# 1AC---Round 4

## 1AC

### Plan

#### Plan: The United States federal government should substantially increase prohibitions on private sector conduct that is more restrictive of competition than reasonably necessary to enable creation of information technology standards.

### 1AC---Innovation ADV

#### Advantage 1 is Innovation:

#### Current standard setting organization and FRAND enforcement is failing now

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I. Standard Setting and the Competitive Process

The fundamental economics in the information technology sector, driven by network effects, implies that there is enormous value associated with establishing compatibility standards. Popular standards include the mobile broadband standards used in cell phones, which are established by the 3rd Generation Partnership Project (3GPP), and the Wi-Fi technology for wireless local area networks, which is enabled by the 802.11 standard established by the Institute of Electrical and Electronics Engineers (IEEE).4

There are many SSOs, and their rules and procedures differ considerably. In addition to IEEE, leading SSOs include the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), the European Telecommunications Standards Institute (ETSI), the Internet Engineering Task Force (IETF), and the World Wide Web Consortium (W3C).5 SSOs generally establish standards by holding a series of committee meetings among industry participants. These meetings culminate in a vote on a technical specification that describes what features or attributes a product must have in order to comply with the standard. Most SSOs are open to all industry participants and seek to operate on a consensus basis, applying certain voting rules. SSOs do not normally engage in patent licensing, nor do they specify how patent royalties will be divided up among patent holders. They leave that to their members, which in some cases form patent pools to address these issues.6

SSOs adopt specific policies relating to intellectual property rights (IPRs).7 These IPR policies are generally intended to enable the SEP holders to obtain reasonable royalties for licensing their patents, while prohibiting them from charging excessive royalties after other industry participants have committed to the standard. At that point, firms committed to implementing the standard— which we call “implementers”—would find it very costly to avoid using the patented technology. For this purpose, most SSOs require SEP owners to license their SEPs on FRAND terms.8

FRAND policies are especially necessary because negotiations between SEP holders and implementers generally take place only after the implementers have used and infringed the technologies claimed by the SEPs. Standards involving information and communications technology can involve hundreds or even thousands of SEPs, many with uncertain boundaries for infringement. In addition, a time lag exists between patent application and patent issuance. For these and other reasons, it is impractical for implementers to enter into negotiations for patent licenses with all SEP owners prior to the establishment of a standard and to their implementation of it.9

The fact that patent negotiations generally do not take place until after implementers have used and infringed the technologies has several critical implications. First, at the time of negotiation, implementers are locked into the standard and the technologies claimed by the SEPs—that is, the cost to switch to an alternative technology or standard at that point—ex post—is much greater than it was ex ante, before the patented technology was first included in the standard. Ex post, the patent holder is no longer competing to have its technology included in the standard, nor is it competing to have implementers of the standard use its technology. Instead, because the patent holder owns an asset that is essential to the standard, implementers have no choice but to use the patented technology.

If the standard is commercially successful, implementers are willing to pay a much larger royalty for use of the patented technology than they would have paid ex ante, when the SEP holder faced competition from other technologies. In these circumstances, the SEP holder can be said to have obtained monopoly power in the market in which the patented technology is licensed for use in implementing the standard.10

Second, because of lock-in and the implementer’s ongoing infringement, the potential for litigation looms large in licensing negotiations. In effect, the parties are negotiating about how to settle an infringement suit, and that negotiation is heavily influenced by their predictions as to what the court will do if they cannot agree. This situation is not unique to SEPs; it arises frequently when firms are faced with patent infringement claims for products they have independently developed or technologies they have inadvertently infringed. Patent law addresses such instances by specifying that patent holders are entitled to “reasonable royalties,” defined as the royalties that the parties would have negotiated prior to the infringement and thus prior to lock-in.11 Those hypothetical ex ante royalties reflect the market value of the patent license. Notwithstanding the law’s embrace of this principle, however, as a practical matter, patent holders are generally able to recover more than the ex ante value of the patent when litigation occurs after the implementers are locked in. Further, negotiations in the shadow of litigation after lock-in tend to result in royalties in excess of the ex ante or market value of the patented technology.12

Third, the shadow of litigation is particularly problematic in the communications and technology sector, in which products typically include hundreds or thousands of patented technologies. A court-ordered injunction involving such products would deprive the implementer of not only the value of the technology covered by the patent-in-suit, but also the value of the entire product.13 Implementers that are forced to bear the risk of an injunction are thus induced to agree to royalties greater than those that would be appropriate if only the value of the patented technology were at stake. Those royalties systematically provide SEP holders with excessive compensation in comparison with the benchmark of ex ante royalties.

These implications of lock-in and ex post dealings are well-understood: they represent an example of the general concept of lock-in and opportunism developed by Oliver Williamson.14 The Federal Circuit has also recognized the market distortions caused by the inclusion of patented technologies in public standards and the resulting danger of patent holdup involving SEPs.15

For these and other reasons, the SEP holder has ex post monopoly power that, if left unchecked, would enable it to obtain royalties far in excess of the royalties that it could earn in a competitive market.16 To address this common problem and limit ex post opportunism by SEP holders, SSOs typically require participants that own SEPs to make certain FRAND commitments. In particular, by requiring a commitment to license on “fair and reasonable” terms, the FRAND requirement aims to prevent, or at least reduce, the extent of monopoly pricing by SEP holders. And by requiring a commitment to license on “nondiscriminatory” terms, the FRAND requirement can prevent SEP holders from extracting monopoly premiums by selective licensing or, more important, migrating their monopoly power from the FRAND-regulated market to unregulated standard-implementing product markets by licensing to only one or a few implementers or licensing to selected implementers on discriminatorily favorable terms.

#### Holdup is accentuated by FTC v Qualcomm

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Standards can enhance competition and consumer choice, but they also massively inflate the value of patents deemed essential to the standard, and give their owners the power to sue companies that implement the standard for money damages or injunctions to block them from using their SEPs. When standards cover critical features like wireless connectivity, SEP owners wield a huge amount of “hold-up” power because their patents allow them to effectively block access to the standard altogether. That lets them charge unduly large tolls to anyone who wants to implement the standard.

To minimize that risk, standard-setting organizations typically require companies that want their patented technology incorporated into a standard to promise in advance to license their SEPs to others on fair, reasonable, and non-discriminatory (FRAND) terms. But that promise strikes at a key tension between antitrust and patent law: patent owners have no obligation to let anyone use technology their patent covers, but to get those technologies incorporated into standards, patent owners usually have to promise that they will give permission to anyone who wants to implement the standard as long as they pay a reasonable license fee.

Qualcomm is one of the most important and dominant companies in the history of wireless communication standards. It is a multinational conglomerate that has owned patents on every major wireless communication standard since its first CDMA patent in 1985, and it participates in the standard-setting organizations that define those standards. Qualcomm is somewhat unique in that it not only licenses SEPs, but also supplies the modem chips used by a wide range of devices. These include chips that implement wireless communication standards, which lie at the heart of every mobile computing device.

Although Qualcomm promised to license its SEPs (including patents essential to CDMA, 3G, 4G, and 5G) on FRAND terms, its conduct has to many looked unfair, unreasonable, and highly discriminatory. In particular, Qualcomm has drawn scrutiny for bundling tens of thousands of patents together—including many that are not standard-essential—and offering portfolio-only licenses no matter what licensees actually want or need; refusing to sell modem chips to anyone without a SEP license and threatening to withhold chips from companies trying to negotiate different license terms; refusing to license anyone other than original-equipment manufacturers (OEMs); and insisting on royalties calculated as a percentage of the sale price of a handset sold to end users for hundreds of dollars, despite the minimal contribution of any particular patent to the retail value.

In 2017, the U.S. Federal Trade Commission [sued](https://www.ftc.gov/news-events/press-releases/2017/01/ftc-charges-qualcomm-monopolizing-key-semiconductor-device-used) Qualcomm for violating both sections of the Sherman Antitrust Act by engaging in a number of anticompetitive SEP licensing practices. In May 2019, the U.S. District Court for the Northern District of California agreed with the FTC, identifying numerous instances of Qualcomm’s unlawful, anticompetitive conduct in a comprehensive [233-page opinion](https://www.eff.org/document/ftc-v-qualcomm-district-court-opinion). We were pleased to see the FTC take action and the district court credit the overwhelming evidence that Qualcomm’s conduct is corrosive to market-based competition and threatens to cement Qualcomm’s dominance for years to come.

But this month, a panel of judges from the Court of Appeals for the Ninth Circuit unanimously [overturned](https://www.eff.org/document/ninth-circuit-opinion-ftc-v-qualcomm) the district court’s decision, reasoning that Qualcomm’s conduct was “hypercompetitive” but not “anticompetitive,” and therefore not a violation of antitrust law. To reach that result, the Ninth Circuit made the patent grant more powerful and antitrust law weaker than ever.

According to the Ninth Circuit, patent owners don’t have a duty to let anyone use what their patent covers, and therefore Qualcomm had no duty to license its SEPs to anyone. But that framing requires ignoring the promises Qualcomm made to license its SEPs on reasonable and non-discriminatory terms—promises that courts in this country and around the world have consistently enforced. It also means ignoring antitrust principles like the essential facilities doctrine, which limits the ability of a monopolist with hold-up power over an essential facility (like a port) to shut out rivals. Instead, the Ninth Circuit held rather simplistically that a duty to deal could arise only if the monopolist had provided access, and then reversed its policy.

But even when Qualcomm restricted its licensing policies in critical ways, the Ninth Circuit found reasons to approve those restrictions. For example, Qualcomm stopped licensing its patents to chip manufacturers and started licensing them only to OEMs. This had a major benefit: it let Qualcomm charge a much higher royalty rate based on the high retail price of the end user devices, like smartphones and tablets, that OEMs make and sell. If Qualcomm had continued to license to chip suppliers, its patents would be “exhausted” once the chips were sold to OEMs, extinguishing Qualcomm’s right to assert its patents and control how the chips were used.

Patent exhaustion is a century-old doctrine that protects the rights of consumers to use things they buy without getting the patent owner’s permission again and again. Patent exhaustion is important because it prevents price-gouging, but also because it protects space for innovation by letting people use things they buy freely, including to build innovations of their own. The doctrine thus helps patent law serve its underlying goal—promoting economic growth and innovation. In other words, the doctrine of exhaustion is baked into the patent grant; it is not optional. Nevertheless, the Ninth Circuit wholeheartedly approved of Qualcomm’s efforts to avoid exhaustion—even when that meant cutting off access to previous licensees (chip-makers) in ways that let Qualcomm charge far more in licensing fees than its SEPs could possibly have contributed to the retail value of the final product.

It makes no sense that Qualcomm could contract around a fundamental principle like patent exhaustion, but at the same time did not assume any antitrust duty to deal under these circumstances. Worse, it’s harmful for the economy, innovation, and consumers. Unfortunately, the kind of harm that antitrust law recognizes is limited to harm affecting “competition” or the “competitive process.” Antitrust law, at least as the Ninth Circuit interprets it, doesn’t do nearly enough to address the harm downstream consumers experience when they pay inflated prices for high-tech devices, and miss out on innovation that might have developed from fair, reasonable, and non-discriminatory licensing practices.

We hope the FTC sticks to its guns and asks the Ninth Circuit to go en banc and reconsider this decision. Otherwise, antitrust law will become an even weaker weapon against innovation-stifling conduct in technology markets.

#### Patent holdup is real and necessitates intervention, even if it can’t be systemically proven.

Contreras 19, \*Jorge Contreras, Professor, University of Utah S.J. Quinney College of Law; (2019, “MUCH ADO ABOUT HOLD-UP”, <https://www.illinoislawreview.org/wp-content/uploads/2019/08/Contreras.pdf>)

B. Protective Measures May Already Be Working to Reduce Hold-Up

Another important factor that should be considered regarding the purported lack of empirical evidence of systemic hold-up is the effect that existing policy measures have already had in reducing hold-up. As noted above, the threat of patent hold-up was a primary motivating factor for many SDOs to adopt policies requiring the disclosure and licensing of SEPs. These policies have been in place for decades. In the United States, the first such policy was adopted in 1959 by the American Standards Association (the predecessor to today’s American National Standards Institute (ANSI).102 Today, every one of the more than 200 ANSI-accredited developers of American National Standards must adhere to ANSI’s essential requirements, including the adoption of such a licensing policy for SEPs. Similar policies have existed in European and international standards organizations since at least the 1980s.103 These policies, which were developed by SDOs in large part to reduce the likelihood of hold-up within standard-setting systems, have had several decades to work, and it is likely that the lack of observed hold-up in some studies can be attributed to the successful operation of these policies.

Similarly, antitrust and competition enforcement agencies in the U.S. and Europe have been aware of the potential for hold-up connected with standardization for many years. Accordingly, they have brought enforcement actions when it has been alleged that hold-up behavior has resulted in a violation of the antitrust laws. High-profile enforcement actions against patent holders such as Rambus, 104 Google 105 and Qualcomm106 send powerful deterrent signals to the market and warn others not to engage in similar behavior lest they, too, become the subject of agency enforcement. Like SDO policies, it is likely that the general market awareness of agency interest in standard-setting and hold-up has, to a degree, limited the amount of hold-up that is actually attempted in the marketplace, thereby limiting the direct evidence of hold-up as a systemic problem.

But do the deterrent effects of SDO and agency efforts to reduce hold-up signify that hold-up is not a problem? Certainly not. To reach such a conclusion would be perverse: akin to claiming that burglary is not a problem in a neighborhood that experiences reduced burglary rates after it has implemented an active neighborhood watch program and enhanced policing.

C. Indicia of Healthy Markets do not Prove the Absence of Anticompetitive Conduct

As noted above, one of the principal arguments advanced by commentators seeking to refute the “hold-up theory” is that markets for telecommunications products, namely smart phones, are robust – evidenced by increasing product functionality, decreasing consumer prices and rapid innovation -- and that this degree of robustness indicates that hold-up cannot be a problem in these markets.107 If hold-up were a problem in these markets, they reason, we would see product stagnation, stable (but high) prices, and a lack of competition – features associated with classic examples of hold-up in markets for products such as natural resources and agricultural goods.108

But this argument relies on a false syllogism: hold-up results in market dysfunction; if a market functions well, then it cannot be subject to hold-up. The weaknesses in this argument are multifold. First, hold-up may exist in individual instances without sufficient weight to affect overall market characteristics, particularly in a large global market such as mobile telecommunications. Thus hold-up may exist, even in a market that outwardly appears to be functioning well. Second, there is no valid counterfactual to use to compare the health and robustness of the market for mobile telecommunications products.109 Other consumer electronics devices, such as televisions and DVD players, do not compare well with mobile telecommunications devices, which have taken on a unique character in the modern networked economy. Thus, observing the strength of the market fails to answer the critical questions “compared to what?” and how much stronger the market might be (through more product diversity, functionality, price reduction) without hold-up?

A simple historical illustration is useful in this context. During the decade leading up to the enactment of the Sherman Antitrust Act of 1890, several major U.S. commodity markets (e.g., steel, salt, petroleum, coal, sugar, lead, and others) came under intense scrutiny for a variety of allegedly anticompetitive industrial arrangements. One might have argued that these markets, had they been subject to the sorts of anticompetitive collusion that the Sherman Act sought to address, should have seen reductions of output and increases in price. Yet, between 1880 and 1890, U.S. output of salt, petroleum, steel, and coal all increased significantly, and prices of steel, sugar and lead all dropped significantly.110 Do these positive market indicia demonstrate that the subject markets were not subject to anticompetitive collusion, and that the Sherman Act was not necessary? Certainly, investigations of these industries revealed significant cartel behavior. I would suggest that few commentators today would argue that the coal, steel, sugar and other major industrial producers of the late nineteenth century were innocent of collusive and anticompetitive conduct, or that the Sherman Act was not a necessary and beneficial measure for the U.S. economy.111 Yet, had we relied solely on the positive characteristics exhibited by these markets as proof that anticompetitive conduct did not exist, then perhaps the Sherman Act never would have been enacted.

By the same token, the fact that global markets for standardized products such as computers and smart phones appear to be thriving does not itself refute the possibility of hold-up nor the existence of anticompetitive conduct in these markets. Nor does it allow regulators and policy makers to drop their guard or cease to monitor these important industries.

#### The plan requires SSO’s to administer reasonable action to prohibit ex post opportunism---that solves

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf)

3. Application of the Basic Legal Principles

The antitrust principle is straightforward: industry-wide collaboration through SSOs to establish procompetitive standards is permitted only if it is no more restrictive of competition than reasonably necessary to enable creation of the standards. When standard setting predictably creates technology monopolies that, if unrestrained, will enable anticompetitive ex post opportunism that would otherwise not occur, an SSO that does not take effective measures to prevent or minimize such ex post opportunism engages in conduct that is more restrictive of competition than necessary. In that case, the SSO and, in appropriate cases, its members, may well violate Section 1 of the Sherman Act.

Under this principle, SSO procedures and FRAND rules should be evaluated based on whether they lead to reasonable SEP royalties, using the competitive ex ante licensing standard discussed above, which has been adopted by the courts in patent law. Put differently, FRAND rules should be evaluated based on their ability to prevent SEP holders from obtaining more than the ex ante value of their technology from implementers.

This limitation would not prevent a SEP holder from proﬁting, perhaps greatly, from participating in the SSO and having its patented technology included in the standard. The SEP holder continues to be rewarded for its technology because the inclusion of its technology in the standard can still greatly increase the volume of licensing opportunities available to the SEP holder.

Whether a particular set of FRAND rules are sufficiently effective in preventing ex post opportunism will depend on the particular circumstances. The procedural unfolding of the case will also depend upon the circumstances. As a general matter, the case would probably be structured as an ordinary Rule of Reason case.82

First, the plaintiff would have to demonstrate harm to competition as a result of the collaboration of the SSO’s members, many of which compete with one another. In this case, the harm to competition would stem from the ability of the SEP holder to exercise monopoly power by obtaining royalties in excess of the competitive, ex ante level. The decision to include patented technologies in the standard would be the allegedly unlawful agreement. Notably, the court need not determine what a FRAND royalty is; it would suffice to determine that market power has been created or exercised, and that existing SSO rules and policies were not adequate to prevent the competitive harm. The defendant, which could be the SSO or perhaps one or more SSO members, would win at this point if the plaintiff failed to show harm to competition. If might fail if the standard faces substantial competition and the court concludes that the SEP holder therefore does not have market power or if the SSO’s rules and policies are found to be effective in preventing ex post opportunism, even if the plaintiff or even the court thinks that other rules and policies would be preferable.

Second, if the plaintiff makes the requisite showing of harm to competition, the defendant(s) would then have to show some procompetitive justiﬁcation— in this case, the beneﬁts of the standard. These two initial steps should be straightforward.

