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February 20, 2014

Mr. Joseph Goffman
Senior Counsel
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Joe:

Thanks to you and your colleagues at the agency for a very productive meeting. As I hope was evident, Arch values the role of the EPA, and shares the agency's commitment to continuous improvement in environmental performance.

To keep the exchange of information flowing, I thought I would use this letter to expand upon some of the topics we discussed during that meeting. Naturally, we would welcome the opportunity to further explore these and other issues at a time that proves convenient.

As you will recall, we spent a significant amount of time discussing the wave of coal plant retirements now under way here in the U.S. As indicated, Arch has a talented market analysis team that spends much of its time studying power market trends. Based on our forecasts, we expect nearly 60 gigawatts of coal-based capacity – or just under 20 percent of the coal fleet – to retire by the end of 2017. To be clear, this total reflects the impact of already promulgated regulations – and assumes a fairly benign existing source standard for GHGs.

The retirement of so much capacity in such a short period of time would be unprecedented. Based on EIA data sources, it appears that there has never been a year prior to this decade when coal-based generation contracted by more than a single percentage point. Just as importantly, the EIA does not anticipate that other types of generating capacity will step into the breach – at least not initially. EIA projects that only 11 net gigawatts of natural gas capacity will be added during that time frame – suggesting a reduction in overall fossil fuel capacity of nearly 50 gigawatts.

Of course, we could see a more rapid build-out of new natural gas capacity than is currently projected, assuming public utility commissions prove more supportive of rate recovery requests for new capital than they have in the recent past. But even a more rapid natural gas build-out would carry risk, in the form of pipeline deliverability challenges, increased price volatility, and potential supply shortfalls in critical end-use markets like home heating.

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Please don't view that recitation as critical of natural gas; we believe it's an indispensable fuel, and we view recent developments in shale markets as highly positive. But these are still early days for such technologies, and energy markets can shift quickly and unexpectedly. As you know, the power industry has cycled through a "dash-for-gas," a sizeable coal plant build-out, a "nuclear renaissance," and now a "shale gas revolution" in just the past 20 years. Clearly, our energy future is never as certain as it seems – which is why we believe it's important to adjust the system gradually and deliberately, while maintaining the safety net that fuel diversity provides.

It's also important to note that the current coal plant retirement cycle is just getting under way. Of the expected 60 gigawatts of retirements referenced above, we estimate that only about 30 percent – or 18 gigawatts – has occurred to date. That means that the system will experience another 40 gigawatts or so of closures over the course of the next four years. That is lightning speed where energy markets are concerned, and leaves little time for course corrections.

Moreover, we believe that even the 18 gigawatts of closures experienced since 2011 are stressing the system to some degree – despite the fact that the first plants to shutter have tended to be the oldest and most under-utilized. To date this winter, when measured by so-called "heating degree days," the U.S. has experienced temperatures approximately 10 percent colder than the 10-year average. So, it's been cold, but not remarkably so – and not everywhere at once. Yet the resulting bump in energy demand has led to significant disruptions – with power prices spiking above $1000 per megawatt-hour in certain areas and natural gas prices rising to $100 per million Btu's at certain city gates. Granted, these spikes have been generally short in duration, but energy prices remain elevated even now, and winter still has several weeks to run.

The question, of course, is what might happen if a similar "polar vortex" – or, conversely, a heat wave – were to make an appearance in 2017, after all 60 gigawatts have gone offline? And what if the economy is growing at a more robust pace at that time? AEP may have provided some insight when they announced to investors that 89 percent of the 7 gigawatts slated for retirement within their own system was needed and operating during the recent cold snap. Some of our other customers are reporting similar experiences.

In light of this analysis, we believe that an existing source standard that could spur additional coal plant closures would be risky – and unnecessary. In the past five years, U.S. thermal coal consumption has declined by more than 180 million tons, driving a 16-percent reduction in GHG emissions from the power sector. The near-certain retirement cycle now under way will lock in those gains and could deliver still further reductions – particularly if natural gas prices remain low and stable. (If they don't, all parties will be pleased to have as much coal-based capacity still operating as possible.)

So, what's the right course for a reasonable 111(d) standard? Again, we believe the top priority should be to avoid touching off that next tranche of coal plant retirements before the current one has run its course. If nothing else, there needs to be sufficient time to see how power markets will react to such a transformational change to the grid – and we simply won't know that until the latter years of this decade at the earliest. Instead, we would counsel that the agency seek to set standards that focus exclusively on wringing out efficiency improvements from the existing fleet, while avoiding the risk of additional closures. In our view, EPA will have many opportunities to set more ambitious standards in the future. Consequently, we don't believe there is a sound policy rationale for doing so now, given a rapidly

changing power market environment. Yes, focusing solely on efficiency improvements will limit the incremental reductions that can be achieved – but EPA has achieved a great deal already.

Finally and importantly, we remain convinced that a rapid slide in U.S. coal usage will prove counterproductive to the real end game, which is addressing the global climate challenge. With global coal consumption expected to surpass 8 billion metric tons by 2020, low-carbon technologies for coal – as well as for natural gas – will be indispensable. The executive director of the IEA, Maria van der Hoeven, echoed this sentiment recently when she stated that, without the widespread availability of CCS technologies by the early 2030s, the cost of stabilizing GHG concentrations in the atmosphere by mid-century will increase by $1 trillion. Needless to say, that would make a heavy lift heavier still. We firmly believe that maintaining a significant and stable role for coal here in the U.S. will prove more supportive of technological investment and progress than the alternative. In short, we must address carbon emissions in the developing world if we are to address them at all – and the U.S. can and should be helping to drive the advances that will make such progress possible.

Again, thank you for a productive meeting, and for the opportunity to share these further thoughts. We are currently taking a deeper look at the coal fleet, including a more detailed assessment of the coal plants that have already closed, the coal plants expected to close by 2017, and the coal plants most likely to close in a theoretical next round of retirements. We hope to share that analysis with you at a time that proves convenient.

Sincerely,

Deck Slone

Cc: Lisa Feldt
Elliott Laws