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Cross Border Gas Trading in Europe

2007 FLAME Gas Industry Survey Results
February 2007

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Executive Summary

The results of the 2007 FLAME gas industry survey provide an up-to-date view of the concerns of the market participants in Europe.

While the efforts to liberalize the European energy markets have not yet achieved the successes originally envisioned by the European Commission in their gas and electricity directives, there is still a widespread belief among the market participants that the Commission will continue to be the primary force in moving the natural gas market forward, and that, for the most part, European energy companies are willing to work toward achieving a truly open and competitive marketplace. This view is tempered, however, by a belief that the large, vertically integrated energy utilities are resistant to change and are supported by their national governments in protecting their status quo.

Infrastructure supporting cross border trading continues to be a concern for most. Lack of border transit capacity and data transparency continue to hamper efforts to move significant volumes of traded gas across the continent. This may be a factor in this group's belief that natural gas will continue to be indexed to oil instead of moving to hub pricing as would be expected in a more mature and liquid market. Additionally, there is a growing recognition of the importance of storage and flexibility services for companies participating in this market.

Even as Russia continues to demonstrate a willingness use natural gas as a commercial and political lever, a slight majority of respondents felt Russian or Caspian supplies were going to be the most reliable source of imports over the next 5 years. However, amid the ongoing concerns about the reliability of gas supplies and the EU's efforts to reduce carbon emissions, the vast majority felt that a shift toward development of more nuclear supply would occur over the same time frame. Another alternative energy source, imported LNG, was cited by three quarters of the respondents as being a growing source of gas supply, but one that would require increased investment in order to develop additional import facilities.

When asked to consider the systems deployed to track and manage transactions in the emerging European gas trading market, almost half of the respondents felt their current systems were unable to meet the demands of an increasingly complex trading environment, with many relying on manual processes to keep their inadequately integrated systems synchronized.

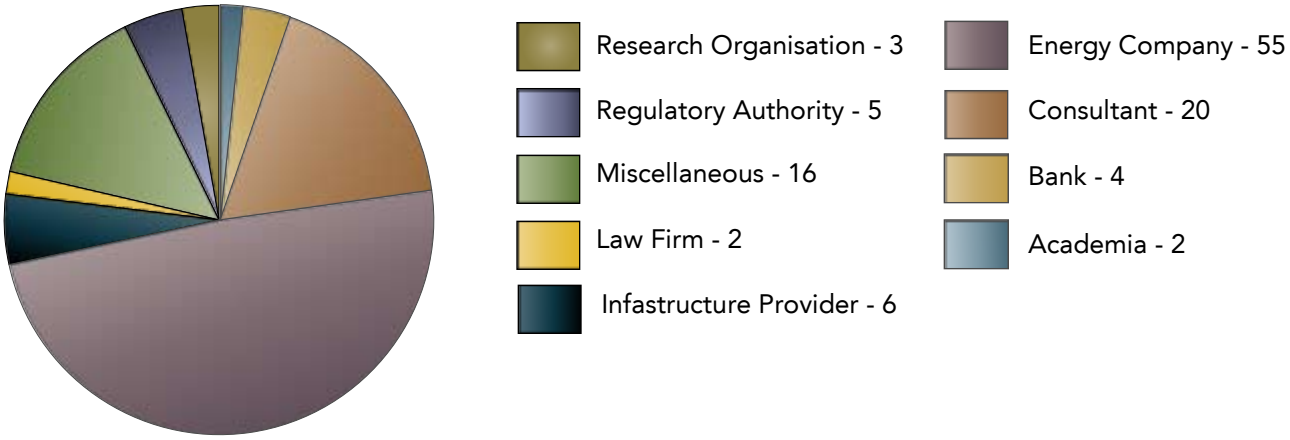
Introduction

SunGard Energy Solutions and UtiliPoint International, in cooperation with the organizers of FLAME, sought, via survey, to measure the industry's temperature in regards to many of the more pressing issues facing the ongoing liberalization effort in the European natural gas market.

