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Which Way to Value?

The U.S. Power and Utility Sector 2005-2010

A Deloitte Research Energy Study

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About Deloitte Research

Deloitte Research, a part of Deloitte Services LP, identifies, analyzes, and explains the major issues driving today's business dynamics and shaping tomorrow's global marketplace. From provocative points of view about strategy and organizational change to straight talk about economics, regulation and technology, Deloitte Research delivers innovative, practical insights companies can use to improve their bottom-line performance. Operating through a network of dedicated research professionals, senior consulting practitioners of the various member firms of Deloitte Touche Tohmatsu, academics and technology specialists, Deloitte Research exhibits deep industry knowledge, functional understanding, and commitment to thought leadership. In boardrooms and business journals, Deloitte Research is known for bringing new perspective to real-world concerns.

Executive Summary

Power and utility executives tend to share certain assumptions about what will drive value creation over the next five years. Are they right about how the business environment will evolve, or are their views a case of conventional wisdom that turns out to have it all wrong? Our research suggests minority views on what lies ahead are too well-founded to ignore, and ought to be factored into the strategic thinking of executives heading companies in this sector.

Using as a starting point the findings from a late-2004 survey conducted by GF Energy, Deloitte Research studied the challenges U.S. power and utility companies will face between 2005 and 2010 by interviewing senior industry executives.

We also interviewed a variety of people with other perspectives on the issues, including regulators, investment bankers, environmentalists, and consumer advocates.

Among executives, we found the same majority view that the GF Energy survey revealed, namely that the business environment of the next five years will not deviate significantly from the trends that prevail today. However, there are minority views as well, and our research suggests they deserve more attention than they currently receive. Executives ought to be asking themselves what would happen to their company if one of the minority views turns out to be right, and adjust their strategy accordingly.

In short, companies with strategies keyed to the majority view regarding the challenges of the next five years may be preparing for the wrong future.

The majority view is what we have called the "Continuity" scenario. With some regional variations, most U.S. industry leaders expect the next five years to bring moderate demand growth, no major new government edicts in areas such as environmental protection, little new restructuring, favorable rate case outcomes, and capital markets that like the stable returns available from companies embracing the "back to basics" model.

The Continuity scenario is not unreasonable. The assumptions that underlie it are corroborated to one degree or another by many projections and analyses from sources outside the industry.

But according to some executives and others we interviewed, the next five years could unfold in ways that differ from many companies' strategic assumptions. It's possible power and utility companies could find themselves caught in a more turbulent business, with new risks affecting the availability and social acceptability of the fuels they use, the demand for the products they sell, the prices they charge their customers, and the returns they're able to offer investors.

Some think the next five years will be more like what we characterize as a "Tough Times" scenario, with a troubled economy, steeply higher fuel costs, stringent environmental restrictions, and unsympathetic regulators.

Others foresee a scenario we call "Rising Expectations" – a return of strong economic conditions, with capital markets wanting levels of growth that are hard for power and utility companies to attain.

These three scenarios are designed to capture the highlights of the different ideas that emerged from our research. Managements and boards should develop their own, more detailed scenarios, and use them to revisit and revise their companies' strategies to take into account the specific circumstances of their own organizations and geographic regions. In doing so, it is vital to incorporate a broad range of possible future developments – including some that run counter to today's conventional wisdom.

In this report we discuss not only the divergent views of what may transpire between now and the end of the decade, but also how power and utility companies can adapt their strategies to address different business conditions. Focusing on asset management and M&A, we envision the following approaches for each of the scenarios:

- **Continuity.** Companies would initiate M&A transactions where they see opportunities to eliminate redundancies and achieve other operating efficiencies. Also, as they exhaust opportunities to cut costs, they would need to shift more attention to asset optimization, and doing that effectively would require more attention to intangible as well as tangible assets, and better integration of asset-related functions, processes, and systems across organizational boundaries.
- **Tough Times.** Asset optimization would be imperative given that in this scenario companies will need to maximize the profitability of their assets despite a down economy, and master complex trade-offs involving fuel costs, emission restrictions, and rate regulation. The focus of M&A transactions would be to enable companies to change their fuel portfolios, the territories they serve, and where they play in the value chain.
- **Rising Expectations.** Asset optimization would be important in this scenario because improving operating margins wouldn't move the meter enough to meet investors' growth demands. The object of M&A would be boosting revenue by adding new markets, customers, and products. In cases where this entailed the addition of assets different from the company's norm, there would be special challenges in managing them and existing assets in an integrated fashion. Only with a new level of coordination and collaboration would assets be consistently utilized to take advantage of new opportunities.

These are the outlines of strategy for each scenario, but the problem is that no one can say with confidence which scenario best approximates how the next five years will look. Power and utility executives thus face a dilemma in setting strategy. If they concentrate on one of the three scenarios they run the risk of betting on the wrong future. If they count on inventing a new strategy if conditions change, they face the reality that rapid re-positioning is hard in a business based on large, costly assets such as power plants, transmission wires, and gas pipelines.

To resolve the strategy dilemma, we recommend that power and utility companies make some degree of preparation for each of the three scenarios, using contingent investments that give them the ability to increase their stake in those that turn out to be well-suited to the conditions that materialize, while reducing or abandoning their stake in those that represent bets on futures that don't arrive. To the extent this entails extra expense, it can be viewed as the price of an option that is worth the additional flexibility it confers.

In summary, the route to value may lie along the path favored by the majority, but that is not certain. Executives should ask what would happen if actual events over the next five years resemble one of the minority views. Companies and their stakeholders will be best served if executives carefully and systematically identify strategic risks and then manage them effectively. It wouldn't be the first time the conventional wisdom has been proven wrong, and our research establishes that the minority views do in fact have credibility.

Two comments from industry executives capture the importance of having a strategy that addresses multiple futures:

> We've always judged the future by the present. It's always a dumb mistake. You think you know what the next 10 years are going to be like. You extrapolate. We're all so conventional. So often it doesn't work out the way you expect.

> Financial markets can change, and the response of investors to those changes can occur very quickly. More importantly, those things change more quickly than we can change the strategy of a corporation. If you try to run a large corporation in accord with what investors want today, you will be hopelessly out of step.

Introduction

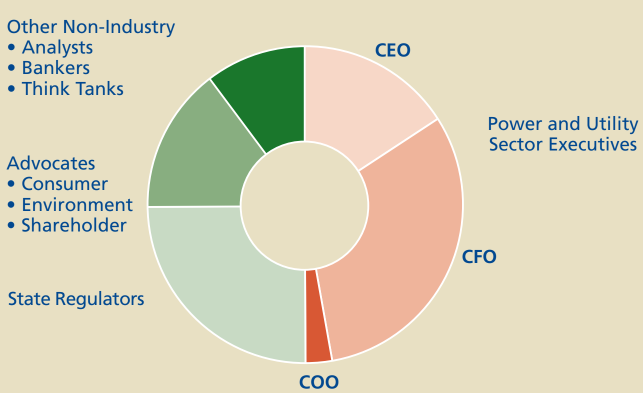
This report builds on a late-2004 survey of power and utility executives conducted by GF Energy. In early 2005 we augmented the GF Energy findings by conducting additional interviews with industry executives, and then spoke with people outside the sector to determine what they see as key factors affecting value creation options between now and 2010.

The GF Energy survey was sponsored by the Edison Electric Institute, the Large Public Power Council, and the Association of Large Distribution Cooperatives. Over 80 executives in the power and utility sector participated. The results were published in January 2005 as *GF Energy 2005 Electricity Outlook: Striving for Certainty in a World of Change*.

With approval from GF Energy, Deloitte Research conducted a study that used the earlier survey findings as a point of departure. The objectives were to probe the perceptions of U.S. power and utility executives, and to provide additional perspective by seeking viewpoints from outside the sector. The focus was on factors affecting value creation between now and 2010.

Obtaining different points of view is important in the process of assembling an assessment of what might occur between now and the end of the decade. We interviewed 20 CEOs, CFOs, and COOs of 17 investor-owned power and utility companies. Interviews were also conducted with another 20 people with relevant expertise and insights, including state regulators, investment bankers, industry analysts, environmentalists, and consumer advocates. The breakdown is shown in Exhibit 1.

Exhibit 1. Deloitte Research Interviews



The group of executives we interviewed included a good cross-section of the larger companies in the sector. Included were executives from companies with different fuel portfolios, operating in different segments of the business, and serving territories in different parts of the country. The non-industry interviewees likewise provided different perspectives. For instance, the state regulators we interviewed were from both large and small states, and from different parts of the country.

We found that responses differed by region more on some topics (market regulation, fuels, environment) than on others (M&A, national energy policy). Because our aim is to provide overall observations, we have not focused on regional variations in the report. However, this should not be interpreted as suggesting that there are uniform patterns of circumstances and perceptions across the U.S., or that regional variations don't need to be addressed when developing corporate strategies.

In the report that follows we have devoted a section to each of eight factors that will influence the business environment of 2005-2010: national energy policy, market regulation, mergers and acquisitions, energy demand, environmental protection, the viability of different fuels, infrastructure reliability and security, and capital availability. The review of our findings on these topics is then followed by a discussion of the contrasting scenarios for 2005-2010 implied by the divergent expectations we discovered, and an examination of the strategic implications for power and utility companies.

In the main body of the report we highlight representative quotes from the interviews. The appendix contains a fuller set of excerpts from our research. To promote candor we promised the interviewees anonymity. All quotations from the interviews have been reviewed and approved by those who are quoted.

National Energy Policy

Government affects the strategic options available to U.S. power and utility companies in many ways. Government policies impact the price of natural gas and coal, the siting of new facilities, the rate of return on assets, and the direction of R&D. Policies are imperfectly coordinated, or even work at cross-purposes. Will Congress establish a new framework that brings into alignment the many strands of government policy, or saddle the sector with ill-conceived ideas? Or will complex and contentious issues continue to defy resolution through 2010?

GF Energy Survey Results

About 70% of the respondents said federal energy legislation is more likely as a result of the 2004 presidential election, but only 54% said such legislation will pass in 2005.

Deloitte Research Findings

Interviews with Power and Utility Executives

In the interviews we conducted there was widespread dismay over the lack of coherence in government policy.

> Over 50% of the bill that a natural gas utility renders to a retail customer consists of the natural gas cost, on which we don't make a profit. We have the great pleasure of presenting an unpleasant bill to a customer who doesn't want to understand it. So we have a vested interest in having some rationality injected into all of this.
>
> – Power/utility CEO

> We don't have enough natural gas to shift over to gas-fired generation. They won't let us build nuclear plants for energy to create hydrogen. There's a circle here that no one can close, let alone a CEO who's trying to run a business.
>
> – Power/utility CEO

We also noted concerns about the lack of a clear energy policy jeopardizing the nation's international competitiveness and national security.

> Cheap energy is going to be history. It's going to be interesting to see how we reposition our economy with more expensive energy. Resource-rich countries like Canada are going to start using their resources as a differentiator.
>
> – Power/utility CFO

> If you look at the forecasts going forward for energy supply in this country, our imports are going to rise over the next 10 years, substantially. From a security standpoint it puts this country at great risk.
>
> – Power/utility CEO

The energy legislation currently before Congress was not seen as offering significant new policy guidance.

> The current legislation doesn't affect the energy world, or at least the electricity world, all that much.
>
> – Power/utility CFO

We did not find much expectation that bold new ideas will be forthcoming to fill the void.

> I just don't think we're facing up to it as a country. We're ignoring it.
>
> –Power/utility CEO

And the history of intergovernmental relations was said to militate against federal policies affecting traditionally state-regulated subject matter.

> We're not going to have comprehensive national policies on the regulation of utilities. The locus of this is going to stay at the public utilities commissions. We have too long a tradition of federalism and state regulation of this area for that to be changed under either a Republican or a Democratic administration.
>
> – Power/utility CFO

Perspective from Outside the Sector

We found some optimism regarding national energy policy.

> The energy legislation is very important. It addresses a number of key issues – grid reliability, investment in transmission, incentives for nuclear power. It gets us off reliance on natural gas. There's broad support for energy legislation. It's a topic that always comes up when Senators and Representatives meet with constituents.
>
> – Private equity fund partner

Executives' concerns about a lack of comprehensive national policies to deal with energy-related problems are widely shared, though.

> We should have a national energy policy. It's kind of stupid that we don't. We're the biggest power in the world, and we have a hodgepodge of nothing.
>
> – Investment banker

The December 2004 report of the National Commission on Energy Policy begins with a recitation of issues and challenges that call for action. The commission report decries the "stalemate in views that has too long resulted either in outright gridlock or in a piecemeal, special interest driven approach to energy policy" and asserts that "These outcomes are no longer acceptable." In addition to energy executives, the commission included representatives of environmental and consumer groups, large industrial energy users, state government, and unions.

The International Energy Agency lends some credence to concerns about energy security in its *World Energy Outlook 2004.* As noted, that report calls attention to the risks inherent in increasing reliance on energy imported from politically-unstable regions and vulnerable to piracy, terrorist attack, and accidents.

Our interviews outside the power and utility sector indicated power and utility executives are not alone in their skepticism about the odds of decisive and meaningful federal action on strategic energy issues.

> If we fail to get a bill in 2005, I'm not sure how we get one done. The problem is that within the arena of energy we've got geographic and partisan splits that are making it harder, not easier, to get a bill done. We have a bunch of these extraordinarily bipolar issues – no, yes, and there's nothing in between.
>
> – Investment analyst

It is worth noting that some free-market proponents argue that having a national energy policy isn't necessarily a good thing. For example, in an April 2005 *Wall Street Journal* column, two writers from the libertarian Cato Institute said, "the belief that government can intelligently pick winners in energy markets or promote conservation in an economically reasonable manner is belied by an avalanche of real-world evidence."

Summary of Findings on National Energy Policy

Although a small majority of the respondents to the GF Energy survey said they thought the 2004 election results mean a greater likelihood of Congressional action on comprehensive energy legislation in 2005, none of the executives who discussed this topic with us is very hopeful that government policy on energy will come into focus, even over five years. Either they doubt legislation will pass, or downplay the significance of what might gain approval. Most of those we interviewed outside the sector have similar views. If no over-arching energy policy is put into place it would tend to deprive power and utility companies of certainty on matters relating to fuel and infrastructure strategy.

Market Regulation

Restructuring had momentum in the 1990s, but the bandwagon stopped after disasters involving California and Enron. These debacles only stiffened resistance in some regions to FERC's attempts to establish RTOs and a standard wholesale market design. Uncertainties about market regulation shadow value creation. Will restructuring be rolling again by 2010, or still stalled? In states that haven't restructured, how will regulators react to companies' requests to add new assets to their rate base and raise their rates – keeping in mind that most commissions and companies have had little experience with rate cases in the past two decades?

GF Energy Survey Results

The respondents voted regulatory certainty the issue most important to their company in 2005. When asked if the industry will be more or less regulated over the next three years the respondents were split – 42% said more, 42% said less. A large majority expect to see a resurgence of competition in *some* states, but only 11% anticipate more competition in *many* states.

With respect to how companies operating in states that have not restructured will fare, over 80% of the respondents said they expect to see more assets in the rate base. When asked to nominate top engines of financial growth over the next three years, new rate-based generation got the highest proportion of first mentions (52%) while merchant generation got the lowest (2%). And about two-thirds said state regulators will approve "significant" electricity price increases.

Deloitte Research Findings

Interviews with Power and Utility Executives

Regulatory Certainty

The desire for regulatory certainty that emerged as a priority in the GF Energy survey surfaced in our interviews as well. This reflects both the failure of the FERC to promulgate a comprehensive rule for transmission services and wholesale power markets (the stalled Standard Market Design proposal) and the pressure in many states for increases in basic rates.

> We have two regimes that are peacefully coexisting, and that cannot be sustained. Some states are letting companies do things that set the clock back. In others competition is thriving and evolving.
>
> – Power/utility CFO

However, we also found a prevailing expectation that things at the state level will continue as they are, with no pronounced swing toward more or less competition. Some states may move this way or that, but no major tilting of the scales will result.

> In general, I anticipate a continuation of the status quo. I see the checkerboard, to a large extent, surviving.
>
> – Power/utility CFO

Some of those with whom we spoke were cautiously optimistic about the prospects for further restructuring, typically with respect to the wholesale level or for commercial and industrial customers rather than for households.

> States are going to need power over time. There will come a time when there'll be an outcry – some of it from the regulated utilities – saying we can't build all this new generation, and I think you'll get another thrust for a diversity of owners and competition to keep prices reasonable.
>
> – Power/utility CFO

Others thought that higher fuel prices, and particularly gyrations in natural gas prices, would promote government intervention.

> Although we like to think of electricity as a commodity, the powers that be are only letting us pretend it's a commodity as long as the markets behave. When things get terribly out of whack there will be political pressure. The pressure will take the form of jaw-boning – so the market cures its excesses and moderates and volatility goes away – or re-regulation sets in.
>
> – Power/utility CFO

Rate Cases and Cost Recovery

What will life be like for companies choosing the "back to basics" strategy and relying on regulators for reasonable orders? In our interviews, many executives said they believe regulatory commissions will be sympathetic, or that in any event regulatory issues will manageable. This echoes the majority view from the GF Energy survey.

