

In this world, utility and industrial plants find themselves between a rock and a hard place. MACT regulations enacted during 2010 and 2011 put significant political and economic pressure on facilities to make major, expensive changes. The final versions of these rules make it clear the EPA is pushing for a move away from coal-fired industrial power and electricity generation.

It's difficult, however, for managers to justify the cost of major improvement projects dictated by MACT. There is a lot of uncertainty about the availability and reliability of new technologies, and decision-makers fear this might just be the beginning of even more stringent regulations: "Why commit to costly equipment now when it may quickly become obsolete?"

A frequently shifting political environment, stagnant economy and high cost of capital makes it doubly difficult to confidently set goals and budgets. Plus, the price and availability of fuel is somewhat volatile, as is the cost to dispose of waste materials.

Because of the uncertainty, improvement projects tend to be put off to the last minute when optimal choices aren't always still available. Many plants that hold off from major capital projects as long as they can face a new obstacle: industry-wide shortages of OEM resources. For some facilities, this means ending up in non-compliance limbo while waiting in line.

Managers that do take a proactive approach by moving ahead early with baseline testing and optimization projects feel as if they're walking on eggshells, predicting—sometimes rightly—that improvements will lead to tighter operating requirements.

Non-compliance consequences are typically not clear up front. In some cases, loss of operating permits and expensive litigation lead to an eventual lights-out scenario, especially for older units. Other facilities are able to slip under the radar or take advantage of grandfather clauses in regulations.

It's not all doom-and-gloom, though. The government offers significant subsidies to plants that switch to alternative, "green" fuels. Emission credits are also an incentive. With a mixture of nimbleness, smart choices, and a dose of luck, many facilities weather the storm and gain a competitive advantage in the marketplace.

Internal Signposts

- Management changes
- Cash flow and finance issues
- Flat or reduced demand for product
- Equipment life-spans pushed to limit
- Long-term fuel and skilled-labor contracts lock in plant strategies

External Signposts

- Pendulum swings in policy following local, state and Federal elections
- Flat or declining local economy
- Passage of new air pollution control regulations
- Natural disaster that has significant, negative local and/or national impact on economy
- Less availability of affordable capital
- Increased emphasis on benefits of clean energy sources



In this world, power utilities and industrial plants are under the gun to spend large portions of their profits on improvements necessary for complying with much stricter air pollution control regulations. The ink is barely dry on MACT rules finalized during 2011 when another round of regulatory reform begins, putting managers on high alert about what it will take to comply immediately and years down the road.

Everyone in the industry recognizes that it's important to put much more effort into educating the public, and the government, about how electricity and other products are made. This turns out to be one of the industry's most successful strategies for responding to frequently shifting political mandates. That being said, industry insiders continue to feel that this effort is an uphill battle; there's a common feeling that special interest and environmental groups just don't "get it."

Two other forces help plants respond proactively to the impact of MACT and to uncertainties surrounding future regulations. First, the economy is back to a much more robust state after the 2008-2010 recession.

Second, state-of-the-art technology for emissions control develops at a rapid pace. This allows plants to confidently invest in major capital projects without fearing that the new equipment will rapidly become obsolete.

Most managers adopt a proactive approach, organizing follow-up rounds of baseline testing to verify results from initial modifications and develop longer-term strategies. Since there's a healthy demand for product, investing resources and money in these forward-looking projects is seen as a smart move rather than a risk. There's consensus that the cost to support compliance is lower than the cost of playing wait-and-see.

Government subsidies for burning alternative fuels prove to be another incentive for plants to invest heavily in major modifications. In many cases, betting on natural gas, bio-fuels and other "green" options seems like the best long-term investment. This requires not only major equipment upgrades, but also a significant amount of employee training.

When plants start their major capital improvement projects, there are some industry-wide shortages of OEM resources, but pent-up sources of labor surface relatively quickly to fill the gap. Workers who previously were employed in other industries seize the opportunity to retrain, and fast-track certificate and degree programs pop up overnight to meet demand.

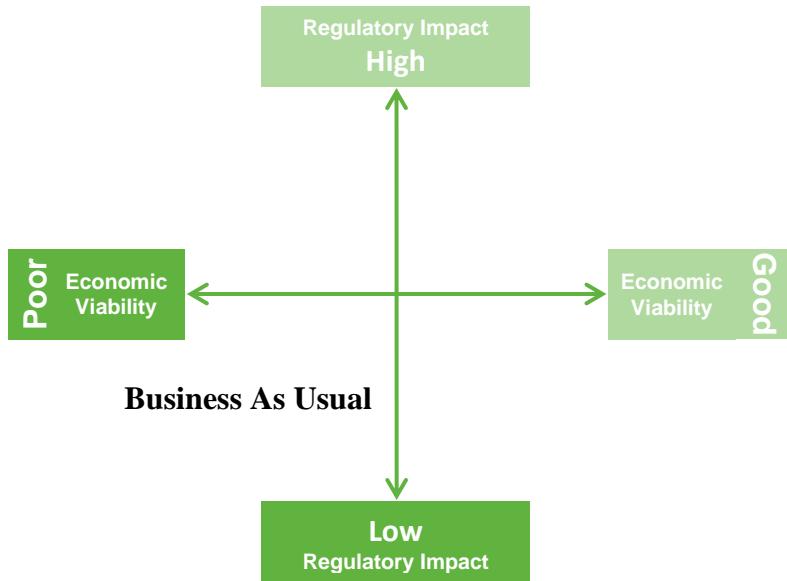
Internal Signposts

- *Product sales increase*
- *Good quarterly earnings reports*
- *Positive management attitude*
- *Some aspects of plan already underway*

External Signposts

- *Election results favor the progressive/liberal/pro-regulation side of the ticket*





This world is characterized by an economy that continues to flounder, political quagmire that essentially paralyzes the impact of new air pollution control regulations, and a major, unexpected event with long-lasting consequences.

