The regulatory process can be slow and tortuous. Consider the case of air quality standards. Since 1997, EPA has had separate air quality standards for fine particulates, technically called PM2.5. These tiny particles can penetrate deep into the lungs, making them a special public health concern. EPA has revisited the standard twice, in 2006 and 2012. The law actually requires the standards to be reviewed every five years, so we really should have had *three* revisions by now (2002, 2007, 2002). In other words, EPA has slipped behind one full revision cycle.

Looking at the timeline of events (after the jump below) shows in vivid detail just how bad the delays have been. In fact, both revisions took place in the end only after EPA was repeatedly sued. Concerns about the "ossification of rule making" certainly seem to be justified.

The costs of delay can be very real. For instance, using EPA's own estimate of health benefits, a single delay from August 2011 to December 2012 caused between 600 and 1300 deaths. If that many deaths happened in a more visible way, it would be considered a tremendous national disaster. Or to put it in economic terms, the country has lost somewhere between $3.3 billion and $7 billion in net benefits.

They say that justice delayed is justice denied. By the same token, clean air delayed is clean air denied.

[*The detailed timeline is after the jump.*]

PM2.5 Regulations: A Timeline

1997. EPA promulgates national ambient air quality standard (NAAQS) of 15 $\mu g/m^3$

February 2002. Five years after the standard was issued, the D.C. Circuit upholds the 1997 PM2.5 standard. *Am. Trucking Ass'ns, Inc. v. EPA* (ATA III), 283 F.3d 355, 358 (D.C.Cir.2002). In an earlier stage of the litigation, the D.C. Circuit had issued an eccentric constitutional ruling that the Supreme Court had to correct before the case could proceed.

2003. Several environmental groups bring a lawsuit challenging the EPA's failure to complete its review within five years as required by the CAA. A consent decree requires EPA to propose standards.

June 2005. EPA's Clean Air Scientific Advisory Board recommends new standard of 13-14 $\mu g/m^3$

January 2006. EPA issues notice of proposed rule making.

October 2006. EPA promulgates a standard of 15 $\mu g/m^3$ (4 years after the statutory deadline).

February 2009. D.C. Circuit remands Bush Administration NAAQS standard for further consideration, in part because the EPA had failed to show how it provided an adequate margin of safety against illness in children and other vulnerable sub-populations. *American Farm Bureau Federation v. EPA.*, 559 F.3d 512 (D.C. Cir. 2009).

2010. EPA's spring 2010 regulatory agenda predicts having a proposed rule out by December 2010 and a final rule by August 2011.

Feb. 2012. Several states sue EPA for failure to meet the statutory five-year deadline for reviewing the October 2006 standard. The American Lung Association filed a separate suit.

June 2012. District court rules against EPA regarding violation of the five-year deadline for revisions. A consent decree requires EPA to issue the standard before the end of the year. EPA then proposes rule to reduce PM2.5 NAAQS from the 1997/2006 standard of 15 $\mu g/m^3$ to 12-13 $\mu g/m^3$. US EPA also asks for comments about whether an even tighter level of 11 $\mu g/m^3$ should be adopted.

Dec. 2012. EPA issues final NAAQS of 12 $\mu g/m^3$. EPA estimates that tightening the standard will provide annual health benefits worth an estimated $4 billion to $9.1 billion by 2020, at an estimated annual cost of $53 million to $350 million. According to NIH, by 2020 other regulations are expected to bring down PM2.5 levels in most of the country anyway, so the projected costs and benefits of the proposed standard are heavily concentrated in Southern California.