CALIFORNIA—ROGUE STATE OR NATIONAL LEADER IN ENVIRONMENTAL REGULATION?: AN ANALYSIS OF CALIFORNIA'S BAN OF BROMATED FLAME RETARDANTS

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I. INTRODUCTION

Bromated flame retardants ("BFRs") are widely used on common household products to slow the spread of fire. These compounds are present on a substantial number of consumer goods, from furniture padding to electronic casings, making them present in every home, office, and transportation device.[1] Environmentalists are concerned with recent studies that show high levels of subcategories of BFRs in human breast milk.[2] Also alarming are studies showing that certain BFRs have migrated as far as Arctic lakes,[3] indicating that they may be classified as persistent organic pollutants ("POPs"). POPs are chemicals that travel in the atmosphere, bioaccumulate in higher animals, and break down very slowly.[4] Experts believe these POPs may also be classified as endocrine-disrupting chemicals ("EDCs"), compounds that, acting on the body's hormonal system, have a variety of developmental effects in humans and animals.[5]

Scientists are unsure how the toxic components of BFRs sprayed onto consumer products enter into the environment and into animal and human

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[1] *See* Rebecca Renner, *California First in U.S. to Prohibit Flame Retardants*, ENVTL. SCI. & TECH. ONLINE, Sept. 25, 2003, *at* http://pubs.acs.org/subscribe/journals/esthag-w/2003/sep/policy/rr_retardants.html.

[2] *See These May Make You Forget PCBs*, TORONTO STAR, Feb. 9, 2002, at H5.

[3] *See* Marla Cone, *Of Polar Bears and Pollution: Migrating Chemicals Have Made the Creatures Among the Most Tainted Anywhere. Researchers Brave the Arctic and Risk Attack to Study Them*, L.A. TIMES, June 19, 2003, at A1 [hereinafter Cone, *Of Polar Bears and Pollution*].

[4] *See id*. *See also These May Make You Forget PCBs*, *supra* note 2.

[5] *See* Marla Cone, *Researchers Link Flame Retardants to Hazards; Studies Indicate the Widely Used Chemicals Affect Sexual As Well As Brain Development*, L.A. TIMES, Aug. 25, 2003, at A1 [hereinafter Cone, *Researchers Link Flame Retardants to Hazards*]. The EPA has defined EDCs as "exogenous agents that interfere with the production, release, transport, metabolism, binding, action, or elimination of the natural hormones in the body responsible for the maintenance of homeostasis and the regulation of developmental processes." U.S. ENVTL. PROT. AGENCY, OFFICE OF RESEARCH & DEV., EPA 600/R-98/042 RESEARCH PLAN FOR ENDOCRINE DISRUPTORS 3 (1998).

systems.[6] Some experts suspect that the dust from old furniture containing foam in homes and offices is the primary source, while others believe the danger mainly comes from consumption of fish from contaminated waters.[7] It is also believed that the BFR molecules are able to cling to atmospheric particles, allowing them to migrate long distances.[8] What is certain, however, is that these chemicals are building up in humans, especially in breast milk, at a rate that concerns toxicologists and environmentalists.[9]

In response to increasing concerns about the safety of these compounds, many countries have begun to regulate or ban them.[10] The Environmental Protection Agency ("EPA") usually administers such action in the United States; however, in the wake of its inaction, the California Legislature has taken the reins and banned two types of BFRs.[11] The California legislation phases out the use of certain BFRs by 2008,[12] making California the American front-runner for such a ban.

While it may be the safest way to handle the potential toxic threat of BFRs, the California ban has national implications. California is the largest U.S. consumer of products containing BFRs, and as such, this ban has effectively shut down the market for BFR-containing products in all states.[13] State legislation that has such a national effect implicates issues of federalism: Should a state pass legislation that is so far-reaching? This Note attempts to answer that question by examining the issues arising from the BFR controversy, by explaining what is currently known about BFRs, their toxicity and potential benefits in commercial products, and next, by discussing the California legislation. Finally, it will address some of the federalism issues raised by the California ban.

In considering the issues of federalism and preemption, it is necessary to examine the powers of regulation available to the EPA. The majority of the EPA's authority to act with regard to BFRs consists of the Toxic Substance Control Act ("TSCA"),[14] which governs the federal regulation of toxic substances and dictates when states may act, and the Endocrine Disruptor Screening Program ("EDSP"), a multi-agency screening and

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[6] *See* Marla Cone, *Cause for Alarm Over Chemicals: Levels of Common Fire Retardants in Humans are Rising Rapidly, Especially in the U.S. Animal Tests Show Effects on the Brain*, L.A. TIMES, Apr. 20, 2003, at A1 [hereinafter Cone, *Cause for Alarm*].

[7] *See id*.

[8] *See* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5.

[9] *See* Cone, *Cause for Alarm*, *supra* note 6.

[10] The European Union has banned the use of octa-BDE and penta-BDE by July 1, 2003, and deca-BDE by 2006. *See* Kellyn S. Betts, *Rapidly Rising PBDE Levels in North America*, ENVTL. SCI. & TECH. ONLINE, Dec. 7, 2001, *at* http://pubs.acs.org/subscribe/journals/esthag-w/2001/dec/science/kb_pbde.html. Japan has instituted a voluntary phase-out. *See Chemicals: High PBDE Levels in Breastmilk—Study*, GREENWIRE, Article 11, Sept. 23, 2003. China plans to respond to the EU directives with its own ban of PBDEs and increased product labeling. *See Chinese Government Drafts Product Rules*, BUS. DAILY UPDATE, Dec. 19, 2003. See Bromine Sci. & Envtl. Forum: Consortium of Chem. Producers, *What Legislation Exists Impacting on BFRs?*, *available at* http://www.bsef-site.com/weee/index.htm (last visited Oct. 13, 2003) for a comprehensive overview of BFR regulation throughout the world.

[11] *See* A.B. 302, 2003–04 Reg. Sess. (Cal. 2003).

[12] *See id*.

[13] *See* Kara Sissell, *Great Lakes Agrees to Flame Retardant Phaseout*, CHEM. WEEK, Nov. 12, 2003, at 13.

[14] *See* Toxic Substance Control Act, 15 U.S.C. §§ 2601–92 (2004).

testing program for endocrine-disrupting chemicals in the environment.[15] Also helpful in analyzing the issues is a comparison of the model used by the EPA to successfully ban a similar POP, polychlorinated biphenyls ("PCBs"), among the states.

Beyond the constitutional question of California's ban, it is interesting to note that the federal government has been relatively passive with regulating or banning BFRs nationally, but has vocally supported the California ban.[16] This unexpected move to defer a national problem to the purview of a state deserves some attention; particularly in light of the spillover effects POPs, such as BFRs, have on other jurisdictions, including international concerns. Federal deference to local regulators may take place for a number of reasons that will be explored, including a public choice model of legislative intervention,[17] Jonathan Macey's "franchise theory of federalism,"[18] and states' autonomy in environmental concerns regarding their citizens. In spearheading the U.S. ban of certain BFRs, the California legislation may have set a precedent for states to act unilaterally when the EPA is slow to move on perceived threats.

This precedent involves not only a state taking the lead in national matters; it also circumvents the EPA's method of risk assessment. The current model of risk assessment allows for products to be put on the market with minimal environmental and human health studies. Only when extensive peer-reviewed scientific studies prove a product is hazardous to humans or the environment may the EPA step in and ban it. Conversely, the European Union and other nations follow a more precautionary regime that allows the banning of a substance if it is thought to be harmful in any way, with minimal scientific proof of actual toxicity or harm. Because the California legislation passed with no independent, validated, peer-reviewed scientific findings, and no impediment by the EPA or Congress, it may be an indication that the United States is beginning to lean towards a more precautionary model of risk management that more closely resembles that of its European counterparts.

Finally, I will conclude that while the California legislation accomplishes the important safety measure of a national ban on certain BFRs, the federal government should have taken the necessary steps to ensure such an action. The norm of state autonomy with respect to environmental matters is appropriate in most environmental decisions; however, within the narrow scope of persistent, endocrine-disrupting compounds, there is a need for national uniformity, accountability and authority to act internationally.

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[15] *See* Robin Fastenau, *EPA's Investigation and Regulation of Endocrine Disruptors*, 14 J. ENVTL. L. & LITIG. 53, 64–76 (1999).