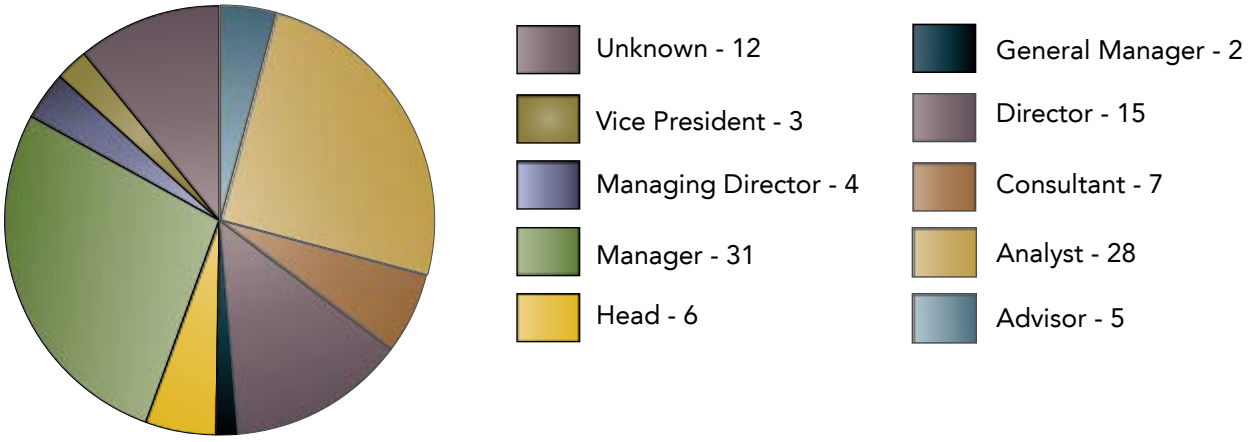
The survey reviewed several areas of interest, including industry's willingness to facilitate liberalization, which entities will be the most effective in moving liberalization forward, what factors are limiting cross border gas trading, gas supply issues and alternatives, and finally, trading software.

The survey was conducted on-line, February 1 – 15, 2007. Respondents included a wide range of industry players, including producers, shippers, regulators, consultants, and analysts. In all, 113 individuals completed the survey.

Profile of respondents by company type:



Profile of respondents by job title:

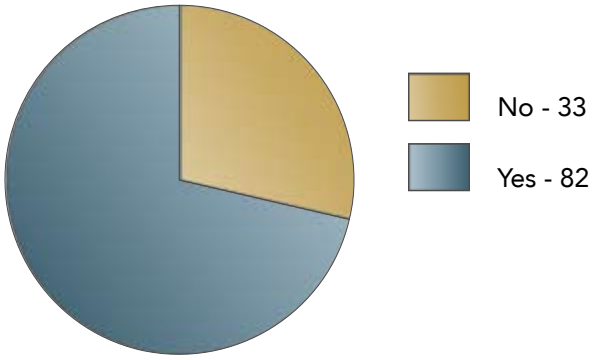


Survey Results

Natural Gas Market Development

In the 2006 FLAME survey, close to 50% of all respondents felt that European energy companies were 'not very' committed or 'not at all' committed to achieving long-term competition. However, one-year later that perception has changed with more than 70% of respondents stating that they believe that there is a willingness to achieve long-term competition on the part of European energy companies (Figure 1). Despite that, there is still a good degree of cynicism on the part of the respondents who do not think the large vertically integrated European energy companies are willing to move to more competitive markets. The majority of those saying 'No' in the survey cite protectionism and politics as their reason.

Figure 1: Is there a willingness in European energy companies to achieve long-term competition?



In fact, the dominant view among those respondents saying 'No' is that large national incumbents have more to lose than to gain through increased competition. Many believe that national governments are more supportive of the national 'champion' than the consumer and that the incumbents can make more profit by protecting their monopolies – a belief supported by the recent failure (in February of this year) by the national energy ministers to reach accord in support of the European Commission's demands for ownership unbundling. There is a real sense of a two-sided picture whereby smaller and medium-sized energy companies are keen to access competitive markets and see greater competition whereas national monopolies or incumbents have too many vested interests. The real cynics among the respondents go farther suggesting that national incumbents are keen to see increased competition in foreign territories but not in home markets!

The problem can readily be seen in Table 1 below which shows the market shares of the top three companies in gas supply within individual member states of the EU.

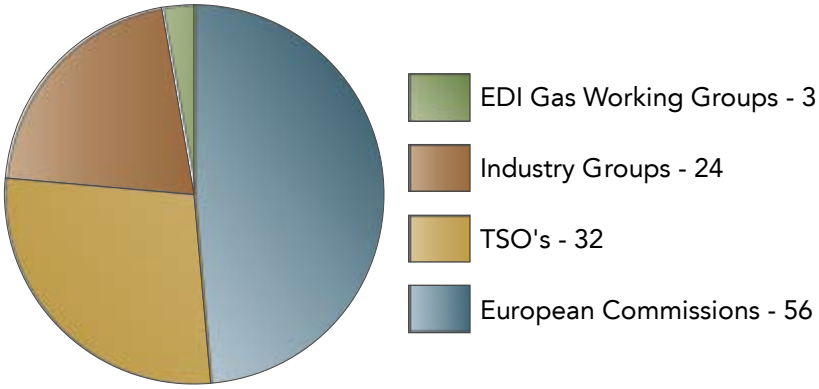
Table 1: Market share of top three companies in gas supply in EU countries[1]

