### 1NC – Off

#### Interpretation and violation – the resolution is about reducing IP protections for medicines, they abolish all IPP.

#### IP applies to things other than medicines –

InQuartik 20 [(InQuartik—formed by data scientists, passionate programmers, and patent experts) “The Different Types of IP Protection and Why They Are Important” InQuartik, 2/6/2020. https://www.inquartik.com/blog/basic-intellectual-property-rights/] BC

Intellectual property rights are legal rights that provide creators protection for original works, inventions, or the appearance of products, artistic works, scientific developments, and so on.

#### Net benefits:

#### Limits – their interp justifies infinite affs that require entirely different case negs, from IP for pottery to IP for telescopes, which privileges the aff and prevents in-depth testing

#### Ground – they let the aff tack on infinite Frankenstein planks to skirt generics and artificially inflate solvency – and guts generics about medicine like the innovation, pharma politics, and health cooperation DAs

#### Paradigm issues:

#### Drop the debater:

#### Their abusive advocacy skewed the debate from the start – 1NC construction was premised on

#### Deters abuse – debaters won’t read args they can’t win on – their interp means reading extra T affs has zero risk

#### Comes before 1AR theory – NC abuse is responsive to them not being topical

#### Competing interps – reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation

#### No RVIs – fairness and education are a priori burdens – and encourages baiting – outweighs because if T is frivolous, they can beat it quickly

#### Fairness is a voter ­– necessary to determine the better debater

#### Education is a voter – why schools fund debate

### 1NC – off

#### Our interpretation is that the resolution should define the division of affirmative and negative ground and offense. It was *negotiated* and *announced in advance*, providing both sides with a reasonable opportunity to prepare to engage one another’s arguments.

**Resolved denotes a proposal to be enacted by law**   
**Words and Phrases 1964** Permanent Edition   
Definition of the word “resolve,” given by Webster is “**to express an opinion or determination by resolution or vote; as ‘it was resolved by the legislature;**” It is of **similar** force **to the word “enact,”** which is **defined** by Bouvier **as** meaning “**to establish by law**”.

#### Ought means should

Merriam Webster, No Date – Merriam Webster’s Learner’s Dictionary, “ought”, <http://www.learnersdictionary.com/definition/ought>  
ought /ˈɑːt/ verb  
Learner's definition of OUGHT [modal verb] 1 ◊ Ought is almost always followed by to and the infinitive form of a verb. The phrase ought to has the same meaning as should and is used in the same ways, but it is less common and somewhat more formal. The negative forms ought not and oughtn't are often used without a following to. — used to indicate what is expected They ought to be here by now. You ought to be able to read this book. There ought to be a gas station on the way. 2 — used to say or suggest what should be done You ought to get some rest. That leak ought to be fixed. You ought to do your homework.

#### Should requires legal effect

Summers 94 (Justice – Oklahoma Supreme Court, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13)

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling *in praesenti*.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record. [CONTINUES – TO FOOTNOTE] [13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) *In praesenti* means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is *presently* or *immediately effective*, as opposed to something that *will* or *would* become effective *in the future [in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

#### WTO refers to the World Trade Organization

MBN N.D. [(Market Business News, an online newspaper specializing in financial, economic and business news worldwide) “World Trade Organization (WTO) – definition and meaning” MBN, No date. <https://marketbusinessnews.com/financial-glossary/world-trade-organization-wto-definition-meaning/>] RR

The World Trade Organization, often referred to by its initials WTO, is a global international organization that deals with the rules of trade between countries, and helps trading nations resolve disputes. The WTO says it is the only global organization that does this. The World Trade Organization says it aims to help producers of goods and services, importers, and exporters conduct their business.

#### Reduce means

Cambridge n.d. [“Reduce,” Cambridge English Dictionary] JL

to become or to make something become smaller in size, amount, degree, importance, etc.:

#### Intellectual property protections are

USFG 14 [(US Mission to International Organizations in Geneva) “Key Forms of Intellectual Property Protection,” 4/24/2014] JL

The key forms of intellectual property protection are patents, copyrights, trademarks and trade secrets. Because intellectual property shares many of the characteristics of real and personal property, associated rights permit intellectual property to be treated as an asset that can be bought, sold, licensed or given away. Intellectual property laws enable owners, inventors and creators to protect their property from unauthorized use.

#### Medicine is

Lexico ND [(Lexico dictionary) https://www.lexico.com/definition/medicine] BC

The science or practice of the diagnosis, treatment, and prevention of disease (in technical use often taken to exclude surgery)

#### Vote negative to preserve limits and equitable division of ground – the resolution is the most predictable stasis point for debates, anything outside of that ruins prep and clash by allowing the affirmative to pick any grounds for debate. That greenlights a race away from the core topic controversies that allow for robust contestation, which favors the aff by making neg ground inapplicable, susceptible to the perm, and concessionary. Two additional impacts:

#### Accessibility – Cutting negs to every possible aff wrecks small schools, which has a disparate impact on under-resourced and minority debaters. Counter-interpretations are arbitrary, unpredictable, and don’t solve the world of neg prep because there’s no grounding in the resolution

#### Link turns their education offense – getting to the third and fourth level of tactical engagement is only possible with refined and well-researched positions connected to the resolutional mechanism. Repeated debates over core issues incentivize innovative argument production and improved advocacy based on feedback and nuanced responses from opponents.

#### Prefer our impact: they’ve skewed the game which necessarily comes first because it makes evaluating the aff impossible. The role of individual debate rounds on broader subject formation is white noise – *can you remember what happened in doubles of the Loyola tournament your junior year?* – individual rounds don’t affect our subjectivity, so fairness is the only impact your ballot can resolve. You should presume all their truth claims false because they have not been properly tested

#### They can’t get offense: we don’t exclude them, only persuade you that our methodology is best. Every debate requires a winner and loser, so voting negative doesn’t reject them from debate, it just says they should make a better argument next time.

### 1NC – Off

#### Biotech industry strong now.

Cancherini et al. 4/30 [(Laura, Engagement Manager @ McKinsey & Company, Joseph Lydon, Associate Partner @ McKinsey & Company, Jorge Santos Da Silva, Senior Partner at McKinsey & Company, and Alexandra Zemp, Partner at McKinsey & Company), “What’s ahead for biotech: Another wave or low tide?“, McKinsey & Company, 4-30-2021, https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/whats-ahead-for-biotech-another-wave-or-low-tide] TDI

As the pandemic spread across the globe in early 2020, biotech leaders were initially pessimistic, reassessing their cash position and financing constraints. When McKinsey and BioCentury interviewed representatives from 106 biotech companies in May 2020,4 half of those interviewed were expecting delays in financing, and about 80 percent were tight on cash for the next two years and considering trade-offs such as deferring IPOs and acquisitions. Executives feared that valuations would decline because of lower revenue projections and concerns about clinical-trial delays, salesforce-effectiveness gaps, and other operational issues.

Belying this downbeat mood, biotech has in fact had one of its best years so far. By January 2021, venture capitalists had invested some 60 percent more than they had in January 2020, with more than $3 billion invested worldwide in January 2021 alone.5 IPO activity grew strongly: there were 19 more closures than in the same period in 2020, with an average of $150 million per raise, 17 percent more than in 2020. Other deals have also had a bumper start to 2021, with the average deal size reaching more than $500 million, up by more than 66 percent on the 2020 average (Exhibit 3).6

What about SPACs?

