

1 Q. Referring footnote 6, page 14: Please provide a complete explanation,
2 together with any documentation, of the extent to which the referenced S&P
3 guidelines pertain to government-owned electric utilities in Canada and the
4 U.S.

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7 A. In its August 1999 report, "Rating Methodology for Global Power Utilities"
8 (please see attached), S&P states that its rating methodology for global
9 power utilities incorporates two basic components:

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11 Business profile (qualitative analysis) expressed on a scale of 1
12 (strong) to 10 (weak). The business profiles incorporate country risk,
13 sector risk, and utility-specific risk.

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15 Financial profile (quantitative analysis) measuring financial strength by
16 assessing a utility's ability to generate consistent cash flow to service
17 its debt, finance its operations, and fund its investment.

18
19 The rating methodology identifies four utility types, of which one determining
20 criterion is the degree of government ownership (if any). Type I utilities
21 ("supported") include those utilities where there is "overwhelming
22 governmental and regulatory support. Support can be expressed in the form
23 of a guarantee, as in Canada or France". Business profiles for Type I utilities,
24 where possible, are first determined on a stand-alone basis. However, the
25 credit quality of the government or other entity providing explicit support is
26 incorporated in the ultimate rating.

1 In its January 2003 report, *Stability Expected in the U.S. Public Power Sector*
2 *Despite Increasing Risk and Market Volatility*, S&P stated that,

3 “Most public power utilities tend to fall into the “3” to “6” range,
4 benefiting from a high regulation score, since public power entities are
5 not subject to state regulatory approval of rates. The business profile
6 score, or overall business risk, is then used to evaluate the
7 appropriateness of the financial position of the utility and legal
8 covenants of the existing debt instruments.”

Research:

Rating Methodology For Global Power Utilities

Publication date: 30-Aug-1999

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While global power utilities all operate within the electric utility industry, this universe of credits is far from a homogenous group. As such, Standard & Poor's criteria approach to rating power companies located around the world is flexible. Since power is produced and consumed locally, a utility's success is tied to its unique macroeconomic and operating environment. Furthermore, utilities have different ownership structures, varying government support, and diverse regulatory regimes.

The majority of international electric utility systems are disaggregated, which results in disparate risks for generation, transmission, and distribution functions.

In order to evaluate these diverse credit risks, Standard & Poor's rating methodology for global power utilities incorporates two basic components:

- Business profile (qualitative analysis), and
- Financial profile (quantitative analysis).

The two components are inextricable. For example, a utility with a strong business profile could have less financial protection than one with a weaker business profile, yet they could still achieve the same rating. Conversely, a utility with a weak business profile could require a more robust financial profile than one with a stronger business profile in order to get the same rating. This basic matrix is illustrated in Table 1.

Table 1 Global Utility Rating Matrix				
Indicative Ratings				
	Weak	A	BBB	BB
Financial Profile	Average	AA	A	BBB
	Strong	AAA	AA	A
		Strong	Average	Weak
			Business Profile	

■ Business Profile

Standard & Poor's utilizes business profile assessments to measure a power company's qualitative credit fundamentals. Business profiles are expressed on a scale of 1 (strong) to 10 (weak). Business profiles incorporate country risk, sector risk, and utility-specific risk. To determine a business profile, Standard & Poor's analyzes the key qualitative business or operating characteristics typical for any utility that include:

- Regulation,
- Markets,
- Operations,
- Competitiveness, and
- Management.

■ Identifying Utility Types

The weighting or analytical emphasis that each business profile criteria receives is strongly influenced by the type of utility. Broadly speaking, utilities differ by degree of regulatory protection, and domicile. In addition, utilities which are wholly government owned may receive extraordinary support, which can be aligned with, or act as compensation for, regulatory actions. Standard & Poor's has identified four types of utilities. The type is determined through analysis of the influence of government ownership (if any), the degree of financial stability derived from the structure of the industry, and the relative

competitiveness of the system. Investor-owned and government-owned utilities can be found in all four types, and more than one type may exist within the same country. In addition, Standard & Poor's distinguishes between utilities which operate in developed markets versus those that operate in emerging markets. Utilities domiciled in emerging markets face special challenges.

Type I utilities ("supported") operate within systems where the utility receives overwhelming governmental and regulatory support. Support can be expressed in the form of a guarantee, as in Canada or France, where the government guarantees its utilities' debt obligations. Support can be explicit, as in Greece, where the government facilitates the utility's access to external sources of capital, or, as in the Slovak Republic where the utility has a key role in executing the Slovak government's as designated by SE's status as a sheltered monopoly and "Key Strategic Enterprise," Type I utilities need not be completely owned by government, but government ownership is usually present. Type I utilities are clearly rated higher than they would otherwise be if privately owned. The rating "enhancement" could be one or several notches above a hypothetical "stand-alone" rating.

While implicit support, such as favorable regulatory treatment through an arm of the government, will be indirectly factored into a rating, a Type I rating derives more significant and direct benefit. Before attributing support from the government, Standard & Poor's reviews the track record of assistance, the procedures and timeliness of support mechanisms, and the government's policy objectives for utility ownership and financial policies. Standard & Poor's looks for evidence that the government would stand behind a debtor in time of financial need. Historical written and oral statements and significant supportive actions build credibility. In addition, Standard & Poor's considers incentives for the government to provide tangible support. Questions asked include:

- What would be lost if a payment were missed?
- Would the borrower be able to continue to operate if it defaulted on a debt?
- Is the name of the borrower closely tied to the government in the market's perception so that a default by the borrower would cause the government difficulties in the capital markets?
- What are the political realities?

Type II utilities ("sheltered") conduct business where the utility is sheltered from competition and financial variability by the government or regulator. Sheltered utilities are not necessarily owned by government. Japanese investor-owned utilities are one example of such utilities. These vertically integrated utilities historically have been insulated from competition and protected by a very cooperative, coordinated rate-setting process, often a cost-plus tariff regime. While generally highly leveraged, these utilities' financial results are quite stable. Transmission companies are often regarded as Type II utilities. Viewed as the backbone of a nation's electric utility system, transmission companies often enjoy the most stable tariff setting formulas (such as revenue caps) and the least competition among various industry players.