Third, if as is likely the defendant is able to show a procompetitive justiﬁcation, the plaintiff would have to show that the SSO could have used available, reasonable alternatives to realize the efficiency beneﬁts with less or none of the competitive harms. The plaintiff might identify reasonable alternatives that would have led to a different standard, based on including unpatented technology in the standard or perhaps involving fewer SEPs or fewer owners of SEPs, which would be less subject to patent holdup. More likely, the plaintiff could suggest alternative SSO rules that would not change the standard, but would reduce the likelihood or extent of ex post opportunism. For example, the plaintiff might suggest more rigorous FRAND-type rules, such as rules that set forth more precise principles on which FRAND royalties are to be determined and the circumstances under which SEP holders might seek injunctions.

Fourth, the burden would then shift to the defendant(s) to show that the beneﬁts of the standard could not have been realized if the SSO had adopted any of the proffered alternatives or that those alternatives were unrealistic.83 The plaintiff would be entitled to judgment if the court concludes that those beneﬁts could have been realized with less competitive harm if the SSO had adopted the standard with different IPR rules or policies.

Our overall sense, based on experience and the empirical literature, is that the extant FRAND rules are generally useful, but tend to be inadequate because they are imprecise and leave unresolved such critical issues as (a) the meaning of a reasonable royalty, even conceptually; (b) the meaning of “non-discriminatory;” (c) to whom licenses must be offered; and (d) under what circumstances may a SEP holder obtain an injunction.84 These imprecise FRAND commitments are therefore not sufficient to adequately prevent ex post opportunism. The recent revisions to IEEE’s FRAND policy represent a signiﬁcant step in the right direction, but even this advance leaves important questions unanswered.85 If FRAND rules are inadequate in these ways, litigation involving extant FRAND rules would likely be resolved only at the ﬁnal, fourth step. The defendant would be able to demonstrate the beneﬁts created by the standard; the plaintiff would be able to demonstrate the creation of market power and that other reasonable and practical rules or policies would ameliorate the problem. The case would thus turn on whether the defendant is able to demonstrate that signiﬁcant beneﬁts associated with standardization could not have been realized if the SSO had adopted those other rules or policies.

The court would have available a variety of possible remedies if the plaintiff prevails. Implementers that paid supracompetitive royalties or were unlawfully excluded in whole or in part from product markets as a result of the inadequate FRAND policies would be entitled to damages and, in some cases, to treble damages.86 If the unlawful SSO conduct is regarded as the collective action of the SSO and its members, which is likely to be the case in most instances, SSO members would be jointly and severally liable for the damages. Forward-looking injunctive relief aimed at restoring competition would need to be fashioned to the requirements of the individual case. For example, a court could order the SSO to adopt a new rule or policy proposed by the plaintiff. If the court is reluctant to take on that governance role, it might give the SSO a period of time—maybe ninety days—to develop a rule, subject to the court’s ultimate approval, which would adequately ameliorate the competitive problem created by the SSO. Alternatively or in addition, the court might order the parties to attempt to negotiate a rule or policy on which they can agree. And, depending on the circumstances, the court might order SEP holders, including at least those that were defendants in the case, to comply with the new SSO rules and policies.

#### Don’t trust neg authors---Qualcomm funded their papers.

McLaughlin 21, Bloomberg, (David, March 12th, 2021, “One Tech-Funded University Helped Shape FTC’s Hands-Off Approach”, <https://www.bloomberg.com/news/articles/2021-03-12/how-george-mason-university-shaped-ftc-s-hands-off-approach-to-tech>)

* Alden Abbott, Jonathan Barnett are both fellows at George Mason University’s Center for Intellectual Property and Innovation Policy (funded by Qualcomm)
* Joshua Wright is a former FTC commissioner who taught at the institute and lobbied for Qualcomm

The [Tech Transparency Project](https://www.techtransparencyproject.org/) (TTP), a watchdog group in Washington, details in a new report an unusually close relationship between the law school at Virginia’s George Mason University and the Federal Trade Commission. By helping shape the workforce of the FTC, the group claims, the school infused it with a laissez-faire philosophy favorable to the school’s tech donors.

[The report](https://www.techtransparencyproject.org/articles/big-techs-backdoor-ftc) throws a harsh light on the FTC’s hands-off approach to tech companies over the past decade. As the agency prepares to argue the lawsuit against [Facebook Inc.](https://www.bloomberg.com/quote/FB:US) that it filed late last year, seeking to break up the social media giant, it must contend with an inconvenient fact: It approved Facebook’s acquisitions of Instagram in 2012 and WhatsApp in 2014—the very mergers it now seeks to undo. The FTC’s consent to those deals is cited by critics as evidence of a permissive attitude that allowed tech companies to grow into leviathans.

One explanation for its lenience, the TTP report charges, is that the industry used a corner of academia to capture the agency. According to the report, which was published on March 12, Silicon Valley donated substantial sums to George Mason’s Antonin Scalia Law School, which built a pipeline of professors and graduates who went to work at the FTC. Dozens of people went from the school to the regulator—commissioners, bureau heads, attorney-advisers, legal interns—during the Obama and Trump administrations.

Under President Trump alone, professors and graduates of Scalia Law, and heads of affiliated programs at George Mason, served as the FTC chair, general counsel, policy planning head, and leaders of its three main divisions: the bureaus of competition, consumer protection, and economics.

Katie Paul, who heads the TTP, says an investigation is needed into “whether George Mason University has effectively become Big Tech’s back door into the FTC, giving the companies an undisclosed way to sway its decision-making and hobble enforcement action.”

Revolving Door

Large tech companies have donated to two programs affiliated with Scalia Law, the Global Antitrust Institute and the Law & Economics Center. From January 2018 to the end of last year, [Google](https://www.bloomberg.com/quote/GOOGL:US) donated $900,000, [Amazon.com Inc.](https://www.bloomberg.com/quote/AMZN:US) contributed $925,000, and Facebook Inc. gave $675,000, according to documents obtained by Bloomberg Businessweek through a public records request. Google, Amazon, and Facebook declined to comment on their donations.

The law school says the ties between its faculty and the FTC aren’t unusual. Alison Price, a senior associate dean, says it’s common for professors to work for federal agencies and then return to their teaching jobs. “Since Scalia Law has special expertise and a relatively large faculty in antitrust, it’s logical that our faculty is called to serve with frequency,” she says. “But faculty don’t set policy; administrations do.”

The Tech Transparency Project is part of a larger watchdog group, [Campaign for Accountability](https://campaignforaccountability.org/). The TTP website cites several philanthropists as donors, including George Soros’s Open Society Foundations. Oracle Corp. had been a donor to a TTP predecessor group that focused mostly on Google, but the TTP says it no longer accepts corporate funding.

Both George Mason programs, which host conferences and offer training for judges and antitrust enforcers, promote the consumer-welfare standard articulated by Robert Bork, the late federal judge and Yale Law School professor. That standard, the guidepost for regulators and courts since the 1980s, looks to price increases as a gauge of competitive harm. It is blamed by some antitrust experts for handcuffing enforcers when it comes to policing tech companies.

The tech companies’ donations are drawing scrutiny. At a hearing on Feb. 25, New York Democratic Representative Mondaire Jones called Abbott “Tad” Lipsky, a former FTC official now at the [Global Antitrust Institute](https://gai.gmu.edu/), “a wolf in sheep’s clothing.” As he testified against proposals to give the antitrust laws more teeth, Lipsky drew Jones’s scorn. Programs such as the GAI “have worked to teach judges and regulators to let their guard down as corporate funders like yours came to dominate our economy,” Jones said. Lipsky responded that his antitrust views predated “any of these digital technology companies.”

A key figure in the law school-to-regulator pipeline is Lipsky’s boss, Joshua Wright, an FTC commissioner from 2013 to 2015. He now teaches antitrust law at George Mason while also running the GAI.

Wright wielded outsize influence at the agency, pushing through a 2015 policy statement in an attempt to rein in the agency’s enforcement power. After he left he improperly lobbied the agency on behalf of Qualcomm Inc., one of the law school’s largest donors, according to a report by the FTC inspector general that was obtained by TTP and verified by Bloomberg Businessweek. His name was redacted in the report, but Wright confirmed it was about him. He says he did nothing wrong.

The New York Times last year [reported that tech companies bankrolled the work of the GAI](https://www.nytimes.com/2020/07/24/technology/global-antitrust-institute-google-amazon-qualcomm.html) and that Wright had worked with corporate donors to fend off critics. The extent of the revolving door between the FTC and the law school, and Wright’s alleged violation of ethics laws, haven’t been previously reported.

Many companies support higher education, and many universities send professors and graduates to Washington. But George Mason is unique in cultivating a specific regulator, says Jeff Hauser, executive director of the [Revolving Door Project](https://therevolvingdoorproject.org/), which tracks government officials’ corporate ties.

“In terms of feeding directly into a government agency, I’m not aware of any equivalent at the SEC or the EPA or anything else,” he says, referring to the Securities and Exchange Commission and the Environmental Protection Agency.

A public university in the northern Virginia suburbs of Washington, George Mason is home to the free-market think tank the [Mercatus Center](https://www.mercatus.org/" \t "_blank" \o "Mercatus Center website). It is a leader in the study of applying economic analysis to the law, emphasizing that markets work best when government regulates less. The university became known as a haven for conservatives at the end of the Reagan administration in 1988. Even Bork taught there after stepping down from the bench in 1988.

The George Mason conduit was steady and robust, according to the TTP, which details dozens of examples of people moving between the FTC and the law school over the past decade. One is James Cooper, who directs an economics and privacy program at the Law & Economics Center. He simultaneously taught at the school and served as a deputy director for the FTC’s Bureau of Consumer Protection.

Cooper was among the academics who urged House lawmakers last year to reject proposals to break up tech companies and make merger approvals more difficult. George Mason’s Wright, Lipsky, and John Yun, a professor at the law school who was an economist at the FTC, joined the filing. Cooper didn’t respond to a request for comment, and Yun declined to comment.

But Wright, the former FTC commissioner, perhaps best embodies the ties linking the FTC to the law school and its donors. After leaving the agency in 2015, Wright simultaneously taught at George Mason, ran the GAI, and worked for the Wilson Sonsini Goodrich & Rosati law firm, where he represented Qualcomm.

The FTC sued Qualcomm in January 2017 in a monopoly case that was developed while Wright was an FTC commissioner. Wright tried to broker a settlement about four months after the case was brought. He met Lipsky, then the acting director of the FTC’s competition bureau, for lunch at a steakhouse in Washington and tried to set up an additional meeting with agency officials, according to the inspector general’s report.

In doing so, Wright violated an ethics law that bans officials for life from lobbying on issues they worked on “personally and substantially,” according to the inspector general. Those findings were referred to the Department of Justice’s public integrity section. The Justice Department, which decided not to prosecute, declined to comment.

Lipsky resigned two months after his lunch with Wright, who then hired him at the GAI. Lipsky didn’t respond to a request for comment.

“I never made any appearance at the FTC involving its enforcement action against Qualcomm or discussed the merits of the case with any FTC official,” says Wright, who declined to elaborate on the specifics of the investigation. “I immediately complied when the FTC ethics office informed me that I should not make any appearance based upon a single preliminary vote I had cast years before the case was filed.”

Qualcomm contributed almost $5.8 million to the George Mason law school programs from 2016 through 2020. Less than two months before Wright met with the FTC to try to settle the Qualcomm case, the company gave $525,000 to the GAI. The company didn’t respond to requests for comment.

Tech companies that donate to George Mason collaborate with the school’s professors on projects, according to emails obtained through a public records request.

#### Don’t trust Big Tech-funded academic papers---they’re not credible.

Mullins and Nicas 17, \*Brody Mullins is an investigative reporter in the Washington D.C. bureau of The Wall Street Journal where he covers business, lobbying and campaign finance; \*Jack Nicas covers Google and other companies owned by Alphabet Inc. He is based in The Wall Street Journal's San Francisco bureau; (July 14th, 2017, “Paying Professors: Inside Google’s Academic Influence Campaign”, https://www.wsj.com/articles/paying-professors-inside-googles-academic-influence-campaign-1499785286)

Ms. Feldman and other critics of the funding say even disclosing money received from a company that has benefited from the research can give the appearance of a conflict of interest and undermine academic credibility.

“Yeah, the money is good but it does get in the way of objective academic research,” said Daniel Crane, a University of Michigan law professor. He said he turned down Google’s offers to fund his research that opposed antitrust regulation of internet search engines. “If I am reading an academic paper, and they disclose an interest with a party with an interest in the outcome,” he said, “you take [the research] with a grain of salt.”

Paying for favorable academic research has long been a tool of influence by U.S. corporations in food, drug and oil industries. Scandals involving conflicts of interest in medical research have spurred many medical schools, scientific researchers and journals to require disclosure of corporate funding and to prohibit corporate sponsors from meddling with findings.

The tech industry now includes the world’s top five companies by market value: [Apple](https://www.wsj.com/market-data/quotes/AAPL) Inc., Google parent [Alphabet](https://www.wsj.com/market-data/quotes/GOOG) Inc., [Microsoft](https://www.wsj.com/market-data/quotes/MSFT) Corp. , [Amazon.com](https://www.wsj.com/market-data/quotes/AMZN) Inc. and [Facebook](https://www.wsj.com/market-data/quotes/FB) Inc.

Several of the companies also are active in funding academic research. Microsoft has paid Harvard business professor Ben Edelman, the author of papers saying Google abuses its market dominance. Chip maker [Qualcomm](https://www.wsj.com/market-data/quotes/QCOM) Inc. funded papers supporting its side of a fight against Google over patents. And telecommunication giants [Verizon Communications](https://www.wsj.com/market-data/quotes/VZ) Inc. and [AT&T](https://www.wsj.com/market-data/quotes/T) Inc. have funded various papers against Google. The companies either declined to comment or didn’t respond to requests for comment.

#### Big Tech bankrolls academic papers---compromises academic integrity in a manner identical to Big Tobacco.

Auslender 20, (June 10th, 2020, “This research was sponsored by Amazon: How ‘Big Tech’ is compromising academic integrity”, https://www.calcalistech.com/ctech/articles/0,7340,L-3854970,00.html)

Research with questionable backing

The entry of corporate money into controversial research fields has always raised concerns. In the 1950s and 1960s, it was the big tobacco companies that poured billions into universities and research centers to produce academic studies into why smoking or second-hand smoke was not a health concern, or that there was no link between smoking and various diseases.

In the 80s and 90s, the same model was adopted by the energy companies, who used it to build the foundations of global warming and climate change denial. The huge amounts of capital the companies poured into the research bodies enabled them to shape the science in such a way as to produce as many studies as possible that emphasized the lack of certainty regarding climate change and help make the argument that man-made global warming was nothing but a theory. In between, there were always the food companies who tried to bridle science to downplay the risks of sugar consumption or the dangers of processed food by sponsoring studies that confused consumers and regulators alike.

In retrospect, it is clear that the money invested by tobacco and energy companies in academic studies served them to help manipulate the public and the regulators put in place to defend it in order to ensure huge profits while ignoring the dangers to people’s health, human lives and the future of the planet. The lessons learned from the previous decades are apparent in the academic institutions’ readiness to accept more money from such companies. When Philip-Morris announced in 2018 that it was launching a research fund that will hand out a billion dollars over 15 years, a long line of researchers, scientists, and doctors spoke out against accepting funding from a company whose products kill millions of people a year. It’s a good start, but it’s only the beginning. There are now several organizations dedicated to tracking the secret donations of tobacco and oil companies to research centers and NGOs.

Small sums, a huge impact

In recent years technology giants have joined the ranks of organizations that infuse the scientific community, and even some in the non-profit and watchdog sector, with small, but well-targeted sums. At first glance, it is difficult to point out the benefit they seek from cutting the checks, but chances are it’s there just waiting to be cashed. There are many examples and Amazon is only the most recent. Last July, IBM announced it was granting Notre Dame $20 million to establish an ethics lab and last year it was exposed that Oxford University received 17 million GBP from Google, in part to fund research into the ethics of AI and the public responsibility of tech companies. Facebook, in turn, launched a giant campaign to fund 60 research projects across 30 institutions to examine the impact of social media on democracy and at the same time donated $7.5 million for the establishment of a computer science ethics center in Munich. Earlier this week [a study](https://www.wired.com/story/top-ai-researchers-financial-backing-big-tech/) by a researcher at the University of Toronto revealed that more than half of the faculties dealing with AI at four leading universities receive funding from large tech companies, including Alphabet, Amazon, Facebook, Microsoft, Apple, Nvidia, Intel, IBM, Huawei, Samsung, Uber, Alibaba, Element AI, and Elon Musk’s OpenAI. Moreover, not all donations are transparent. Last July, the [New York Times revealed](https://www.nytimes.com/2020/07/24/technology/global-antitrust-institute-google-amazon-qualcomm.html?auth=linked-google) that the Global Antitrust Institute, a part of the Antonin Scalia Law School at George Mason University in Fairfax, Va., which often host regulators and judges from all over the world at its functions, has received over the years donations from Google ($500,000), Amazon ($225,000) and Qualcomm ($2.9 million). Those sums may be small compared to the huge amounts available to the tech giants, but for research institutes and universities they are substantial, especially compared to the government grants they compete fiercely over. In such a way, with minimal but precise contributions, the tech giants purchase access and influence over the shaping of the collective knowledge surrounding such critical subjects as competition, ethical technologies, and long-term social and political impact.

Researchers wake up!

Even though the tech giants are buying influence over social issues that are of critical importance, their relationships with research bodies are nearly free of critique, mostly due to the fact that there are no set rules to protect scientific integrity in such situations. There is no question that technology companies should take part in the discussion over the shaping of the regulatory environment and the ethical frameworks within which they develop new technology and one can’t ignore the two-way flow of people from companies to independent research institutes throughout their careers or completely negate its reciprocal impact. But these bodies, both the tech giants and the research centers, must conduct the dialog in a transparent space, uncorrupted by the money various stakeholders have spread around.

Big Oil and Big Tobacco and now Big Tech too all operate within the limitations of the law, and the money they pour in is all permitted. But when the research bodies are seduced into taking their money, they cast a shadow on the already elusive concept of scientific integrity. No matter how much academic freedom the donors promise, when money is involved there is always a way to pressure the researchers into serving financial interests.

#### Weakened antitrust enforcement emboldens firms to follow Qualcomm’s lead

Hovenkamp 20, \*Herbert J. Hovenkamp is James G. Dinan University Professor at the University of Pennsylvania Law School and the Wharton School of the University of Pennsylvania; (2020, “FRAND and Antitrust”, <https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=3095&context=faculty_scholarship>)

While the FRAND process has been highly productive, it is also fragile. Firms are tempted to make commitments at the beginning when the incentive to join is large, but renege on them later when they can profit by doing so. At least in this particular case, private FRAND enforcement had not worked very well. Qualcomm had been able to violate FRAND commitments in order to exclude rivals and obtain higher royalties than FRAND would permit, largely with impunity. Other firms will very likely follow Qualcomm’s lead. If that happens the FRAND system will fall apart, doing irreparable injury to the modern wireless telecommunications network or, at the very least, diminishing the leadership role of the United States in preserving effective network competition.

