Joint IEA-IEF-OPEC Report

on the Workshop

"Interactions between Physical and Financial Energy Markets"

29 November 2011, Vienna

Executive Summary

Major fluctuations in energy prices in general and oil prices in particular have attracted heightened attention to the functioning of energy markets. The Jeddah and London Ministerial ad hoc energy meetings, held in June and December 2008, respectively, led to a collaborative effort aimed at exploring ways and means to enhance the process of producer-consumer dialogue and address the issue of increased volatility in energy markets.

In this connection, and given the dual role that crude oil now plays as both a physical commodity and a financial asset, the International Energy Agency (IEA), the International Energy Forum (IEF) and the Organisation of the Petroleum Exporting Countries (OPEC) recognized the need to improve understanding of the interlinkages between the physical and financial markets for energy, and agreed to jointly hold workshops on energy market functioning and meetings of energy regulators. These events form part of a wider joint programme of work agreed by the three organisations and endorsed by energy ministers at the 12th International Energy Forum (Cancun, March 2010) as part of the Cancun Declaration.

The first Joint IEA/IEF/OPEC Workshop on "Understanding the New Dynamic: How do the Physical and Financial Markets for Energy Interact" and the first Forum on "Energy Market Regulation: Clarity and Coordination" were convened in London on 22nd and 23rd November, 2010. These meetings recommended that similar events covering the interlinkages between the physical and financial energy markets, as well as energy market regulation, be held on a regular basis in order to promote a deeper understanding and dialogue on these complex and important issues.

This second Joint IEA/IEF/OPEC Workshop on the "Interactions between Physical and Financial Energy Markets" was convened in Vienna on November 29th, 2011.

The second workshop builds on the insights already gained on these issues at the London workshop and forum. The first session discussed recent developments and studies on commodity price formation; the second session considered the view of traders and other physical market participants on impact of speculation, oil market volatility, effect of pending regulation in the commodity exchanges, and swap derivatives markets, as well as the role of PRAs in commodity price formation; and the third session looked at regulatory reform affecting over-the-counter derivatives markets with a special focus on energy. The final session discussion focused on emerging issues and key challenges facing both financial and physical energy markets.

The event brought together over one hundred experts from industry, academia, governments, price reporting agencies, and the financial and regulatory sectors. Discussions were held under the Chatham House Rule. The agenda of the event is attached as Annex to the present Report.

Overall, the Workshop provided rich and diverse views from distinguished experts with different backgrounds and affiliations. The diversity of the opinion expressed in the event reflected, to a large extent, the differences of opinion between those attributing most of recent price movements to oil market physical fundamentals, acknowledging the role of financial market factors in amplifying short-term price movements; those who see speculative activity and the financialization of commodities as exacerbating price movements and leading to excessive volatility; and those that regard crude oil price formation consisting of a complex interaction of physical and financial factors, including speculation in the financial market activity. The discussion also reflected the diversity of views regarding the benefits, consequences and costs of various regulation proposals.

The workshop noted that the financialization in commodity futures markets is broader than just the rise of index funds, OTC swap and other derivatives, and called for clear definition of financialization and for further research on the market impact of commodity index funds and OTC swaps as well as the impact of increased liquidity and financial flows on commodities.

Participants noted the ongoing effort on regulatory reform in the financial and derivatives markets and recognized the need to preserve the ability of physical traders to use these markets to facilitate trade and manage underlying price risk. It was also stressed again that international coordination of regulation is essential to avoid loopholes and unintended consequences.

The Workshop acknowledged that transparency in the financial markets layer surrounding oil trading should mimic the enhancement of the international cooperation on physical market data transparency. Participants noted that data gaps in both physical and financial markets contribute to price volatility. They called for more data to enable a more complete picture of activities in both financial and physical markets. The Workshop commended the international efforts to increase market data transparency, such as the JODI process, and stressed the need to make further significant progress in this area.

The participants recognized that continued cooperation and active dialogue are important elements in improving the understanding of the concerns of all parties and in enhancing oil market stability. They noted the successful outcome of the

Workshop, as well as the positive and constructive nature of the dialogue among energy stakeholders. In this regard, they stressed the importance of continued efforts to improve the producer consumer dialogue for the benefit of all.

Further similar event covering the interlinkages between the physical and financial energy markets, as well as energy market regulation, should be held again in future in order to promote a deeper understanding of, and dialogue on, these complex and important issues.