Type III utilities ("exposed") includes the largest number of companies, such as vertically integrated utilities in the United States or non U.S. distribution companies. International vertically integrated utilities tend to be Type I or II. Type III utilities are identified by evidence of some regulatory insulation from the forces of competition mixed in with exposure to business risk. Although Type III utilities have certain franchise monopoly characteristics, their financial success may hinge more on their ability to control costs and provide high-quality service. Financial results also can be highly influenced by the market they serve, in terms of economic health and customer mix.

Type IV utilities ("commodity") are essentially unregulated as to revenue or return. Unregulated generators, such as those in Argentina and Chile, owe their success or failure to their ability to operate well at low cost and attract and retain customers through contracts, and are also subject to the sometimes harsh realities of supply and demand.

Business profiles of Type I utilities are first determined on a stand-alone basis, where possible. The ultimate ratings will incorporate, to varying degrees, the credit quality of the entity providing explicit support. For Type II utilities, the business profile factors of regulation and markets are weighted more heavily than other criteria such as competitiveness or management because of the supportive regulatory umbrella. Conversely, for Type IV utilities, operations, competitiveness, and management are the most heavily weighted criteria. Business profile factor weightings for Type III utilities are more evenly distributed across all five criteria.

Another important point is that many utilities are gradually transitioning from Type I to Type II or III, and perhaps to Type IV. As many countries' electricity sectors are privatized, or undergo structural reform and introduce competition, Standard & Poor's will weigh more heavily the business profile factors of

operations, competitiveness, and management. As this occurs, the business profile assessments will fall, and rating downgrades could result, absent offsetting improvement in financial profiles.

Emerging market utilities span all four types of utilities. Emerging market utilities can be defined as those that operate in non-investment-grade countries and also countries with undeveloped capital markets or transitional economies, such as those that previously formed the Soviet Union. These countries may experience greater macroeconomic volatility and greater regulatory/political pressures than developed market counterparts. Lack of depth and liquidity in capital markets results in less attractive financing options for businesses operating in developing markets. Specifically, utilities may be exposed to significantly greater foreign exchange risk, interest rate volatility, and inability to stagger or extend debt maturities. As a result, markets may be considered riskier and weighed more heavily in the overall business profile. Similarly capital structure, which incorporates currency and refinancing risk, will be weighted more heavily, as will overall limitations on financing flexibility.

■ Typical Business Profiles

Owing to the relatively low business risk of large transmission systems and regulated distribution systems (the "wires" business), business profile assessments for these companies should fall within the 1-4 range. The generation business is the most risky, reflecting the competitive nature of this business, and generators will generally receive business profile assessments in the mid- to lower-end of the range.

The business profiles of electric systems with elements of integration, either fully vertically integrated from generation through transmission to distribution, or partially integrated, for instance, through generation and transmission, reflect a weighted approach, reflecting the relative importance of each business segment to the overall credit. To determine the relative importance, contributions of cash flow and operating income from each segment are compared, as is the amount of capital invested. In addition, credit is given for the benefits of integration. For example, a company owning integrated generation and distribution operations benefits from the natural hedge that integration creates for both businesses. Integrated utilities tend to have business profiles ranging from 3 to 7.

Because of the importance of the different analytical emphasis given to the five business profile criteria that is influenced by the type of utility, the overall business profile assessment can diverge from the previously stated general expectations. For example, certain generators can have strong regulatory support and would therefore be characterized as Type II utilities. Consequently, their business profile assessment, which could range from 3 to 4, reflects heavy weighting on the supportive regulatory structure. A Type II distribution company that operates in an emerging market such as Brazil, might have more exposure to economic volatility and an untested regulatory regime. The resulting business profile could be in the 6-7 range.

■ Financial Profile

Standard & Poor's measures financial strength by a utility's ability to generate consistent cash flow to service its debt, finance its operations, and fund its investment. Standard & Poor's focuses on a utility's financial results for the past five years and on pro forma, five-year projections.

To identify potential financial pressures, Standard & Poor's examines major revenue and expenditure items. Per-unit revenues indicate the competitiveness and sustainability of rates and are compared to those in other electric systems. The relative financial performance of electric utilities is quantified through the use of ratio analysis. Because of distortions caused by vastly differing asset valuation practices and depreciation policies around the world, certain leverage and earnings ratios are not particularly useful when conducting comparative analysis. As a consequence, Standard & Poor's has concluded that the proper analytical focus should be on real stocks and flows, namely, levels of debt, cash, and cash flow. Financial parameters that are increasingly viewed as relevant and reliable are coverage of fixed financial charges by cash flow and cash flow from operations to total debt. Less comparable measures, such as shareholders' equity, leverage, and reported earnings, also are reviewed but de-emphasized.

Tightly regulated transmission and distribution utilities generally face limited business risk—this translates into stable revenues. As a result, they can operate with relatively low operating margins and high leverage. Conversely, generating companies operating in a very competitive environment face much higher business risk and attendant cash flow volatility, and therefore generally can sustain only modest levels of debt. The following are major financial profile factors analyzed for transmission companies, distributors, generators, and vertically integrated companies.

Profitability

Profit potential is a critical determinant of credit protection for investor-owned utilities. A company that generates higher profits has a greater ability to generate equity capital internally, attract capital externally, and withstand business adversity. Earnings power ultimately attests to the value of the firm's assets. Still, profit is subject to accounting conventions, which can vary substantially internationally. For this reason, operating margins before depreciation provide some insight to profitability, capital charges (including foreign exchange effects), reserves/provisions, goodwill, and extraordinary items. Higher operating margins provide additional bondholder protection.

The more important measures of profitability are:

- Return on average equity,
- Pretax return on average capital, and
- Operating margins.