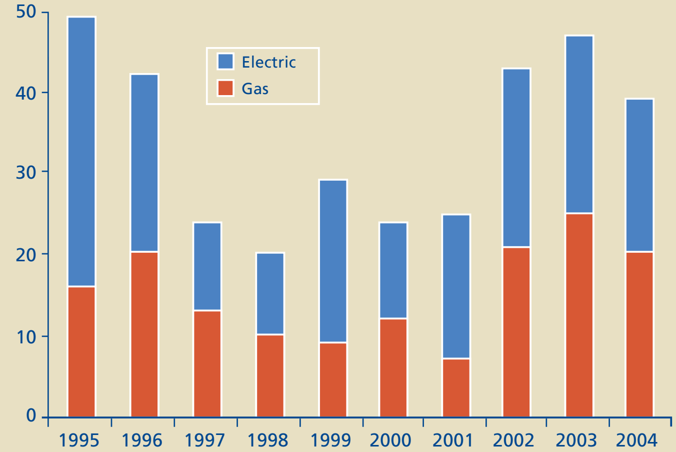
> I don't worry too much about risks on the regulatory side. We always get to where we have to be. Sometimes it's way too hard, but we get there.
>
> – Power/utility COO

Not so, claim others. They see rising fuel costs as creating political pressure that will evoke adverse reactions from regulators and government policymakers.

> We're coming towards a head-on collision. The regulators are saying, "We know your fuel costs are going up, and we understand that part of the bill's going to have to go up. But a distribution increase?" What I'm worried about is that you'll see a lot of utilities like ourselves take one on the chin.
>
> – Power/utility CFO

> All the law requires is that regulators identify a reasonable range for the rate of return. They can get you two ways: they can set a low range, and they can put you at the low end of a range. And they'll be upheld in court.
>
> – Power/utility CEO

Exhibit 2. Number of Utility Rate Cases Before State Utility Commissions, 1995-2004



Source: Regulatory Research Associates

One executive questioned the benefits for value creation in the regulated setting even if regulators are cooperative, in cases where assets being added to the rate base don't improve financial performance.

> I heard someone say the other day, a business model that has as its foundation increasing the cost of its product is a suspect business model. I don't think we want to adopt that as our model. We want to be leaning towards efficiencies.
>
> – Power/utility CFO

Perspective from Outside the Sector

Regulatory Certainty

Some of those we interviewed outside the sector see not stalemate but a situation in which restructuring is losing ground.

> The trend to follow is at the state level, where a large number of states are moving to re-regulate or abandon their deregulation plans. There's a growing consensus even among conservative organizations that deregulation should end. It's a failed experiment.
>
> – Consumer group staff member

There is disappointment in the pro-market camp and concern about the outlook. Two analysts with the libertarian Cato Institute in Washington, D.C. wrote in a 2004 article entitled "Rethinking Electricity Restructuring" that, whatever the theoretical merits of restructuring, the reforms that have been implemented are so flawed that it might be better to return to some version of the regulated, vertically-integrated model.

However, the executives who doubt there will be any significant change are by no means alone in that view. Some of those we interviewed outside the sector have the same expectation. And there was some support for the idea that while policy remains frozen one approach or the other will empirically demonstrate its superiority – although that was seen as taking more than five years.

> You won't see change. We've got détente. Frankly, I think that's OK with many of the market participants. And I think it's OK with FERC. They're saying, "You don't want to play? Fine. We're going to build a better mousetrap up here [PJM, New York, New England] and one fine day you're going to turn around and realize you've been skunked on a performance basis."
>
> – Investment analyst

Regulators in the south and Pacific northwest certainly gave no indication they are dropping their objections to FERC's wholesale regulatory policies.

> I don't think FERC ought to make it difficult for those of us who are required to administer statutes that assume vertical integration. Our general assembly has looked at the issue of restructuring and decided that at least for the time being they don't want any part of it. The thrust of FERC's decisions is that vertical integration is a bad thing. That's a fairly irreconcilable conflict.
>
> – PUC commissioner

Potentially complicating the debate, FERC's policies have also come under fire from large industrial electricity users, public power entities, and others who criticize the restructured wholesale markets RTOs administer as benefiting suppliers at the expense of consumers.

> Consumers are never as organized as producers are. This is just normal. Producers want to protect what they produce, in this case electricity. Consumers have a whole lot of things on their plate, of which electricity is only one. But the opposition is starting to grow. Those that are paying for this thing are beginning to wake up and say, "enough's enough."
>
> – Industrial user association CEO

Nevertheless, the pro-market camp is hardly ready to throw in the towel.

> I think it's an entirely plausible scenario that we'll see more states move to retail competition. It depends on factors such as the nature of the utility industry.
>
> – PUC commissioner

> I didn't foresee Schwarzenegger's rise. I didn't anticipate that the tone of debate in California would change as much as it has in such a short time. Has a whole lot happened in response to that? No, not yet. But there's the possibility of change. There's an openness that one never would have expected three years ago.
>
> – Think tank director

The Center for the Advancement of Energy Markets has launched an initiative to build new momentum behind restructuring at the federal and state levels. And some believe rising energy prices could be a catalyst that allows events to move in a direction favorable to restructuring.

Rate Cases and Cost Recovery

We found support for the proposition that state commissions will be sympathetic as power and utility companies seek recovery for new infrastructure costs.

> The states have now decided that putting scrubbers and other pollution-control equipment into rate base is a good thing. They're in the process of allowing this to occur. The companies see putting a couple of billion dollars worth of pollution control equipment into their rate base as a real boon to their earnings growth. The stars are aligned.
>
> – Investment banker

Some regulators we spoke with confirmed that they are receptive to rate increase requests.

> In this state, in our region, and at NARUC we're studying new recovery mechanisms for electric and gas utilities. The traditional rate case is becoming less important because we're allowing more pass-throughs and up-front investment recoups.
>
> – PUC commissioner

> If you take a few steps back, the cost of energy today is still cheaper than it was 25 years ago, and we saw consumption continue to grow and we saw uses continue to expand. We are not yet at the breakpoint where we say, "We cannot afford these prices."
>
> – PUC commissioner

As with M&A reviews, some regulators defend the integrity of the approach they use in deciding questions about cost recovery.

> We're not a law unto ourselves. The truth of the matter is that we're governed by statutes that pretty clearly tell us what rate-setting methodology we've got to use. And there's a fair amount of case law on how to set a rate of return. If the costs go up there isn't much question about what's going to happen to the rates. The public wouldn't stand for deteriorating service quality due to utilities being improperly starved by regulators.
>
> – PUC commissioner

However, there was some confirmation of the concern some executives mentioned with respect to rate cases.

> We're political appointees. Even with the best case they can put on, commissions and governors' offices are going to be rather nervous about letting utilities fully recover because of the real concern about what electricity prices are going to be. I think that in the next couple of years this is going to be the biggest challenge we face – how do we design a competitive marketplace, while at the same time trying to shield ratepayers from rate shock? That's being debated right now in the General Assembly.
>
> – PUC commissioner

Summary of Findings on Market Regulation

The GF Energy survey showed executives split on the question of what will happen with respect to restructuring over the next several years, while tending to be optimistic about the prospects for companies whose rates are regulated. We found some divergence on the outlook for restructuring, but not much – none of the executives we interviewed expect any substantial departure from the status quo within the space of five years. A few executives and interviewees outside the sector do foresee limited gains for pro-market policies. We found much more difference when it came to the treatment companies will experience from regulators. Most of the executives and regulators with whom we spoke support the optimistic view, but other executives, as well as some interviewees from outside the sector, believe regulators will become increasingly concerned about the impact of rising prices on ratepayers and thus will resist requests to add assets to the rate base and to raise rates.

Mergers and Acquisitions

A rash of mergers is widely predicted, and several large transactions are pending. M&A could be a route to value creation, but among the risks are unknowns about the government approval process at both the federal and state levels. Will gaining government authorization be arduous and time-consuming, or will the criteria and conditions wielded by regulators prove manageable? How much of a role will the 1935 Public Utility Holding Company Act (PUHCA) play – or will it finally be repealed? Will antitrust law become more of a concern?

GF Energy Survey Results

When asked about mergers, respondents to the GF Energy survey indicated they see M&A activity coming, but don't think their company will be involved, at least in 2005. About two-thirds expect an increase in attempted and successful mergers, and they ranked mergers second out of eight choices as a top engine of financial growth over the next three years. Cost reduction came third, which could indicate the respondents see that as an extension of M&A. But, when asked about issues important to their company this year, respondents ranked M&A at the bottom – 13 out of 13.

Deloitte Research Findings

Interviews with Power and Utility Executives

Among the executives we interviewed were some who think mergers will be significant over the next five years, and we heard arguments to the effect that combinations can lead to earnings growth and promote beneficial R&D.

> We'd be interested in acquiring companies within our footprint where we think we achieve synergies. A willing buyer and a willing seller.
>
> – Power/utility CEO

> There are some efficiencies you can get with mergers, if they're managed well. If you're able to achieve those, they result in shareholder value over time. I do think there will be some mergers where it's the only way to get more than 2% growth.
>
> – Power/utility COO

Some of those we interviewed don't see PUHCA repeal as a big factor in determining whether there's an M&A wave.

But many of those we consulted were skeptical that regulators will approve major combinations, or will do so only in exchange for applying a big share of the savings to keeping customer rates down, thereby robbing deals of their economic justification.

> I don't see us going back to the '98-'99 timeframe when every time you picked up a paper there was another merger taking place. In that period the premiums that got paid were not passed through to consumers. Regulators now want those benefits to go back to the customers.
>
> – Power/utility CFO

However, there is also the view that regulatory resistance may be sought by a company that doesn't want to get bought.

> You always have the regulator card. If you really don't want it to happen, the regulators will kill it for you.
>
> – Power/utility CFO

Some executives think M&A activity will mainly involve mergers of equals, although there was also skepticism as to the benefits that might result.

> There's not enough differentiation between PE multiples in utilities, where one can afford to buy another one. So mergers of equals is what it would be, and they don't work because nobody can make the tough decisions.
>
> – Power/utility CEO

Others think transactions will mainly entail stronger companies taking over weaker ones.

> I see more mergers where there's a strong partner helping a weaker partner than mergers of equals where you just take two companies and put them together and grow.
>
> – Power/utility CFO

It's worth noting that James Rogers, Cinergy's Chairman, President, and CEO told a gathering sponsored by Ceres that his company's proposed merger with Duke is partly attributable to environmental strategy. Gaining access to Duke's gas-fired plants, he said, will make it easier to retire Cinergy's coal plants sooner.

Some executives think M&A activity will have minimal impact, either because it will be limited to special cases, or will produce few tangible results.

> A lot of mergers would make business sense if shareholders would be patient enough for the returns to come their way. But more often than not shareholders want their cake now.
>
> – Power/utility CFO

A few were emphatic that M&A is not in the cards for their organization.

> We don't have any great interest in utility M&A. You can disrupt your organization and other initiatives you're pursuing in exchange for paying an acquisition premium that you're unlikely to recover, all for the privilege of just getting bigger. Growth should be profitable.
>
> – Power/utility CFO

Perspective from Outside the Sector

Reports of an impending wave of utility mergers are building. A June 2005 *Wall Street Journal* article says there is interest in M&A not only among utilities but also on the part of non-utility companies that want to enter the sector – including financial players, oil companies, investment banks, and private investors. The article notes that state regulators could be an obstacle but focuses on PUHCA as a key policy issue.

The merger wave prospect was supported by a variety of people with whom we spoke outside the sector. Some were more positive than others about the implications.

> We're seeing the merger trend kick in again. They're going to mesh together and form mega-utilities, which makes a lot of sense. The bigger the company the better off the regulators are, because the costs at the top are spread around so there's less on the ratepayers in any one state.
>
> – Investment banker

> No matter how well consumers of various stripes organize themselves to fight for better markets, what is going to be very challenging is fighting the consolidation in the industry. In Europe, in the U.K., in the U.S., the traditional utilities are getting bigger. They're becoming so big that they dominate the local markets.
>
> – Industrial user association technical director

The view was also expressed that M&A transactions might include deals involving investor-owned utilities and public power entities.

> The organic growth in most service territories is extraordinarily modest. The path to growth is then acquisitions. It doesn't have to be IOUs by IOUs. The other thing that gets kicked around is making deals for munis and co-ops.
>
> – Investment analyst

As for the charge that state commissions may suppress deals by claiming benefits for ratepayers, some of the regulators we interviewed were unapologetic about the approach they take to reviewing proposed combinations.

> Everybody wants to say, "That's those parochial regulators, worrying about their own state boundaries." But I think there is a genuine concern that as entities get bigger and bigger, and as they become more concerned about what happens in Washington than they are about what happens in state capitals, that it may make it very hard to get them to be responsive on things like service quality. That's a legitimate concern.
>
> – PUC commissioner

Summary of Findings on M&A

In the GF Energy survey, respondents agreed that M&A will be a growth driver while ranking M&A low as a priority for their company. Our interviews produced a similar result in that many executives were less than definite about their own organization's intentions. The dominant view is that there will be a moderate number of combinations built around the specific needs and aspirations of individual companies. However, many executives are less worried about PUHCA than about the price regulators may extract for their approval, and our interviews with regulators suggest it will not be easy to make the case for the benefits to be gained from particular deals. Nevertheless, some financial players and consumer advocates foresee a much more sweeping consolidation, which they regard with varying degrees of enthusiasm.

Energy Demand

A key question regarding value creation is what level of demand U.S. power and utility companies will need to meet between now and 2010. The nation's economy has pulled out of the early-decade downturn, but so far energy demand has lagged the recovery. Will the economy continue to expand, increasing the nation's energy consumption, or will some combination of factors cause a slowdown? How much of an effect will high fuel prices have? Will efforts to improve energy efficiency make a difference?

GF Energy Survey Results

When asked about the rate of growth in end-user electricity demand over the next five years, about 42% of the executives participating in the GF survey said the same as the current rate and 42% said faster. About 16% said it will be slower.

Deloitte Research Findings

Interviews with Power and Utility Executives

Generally the power and utility company executives we interviewed reflected the optimism about future demand that was registered in the GF Energy survey. Most anticipate demand rising along with an expanding economy.

> We see growth at 2-2.2% for the foreseeable future.
>
> – Power/utility CFO

> Technology keeps evolving, and technology uses electricity. Companies will continue to grow, and the economy will continue to support electricity usage.
>
> – Power/utility CFO

Additionally, some executives discount the significance of government efforts to increase energy efficiency and thereby restrain demand growth.

> Commissions are setting energy efficiency goals and standards, but it's not that limiting on the overall growth and demand that we're going to have to build for.
>
> – Power/utility CFO

However, we also spoke with executives who fear that conditions could be less robust due to an economic slowdown and/or that demand could be curtailed by investment in energy-saving technology.

> The thing that worries me is an energy crisis that really whacks the economy. That's a distinct possibility. I wish I could rule it out.
>
> – Power/utility COO

> Offsetting economic growth will be conservation due to the high energy prices. Every house that's built today is more energy-efficient than 10 years ago.
>
> – Power/utility CFO

Perspective from Outside the Sector

The assumptions about energy demand and economic growth held by the majority of executives command support outside the sector.

For example, the U.S. Energy Information Administration projects electricity demand growth at 2.4% over the next four years. The International Energy Agency's *World Energy Outlook 2004* report shows North American electricity demand growing 2% annually between 2002 and 2010.

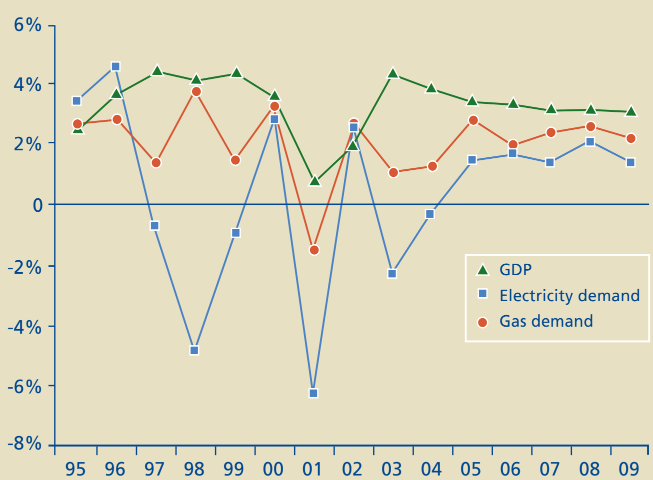
An organization representing large industrial electricity users anticipates a continuation of existing demand trends.

> I've seen nothing except projections that electricity demand is going to continue to grow at the same pace that it's been growing. There are more uses for electricity every time you turn around.
>
> – Industrial user association CEO

Some economic forecasts are consistent with the majority view, showing steady growth on the horizon. The 2005 Economic Report of the President states that "The United States is enjoying a robust economic expansion" and projects that "GDP will expand strongly through 2010, inflation will remain contained, and labor markets will continue to strengthen." Specifically, the White House sees economic growth averaging 3.2% over the next five years, albeit with a decline from 3.4% in 2006 to 3.1% by 2010.

Nevertheless, we did find support for more dismal scenarios for the U.S. economy, which could bring about lower energy demand than foreseen by many power and utility executives. During the first half of 2005 some economists and public policy commentators began warning about slowing growth and the possibility of stagnation coupled with inflation (stagflation).

Exhibit 3. Electricity and Natural Gas Demand Compared to GDP, 1995-2010
U.S. Government Data and Projections



Source: Council of Economic Advisors, U.S. Energy Information Administration

Federal Reserve Chairman Alan Greenspan told a congressional committee in April 2005 he worries about the economic implications of the swelling federal budget and in particular the spending demands that will grow as baby boomers begin retiring towards the end of the decade.

