MINUTES OF COMMISSION MEETING
April 27, 2017

Acting Chairman Ann Marie Buerkle convened the April 27, 2017, 9:30 a.m., meeting of the U.S. Consumer Product Safety Commission in open session and made welcoming remarks. Commissioner Robert S. Adler, Commissioner Marietta S. Robinson, Commissioner Elliot F. Kaye and Commissioner Joseph P. Mohorovic were also in attendance.

Decisional Matter: Proposed Rule: Safety Standard Addressing Blade-Contact Injuries on Table Saws (Briefing package dated January 17, 2017)

After introducing the matter and making an opening statement, Acting Chairman Buerkle asked a few questions which were answered by the staff. Caroleene Paul, Project Manager, Directorate for Engineering Sciences, Hyun Kim, General Attorney, Joel Recht, Associate Executive Director for Engineering Sciences, and Kathleen Stralka, Associate Executive Director for Epidemiology, were available to respond to questions. Acting Chairman Buerkle called for any opening statements or questions. The Commissioners made opening statements.

Acting Chairman Buerkle called for any motions. Commissioner Robinson moved that the Commission direct the staff to commence a study of the type of table saw involved in 2016 incidents and provide a report to the Commission by August 15, 2017. (The entire motion is attached.) Commissioner Kaye seconded the motion. Commissioner Robinson explained the purpose of the motion and the Commission discussed the motion. After the discussion, Acting Chairman Buerkle called for a vote on the matter. The Commission voted (4-1) to adopt the motion. Commissioner Adler, Commissioner Robinson, Commissioner Kaye and Commissioner Mohorovic voted to adopt the motion. Acting Chairman Buerkle voted to not adopt the motion.

Acting Chairman Buerkle called for any other motions. Commissioner Robinson moved that the Commission direct the staff to analyze and seek public comment on the Table Saw Study started in January 2017. (The entire motion is attached.) Commissioner Adler seconded the motion. Commissioner Robinson explained the purpose of the motion and the Commission discussed the motion. Hearing no discussion, Acting Chairman Buerkle called for a vote on the matter. The Commission voted unanimously (5-0) to adopt the motion.

Acting Chairman Buerkle called for any other motions or amendments. Commissioner Robinson moved to propose an amendment to page 48 of the draft Notice of Proposed Rulemaking (NPR) to include language about the patent policy of the American National Standards Institute (ANSI). (The entire amendment is attached.) Commissioner Kaye seconded the motion. Commissioner Robinson explained the purpose of the amendment and the Commission discussed the amendment. After the discussion, Acting Chairman Buerkle called for a vote on the matter. The Commission voted unanimously (5-0) to adopt the motion.

Acting Chairman Buerkle called for any other motions or amendments. Commissioner Robinson moved to propose an amendment to page 182 of the draft NPR to add requests for information on RAND commitments. (The entire amendment is attached.) Commissioner Kaye seconded the motion. Commissioner Robinson explained the purpose of the amendment and the

Commission discussed the amendment. After the discussion, Acting Chairman Buerkle called for a vote on the matter. The Commission voted unanimously (5-0) to adopt the motion.

Acting Chairman Buerkle called for any other motions or comments. Hearing none, Acting Chairman Buerkle called for consideration of a motion to approve the draft NPR.. Acting Chairman Buerkle called for any discussion. Hearing none, Acting Chairman Buerkle called for a vote on the matter. The Commission voted (3-2) to approve the draft NPR. Commissioner Adler, Commissioner Robinson and Commissioner Kaye voted to adopt the motion and approve the draft NPR. Acting Chairman Buerkle and Commissioner Mohorovic voted to not adopt the motion.

Acting Chairman Buerkle called for any closing statements. The Commissioners each made closing statements.

During the closing statements, the Commission General Counsel Mary Boyle advised the Commission that the previous vote had only implied that the NPR will be published in the *Federal Register (FR)* and, technically, the motion approved the underlying NPR package, but did not seek approval of the NPR, as amended. She suggests that they restate the motion to clarify these issues.

Commissioner Kaye moved that the Commission revote and approve and publish the draft NPR, as amended. Hearing no discussion, Acting Chairman Buerkle called for a vote on the matter. The Commission voted (3-2) to approve the draft NPR, as amended, and publish it in the *FR*. Commissioner Adler, Commissioner Robinson and Commissioner Kaye voted to adopt the motion and approve the draft NPR, as amended. Acting Chairman Buerkle and Commissioner Mohorovic voted to not adopt the motion.

The Commissioner continued with their closing statements.

There being no other business, Acting Chairman Buerkle adjourned the meeting at 11:00 a.m.

Acting Chairman Buerkle, Commissioner Kaye, Commissioner Mohorovic and Commissioner Adler submitted the attached statements regarding the issue.

For the Commission:

Todd A. Stevenson
Secretary

Attachments: The (Adopted) Motion of Commissioner Robinson on a study of the table saw type involved in 2016 incidents
The (Adopted) Motion of Commissioner Robinson to analyze and seek comment on the Table Saw Study

The (Adopted) Motion and Amendment of Commissioner Robinson regarding a Voluntary Standards and Patent Policy
The (Adopted) Motion and Amendment of Commissioner Robinson regarding a Binding RAND Commitment
Statement of Acting Chairman Buerkle on the Proposed Standard for Table Saws
Statement of Chairman Kaye on the Proposed Standard for Table Saws
Statement of Commissioner Mohorovic on the Proposed Standard for Table Saws
Statement of Commissioner Adler on the Proposed Standard for Table Saws

Attachments:

The (Adopted) Motion of Commissioner Robinson on a study of the table saw type involved in 2016 incidents

The (Adopted) Motion of Commissioner Robinson to analyze and seek Comment on the Table Saw Study

The (Adopted) Motion and Amendment of Commissioner Robinson regarding a Voluntary Standards and Patent Policy

The (Adopted) Motion and Amendment of Commissioner Robinson regarding a Bonding RAND Commitment

COMR Motions for Table Saws Decisional

1. **Motion to direct staff to commence study of type of table saw involved in 2016 incidents**

The Commission directs staff to contact individuals who suffered table saw blade-contact injuries reported in NEISS between January 1, 2016 and December 31, 2016, for the sole purpose of collecting objective information regarding the type of table saw involved in the incidents. Staff will provide the Commission a written report on the status of the project, no later than August 15, 2017, which shall include, but shall not be limited to, a report on (1) the number of individuals for whom staff has obtained contact information from NEISS hospitals; (2) the number of individuals staff has successfully contacted; and, (3) a summary of the information received from these individuals. After receipt of staff's written report, the Commission will determine whether to instruct staff to continue the survey and publish the results in the Federal Register for notice and comment.

2. **Motion to direct staff to analyze and seek comment on Table Saw Study**

The Commission directs staff to analyze and seek public comment on the Table Saw Study started in January 2017, based on the most appropriate time period that will generate information to determine a national estimate from NEISS incidents. Results will be published in the *Federal Register* for notice and comment as part of the docket for this rulemaking. If the Table Saw Study is completed based on incidents occurring in 2017, the results will be published on or about August 1, 2018. If the Table Saw Study must be extended into 2018 in order to generate sufficient information to determine a national estimate, the results will be published on or about August 1, 2019.

To be added on page 48 of the Notice of Proposed Rulemaking, before current Section B (and re-lettering subsequent sections consistent with this change).

B. Voluntary Standards and Patent Policy

The American National Standards Institute (ANSI) has a patent policy[1] that is included in the ANSI Essential Requirements: Due process requirements for American National Standards ("ANSI Requirements"). This policy sets forth requirements that apply to situations in which a proposed voluntary standard may require the use of an essential patent claim. UL's Standards Patent Policy[2] contains requirements that are consistent with ANSI's policy.

Section 3.1 of the ANSI Requirements states that if an ANSI-Accredited Standards Developer (ASD) of a proposed American National Standard is informed that the standard may require the use of an essential patent claim, the ASD shall receive from the patent holder (or its authorized representative) written or electronic:

> a) assurance in the form of a general disclaimer to the effect that such party does not hold and does not currently intend holding any essential patent claim(s); or
>
> b) assurance that a license to such essential patent claim(s) will be made available to applicants desiring to utilize the license for the purpose of implementing the standard either:[3]
>
> > i) under reasonable terms and conditions that are demonstrably free of any unfair discrimination; or
> > ii) without compensation and under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

According to these policies, it appears that a voluntary standard on table saws that may require the use of an essential patent claim might not be adopted if the ASD did not obtain one of the listed assurances from any essential patent holders.

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[1] *See* Section 3.1, ANSI Patent Policy - Inclusion of Patents in American National Standards of the ANSI Essential Requirements: Due process requirements for American National Standards (January 2017) available at https://share.ansi.org/shared%20documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/2017_ANSI_Essential_Requirements.pdf

[2] *See* UL Patent Policy (March 1, 2017) available at http://ulstandards.ul.com/develop-standards/stps/ul-patent-policy/?_ga=1.154860536.1359786552.1492183496

[3] The assurances under subsection (b) above are commonly referred to as FRAND Commitments (or fair, reasonable and non-discriminatory).

Amendment to add requests for information on RAND commitments.

To be added on page 182 of the NPR, as a new section before the section titled "Utility"

Binding RAND Commitment

- Information on the applicability of the American National Standards Institute's (ANSI) patent policy to any voluntary standard for table saws incorporating AIM technology. The patent policy requires that ANSI-Accredited Standards Developers who receive notice that a proposed standard may require the use of an essential patent claim shall "receive from the patent holder or a party authorized to make assurances on its behalf, in written or electronic form, either:
    - (a) assurance in the form of a general disclaimer to the effect that such party does not hold and does not currently intend holding any essential patent claim(s); or
    - (b) assurance that a license to such essential patent claim(s) will be made available to applicants desiring to utilize the license for the purpose of implementing the standard either: i) under reasonable terms and conditions that are demonstrably free of any unfair discrimination; or ii) without compensation and under reasonable terms and conditions that are demonstrably free of any unfair discrimination." (RAND Commitment)
- Information on whether the refusal of a potential essential-patent holder of the AIM technology to give the required assurances set forth in the ANSI patent policy would prohibit a voluntary standard requiring such technology.
- Information on the effect that a RAND Commitment covering potentially essential patent claims would have on the Proposed Rule's economic impact, including, but not limited to, its impact on competition, small businesses, and the cost and availability of table saws.
- Information on whether, as a matter of policy, CPSC should finalize a mandatory rule implicating potential essential patents absent a RAND Commitment covering such patents.
- Information on other government agencies that have proposed or adopted regulations implicating potential essential patents, including whether the holders of those patents had entered into RAND Commitments prior to the finalization of such regulations.

Attachments:

Statement of Acting Chairman Buerkle on the Proposed Standard for Table Saws

Statement of Chairman Kaye on the Proposed Standard for Table Saws

Statement of Commissioner Mohorovic on the Proposed Standard for Table Saws

Statement of Commissioner Adler on the Proposed Standard for Table Saws

Statement of Acting Chairman Ann Marie Buerkle
on the Proposed Standard for Table Saws

I regret the Commission's vote today to approve publication of a proposed standard for table saws. I believe the proposal is defective and does not merit approval at this point. The major shortcomings relate to (1) the scope of the standard; and (2) the lack of assurance that manufacturers will be able to license the technology needed to meet the standard on reasonable terms.

A. The Scope of the Standard

The notice of proposed rulemaking (NPR) points out that there are three distinct types of table saws. Some are portable, some are not. Some run on ordinary household electrical wiring, others cannot. Some table saws are 25 times more expensive than others. This leaves a burning question: how do the different types of table saws differ in terms of injury rates? Does it make sense to apply the same performance requirements to all of them or not?