UK	36%	Germany	80%
Sweden	78%	Netherlands	85%
Italy	62%	Hungary	100%
Austria	80%	Ireland	84%
Denmark	97%	France	98%
Spain	73%	Estonia	100%
Poland	100%	Latvia	98%

1 EU Commission, Report on progress in creating internal gas and electricity market (15.11.05), Technical Annex

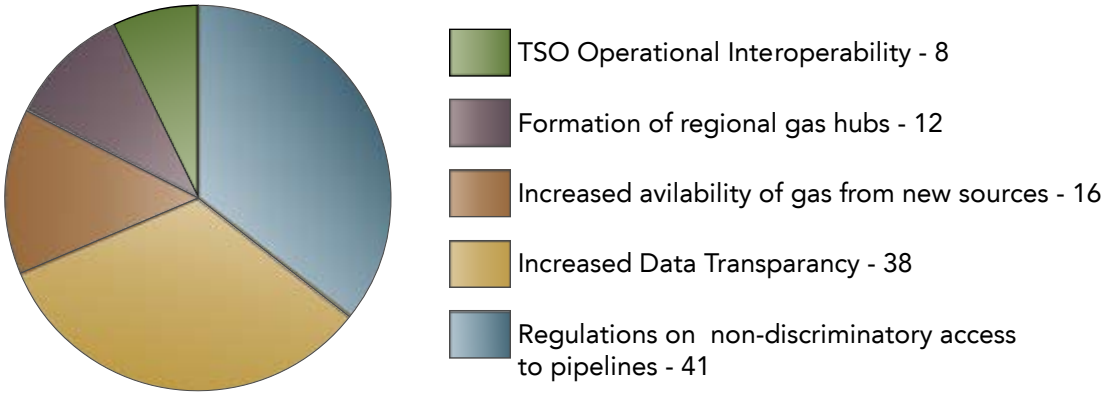
Even though there is a perceived of lack of progress by the European Commission toward liberalization, most respondents still believe that they will be the organization most likely to have the most impact on solving issues facing cross border trading in Europe but a fair proportion are also looking to industry groups such as EFET and the TSO's themselves to facilitate required changes (Figure 2).

Figure 2: Which type of organization do you think will have the most impact in solving issues to facilitate cross-border gas trading in Europe?



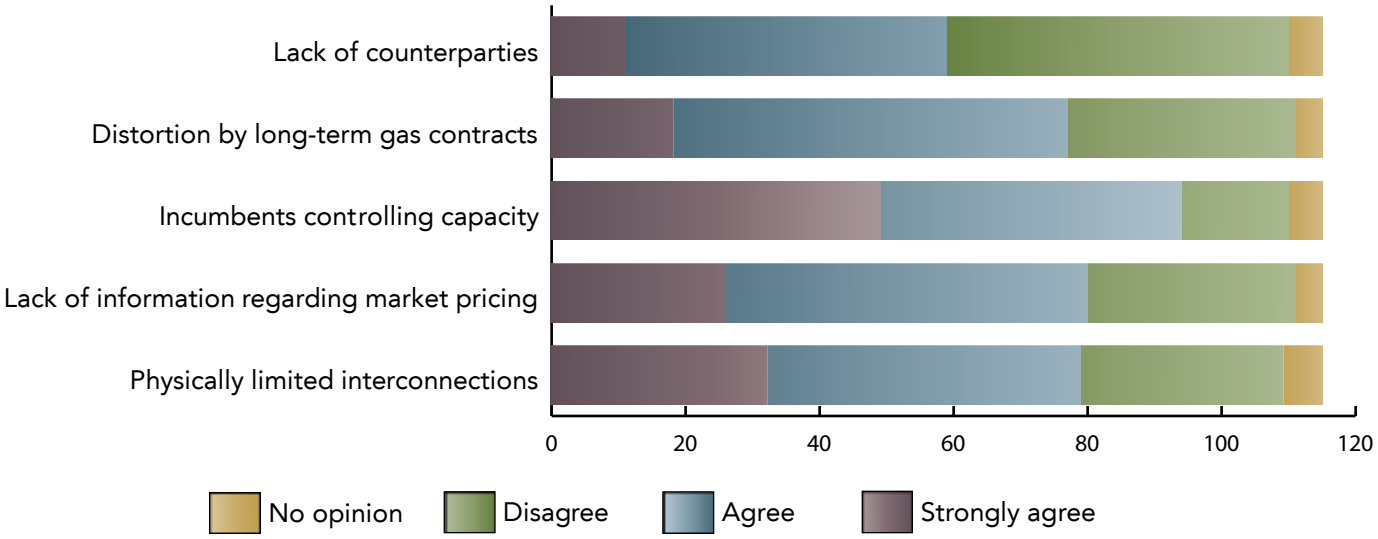
According to the survey's respondents, the best near-term solutions would be progress in formulation and acceptance of regulatory schemes to provide for non-discriminatory access to pipelines, and improved data transparency, which would indicate the majority of the market cannot find sufficient information to take advantage of what little cross border capacity is available (Figure 3).