[16] *EPA Chief Backs Ban; State Official Supports Outlawing Two Chemicals in Flame Retardants that Build Up in Breast Milk*, L.A. TIMES, July 8, 2003, at B6 [hereinafter *EPA Chief Backs Ban*].

[17] Public choice is defined generally as the response of government "to the pressure of powerful groups that seek to further their individual interests." RICHARD L. REVESZ, FOUNDATIONS OF ENVIRONMENTAL LAW AND POLICY 207 (1997).

[18] *See generally* Jonathan R. Macey, *Federal Deference to Local Regulators and the Economic Theory of Regulation: Toward a Public-Choice Explanation of Federalism*, 76 VA. L. REV. 265 (1990).

II. BROMATED FLAME RETARDANTS AND THEIR POTENTIAL RISKS

BFRs constitute a category of flame retardants that use polybrominated diphenyl ethers ("PBDEs"). BFRs were developed in the 1970s, and demand for them increased in the 1980s in correlation with an increased demand for flame retardants in furniture and electronics.[19] Three types of PBDEs are used in different flame retardant formulations: pentabrominated diphenyl ether ("penta-BDE"), octabrominated diphenyl ether ("octa-BDE"), or decabrominated diphenyl ether ("deca-BDE"). Penta-BDE is used on polyurethane foam in upholstered furniture, automobile seats, and office furniture.[20] In 2001, roughly 7,100 metric tons of the chemical were used in the United States.[21] Many electronic devices, including televisions and medical equipment, contain octa-BDE added to plastic casings; in 2001, the United States used 1,500 metric tons of octa-BDE.[22] Deca-BDE is also widely used in electronic casings.[23] Nearly 100 million pounds a year of deca-BDE are applied to electronic products, distributed mainly in the United States.[24] PBDEs are the most commonly-used flame retardants in the country, with about half of PBDEs produced worldwide in 2001 applied to North American products.[25] This high use rate is due to the stringent fire safety standards products must meet in the U.S. and California, in conjunction with increasing consumer demand for electronic equipment over the past two decades.[26] According to one manufacturer, PBDE use reduces the risk of injury or death due to fire by 45%.[27]

Worldwide concern about the use of PBDEs began when a Swedish study released in 1998 found that the amount of these chemicals present in women's breast milk had doubled every five years between 1972 and 1997.[28] Recent North American studies show that PBDE accumulation in breast milk is doubling every two to five years.[29] A report of PBDE concentrations found in the breast milk of nine Puget Sound women showed a median level of 50 parts per billion, with individual levels ranging from 13 to 156 parts per billion.[30] These levels are alarmingly high compared with a "median 1.3 parts per billion found in Japanese blood samples in 2000, and a median 2.1 parts per billion found in Swedish breast milk in 2001."[31]

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[19] *See* Cone, *Cause for Alarm*, *supra* note 6.
[20] *See* Renner, *supra* note 1.
[21] *See id*.
[22] *See id*.
[23] *See id*.
[24] *See* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5.
[25] *See* Cone, *Cause for Alarm*, *supra* note 6.
[26] *See id*.
[27] *See PBDE Targeted*, CHEM. WEEK, Feb. 6, 2002, at 34.
[28] *See These May Make You Forget PCBs*, *supra* note 2.
[29] *See* Betts, *supra* note 10.
[30] *See Breastfeeding: High Levels of Flame Retardant Chemicals Showing Up in Breast Milk*, HEALTH & MED. WEEK, Mar. 15, 2004, at 107.
[31] *Id*.

While no studies have shown any adverse health affects on humans,[32] studies on laboratory mice have linked PBDE exposure to "thyroid hormone disruption, permanent learning and memory impairment, decreased sperm count, fetal malformations, behavioral changes, hearing deficits and possibly cancer."[33] Scientists have determined that PBDEs are POPs, meaning these chemicals stay in the environment for long periods of time and accumulate in organisms, exponentially increasing exposure to higher mammals, such as humans.[34] It is believed that all environmental PBDE levels are attributable to its use in flame retardant compounds applied to consumer goods throughout the world.[35]

Based solely on the Swedish study and the possibility of health concerns resulting from exposure, the European Union instituted a phase-out of penta- and octa-BDEs by 2004.[36] The EPA, however, has not concluded the need for regulatory action, but continues to evaluate PBDEs.[37] The State of California was the first North American entity to enact legislation limiting the use of PBDEs.[38] These actions have been based primarily on scientific observations of increased levels of PBDEs in humans, animals, and other environmental specimens.

Deca-BDE is currently being phased out in the European Union, but nowhere else. Consequently, more of it is used than any other flame retardant throughout the world.[39] Although scientists believe the molecule is too large to be an effective POP, studies have shown that the chemical is present in the blood of workers at electronic recycling plants.[40] Researchers are now finding that it, too, is accumulating in breast milk and the environment, hypothesizing that it breaks down into the smaller penta- and octa-BDE compounds in the environment.[41]

III. THE CALIFORNIA LEGISLATION

On August 9, 2003, the California Governor signed a bill to phase out the use of penta- and octa-BDE-containing fire retardants within the state by 2008.[42] The legislation calls for a ban on the "manufacturing, processing, or distributing in commerce of a product, or a flame-retarded part of a product, containing more than 1/10 of 1% penta-BDE or octa-BDE, by mass."[43] The bill does not ban or regulate the use of deca-BDE,

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[32] *See These May Make You Forget PCBs*, *supra* note 2.
[33] Jane Kay, *Study Finds Flame-Retardant Chemical in U.S. Breast Milk*, S.F. CHRON., Sept. 23, 2003, at A4.
[34] *See These May Make You Forget PCBs*, *supra* note 2.
[35] *See id*.
[36] *See* Kay, *supra* note 33.
[37] *See id*.
[38] *See* Renner, *supra* note 1. *See also* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5.
[39] *See* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5.
[40] *See Polybrominated Diphenyl Ether (PBDE): Hearing on A.B. 302 Before the Assembly Committee on Environmental Safety and Toxic Materials*, 2003–04 Reg. Sess. (Cal. Apr. 22, 2003) [hereinafter *Hearing*].
[41] *See* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5, at A1.
[42] *See* A.B. 302, *supra* note 11.
[43] *Id*.

although representatives from California and Michigan have begun drafting legislation to regulate that compound as well.[44]

The main support for the California ban came from a U.S. Department of Health and Human Services study showing that San Francisco Bay Area women have three to ten times the amount of BFRs in their breast tissue than their European and Japanese counterparts.[45] Other support comes from scientists suggesting that BFRs act as endocrine disruptors, impairing motor skills and intelligence in children.[46] Further, it is claimed that PBDEs are closely related in structure and behavior to PCBs (already banned), which are known to have neurotoxic and carcinogenic effects.[47]

Opponents of the bill contend that it "will undermine strong safety protections" and will create increased cost to consumers.[48] Further, there are concerns that a ban on PBDEs would cease potential for development of "e-waste recycling" programs, because these chemicals are "present in virtually all plastic used in electronic products."[49] The opposition also argues that this bill mandates that numerous products be designed and manufactured differently for California than for the rest of the nation, thus creating the need for "separate purchasing, supply channel, distribution, and transportation costs," for which the consumer will ultimately assume responsibility.[50] Executives at Great Lakes Chemical Corporation, one of the major U.S. producers of PBDE-containing flame retardants, estimate that the phase-out will cost about $10 million over the next five years.[51] Finally, opponents warn that the more expensive products will be inferior, because PBDEs represent the "best available and the most widespread fire retardant in the national market place."[52] There have been no estimates indicating the potential increased costs from fire loss due to industries being forced to use inferior alternatives.