One of Mr. Greenspan's predecessors, Paul Volcker, sounded alarms about the economic outlook in an April 2005 *Washington Post* column entitled "An Economy on Thin Ice." He cites a variety of deficits, imbalances, and risks (federal spending and borrowing, dollar value, household and business savings rates, home prices) as "disturbing trends" that are "as dangerous and intractable as any I can remember." Mr. Volcker fears policy makers will take remedial action only once the economy is in crisis, perhaps like the stagflation of the 1970s. "As things stand," he opines, "it is more likely than not that it will be financial crises rather than policy foresight that will force the change."

Similar sentiments appear in the 2004 book *Running on Empty*, written by Peter Peterson. Peterson is currently chairman of the Blackstone Group and the Council on Foreign Relations, and formerly was U.S. Secretary of Commerce and chairman of the New York Federal Reserve Bank. In the book he is equally critical of Republicans and Democrats for allowing federal deficits to grow in a manner he considers dangerous: "These two parties have launched America into the new century on a course of vast and mounting budget deficits which, if left unaltered, can only end in an economy-shattering crisis or crushing burdens on America's younger generations – or both."

How an economic crisis might look is depicted in the July-August 2005 issue of *The Atlantic*. National correspondent James Fallows in "Countdown to a Meltdown" lays out a scenario in which oil prices spike, the dollar's value plummets, financial markets crash, interest rates soar, mortgage foreclosures proliferate, businesses stop investing, governments slash spending, and China becomes the world's technology leader.

What about energy efficiency? In our interviews with state regulators we found support for the view that demand reductions will be achieved through government efforts. Some regulators think this will be accompanied by efforts to cushion the impact on power and utility companies.

> A properly structured program can provide very significant demand reduction benefits to customers. And it can also provide very significant operational benefits to utilities. That's a major issue that we're looking at here at the commission. There's going to be a lot of interest nationally. Utility executives are going to see if they can get regulatory approval to make investments in advanced metering infrastructure.
>
> – PUC commissioner

Some environmentalists think there are benefits associated with energy efficiency that will make it more popular as time goes on.

> We can stop the growth in greenhouse gas emissions just by increasing our investments in energy efficiency – investments that are already cost effective, save consumers and businesses money, and increase jobs.
>
> – Environmental group senior attorney

On the other hand, some economists and energy analysts question the efficacy of conservation programs. A recent book offers a novel approach to the question. It contends that market forces achieve more than government programs, yet goes on to assert that greater energy efficiency leads to more consumption rather than less.

In *The Bottomless Well,* Peter Huber of the Manhattan Institute and Mark Mills of Digital Power Capital argue that, as better energy efficiency lowers the cost of energy-using goods and services, "it makes what we ultimately consume cheaper, and lower price almost always increases consumption." According to that view, energy demand grows even if energy efficiency increases – perhaps *especially* if energy efficiency increases.

Summary of Findings on Energy Demand

Our interviews substantiated the optimism regarding demand during the period 2005-2010 that showed up in the GF Energy survey results. Additionally, we noted sources including the International Energy Agency and the White House that hold similar views about future energy consumption and economic conditions. However, we found some executives who voiced concerns about the staying power of the economic expansion, and the validity of such qualms is supported by pessimistic appraisals from well-respected economists and public policy commentators. On the question of whether demand will be reined in by efforts to promote energy efficiency, we found executives mainly skeptical, while regulators and environmentalists tend to think energy-efficiency programs will be more prominent, popular, and effective.

Environmental Protection

The U.S. Environmental Protection Agency has issued new rules designed to reduce air pollution, which allow states to participate in a federally-run cap-and-trade program. Do these rules define a durable framework for the balance of the decade, or will they be challenged and altered? What about other clean air and water initiatives? Meanwhile, debate continues over global warming. Will the federal government reverse course and impose limits on greenhouse gas emissions? Could action by states have more impact on the sector than whatever the federal government may do?

GF Energy Survey Results

The GF Energy survey findings imply most executives foresee continuing pressure but no major new mandates. When asked how much time they will spend on environmental legislation in light of the 2004 presidential election outcome, 37% said more, while another 37% said the same, and 25% said less. Nine out of 10 said they expect pressure to act on climate change in 2005. When the respondents were asked to rate the importance of 13 issues to their company in 2005, clean air and water came out eighth, and climate change ranked 11th.

Deloitte Research Findings

Interviews with Power and Utility Executives

Policy Framework

Many of those with whom we spoke believe environmental protection requirements won't change significantly between now and 2010.

> We've got our arms around what the requirements are going to be for the next five to six years.
>
> – Power/utility CFO

However, some of those we interviewed see new environmental measures as a looming concern.

> I'm very concerned that new rules and regulations that might be passed could have a significant impact on us in terms of regulatory activity. I see that as one of the main drivers in terms of rate-base additions that might send us back into the commissions which otherwise we might be able to avoid just because of normal customer growth.
>
> – Power/utility CFO

Greenhouse Gases

Global warming figured prominently in the discussions about environmental issues. Generally the executives we interviewed doubt new policies on restricting greenhouse gas emissions will materialize within five years.

> I don't think they'll do carbon in the next couple of years. I don't think there's a consensus yet that there is a problem. I don't think there's a consensus on what to do. And I'm sure there's not a consensus on how to destroy the economy in the process of doing it.
>
> – Power/utility CEO

There was a view that climate concerns will lead to policies promoting the use of alternative energy rather than emission reductions as such.

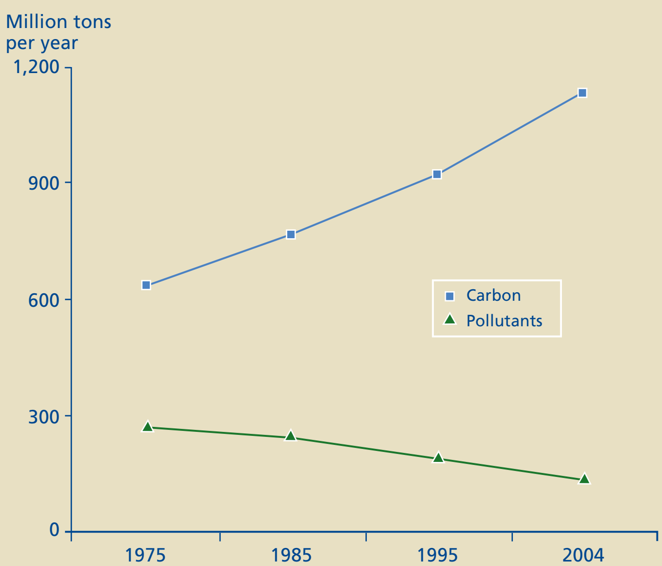
> The concerns about global warming are likely to drive the use of alternative fuels, including nuclear, as opposed to the actual control of carbon.
>
> – Public power executive

But we also found executives who see global warming policy as crystallizing rapidly. Within this group some are opposed, some are fatalistic, and some are amenable.

> Whether or not the science is accurate about the effect of CO_2 on global warming, the fact is that the public believes that. Whether the science is factual or not, public policy drives what utilities do.
>
> – Power/utility CEO

> There will be some form of carbon management in U.S. energy policy over the next few years. Our company will embrace it as most utilities will.
>
> – Power/utility CFO

Exhibit 4. Estimated U.S. Emissions of Carbon Dioxide and Pollutants Over the Past Three Decades



Notes
- Air pollutants are NO2, SO2, particulates, ozone, carbon monoxide, and lead
- Final year for carbon emissions is 2003
- Carbon emissions for 2003 and air pollutant emissions for 2004 are preliminary estimates

Sources: U.S. Energy Information Administration, U.S. Environmental Protection Agency

Trading and Voluntary Efforts

We found a general expectation that trading in emission permits will enable power and utility companies to stay within the rules even though they may have difficulty cutting their emissions rapidly due to technology gaps and cost issues.

> Cap and trade has worked well for SOx and probably will work well for mercury.
>
> – Power/utility CEO

However, there was some evidence of concern about the viability of cap and trade programs. Certain of those we interviewed think that if there's sufficient public alarm about pollution or greenhouse gases, it will be hard for a power and utility company to tell its customers it can't afford to clean up its own operations but does have enough to pay another company to reduce its emissions.

> I don't know that the cap and trade solution holds water. There's just no sympathy out there for the idea that my environment can be worse because you can buy these allowances. How does that work for my children and grandchildren?
>
> – Power/utility CFO

There were also some qualms about volunteer efforts. For example, some executives said the lack of specific policy guidance makes voluntary remedies a guessing game, and some worried that they might find that government would impose new requirements that give them no credit for action taken ahead of the mandate.

> My fear is that when you engage in voluntary programs you get no credit for what you have done. That's always my fear: "That's good, you guys have done that, but we'll start measuring [the newly-required reduction] from this point forward."
>
> – Power/utility CEO

State Activism

Some executives see activity bubbling at the state level, which if it grows could be a particular issue for companies with operations in multiple states.

> State-by-state mandates could create a patchwork. Think about the differentials between states like California and Texas, Louisiana and Vermont. You could end up with really big disparities.
>
> – Power/utility CFO

Perspective from Outside the Sector

Policy Framework

There is support for the perception of many power and utility executives that major new environmental policy initiatives are unlikely before 2010. Many books, articles, reports, and columns on environmental subjects argue that there is insufficient need for action, insufficient agreement on what more to do, and/or insufficient political support.

For example, Joel Schwartz of the conservative American Enterprise Institute in Washington, D.C., argues in his 2003 book *No Way Back* that air pollution is falling dramatically in the U.S., and that further improvements will result from the continuing implementation of existing policies on emissions from power plants, factories, and vehicles. He therefore claims that significant new pollution control measures are unnecessary.

Schwartz also criticizes greenhouse gas reduction efforts as too costly and of uncertain value. In a June 2005 paper entitled "Terminating Prosperity" he questions the science underlying arguments that global warming causes health problems and that more CO_2 in the atmosphere accelerates global warming. "Whatever harms might be caused by future human-induced climate change," he asserts, "measures to reduce greenhouse gas emissions will likely cause much greater harm."

Global warming skeptics argue the Kyoto Protocol is counterproductive and cite Europe's experience with emissions trading as proof that complying with the pact hurts economies while producing few if any benefits.

Carlo Stagnaro of the conservative Instituto Bruno Leoni in Italy says in an article posted on the Tech Central Station website that, because some EU countries are far from meeting their Kyoto goals, European companies will in coming years pay as much as 100 euros for emission allowances that cost 18 euros in May 2005. His view: "This is precisely the cost of the Kyoto Protocol, and Europeans will probably realize soon that it is a high price to pay for no environmental benefit."

The Bush administration opposes greenhouse gas restrictions. President Bush declared the U.S. wouldn't ratify the Kyoto Protocol, and in lieu of emission limits he has initiated a policy of reducing the carbon intensity of the U.S. economy through researching, developing, and deploying advanced technology.

In June 2005 the Senate refused to add a greenhouse gas control mandate to the pending energy bill. It got five fewer votes than did a similar plan in 2003.

Some of those we interviewed were skeptical about new anti-pollution and anti-carbon mandates.

> American politics is driven by how people feel in their pocketbooks, and I think energy is going to be sufficiently expensive that environmental stewardship is going to run a close second. Do we want to see cleaner air? Sure. Do we think the air is cleaner than it was 10 years ago? It is.
>
> – Investment analyst

> The Bush administration doesn't seem to be overly concerned with cooperating with international efforts to deal with global warming. I suspect it would be difficult to get legislation through Congress addressing that issue in any significant way. That leaves EPA, and I would be surprised if anything significant were done that imposed federal regulations related to climate change.
>
> – PUC commissioner

Reinforcing this perception is the dismay among environmentalists following Republican victories in the 2004 elections. An early-2005 article in *National Journal* surveyed the plight of the environmentalists under the heading "Out of the Loop." The article reported that "national environmental groups have less political clout today than they've wielded at any other time since their movement sprang up in the late 1960s."

Of special significance in this regard is a fall 2004 manifesto by two leading activists entitled "The Death of Environmentalism," which asserts that the movement has run out of steam. The authors contend that, "Over the last 15 years environmental foundations and organizations have invested hundreds of millions of dollars into combating global warming. We have strikingly little to show for it."

But not everyone we interviewed was ready to write off the environmental movement or dismiss the possibility of new federal environmental initiatives. Some point out that, although the Senate rejected the greenhouse gas control mandate, it adopted a resolution saying future action on such a plan is needed. Others note recent announcements of initiatives to promote carbon reduction by companies such as GE, Morgan Stanley, and Swiss Re.

> There's so much momentum. You've got lawsuits, you've got PUCs imputing carbon, you've got shareholder pressure, and then you've got big players in the industry saying mandatory caps are inevitable, saying we support a carbon tax – that does change the dynamics. What people thought was politically feasible two years ago is so radically changed.
>
> – Environment group senior attorney

> It's going to be more rapid than these executives are anticipating. They're underestimating what I believe will become a public outcry.
>
> – PUC commissioner

What could jumpstart action on global warming? One possibility is a grand compromise involving carbon limits and nuclear power. Reportedly, negotiations toward that end were being held in early 2005. Industry would accept carbon emission limits and greens would drop their opposition to a new generation of nuclear plants. As the *New York Times* said in a May 2005 story, this is a bargain that would "reshape the existing alignments on these issues."

However, even if such a deal were agreed to there would be many steps yet to go before carbon limits were in place. Many environmentalists oppose such a trade-off.

State-Level Activity

There is evidence to support the view that new policy initiatives will come from the states. In *Statehouse and Greenhouse*, Prof. Barry Rabe of the University of Michigan cites a growing list of state initiatives which he sees as outrunning and perhaps influencing federal action. These include renewable portfolio standards, "multipollutant" air quality strategies that include carbon dioxide, carbon adders in integrated resource planning, energy-efficiency programs, and reporting of carbon dioxide releases.

The significance, as Prof. Rabe sees it: "Collectively, these cases present an alternative policy architecture for greenhouse gas reduction that could indeed be expanded to other states, the entire nation, or even other countries, in coming years."

In June 2005, California's Governor Schwarzenegger established greenhouse gas reduction targets for his state. By 2010 emissions are to be down to 2000 levels, with deeper cuts by 2020 and 2050.

Also noteworthy is the effort by nine northeastern and mid-Atlantic states to establish a regional cap-and-trade system for greenhouse gas emissions.

> In the long run, utilities are looking for certainty in climate policy rather than a patchwork of state policies. It's a highly-regulated sector and obviously companies know how to deal with regulation, but if they can get some certainty that's very useful. The more information they have about what future climate policy will look like, the better off they are.
>
> – Climate research group staff member

Some of the regulators we interviewed concur that action by state environmental agencies, legislatures, and attorneys general could be an important factor.

> You're seeing states wanting to do things because they're not sensing any commitment to action at the federal level, and so they're doing it themselves. You may see more state initiatives than anything else in the short term.
>
> – PUC commissioner

And some subscribe to the view that state action could gain momentum and lead to broader action, perhaps with backing from power and utility companies.

> Within the next two or three years we're going to see more activity from the federal government trying to deal with CO_2 management. It's going to be a bigger issue in the near term rather than the far term. Utility companies are aware that CO_2 management is around the corner. It's difficult to plan the risk and that has a chilling effect on investors. Something like 28 states are dealing with greenhouse gas emissions. A lot of the utility companies are concerned that there won't be a level playing field unless the federal government takes charge.
>
> – PUC commissioner

However, the thesis that states will blaze the trail didn't command universal support. Some said they don't foresee activity building in their state, and some suggested state initiatives will bog down as they move from rhetoric and symbolism to more meaningful measures.

> I don't see global warming gaining a lot of momentum here. I don't see it as a top policy issue coming out of the governor's office or the legislature in five years – unless something happens or there's some catalyst to drive it.
>
> – PUC commissioner

> When you get into the nitty-gritty of actually putting an executable program together, somebody invariably is going to have his or her nose out of joint over an allocation issue, and that's when the consensus starts to erode and people start putting their little heels in the ground and things start to slow down.
>
> – Investment analyst

Support from Traditionally Conservative Groups

Another development that arguably foreshadows new environmental protection requirements is unprecedented support from the religious right. Some conservative Protestant church groups have recently embraced what they term "creation care" and are calling for federal action on global warming and other environmental issues. In late 2004 the National Association of Evangelicals endorsed government action to control pollution and promote the sustainable use of resources. *Christianity Today*, a popular evangelical magazine, has come out in favor of the McCain-Lieberman global warming bill. Meanwhile, as discussed below in the section on infrastructure and fuels, conservative leaders concerned about national security are backing technologies based on alternatives to imported fossil fuel.

> Oh yes, absolutely. We're working with those guys on lots of things. We can support the same package of policies. Their new, very public participation on these issues is going to have a major impact.
>
> – Environmental group senior attorney

Shareholder Resolutions

According to Ceres, an organization of investment funds and environmental groups, the number of shareholder resolutions calling for more corporate disclosure on global warming risks rose from 22 in the 2004 proxy season to 31 in 2005. Ceres is calling for more such reporting from the power and utility sector. In April 2005 it asked what it describes as the top 50 CO_2 emitters in the investor-owned power industry to report within a year how future greenhouse gas limits will affect their financial bottom lines, and what steps they are taking to reduce those financial impacts and improve their competitive positioning.

> There's increasing support for shareholder resolutions. There are more and more commitments from companies. It's all adding momentum.
>
> – Shareholder resolution advocate

Summary of Findings on Environmental Issues

The GF Energy survey showed environmental issues ranking low among near-term company priorities. Our research likewise found that many executives doubt they will face greenhouse gas restrictions or other new environmental protection requirements over the next five years. Outside the sector there is support for that view, which is in line with Bush administration policy. Still, some executives expect or even favor new requirements, and people in environmental and other advocacy groups see momentum for new mandates building, at the state level as well as the federal. We found evidence of possible changes in the political dynamics around environmental issues. Some evangelical Christians are endorsing environmental protection measures, and there are reports industry might drop its opposition to greenhouse gas limits if greens accept new nuclear plants.