While governments can be heavily involved in standard set-ting,9 the implementation of technical standards in information technologies is largely the work of private actors. Government involvement is limited mainly to enforcement of contract, intellectual property, or antitrust law. As private actors, those involved in standard setting or compliance are fully subject to the federal antitrust laws.

This Article addresses one question: when is an SSO participant’s violation of a FRAND commitment an antitrust violation, and if it is, of what kind and what are the implications for remedies? It warns against two extremes. One is thinking that any violation of a FRAND commitment is an antitrust violation as well. In the first instance FRAND obligations are contractual, and most breaches of contract do not violate any antitrust law. The other extreme is thinking that, because a FRAND violation is a breach of contract, it cannot also be an antitrust violation. The question of an antitrust violation does not de-pend on whether the conduct breached a particular agreement but rather on whether it caused competitive harm. This can happen because the conduct restrained trade under section 1 of the Sherman Act, was unreasonably exclusionary under section 2 of the Sherman Act, or amounted to an anticompetitive condition or understanding as defined by section 3 of the Clay-ton Act.10 The end goal is to identify practices that harm com-petition, thereby injuring consumers.

The Ninth Circuit’s Qualcomm decision will make antitrust violations in the context of FRAND licensing much more difficult to prove, even in cases where anticompetitive behavior and consumer harm seem clear.11 Indeed, in this case the court itself acknowledged the harm to consumers but appeared to think that they were not entitled to protection.12 If this decision stands, FRAND obligations will to a larger extent have to be settled through private litigation and the federal antitrust enforcement agencies will have a diminished role. Anticompetitive behavior by one firm that is not effectively disciplined will lead others to do the same thing.

#### A trusted and credible system for ICT innovation is critical to rapid tech diffusion and economic growth---absent FRAND, the system will collapse.

Bauer et al. 17, \*Matthias Bauer is Senior Economist at ECIPE; \*Fredrik Erixon is a Swedish economist and writer. He has been the Director of the European Centre for International Political Economy (ECIPE) ever since its start in 2006; (October 2017, “Standard Essential Patents and the Quest for Faster Diffusion of Technology”, https://ecipe.org/publications/standard-essential-patents/)

It is easy to take a pessimistic view about whether the system will break. If the current trend continues, the system is likely to break at some point for the simple reason that companies will not trust it anymore. The series of legal disputes witnessed over the past years – sometimes referred to as the “smartphone patent wars” – has been fodder for a pessimistic reading of “the two tales of SEPs”. While it is common in the business world that disputes over patents and licenses are settled in courts, various SEP disputes have revealed problematic aspects of the SEP market that are different from those disputes that follow the normal stream of business and contracts. Often, the SEP disputes are less concerned about the rights and boundaries of patents, and more about antitrust limits to market behavior: they concern market abusive practices and restrictions to competition as much as they are about intellectual property.

If the SEP system actually does break at some point, the consequences would be felt throughout the economy. SEPs have been a critical part of the ICT revolution. SEPs have allowed for the fast rates of innovation diffusion that the world has witnessed over the past quarter of a century. All the computer and Internet related products and services that people are now dependent upon for their private and professional lives are intricate webs of intellectual property. As many as 250,000 patents can be used to claim ownership of some technical specification or design element in a single smartphone (NYT 2012). A laptop, suggests one calculation, implements more than 250 interoperability standards (Biddle et al. 2010), and the number of SEP holders for 3G and 4G standards grew from 2 in 1994 to 130 in 2013 while the number of SEPs rose from fewer than 150 in 1994 to more than 150,000 in 2013 (Galetovic and Gupta 2016). The standardization-body ETSI has registered more than 150,000 declarations of SEPs from companies, and ETSI is just one of many bodies in the world of ICT standardization. For the 3G standard, the same body has about 24,000 patents that have been declared essential. Now, with the economy yet again on the threshold of big technological change, a trusted and credible system for creators and users of technology to standardize proprietary technology would be a boon for innovation, interoperability and – ultimately – the consumers.

And there are reasons for optimism. Although many of the problems in the SEP regimes need to be addressed, the numbers above indicate that the SEP system is in fact attractive to patent holders and SEP implementers. It is easy to see why: neither holders nor implementers are presented with alternative options that on the face of it would be far more profitable for them. In other words, there simply would not be as many patents declared as essential if both creators and users of technology believed the SEP system worked to their disadvantage or was grossly unfair. While the reality for some companies may be that legal disputes and unpredictability prompt them to find other ways than SEPs to get access to key technologies for their products, it remains the case that most stakeholders have strong economic incentives to maintain a balanced SEP system that is trusted.

First, standard essential patents are an asset for creators of technology because, by becoming essential to a standard, their volumes of sales for technologies that users value rise significantly. As many holders want to raise more revenues for their SEPs and – ideally – have the freedom to contract with buyers on their terms, they can expand their customer base when they agree to sell patented technology in accordance with a set of rules that are designed to prevent SEP holders exploiting the weakness of a customer that has grown dependent on having access to their technology.

Second, SEPs are hugely beneficial also to those that buy the licenses – the implementers or users. Through the SEP system, they can access technologies that are interoperable and work with different products and functionalities – and they can do it under conditions that, if history is a guide, in most cases give them stable and predictable terms of contract. As a consequence, both creators and users can focus on their competitive advantages and profit on the economies of scale and specialization. Downstream firms do not need to develop their own upstream technology and upstream firms do not need to package their technologies in end-customer products in order to make their products valuable.

Third, standard-setting organisations (SSOs) also have a big stake in an SEP system that works well – and, like creators and users of technology, they would stand to lose significantly if the SEP system were to collapse.

Lastly, the biggest beneficiaries are individual consumers – those who buy the end products using FRAND-conditioned SEPs. The advent of SEPs and the rules represented by FRAND have enabled a development of fast technology creation and contributed to the rapid diffusion in ICT goods and ICT-based services. The SEP system has also allowed for new competition, both between existing technologies and brands, and from new ones that have stepped into the market with the ambition to disrupt it, again to the benefit of the consumer. It is difficult to imagine that the ICT and digital development would have been as fast as it has been if SEPs had not been a central feature of the market.

The changing fortunes of companies operating in the cellular and smartphone market would not have been possible if there had not been an SEP system that supported competition. Now that the world economy is on the doorstep of new innovations that are dependent on a great number of input technologies – e.g. the Internet-of-Things, transport connectivity and intelligent vehicles – it is crucially important for the consumer that a balanced and functioning SEP system is maintained and that actors in the system converge towards it – which would ultimately meet their economic interests.

#### Holdup threatens the entire IOT economy.

Morton 16, \*Fiona M. Scott Morton is an American economist, currently the Theodore Nierenberg Professor at Yale School of Management; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (2016, “Patent Assertions: Are We Any Closer to Aligning Reward to Contribution?”, https://www.journals.uchicago.edu/doi/full/10.1086/684987#\_i22)

G. Summary

However, our overall conclusions regarding SEPs are more mixed. Policy and legal changes that have reduced the ability of SEP owners to engage in patent holdup appear to have stalled out, especially as regards reform of the IPR rules at SSOs other than the IEEE. If so, this could have important effects on innovation and efficiency. For example, the “Internet of Things” is a new and growing area where royalty stacking and patent holdup appear to be very real dangers. Devices of all sorts, from thermostats to railroad cars to refrigerators, are being given connectivity using standards developed by SSOs. The price of those chips, and whether the IP contained in them costs $5 or $0.50 or $0.005, will determine the nature of new applications and the rate of adoption.

Failure to prevent patent holdup relating to tomorrow’s information technology and communications standards is likely to cause significant social welfare loss in the years ahead. If new and more effective private solutions relating to standard setting do not emerge to promote innovation and protect consumers, antitrust enforcement is one of the only remaining remedies that seems feasible.

V. Conclusions

Over the past five years, the rewards provided to patent owners in the United States have become more closely matched with the value of the technology they contribute. When rewards and contributions are aligned, economic efficiency is promoted because investments into developing new technologies are commensurate with benefits. These changes have come from legislation, the federal courts, and policy statements and enforcement actions by regulators of various types. However, at this juncture, we see a substantial gap persisting between the ability of some patent owners to monetize their patents and the contributions provided by the technology underlying those patents. With the “Internet of Things” poised to create economic growth, this is a problem worthy of further research and policy attention.

#### Emergence of smart cities depends on IoT applications of 5G interoperability standards---absent FRAND, excessive royalties will undermine sustainable development.

Schwartz 18, \*Matt Schwartz, Privacy Fellowship Coordinator at ACT, App Association; (March 2nd, 2018, “It’s Smart to be FRANDly: How the FRAND Commitment Will Determine the Future of Smart Cities”, https://actonline.org/2018/03/02/its-smart-to-be-frandly-how-the-frand-commitment-will-determine-the-future-of-smart-cities/)

In December, we [outlined](https://actonline.org/2017/12/18/smart-cities-connecting-your-community-through-technology/%5d) the emergence of Smart Cities – cities that harness technological innovations like internet of things (IoT) devices and data analytics to improve essential infrastructure in growing urban centers. The technological foundation of Smart Cities aims to improve public safety, better allocate resources, and meet the needs of citizens more quickly.

A central element to Smart Cities is the comprehensive network of sensors and devices implemented within buildings, roads, traffic signs, and parking meters that allows them to interact with public, and potentially private-owned, infrastructure. These sensors will “speak” to one another, communicating information about energy usage, traffic density, or other elements of city management that have traditionally either been analyzed separately or not tracked at all. The potential of Smart Cities allows data to flow from previously disconnected branches of the city and be processed in real-time, unlocking previously unknown insights.

The powerful interoperability of Smart Cities will rely heavily on standardized technologies developed in organizations like the IEEE, which is responsible for standardizing the wi-fi technology we use every day. Standardized technologies often include standard-essential patents (SEPs), which, like their name suggests, are patents declared essential to an industry standard by a standards-setting organization. In simple terms, one cannot implement the standardized technology without using the patent.

Like regular patents, the users of SEPs must pay royalties or licensing fees to the patent owner before they may use it. For example, if a manufacturing company wants to make an IoT device interoperable with a 5G network, the manufacturer must pay a licensing fee to the owner of the SEP that is essential to the 5G standard. SEPs play a vital role in the new innovations we enjoy and have come to expect, and because of the value of these patents, SEP holders have the ability to demand high license fees from those who wish to implement the standard. To offset this competition issue, many SEP holders voluntarily agree to license their SEPs to any willing licensee under fair, reasonable, and non-discriminatory (FRAND) terms.

While wi-fi and LTE are standards that will be vital to Smart City deployment, countless new standardized technologies are being developed that will be integral to any fully-operational Smart City. With reasonable access to SEPs, assured by the FRAND commitment, innovators can enjoy the legal and business certainty they need to compete. While the meaning of the FRAND commitment continues to be refined – as evidenced by the development of SEP best practices recently launched by the App Association in Europe – its foundations are well-established.

But what happens when SEP holders do not abide by the FRAND licensing commitment, or simply refuse to license at all? Sadly, small and medium-sized companies would be forced to accept untenable licensing terms, but more realistically, they would be priced out of using the standard altogether. As a result, it would impose a barrier to innovation that would result in fewer products offered to consumers or cities eager to implement IoT technologies. For example, many hope the rise of autonomous vehicles will be seamlessly integrated into the Smart City network. But how beneficial would it be if only some autonomous vehicle brands are able to license the technology needed to communicate with traffic lights, simply because of the market power of a chipmaker? The FRAND commitment is an important backstop to that unfortunate possibility.

It is vital for SEP holders to honor FRAND licensing terms, if not for small and medium-sized innovators, then for the sustainability of future Smart Cities. FRAND creates a platform for innovation, providing a floor on which companies can stand, innovate, and compete. If the foundation of the FRAND commitment is reneged, American innovators pay a steep price – not only do they lose a key component of product development and market entry, but they are also left with years of expensive negotiations and litigation if they choose to challenge the licensing practice. What’s more, the confidence developed in the open standards development system is shaken, and Smart Cities have fewer choices in IoT solutions for their future.

To achieve the promise of Smart Cities, a balanced standards ecosystem is essential. We must allow small and medium-sized developers to leverage industry standards for innovation and prevent cost-prohibitive royalty structures and negotiating practices that are detrimental to competition, while also ensuring that SEP owners can protect their intellectual property and be fairly compensated for its use. The FRAND commitment continues to be the best framework to achieve this balance, and adherence to its principles will determine the future and success of Smart Cities.

#### Climate change is anthropogenic and causes extinction---5G-enabled smart cities are critical for mitigation and adaptation.

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Currently, the entire planet is at risk due to continual climate change [1–3]. The recorded increase in average temperature across the world in the past hundred years, and the associated changes attributed to this, are known as global warming. Many scientists are convinced by the published evidence that this change is anthropogenic and resulted from the elevated emission levels of global greenhouse gases (GHGs) [4,5]. Gases such as water vapor, carbon dioxide, methane, nitrous oxide, and ozone are responsible for the absorption and emission of thermal radiation. These changes in the relative quantities of the GHGs induce a proportional change in the amount of preserved solar energy. Presently, the accepted indicator for global warming is the sustained rise in the mean temperature worldwide. This definition is designed to account for the fact that there may be some localized exceptions to this rise. For example, there may be cooling experienced in a region while the global temperature may increase altogether, hence the need for average temperature. A key concern with the GHGs trapping of more heat in the atmosphere is that it affects both climate and short scale weather patterns. Consequently, it results in greater numbers of adverse weather events such as storms, heat waves, cold snaps, droughts, and fires [6]. Climate-related risks to health, livelihoods, food security, water supply, human safety, and economic growth are projected to increase with global warming of 1.5 ◦C [7] and further increase further at 2 ◦C, as shown in Figure 1. In addition, the risks to global aggregated economic growth due to the climate change impacts are projected to be lower at 1.5 ◦C than at 2 ◦C by the end of this century.

Carbon dioxide has the most substantial effect on global warming [8]. Although it was once assumed to have an ~100 year lifespan in the atmosphere, careful studies revealed that the situation is far worse, with three-quarters of the gas expected to remain for a time in the region of up to ~1000 years, with the remainder lasting for an indefinite period of time [9]. It was indicated that the present impacts of humanity on the atmosphere can certainly cause a long term problem [10]. Carbon dioxide is released when oil, coal, and other fossil fuels are burnt for the energy we use to power our homes, cars, and smartphones. By lessening its usage, we can curb our own contribution to climate change while saving money. The first challenge is eliminating the burning of coal, oil, and, eventually, natural gas. Oil is the lubricant of the global economy as it is hidden inside such ubiquitous items as plastic and corn, fundamental to the transportation of both consumers and goods. Coal is the substrate, supplying roughly half of the electricity worldwide, a percentage that is likely to grow according to the International Energy Agency (IEA). In fact, buildings contribute up to 43% of all the greenhouse gas emissions worldwide [11], even though investing in thicker insulation and other cost-effective as well as temperature-regulating strategies can save money in the long run. Investment in new infrastructures, or radical upgradation of the existing highways and transmission lines, may help to reduce greenhouse gas emissions, yielding economic growth in the developing countries.

Nations across the globe have kept very high targets to reducing their GHG discharges [12,13]. In order to meet these goals, considerable reductions in city energy usage is required. At a global scale, urban communities represent over half (55%) of the population, which is predicted to reach 68% by the middle of this century [14]. Urban areas claim ownership of the highest levels of energy use, gas emission, and also the largest local economy. As such, it is crucial for urban areas to reduce their consumption and utilize renewable sources wherever available to reduce their gas discharge levels. Smart cities often utilize digital sensors to measure and transmit data about the levels of GHGs in the city at that moment, as a means of tackling them [15]. The efficacy of such a system is thus reliant on the network used to collate and analyze the data collected as an extant network. The mobile telecommunications networks offer a convenient solution to this desire, as their pre-existence has the clear benefit of reducing costs compared to the design and implementation of a novel system. It is recognized that smart cities will certainly act as the key players meeting these ambitious targets [16,17]. In this study, we focused primarily on the potential applications of 5G network technology to control climate change in Singapore. In addition, a clear overview of the sustainability benefits of introducing 5G technology compatible smart cities, buildings, and farms in all aspects of urbanization is provided. Herein, the main purpose is to tackle the negative outcomes associated with anthropogenic climate change, with a particular focus on the contributions that are best made by the telecoms network operators.

Climate change is one of the most challenging problems that humanity has ever faced. Presently, hundreds of millions of lives, innumerable species, entire ecosystems, health, economy, and the future habitability of this planet are at risk. Fortunately, climate change is solvable, we just need to wisely exploit the existing technologies and sciences. Climate change mitigation is a pressing international need in which many management actions are required. The development of 5G technology has been largely driven by smart mobile devices and advanced communication technologies. It may thus serve as a technical enabler for a whole new range of business opportunities, energy, and facilities management, together with industrial applications. Moreover, it may enable different devices to work together seamlessly. Definitely, the 5G cellular network technology is expected to revolutionize the global industries with profound effects on the savings of energy, waste generation and recycling, and water resources management, thus reducing the climate change impacts.

#### Smart Cities are key to the 1.5 degree threshold.

Dasgupta 18, \*Aniruddha (Ani) Dasgupta is President and CEO of World Resources Institute; (October 31st, 2018, “IPCC 1.5° Report: We Need to Build and Live Differently in Cities”, https://www.wri.org/insights/ipcc-15deg-report-we-need-build-and-live-differently-cities)

Amid the barrage of news about climate-related natural disasters and climate change summits, it's important to recognize real inflection points—when there is truly cause to sit up and take note. The [IPCC Special Report on Global Warming of 1.5ºC](http://www.ipcc.ch/report/sr15/), released last month, is a genuine wake up call.

We are already at 1º Celsius warming beyond pre-industrial averages. Limiting global warming to 1.5° Celsius (2.7° Fahrenheit)—beyond which scientists expect more significant damage to global ecosystems—requires "rapid and far-reaching transitions" in energy systems, land use, industry and urban infrastructure, [concludes the special report](http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf).

In short, we need to live and build differently.

Those of us focused on cities know this is true. The trajectory for major trends needs to change significantly in urban areas to reach the targets agreed to by the world's governments in the Paris Agreement, Sustainable Development Goals and New Urban Agenda. We need not just nudges and tweaks, but transformation on a massive scale, starting now.

The IPCC special report, a synthesis of the latest climate research collected by 91 authors, reinforces this message comprehensively. From reducing emissions to expanding economic opportunities for all, cities are key to a sustainable future.

Building Differently

Big changes to the built environment are needed to stay under 1.5°. We must build smarter and retrofit faster. Emissions from buildings must be reduced 80-90 percent by mid-century, and all new construction must be "fossil-free and near-zero energy" in just two years.

These changes need to happen everywhere. In the developed world, we need to see optimization and decarbonization of existing services. In the developing world, we need to provide new services—including roads, water, sanitation and electricity—to the underserved, and cities need to build these services differently from those of the past. New solutions need to be adopted quickly since the infrastructure being constructed today will last decades. This is a challenge, but also a significant opportunity to reshape cities—some [75 percent](http://thecityfix.com/blog/financing-transition-sustainable-cities-introducing-thecityfix-labs-india-christopher-moon-miklaucic-kate-owens-jaya-dhindaw/) of the infrastructure expected to be in place by 2050 has yet to be built.