Earnings also are viewed in relation to a company's burden of fixed charges. Strong performance can be affected detrimentally by aggressive debt financing, and conversely. The primary fixed-charge coverage ratio is pretax interest coverage (pretax income plus interest divided by interest). If preferred stock is outstanding, coverage ratios are calculated to include and exclude preferred dividends, to reflect the company's discretion over paying the dividend when under stress.

Reported profit figures are adjusted to more accurately reflect the ongoing earnings power of the firm. These adjustments remove the effect of foreign exchange gains and losses, writedowns, and other nonrecurring or extraordinary gains and losses. Adjustments also are made for the impact of hyperinflation on nonmonetary assets—gains are subtracted while losses are added.

Shareholder pressures and accounting standards in certain countries, such as the United States, can result in companies seeking to maximize profits on a quarter-to-quarter or short-term basis. In other regions, aided by local tax regulation, it is common practice to take provisions against earnings in good times to provide a cushion against downturns, resulting in a long run "smoothing" of reported earnings. For example, given local accounting standards, it is common to see a Swiss or German company vaguely report "other income" or "other expenses," which are largely provisions or provision reversals, as large items in a profit and loss account. In meetings with management, Standard & Poor's evaluates provisioning and depreciation practices to see to what extent a company employs non-cash charges to reduce or bolster earnings.

There are numerous analytical adjustments to interest expense. Interest that has been capitalized is added back. An interest component is computed for debt-equivalents such as operating leases, fixed contractual obligations, and receivable sales. In many regions, notably Japan and Europe, the local practice is to maintain a high level of debt while holding a large portfolio of cash and marketable securities. Many companies manage their finances on a net-debt basis. When a company consistently demonstrates excess liquidity, interest income may be offset against interest expense in looking at overall financial expenses. Each situation is evaluated on a case-by-case basis, subject to additional information regarding a company's liquidity position, normal working-cash needs, nature of short-term borrowings, and funding philosophy.

Capital Structure

The principal capital structure ratio analyzed is total debt to total debt plus equity. Analyzing debt leverage goes beyond the balance sheet and covers quasi-debt items and elements of hidden financial leverage. Noncapitalized leases, debt guarantees, receivables financing, and purchased-power contracts are all considered debt equivalents and are reflected as debt in calculating capital structure ratios. In addition, adjustments are made to reflect unfunded pension liabilities. Since international accounting practices can distort common equity, Standard & Poor's also tracks nominal debt levels as opposed to the percentage of debt in the capital structure. In countries where local practice is to hold significant cash and marketable securities, Standard & Poor's will focus on net debt, which nets out excess liquidity from borrowings.

Many firms use short-term debt as a permanent financing vehicle or as a bridge to permanent financing. Short-term debt is considered part of permanent capital. Alternatively, seasonal self-liquidating debt is excluded from the permanent debt amount—this situation is rare for an electric utility. Natural gas utilities utilize short-term debt to finance gas inventories, which exhibit a short, seasonal spike in the winter. Given the long life of almost all utility assets, short-term debt exposes these companies to interest-rate volatility, remarketing risk, bank line backup risk, and regulatory exposure that cannot be readily offset. The lower cost of shorter-term obligations (assuming a

positively sloped yield curve) partially mitigates the risk of interest-rate variability.

Also important is the term structure of a power company's debt. Amortizing debt is less risky than bullet maturities and may be more appropriate for certain companies with limited asset lives. Sizable maturities are considered a significant credit risk, particularly for companies in emerging markets. This debt may be difficult to roll over if local financial markets are disrupted, and foreign markets may be unreceptive under these conditions. Spreads over treasury can widen dramatically, particularly for non-investment-grade credits. Generators, which tend to depreciate assets more quickly than transmission and distribution companies, face greater risk of mismatching assets and liabilities when they fund their operations with long-term bullet maturity debt.

What is considered "debt" and "equity" for the purpose of ratio calculation is not always simple. In the case of preferred stock and other hybrid securities, the analysis is based on their features, not the accounting or nomenclature. Pension and retiree health obligations are similar to debt in many respects.

Knowing the true values to assign to a company's assets is important to capital structure analysis. Consequently, assets are examined to identify undervalued or overvalued items. Asset valuation practices differ from country to country, resulting in differences in both a company's reported equity base and its depreciation expense. There is no easy way to compare companies that revalue their assets with those that do not. Rather, Standard & Poor's recognizes that, for all companies, reported asset values often differ from market values. In discussions with management, Standard & Poor's analysts endeavor to gain an appreciation of the realizable values of a company's assets under reasonably conservative assumptions.

Cash Flow

Cash flow analysis is critical in all credit rating decisions. Interest or principal obligations can not be serviced out of earnings, which is just an accounting concept— payment has to be made with cash. Many transactions and accounting entries can affect earnings but not cash, and vice versa. Analysis of cash-flow patterns can reveal a level of debt-servicing capability that is either stronger or weaker than might be apparent from earnings. Since both common and preferred dividend payments are important to maintain capital market access, Standard & Poor's looks at cash flow measures both before and after dividends are paid.

Working capital analysis is a minor factor in utility credit analysis due to several reasons. Since long-term assets dominate the balance sheet, changes in short-term assets, notably inventory (which is significant for other corporate businesses) have a minimal impact on cash flow from period to period. Still, for weaker-rated utilities, shifts in cash flow due to working capital changes must be monitored. Receivables analysis was not necessary due to negligible nonpayment rates, but can be critical for certain utilities operating in developing economies where late payment or nonpayment of bills can drive up receivables. Fifteen percent of the international electric utility portfolio is currently made up of non-investment-grade credits. This representation will increase, as new ratings have been most active in Eastern Europe and Latin America, where several sovereigns have non-investment-grade ratings. Cash flow also is measured against capital expenditures and shareholder dividends. Some of the specific ratios considered include:

- Funds from operations/average total debt (adjusted for excess liquidity and off-balance-sheet liabilities);
- (Funds from operations + interest)/interest;
- (Funds from operations - dividends)/capital expenditures; and
- Capital expenditures/average total capital (debt + equity).