Viability of Different Fuels

The IEA estimates the U.S. power and utility sector will need to build billions of dollars worth of new facilities by 2010, not only to meet growing demand but also to replace aging infrastructure. Allocating capital to maximize asset-to-cash returns requires answering questions about factors affecting fuel choices. How much progress will be made by 2010 in commercializing clean coal technologies? Will new drilling and imports make natural gas supplies more plentiful and reliable? Will efforts to revive nuclear power pay off? What about advanced and alternative fuels?

GF Energy Survey Results

Executives participating in the GF Energy survey favored coal overall – coal got the most votes as the type of new investment most likely to be made during the next 10 years. Additionally, integrated gasification combined cycle (IGCC) and wind were edged out by combined-cycle natural gas. Nuclear and small renewables trailed, each garnering well under 10%.

Deloitte Research Findings

Interviews with Power and Utility Executives

Coal

The U.S. has plenty of coal, and coal-boosters see it making a comeback in future years, particularly if rising energy prices and concerns about energy security trump environmental objections. Our interviews revealed support consistent with the favorable GF Energy survey results.

> We're discussing a new baseload coal plant that would come online in 2011 or 2012. To protect our customers we need a different resource than natural gas. Our regulators are in agreement with this.
>
> – Power/utility CFO

> Coal is 54% of the nation's energy at this point, and I cannot imagine that even a rigorous carbon reduction scheme wouldn't have to find a practical way to accommodate coal.
>
> – Power/utility CFO

However, coal prices are already rising because of demand from China and other foreign countries. U.S. power and utility companies are bidding against utilities and factories in Shanghai and Guangdong. This exacerbates constraints involving rail transportation.

> What's messing up the coal market right now is China. And the dollar's relationship to foreign currencies has made our coal cheap abroad. So that means that coal's going overseas.
>
> – Power/utility CEO

Moreover, we found concerns about coal's environmental liabilities, especially if pressure to do something about global warming intensifies.

> Existing plants will be left alone, more or less. Siting new plants will be very, very difficult, unless the clean coal process can be operationalized and made economically viable.
>
> – Power/utility CFO

Natural gas

There was agreement that natural gas prices will not retreat to the levels of the late 1990s and early 2000s. No one predicted cheap natural gas.

> Natural gas is going to stay high. I don't think you'll ever see a return to $2 or $3 gas.
>
> – Power/utility CEO

We found some optimism about natural gas, even with prices high. Some of those we interviewed were optimistic that drilling restrictions will be lifted and that gas production will rise substantially as a result.

> A greater possibility than a new nuclear plant or a lot more coal plants is the loosening of restrictions on drilling in coastal waters and in the Rockies.
>
> – Power/utility CFO

> With the technology that's available now you can put one rig down and it can do the drilling that used to require 30 or 40 rigs.
>
> – Power/utility CEO

Others questioned whether the restrictions on drilling will be lifted, and, even if they are, whether the amounts that could be produced would make a difference. Pessimists suggest reserves may be less than hoped for, the gas may be difficult to extract, or both.

> While I believe there'll be a push to open up some restricted areas, even with the highest rig counts ever we still aren't getting the same amounts out of the ground we were five years ago. You have to wonder if the same thing won't happen when you move into new areas.
>
> – Power/utility CFO

One answer is to import gas from places like the Middle East, Africa, Russia, and Indonesia after converting it to a liquid that can be carried in special tankers. According to some forecasts imported liquefied natural gas (LNG) would make up for declining North American production and cover increasing demand as well. Among those we interviewed were supporters of that assessment.

> We believe there'll be enough natural gas. And we believe a whole lot of it will come from LNG. We don't see the day when the heat goes off in the northeast because there's not enough natural gas.
>
> – Power/utility CFO

> Obviously there's going to be competition for these resources from abroad in the same sense that there's competition for oil and any widely-traded commodity today. But there's lots of natural gas in the world.
>
> – Power/utility CFO

But we found executives who doubt LNG will do the trick. Some question whether enough of the huge facilities needed to convert the liquid back to gas will get built due to federal-state jurisdictional squabbles, not in my back yard (NIMBY) objections, environmental concerns, and fears of terrorist attacks.

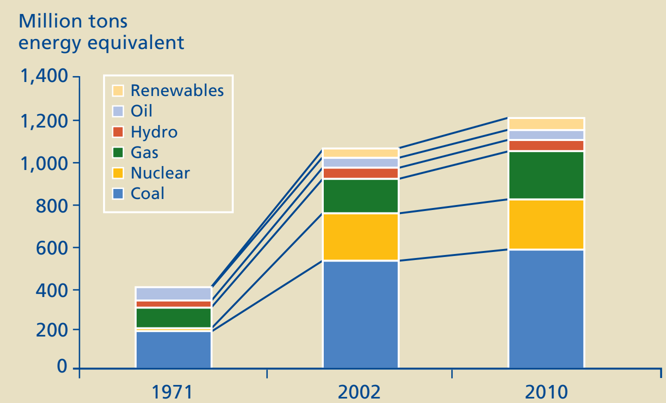
> Gas prices are going up everywhere. But our society has evolved to the point where it's not only NIMBY but BANANA – "Build Absolutely Nothing Anywhere Near Anything."
>
> – Power/utility COO

Some doubt that LNG will provide the supply boost that's needed to deal with natural gas demand, or that new imported gas will cut prices.

> I don't see LNG playing a major role. I don't think enough will be built to cover the increased growth I think we'll have in natural gas use. I don't see it acting as a damper on the prices for natural gas.
>
> – Power/utility CEO

Some think gas prices will stay high because foreign natural gas will be used for purposes other than LNG, or that LNG supplies will be snatched up by buyers in Europe and Asia who need it as much as we do.

Exhibit 5. U.S. and Canada Electricity Generation by Fuel Type:
International Energy Agency Reference Scenario, 2004



Source: World Energy Outlook 2002

The Atlantic Basin does not have enough gas to supply us and Europe. So you've got to get Middle Eastern gas. Qatar has already announced they're going to take a lot of their gas and make diesel fuel out of it. So there's Indonesia – but you've got the Asians going in there.
– Power/utility CEO

Still others see the Gas Exporting Countries Forum as an incipient OPEC, or fear political upheavals will interfere with gas production and LNG shipping.

LNG is coming largely from the same part of the world that produced OPEC. They're into profit maximization through oligopoly. In the early years of LNG importation, prices might be moderated just to facilitate dependence – but then they'll lower the boom on you.
– Power/utility CEO

Nuclear

The only way out is nuclear, say some in the industry. Nuclear power doesn't pollute, doesn't produce greenhouse gases, and doesn't rely on fuel imported from unstable and unfriendly lands. Some of those we interviewed think obstacles to nuclear expansion or even new construction are manageable.

An important issue is global warming, and where the next set of generation is coming from. That decision is being made right now, and nuclear seems to be getting a lot of legs. Nuclear is important if you believe burning carbon-based fuels causes global warming.
– Power/utility CFO

Again we found contrary viewpoints. Doubters cite unfavorable economics, continuing public anxieties about safety, now augmented by fears of terrorist attack, and high costs, exacerbated by a stalemate over disposing of spent fuel.

Regarding some of the positive press that's been out there lately about the potential for nuclear to raise its head again, I don't think all the key environmental groups have even started to focus on it, and so you haven't seen the backlash start to arise.
– Power/utility CFO

Advanced and Alternative Fuels

Consistent with the GF Energy survey, we found little support among executives for the idea that alternative and advanced solutions will play a significant role by the end of the decade, even with government backing.

What about windmills, and solar, and all the other renewables – will that be a major player? I think we're just fooling ourselves. I don't see it happening.
– Power/utility CFO

There was some optimism about IGCC, and about carbon sequestration. However, the point was made that companies will look to government to help commercialize clean coal technologies.

When you move into IGCC, where the up-front capital investment may be greater than with a least-cost alternative in order to achieve environmental benefits, there you really do want assurances from your regulator that this is the value that they want you to chase, and that you should go after it and do it.
– Power/utility CFO

We did find skeptics about the notion that IGCC will be a factor within the next five years.

IGCC? Nobody's built one yet. I've been in this business for 30 years, and they've been talking about coal gasification the whole time. I haven't ever seen any of it work.
– Power/utility CEO

Perspective from Outside the Sector

Coal

Some of the interviewees agree with the appraisal that coal's prospects won't be hurt by concerns about air pollution or global warming.

I think climate change will affect how much it costs to use coal; I don't see it reducing the dependency on coal.
– PUC commissioner

Others subscribe to the more negative view regarding coal and environmental issues.

Coal? We still use it, but expansion is a problem – my sense is it won't gain a lot of ground here until some clean coal technologies are put into place.
– PUC commissioner

Natural gas

Some regulators concur with the bullish outlook on natural gas.

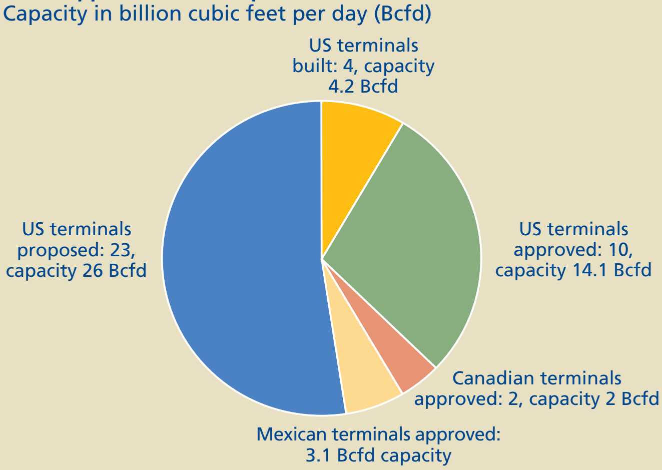
> I think even at $8 you'll see a great deal of reliance on natural gas, because of the flexibility it offers, the ability to ramp up electricity generation, as well as the fact that it's cleaner. The supply will be there, whether it's from domestic sources or imported as LNG.
>
> – PUC commissioner

The International Energy Agency's *World Energy Outlook 2004* report provides some support for the view that sufficient natural gas will be available, albeit at higher prices. The 2005-2030 Reference Scenario shows gas rising as a share of total primary energy consumption, with most of the increase attributable to power generation. The IEA assumes that indigenous energy production will not keep pace with the projected demand increase, but sees imports plugging the gap.

The IEA thinks it is reasonable to assume natural gas will remain attractive as a fuel for power generation despite rising and volatile prices, at least for a decade or so. "Volatility is inherent in natural gas prices and is well known to investors," says the IEA report. "It does not seem to have affected their preference for gas-fired generation so far."

Some experts discount worries about LNG market manipulation. For example, a working paper prepared as part of a 2004 study on the geopolitics of natural gas co-sponsored by Stanford and Rice Universities concluded that factors such as competition among producing regions will retard the emergence of either a cartel or a swing producer.

Exhibit 6. LNG Import Terminals Serving North America: Built, Approved, and Proposed
Capacity in billion cubic feet per day (Bcfd)



Note: "U.S. terminals approved" refers to federal approvals – state approvals are also required

Source: U.S. Federal Energy Regulatory Commission

Other non-industry sources share the more pessimistic view on natural gas. They cite drilling restrictions, depletion, and upward price pressure from high oil prices. In *High Noon for Natural Gas*, environmentalist Julian Darley laments the growing reliance on natural gas in the U.S. and Canada, and predicts that a shortage of natural gas compounded by high oil prices "will try the energy and economic systems of both countries to their limits."

Some non-industry sources we interviewed echoed doubts about LNG.

> LNG is great. I'm sure it'll help. But you've got to build the ships, you've got to build the terminals to compress it, you've got to build the terminals to turn it back into gas – I'm not going to see it in my professional lifetime.
>
> – Industrial user association CEO

The IEA observes that countries increasingly dependent upon energy imports will face heightened risk of supply interruptions due to instability abroad. The executive summary in *World Energy Outlook 2004* begins with a section entitled "Energy Security in a Dangerous World." The report mentions domestic political instability within producing regions as well as potential problems from piracy, terrorist attacks, and accidents.

A May 2005 *BusinessWeek* article on the Gas Exporting Countries Forum says "The concept of a natural gas OPEC is becoming less far-fetched." And in a column in the same issue, Jeffrey Garten, dean of the Yale Management School, calls for new federal regulation to prevent gas-exporting countries from exploiting U.S. dependence on LNG, saying,"the risk of leaving regulation of critical LNG imports to the marketplace is way too high."

Nuclear

The Bush administration is working with the nuclear industry to see a new nuclear plant ordered in 2009. The Nuclear Regulatory Commission reportedly expects to receive three to five applications for new nuclear plants between 2007 and 2009. The administration backs legislation that would provide insurance to plant operators, although the industry is lobbying for support beyond what the administration endorses. These factors lend credence to the pro-nuclear predictions from some of the executives we interviewed.

In our interviews outside the power and utility sector we found support for the proposition that nuclear power could enjoy a revival within the five-year timeframe.

> OK, so they have some spent fuel, but you can store it on site for 40 years or more, and one day Yucca Mountain or something similar will actually occur, in which case they'll put it in the ground. And you can build the new plants for 3 or 3 1/2 cents.
>
> – Investment banker

> Within five years we could be on the way to adding a new nuclear plant because of problems with coal and natural gas. I think the groundwork's being laid to expand nuclear here. I think the waste disposal issue is manageable.
>
> – PUC commissioner

The notion that nuclear's fortunes could rise is bolstered by the argument that alarm about global warming could soften opposition within the environmentalist community. As noted in the section on environmental issues above, some greens are reportedly discussing an agreement whereby they would relax their opposition to new nuclear plants in exchange for business support for greenhouse gas emission controls.

Regardless of whether such a bargain is struck, there are signs of new thinking on nuclear among environmentalists. Greens backing nuclear power or at least endorsing it as an option include Stewart Brand, a founder of the Whole Earth Catalog, Anglican Bishop Hugh Montefiore, formerly a trustee of Friends of the Earth, Patrick Moore, co-founder of Greenpeace, and James Lovelock, environmental scientist and originator of the Gaia Theory.

However, some of those we interviewed outside the sector shared the view that efforts to breathe new life into nuclear power won't pay off, at least within five years.

> The long-term storage issue is such a thorn in the side of investors. I know they're inching their way towards progress. But just as they're closing the book on Yucca Mountain, some new court opens it up again. This political uncertainty doesn't augur well for revitalizing the nuclear industry.
>
> – Think tank scholar

> Yes, there are some environmentalists who look at the very narrow issue of global warming when it comes to nuclear power, but they overlook the fact that we have no solution whatsoever for nuclear wastes.
>
> – Consumer group staff member

Advanced and Alternative Fuels

Although many were skeptical about the prospects for IGCC within the next five years, there was a more upbeat view.

> I firmly believe in IGCC plants. General Electric is offering a turnkey plant. The coal companies are willing to cut deals with you so you can get a supply of coal at a really good price. And the states are saying we can work this out so you can put it into rate base.
>
> – Investment banker

There is also an expectation that companies will be pushed to accept IGCC.

> You have to build coal gasification – conventional coal is not the best available control technology anymore. That's a slew of lawsuits waiting to happen.
>
> – Environmental group senior attorney

Some of the state regulators we interviewed reinforced doubts about the likelihood renewables will play anything other than a marginal role.

> There's a concern that if you start lining wind turbines on the coast and up in the mountains that may not do a whole lot for generation but may harm your tourist business. The most interesting prospect we've got is using agricultural waste, but it does not appear that the cost problem there has been solved. We have approved a voluntary green power program but that's in the early stages so it's not real clear how many people will sign up for that.
>
> – PUC commissioner

Other regulators were more positive about the outlook for renewables.

> Wind and solar are becoming more efficient, and easier to schedule, and fossil fuels are becoming more expensive. Renewables will provide a layer of that cake for the electricity you need, it's just a question of how thick.
>
> – PUC commissioner

A new development lending weight to optimism on advanced and alternative technologies is backing by leading neoconservatives and members of the national security establishment. Their misgivings about the national security implications of U.S. dependence on foreign energy have caused them to endorse new non-fossil technologies.

For example, a group organized by the Energy Future Coalition sent a letter to President Bush calling for "clean, domestic substitutes for petroleum." Signers included Robert McFarlane, President Reagan's national security advisor, and Boyden Gray, White House Counsel in the first Bush administration.

So far the focus of such efforts is on oil and finding substitutes for gasoline, but as noted, the same concerns about foreign dependence can be applied to LNG.

Further, the Institute for Analysis of Global Security advocates the development of cars that run on fuels other than gasoline, including models that can use alcohol fuel made from the gas produced by an IGCC plant. The IAGS has formed "Set America Free" to advocate this and other means of reducing dependence upon petroleum. Signers of the Set America Free blueprint include Robert McFarlane, Frank Gaffney, head of the Center for Security Policy, and R. James Woolsey, co-chairman of the Committee on the Present Danger and former CIA director.

Summary of Findings on Fuels

As did the GF Energy survey, we found that power and utility executives tend to think coal-fired generation will retain its significance as a fuel for power generation. There was widespread support for natural gas. We also found the same doubts about nuclear and renewables that surfaced in the GF Energy poll. Having said that, our interviews showed dissenting views on the merits of coal and gas, and favorable views on nuclear and renewables. There were also pro and con appraisals of IGCC. Of particular interest were indications of potential shifts in longstanding intellectual and political alignments – with some environmental leaders rethinking their opposition to nuclear and some conservative leaders advocating alternatives to imported fossil fuels. This suggests that today's odds on the various fuels could change within the next five years.