I. **Background**

Major fluctuations in energy prices in general and oil prices in particular have attracted heightened attention to the functioning of energy markets. The Jeddah and London Ministerial ad hoc energy meetings, held in June and December 2008, respectively, led to a collaborative effort aimed at exploring ways and means to enhance producer-consumer dialogue and address the issue of extreme volatility in energy markets.

In this connection, and given the dual role that crude oil now plays as both a physical commodity and a financial asset, the International Energy Agency (IEA), the International Energy Forum (IEF) and the Organisation of the Petroleum Exporting Countries (OPEC) recognized the need to improve understanding of the interlinkages between the physical and financial markets for energy, and jointly held workshop on energy market functioning and forum on energy regulators in London on 22nd and 23rd November, 2010. These events form part of a wider joint programme of work agreed by the three organisations and endorsed by energy ministers at the 12th International Energy Forum (Cancun, March 2010) as part of the Cancun Declaration.

The first Joint IEA/IEF/OPEC event noted the increasing interaction of the physical and financial energy markets and recommended to continue the ongoing effort to better understand the functioning of each of these markets, as well as the interaction between the physical and financial markets. It also recommended the enhancement of international cooperation on market data transparency, such as the promotion of JODI. On regulations the first event recognized that regulations have important effects on market functioning and participants' behaviour and emphasized the need for appropriate regulation and the release of more frequent and high quality market data, which would benefit all market participants. It commended the international coordination on financial market regulation.

The second Joint IEA/IEF/OPEC Workshop on the "Interactions between Physical and Financial Energy Markets" was convened in Vienna on November 29th, 2011.

II. **The second workshop on "Interactions between Physical and Financial Energy Markets"**

The objective of the Workshop was to continue efforts to improve the understanding of the interactions between physical and financial energy markets, to identify key influences from both markets on energy price movements, and building on the insights already gained on these issues in previous events.

The Workshop was organized around four sessions that looked at i) developments and recent studies on commodity price formation; ii) interactions of physical and financial markets: an industry view; iii) forum on regulation: update on regulatory reform in the energy derivatives markets; and iv) emerging issues and key challenges.

Developments and recent studies on commodity price formation

The discussion in this session examined recent research and academic insight on interactions between physical and financial markets and discussed how the physical and financial markets have evolved since the first workshop in London. The session also addressed the extent of the impact of speculative activity in the commodity markets in general, and oil in particular, with a range of views expressed regarding the factors driving recent oil price movements, including fundamentals and the financialization of commodities. Finally, the session highlighted the importance of improving data transparency in both financial and physical markets.

Interactions of physical and financial markets: an industry view

The participants examined in this session the industry views on the influence of speculative activity and the potential impact of recent regulatory reforms on the commodity exchanges, and swap derivatives markets in both the US and Europe. Finally, the participants discussed the report of IEA-IEF-IOSCO-OPEC to the G-20 on price reporting agencies.

Forum on regulation: update on regulatory reform in the energy derivatives markets

The participants examined in this session the current framework of regulation for commodity futures and derivatives markets and the objectives and extent of the proposed reforms with a focus on energy. The potential impacts of regulation on hedging and risk management were discussed. Differences in both regulatory approach and the pace of reform between regions were highlighted. The benefits and the challenges faced by market participants and exchanges in dealing with the new regulatory framework were discussed. The need for further international regulatory coordination was also discussed.

Emerging issues and key challenges

In the fourth session, the Workshop concluded with an overview of emerging issues and key challenges facing both financial and physical energy markets. In this respect, the session addressed the evolution of the investment strategies in the commodity markets since the recent financial crisis and their impact on oil price developments. The session also focused on implications for the energy markets of the structural change in supply and demand dynamics, as well as the impact on commodity markets of the current financial crisis facing developed economies.

III. Summary of the discussions

The discussions highlighted again the diversity of opinions regarding the interactions between physical and financial energy markets. Some participants attributed most of recent price movements to oil physical fundamentals, while acknowledging the impact of financial markets in amplifying short term price changes; some others see speculative activity and the financialization of commodities as exacerbating price movements and leading to excessive market volatility; there are others who regard crude oil price formation as consisting of a complex interaction of physical and financial factors, including speculation in the financial markets. Participants also highlighted the increasing interaction of the physical and financial energy markets, as well as the significant potential for even greater interaction.