Before the bill passed, industry representatives stated that if California bans PBDEs, they will likely be phased out elsewhere.[53] Industry groups were concerned that the California law would set a precedent for state politicians prohibiting certain chemicals.[54] The state legislature rarely bans chemicals; it usually relies on state or federal agencies to regulate them.[55] Then-Governor of California, Gray Davis, said of the matter, "I would have

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[44] *See* Sissell, *supra* note 13.
[45] *See Hearing*, *supra* note 40.
[46] *See id*.
[47] *See id*.
[48] *Id*.
[49] *Id*. E-waste recycling refers to programs that encourage the recycling of outdated and broken computers and other electronic equipment at specified centers.
[50] *Id*.
[51] *See* Sissell, *supra* note 13.
[52] *See Hearing*, *supra* note 40.
[53] *See* Marla Cone, *Senate OKs Bill to Ban Retardant; State Would Become First to Prohibit Chemical Used in Foam Padding and Computers*, L.A. TIMES, July 18, 2003, at B1.
[54] *See id*.
[55] *See id*.

preferred to see a solution to PBDE pollution crafted in Washington."[56] According to Davis, because the federal government had not banned the chemicals, California had to move quickly to control PBDEs.[57] California legislators knew the ban would likely cause a phase-out of the chemicals nationwide because California has such a large market for products treated with PBDEs.[58]

The EPA was a supporter of California's ban proposal, citing research that these chemicals could accumulate in the blood of mothers and their newborn children.[59] An Agency representative said, "[I]n the face of federal 'inaction' . . . California should ban any chemicals that 'raise serious public health questions.'"[60] As of the summer of 2003, the EPA was evaluating the risks of BFRs, but had no plans to regulate them.[61] However, once the California measure was sure to pass, the EPA began negotiating with Great Lakes Chemical Corporation to ensure that approved substitutes would be available.[62]

As a result of these discussions with the EPA and after the California legislation was signed, PBDE manufacturers in the United States announced they would cease production of penta- and octa-BDE earlier than the phase-out requirements.[63] Octa-BDE will be replaced with an existing flame retardant on the market that has a different chemical composition than the banned one.[64] As for penta-BDE, manufacturers plan to replace the chemical with a newly developed flame retardant already approved by the EPA.[65] Manufacturers have no plans to stop production or use of deca-BDEs, which accounts for approximately 83% of the global PBDE market,[66] maintaining that they are not hazardous to human health or the environment, and that it remains an important flame retardant compound.[67]

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[56] Marla Cone, *Davis Signs Bill to Ban Flame Retardants; A California Measure to Phase Out Some Toxic Compounds by 2008 Aims at Protecting Mothers and Nursing Infants*, L.A. TIMES, Aug. 10, 2003, at B6 [hereinafter Cone, *Davis Signs Bill to Ban Flame Retardants*].
[57] *See id*.
[58] *See id*.
[59] *See EPA Chief Backs Ban*, *supra* note 16.
[60] *Id*.
[61] *See* Cone, *Researchers Link Flame Retardants to Hazards*, *supra* note 5.
[62] *See* Mary Beth Polley, *Great Lakes to Phaseout Penta- and Octa PBDE Production by 2005*, PESTICIDE & TOXIC CHEM. NEWS, Nov. 10, 2003, at 20.
[63] *See id*. Great Lakes Chemical Corp. announced it will cease to manufacture penta- and octa-PBEs by the end of 2004, and other companies have followed suit. However, Great Lakes will continue production of deca-PBE flame retardants until a similar ban is imposed on that class of chemicals. *See id*.
[64] *See id*.
[65] *See id*. *See also* Sissell, *supra* note 13. This new flame retardant is not without controversy itself. Many environmentalists are skeptical of the penta-BDE replacement, arguing that it has not been proven safe. Environmentalists claim it is unclear whether the new formulation also includes a PBDE. Skeptics believe this new formula may also be unsafe due to the undisclosed nature of the formula, and the fact that the EPA seemed to broker the deal only because of the threat of a penta-BDE ban. Environmentalists claim that this new flame retardant is unfit to release in the market because it has not undergone thorough safety testing, and that the EPA rushed to approve it in the wake of the California ban. *See* Polley, *supra* note 62.
[66] *See* Kerri Walsh, *Great Lakes, EPA In Talks to Phase Out PBDEs*, CHEM. WK., Nov. 5, 2003, at 28.
[67] *See* Polley, *supra* note 62.

IV. FEDERALISM IMPLICATIONS OF CALIFORNIA'S REGULATION OF BFRS

The founders of our nation intended the states to be laboratories of governmental experimentation, and for the federal government to be the cohesive force behind the states and the representative of the nation with respect to international entities. When a state passes legislation that affects the entire nation, there is usually a strong preemptive response by the federal government. Yet, in the case of BFR regulation, the reaction has been the exact opposite: the EPA backed California's ban[68]—even though the EPA had clear jurisdiction. Congress has remained silent on the issue, even though it could step in given that the California ban has interstate commerce implications and BFRs will likely involve international concerns in the future.

In the face of federal actors either deferring power or remaining silent, several issues are raised as to whether this was an appropriate response to California's ban. I propose that this federal inaction is symptomatic of a system of environmental regulation that currently does not adequately respond to the unique risks and problems posed by persistent endocrine disrupting compounds such as PBDEs. In the face of ever-increasing globalization of human health and environmental concerns, the federal government should be taking the lead in innovative regulation under the congressional power to regulate interstate commerce or through its legislative powers. It is essential to have national uniformity when regulating migrating persistent compounds such as PBDEs because spillover from a nonregulating or nonbanning state will likely affect other states.

Additionally, any spillover generated in the United States affects foreign countries, which will turn to the federal government for remedies and agreements to minimize these global risks. Several nations already have begun to recognize the international risks imposed by POPs, and have responded with treaties to regulate and/or ban these chemicals in participating countries. Of particular interest regarding POPs is the Stockholm Treaty.[69] In order to effectively negotiate and comply with international standards, it is essential that there be a central government decision regarding BFRs and similar persistent endocrine disruptors.

There are many ways the federal government could be taking control of national and international problems relating to BFRs. The most powerful tool that Congress has with respect to states is its preemptive power. While states have a right to protect the interests of their citizens, the federal government has the power to regulate interstate commerce for the safety of the nation's citizens, as well as for the health of the national economy. This tension between the two entities is increased in the area of environmental regulation for many reasons.

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[68] *See EPA Chief Backs Ban*, *supra* note 16.
[69] *See* discussion *infra* Part IV.A.1 and text accompanying notes 116–23.

Different states may have divergent interests with respect to individual environmental harms. Groups balance benefits and costs of harms differently, and have a variety of methods to assess and manage the risks they feel warrant attention. For example, California citizens may be more risk-averse regarding the potential health risks of BFRs than other states' citizens. Michigan, however, where most of these flame retardants are manufactured, may find that the revenue generated by the production of these chemicals outweighs any potential harm to its citizens.

Normally, states are unimpeded in the direction they would like to take with respect to environmental regulation, as long as they meet the minimum federal guidelines, if any exist, and as long as the regulation does not involve an issue that requires national uniformity.[70] This is important because most environmental issues are heavily laden with diverse regional and geographic differences. In those instances, it makes sense to allow states to determine their own regulatory regime. In the case of BFRs, however, it is unwise to do so because they are not stationary pollutants. Rather, these chemicals travel in the environment and bioaccumulate, affecting people across state and national borders. There is a greater need for national uniformity with respect to threats such as BFRs that are migratory and persistent in nature.

The EPA and Congress are aware of the particular environmental problem that BFRs and other persistent endocrine disruptors present. Nevertheless, though the EPA acted quickly to nullify the economic fears of chemical manufacturers by advancing the approval of replacement flame retardants, it did not attempt to eradicate the problem through any regulatory measure.[71] By not taking the reins publicly, federal entities may have set an unwanted precedent for Californians to determine what the level of risk and regulation of harmful substances, such as BFRs, will be in the future. Guidance with regard to these mobile and persistent substances should come from the federal government, not the states.

Federal preemption of California's legislation would be viable under Congress' power to regulate interstate commerce. Congress, however, has not chosen this route, and EPA preemption of California's legislation would not be permissible under TSCA, the federal legislation that governs chemicals such as BFRs. While the disparate state outcomes allowed under TSCA are usually desirable, the case of BFRs weighs heavily on the side of national uniformity, and therefore should be federally regulated. TSCA and other federal regulatory programs are deficient in the sense that they allow for individual state outcomes in cases where there is a clear need for national uniformity.

