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March 7, 2013

Carol Kraege
Department of Ecology
P.O. Box 47600
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Subject: Comments on *Toxics Policy Reform for Washington State* White Paper

Dear Carol:

Attached please find comments on the *Toxics Policy Reform for Washington State* white paper that was prepared by the Toxics Reduction Strategy Workgroup. We appreciate the opportunity to provide comments. Toxics policy reform has the potential to provide significant economic, health and environmental benefits, but the technical issues are complex and have important ramifications for whether or not Washington State captures those benefits. We believe that we have much to offer to policy makers who are grappling with these issues, and we are interested in participating in any future stakeholder activities that arise.

If you have any questions or would like to discuss our comments further, please don't hesitate to contact us.

Sincerely,

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Comments on Toxics Reduction Strategies Workgroup 15 January 2013 white paper to Governor-elect Inslee and Washington State legislative leaders

Page(s)	Statement	Comment
1	Toxics	To boil chemical compounds down to a moniker like "toxics" makes it far too easy to forget or ignore the environmental toxicology and chemistry that regulates whether, and to what extent chemical compounds cause undesirable toxic effects in the environment. It gets in the way of bringing common sense, focused intention, and smart prioritization to efforts to cost-effectively reduce public health and ecological risks by regulating chemical use. The problem we must address is not "toxics," it is risks that are deemed through open public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy.
1	We need the ability and commitment to bring common sense, focused intention, and smart prioritization to toxics reduction efforts, both to better protect people and the environment and support the success and growth of Washington business and industry.	The authors are calling for "toxic reduction efforts" to be more accountable for producing tangible environmental benefits. That's a worthy policy objective.
3	In the face of such challenges—incomplete information about chemical toxicity, widely dispersed sources of toxic chemicals through consumer goods and other pathways, legacy contamination—the the public and the environment bear the risk and burdens of toxic chemical exposures.	The white paper emphasizes that exposure to chemicals in the absence of complete information about exposure levels and toxicity (exposure-response) poses risk. This is true. One could add that uncertainty about the indirect effects of exposure-response on ecosystems and society (i.e., on ecological services) poses risk. That's true too, but none of it is useful as a basis for making policy decisions about regulating chemical use. Risk is a fact of life and expending resources to reduce risk has both direct costs and opportunity costs. Concerns about risk have to be accompanied by concerns about the costs and benefits of reducing those risks. Unless and until that standard is met it's not possible to bring common sense, focused intention, and smart prioritization to toxics reduction efforts.
5	"(E)vidence suggests that chemical exposures may play a role; for example, pesticides, solvents, PCBs, PDBEs, and heavy metals such as lead and manganese have all been linked to an increased risk of Parkinson's disease." (Caudle et al. 2012; Van der Mark et al. 2012). WM Caudle , TS Guillot, CR Lazo, GW Miller. (2012) Industrial toxicants and Parkinson's disease. NeuroToxicology 33(2): 178-188 Van der Mark M, Brouwer M, Kromhout H, Nijssen P, Huss A, and Vermeulen R. (2012) Is pesticide use related to Parkinson disease? Some clues to heterogeneity in study results. Environmental Health Perspectives 120(3); 340-7.	The sentence appropriately caveats that chemical exposures "may play a role" in neurodegenerative diseases such as Parkinson's disease. Caudle et al. (2012), for example, note that organohalogens, metals, and solvents have received strong support as risk factors for Parkinson's disease and other related disorders, but that "making a clear delineation as to the contribution of a class of compounds or a specific compound to a particular suite of pathological and clinical symptoms remains to be achieved." Van der Mark et al. (2012) similarly conclude there is strong evidence that exposure to herbicides and insecticides increases the risk of developing Parkinson's disease, but that it "it remains important to identify the specific chemicals responsible for this association." We simply note that more work is needed to better understand specifically which chemicals, and which chemical exposure scenarios, may result in an increased risk of developing Parkinson's disease.
5	More than 1,700 water body segments in Washington are impaired due to high levels of toxic chemicals or metals.	1. The process of identifying and classifying water body segments as impaired due to toxic chemicals, metals, or other stressors has provided an opportunity to restore some of the most contaminated waters in our state. However, it should be emphasized that the process is not without its flaws. For example, the water quality criteria that are used to help determine whether a water body segment is impaired are often based on out-dated science. For metals like copper and zinc, for example, we now have a much better understanding of how local water conditions influence the bioavailability and hence potential toxicity of these metals. The science and policy for identifying impaired water body segments should be reformed so that efforts on reducing levels of toxic chemicals and metals in the aquatic environment are not unnecessarily spent on waters not requiring action. Policy reform and effective use of best available science in this arena would be a step forward in helping to achieve the workgroups shared belief that we can do a better job of reducing adverse health, environmental, and economic impacts of toxic chemicals. 2. We commend the workgroup for drawing a distinction between metals and "toxic substances." Toxicity is a characteristic of chemical compounds, but for most compounds including metals, it is not a defining characteristic. In the case of metals, for example, iron, zinc, copper, manganese, chromium, molybdenum and selenium in trace amounts are generally regarded as essential for human health (http://www.eurometaux.org/MetalsToday/MetalsFAQs/Metalsessentialforhumanhealth.aspx). Metals toxicity depends on the particular form (chemical species) that the metal takes in the environment, and on other environmental conditions including the chemistry of the waters in which the metals are found and the physiology and

