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Commodities Settlements
White Paper – Version 2.1

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Section I: Introduction

In the Operations Management Group's ("OMG") letter of October 31, 2008 the Major Dealers and buy-side institutions (only the Major Dealers signed the Oct 31 letter) committed to prepare a white paper focusing on commodity settlements. The document presents an overview of all current and proposed initiatives the Settlements Working Group has discussed since its inception. Our goal was to present an independent and objective description of each topic and then drill down into the benefits and challenges of each.

The paper will begin with a description of the current settlement process for OTC and OTC cleared trades, including an explanation of (a) how the process varies among different products and regions and (b) the additional complexities that are introduced with physical products . The industry view is that progress has been made in recent years resulting in a commodity settlements process that is well controlled as evidenced by a low settlement failure rate. Current issues the industry faces are also referenced.

The ISDA and LEAP working groups concluded that electronic settlement matching could be a logical next step towards a more strategic settlement process and would provide the opportunity to increase efficiencies. A discussion of other initiatives discussed in the working group includes a trade warehouse and increasing standardization. The pros and cons of each approach were laid out. These solutions will focus on the OTC market since listed and OTC cleared trades are already centrally cleared on a wide number of exchanges.

Section II: Current Settlement Process

A. Over the Counter (OTC) Trades

The OTC commodities settlement process is a date driven process. Certain key dates each month correspond to the settlement of different products. In many cases, specific products are settled only once a month. Many financial commodities, gas, crude, and refined products, settle five business days after completion of pricing while US financial power settles on the 10^{th} business day of the month. Physical commodities also have different settlement conventions based on the product and region. For example:

- North America physical power - settles on the 20^{th} calendar day of the month following flow month
- North America gas settles on the 25^{th} calendar day of the month following flow month
- European natural gas settles on the 20^{th} calendar day of the month following flow month.
- Spot precious metals trade for "spot" value – two business days from trade date.

The longer settlement times on the physical energy products is reflective of the greater amount of reconciliation required in the event of a discrepancy or the dependence upon transportation statements. Power prices are published on an hourly basis or, in some cases, every 15 minutes, which results in a large number of resets which need to be reconciled when a discrepancy arises. In the event that agreement is not reached by parties by the settlement date the undisputed amount is often paid.

Settlement calculations for physical transactions are volume * price. Prices are either agreed upon at the time of the transaction ("fixed") or settled against a published index ("float") ex: Platts Gas Daily. Some products require a provisional invoice since either quantity, price or both may not be known at the time a provisional payment is required. Final settlement is then performed to true-up to actuals. It is not uncommon when physical commodities are settled to see an "actualization", where the contractual quantity is updated to reflect the actual quantity delivered. In addition, physical power and gas add a level of complexity as volumetric 'cuts' need to be reconciled. Cut resolution can take months as all upstream and downstream parties need to agree.

Settlement calculations for financial transactions are similar, volume * price, but more than one price is involved.   One price may be fixed and compared against an index price ("Fixed Swap") or there may be two index prices ("Float-Float Swap" or "Basis Swap") multiplied by the volume and settled against one another. (ex: 310,000 mmbtu * 3.50 vs (310,000) mmbtu * Gas Daily-Texok.) Swaps are always settled net, individual legs are never settled gross. There also can be multiple prices with different weightings which comprise a basket.

Typically, invoices are settled net, meaning multiple transactions settling on the same day with the same counterparty in the same currency and same legal entity are netted together, with only one party moving the cash. In some jurisdictions, such as the European markets, tax requirements require sellers of physical commodities to invoice the counterparty for delivered goods, and only Sell trades are on the invoice. Invoices include such relevant information as trade date, volume, fixed price and/or floating price, and settlement amount per trade. As soon as practicable after all prices are known, counterparties issue invoices to one another—and in the case of physical gas, either on nominated volumes or after volumes are actualized. Settlement affirmation is standard in the industry where parties confirm cash amounts prior to the settlement date. This practice reduces settlement breaks and ensures that reconciliations are performed prior to cash moving. This is a major contributing factor to the low rate of settlement fails across commodities. In a recent survey, 13 out of the 15 G15 banks reported, in aggregate, only 18 settlement fails greater than 90 days (excluding physical cuts).