The analogous case of PCBs serves as an example of a relatively successful use of the federal preemption power. Federal regulation of PCBs was sweeping once it was determined that these chemicals needed to

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[70] *See generally* John P. Dwyer, *The Role of State Law in an Era of Federal Preemption: Lessons from Environmental Regulation*, 60 LAW & CONTEMP. PROBS. 203 (1997).
[71] *See* Polley, *supra* note 62; Sissell, *supra* note 13; Walsh, *supra* note 66.

be immediately removed from the environment to avoid further threat of harm to humans and the environment.[72] Scientists have already determined that BFRs are POPs that behave very similarly to PCBs in the environment.[73] Further, the determination that BFRs are endocrine disruptors means that unless immediate action is taken, these compounds will continue to accumulate in higher mammals.[74] The federal government should begin to take other POPs, such as BFRs, as seriously as it took PCBs in the past. By acting uniformly, the federal government can adequately reduce the health and environmental risks of harm and effectively work with other nations to do the same.

The ability to work with other nations, as stated previously, is of increasing concern with respect to POPs and other global environmental concerns. Only the federal government has the power to negotiate and sign agreements with other nations in these matters; state governments cannot. As such, national uniformity is essential if the United States is going to be a party to international agreements that regulate toxins such as BFRs and other POPs.

While state autonomy can be an impediment to efficient and effective federal government operation, it is not the only one. Politics can inhibit, rather than promote, beneficial outcomes in regulatory attempts by both state and federal government. According to the public choice theory of environmental regulation, legislators serve their own interest by bending to the will of strong interest group pressure, often at the expense of the aggregate welfare.[75] This sometimes results in federal entities handling difficult or controversial decisions by simply not making them, leaving these questions open for state legislators to determine the outcome.

California legislators, by banning certain BFRs, have sent a message about how California would like to respond to potential environmental and health threats now and in the future. The method used to enact the BFR ban in California is quite different from the method typically employed by the EPA. Under EPA standards, substances are banned only if proven to be harmful to human health or the environment. The California legislature employed a form of the "precautionary principle" method in determining that BFRs should be banned. Under such a method, because BFRs pose a potential threat to human and environmental health, all possible precautions should be taken. In other words, there should be a ban, even in light of less-than-thorough scientific evidence of such a threat.

This method parallels current European Union movements to reduce risk at the onset, rather than wait until it is clearly a problem, and possibly an irreversible one. By supporting California in this move, the EPA may be giving a nod to this form of risk assessment as the way we should move nationally. The California BFR ban can be seen as an experimental use of the precautionary principle at work in the United States. Agency heads and

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[72] *See* 15 U.S.C. § 2605 (1977).
[73] *See These May Make You Forget PCBs*, *supra* note 2.
[74] *See* Cone, *Of Polar Bears and Pollution*, *supra* note 3; Cone, *Cause for Alarm*, *supra* note 6.
[75] *See generally* Dwyer, *supra* note 70; Macey, *supra* note 18.

Congress may be doing exactly what the founders predicted: let states experiment, and adopt national rules only as necessary to align with what the country as a whole wants. On the other hand, California's use of the precautionary principle may merely be indicative of the state's prominent upper class and ultra-environmental values of the state's powerful interest groups.

A. FEDERAL PREEMPTION

Tension between the federal government's interest in regulating materials in interstate commerce and the state governments' interest in protecting the welfare of their residents will only increase in the area of environmental regulation in the coming years. As large numbers of local constituencies become more educated and aware of environmental concerns affecting them, they will place increasing pressure on local governments to protect them. Federal agencies, such as the EPA, in conjunction with federal laws, also aim to protect the health and well-being of the nation. The two are not always in opposition; however, when they are, the controversy raises a number of federalism issues and concerns.

In the case of BFRs, it is peculiar that none of these concerns have come up, despite the fact that the California ban has such far-reaching consequences. Companies that manufacture and sell goods in California will have to eliminate the use of the most common flame retardant on the market while still meeting stringent fire safety guidelines. California represents the largest consumer market for goods in the nation, so products manufactured and sold throughout the United States will have to comply with the California law in order to maintain reasonable profitability. Because BFRs are sprayed onto such a large number and wide range of products, it is unlikely that manufacturers will maintain their original product and sell a substitute in California. In fact, the sole U.S. manufacturer of penta-BDE announced shortly after the ban that it will cease producing the chemical as early as 2004.[76] It is disturbing that this apparent infringement of federal authority was not raised by the EPA or Congress in any committee hearings. In fact, the EPA has gone on record indicating its support of the California ban.[77]

BFRs are only one category of a number of emerging toxic chemicals that may have serious health and environmental effects. The possibility that California can and will become the standard of environmental regulation for the country is potentially damaging to the national economy and the credibility of the EPA, and may also conflict with the duty of the United States to comply with international agreements.

One method Congress can use to regulate BFRs nationally and preempt the California legislation is through the Commerce Clause. The Commerce Clause grants Congress the power "to regulate Commerce . . . among the

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[76] *See* Polley, *supra* note 62.
[77] *See EPA Chief Backs Ban*, *supra* note 16.

several States."[78] Under this doctrine, Congressional authority over environmental matters is exceedingly broad.[79] Congress has the power to legislate any matter concerning products that are in the stream of interstate commerce.[80] As products sprayed with BFRs are clearly a part of interstate commerce, these chemicals are within Congress' power to regulate. Normally, Congress delegates such regulatory power to the EPA; however, it would be possible for Congress to directly regulate BFRs, or any other chemical, under the Commerce Clause. One reason Congress might do this is to circumvent the long process that the EPA must go through to ban a substance. If Congress felt a compelling interest in protecting human health or the environment with some immediacy, it could act within a very short time.

In the case of BFRs, Congress has not taken the initiative to act. Thus, BFRs and other POPs and EDCs must go through the long regulatory process of the EPA before we will see any federal action. Because there has been no federal action, California's legislation does not violate Congress' or the EPA's authority in any way, nor does it conflict with any federal laws. By remaining silent, Congress has implicitly authorized the California ban, and consequently, a national ban. Nevertheless, taking such a noncentralized approach to environmental regulation has both benefits and costs.

Traditionally, our nation has favored a noncentralized view regarding the regulation of the environment, as seen with BFRs.[81] States are normally free to enact laws that adequately protect constituents from environmental dangers as legislators see fit. Decisions by state and local governments can better reflect the preferences and variations in values that geographically related constituents share.[82] Noncentralized decisions also facilitate experimentation with governmental policies and are more responsive to individual choices about risk and the value of environmental costs and benefits.[83]

Conversely, over the past three decades, congressional legislation has overridden decentralization by imposing federal standards and regulations to control environmental issues.[84] There are several reasons why this has happened and why it may be more advantageous for the nation to have a strong centralized system of environmental regulation.

First, it is desirable to come to a collective agreement about environmental regulation. Noncentralized decision-making leads to a tragedy of the commons when individual localities implement self-

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[78] U.S. CONST. art. I, § 8, cl. 3.
[79] *See* Dwyer, *supra* note 70, at 206–07.
[80] *Cf.* Wickard v. Filburn, 317 U.S. 111, 124 (1942) (holding that Congress may regulate any activity having a substantial effect on interstate commerce).
[81] *See* Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, *in* FOUNDATIONS OF ENVIRONMENTAL LAW AND POLICY 183, 183 (Richard L. Revesz ed., 1997).
[82] *See id*.
[83] *See id*. at 183–84.
[84] *See id*. at 184.

interested policies that potentially make society worse off than if a collective policy decision could have been agreed upon.[85] There is great concern that externalities imposed on other parties will not be adequately taken into consideration by unaffected parties.

Second, economies of scale help explain why environmental regulations are better left to a centralized government. Environmental regulation often requires the collection of data, expertise in scientific, economic, regulatory and other areas, and the selection of control measures involving recurring, technically complex issues; all of these can be dealt with more efficiently on the national level rather than duplicated at the state and local level.[86]

Third, disparities in effective representation can be reduced on a national level. Those with more money, more technical knowledge, or simply a bigger voice may influence policymakers, leaving some groups without a representative voice in the decision-making process.[87] Localized public protests "have less impact on federal judges and legislators than on their state and local counterparts."[88] Additionally, federal officials are not as sensitive to short-term swings in public attitudes and can find a middle ground between those that would overregulate and those that would underregulate.[89]

Next, one of the biggest problems with decentralized environmental regulation is the spillover effect.[90] Decisions made in one jurisdiction impact other jurisdictions, generating conflicts and welfare losses that a centralized process would normally be able to balance.[91] Finally, centralized decisions can better represent moral ideals of the country and spread the sacrifices that commitment to environmental quality entail.[92]

In the case of BFRs, California may be overly cautious when it comes to this sort of pollutant, but other states may value the use of these chemicals as a flame retardant more than the risk of their possible toxicity. Further, California's action, while having a minimal effect on the state's economy (other than the probable increase in product price being passed to consumers), may have a huge economic impact on those states where manufacturing plants are located. In addition, it creates a domino effect, ultimately affecting the entire nation: eliminating PBDE-treated products from the market forces other states to comply with the California ban, because manufacturers will want to produce products uniformly and make them available to the whole market. The number of products affected by this ban is enormous, from furniture to electronics. This significant change in manufacturing was not the result of a collective decision by those impacted, but rather a unilateral decision by one state.