Because of the capital-intensive nature of the power industry and the lengthy periods sometimes necessary to construct facilities—particularly generating plants—utilities require extensive and flexible capital planning systems. The ability to limit the use of debt also depends on a utility's skill in managing construction projects and completing any new facilities on schedule and within cost estimates. Accordingly, Standard & Poor's reviews capital priorities for the next five years and beyond under varying assumptions. Standard & Poor's also considers mandatory expenditures versus discretionary expenditures.

Financial Flexibility

Financial flexibility incorporates a utility's financing needs, plans, and alternatives, as well as its flexibility to accomplish its financing program under stress without damaging creditworthiness. External funding capability complements internal cash flow, especially since utilities are so capital

intensive. A firm's ability to tap capital markets on an ongoing basis must be considered. Relationships with banks and the availability of bank lines also are reviewed. Committed lines of credit are less obtainable outside the United States and, in part, explain cash balances that some utilities maintain for liquidity purposes. A utility's debt capacity reflects all the earlier elements: profitability, capital structure, and cash flow. Market access at reasonable rates is restricted if a sound capital structure is not maintained and the company's operational and financial prospects dim. Common dividend policy also has a direct bearing on liquidity and financing flexibility to the extent that sufficient cash is retained to reinvest in the business. High dividend payout ratios are viewed poorly, particularly if a utility has a challenging construction program.

Standard & Poor's also reviews indenture and bank loan covenants. Certain restrictions, such as a limit on the ability to issue additional debt, provide some comfort as well as provisions such as interest coverage tests that restrict the distribution of dividends. Alternatively, very tight covenants can raise default risk by limiting a power company's financial flexibility to raise cash in times of crisis.

For investor-owned utilities, Standard & Poor's assesses a company's capacity and willingness to issue common equity. This is affected by various factors, including stock price, dividend policy, and any regulatory restrictions regarding the composition of the capital structure. For government-owned utilities, analysis focuses on a government's willingness and ability to inject equity as needed or to forgo receipt of dividends.

■ Transmission and Distribution Qualitative Analysis

Reflecting relative low business risk due to regulation, electric transmission and distribution companies generally can be expected to have business profile assessments in the range of '1-4'. However, few companies will receive the top score, and some may fall below a '4'.

When evaluating electric transmission and distribution companies, Standard & Poor's is most concerned about the predictability and sustainability of financial performance. In the near and intermediate terms, certain qualitative factors are expected to play a larger role in determining financial performance. Apart from government ownership and support, which would designate a utility Type I, transmission companies are often Type II because of more protective regulatory oversight. Distribution companies are more typically Type III. Regardless of type, the regulatory environment will have great impact for transmission and distribution companies. Variations in policies and practices among local and national regulatory bodies will be key rating considerations. Business profile factors of markets and management are more important than operations and competitiveness, although the relative emphasis on the factors may differ depending on the type of system. For transmission companies, which often operate nationally, macroeconomic trends are significant, with less exposure to pockets of varying local economies. For distribution companies, the unique market and customer composition are more significant factors, with weak economic performance and a large industrial sector being less favorable. Importantly, Standard & Poor's will evaluate management, especially its leadership qualities and its response to industry changes.

Regulation

Regulation defines the environment in which a utility operates and has great influence on the company's financial performance. A utility with a marginal financial profile can, at the same time, be considered highly creditworthy as a result of a supportive regulatory environment. Conversely, unpredictable or antagonistic regulatory action can undermine the financial position of utilities that are very strong from an operational standpoint. To be viewed positively, regulatory treatment should be timely and allow consistent performance over time, given the importance of financial stability as a rating consideration. Also important is the transparency of regulatory policies and the length of time that the regulatory framework has been in place. Clearly, there is concern that the mechanics of a recently privatized system could be revisited for fine tuning. Because of this, Standard & Poor's also examines the relative ease with which regulation can be changed. A transparent system that requires legislative action in order to be modified is viewed more favorably than one subject to the whim of ministerial discretion, as in some Asian countries. Also key to Standard & Poor's analysis is the selection process and membership of a regulatory body, the regulatory framework, and regulatory policies and practices.

Standard & Poor's evaluation of regulation also encompasses the administrative, judicial, and legislative processes involved in local or national regulation. These can affect rate-setting activities and other aspects of the business, such as competitive entry, environmental and safety rules, facility siting, and securities sales. In addition, the terms of a utility's license or franchise often impose obligations to serve any customer and provide a reasonable standard of service, and a variety of other stipulations. Standard & Poor's ratings factor in the impact of such constraints and obligations

on a utility's operations and financial performance.

Transmission and distribution companies are expected to remain tightly regulated monopolies, with rates set on a cost-plus basis in many circumstances. Under a cost-plus regime, rates are set to recover costs and, for investor-owned utilities, a return on shareholder investment. While a utility may be largely protected from business risk under cost-based rates, the responsiveness of the rate-setting process to changes in a utility's cost structure, or to discrepancies between allowed and actual revenues, influences the business pressures on the company. While cost-plus regulation is usually quite favorable, directives to regulators are important. For example, a regulator whose mandate is to balance needs of customers and shareholders is preferable to a regulator whose main responsibility is to protect the ratepayer. Also, legislation that incorporates language such as "favorable", "adequate", or "appropriate rate of return" as a means of setting revenues can be widely open to interpretation.

One drawback to cost-based ratemaking is the lack of strong incentive for utilities to control costs. Since rates and earnings are closely linked to the amount of invested capital and the cost of capital, utilities may be rewarded more for justifying costs than for containing them. Consequently, performance-based ratemaking has become an increasingly popular form of ratemaking internationally, particularly for the distribution business. Because financial results can vary depending on a company's ability to meet performance challenges, performance-based systems are inherently somewhat more risky than cost-based systems. Flexible plans incorporating performance-based rewards or penalties could include market-based rates, price caps, revenue caps, index-based prices or other yardstick measures, and rates premised on the value of customer service. As with other forms of regulation, the key for credit quality is the extent to which a prudently managed utility can manage the risks contained in a performance-based system. Automatic pass-through mechanisms that hold companies harmless from uncontrollable costs, such as fuel or foreign exchange effects, are viewed favorably.