Figure 3: Which of the following would have the greatest impact in the near-term to facilitate cross-border gas trading in Europe?



As shown in Figure 4, the respondents believe that the major issues currently hindering cross border trading are control of capacity by incumbents and the physical limitations of interconnections between markets. Lack of market pricing information and distortion by long term supply agreements (which are, of course, generally held by the incumbent vertically integrated utilities) are also rated as significant contributors to the issue. Cited as the least important factor is lack of counterparties, indicating that either many feel there are enough participants to support a liquid wholesale market, or that the addition of trading participants is a debatable point until sufficient cross border capacity is available to the market to better facilitate trade.

Figure 4: Factors that hinder cross border trading



Despite some areas of progress toward liberalization, such as the unbundling of TSO's either legally or through ownership from the vertical incumbents, these findings indicate a continuing lack of progress in the overall liberalization of the European markets, as many of these same issues were cited by the EFET in their June 2005 position paper "EFET response to Francois Lamoureux, DG TREN, on questions about progress in EU gas liberalization and the state of the markets", in which they cited a number of causes for lack of liquidity, including:

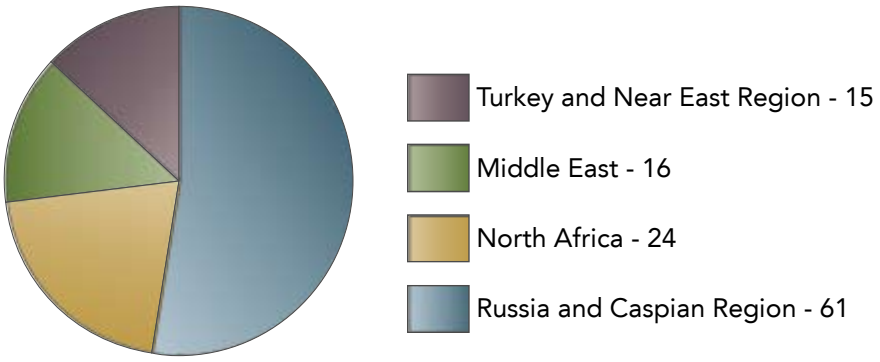
- Predominance of long-standing contracts with terms favoring the incumbent companies
- Lack of ability to access available capacity
- Lack of market based mechanism for allocating capacity
- Bias toward incumbents inherent in processes and procedures for accessing capacity
- Lack of unbundling
- Lack of information about available capacity and ancillary services
- A perception of lack of regulatory or political will for liberalization, particularly in Germany and France

Security of Natural Gas Supply

In terms of future gas supply, the survey indicates a majority of respondents feel Russian gas will be the most reliable source of gas imports into Europe in the future (Figure 5), even in light of Russian government's apparent willingness to interrupt gas supplies in order to exert commercial or political pressure. Perhaps this behavior is why, even though today Russia is the largest single source of imported gas, almost an equal number feel that other producing regions will be a more reliable source in the next 5 years, with almost a quarter of the respondents indicating they felt that North Africa would be the most reliable provider in the next 5 years.

The ability to source reliable supplies of imported natural gas will continue to be an area of intense concern as the EU estimates those supplies will constitute up to 84% of Europe's total supply by 2030.[2]

Figure 5: Which area do you see as providing the most reliable supply of gas into Europe in the next 5 years?



Natural Gas Alternatives

The FLAME respondents were also asked about potential alternatives to natural gas in the future. In particular, they were asked for their views on nuclear power build given both security of gas supply concerns and the important issue of reducing carbon emissions in Europe.

There is no doubt that nuclear power is increasingly being viewed as a viable long-term energy option in the European Union (EU), but whether this means there will be widespread new nuclear build is open to much debate. Politicians, environmental groups, nuclear companies and various other stakeholders have set out their stalls, but the future for nuclear remains shrouded in uncertainty.