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[85] *See id*.
[86] *See id*. at 185.
[87] *See id*.
[88] *Id*. at 188.
[89] *See id*. at 189.
[90] *See id*. at 186–87.
[91] *See id*.
[92] *See id*. at 187–89.

Federal regulation in the case of BFRs would have been preferable to the path taken by California. This decision pushes the values Californians have of risk costs and benefits on those not represented by the California legislature. It does this without the benefit of agency expertise or a mind for the national impact.

Other states are now beginning to pass their own legislation regarding PBDEs, resulting in duplicative and wasteful use of local resources. Due to the persistent and transboundary nature of PBDEs, the federal government will eventually have to become involved. With a variety of state initiatives in place, and California leading with the most stringent, it will be difficult for the EPA to come in later and create uniformity without conflict. However, the fact that many states have now become interested in banning PBDEs, prodding the EPA or Congress to act faster with respect to these compounds, gives merit to the "states as experimental laboratories" theory. It seems certain that the EPA will now have to take a closer look at BFRs, possibly with greater priority.

While the EPA is typically the federal regulator for environmental matters, the Agency is constrained by the authority vested in it by Congress.[93] The EPA has broad discretion in statutory interpretation of its duties, but cannot regulate beyond the confines specified by congressional acts.[94] The major constraints on the EPA are the method by which it must assess risks and the process it must follow in order to regulate them. The following looks at the tools currently available to the EPA in dealing with the problems posed by BFRs and other emerging chemicals. The TSCA, while imperfect, is an important piece of legislation that the EPA should use to regulate potentially global problems. Additionally, the Endocrine Disruptor Screening Program is a key step forward in the attempt to identify and regulate hazardous substances that require immediate and particularized environmental regulatory attention. Both of these tools are potentially implicated with the recently ratified "POPs Treaty," which bans several known POPs internationally. Further, the EPA can look to a similar problem, PCBs, to identify successful methods of control used in the past and areas where the agency needs to push Congress towards more uniformity.

1. *The Toxic Substance Control Act and the Endocrine Disruptor Screening Program*

The EPA's inaction regarding BFRs leaves room for criticism about the structure and constraints of existing federal environmental law regimes. The TSCA was enacted in 1976 to "regulate commerce and protect human health and the environment by requiring testing and necessary use

[93] Under the nondelegation doctrine, Congress must "lay down by legislative act an intelligible principle to which the person or body authorized . . . is directed to conform." J.W. Hampton, Jr., & Co. v. United States, 276 U.S. 394, 409 (1928) (discussing Congress' rate-making power and its ability to create a rate-making body).

[94] *See* Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 842–44 (1984) (holding that agency decisions made under its congressional authority to act will be given judicial deference unless the decision or interpretation is "arbitrary, capricious, or manifestly contrary to the statute").

restrictions on certain chemical substances."[95] BFRs fall into this definition of "chemical substances" under the TSCA.

Under the TSCA, a state is preempted from establishing a rule regulating chemicals that are subjects of the TSCA unless the state law is identical to the EPA regulation, is adopted in accordance with another federal law, *or bans the use of such substances in that state*.[96] The California legislation is a complete ban of a substance throughout the state; therefore, it slips through the cracks of the TSCA and safely out of the EPA's reach, unless Congress acts to override it.

Due to a state's authority to ban a substance within its borders under the TSCA, Congress has implicitly given California authority to regulate in this manner. Further inaction by Congress creates a significant opportunity for California to take the lead in regulating other emerging chemicals. Given the lengthy process required under the TSCA to get a substance banned, California's action may seem prudent. In order to take regulatory action under the TSCA, the EPA must show that there is a reasonable basis to conclude that a chemical "presents or will present an unreasonable risk of injury to health or the environment."[97] Once a "reasonable basis" has been concluded, the chemical undergoes an extensive review and a testing process that includes several levels of mandatory testing and corresponding findings.[98] Only after completion of the testing and finding requirements may the EPA make a regulatory ruling regarding a chemical.[99]

There are approximately 72,000 substances in the EPA's inventory of TSCA chemicals, most of which were in commerce when the EPA began reviewing chemicals, including BFRs.[100] Of these thousands, the EPA has tested less than two percent; about a thousand more are added to the list each year, and several thousand more are simply not yet on the list.[101]

The EPA recognized that EDCs were of growing concern and that there was a need to prioritize their screening and testing.[102] In 1996, in response to this need, the EPA, in conjunction with thirteen other federal agencies, began the Endocrine Disruption Screening Program ("EDSP") to give priority to EDC testing and to coordinate testing and regulation.[103] EDSP's process is no less time-consuming and no less stringent than that under TSCA. EDSP uses a multi-tiered system of sorting, screening, and testing.[104]

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[95] H.R. 1341, 94th Cong. (1976); 15 U.S.C. §§ 2601–92 (2004).
[96] *See* 15 U.S.C. § 2617(a)(2)(B) (2004).
[97] 15 U.S.C. § 2605(a) (2004).
[98] *See* 15 U.S.C. §§ 2603–04 (2004).
[99] 15 U.S.C. § 2603(b) (2004).
[100] *See* Jim Florio, *Federalism Issues Related to the Probable Emergence of the Toxic Substances Control Act*, 54 MD. L. REV. 1354, 1358 (1995).
[101] *See id.*
[102] *See* Fastenau, *supra* note 15, at 53.
[103] *See id.* at 57–58.
[104] *See id.* at 68–69.

The first tier is a sorting and screening stage whereby chemicals to be tested are identified and prioritized.[105] There is considerable controversy over whether the EPA may or should rely on existing studies for this initial sorting stage, or whether independent review is necessary.[106] Next, chemicals go through a confirmatory testing stage; and finally, a hazard assessment tier.[107] Only after a chemical has gone through this final stage can it be determined to be an endocrine disruptor and regulated.[108]

Currently, the EPA is evaluating the risks of BFRs, but has no plans to regulate them.[109] In fact, EDC research will be among the first programs to suffer from recent Bush spending cuts,[110] meaning it will take even longer for dangerous chemicals to be identified, tested, and regulated. Instead of abiding by this formal process, the EPA entered into negotiations for voluntary phase-outs with the chemical manufacturers once they were certain the California legislation would pass.[111] Given that the California legislation effectively produced a national ban, this was a less expensive and more time-efficient way for the EPA to handle the situation.