Infrastructure Reliability and Security

After the August 2003 northeast blackout, many expected the industry to be subjected to more stringent reliability rules, with legal sanctions for noncompliance. So far that hasn't happened. Meanwhile the sector has undertaken a variety of measures to guard against terrorist attacks, with a focus on nuclear plants. How likely is it that new incidents will occur? What will the balance of the decade bring – largely industry-driven efforts, or more government involvement in prescribing and policing reliability and security?

GF Energy Survey Results

Respondents to the GF Energy survey generally felt reliability has improved since the blackout. The respondents were split on whether reliability enforcement legislation is imminent. When asked if the 2004 election means reliability enforcement legislation is likely in 2005, 40% said yes and 40% said no. There was strong agreement that reliability requires attention – when asked about issues important to their company this year, respondents ranked reliability second out of 13 choices. The GF Energy survey didn't include any questions on homeland security.

Deloitte Research Findings

Interviews with Power and Utility Executives

System Reliability

Many of the executives we interviewed discount concerns regarding reliability. Some cite infrastructure upgrades and additions that not only improve reliability but create value. Some argue that the standards the industry sets for itself are sufficient because they've been made tougher since 2003. Others are not unduly concerned about the advent of enforcement mechanisms.

> The systems are more interrelated and so you have the potential for more cascading impacts if your system isn't up to snuff. But I believe that most U.S. utilities are on top of that.
>
> – Power/Utility CFO

However, we did encounter concerns about problems with federal and state policy that some executives believe interfere with the construction of needed facilities.

There's too much uncertainty as people make commitments to meet growth demands on the system. I see it as very unsettled. At the federal level it's a crap-shoot.

– Power/Utility CFO

If government won't allow you to do anything to improve reliability, if the political heat is so great you can't build power plants, can't import LNG, can't do this that and the other thing, putting teeth into reliability sounds a little silly, doesn't it?

– Power/Utility CFO

Some interviewees think that future failures can't be ruled out, which would tend to raise the odds of tougher reliability enforcement.

I think the risk will be greater as time goes on, due to a lack of generation additions in particular areas, primarily in New York.

– Power/Utility CFO

Homeland Security

Much the same situation prevails with regard to homeland security. Companies have taken steps to meet the requirements that have been imposed and most believe these are sufficient.

We've looked at risk with the federal government on critical infrastructure. The government has said the electric system is probably as secure as any system around.

– Power/Utility CEO

A nuclear plant is probably the safest place in the world right now. There's so much security there that's unknown to the rest of the world.

– Power/Utility CFO

However, others think the industry needs to do more, and is just one crisis away from much tougher mandates.

With respect to security, there are two issues: physical security and cyber security. Both of them are troublesome.

– Power/Utility CEO

I think we may be in store for more government regulation in that regard. There are some weaknesses that could be exploited, and if they were exploited then there would clearly be government intervention to make sure they don't happen again.

– Power/Utility CFO

Perspective from Outside the Sector

The perception that reliability will be better and obviate new enforcement mechanisms is shared by some of the regulators we interviewed.

Since 2003 we have more vegetation management, and better control panels and systems in place. This will help create more reliability. On a super-hot day you may have an interruption, but it'll be a plant interruption and not an outage.

– PUC commissioner

Others, however, favor the view that the risk of problems is high, and that more demanding standards and enforcement mechanisms are on the way.

> There's something they're definitely worried about. I think it's more computer-based, getting into the operating control rooms and that sort of thing.
>
> – Investment analyst

> Congress's inability to pass mandatory reliability standards has resulted in state regulators taking it up, and, in those areas where there are regionally-managed markets, it's being done by RTOs and ITOs, and through FERC and NERC. Given the blackout, given terrorism, a top priority is always going to be maintaining and insuring both the reliability and security of the grid.
>
> – PUC commissioner

The possibility of intensified state action on reliability is underscored by one of the resolutions adopted at the winter 2005 meeting of the National Association of Regulatory Utility Commissioners, which calls on states to make NERC standards mandatory if this is not done at the federal level.

One regulator emphasized that, due to advancing technology, the bar for improving both reliability and security is likely to rise constantly.

> It may not be in hardware or software, it may be in communications. But each time there is an improvement, it at the same time unfortunately provides opportunities for terrorists. I don't think we should ever say it's behind us. We can no longer assume we're the smartest people on earth.
>
> – PUC commissioner

Summary of Findings on Reliability and Security

Our interviews revealed the same uncertainty about future policies on reliability that was evident in the responses to the GF Energy survey. We found that power and utility executives tend to take pride in the performance of their infrastructure and to consider as satisfactory their industry's efforts to set and enforce standards. However, there was variation in their responses on what government may do over the next five years. The same general pattern applied with respect to homeland security. A frequently-noted consideration is that a single system malfunction or a terrorist attack could have a huge impact on government policy, and yet the nature and likelihood of such events is especially difficult to gauge in advance. Accordingly, this is an area in which the next five years could bring very different scenarios.

Capital Availability

How will capital markets react to the strategies power and utility companies adopt to create value during the latter part of the decade? Will both back-to-basics companies and competitive companies find appreciative audiences, or will there be a decisive tilt towards one approach or the other? What factors might affect the judgments of investors and lenders? Could capital markets revert to the ferment of the late 90s, and once again reserve their highest rewards for companies that relish risk-taking and diversification?

GF Energy Survey Results

The GF Energy survey respondents were generally optimistic about the reaction of capital markets to companies embracing the back-to-basics approach. Two-thirds do expect pressure to grow financially at rates exceeding electricity sales growth over the next three years, but 93% think their company will grow sufficiently to satisfy investors.

Deloitte Research Findings

Interviews with Power and Utility Executives

Many of the executives we interviewed reflected the majority view that the capital markets will be highly supportive of the stable, low-risk returns offered by power and utility companies that pursue a back-to-basics approach.

> I think most utilities are going to be focusing on the old model, of investing in ratebase and ensuring a regulated return.
>
> – Power/utility CFO

Moreover, we found confidence that extracting costs from the core business remains a viable component of a value-creation formula for a back-to-basics company.

> There's still quite a bit to do in the industry. Many companies have not been as aggressive as folks in other industries have been. We're putting in automated meter reading. We're starting to put auto-dispatch into the trucks. There are a number of things like that that a lot of companies can do to bring efficiencies in. We're not afraid of outsourcing. I'm pretty optimistic that we'll be able to wring some more costs out over the next five years.
>
> – Power/utility CFO

Some think capital markets will reward companies serving competitive wholesale markets, even assuming the back-to-basics model retains its popularity.

> By the tail of this five-year timeframe, most areas of the country will no longer have frozen prices. There will be upside potential to capture real market prices of energy, which are not now being captured in deregulated states. So there's a good likelihood of growth driven by price, not necessarily by volume.
>
> – Power/utility CEO

Others believe the next five years will bring a resurgence of investor demand for growth.

> We probably have a couple more years – maybe – of the value of the dividend and the value of back to basics. We will move to a cycle where they're going to expect growth. And then the challenge will be: Where does that growth come from?
>
> – Power/utility CFO

> I suspect we'll stay in back to basics for a while, and then the siren call of growth will loom larger and the lessons and the pain from what we went through five years ago will recede and people will start investing in things they don't understand, and we'll go through it all again.
>
> – Power/utility CFO

Still others believe adverse developments could dim the investment appeal of utilities, such as difficulty in recovering costs or high interest rates that make bonds more attractive. If such developments coincided with an economic slowdown they could tarnish the image of utilities as a safe and sane alternative in troubled times.

> To the extent you're getting stingy rate relief and your [fuel] costs aren't going down, that's going to have some credit quality implications.
>
> – Power/utility CEO

> We all know that if interest rates have gone up we've seen a drop in utility stock prices, just based on the dividend yields and what the overall earnings expectations could be.
>
> – Power/utility CFO

Finally, we found that some executives are pessimistic about the sector's cost reduction potential.

> There's always some new improvement to be made, but I don't see any major step changes. Nor do I see any drive in this industry to go towards outsourcing.
>
> – Power/utility CEO

Perspective from Outside the Sector

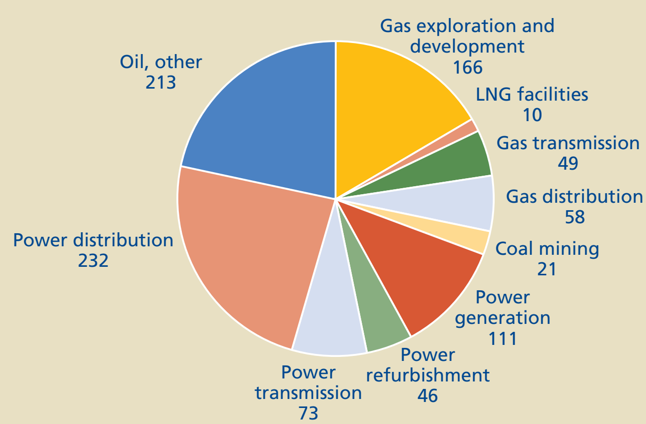
Some of the topics covered in prior sections relate to the question of how power and utility companies will fare in the capital markets over the next five years. For example, the comments by state regulators on their handling of requests to put new assets into the rate base and grant rate increases are relevant to the viability of the back-to-basics approach. As discussed in the section on market regulation, the interviews we conducted found support for both positive and negative industry views on that issue.

A May 2005 article on utility stocks in *Fortune's* Investing column suggests that Wall Street similarly divides on the question of how back-to-basics stocks will be received. The article examines the argument of "utility bulls" among stock analysts that utilities will benefit if, as some evidence suggests, the U.S. economy cools. It also notes the objection of "utility bears" that utilities are overvalued.

The thesis of the "utility bulls" that an economic downturn could favor the case for utilities brings up the issue of how robust the economy and stock market will be over the next five years.

The book *Irrational Exuberance* by Yale economics professor Robert Shiller lays out a pessimistic appraisal of where the stock market is heading. Originally published in 2000, *Irrational Exuberance* gained fame for arguing the stock boom of the late 1990s was a bubble just before the market fell. In 2004 the S&P 500 went up 26%, but Shiller's analysis indicates that markets don't achieve sustained growth in the aftermath of a big dip such as that in 2000. Rather, his review of historical data suggests post-bubble slumps can continue for decades.

Exhibit 7. U.S. and Canada Energy Investments Required to Meet Projected Demand, 2001-2010
International Energy Agency Reference Scenario, 2003 ($billion)



Source: World Energy Investment Outlook, 2003

Since 2000 the growth in home values has offset many investors' losses in the stock market, but in March 2005 the new edition of *Irrational Exuberance* was published, and it argues the housing market looks like a bubble as well.

So according to the "bad is good" logic of pro-utility analysts, down markets could benefit utility stocks if utilities are seen as offering safe, reliable returns. However, whether and to what extent this might be the case would depend upon a variety of circumstances and the relative merits of rival investment opportunities. As noted, utilities' safe and sane luster could be dimmed were they to encounter adverse regulatory or monetary policies.

We also found support for the view that, for better or worse, utilities will find themselves in an up market that demands higher returns.

> I think back to basics works, but I think towards the end of that period you start to get people pressing for differentiation again. Unless economic growth provides the opportunities to invest in generation, you wonder if managements are going to do something dumb with the cash like they did the last time.
>
> – Investment analyst

Summary of Findings on Capital Availability

Most of the executives responding to the GF Energy survey were positive about their ability to obtain capital over the next three years. We found similar upbeat views going out five years. Some interviewees in the financial services industry concur with this assessment. However, minorities among industry executives worry about the staying power of the back-to-basics model. Further, some executives noted that adverse developments involving rate cases or environmental requirements could impair the ability of companies to obtain needed capital, which could be a problem even in a down economy when utilities are normally regarded as more attractive. If a headier investment climate were to develop, some interviewees believe it will be hard for power and utility companies to execute winning growth strategies.

Strategic Implications

Alternate Views of the 2005-2010 Business Environment

Majority vs. Minority Views

The GF Energy survey found strong support for a number of key propositions about the business environment awaiting power and utility companies. Majorities of the respondents indicated they believe there will be no major deviations from trends that are now underway or at least visible from today's vantage point. There was uncertainty in some areas, and some of the respondents had contrary perceptions, but the main message was that the future can be seen from here, and it seems manageable.

In general the Deloitte Research interviews revealed the same pattern of expectations among executives. We, too, found a dominant impression that the outlines of the power and utility business environment of the next five years are largely those observable today, albeit with some dissenting views. Our research thus confirmed the snapshot of executive thinking that GF Energy provided.

When we probed farther into executives' ideas about the future we found that the minority views are hardly unfounded. To the contrary, the minority views are sufficiently accepted, corroborated, and plausible to warrant more attention in strategic decision-making than they typically receive today. In short, companies with strategies keyed to the majority view of what the next five years will bring may be preparing for the wrong future.

This brings into focus the key question, which is what executives should do to ensure that they properly anticipate changes in the business environment and position their companies to continue creating maximum value for shareholders. Delving into that inquiry requires that the spectrum of majority and minority views about 2005-2010 be translated into more manageable form.

Translating Different Views About 2005-2010 into Scenarios

To better organize the array of predictions and analysis that emerged from our interviews, we grouped them into three broad scenarios. They serve to bracket the divergent ideas about the future that came out of the interviews we conducted, and capture the contrasting assumptions they entail. The scenarios are:

- **Continuity.** This is the majority view. Demand grows at a moderate rate. Government policy on environmental protection, system reliability, and security imposes no major new obligations. Regulators are accommodating about adding new assets to the rate base and raising rates. Restructuring makes only limited gains. Investors are satisfied with the returns available from back-to-basics power and utility companies.

- **Tough Times.** A much more pessimistic version of the next five years, which is not unlike the 1970s. Fuel costs soar, the economy falters, demand growth slows. Government policy in crucial areas such as rates, environmental protection, reliability, and M&A is restrictive. Carbon constraints are imposed. Government policy varies from one jurisdiction to another, and changes abruptly, as when new rules are struck down by the courts. This captures in one scenario the gloomier possibilities that got minority support in our interviews.

- **Rising Expectations.** An upside divergence from the Continuity scenario, in which demand grows briskly with an expanding economy. Restructuring regains traction in some states, including large ones. Advanced and alternative energy technologies enjoy increased popularity and are seen by some companies as an avenue to higher profits. Power and utility companies are hard-pressed to show the levels of growth bullish capital markets prefer. This scenario reflects the views of some that the sector will soon move out of the back-to-basics mode and enter a new phase that is reminiscent of past eras when the accent was on growth, diversification, and competition – not as hyper as the 1990s, but still more effervescent than the past several years.

Exhibit 8 (page 37) summarizes the main features of each scenario.

Again, these scenarios are only intended as a way to summarize the different ideas about the next five years. They are simplified compared to the scenarios companies use in actual strategic planning, and they are by no means the only scenarios that could be constructed from the interview results. As just one example, the introduction of carbon controls included in the Tough Times scenario arguably could fit in a slightly different version of the Rising Expectations scenario.

Adopting the Right Strategy

What should power and utility executives do during the next five years to ensure that their companies continue to create maximum shareholder value? Obviously there are numerous strategies and methods from which to choose, including increasing revenues, reducing costs, and improving asset efficiency.

There are different ways to categorize these choices. One is to focus on the extent to which a company ventures out of its current niche and into new realms. University of Michigan business school Professor Aneel Karnani used this approach in a 1999 *Financial Times* article, identifying five growth choices: from current business by gaining market share and increasing market penetration; in the same business, but in a different geographic location; by vertical integration, either backwards or forwards; in another related business; and in a different unrelated business. Branko Terzic, Deloitte Services LP Regulatory Policy Leader, suggests this taxonomy can be adapted to the power and utility sector by substituting globalization for same business-different geographic location; synergy for another related business; and conglomerate for different unrelated business.

It is worth noting that power and utility companies face special complexities in selecting and executing strategies. The most pronounced arise from regulatory constraints that are imposed by multiple levels of government and which affect many areas of the business – pricing, entry, exit, plant, equipment, customer service, and so on. Power and utility companies that operate in multiple states face the added complication that regulatory policies may differ from one jurisdiction to the next.

Consequently, power and utility companies will need to make carefully-considered decisions about what strategic course to adopt in dealing with the developments we have highlighted as possibilities for the next five years. Although providing specific guidance is beyond the scope of this report, it is important to emphasize that the strategies for value creation will be different depending upon which scenario the business environment resembles. Asking "What if" is crucial. A corporate strategy designed for the circumstances of Continuity would be ill-suited to Rising Expectations, a strategy designed for Rising Expectations would be ill-suited to Tough Times, and so on. As a means of exploring the significance of this point it may be useful to focus on two means of implementing a value-creation strategy: asset optimization and mergers and acquisitions.

Examples: Asset Optimization and M&A

Our premise is that over the next five years value-creation efforts by many power and utility companies will include initiatives involving asset optimization and M&A transactions. Asset optimization can be a strategy in its own right, or a component of another value-creation strategy – for example, where a revenue growth strategy requires that newly-added assets be utilized effectively. M&A is a means of implementing a strategy – for example, where combining with another company is the way a company achieves increased revenue flow. In this section we highlight some basic challenges executives need to consider regarding their organizations' ability to employ these methods to best advantage.

Asset Optimization

Power and utility companies have devoted significant effort to managing assets, and many have become highly adept at improving asset performance. Even so, traditional approaches to asset optimization will be inadequate to deal with the challenges that are likely to confront power and utility companies over the next five years, regardless of which scenario the business environment may resemble.

