NATIONAL ENERGY MARKETERS ASSOCIATION

Solutions to Improve the Liquidity and Creditworthiness of the U.S. Energy Industry

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This document reflects the views of the National Energy Marketers Association and does not necessarily reflect the views of specific members of the Association

I.
Introduction

The National Energy Marketers Association (NEM) is a national, non-profit trade association representing wholesale and retail marketers of energy, telecom and financial-related products, services, information and related technologies throughout the United States, Canada and the U.K. NEM's membership includes wholesale and retail suppliers of electricity and natural gas, independent power producers, suppliers of distributed generation, energy brokers, power traders, and electronic trading exchanges, advanced metering and load management firms, billing and information technology providers, credit, risk management and financial services firms, software developers, clean coal technology firms as well as energy-related telecom, broadband and internet companies.

This regionally diverse, broad-based coalition of energy, financial services and technology firms has come together under NEM's auspices to forge consensus and to help resolve as many issues as possible that would delay competition. NEM members urge lawmakers and regulators to implement:

- Laws and regulations that open markets for natural gas and electricity in a competitively neutral fashion that bring suppliers and consumers together at the lowest possible cost;
- Standard rates, tariffs, taxes and operating procedures that unbundle competitive services from monopoly services and encourage true competition on the basis of price, quality of service and provision of value-added services;
- Accounting and disclosure standards to promote the proper valuation of energy assets, equity securities and forward energy contracts, including derivatives; and
- Policies that encourage investments in new technologies, including the integration of energy, telecom, digital communications and Internet services to lower the cost of energy and related services.

II.
New Energy-Related Products, Services, Information and Technologies Exist to Improve the Credit, Liquidity and Financial Credibility of Market Participants

Given the credit and liquidity crises that have befallen the U.S. wholesale energy markets since the sudden collapse and bankruptcy of the Enron Corporation and the complex chain of events that have rippled through the entire U.S. energy industry since the fall of 2001, members of the National Energy Marketers Association have formed expert policy development teams to identify and help

improve the liquidity, creditworthiness, reliability, transparency and financial credibility of the industry.

Working together with other industry groups, a number of business practices have been developed, codes of conduct have been adopted and importantly, a number of new energy-related products, services, information and technologies have been developed to address the problems that have reduced the credit, liquidity and financial credibility of many market participants.

One of the most promising products and services to be developed to improve the liquidity and credit issues facing the energy markets involves the emergence of a new over-the-counter (OTC) wholesale energy clearing, netting and settlement industry. To the extent that this new industry can reduce risk and, therefore, lower the true cost of capital it will encourage the investments necessary to provide the U.S. economy with needed energy supplies.

Historically, the wholesale trading and delivery of gas has occurred through a robust and often volatile series of bilateral transactions. While there are formal regulated exchanges that trade futures contracts in both electricity and natural gas, the historical lack of organized, uniform and standardized contracts, contract terms, delivery points plus the evolving nature of restructured wholesale and retail markets for these commodities have engendered what is known as an over-the-counter market for these commodities. Trading in these commodities is accomplished by energy brokerage firms specializing in matching buyers and sellers and more recently by electronic trading exchanges that match buyers and sellers through the implementation of new technologies.

Until the creation of the NEM-EEI Standard Wholesale Power Contract, and more recently the Master Netting Agreement, it has been extremely difficult to fully commoditize energy supplies as well as the risks associated with its production, transportation and delivery. However, given the current regulatory structure plus the enormous volume and the differences in the timing and quantity of energy produced versus energy consumed, energy suppliers, brokers and electronic exchanges have necessarily had to invent mechanisms to match widely disparate needs of buyers and sellers in commodities such as electricity which cannot be stored and which because of the laws of physics must be implemented in extraordinarily complex ways.

Mature, successful, and efficient markets have many common elements. Among them are structured and standardized settlement pricing, reliable indices, and universal, transparent, credible and auditable mark-to-market procedures. At the time of the Enron Collapse there was little common and verifiable ground for these vital elements of the price structure of U.S. power markets. There were numerous survey publications, which were often simply individuals calling

industry contacts to query for transactional prices, volumes, and terms. It was not possible to verify price, volume, or term for many of these reported transactions. There was no industry standard for state and regional indices, no common daily or monthly settlement procedures. This means that market participants have had non-scientific, non-verifiable settlements and indices that serve to determine the financial result of billions of dollars of transactional value. This was the case not only in the power market, but also in the natural gas, oil, and refined products OTC markets as well.

It has become obvious that the development and implementation of a generally accepted neutral, standardized, credible, transparent and auditable, short-term and long-term valuation tool, based on indices and/or market transactions is a key to solving the post-Enron credit and liquidity crises. The greater the acceptance within the industry, the more likely it is that there will be a return of confidence within the securities markets. Mark-to-market pricing is important for short as well as long-term transactions. The further in the future the decision-making need is, the more difficult it has been to standardize the process. Members of NEM are developing and are implementing products and services that will help to standardize the marking of short and long-term markets, where historically there may not have been enough transactional data and liquidity to scientifically verify a settlement price. For example, it is vital that two energy firms with similar positions five years into the future can have similar valuations of that position.