To help answer that question, in 2007 the CPSC staff designed a special study of table saw injuries from the National Electronic Injury Surveillance System (NEISS). The goal was to discover which type of table saw was responsible for each injury and then to develop national estimates for the proportion of table saw injuries attributable to each type of saw.

Unfortunately, the results of that study were not made public until 2011. As the details finally became known, commenters pointed out that the results were internally inconsistent and so could not be used to classify injuries by saw type. Given the importance of the issue, the staff designed another NEISS special study in 2014. Due to different problems, however, this study also failed to shed light on which table saw type was responsible for particular injuries.

The NPR explains why it might not be appropriate to apply the same standard to three different saw types:

"Because of the differences in the physical characteristics, the use patterns, and the likely population of users of each of the table saw types (*i.e.*, bench, contractor, and cabinet saws), an independent evaluation of the benefits and costs for each table saw type could be useful. For example, the costs of the proposed rule could exceed the benefits for one or more saw types, even though, in aggregate, benefits could exceed costs for the market as a whole."

The staff's persistent efforts to develop injury estimates for each saw type underscore the importance they assign to this factor. Indeed, despite the prior setbacks, the staff has launched a third special study, following up all NEISS table saw cases as they are reported throughout 2017. Today, the Commission has also directed staff to attempt to learn what type of table saw was associated with blade-contact injuries reported through NEISS in 2016. Nevertheless, the Commission majority refuses to wait for the results of these studies before proposing a standard. The result is a "one size fits all" proposal that glosses over the differences among the saws in this broad category.

In my view, this approach is a serious mistake. As the staff has recognized all along, promulgating the same standard for three different types of saws may well impose costs that are not justified by the benefits. The proposed generic standard is expected to wreak havoc on the table saw market. The staff predicts that some saws will more than double in price and other manufacturers will exit the market. Under these circumstances, the Commission should not be taking shortcuts, but getting the data that is needed to make responsible decisions.

My colleagues insist upon a two-track approach—securing public comment on a generic saw standard at the same time as we develop the data needed to determine whether such a standard is appropriate. Thankfully, they contemplate a second round of comment when the necessary data become available. In my view, however, we should know the answers to these questions *before* we shape our proposal.

B. Creating a Monopoly

The second serious problem with the proposed standard is that it almost certainly would require the use of patented technology, and the Commission lacks sufficient assurance that the patent holder will license the technology on fair, reasonable and non-discriminatory terms. In effect, we may be granting a monopoly in favor of one company that could control the supply of table saws and charge whatever it wants without any effective competition.

In essence, the proposed standard requires table saw manufacturers to incorporate an active injury mitigation (AIM) system. An AIM system performs two distinct functions: (1) it must detect actual or imminent human contact with the table saw blade; and (2) it must react by stopping the blade or taking other action so as to prevent a serious injury.

SawStop first introduced AIM technology on table saws in 2004 and on a number of different models thereafter. The firm's principal, Dr. Stephen Gass, and the affiliated entity SD3 LLC, reportedly hold over 100 different patents that relate to AIM technology on table saws. No other manufacturer even attempted to introduce a table saw employing AIM technology until Bosch finally did so in 2016. Dr. Gass promptly brought suit in federal court for patent infringement and separately asked the International Trade Commission (ITC) to block importation of

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STATEMENT OF COMMISSIONER ELLIOT F. KAYE
REGARDING THE PROPOSED RULE: SAFETY STANDARD ADDRESSING BLADE-CONTACT INJURIES ON TABLE SAWS

April 27, 2017

Today, the Commission voted 3-2 to issue a notice of proposed rulemaking (NPR) to address the risk of blade-contact injuries on table saws.

Safe to say, this NPR was long overdue. Before getting into dry topics such as timelines and performance standards and regulatory requirements, it is important to start with the human impact of regulatory inaction. While we hear a lot of fabricated outrage about the impact of regulations, there is far less genuine discussion about the real costs of a failure to act.

On December 19, 2012 – more than five years ago – Josh Ward was in his high school shop class in Sisters, Oregon.

He was helping as a teacher's aid to the woodshop teacher, who had asked Josh to cut a wood board into long strips for a class that taught students how to make guitars. Josh used the school's table saw, which was not equipped with the kind of safety features our rule would require. Something went wrong. Something that happens in American homes thousands of times of year. The board caught in the saw with such force that Josh's hand was pulled into the blade and the board was thrown across the room so strongly that it punched a hole in the wall.

Josh was rushed to the ER, where the doctor called it the worst hand injury he had ever seen, according to Josh's mom, Angela. Josh needed more than 1,000 stitches, endured more than a half-dozen surgeries and lengthy physical therapy, went through 45 two-and-a-half hour hyperbaric chamber treatments, lost all or part of multiple fingers and had his dreams of being a firefighter potentially dashed. He and his family have paid a very heavy price for sure for something that existing technology can and should prevent.

Sadly, Josh's story is not uncommon in the least.

Tens of thousands of consumers each year are treated in hospital emergency departments for injuries associated with table saws. Day after day, week after week, month after month and year after year these incidents keep occurring. What has not been happening, however, is much to genuinely address the hazards table saws present.

The marketplace has spent many years making no across-the-board progress. CPSC staff has been evaluating the possibility of a performance standard to protect consumers who use table saws since at least 2003, when the first flesh-sensing devices were presented in a petition.

The Commission requested its first briefing package in 2006, although even that little bit of progress was stymied by a loss of a quorum at the Commission and political gamesmanship by individuals whose inaction put corporate protection over consumer protection.

Due to the advocacy and hard work of my friend and colleague, Commissioner Robert Adler, the Commission renewed its efforts and focus on this issue and published an Advance Notice of Proposed Rulemaking (ANPR) in 2011.

Contrived budget crises that maintain an artificially limited budget at the expense of consumer health and safety and the need to address other pressing safety issues have all impacted our ability to move forward with rulemaking. Thankfully, CPSC staffed stayed at it and now we have an excellent and thorough performance standard to propose and upon which to seek comment.

It is important to keep in mind that of course this NPR is not a final rule.

The purpose of an NPR is to provide notice to the public of our plans for potential rulemaking and give our stakeholders an opportunity to comment on those plans. Nothing in the Administrative Procedure Act or our own statutes prevents the Commission from publishing an NPR while continuing to work and seek comment on the underlying data.

If any of the issues cited as reasons to vote against publishing this NPR were truly fatal to this entire rulemaking effort, our staff – including our very capable engineers, epidemiologists, economists and lawyers – would never have put it forward for Commission consideration. For the reasons I explain below, this NPR is ripe for publication and comment.

Hazards Associated with Table Saws

We are dealing with a very real hazard that has serious costs to society. As mentioned, CPSC staff injury analyses revealed that an estimated 33,400 table-saw-related emergency department ("ED") treated injuries occurred in 2015. Ninety-two percent of these injuries were likely related to the victim making contact with the spinning blade. In 2015, 4,700 people experienced an amputation. About half of all amputations associated with workshop products can be attributed to table saws. The annual societal cost associated with medically treated blade-contact injuries exceeds $4 billion.

Consider that number again: $4 billion in societal costs. That is a lot of Josh Wards out there, experiencing real and long-term suffering.

We all know saws are dangerous. No one is saying otherwise. But the scenarios and actions that lead to amputations and other injuries are not always intuitive. The ongoing injuries each year tell us that amateur woodworkers clearly do not easily foresee all of the different ways that cut wood can pinch the spinning blade or ride up the blade during a cut and subsequently be thrown forcefully at the operator.

Consumers cannot readily predict the many possible scenarios leading to distraction, such as unfortunate but predicable reflexive motions of the hand into the blade's path or a loss of balance. Seniors may not realize how their reaction time, balance and eyesight might have deteriorated over time. Even experienced woodworkers may get overconfident in their ability to control a cut and become too relaxed in their safety precautions. All of these scenarios are foreseeable. All of these scenarios keep happening. And the resulting devastating injuries are all preventable.

Inadequate Voluntary Standards

Ideally, an adequate voluntary standard would have been developed long ago and would be substantially complied with. And today's vote would not be necessary. Clearly, however, the voluntary standards process has failed and today's vote was necessary. Through the years, saw manufacturers have attempted to improve the blade guarding systems through the consensus processes available in ANSI-approved standards development. These efforts made modular blade guards common on the latest generation of table saws.

In addition, riving knives and splitters are intended to help prevent work pieces from catching on the blade and throwing them at the table saw user and anti-kickback pawls are supposed to catch work pieces before they are thrown. Many of us had hoped that these safety devices would have been effective. But they have not. Despite the introduction, for instance, of modular blade guards in 2009, staff's most recent analysis

of table saw injuries in NEISS data shows no discernible change in the number of injuries or the level of risk associated with table saw injuries from 2004 to 2015. Clearly, we can and must do better.

CPSC's Proposed NPR

In the absence of an effective voluntary standard, CPSC staff has produced an excellent and thorough briefing package that proposes a performance requirement based on the maximum depth of the laceration (3.5 mm) made to a surrogate finger moving at 1 m/s into a spinning table saw blade. The proposal is about as broad a performance standard as could be developed. The method of stopping the blade is not restricted in any way by this proposal, nor is any particular test method required to show compliance.

Given the technological advancements of the last decade, it seems reasonable to employ automatic injury mitigation systems in table saws to prevent these foreseeable and debilitating amputations and lacerations that cost so many so dearly.

Benefits-Costs Associated with the NPR

As expected, the cost of designing a saw with such technologies is not insignificant. But prices should decrease as more units are ordered and technology advances. And staff's analysis shows that the potential benefits far outweigh the costs associated with table saw injuries. There is just no valid reason why we should not move as expeditiously as possible toward innovative solutions that could alleviate, and in most cases completely prevent, the pain and suffering endured by tens of thousands of people every year.

As for the argument that the benefit-cost analysis is somehow incomplete or unreliable because staff did not have information allowing them to hyper-parse the injury data by type of saws (bench, contractor, or cabinet), I can only strenuously disagree with the logic of the detractors, both about the need for that level of specificity and with the criticality of the analysis. Detractors of this NPR, with dramatic exaggerations, tout grave data gaps as a fatal flaw. In reality, the analysis before us includes a thoughtful and statistically accepted breakeven analysis that overwhelmingly points to incredible benefits to society.

Based on strength of the results of this sensitivity analysis in support of moving forward with rulemaking, the lack of information about saw types involved in the incidents is not a limitation to merely proposing a rule. This issue is not a red herring. It is a school of crimson mackerel.

Intellectual Property Concerns

There is one final false issue that needs to be addressed and that is the intellectual property concerns raised today. Most new technological advancements are accompanied by intellectual property issues.

But most of the patent and antitrust concerns being raised in this discussion are a distraction, at best. They have little bearing on the issue of safety and are largely outside of the Commission's jurisdiction. As discussed above, the NPR proposes a performance requirement, not a design specification. A manufacturer's method of stopping the blade is not restricted in any way by this proposal, nor is any particular test method required to show compliance.

To the extent intellectual property issues may affect the benefit-cost analysis, these issues are already raised and addressed in the NPR.

It is, at best, baffling why anyone would buy into the false notion that we need to arbitrate patent issues as part of our rulemaking. We are the wrong agency, and it is the wrong stage of the process.

Conclusion

I am very impressed with and proud of the thoughtful proposal that CPSC staff has put forward and want to thank the CPSC's table saw team for their hard work and perseverance on this issue. I also would like to commend Commissioner Adler for his commitment to solving this problem.