The analysis above does not include special-purpose acquisition companies (SPACs), which have recently become significant in IPOs in several industries. Some biotech investors we interviewed believe that SPACs represent a route to an IPO. How SPACs will evolve remains to be seen, but biotechs may be part of their story.

Fundamentals continue strong

When we asked executives and investors why the biotech sector had stayed so resilient during the worst economic crisis in decades, they cited innovation as the main reason. The number of assets transitioning to clinical phases is still rising, and further waves of innovation are on the horizon, driven by the convergence of biological and technological advances.

In the present day, many biotechs, along with the wider pharmaceutical industry, are taking steps to address the COVID-19 pandemic. Together, biotechs and pharma companies have more than 250 vaccine candidates in their pipelines, along with a similar number of therapeutics. What’s more, the crisis has shone a spotlight on pharma as the public seeks to understand the roadblocks involved in delivering a vaccine at speed and the measures needed to maintain safety and efficacy standards. To that extent, the world has been living through a time of mass education in science research and development.

Biotech has also benefited from its innate financial resilience. Healthcare as a whole is less dependent on economic cycles than most other industries. Biotech is an innovator, actively identifying and addressing patients’ unmet needs. In addition, biotechs’ top-line revenues have been less affected by lockdowns than is the case in most other industries.

Another factor acting in the sector’s favor is that larger pharmaceutical companies still rely on biotechs as a source of innovation. With the top dozen pharma companies having more than $170 billion in excess reserves that could be available for spending on M&A, the prospects for further financing and deal making look promising.

For these and other reasons, many investors regard biotech as a safe haven. One interviewee felt it had benefited from a halo effect during the pandemic.

More innovation on the horizon

The investors and executives we interviewed agreed that biotech innovation continues to increase in quality and quantity despite the macroeconomic environment. Evidence can be seen in the accelerating pace of assets transitioning across the development lifecycle. When we tracked the number of assets transitioning to Phase I, Phase II, and Phase III clinical trials, we found that Phase I and Phase II assets have transitioned 50 percent faster since 2018 than between 2013 and 2018, whereas Phase III assets have maintained much the same pace. There could be many reasons for this, but it is worth noting that biotechs with Phase I and Phase II assets as their lead assets have accounted for more than half of biotech IPOs. Having an early IPO gives a biotech earlier access to capital and leaves it with more scope to concentrate on science.

Looking forward, the combination of advances in biological science and accelerating developments in technology and artificial intelligence has the potential to take innovation to a new level. A recent report from the McKinsey Global Institute analyzed the profound economic and social impact of biological innovation and found that biomolecules, biosystems, biomachines, and biocomputing could collectively produce up to 60 percent of the physical inputs to the global economy. The applications of this “Bio Revolution” range from agriculture (such as the production of nonanimal meat) to energy and materials, and from consumer goods (such as multi-omics tailored diets) to a multitude of health applications.

#### IP protections are key to innovation – recouping startup costs and high risk of failure

Grabowski et al 15 [(Henry, Professor of Economics, member of the faculty for the Health Sector Management Program, and Director of the Program in Pharmaceuticals and Health Economics at Duke University) “The Roles of Patents and Research And Development Incentives In Biopharmaceutical Innovation,” Health Affairs, 2/2015] JL

The essential rationale for patent protection for biopharmaceuticals is that long-term benefits in the form of continued future innovation by pioneer or brand-name drug manufacturers outweigh the relatively short-term restrictions on imitative cost competition associated with market exclusivity. Regardless, the entry of other branded agents remains an important source of therapeutic competition during the patent term.

Several economic characteristics make patents and intellectual property protection particularly important to innovation incentives for the biopharmaceutical industry. **5** The R&D process often takes more than a decade to complete, and according to a recent analysis by Joseph DiMasi and colleagues, per new drug approval (including failed attempts), it involves more than a billion dollars in out-of-pocket costs. **6** Only approximately one in eight drug candidates survive clinical testing. **6**

As a result of the high risks of failure and the high costs, research and development must be funded by the few successful, on-market products (the top quintile of marketed products provide the dominant share of R&D returns). **7**,**8** Once a new drug’s patent term and any regulatory exclusivity provisions have expired, competing manufacturers are allowed to sell generic equivalents that require the investment of only several million dollars and that have a high likelihood of commercial success. Absent intellectual property protections that allow marketing exclusivity, innovative firms would be unlikely to make the costly and risky investments needed to bring a new drug to market.

Patents confer the right to exclude competitors for a limited time within a given scope, as defined by patent claims. However, they do not guarantee demand, nor do they prevent competition from nonidentical drugs that treat the same diseases and fall outside the protection of the patents.

New products may enter the same therapeutic class with common mechanisms of action but different molecular structures (for example, different statins) or with differing mechanisms of action (such as calcium channel blockers and angiotensin receptor blockers). 9 Joseph DiMasi and Laura Faden have found that the time between a first-in-class new drug and subsequent new drugs in the same therapeutic class has been dramatically reduced, from a median of 10.2 years in the 1970s to 2.5 years in the early 2000s. 10 Drugs in the same class compete through quality and price for preferred placement on drug formularies and physicians’ choices for patient treatment.

Patents play an essential role in the economic “ecosystem” of discovery and investment that has developed since the 1980s. Hundreds of start-up firms, often backed by venture capital, have been launched, and a robust innovation market has emerged. **11** The value of these development-stage firms is largely determined by their proprietary technologies and the candidate drugs they have in development. As a result, the strength of intellectual property protection plays a key role in funding and partnership opportunities for such firms.

#### Biopharmaceutical innovation is key to prevent future pandemics and bioterror.

Marjanovic and Feijao 20 [(Sonja Marjanovic, Ph.D., Judge Business School, University of Cambridge. Carolina Feijao, Ph.D. in biochemistry, University of Cambridge; M.Sc. in quantitative biology, Imperial College London; B.Sc. in biology, University of Lisbon.) "How to Best Enable Pharma Innovation Beyond the COVID-19 Crisis," RAND Corporation, 05-2020, https://www.rand.org/pubs/perspectives/PEA407-1.html] TDI

As key actors in the healthcare innovation landscape, pharmaceutical and life sciences companies have been called on to develop medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also infectious diseases that represent public health threats. Infectious agents such as anthrax, smallpox and tularemia could present threats in a bioterrorism context.1 The general threat to public health that is posed by antimicrobial resistance is also well-recognised as an area in need of pharmaceutical innovation. Innovating in response to these challenges does not always align well with pharmaceutical industry commercial models, shareholder expectations and competition within the industry. However, the expertise, networks and infrastructure that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an indispensable partner in the search for solutions that save lives. This perspective argues for the need to establish more sustainable and scalable ways of incentivising pharmaceutical innovation in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is essential for socially responsible companies in the sector. 2 It is therefore unsurprising that we are seeing industry-wide efforts unfold at unprecedented scale and pace. Whereas there is always scope for more activity, industry is currently contributing in a variety of ways. Examples include pharmaceutical companies donating existing compounds to assess their utility in the fight against COVID19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating trials for potentially effective medicine or vaccine candidates; and in some cases rapidly accelerating in-house research and development to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accelerate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The primary purpose of such innovation is to benefit patients and wider population health. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be relatively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pressure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing combination product that is being tested for therapeutic potential against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider how pharmaceutical innovation for responding to emerging infectious diseases can best be enabled beyond the current crisis. Many public health threats (including those associated with other infectious diseases, bioterrorism agents and antimicrobial resistance) are urgently in need of pharmaceutical innovation, even if their impacts are not as visible to society as COVID-19 is in the immediate term. The pharmaceutical industry has responded to previous public health emergencies associated with infectious disease in recent times – for example those associated with Ebola and Zika outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contributions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still low.12 There are important policy questions as to whether – and how – industry could engage with such public health threats to an even greater extent under improved innovation conditions.