Reaching the 1.5° target will require a 40 percent reduction in final energy use in transportation by mid-century, according to the report. Individual choices [can make a dent here](https://www.citylab.com/transportation/2018/10/un-climate-report-transportation-choices/572494/), but better urban planning can go even further. The authors note that "effective urban planning can reduce GHG emissions from urban transport between 20 percent and 50 percent."

Cities Under Siege

At 2º of warming by 2040, more than 70 percent of coastlines will see sea level rise greater than 0.2 meters (8 inches). Among the places hardest hit by flooding will be dense urban areas, including at least 136 "megacities" (defined as "port cities with a population greater than one million in 2005"). That doesn't include new cities that will enter this category due to population growth in the next few decades.

Heat is already a major concern for many cities, and the report notes that the challenge will be much greater if nothing is done. "At 1.5°C, twice as many megacities (such as Lagos, Nigeria and Shanghai, China) could become heat-stressed, exposing more than 350 million more people to deadly heat by 2050 under midrange population growth."

At 2º, without changes to the built environment like cooler roofs and greener urban design, cities like [Karachi](http://www.ndma.gov.pk/files/heatwave.pdf) and [Kolkata](https://www.cnn.com/2015/06/01/asia/india-heat-wave-deaths/index.html) can expect deadly heatwaves like the ones in 2015 that killed thousands.

Living Differently

It's not just the physical changes of a warming world that are alarming; it's the social and economic implications. Climate change is a "poverty-multiplier that makes poor people poorer and increases the poverty head count," the report says.

"Unmitigated warming could reshape the global economy later in the century by reducing average global incomes and widening global income inequality," it says. "Most severe impacts are projected for urban areas and some rural regions in sub-Saharan Africa and Southeast Asia."

Cities are especially vulnerable to these trends in part because the number of people living in "[informal](https://www.wri.org/wri-citiesforall/publication/towards-more-equal-city-including-the-excluded)" settlements—areas often beyond the scope of basic services and municipal assistance—is expected to triple to 3 billion by 2050. The risk for cities already [struggling with the effects of inequality](http://thecityfix.com/blog/winner-take-all-richard-floridas-new-urban-crisis-part-of-growing-global-focus-on-unequal-cities-ani-dasgupta/) is that reaching these populations becomes even more difficult, not only putting millions of people at risk of destitution and literal drowning but dragging down [urban and national economies writ large](http://thecityfix.com/blog/big-picture-small-cities-urban-development-needs-national-governments-leah-lazer/).

A much larger emphasis on governance, [equity](https://www.wri.org/wri-citiesforall/cities-all) and "broad participation" will need to be considered to reduce urban risks. Even well-intentioned adaptation efforts [can backfire](https://www.newsecuritybeat.org/2014/07/dont-forget-governance-risk-tunnel-vision-pursuing-resilience-asias-cities/) if they end up further marginalizing or displacing poor citizens.

Our World Resources Report, "[Towards a More Equal City](https://www.wri.org/wri-citiesforall/cities-all)," suggests ways to build cities for all by outlining [equity challenges sector by sector](https://www.wri.org/wri-citiesforall/working-papers) as well as exploring [practical approaches](https://www.wri.org/wri-citiesforall/case-studies) that are already working in cities around the world.

Cities for All

The IPCC report is a call for transformation on a massive scale—not just in energy or climate policy but how we live and build generally. Though it's easy to focus on the potential costs of such a change, the benefits could be significant, too.

The authors note urban "green economies" are emerging [from the informal sector](https://www.wri.org/wri-citiesforall/publication/towards-more-equal-city-including-the-excluded), helping to [meet demand for clean water](https://www.sciencedirect.com/science/article/pii/S0197397515002325), for example, and [improve recycling](https://www.wri.org/wri-citiesforall/publication/pune-civil-society-coalitions-policy-contradictions-and-unsteady). And cities in Africa and Asia have the potential to leapfrog traditional ways of generating electricity, bringing cleaner energy to more citizens and improving adaptive capacity at the same time (here, the report cites[WRI's own work on powering cities in the global south](https://www.wri.org/publication/towards-more-equal-city-powering-cities-global-south)).

Estimates of the net value of low-carbon investments in cities are as high as [$16.6 trillion by 2050](https://newclimateeconomy.report/workingpapers/wp-content/uploads/sites/5/2018/06/CUT2018_CCCEP_final_rev060718.pdf), according to the Coalition for Urban Transitions.

The furious pace of urbanization gives us an opportunity to make rapid changes. A window for transformation is opening, and it's up to us to seize it. Cities are the best chance we have to get this right.

#### Reducing urban emissions is critical.

Casini 17, \*Marco Casini, Eng. PhD, Professor of Architecture Technology and Environmental Certification of Buildings - Department of Planning, Design and Architecture Technology, Sapienza University of Rome; (2017, “Green Technology for Smart Cities”, https://iopscience.iop.org/article/10.1088/1755-1315/83/1/012014/pdf)

Global population increase, progressive decrease of energy sources and their consequent higher cost, climate change and air pollution are some of the main problems that the cities of the future will have to cope with to survive, transforming into Smart Cities and focusing on Green Building and Smart Mobility.

Because of the low energy efficiency of buildings and transportation systems, the cities of today are responsible, on average, for 70% of greenhouse gases emissions and over 60% of energy consumed worldwide [1].

The global increase of carbon dioxide emissions, whose values, equal to over 32 Gigatonnes per year in 2016, exceeded over 50% of those in 1990, caused the increase of CO2 concentration levels in the atmosphere, by now stably higher than 400 parts per million (which has not been occurring for 300 millions of years) [2].

2016 was also the hottest year ever recorded in NOAA's 137-year series, since measurements began in 1880. Remarkably, this is the third consecutive year a new global annual temperature record has been set [3]. The average global temperature across land and ocean surface areas for 2016 was 0.94°C (1.69°F) above the 20th century average of 13.9°C (57.0°F), surpassing the previous record warmth of 2015 by 0.04°C (0.07°F). This marks the 40th consecutive year (since 1977) that the annual temperature has been above the 20th century average. To date, all 16 years of the 21st century rank among the seventeen warmest on record (1998 is currently the eighth warmest). 2017 lends itself to being a record year too. In fact, the global land and ocean surface temperature during January-April 2017 was 0.95°C (1.71°F) above the 20th century average of 12.6°C (54.8°F). This was the second highest such period since records began in 1880, behind 2016 by 0.19°C (0.34°F) and ahead of 2015 by 0.10°C (0.18°F).

The issues of acoustic pollution and air quality typical of urban centres go in addition to the climate changes. In the EU, buildings alone are responsible for 40% of the final energy use, 36% of CO2 emissions and above 40% of Particulate Matter emissions (PM10 and PM2.5). Current mobility systems based on fossil fuel, besides being responsible for above 25% of polluting emissions, are unsuitable to the needs of urban areas, making movements difficult especially during rush hours, with journey speeds around 7-8 km/h (the same speeds recorded in 1700) [4].

Every year worldwide 12.6 million people die because of environmental pollution, equal to one fourth of the total deaths. Air, water and soil pollution, chemical exposure, climate changes and ultraviolet radiation contribute to the increasing of over 100 illnesses and health damages [5].

Atmospheric pollution is the fourth risk factor for deaths on a global level, and undoubtedly the main environmental risk factor for lungs and heart diseases: over 5.5 million people die every year all over the world because of air pollution, more than Finland, Slovacchia and Sicily inhabitants. Italy hits the record of dead from smog with 59,500 premature deceases from PM2.5, 3,300 from Ozone and 21,600 from NOx only in 2012 [6].

These issues are going to increase with the progressive decrease of resources, the consequent increase of energy cost and the population development that is estimated to reach 9 billions of individuals in 2050 (from current 7.4 billions) of which over two thirds will live in the urban centres. These will produce the 80% of global GDP and will consume the 75% of global resources, contributing to create a model of urban-centric development.

The economic resources that the worldwide cities have addressed to adaptation measures to climate changes like protective barriers against inondations, more resilient infrastructures and better draining systems (around the 0.22% of GDP for the developed countries compared to the 0,15% for the cities of developing countries) are already relevant.

Looking at this scenario, cities have to be ready and capable of handling enormous social and environmental mutations, becoming the fulcrum of the fight against global warming and catalyzing investments and policies oriented to sustainability and efficiency in a Smart vision.

### 1AC---Cybersecurity ADV

#### Advantage 2 is Cybersecurity:

#### Aggressive patent strategies create structural flaws in 5G standardization that imperils domestic cybersecurity---market competition reduces the incidence of vulnerability and severity of attacks.

Duan 20, \*Charles Duan is a senior fellow and associate director of tech & innovation policy at the R Street Institute, where he focuses his research on intellectual property issues; (2020, “OF MONOPOLIES AND MONOCULTURES: THE INTERSECTION OF PATENTS AND NATIONAL SECURITY”, Santa Clara High Technology Law Journal, 36(4), 369-405. Retrieved from <https://www2.lib.ku.edu/login?url=https://www.proquest.com/scholarly-journals/monopolies-monocultures-intersection-patents/docview/2442966690/se-2?accountid=14556>)

III. COMPETITION AND CYBERSECURITY

In addition to the historical review done so far, another approach to understanding the relationship among patents, competition, and national security is to consider the role of cybersecurity. There is little doubt that computer system vulnerabilities that enable hacking and spread of computer exploits are a threat to the nation’s defenses, so better cybersecurity is a key part of national security strategy.155

Strong competition can thus complement national security by enhancing domestic cybersecurity, and patent assertion that unduly weakens competition detracts from cybersecurity.156 Competition promotes better cybersecurity in at least two ways. First, multiple studies show that competition encourages firms to improve their products on multiple vectors including cybersecurity. Second, competition avoids a situation that security experts call a “monoculture,” which increases vulnerability to severe cyberattacks. As former Secretary of Homeland Security Michael Chertoff wrote recently, “We need competition and multiple providers, not a potentially vulnerable technological monoculture,” to guarantee national security.157 Thus, cybersecurity provides a useful lens for understanding how unfettered patent assertion and licensing can detract from national security.

A. Cybersecurity as Competitive Value-Add

Competition enhances national security by reducing the incidence of technical vulnerabilities. That effect is especially important for security sensitive systems such as mobile telecommunications.

Intuitively, a causal chain from competition to cybersecurity makes logical sense. Computer security is a value-added benefit to consumers, so firms in competitive markets are likely to use security to gain an edge over their competitors.158 In monopolized markets, though, there may be less external impetus to test products for flaws, and the monopolist may choose to focus less on security and more on new product features or increased product quality.

Economic research confirms these hypotheses about competition leading to better cybersecurity. A 2009 empirical study of web browsers considered the impact of market concentration on the amount of time that vendors took to fix security vulnerabilities as they were discovered.159 The study found that the presence of more competitors correlated with faster cybersecurity response—a reduction of 8–10 days in response time per additional market rival.160 Similarly, business researchers in 2005 modeled incentives for firms to engage in sharing of cybersecurity information, and concluded that the “inclination to share information and invest in security technologies increases as the degree of competitiveness in an industry increases.”161 Another study found that, where two software firms are in competition, at least one will be willing to take on some degree of risk and responsibility for cybersecurity, whereas a monopoly software firm will consistently fail to accept such responsibility.162 To be sure, an unpublished study from 2017 found that some market concentration can make firms more responsive to cybersecurity issues, but only to a point: “being in a dominant position reduces the positive effect of having less competitors on the responsiveness of the vendor,” and indeed the “more dominant the firm is, the less rapid it is in releasing security patches.”163 This research confirms that competition is more conducive to cybersecurity.

It is not hard to see how this applies to emerging communication technologies markets. In the absence of competition, the above research suggests that device manufacturers, chip makers, and software developers will lack incentives to respond to vulnerabilities, to share information about cybersecurity practices and issues, and to take responsibility for security matters. Mobile phone chips have had their share of cybersecurity failures already.164 The best way to flush out ongoing and future cybersecurity issues is to maintain competitive pressure at all levels of the supply chain.

B. Vulnerabilities of “Monocultures”

A second reason why monopoly undermines cybersecurity is that monopoly leads to a “monoculture” of single-vendor products, opening the door to massive systemic failure in the case of a cyberattack. Computer researchers developed the theory of software monocultures in the early 2000s, in response to the regular phenomenon of computer viruses and other attacks spreading rapidly by exploiting flaws in the dominant operating system at the time, Microsoft Windows.165 Where a computer system such as Windows has a commanding share of users, a virus that exploits a flaw in that system can quickly spread to infect a whole interconnected ecosystem. An operating system monopoly thus enables fast and easy spread of cyberattacks, and better cybersecurity would be achieved through greater diversity in online systems.166 As one research group posited, “a network architecture that supports a collection of heterogeneous network elements for the same functional capability offers a greater possibility of surviving security attacks as compared to homogeneous networks.”167

There has been considerable study of the theory that computer monocultures are naturally more vulnerable to attacks.168 In one study, computer science researchers reviewed a catalog of 6,340 software vulnerabilities recorded in 2007, to compare whether comparable software would share the same flaws.169 Of the 2,627 vulnerabilities applicable to application software (as opposed to operating systems, web scripts, and other software components), only 29 (1.1%) applied to substitute products from different vendors but providing the same functionality.170 By contrast, different versions of a single software product were found to share vulnerabilities 84.7% of the time.171 Thus, software monocultures share exploitable flaws even when there is some variation in versions across the monoculture; by contrast, diversity in software is almost guaranteed to prevent a single flaw from affecting all users.

In the case of 5G and wireless mobile communications, a monoculture is an especially concerning possibility. To the extent that systems such as smart city sensors or communication networks are widely deployed in a monoculture fashion, a widespread attack could have devastating consequences, potentially blacking out a region and affecting essential services such as 911.172 A monoculture that is vulnerable to so-called “rootkits” or “backdoors”—maliciously installed software that enable bad actors to commandeer systems—could also enable mass surveillance or spying by private hackers or foreign governments.173 The presence of systems from multiple vendors would mitigate these possibilities.

#### The economy is inevitably reliant on 5G---BUT rollout will vastly broaden America’s cyber vulnerabilities.

Durbin 20, \*Managing Director of the Information Security Forum (ISF); (August 11th, 2020, “5G Brings Benefits, But Also Heralds Fresh Security Threats”, https://www.forbes.com/sites/forbesbusinesscouncil/2020/08/11/5g-brings-benefits-but-also-heralds-fresh-security-threats/?sh=2277006b77f1)

The continuing rollout of the fifth generation of mobile networks and technologies, known collectively as 5G, is set to radically transform the business world. Incredible new speeds, dramatically reduced latency and fresh swathes of bandwidth will allow real-time connectivity on a whole new scale. Smart cities, autonomous vehicles and augmented reality present amazing opportunities, so it’s no surprise that investment in 5G technologies from governments and businesses is enormous and growing.

Amid the excitement of all this technological promise, significant new dangers are being overlooked.

As digital connectivity soars to new heights and internet of things devices expand to rapidly become the internet of forgotten things, organizations will face a number of serious security challenges. As someone who specializes in cybersecurity and technology, I believe it’s crucial that organizations start to consider the threats posed by a vastly broadened attack surface, machine learning manipulation and parasitic malware.

Securing The Infrastructure

From my perspective, organizations, businesses and individuals will quickly become reliant on 5G networks for daily life. Inevitably, 5G technologies and infrastructure will be a prime target for foreign governments and cybercriminals. The line between protectionism and concern about espionage is blurry. Any uncertainty about the technology that forms critical infrastructure should be of major concern to business leaders.

While the explosion of digital connectivity presents new opportunities, it also massively increases potential attack surfaces. Many more devices and sensors will be connected by millions of new 5G masts, and these new 5G networks have a heavier reliance on software. What this means is an explosion of new attack vectors, possible vulnerabilities and weaknesses that can be exploited by a range of bad actors.

All the benefits that 5G promises in terms of greater speeds and lower latency will also benefit hacktivists, enabling them to carry out attacks more rapidly and at greater scale.

Fresh Threat Landscape

Spoofing and jamming of 5G networks could cause serious disruption for supply chains and dependent infrastructure. By targeting embedded IoT devices, determined attackers could put vital networks under threat. Greater speed, higher bandwidth and lower latency will enhance the potency of distributed denial of service attacks. Many traditional techniques will find fresh life in the 5G future, and the impact on business could be catastrophic.

As more organizations come to rely on machine learning, I predict attackers will find new ways to exploit neural networks and subvert these systems for their own gain. Manipulated machine learning could enable attackers to enrich themselves, obfuscate and deceive, ultimately sowing confusion on a grand scale. What’s worrisome is the opportunity for parasitic malware to burrow into 5G networks and systems to steal processing power and degrade the performance or even shut down critical services like water and power.

Any adoption of 5G must include a proper assessment of the risks involved and plans for protection, vigilance and remediation of security incidents.

#### Insecure technical standards cause inevitable systemic grid collapse---extinction.

DeNardis 21, \*Dr. Laura DeNardis, PhD in Science and Technology Studies from Virginia Tech, Dean of the School of Communication at American University, and Gordon M. Goldstein, Adjunct Senior Fellow at the Council on Foreign Relations, (March 1st, 2021, “The Real Lesson of the Texas Power Debacle”, Lawfare, 3/1/2021, https://www.lawfareblog.com/real-lesson-texas-power-debacle)

The infrastructure was essential, ubiquitous and providing basic functionality for everything in daily life from water to heat and transportation. And in an instant it was gone, plunging tens of thousands of residents into a life-threatening crisis. This is, of course, the narrative of the recent debacle in Texas, where a winter storm overwhelmed the state’s electrical grid and brought the state to a near-total blackout. But it should also be interpreted as a preemptive warning of what Americans will face from the next generation of the internet and the new realm of cybersecurity risk it will dramatically amplify.

Both forms of infrastructure—a state-run electrical grid and the 5G and “internet of things” future to which we are rapidly hurtling—share three attributes. First, their construction reflects a lack of imagination about the danger that can quickly coalesce when seemingly remote threat scenarios become real. Second, compounding a lack of analytic imagination is an absence of preparedness. Third, for both the Texas electrical grid and the emerging internet, public policy protections are either meager or completely absent.

In planning for the resilience of its electrical grid, public officials in Texas discounted the potentially devastating disruption that could occur from unpredictable events—whether related to climate change or just a once-a-century anomaly. They also eschewed precautions other states take seriously by allowing for the interconnection of electrical grid supply chains across their borders, ostensibly because of their ideological rejection of federal regulatory oversight governing such arrangements.

As the United States builds out a new national 5G cyber-physical communications network through private service providers, Americans similarly discount the risks—myriad in their diversity and severity—that are orders of magnitude more significant than what Texas confronted recently. More physical things than people are already connected. The super empowered internet of tomorrow, known among some in the field as the “internet of everything,” will exceed by tens of billions of devices the number of connections between individuals simply communicating via social media or digital screens.