By late 2011, the current round of MACT regulation reform is mostly complete. A slew of litigation means that these new rules have little real, immediate impact on plant operations. Environmental activists continue fighting for even stricter regulations, while utilities and state governments tie things up in court, arguing that funding and technology needed to comply are simply not available.

In the political arena, municipal utilities experience an especially high level of quagmire resulting from in-fighting between stressed out, cash-strapped plant managers dealing with high waste disposal costs, government officials fighting for more robust pollution control, and a public that's gun-shy of anything even remotely related to tax increases. Virtually all proposed bond issues die a slow and painful death.

During this period, many older units are mothballed because utilities can't get approval for repairs, or the cost of New Source Review would make upgrade projects economically non-viable. In a more robust economy, this might have proven an incentive to build new plants, but that's not the reality. The reality is: low demand for power, non-competitive market pricing for electricity and industrial products, dearth of public financial support for capital projects, lack of physical space for installation equipment, and high cost or unavailability of fuel.

Through late 2011 and into early 2012, the consensus is that MACT rules are unenforceable due to lack of necessary state government and EPA manpower. As a result, the EPA loses some of its credibility.

During the first half of 2012, despite all the legal battles, utilities and industrial plants begin to consider the best strategies for MACT compliance. Then, mid-way through the year, a major terrorist attack on domestic soil sends the country into a tailspin. This event, and the struggling economy, has a significant impact on outcomes of the 2012 election: pro-business, Republican hawks sweep all three branches of government in a landslide. Following this, the compliance deadlines for MACT rules are significantly extended and further changes are put on hold indefinitely.

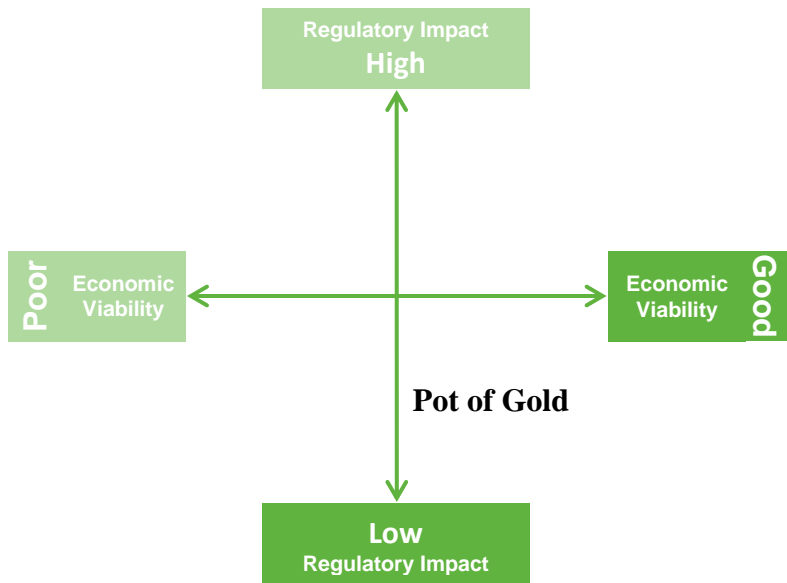
Internal Signposts

- Most units are able to meet demand
- Labor contracts are stable
- Industry workforce continues to age
- Decisions focus on retaining stockholder value

External Signposts

- Significant amount of litigation in response to regulation
- Election results favor conservatives, pro-business side of the ticket
- Rise in global fuel prices
- Few changes to regulations (stable)
- Stable or falling prices for electricity/products





In this world, final versions of MACT rules are in place by late 2011, and around the same time the economy begins to bounce back. The 2012 election is a very close one, with moderate Democrats just barely inching out ahead of Republicans in overall results.

Generally, there's an optimistic mood in the air as utilities and industrial plants ramp up their plans for complying with the new regulations. Robust demand for electricity and products drives profits, and many facilities start looking very long-range at building new units even if it means being subject to new source review, as well as exploring options for carbon capture.

For the most part, this gung-ho attitude on the part of the industry seems to appease special interest and environmental groups, which start to ease off the political pressure for quickly pushing through more regulation. This gives both "sides" some breathing room to back off from extreme rhetoric and find ways to compromise on the goals everyone shares: producing power and goods more efficiently, with less environmental impact.

There's an especially high level of interest in making investments that will increase unit reliability and efficiency. Initial rounds of baseline testing uncover the most promising possibilities to explore, allowing many facilities to achieve MACT compliance with relative ease.

Relatively low, stable fuel prices help plants justify reinvesting profits into improving existing equipment and building new facilities. There is also a surge in employee training programs designed to ensure that everyone working in the industry understands how systems fit together holistically and how this knowledge can be used to build a better future for everyone. To be sure, in some organizations the "gold" is taken purely as profits in the form of pay raises and bonuses for those in power, but for the most part this is frowned upon as bad form.

Internal Signposts

- Increased capacity and/or load
- More outsourcing of work to contractors
- Plant expansions
- Increasing plant employee overtime

External Signposts

- Moderate political climate
- Customers expand their businesses
- Industry public relations campaigns based on science
- Heavy media focus on improvement efforts
- Little or no litigation
- Increase in housing starts
- Favorable tax policies
- Positive media focus