#### Extinction – defense is wrong

Piers Millett 17, Consultant for the World Health Organization, PhD in International Relations and Affairs, University of Bradford, Andrew Snyder-Beattie, “Existential Risk and Cost-Effective Biosecurity”, Health Security, Vol 15(4), http://online.liebertpub.com/doi/pdfplus/10.1089/hs.2017.0028

Historically, disease events have been responsible for the greatest death tolls on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world’s population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the irreversible collapse of civilization.

A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity’s favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6

While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. Although rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and theWestern Abenaki (which suffered a staggering 98% loss of population).

In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment, such as rabies or septicemic plague. Other diseases have a track record of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-2

## Case

### Framing

#### ROB and ROJ is to vote for the better debater – anything else is arbitrary, self–serving, and impact justified – how can the negative provide a strat to resist capitalism if the aff is true -- and what the ballot or judge submits to tab doesn’t have an impact – just indicates that Coppell RM outdebated Immaculate Heart BC – not that any portion of what you said is true.

#### No solvency – Bilgin is about groups like philosophers, professors, and academics – not high schoolers

#### If we win cap is good answers any cap bad for education arguments – collapse would mean no school and this allows strat that actually cause tangible, material, change -- mere academic theorizing has no !

**Util and extinction reps aren’t violent – you don’t disprove the goodness of pleasure and badness of pain, or provide an alternative, which means we need to prevent extinction. We don’t ignore suffering of the squo, but say those suffering will suffer inf more in a world where global warming or disease are extinction level.**

**First, pleasure and pain are intrinsically valuable. People consistently regard pleasure and pain as good reasons for action, despite the fact that pleasure doesn’t seem to be instrumentally valuable for anything.**

**Moen 16** [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] SJDI

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that pleasure is intrinsically valuable and pain is intrinsically disvaluable. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues**.** This inclusion makes intuitive sense, moreover, for there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative.2 The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values**.** If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable**.** You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good.3 As Aristotle observes**:** “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday reasoning about values, it seems that pleasure and pain are both places where we reach the end of the line in matters of value.

**Moreover, *only* pleasure and pain are intrinsically valuable. All other values can be explained with reference to pleasure; Occam’s razor requires us to treat these as instrumentally valuable.**

**Moen 16** [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] SJDI

I think several things should be said in response to Moore’s challenge to hedonists. First, **I do not think the burden of proof lies on hedonists to explain why the additional values are not intrinsic values. If someone claims that X is intrinsically valuable, this is a substantive, positive claim, and it lies on him or her to explain why we should believe that X is in fact intrinsically valuable.** Possibly, this could be done through thought experiments analogous to those employed in the previous section. Second, **there is something peculiar about the list of additional intrinsic values** that counts in hedonism’s favor**: the listed values have a strong tendency to be well explained as things that help promote pleasure and avert pain.** To go through Frankena’s list, life and consciousness are necessary presuppositions for pleasure; activity, health, and strength bring about pleasure; and happiness, beatitude, and contentment are regarded by Frankena himself as “pleasures and satisfactions.” The same is arguably true of beauty, harmony, and “proportion in objects contemplated,” and also of affection, friendship, harmony, and proportion in life, experiences of achievement, adventure and novelty, self-expression, good reputation, honor and esteem. Other things on Frankena’s list, such as understanding, **wisdom, freedom, peace, and security, although they are perhaps not themselves pleasurable, are important means to achieve a happy life, and as such, they are things that hedonists would value highly.** **Morally good dispositions and virtues, cooperation, and just distribution of goods and evils, moreover, are things that, on a collective level, contribute a happy society, and thus the traits that would be promoted and cultivated if this were something sought after.** To a very large extent, the intrinsic values suggested by pluralists tend to be hedonic instrumental values. Indeed, pluralists’ suggested intrinsic values all point toward pleasure, for while the other values are reasonably explainable as a means toward pleasure, pleasure itself is not reasonably explainable as a means toward the other values. Some have noticed this. Moore himself, for example, writes that though his pluralistic theory of intrinsic value is opposed to hedonism, its application would, in practice, look very much like hedonism’s: “Hedonists,” he writes “do, in general, recommend a course of conduct which is very similar to that which I should recommend.”24 Ross writes that “[i]t is quite certain that by promoting virtue and knowledge we shall inevitably produce much more pleasant consciousness. These are, by general agreement, among the surest sources of happiness for their possessors.”25 Roger Crisp observes that “those goods cited by non-hedonists are goods we often, indeed usually, enjoy.”26 What Moore and Ross do not seem to notice is that their observations give rise to two reasons to reject pluralism and endorse hedonism. The first reason is that if **the suggested non-hedonic intrinsic values are potentially explainable by appeal to just pleasure and pain** (which, following my argument in the previous chapter, we should accept as intrinsically valuable and disvaluable), **then—by appeal to Occam’s razor—we have at least a pro tanto reason to resist the introduction of any further intrinsic values and disvalues. It is ontologically more costly to posit a plurality of intrinsic values and disvalues, so in case all values admit of explanation by reference to a single intrinsic value and a single intrinsic disvalue, we have reason to reject more complicated accounts.** **The fact that suggested non-hedonic intrinsic values tend to be hedonistic instrumental values does not, however, count in favor of hedonism solely in virtue of being most elegantly explained by hedonism; it also does so in virtue of creating an explanatory challenge for pluralists.** The challenge can be phrased as the following question: **If the non-hedonic values suggested by pluralists are truly intrinsic values in their own right, then why do they tend to point toward pleasure and away from pain?**27

**Moral uncertainty means preventing extinction should be our highest priority.  
Bostrom 12** [Nick Bostrom. Faculty of Philosophy & Oxford Martin School University of Oxford. “Existential Risk Prevention as Global Priority.” Global Policy (2012)]  
These reflections on **moral uncertainty suggest** an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate.¶ **Our present understanding of axiology might** well **be confused. We may not** nowknow — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet **be able to imagine the best ends** of our journey. **If we are** indeedprofoundly **uncertain** about our ultimate aims,then we should recognize that **there is a great** option **value in preserving** — and ideally improving — **our ability to recognize value and** to **steer the future accordingly. Ensuring** that **there will be a future** version of **humanity** with great powers and a propensity to use them wisely **is** plausibly **the best way** available to us **to increase the probability that the future will contain** a lot of **value.** To do this, we must prevent any existential catastrophe.