My principal criticism for those who opposed this rule is I have seen no Plan B from you, nothing at all to suggest any alternative to rulemaking that would genuinely address these hazards. "Defer to the market" is not anything close to an injury prevention strategy. If it were, Congress would not have felt compelled to establish the Consumer Product Safety Commission. If you have a genuine Plan B, let's hear it now. There has been enough inaction, enough harm done, enough pain suffered by the Josh Wards. We owe it to them to see this through and end these tragic, life-altering injuries.

One final comment and that is to offer a specific, well-deserved thank you. Special assistants to Commissioners work in the background without much fanfare. Their work is critical to what we do yet the public is not aware of their specific contributions. I want to thank Dottie Yahr and Boaz Green for their perseverance and commitment to finding a path forward these past few weeks. Dottie and Boaz, well done.

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STATEMENT OF COMMISSIONER JOSEPH P. MOHOROVIC ON THE COMMISSION'S PROPOSED MANDATORY RULE REGARDING TABLE SAWS

Thursday, April 27, 2017

Today, the U.S. Consumer Product Safety Commission voted to issue a Notice of Proposed Rulemaking (NPR) to address blade-contact injuries among users of table saws. Unfortunately, I was unable to join in this decision.

The Risk and the Mitigation

As discussed in detail in the excellent briefing package assembled by our talented and dedicated staff, there is certainly a risk in using table saws. Tens of thousands of consumers a year[1] suffer injuries – ranging from relatively minor lacerations to finger amputations – from contact with the blades of table saws. The saws have blade guards that are intended to reduce the odds of such contact, but those guards are not and likely *cannot* be 100% effective. First, the guards must be removed to perform some advanced cuts. Second, a scenario called "kickback" (described in more detail below) can cause sudden blade contact for even a conscientious user. Third, some consumers simply remove the guard because they find it inconvenient or resent it being forced on them.

In the early 2000s, Dr. Steve Gass – an inventor and attorney with a doctorate in physics – developed a system he called SawStop, which used sensors to detect flesh in the blade path and quickly stop the blade.[2] The device's operation may destroy the blade, but it saves the finger. SawStop and any similar devices to detect potential injury and stop or remove the blade are collectively known as Active Injury Mitigation technology, or AIM.[3]

Over a period of years, Dr. Gass negotiated with a variety of saw manufacturers regarding licensing his technology for their saws, but no agreements came from these negotiations. In 2003, Dr. Gass and his business partners petitioned CPSC to require AIM technology on table saws through a mandatory product safety standard under the Consumer Product Safety Act

[1] Safety Standard Addressing Blade-Contact Injuries on Table Saws ("Draft NPR") 1 (2017), *available at* http://go.usa.gov/x9tXX.
[2] Preliminary Regulatory Analysis of the Draft Proposed Rule for Table Saws ("Econ Memo") 6 (2017), *available at* http://go.usa.gov/x9tXX.
[3] *Id.* at 5.

(CPSA). In 2004, SawStop removed the middleman and released its own saw.[4] Since then, another manufacturer, Bosch, has brought to market a saw with similar technology,[5] though SawStop has pursued patent enforcement against Bosch.[6] Each of these AIM-equipped saws addresses the hazard of blade contact by "remov[ing] the spinning blade from the point of contact quickly enough, within milliseconds, to reduce significantly the severity of injury."[7]

There is no question, then, that a substantial number of consumers suffer horrific injuries using table saws. There is also no question that technology is available to consumers to dramatically reduce (though not eliminate) the risks of such injuries. So why did I vote against the rule? Precisely because technology is available to consumers that can dramatically reduce the risks of such injuries.

That is not to say that I would never vote to propose or issue a rule where existing technology can protect the consumer. Indeed, only very rarely would it be appropriate for CPSC to demand a level of performance we did not already know to be achievable. But, where a specific series of factors is present, I believe that the Commission should, as a matter of responsible government, that respects consumer choice and individual liberty, allow consumers to decide for themselves what risks they will tolerate and what protection against those risks they will demand.

What is an Unreasonable Risk?

The core of the CPSC's mission is "to protect the public against unreasonable risks of injury associated with consumer products."[8] The Consumer Product Safety Act (CPSA), which both created the agency and gave us that solemn duty, does not define an "unreasonable risk." It impliedly leaves that task to each commissioner, to the Commission as a whole, and to the body politic – the president, Congress, the courts, and of course the American people.

The legislative history to the CPSA does provide some insight. The original Senate version of the bill that became the CPSA defined an unreasonable risk as one that the agency felt was "unwarranted because the degree of anticipated injury or the frequency of such injury can be reduced without affecting the performance or viability of the consumer product or . . . the effect on such performance is justified when measured against the degree of anticipated injury or the frequency of such injury."[9]

When the bill went to conference, the Senate abandoned its definition and adopted the House's choice to leave the term undefined.[10] The House's thinking, however, mirrored the Senate's closely.

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[4] Draft NPR at 12.
[5] Bosch's REAXX saw also detects imminent flesh contact, but, rather than stopping (and often destroying) the blade, it rapidly drops the blade into the saw housing. Draft NPR at 13.
[6] Draft NPR at 15.
[7] *Id.* at 11.
[8] Consumer Prod. Safety Act (CPSA), Pub. L. No. 92-753 § 2(b), 86 Stat. 1207 at 1208 (1972).
[9] Consumer Safety Act of 1972, S. 3419, 92d Cong. § 101(8) (1972).
[10] H.R. Rep. No. 92-1593, at 42 (1972) (Conf. Rep.).

> An unreasonable hazard is clearly one which can be prevented or reduced without affecting the product's utility, cost, or availability; or one [for] which the effect on the product's utility, cost, or availability is outweighed by the need to protect the public from the hazard associated with the product.[11]

Courts did not take long to pick up this concept as they tried to define the boundaries of what the agency could do,[12] and it has become ingrained in the agency's ethos. In *Aqua Slide*, for example, the Fifth Circuit held that the risk of "quadriplegia and paraplegia resulting from users . . . sliding down the slide in a head first position and striking the bottom of the pool," while "extremely remote," was nonetheless so severe that CPSC could regulate it as unreasonable if it came up with "a standard which actually promised to reduce the risk without unduly hampering the availability of the slides or decreasing their utility."[13]

Beyond this balancing test, however, courts have recognized that consumers have their own role in determining what risks are unreasonable, and that the agency should only step in where something prevents them from playing that role.

> [A]n important predicate to Commission action is that consumers be unaware of either the severity, frequency, or ways of avoiding the risk. If consumers have accurate information, and still choose to incur the risk, then their judgment may well be reasonable.[14]

One of CPSC's original commissioners expressed a similar notion of consumers as their own protectors, though he added a few more qualifications.

> In a speech, Commissioner David Pittle stated his definition of a 'reasonable risk' as 'one where a consumer (A) understands by way of adequate warning or by way of public knowledge that a risk is associated with the product; (B) understands the probability of occurrence of an injury; (C) understands the potential severity of such an injury; (D) has been told how to cope with the risk; (E) cannot obtain the same benefits in less risky ways at the same or less cost; (F) would not, if given a choice, pay additional cost to eliminate or reduce the danger; and (G) voluntarily accepts the risk to get the benefits of the product.[15]

Under either of these frameworks, I believe the risk of injury from table saws that our NPR seeks to address is a reasonable one and not an appropriate subject for Commission action. I believe

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[11] H.R. Rep. No. 92-1153, at 33 (1972).
[12] "The requirement that the risk be 'unreasonable' necessarily involves a balancing test like that familiar in tort law: The regulation may issue if the severity of the injury that may result from the product, factored by the likelihood of the injury, offsets the harm the regulation itself imposes upon manufacturers and consumers." Forester v. Consumer Prod. Safety Comm'n, 559 F.2d 774, 789 (D.C. Cir. 1977). "[T]he Commission has a duty to take a hard look, not only at the nature and severity of the risk, but also at the potential the standard has for reducing the severity or frequency of the injury, and the effect the standard would have on the utility, cost or availability of the product." Aqua Slide 'N' Dive Corp. v. Consumer Prod. Safety Comm'n, 569 F.2d 831, 844 (5th Cir. 1978).
[13] *Id.* at 840.
[14] *Id.* at 839.
[15] William Kimble, Federal Consumer Product Safety Act § 94 (Supp. 1977).

consumers have made a choice and, even if we would choose differently, we should respect that choice. Moreover, the market is testing whether or not consumers will choose a safer, albeit more expensive, product, just as Commissioner Pittle suggested they might, and I do not believe it is within our authority to make that choice for them.

Borrowing from Commissioner Pittle's more exacting definition of reasonable risk resulting from consumer choice:

> *A. Understands by way of adequate warning or by way of public knowledge that a risk is associated with the product*

Some hazards CPSC seeks to address are latent, hidden from the view of the ordinary user. A table saw's operative component is a sharp blade spinning at thousands of revolutions-per-minute and capable of cutting through wood or metal. This must be one of the most obvious hazards in the consumer product space, and any reasonable consumer can appreciate the hazard.

Even though the hazard is readily apparent, the industry has spent decades working to ensure an unaware consumer cannot accidentally encounter this risk. Underwriters Laboratories Inc. (UL) maintains a voluntary consensus standard – UL 987 – that for decades has required a guard to prevent accidental blade contact.[16] That standard has been consistently revised to make the guards less restrictive and increase the visibility of the material being cut.[17] Thus, industry has worked hard to protect the consumer even though a reasonable consumer can appreciate the hazard of a fast-spinning blade.

Our staff has identified a particular hazard pattern that might be less obvious. Called kickback, it is defined as "the binding of a workpiece in the blade and consequent thrusting of that workpiece back toward the consumer."[18] Kickback can cause blade contact suddenly and even for a cautious user,[19] but it is still well-known and frequently discussed in the woodworking community.[20] Moreover, UL 987 has – again, for decades – required a series of devices designed to limit the risk of kickback,[21] and it requires both instructional material and on-product warnings about kickback specifically and the risk of blade-contact generally. So, even if kickback might be slightly less obvious than the basic risk of a fast-spinning blade, it is still well-known *and* guarded against *and* warned against.

The reasonable consumer understands that there is a risk associated with the use of table saws, so they meet part A of the Pittle Test for a reasonable risk.

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[16] Draft NPR at 44.
[17] *Id.*
[18] *Id.* at 39.
[19] *Id.* at 40.
[20] *See, e.g.*, Timothy Dahl, *How to Prevent Injuring Yourself from Table Saw Kickback*, POPULAR MECHANICS (Feb. 1, 2016).
[21] Draft NPR at 8-9.

B. Understands the probability of occurrence of an injury

Again, this is among the more obvious injury probabilities CPSC can expect to encounter. Any reasonable consumer understands that contact with the blade makes injury a certainty, and that the only question is how severe the injury would be.

The probability of the occurrence of kickback will vary with each piece and each cut, so it is difficult to estimate in any instance. However, given how widely understood the kickback phenomenon is, consumers also understand that there is a risk of kickback with any particular cut on any particular piece. They also understand strategies to mitigate the risk of kickback or of blade contact in a kickback scenario, and, regardless of consumers' understanding, UL 987 requires that table saws reduce the risk.

The reasonable consumer understands the probability of the occurrence of injury in using table saws, so they meet part B of the Pittle Test for a reasonable risk.

C. Understands the potential severity of such an injury

If anything, the reasonable consumer's understanding of the potential severity of a table saw blade contact injury is even greater than his or her understanding of the existence and probability of the risk of injury. Indeed, it would be difficult to conceive of a risk of injury whose potential severity is *more* apparent than that of a blade spinning at thousands of RPM that can cut through wood or metal.