		ecology of the organisms living in those waters. The water quality science surrounding metals has advanced rapidly in recent years, so rapidly in fact that Washington State's water quality criteria have not kept pace with the state of the science. Even so, the science is useful because it can teach us why we need smarter, not necessarily stricter water quality regulations if our objective is to cost-effectively reduce public health and ecological risks. The notion of smarter, not stricter water quality regulations is very important to the State of Washington if, as advocated by the workgroup, building a stronger green economy is an objective. A true green economy requires a true understanding the environmental impacts and benefits of alternative technologies and materials. The discussion that follows in our next comment elaborates on this point using the example of copper antifouling paints versus substitute products, with the take-home message being that newer is not necessarily greener, and the state should use precaution before compelling manufacturers and users to substitute an untested technology for one that's proven itself reasonably safe and effective (i.e., green). A true green economy cannot be achieved quickly or based on reactionary decision-making. Particularly when we look beyond carbon footprint and physical impact, we should not presume that newer technology and materials are greener than the technologies and materials they would replace. Adaptive management – the policy of gradual technological evolution through systematic acquisition and rigorous analysis of scientific data – is the true path to a green economy, and the path that is consistent with the workgroup's recommended principles of common sense, focused intention, and smart prioritization.
5	The Puget Sound Toxics Loading Assessment found that the vast majority of toxic chemicals in Puget Sound come from non-point sources and are released to Puget Sound through stormwater. This includes: • Copper, cadmium, zinc, and phthalates, from various sources. • Copper from pesticide and fertilizer use in urban areas, brake pads in vehicles, and boat paint. • Polycyclic aromatic hydrocarbons (PAHs) from wood smoke, legacy creosote-treated wood, and vehicle exhaust. • Petroleum-related compounds from minor fuel and oil spills, and drips and leaks from personal vehicles. Other pathways of concern include direct air deposition (where chemicals fall directly into the water; this is the most common pathway for PBDEs and some PAHs), and wastewater treatment plants, which often are not able to effectively remove some contaminants such as pharmaceuticals and endocrine disrupting chemicals present in municipal wastewater.	The workgroup should follow its own previous example by continuing to distinguish metals from toxic chemicals. Regarding copper in boat paint, Ecology has ranked antifouling paint sixth below other copper sources more likely to be found in stormwater, and acknowledged uncertainty with its antifouling paint copper release estimates, yet Washington State has decided to phase out the use of copper in aquatic antifouling paints by 2020. Some perspective on this decision is informative. The Department of Ecology's 2007 study of two marinas near Anacortes found relatively low copper concentrations, with only occasional exceedances of Washington's WQC. Antifouling paints have *not* been identified as the cause of those exceedances. Using current water quality science, e.g., the marine copper biotic ligand model, the marine copper WQC would likely be higher, so even the occasional exceedances observed inside marinas are questionable. Nonetheless, Senate Bill 5436 of the 62nd Washington State Legislature asserted the legislature's intent to phase out the use of copper paint in hull coatings used on recreational water vessels, and the SB5436 Senate Bill Report used Ecology's 2007 report as justification for the legislation, stating erroneously that the report "found the primary source of copper to be from antifouling paints found on boat hulls" (it did not). From there SB 5436 provided the following rationale for phasing out the use of copper in aquatic antifouling paints: • Aquatic antifouling paints are used on water vessel hulls to prevent the growth of aquatic organisms and algae. • Most of these antifouling paints use copper to reduce the growth. • Copper is very toxic to many aquatic organisms, including salmon. • Copper leaches out of bottom paints from waterborne vessels and when the vessel hull is cleaned or repainted. • Washington's marine and freshwaters are home to thousands of recreational water vessels. What is noteworthy about this is that copper is being regulated based on hazard, not risk. Hazard and risk are two very different things. Chemical and safety hazards represent the potential for a substance or product, in the wrong hands, to cause harm. Chemical and safety risk is the potential for a particular level and type of uses of a substance or product to pose a particular type and level of harm to people or the environment. As we asserted at the outset of these comments, we believe that *the problem we must address… is risks that are deemed through*