### Impact

#### Growth is sustainable and inevitable – unparalleled data proves tech solves, but transition doesn’t.

Bailey ’16 (Ronald; 12/16/16; B.A. in Philosophy and B.A. Economics from the University of Virginia, member of the Society of Environmental Journalists and the American Society for Bioethics and Humanities, citing a compilation of interdisciplinary research; Reason, “Is Economic Growth Environmentally Sustainable?” <http://reason.com/archives/2016/12/16/is-economic-growth-environmentally-sust1)>

Is economic growth environmentally sustainable? No, say a group of prominent ecological economists led by the Australian hydrologist James Ward. In a new PLoS ONE article—"Is Decoupling GDP Growth from Environmental Impact Possible?"—they offer an analysis inspired by the 1972 neo-Malthusian classic The Limits to Growth. They even suggest that The Limits to Growth's projections with regard to population, food production, pollution, and the depletion of nonrenewable resources are still on track. In other words, they think we're still heading for a collapse. I think **they're wrong**. But they're wrong in an instructive way. The authors describe two types of "decoupling," relative and absolute. Relative decoupling means that economic growth increases faster than rates of growth in material and energy **consumption** and **environmental impact**. Between 1990 and 2012, for example, China's **GDP rose 20-fold** while its energy use increased by a factor of four and its material use by a factor of five. Basically this entails increases in efficiency that result in using fewer resources to produce more value. Absolute decoupling is what happens when continued economic growth actually **lessens resource use** and impacts on the natural environment, that is, creating more value while using less stuff. Essentially humanity becomes richer while withdrawing from nature. To demonstrate that continued economic growth is unsustainable, the authors recycle the hoary I=PAT model devised in 1972 by the Stanford entomologist and population alarmist Paul Ehrlich and the Harvard environmental policy professor (and chief Obama science adviser) John Holdren. Human Impact on the environment is supposed to equal to Population x Affluence/consumption x Technology. All of these are presumed to intensify and worsen humanity's impact on the natural world. In Ward and company's updated version of I=PAT, the sustainability of economic growth largely depends on Technology trends. Absolute decoupling from resource consumption or pollutant emissions requires technological intensity of use and emissions to decrease by at least the same annual percentage as the economy is growing. For example, if the economy is growing at three percent per year, technological intensity must reduce 20-fold over 100 years to maintain steady levels of resource consumption or emissions. If technological intensity is faster then resource use and emissions will decline over time, which would result in greater wealth creation with ever lessening resource consumption and environmental spillovers. Once they've set up their I=PAT analysis, Ward and his colleagues assert that "for non-substitutable resources such as land, water, raw materials and energy, we argue that whilst efficiency gains may be possible, there are minimum requirements for these resources that are ultimately governed by physical realities." Among the "physical realities" they mention are limits on plant photosynthesis, the conversion efficiencies of plants into meat, the amount of water needed to grow crops, that all supposedly determine the amount of agricultural land required to feed humanity. They also cite "the upper limits to energy and material efficiencies govern minimum resource throughput required for economic production." To illustrate the operation of their version of the I=PAT equation, they apply it to a recent study that projected it would be possible for Australia's economy to grow 7-fold while simultaneously reducing resource and energy use and lowering environmental pressures through 2050. They **crank the notion** that there are nonsubstitutable physical limits on material and energy resources through their equations until 2100, and they find that eventually consumption of both rise at the same rate as economic growth. QED: Economic growth is unsustainable. Or as they report, "Permanent decoupling (absolute or relative) is impossible for essential, non-substitutable resources because the efficiency gains are ultimately governed by physical limits." **Malthus wins again!** Or does he? GDP growth—increases in the monetary value of all finished goods and services—is a crude measure for improvements in human well-being. Nevertheless, rising incomes (GDP per capita) correlate with lots of good things that nearly everybody wants, including access to more and better **food**, longer and **healthier lives**, more educational **opportunities**, and greater scope for life choices. Ward and his colleagues are clearly right that there is only so much physical stuff on the Earth, but even they know that wealth is not created simply by using more stuff. Where they go wrong (as so many Malthusians do) is by implicitly assuming that there are limits to human creativity. Interestingly, Ward and his colleagues, like Malthus before them, focus on the supposed limits to **agricultural productivity**. For example, they cite the limits to photosynthesis, which will limit the amount of food that humanity can produce. But as they acknowledge, human population may not continue to increase. In fact, **global fertility rates** have been **decelerating** for many decades now, and demographer Wolfgang Lutz calculates that world population will peak after the middle of this century and begin falling. Since the number of mouths to feed will stabilize and people can eat only so much, it is unlikely that the **biophysical limits** of agriculture on Earth will be exceeded. But it gets even better. Agricultural **productivity is improving**. Consider the biophysical limit on photosynthesis cited by the study. In fact, researchers are already making progress on installing more efficient C-4 photosynthesis into rice and wheat, which would **boost yields by** as much as **50 percent**. British researchers just announced that they had figured out how to boost photosynthetic efficiency to create a super-wheat would increase yields by 20 percent. In a 2015 article for the Breakthrough Journal, "The Return of Nature: How Technology Liberates the Environment," Jesse H. Ausubel of Rockefeller University reviews how humanity is **already decoupling** in many ways from the natural world. "A series of 'decouplings' is occurring, so that our economy no longer advances in tandem with exploitation of land, forests, water, and minerals," he writes. "American use of almost everything except information **seems to be peaking**." He notes that agricultural applications of fertilizer and water in the U.S. peaked in the 1980s while yields continued to increase. Thanks to increasing agricultural productivity, humanity is already at **"peak farmland"**; as a result, "an area the size of India or of the United States east of the Mississippi could be released globally from agriculture over the next 50 years or so." Ward is worried about biophysical limits on water use. But as Ausubel notes, U.S. **water use has peaked** and has declined **below the level of 1970**. What about meat? Ausubel notes the **greater efficiency** with which chickens and cultivated fish turn grains and plant matter into meat. In any event, the future of farming is not fields but factories. Innovators are already seeking to replace the entire dairy industry with milk, yogurt, and cheeses made by genetically modified bacteria grown in tanks. Others are figuring how to culture meat in vat. Ausubel also notes that many countries have already been through or are about to enter the "forest transition," in which forests begin to expand. Roger Sedjo, a forest economist at Resources of the Future, has projected that by the middle of this century most of world's **industrial wood** will be produced from planted forests covering a remarkably small land area, perhaps **only 5 to 10 percent** of the extent of today's global forest. Shrinking farms and ranches and expanding forests will do a lot toward turning around the alarming global reduction in wildlife. How about unsubstitutable stuff? Are we running out of that? Ausubel notes that the U.S. has apparently already achieved **absolute decoupling**—call it peak stuff—for a lot of materials, including plastics, paper, timber, phosphate, aluminum, steel, and copper. And he reports relative decoupling for **53** other **commodities**, all of which are likely heading toward absolute decoupling. Additive manufacturing is also known as 3-D printing, in which machines build up new items one layer at a time. The Advanced Manufacturing Office suggested that additive manufacturing can reduce material needs and costs by up to **90 percent**. And instead of the replacement of worn-out items, their material can **simply be recycled** through a printer to return it to good-as-new condition using only 2 to 25 percent of the energy required to make new parts. 3-D printing on demand will also eliminate storage and inventory costs, and will significantly cut transportation costs. Nanomanufacturing—building atom-by-atom—will likely engender a **fourth industrial revolution** by spurring exponential economic growth while reducing human demands for material resources. Ward and company project that Australians will be using 250 percent more energy by 2100. Is there an upper limit to energy production that implies unsustainability? In their analysis, the ecological economists apparently assume that energy supplies are limited. Why this is not clear, unless their model **implicitly assumes** a growing **consumption** of fossil fuels (and even then, the world is not close to running out of those). But there is a source of energy that, for all practical purposes, is limitless and has few deleterious environmental effects: **nuclear power**. If demand for primary energy were to double by 2050, a back-of-the-envelope calculation finds that the **entire world's energy needs** could be supplied by 6,000 conventional nuclear power plants. The deployment of fast reactors would supply "renewable" energy for thousands of years. The development of thorium reactors could also supply **thousands of years** of energy. And both could do so without harming the environment. (Waste heat at that scale would not be much of a problem.) Such power sources are in any relevant sense "decoupled" from the natural world, since their fuel cycles produce **little pollution**. Recall that GDP measures the monetary value of all finished goods and services. Finished goods will become a shrinking part of the world's economy as more people gain access to food, clothing, housing, transportation, and so forth. Already, services account for 80 percent of U.S. GDP and 80 percent of civilian employment. Instead of stuff, people will want to spend time creating and enjoying themselves. As technological progress enables economic growth, people will consume more pixels and less petroleum, more massages and less mortar, more handicrafts and less hardwood. Ultimately, Ward and his colleagues make the **same mistake as Malthus** and the Limits to Growth folks: They **extrapolate trends** without taking adequate account of human **ingenuity**. Will it be possible to grow the economy 7-fold over this century while reducing resource consumption and restoring the natural world? Yes.