There are a number of explanations for the low rate of outstanding settlement fails in commodities, partly explained by the well controlled confirmation processes below, which allow for trade discrepancies to be remedied well in advance of settlement:

(a) Commodities has a record of striving for electronic confirmation matching. Vendors such as EConfirm, EFET and SWIFT have facilitated this approach. The industry continues to add products to these electronic confirmation matching platforms to decrease the number of trades requiring hard copy confirms. Additional vendors are also beginning to enter this market e.g. Markitwire. Products currently in focus include base metals, agricultural products, coal and Natural Gas Liquids (NGLs).

(b) Many transactions are brokered by a third party. A broker confirmation is sent out, (in addition to the OTC Counterparty confirmation) and is diligently checked to ensure that trade economics are accurately booked.

(c) A number of market participants perform verbal confirmation of trade economics should there be no type of affirmation by Trade Date + 1.

(d) Pre-Settlement affirmation of cash flows identifies discrepancies early and allows for reconciliations prior to Settlement Date.

(e) At times, the movement of the physical commodity serves as a pre-settlement affirmation of economics, with the exception of price.

Discrepancies on physical transactions relate primarily to cuts in physical power and gas, where the actual quantity of the delivered commodity is different from the contractual quantity due to operational factors, e.g., congestion on the power grid. Each organization has its own, essentially similar, process for reconciling volumes (i.e., the use of pipeline statements and OATI tags) and in the event of a volume discrepancy, the invoicing groups work together and share support to resolve any differences. Scheduling groups, and in the case of power, real time trading desks, may get involved as well, to resolve volumetric differences. Should a difference remain at settlement time, counterparties will advise one another of what the payment amount will be, and agree to continue working on the disputed portion of the invoice. Counterparties typically have a shared interest in resolving these outstanding items, so cooperation between counterparties is generally good. The UK Power and Gas markets are structured differently from North American markets and contractual obligations are usually met in full, with the financial impact of any changes in delivered volumes often managed centrally.

B. Listed and OTC Cleared Trades

Commodity OTC settlement risk has to be considered in the context of the overall commodity settlement volume. A significant percentage of commodities transaction volume is traded as futures and options on regulated exchanges run by entities including the CME Group, which controls the New York Mercantile Exchange – NYMEX, Chicago Board of Trade (CBOT) and Chicago Mercantile Exchange - CME), and the IntercontinentalExchange, Inc. (ICE) which controls ICE Futures US and ICE Futures Europe. Several other exchanges also offer products globally, including the Commodity Exchange (COMEX), London Metal Exchange (LME), NYSE Euronext LIFFE (LIFFE) , Singapore Exchange (SGX), Dubai Mercantile Exchange (DME), European Energy Exchange (EEX) and Tokyo Commodity Exchange (TOCOM) offering commodity products globally. In May 2009, 19,360,640 futures and options transactions were traded on NYMEX and 12,402,248 on ICE Futures Europe (data source: www.cmegroup.com, www.theice.com).

The commodities industry pioneered the development of central clearing of OTC transactions. In the late 1990s NYMEX was one of the first exchanges to offer the ability to clear OTC bilateral contracts. Counterparty demand for alternate solutions to complement bilateral collateral arrangements led to the development of a platform to clear OTC as futures through NYMEX's Clearport mechanism. The subsequent growth and success of OTC clearing coincided with Enron's bankruptcy and subsequent credit instability in the energy markets. In 2001, NYMEX Clearport provided the industry with the ability to clear centrally. The continued credit instability experienced during the late 2001-2002 period re-enforced the benefit of OTC clearing and its ability to provide capital efficiencies and access to a wide range of products. Other commodity exchanges and clearing houses followed the NYMEX example with ICE Clear, CME Clearport, LCH.Clearnet, European Commodities Clearing (ECC), NOS Clearing, AsiaClear and many others offering central clearing of OTC products. Examples of commodity central counterparty and clearing organizations today include:

• Gas Trading	ECC / ICEClear / CME Clearport / APX Group
• Base Metals Trading	LCH.Clearnet / CME Clearport
• Precious Metals Trading	LCH.Clearnet / CME Clearport
• Power Trading	ECC, APX Group
• Plastics Products Trading	LCH.Clearnet
• Oil Products Trading	ICEClear / CME Clearport (formerly NYMEX Clear)
• Crude Oil Trading	ICEClear / CME Clearport
• Coal Trading	CME ClearPort, ICEClear
• Freight Trading	NOS Clearing / LCH.Clearnet