This confronts policymakers with an imminent threat: A cyber outage is no longer about losing digital communications but about losing basic societal functioning and even human life. The failure of imagination is to think of the SolarWinds attack on U.S. federal agencies and tech companies as a worst-case scenario. The failure of imagination is to think of cybersecurity through a content-centric lens rather than as possible attacks on the material world. The emergence of internet-connected cardiac devices, digitally dependent cars, and internet-connected agriculture systems portend the stakes of a cyberattack to health care, economic and social functioning, and food security.

The United States should be prepared for, and certainly not be caught by surprise by, such cyberattacks. Yet, the internet of everything is notoriously insecure. Internet-connected physical objects are not necessarily upgradeable. Nor do they come with adequate default security and encryption. The 5G infrastructure that helps connect digital objects has been at the center of debates over Chinese espionage. Industrial cyber-physical systems are based on technical standards that have not been collaboratively vetted for security and interoperability. One of the most infamous cyberattacks—the so-called Mirai botnet that took down major media sites and corporations—hijacked these insecure objects in homes to carry out the assault. The United States is not yet prepared.

Finally, in the race to conceive and deploy effective public policy responses, the U.S. government as a whole is hardly more anticipatory or synthesized in its response to potential calamity than the state of Texas. The focus of U.S. cyber policy remains on information policy issues such as disinformation, manipulation and violent speech rather than securing the digital world that now powers our material day-to-day lives. The Biden administration confronts an enormous challenge in crafting a comprehensive strategy to the cybersecurity risks foreshadowed by the ruinous experience in Texas and its management of vital infrastructure. While the digital world has leapt from two-dimensional to three-dimensional space, cyber policy has not at all jumped from 2D to 3D.

This failure of imagination, preparedness and policy protection must not be America’s cyber future; the stakes are far too high and the costs are far too great. The Texas disaster is a potent illustration of what has always been true: Our digital society and economy are extremely vulnerable and grow more porous and subject to penetration day by day. As digital sensors and cyber control systems become further embedded in physical infrastructure like energy systems, agriculture and transportation, there is no longer a separation between security of the “real” world and security of the online world. They are entangled and increasingly enmeshed—and policy has yet to catch up to either envisioning or mitigating the looming threats the U.S. confronts.

If the energy grid cannot weather a winter storm, how can it be expected to withstand a major cyberattack? What other vital forms of national infrastructure—ranging from water, bridges, highways and roads, and ultimately our day-to-day financial system—are comparably at risk? As Texas dramatizes, it is neither hyperbolic nor exaggerated to assert that our survival could now depend on securing the inevitable cyber-physical future that is accelerating with stunning rapidity.

#### Actors have the means and motivations to strike critical infrastructure.

Wintch 21, \*Timothy M. Wintch, an active-duty Major in the United States Air Force. He is currently a graduate student at the Oettinger School of Science & Technology Intelligence, National Intelligence University, in Bethesda, Maryland. Mr. Wintch has over 11 years of experience in command-and-control operations as an Air Battle Manager. He holds a Bachelor of Arts in Politics from the University of California, Santa Cruz, and a Master of Arts in Military Studies from American Military University. (April 20th, 2021, “PERSPECTIVE: Cyber and Physical Threats to the U.S. Power Grid and Keeping the Lights on”, https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/)

Among critical infrastructure sectors in the U.S., energy is perhaps the most crucial of the 16 sectors defined by the Department of Homeland Security. This sector is so vital because it provides the energy necessary to run every other critical infrastructure sector. However, the U.S. power grid, the backbone of the energy sector, is built upon an aging skeleton that is becoming increasingly vulnerable every day. Whether from terrorists or nation-states like Russia and China, the power grid is susceptible to not just physical attacks, but also to cyber intrusion as well. However, much of this threat can be mitigated if the U.S. takes the appropriate steps to safeguard the power grid and avoid a potential catastrophe in the future.

Since Sept. 11, 2001, terrorism on U.S. soil has been at the forefront of American consciousness. Critical infrastructure provides an appealing target because of the disproportionally large impact even a small attack can have on the sectors. In particular, the power grid represents a particularly lucrative target, both in terms of the ease of access and the large impact it can make. The National Research Council stated that the U.S. power grid is “vulnerable to intelligent multi-site attacks by knowledgeable attackers intent on causing maximum physical damage to key components on a wide geographical scale.”[[1]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn1) Additionally, the physical security of transmission and distribution systems is difficult due to the dispersed nature of these key components, which in turn is advantageous to attackers as it reduces the likelihood of their capture.[[2]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn2) From 2002-2012, approximately 2,500 physical attacks occurred against transmission lines and towers worldwide and approximately 500 attacks against transformer substations.[[3]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn3) Terrorists have the motivation to attack the U.S. power grid but the very nature of the grid makes it highly vulnerable. The power grid is not only at risk from physical attacks, but also nation-state cyberattacks.

One nation that has shown both the capability and intent to use attacks against critical energy infrastructure is Russia, as demonstrated in their 2015 annexation of Crimea from Ukraine. A Russian cyber threat group known as Sandworm, which used its BlackEnergy malware, attacked Ukrainian computer systems that provide remote control of the Ukraine power grid.[[4]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn4) This attack, and another in 2016, each left the capital Kiev without power, prompting cyber experts to raise concern about the same malware already existing in NATO and the U.S. power grids.[[5]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn5) In any conflict between Russia and NATO, not only would similar cyberattacks pose a threat, but so would potential physical attacks severing fuel oil and natural gas lines to Western Europe. Russia has both the capability and intent to attack critical infrastructure, particularly power grids, during future conflicts in their “hybrid warfare” approach.

Another nation that has the capability to attack critical energy infrastructure is China, representing a threat to not just the U.S. energy infrastructure but also that of our allies whose support would be vital in a major conflict. A recent NATO report highlighted this threat from China’s Belt and Road Initiative, stating that “[China’s] foreign direct investment in strategic sectors [such as energy generation and distribution] …raises questions about whether access and control over such infrastructure can be maintained, particularly in crisis when it would be required to support the military.”[[6]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn6) Like Russia, China has been active with cyber intrusions in U.S. energy infrastructure. The Mission Support Center at Idaho National Laboratory characterized these as attacks as “multiple intrusions into US ICS/SCADA [Industrial Control Systems/Supervisory Control and Data Acquisition] and smart grid tools [that] may be aimed more at intellectual property theft and gathering intelligence to bolster their own infrastructure, but it is likely that they are also using these intrusions to develop capabilities to attack the [bulk electric system], as well.”[[7]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn7) China, therefore, has both the capability and intent to conduct cyber intrusions and attacks for myriad reasons.

Another arm of this threat is the reliance the U.S. energy industry has on imports from China, especially transformers. In early 2020, federal officials seized a transformer in the port of Houston that had been imported by the Jiangsu Huapeng Transformer Company before sending it to Sandia National Laboratory in Albuquerque. Sandia is contracted by the U.S. Department of Energy for mitigating national security threats.[[8]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn8) The Wall Street Journal reported that “Mike Howard, chief executive of the Electric Power Research Institute, a utility-funded technical organization, said that the diversion of a huge, expensive transformer is so unusual – in his experience, unprecedented – that it suggests officials had significant security concerns.”[[9]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn9) Previously destined for the Washington Area Power Administration’s Ault, Colo., substation, the transformer is believed to have been seized due to “backdoor” exploitable hardware emplaced by the Chinese prior to shipment.[[10]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/#_ftn10) Shortly after these events, President Trump issued Executive Order 13920, “[Securing the United States Bulk-Power System](https://trumpwhitehouse.archives.gov/presidential-actions/executive-order-securing-united-states-bulk-power-system/),” essentially limiting the import of Chinese-built critical energy infrastructure components due to concerns about cybersecurity.[[11]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/#_ftn11) Interestingly, Jiangsu Huapeng “boasted that it supported 10 percent of New York City’s electricity load.”[[12]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/#_ftn12)

Franklin Kramer, the former Assistant Secretary of Defense for International Security Affairs, testified before a U.S. House of Representatives Energy and Commerce subcommittee during an energy and power hearing in 2011 and said that a “highly-coordinated and structured cyber, physical, or blended attack on the bulk power system, however, could result in long-term (irreparable) damage to key system components in multiple simultaneous or near-simultaneous strikes.” He added that “an outage could result with the potential to affect a wide geographic area and cause large population centers to lose power for extended periods.”[[13]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/#_ftn13) Even the inclusion of features such as smart grids to the overall grid structure poses new vulnerabilities through their connectivity. Kramer stated that “such connectivity means that the distribution system could be a key vector for a national security attack on the grid.”[[14]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/#_ftn14)

#### Those attacks cause accidental nuclear escalation.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation)

Yet another pathway to escalation could arise from a cascading series of cyberstrikes and counterstrikes against vital national infrastructure rather than on military targets. All major powers, along with Iran and North Korea, have developed and deployed cyberweapons designed to disrupt and destroy major elements of an adversary’s key economic systems, such as power grids, financial systems, and transportation networks. As noted, Russia has infiltrated the U.S. electrical grid, and it is widely believed that the United States has done the same in Russia.[12](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12) The Pentagon has also devised a plan known as “Nitro Zeus,” intended to immobilize the entire Iranian economy and so force it to capitulate to U.S. demands or, if that approach failed, to pave the way for a crippling air and missile attack.[13](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12)

The danger here is that economic attacks of this sort, if undertaken during a period of tension and crisis, could lead to an escalating series of tit-for-tat attacks against ever more vital elements of an adversary’s critical infrastructure, producing widespread chaos and harm and eventually leading one side to initiate kinetic attacks on critical military targets, risking the slippery slope to nuclear conflict. For example, a Russian cyberattack on the U.S. power grid could trigger U.S. attacks on Russian energy and financial systems, causing widespread disorder in both countries and generating an impulse for even more devastating attacks. At some point, such attacks “could lead to major conflict and possibly nuclear war.”[14](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote14)

These are by no means the only pathways to escalation resulting from the offensive use of cyberweapons. Others include efforts by third parties, such as proxy states or terrorist organizations, to provoke a global nuclear crisis by causing early-warning systems to generate false readings (“spoofing”) of missile launches. Yet, they do provide a clear indication of the severity of the threat. As states’ reliance on cyberspace grows and cyberweapons become more powerful, the dangers of unintended or accidental escalation can only grow more severe.

#### Cyber-compromised NC3 causes nuclear war.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, <https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation>)

The Nuclear-Cyber Connection

These links exist because the NC3 systems of the United States and other nuclear-armed states are heavily dependent on computers and other digital processors for virtually every aspect of their operation and because those systems are highly vulnerable to cyberattack. Every nuclear force is composed, most basically, of weapons, early-warning radars, launch facilities, and the top officials, usually presidents or prime ministers, empowered to initiate a nuclear exchange. Connecting them all, however, is an extended network of communications and data-processing systems, all reliant on cyberspace. Warning systems, ground- and space-based, must constantly watch for and analyze possible enemy missile launches. Data on actual threats must rapidly be communicated to decision-makers, who must then weigh possible responses and communicate chosen outcomes to launch facilities, which in turn must provide attack vectors to delivery systems. All of this involves operations in cyberspace, and it is in this domain that great power rivals seek vulnerabilities to exploit in a constant struggle for advantage.

The use of cyberspace to gain an advantage over adversaries takes many forms and is not always aimed at nuclear systems. China has been accused of engaging in widespread cyberespionage to steal technical secrets from U.S. firms for economic and military advantages. Russia has been accused, most extensively in the Robert Mueller report, of exploiting cyberspace to interfere in the 2016 U.S. presidential election. Nonstate actors, including terrorist groups such as al Qaeda and the Islamic State group, have used the internet for recruiting combatants and spreading fear. Criminal groups, including some thought to be allied with state actors, such as North Korea, have used cyberspace to extort money from banks, municipalities, and individuals.[4](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote04) Attacks such as these occupy most of the time and attention of civilian and military cybersecurity organizations that attempt to thwart such attacks. Yet for those who worry about strategic stability and the risks of nuclear escalation, it is the threat of cyberattacks on NC3 systems that provokes the greatest concern.

This concern stems from the fact that, despite the immense effort devoted to protecting NC3 systems from cyberattack, no enterprise that relies so extensively on computers and cyberspace can be made 100 percent invulnerable to attack. This is so because such systems employ many devices and operating systems of various origins and vintages, most incorporating numerous software updates and “patches” over time, offering multiple vectors for attack. Electronic components can also be modified by hostile actors during production, transit, or insertion; and the whole system itself is dependent to a considerable degree on the electrical grid, which itself is vulnerable to cyberattack and is far less protected. Experienced “cyberwarriors” of every major power have been working for years to probe for weaknesses in these systems and in many cases have devised cyberweapons, typically, malicious software (malware) and computer viruses, to exploit those weaknesses for military advantage.[5](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote05)

Although activity in cyberspace is much more difficult to detect and track than conventional military operations, enough information has become public to indicate that the major nuclear powers, notably China, Russia, and the United States, along with such secondary powers as Iran and North Korea, have established extensive cyberwarfare capabilities and engage in offensive cyberoperations on a regular basis, often aimed at critical military infrastructure. “Cyberspace is a contested environment where we are in constant contact with adversaries,” General Paul M. Nakasone, commander of the U.S. Cyber Command (Cybercom), told the Senate Armed Services Committee in February 2019. “We see near-peer competitors [China and Russia] conducting sustained campaigns below the level of armed conflict to erode American strength and gain strategic advantage.”

Although eager to speak of adversary threats to U.S. interests, Nakasone was noticeably but not surprisingly reluctant to say much about U.S. offensive operations in cyberspace. He acknowledged, however, that Cybercom took such action to disrupt possible Russian interference in the 2018 midterm elections. “We created a persistent presence in cyberspace to monitor adversary actions and crafted tools and tactics to frustrate their efforts,” he testified in February. According to press accounts, this included a cyberattack aimed at paralyzing the Internet Research Agency, a “troll farm” in St. Petersburg said to have been deeply involved in generating disruptive propaganda during the 2016 presidential elections.[6](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote06)

Other press investigations have disclosed two other offensive operations undertaken by the United States. One called “Olympic Games” was intended to disrupt Iran’s drive to increase its uranium-enrichment capacity by sabotaging the centrifuges used in the process by infecting them with the so-called Stuxnet virus. Another left of launch effort was intended to cause malfunctions in North Korean missile tests.[7](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote07) Although not aimed at either of the U.S. principal nuclear adversaries, those two attacks demonstrated a willingness and capacity to conduct cyberattacks on the nuclear infrastructure of other states.

Efforts by strategic rivals of the United States to infiltrate and eventually degrade U.S. nuclear infrastructure are far less documented but thought to be no less prevalent. Russia, for example, is believed to have planted malware in the U.S. electrical utility grid, possibly with the intent of cutting off the flow of electricity to critical NC3 facilities in the event of a major crisis.[8](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote08) Indeed, every major power, including the United States, is believed to have crafted cyberweapons aimed at critical NC3 components and to have implanted malware in enemy systems for potential use in some future confrontation.

Pathways to Escalation

Knowing that the NC3 systems of the major powers are constantly being probed for weaknesses and probably infested with malware designed to be activated in a crisis, what does this say about the risks of escalation from a nonkinetic battle, that is, one fought without traditional weaponry, to a kinetic one, at first using conventional weapons and then, potentially, nuclear ones? None of this can be predicted in advance, but those analysts who have studied the subject worry about the emergence of dangerous new pathways for escalation. Indeed, several such scenarios have been identified.[9](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote09)

The first and possibly most dangerous path to escalation would arise from the early use of cyberweapons in a great power crisis to ~~paralyze~~ undermine the vital command, control, and communications capabilities of an adversary, many of which serve nuclear and conventional forces. In the “fog of war” that would naturally ensue from such an encounter, the recipient of such an attack might fear more punishing follow-up kinetic attacks, possibly including the use of nuclear weapons, and, fearing the loss of its own arsenal, launch its weapons immediately. This might occur, for example, in a confrontation between NATO and Russian forces in east and central Europe or between U.S. and Chinese forces in the Asia-Pacific region.

Speaking of a possible confrontation in Europe, for example, James N. Miller Jr. and Richard Fontaine wrote that “both sides would have overwhelming incentives to go early with offensive cyber and counter-space capabilities to negate the other side’s military capabilities or advantages.” If these early attacks succeeded, “it could result in huge military and coercive advantage for the attacker.” This might induce the recipient of such attacks to back down, affording its rival a major victory at very low cost. Alternatively, however, the recipient might view the attacks on its critical command, control, and communications infrastructure as the prelude to a full-scale attack aimed at neutralizing its nuclear capabilities and choose to strike first. “It is worth considering,” Miller and Fontaine concluded, “how even a very limited attack or incident could set both sides on a slippery slope to rapid escalation.”[10](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote10)

What makes the insertion of latent malware in an adversary’s NC3 systems so dangerous is that it may not even need to be activated to increase the risk of nuclear escalation. If a nuclear-armed state comes to believe that its critical systems are infested with enemy malware, its leaders might not trust the information provided by its early-warning systems in a crisis and might misconstrue the nature of an enemy attack, leading them to overreact and possibly launch their nuclear weapons out of fear they are at risk of a preemptive strike.

“The uncertainty caused by the unique character of a cyber threat could jeopardize the credibility of the nuclear deterrent and undermine strategic stability in ways that advances in nuclear and conventional weapons do not,” Page O. Stoutland and Samantha Pitts-Kiefer wrote in 2018 paper for the Nuclear Threat Initiative. “[T]he introduction of a flaw or malicious code into nuclear weapons through the supply chain that compromises the effectiveness of those weapons could lead to a lack of confidence in the nuclear deterrent,” undermining strategic stability.[11](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote11) Without confidence in the reliability of its nuclear weapons infrastructure, a nuclear-armed state may misinterpret confusing signals from its early-warning systems and, fearing the worst, launch its own nuclear weapons rather than lose them to an enemy’s first strike. This makes the scenario proffered in the 2018 NPR report, of a nuclear response to an enemy cyberattack, that much more alarming.

## T---Exemptions

### 2AC---Scope

#### Counter-interpretation---scope is room for activities---the plan expands it by including un-FRAND-ly restrictions.

Levin 2 (LEVIN, United States Magistrate Judge. MEMORANDUM OPINION AND ORDER in Dabertin v. HCR Manor Care, Inc., 235 F. Supp. 2d 853 (N.D. Ill. 2002). Google scholar caselaw. Date accessed 7/21/21).

Dabertin asserts that HCR Manor Care's "scope" rationale ignores the significant 864\*864 changes that occurred in her job involving her "space or opportunity for unhampered activity," "extent of activity or influence," or "range of operation," which are the ordinary meanings of the term "scope" (see Webster's New Collegiate Dictionary (1977), at 1035). (Pl.'s Reply at 1.) In addition, Dabertin contends that HCR Manor Care's "scope" rationale nullifies the reasonable expectations of Plan participants who relied on the ordinary, popular meaning of Article 1.8(i)'s language. (Id.)