		open public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. The use of copper in antifouling paints does not meet this standard. The evidence is clear; the only technical rationale for phasing out the use of copper in aquatic antifouling paints is that copper can be classified as a hazardous substance. What is interesting about this example is that by the standard used to ban the use of copper in aquatic antifouling paints, the use of any biocide in aquatic antifouling paints on water vessel hulls would be banned. Already, a wide array of copper-free bottom paints is on the market, yet they employ other biocides to achieve the same end as copper-based paints. Substitute the name of any other biocide into the bullet points above and the result would be the same. Another interesting take-away from this example is that since there's been no credible risk assessment, we don't know whether the biocides that will be used in place of copper are "greener" or "riskier" than the copper-based paints that they are replacing. The life cycle impacts to the boat owner, the environment and net ecological risk of these substitutes relative to copper-based paints are not well understood. The state, through SB5436, is substituting products that pose unknown risks for a product that, based on a compelling body of evidence, does not pose risk to the aquatic environment, despite the fact that copper, if indiscriminately introduced into aquatic environments, could, like most substances, cause harm. The workgroup should show leadership by refusing to use the "toxic chemical" moniker to generalize about any group of compounds. Polyaromatic hydrocarbons, for example, are highly variable in terms of their chemical properties and potential toxicity. Like metals, they too come from both anthropogenic and naturally occurring sources, and like metals, it is misleading to lump them together as "toxic substances." Some PAHs are potentially toxic to aquatic organisms, particularly invertebrates living in or on sediments, and a few in sufficiently large doses pose human health risks. It does not follow, though, that PAHs in general warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. This is not to say that there aren't sensible actions can and should take without needing to do the risk-benefit calculation. Implementing policies aimed at ensuring proper disposal of used motor oil – a source of PAHs – is a simple example of policy that makes good sense, and that might be true even if only for the sense of environmental responsibility that it instills. Similarly, for antifouling paints, policies establishing best management practices (BMPs) governing application, removal, and product standards (e.g., governing the rate at which biocide leaches from antifouling paint into the environment) make good sense (and are already in place). On the issue of copper in brake pads, the Copper Development Association (CDA), a U.S.-based not-for-profit association of the global copper industry, supports the Brake Pad Partnership's plan to phase out copper from brake pads over a 15-year period. Copper is an important, naturally occurring element in bays, streams and oceans but CDA representatives are concerned when there are reports that human activity contributes to copper levels beyond what would be healthy in the aquatic environment. The CDA has also come out in support of the auto industry's position not to compromise vehicle performance or customer safety as they explore options to replace copper brake pads in vehicles of the future.
6	The Clean Water Act is not adequately designed to address pollution from non-point sources and so is difficult and inefficient to use to address these problems.	The white paper is addressed to the governor and leaders in the Washington State legislature. What then is the point of its assertion that the Clean Water Act is not adequately designed to address pollution from non-point sources? The state is bound to regulate water quality under the Clean Water Act, or cede authority to the federal government to do the same. The workgroup's primary concern with non-point source pollution regulation seems to have less to do with the Clean Water Act *per se* than with the burden placed on local governments to collect, convey and treat non-point source pollution over which they have little or no control until it reaches their collection, conveyance and treatment systems.
6	There are opportunities to build Washington industries, and recast Washington as a global leader in developing innovative green technology, ….	Finding and exploiting opportunities to build Washington industries, and recast Washington as a global leader in developing innovative green technology is a laudable goal. Restricting use of chemicals in Washington State, particularly when the restrictions are not founded on sound scientific and economic justification does nothing to further that goal. In fact to the extent that it creates economic inefficiencies it impedes opportunities for developing innovative green technology in Washington State.

