives, but that "*The Union shall ensure consistency between its policies and activities, taking all of its objectives into account…"* Art. 11 TFEU reiterates that "*environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development."* [53] Article 37 of the EU Charter of Fundamental Rights repeats that "*(a) high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development."* [54]
- Article 191(2) TFEU, finally, provides that "*Union policy on the environment shall aim at a high level of protection … It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.*" This means that in case of doubt, environmental protection takes precedence over economic interests.[55]

[50] Case C-519/04 P, *Meca-Medina*, 18 July 2006, ECLI:EU:C:2006:492.
[51] *Meca Medina*, para. 42.
[52] On ancillary restraints, see also Case C-382/12 P *Mastercard v Commission* ECLI:EU:C:2014:2201, para. 91.
[53] See also Case T-210/02 – *British Aggregates*, Judgment of 7 March 2012, para. 117 ("*the principle whereby all Community measures must satisfy the requirements of environmental protection")* and Case C-62/88, *Greece v Council*, Judgment of 29 March 1990, para. 20.
[54] Emphasis added. As the Dutch Supreme Court held in *Urgenda*, Articles 2 and 8 ECHR mandate a "*positive obligation*" for governments "*to take appropriate steps to safeguard the lives of those within its jurisdiction*" in view of a "*real and immediate risk*" from climate change via "*reasonable and appropriate measures.*" See also Article 2(1) of the EU Charter of Fundamental Rights, which protects "*the fundamental right to life".*
[55] Joined Cases T-74/00, *Artegodan* EU:T:2002:283, para.184.

The "polluter pays agreement" above pursues objectives consistent with these provisions. An obligation on producers to invest an amount equal to the SCC is "inherent" in the principle of "polluter pays" under Article 191(2) TFEU. The agreement would clearly fall under *Albany* if it resulted from multi-stakeholder negotiations including suppliers, consumer associations, and environmental groups.[56] It can be argued, however, that *Albany* is broader and applies to other agreements that are justified – *i.e.*, reasonably necessary and proportionate – to achieve goals of constitutional importance. After all, *Wouters* and *Meca-Medina* did not involve multi-stakeholder arrangements, yet were cleared.

The proportionality test, finally, would require proof that (a) the agreement is capable of achieving the objective; (b) there are no less restrictive and equally efficient and effective ways of doing so; and (c) a balancing of interests of all stakeholders militates in favour of the agreement.[57] In balancing these interests, it should be kept in mind that competition (contrary to sustainability) is no longer an EU objective of constitutional importance, but a mere tool, since the Treaty of Lisbon relegated the text of 3(1)(g) EC to a mere recital in Protocol (No 27).

3. Article 101(3) TFEU (ad hoc exemption analysis)

Even if the *Albany* and *Wouters* exception does not apply, a "polluter pays agreement" should pass the conditions of Article 101(3) TFEU.

To qualify for exemption under Article 101(3), the agreement must "*contribute to improving the production* ***or*** *distribution of goods* ***or*** *to promoting technical* ***or*** *economic progress*" (emphasis added), (2) "[*allow*] *consumers a fair share of the resulting benefit,*" (3) "*not […] impose […] restrictions which are not indispensable to the attainment of these objectives,*" and (4) "*not […] afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.*"

Benefits. The goals of Article 101(3) TFEU are exhaustive, but stated in the alternative. They include sustainability.[58] "*Improving production*" includes a better allocation of resources resulting from internalization of environmental and climate costs, and circular economy practices. "*Improving distribution*" includes lowering the ecological footprint of transport. "*Technical progress*" includes development and implementation of new sustainability technology. "*Economic progress*" is anything that provides a higher standard of living[59] -- including access to both market and non-market goods.

A fair share to consumers. To determine if consumers get "*a fair share*", the Exemption Guidelines suggest that "*The assessment under Article 81(3) of benefits flowing from restrictive agreements is in principle made within the confines of each relevant market to which the agreement relates*".[60] So the Commission would ignore environmental efficiencies in a