Generation of electricity and its consumption occurs in real time yet the building of generation plants takes years of planning, price forecasting, regulatory approvals and day-to-day operational expertise. Changes in either supply or demand patterns, weather conditions, delivery congestion points and numerous other factors can affect not only supply and demand but can greatly effect energy prices and the volatility of energy supplies. The energy markets have an inherent need for long term planning. In order to invest in assets that allow this country to meet demand in each energy market, confidence in the accuracy of long-term decision-making is vital.

Realizing that, as a matter of both energy and economic policy, the delivery of energy to the ultimate consumer at the most efficient, economically rational price is and has been a goal of both federal and state governments for the past two decades. The restructuring of the wholesale natural gas market in the 1980s[i] and the restructuring of the wholesale electricity markets in the 1990s[ii] has been premised on this important public policy goal. Within the last seven years, states have also implemented the initial stages of restructuring the retail markets for natural gas and electricity as well.

While the FERC is working hard to implement standard market designs, electronic data protocols and regional markets that can support liquid, transparent and

competitively neutral energy trading and delivery operations are needed. Currently, there are very few liquid trading hubs in which the physical delivery of natural gas and electricity can occur. Consequently, the industry necessarily has to rely on informal, bilateral and multilateral OTC trading, brokerage and/or electronic matching of buyers and sellers. Normally only a fraction of all the wholesale purchases and sales of natural gas and electricity culminate in physical delivery. Yet, the need for a robust, liquid wholesale market for these commodities is essential both for financial reasons (e.g. to mitigate risks and hedge future supply or demand) as well as for the actual delivery and consumption of energy.

Consequently, the creation of a new and innovative energy-related trading, risk management, clearing, netting and settlement industry as well as reliable price indices are important developments in the movement to a fully integrated economically rational and efficient North American energy market. Although this paper primarily addresses the clearing and netting issues, NEM members are concerned about the availability and reliability of neutral market price indices and forward curve generation. To that end, NEM members are working together and with other groups to develop such a neutral price index, and additional information on this important issue will be forthcoming.

III.
Solutions for the Energy Industry Can be Drawn from Pre-Existing Policy and Legislative Initiatives

The credit and liquidity crisis that has occurred in the wholesale energy markets is not without precedent. In the mid 1990s, the Derivative Policy Group was formed to respond to the policy issues raised by the OTC derivatives activities of unregulated affiliates of SEC-registered broker-dealers and CFTC-registered futures commission merchants. Market participants agreed to adhere to the standards developed by this high-level, cross-industry group, and through time, the standards reestablished stakeholder confidence and stabilized the derivative market.[iii]

The creation of the President's Working Group on Financial Markets and the Commodity Futures Modernization Act of 2000 provides a regulatory framework and a road map for solutions to many of the industry's current problems. The establishment of a properly constructed clearing mechanism to reduce counterparty risk in OTC markets has long been a recommendation of the President's Working Group on Financial Markets.[iv] The Working Group recommended that Congress enact a comprehensive regulatory framework[v] for clearing systems for OTC derivatives.[vi] On December 21, 2000, the Commodity Futures Modernization Act of 2000 was passed providing for such a framework.[vii]

The production, transportation, delivery and risks associated with natural gas and electricity may never fully match those associated with wheat, gold, oil, stocks or government securities. However, the emergence and increasing success of energy brokerage houses, electronic exchanges and OTC wholesale energy clearing, netting and settlement firms plus the development of reliable price indices provide outstanding opportunities to both mitigate the myriad of risks associated with the wholesale energy supply and distribution system, and provide a significant increase in the liquidity and, therefore, reduce costs of capital associated with the supply and ultimate consumption of energy.

IV.
Explanation of Solutions

A. Clearing, Netting and Settlement Solutions Will Promote the Liquidity, Creditworthiness, Reliability, Transparency and Financial Credibility of the Industry

The National Energy Marketers Association (NEM) has established a Clearance and Settlement Policy Development Committee. Whereas NEM does not endorse or recommend any particular over-the-counter (OTC) clearing solution, it recognizes the need to provide unbiased, factual information to industry participants and regulators during these difficult times. As OTC clearance is a new service in the energy industry, the first step must be an educative process.

1. Basic Workings of a Clearinghouse

Derivatives are financial contracts that are dependent on prices or rates of other financial securities. Derivatives do not directly transfer property but rather are used to hedge risk or substitute a floating rate of return for a rate of return that is fixed.[viii] OTC derivatives are specifically tailored to meet the needs of two parties.[ix] OTC derivatives markets[x] generally are concerned with swap agreements, options and hybrid instruments.[xi] Derivatives serve a number of functions - providing a more efficient allocation of economic risks, facilitating asset allocation decisions and providing information.[xii] Relatedly, clearing and settlement consists of two functions: reduction of risk through netting the obligations of buyers and sellers across the market, and mutualization of risk. By reducing credit exposure of market participants, clearing can significantly reduce market participants' collateral requirements.