- Agriculture Trading CME Clearport / ICEClear US
- Emissions Trading ICEClear / NOS Clearing / ECC
- Iron Ore Trading AsiaClear, LCH Clearnet

To date, NYMEX has launched 650 OTC-cleared contracts, and ICE Clear nearly 400. Market participants commonly use central clearing and there is strong competition between exchanges and clearing houses to launch new products providing capital efficiencies and credit risk management. Some of the most recent examples include:

- ECC clearing contracts traded on the European Energy Exchange, European Energy Derivatives Exchange and Powernext;
- NASDAQ and Nordpool working together to deliver central clearing services for UK power;
- Launch of Iron Ore OTC clearing by SGX/AsiaClear as well as LCH.Clearnet;
- Launch of Coal Futures by EEX;
- Planned launch of gold forwards cleared by the CME Group, with LCH.Clearnet and NYSE Euronext also offering gold clearing solutions.

Settlement risk is being reduced by the shift towards central clearing. The benefit of facing the exchange on cleared trades rather than having bilateral OTC trades on with multiple counterparts is (1) the reduction in counterparty credit risk and (2) the ability to net long and short positions across a range of different product types, which may reduce the amount of collateral that is required for posting. In May 2009, the G15 Dealer Group processed 222,591 Commodity OTC transactions of which 64,207 (28%) were OTC-cleared (data source: Markit May 2009 Market Data Report). Central clearing combined with the ongoing efforts to increase electronic confirmation matching has led to a significant continued decline in OTC settlement risk and a low number of aging fails amongst the G15 Group.

Section III: Issues with Current Settlement Process for OTC Trades

A number of issues have been identified where further thought and analysis are required before a potential end state solution can be discussed.

- Different levels of automation among market participants – The Commodities market is made up of a diverse range of participants of varying scale, including financial institutions, utilities, energy trading companies, hedge funds, end users, manufacturers and industrials. Levels of automation vary greatly among participants, where some have extremely high levels of automation, while others may have very manual processes. More automated groups have systems (either in-house built or 3rd party vendor) which calculate settlement amounts and generate invoices to be sent to counterparties. Less automated participants may utilize spreadsheets to calculate amounts owed as well as prepare invoices.

- Invoice Distribution - (a) the sender of the invoice can spend a lot of time trying to obtain and verify new counterparty contact information. (b) Invoices are sent by fax or email, depending on counterparty preference. A potential electronic solution could create a uniform method to transfer invoices and a new method for distribution that has contact information for all participating counterparts in a single repository. Each company should maintain their own contact information to ensure the highest level of accuracy.

- Discrepancy Identification – During the process of cash flow affirmation prior to settlement date, a discrepancy may be found. Currently, to resolve the discrepancy, a manual line by line reconciliation is performed which can be time consuming, particularly on an invoice that can contain over a thousand line items. A potential electronic matching solution would be able to quickly compare invoice amounts and filter out the few that do not match. This could allow users to focus on the identified discrepancies rather than line by line reconciliations.

- Rounding – Even though there are industry standards addressing the number of decimal places a price should have for each product, because of the complexity of commodity calculations, usually converting units, different counterparty systems calculate in different ways which result in small differences in settlement amounts, i.e. rounding in the middle of a conversion calculation from one unit to another vs truncating. The solution is usually agreed between the parties, often splitting the difference.

- Holiday Calendars – the maintenance of holiday calendars can become quite tedious. Not only must attention be paid to bank holidays in the various currencies traded, but holidays relating to price source publications must be kept accurate and up to date as well. Often the price sources publish the holidays only one to two years in advance. Since commodity trades have tenors well exceeding two years, there is continual updating that needs to occur in order to manage the life of the transaction. Additionally, unscheduled holidays e.g. President Reagan's or President Ford's funeral, must be updated in holiday calendars together with the correct pricing treatment.

- Different Trade Representation – Counterparties may represent trades differently in their respective systems, often due to system constraints. For example, instead of having a single trade, e.g., a crack swap where the differential between the two products is traded, the counterparty will enter the trade as two trades in their system. This structural difference should not affect the total value of the settlement, but it is difficult to match the two deals to the single differential deal. A potential solution would be to somehow identify that the two trades are indeed one with a "link ID". This would assist not only in settlement matching, but also in the confirmation process and portfolio reconciliation.

- Affirmation of cash flow amount prior to settlement – similar to invoice distribution, it is essential to have a good list of counterparty contacts for this stage of the process. Otherwise, inefficiencies can occur.