## T---Courts

### 2AC---AT: T---Expand Scope =/= Courts---TL

#### We meet---the plan expands the scope of the Sherman Act to hold SSO’s liable for unreasonably restricting commerce.

Wright 9 (University Professor Joshua D. Wright is the Executive Director of the Global Antitrust Institute and holds a courtesy appointment in the Department of Economics. On January 1, 2013, the U.S. Senate unanimously confirmed Professor Wright as a member of the Federal Trade Commission (FTC), following his nomination by President Obama to that position. He rejoined Scalia Law School as a full-time member of the faculty in Fall 2015. “INTELLECTUAL PROPERTY, STANDARD SETTING, AND THE LIMITS OF ANTITRUST” , <https://laweconcenter.org/resource/intellectual-property-standard-setting-and-the-limits-of-antitrust/> , 22 OCTOBER 2009, date accessed 9/4/21)

One of the most significant challenges facing competition policy today is defining the appropriate role of antitrust law within the context of intellectual property right licensing by standard-setting organizations (“SSOs”). Many commentators believe it is necessary to apply the full force of the antitrust laws, and sometimes special rules that would increase the scope of antitrust, to the standard-setting process in order to adequately oversee what they perceive as a unique opportunity for anticompetitive behavior. Indeed, antitrust agencies both in the United States and around the world have expressed agreement with the notion that the standard setting process requires strong enforcement of antitrust liability rules in order to ensure efficient outcomes that benefit consumers. However, this view largely fails to consider the costs of antitrust. In particular, it fails to recognize the limits of antitrust when the marginal benefit of antitrust enforcement is slight and the potential for erroneous enforcement (“false positives”) and thus, the likelihood that procompetitive behavior will be deterred, is high. The Supreme Court itself has emphasized repeatedly that the scope of the antitrust laws should be responsive to such a cost-benefit analysis.

#### Counter-interp---court decisions change the scope of antitrust prohibitions.

Turner 90 (DONALD F. TURNER- was an American antitrust attorney, economist, legal scholar and educator who spent most of his career teaching at Harvard Law School. “The virtues and problems of antitrust law” , The Antitrust Bulletin/Summer 1990, Hein accessed online via KU Libraries , date accessed 9/6/21)

However, unsound interpretations of antitrust laws have adverse economic effects. Court-formulated rules have varied from time to time over the years since antitrust statutes were passed, and the scope of antitrust prohibitions were either enlarged or reduced. While there are extensive disputes as to what the precedents' defects have been and are, it is generally recognized that antitrust law has had and still has some undesirable features that the courts or Congress should correct.

#### Court decisions also change the law.

California Supreme Court 88 (PANELLI-judge. Opinion in Jolly v. Eli Lilly & Co., 751 P. 2d 923 - Cal: Supreme Court 1988. Google scholar caselaw, date accessed 9/13/21)

At a less legalistic but more fundamental level, plaintiff argues, with some persuasive force, that prior to Sindell she could not have prevailed on her 1116\*1116 suit. She notes that during the time that defendants argue her action would have been timely, McCreery v. Eli Lilly & Co., supra, 87 Cal. App.3d 77 (overruled by Sindell, supra, 26 Cal.3d 588), effectively barred her claim. In McCreery, the Court of Appeal held that a plaintiff who could not identify the precise manufacturer of the pills ingested by her mother did not allege a cause of action. Plaintiff undoubtedly fell into this group. (6a), (5b) The response to plaintiff's contention is that a change in the law, either by statute or by case law, does not revive claims otherwise barred by the statute of limitations.

#### The term ‘law’ alone includes court decisions.

Olson 18 (OLSON-judge. Opinion in Commonwealth v. Robertson, 186 A. 3d 440 - Pa: Superior Court 2018. Google scholar caselaw, date accessed 9/2/21).

Furthermore, the word "law" is generally regarded as including court decisions. The relevant definition of "law" in Black's Law Dictionary is, "The aggregate of legislation, judicial precedents, and accepted legal principles; the body of authoritative grounds of judicial and administrative action; esp[ecially], the body of rules, standards, and principles that the courts of a particular jurisdiction apply in deciding controversies brought before them[.]" Black's Law Dictionary, 1015 (10th ed. 2014) (emphasis added). Hence, "law" is not only "legislation" but also "judicial precedents." Birchfield was a judicial precedent which was the law of this Commonwealth at the time of Appellee's arrest. Cf. U.S. Const. art. VI, cl. 2 (the Constitution is the supreme law of our nation). Accordingly, the presumption that an individual is aware of the law includes not just statutory compilations but also judicial decisions. Thus, the trial court erred in finding that Appellee was presumed to believe she was subject to enhanced criminal penalties because of the unconstitutional provision of the Motor Vehicle Code.

#### Expand includes clarification, not amendment.

Washington Court of Appeals 4 (HOUGHTON, J. Opinion in State v. Cannon, 84 P. 3d 283 - Wash: Court of Appeals, 2nd Div. 2004. Google scholar caselaw. Date accessed 7/12/21).

In 2002, the House and Senate introduced two identical bills, House Bill 1512 and Senate Bill 6346, to alter the definition of "photograph." The Final Bill Report on House Bill 1512 states, "The term `photograph' in the child pornography statutes is expanded to include digital images and both tangible and intangible items." H.B. REP. on HB 1512, 57th Leg., Reg. Sess. (Wash.2002). Cannon argues that by using the word "expand," the Legislature indicates that it amended rather than clarified the statute. We disagree.

#### Prefer our interp: Overlimiting and predictability---like it or not, this is a courts topic---the role of lawmaking was been delegated to the courts.

Rosen 99 (Mark D. Rosen-Assistant Professor, Chicago-Kent College of Law. “Nonformalistic Law in Time and Space” , The University of Chicago Law Review, 66:622, 1999, <https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=5039&context=uclrev> , date accessed 9/3/21)

Consider antitrust law in this regard. The prohibitions found in the core antitrust statutes for the most part eschew formalistic expression; they essentially state policy goals and delegate the development of formalistic rules to the courts. 14 [[FOOTNOTE 14 BEGINS]] " This is recognized by virtually all antitrust scholars. See, for example, Phillip Areeda and Louis Kaplow, Antitrust Analysis: Problems, Text, Cases 5-6 (Little, Brown 4th ed 1988) (noting that "the [Sherman] Act may be little more than a legislative command that the judiciary develop a common law of antitrust"); William F. Baxter, Separation of Powers, Prosecutorial Discretion, and the "Common Law" Nature of Antitrust Law, 60 Tex L Rev 661, 663 (1982) (arguing that in antitrust "Congress in effect delegated much of its lawmaking power to the judicial branch"); Frank H. Easterbrook, Is There a Ratchet in Antitrust Law?, 60 Tex L Rev 705, 706 (1982) (arguing that the antitrust statutes "authorized the Supreme Court to invent and enforce a law of restraint of trade in the common law fashion"). [[FOOTNOTE 14 ENDS]] For example, the Sherman Act makes unlawful every "contract, combination... or conspiracy, in restraint of trade""15 and conduct to 'monopolize, or attempt to monopolize ... any part of ... trade."16 This central statutory provision thus does not identify concretely what actions are impermissible, but instead describes the prohibited acts in highly abstract terms that restate the statute's ultimate policy goals. 17 The fact that a few provisions of the antitrust statutes do employ formalistic rules 8 underscores the significance of Congress's decision to adopt, for the most part, nonformalistic antitrust law, for it establishes that Congress knew how to draft formalistic rules when it wanted to. But why did Congress elect to rely predominantly on broad standards in this field of law? A plausible answer is that Congress did not perceive itself as being capable of providing effective detailed rules because it had "little understanding of what the government could and ought to do to" achieve antitrust's policy goals. 9 Congress well could have believed that courts, by contrast, could function as "great laboratories of the law" where "[e]very new case is an experiment" such that "if the accepted rule which seems applicable yields a result which is felt to be unjust, the rule [can be] reconsidered."'20

## AT: T---PRIVATE SECTOR = ALL

### 2AC---AT: T---Private Sector = All---TL

#### Counter-interpretation---the private sector includes an industry.

The Law Dictionary N.D., (The Law Dictionary: Featuring Black's Law Dictionary Free Online Legal Dictionary 2nd Ed. “Private Sector” , <https://thelawdictionary.org/private-sector/> , date accessed 9/11/21)

What is PRIVATE SECTOR?

An industry that is composed of private companies. The corporate sector and the personal sector are encompassed in the private sector and they are responsible for the allocation of the majority of resources within the economy.

#### The private sector includes subsets---refers to many different actors.

Waler and Hofstetter 16 (Katharina Walker is Advisor for vocational skills development and Helvetas’ youth focal person. Sonja Hofstetter joined Swisscontact in Cambodia in July 2016. She is the Quality Assurance Manager and Deputy Team Leader of the Skills Development Programme. “ Study on Agricultural Technical and Vocational Education and Training (ATVET) in Developing Countries” Federal Department of Foreign Affairs FDFA, Swiss Agency for Development and Cooperation SDC, Global Programme Food Security, 25.1.2016, <https://www.shareweb.ch/site/Agriculture-and-Food-Security/focusareas/Documents/ras_capex_ATVET_Study_2016.pdf> , date accessed 7/19/21)

In many developing countries, the private sector1 [[BEGIN FOOTNOTE 1]] 1 The private sector is not perceived as a homogenous mass even though the terminology might suggest this to be the case. In this study, the term “private sector” is used to circumscribe the various actors such as small and medium sized companies, large companies, sectorial associations, business associations, chambers of commerce, etc.[[END FOOTNOTE 1]] faces challenges in finding adequately skilled employees. This also holds true for sectors linked to agriculture, e.g. processing, distribution, marketing, etc. The development of ATVET from a purely productivity-oriented approach to provide broader and more specialised skills sets along agricultural value chains is likely to raise the interest of private sector actors. This incentive can result in a stronger and more sustainable financial and conceptual engagement of employers in ATVET.

#### ‘By’ only requires anticompetitive practices resulting from private sector action.

Michigan Court of Appeals 10 (SAWYER, J. Opinion in DEQ. v. Worth Twp., 808 N.W.2d 260, 289 Mich. App. 414 (Ct. App. 2010). Google scholar caselaw. Date accessed 7/23/21).

Second, we look to the meaning of the phrase "by the municipality." This phrase is key because it answers plaintiffs' contention that MCL 324.3109(2) imposes responsibility for a discharge on a municipality without regard to the source of the discharge. That is, plaintiffs argue that any discharge of raw sewage within a municipality constitutes prima facie evidence of a violation by the municipality even if the municipality is not the source of the discharge. We disagree. The word "by" has many meanings. For its meaning as a nonlegal term, we look to a layman's dictionary rather than a legal one. Horace v. City of Pontiac, 456 Mich. 744, 756, 575 N.W.2d 762 (1998). We find these definitions from the Random House Webster's College Dictionary (1997) to be particularly helpful: "10. through the agency of" and "12. as a result or on the basis of[.]" Thus, MCL 324.3109(2) imposes responsibility on the municipality not when the violation merely occurs within the boundaries 264\*264 of the municipality, but when the violation occurs "through the agency of" the municipality or "as a result" of the municipality, that is to say, when it is the actions of the municipality that lead to the discharge.

## AT: T---PROHIBIT = BAN

### 2AC---AT: T---Prohibit = Ban---TL

#### We meet---Antitrust prohibitions can include exemptions.

Frederick 89 (Donald A. Frederick-Attorney-Adviser. “MANAGING COOPERATIVE ANTITRUST RISK” , United States Department of Agriculture, Agricultural Cooperative Service, Cooperative Information Report 38, <https://www.rd.usda.gov/files/cir38.pdf>, 1989, date accessed 9/5/21)

This exposes farmers to considerable antitrust risk unless their joint marketing activity is conducted in a manner exempt from antitrust prohibitions. As one judge phrased it:

“It is clear that if individual agriculturalists, through the medium of a cooperative, jointly fixed prices, reasonably or otherwise, without statutory authorization, they would be subject to prosecution.” (emphasis added) 14/

#### Counter-interp---prohibit can mean ‘severely hinder’---doesn’t necessitate a ban.

Washington Court of Appeals 19 (KORSMO-judge. Opinion in State v. Kimball, No. 35441-5-III (Wash. Ct. App. Apr. 2, 2019). Google scholar caselaw. Date accessed 7/13/21).

His argument runs counter to the meaning of the word "prohibit." It means "1. To forbid by law. 2. To prevent, preclude, or severely hinder." BLACK'S LAW DICTIONARY 1405 (10th ed. 2014). As "severely hinder" suggests, a "prohibition" need not be an all or nothing proposition.

Our court reached that same conclusion, rejecting a similar argument, in Dejarlais. There the court stated, "nothing in the statute prevents drafting a protection order which allows some contact, for instance, by telephone or through a third party. There is no requirement that all contact be prohibited." State v. Dejarlais, 136 Wn.2d 939, 945, 969 P.2d 90 (1998).

RCW 26.50.110 does not apply only to orders that prohibit all contact. Accordingly, the statute was properly applied to Mr. Kimball's behavior.

## CP---Multilateral

### 2AC---Say No

#### 2---zero risk of international agreement

Stephan 5, Professor and Hunton & Williams Research Professor, University of Virginia School of Law. (Paul, “Global Governance, Antitrust, and the Limits of International Cooperation,” <https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=1635&context=cilj>)

The broad definition of competition policy not only makes sense logically, but underscores the difficulties of achieving an international consensus about its content. Even if states could agree that efficiency optimization of the sum of consumer and producer welfare-is the only legitimate objective of competition policy, agreement as to whether a particular regime advances or detracts from efficiency would remain elusive. Specifying the optimal mix of competition and cooperation in a particular economic sector is inevitably controversial. 23 Technological innovation and other kinds of change, as well as shifting consumer preferences, limit the lessons one can learn from a sector's history. Once legitimate differences over the optimal level of competition arise, it becomes difficult, if not impossible, to determine whether a regulator is pursuing efficiency-driven competition policy. The proliferation of alternative objectives for competition policy multiplies the difficulty of finding common ground. Given the difficulty of fixing optimal levels of competition, we should expect much competition law to take the form of elastic standards rather than of precise and constraining rules. With increased discretion comes inconsistency. For example, one cannot insist on maximizing consumer welfare and still promote national champions or protect inefficient small producers. In turn, tolerance of inconsistency opens the door to discrimination. Regulatory choices driven by animus towards foreign producers can be reconciled with other, permissible rationales. The more open-ended and multi-factored the policy and the greater the discretion of regulators to decide where and how to apply competition policy, the easier it becomes to disguise trade protection as competition policy. 24 Strategic deployment of competition law would be most feasible where governments have exclusive enforcement authority. 25

#### A broad, unambiguous, transparently enforceable ruling is key---the counterplan confuses the plan’s decision, ruining investor certainty and inviting loopholes----links to biz con

Reed 19, \*Morgan Reed, President of the App Association, represents more than 5,000 app makers and connected device companies in the mobile economy; (March 13th, 2019, “An FTC Settlement with Qualcomm Could Hold the Entire IoT Economy Hostage”, https://actonline.org/2019/03/13/an-ftc-settlement-with-qualcomm-could-hold-the-entire-iot-economy-hostage/)

Any Outcome that Allows Qualcomm to Export its Illegal Behavior to New Markets Would Be Devastating

Qualcomm’s executives are desperate to save their jobs as shareholders fume over the $121 billion offer they rejected, and time is running out to turn the ship around. Qualcomm’s history, and its current desperate situation, mean that FTC cannot take any promises Qualcomm makes at face value, and must ensure any remedies they reach are iron clad and not limited to a few companies or even the broader smartphone industry. Any company willing to argue that the refusal to license patents to competitors is perfectly legal under its FRAND commitments clearly has no qualms about breaking its contracts and legal commitments. With shareholders demanding results immediately, Qualcomm’s executives will be looking for any loophole or gray area they can exploit as long as possible.

Perhaps most importantly, the FTC must ensure any outcome of this case protects competition beyond the smartphone industry.  Any court decision or settlement in this case should be comprehe

nsive (i.e., fully address each charge the FTC has made in its enforcement action), enforceable, and as transparent as possible in order to provide small business innovators with maximum clarity.

As we move toward a 5G connected world, Qualcomm’s practices represent a clear and present danger to the entire economy. We must protect these standards which form the foundation for competition in the connected economy, and that means holding Qualcomm to their FRAND commitments across the board in a way that leaves no room for the gamesmanship it is famous for in this context. Anything less will only serve to encourage Qualcomm to export its anticompetitive behavior to every corner of the economy.

## CP---Sunbursting

### 2AC---Solvency

#### This CP isn’t a thing and doesn’t solve the aff and links to the NBs if it is.

Hammer, Harvard University JD candidate, 2018

[Stephen, “RETROACTIVITY AND RESTRAINT: AN ANGLO-AMERICAN COMPARISON” <http://www.harvard-jlpp.com/wp-content/uploads/2018/01/Hammer_FINAL.pdf>, accessed 3-24-19, TAP]

The history of prospective decisionmaking at the federal level traces a distinctive arc: the practice found acceptance in the 1930s, escalated in the 1960s, fell into disfavor in the 1980s, and was strictly curtailed in the 1990s. Although courts very occasionally accepted or used prospective decisionmaking in the nineteenth century,32 the common use of prospectivity in America only began in the early twentieth century. In the 1932 case of Great Northern Railway Co. v. Sunburst Oil & Refining Co.,33 the Supreme Court held that the federal Constitution does not prohibit prospective decisionmaking by state courts.34 Earlier that year, the Montana Supreme Court ruled that a previous case regarding railway tariffs was wrongly decided.35 Nevertheless, the court held that the previous rule was good law for all those who had acted on it before the 1932 decision.36 Going forward, it would no longer be law.37 In short, the Montana Supreme Court overruled itself purely prospectively.

The U.S. Supreme Court affirmed. The Court, per Justice Cardozo, held that “the federal constitution has no voice” on prospectivity, and that states have the option to decide cases prospectively or retroactively.38 The Court found that the Due Process Clause of the Fourteenth Amendment does not force a particular “juristic philosophy”39 of the common law on the states;40 they may choose for themselves “between the principle of forward operation and that of backward relation.”41 Thus prospective decisionmaking—which came to be known as “sunbursting”42—received the imprimatur of the Supreme Court.