There are currently four providers of OTC clearing or clearing type solutions in the energy industry. Listed alphabetically, these are EnergyClear, Guarantee Clearing Corp., London Clearinghouse The New York Mercantile Exchange, and Virtual Markets Assurance Corporation (VMAC). Both Guarantee Clearing Corp. and London Clearinghouse receive trades to be cleared via InterContinental

Exchange's trading platform. All of these providers differ significantly in the details of their respective clearing solutions.

All clearinghouses mitigate differing degrees of risk by netting obligations and mutualizing risk across counterparties. Clearinghouses safeguard their members by collecting collateral for a guaranty fund (on a net or gross basis), charging initial and variation margin, and providing a supporting legal framework in the form of rules and regulations (or bylaws). Generally, clearinghouses have assumed that the products that they clear are liquid and easily replaceable – assumptions that may not always be the case in the traditional energy OTC markets. Although similar in many respects, clearinghouses differ both in their methodology or system, and their application of specific safeguards to mitigate risk to increase the security and liquidity of the industry. Structures of clearinghouses vary across the United States. All clearinghouses have direct members. An additional substrata is created if the direct members submit, in addition to their own trades, trades from other parties to the clearinghouse. This substrata of parties is typically called a customer of a member.

Historically, no CFTC Designated Clearing Organization (DCO) has ever failed due to insolvency of a member. A number of clearinghouses however, have failed due to lack of business. One of the reasons that clearinghouses are so successful is the protections available to members who are in contractual privity with the clearinghouse. Providers of clearing solutions are also beginning to explore the possibilities of guaranteeing the "end users" who are traditionally not in contractual privity with the clearinghouse**.** The issues that must be addressed are as follows:

- **Mutualization of risk across all clearinghouse members**. This could occur even if the member does not pass through trades for the market in which a default occurs**.** The degree to which risk is "mutualized" differs with each clearinghouse.
- **Degree of transparency**. Not all clearinghouses assess the risk of customers, or members according to their customer pool. At a minimum, the details of all trades and the executing party would be necessary to assess these risks. This could have market pricing and intelligence implications as well. To aid with increased transparency, clearinghouses should make their rules and bylaws transparent**.**
- **Relevance and reliability of existing case law.** In the wake of Enron and the development of master netting agreements, it became apparent that bankruptcy laws may need to be amended to permit multiparty netting by private contract. In this regard, clearinghouses provide certain advantages for multiparty netting. However, as noted above, protection in the event of default or

bankruptcy generally extends to the to clearinghouse members but it may not protect end users.

2. The Different Types of Multiparty Clearing Solutions

In the OTC clearing industry, there are several distinctive types of clearing and related solutions:1) traditional clearing house structures whereby customers submit trades to the clearing house via clearing members; 2) clearing house structures without clearing members that allow customers to be direct members and submit trades on their own behalf; and 3) credit enhancement vehicles that use insurance and financial guarantees.

a. EnergyClear Corporation

Upon acceptance by the EnergyClear Corporation (ECC) of a trade from any source (voice broker, exchanges, OTC bilateral), the underlying bilateral trade is voided, and the clearinghouse performs directly with the Merchant Energy Trading Company (METC) in regard to obligations. ECC does not levy any charges for contracts that go to delivery. The METC is directly liable to ECC for any margining and guaranty fund amounts.

ECC also offers protection for structured products. Such unique contracts are inherently illiquid and unique, in that typically only the buyer and seller wish to enter into these terms and conditions. Currently, ECC plans to restructure its clearing model to include an additional layer of protection in the form of AAA-rated insurance based on an approach to improve on its current system where both Mark-to-Market and the associated VaR-based risk is taken into account.

b. Guarantee Clearing Corp. (power) /London Clearinghouse (oil and gas)

In this model, the Merchant Energy Trading Company does not contract directly with the clearinghouse, but submits trades via a Futures Commission Merchant (FCM), who performs on substantially the same terms and agreements as with the clearinghouse. Upon acceptance by the clearinghouse, the underlying contract is voided and replaced by a bilateral contract with each FCM, which is netted at the clearinghouse level.

Any margining amounts are paid to the FCM, and the METC is not liable for population of the guaranty fund in this or The New York Mercantile Exchange model. Instead, the FCM charges a service fee, which includes an amount that over time should compensate the FCM for providing this service.

c. The New York Mercantile Exchange

The New York Mercantile Exchange has been a commodity exchange for nearly 130 years. In The New York Mercantile Exchange model, the merchant energy trading company contracts with a direct member of the clearinghouse - the FCM. Upon acceptance by the clearinghouse, the original OTC bilateral trade is replaced by a futures exchange contract through an Exchange for Swap (EFS**)** procedure. After the substitution of a bilateral trade with an exchange product is complete, the underlying bilateral contract is voided, and the FCM is required to post margin to the clearinghouse.

d. Virtual Markets Assurance Corporation

VMAC currently offers a clearing-type solution based upon the provision of highly rated financial guaranties of the Mark-to-Market and VaR-based amounts associated with submitted contracts. In the VMAC model, there is no central counterparty to every trade. Instead, participants have their bilateral contracts credit enhanced by Financial Security Assurance Holdings, Ltd. ("FSA"), a leading mono-line insurer rated AAA/Aaa/AAA. In the event of a default, participants receive payment under the financial guarantor, measured at a high statistical certainty, to replace defaulted contracts.