7	Principle of shared responsibility	We agree with the principle of shared responsibility for regulating chemical use to cost-effectively reduce public health and ecological risks. We find nothing progressive, though, in the roles that the workgroup has identified for industry, government, NGOs and individuals. This is the same rhetoric that we have been living by for the past fifty years. After half a century, we know that while all four parties believe in the principle of shared responsibility, the devil is in the details. The workgroup should have called on the governor and legislative leaders to rethink the way that shared responsibility for regulating chemical use has been allocated to industry, government, NGOs and individuals, and how redefined roles might expedite cost-effective public health and ecological risk reduction. Those roles should reflect the key functions of innovation, manufacturing, education, regulation, and advocacy. All parties should share responsibility for practicing reasonable restraint in (not) imposing upon others based on speculative judgments about risks (be they conservative or non-conservative). Common sense, focused intention, and smart prioritization might make good metrics for defining "reasonable restraint." True success will only come through collaboration of all stakeholders and not a few select ones with pre-formed agendas.
7	The unknowns and the complexities in understanding chemical exposures and the effects on human health and the environment warrant a precautionary approach. A precautionary approach is not meant to eliminate all risks; rather it denotes that when there is credible evidence that a chemical or product may harm humans or the environment, protective measures should be taken even if some cause-and-effect relationships or toxicity levels are not fully established scientifically.	The Precautionary Principle (Principle 15 of the 1992 Rio Declaration on Environment and Development) is often misunderstood to say that in the face of uncertainty about the risks posed by a particular chemical substance or product, we should err on the side of protectiveness. That interpretation is used to argue that the safety factors we apply when developing worst-case estimates of exposure and toxicity should be carried through to risk management decision-making. This is generally how the Precautionary Principle is evoked to argue for restrictions on the use of chemical substances or products that have not been proven to be environmentally benign. This reasoning is fallacious. Here is what the Precautionary Principle actually says: *"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."* The Precautionary Principle is not supportive of the precautionary approach articulated in the white paper by the workgroup. Of the two, the Precautionary Principle is better aligned with the principles of common sense, focused intention, and smart prioritization, and should be the guiding principle on the matter of precaution as it applies to Washington State's "toxics" reduction strategies. The workgroup's precautionary approach calls for protective measures whenever there is credible evidence that a chemical substance or product might harm humans or the environment. The Precautionary Principle simply says not to use uncertainty as an excuse for inaction when two conditions are met: 1. Inaction poses a threat of serious or irreversible damage relative to what would occur if the protective measures were imposed. 2. The protective measures are cost-effective and aligned with capabilities of the performing parties. The advantage of the Precautionary Principle over the precautionary approach is that it tempers the tendency of the latter to impose ineffective costs and thereby stifle innovation and strain the state's economy.
7	The public should have access to clear, transparent, and actionable information about chemical and safety hazards associated with chemicals in all products; this should be presented in a careful way to avoid information saturation and fatigue.	We agree with the sentiment of this statement, but caution again that hazard and risk are two very different things. Chemical and safety hazards represent the potential for a substance or product, in the wrong hands, to cause harm. Chemical and safety risk is the potential for a particular level and type of uses of a substance or product to pose a particular type and level of harm to people or the environment. It might be possible to provide information about chemical and safety hazards associated with hazardous chemicals in all products without causing information saturation and fatigue. We already do this for some products. Manufacturers and chemical companies provide Material Safety Data Sheets (SDS) with chemical hazard information. More recently as part of the sustainable development movement, downstream manufacturers are preparing Environmental Product Declarations (EPDs) that the purchaser of a product can read. It is important, though, to understand that information will have limited value for bringing common sense, focused intention, and smart prioritization to environmental risk management policies and decisions because it does not address the question of whether and to what extent there is a potential for unsafe environmental exposures to the hazardous substances in