The following is a generalized ranking of regulatory regimes (from most to least favorable, for credit quality):

- Cost-plus regulation, where regulatory mandate is to balance needs of ratepayers and shareholders—for example (U.S. utilities and often state-owned utilities);
- Light-handed regulation, where utilities effect rate increases as needed. They are only questioned if complaints are filed, or if changes appear excessive relative to peers (New Zealand and Sweden);
- Revenue cap. While upside potential attributed to strong sales growth is eliminated, downside risk also is ameliorated. This is more typical for transmission companies (GPU Powernet in Victoria, Australia);
- Rate cap. Typical of most distribution companies (U.K., Australia, Chile, Argentina, and Brazil); and
- Nontransparent regulation, where there are no procedures, guidelines or directives as to how revenues should be set, or by whom (Enemalta Corp.).

Revenue and rate cap schemes, which are fixed for a period of time have incorporated an annual inflation minus a productivity factor, or "CPI-X." While revenues and cost savings are somewhat predictable during this period, there may be significant exposure when "X" is reset.

Markets

For a pure distribution company, the market consists of customers within a defined franchise area that are connected to the grid. These distribution companies are common carriers that transport electricity purchased by their customers from independent suppliers—either generators or marketers. As such, prospects for the stable growth of revenues and cash flow are ultimately related to the strength of the local economy. Customer growth is important for distributors. The outlook for electricity consumption is important because the typical distributor recovers some portion of its distribution costs through a volumetric, per kWh, charge in addition to any fixed monthly or quarterly customer charge that may be in place. Accordingly, assessing a distributor's markets begins with the economic and demographic evaluation of the area in which distribution services are provided. Strength of long-term demand is examined from a macroeconomic perspective, which enables Standard & Poor's to measure trends in investment, income, and employment as indicators of economic change within the service area. The sustainability of increasing demand also is analyzed. Many emerging economies go through periods of very rapid growth followed by severe contractions. This volatility can contribute to significant and unhealthy swings in a utility's revenues.

Standard & Poor's also tries to discern any secular consumption trends and, more importantly, the reasons behind them. Specific items addressed include the size and growth rate of the market, strength of the franchise, historical and projected growth, income levels and trends in population, employment, and per capita income. Other relevant factors, particularly in developing countries, are the affordability of electricity and customers' ability and willingness to pay their bills.

A distributor with a healthy economy and customer base—as illustrated by diverse employment opportunities, average or above-average wealth and income statistics, and low unemployment—is likely to exhibit greater revenue stability. For electric distribution utilities, the total number of customers, revenues, and margins are closely scrutinized to assess the depth and diversity of the utility's customer mix. For example, heavy industrial concentration is viewed cautiously since the utility may have significant exposure to cyclical volatility. On the other hand, a large residential component produces a stable and more predictable revenue stream. The utility's largest customers are identified to determine their stability and relevance to the bottom line since loss of one large customer could have an adverse effect on the utility's financial position. Credit concerns arise where any one customer plays a dominant role in the overall economic base of the service area. Moreover, large customers may turn to self-generation and leave the distribution system altogether, potentially leading to reduced financial protection for the utility.

Similarly, for electric transmission companies, the total number of customers—largely distributors—is evaluated to assess the depth and diversity of the transmission company's customer mix. The transmission company's largest distribution customers are identified to determine their stability and contribution to revenues. Also important to a transmission company is the strength and diversity of the end-use markets of its distribution customers. Accordingly, these end-use markets are evaluated from a macroeconomic perspective in an analysis identical to that described previously for a distribution utility. Since regulators often apply revenue caps to transmission companies, they may be less sensitive to volumetric and economic fluctuations. However, in the event of a severe economic downturn, it may be politically difficult to raise rates. Usage and electric growth levels in the end-use markets will be compared with transmission capacity utilization. Underutilized transmission lines that serve growth markets have positive implications, while fully utilized lines that serve mature markets have less favorable implications.

Of course, many distribution companies own generation to service their captive retail customers, while others participate in the energy marketing (supply) business by buying, brokering, or generating electricity through an affiliate, and selling the power to external customers. Risks in the marketing business, which include the significant challenge of matching fuel and power supply with demand, will be incorporated into the overall risk profile of the distribution company.

Operations

Transmission and distribution operations are typically low risk relative to generation operations. To evaluate the operations for a transmission or distribution company, Standard & Poor's focuses on the nature of operations from the perspective of cost, reliability, and quality of service. With gradually increasing competition in all segments of the electric power business, utility managers are under additional pressure to optimize their use of resources as compared to the performance of other utilities and administrative benchmarks. If utilities are not cost effective in meeting service standards, stronger regulatory or competitive pressures are likely. Consequently, emphasis is placed on those areas that require management attention in terms of time or money and which, if unresolved, may lead to political, regulatory, or competitive problems.

In addition, the status of utility plant investment is reviewed, with regard to reliability and utilization, as well as for compliance with existing and contemplated environmental and other regulatory standards. The record of outages, system losses, and capacity utilization are examined. Important considerations include the projected capital improvements necessary to provide high-quality and reliable service. Additionally, unique operating challenges could be present that impact costs to a degree where credit quality is impacted. Examples of operating challenges include harsh climates, severe storms, and difficult terrain. The general condition of the assets and how well such assets are maintained is also an important evaluation consideration.

Utilities in emerging countries face additional operating challenges, such as the fundamentals of metering and billing. Certain utilities may struggle with accurate and timely metering and billing because they do not have the appropriate technology, computer infrastructure, or control systems in place. Moreover, getting the bills correct and out in a timely fashion is only part of the issue. Collections can be a nagging problem in which political or economic realities prevent service cutoff for nonpayment. This is particularly true for distributors that serve a large government or public service load. In addition, outright theft of electricity service can be a big problem.