The VMAC system accepts trades from any source of confirmed trades (i.e. voice broker, OTC exchanges, industry confirmation systems, or from bilateral participants themselves). VMAC currently has an electronic link with the TradeSpark Marketplace that provides for real-time credit approval for trades submitted by VMAC participants. Since the VMAC product provides a direct credit enhancement to participants, there are no additional charges for FCM services or for contracts that go to delivery.

Comparison Chart

	ECC	GCC	LCH	NYMEX	VMAC
Last Trade for Clearing Accepted (EST)	6.30 p.m.			23h15 m/day[1]	6:30 p.m.
Physical Power	Yes	Yes	No	Yes	Yes

[1] NYMEX accepts trades almost 24 hours, but does not clear it until the next day's mark.

Financial Power	Yes	Yes	No	Yes	Yes
Physical Gas	No	No		In the works/ No	Yes
Crude Oil	No	No	Yes	Yes	No
METC is direct member	Yes	No	No	No	Yes
Fee for going to delivery	No	No	No	Yes	No
Direct Governance by METC	Yes	No	No	No	No
Structured Products	Yes	No	No	No	Yes
Trade Submission: Batch Files	Yes			Yes	Yes
Trade Submission: XML-API	Yes			Yes	Yes
Trade Submission: Web GUI	Yes			Yes	Yes
Voice Broker Trades Accepted	Yes			Yes	Yes
Electronic Exchange Trades Accepted	Yes	Yes	Yes	Yes	Yes
Bilateral OTC trades accepted	Yes	Yes	Yes	Yes	Yes
Neutral electronic trading accepted				Yes	Yes

3. Financial and Risk Management Safeguards of Clearinghouses

All Clearinghouses are required by the CFTC to have financial and risk management safeguards to protect the clearinghouse and its direct members. Generally, to access the exposure and likelihood of default knowledge of clearinghouse obligations is necessary. The risk of an individual member default is directly linked to the quality of the member in the case of a direct clearing solution, or the customer(s) in the case of a traditional model using FCMs, Clearinghouses attempt to insulate themselves from risk by not extending protections beyond members to customers of members, or any type of "third party" claim – as can be seen in all of the clearinghouse rulebooks. Consequently, a customer's credit exposure is the creditworthiness of the FCM.

4. The Clearinghouse Guaranty Fund

The guaranty fund is a fund populated usually in cash by the direct members of a clearinghouse. The clearinghouse fund should be used to evaluate the leverage involved. Obviously, the higher the leverage, the less likely that the clearing fund can provide adequate sole protection in the event of a default.

5. The Use of Initial Margin in Clearinghouses

All markets are based on trust. Given this premise, an initial margin amount is calculated as a portion of the net open positions and levied on the member. Initial margin represents a dollar amount determined to be sufficient to protect the clearinghouse in the event of an extreme market move, based upon statistical analysis. Initial margin only represents part of the outstanding contract value. Cleared products are by definition "leveraged" products.

The initial margin amount is levied on individuals based upon the following criteria:

i) all net open positions
ii) any credits across products, commodities or locations
iii) any charges across products, commodities or locations

Generally the initial margin is charged just one time and invariable for the life of the trade. It represents a portion of the total notional value of the open net positions and is returned upon financial settlement after the delivery is made on the trade(s) of the affected member.

6. The Use of Variation Margin in Clearinghouses

Variation margin is the difference in the daily price movement of the contract subject to a clearing obligation. This is also known as daily maintenance margin or mark-to-market margin. Variation margin is posted within a day (maximum) of the margin call. The shorter the time period from margin call to posting, the more secure the clearinghouse or the FCM, as it holds less intra-day risk.

7. Assessment of Risks of Clearinghouse Membership

In order to correctly assess the risk of being a member of any particular clearinghouse or contracting with any particular FCM, due diligence is vital. Clearinghouses traditionally make public their members. Most clearinghouses and members do not make data available at the individual METC level.

In order to reduce systemic risk, all clearinghouses mutualize insolvency risk across all of their members. As no two members have the same risk profile, the members may be required to post different levels of guarantees to the clearinghouse, based on capital adequacy measures, amount of trades cleared and credit rating (if available).

The creation of a clearing fungibility ratio (CFR) or similar metric could increase transparency. Such a ratio could take into account the following factors:

a) total unhypothecated capital available for the clearinghouse (i.e. you cannot "double post" collateral to numerous clearinghouses and double count).

b) total notional value of trades covered by such capital.