Karl Llewellyn, an advocate of prospectivity as a tool of judicial craftsmanship,43 later stated that “I do not think many opinions gave [Cardozo] greater pleasure” than Sunburst Oil.44 Prospectivity had long been a subject of interest to Justice Cardozo. He has been described as a “pragmatic conceptualist,” who, in contrast to the Realists, thought that the law consists of meaningful concepts,45 yet also believed that judges should adapt those concepts to changing circumstances.46 In his 1921 lectures compiled as The Nature of the Judicial Process, Cardozo had approvingly noted the use of prospectivity in cases where retroactivity would cause great hardship.47 He suggested that the use of prospective decisionmaking in the future should be governed not by “metaphysical conceptions of the nature of the judge-made law, nor by the fetich [sic] of some implacable tenet, such as that of the division of governmental powers, but by considerations of convenience, of utility, and of the deepest sentiments of justice.”48 Just before his confirmation to the Supreme Court, then-Judge Cardozo advocated even more strongly for the use of prospectivity. In a 1932 address to the New York State Bar Association, Cardozo stated that he saw prospective decisionmaking as a prudent solution in cases where retroactivity would be “for any reason inexpedient.”49 Prospectivity appealed to Justice Cardozo’s pragmatism while not violating his sense of the necessary stability and predictability of the law,50 and under his opinion in Sunburst Oil, its use became widespread in America.

The Supreme Court began developing its own doctrine of prospectivity in the 1965 case of Linkletter v. Walker.51 In 1959, Linkletter was convicted of burglary based on evidence obtained from his home and business by the police.52 A 1961 Supreme Court case, Mapp v. Ohio,53 found for the first time that the Due Process Clause of the Fourteenth Amendment requires states to exclude evidence seized in violation of the Fourth Amendment.54 After Mapp, Linkletter sought a writ of habeas corpus in federal court to challenge his burglary conviction as based on unconstitutionally-obtained evidence.55 The Court held that Mapp did not operate retroactively on cases finally decided before it came down.56

Echoing Justice Cardozo in Sunburst Oil, the Court found that the Constitution “neither prohibits nor requires” retrospective effect for the application of new constitutional rules.57 The Court found that a change in law had to be given retroactive effect for a case on direct review, but that for a judgment being collaterally attacked, whether a change should have retroactive effect depended on an individualized consideration.58 Noting that there was no distinction in terms of retroactivity analysis between civil and criminal cases, the Court stated that “the accepted rule today is that in appropriate cases the Court may in the interest of justice make the rule prospective.”59 The Court then sketched a three-factor test for determining whether a new rule should be given retroactive effect on collateral review: (1) the purpose of the new rule; (2) the reliance placed upon the old rule; and (3) the effect on the administration of justice of a retroactive application of the new rule.60 Weighing the factors, the Court found that the Mapp rule should not be given retroactive effect on collateral review.61

Justice Black, in a dissent joined by Justice Douglas, called the Court’s use of selective prospectivity “arbitrary and discriminatory.”62 Linkletter, who received no relief under Mapp, had actually committed his crime after Mapp herself.63 When Mapp’s conviction was vacated by the new rule in her case, Linkletter was left in prison—a clear instance of unequal treatment under law.64 Justice Black reiterated his earlier assertion that the requirement of retroactivity formed “one of the great inherent restraints upon this Court’s departure from the field of interpretation to enter that of lawmaking.”65 Shortly after Linkletter, the Court decided that the case’s three-factor test could also be used to decide whether new rules should be given retroactive effect on direct review.66

In 1971, the Court addressed the prospective application of new rules of civil law in the case of Chevron Oil Co. v. Huson.67 The Supreme Court had previously decided Rodrigue v. Aetna Casualty & Surety Co.,68 which held that state law, not admiralty law, applies on oil rigs on the Outer Continental Shelf.69 The question in Chevron Oil was whether Rodrigue’s new rule should govern a claim that arose before it was decided. The Court identified three factors for determining whether a new rule of civil law should be applied prospectively: (1) whether the decision establishes a new principle of law; (2) whether retroactive application would further the purposes of the rule; and (3) whether retroactive application would produce inequitable results.70 Applying this test, the Court held that Rodrigue should not be applied retroactively.71

After a period of embracing prospective overruling, the Supreme Court came to develop grave doubts about the practice.

In a series of forceful dissents, Justice Harlan criticized the use of prospective overruling as contrary to the constitutional function of the federal courts. In 1967, Katz v. United States72 stated a new rule that a Fourth Amendment search and seizure does not require a physical intrusion into an enclosure.73 The next term, in Desist v. United States,74 the Court held that Katz did not apply retroactively to any cases involving searches conducted before the new rule was promulgated.75 In dissent, Justice Harlan declared, “‘Retroactivity’ must be rethought.”76 Though Justice Harlan had joined in previous opinions limiting the retroactive effect of new constitutional rules, he had done so to limit the impact of decisions that seemed to him “profoundly unsound in principle.”77 He further argued that the discretionary availability of prospective overruling in constitutional criminal law had yielded wide doctrinal confusion. Its use also “depart[ed] from th[e] basic judicial tradition” of treating similarly situated defendants the same78—Katz had received the benefit of the new rule, while Desist had not. Justice Harlan would have applied Katz retroactively.79

Justice Harlan further developed his critique of nonretroactivity in the 1971 case of Mackey v. United States.80 In 1968, the Court established a new rule in Marchetti v. United States81 that the Fifth Amendment is a valid defense to a prosecution for failure to register as a gambler and pay a gambling tax.82 In Mackey, the Court held that Marchetti did not apply retroactively to a conviction that had occurred before that case and that was being heard on collateral review.83 Justice Harlan, concurring in the judgment, noted that the Court’s use of nonretroactivity had been seen by some members of the Court as a way of limiting unsound decisions, and by others as a “technique” for the “implementation of long overdue reforms, which otherwise could not be practicably effected.”84 Justice Harlan pointedly observed that although he did not subscribe to the Blackstonian declaratory theory, he believed that the decision whether to make a new constitutional rule retroactive had to be informed by the nature of the judicial function and its distinction from the legislative role.85 He contended that the Court is limited by Article III to deciding actual cases or controversies,86 and cannot apply one constitutional law to one case “fish[ed] . . . from the stream of appellate review . . . as a vehicle for pronouncing new constitutional standards,” and not apply the rule to similarly situated cases.87 He also noted that prospectivity tended to “cut th[e] Court loose from the force of precedent” and freed it to “restructure artificially” the expectations created by current law.88 Justice Harlan would have required retroactivity for all cases on direct review.89 Justice Harlan’s reasoning was finally adopted by the Court in the 1982 case of United States v. Johnson.90 Payton v. New York,91 an earlier case, held that the Fourth Amendment prohibits police from making a warrantless and nonconsensual entry into a suspect’s home to make a routine felony arrest.92 The question in Johnson was whether Payton should be applied retroactively to a case pending on direct appeal when that case was decided.93 The Court held that it should, expressly agreeing with Justice Harlan’s admonition that “‘[r]etroactivity’ must be rethought”94 and partially adopting his views in Desist and Mackey.95 But the Court limited its holding on retroactivity to the Fourth Amendment, and stated that it did not apply to civil rules, which would continue to be governed by the flexible test from Chevron Oil.96

In the 1987 case Griffith v. Kentucky,97 the Court overruled Linkletter’s three-factor test, holding that new rules of conduct for criminal prosecutions must be applied retroactively to all cases that are pending on direct review or not yet final.98 The case involved the application of Batson v. Kentucky,99 which prohibited racially discriminatory peremptory challenges,100 to a criminal conviction that was on petition for certiorari to the Supreme Court when Batson was decided.101 The Court held that Article III’s cases or controversies requirement prohibits the purely prospective application of new constitutional rules in criminal cases, because such decisionmaking is more akin to legislation than adjudication.102 Furthermore, the Court adopted Justice Harlan’s view that “the integrity of judicial review” requires that a new rule be applied not only to the case at hand, but to all similar cases pending on direct review103—a rejection of selective prospectivity in the criminal context.

Eventually, prospectivity in civil cases also came into question. In the 1991 case of James B. Beam Distilling Co. v. Georgia,104 the Court cast serious doubt on the endurance of Chevron Oil. In a 1984 case called Bacchus Imports, Ltd. v. Dias,105 the Court held that a Hawaii excise tax violated the Commerce Clause.106 After Bacchus, Jim Beam brought suit, seeking a refund of taxes it had paid under Georgia’s similar law.107 A state court declared Georgia’s law unconstitutional, but refused to apply its ruling retroactively, based on the test from Chevron Oil, and the Georgia Supreme Court affirmed.108 The U.S. Supreme Court reversed, finding that Bacchus applied retroactively.109

There was no majority opinion in the case. Justice Souter found that retroactivity is a choice of law for the Court to make when promulgating a new rule, and that Bacchus had been intended to apply retroactively.110 He rejected the use of selectively prospective decisionmaking as inherently inequitable, but did not address the propriety of pure prospectivity.111 Justice White concurred in the judgment, agreeing with Justice Souter on the choice of law question, but also defending Chevron Oil and the continued use of pure prospectivity.112 Justice Blackmun also concurred in the judgment but concluded that both selective and pure prospectivity violate the judicial function.113 Justice Scalia concurred in the judgment as well. Agreeing with Justice Blackmun, he found that both selectively and purely prospective decisionmaking are unconstitutional actions beyond the meaning of “[t]he judicial Power.”114 Echoing the earlier criticisms of Justices Black and Harlan, Justice Scalia described mandatory retroactivity as “one of the understood checks upon judicial law-making; to eliminate [it] is to render courts substantially more free to ‘make new law,’ and thus to alter in a fundamental way the assigned balance of responsibility and power among the three branches.”115 With Beam, the Court had taken a large step towards overruling Chevron Oil, but had not yet found a clear majority to do so.

In 1993, the Court found that majority, overruling Chevron Oil in the case of Harper v. Virginia Department of Taxation.116 In the 1989 case of Davis v. Michigan Department of Treasury,117 the Court declared a state tax on federal retirement benefits unconstitutional.118 The Supreme Court of Virginia, applying the Chevron Oil test, found that Davis did not apply retroactively to taxes imposed before it was decided.119 The U.S. Supreme Court reversed, holding that a rule of federal law, once announced and applied by the Court, must be given retroactive effect in all cases on direct review by all courts, except where the question has been expressly reserved.120 The Court reiterated the “two basic norms of constitutional adjudication” that opposed prospectivity: first, the nature of judicial review as distinct from legislation, and second, the need to treat similarly situated parties the same.121 To uphold these norms, the Court expressly extended Griffith’s ban on selective prospectivity to the civil context and intimated, without holding, that pure prospectivity might also be impermissible.122

In a concurring opinion, Justice Scalia elaborated on the criticism of prospectivity he had advanced in Beam. He called prospective decisionmaking “the handmaid of judicial activism, and the born enemy of stare decisis,” developed in the “heyday of legal realism” for the avowed purpose of making it easier to overrule prior precedent.123 On the other hand, fully retroactive decisionmaking is the tradition of the courts, and forms “a principle distinction between the judicial and the legislative power,” as recognized by Blackstone.124 Justice Scalia drew support from an observation of nineteenth-century Michigan Supreme Court Chief Justice Thomas Cooley: It is said that that which distinguishes a judicial from a legislative act is, that the one is a determination of what the existing law is in relation to some existing thing already done or happened, while the other is a predetermination of what the law shall be for the regulation of all future cases.125 Full retroactivity, Justice Scalia argued, is an inherent aspect of the judicial function.126

With Harper, the Supreme Court came virtually full circle in its approach to prospective decisionmaking. The Court has now decisively rejected selective prospectivity in both the criminal and civil contexts and indicated that pure prospectivity may also be forbidden. The two central reasons the Court has repeatedly cited for rejecting prospectivity are: (1) the nature of the judicial function, and (2) the need for the equitable treatment of litigants. The first reason is that the judicial role is one of deciding cases brought by the parties before the court; the court can say what the law is only in relation to an actual dispute before it. On this understanding, pure prospectivity, by which the court makes a change in the law for the future without applying it to the case at hand, is an illegitimate exercise of legislative power. The second reason is that treating similarly situated parties the same is a central requirement of justice. Selective prospectivity creates two classes of law for two individuals whose cases might have arisen at the same time: the party before the court gets the benefit of the new law, while the party waiting to be heard is shut out. This disparate treatment is in-herently inequitable, and makes selective prospectivity impermissible.127 The history of prospectivity at the federal level involves dueling accounts of fairness in adjudication. On the one hand, Justice Cardozo argued for prospectivity by pointing out that retroactive decisionmaking could create great hardship.128

Unanticipated legal changes that have retroactive effect create unpredictability, leaving individuals unable to conform their conduct to the law. It is chiefly on this account that retroactive criminal legislation has traditionally been seen as a severe abuse of power in Anglo-American legal history.129 Retroactive decisionmaking, particularly when it upsets reliance interests like those in property, contract, or tax cases, causes a similar kind of unfairness.

On the other hand, Justices Harlan and Scalia emphasized the unfairness inherent in prospectivity: that similarly situated litigants would be treated differently based on nothing more than the accident of whose case arrived in court first. For example, in the case of Molitor v. Kaneland Community Unit District 302,130 the Illinois Supreme Court used selective prospectivity to end school district sovereign immunity.131 The case involved a school bus that was driven off the road, hit a cul-vert, exploded, and burned, injuring the eighteen young students inside.132 The court’s use of selective prospectivity granted relief to the student who brought the suit while protecting the reliance interests of the state’s school districts, many of which had chosen not to take out insurance based on the protection afforded them by the immunity rule.133 Yet the court’s decision meant that the seventeen other youths in the very same bus crash would be barred from relief, simply because their cases would reach the court after their fellow student’s.134 This type of arbitrary distinction in the law is also deeply unfair.

The choice between prospectivity and retroactivity, then, appears to involve a choice between two kinds of unfairness. Of the two—(1) unforeseeability of what the law is at any given time, and (2) arbitrary treatment of similarly situated litigants135—the first initially seems more troubling. After all, there are few concepts more central to the rule of law than that the law should be known in advance so that citizens can conform their actions to it. Justice Scalia made this point himself when referring to Caligula’s practice of posting his pronouncements high on columns so that the people would be unable to read them and therefore easier to condemn for disobedience.136 Unforeseeability implicates the great mass of people, while selective prospectivity singles out only one individual for special—typically beneficial—treatment. Thus if a given change is to be implemented, prospective application appears to be the fairer path.

But this comparison presumes what is at issue: the inevitability of a given legal change. This was the point made by Justice Harlan in Mackey. While he had previously seen prospectivity as a way of limiting the harmful effects of changes in the law, others had seen it as a way of enacting changes that could never have been imposed retroactively, precisely because it would have been too harmful to do so.137 Though prospectivity may be a fairer way to implement a given legal change than retroactivity, a rule of mandatory retroactivity for that very reason prevents courts from undertaking disruptive legal changes. Like his fellow Realists, Chief Justice Traynor embraced prospectivity on just this account: A court usually will not overrule a precedent even if it is convinced that the precedent is unsound, when the hardship caused by a retroactive change would not be offset by its benefits. The technique of prospective overruling enables courts to solve this dilemma by changing bad law without upsetting the reasonable expectations of those who relied on it.138

As Traynor’s point makes clear, comparing the fairness of retroactive and prospective decisionmaking is largely missing the point of prospectivity. Under the traditional rule of retroactivity, the very unfairness of unforeseeable change acts as a restraint on judicial lawmaking and a prevention of the unfair consequences that would result from it.139 Meanwhile the unfair arbitrariness of prospectivity is a regular part of its operation. On this understanding, the Court has ultimately come to the right conclusion in describing prospectivity as the more unfair regime of the two. In Harper, the Court rejected prospectivity because it violates the nature of the judicial function and treats similarly situated litigants differently. While these two reasons for rejecting prospectivity are equally applicable to both federal and state courts, Harper’s holding applies only to rules of federal law— Sunburst Oil still recognizes the freedom of state courts to prospectively apply their own interpretations of state law.140 In the exercise of this freedom, state supreme courts have largely continued their use of prospectivity during the decades since Harper was decided.

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Davis and Morse ’18 [Christina and Julia; September 19; Professor of Government at Harvard University; Professor of Political Science at the University of California at Santa Barbara; International Studies Quarterly, “Protecting Trade by Legalizing Political Disputes: Why Countries Bring Cases to the International Court of Justice,” vol. 62]