#### Our ev is just better – prefer data over buzzwords.

Newman ’17 (Peter; 7/27/17; Curtin University Sustainability Policy Institute, conducting a twenty-year statistical analysis based on third-party meta studies; EDP Sciences, “The rise and rise of renewable cities,” <https://www.rees-journal.org/articles/rees/pdf/2017/01/rees170008s.pdf)>

Abstract. The **decoupling of fossil fuels** from growth in economic activity has been **proceeding rapidly** for most of the 21st century and is analyzed globally in terms of structures and technologies for energy efficiency and for switching to renewable energy in the world’s cities. This is leading to the **decline of coal** and oil. The evidence suggests that the changes are **based on demand** for the structures and technologies that are emerging, facilitating a **disruptive process**. The rise of renewable cities can therefore be expected to accelerate. 1 Introduction The rise of renewable cities began in the 1990s but has accelerated in the 21st century [1,2]. As shown below, both coal and oil have begun to fall in the nations of the world driven mostly by their cities as this is where **growth and change** is happening [3]. The question raised by this paper is whether the rise will continue and even accelerate. The theory behind whether the rise in renewable cities is likely to continue or accelerate is partly left to economists who project the future based on the past [4] and more recently by those who see disruptive innovation as causing the future and thus leading to much accelerated change [5,6]. Disruptive innovation is caused by demand rather than supply. The costs of supply need to be competitive but may not be the cheapest option when people discover they want it for many reasons and this changes the whole system that the market is based around. An example often given by Christensen [5] is how small floppy discs outcompeted the larger discs which were cheaper per unit of memory storage but were not as convenient to carry; the system changed in response by developing the portable lap top computer. Disruptive innovations can surprise businesses who focus just on supply costs and they can go bankrupt whilst their product is still the cheapest and the whole structural system around them changes in response to the new demand. This is known as the “Kodak effect” due to the way Kodak chose not to develop their digital cameras as they saw them as too expensive. This paper seeks to find evidence of whether the renewable city is being driven by disruptive innovations based on demand, as well as competitive costs of supply, leading to a whole system change. If it is so, then the rise in renewable cities is likely to continue and even accelerate based on demand for the structures and products of the renewable city at a surprising rate. The decoupling of economic growth and fossil fuels In 2017, the International Energy Agency confirmed that economic growth has been **decoupling from** greenhouse **emissions** and fossil fuels since the start of the 21st century and that this was now leading to the first **drop in fossil fuel consumption** and subsequent emissions [7]. How this relates to the rise of the renewable city is the focus of this paper. The mechanisms are first understood by looking at a range of national data as set out in Figure 1. Denmark decoupled relatively from the 1990s but absolutely over the last 17 years and is typical of many European nations and cities. The US and Australia have been slower but have now decoupled relatively from the 2000s and absolutely over the past 5–9 years. China decoupled relatively from 2005 and absolutely over the past few years with coal whilst **oil has plateaued**. India has started relative decoupling in the past decade and may change to an absolute decline in fossil fuels as it is investing strongly in renewables and urban electric rail [11]. These trends suggest a global process the rise of the renewable city as outlined by Droege [1,2]; this appears to be occurring much faster than expected and invites the question as to whether it will accelerate [3]. 3 Mechanisms for the rise of the renewable city The mechanisms behind the decoupling of wealth and fossil fuels and the resulting rise of renewable cities are likely to be based around **structural energy** efficiencies and **growth** in renewables. Whether they are disruptive, demand driven changes, will be examined with coal and oil. 3.1 The fall of coal 3.1.1 Structural built environment energy efficiencies In the period from 2000 to 2013 the Organization for Economic Cooperation and Development improved energy efficiency by a steady 0.6% per year but in 2013/14 it improved 1.5% and in 2014/15 it improved 1.8% [12]. This rapid growth seems to be more **structural** in its base as appliances and buildings are becoming **significantly more efficient** as shown by the Intergovernmental Panel on Climate Change [13]. This does appear to be a demand driven process involving digital smart systems in appliances and in construction and management of buildings leading to declines in electricity consumption [14]. 3.1.2 Renewable fuel growth Bloomberg New Energy Finance (BNEF) has made projections of the growth in renewables based on the relative costs of fuels. They suggest that from 2015 to 2040 renewables will become the **dominant power source** in the world; wind and solar will account for **64% of** the **new** generating **capacity**, and globally there will be 60% zerocarbon power, replacing coal and gas, which will decline from 57% to 31% [15]. The predictions are made based on trends and on declining costs for renewables relative to fossil fuels. The **biggest growth** is predicted to be roof top solar which will drop in cost by 60%. However, it may be driven at an **even faster rate** if it has demand driven characteristics. Carbon tracker researchers have suggested that the changes may be even more radical than BNEF are predicting as they appear to be following more rapidly than any previous predictions and are indicating elements of disruptive innovation [16,17]. The question is therefore whether there is any new evidence of the changes being disruptive with adoption of renewables proceeding more rapidly than supply cost projections. There is evidence from Australia of a **remarkably rapid adoption** of roof top solar at a time when little investment in power was happening in the aftermath of abandoning the Australian carbon-pricing scheme [18]. Perth in particular showed this as the city grew rapidly in wealth over the past decade and 25% of households invested in roof-top solar photovoltaics (PV). This happened well beyond what would have been predicted based just on supply costs and household solar is now the largest power station in the grid [18]. Battery storage is now following the same trends [19] and analysis in Perth shows solar-storage systems enable over **90% gridfree** electricity as well as producing more renewable energy to feed into the grid and generate income [18]. The technology of PV and batteries seems to fit into a niche for ordinary single residential householders [20]; recent demonstrations are showing similar heavy demand in medium density shared households that integrate PV and batteries using Citizen Utilities and blockchain software to enable peer to peer trading [21]. The signs are there that demand is driving the electricity system toward a rapid decline in coal even faster than supply costs would indicate. This may involve more gas in some cities like in the US where this is significantly cheaper but the attractions of roof-top solar and batteries are more than likely going to outcompete gas when the **market enables it to work** as it is in Australia with simple financing, permitting and installation [22,23]. 3.2 The fall of oil 3.2.1 Structural transport energy efficiencies Oil is embedded in the structure of cities through 50 years of automobile dependence in the practice of town planning; however this is changing as an unpredicted peak in car use per capita has occurred across the world’s developed cities and even into emerging cities [24]. This is driven by: – increases in density that have led to exponential declines in car use [24]; – rapid growth in transit across all the world’s cities as traffic congestion has led to faster rail options that bypass the traffic [25]; – similar trends in walking and cycling driven by health considerations and the demand for better networks [26,27]. These trends are all demand driven. Vehicle efficiency has also been slowly increasing despite an increase in vehicle size washing out some of this improvement [28]. 3.2.2 Electric mobility Electric vehicles are growing globally at **over 40% per year** and are expected to reach at least 25% of the vehicle fleet by 2040 [29]. Most of this growth is in China which is likely to mean cheaper exports. The demand for electric vehicles is high whether they are personal cars, buses, trains or electric bikes and certainly with cars this is happening well before the **supply cost** is competitive though the daily costs of operation are significantly lower and this is a strong demand factor for most consumers; some are therefore predicting even higher adoption rates [30]. There is another demand-based trend that will impact on the shift to **electric mobility**. The trend in electricity to become more **based on renewables** means that growth in solar-powered EVs are likely to be driven by demand similar to roof top solar. EVs are already being used to fit cleverly into home PV and battery systems with the high potential for “vehicle to grid (V2G)” transfers of power to enable extra storage options in the grid. Electric transit is also beginning to be switched to renewable power as demand for clean transport grows across cities [24] and new ways of financing this demand are being found [31]. 4 Will the demand for renewable cities rise and rise? The rise of the renewable city has been quite dramatic and this paper suggests that it will continue to rise due to demand which **facilitates disruptive innovation** in replacing both coal and oil. Such demand is seen in the improved electricity systems that are emerging as a result of the demand for roof top solar and in the demand for re-urbanized cities where electric mobility can better service the needs of the community. There are two other demand factors that are likely to continue to drive the need for a **renewable city** the knowledge economy and the digital economy The knowledge economy is based around creative interactions where people work together in dense urban centers as these are where the innovative, face-to-face synergies occur between people [32]. Old central business districts and new suburban centers have been transformed back into functional walking cities and those which have done this best have attracted the most capital and young talent to work there [33]. The six most walkable cities in the US have 38% higher GDP. In Boston 70% of the knowledge economy workers live in walkable locations [24]. Transit systems and walking are the most spatially efficient forms of transport as well as being the most free of carbon. If one km of a lane of road was considered as a unit of travel then car traffic can fit about 800 people per hour down that lane in a suburban street, a freeway up to 2500, a busway around 5000, a light rail between 10,000 and 20,000 and a heavy rail up to 50,000 [24]. These striking differences in spatial efficiency are translating into competitive advantage based on the need to bring people together in centers. There is a strong demand for such cities because they represent the places where the new knowledge economy will most likely emerge and provide new opportunities. The data is also strong that there is demand for **low carbon buildings** in these new regenerating urban centers [34]. Indeed, cities are competing for residents and workers through the provision of new sustainability oriented precincts and neighborhoods; the data shows that sustainability features in buildings are a close third behind **affordability and location** [3,32,35]. As with many economic changes, there is another cultural dimension to this change that perhaps explains the rapidity of the changes observed above as well as the demographic complexion of the change. Young people (especially those involved in knowledge economy jobs) are moving to reduce their car use and switch to alternative transport faster than any other group. This has been recognized by a few commentators and has been related to the use of social media devices in the digital economy. On transit or walking (and even to an extent while biking) young people are already connected by their smart technology phones and tablets. They are hardly usable while driving a car. The report by Davis et al. [34] shows that the mobile phone is a far more important device than a car for younger people. This is a cultural revolution that partly underlies the rail revolution as well as the re-urbanization of cities. It is essentially a smart city phenomenon. Thus, the structural expression of this change is that younger people are moving to live in the walking city or transit city as these locations more readily enable them to express the kind of urban experience and culture that they aspire to as well as save precious time. This is the demand that enables peak car, the rail revival and city center renewal to continue. This can explain why cities like Washington, D.C. and Portland are demonstrating the decoupling of GDP from car use per capita (Fig. 2). 5 Conclusion The evidence gathered in this paper has shown that there is a **new trend**: the rise of the renewable city which has emerged this century from the **decoupling of fossil fuels** and economic **growth**. The fall of coal and the fall of oil are both caused by structural **energy efficiency gains** (smart technology and smart buildings for coal; smart, dense transit-oriented cities that reduce car dependence for oil) and by switching to renewable fuels (coal is being replaced by wind and solar especially roof-top PV; oil is being replaced by electric mobility). This appears to be led by demand in cities as well as somewhat competitive supply costs. The rise and rise of the renewable city is thus to be expected as demand is likely to continue to rise for the urban living advantages associated with renewable city technologies and structures.