8. The Risk of the Lack of Liquidity in Power Markets

One of the risks of the power market specifically, is a potential lack of liquidity in certain products and transaction durations. Although hubs such as PJM enjoy a high degree of liquidity for short-term duration products, in less liquid hubs it is possible that a customer will not be able to trade out of a product prior to delivery.

A number of issues follow from this premise. First, the price of replacing power contracts in an illiquid hub could be extremely onerous in the event of a default**.** Second, it may be practically impossible for a clearinghouse to guarantee physical delivery of power, due to the fact that clearinghouses generally do not own power plants. However, the majority of clearinghouses require the customers to replace power prior to awarding damages. This necessarily imposes additional risk, if replacement of a contract in the spot or balance-of-month markets is not possible.

Another factor limiting liquidity in power, is that trading is limited to FERC licensed entities, with the ability to go to physical delivery. Market participants without physical assets have to account for this risk before entering this market. It is important to note that clearinghouses can mitigate risk and in some cases reduce risk significantly.

9. The Costs and Benefits of Clearing Services

While the full benefits of these new OTC clearing products and services has yet to be fully quantified, it is clear that the advantages of multiparty clearing versus bi-lateral clearing are significant. Not only are risks spread out to many parties, but the amount of capital necessary to trade or hedge future energy production or consumption is reduced significantly. Prior to the emergence of this industry, energy trading companies and or their shareholders were implicitly or explicitly taking on significant counterparty risk that can now be mutualized.

The costs of clearing include margin requirements and transaction fees. The fees and margin requirements normally are a fraction of the overall capital exposure need to back a bi-lateral trade. This leverage can substantially reduce the cost of capital that may otherwise be needed to secure energy trades, particularly in power markets where there is a significant risk of extreme price spikes.

10. Further Steps to Increase the Utility of Clearing Solutions for Industry Consideration

Clearly in this evolving industry, in order to provide real and useful comparisons, metrics such as those noted above need to be developed to aid in computing the risks associated with each clearing solution. Furthermore, a risk proxy could aid METCs in correctly assessing the various risks associated with any particular solution, as these differ significantly based on membership, products offered and other unique offerings of each product.

B. Standardized, Credible, Transparent and Auditable Price Indices Can Enhance Investor and Regulator Confidence.

One of many significant issues that have faced the energy industry is the availability of daily, weekly, and monthly settlement prices and indices based on transparent, verifiable transactions. If there is a lack of independently verifiable, transparent settlement prices and price points, each market participant must have an exhaustive and credible mechanism that deals with and is articulated to all interested parties, internally and externally, concerning how transactions are being valued. Collections of such price, volume, term, and location data are available through entities that act as energy data aggregators, and which are a compilation of transactions from leading brokerages with significant depth to be auditable, if necessary. The identify of the transactional counter party may not be required as long as that information is available should an audit or investigation be necessary, but the vital transactional elements of price, volume, term, and location are paramount to a secure marketplace for transactional reliability. As will be discussed more fully in a separate document, NEM members are developing competitively neutral, reliable, transparent and auditable price indices to be used for risk management and forward curve generation.

However, it is important to note that another important element that relates to the accounting for settlements and transactional data is Statement 133, released in 1988 by the Financial Accounting Standards Board (FASB 133). This Statement, named *Accounting for Derivative Instruments and Hedging Activities*, was the culmination of six years of extensive research and consideration. FASB 133 sets forth accounting and reporting standards for derivative instruments, including commodity contracts in the definition of derivative. However, an exception exists for a normal purchase and sale contract made in the ordinary course of business with probable physical delivery. Consequently, to date NEM has not formed a consensus on the proper application, if any, of FASB 133 to the energy marketing industry.[xiii]

V.
Conclusion

The energy industry is in the midst of an historical evolutionary process. The introduction of competition into the wholesale and retail electricity and natural gas markets has yielded substantial benefits thus far. However, in order for the full benefits of competition to reach even the smallest consumer, market structures, practices, protocols and contracts must be made more uniform and standardized so as to encourage the establishment of robust trading hubs across North America.

In the interim before FERC's Standard Market Design and other industry standardization efforts are fully implemented, solutions currently exist to improve the liquidity, creditworthiness, reliability, transparency and financial credibility of the energy industry. The industry should thoroughly examine the clearing, netting and settlement options available to mutualize, and therefore reduce, credit risk, and to reduce collateral requirements. Additionally, market participants should thoroughly examine the implementation of neutral price indices, and the application, if any, of FASB 133 to the energy markets. Clearly, the emergence of the OTC clearing and credit enhancement industry presents the opportunity to lower the costs of capital and reduce risk. The implementation of neutral price indices will also impart greater price transparency and credibility to the market.

Endnotes

[i] Natural gas was first discovered as a by-product of crude oil production. For many years, it was considered a nuisance, of no value and very expensive to transport. As a result, it was often flared at the well. Today, natural gas is considered one of the lowest cost, cleanest and most efficient burning fossil fuels; and it is used widely in all sectors of the U.S. economy. However, after a decade and a half of natural gas deregulation, fewer than twenty percent of all homeowners and small businesses are permitted by law to purchase natural gas in a competitive marketplace.