Operational characteristics that will support an above-average evaluation for transmission and distribution companies are assets that are in good physical condition and are being well maintained. Additionally, capital expenditures for necessary system improvements must be at manageable levels, yet sufficient to provide for constant renewal and refurbishment of the system. Operating performance, reliability statistics, and efficiency measures are expected to meet industry and regional averages. Having interconnections that provide access to low-cost and diverse power supply sources is viewed favorably, as is limited environmental exposure.

Competitiveness

Competitive pressures in the transmission and distribution businesses are generally quite limited by virtue of franchise monopolies. While introducing competition into the generation business and creating national or international power exchange systems is increasingly popular worldwide, there is near unanimous agreement that transmission and distribution systems should largely remain monopolies. One caveat is that competition is being introduced for system expansions. This is more prevalent for transmission companies, such as Transener, the transmission company of Argentina. A bid was held for construction of a fourth transmission line from the power center in the south to the population center in Buenos Aires. This presented Transener, the existing system owner, with the potential opportunity loss to grow its asset base and earnings. In this particular case, Transener won the bid. Had Transener lost the bid, it would only have collected a fee as the operator of the fourth line as part of the transmission network.

Overall, limited competition is a major factor in the strong business profile assessment for a typical transmission or distribution utility. Franchise monopolies are significant barriers to entry by competitors. Where there are nonexclusive franchises, other barriers to competitors exist, such as the siting difficulties caused by public concerns about duplicate utility poles and wires, and environmental issues. For these businesses, competition can be somewhat self imposed through incentive ratemaking and through peer pressure, as regulators compare performance and costs among various distribution companies within their jurisdiction.

Transmission and distribution utilities face competitive pressures in the form of substitute energy sources and customer self-generation and bypass. Electricity competes with other fuels such as natural gas for certain segments of the market like space heating, water heating, and cooking. Thus, high electricity prices, which can be attributed to inefficient transmission or distribution service, or more likely caused by a high supply cost component, are cause for concern if customers have alternate energy sources. Self-generation has for many years been a significant risk, as large commercial and industrial customers have taken advantage of cogeneration technologies to reduce their reliance on and, in some cases, disconnect from transmission and distribution systems. In the future, technology could pose a greater threat for transmission and distribution companies. Bypass risk is likely to grow as distributed generation, microgeneration, and self-generation gradually become more economically attractive for smaller and smaller customers. These technological evolutions are likely to be gradual, so the currently configured transmission and distribution networks should continue to play a viable role for the near future.

Management

Owing to the safety net provided by regulation, evaluation of management is less critical for tightly regulated transmission and distribution companies than for generators or energy marketers operating in a very competitive environment. Yet management assessment remains significant. Important considerations include strengths and weakness of key members of management, depth and stability of top management, and recent and prospective management changes. Management strategies are also a material determinant in differentiating utilities and in establishing a company's business profile. Standard & Poor's will assess financial policies, corporate goals, strategies, tactics, and plans for both regulated and diversified businesses, as well as analyze how effectively they are implemented.

The assessment of management is accomplished through meetings, conversations, and reviews of company plans. It is based on such factors as tenure, industry experience, a grasp of industry issues, and knowledge of customers and their needs. Management's ability and willingness to develop workable strategies to address its system's needs, to execute reasonable and effective long-term plans, and to be proactive in leading its company into the future are assessed. Management quality also is indicated by thoughtful balancing of public and private priorities, a record of credibility, and effective communication with the public, regulatory bodies, and the financial community.

Key financial policy considerations include management's ability to achieve cost-effective operations and, of utmost importance, management's relative commitment to credit quality. This can be

assessed by evaluating accounting and financing practices, and capitalization and common dividend objectives. The company's philosophy regarding growth and risk taking incorporates a discussion of diversification plans:

- What type of exposure will the company accept in terms of business risk and sovereign risk if it is expanding geographically?
- Will it limit the concentration of investments in a particular business or country? and
- Will it participate in consortiums to spread the risk?

■ Generation Qualitative Analysis

Generation is the riskiest segment of the electric utility industry because of complex operating risks and the increasingly competitive nature of the business. Risk may be further heightened by absence of the regulatory umbrella. Because of the higher risks, generators generally can be expected to have business profile assessments in the 7-10 range. Currently, about one-third of rated generators have above-average business profiles, owing to government ownership and little competition.

Generation is a commodity business. Electrons are physically indistinguishable from each other and therefore compete primarily on price. However, electricity has some characteristics that make it less like other commodities. Centrally sited electricity cannot be stored. Electricity must be used instantaneously as it is produced, and its deliverability can be hampered by transmission constraints. Thus, reliability, deliverability, and some value-added services may distinguish one generating company from another, and perhaps elicit a premium in the marketplace. Value-added services, such as customization and load following, can tailor the shape and firmness (or lack of firmness, for example, interruptible service) of electricity delivered to the customer.

Generation also faces unique operating risks. Because electricity cannot be stored, generating plants cannot afford to have unplanned outages since they are only paid when they run. Furthermore, contractual commitments could force a downed generator into the market to seek replacement power, which could be costly or unavailable if the outage occurs during a peak usage period. Thus, while low production costs will factor heavily into the business profile and success of a generation company, other criteria will be considered when assessing creditworthiness.

Regulation

Some generators may remain highly regulated and achieve superior business profiles than their deregulated brethren because of a more stable revenue stream. For example, some centralized supply system derive credit strength and stability from their highly cohesive nature, stemming in part from direct or indirect cross ownership between generators and distributors, with government entities as ultimate owners. However, the trend is for increased competition, even for government-owned entities. This is particularly evident in Europe (Germany, Netherlands, and Austria), where high-rated entities are experiencing negative ratings trends.