- Counterparties that refuse to net - There are a number of exceptional counterparties that settle gross instead of net, usually driven by a limitation of their settlement systems. Since this poses an increased settlement risk to both parties, analysis should be done to eliminate this practice.

- Non-standard settlement terms – Due to technical constraints, some participants are unable to customize settlement dates, resulting in the need to manually reconcile and process.

- Re-publishing of Settlement Prices – There are times when published settlement prices are re-issued, i.e. a power ISO or Platts restating a settlement price. Depending on the timing of this "re-settlement", this could require an invoice to be amended and resent or cash to be moved to compensate for the difference.

- Physical volume changes before settlement - Examples could be differences in what was contracted to be delivered versus what was actually delivered or a force majeure event. This could require additional reconciliations, invoice amendments and reaffirmation with the counterparty.

- Market design changes in electricity markets – Particularly in the US there have been a number of market changes that impact scheduling and settlements processes.. For example on April 1st 2009, the CAISO (California) implemented MRTU which modified delivery locations and revised market price calculations that resulted in changes to the settlement process. Additionally, an ERCOT (Texas) redesign is scheduled to be implemented on Dec 1, 2010. These types of changes often require extensive system development and testing and have led to re-settlements of prior periods after go-live as the market adapts to the new market design.

Section IV: Settlement Matching

Despite the issues raised in Section III, the established commodities settlement process has been successful overall, as evidenced by the low rate of outstanding settlement fails for this sector. Since levels of automation for the process differ among the diverse base of market participants, it is believed that automated settlement matching would be instrumental in reducing the inefficiencies in the process. It was therefore agreed that this functionality could be the logical first step towards a more complete end state.

Over the last year the ISDA & LEAP settlement working groups have been discussing automated settlement matching. The two groups have worked closely together, representing organizations such as banks, oil companies, trading houses, brokers and other service providers for the physical and financial energy trading industry. LEAP have published a white paper focused on settlement matching which we have leveraged in this document. The working group began to research settlement matching to help improve efficiency, provide scalability and to a lesser extent increase controls.

As discussed in Section II A, there are manual components to the current settlements process. Counterparties either exchange invoices or the seller sends their invoice (market convention for some physical products), the invoice amounts are then agreed, with any discrepancies identified and reconciled prior to settlement date. Each of these steps is communicated by phone, website, fax or email. For certain products it is common to share settlement data to aid the reconciliation. This data is usually in a spreadsheet format with each participant's information formatted differently and may be at differing levels of detail.

Automated settlement matching would allow counterparties to upload their settlement (invoice) information to an industry platform. The platform would electronically match settlement details at both the summary level, e.g., total cashflow and at the detailed level, e.g. individual trade line items. The platform would highlight any exceptions (unmatched items), saving hours of manual reconciliation. The exception process should be managed on the platform and users should have the ability to remove disputed trades from an invoice to allow for payment of undisputed amounts. Once the settlement is agreed on the platform the payments would be processed bilaterally outside of the platform (at least initially).

The group also captured the following requirements:

- The platform should hold counterparty contact information
- The platform should be able to capture settlement instructions
- The platform should be accessible to all industry participants and should have very low barriers to entry.
- Parties should be able to agree via the platform to tolerances. Differences within the tolerance range would match without further reconciliation
- Disputes/unmatched items should be highlighted and both parties information should be available to view side by side
- Netting preferences can be updated on the platform

- The platform should allow parties to communicate and resolve disputes.
- The platform should distinguish settlement items for current flow month from adjustments to prior periods (e.g. cash settlement relating to a dispute) which could appear on one invoice.
- The platform should allow real time updates (volumetric updates can be made right up to settlement due to the volume actualization process).
- The platform should provide different options depending on users' preferences, for example:

  - Both parties submit their invoice information to the platform for electronic matching. This will be an automated process in which a users internal system sends the information to the platform. Once matched the platform could notify a users internal system that payment can be processed
  - One party uploads their invoice information to the platform. The other party would be able to review this information and approve the invoice which would mean the payment has been agreed and could be processed
  - A party could submit their invoice information to the platform and upload their counterparty's invoice to the platform if it were in MS excel and formatted appropriately. This would mean the matching functionality could be utilized.

The ability to customize is important as it allows all types of market participants to choose what suits them best based on their individual circumstances and preferences. Considerations would be volume, technology budgets and products traded among others.