Unlike crude oil, commercial grade natural gas requires significant investment in long distance, high-pressure pipelines, compressing stations and processing plants to prepare and transport it from its production site to its consumption point. Historically, it was considered inefficient to build multiple interstate pipelines to transport natural gas out of producing areas or to dig up city streets to build multiple competing small pipelines (distribution facilities) to deliver gas to end users. Consequently, the physical act of shipping natural gas from its production site to its consumption point involves two distinct and legally separate natural monopoly functions—transmission and distribution.

In 1938, Congress passed the Natural Gas Act to protect consumers against the monopoly power inherent in the control by large pipeline companies of the transmission of natural gas in interstate commerce. Ultimately, the Supreme Court extended this regulation to the price of natural gas itself. Before federal price controls were extended to natural gas, it sold for as little as 10 cents per thousand cubic feet (Mcf) in many markets. By the time price controls on crude oil were phased-out, natural gas that was sold under government-mandated contracts, had reached prices as high as $10 per Mcf in some markets. This 10,000 percent increase in the price of natural gas caused so many distortions in both its production and use that Congress and federal regulators began a difficult, fifteen-year restructuring process.

Today, natural gas, like other commodities, is traded freely on the commodity markets.v Implementation of FERC Order 636 legally separated (unbundled) the regulated interstate pipeline transmission function from the competitive functions involved in marketing the natural gas commodity and related services to local distribution utilities (LDCs) and many large industrial consumers. As a result, the price of natural gas to LDCs and large industrial consumers declined on average by as much as fifty percent.

A number of states have initiated pilot programs to permit small numbers of consumers competitive choices for purchasing natural gas services. However as of today, 80% or more of all homeowners and small businesses in the United States have no competitive choices.

[ii] Over the last 100 years, changes in the economics and technology of generating and delivering electrical power have precipitated one of the largest industrial restructurings in the history of the United States. From the beginning of the Twentieth Century until the Oil Price Shocks of the 1970s, electricity use, both in the aggregate and per capita, grew exponentially. By mid-century, virtually the entire country received reliable service at reasonable prices. During this time, utility owned and operated generating units grew increasingly larger, high-voltage transmission lines, switching and control technology was developed and computers capable of coordinating the network were invented and installed. All of these factors contributed to the realization of decreasing average costs and supported the decisions to prohibit competition, to grant exclusive franchise monopolies to local utilities and to promote the commercial integration of the generation, transmission and distribution functions.

By the end of the 1970s, however, the regulatory paradigm of decreasing average costs, ever increasing plant sizes and regulated rates that rarely increased, was coming to an end. From the inception of the electric industry until the oil price shocks of the 1970s, the "regulatory compact" protected society against monopoly pricing in exchange for reliable service and regulated rates that permitted utilities to recover the cost of capital invested in plant and equipment. As long as underlying economic and technological factors kept average costs declining, this compact served the public interest well. However, by the end of the 1970s, this regulatory paradigm had changed radically.

During the decade of the 1970s oil prices increased ten-fold, natural gas prices increased seven-fold and the price of coal quadrupled. At the same time, interest rates soared to

historical levels. Construction costs for new utility rate based generating plants also skyrocketed. This combination of factors undermined the economic principles on which US electric utility regulation was based and on which the government's grant of an exclusive franchise monopoly was justified.

The era of declining average utility costs had ended. As larger, centrally dispatched generation unit costs skyrocketed and average costs increased, cost-of-service based rate-making still had the effect of encouraging utilities to undertake expensive new plant additions despite the availability of lesser expensive options. Because rate payers have been forced to guarantee the return of and return on the capital necessary to build higher cost utility owned generating units, electric regulation stopped protecting the public from monopoly pricing but, instead, ironically, protected monopolies from competitive merchant generation pricing.

The lower costs of competitively-priced merchant generation created a shift in the electric industry regulatory paradigm that began in the 1970s with the Public Utility Regulatory Policy Act of 1978, followed by the Energy Policy Act of 1992, and eventually FERC Orders 888, 889, 2000 and has culminated in the issuance of FERC's Standard Market Design (SMD) rulemaking. Tremendous effort has been expended to encourage, permit and now ensure that competitive market forces will permit lower priced energy and demand response technology to reach energy consumers. To date, consumers have saved billions of dollars as a result of both federal and state efforts to encourage and permit competitively priced energy to be built and delivered to end users. FERC's standard wholesale market design, SMD, is intended to ensure all suppliers and consumers have equal non-discriminatory access to lower priced energy.

[iii] Framework for Voluntary Oversight, The OTC Derivatives Activities of Securities Firm Affiliates to Promote Confidence and Stability in Financial Markets, March 1995.