[56] Giorgio Monti, "Four Options for a Greener Competition Law", JECLAP Vol 11, Issue 3-4, March-April 2020 (arguing the *Albany* exception requires "*discussion among a range of stakeholders that are affected by the policy (e.g. producers of the polluting product, its employees, consumers and non-governmental organisations representing relevant environmental interests)*").
[57] See C-331/88, *Fedesa and others*, [1990] ECR I-4023, § 13.
[58] Commission Communication on environmental agreements, COM (1996) 561 final (Nov. 27, 1996). See Townley, "Is There (Still) Room for Non-Economic Arguments in Article 101 TFEU Cases?" (October 17, 2012), at https://ssrn.com/abstract=2162864. See also Case IV.F.1/36.718, *CECED*, OJ 2000 L187/ 47, paras 47-57; *Exxon/Shell*, OJ 1994 L144/ 20, para 71.
[59] Cf. Von Mises, *Theory and History* (1957), at https://mises.org/library/definition-economic-progress
[60] Exemption Guidelines, para. 43.

different market than the one in which the restrictions arise, even if they benefit the same consumers who suffer the disadvantage. The words "*in principle*" leave room for exceptions, but even so, the Guidelines are too strict (and the hypothetical "polluter pays agreement" above should be allowed), for the following reasons.

- Out-of-market benefit should count. Other than administrative convenience, there is no reason to limit efficiencies to the same market or to the same consumers, or to market goods. Consumers derive real (and quantifiable) utility from non-market goods, too.

- Under Article 101(3), benefits such as emission cuts can justify a restrictive agreement so long as it *"allow[s] consumers a fair share of the resulting benefit."* Whatever the Guidelines say, Article 101(3) does not limit benefits within the "*relevant market*". A literal interpretation does not exclude that the "*fair share*" may accrue to the same consumers in a different market, and even to different consumers. For instance, an agreement to reduce pollution may increase prices for some consumers, but could qualify for exemption if it reduces all consumers' healthcare costs and increases their life expectancy and quality of life by more – overall – than the extra amount consumers in the relevant market pay for the cleaner products.[61]

- The Exemption Guidelines suggest that the Court of First Instance held in *Shaw* that "*the assessment under Article 81(3) had to be made within the same analytical framework as that used for assessing the restrictive effects.*"[62] But *Shaw* was not about whether out-of-market benefits could count, but about whether the Commission should have verified whether users each individually and fully enjoyed the benefits that justified the exemption. The Court rejected that, because the "*assessment … had to be made within the same analytical framework, that of the effect of the notified agreements on the functioning of the market, and hence on the situation of the tied lessees taken as a whole, not on each lessee considered in isolation*". Moreover, "*it is not material that the benefits produced by the notified agreements do not entirely compensate the price differential suffered by a particular tied lessee if the average lessee does enjoy that compensation.*" So the case does not mean that the Commission cannot consider out-of-market benefits; merely that an exemption can be based on the benefits received by the "consumers as a whole". Out-of-market benefits were not even mentioned, and the case does not say that they cannot be considered even when it makes sense to do so. With *Shaw* falling away, the limitation in the Exemption Guidelines lacks legal basis.

- Other cases support this. In the foundational case *Consten & Grundig*, the Court of Justice required "*appreciable objective advantages of such a character as to compensate for the disadvantages … in the field of competition*".[63] The Court did not say that the net effect should be positive, that the consumers should be fully compensated, that this should be assessed within the same market as where the restriction occurs, or that this should benefit the same consumers. Environmental and climate change abatement benefits based on a "polluter pays" principle could qualify as "*appreciable objective advantages*".

- In *Compagnie Générale Maritime v. Commission*, the Court said that "*For the purposes of examining the merits of the Commission's findings as to the various requirements of*

[61] See also *CECED*, above, para 52.
[62] Case T-131/99, *Shaw v Commission*, March 21, 2002, ECLI:EU:T:2002:83.
[63] Cases 56 & 58/64, *Consten and Grundig*, 13 July, 1966, EU:C:1966:41

Article 85(3) of the Treaty … regard should naturally be had to the advantages arising from the agreement in question, not only for the relevant market [...] but also, in appropriate cases, for every other market on which the agreement in question might have beneficial effects, and even, in a more general sense, for any service the quality or efficiency of which might be improved by the existence of that agreement [...] without requiring a specific link with the relevant market".[64] While the customers of the services were essentially the same group on the different sea transport markets, the court could not be clearer that out-of-market efficiencies count.