While the EPA negotiations with BFR manufacturers were a successful resolution to the immediate problem of some BFRs in the United States, some international issues remain involving the TSCA, EDSP, and the federal government's ability to work with other nations to ban EDCs. On February 17, 2004, France became the fiftieth nation to ratify the 2001 Stockholm Convention on Persistent Organic Pollutants ("POPs Treaty"), setting in motion a ninety-day period after which the treaty would go into effect.[112] This international treaty is aimed at banning a dozen of the world's most toxic persistent chemicals, and will become binding international law.[113] The United States signed the treaty in 2001, but the Senate has not yet ratified it.[114] Up until France's action, the treaty lacked the required number of signatories to make it active.[115]

BFRs are not among the dozen EDCs enumerated in the treaty;[116] however, the treaty is relevant to the regulation of these flame retardants because it allows signatory countries the ability to add new chemicals to the list of restricted pollutants.[117] U.S. officials have disagreed about how

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[105] *See id*. at 69.
[106] *See id*.
[107] *See id*.
[108] *See id*.
[109] *See* Cone, *Davis Signs Bill to Ban Flame Retardants*, *supra* note 57.
[110] *See* Kara Sissell, *Bush Spending Cut Proposals Draw Fire from Activists*, CHEM. WEEK, Feb. 11, 2004, at 28. Bush has proposed a 7% cut in EPA spending from fiscal year 2004, which will come out of "projects researching the health effects of endocrine disruptors, pesticides and toxics, and 'human health' ecosystems," according to the National Resources Defense Council. *Id*.
[111] *See* Sissell, *supra* note 13.
[112] *See* Allison A. Freeman, *POPs: International Pesticide Treaty Set to Take Force This Spring*, GREENWIRE, Article 21, Feb. 19, 2004.
[113] *See id*.
[114] *See id*.
[115] *See id*.
[116] The banned chemicals included in the treaty are: aldrin, chlordane, DDT, dieldrin, dioxins, endrin, furans, heptachlor, hexachlorobenzene, mirex, polychlorinated biphenyls, and toxaphene. *See POPs Treaty Ratified*, CHEM. WK., Mar. 10, 2004, at 33.
[117] *See* Freeman, *supra* note 112.

to amend existing laws, including the TSCA, to implement the treaty.[118] Of particular concern is the U.S. government's ability to timely comply with additions to the list of banned chemicals within the current regulatory framework. In order to comply with the treaty, several existing environmental laws need to be altered. The Bush administration is trying to get Congress to ratify its proposals to implement these changes, including giving the EPA discretion to ban a chemical once other signatory countries have done so.[119] If signatory countries act to include PBDEs on the list of banned substances, the federal government will be forced to act quickly to maintain compliance with the treaty.

The POPs Treaty ratification illustrates the importance of national uniformity with regard to PBDEs and other persistent EDCs. While states should be the breeding grounds for governmental experimentation, the need for national control outweighs this, especially in light of international action that will be binding on the United States. The TSCA and EDSP currently fall dangerously short of allowing the EPA to assume this role, and the result is that California may now dictate the national standard for emerging chemicals. The TSCA should be reformed to repair this potentially harmful hole in its fabric.

The EPA should be at the forefront of environmental regulations affecting commerce and transboundary issues. Scientific evidence shows that the persistent effects of BFR chemicals have emerged around the world, including accumulation in Arctic mammals.[120] The problem's global impact increases the importance of the federal government as the sole regulator of these chemicals; the federal government is authorized to deal with international concerns, treaties, and other nations in ways that an individual state is not.

2. *Comparison to Polychlorinated Biphenyls*

Polychlorinated biphenyls are considered one of the worst pollutants on Earth. They represent the most predominant example of a persistent organic pollutant in environmental history. PCBs accumulate in fatty tissue, just as PBDEs do, thereby increasing in concentration higher up the food chain.[121] Banned in the 1970s, these chemicals were used in insulating fluids and chlorinated pesticides.[122] Thirty years after being banned, detectable PCB levels still persist in the environment, especially in the ocean.[123] High PCB levels have been attributed to suppressed immune system response, altered testosterone and progesterone hormones, reduced fertility and intelligence, as well as sexual deformities in all types of wildlife.[124] Scientists warn that "PBDEs will replace PCBs and DDT as the

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[118] *See id.*
[119] Marty Coyne, *Bush Admin Changes Little with Latest Proposal on Persistent Chemicals*, ENV'T & ENERGY DAILY, Article 4, Mar. 23, 2004.
[120] *See* Cone, *Of Polar Bears and Pollution*, *supra* note 3.
[121] *See id.*
[122] *See id.*
[123] *See id.*
[124] *See id.*

major organic pollutant over the next 15 to 30 years."[125] PBDEs in flame retardants are chemically similar to PCBs in molecular structure, environmental persistency, and likely toxicology. As such, it makes sense to adopt a national standard for PBDEs that is similar to PCBs.

Congress authorized the EPA to regulate the manufacture, sale, distribution, and disposal of PCBs under the TSCA.[126] However, the EPA was unable to obtain complete preemptive power over state laws regarding the disposal of PCBs.[127] The federal courts are split as to whether the EPA regulation of PCBs under the TSCA preempts state regulation of the chemicals.[128] Courts have allowed states and localities to institute more stringent disposal regulations than those set out in the TSCA, but have generally held that the manufacture, sale, and distribution aspects must preempt other state and locality regulations.[129] Even without total control over disposal issues, the EPA has been successful in eliminating the use of PCBs by spearheading the ban of these chemicals globally. This effort has resulted in the reduction of detectable PCBs in the environment and in higher mammals. Similar action by the EPA is needed in the case of BFRs and other emerging POPs.

Before the EPA can effectively regulate toxic chemicals such as BFRs, Congress must overhaul the TSCA to eliminate the broad exemptions employed in the Act. As the model for PCBs shows, EPA regulation of a known hazardous substance can be an effective way of handling human and environmental dangers. However, to enable the EPA to establish dominance in federal regulation of such materials, changes to the statute must be made. As PBDEs accumulate at alarming rates similar to those of PCBs in the 1970s, it is important that *some* federal action be taken, even if the best model for that action is flawed.

Currently, the Agency is conducting research and gathering data on PBDEs, and is working with companies to devise substitute flame retardants.[130] Previously, the EPA never evaluated safety and environmental information about PBDEs, because they were on the market when the TSCA developed an inventory of existing chemicals. The TSCA grandfathered in those chemicals which at the time of enactment were in use without any signs of being toxic or otherwise harmful to the health of humans or the environment. Once on this list, the EPA may not regulate a chemical unless it can prove that the chemical poses significant risks to human health or the environment.

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[125] *These May Make You Forget PCBs*, *supra* note 2.
[126] *See generally* Florio, *supra* note 100, at 1363–71.
[127] *See id*. at 1365–66.
[128] *See* Farley-Northwest Indus. v. N.J. Dep't of Envtl. Prot., No. A-2037-89T2, at 12–13 (N.J. Super. Ct. App. Div. June 5, 1991) (holding that the state regulation was not preempted by TSCA, and noting the circuit split described).
[129] *See* Rollins Envtl. Serv., Inc. v. Logan, 508 A.2d 271, 273 (N.J. Super. Ct. App. Div. 1986) (holding that while the state law preempted local regulation of PCBs, there was no federal preemption). *But see* Rollins Envtl. Serv., Inc. v. Parish of St. James, 775 F.2d 627, 637 (5th Cir. 1985) (construing TSCA to preempt state and local PCB disposal bans).
[130] *See* Renner, *supra* note 1.

Research has determined that PBDEs "resemble PCBs in terms of persistence and environmental dispersion,"[131] and it is probable that the consequences will be similar. PCBs are difficult to purge from the environment; in fact, twenty-five years after banning PCBs, trace amounts can still be found in human blood.[132] Moreover, it is still costing the United States hundreds of millions of dollars to rid our waterways of PCB contamination. For example, the New York Hudson River and Wisconsin's Fox River are still being dredged to eliminate PCB contamination caused thirty years ago.[133] The United States banned PCBs with less data on health effects than it currently has on PBDEs;[134] moreover, toxicologists say that BFRs have the same effects as PCBs on the brains of newborn animals in the same doses.[135] This amounts to strong evidence that the EPA needs to take action to minimize any exposure to BFR molecules and any subsequent cleanup costs.

B. POLITICAL INTERFERENCE IN ENVIRONMENTAL REGULATION

Both the EPA and state legislators are susceptible to interest group and insider political pressures, creating the possibility that decisions are made based on concerns other than that of human health and environmental wellness. Ultimately, the EPA is better situated to institute broad-sweeping bans on toxic chemicals, because of research and proof mechanisms that are in place to ensure decisions are based on actual knowledge of harm. State legislators must keep constituents happy, not necessarily verify scientific findings about the actual toxicity of a substance before acting. This requires that regional attitudes towards risk play a role in the development of regulatory policies. While there is merit to the argument that PBDEs in the environment may cause serious health problems, one can easily imagine a scenario where the public is in an uproar over a substance that has much less substantiated evidence of harm. With no defined method of determining the substantiality of harm or the costs and benefits, legislators are left with little choice but to defer to what the people want. In the insulation of their own locality, this would be a just outcome. However, when a state has a substantial stake in the commerce of the nation, and when its laws will impact other states without their consent, there ultimately will be problems.