[iv] In its November 1999 Report, the President's Working Group on Financial Markets noted that:

> Clearing systems can mitigate the loss than an individual party to a transaction suffers if its counterparty fails to settle an obligation. In a clearing system, obligations of the counterparties may be replaced by obligations of a central counterparty or by obligations of other participants in the system. Often clearing systems also entail a system for sharing losses among surviving participants or for shifting losses to a third party. Thus, clearing systems can serve a valuable function in reducing systemic risk by preventing the failure of a single market participant from having a disproportionate effect on the overall market. Clearing systems also facilitate the offset and netting of obligations arising under contracts that are cleared through the system.[iv] Report of the President's Working Group on Financial Markets, Over-the-Counter Derivatives Markets and the Commodity Exchange Act, November 1999, at page 14.

The Working Group did note that, "[c]learing, however, tends to concentrate risks and certain responsibilities for risk management in a central counterparty or clearinghouse. Consequently, the effectiveness of the clearinghouse's operations and risk management systems is critical for the stability of the market." Report of the President's Working Group on Financial Markets, Over-the-Counter Derivatives Markets and the Commodity Exchange Act, November 1999, at page 20.

[v] The President's Working Group in Financial Markets recommended that the regulatory framework should:

> authorize clearing organizations that clear futures, commodity options, and options on futures also to clear OTC derivatives (other than OTC derivatives that are securities, such as securities options), subject to the oversight of the CFTC;.
> …
> authorize the CFTC to develop rules for the establishment and regulation of clearing systems for OTC derivatives involving a non-financial commodity with a finite supply (to the extent that they are exempted by the CFTC in a manner that allows clearing); Report of the President's Working Group on Financial Markets, Over-the-Counter Derivatives Markets and the Commodity Exchange Act, November 1999, at page 20.

[vi] Report of the President's Working Group on Financial Markets, Over-the-Counter Derivatives Markets and the Commodity Exchange Act, November 1999, at page 20.

[vii] The CFMA defines who may operate a multilateral clearing organization and under what circumstances a derivatives clearing organization (DCO) must register with the CFTC and under what circumstances registration is voluntary. To gain CFTC approval of a DCO registration application, an applicant must comply with specified core principles relating to financial resources, participant and product eligibility, risk management, settlement procedures, treatment of funds, default rules and procedures, rule enforcement, system safeguards, reporting and recordkeeping for the CFTC, public availability of information, information sharing, and antitrust considerations. P.L. 106-554, Appendix E, enacting H.R. 5660 § 101.

[viii] Power Market Risk, Shirley S. Savage and Peter R. Savage, page 45 (2003).

[ix] Power Market Risk, Shirley S. Savage and Peter R. Savage, page 45 (2003).

[x] The Commodity Futures Modernization Act of 2000 defines "over-the-counter derivative instrument" as:

> (A) any agreement, contract, or transaction, including the terms and conditions incorporated by reference in any such agreement, contract, or transaction, which is an interest rate swap, option, or forward agreement, including a rate floor, rate cap, rate collar, cross-currency rate swap, basis swap, and forward rate agreement; a same day-tomorrow, tomorrow-next, forward, or other foreign

exchange or precious metals agreement; a currency swap, option or forward agreement; an equity index or equity swap, option, or forward agreement; a debt index or debt swap, option, or forward agreement; a credit spread or credit swap, option, or forward agreement; a commodity index or commodity swap, option, or forward agreement; and a weather swap, weather derivative, or weather option;

(B) any agreement, contract or transaction similar to any other agreement, contract or transaction referred to in this clause that is presently, or in the future becomes, regularly entered into by parties that participate in swap transactions (including terms and conditions incorporated by reference in the agreement) and that is a forward, swap, or option on one or more occurrences of any event, rates, currencies, commodities, equity securities or other equity instruments, debt securities or other debt instruments, economic or other indices or measures of economic or other risk or value;

(C) any agreement, contract, or transaction excluded from the Commodity Exchange Act under section 2(c), 2(d), 2(f), or 2(g) of such Act, or exempted under section 2(h) or 4(c) of such Act; and

(D) any option to enter into any, or any combination of, agreements, contracts or transactions referred to in this subparagraph. P.L. 106-554, Appendix E, enacting H.R. 5660 § 112(a)(1).

[xi] A swap agreement is, "a contract between two parties providing for the exchange of cash flows based on differences or changes in the value or level of one or more interest rates, currencies, commodities, securities, or other asset categories." An option is, "an instrument that provides the holder with the right, but not the obligation, to buy (call option) or sell (put option) a specified amount or value of a particular underlying interest at a specified price on, and in some cases before, its specified expiration date." Hybrid instruments are, "depository instruments (i.e., demand deposits, time deposits, or transaction accounts) or securities (i.e., debt or equity securities) that have one or more components with payment features economically similar to swaps, forwards, options, or futures contracts." Report of the President's Working Group on Financial Markets, Over-the-Counter Derivatives Markets and the Commodity Exchange Act, November 1999, at pages 4-5.