However, most global generators already operate in deregulated environments where rates are determined by the market. Even so, regulatory considerations are still pertinent and vary among global electric utility systems. Regulation typically establishes the basic framework of the electricity market. The market may be primarily a wholesale, rather than retail, market. The system may mandate that all players bid into a pool or exchange, whereby generators are economically dispatched and the last unit to run sets the market clearing price for all players. A power pool may have rules regarding price bids, dispatch, financial standing of market players, or other factors. Generators may have an obligation to build, or may be limited in building or investing. Furthermore, political stability, legal environment, and contract law influence the generator's operating environment and will be examined under this heading. Clearly, the more commodity-like the environment, the less influential regulation is in the traditional sense. The lack of economic regulatory protection is considered a negative in terms of credit quality.

Standard & Poor's will seek to determine if the regulatory environment is supportive of credit quality and if it creates a level playing field. Standard & Poor's also will note the length of time that the regulatory framework has been in place given the potential for a relatively new system to be modified. The United Kingdom is notorious for having touted its competitive power pool, only to have the regulator step in subsequently and tamper with the pool's market clearing price. The U.K. regulator is currently considering asset divestiture as a means to encourage competition in this notorious duopoly.

Regulators also may set prudence requirements (financial creditworthiness) for entrants to the

market. Questions asked include: How will prices be established? Will there be a power pool or bilateral contracts only? Bilateral contracts are where buyers and sellers negotiate the terms, including cost, of the transaction. Often times a pool transaction can be hedged to financially simulate a bilateral contract through "contracts for differences." The type of regulatory/legal environment can impact credit quality. For example, in some international systems, short-term marginal cost is determined by a pool, but the tariff also includes a charge to cover the long-run marginal cost of the next capital addition. This pricing system offers some greater assurance to the recovery of fixed costs and, therefore, lowers risk to the generator.

Markets

Markets for generators are vastly different than for those utilities with defined, franchised service territories. A generator's market expands as far as it can transport its electrons within physical (transmission) and economic (transportation fees) constraints. It typically has no obligation to serve and may be free to hand pick its customers and negotiate its own contracts. While it is anticipated that all U.S. customers will be able to choose their supplier (retail wheeling), some countries permit retail access to only the very largest industrial entities. Markets in these countries are primarily wholesale. It is anticipated in the United States that residential and small customers initially will tend to stick with their local utility distribution company for supply. However, in pilot programs to date, many customers have exercised their option to choose and have left their traditional supplier. In the United States, there can be great price disparities between utilities, which would encourage this behavior. However, in other countries where rates are more comparable across generation companies (such as Sweden), less switching (that is, some 20% of customers) is anticipated as markets become liberalized.

Standard & Poor's first determines if the market consists of intermediary or end-users and the geographical boundaries. If the generator sells directly to end users, what is the customer mix in terms of residential, commercial, and industrial segments? A diverse customer base within a stable, growing economy would be positive from a credit risk perspective. An economy that is driven by only a handful of products or industries would introduce concentration risk.

Further market evaluation would encompass a macroeconomic assessment of electricity supply and demand. In terms of demand, what are the economic prospects, inflationary pressures, and electricity consumption patterns within the country or region where the generating company operates? In developing countries, growth prospects would be higher than in the United States. However, in developing economies, strong growth could be subject to extreme volatility due to recessionary or inflationary pressures. If one or a few industries dominate the region, growth prospects could be tied to the fate of that industry.

In terms of supply, who are the other players in the market and what are the barriers to entry? How much capacity is there relative to demand? Surplus capacity could reduce sales and put pressure on margins. A deficit capacity situation would inflate margins over the short term, but encourage other entrants to the market. This would not necessarily be bad, depending on the incremental cost of supply (lower would be a threat to existing generators, higher would enhance the generating company's competitive position) and if the incremental load maintained resource balance or created a surplus situation. In addition, if transmission constraints are relieved, either through construction or technology, the supply/demand balance will change. Generators may have access to a broader market; however, other suppliers will have access to their customers as well. Also, it is necessary to examine the availability and reliability of power supply. As electricity markets become more liquid, prices will become more transparent and energy marketers and financial derivatives will begin to develop. It remains to be seen if marketers can aggregate small customer loads effectively to make them economically desirable.

Typically, most generators with a market presence do well when there is supply/demand equilibrium and they are dispatched regularly. The low-cost producers will have the widest profit margins. In addition to depressing prices for all players, an oversupply of power indicates that some generators will not be dispatched at all. Therefore, generators further down the dispatch list (or at the higher-cost end) are most vulnerable to the entrance of new, and particularly lower-cost, facilities. A falloff in anticipated demand would exacerbate this scenario. This situation is currently unfolding in Chile, where the introduction of gas into the current hydro and coal-fired fuel mix has lowered the market price and could result in gas plants displacing coal plants.

Operations

An analysis of operations overlaps somewhat with examination of markets and competitiveness. The market within which a generating company is a player (local, regional, national, or international) has implications of how it operates. Transmission interconnections and constraints, as well as a plant's location to its customers, provides operating limitations and opportunities. Having a strategic location

might necessitate that the plant be run constantly to provide system voltage support, making the efficiency of a generator's operations directly tied to its competitive position.

Managing production inputs effectively is crucial to competitiveness. Suppliers of fuel, labor, and supplies are sources of economic risk to a generator's ability to produce low-cost power. The generator can be at risk if supplies are disrupted or prices are raised. Standard & Poor's will examine the extent to which a generator diversifies risk as opposed to relying on limited suppliers. What has been the historical growth of operating and maintenance expenditures, and how will they be controlled (or reduced) prospectively? Efficient use of technology will enable a generation company to manage its costs more efficiently.

Fuel typically represents about half the cost per kWh. Generators will need to become sophisticated in physical and financial hedging of fuel commodity risk. To the extent that a generation company has contracted to sell its output at a fixed price, it will be necessary to match the length of fuel contracts and hedges to insure that margins are locked. Some contracts permit a pass-through of fuel price changes, which might mitigate the necessity of hedging. Contracts to sell a portion of production output at negotiated prices can protect generators from price and volume risk. Electricity markets are quite volatile, with prices fluctuating as much as 300% daily in U.S. markets. Contracts for differences are a common way to have price settlement around an erratic market clearing price. Clearly, strategies will vary depending on how contracts are structured, and how much of production is sold under contract vs. on the spot market. These strategies are indicative of management's risk appetite.