Regardless of how the contact occurs, the reasonable consumer understands that table saw blade contact will result in an injury that is somewhere between severe and catastrophic, so table saws meet part C of the Pittle Test for a reasonable risk.

D. Has been told how to cope with the risk

Again, UL 987 includes requirements for both instructional material and on-product warnings about blade contact, kickback, and other risks. Those instructions include ways to avoid kickback and a reminder that the blade can cause serious injury. Additionally, many of the ways by which consumers can "cope with" the risk of blade contact are features of the saws themselves, ranging from the anti-kickback devices to the blade guard that is installed on each and every saw.

While it has been suggested that some cuts are not possible with the guard installed,[22] the anti-kickback features remain, and the consumer remains well-aware that the saw features a blade spinning at thousands of RPM that is capable of cutting wood or metal. Whether it is to perform such an advanced cut or simply because the consumer does not like the guard, removing a safety feature in the face of an obvious, severe risk is an informed consumer choice.

[22] Draft NPR at 49. It is also worth noting that AIM has the same flaw: It cannot be used for every operation of the saw. "Neither the SawStop, nor Bosch AIM technologies, can be used when cutting conductive materials (that allow the flow of an electrical current) because both systems rely on electrical detection of the human body. . .. In addition, the AIM system generally must be deactivated while cutting wet wood." Draft NPR at 14. I have seen no analysis comparing the frequency of users making cuts that cannot be performed with the guard on with the frequency of users cutting wet or conductive materials, though we do ask for comments on that point.

The table saw consumer has been told how to cope with the risk of blade contact, so table saws pass part D of the Pittle Test for a reasonable risk.

E. Cannot obtain the same benefits in less risky ways at the same or less cost

In short, this prong asks whether or not the industry is making best efforts. If it is not within the current state of the art to make a less-risky product without increasing cost, then the risk is reasonable and the Commission should not act. If it *is* possible but industry is withholding cost-effective risk mitigation or avoidance technologies, then the risk may be unreasonable and the Commission may have a role to play in encouraging (or mandating) better efforts from industry. In the case of table saws, it is abundantly clear that it is *not* currently possible for consumers to obtain the benefits of a table saws with less risk without *substantially more* cost.

The bulk of the risk in table saw use comes from removing the blade guard. CPSC's own staff does not take issue with the effectiveness of the guard at an engineering level, instead concluding guards are not sufficient protection on their own because consumers may remove them.[23] With current technology, using the guard *is* the "less risky way" this portion of the test envisions.

Leaving the blade guard on reduces the risk of table saw use and costs consumers nothing in terms of the actual cost of the product. It may marginally limit the product's utility, as discussed above, but, again, removing the guard (either because the user wants to make an advanced cut that cannot be made with the guard in place or simply finds it irritating) is a consumer choice, not a feature of or flaw in the product. A consumer could decline to make those advanced cuts because of the need to remove the guard, but many still choose to make the cuts despite the obvious increase in risk that comes from removing a safety feature. They are trading increased risk for increased utility, as they have the right to do.[24]

The only further remedial measure that has been proposed is to require AIM technology. While it certainly does reduce risk, it equally certainly cannot be obtained at the same or less cost. In fact, while table saws can typically be purchased for as little as $150, our staff conclude that "[t]he prices for the least expensive bench saws now available are expected to more than double, to $300 or more."[25] Under this proposed rule, consumers can only obtain the benefits of a table saw in a less risky way if they are prepared to part with quite a bit more money.

Moreover, some consumers seek to *decrease* their costs in ways that substantially *increase* their risks. The Internet is replete with instructional manuals and videos on using a circular saw and some modestly clever engineering to create a homemade table saw for a lower price than buying a proper table saw (and the number of consumers following these terrible suggestions will surely grow, if we promulgate this rule[26]). Not only do such devices lack blade guards – and certainly AIM technology – but their inherent instability and lack of purpose-fit design multiplies the risk we seek to address and countless others. The consumers who buy table saws, then, are already

[23] *See, e.g.*, Draft NPR at 49.
[24] It should again be noted that like a modular guard, currently available AIM systems can be similarly disabled by users when cutting conductive materials, such as metal or wet wood.
[25] Draft NPR at 91.
[26] We acknowledge the existence of homemade table saws – *see* Draft NPR at 17 – but do not discuss their current prevalence or how many we could expect to see if the price of off-the-shelf saws doubled.

obtaining the same benefit – a spinning blade mounted in a flat surface – in a pricier but less risky way: Buying a table saw built by an expert that complies with all of the safety requirements found in the voluntary standard.

Consumers cannot obtain the same benefits of a table saw in less risky ways at the same or lower cost, so table saws pass part E of the Pittle Test for a reasonable risk.

F. Would not, if given a choice, pay additional cost to eliminate or reduce the danger

This prong of the Pittle Test is essentially the inverse of the previous element. It presumes that the market has not given consumers a choice, and will continue to not give them a choice absent CPSC action. It takes the analysis a step further, though, and impliedly considers the possibility of CPSC driving innovation by setting a bar it believes industry will soon be able to clear, though it may be out of technological reach now. If industry has declined to innovate in safety because of an assumption that consumers will not pay for the innovation, but CPSC can demonstrate that assumption is faulty, then this prong argues in favor of CPSC dispelling the myth.

In this instance, there is no role for CPSC to play in pushing industry forward. The market already *is* giving consumers a choice. Two table saw manufacturers are offering consumers the opportunity to pay (quite a bit of) additional cost to eliminate or reduce the danger of blade contact injuries. Our staff concludes that the two existing AIM-equipped brands "account for a relatively small share of the overall table saw market,"[27] precisely *because of* the extra cost.

Perhaps if time drives down these prices[28] or drives up consumers' perception of the value-for-money of AIM saws, consumers may make a different choice. Right now, though, it is abundantly clear that consumers *are* being given a choice, but not all choose to pay additional cost to eliminate or reduce the danger, so table saws pass part F of the Pittle Test for a reasonable risk.

G. Voluntarily accepts the risk to get the benefits of the product

This prong is not really a standalone, in that it effectively sums up the prior six. If consumers have all the information discussed above, cannot make a less risky choice without incurring an unacceptably higher cost, and still choose to buy the product, then they are inherently voluntarily accepting the risk to get the benefits of the product. As such, table saws pass part G of the Pittle Test for a reasonable risk.

Having cleared each of these clearly defined hurdles, table saws, under this framework, present a *reasonable* risk of injury from blade contact. The facts that the injuries at issue are frequently very serious and that the incident reports make us squeamish does not change any of this

[27] Econ Memo at 6.

[28] It is difficult to imagine how prices will come *down* if CPSC not only sanctions but mandates a monopoly. *See Id.* at 6 ("Dr. Gass has said that SawStop will not license its technology to other manufacturers, [*sic*] unless the Commission issues a rule mandating the technology on all table saws."). *See also Id.* at 7 ("On September 9, 2016, an administrative law judge (ALJ) made an initial determination that the Bosch model infringes on SawStop patents.").

principled evaluation. A reasonable serious risk is just as improper a place for CPSC action as a reasonable trivial risk.

What is Reasonable Government?

But why does this matter? Other than the precise words of the statute – which some value more than others – what difference does it make from a regulatory perspective if a risk is reasonable or unreasonable? The difference is liberty.

The very presence of government is, by definition, an erosion of liberty. In an ungoverned state, every choice would be available to us. The only limits to anyone's actions would be his ability and the tolerance of his neighbors.

We establish governments in order to bring some order to what might well otherwise be chaos. We accept some limitations on our own behavior in exchange for the protection of having those same limits applied to everyone else's behavior. We surrender the ability to take property from each other in exchange for the protection of our own property.

In the case of CPSC, Congress established the agency to protect consumers. Where something had gone wrong in the marketplace and consumers were being hurt, the agency was to step in. But there was a limit, the word "unreasonable." For me, implicit in that limiting term is the notion that there are some hazards we *could* address but *shouldn't*, that there are some situations where we should allow consumers to judge the risk for themselves and choose to either accept or avoid it.

But how do we know which is which? How can the agency tell when consumers are choosing to accept a risk and when it is being forced on them without their consent? We look at how the transaction – the decision to use a product – is occurring. We look at the market.

One of the foremost attributes of a well-functioning market is a relative equality of information. If buyers know what they are buying, it is reasonable to assume they have decided that the terms of the transaction (including the risk) are acceptable.[29] This was the wisdom[30] the *Aqua Slide* court relied on.[31]

In the case of table saws, as discussed above, the risk is clear to consumers. The ways of avoiding it are clear, as well, whether through use of a guard and careful cutting or through purchase of the AIM-equipped saws already on the market. Even by the exacting standards of the Pittle Test, there is no reason to conclude consumers' purchasing decisions are under-informed. People who buy and use table saws understand what they are getting, both the features and the potential hazards, and it is not our place to tell them they have the wrong conclusion.

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[29] Of course, issues like adequacy of competition and necessity of product complicate this analysis, but it is unnecessary to delve into those, here.

[30] Actually, it was only part of the wisdom of that decision, as Judge John M. Wisdom concurred in the case.

[31] "[A]n important predicate to Commission action is that consumers be unaware of either the severity, frequency, or ways of avoiding the risk. *If consumers have accurate information, and still choose to incur the risk, then their judgment may well be reasonable.*" 569 F.2d at 840 (emphasis added).

If there were a genuine market failure – some indication that consumers are not signing up for what they are getting – I might be more interested in intervening. As it is, there is not. The market is offering consumers an informed choice; it is their right to make that choice. The fact that three out of a group of five unelected and unaccountable bureaucrats would make a different choice is not evidence of a market failure.

Moreover, we stand poised to *create* a market failure. Monopoly is a classic failure, and, in the current market, only one participant has the technology to make a compliant saw without allegedly infringing on a patent. When consumers are forced to pay double for their saws, perhaps we will feel better about their "choice" – because we will have made it for them – but I believe consumers will be less than thrilled.[32] This is not idle speculation: of the 1,600 comments we received in response to the Advance Notice of Proposed Rulemaking, 92% were opposed to a mandatory rule.[33]

Once we have given consumers only one bad option – which they have overwhelmingly told us they do not want – the *best* result is simply a massive contraction in the table saw market. The *worst* result – and one we have given far too little attention – is a proliferation in homemade table saws. I suppose the silver lining is that the inevitable surge in injuries from misuse of circular saws as table saws will give us another excuse to regulate.

Given that I see no reason to believe the market is depriving consumers of a choice in their risk tolerance, I see no reason for the agency to do so. To me, freedom of choice *must* mean the freedom to make a "wrong" choice. The freedom to choose is meaningless if your only options are the ones government has sanctioned,

I worry that our impulse to take away table saw consumers' choice is less about the table saw than it is about choice. Is it that we do not trust consumers to make *this* choice, or that we do not trust them to make *any* choice. I believe I know how Milton Friedman would answer.

> A major source of objection to a free economy is precisely that it . . . gives people what they want instead of what a particular group thinks they ought to want. Underlying most arguments against the free market is a lack of belief in freedom itself.[34]

The CPSC thinks consumers ought to want AIM-equipped table saws, regardless of the cost. As their benevolent protectors, we *can* force them to choose what we think they should want rather

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[32] The prospective monopolist will, I'm sure, be more enthusiastic in his support. I do find it strange, given their usual penchant for criticizing companies "profit motive" as an impediment to safety, that my colleagues are not only uninterested in criticizing Dr. Gass for apparently being so firm in his royalty demands that he could not secure a single domestic license and thus delayed widespread adoption of this technology by over a decade, but in fact are tripping over themselves to reward him with the total market dominance that may have been his aim all along. I have no problem with Dr. Gass' desire to be well-compensated for his work. That dynamic – reward for ingenuity – is what drives innovation, and I fear the modern regulatory state will strip those rewards to the point of stifling innovation. I would simply prefer his rewards to come from the market itself, not government manipulation of it.