[xii] The Benefits and Risks of Derivative Instruments: An Economic Perspective, Rajna Gibson and Heinz Zimmermann, Université de Lausanne and Hochschule St. Gallen, Switzerland, December 1994, available at: http://finance.wat.ch/GenevaPapers/paper1.htm.

[xiii] The accounting standard, which became effective for fiscal years beginning after June 15, 2000, states in pertinent part that derivatives are contracts that meet the definitions of assets and liabilities, and all the financial assets and liabilities of a company are to be measured at fair value. As firms studied how to implement FASB 133, it became obvious that it was a significant undertaking, involving assessing current practices, systems and strategies, creating new formalized hedging and risk strategies, and an

overhaul of existing reporting systems. Set forth below for reference purposes are key concepts in FASB 133 implementation:

Definition – The classification of a derivative has been changed from the previous accounting definition. FASB 133 widened the classification of derivatives to include other items such as commodity contracts, for example.

According to the board, a derivative must satisfy three criteria.

- A derivative has one or more underlyings and one or more notional amounts or payment provisions for both. These will determine the settlements and whether or not settlement is required.
- A derivative either requires no initial net investment or a substantially smaller initial net investment than what would have been required to achieve a similar response to market factors.
- A derivative's terms require net settlement, and the derivative can be settled by a means outside the contract or it provides for delivery of an asset not substantially different to the recipient than net settlement.

There are certain exceptions to this rule. One major example is the "Normal purchase and sales" exception, which applies for contracts that will most likely result in physical delivery of an instrument that the company expects to use or sell in its normal course of business within in a reasonable period of time. This does not apply for contracts that require periodic cash settlement (i.e. Futures contracts).

Timing - All publicly traded companies must adopt the standard in their quarterly reporting of all fiscal years beginning after June 15, 2001.

Speculative Trades - Speculative derivative gains or losses must be marked-to-market. Those gains or losses must be recognized in the current period's income.

Hedge Effectiveness – Statement 133 requires that companies wishing to designate derivatives for hedging purposes must identify the method used to assess hedge effectiveness at the onset of the designation. It is up to the firm to determine what parameters apply to designations of "effective" or "ineffective." FASB 133 does not prescribe precisely how to make this determination, but highly effective can be interpreted to mean a correlation ratio between 80% and 125%.

The selected method must be consistent with the firm's risk management strategy and must be reasonable. This same method must be applied consistently. If other similar derivatives are used to hedge similar exposures, the same effectiveness assessment methodologies must be used. If the same method for assessing effectiveness is not used, a justification must be provided.

Many firms will refine the process of measuring hedge effectiveness over time. If new methods are established, any existing hedges must be "de-designated" and the new effectiveness measurement method needs to be identified.

Fair Value Hedge and Cash Flow Hedge - A derivative may be designated as a fair value hedge or cash flow hedge. Under the rules for hedge accounting, the changes in the fair value of the derivative are measured at fair value with adjustments made to the carrying amount of the items being hedged (as in a fair value hedge) or to other comprehensive income (as in a cash flow hedge) to the extent the hedge is effective.

In a fair value hedge a derivative instrument is designated as a hedge against exposure to changes in the fair value of a recognized asset, liability, or a firm commitment. In a fair value hedge, the change in value of the derivative instrument is recognized in earnings in the period of the change together with the offsetting gain or loss on the item being hedged. Accounting for derivatives used for hedging exposures to the price of an asset, liability, or firm commitment is the same as accounting of derivatives for speculative uses. Additionally, the value of the underlying exposure must be marked to market. Any changes in the value of the derivative and any changes in the value of the underlying exposure that the derivative is being used to hedge must be posted and flow through to the income statement.

A cash flow hedge is a hedge against an anticipated or forecasted transaction that is probable of occurring in the future but the amount of the transaction has not been fixed. In evaluating the results, a determination must be made on what part or the result is "effective" and what part is "ineffective." In a cash flow hedge, the effective portion of the derivative's gain or loss is initially reported as a component of other comprehensive income. Later, it is reclassified as income during the period when the forecasted future event that was being hedged occurs. The ineffective portion of the gain or loss is reported in earnings immediately. Amounts recorded in other comprehensive income are reclassified into earnings when the hedged item affects earnings.

"Currency Exposure Hedge" - FASB 133 provides for special treatment of hedges associated with currency exposure of a net investment in a foreign operation. The derivative must be marked-to-market and effective hedge results are consolidated in "other comprehensive income" with the currency translation adjustment. Differences between total hedge results and the translation adjustment (i.e. the "ineffective portion of the hedge" flow through earnings.

Reporting – FASB 133 requires that each derivative executed is accompanied with disclosure information that must include the objective for using that particular derivative including whether it was executed to effect a hedge or for speculative reasons. Based upon the objectives for executing the derivative, varying types of additional disclosure information is required.

If the derivative was executed for hedging purposes, the type of hedge must be specified. Varying degrees of disclosure apply for each hedge classification. The identification of the exposure being hedged is required as well as the firm's risk management policies and strategies for managing the exposure. The ineffective portion of the hedge must also be disclosed.