In addition to these considerations, Standard & Poor's will examine key statistical efficiency measures, such as capacity factor, availability factor, and heat rate of individual plants as compared to industry peers. Clearly, it is preferable to achieve parameters that exceed industry standards. Capacity factor measures the degree to which a plant is actually run over a certain period of time, while availability indicates what percent of the time it would have been available to operate. Heat rates measure a power plant's fuel efficiency. A low heat rate would indicate less fuel input per unit of output. The average age of the facilities in the portfolio is also important; maintenance expense tends to increase as plants age.

The technologies utilized by a generating company also impact Standard & Poor's assessment of risk. A new technology is riskier than proven design. Moreover, nuclear facilities present greater-than-average risk in light of complex technology, additional operating challenges and concerns, and decommissioning costs. Also examined is asset concentration risk, which is present where any one unit represents a disproportionate share of capital or output in the portfolio. Construction risk will be considered in terms of the level of capital expenditures, ability to complete projects on time and on budget, and successful start up. Turnkey projects could transfer these construction risks from the generator to the engineering firm. Lastly, environmental risks will be evaluated. Imposition of a carbon tax could have significant financial consequences for coal-fired generation.

Diversity of the generation portfolio reduces the risk of dependence on any one unit or any one fuel. Different fuel sources and the operating characteristics of the facilities (for example, base load vs. peaking) further diversify the portfolio, and dual fuel capabilities at individual plants can enhance flexibility. A single-unit generator is inherently riskier than a portfolio of assets. The evolution of the merchant power plant introduces a certain speculative element to the generation sector. Unlike their independent power producer predecessors, merchant plants are generally constructed without benefit of contractual commitments for the sale of their output. Success will therefore depend on their ability to produce power consistently below the market's forward price curve for electricity. Since a merchant plant has less margin for error, it must have superior technological, marketing, finance, management, and operating skills as well as be able to manage the risk of uncertain pricing and markets. While a merchant plant competes largely on price (or possibly location), multiplant generation companies can offer other value-added services, including customizing and servicing electrical connections/equipment on customer premises.

For generators selling into spot or short-term contractual markets, reliability will be important. Generators that can not deliver consistently on their commitments will lose credibility, and likely customers, in the marketplace. This risk increases to the extent that the generating company is involved in marketing transactions beyond the sale of its own generation. Standard & Poor's believes that the more successful and higher-rated energy marketers will have leading national or regional market positions and have substantial physical and financial liquidity. Size is important because there are informational economies of scale in marketing, and smaller trading firms can be whipsawed. Since Standard & Poor's has a bias toward hard assets, generators have an advantage over energy traders with no owned assets. Standard & Poor's will evaluate the credit impact of those

activities on the consolidated credit profile of the business.

Competitiveness

The first step of an analysis of competitiveness would be to compare the generation company's cost of production to those of other players. Unless there are overriding circumstances (for example, a must-run facility or an environmentally benign power source), a low-cost structure is crucial to a generator's success in a competitive environment. As important as the total cost is the variable cost of production, particularly in markets with overcapacity. Since generators resemble other commodity industries with their high capital costs, long-lived assets, and low labor content, they may pursue predatory price strategies in an attempt to gain market share. Thus, a generator's ability to beat its competitors' costs at the margin gives it a significant edge.

In addition to analyzing marginal cost, Standard & Poor's compares a generator's average costs against contract prices, spot prices, pool prices, other producers, and new entrant costs. However, comparing costs is not as straightforward as it might appear. The output of a plant greatly affects the cost of a unit of output, as fixed costs are spread over kWh generated. This can make cost comparisons between base, intermediate, and peaking facilities difficult. The "peakier" the load curve, the higher the price of electricity at peak hours. As a result, a competitive strategy for a load-following generator might be to primarily operate during those more lucrative hours. First Hydro generating plant in the U.K., a pumped storage hydro facility, has found this strategy to be quite lucrative. It pumps water into a reservoir during off peak hours and uses it to generate electricity during high-price peak hours.

Being competitive also involves strategies in how to structure contracts, what percent of output to contract out vs. sell into a spot market or pool, and what limits to put on percent of output sold to any one customer. Staying competitive will involve both physical and financial hedging strategies, particularly for fuel.

Competition will come from many sources. Suppliers of new and cheaper power generation may represent the greater threat to existing generating companies. New supplies may come from greenfield projects, renovation of existing facilities, or the opening of transmission pathways. Increasing power supply will put downward pressure on rates. Substitute products, particularly natural gas, also pose a competitive threat. This will become more complex as electric and gas markets converge. Gas may become a greater threat to electricity usage over time because of the interchangeability of energy sources, as well as technological developments such as the gas-fired air conditioner. In addition, further down the road, remote-site applications such as the fuel cell may replace generation-produced power. Threat of these alternatives will depend on pricing, switching costs, availability, political and regulatory barriers, and public policy initiatives.

Management

While management decisions affect many areas of generating company operations, an overall assessment of management is incorporated into the credit evaluation. Because of the higher business risk in generation compared to transmission or distribution, management is a critical factor in the credit evaluation of generators. Standard & Poor's holds a generator's management to a higher standard. In evaluating management, Standard & Poor's attempts to define management's risk appetite and its overall goals and objectives. What strategies have been utilized to implement these goals, and how effective have they been? This dialogue also may provide insight into the degree of management's credibility to articulate, implement, and achieve its goals. Management's financial and diversification policies, including the construction of additional plants and diversification into international markets, will be examined in assessing its risk appetite. The degree to which generators engage in energy marketing activities beyond the sale of their own output will be factored into the credit evaluation. Critically important to these activities are the generator's risk management guidelines that provide for the establishment and strict adherence to risk policies, objectives, and limits.