From the point of view of the European Commission, its recently published Energy Review underlines the important role it views nuclear power can play in the EU's energy mix. Though it stressed that it was for each Member State to decide, it appears to be a tacit admission that if safety and security issues can be addressed then nuclear should be explored. To date, however, activity with regard to new build has been limited to a handful of countries. In France, where nuclear power supplies about 70 per cent of the country's electricity, there have been moves to build a whole new generation of nuclear power plants and to licence the planned European Pressurised Reactor (EPR). It is also interesting to note that Christophe de Margerie, the incoming CEO of French oil firm, Total, stated recently in the UK's Financial Times that he is interested in the group eventually growing into a nuclear company.

Additionally, Finland is currently building a new nuclear power plant, Olkiluoto 3, and in eastern Europe Romania's second power reactor is due to start up in 2007, with two further units slated to start construction soon. Bulgaria is also expected to start building two new plants in the near future.

There is much optimistic talk too. For example, Germany, which had previously ordered the phasing out of nuclear power by 2022, is now looking at a policy shift to reverse this. Many in the Christian Democratic Union (CDU), including Chancellor Angela Merkel, favour the maintenance of nuclear power generation as a means of lessening Germany's reliance on external fossil fuel import and helping it meet its climate change targets. Given the vital strategic concerns at stake, there is a view that the other major German party in the current Grand Coalition government, the Social Democratic Party (SPD), may look to review its long-standing opposition to nuclear power.

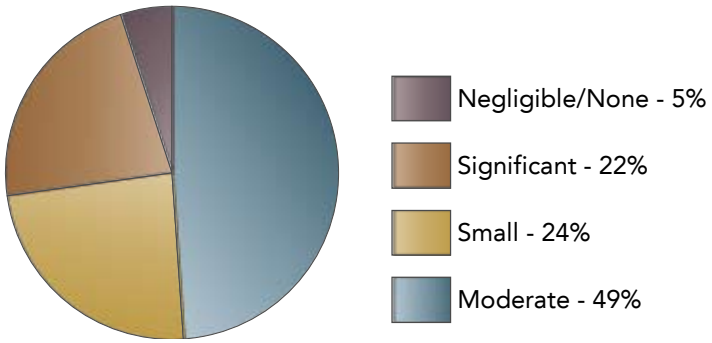
Elsewhere, nuclear power is back on the agenda in Switzerland after the government recently decided new nuclear power plants were needed to prevent a power shortfall after 2020 and Italy too has reopened the nuclear debate. In

2 Communication from the Commission to the European Council and the European Parliament - An energy policy for Europe 10.01.07

March last year, the power companies of Estonia, Lithuania and Latvia – namely Eesti Energia, Lietuvos Energija and Latvenergo – signed a memorandum of understanding, under which it was decided to carry out a feasibility study on the construction of a new nuclear reactor in Lithuania. This may eventually also include Polish company, Polskie Sieci Elektroenergetyczne. And in Spain and Sweden, there are plans to uprate and upgrade nuclear power plants. The Swedish government has also dropped plans to close all its nuclear plants by 2010.

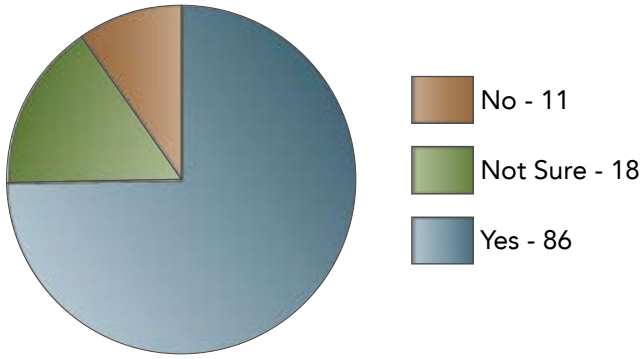
Around 70% of the respondents see a 'moderate' to 'significant' move to nuclear power generation over the next 5 years while only 5% believe this shift will be 'negligible or none' (Figure 6).

Figure 6: Given emissions and security of supply concerns, do you forsee a shift towards a nuclear build in the next 5 years?



In terms of LNG as a source of gas to help ameliorate supply concerns, the vast majority of respondents are of the opinion that LNG will play an increasingly important role in the future (Figure 7) but they also overwhelmingly recognize that investment in import facilities is required for this to take place (Figure 8). Another factor of some importance is the continuing growth of use of short term/spot LNG contracts, perhaps indicating that many look to LNG to play more of a role as a "peaking" supply, and by extension, one that could ultimately help to stabilize pricing on the continent.

Figure 7: Will LNG provide a significant source of new gas supply to Europe in the next 5 years?