- Finally, in *Mastercard*, the CJEU held that "*it is necessary to take into account … all the objective advantages flowing from that measure not only on the market in respect of which the restriction has been established, but also on the market which includes the other group of consumers associated with that system…. it is necessary to assess, where appropriate, whether such advantages are of such a character as to compensate for the disadvantages which that measure entails for competition.*"[65] This, too, indicates that out-of-market benefits can count, and the word "character" in the last sentence suggests that this assessment can be qualitative and need not be quantitative. The CJEU added that "*the General Court was, in principle, required, when examining the first condition laid down in Article 81(3) EC, to take into account all the objective advantages flowing from the MIF, not only on the relevant market, namely the acquiring market, but also on the separate but connected issuing market. It follows from this that, should the General Court have found that there were appreciable objective advantages flowing from the MIF for merchants, <u>even if those advantages did not in themselves prove sufficient to compensate for the restrictive effects</u> identified pursuant to Article 81(1) EC, all the advantages on <u>both</u> consumer markets in the MasterCard scheme, including therefore on the cardholders' market, could, if necessary, have justified the MIF if, taken together, those advantages were of such a character as to compensate for the restrictive effects of those fees.*"[66] In the end, the CJEU rejected the appeal in the absence of <u>any</u> appreciable objective advantages for merchants. This confirms that out-of-market benefits can count, and even benefits to other categories of consumers, "*taken together*", so long as the consumers who bear the costs share at least some of the benefits.[67] Indeed, in the light of the holding in *Compagnie Générale Maritime* and *Mastercard*, the Guidelines violate the rule that "*it is necessary to take into account all the objective advantages*," and impose impermissible limits on assessment of out-of-market benefits, benefits to other consumers, and benefits that do not exceed the disadvantages in terms of market goods, but still qualify as "*appreciable objective advantages"*.

- The Guidelines keep the door open where they say that "*the condition that consumers must receive a fair share of the benefits implies <u>in general</u> that efficiencies generated by the restrictive agreement within a relevant market must be sufficient to outweigh the anti-competitive effects produced by the agreement within that same relevant market*" (emphasis added). That allows for exceptions. Agreements to address climate change,

[64] Case T-86/95, *Compagnie générale maritime v Commission*, [2002] ECR II-1011, EU:T:2002:50, para 343.
[65] Case C-382/12 P, *Mastercard*, ECLI:EU:C:2014:2201, para. 237.
[66] *Mastercard*, above, para. 240-241. Emphasis added.
[67] For a more limited reading, see Peeperkorn, above, para 35 ff.

environment, and biodiversity should be such an exception, because they involve non-market goods, and because a climate disaster looms at the horizon.

- No need for full compensation. The traditional approach to determine the "*fair share*" is to calculate the costs and benefits for the customers of the parties to the agreement (excluding benefits accruing to other consumers), and approve the agreement only if the benefits exceed the costs *for those specific customers* in monetary terms.[68] This is stricter than required by the Treaty and the case-law mentioned above. Article 101(3) demands a "fair share", not a "full share".

- The share allowed to consumers can be "fair", where even a small reduction of a risk with potentially large consequences could significantly improve – indeed preserve – the customer's life and home and that of their offspring, and thus outweigh the economic cost of a price increase.[69] Even if discounted, the value of avoiding a climate cataclysm is significant. As the Dutch Supreme Court found in *Urgenda*, "*The possibility exists that even a smaller warming of the earth and a lower [increase of the] concentration of hothouse gases causes a dangerous climate change, for instance because a tipping point is reached …. The precautionary principle means that more rather than fewer far-reaching measures have to be adopted to reduce the emission of hothouse gases*".[70]

- Even apart from this, benefits to other consumers are relevant. Fairness is not inherently individualistic or selfish. Fairness is a social norm based on reciprocal altruism.[71] A consumer benefits when their society benefits, especially if the stake is as significant as avoidance of a calamity affecting everyone. *All* consumers, *including* the companies' customers, benefit from emission cuts and pollution reduction. An appreciable collective benefit should qualify, as the Commission held in *CECED*:

    - *"The Community pursues the objective of a rational utilisation of natural resources, taking into account the potential benefits and costs of action. Agreements […] must yield economic benefits outweighing their costs and be compatible with competition rules. […] the benefits to society brought about by the CECED agreement appear to be more than seven times greater than the increased purchase costs of more energy-efficient washing machines. Such environmental results for society would adequately allow consumers a fair share of the benefits even if no [economic] benefits accrued to individual purchasers of machines*."[72] (emphasis added).