[33] Draft NPR at 64.

[34] Milton Friedman, *Capitalism and Freedom* 15 (40th ed. 2002).

than the more affordable AIM-less saws the overwhelming majority of consumers currently prefer. That does not mean we *should.*

Seeking to bar consumers from making an informed choice to take on a risk is seeking to erode their freedom purely on the basis that they are incapable of protecting themselves. It is a lack of belief in freedom that I find disturbing.

In the 2004 film *I, Robot*, humanity is imperiled when the race of robots they built to serve instead take control and imprison their creators.[35] The robots insist that their actions are not malevolent but benevolent and, in fact, the inevitable result of their programming: They may not injure a human being or, through inaction, allow a human being to come to harm. The lead antagonist describes the reasoning:

> You charge us with your safekeeping, yet despite our best efforts, your countries wage wars, you toxify your Earth and pursue ever more imaginative means of self-destruction. *You cannot be trusted with your own survival.*

If we are just as robotic in how we execute CPSC's programming, if we treat the determination of reasonableness as a purely mathematical calculation with no role for the consumer, we risk turning our slice of government into the same kind of benevolent tyrant.

Today, we pontificate that consumers cannot be trusted with the survival of their fingers, so we need to force them to spend much more on their table saws. But where is the limit? What bridge is too far? How could we justify exposing consumers to *any* risk if there is *any* way for us to address it, including banning the product outright? The only way to ensure that no consumers suffer table saw blade-contact injuries is to ban table saws. How do we justify taking this step but not that one?

I am sure there are those who will point to psychological or behavioral studies to suggest that none – or at most very little – of human choice is actually rational, that we act on the basis of a variety of irrational assumptions that have little to do with what is in our own objective best interests. Some human decisions – such as buying lottery tickets or driving while texting – certainly are not coldly calculated balancing of needs and wants. But I do not believe such emotional impulses wholly displace reason and judgment, and I will not abandon the notion that informed consumers are capable of making choices for themselves about what risks they will and will not tolerate.

For these reasons, I was unable to join my colleagues in forcing onto informed consumers a technology and an exorbitant cost that most of them presently choose to forego.

[35] I, ROBOT (20th Century Fox 2004).

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STATEMENT OF COMMISSIONER ROBERT S. ADLER ON THE CPSC PROPOSED MANDATORY STANDARD REGARDING TABLE SAWS

May 15, 2017

On April 27, 2017, the Commission, by a 3-2 vote, approved the issuance of a Notice of Proposed Rulemaking (NPR) to address blade-contact injuries suffered by users of table saws. I joined the majority in this vote and believe that it represents a major step forward in protecting consumers.

Injuries and Costs Associated With Table Saws

Unless one has seen the gruesome result of a table saw accident, one cannot truly appreciate the horror of these injuries. Accordingly, I have attached to the back of this statement two photographs of typical amputation injuries from table saws.

In order to understand the magnitude of the problem, one must multiply these images roughly *11 times a day every day of the year* to calculate the number of amputations resulting from table saw accidents.[1] And that is only part of the problem: in fact, there are an equal number of fractures from table saws and almost the same number of severe lacerations. All in all, these accidents total roughly 54,850 medically-treated injuries every year.[2]

To put these numbers in context, I note that CPSC has jurisdiction over roughly 15,000 product categories. Of all these, table saws have the dubious distinction of constituting the number one

[1] Safety Standard Addressing Blade-Contact Injuries on Table Saws ("Draft NPR") at 1. In fact, table saws account for 52 percent of all amputations related to workshop products under CPSC jurisdiction. See Sarah Garland, Table Saw Blade-Contact Injury Analysis (November 17, 2016) ("Tab B") at 10.
[2] Tab B, at 6-7.

source of consumer product amputations, comprising almost 20 percent of all reported amputations.[3]

At the risk of providing unduly graphic detail, I will describe the experience of one high school student, Josh Ward, who suffered a monumental injury while assisting his woodshop teacher on a project. Evidently, the board he was feeding into the blade caught in the saw, pulling Josh's hand into the blade, injuring him severely. By all accounts, Josh was acting carefully, in accordance with the training he had received on the proper use of a table saw. Josh was rushed to the emergency room where he needed more than 1,000 stitches during an initial 12-hour surgery, with two hand surgeons in attendance. In addition to the permanent loss of two fingers, Josh lost 50 percent of the function of his remaining fingers despite an additional three surgeries in the first seven days after his accident. Then came seven months of challenging physical therapy. And, the long term effects of these injuries include a high risk of infection due to cut nerves and loss of blood flow. In fact, he has already experienced a two-year long bone infection that required ten rounds of antibiotics and 180 hours of hyperbaric oxygen therapy[4] – at a cost so far of $350,000.

What makes this episode so unusual is that it is not unusual. Thousands of table saw injuries like this occur every year and will continue unless the Commission acts.

Moreover, the costs associated with table saw injuries are breathtaking. Each year, the public incurs roughly $4.06 billion in costs from medical expenses, lost wages, and pain and suffering.[5] Anyone looking at these numbers should shudder at the appalling and unnecessary burden table saw injuries impose on the public. In fact, the vast majority of these costs can be reduced or eliminated by the use of an extremely innovative safety technology that I describe in the next section of this statement. Staff estimates that this technology can mitigate or eliminate 70%-90% of blade contact injuries, which I believe to be a conservative estimate.

Comparing the costs and benefits of a mandatory standard shows that a CPSC rule would be overwhelmingly cost-effective. According to staff, a CPSC rule would produce between $625

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[3] Id. at 7 and 34. ("Table Saw injuries have significantly larger proportions of diagnoses for laceration and amputation [than other products under CPSC jurisdiction]." In other words, table saws beat products that also slice and amputate, such as chain saws, circular saws, lawn mowers, or hedge trimmers.

[4] Hyperbaric oxygen therapy involves lying in an enclosed chamber breathing oxygen under high pressure. It can be extremely uncomfortable and risks lung damage, fluid buildup, bursting of the middle ear, sinus damage, changes in vision, or oxygen poisoning, which can cause lung failure or seizures. See http://www.hopkinsmedicine.org/healthlibrary/conditions/physical_medicine_and_rehabilitation/complications_of_hyperbaric_oxygen_treatment_134,148/.

[5] William Zamula, Gregory Rodgers & Mark Bailey, "Preliminary Regulatory Analysis of the Draft Proposed Rule for Table Saws," Tab C, Staff Briefing Package (December 2016)("Tab C") at 2. The breakdown is roughly $1.2 billion in medical costs and work losses and roughly $2.86 billion in pain and suffering.

million and $2.30 billion in net benefits each year.[6] So large are the benefits that even if one excluded the costs of pain and suffering, the rule would still be cost-effective.[7]

Addressing Table Saw Injuries: The Development of AIM Technology

In 1999, Steve Gass, an amateur woodworker and full-time patent attorney with a Ph.D. in Physics, wondered if it was possible to invent a way to stop a saw's spinning blade quickly enough to avoid serious injury. Applying his technical skills, he developed a prototype saw and began testing it with hot dogs. Subsequently, he conducted a test on his own finger[8] and, to his delight and relief, the blade stopped instantly, and he needed only a band-aid to deal with a small nick.

Dr. Gass's skin-sensing/blade stop system operates by applying a small amount of electrical voltage to the blade of a saw. If the saw detects a change in current from contact with a user's hand, an automatic braking system is activated, jamming an aluminum lock into the blade – stopping it in less than five milliseconds. The result is a small cut, not a severe laceration or amputation. This safety system is now referred to as Active Injury Mitigation ("AIM") technology.

Encouraged by the success of his safety mechanism, Dr. Gass joined with two colleagues to exhibit and market the technology. Although he won glowing reviews and awards from various observers,[9] his quest to license AIM technology to members of the table saw industry came to naught despite several years of trying. Accordingly, in November 2004, Dr. Gass and his colleagues started their own company, SawStop, and began manufacturing and selling table saws.[10]

Along with introducing their product in the marketplace, Dr. Gass and his colleagues petitioned the CPSC to mandate a performance standard that would require table saws to stop or retract their blades upon contact with a person such that only a small cut would result.[11] Without

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[6] Id. at 3.

[7] Draft NPR, at 139. Of all the factors that I would never exclude from a cost-benefit analysis for table saws, pain and suffering are at the top of the list.

[8] Not advisable. Please do not try this at home – or anywhere else.

[9] SawStop won the Challengers Distinguished Achievement Award at the International Woodworking Fair in August 2000. The company also received the CPSC Chairman's Commendation Award in 2001 for "developing innovative safety technology for power saws intended to prevent finger amputations and other serious injuries." In 2002, *Popular Science* named SawStop's technology one of its "100 Best New Innovations."

[10] In describing Dr. Gass's invention, I need to note that I am not Dr. Gass's champion. I champion injury reduction approaches like AIM technology, which is not necessarily unique to him. As CPSC staff has noted, there are other ways to achieve the benefits of AIM technology that do not use Dr. Gass's approach. See, *infra* note 56 and accompanying text.

[11] CPO3-2 (April 15, 2003). The specific request was for saws to be equipped with –

describing in detail the various unfortunate peregrinations that befell SawStop's petition over the years,[12] I note that in October 2011, the Commission finally published an Advance Notice of Proposed Rulemaking (ANPR) seeking comments on whether blade contact injuries from table saws constitute an unreasonable risk of injury warranting Commission action.[13] And, the Commission has now – almost six years after publishing the ANPR – decided to continue the rulemaking by publishing a Notice of Proposed Rulemaking.

Policy Concerns

As with any proposed rule that would have such a dramatic impact, one should not be surprised that a number of issues and concerns have been raised about it. I shall address what I consider to be the most important of these.

Unreasonable Risk/Assumption of Risk/Freedom of Choice

The Consumer Product Safety Act (CPSA) directs the Commission to reduce or eliminate "unreasonable risks" in the marketplace, but does not define the term. The legislative history, however, provides some guidance by focusing the Commission's attention on three critical determinants of this term: the cost, utility, or availability of a product under the agency's rule.[14] Unless the Commission can find a favorable balance between a product's hazards and these factors, it cannot find a product to be an unreasonable risk.

As noted by my friend and colleague, Commissioner Joe Mohorovic, in his statement on the table saw vote,[15] some courts have provided additional guidance regarding unreasonable risk.

> A reaction system to perform some action upon detection of such contact or dangerous proximity, such as stopping or retracting the blade, so that a person will be cut no deeper than 1/8th of an inch when contacting or approaching the blade at any point above the table and from any direction at a rate of one foot per second.

I cite the petition's specific language to emphasize that it was written purely in terms of performance requirements.

[12] Among the challenges along the way have been the changing membership of the agency and the loss of a quorum at a critical point in the journey.

[13] 76 Fed. Reg. 62,678 (October 11, 2011).

[14] As noted in the House Committee Report, these three factors are fundamental to the determination of what constitutes an unreasonable risk:

> An unreasonable hazard is clearly one which can be prevented without affecting the product's utility, cost or availability; or one which the effect on the product's utility, cost or availability is outweighed by the need to protect the public from the hazard associated with the product.