To date, there have been a number of presentations and demonstrations from three different vendors focused on the development of a settlement matching platform though none are available for use at this point. It is expected that the functionality could be delivered by the end of 2009. The industry will continue working with the various vendors to provide additional requirements and address other open items such as matching logic and service cost.

To summarize, a list is provided of the perceived advantages and challenges of a settlement matching service:

<u>Advantages</u>

- Efficiency benefits
- Processing would be more scalable
- Increased control – offsetting errors would be identified
- Users can select different levels of service

Challenges

- Difficulty/Cost of providing granular settlement data to the platform (e.g. hourly quantities and prices as seen in the power markets)
- Matching logic has not yet been completely defined.
- Parties structure trades differently (e.g. crack spreads may be booked as one trade by Party A and two trades by Party B). There is no clear solution for how this match would occur.
- Unlikely to improve the physical cut reconciliation and agreement process for physical power and physical gas.
- Re-publishing of settlement prices after invoice is sent or after settlement date requiring reprocessing.
- There would likely be significant implementation costs - the ongoing cost as well as internal development costs to integrate with the service. These would have to be compared to proposed efficiency gains.
- Difficulty of on-boarding counterparties due to the diverse range of market participants. Any benefit will be reduced unless the majority utilizes the service.

Section V: Potential End State for the Settlement of OTC Bilateral Trades

Trade Warehouse

The CDS market already utilize a trade warehouse for a significant proportion of their OTC derivative activity and other asset classes are at different stages of working toward building a warehouse. The ISDA Settlements Working Group discussed whether a Trade Warehouse could be beneficial in solving some of the issues encountered in commodities settlements. The viability, associated benefits and challenges of this concept, as well as aspects which make commodities relatively unique compared to other asset classes is discussed in this section.

Differences between Commodities and other asset classes:

- The commodities market has a more diverse set of participants than most other asset classes. In many other asset classes the majority of activity is conducted by broker dealers while in commodities counterparties can be represented by – producers, end users, investment funds, banks/broker-dealers, municipalities and companies with commodities exposure. Given the diversity of participants in the market, there are a number of regulators with jurisdiction over the relevant transactions (e.g., Fed, FSA, CFTC, FERC,). Hence, adoption by all participants could be a challenge.

- The commodities asset class clears a significant proportion of its activity on an exchange. The percentage of exchange cleared activity continues to grow year over year.

To date there have been a number of presentations and discussions with two vendors who have provided insight into their view of warehousing as well as seek feedback from the industry on areas they should focus on. We expect these interactions to continue to define business requirements as well as establish economic feasibility of the build..

Benefits

- The electronic confirmation matching infrastructure could provide an ideal gateway to a warehouse. There are a number of vendors who already offer electronic confirmation matching services that are utilized by a large number of participants and support a wide range of products. We continue to add new products to electronic matching platforms so that we can increase the percentage of electronically eligible trades which in turn will increase the population of trades eligible for warehousing.
- One record that could represent and be used for different purposes e.g. settlement calculations, confirmations and portfolio reconciliation. This could reduce the number of reconciliations which are necessary if processes use different data sources

- Settlement and transaction discrepancies should be reduced. The warehouse would hold one record that both counterparties have agreed upon so the need for reconciliations would be reduced.

Challenges

- We would need to determine how non-electronically matched trades would be added to a warehouse e.g. paper confirmations
- There may be more than one warehouse option. At least two vendors are considering building a commodities warehouse which would mean that data would be housed in multiple places
- A warehouse would not improve the efficiencies or controls related to US physical gas and power cuts. Counterparties who trade in these markets spend a significant amount of time reconciling these.
- Cost to implement – There would likely be significant costs across a broad range of participants. Apart from the service costs integration with risk management and trade processing systems would be required.

At least two vendors in the marketplace have expressed interest in providing a full scale solution for commodities settlements – from automated settlement matching to full settlement clearing for OTC commodities. Participants would be given the option of choosing which functionality they want to sign up for. Consensus seems to view Settlement Matching as a potential first step to moving towards a more comprehensive solution for commodities settlements. Vendors are prepared, if demand exists, to provide the functionality below for a potential end state solution.

Please note that the discussion in this section addresses only the OTC bilateral trades, excluding listed and cleared OTC trades.