		products.
8	We need to identify where current laws and regulations are cumbersome, cost-inefficient, and incomplete and otherwise unsatisfactory and implement reforms accordingly.	We concur with this assessment.
13	Continue to develop and implement strategies to reduce key sources of toxic chemicals to Puget Sound, as identified in the Puget Sound Toxics Loading Assessment Report.	Before developing and implementing strategies to reduce key sources of chemicals to Puget Sound, the key sources of certain chemicals still need to be confirmed. For example, the Puget Sound Toxics Loading Assessment Report identifies pesticides use on urban lawns and gardens as a major source of copper, but this is then footnoted as being highly uncertain. Many inaccuracies in this report that were identified through the public review process that the Department of Ecology has not addressed. Those uncertainties and inaccuracies need to be addressed before effort is spent developing and debating an arguably unwarranted strategy.
21	At the Port of Seattle, for example, they are challenged to manage stormwater contaminated with zinc from steel roofs coated with zinc-aluminum alloy, as well as galvanized metal fences and tires used on trucks and other vehicles involved in shipping.	The statement is outdated. Actually, for the Port's Sea-Tac airport, their stormwater program has been very successful over the past decade in controlling zinc in stormwater by implementing a variety of innovative source control and treatment approaches. These efforts and results have been described in several reports and conference papers from 2004-2006. Stormwater control efforts specific to zinc have included painting Galvalume roofing, treating Galvalume roofing runoff at the downspout, changing master specifications to eliminate galvanized products in new construction where appropriate substitutes are available, enhancing the stormwater pollution prevention plan (SWPPP), and in 2006, implementing one of the largest end of pipe treatment systems in the U.S., aimed specifically at treating zinc (and copper and other pollutants) in stormwater discharged from the airport to Des Moines Creek. Additionally, the Port's investment in several water quality studies showed that even before many of these zinc-focused controls were installed, zinc in runoff from the north end of the airport, as well as zinc from significant Highway SR518 runoff, posed little risk to aquatic life and benthic organisms (Brix et al., 2010, *Sci Total Environ*, 408:1824-1832).
21	We are not well served by toxics-impaired water bodies, or by zinc in Puget Sound, or PCBs in inks and dyes.	There is no evidence that anthropogenic sources of zinc in Puget Sound are posing risk to aquatic life. The marine zinc benchmark derived in the Puget Sound Toxics Loading Assessment Report was driven entirely by a single study with highly uncertain and unrepresentative zinc toxicity data. If the data from this single study are excluded from the assessment in that report, the maximum zinc concentrations measured in Puget Sound (nearshore and offshore) would be an order of magnitude lower than the zinc toxicity benchmark.
22	In high enough concentrations, zinc can kill many adult fish species. Rainwater containing zinc from roofs, roads, and other hard surface runs into ditches and storm drains and flows – mostly untreated – into lakes, streams, rivers, and eventually Puget Sound. The majority of zinc that enters Puget Sound and its freshwater tributaries come from human-caused sources and products including roofing materials, tires, and galvanized products.	A few points: (1) Any substance can kill adult fish species at high enough concentrations. There is no evidence that zinc concentrations in the Puget Sound region are sufficiently high to kill adult fish species. (2) No studies have demonstrated that zinc from tires causes toxicity. (3) A recently published study of zinc risks from stormwater runoff found that risks were generally low to negligible when zinc bioavailability and species compositions were properly accounted for (Brix et al., 2010, *Sci Total Environ*, 408:1824-1832).
25	Summary of Recommendations	1. One can't argue with the workgroup's "safer is better" recommendation as long as it is recognized that some (in fact many) uses of "toxic" substances are safe. Restricting the safe use of "toxic" substances is inconsistent with bringing common sense, focused intention, and smart prioritization to efforts to cost-effectively reduce public health and ecological risks by regulating chemical use. The problem we must address is not "toxics," it is risks that are deemed through open public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. 2. We agree that Ecology should work with partners to develop a more comprehensive system for establishing chemical priorities, building on existing efforts. As part of that to rethink the way that shared responsibility for regulating chemical use