A public choice view of environmental regulation is seen "as the response to the pressure of powerful groups that seek to further their individual interests, generally at the expense of aggregate social welfare."[136] Politicians are looking for what is benefit-maximizing for

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[131] Phil Zahodiakin, *Developmental Effects Seen in Flame Retardant Study*, PESTICIDE & TOXIC CHEM. NEWS, OCT. 22, 2001, at 11.
[132] *See* Matt Crenson, *Flame Retardant Raises Red Flag for Some Scientists' Health*, L.A. TIMES, Feb. 3, 2002, at A12.
[133] *See id*.
[134] *See* Marty Coyne, *PCBs: Admin Urged to Curb Toxics for Ocean Health*, GREENWIRE, Article 7, Sept. 29, 2003.
[135] *See* Cone, *Cause for Alarm*, *supra* note 6.
[136] Revesz, *supra* note 17, at 207.

them, both in terms of public support and money from groups pleased with their decisions. This public choice model of politics may help explain the unusual phenomena of California's ban of PBDEs and the EPA's response of negotiating a phase-out with the chemical companies.

Jonathan Macey has proposed a "franchise theory of federalism," identifying three situations where federal deference to local regulators may take place: (1) when a state has developed a body of regulation that represents an asset that would be diminished by federal regulation; (2) when political support varies widely in different jurisdictions; and (3) where Congress can place responsibility for a controversial issue on state and local governments.[137] The implication of this is that the Supremacy Clause is used more for the political convenience of Congress than as a means to uphold governmental separation of powers.

In the first case, where deference is given to local regulators when a state has developed a body of regulation that represents an asset, a case can be made that California is trying to create such a niche market for environmentalism. Examples of Congress allowing a state's regulatory regime that has national implications, while not numerous, are also not insignificant. Delaware's corporate law, South Dakota's law of usury, and Connecticut's regulation of the insurance industry are major examples.[138] These laws are well established, creating a legislature and judiciary that have a special level of expertise in these areas. State domination of these areas of law may make sense for just that reason. This logic, however, falls apart with respect to environmental law, as issues often involve disproportionate burdens, differing levels of acceptable risk, and most importantly, international concerns that an individual state does not have the authority to negotiate. Thus, it is unlikely that asset reasoning resulted in federal inaction with respect to BFRs.

The second theory is a more plausible explanation for federal deference here: when political support varies widely in jurisdictions. It is likely that some constituencies, taken as a whole, would not be concerned about the potential harms of PBDEs, instead seeing other issues as more important. It is not surprising that a state such as California, known for its liberal environmentalism, would want to take steps to maximize safety even at high costs. Without more verified scientific studies, it would have been hard for the EPA to justify its own national ban to states that would require more intense proof of harm. Rather than being seen as taking the cue from the European Union, which had already banned PBDEs, the EPA chose to take the conservative and nonaggressive route dictated to it by Congress.

Where federal entities can place responsibility for controversial issues on local governments, they will, in order to avoid political suicide. A possibility existed that the chemical manufacturing companies, and those states that benefit most from these companies' sales, would make some noise about a national ban—especially if the timetable was as strict as the

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[137] *See* Macey, *supra* note 18, at 268–69.
[138] *See id*. at 266, 280.

one employed by the European Union. Instead of looking at the world trend and evidence of risk, federal entities decided to continue studying the compounds, essentially stalling any permanent decisions. Once the California bill was in motion, however, the EPA was quick to nullify any manufacturer resentment by approving an alternative flame retardant. As such, the EPA appears as the "good guy" to manufacturers and other stakeholders in keeping these flame retardants on the market.

Other reasons also may explain the EPA's deference to California with respect to BFRs. While it would not be cost effective for all fifty states to enact laws banning BFRs, it is definitely less expensive to enact a single local law than a single federal law.[139] This may help explain why the EPA was supportive of the California legislation: the Agency was well aware that the time and money required to eliminate the use of PBDEs would be considerably higher for them than for California, and the California ban would have the same effect. Also in the background are the backdoor deals between the EPA and the chemical companies to accept their alternative flame retardants into the market. In the end, if public support turns out to be absent, or if another constituency (such as the chemical manufacturers or the states in which they are located) seems to draw more power than the California environmentalists, the EPA can rely on Congress to regain strength and override the state legislation with its own legislation. In this way, the Supremacy Clause is an "escape hatch" for Congress to allow hard decisions, and the fallout from them, to be passed down to state and local legislators, while still maintaining control and political popularity. This behavior represents a strategy by which federal politicians can offer wealth transfers to interest groups in exchange for political support.[140]

California's action represents a situation where all of the major externalities associated with the passage of this law are borne by other states, while allowing California to reap the benefits. In this kind of situation, it is desirable to have a national solution in order to avoid some of the political pitfalls involved in such an action.[141] By stepping in as an intermediary and quickly approving alternative flame retardants, the EPA dissolved any such controversy. This behavior, however, will not pass political muster when the same scenario is played again and there are no available alternatives to be approved.

This deferment of power by the EPA is symptomatic of some of the issues previously discussed. The U.S. system of environmental monitoring and regulation of EDCs is an expensive and extensive process, which may not respond quickly enough to health threats to adequately protect its citizens. The EPA may have deferred authority to the state to implement a national ban because the EPA's hands were tied by the congressional restraints governing how it may proceed. This is a bad precedent to set, though, as one state should not have the ability to bind other states in this way. It is imperative that Congress act to repair the mechanism by which

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[139] *See id*. at 281–82.
[140] *See id*. at 291.
[141] *See id*. at 279–80.

the EPA is allowed to evaluate and regulate toxic substances, especially those designated as POPs.

Politicians are not the only entities with a stake in how legislation plays out. Interest groups at both the federal and state level have increasing influence over the legislative process. State interest groups have become as formidable and sophisticated as those on the national level.[142] In the realm of environmental politics, local interest groups have become key players in influencing legislative decisions.[143] The list of supporters for the California ban is replete with local as well as national interest groups.[144]

Interest groups are often thought of as exerting too much power, or only representing a minority view. While this may be correct, in the case of BFRs, interest groups have played a major role through state legislators in accomplishing what the federal government could not: a national ban on unhealthy BFRs. In this sense, the system of allowing states to have autonomy with respect to banning certain substances within their borders is a success story. The passing of a bill by the California legislature is inarguably less costly and time-consuming than the federal regulatory scheme, even if Congress had attempted to enact legislation of its own. Here, the result was a ban that most people probably wanted; however, this may not be the case the next time California lobbyists want to push for legislative enactment.

C. RISK ASSESSMENT AND THE PRECAUTIONARY PRINCIPLE

California has gone beyond taking the lead in regulation of a toxic chemical—it has taken the lead in switching from an environmental risk assessment model that requires proof of harm before action to one that resembles the precautionary principle. While there are many definitions of the precautionary principle, the term as defined by the EPA means that "[w]hen information about potential risks is incomplete, basing decisions about the best ways to manage or reduce risks on a preference for avoiding unnecessary health risks instead of on unnecessary economic expenditures" is preferable.[145] With little scientific evidence showing danger to human health, the EPA's hands are tied under the current regulatory regime. California, not bound by the same regulatory policies as the EPA, has gone ahead with a ban due to PBDEs' *probable* toxicity to humans and the environment based on increasing buildups in animal and human studies. This change in thought regarding risk has two consequences.

First, it may only signal California residents' notoriously environmentally-conscious image. Californians may, on the whole, want a

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[142] *See* Clive S. Thomas & Ronald J. Hrebenar, *Nationalization of Interest Groups and Lobbying in the States*, *in* INTEREST GROUP POLITICS 63, 77 (Allan J. Cigler & Burdett A. Loomis eds., 3d ed. 1991).
[143] *See generally* Christopher J. Bosso, *Adaptation and Change in the Environmental Movement*, *in* INTEREST GROUP POLITICS 151 (Allan J. Cigler & Budett A. Loomis eds., 3d ed. 1991).
[144] *See Hearing*, *supra* note 40. Some of the registered supporters included: Environment California, Natural Resources Defense Council, Sierra Club, and numerous other state organizations. *See id*.
[145] U.S. ENVTL. PROT. AGENCY, TERMS OF ENVIRONMENT, *at* http://www.epa.gov/ocepa111/OCEPAterms/pterms.html (last visited Jan. 7, 2005).

precautionary model of risk assessment, but other states may disagree. Because this is an effective ban throughout the country, other states' commercial products will likely have to comply with the California law. This will increase the cost of their goods as well, even though residents of those states may feel that the flame retardants' fire safety properties are more beneficial than the risk of toxicity, and are unwilling to pay the increased prices of alternative products.