#### Capitalism solves environmental crisis - industrial development, technological advances, and any alternative fails

Zitelmann 20 [(Dr. Rainer, a historian and sociologist. He is also a world-renowned author, successful businessman and real estate investor. Zitelmann has written a total of 24 books and has a doctorate in political science and sociology) “‘System Change Not Climate Change’: Capitalism And Environmental Destruction” Forbes, 7/13/2020] BC

The Price Of Growth—Destruction Of The Environment?

But isn’t there a price for this growth: environment devastation? Of course, nobody would deny that industrialization causes environmental problems. But the assertion that growth automatically leads to ever accelerating environmental degradation is simply false. Yale University’s Environmental Performance Index (EPI) uses 16 indicators to rank countries on environmental health, air quality, water, biodiversity, natural resources and pollution. These indicators have been selected to reflect both the current baseline and the dynamics of national ecosystems. One of the Index’s most striking findings is that there is a strong correlation between a state’s wealth and its environmental performance. Most developed capitalist countries achieve high environmental standards. Those countries with the worst EPI scores, such as Ethiopia, Mali, Mauritania, Chad and Niger, are all poor. They have both low investment capacity for infrastructure, including water and sanitation, and tend to have weak environmental regulatory authorities.

Contrary to prevailing perceptions, industrial development and technological advances have contributed significantly to relieving the burden on the environment. Both Indur Goklany in his book The Improving State of the World and Steven Pinker in chapter ten (“The Environment”) of his book Enlightenment Now demonstrate that we are not only living longer, healthier lives in unprecedented prosperity, but we are also doing so on a comparatively clean planet.

Researchers have confirmed that economic freedom—in other words, more capitalism—leads to higher, not lower, environmental quality.

Every year, the Heritage Foundation compiles its Index of Economic Freedom, which analyzes individual levels of economic freedom, and thus capitalism, in countries around the world. The Heritage Foundation’s researchers also measure the correlation between each country’s environmental performance and its economic freedom. The results couldn’t be clearer: the world’s most economically free countries achieve the highest environmental performance rankings with an average score of 76.1, followed by the countries that are “mostly free,” which score an average of 69.5. In stark contrast, the economically “repressed” and “mostly unfree” countries all score less than 50 for environmental performance.

Is Government The Best Solution To Environmental Problems?