Currently across the continent, eight import facilities are under construction, with as many as ten others in the planning stages, and almost an equal number being reviewed for possible development. Of the facilities currently under construction, more than half of the incremental capacity is being added in the UK, with additional plants being built in Belgium, France, Italy, and Spain. Other facilities in the planning phase (and which have received regulatory approval) are in Italy, The Netherlands, Spain and the UK. According to the Commission de Régulation de l'Energie (CRE), with the addition of the "under construction" and planned facilities, Europe's LNG importation capacity is expected to rise from a little more than 40 Bcm in 2002 to as much as 145 Bcm in 2010. In 2004, LNG accounted for about 9% of Europe's total gas consumption and by some estimates could be as high as 25% in 2020.[3]

3 Security of Gas Supply in Open Markets – International Energy Agency

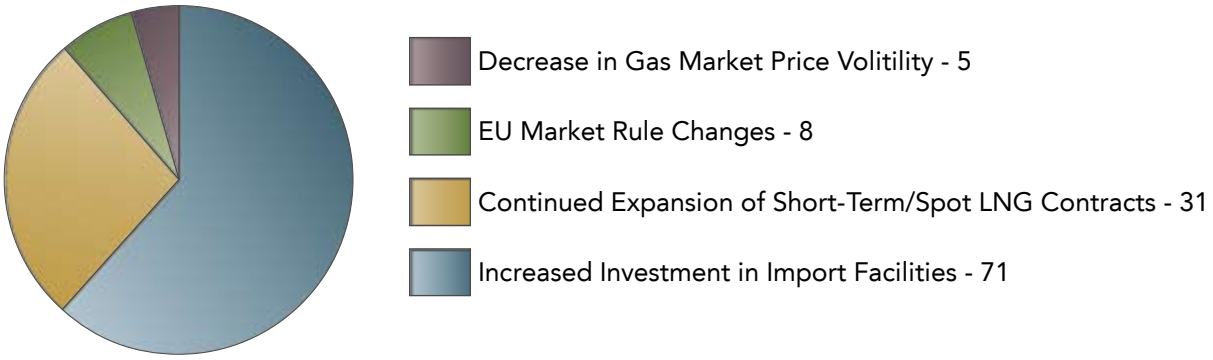
The CRE notes, given that most of the new importation facilities are concentrated in a few countries, bringing these new facilities on-line may create short-term overcapacity and supply bubbles in some regions.

Supplying these new facilities will require Europe to compete with increased demand globally, particularly from North America, where more than 45 new facilities have been in the planning stages. The most likely sources for these incremental volumes to the continent are North Africa, the Atlantic Basin, and the Middle East.

The CRE notes that in addition to the necessary investments noted by the respondents to this survey, the LNG market also faces many of the same obstacles burdening the natural gas markets as a whole. Specifically, they note that in order for the LNG markets to fully develop, non-discriminatory access to the facilities is required, with full transparency in available capacity, flows, and tariffs. Additionally, the organization notes that there still exist regional differences, again as with Europe's natural gas infrastructure, in regulatory regimes.[4]

As previously stated, the survey's respondents note the increased use of short term/spot LNG contracts as significant to the growth of the LNG market. This may indicate that many look to LNG to play more of a role as a "peaking" supply that could ultimately help to stabilize pricing on the continent as cargos could be bought for, or redirected to, terminals in areas or regions that are experiencing temporary supply shortfalls. Additionally, the respondents appear to be aware that without the increased use of short term or spot pricing, Europe will have a more difficult time competing effectively with North America, where more than 85% of the cargos are brought in under such spot agreements, allowing that market to react quickly in acquiring new volumes.

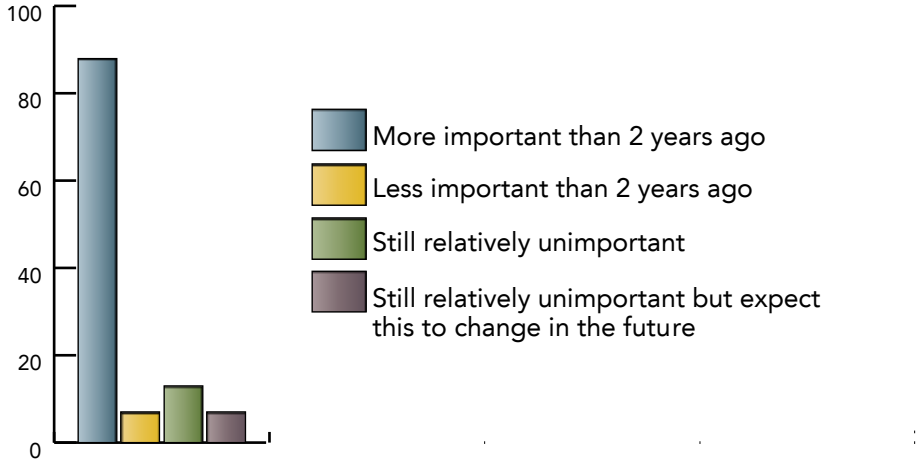
Figure 8: What event/action is the most important for LNG to play a larger role in the European gas markets?