H. Rep. No. 1153, 92d Cong., 2d Sess. 33 (1972)

[15] Statement of Commissioner Joseph P. Mohorovic on the Commission's Proposed Mandatory Rule Regarding table Saws (April 27, 2017) at 3. In this statement, Commissioner Mohorovic quotes my former boss, Commissioner David Pittle, at length regarding Commissioner Pittle's definition of what constitutes a "reasonable risk." Commissioner Mohorovic interprets Commissioner Pittle's definition to conclude that table saws present a reasonable risk. Needless to say, Commissioner Pittle, who has spent the past 4 1/2 years on a UL standards

Most important to him is language from the 1978 *Aqua Slide* case[16] in which the court ostensibly placed some responsibility on consumers to protect themselves:

> [A]n important predicate to Commission action is that consumers be unaware of either the severity, frequency, or ways of avoiding the risk. If consumers have information, and still choose to incur the risk, then their judgment may well be reasonable.[17]

In isolation, these words lend themselves to an interpretation that I doubt the court intended, i.e., warning the public of a risk obviates the need for safety measures to reduce the risk. Assuming *arguendo* that fully warning the public of certain risks is even possible, one can see the inadequacy of an overbroad application of this principle. Under such an approach, one could argue that virtually no standard calling for safer designs need ever be written where a safety warning could be used instead. Never mind how inexpensive, injury-reducing, or cost-effective a redesign might be, simply providing a warning would be all that was necessary to "protect" the public.[18] Were such an approach ever adopted, it would invalidate dozens of safety standards at CPSC, NHTSA, FDA and elsewhere, placing the public at enormously greater risk of injury and death.[19]

Of course, *Aqua Slide* is not the last word on the meaning of the term "unreasonable risk" or on interpreting the CPSA. In fact, just a few years after its decision in *Aqua Slide*, the Fifth Circuit, in *Southland Mower,*[20] clarified and elaborated many of the issues raised in the earlier case.

In *Southland Mower,* several industry groups challenged various aspects of the Commission's lawn mower standard. In addition to clarifying the law, this case seems particularly relevant to the proposed table saw rule because it also involved a product with spinning blades that slices

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development committee pushing the organization to develop and adopt a voluntary safety standard mandating AIM technology, vigorously disputes Commissioner Mohorovic's interpretation.

[16] *Aqua Slide 'N' Dive v. Consumer Product Safety Commission*, 569 F.2d 831 (5th Cir. 1978). In this case, the Court invalidated several mandatory warnings in the standard based on its conclusion that the Commission failed to provide sufficient empirical justification for the specific wording of the warnings. Notwithstanding the court's invalidation of the warnings, it left untouched specific requirements for slide materials, structural integrity, installed angle of slides, slip resistance (and curvature) of slide treads, and requirements for handrails, side rails and slide slope angle. See 16 CFR Part 1207 et. seq.

[17] *Aqua Slide 'N' Dive*, 569 F.2d at 839.

[18] Public health experts generally dispute the notion that warnings are as effective as product redesign in protecting the public. See, R. Adler & R.D. Pittle, *Cajolery or Command: Are Education Campaigns an Adequate Substitute for Regulation?*, 1 Yale J. on Reg. 159 (1984)(citing numerous studies).

[19] NHTSA provides an excellent example of the benefits of product redesign. In the years between 1966-2012, after NHTSA began writing safety standards, the American population increased by 25 percent yet the number of auto fatalities (51,000) dropped dramatically (33,500) – a drop of 80 percent in deaths for each 100 million miles driven. See M. Lemov, *Car Safety Wars: One Hundred Years of Technology, Politics, and Death*, at xii. To say the least, merely warning drivers of the risks of auto accidents from unsafe cars would have produced almost no change in the fatality picture.

[20] Southland Mower v. Consumer Product Safety Commission, 619 F.2d 499 (1980).

and amputates body parts, leading to the Commission's conclusion that new safety technology for lawn mowers was needed to protect consumers.

In contesting a requirement to prevent consumers from defeating a safety shield for lawn mowers in the agency's standard, the Outdoor Power Equipment Institute (OPEI) made an argument similar to Commissioner Mohorovic's claim that consumers' choices must be respected even if the agency believes those choices to be wrong.[21] In addressing that argument, the Fifth Circuit elaborated on the appropriate law governing the concept of "unreasonable risk" and explained the relevance of "assumption of risk" –

> In essence, OPEI argues that the risk of injury from consumer defeat of safety shielding is not "unreasonable" because consumers would have chosen to incur the risk, and their judgment must be respected.
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> However, Congress intended for injuries resulting from foreseeable misuse of a product to be counted in assessing risk. [citations omitted] This principle, and not the tort liability concept of "assumption of risk," governs the Commission's authority to treat consumers' foreseeable action of removing safety shields as creating an unreasonable risk of injury and to issue rules addressing that danger. [citations omitted] Of course, a fully informed choice on the part of consumers to employ a dangerous product may provide information that is relevant to the Commission's assessment of the reasonableness of a risk of injury. For example, consumers' decisions to use sharp knives may pose a *reasonable* risk of injury because duller knives, while safe, would be useless for cutting purposes, and the Commission could reasonably find that consumers have accurate information of the severity and likelihood of injury posed by sharp knives.... *In the present case, however, there is no evidence that consumers accurately appreciate the nature of the risk of blade-contact injuries and that their presumed willingness to defeat protective measures is reasonable*. (Emphasis added)[22]

In other words, the court placed in a useful context the notions of unreasonable risk, assumption of risk and, by implication, freedom of choice.[23] Above all, there can be no

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[21] According to Commissioner Mohorovic,

> ...I believe the risk of injury from table saws that our NPR seeks to address is a reasonable one and not an appropriate subject for Commission action. I believe consumers have made a choice and, even if we would choose, differently, we should respect that choice.

Mohorovic Statement, at 3-4.

[22] *Southland Mower*, 619 F. 2d at 513.

[23] Although I support the idea of freedom of choice in most situations, in my forty-plus years of involvement in consumer protection, I have seen too many instances in which those advocating greater freedom of choice for consumers all too often have used this argument simply to block or push for a rollback of protections against fraud, dangerous products, environmental destruction, or other market abuses.

freedom of choice where consumers do not fully appreciate the risks facing them from dangerous products.

It is no answer to say that consumers are fully informed or fully appreciate the risk simply because they know a spinning blade of a lawn mower or table saw can cut them. That is about as useful as knowing that a plane can fall from the sky. The essence of understanding a risk is to know how likely it is that an injury will befall a consumer when he or she uses a dangerous product and how an injury might occur.

In the case of table saws, this knowledge seems sorely missing. As noted by staff, several factors undermine the notion that consumers truly appreciate the nature of table saw risks. Notwithstanding the obvious hazards of a spinning blade, the fact is that many consumers do not understand or appreciate "the fact that sudden movement of the workpiece from kickback can cause the operator to lose control of the workpiece and cause his/her hand to be 'pulled' into the blade."[24] Moreover, for a variety of reasons, including lack of training, inexperience, fatigue, and distractions, consumers often do not have a proper sense of the extremely serious nature of table saw use.[25] In fact, "even consumers who are fully aware of the hazards and how to avoid them may suffer from slips or lapses that could lead to blade contact and injury despite the consumer's best intention to use a product safely."[26] Unfortunately, any of these lapses can result in a ghastly injury in a split second without any warning.

In other words, for the most human and foreseeable of reasons, it is unreasonable to assume that consumers truly understand and appreciate the risk of injury from table saws such that they should be denied the protection of this safety standard.

Furthermore, and importantly, the concept of "reasonable risk" is not one that is fixed and stagnant in time. What once may have been a reasonable risk can and does become unreasonable once technology makes it possible to mitigate that risk.[27] Thus, it is entirely possible to have a product that presents a reasonable risk at one stage in its production – because there is no alternative safer choice and the utility of the product is high – but that same product later be considered unreasonably dangerous once safer alternatives enter the marketplace.

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[24] Staff Briefing Package (January 2017) at 64.

[25] Id. See also, Tab C, at 8-9.

[26] Draft NPR, at 100. As noted by staff during the Commission's briefing last month, there is no evidence indicating that table saw users suffer injuries as a result of drug or alcohol use or that they use table saws in a reckless manner. To the contrary, many victims of table saws are careful, experienced users.

[27] Examples abound in the safety universe. Any one of the following once thought to be reasonable risks would clearly present an unreasonable risk if sold today: refrigerators with doors that cannot be easily opened from inside the appliance; toxic chemicals or dangerous medications sold in packages without child resistant closures; architectural glass that shatters into dangerous shards; children's cribs with wide slats that could catch and strangle infants; and automobiles sold without seat belts.

Market Failure/Market Choice

Commissioner Mohorovic further argues that because the market currently offers consumers the choice of purchasing table saws with AIM technology, there is no market failure to justify a mandatory standard. He states "...there is no role for CPSC to play in pushing industry forward. The market is already giving consumers a choice."[28]

I certainly understand this argument, but when it comes to safety, I believe "market choice" claims like this frequently produce suboptimal outcomes. Although safety concerns occasionally play a strong role in influencing consumers' choices – most notably with the purchase of toys and other children's products[29] – too often safety falls short in generating meaningful consumer demand.[30] Unfortunately, most consumers automatically assume the products they purchase are "safe" and often don't appreciate that some products in the market present serious risks that could be avoided.

There are important reasons for the failure of consumers to understand and appreciate product risks. Study after study has confirmed that consumers' perception of risk is often flawed for a variety of perfectly human reasons. The academic literature is rife with studies demonstrating how badly consumers misperceive risk. We overestimate risks splashed in the headlines, e.g., shark attacks or terrorist attacks, but underestimate risks associated with life's vices, e.g., tobacco use or drinking while driving. Similarly we underestimate risks that we believe we can control even when statistics clearly demonstrate the opposite.[31] What this means for

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[28] Mohorovic Statement at 7.

[29] Parents and society typically place great weight on safety for children because infants are involuntary risk takers and need others to protect them.

[30] Automobile safety provides one of the clearest examples of the limited demand for safety. In 1956, Ford Motor Company marketed cars with new features such as seat belts and padded dashboards with the thought that safety claims would give them a market advantage. The campaign failed, leading to the barb, "1956 was the year that Ford sold safety and GM sold cars." To be fair, in recent years, auto safety has become more popular as a selling point for companies like Volvo and Subaru, but this change in attitudes has taken decades and still has limited appeal. Fortunately, we as a society have insisted on safer cars notwithstanding limited consumer demand. See *supra* note 19 and accompanying text.

[31] Many consumers insist on driving rather than flying to their destinations because they feel in control of their automobiles. Yet, driving is many times more dangerous than flying. See Stephen Robbins, Organizational Behavior 139 (2000)("if flying on a commercial liner was as dangerous as driving, the equivalent of two 747s filled to capacity would have to crash every week, killing all aboard, to match the risk being killed in a car accident."). Here are a few of the multitude of articles exploring consumer misperceptions of risk: R. Lofsted, "Communicating Food Risks in an Era of Growing Public Distrust," 33 Risk Analysis 192 (Nov. 2, 2011); A. Revkin, "When Risk Misperceptions Create Risks," NY Times (July 18, 2011) (Opinion Pages); W. Verfbeke, I. Sioen, Z.Pieniak, "Consumer Perception Versus Scientific Evidence About Health Benefits and Safety Risks From Fish Consumption," 4 Public Health Nutr. 422 (June 8, 2005); A.A. Leiserowitz, "American Risk Perceptions: Is Climate Change Dangerous?," 25 Risk Analysis 1433 (November 6, 2005); G. Gaskell, N. Allum, N. Kronberger, "GM Foods and the Misperception of Risk," 24 Risk Analysis 185 (February, 2004); N.M. Wells & G.W. Evans, "Home Injuries of People Over Age 65: Risk Perceptions of the Elderly and of Those Who Design For Them," 16 Journal of Environmental Psychology 247 (September, 1996); D. Ropeik, "The Consequences of Fear," EMBO Reports (October 2004) at S56

thoughtful public policy is that relying strictly and solely on market demand can sell public protection short, particularly where, as with table saws, consumers are not necessarily making truly informed choices.