Why are traditional approaches to asset optimization inadequate? First, they omit attention to intangible assets. Power and utility companies typically take an "engineering view" of their assets, focusing primarily on optimizing the performance of plant and equipment. In some cases this view is expanded to include a financial perspective that encompasses return on assets (ROA) by maximizing availability and minimizing total lifecycle cost. However, much value resides in non-physical assets, such as fuel contracts, transmission rights, and emissions credits. ROA is not likely to be maximized from an enterprise perspective until companies consider the performance of all assets, both tangible and intangible.

Second, traditional approaches do not address gaps in organizations and processes that can undermine companies' efforts to enhance their asset management. These gaps can take many forms:

- Poor communication between the system operations and finance functions that results in excess capital expenditures for emissions control equipment
- Failure to factor tax and accounting perspectives into a business development strategy that causes the company to miss savings opportunities or creates unnecessary earnings volatility due to transaction structure
- Mismatch between demand commitments made by the sales department and the generating unit's capacity to fulfill them at a reasonable price
- Strategy set by upper-level corporate executives that engineers in the transmission and distribution organization don't understand and can't execute

Regardless of the form they take, the result is the same: the disconnects create misalignments in systems, operations, and strategies, which impair asset optimization. Companies need to develop a more comprehensive, enterprise-wide approach that closes these gaps. The goal should be to align the entire organization to maximize the value of the portfolio of both tangible and intangible assets. This will require improving three linkages that are often missing today: between assets and strategy, between assets and market opportunities, and between the reliability and performance targets that are set for assets and the roles they are assigned within the portfolio.

Mergers and Acquisitions

Combining two organizations is no small feat. Executives know the horror stories greatly outnumber the triumphs. This is amply illustrated by the interviewees' comments about regulatory hurdles and integration difficulties. Nevertheless, M&A is likely to figure in the strategies of many power and utility companies between now and 2010. Obtaining new capabilities and facilities will be important in any of the three scenarios, and thus M&A will be appropriate in many situations.

To improve their odds of success, companies should address several issues having to do with how they plan and initiate transactions.

As with asset optimization, a key prerequisite is proper alignment with corporate strategy. This requires a clear definition of the company's strategic objectives and of the role the M&A transaction is to play in attaining those objectives. Clarity increases the odds that the other elements will fall into place. It ensures that the strategic objectives guide the target-selection phase, receive careful attention during the due diligence process, and retain high visibility as integration proceeds.

It's advisable to think ahead about the possibility of being approached by another company, on a friendly or hostile basis. Who might be potential suitors? What would their objectives be? How would a given transaction affect various stakeholders? Doing this type of anticipatory analysis, and discussing it at the board level, can provide helpful preparation should the day come when there's a knock at the door. Having a working hypothesis as to the value of the business, and portions thereof, equips the company leadership with a ready frame of reference.

And this pertains to companies that decide they'll avoid pursuing a merger or acquisition. Making that choice doesn't mean the company won't become somebody else's target.

Companies contemplating acquisitions of discrete business units or assets should apply all the same principles and approaches as they would in a merger. Although the scale will typically be smaller, such transactions can raise all the same issues as a mega-merger. Basically the rule is that if it's worth doing at all, it's worth doing it right.

Attention to these admonitions can promote effective M&A strategizing and targeting. With respect to the subsequent stages of the M&A process, companies again have some basic challenges to confront regardless of scenario. Crucial components of due diligence, transaction execution, and integration include:

- Identifying "deal breakers" and "diamonds" early in the process
- Creative deal structuring, including leasing and structured finance transactions and terms for interim and permanent financing
- Sound financial modeling and valuation
- Accurate synergy assessment, including issues relating to revenues, costs, capital expenditures, and financing
- Anticipating concerns likely to surface during the regulatory review process and appropriate attention to these in developing regulatory strategy, filings, and testimony
- Effective merger integration, including employee communications, incentive plans to retain, attract, and motivate key executives, and synergy realization
- Tax integration to align business and tax strategies, minimize post-acquisition effective tax rate, and maintain cash deployment flexibility

With respect to deal structuring, companies should think about what might cause the deal to fail to live up to expectations. Despite all the evidence to the contrary, executives caught up in planning a deal too often implicitly assume it will succeed. They don't ask themselves what could go wrong. If the downsides are properly anticipated, it may be possible to come up with some remedies, and also exit strategies. Taking this approach can equip management and board to react early and realistically if there are signs of trouble down the road.

The point about regulatory issues warrants emphasis, given the need for regulated companies to obtain approvals from PUCs and/or FERC. The risks in a merger application before a regulatory agency include not only ultimate rejection but also protracted proceedings. Even approval may be a Pyrrhic victory if it comes with so many conditions that there is little value left for shareholders. Hence the importance of anticipating issues and developing appropriate strategies.

Finally, companies should take an integrated, enterprise-wide approach to M&A transactions. Too often, due diligence is the only stage at which there's an enterprise-wide approach. Corporate development, legal, regulatory, accounting, tax, and operations all participate, but then in many cases they return to their silos as implementation begins. Those in corporate development who came up with the deal have no skin in the game regarding the success of merger integration. There is insufficient follow-through to ensure that the desired benefits materialize, or, if they don't, that the problems are identified, action is taken, and lessons are learned.

Mergers and acquisitions will be vital to value creation for many companies between now and 2010. It will be important that the industry overcome the issues that so often interfere with doing the right M&A deals and doing the deals right.

Different Strategies for Different Scenarios

The way power and utility companies employ asset optimization and M&A over the next five years will differ depending on the nature of the business environment. The three scenarios we have identified provide a framework for illustrating how value-creation challenges and corporate strategies might look under the different conditions that could materialize.

Exhibit 8 provides an overview of the discussion that follows.

Continuity

As an extension of current conditions, the business environment in this scenario would be more familiar and less threatening than what is contained in the other two. That is not to say life would be easy. If the next five years are as anticipated by the Continuity scenario, power and utility companies will still have to deliver the reliable, steady growth investors will want. Primarily they will focus on extracting more and more costs from their core business. Even meeting the comparatively modest growth expectations of capital markets in this scenario will require continual savings that augment the annual demand growth in service territories. Companies will need new initiatives to augment their current efforts to increase efficiency.

- **Asset optimization.** The pressure to increase earnings by taking costs out of the core business will make it all the more important to improve asset efficiency, which in turn will require closing the gaps that often compromise asset management. Doing this will produce savings through means such as better maintenance work planning, parts procurement, and technological upgrades. As operations become leaner and subject to stricter standards, however, it will be essential to ensure that the company can cut costs without inadvertently hampering the achievement of strategic objectives. In other words, companies will need to be certain that they can simultaneously operate their assets more tightly (avoid unnecessary maintenance overtime) and still take advantage of profitable opportunities (sale that produces revenues beyond extra overtime costs). Better integrating business strategy with asset operation and maintenance can make such problems less likely.

Exhibit 8. Differing Views of the 2005-2010 Power and Utility Business Environment

	Continuity	Tough Times	Rising Expectations
National energy policy	No comprehensive policy framework emerges.	No comprehensive policy framework emerges.	No comprehensive policy framework emerges.
Market regulation	Existing stalemate on restructuring endures. In regulated states, PUCs are relatively lenient on rate-base additions and rate increases.	Some states that restructured reconsider. In regulated states, rate base additions and rate increases are extremely contentious.	Restructuring regains favor in some states, including large ones. In regulated states, rate-base additions and rate increases are moderately contentious.
Government policy on M&A	PUHCA stays in force. Antitrust authorities and PUCs are moderately rigorous when reviewing M&A proposals.	PUHCA stays in force. Antitrust authorities and PUCs are extremely rigorous when reviewing M&A proposals.	PUHCA repealed. Antitrust authorities and PUCs are relatively lenient when reviewing M&A proposals.
Economy/ energy demand	Moderate growth (2-3%), interest rates and inflation up moderately.	Weak growth (0-1%), interest rates and inflation up steeply.	Strong growth (5-6%), interest rates and inflation up slightly.
Environmental protection requirements	Much debate and some state-level activity, but no major new pollution rules, no severe restrictions on greenhouse gas emissions.	No major federal policy initiatives, but some states and courts mandate new, stringent controls on pollution and greenhouse gases.	Concern about environment grows but primary focus is on new energy-efficient and clean technologies rather than controls.
Fuel availability and price	Gas: LNG terminal siting elicits moderate level of local resistance and moderate level of federal-state jurisdictional conflict. Domestic production continues to taper off, keeping supplies tight. Coal: Prices high due to tight gas supplies. IGCC stays in demo mode. Nuclear: New capacity limited by lack of waste solution. Renewables: Moderate increase in investment.	Gas: LNG terminal siting elicits high level of local resistance and high level of federal-state jurisdictional conflict. LNG deliveries are subject to interruption. Domestic production tapers off rapidly. Coal: Prices high due to tight gas supplies. IGCC stays in demo mode. Nuclear: Environmental concerns promote new receptivity to nuclear. Renewables: Moderate increase in investment.	Gas: LNG terminal siting elicits moderate level of local resistance and moderate level of federal-state jurisdictional conflict. Global competition for LNG is strong. New drilling and technology aid domestic production. Coal: Prices high due to tight gas supplies. IGCC attracts significant new investment. Nuclear: New capacity limited by lack of waste solution. Renewables: Significant new investment.
Reliability and security	New reliability and security requirements imposed but practical effect is minor.	New mandates and enforcement mechanisms after new blackouts and terrorist attack.	No major new reliability or security requirements.
Capital availability	Capital markets are favorable towards companies embracing the back-to-basics strategy.	Capital markets are concerned about risks linked to new government policy directions, fuel issues.	Power and utility sector challenged to achieve growth at the levels capital markets prefer.

- **M&A transactions.** Mergers and acquisitions will provide a means to start new cycles of cost reduction, taking aim at the redundancies created when two formerly separate organizations are joined. Thus the focus of M&A transactions in this business environment will be creating fresh opportunities to cut costs via economies of scale. The key questions in identifying targets will concern the cost-reduction potential of companies under consideration. This will include assessing the extent to which regulators in the states affected will require that savings resulting from the combination be passed along to ratepayers. During the due diligence stage, validating cost-reduction opportunities will be crucial, and during integration reducing costs and minimizing tax rates will be a top priority.

In the environment of the Continuity scenario, power and utility companies would need to show significant improvements in their asset management capabilities, and carry out mergers and acquisitions that are properly focused on creating new cost-reduction opportunities. The Tough Times scenario would bring more bumps and bruises.

Tough Times

Nothing would be easy in the Tough Times scenario. Demand growth would be weak, costs would be up, government would be more interventionist, although not necessarily more consistent in its policies. Climbing interest rates would compete with utilities for investment dollars. Interwoven with these factors would be issues relating to fuel supply and environmental responsibility. The power and utility sector would face painful choices about infrastructure as debates continue unresolved about the relative merits of different fuels.

- **Asset optimization.** If the next five years go in the direction of Tough Times, the priority will be on linking strategy with assets and with the deployment of the assets to best deal with fluctuating market conditions. Reliability and performance will be important, but with so much complexity surrounding fuel issues the top priority will lie in the other areas. Both short- and long-term decisions about what assets to own and how to optimize their operation will require consideration of an array of factors such as demand patterns, capacity levels, fuel markets, emissions markets, rate regulation, and financial impacts. An enterprise-wide integrated asset management approach will be valuable in these stressful circumstances. It will be advantageous for managers to see new developments early, from a variety of perspectives, and with analysis from multiple areas of expertise.

- **M&A transactions.** Rather than cost-cutting or business diversification, the object of M&A will be adjusting companies' fuel portfolio in line with strategic decisions designed to strike the right balance among what may be competing considerations, e.g., where coal is plentiful but disadvantaged by emission controls or where natural gas is desirable but vulnerable to supply disruptions. Companies may buy needed facilities by merging with other companies, or they may make the necessary adjustments by acquiring discrete facilities or groups of facilities. In some cases new developments may lead companies to focus on one segment of the value chain and exit others, or expand into new geographic markets where the situation with respect to emissions, fuel supplies, or regulatory policy is more favorable given the company's objectives. Opportunities may arise for companies that are more successful to buy those that falter. Maintaining a close linkage between business strategy and M&A initiatives will be important as companies work to develop a profile that permits value creation in a brutal marketplace.

The Tough Times scenario is fraught with unusual risk and rigor, but cannot be ruled out. Although many power and utility companies would find it uncomfortable and possibly untenable, some would undoubtedly find ways to persevere and prevail. The Rising Expectations scenario involves bumps and bruises as well, but of a different kind.

Rising Expectations

In the Rising Expectations business environment, the primary objective would be to exhibit current and future profitable growth. This would be driven by capital markets' insistence upon growth beyond what has been required over the past several years, as the economy expands and high-return investment opportunities proliferate. If power and utility companies find themselves in this version of the future, they will be forced to move into a more aggressive mode, despite misgivings about the outcomes of prior periods when growth was in vogue.

- **Asset optimization.** The emphasis in this business environment will be on aligning assets with strategy and then making the most of the assets given current and emerging market opportunities. The opportunities will include energy transacting, outage planning, emissions trading, market rule changes, and tax incentives. Identifying the opportunities and responding quickly will necessitate much more integration of functions that are too often isolated in silos. Moreover, in cases where a company implements a growth strategy by diversifying or by betting on a new technology, the fact that the assets involved are different from the company's norm means there will be special challenges in folding them into the portfolio of existing assets and managing them in an integrated fashion. Only with a new level of coordination and collaboration will assets be consistently utilized to take advantage of new opportunities.

Exhibit 9. Asset Management and M&A Strategies in Different 2005-2010 Scenarios

	Continuity	Tough Times	Rising Expectations
Asset optimization strategy	Obtain higher returns on assets to augment value-creation via reductions in operating costs, to maintain the steady growth sought by capital markets in this scenario.	Maximize asset utilization by mastering complex trade-offs involving fuel costs, emission restrictions, and rate regulation.	Rapidly and effectively integrate new and disparate assets added in an effort to achieve competitive differentiation.
M&A strategy	Merge and acquire where combinations offer new opportunities to show growth through reductions in operating costs of the enlarged organization.	Adjust fuel portfolio to deal with shifts in the financial viability of various fuels by acquiring companies with desired assets, and by acquiring and divesting individual facilities.	Use M&A transactions as a means for increasing revenue by adding new markets, customers, and products. May include horizontal/ unrelated mergers and acquisitions as well as vertical/related combinations.

- **M&A transactions.** Mergers and acquisitions will be initiated for the purpose of adding to companies' revenue streams and profits. Opportunities to eliminate redundancies will be a factor, but more important in many instances will be the promise of new worlds to conquer in terms of markets, customers, and products. Not only related but unrelated mergers will occur in this scenario, as companies compete to break out of the traditional utility mold. One implication is that some companies will succeed more than others at playing the expansion game, and this will create new opportunities for hostile takeovers of the weak by the strong. In this setting, companies will need to ensure that their growth strategies are realistic, that overly-optimistic M&A targeting and due diligence don't get the company into situations where reach exceeds grasp, and that integration capabilities are equal to the task of forming a viable enterprise out of companies and assets that are different in key respects from what the organization is accustomed to.

The Rising Expectations playing field would be a faster and more intense environment than what companies would encounter in the Continuity world, and in some ways could be as complex and stressful as Tough Times.

Coping with Uncertainty

Whichever of the three scenarios the business environment of 2005-2010 most resembles, there are ways of dealing with the strategic challenges, as the discussion of asset optimization and M&A shows. The problem is that there is no way of knowing which of these futures represents the best bet.

Power and utility companies are thus vulnerable to being caught unprepared for developments that render their strategy obsolete. Corporate strategy requires a foundation of assumptions about how the marketplace will evolve in coming months and years, and yet uncertainty obscures what lies ahead.

One way to handle this problem is by trying to cover all plausible eventualities by adopting a "robust" strategy. Another is betting on one of the scenarios. Still another is pushing ahead with the expectation that change will be required, but assuming that the company will be sufficiently agile to react to whatever surprises emerge. None of these approaches provides an entirely satisfactory solution.

- Even if a company does amass a strategic arsenal that includes provision for every scenario, its response to any one future is likely to be lacking in some respect. It will still need more to be fully viable.
- The problem with betting on one scenario is that studies in a variety of fields show that even the most expert forecasts usually turn out to be somewhat off, and can be woefully wrong. Five years ago many in the industry were still thinking in terms of cheap natural gas, Internet-based retail competition, and foreign ventures.
- The agile approach is easier said than done for most organizations, and even an adroit improviser sacrifices the advantages associated with timely preparation. Furthermore, the opportunities for using agility in sectors such as this are typically limited, given the scale and timelines associated with building power plants, pipelines, transmission lines, wind farms, and other facilities.

How can power and utility executives resolve the dilemma? Combining aspects of scenario-based planning and real options theory provides a means of making commitments while also retaining the flexibility needed in case circumstances change.

Defining scenarios is an effective way to reduce a mass of uncertainties to a more manageable set of plausible possibilities. The three scenarios we have presented show how this can be done, although as noted they are not meant to be as detailed or definitive as what a company would use for its planning. With the range of plausible circumstances established, a company can then formulate a strategy for winning in the business environment of each individual scenario. Examples of this were presented in the discussion above regarding the application of asset optimization and M&A in each of the scenarios, although again these are simply for illustrative purposes.

It is often the case that the strategies that have been developed for the different scenarios will have some elements in common. Certain initiatives will appear on the "to-do list" for all of the scenarios. These common components thus represent steps that can be taken with a high degree of confidence that they will be appropriate regardless of how the business environment may evolve in future years.