Storage and flexibility services are also seen as very important in solving some of the security of supply issues with the vast majority of respondents stating that storage and flexibility services are more important to the corporate agenda than 2-years ago (Figure 9). This increased awareness is most likely a reflection of price shocks over the last 18 months and increased market experience for many of these companies. As demonstrated by the North American gas market model, adequate access to storage is a necessity for absorbing seasonally induced demand increases or operational interruptions. Additionally, flexibility services can provide the tools for these companies to better manage their physical portfolios, not only during market stresses, but on a daily basis.

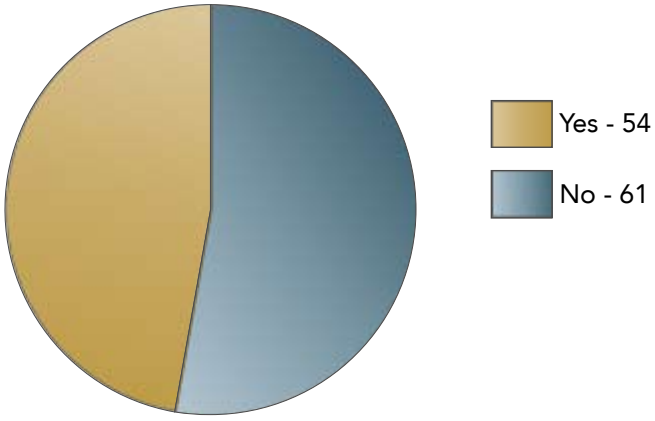
4 Regulation and Access to LNG Terminals, Patrice de Vivies, Gas Director - CRE

Figure 9: Importance of storage and flexibility services to corporate agenda?



Perhaps indicating pessimism about the ability of Europe to develop, at least in the near term, a liquid and open wholesale gas market, more than half of all respondents still see gas prices being related to the price of oil over the next several years (Figure 10). Of course, the emergence of truly competitive markets should eventually break down oil price indexation as markets move towards hub pricing like that in North America. With the development of hub based pricing, the European market will be better positioned to manage supply and demand imbalances on a regional basis, as those hub based prices will be more reflective of increased demand or excess supply in localized markets, and will help to limit continent wide price shocks.

Figure 10: Do you expect that hub pricing will have substantially replaced oil price indexation by 2010?



Role of IT

The survey also sought to gain a glimpse into the software side of the business and what role trading and risk systems might play in supporting companies in more competitive markets.

One key issue in gas trading and risk management software is integration between the systems and this survey seems to support other research performed by UtiliPoint International in this area. Less than one third of all respondents state that their trading and risk systems are fully integrated but perhaps more importantly, a larger number still is using manual systems and Excel spreadsheets to manage this critically important aspect of their business (Figure 11). Reflecting the lack of integration across their trading systems, about half of the respondents feel that their current systems are inadequate to address the current complexities in the European gas trading markets (Figure 12). This finding directly parallels those of the recent (Feb. 2007) UtiliPoint International report "Benchmarking of European

ETRM Software Markets" in which that study's respondents reported that their deployed software's provision of business functions to be "good" or "very good" in a little more than 50% of the responses and their systems' ability to "meet expectations" was only around 40%.

Figure 11: How integrated are your gas trading and risk systems?

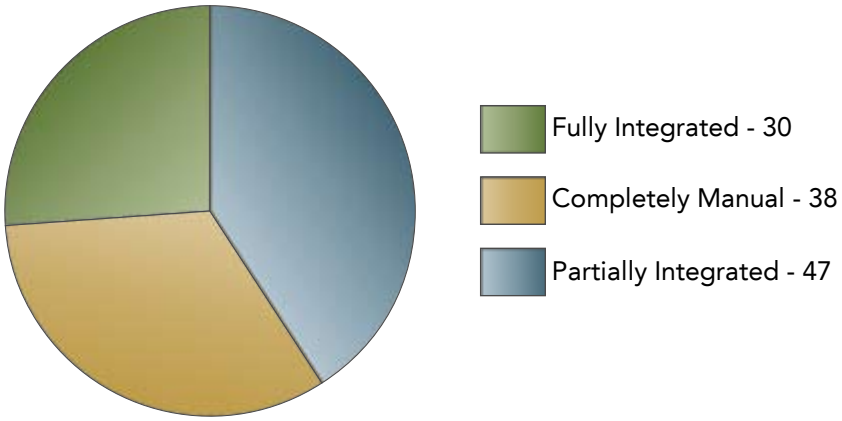
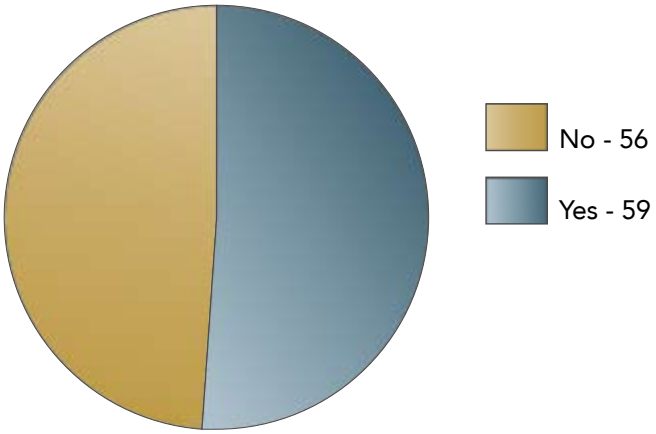