- Create a central data repository which contains the information below:

    1. Settlement Prices – A central depository for Settlement Prices would be extremely helpful in providing one source for pricing data. There are a vast number of settlement prices used on a monthly basis in the commodities space. Each market participant is required to subscribe/license the data from the Price Source, i.e. Platts, Inside FERC, Argus, etc. To make the process more efficient, many market participants subscribe to a market price source consolidator in order to have a central source to feed price data into their own risk management systems. Settlement prices are often the cause of settlement discrepancies. A central depository of prices would be instrumental in discrepancy resolution. However, licensing and subscription issues would need to be worked out to make this feasible.

2. Standing Settlement Instructions (SSI's) stored by product/instrument by Currency – A good amount of time is spent by settlement teams across market participants to collect and maintain valid SSI's for their counterparties. One counterparty could have multiple SSI's, if they want different bank accounts credited for different products, i.e. physical gas settlements could be paid to a different account than financial oil settlements. A central depository would be ideal for obtaining this information and therefore make the overall process more efficient. However, internal requirements to satisfy Funds Transfer rules would have to be revisited, i.e. performing callbacks on SSI's. A mechanism would have to be put in place to ensure that the integrity of the SSI's as published in the central depository was reliable and up to date.

3. Holiday Calendars – A central depository for holiday calendars for both (a) banking holidays for applicable currencies as well as for (b) pricing holidays for the various price sources, be it exchange based or price publications would make the process of updating more efficient.

4. Contact information for settlement staff – Again, time is often spent identifying contact name, phone number, email, fax number by product/instrument. A central depository would make the process more efficient. Each Counterparty would have to be responsible for maintaining up-to-date information in the depository.

- Rounding Conventions – As mentioned in Section III, even though there are industry standards addressing the number of decimal places a price should have based on product and units, we often see small differences in settlement amounts due to the way different risk systems calculate settlement amounts, i.e. timing differences as to when to round/truncate, particularly when more than one price is involved which is represented in different units with different rounding conventions. A vendor platform could facilitate market participants to establish standard rounding/truncating on vanilla transactions to eliminate the "noise" that is seen in the settlements process. However this does not eliminate the issue for each market participant. Even if a vendor platform has clearly defined rules for settlements, individual trading/risk systems have their own calculations so differences will still exist and need to be written off/adjusted. The issue will just be shifted from small outages between counterparties to discrepancies between counterparty and the vendor platform. The feasibility of having individual trading/risk systems adopt the agreed upon rounding methodology would need to be investigated in order to provide a complete solution to this issue. Please note this will not address rounding differences on more complex transactions. This would likely need to be handled outside of the platform.

- Vendor Platform would serve as Calculation Agent – the proposal on the table is that each market participant, upon signing up for settlement clearing services, would assign the vendor the right to act as Calculation Agent. The vendor would calculate the settlement amounts based on the agreed rounding conventions. However, parties should be able to opt out on a one off basis to deal with highly structured, illiquid trades or structured note transactions. The challenge with this concept is that

Calculation Agent is a valued negotiated contractual condition which market participants may not want to relinquish. In addition consideration must be given to the sizeable work effort required to renegotiate calculation agent provisions and potential cross-product issues in the master agreements.

- Vendor would prepare invoices based on pre-agreed netting rules and distribute the invoice settlements to market participants. Since the contact information is maintained in a central depository with the vendor, the information required for distribution would be readily available. For those market participants who have highly automated systems, this would not be a cost or efficiency saving. In fact, development work would likely be required to suppress the distribution of invoices from the individual operations systems. However, this functionality would be extremely useful for those market participants who deal with the settlements process in a less automated fashion. (Note: If both parties have access to the vendor platform, then invoice distribution by fax and email could be eliminated because an "eInvoice" would be available electronically on the screen).

- Central Settlement of Bilateral Trades - This section addresses the reduction of settlement risk of bilateral transactions. Using a process similar to CLS (Continuous Linked Settlement), all OTC settlements would be centrally cleared with the vendor. Settlement risk would be transferred from the counterparty to the vendor, allowing for netting and thereby reducing settlement risk. Analysis would need to be done to determine the feasibility of how the counterparties essentially novate the settlements on a periodic basis to the vendor and also show the settlement risk with the vendor on internal trading/risk systems, rather than with the counterparties. In addition, the forward risk on the balance of the trade remains with the counterparties and not the vendor. Currently not sure how this could be executed. (Other asset classes currently novate the entire trade, which simplifies the process.)