Second, this type of risk assessment is contrary to the federal regulatory risk assessment scheme. By taking a precautionary stance similar to European models, California may be paving the way for major changes in the way federal regulatory law will be made in the future. Whether this signals a national change or merely a more liberal environmentalist approach confined to one region of the country is yet to be seen. If it does represent an increased concern about the potential risk of toxic substances across the nation, then the scope of the EPA's powers, the need to revamp their system of risk control, and the effects on commerce will be great.

Environmental groups, such as Environmental Working Group ("EWG"),[146] are beginning to push for a model more similar to Europe's.[147] EWG representatives claim that the current system of regulating toxic chemicals is not protecting Americans, and are urging the EPA to follow the European lead.[148] The group contends that further work should be done on the PBDE issue,[149] including an EPA ban on all PBDEs as quickly as possible.[150] The group believes that "[i]n the interim, all PBDE-containing products should be labeled."[151] Further, they advise that all replacement flame retardants should be "tested to ensure they are not persistent, bioaccumulative, or toxic."[152] Finally, EWG advocates that a "nationwide biomonitoring program should be established to identify chemicals that are accumulating" in humans and the environment.[153]

While there have been no peer-reviewed studies showing that PBDEs cause human health problems,[154] EWG expressed anger that the chemical regulation process in the United States allows experimentation on citizens.[155] The group contends that the current system allows the release of chemicals into the environment and simply waits to see what effects they have years later.[156]

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[146] Environmental Working Group is a nonprofit environmental research group.
[147] *See Environmental Working Group Finds High Levels of PBDEs in Women's Breast Milk*, CHEM. MKT. REP., Sept. 29, 2003, at 11.
[148] *See id*.
[149] *See id*.
[150] *See* Brayton Purcell, *Legislative News: California Legislature Passes Bill Banning PBDEs*, Aug. 1, 2003, *at* http://www.braytonlaw.com/news/legisnews/080103_ab302_pbde.htm.
[151] *Id*.
[152] *Id*.
[153] *Id*.
[154] *See Chemicals: High PBDE Levels in Breastmilk—Study*, *supra* note 10.
[155] *See Environmental Working Group Finds High Levels of PBDEs in Women's Breast Milk*, *supra* note 147.
[156] *See Chemicals: High PBDE Levels in Breastmilk—Study*, *supra* note 10.

The EWG is not alone. Other organizations have joined in the chorus, calling for change in the regulatory regime that will identify toxins and regulate them more swiftly and effectively to protect human health. According to scientists at the National Resources Defense Council ("NRDC"), there is a greater need to act quickly when a chemical is not only found to be toxic, but is persistent and accumulates, because the problem will continue to worsen over time.[157]

These groups advocate a switch to a more European standard of regulation. While U.S. law requires proof of risk before a chemical can be banned; European law requires proof of safety before a chemical can be used in the environment.[158] The European model puts more emphasis on safety assurance when faced with unknown health and environmental effects This provides increased safety up front, but with the potential of overregulation. Whether this is a better method of control is a matter of individual preference for handling risk and determining the worth of benefits.

While there are many toxic chemicals that humans and wildlife breathe, eat, and drink, only three are known to harm human health at levels found in the environment: lead, mercury, and PCBs.[159] New data emerging every day indicate that PBDEs may be another.[160] Environmental groups may well have grounds for concern, yet it remains uncertain if the federal government will be willing to switch to a precautionary regulatory model, or at least institute a more streamlined approach to persistent endocrine disruptors.

It seems the EPA agrees that these are dangerous chemicals and that something should be done to minimize the risk of exposure to them. Yet, at the same time, EPA agents claim that they do not know enough to take any regulatory steps. A scientist from the California Environmental Protection Agency's Hazardous Materials Laboratory characterized the threat of PBDE toxicity as "a social experiment we'll be following for the next 20 years. It is not going away."[161] However, EPA Administrator Christine Todd Whitman "maintains that not enough is known about the effects of PBDEs to warrant regulating them."[162] At the same time, the EPA's Director of Toxicology states that "'there is no question' that the chemicals are altering thyroid hormones," which during fetal development affect how the brain functions.[163] This discrepancy between the known risk of PBDEs and the lack of regulation is alarming. The EPA's lack of ability to adequately respond to this perceived threat in a timely manner further illustrates the need for Congress to seriously consider alternative methods for regulating suspected POPs.

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[157] *See Environmentalists Want Ban on Flame Retardant*, PROD. LIAB. L. & STRATEGY, Feb. 2002, at 10.
[158] *See id.*
[159] *See* Cone, *Cause for Alarm*, *supra* note 6.
[160] *See id.*
[161] *Id.*
[162] *Id.*
[163] *Id.*

V. CONCLUSION

California's ban on BFRs may well be the prudent thing to do in light of the potential harms and rapid accumulation of the chemicals in the environment. Nevertheless, while producing a desirable outcome in this instance, it may be setting an unwelcome precedent for other states and the federal government. California, as a powerful state, should use caution when enacting legislation as far-reaching as the ban on BFRs. Deference to federal agencies is important for several reasons, including efficiency, consistency, management of externalities, and legitimacy in the international arena.

Congress could preempt the California ban under the Commerce Clause; however, the enactment itself is not a violation of any federal right in light of gaps in the authority and interpretation of the TSCA. As a result, it is possible, and has been condoned, for California to affect interstate commerce in a way that is traditionally prohibited. There is a great need for Congress to consider strengthening the TSCA, especially given the increasing numbers of scientific studies identifying emerging chemicals of toxic concern. Without strong authority, the EPA cannot act in the best interest of the environment and human safety.

Federal entities with scientific expertise and experience are better positioned to make determinations about the health and the environmental effects than are state legislators. State governments must respond to the desires of their constituents, interest groups, and corporations, without the safety net of a standard protocol for determining if regulation is substantiated, and without the need to consider external effects on other jurisdictions. When state legislation threatens to infringe on long-held beliefs about the structure of governmental control, such as federal domination over interstate commerce, the state legislation should not be allowed.

All indications point to PBDEs being as harmful to the environment and health of humans as PCBs. Thus, it is imperative that the federal government take a step forward in the regulation of these chemicals either through the constraints presently imposed by the EPA or through Congressional action. It is inherently wrong for a single state to regulate other states through its own legislation. The U.S. Constitution, even in its broad empowerment to states, never intended for one state to interfere with the commerce of another state in the way the California legislation does. As evidence shows, the California legislature's ban on BFRs is probably prudent, yet one correct outcome may set the stage for overregulation, inefficiencies in state and federal resources, and set a precedent for California being the standard for national regulation of such substances.

State autonomy in environmental regulation should remain the norm, except with respect to chemicals that are persistent and migratory threats to human health and the environment. PBDEs represent a small number of such chemicals that pose these unique problems. As such, there is a need for strong national uniformity, similar to the actions taken to ban PCBs.

Also, in light of the recent ratification of the POPs Treaty, it has become imperative that the federal government exert national uniformity to enable compliance with international law. In addition, the government needs to regulate PBDEs and other persistent endocrine disruptors differently than other chemicals. These chemicals should be prioritized and regulated more swiftly than the current regulatory system allows.

The California ban may be a signal that people are increasingly concerned with potential toxins in the environment, causing a change in the way we are to assess such risks. Traditionally, a cost-benefit analysis and a model of proving harm are used before instituting regulations and bans. The complicity of the EPA and other states in the California ban may indicate that a regime change is in order and that the European model of precautionary aversion to harm is the way the United States is heading. With so many chemicals used in the most common consumer products, this may be a sensible way to avoid excess exposure to harmful substances. However, such extreme caution comes with other costs, such as increased prices and tradeoffs in other safety features provided by potentially harmful chemicals.

It is certain that we will see a shift in the way persistent endocrine disruptors are regulated on the federal level. The California ban, as well as the ratification of the POPs Treaty, will ensure that this class of chemicals receives some kind of specific regulatory treatment in the future. It seems that California has led the way for national safety with regard to these chemicals, making it—not the federal government or the EPA—the national leader in environmental regulation.