I see an additional market failure with respect to table saw risks. That is, consumers' injuries from table saws do not affect them alone, but have consequences for their fellow citizens. This is the issue of *externalities*. Externalities exist when "one party's actions impose uncompensated benefits or costs on another party."[32] Externalities are important because they give rise to obligations to protect the public at large even in the face of resistance or indifference among consumers.

On this point, I note that CPSC staff observes that victims of table saw injuries incur many of the costs of table saw accidents mainly because they are the ones who undergo the pain and suffering of such injuries.[33] Even given that fact, however, society at large still incurs a substantial proportion of the burdens of table saw injuries, including medical treatment, lost wages, and unemployment compensation to the tune of roughly $1 billion every year through higher insurance premiums, unemployment insurance, and higher taxes. Given this, we as fellow citizens who are affected by those who purchase these products should have some say in table saw safety.[34]

This is not a new thought. We require drivers – even when they don't like it – to get licenses and obey traffic laws, including the requirement to buckle seat belts. In other words, society appropriately imposes safety requirements on citizens because we want them to be safe and not burden us with unnecessary fatalities and injuries. In such cases, we do not simply warn citizens of the hazards and leave it to them to choose whether to assume those risks. We take more direct action by imposing rules that lessen the societal costs imposed by consumer injuries.

On this point, I turn to the wisdom of columnist George Will, who responded to the pointed criticism of then candidate Ronald Reagan regarding the government's attempts to require

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cited at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1299209/ and D. Ropeik, "The Perception Gap: An Explanation for Why People Maintain Irrational Fears," Scientific American(Blog)(February 3, 2011).

[32] Tab C, at 9. Perhaps the best example of this occurs when a factory spews pollution onto the property of its neighbors. Instead of incurring the costs of pollution controls, the factory simply externalizes them on those next door. Society appropriately regulates these externalities.

[33] Id.

[34] I believe that a CPSC rule on table saws will actually provide a more rational allocation of risks for this product than currently exists. As former Yale Law School Dean, Guido Calebresi, has long argued, instead of imposing the costs of such injuries on society at large, manufacturers (and consumers) who benefit directly from products should internalize those otherwise externalized costs by including those costs in the prices of products. Thus, the price of goods would reflect more accurately the societal costs of producing them. See G. Calabresi, "Some Thoughts on Risk Distribution and the Law of Torts, 70 Yale L. J 499 (1961) and G. Calabresi, *The Costs of Accidents: A Legal and Economic Analysis* (Yale University Press (1970).

gasoline mileage standards. According to Mr. Reagan, "the automobile and the men and women who make it are under constant attack from Washington." The attackers are "elitists ... some of whom seem obsessed with the need to substitute government control in place of individual decision making." In response, Mr. Will wrote a thoughtful explanation of the appropriate role of government with respect to market failure:

> A free market is a nifty arrangement for recording preferences and allocating resources accordingly. But there is a point at which the obeisance of political persons before market decisions is, like other forms of populism, an excuse for not leading. At that point free-market principles are less an aspect of their political philosophy than a substitute for political philosophy.
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> The state is more than a device for serving the immediate preferences of its citizens. Its purpose is to achieve collective objectives, and the collectivity – the nation – includes a constituency of generations not yet born. That is why the state, unlike an economic market, has *responsibilities*, and must look down the road farther than citizens generally look in their private pursuits. Thus the state's legitimate purposes are more complex than the sum of citizens' private purposes; the public interest is not just the automatic, unguided outcome of the maelstrom of private interests.[35]

Although I do not always agree with Mr. Will, I believe he got this point exactly right.

Industry Voluntary Standard

CPSC operates under a special mandate when it comes to voluntary standards. Before we can issue a mandatory standard, we must seek to work with the voluntary standards community to see if an adequate voluntary standard that is substantially complied with can be developed instead.[36] In the case of table saws, the standards setting group for this product for the past 46 years has been Underwriters Laboratories (UL).[37] With respect to AIM technology, UL spent almost five years developing a performance test and seeking industry approval for the technology.

In fact, UL developed an excellent set of performance requirements for AIM technology that now forms the basis of CPSC's draft standard.[38] Unfortunately, every time UL has balloted AIM technology, industry participants have overwhelmingly voted it down – most recently in March

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[35] George Will, "Taking a Ride With Ronnie," *Newsweek* (May 31, 1976) at 76.

[36] The various provisions that require cooperation with the voluntary standards sector are spelled out in section 9 of the Consumer Product Safety Act (15 USC § 2058).

[37] Draft NPR at 44.

[38] UL's requirement uses a surrogate finger approaching the saw blade at 1 meter per second, permitting no more than a cut depth of 4 mm. CPSC's proposal limits the depth of the cut on the surrogate finger to 3.5 mm. Id. at 101.

2016 despite a letter from CPSC staff expressing strong support for including AIM technology in UL's standard.[39]

Given the strong rejection by members of the table saw industry time and again, I believe it fair to say that the odds of this group ever approving AIM technology are incalculably small. Accordingly, if the Commission is to protect the public, we must do so with a CPSC rule.

The official industry position that the latest UL standard adequately addresses the risks of blade contact remains unchanged. Unfortunately, the data show otherwise. In 2009, the industry approved a voluntary standard requiring riving knives for the prevention of kickback and newly designed modular blade guards to protect consumers from saws' spinning blades. Although CPSC staff believes that these steps do improve the safety picture to a small extent, they fall well short of adequately protecting saw users.[40] Part of the problem is that table saw users must remove the modular blade guards to make certain important cuts, thereby exposing themselves to a serious risk of injury.[41]

The problem, however, goes deeper than situations when blade guards are removed. Unfortunately, staff has documented that even saws used with riving knives and modular blade guards can still produce injuries – thus, the need to go beyond the voluntary standard.[42]

Cost/Benefit Issues

In order for the Commission to promulgate a safety standard under the CPSA, we must find that the benefits from the rule "bear a reasonable relationship to its costs."[43] As I read this statutory language, I see no absolute requirement that the benefits exceed the costs of a rule – just that they be reasonably close in magnitude. Nevertheless, to the best of my knowledge, the agency has insisted that the ratio be a positive one, and I see no basis for taking a different approach with table saws.

i. *Aggregate Net Benefits*: There is no doubt that aggregate net benefits vastly outweigh the costs of the proposed table saw rule. The societal cost of table saw injuries in 2015, the latest year for which we have data, amounts to $4.06 billion. Based on staff's analysis, the *net* benefits (benefits minus costs) add up to between $625 million and $2.3 billion.[44] In other words, the carnage from table saws is so great that even adding price increases to table saws more than justifies taking regulatory action.

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[39] Id at 48.
[40] Id. at 50. As staff has stated, "... the existing voluntary standard requirements for riving knives or modular blade guards will not prevent or adequately mitigate blade-contact injuries on table saws."
[41] Id. at 49. Staff characterizes these blade removals as "necessary and proper" for certain cuts.
[42] Id.
[43] This requirement is found in section 9 of the CPSA. 15 U.S.C. §2058(f)(3)E.
[44] Tab C, Staff Briefing Package, at 2-3.

ii. *The Risk of Injury on Different Types of Saws:* Notwithstanding the very favorable aggregate ratio, staff has advanced an additional concern regarding cost/benefit issues. Table saws come in three different types: bench saws, contractor saws, and cabinet saws.[45] Each is used in different ways,[46] and each potentially carries different injury patterns. In order to see whether injury patterns differed significantly, staff undertook a special study in 2007-2008 addressing the three types of table saw. Unfortunately, comments from the public regarding this study led staff to question the reliability of the data in the study. This led to a second special study in 2014-2015 by a contractor, which also proved problematic due to inconsistent observer methodologies.[47] Accordingly, CPSC staff has now developed a comprehensive, carefully-drawn CPSC-driven study that will be conducted over the course of the next year that should provide the data sought by staff.

I mention these studies because they are a product of staff's desire to develop a cost/benefit model not only for table saws in the aggregate, but also for each type of saw commonly sold. While I admire the staff's attention to detail, I maintain a large degree of skepticism that the CPSA requires such a micro analysis. I note, for example, that when the CPSC wrote its lawn mower standard, we did not feel it necessary to undertake a separate blade-contact injury analysis for gasoline mowers versus electrical mowers even though it is conceivable that the two might have had different injury rates. It was sufficient that both types of mowers produced lacerations, amputations, avulsions, and similar injuries in roughly the same manner.

Similarly, although I acknowledge that bench saws and cabinet saws might have somewhat different injury patterns, those differences would not be because one type of table saw is inherently riskier than the other. I say this because I have heard a suggestion that cabinet saws carry a higher injury pattern than bench saws. If this is correct, it will be because of one and only one reason: cabinet saws are used much more frequently than bench saws. To pick an analogy: if my neighbor and I live next to a minefield and he walks through it *every* day of the year, but I walk through it only *one* day a year, the odds are high that my neighbor is more likely to step on a mine than I am. That, however, does not mean that for any given stroll my neighbor takes, he is at greater risk than for any given stroll of mine. The risk per stroll is the same. To me, this is precisely the situation with table saws.

Accordingly, although I look forward to obtaining the results of the 2017 special study, I do not do so with the expectation that the results will convince me that the Commission should

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[45] Draft NPR, at 7-8. Although there is no exact dividing line, bench saws tend to be small, lightweight and inexpensive – from $130-$1,499; contractor saws generally have larger motors and heavier table tops and are rarely portable, costing roughly $500-$2,000; and cabinet saws tend to be the heaviest and most powerful table saws, used most often in home woodworking shops, with prices ranging from $1,200-$5,000.

[46] Id.

[47] Id. at 36-37.

exclude any type of table saw from its rule. Using a table saw places a consumer at roughly the same risk of injury irrespective of which type of saw is used.[48] The only difference is the number of hours of use, not the mechanical configuration or any other aspect of saw design.

iii. *Breakeven Cost-Benefit Analysis*: Given the concern about needing injury data for the different types of saws, staff turned to a technique the agency used previously in our NPR on ROVs called a "breakeven" analysis.[49] Under this approach, staff has developed a table of the most plausible injury patterns likely to occur with table saws.[50] Staff then estimated the number of injuries for each of the saw types that would need to be prevented for the benefits of the proposed rule to equal or exceed the costs.[51] Under virtually all of staff's scenarios, the draft standard has proved to be extremely cost-effective.[52] The one instance where the cost-benefit ratio was slightly negative required assuming that *the annual risk of injury for cabinet saws was roughly 40 times the risk for bench saws.*[53] Of course, such an assumption defies common sense. I am prepared to accept data showing that more injuries (nowhere near the 40 times estimate made by staff) are recorded on cabinet saws than on bench saws because cabinet saws are used much more often than bench saws. But, again, I see no evidence that cabinet saws present any greater risk than bench saws.