Anti-capitalists frequently claim that central government is the best solution to environmental problems. And there is no doubt that state regulations to safeguard the environment are important. But state regulations, cited by anti-capitalists as a panacea for environmental issues, often achieve the opposite of what they were intended to do. Hardly any other country in the world touts its green credentials as much as Germany. According to even the most conservative estimates, Germany’s so-called “energy transition” is set to cost a total of almost €500 billion by 2025.

But the results of this massive investment is sobering, as an analysis by McKinsey reveals, “Germany is set to miss several key energy transition targets for the year 2020, and the country’s high power supply security is at risk unless new generation capacity and grid infrastructure are built in time for the coal and nuclear exit and electrification of transportation networks is accelerated.”

For decades, environmentalists in Germany focused on shutting down nuclear power plants. However, the phasing out of nuclear power has left Germany in a poor position in terms of CO2 emissions compared to other countries. It is not without good reason that Germany’s energy policy has been described as the dumbest in the world.

The latest generation of nuclear power plants are much safer than their predecessors. Despite what environmentalists might claim, impartial calculations have confirmed that it is impossible to meet the world’s energy needs from solar and wind power alone. Enlightened environmentalists are therefore now calling for nuclear power to be rightfully included in the fight against climate change. And yet, this is precisely what is being prevented in Germany by politicians—not capitalism. This example, just one of many, shows that government environmental policy is often ineffective. In some instances, it even achieves the opposite of what it was originally intended to, i.e. it exacerbates existing environmental problems.

It is also wrong to think that capitalism necessarily leads to ever greater waste of limited natural resources. Just take the smartphone for example, one of the most environmentally friendly of capitalism’s many achievements. With just one small device, a whole plethora of devices that used to consume resources in the past, such as the telephone, camera, calculator, navigation system, dictation machine, alarm clock, flashlight and many others, have been replaced. Smartphones also help to reduce the consumption of paper as many people choose not to take notes on paper and, for example, use their iPhone instead of a calendar to enter appointments.

Those who call for “system change” instead of “climate change” do not usually say which system they would prefer. All they are really sure of is that any new system should not be based on free market economics and that the state should play the decisive role. The simple fact is that socialism has failed in every country every time it has been tried—and socialism has damaged the environment more than any capitalist system. Murray Feshbach documents examples of the environmental destruction wrought by socialism in his book Ecological Disaster. Cleaning Up the Hidden Legacy of the Soviet Regime. As the book progresses through chapters such as “A Nuclear Plague,” “Dying Lakes, Rivers, and Inland Seas” and “Pollution of the Air and Land,” it becomes clear that this non-capitalist system was responsible for the greatest environmental destruction in history. Anti-capitalists may well reply that they do not want a system like the Soviet Union. And yet, they cannot name a single real-world system—at any time in the history of mankind—that provides better environmental solutions than capitalism.

#### Anc climate change - it’s key to CCS – link-turns every impact.

Graciela ‘16 (/16 – Professor of Economics and of Statistics at Columbia University and Visiting Professor at Stanford University, and was the architect of the Kyoto Protocol carbon market (being interviewed by Marcus Rolle, freelance journalist specializing in environmental issues and global affairs, “Reversing Climate Change: Interview with Graciela Chichilnisky,” http://www.globalpolicyjournal.com/blog/01/09/2016/reversing-climate-change-interview-graciela-chichilnisky)//cmr

GC: Green capitalism is a new economic system that values the natural resources on which human survival depends. It fosters a harmonious relationship with our planet, its resources and the many species it harbors. It is a new type of market economics that addresses both equity and efficiency. Using carbon negative technology™ it helps reduce carbon in the atmosphere while fostering economic development in rich and developing nations, for example in the U S., EU, China and India. How does this work? In a nutshell Green Capitalism requires the creation of global limits or property rights nation by nation for the use of the atmosphere, the bodies of water and the planet’s biodiversity, and the creation of new markets to trade these rights from which new economic values and a new concept of economic progress emerges updating GDP as is now generally agreed is needed. Green Capitalism is needed now to help avert climate change and achieve the goals of the 2015 UN Paris Agreement, which are very ambitious and universally supported but have no way to be realized within the Agreement itself. The Carbon Market and its CDM play critical roles in the foundation of Green Capitalism, creating values to redefine GDP. These are needed to remain within the world’s “CO2 budget” and avoid catastrophic climate change. As I see it, the building blocks for Green Capitalism are then as follows; (1) Global limits nation by nation in the use of the planet’s atmosphere, its water bodies and biodiversity - these are global public goods. (2) New global markets to trade these limits, based on equity and efficiency. These markets are relatives of the Carbon Market and the SO2 market. The new market create new measures of economic values and update the concept of GDP. (3) Efficient use of Carbon Negative Technologies to avert catastrophic climate change by providing a smooth transition to clean energy and ensuring economic prosperity in rich and poor nations. These building blocks have immediate practical implications in reversing climate change and can assist the ambitious aims of Paris COP21 become a reality. MR: What is the greatest advantage of the new generation technologies that can capture CO2 from the air? GC: These technologies build carbon negative power plants, such as Global Thermostat, that clean the atmosphere of CO2 while producing electricity. Global Thermostat is a firm that is commercializing a technology that takes CO2 out of air and uses mostly low cost residual heat rather than electricity to drive the capture process, making the entire process of capturing CO2 from the atmosphere very inexpensive. There is enough residua heat in a coal power plant that it can be used to capture twice as much CO2 as the plant emits, thus transforming the power plant into a “carbon sink.” For example, a 400 MW coal plant that emits 1 million tons of CO2 per year can become a carbon sink absorbing a net amount of 1 million tons of CO2 instead. Carbon capture from air can be done anywhere and at any time, and so inexpensively that the CO2 can be sold for industrial or commercial uses such as plastics, food and beverages, greenhouses, bio-fertilizers, building materials and even enhanced oil recovery, all examples of large global markets and profitable opportunities. Carbon capture is powered mostly by low (85°C) residual heat that is inexpensive, and any source will do. In particular, renewable (solar) technology can power the process of carbon capture. This can help advance solar technology and make it more cost-efficient. This means more energy, more jobs, and it also means economic growth in developing nations, all of this while cleaning the CO2 in the atmosphere. Carbon negative technologies can literally transform the world economy. MR: One final question. You distinguish between long-run and short-run strategies in the effort to reverse climate change. Would carbon negative technologies be part of a short-run strategy? GC: Long-run strategies are quite different from strategies for the short-run. Often long-run strategies do not work in the short run and different policies and economic incentives are needed. In the long run the best climate change policy is to replace fossil fuel sources of energy that by themselves cause 45% of the global emissions, and to plant trees to restore if possible the natural sources and sinks of CO2. But the fossil fuel power plant infrastructure is about 87% of the power plant infrastructure and about $45-55 trillion globally. This infrastructure cannot be replaced quickly, certainly not in the short time period in which we need to take action to avert catastrophic climate change. The issue is that CO2 once emitted remains hundreds of years in the atmosphere and we have emitted so much that unless we actually remove the CO2 that is already there, we cannot remain long within the carbon budget, which is the concentration of CO2 beyond which we fear catastrophic climate change. In the short run, therefore, we face significant time pressure. The IPCC indicates in its 2014 5th Assessment Report that we must actually remove the carbon that is already in the atmosphere and do so in massive quantities, this century (p. 191 of 5th Assessment Report). This is what I called a carbon negative approach, which works for the short run. Renewable energy is the long run solution. Renewable energy is too slow for a short run resolution since replacing a $45-55 trillion power plant infrastructure with renewable plants could take decades. We need action sooner than that. For the short run we need carbon negative technologies that capture more carbon than what is emitted. Trees do that and they must be conserved to help preserve biodiversity. Biochar does that. But trees and other natural sinks are too slow for what we need today. Therefore, negative carbon is needed now as part of a blueprint for transformation. It must be part of the blueprint for Sustainable Development and its short term manifestation that I call Green Capitalism, while in the long run renewable sources of energy suffice, including Wind, Biofuels, Nuclear, Geothermal, and Hydroelectric energy. These are in limited supply and cannot replace fossil fuels. Global energy today is roughly divided as follows: 87% is fossil, namely natural gas, coal, oil; 10% is nuclear, geothermal, and hydroelectric, and less than 1% is solar power — photovoltaic and solar thermal. Nuclear fuel is scarce and nuclear technology is generally considered dangerous as tragically experienced by the Fukushima Daichi nuclear disaster in Japan, and it seems unrealistic to seek a solution in the nuclear direction. Only solar energy can be a long term solution: Less than 1% of the solar energy we receive on earth can be transformed into 10 times the fossil fuel energy used in the world today. Yet we need a short-term strategy that accelerates long run renewable energy, or we will defeat long-term goals. In the short term as the IPCC validates, we need carbon negative technology, carbon removals. The short run is the next 20 or 30 years. There is no time in this period of time to transform the entire fossil infrastructure — it costs $45-55 trillion (IEA) to replace and it is slow to build. We need to directly reduce carbon in the atmosphere now. We cannot use traditional methods to remove CO2 from smokestacks (called often Carbon Capture and Sequestration, CSS) because they are not carbon negative as is required. CSS works but does not suffice because it only captures what power plants currently emit. Any level of emissions adds to the stable and high concentration we have today and CO2 remains in the atmosphere for years. We need to remove the CO2 that is already in the atmosphere, namely air capture of CO2 also called carbon removals. The solution is to combine air capture of CO2 with storage of CO2 into stable materials such as biochar, cement, polymers, and carbon fibers that replace a number of other construction materials such as metals. The most recent BMW automobile model uses only carbon fibers rather than metals. It is also possible to combine CO2 to produce renewable gasoline, namely gasoline produced from air and water. CO2 can be separated from air and hydrogen separated from water, and their combination is a well-known industrial process to produce gasoline. Is this therefore too expensive? There are new technologies using algae that make synthetic fuel commercially feasible at competitive rates. Other policies would involve combining air capture with solar thermal electricity using the residual solar thermal heat to drive the carbon capture process. This can make a solar plant more productive and efficient so it can out-compete coal as a source of energy. In summary, the blueprint offered here is a private/public approach, based on new industrial technology and financial markets, self-funded and using profitable greenmarkets, with securities that utilize carbon credits as the “underlying” asset, based on the KP CDM, as well as new markets for biodiversity and water providing abundant clean energy to stave off impending and actual energy crisis in developing nations, fostering mutually beneficial cooperation for industrial and developing nations. The blueprint proposed provides the two sides of the coin, equity and efficiency, and can assign a critical role for women as stewards for human survival and sustainable development. My vision is a carbon negative economy that represents green capitalism in resolving the Global Climate negotiations and the North–South Divide. Carbon negative power plants and capture of CO2 from air and ensure a clean atmosphere together innovation and more jobs and exports: the more you produce and create jobs the cleaner becomes the atmosphere. In practice, Green Capitalism means economic growth that is harmonious with the Earth resources.