Separate from the vendor solution, the following issues also need to be addressed:

- Physical Gas and Power Cuts – Significant time and resources are spent resolving physical gas and power cuts, where the actual commodity delivered deviates from the contractual quantity. Multiple counterparties can be involved in a physical path and resolution of a cut is slow because each member of the chain must review the documentation for the cut and agree the amounts. In power, a new trade at then current market price is entered into with both upstream and downstream counterparties. Any counterpart in the chain is kept whole since settlement for the cut with the upstream is equal and offsetting to settlement for the cut with the downstream. The industry should investigate the feasibility of having the source (generator of the power) and sink (end user of the power) settle the cut between themselves, removing all other counterparties from the true-up settlement process. A similar proposal needs to be made for physical gas cuts.

- Physical Statements – Whatever solution is adopted by the industry, it must accommodate all supplemental documentation necessary for settlement of the physical commodity, i.e. pipeline statements must accompany the invoice for physical refined products on a pipeline.

Section VI: Concluding Remarks

The commodities markets are well controlled as evidenced by the monthly metrics submissions to the regulators. Our asset class has the lowest number of outstanding confirms though not the lowest volumes (source – monthly metrics pack published by Markit). Similarly, the rate of settlement fails is extremely low. A recent survey of 13 banks in the G15 demonstrated that there were only 18 settlement fails greater than 90 days (excluding discrepancies caused by physical cuts). We have identified areas in this paper where we can introduce efficiencies and better controls and are working towards that goal.

Commodities laid out an aggressive plan in the July and October, 2008 commitment letters to the Fed and we remain on target. We are committed to moving standardized products to cleared platforms and have made significant progress in this area. In fact, Cleared OTC products were first developed in the commodities space. We've increased transparency by fine tuning our metrics, categorizing the data in a more meaningful way and increasing the frequency of reporting. Our lawyers are working on the standardization of Annexes to the ISDA to lay the groundwork for standard confirmation language and adding products to electronic matching platforms. Participants are aggressively building out their infrastructure to add additional products like base metals, agricultural products, coal and freight onto electronic platforms. As a result, the number of electronically eligible trades will continue to increase through these efforts while the number of outstanding confirmations should decrease. We believe commodities participants have been extremely effective in making our trading more standardized and are working towards the broader goals set up by the regulators.

This paper discusses a number of ways in which the commodities markets are unique. These differences pose challenges to recent proposals that all "standardized" OTC derivatives be cleared through regulated central counterparties (CCPs). We have included some of these challenges below:

- Physical products are made more complex by the need to reconcile physical deliveries in certain markets (e.g., North American power and gas). These "actualizations" result in actual quantities deviating from the contracted quantity. For example in the US Power markets it can take months to retrieve meter data and supply documentation to both upstream and downstream participants to get agreement on amounts to settle. The use of an exchange to resolve volumetric cuts would be extremely burdensome.
- Financial products are often tied to the underlying physical commodity, this would make certain transactions difficult to standardize. For example a unit contingent financial swap in power has notional quantities which can change on an hourly basis to mimic the energy output of a power plant.

- Many market participants are producers and consumers of a commodity and regularly hedge their production/consumption with OTC derivatives. Many are not market makers, but use the OTC markets as a vital risk management tool.
- Central clearing does not provide such participants with the customization that they get from OTC structures. While standardized products are one tool in a hedging portfolio, customized OTC transactions allow producers and consumers to tailor transactions to their risk profile by eliminating mismatches with standardized products.

Our recommendation is to allow Commodities to continue the path we have conscientiously started. The number of cleared commodities products offered by exchanges is continually increasing. Most recently, there is new interest in offering a mechanism for clearing of OTC precious metals bullion trades. The commodities industry and the regulators are aligned on the direction in which we are heading. OTC derivative products, which are decreasing in number as more and more products are becoming cleared, make up a relatively small percentage of commodities trading as compared with listed and cleared OTC products. Settlement matching appears to be the logical first step to potentially a full scale central settlement solution. A central repository for Settlement Prices, SSI's and contact information could address many of the outstanding efficiency issues. Work and further analysis is key to understanding the possibilities for formal central settlement of OTC not on an exchange, similar to CLS in Fx markets.

The settlement working group will continue to focus on the areas we have discussed and will update this paper periodically to address changes as well as update on our progress.