Trade, Conflict, and Adjudication We argue that countries turn to international adjudication to protect trade flows under conditions of strong economic interdependence. This argument is built on two key assumptions. First, states believe that an international dispute over territory, fishing rights, or another salient issue could harm trade. Second, states view international adjudication as an effective way to end the dispute. Given the risk of harm to economic relations and the potential for courts to contribute to conflict resolution, states with high trade value vested in a relationship will be more willing to undertake costly litigation. This section elaborates on the general conditions of our theory and then explains why the ICJ is a good venue for testing the relationship between economic interdependence and international adjudication. The Adverse Impact of Conflict on Trade The premise that conflict disrupts trade is central to the theory of commercial peace. Russett and Oneal (2001) draw on the work of philosopher Immanuel Kant to argue that interdependence deters conflict by raising its costs. According to this reasoning, war interrupts trade while peace promotes stable commerce, leading states to calculate that the gains of peace are significant compared to the costs of war.4 Other perspectives focus on the informational role of interdependence to lower uncertainty between states (Reed 2003). Gartzke, Li, and Boehmer (2001) contend economic interdependence allows states to signal their resolve through their willingness to bear the economic costs of confrontation.5 A host of empirical studies supports the idea that conflict reduces trade (Keshk, Reuveny, and Pollins 2004; Long 2008). Several potential channels connect trade and conflict, including direct damage to infrastructure and transportation resulting from actual conflict, sanctions policies, and informal discrimination by governments or private actors. Glick and Taylor (2010) find that the effect of war on trade is significant and persistent. At a lower level, political tensions may also suppress trade (Pollins 1989; Fuchs and Klann 2013). Consumer boycotts and financial market reactions in some cases have led to adverse market impact (Fisman, Hamao, and Wang 2014; Heilmann 2016; Pandya 2016). Simmons (2005) finds that territorial disputes have a sizable negative impact on trade even in the absence of militarized action. Others suggest states anticipate the potential adverse impact of conflict on trade, and therefore trade less to begin with if they think that war is likely. In such a scenario, the marginal economic costs of war should be insufficient to change a state's calculation for going to war (Morrow 1999; Barbieri 2002). Gowa and Hicks (2017) contend that trade is largely diverted through third-party channels, which compensate for having less direct trade with the adversary. We assume that leaders and business constituencies on average believe that conflict damages trade relations. Political conflict could lead governments to adopt sanctions against an adversary or to restrict financial flows. Violence likely disrupts trading routes and slows the movement of goods. The potential for adverse financial market reactions and consumer response adds further unpredictability about the risk of spillover from political disagreement into economic harm. Substitution through third parties could alleviate the harm, but this would still increase trade costs. The expected harm to trade motivates states to pursue the resolution of disputes. Adjudication as a Conflict Resolution Mechanism When states want to resolve an interstate dispute, why would they choose adjudication rather than negotiations, economic sanctions, or militarized action? In some cases, the decision follows an episode of military conflict as part of an effort to normalize relations. In other disputes, countries may turn to a legal venue to prevent a problem from ever reaching the stage that could produce serious political tensions or threats of force. The literature offers three broad types of explanations for why states pursue adjudication: legitimacy, informational benefits, and domestic obstacles to settlement. At the systemic level, international norms support peaceful conflict resolution. Some contend that rule of law has come to shape the identities of states, forming norms about appropriate action in both the domestic and international spheres (Finnemore and Sikkink (1998, 902). When international law has been established through fair procedures and offers coherent principles, it forms a legitimate source of authority in international affairs that generates an independent “compliance pull” on state behavior (Franck 1990, 65). International courts combine both legitimacy and authority as they help states solve specific disputes about how to interpret international law; the growing role for international courts in international affairs represents an important trend (Alter 2014; Alter, Helfer, and Madsen 2016). Integration with national courts has reinforced states’ use of the European Court of Justice (ECJ), which stands out for its expansive caseload and impact on state behavior (Alter 1998). The ICJ has achieved a relatively strong record of compliance with rulings (Schulte 2004; Llamzon 2007; Mitchell and Hensel 2007; Johns 2012). Legal settlement can help states coordinate policies through the provision of information. Compared to bilateral negotiations or nonbinding third-party arbitration, adjudication conveys a government's willingness to reach an agreement (Helfer and Slaughter 2005; Gent and Shannon 2010). Having taken the public step to initiate legal action, a government would appear inconsistent and incur a reputational penalty if it also took unilateral measures such as sanctions or military actions before the legal process had reached a conclusion. This shapes the diplomatic context because participants know that the matter will neither escalate into violence nor disappear through neglect. A court ruling offers a focal point amidst uncertainty about how to interpret the terms of an agreement (Ginsburg and McAdams 2004; Huth, Croco, and Appel 2011). As the record-keeper of past actions, courts support systems of tit-for-tat and reputational enforcement (Milgrom, North, and Weingast 1990; Carrubba 2005; Mitchell and Hensel 2007). In these informational theories of courts, states may comply with court rulings in the absence of coercive measures or the threat of sanctions because the reputational costs of noncompliance are too high. Rather than simply interpret law, courts coordinate expectations about enforcement. Johns (2012) models the circumstances whereby mobilization of third-party actions in support of a court ruling generates endogenous enforcement that can affect outcomes. In this way, multilateral enforcement makes an international court different from the pressure available in bilateral negotiations. International courts also offer a way for states to frame settlements to appeal to domestic audiences (Fang 2008). Simmons notes that even when the same deal could be reached in negotiations or through a court decision, a negotiated settlement could be viewed as a sign of weakness while legal resolution would be a positive signal for future cooperation (Simmons 2002, 834). This dynamic occurs because “domestic groups will find it more attractive to make concessions to a disinterested institution than to a political adversary” (Simmons 2002, 834). In research on several prominent ICJ cases, Fischer (1982, 271) emphasizes the court has helped governments to save face. Consequently, those governments unable to reach agreements over domestic opposition may find it easier to do so with the involvement of a third-party ruling. Allee and Huth (2006a) show that governments with higher levels of domestic political constraints are more likely to choose adjudication over negotiation for settling territorial disputes. Domestic political constraints also increase the probability of filing complaints at the WTO (Davis 2012). The mobilization of domestic groups plays a critical role in litigation patterns at the ECJ (Alter and Vargas 2000).a

#### But only warming causes extinction

**Reisner et al. 18** (Jon Reisner – Climate and atmospheric scientist at the Los Alamos National Laboratory. Gennaro D’Angelo – Climate scientist at the Los Alamos National Laboratory, Research scientist at the SETI institute, Associate specialist at the University of California, Santa Cruz, NASA Postdoctoral Fellow at the NASA Ames Research Center, UKAFF Fellow at the University of Exeter. Eunmo Koo - Scientist at Applied Terrestrial, Energy, and Atmospheric Modeling (ATEAM) Team, in Computational Earth Science Group (EES-16) in Earth and Environmental Sciences Division and Co-Lead of Parallel Computing Summer Research Internship (PCSRI) program at the Los Alamos National Laboratory, former Staff research associate at UC Berkeley. Wesley Even - Computational scientist in the Computational Physics and Methods Group at Los Alamos National Laboratory. Matthew Hecht – Atmospheric scientist at the Los Alamos National Laboratory. Elizabeth Hunke - Lead developer for the Los Alamos Sea Ice Model (CICE) at the Los Alamos National Laboratory responsible for development and incorporation of new parameterizations, model testing and validation, computational performance, documentation, and consultation with external model users on all aspects of sea ice modeling, including interfacing with global climate and earth system models. Darin Comeau – Climate scientist at the Los Alamos National Laboratory. Randy Bos - Project leader at the Los Alamos National Laboratory, former Weapons Effects program manager at Tech-Source. James Cooley – Computational scientist at the Los Alamos National Laboratory specializing in weapons physics, emergency response, and computational physics. <MKIM+KEN> “Climate impact of a regional nuclear weapons exchange: An improved assessment based on detailed source calculations,” March 16, 2018. DOA: 7/13/19. <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017JD027331>) \*BC = Black Carbon

The no-rubble simulation produces a significantly more intense fire, with more fire spread, and consequently a significantly stronger plume with larger amounts of BC reaching into the upper atmosphere than the simulation with rubble, illustrated in Figure 5. While the no-rubble simulation **represents the worst-case scenario** involving vigorous fire activity, **only a relatively small amount of carbon makes it**s **way** in**to the stratosphere** during the course of the simulation. But while small compared to the surface BC mass, stratospheric BC amounts from the current simulations are significantly higher than what would be expected from burning vegetation such as trees (Heilman et al., 2014), e.g., the higher energy density of the building fuels and the initial fluence from the weapon produce an intense response within HIGRAD with initial updrafts of order 100 m/s in the lower troposphere. Or, in comparison to a mass fire, wildfires will burn only a small amount of fuel in the corresponding time period (roughly 10 minutes) that a nuclear weapon fluence can effectively ignite a large area of fuel producing an impressive atmospheric response. Figure 6 shows vertical profiles of BC multiplied by 100 (number of cities involved in the exchange) from the two simulations. The total amount of BC produced is in line with previous estimates (about 3.69 Tg from no-rubble simulation); however, the majority of BC resides below the stratosphere (3.46 Tg below 12 km) and can be readily impacted by scavenging from precipitation either via pyro-cumulonimbus produced by the fire itself (not modeled) or other synoptic weather systems. While the impact on climate of these more realistic profiles will be explored in the next section, it should be mentioned that these estimates are still at the high end, considering the inherent simplifications in the combustion model that lead to overestimating BC production. 3.3 Climate Results Long-term climatic effects critically depend on the initial injection height of the soot, with larger quantities reaching the upper troposphere/lower stratosphere inducing a greater cooling impact because of longer residence times (Robock et al., 2007a). Absorption of solar radiation by the BC aerosol and its subsequent radiative cooling tends to heat the surrounding air, driving an initial upward diffusion of the soot plumes, an effect that depends on the initial aerosol concentrations. Mixing and sedimentation tend to reduce this process, and low altitude emissions are also significantly impacted by precipitation if aging of the BC aerosol occurs on sufficiently rapid timescales. But once at stratospheric altitudes, aerosol dilution via coagulation is hindered by low particulate concentrations (e.g., Robock et al., 2007a) and lofting to much higher altitudes is inhibited by gravitational settling in the low-density air (Stenke et al., 2013), resulting in more stable BC concentrations over long times. Of the initial BC mass released in the atmosphere, most of which is emitted below 9 km, **70% rains out within the first month** and 78%, or about 2.9 Tg, is removed within the first two months(Figure 7, solid line), with the remainder (about 0.8 Tg, dashed line) being transported above about 12 km (200 hPa) within the first week. This outcome differs from the findings of, e.g., Stenke et al. (2013, their high BC-load cases) and Mills et al. (2014), who found that most of the BC mass (between 60 and 70%) is lifted in the stratosphere within the first couple of weeks. This can also be seen in Figure 8 (red lines) and in Figure 9, which include results from our calculation with the initial BC distribution from Mills et al. (2014). In that case, only 30% of the initial BC mass rains out in the troposphere during the first two weeks after the exchange, with the remainder rising to the stratosphere. In the study of Mills et al. (2008) this percentage is somewhat smaller, about 20%, and smaller still in the experiments of Robock et al. (2007a) in which the soot is initially emitted in the upper troposphere or higher. In Figure 7, the e-folding timescale for the removal of tropospheric soot, here interpreted as the time required for an initial drop of a factor e, is about one week. This result compares favorably with the “LT” experiment of Robock et al. (2007a), considering 5 Tg of BC released in the lower troposphere, in which 50% of the aerosols are removed within two weeks. By contrast, the initial e-folding timescale for the removal of stratospheric soot in Figure 8 is about 4.2 years (blue solid line), compared to about 8.4 years for the calculation using Mills et al. (2014) initial BC emission (red solid line). The removal timescale from our forced ensemble simulations is close to those obtained by Mills et al. (2008) in their 1 Tg experiment, by Robock et al. (2007a) in their experiment “UT 1 Tg”, and © 2018 American Geophysical Union. All rights reserved. by Stenke et al. (2013) in their experiment “Exp1”, in all of which 1 Tg of soot was emitted in the atmosphere in the aftermath of the exchange. Notably, the e-folding timescale for the decline of the BC mass in Figure 8 (blue solid line) is also close to the value of about 4 years quoted by Pausata et al. (2016) for their long-term “intermediate” scenario. In that scenario, which is also based on 5 Tg of soot initially distributed as in Mills et al. (2014), the factor-of2 shorter residence time of the aerosols is caused by particle growth via coagulation of BC with organic carbon. Figure 9 shows the BC mass-mixing ratio, horizontally averaged over the globe, as a function of atmospheric pressure (height) and time. The BC distributions used in our simulations imply that the upward transport of particles is substantially less efficient compared to the case in which 5 Tg of BC is directly injected into the upper troposphere. The semiannual cycle of lofting and sinking of the aerosols is associated with atmospheric heating and cooling during the solstice in each hemisphere (Robock et al., 2007a). During the first year, the oscillation amplitude in our forced ensemble simulations is particularly large during the summer solstice, compared to that during the winter solstice (see bottom panel of Figure 9), because of the higher soot concentrations in the Northern Hemisphere, as can be seen in Figure 11 (see also left panel of Figure 12). Comparing the top and bottom panels of Figure 9, the BC reaches the highest altitudes during the first year in both cases, but the concentrations at 0.1 hPa in the top panel can be 200 times as large. Qualitatively, the difference can be understood in terms of the air temperature increase caused by BC radiation emission, which is several tens of kelvin degrees in the simulations of Robock et al. (2007a, see their Figure 4), Mills et al. (2008, see their Figure 5), Stenke et al. (2013, see high-load cases in their Figure 4), Mills et al. (2014, see their Figure 7), and Pausata et al. (2016, see one-day emission cases in their Figure 1), due to high BC concentrations, but it amounts to only about 10 K in our forced ensemble simulations, as illustrated in Figure 10. Results similar to those presented in Figure 10 were obtained from the experiment “Exp1” performed by Stenke et al. (2013, see their Figure 4). In that scenario as well, somewhat less that 1 Tg of BC remained in the atmosphere after the initial rainout. As mentioned before, the BC aerosol that remains in the atmosphere, lifted to stratospheric heights by the rising soot plumes, undergoes sedimentation over a timescale of several years (Figures 8 and 9). This mass represents the effective amount of BC that can force climatic changes over multi-year timescales. In the forced ensemble simulations, it is about 0.8 Tg after the initial rainout, whereas it is about 3.4 Tg in the simulation with an initial soot distribution as in Mills et al. (2014). Our more realistic source simulation involves the worstcase assumption of no-rubble (along with other assumptions) and hence serves as an upper bound for the impact on climate. As mentioned above and further discussed below, our scenario induces perturbations on the climate system similar to those found in previous studies in which the climatic response was driven by roughly 1 Tg of soot rising to stratospheric heights following the exchange. Figure 11 illustrates the vertically integrated mass-mixing ratio of BC over the globe, at various times after the exchange for the simulation using the initial BC distribution of Mills et al. (2014, upper panels) and as an average from the forced ensemble members (lower panels). All simulations predict enhanced concentrations at high latitudes during the first year after the exchange. In the cases shown in the top panels, however, these high concentrations persist for several years (see also Figure 1 of Mills et al., 2014), whereas the forced ensemble simulations indicate that the BC concentration starts to decline after the first year. In fact, in the simulation represented in the top panels, mass-mixing ratios larger than about 1 kg of BC © 2018 American Geophysical Union. All rights reserved. per Tg of air persist for well over 10 years after the exchange, whereas they only last for 3 years in our forced simulations (compare top and middle panels of Figure 9). After the first year, values drop below 3 kg BC/Tg air, whereas it takes about 8 years to reach these values in the simulation in the top panels (see also Robock et al., 2007a). Over crop-producing, midlatitude regions in the Northern Hemisphere, the BC loading is reduced from more than 0.8 kg BC/Tg air in the simulation in the top panels to 0.2-0.4 kg BC/Tg air in our forced simulations (see middle and right panels). The more rapid clearing of the atmosphere in the forced ensemble is also signaled by the soot optical depth in the visible radiation spectrum, which drops below values of 0.03 toward the second half of the first year at mid latitudes in the Northern Hemisphere, and everywhere on the globe after about 2.5 years (without never attaining this value in the Southern Hemisphere). In contrast, the soot optical depth in the calculation shown in the top panels of Figure 11 becomes smaller than 0.03 everywhere only after about 10 years. The two cases show a similar tendency, in that the BC optical depth is typically lower between latitudes 30º S-30º N than it is at other latitudes. This behavior is associated to the persistence of stratospheric soot toward high-latitudes and the Arctic/Antarctic regions, as illustrated by the zonally-averaged, column-integrated mass-mixing ratio of the BC in Figure 12 for both the forced ensemble simulations (left panel) and the simulation with an initial 5 Tg BC emission in the upper troposphere (right panel). The spread in the globally averaged (near) surface temperature of the atmosphere, from the control (left panel) and forced (right panel) ensembles, is displayed in Figure 13. For each month, the plots show the largest variations (i.e., maximum and minimum values), within each ensemble of values obtained for that month, relative to the mean value of that month. The plot also shows yearly-averaged data (thinner lines). The spread is comparable in the control and forced ensembles, with average values calculated over the 33-years run length of 0.4-0.5 K. This spread is also similar to the internal variability of the globally averaged surface temperature quoted for the NCAR Large Ensemble Community Project (Kay et al., 2015). These results imply that surface air temperature differences, between forced and control simulations, which lie within the spread may not be distinguished from effects due to internal variability of the two simulation ensembles. Figure 14 shows the difference in the globally averaged surface temperature of the atmosphere (top panel), net solar radiation flux at surface (middle panel), and precipitation rate (bottom panel), computed as the (forced minus control) difference in ensemble mean values. The sum of standard deviations from each ensemble is shaded. Differences are qualitatively significant over the first few years, when the anomalies lie near or outside the total standard deviation. Inside the shaded region, differences may not be distinguished from those arising from the internal variability of one or both ensembles. The surface solar flux (middle panel) is the quantity that appears most affected by the BC emission, with qualitatively significant differences persisting for about 5 years. The precipitation rate (bottom panel) is instead affected only at the very beginning of the simulations. The red lines in all panels show the results from the simulation applying the initial BC distribution of Mills et al. (2014), where the period of significant impact is much longer owing to the higher altitude of the initial soot distribution that results in longer residence times of the BC aerosol in the atmosphere. When yearly averages of the same quantities are performed over the IndiaPakistan region, the differences in ensemble mean values lie within the total standard deviations of the two ensembles. The results in Figure 14 can also be compared to the outcomes of other previous studies. In their experiment “UT 1 Tg”, Robock et al. (2007a) found that, when only 1 Tg of soot © 2018 American Geophysical Union. All rights reserved. remains in the atmosphere after the initial rainout, temperature and precipitation anomalies are about 20% of those obtained from their standard 5 Tg BC emission case. Therefore, the largest differences they observed, during the first few years after the exchange, were about - 0.3 K and -0.06 mm/day, respectively, comparable to the anomalies in the top and bottom panels of Figure 14. Their standard 5 Tg emission case resulted in a solar radiation flux anomaly at surface of -12 W/m2 after the second year (see their Figure 3), between 5 and 6 time as large as the corresponding anomalies from our ensembles shown in the middle panel. In their experiment “Exp1”, Stenke et al. (2013) reported global mean surface temperature anomalies not exceeding about 0.3 K in magnitude and precipitation anomalies hovering around -0.07 mm/day during the first few years, again consistent with the results of Figure 14. In a recent study, Pausata et al. (2016) considered the effects of an admixture of BC and organic carbon aerosols, both of which would be emitted in the atmosphere in the aftermath of a nuclear exchange. In particular, they concentrated on the effects of coagulation of these aerosol species and examined their climatic impacts. The initial BC distribution was as in Mills et al. (2014), although the soot burden was released in the atmosphere over time periods of various lengths. Most relevant to our and other previous work are their one-day emission scenarios. They found that, during the first year, the largest values of the atmospheric surface temperature anomalies ranged between about -0.5 and -1.3 K, those of the sea surface temperature anomalies ranged between -0.2 and -0.55 K, and those of the precipitation anomalies varied between -0.15 and -0.2 mm/day. All these ranges are compatible with our results shown in Figure 14 as red lines and with those of Mills et al. (2014, see their Figures 3 and 6). As already mentioned in Section 2.3, the net solar flux anomalies at surface are also consistent. This overall agreement suggests that the inclusion of organic carbon aerosols, and ensuing coagulation with BC, should not dramatically alter the climatic effects resulting from our forced ensemble simulations. Moreover, aerosol growth would likely **shorten the residence time of the BC particulate in the atmosphere** (Pausata et al., 2016), possibly **reducing the duration of these effects.**

# 1AR

## 1AR- T Courts

### 1AR- AT: Resolved = Legislation

#### Resolved is a non-starter:

#### 1---resolved isn’t actually in the resolution, it merely indicates a resolution to be debated

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Resolution

4. A formal statement of a decision or expression of opinion put before or adopted by an assembly such as the US Congress.

#### 2---it’s a legislature’s definition of a resolution, which is the specific name for a bill that’s introduced.

### 1AR---CI---Courts Expand Scope

#### Judicial interpretations expand the scope.

Kades 19, Michael Kades, (“The State of U.S. Federal Antitrust Enforcement,” Washington Center for Equitable Growth, https://equitablegrowth.org/research-paper/the-state-of-u-s-federal-antitrust-enforcement/?longform=true)

Antitrust enforcement is also often treated as a single entity, but multiple forces affect both the intensity and effectiveness of enforcement: enforcement activity (the number and type of cases that enforcers bring), the resources Congress provides for antitrust enforcement, and, in the federal system, the merger filing-fee system that has become the primary source of antitrust funding. These are not the only factors that affect antitrust enforcement. In the United States, judicial interpretations define the scope of the antitrust laws. The individuals running the antitrust agencies have broad discretion to determine which cases to pursue.