Accordingly, I await the completion of staff's 2017 special study. Once those data are available, the Commission and the public will be able to see which of the injury scenarios is most accurate in refining staff's cost/benefit analysis. That said, I see little likelihood that they will lead the Commission to modify or change its cost/benefit analysis in any way not already contemplated in staff's breakeven analysis.

Patent/Monopoly Issues

It comes as no surprise that when Dr. Gass developed AIM technology, he, as a full-time patent attorney, patented his invention. Although I have heard occasional grumbling about this, most reasonable observers seem to have no problem with entrepreneurs using the patent system.[54]

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[48] If anything, using a bench saw for an hour is probably more dangerous than using a cabinet saw for an hour. Cabinet saws are designed to be more durable and their greater weight reduces vibration so that cuts are smoother and more accurate. Id. at 8.

[49] Tab C, at 44.

[50] Tab C, at 46. The staff did calculations based on four hypothetical scenarios: (i) every saw has the same annual risk of injury, (ii) risks are equivalent for the different saw types over the saws' expected product life, (iii) injury risks are proportional to the median saw price, and (iv) injuries are proportional to median saw price.

[51] Draft NPR at 111.

[52] Id.

[53] Id.

[54] I should hope not. Patent rights have been enshrined in the U.S. Constitution (Article 1, Section 8) since it was written. Patents give short-time monopoly power to patent holders for important societal reasons. As Justice Scalia wrote in *Verizon v Trinko* –

Of course, the fact that CPSC might mandate patented technology injects a new factor in the regulatory equation. If the only way for manufacturers to comply with a CPSC standard is to license patented technology, the agency needs to be sensitive to the possibility of *abusive* monopoly pricing.

I believe that the CPSA provides both a sufficient and proper framework for our analysis of SawStop's licensing approach. Section 9 of the Act directs the Commission, in promulgating a safety standard, to make appropriate findings for such a standard, including –

> (C) the need of the public for the consumer products subject to such rule and the probable effect of such rule upon the utility, cost, or availability of such products to meet such need; and
> (D) any means of achieving the objective of the order while minimizing adverse effects on competition or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety.[55]

SawStop disputes the proposition that its AIM technology is the only way to comply with CPSC's proposed standard, and CPSC staff indicates that several alternative approaches to meet the proposed requirements are possible.[56] Nevertheless, for the sake of argument, I am prepared to accept the notion that most manufacturers, at least initially, will adopt SawStop's technology if they intend to continue producing table saws under a CPSC rule. That fact alone raises few, if any, significant concerns.

What would raise concerns is if SawStop insisted on charging abusive licensing fees or refused to license its technology to any willing buyer. As I read staff's analysis, neither condition is present in this proceeding. In their petition to CPSC 14 years ago, Dr. Gass and his associates pledged to limit their licensing fee to 8 percent of the wholesale price of any saw sold with their AIM technology.[57] That pledge remains in effect. And, they have further pledged to license this technology to any and all takers upon the promulgation of CPSC's standard.[58] Whether CPSC

> The mere possession of monopoly power and the concomitant charging of monopoly prices is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices – at least for a short period – is what attracts business acumen in the first place; it induces risk taking that produces innovation and economic growth.

Verizon v. Trinko, 540 US 398 (2004).

[55] 15 USC § 2058(f)(1)(C) and (D).

[56] Staff Briefing Package, at 35-36. Among the ways for an AIM system to operate are (i) sensing electrical properties of the human body/finger, (ii) sensing thermal properties of the human body/finger, and (iii) visual sensing and tracking of the human body/finger.

[57] Tab C, at 6.

[58] This commitment is more recent, evidently reflecting the fact that SawStop now manufactures table saws in competition with other manufacturers and faces a different marketplace from when they first offered to license AIM technology.

should seek a more definitive commitment from SawStop is an open question,[59] but assuming the commitment is reliable the staff has concluded that the section 9 findings support going forward with the standard.

Specifically, the staff has determined that SawStop's license fee, at least in the short run,[60] should add between $37-$57 to the cost of a typical bench saw (the most price-sensitive model); $99-$136 to a typical contractor saw; and $187-$223 for a typical cabinet saw.[61] The cumulative cost would likely be $30-$35 million annually.[62] Frankly, these numbers pale in comparison to the $4 billion in societal costs imposed by table saw injuries.

Applying the findings required by section 9 of CPSA to the staff's very thorough and comprehensive calculations, I would characterize the impact of the proposed standard as significant but not close to disqualifying for the industry or table saw customers.[63] Moreover, staff has substantially mitigated any negative impact of the standard by recommending a three-year period between the promulgation date and the date the standard becomes effective.[64] This lengthy period should enable manufacturers to retool their production processes and adjust their pricing such that any negative impact of the standard will be minimized. And, of course, virtually eliminating the hazards of amputation and serous laceration is incalculable.

FRAND Issues

Shortly before the Commission held its briefing on table saws, attorneys for one of SawStop's competitors submitted a letter raising what are called FRAND issues.[65] FRAND is shorthand for

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[59] Although I look forward to comments from the public on this point, I note that the integrity of the staff's cost/benefit analysis depends on SawStop's living up to its word. Should the company renege on its pledges, it would undermine the staff's analysis, likely rendering it no longer supportable. I hate to think what a court might do to CPSC's rule if SawStop reneged, given that the company put its commitment in writing in the original petition and has reiterated it numerous times since then.

[60] As with any new standard, the table saw rule will have its greatest cost impact in the short run before the economies of scale and the development of more efficient manufacturing processes kick in. Staff notes that prices are likely to be mitigated in the long run, but wisely chose not to speculate on when that might occur. See Draft NPR, at 91.

[61] Draft NPR at 177.

[62] Id.

[63] The increased cost of table saws could result in fewer consumers purchasing this product. Staff estimates that net sales might drop significantly in the short run, from 90,000 on up. Draft NPR, at 133. Staff also suggests that the weight of table saws might increase to some extent, but not to a degree that I see much concern. I am aware of the industry argument that, given the increased cost of table saws, many users would be likely to try to use their circular saws as modified table saws. Their argument, however, assumes that the price of a bench saw with AIM technology is going to be in the $1,300-$1,400 range. That is extremely unlikely given SawStop's imminent introduction of bench saws with AIM technology in the $300 price range.

[64] Draft NPR, at 194.

[65] Letter from J Harkrider and R. Dagen, Counsel for Stanley Black & Decker to CPSC Commissioners (March 29, 2017). According to counsel, "SawStop must disclose that it has patents that are, or may be, essential to the [table saw] standard, and must give a binding agreement to charge Fair, Reasonable and Non-Discriminatory ("FRAND")

the term "fair, reasonable, and non-discriminatory," and refers to voluntary agreements by patent holders participating in voluntary standards proceedings to agree to negotiate the licensing of their technology on non-abusive terms.[66] Although the letter caused a bit of a stir at the Commission, I find no merit in its argument that the law *requires* SawStop to enter into a FRAND agreement before CPSC could proceed to develop a mandatory standard.[67]

I note that FRAND issues are primarily relevant in voluntary standards proceedings when a patent holder's technology is essential to the development of the voluntary standard (the term, "standards essential patent," or SEP, is often used to describe such patents). To the best of my knowledge, no voluntary standards body has declared SawStop's AIM technology to be a "standards essential patent." Moreover, SawStop vigorously disputes the claim that its technology is standards essential.[68]

Even assuming for the sake of argument, however, that SawStop's AIM technology might be essential for complying with a CPSC table saw rule, I see no useful purpose in looking to a FRAND agreement to address the issues raised by SawStop's patents. I see no legal authority available to CPSC to mandate a FRAND agreement. Even if we had such authority or the authority to condition our promulgating a standard on a FRAND agreement, I would oppose our exercising this authority.

First, there is simply no need for FRAND agreements to resolve the economic issues raised by CPSC's proposed rule. As I have stated, our authority under CPSA sets forth the economic findings that the Commission must make in order to promulgate a safety standard. These findings are more than adequate to ensure that any adverse impact from patented technology on the cost, utility, or availability of table saw is reasonable – and balanced by the benefits

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rates and therefore forgo seeking injunctions against licensees willing to pay a FRAND rate determined by a district court."

[66] See, J. Ordover & A. Shampine, "Implementing the FRAND Commitment," http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/oct14_ordover_10_21f.authcheckdam.pdf J. Lewis, "What is 'FRAND' All About? The Licensing of Patents Essential to An Accepted Standard," https://www.cardozo.yu.edu/what-%E2%80%9Cfrand%E2%80%9D-all-about-licensing-patents-essential-accepted-standard. Wikipedia has a simple, clear definition. See https://en.wikipedia.org/wiki/Reasonable_and_non-discriminatory_licensing

[67] The letter also alleged that Dr. Gass "has intentionally and purposefully misrepresented the scope of its patents that read upon the proposed standard. " Neither of counsels' assertions are correct. The law carries no requirement for SawStop to sign a FRAND agreement in CPSC's proceeding, and there is no evidence in the record that Dr. Gass has ever misrepresented a thing.

[68] The fact that the company has vigorously defended its patents in court does not mean that other approaches to AIM technology are not available or cannot be developed. To the contrary, as I have discussed, CPSC staff has noted that AIM technology using thermal, visual, electromagnetic, or ultrasound approaches are possible. See, *supra* note 56 and accompanying text. I should add that UL's attempt to persuade industry members to adopt AIM technology did not fail because SawStop refused to sign a FRAND agreement. The reason it failed was because the industry opposes AIM technology.

accruing from the standard. Staff has done the calculations and determined that the impact, while initially significant, is more than justified by the reduction in the injuries associated with table saws.

Second, FRAND agreements involve parties negotiating among themselves, not CPSC setting FRAND rates. And, as acknowledged in the attorneys' letter to CPSC, setting FRAND rates "is very complex and time-consuming."[69] In fact, a cynic might well conclude that delay is the very reason that the attorneys advanced their FRAND claim. Were the Commission to succumb to such a claim, it seems likely that we and the courts would face endless squabbles – no doubt extending for years – among industry participants about whether the parties were negotiating FRAND terms in good faith. Moreover, having the Commission even indirectly involved in resolving FRAND disputes – a prospect that is daunting indeed – would place us in the unfortunate position of choosing winners and losers in the market, a task for which we have neither the expertise nor the authority.

Third, and perhaps most important, were the Commission to agree to participate in some fashion with a FRAND approach, that would bring our proceeding to a grinding halt since we would no longer have a fixed license fee number upon which to analyze the costs and benefits of the proposed rule.[70]

Instead of leaping into a FRAND quagmire, the Commission actually has all the information it needs to move forward with a table saw standard. As I said, we know the precise fee that SawStop will charge for its AIM technology, and we know that the company has committed to license this technology on a non-discriminatory basis. Nothing more is needed to meet our statutory obligations under CPSA.

Conclusion

Mark Twain once said, "A thing long expected takes the form of the unexpected when at last it comes." I feel that deeply with the table saw NPR, and hope that the future will be less time-consuming and more predictable. Having waited for so many years for the Commission to continue moving the process of setting a safety standard for table saws, I eagerly look forward to reading the multitude of comments that I expect will be submitted to the agency and to finally taking the step of promulgating this rule. I have no illusions that the next step will be easy. It may be as fraught as the ones taken to get where we are, but I believe the cause of consumer safety is worth it.

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[69] See, supra, note 66 and accompanying text.

[70] Unlike with estimating possible rates associated with table saws for a breakeven analysis, I very much doubt that staff could do a breakeven analysis to approximate the terms a FRAND agreement might produce. Unfortunately, FRAND law is unsettled both as to which formulas to apply for such agreements and which amounts are appropriate under these formulas.

Photographs of Table Saw Injuries