Figure 12: Do you feel that your current IT systems are adequate to deal with the complexities of the European gas trading market?



Participants trading in European gas markets are faced with numerous IT challenges, particularly gas shippers, who need to address the complex physical requirements of moving gas across country borders in this increasingly competitive landscape. Therefore, reducing operational risk is a key concern for gas shippers operating in European markets. IT challenges include real time modelling of complex transactions to meet requirements of regulators, tracking and managing all quantities and costs throughout the entire gas value chain from production to distribution, meeting different reporting deadlines between operators in different countries in order to avoid penalties, working with multiple system operators in multiple time zones with different units of measure and maintaining frequent electronic communication with a large numbers of players across the value chain.

As the European markets continue to liberalize over the coming years, one could expect a significant ETRM systems buying trend to develop as these participants seek to upgrade their internal systems. And, according to recent UtiliPoint surveys, this procurement activity has already started with 23% of respondents to our recent European survey planning to procure new ETRM software in the next 12-months. In fact, that number may be higher because a further 28% said that they "did not know" if their companies had plans to procure new software. In the same study some 42% of respondents also stated that they had last purchased a system since 2004 showing that since 2004, demand has accelerated.

Conclusion

The results of the 2007 FLAME survey show that there is a lot of work still to be done to make the European gas markets truly open and competitive. Infrastructure, lack of border transit capacity and data transparency continue to hamper efforts to move significant volumes of traded gas across the continent. Nuclear and imported LNG are regarded as being the key sources of new energy supplies for the future, with growing recognition for increased investment in order to develop additional import facilities, storage and flexibility services. With regards to the IT environment, the general consensus seems to be that current IT systems are unable to meet the demands of an increasingly complex gas trading industry.

SunGard's suite of energy solutions offers gas market participants real-time views of enterprise risk across commodities. Support for the trading of power, natural gas, LNG, crude oil, refined petroleum products, and a wide range of physical and financial instruments is provided. Full front-to-back office needs are supported from entering trades, deriving their price and value, position and P&L reporting through to advanced market risk calculations.

Furthermore, SunGard can help gas shippers to reduce operational risk and increase the efficiency of gas shipments, by providing within-country and cross-border scheduling, balancing, allocation, invoicing and storage management, as well as easing communications across the gas value chain to help ensure timely deliveries and avoid penalties from pipelines.

About UtiliPoint International, Inc.

UtiliPoint® International, Inc. is a leader in providing research-based consulting services to the utility and energy industry. Our 74-year history, with over 500 satisfied clients worldwide has given us the experience to meet your utility and energy consulting and issues analysis needs.

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About SunGard Energy Solutions

SunGard is a leading provider of integrated energy solutions that help companies to more efficiently and profitably trade energy, process transactions, manage risk, and optimise operational and financial decisions. SunGard Energy Solutions serve over 200 major energy industry participants across Europe and North America, including energy producers, distributors and traders.

www.sungard.com/energy

SunGard ZaiNet is a trading and risk management solution for energy organizations that supports front to back-office needs. Utilities and independent power providers; energy refiners; wholesalers and retailers employ ZaiNet in trading, scheduling, and risk management activities. ZaiNet offers these organizations real-time views of enterprise risk, across commodities. It supports trading of power, natural gas, crude oil, refined petroleum products, and a wide range of physical and financial instruments.

SunGard Entegrate Gas Transaction Management (GTM) solution helps energy companies to reduce operational risk and increase the efficiency of gas shipments, by providing within-country and cross-border scheduling, balancing, allocation, invoicing and storage management. Gas operations groups can use GTM to process orders electronically to pipeline operators and counterparties across Europe, thereby easing communications across the gas value chain. The solution complies with different data interchange formats between multiple pipelines, shippers and countries, to help ensure timely deliveries and avoid penalties from pipelines.

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