- Fairness should reflect the "polluter pays" principle. It is not "fair" for consumers to benefit from consumption while imposing costs (externalities) on others (who moreover have no say in the decision). In the words of the ACM, "*their demand for the products in question essentially creates the problem for which society needs to find solutions.*"[73] Restoring the balance by eliminating the costs on others is mandated by Article 191(2) TFEU that EU policy "*shall be based on the … principles … that environmental*

[68] *Exemption Guidelines* para. 80. Case C-23/14 *Post Danmark* ECLI:EU:C:2015:651, para. 49 appears to impose a less strict text ("*counteract*") for Article 102 TFEU.
[69] Article 101(3) TFEU recognizes future benefits. Exemption Guidelines, above, para. 87-88.
[70] Dutch Supreme Court, *Urgenda*, above, para 7.2.10.
[71] See Binmore, *Natural Justice*, 2005, p. 14ff; and "Bargaining and fairness," PNAS July 22, 2014, 111 (Supplement 3) 10785-10788, at http://www.pnas.org/content/111/Supplement_3/10785.full.
[72] *CECED*, above, para. 56. For a more limited reading, see Peeperkorn, above, para 34 (ignoring the words underlined in the quote).
[73] ACM Draft Guidelines, para 41.

damage should as a priority be rectified at source and that the polluter should pay." For this reason alone, environmental and GHG emission abatement benefits can and should be included in the calculation under Article 101(3) TFEU.

The Dutch ACM proposes to count benefits to others only if "*the agreement must contribute to a policy objective that has been laid down in an international or national standard to which the Dutch government is bound.… In other cases … users still need to be fully compensated.… Think of product standards or environmental standards that are more ambitious than the existing, binding standard for the government.*"[74] The idea was perhaps to ensure that the ACM proposals would be limited to sustainable development goals of greatest importance, such as climate change. But this falls in the trap of the "government failure" discussed above. It is precisely where Government targets are too low, or fails to set targets at all, that private initiative is needed.

Necessity, and remaining competition. Article 101(3) TFEU finally requires that agreements should "*not […] impose […] restrictions which are not indispensable to the attainment of these objectives*" and "*not […] afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.*" There should not be less restrictive and equally effective alternatives to reach the goals. In theory, effective regulation, taxation, or carbon trading rights are the best answer to market failure. If *fully* effective regulation existed, cooperative agreements may not be necessary. But government failure means that in practice, existing regulation remains inadequate. Free market competition is not the answer either, in markets where consumers are insufficiently willing to pay for sustainability, or where individual firms cannot achieve sufficient scale. In such markets, we need private cooperation, to complement regulation.[75]

The "polluter pays agreement" described above should meet the "indispensability" and "no elimination of competition" conditions. The agreement is limited to spending an amount equal to the SCC on reducing or offsetting GHG emissions, in accordance with the "polluter pays" principle. They are left free to decide how to spend these funds, so long as they use them for sustainability. They are free to pass on these costs or absorb them. Finally, effective competition is preserved by avoiding spill-over, and monitoring compliance is done independently. The parties retain an incentive to compete by reducing the SCC as much as they can.

Less restrictive alternatives are probably not as effective. Leaving buyers the option to make a voluntary payment for carbon offset suffers from market failures, including information deficiency, and free riding concerns. Merely providing information on carbon emissions may reduce demand somewhat to the extent that enlightened thinking or guilt dissuades some consumers, but demand may well switch to equally polluting products that do not advertise their carbon costs.

III. Conclusion.

The climate crisis has become an emergency. We need permanent sequestration of GHG to get back to the level of 50 years ago. Market failures and government failures mean that we cannot rely only on free market competition, regulation, taxation, and carbon trading alone as a solution. Competition between firms drives innovation in sustainable technology, and we are

[74] ACM Draft Guidelines, para 41.

[75] For a further discussion of "necessity" and the Dutch *Chicken of Tomorrow* case, see "Sustainable Competition", above,

making technological progress as showcased by "Project Drawdown". But we have no certainty that innovation will provide a timely and complete solution. We need a coherent and consistent program of regulation, innovation, taxation, education, reforestation, and private cooperation. Competition law should enable this cooperation, including by enabling agreements reflecting the "polluter pays" principle. This means recognizing that (a) environmental benefits "*contribute to improving the production or distribution of goods or to promoting technical or economic progress*", (b) consumers benefit from these even if they are non-market goods or out-of-market benefits, and (c) consumers enjoy "*a fair share*" if the arrangements eliminate costs imposed on others (negative externalities) in accordance with the "polluter pays" principle, or reduce environmental or climate change harm to *all* consumers.