**Warming causes extinction – any reduction should be prioritized above every other impact**

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Climate change is becoming an existential threat with warming in excess of 2°C within the next three decades and 4°C to 6°C within the next several decades. Warming of such magnitudes will expose as many as 75% of the world’s population to deadly heat stress in addition to disrupting the climate and weather worldwide. Climate change is an urgent problem requiring urgent solutions. This paper lays out urgent and practical solutions that are ready for implementation now, will deliver benefits in the next few critical decades, and places the world on a path to achieving the longterm targets of the Paris Agreement and near-term sustainable development goals. The approach consists of four building blocks and 3 levers to implement ten scalable solutions described in this report by a team of climate scientists, policy makers, social and behavioral scientists, political scientists, legal experts, diplomats, and military experts from around the world. These solutions will enable society to decarbonize the global energy system by 2050 through efficiency and renewables, drastically reduce short-lived climate pollutants, and stabilize the climate well below 2°C both in the near term (before 2050) and in the long term (post 2050). It will also reduce premature mortalities by tens of millions by 2050. As an insurance against policy lapses, mitigation delays and faster than projected climate changes, the solutions include an Atmospheric Carbon Extraction lever to remove CO2 from the air. The amount of CO2 that must be removed ranges from negligible, if the emissions of CO2 from the energy system and SLCPs start to decrease by 2020 and carbon neutrality is achieved by 2050, to a staggering one trillion tons if the carbon lever is not pulled and emissions of climate pollutants continue to increase until 2030.

There are numerous living laboratories including 53 cities, many universities around the world, the state of California, and the nation of Sweden, who have embarked on a carbon neutral pathway. These laboratories have already created 8 million jobs in the clean energy industry; they have also shown that emissions of greenhouse gases and air pollutants can be decoupled from economic growth. Another favorable sign is that growth rates of worldwide carbon emissions have reduced from 2.9% per year during the first decade of this century to 1.3% from 2011 to 2014 and near zero growth rates during the last few years. The carbon emission curve is bending, but we have a long way to go and very little time for achieving carbon neutrality. We need institutions and enterprises that can accelerate this bending by scaling-up the solutions that are being proven in the living laboratories. We have less than a decade to put these solutions in place around the world to preserve nature and our quality of life for generations to come. The time is now.

The Paris Agreement is an historic achievement. For the first time, effectively all nations have committed to limiting their greenhouse gas emissions and taking other actions to limit global temperature change. Specifically, 197 nations agreed to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels,” and achieve carbon neutrality in the second half of this century.

The climate has already warmed by 1°C. The problem is running ahead of us, and under current trends we will likely reach 1.5°C in the next fifteen years and surpass the 2°C guardrail by mid-century with a 50% probability of reaching 4°C by end of century. Warming in excess of 3°C is likely to be a global catastrophe for three major reasons:

• Warming in the range of 3°C to 5°C is suggested as the threshold for several tipping points in the physical and geochemical systems; a warming of about 3°C has a probability of over 40% to cross over multiple tipping points, while a warming close to 5°C increases it to nearly 90%, compared with a baseline warming of less than 1.5°C, which has only just over a 10% probability of exceeding any tipping point.

**•** Health effects of such warming are emerging as a major if not dominant source of concern. Warming of 4°C or more will expose more than 70% of the population, i.e. about 7 billion by the end of the century, to deadly heat stress and expose about 2.4 billion to vector borne diseases such as Dengue, Chikengunya, and Zika virus among others. Ecologists and paleontologists have proposed that warming in excess of 3°C, accompanied by increased acidity of the oceans by the buildup of CO2 , can become a major causal factor for exposing more than 50% of all species to extinction. 20% of species are in danger of extinction now due to population, habitat destruction, and climate change.

The good news is that there may still be time to avert such catastrophic changes. The Paris Agreement and supporting climate policies must be strengthened substantially within the next five years