		has been allocated to industry, government, NGOs and individuals. Redefining roles to foster common sense, focused intention, and smart prioritization might expedite cost-effective public health and ecological risk reduction. 3. We agree that the state should continue to take actions to reduce releases of and exposures to priority chemicals and continue to refine its priority lists. However, the current practice of regulating releases and exposures based on a precautionary approach that is inconsistent with Principle 15 of the 1992 Rio Declaration on Environment and Development (the Precautionary Principle) imposes ineffective costs that stifle innovation and strain the state's economy. At a minimum, the state needs to: a. Overhaul priority lists so that they are based not on a "toxics" label, but on risks that have been deemed through open, public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy b. Find ways to stay current with developments in environmental toxicology, chemistry and risk assessment (a prerequisite for developing risk-based priority lists) c. Put an end to the false presumption that banning the safe use of a "toxic" substance will lead to the adoption of a safer substitute. 4. Becoming a national leader in green chemistry, making these innovations a trademark just like apples, wheat, software and airplanes, is a worthy goal for the State of Washington to pursue. Adaptive management – the policy of gradual technological evolution through systematic acquisition and rigorous analysis of scientific data – is the true path to defining green chemistry and building a green economy, and the path that is consistent with the workgroup's recommended principles of common sense, focused intention, and smart prioritization. 5. The recommendation to develop targeted education campaigns aimed at changing specific consumer behaviors around priority toxics makes good sense, but the state needs to be careful not to cry wolf by targeting education campaigns at substances prioritized based on a "toxics" label without adequate consideration of whether they pose risks that have been deemed through open, public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. 6. The state may wish to evaluate a voluntary, simple, positive label designed to draw consumers' attention to products that are comprised of safer ingredients than comparable alternatives, but perhaps this is a service that could be provided more cost effectively by other entities working on a national or global scale. 7. The workgroup has recommended that there should be a legislatively-directed study of whether there is a more efficient and effective way to more equitably and predictably require some or all of the entities in a product's supply chain (producers, manufacturers, and retailers) to assume responsibility for harm caused by toxic chemicals in products they produce and sell. Review of potential combinations of both statutory liability and reforms to the current tort system is worthy of the legislature's consideration. 8. The workgroup's recommendation that there should be a legislatively-directed effort to evaluate the feasibility of imposing a tax on priority toxics to encourage development and use of safer alternatives, and invest in toxic source reductions and responses to alleviate impacts from toxic chemical releases should be deferred until such time that policies have been adopted to ensure that priority-listed substances or products pose risks that have been deemed through open, public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. 9. We agree with the workgroup's recommendation that Ecology should consider the dilemma of distributed sources and develop and, where dischargers are actively participating in source control efforts, proactively use a menu of innovative approaches and implementation tools—such as compliance schedules, intake credits, phased implementation, phased permitting, variances, straight-to-implementation efforts, and other techniques—to protect and clean up water bodies in ways that recognize the difficulty inherent in addressing sources that are not under direct control of permittees. 10. We agree in principle with the recommendations that dischargers should take an active role and use their influence to promote efforts to reduce distributed sources of "toxics" and to identify and implement safer alternatives, with the caveat that the problem we must address is not "toxics," it is risks that are deemed through open public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. 11. The recommendation that Ecology be given clear authority to ban or restrict priority toxic chemicals in manufacturing and

		products in appropriate and well-defined circumstances should be rejected unless and until both of the following conditions are met: a. The state has proven that priority toxic chemicals will not be listed on the basis of hazard, but rather on the basis of risks that are deemed through open public debate and jurisprudence to warrant mitigation, avoidance or elimination on a scale that calls for coordinated action through public policy. b. The state's authority to ban or restrict priority toxic chemicals in manufacturing and products be limited to cases where the state has positively demonstrated that the proposed ban or restrictions will reduce risk relative to what would occur in the absence of the proposed ban or restrictions. 12. We wholeheartedly support the recommendation that there should be an independent inventory and evaluation of toxics reduction program activities, goals, and accomplishments, and identification of recommendations for program improvements.