While moving forward with the "all-events" or "no-regrets" initiatives, a company can also make tentative preparations relating to the contingent aspects of its strategy – the things it would do in the Continuity Scenario but not in the Tough Times Scenario, for example. This it can accomplish by applying real option concepts, making limited investments with the right to increase or abandon them in the future. An example is filing a permit application for a power plant or LNG project that might or might not be taken to the next stage. Or rather than merging to gain access to a nascent alternative fuel technology, entering into a joint venture according to terms that permit increasing or relinquishing the ownership stake. To the extent this entails extra expense, it can be viewed as the price of an option that is worth the additional flexibility it confers.

It is important to emphasize that the idea is to build a portfolio of real options that provide coverage of several scenarios. Many discussions of real options focus on a single limited investment that gives a company an "out" if the right circumstances fail to emerge. Here a company makes multiple limited investments, each of which represents a contingent preparation for a different version of the future. It is the collection of options and the span of possibilities they cover that provides the strategic edge.

Making contingent preparations for multiple futures does require special capabilities. For example, a company will need sophisticated asset management capabilities to properly operate assets that are there because they represent a hedge against potential future market conditions rather than because they are best for today's business environment. By the same token, it would be a departure from conventional practice to sell an asset that is doing well in today's environment because the head office sees indicators suggesting the marketplace is shifting to a different scenario and wants to shed assets maximized on the status quo. And this approach assumes a company develops the systems and processes needed to identify and analyze developments that can provide clues as to which way the business environment is evolving relative to the different scenarios.

Although there are thus special demands associated with this approach, the situation calls for methods of making decisions and managing organizations that allow companies to leverage uncertainty to their benefit rather than ignoring or denying it. The next five years are obscured by complex possibilities, and it is best to embrace that reality.

Conclusion

The Deloitte Research study confirms the findings from the earlier GF Energy survey: most executives in the power and utility sector think in terms of today's business environment when they look toward the end of the decade. The prevailing view is that no major changes are in store, and thus conditions will continue to favor the back-to-basics strategy. The fact that this is the opinion of so many senior industry leaders undeniably carries weight, and as we have noted there is plenty of support for the majority view outside the sector.

There are other views on what may lie ahead, but they received no more than minority support in either the GF Energy survey or our interviews. However, the key message of this report is that executives should ask what would happen if actual events over the next five years turned out to be closer to the future predicted by one of the minority views than to the view held by the majority. It wouldn't be the first time the conventional wisdom has been proven wrong, and as we have demonstrated it is not difficult to find support for the minority views among well-qualified and experienced individuals outside the sector.

By asking "what if?" and then acting on the insights that result, executives can adapt and augment their current strategies in ways that better prepare their companies for whatever threats and opportunities may arise in the months and years ahead. The route to value may lie along the path favored by the majority, but that is not certain. Companies and their stakeholders will be best served if executives carefully and systematically identify strategic risks and then manage them effectively. Committing too firmly to a single view of the marketplace of the next five years – even if it is the one that commands majority support – could be heading toward the wrong future.

Appendix: Additional Quotes From Interviews

National Energy Policy

Need new national energy policy:

> We need to face up to the fact that we've taken another step change in energy, like we did in 1975 with the oil embargo.
>
> –Power/utility CEO

> My theory is that at some point in time, international competitiveness is going to come back to natural resources. We'll rationalize everything else.
>
> –Power/utility COO

> At the same time the White House and Congress are talking about energy independence, they're also heavily promoting LNG. Increasing our reliance on LNG by definition means we are becoming more dependent on foreign countries for our energy, particularly OPEC member countries.
>
> –Consumer advocate

Even if national energy legislation passes the effects are likely to be limited:

> I don't think it's going to help us. I just don't think it does enough.
>
> –Power/utility CEO

> The energy bill doesn't get at the heart of any of those issues.
>
> –Power/utility CFO

> The focus of the current energy bill is today's technologies as opposed to tomorrow's technologies. The bill that came out of the House doesn't solve the long-range energy policy issue, because it doesn't address the issues that are coming up over the next few years, including the environment. The electricity title doesn't do a lot to encourage new infrastructure.
>
> – Public power executive

> We've had a sense of urgency about energy for some time – starting in the '90s and into the 2000s. Yet my sense of the pending energy bill is that it's pretty pathetic as any sort of attempt to deal meaningfully with our problems.
>
> –Think tank director

Concern that future efforts to develop national energy policy won't be productive:

> It's a failure of political leadership. There's no sense of urgency in the population at large. Nobody's been forced out of their entrenched point of view.
>
> –Power/utility CEO

> Things are getting worse. FERC tried to push Standard Market Design and while they got support in the northeast, the southeast and most of the west was adamantly opposed, and still is. It is not a Republican v. Democrat issue. It's a regional issue. It is a divide that is of great significance.
>
> –Industrial user association CEO

Market Regulation

Little or no change in state regulatory policies:

> I worry more about the hybrid [some states restructured, some not] than I do anything else.
>
> –Power/utility CEO

> I think it's jurisdiction by jurisdiction. I don't think there's a blanket answer.
>
> –Power/utility CFO

> Either the surplus or the absence of generating capacity is going to drive that on a region-by-region basis.
>
> –Power/utility CFO

> Movement towards open markets will continue, but at a very gradual pace. I don't think you'll find any state that'll take on the risk of deregulating their based electricity market through state legislative action, based on the experience of the states that did deregulate.
>
> –Power/utility CEO

> We see a continuation, for a very long period of time here, of an integrated utility approach. Classic regulation – rate base, rate of return regulation – rather than market-driven regulation.
>
> –Power/utility CEO

> You'll see some wholesale generators build plants, but they'll know exactly where they're going to sell that energy. More of a traditional business model than "build it and they will come."
>
> –Power/utility CFO

> I would not predict major national reform to bring competition to the energy markets. Folks want that provider of last resort, that hand to smack, that regulated monopoly they can always turn to for reliability.
>
> –PUC commissioner

> I think it's dead. It's a great idea, it serves industrial and commercial customers very well; it does not serve Mr. and Mrs. Jones very well.
>
> – Investment banker

> You've got a part of the country that was reasonably satisfied with the system as it was. You've got a part of the country that has exercised its right to change it. That's not a bad thing. There is a benefit to having different approaches in a time of uncertainty. It may very well permit us to determine which approach is right. I don't know that we'll see a coalescing around one of these two approaches in that timeframe. We don't know yet in telecom, and that's been nine years.
>
> – PUC commissioner

Will be some changes in the regulatory policy framework:

> Rising energy prices have blurred the comparison between regulated and unregulated regions in terms of who has the lowest energy costs. As time marches on it will become incredibly clear that deregulation's better for consumers.
>
> –Power/utility CFO

> Ultimately the large industrials will get access, similar to what happened on the gas side. It's not appealing to residential customers.
>
> – Power/utility CFO

Conditions will be favorable for companies seeking to add assets to the rate base and/or raise rates:

> Our utilities have had general rate cases in which they've had to increase general rates, in addition to fuel increases. Our commissions still recognize the need to build more infrastructure. If fuel prices continue to go up then we'll be back asking for more for fuel.
>
> –Power/utility CFO

> Between now and 2010, the principal increment in shareholder value will come from the regulated generation piece of our business.
>
> –Power/utility CEO

> For those of us in regulated states the top growth prospect is to make that investment and to secure a regulatory return on that investment.
>
> –Power/utility CFO

> It's going to be difficult to get rate increases. Regulators don't like to give rate increases. But it won't be much different than it's been in the past.
>
> –Power/utility CEO

Conditions will be unfavorable for companies seeking to add assets to the rate base and/or raise rates:

> Historically the return on equity has been 300-350 basis points above the long bond. The 10-year bond is at 4.5%. So that would be earning 8% or 9% on equity. A lot of these companies are way above that. I think there are going to be some rude awakenings when these companies come back in [asking for rate increases].
>
> –Power/utility CEO

> Nobody's going to allow a regulated utility to go out and build a regulated plant and put it into the rate base, which jumps rates up 10 or 15 percent up front to pay for the plant and over the years it gets fully utilized. They're going to say, "Buy it from the wholesale market, and spread it out. We don't want to see big rate increases."
>
> – Power/utility CEO

> Ask regulators what they've done over the past 20 years. How many dollars did they force utilities to write off because they took an after-the-fact view of what was reasonable and what was necessary? Ask them what they did with respect to working capital, cost of capital, a whole series of things. All in an effort to reduce rate increases.
>
> –Power/utility CEO

> Regulators will focus on investment in utility infrastructure, because they believe it's aging all across the country. In some areas there's a focus on investing to improve customer service. But I wouldn't want anybody to assume they're going to readily raise rates to cover all that. There will be increased focus on creating productivity savings that can then be put into infrastructure investment. And they'll look for other ways to offset rate increases. People are not going to be all that open to having big rate increases.
>
> –Power/utility CFO

> Regulators are going to feel a lot of pressure if rates go up because of rising fuel prices. Adding assets to rate base and raising rates will be very politically sensitive.
>
> – Private equity fund partner

Adding assets to rate base eventually disadvantages regulated companies compared to unregulated companies:

> It's a dangerous position to put yourself in from a long-haul strategic perspective, because it will make it more and more apparent that your energy costs are not competitive with what consumers are seeing in competitive regions, where decisions are made on an economic basis.
>
> –Power/utility CFO

More dialog between industry executives and regulators would help smooth the resolution of recovery issues that may arise in rate cases:

> Rather than utilities coming to the regulators at the time of the rate case, and then having all the brouhaha, if both sides were proactive and had conversations from the beginning it might avoid some of that atmosphere. If they were having the conversations as they see things unfolding, there could be ways the commission and the utilities could be working together. There would be no surprises.
>
> –PUC commissioner

M&A would be beneficial:

> Fewer bigger, stronger players in this industry would be good for America. We have hardly any R&D going on in this industry. We pretty much make electricity the way we always have. Companies are too small. They don't have the resources.
>
> –Power/utility CFO

Mergers and Acquisitions

Conditions will be conducive to M&A:

> There is a tendency to think, "How do I augment my fundamental growth story?" Some places in the country maybe you're looking at 1% growth. So how do you compete for capital when that's your story?
>
> –Power/utility CFO

> PUHCA isn't an impediment. If it were repealed it would be nice because it would take one level of reporting out.
>
> –Power/utility CEO

> I don't think PUHCA repeal is essential for mergers to proceed.
>
> –Power/utility CEO

Conditions will be unfavorable for M&A:

> The problem is, when you merge you grow by taking the costs out. The regulator comes and grabs it. So I don't see a lot of M&A activity.
>
> –Power/utility CEO

> The issue around mergers and dealing with utility commissions has been that normally the economies of scale that would be the result of a merger tend to get passed onto the consumer in the course of the regulatory negotiations, so there's nothing left to pay the acquisition premium.
>
> –Power/utility CFO

> I just think the acquiring company has a hard time justifying it to their shareholders because the regulators will sweep up any savings.
>
> –Power/utility CFO

> People are reluctant to give high valuations where there is parity in the marketplace. It makes it harder to go in and give a bunch back to regulators – pay off the ransom demands in order to get it done.
>
> –Power/utility CFO

> M&A only happens in this industry at the convenience and will of the CEO. In other industries when companies are having performance problems Wall Street starts the drumbeat for change. It's a very effective influence on boards. In this industry you have managements who can effectively stop any hostile takeover by their influence over the local public service commission. They can stop a deal cold. And boards are locally-focused. They want to sustain the local company's independence. So hostile activity is not a real viable threat like it is in other industries.
>
> –Power/utility CFO

You can't grow faster than the growth of your service territory. You put two together and you cut out costs and you can grow a lot. But then you've got a bigger company, and it's harder to move the meter on it. So I don't see that.

–Power/utility CEO

Mergers might make sense for the non-regulated areas of our industry, the independent power producers. The regulated part of the sector can't support a lot of M&A. It'll be very one-off, very situational. I don't see the wave ever happening. As long as there's state regulation and federal regulation, every constituency will demand its piece of the deal, and there's just not enough to distribute.

–Power/utility CFO

It would be hard for one of the mega-companies to come in and propose a merger with one of our utilities and be able to show benefits to our ratepayers.

–PUC staff director

When I talk with other commissioners, everybody expects to see mergers, but no one wants to see the corporate offices leave their state. Companies are difficult to deal with on records and other information when they're housed in a different state. We've experienced that.

– PUC commissioner

Moderate amount of consolidation but not a major impact:

There will be some consolidation. I don't know that I'd say significant. Combinations that make sense – strong over weak, more than anything else.

–Power/utility CEO

If PUHCA is struck I think you'll see a little bit of an increase in the level of acquisitions. I don't think you'll see massive consolidation, and I don't think you'll see tremendous numbers of transactions. You still have to go through all the state regulatory process, you still have to show savings, and you still have to give some of those back to customers. That's a big inhibitor.

–Power/utility CFO

State merger conditions need to be better monitored and enforced:

What I've found is that the fact a stipulation is in place doesn't necessarily mean the staff follows up to ensure that what everybody agreed to occurs. Commissions need to be better informed, need to be more engaged in monitoring, be more proactive.

–PUC commissioner

Energy Demand

Demand growth will rise along with an expanding economy and/or energy efficiency programs won't have a big impact on demand:

We see the economy doing OK.

–Power/utility CFO

Over the next five years I think there's a much higher probability demand will stay the same or increase.

–Power/utility CFO

I can look back the last 20 years and we have been so consistent – between 2% and 3%. If we're in a recession then it's 2%, and if we're in times of growth then it's 3%. I think it's pretty predictable.

–Power/utility CFO

The current thinking of most of the experts in the field is that we're entering a period of accelerating demand. It's very much a product of economic expansion.

–Power/utility CFO

I've never seen mass conservation programs to be successful except in conditions of severe supply constraint. There seems to be a huge amount of tolerance toward increases in the price of power.

–Power/utility CFO

No party has a natural interest in having that happen. You're not going to get competitive generation suppliers to suggest we ought to have big programs in energy efficiency. And once utilities are out of the generation business, which they are in every deregulated state, there's no justification for them to spend dollars to avoid somebody building a power plant.

–Power/utility CEO

Demand growth will be curtailed by economic downturn and/or energy efficiency efforts:

The one concern I have is the effect on the economy of higher prices for natural gas, oil, and gasoline, and how this might limit growth.

–Power/utility CFO

I think the one thing that could cause a reaction is rising interest rates.

–Power/utility CFO

Higher oil prices are going to go a long way towards reducing demand. People chronically underestimate demand elasticity associated with high prices.

–Power/utility CFO

Gas prices at $6-7 per decatherm are going to wipe out the residential market sooner or later.

–Power/utility CFO

We're concerned about the ripple effect of rising petroleum prices on the cost of all the things utilities buy – oils, grease, parts and pieces, the transportation of fuel. And in the economy generally, the effect of rising prices on lots of other products could be more than the consumer can bear.

–PUC staff director

Creative new recovery mechanisms are being driven by investments related to energy efficiency. We're rethinking public benefit funds, we're looking at issues relating to decoupling, we're looking at long-run portfolio integrated resource planning. We're starting to look toward these mechanisms that address sales revenues lost by the utility due to energy conservation efforts.

–PUC commissioner

Environmental Protection

No major changes in the existing policy framework on environment/global warming:

The face of environmental regulation has pretty much been set for the next decade, through these clean air interstate rules. For the next decade you know what it's going to look like.

–Power/utility CFO

If we see a run-up in oil prices that crimps the economy, concerns about energy supply could trump concerns about the environment.

–Power/utility CFO

Price volatility, affordability concerns, and the ripple effects through the economy will force people to be more rational and more disciplined about how they frame the issues and talk about solutions.

–Power/utility CEO

In the next five years, I'd put global warming at the lower end of the list, because there doesn't seem to be as much agreement on how to address the issue.

–Power/utility CFO

There's still a lot of science out there that says this global warming thing is not real. Most people see it as an international political hodgepodge, not necessarily science.

–Power/utility CEO

With regard to simply cleaning up power plants I think we're doing everything that can be done, unless there's some technology breakthrough.

–Power/utility CFO

The issues with conventional pollutants are money and cost recovery. They are not technically challenging. We know how to put the facilities on, but they are giant, very capital-intensive facilities. So the risk is around cost recovery.

–Power/utility CFO

I don't know if we'll see national global warming legislation in five years. It's moving so slow, it is kind of hard to envision in five years.

–Power/utility CFO

I don't see it happening on a national basis.

–Power/utility CFO

You're not going to get a global warming treaty through the Senate, not for the next several years.

–Power/utility CFO

For the environmentalists global warming is a hot issue, but for most people it doesn't show up on their radar screen. Things going on in the local economy, jobs, schools, taxation – those are bigger issues for them than global warming.

–Power/utility CFO

Our state legislature has spoken on these particular issues and generally they feel fairly good about where they are. Because of what's been done over the past five or six years I don't see major changes on the horizon.

–PUC commissioner

Will be major changes in the policy framework on environment/global warming:

We are likely to see EPA prescribing more stringent air pollution requirements, using existing authority under the Clean Air Act.

– Public power executive

We're living in a period of time when the environmentalist does not have the upper hand. I don't see that as a static situation. It doesn't take much to tip it over.

– Power/utility CEO

I think there will come a time when the public, through government, will require that we do prompt remediation of fossil plants.

– Power/utility CFO

Over the next decade, relatively rigorous regulatory and legal requirements will be put into place regarding greenhouse gases. Remember, we were only about 60,000 votes in Ohio away from acquiescing to the Kyoto accords. That can change over four years.

– Power/utility CFO

We may never adopt Kyoto, but I don't think it'd take that for global warming to become an issue. I really think it's not going to be too much longer.

– Power/utility CFO

I don't think anybody can say factually either way. But there's certainly a groundswell of belief that it [burning fossil fuels] is a contributor. We don't have any interest at all in trying to fight that groundswell. That's not productive. So we'll be looking at what options are good for the country to reduce the burning of carbon-based fuels.

– Power/utility CFO

I think carbon will be a big issue.

– Power/utility CFO

Within five years, carbon constraints will become quite real.

– Environmental group director

Changes in climate policy can have a differential impact on corporate strategies:

CEOs in the nuclear business say we ought to have carbon reductions and caps. Well, they're burning nuclear fuel and natural gas, and they're going to screw those coal plants as much as they can. It's not a pure world.

– Power/utility CEO

I think utilities are considering greenhouse gases in what they're doing. That may be driving the consideration of new nuclear stations.

–PUC staff director

If there's a carbon tax, some companies will be winners and some will be losers. If electricity prices increase, and some companies have compliance costs and some companies don't, that's going to have an impact on the industry.

– Environmental group senior attorney

Support from traditionally conservative groups will promote new environmental requirements:

We deal with them. I know folks involved in those efforts. There really is change underway.

– Environmental group director

Trading in emission permits will develop and prove viable:

Cap and trade programs make it tenable for competitive companies like us, who can't just push the cost of new environmental equipment through to the end-use consumer.

– Power/utility CFO

I can't even imagine a carbon regime without trading, because I don't think you could have coal in any meaningful respect [without trading].

– Power/utility CFO

We're for cap and trade. We think it's the right way.

– Power/utility CEO

Concerns about cap and trade as an emissions control mechanism:

I don't know that the cap and trade solution holds water. There's just no sympathy out there for the idea that my environment can be worse because you can buy these allowances. How does that work for my children and grandchildren?

– Power/utility CFO

We're well aware of the cap and trade idea. We don't think that's the optimal idea. We think a federal carbon tax that replaces some other taxes would be a better idea.

– Power/utility CFO

I would rather go ahead and address the problem, and be able to stand up in front of our public and say, "We fixed our problem and didn't pass it off on somebody else." That would be my preference.

– Power/utility CFO

The lack of clear public policy calls into question the advisability of embarking upon voluntary environmental initiatives:

Until you know if you have to clean something up to 5, or 4, or 13 grams per cubic meter, or whatever the metric is, you don't know what to do. It becomes a priority only when the legal framework becomes clearer.

– Power/utility CFO

Activity at the state level will be significant and could have an impact on national policy:

Where we're encountering the biggest challenge really is with some of the state regulators.

– Power/utility CFO

Suits by state attorneys general have shown that the state might take an action against you that the federal government might not choose to join. Tobacco companies learned that. You can have a lot of mischief with the states after you.

– Power/utility CEO.

The northeastern states have all already said that they're going to cap CO_2 emissions from power plants, and they're talking about implementing that rule in 2008 or 2009 at the latest. They haven't wavered.

– Environmental group senior attorney

Lower water levels are a sleeper issue:

Water use by the power sector is a huge issue, a sleeper, and people aren't paying adequate attention to it. In a warming world, we should be doing contingency planning for how to deal with increasing drought frequency and intensity.

– Environmental group director

Viability of Different Fuels

Coal

Favorable considerations regarding coal as a power generation fuel:

> Because coal has lower operating costs than natural gas, it'll have elevated prospects when it's perceived that high natural gas prices are here to stay.
>
> – Power/utility CFO

> It's interesting how much attention coal is getting right now. There's a lot of renewed activity in coal mines. Tire manufacturers who make the tires for the 300 ton trucks that carry coal out of the mines can't keep up with the demand – they're sold out through 2006.
>
> – Power/utility CEO

> There are ways to mine and process coal that deal with the majority of the air quality issues and don't have some of the issues that you get with the imported fuel.
>
> – Power/Utility CFO

> Even for a pulverized coal plant, the coal companies will give you prices below today's levels for a long-term contract.
>
> – Investment banker

Negative considerations regarding coal as a power generation fuel:

> The obvious countervailing consideration there is environmental.
>
> – Power/utility CFO

> If you're talking to utilities in the coal belt, their big growth is to build scrubbers. There's no production capacity acquired, there's no productivity enhancement. It's a productivity negative. So that's a good growth vehicle, to go and put rate base on top of things and get a return on it, but it's got negative regulatory implications and all it's doing is raising rates.
>
> – Power/utility CFO

> A big issue in terms of coal use is coal transportation. And there the costs are going crazy. Utilities that burn coal are generally captive to one carrier. The railroads are immune to antitrust laws. Coal freight rates are an instance where we might see more rather than less regulation.
>
> – Public power executive

Natural gas

Favorable considerations regarding natural gas as a power generation fuel:

> I think Congress has got to open the doors to parklands, and the Alaskan gas pipeline, and oil at ANWR, and offshore. There is supply there.
>
> – Power/utility CEO

> Natural gas is critical. You're going to see a lot of the LNG plants. You'll see the opening up of some additional lands. There is no really good second choice to natural gas right now.
>
> – Power/utility CFO

> The security concern about oil is its huge concentration in the Middle East, and the coalition that has arisen there. The sources of LNG are more spread out. It seems as though that would be a harder coalition to form than OPEC.
>
> – Power/utility CFO

Negative considerations regarding natural gas as a power generation fuel:

> In the lower 48, with the possible exception of the Rockies, most of the environmental restrictions that you have in place are going to stay in place. I don't think there will be any relaxation in the offshore.
>
> – Power/utility CFO

> Having my house across the street from an LNG facility is probably not statistically as risky as speeding on a freeway, but since I don't understand it and I don't control it my perceptions are different.
>
> – Power/utility CFO

> If the U.S. permitted and constructed every LNG terminal that's on the books right now and everything went perfectly, you'd only address about 2% of the growth in demand nationally, so that's not necessarily the answer.
>
> – Power/utility CFO

> Even if LNG receiving terminals are built, I don't think LNG will have that much impact. At least the forecasts that I've seen. Not if we keep building gas-fired generation.
>
> – Power/utility CEO

> The weather in Europe is going to affect the price of gas in this country. If they can get more for that LNG, it's not coming in here, it's going to Europe. And Europe is going to need a lot more gas to satisfy their Kyoto limitations. So it's going to be dicey.
>
> – Power/utility CEO

> I do think some LNG plants will be built, and I think it will be helpful, but I don't know that it's going to be significant enough to really make a difference in the pricing. We're concerned enough about gas prices that we're turning back towards coal.
>
> – Power/utility CFO

> Even the LNG terminals we have aren't running at capacity now, and gas prices are at $8. Part of it is a tanker issue. Part of it is a China issue, and a Japan issue. When Japanese nukes go down, is LNG going to come to the United States, even if we have 20 terminals? Maybe not.
>
> – Power/utility CFO

> Everybody says you can land LNG at $3.50-$4. That's true, but it isn't going to come to the consumer at that level. It's going to come at the world price.
>
> – Power/utility CEO

> All those LNG boats that are coming to the U.S. now – they've got rudders. They can turn around and go the other way. That's going to drive the market price up.
>
> – Power/utility CFO

> In looking at sources for future generation, we're concerned about too much more emphasis being placed on natural gas generation, particularly with the volatility of the prices of gas.
>
> – PUC staff director

Nuclear

Nuclear's fortunes could revive within the next five years:

> The balance is tipping in favor of more coal, but also more dependence on nuclear. Many environmentalists seem to lean towards using nuclear power instead of much more dependence on fossil fuels.
>
> – Power/utility CEO

> The increasing cost of a coal-fired plant that's environmentally benign is sooner or later going to approach the cost of a nuclear plant, if you build one that's large enough so you get the economies of scale.
>
> – Power/utility CFO

> You look at opinion surveys, and the younger generation doesn't have the same negative biases about nuclear as the prior generation.
>
> – Power/utility CFO

> We must maintain the nuclear option, for security of supply and because it has an enormous impact from an environmental standpoint on emissions.
>
> – Power/utility CEO

> You've got a certain segment of the public that wants nothing to do with nuclear no matter what. On the other hand, a significant percentage of the public thinks our experience with nuclear generation over the past 20 years has been pretty successful. Some companies are looking at it as an option for meeting new baseload, and they feel nuclear is a way to generate additional power without increasing greenhouse gas emissions.
>
> – PUC commissioner

Nuclear won't stage a comeback within five years:

> We ought to be going to nuclear, but the costs don't work. I'm all for doing nuclear plants, but they don't make economic sense right now. Moody's and Standard & Poor's would go bananas.
>
> – Power/utility CEO

> A nuclear resurgence would require a fossil fuel catastrophe and an environmental crisis. Even then government would have to pay for it, and you'd have to have state regulators who were very lenient about permitting reimbursement.
>
> – Power/utility CFO

> It'll take a long time and a lot of money. Not something our company intends to deal with. Our lives are too short.
>
> – Power/utility CFO

> If there's no place to put the fuel there's not going to be a big interest in building the plants.
>
> – Power/utility CFO

> Settling the Yucca Mountain dispute is not a matter of if, it's a matter of when. Once Yucca Mountain is cleared, I think you'll see nuclear get built. I do believe nuclear is going to be a big part of the answer, but in the10 year timeframe rather than in five years.
>
> – PUC commissioner

> We will have a robust discussion about new nuclear power plants over the next five years. But we haven't made significant progress in handling the issues that stopped new nuclear plants 30 years ago, and that is developing a safe and permanent means for the disposal of radioactive waste. That's going to be an extremely pressing concern.
>
> – PUC commissioner

> I think we're looking at a much longer timeframe for any further development of nuclear technology. The Nevada question has to be settled. A five-year horizon is too short to be optimistic about investment in that technology.
>
> – PUC commissioner

Advanced and Alternative Fuels

The role of alternative fuels won't grow significantly:

> The role for renewables over the next five years? I don't see much. Just incremental additions.
>
> – Power/utility CEO

> Renewables won't address the big baseload needs that most service territories have. But they're certainly a way that you can make a difference around the edges.
>
> – Power/utility CFO

> With the exception of wind generation, renewables will play a minority role over the next five years.
>
> – Power/utility CEO

> We looked at new nuclear technology. Spent a long time on it. Doesn't work. The economics aren't there.
>
> – Power/utility CEO

> We're not very involved in looking at carbon sequestration. We think a better technology would be nuclear.
>
> – Power/utility CFO

> The solution is not hydrogen. To date, we can't store or transport hydrogen efficiently and effectively to meet the needs of a total hydrogen economy.
>
> – Power/utility CEO

> Renewables are nice, and environmentally friendly, but they just don't seem to have the magnitude of power that will be required to be added.
>
> – PUC staff director

The role of alternatives will grow significantly:

> It makes sense to me to begin to think today about how we can make ourselves less dependent on foreign fossil fuels in the future. Renewables look to me like a good bet in that regard.
>
> – Power/utility CEO

IGCC has promising prospects, although not necessarily within five years:

> This is the Saudi Arabia of coal. Clean coal is something we should spend more time, money, and effort on.
>
> – Power/utility CFO

> Gasification has its issues, but that technology is feasible, it's operable, it's permittable. Economically it hasn't been as attractive as other options, but when you put all the various controls on the boilers, you get pretty close. And when oil prices are what they are, and gas prices are what they are, it becomes much more economically feasible.
>
> – Power/utility COO

> Our state is interested in participating in a joint clean coal project with the federal government. The legislature is working on that, and the governor has appointed a clean coal technology council.
>
> – PUC commissioner

> Given that we've got significant coal reserves, and given that IGCC, possibly combined with carbon sequestration, may make it possible to use more coal than we thought we were going to be able to during the gas boom, it's something that I'm interested in, and some of it's something that our companies seem to be warming to.
>
> – PUC commissioner

> Very little can be done within five years. I don't think you can get one constructed – sited, engineered, all the process done. It would be very close.
>
> – Power/utility CEO

> Getting recovery for IGCC may be very feasible where reserve margins are inadequate. In a case like that the regulators can adopt the rationale that as long as we have to do it anyway there's a political benefit to doing it in an environmentally-friendly way. But that assumes IGCC costs can be brought down to commercial levels. I have yet to see that.
>
> – Equity fund partner

IGCC's prospects are dubious:

> The idea that a utility company that makes money only on its investments will take a $50 million technology flier is a difficult proposition for me.
>
> – Power/utility CEO

Infrastructure Reliability and Security

System Reliability

Reliability won't be an issue, and major new government requirements concerning reliability are unlikely:

> Frankly, I think the system runs pretty reliably as it is.
>
> – Power/utility CFO

> It doesn't really scare me if they do impose federal standards for reliability. We're in favor of it.
>
> – Power/Utility CEO

> As we move into a time when we need new baseload capacity, in deregulated regions I have no reason to believe that it won't be built.
>
> – Power/Utility CFO

> It's almost moot at this point. If you don't follow NERC standards and something happens, the state regulators and FERC are going to beat you up anyway.
>
> – Power/Utility COO

In the near term, through 2007 or 2008, we don't see any capacity issues, with the assumption we can move expeditiously through our planned transmission upgrades.

– Power/utility CFO

Investment in infrastructure is our growth initiative for the next five to 10 years. We're solving an infrastructure problem which is common to the whole United States.

– Power/utility CEO

Reliability will be an issue, and there is the possibility of new government requirements concerning reliability:

[What about another blackout like August 2003 – would that cause Congress to act?] I see both as being probable.

– Power/Utility CEO

They say the only things that are certain are death and taxes. I'd add electric outages. There will be another one. A fairly significant one. Who knows where it will be?

– Power/utility COO

We're definitely set up for another big reliability failure. The industry wants to spend billions upgrading the transmission system, but there's no guarantee that's going to increase reliability. All it's going to do is make it easier for power marketers to exploit differences in prices between markets.

– Consumer advocate

Reliability improvements will happen because of customer pressure:

Customers will demand certain amounts of reliability and that's what will drive infrastructure investments for the purpose of improving reliability, more so than federal mandates.

– Power/utility CFO

Homeland Security

No major new government requirements concerning security:

Taking out a nuclear plant would have a bigger fear factor, but I just don't see that it would be possible.

– Power/utility CEO

Could be new government requirements concerning security:

They can impose all the security standards they want, but the fact is that it's extremely difficult to protect infrastructure. How many lifeguards are you going to put on the beach? One per person? It's pretty expensive.

– Power/utility COO

On the security front, you will continue to see more rules adopted. We're already there on nuclear. There will be more on transmission.

– Power/utility CFO

Infrastructure spending for both reliability and security will be significant in this sector. The obligation to serve is fundamental. It's not that I anticipate more 9/11s or more instability. We've seen enough. All you need is one event and that drives decision-making for a very long time.

– Power/utility CFO

Will be different responses in different jurisdictions:

As you get further away from 9/11, both geographically and time-wise, the less urgent this appears to be. Some states are in the forefront with respect to their homeland security efforts. But in some states the regulatory commission has no idea what's going on, has no idea who's in charge with respect to homeland security.

– PUC commissioner

Reimbursement for security investments will be an issue:

If a utility has to get a rate increase related to a security infrastructure upgrade it can get hairy. When you do the prudency review of security measures, who can get what details on the security measures? The commission may need to go to the state homeland security department and ask for a certification that these are the right security measures and the right costs.

– PUC commissioner

Capital Availability

Capital markets will be favorable towards the back-to-basics approach:

The core of our investors want to be sure there's stability. If stability is somewhere between 2% and 3% growth, that's attractive enough for them.

– Power/utility CFO

There will continue to be a role for a low-risk, cash-driven business model. Will this niche continue for the next five years? Oh yes. It's been strengthened by the current dividend tax.

– Power/utility CFO

I think there is a place for the more traditional utility investment in a lot of portfolios. That's where we're trying to take our company.

– Power/utility CFO

We can get all the capital we want. There's a lot of cash out there that's looking for regulated, sure-fire returns in the 8-10% range, with low risk.

– Power/utility CEO

> Our strategy is: there's nothing wrong with being a utility.
>
> – Power/utility CEO

> I'm a big believer in the value of the back-to-basics, integrated model. In an environment of volatile financial markets, the ability to consistently generate a total return in the 8.5% range is very attractive.
>
> – Power/utility CFO

Desire for more growth will become a bigger factor:

> The capital markets are going to get impatient with utility companies just being utility companies.
>
> – Power/utility CFO

> The capital market has been satisfied with companies like us who say we're going back to basics. But you look back over a long period of time and you see that the capital markets also push for growth rates.
>
> – Power/utility CEO

> Recently investors have been happy with companies stopping doing bad things, returning the money. I don't think that discipline will remain within the companies for long, and I don't think it'll remain in the capital markets for long.
>
> – Power/utility CFO

> There was this window of time in 2002, 2003 when the markets did a flight to quality. Which they do whenever there's a market crash or big experience of risk. Multiples zoomed up for basic, low-risk utilities. That'll change. That's not sustainable. It's not real for a low-growth enterprise to have such high PE multiples.
>
> – Power/utility CFO

Adverse developments in areas such as regulatory treatment will be a problem:

> In this industry if you get problems – with the environment, or regulation – that will have a negative effect on the cost of capital.
>
> – Power/utility CFO

> If earnings are less in terms of the authorized earnings from the regulators, then the stock price is going to be less, and there'll be a lower volume of trading in that stock. Fun business to be in, huh?
>
> – Power/utility CEO

Opportunities to build value through operational efficiencies are dwindling.

> There's a little bit left in operational efficiencies, but I think we're at the top end of the curve. The low-hanging fruit is gone. Now you have to look at replacing people with technology, but those are significant risk issues.
>
> – Power/utility CFO

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