The Workshop noted that studies about the role of index funds, exchange traded funds, over-the-counter (OTC) swap and other derivatives on commodity futures markets have generated a wide range of arguments and views. To date, academics have not yet come to a consensus on a single theory over the role of speculation, on how it may influence oil price formation, nor on a consistent explanation about the mechanics or causal relationships in price formation.

Several studies fail to find evidence of index funds and OTC swaps being behind the run-up in commodity futures prices and argue against the view that they contributed to commodity price bubble in 2008/2009. These studies find little evidence of a relationship between index fund positions and movements in commodity futures prices. They argue that the oil market is highly competitive with physical prices determined by supply and demand as well as by stock levels. In this respect they noted that financial traders receive signals from the physical market, although given that the signal is sometimes noisy, there is clearly a need for better physical data.

In contrast, some studies note the increasing role of financial market over the last decade and argued that the total size of index fund investments overwhelmed the normal functioning of these markets and are responsible for a bubble in commodity futures prices. These studies have found evidence that commodity index funds have impacted commodity prices. They also note the increased correlation between individual commodities and between commodities and other financial assets, including equities and exchange rates. They additionally highlighted the dramatic reduction in trader's positions in response to financial volatility during the financial crisis. While acknowledging that fundamentals will continue to be an important driver of the oil market, they emphasized that other factors, including those related to the financial sector, have an important short-term influence. The activity in the futures and financial OTC markets can cause short-term price fluctuations in the spot markets, even in the absence of immediately apparent changes in underlying oil market fundamentals.

Some participants held the view that in order for speculators to affect physical prices, futures prices must impact upon physical supply and demand. They considered that the most important mechanism is through cash and carry arbitrage. They argued that with cash and carry arbitrage, speculators can increase the price swings when their predictions are incorrect. However, speculators have a strong incentive to correctly forecast market shifts. In this case, cash and carry arbitrage may moderate price fluctuations. However, participants also noted that the distinction between hedging and speculation in futures markets is less than clear-cut. In this connection, they argued that it is difficult to measure the respective roles of hedgers and speculators or fundamentals and speculation on energy prices.

The Workshop noted that the financialization in commodity futures markets is broader than the rise of index funds and OTC swaps, and called for clearer definition of financialization and for further research on the market impact of commodity index funds, as well as the impact of increasing liquidity and financial flows on commodity markets. In addition, the workshop highlighted that the lack of publically-available data on positions of index funds and OTC swap in energy futures markets has hampered the direct tests of the relationship between index fund and OTC swap positions, and price movements in these markets.

Some participants acknowledged the importance of the financial or the derivatives markets to arbitrage trade as these markets offer a viable way to protect against the volatility of oil prices. They noted that the financial players provide the necessary liquidity to the oil market and offer another layer of price discovery linked with physical dimension of the market. However, some participants noted that, during periods of financial turbulence, financial players may become liquidity consumers due to their own financial distress, with a convective flow of risk back towards commercial hedgers.

There was general agreement that insufficient information is currently available for the market. In this respect, the workshop called for more data painting a more complete picture of producers and consumers' activities in both financial and physical markets, including physical inventory, investment and trading in futures and other derivatives markets.

On the price reporting agencies (PRAs), the Workshop noted the IEF, IEA, OPEC and IOSCO report on PRAs to the G20. Regarding the debate on PRAs regulation, some participants acknowledged that the PRAs need some oversight and that they should have more dialogue with the market participants. However, it is not clear how this will happen and there was no consensus on precisely what steps were necessary moving forward. However, some participants argued that the role of price reporting agencies is well defined, and that the current structure works well, leaving no need for government regulation.

The session on regulation acknowledged that regulations have important effects on market functioning and participants' behaviour and emphasized the need for appropriate regulation and oversight in the financial energy markets, including the release of more frequent and granular market data. It noted the ongoing effort on regulatory reform in the financial and derivative markets. Participants noted that the dramatic rise and subsequent sharp decline in crude oil prices during 2008 has been a catalyst for consideration of major regulatory reforms in the markets for commodities. In this respect, participants acknowledged that regulatory reform is essential to ensure future soundness of the system, improved transparency, to safeguard efficient price discovery, and to reassure the public that prices are set in an open competitive market.

Some also argued that proposed regulations might have unintended consequences. For example, some argued that market activities would be less transparent if OTC trading is forced to move into platform-based trading systems with a view of pre-trade transparency. They added that moving swaps onto platforms may create increased volatility similar to that experienced in regulated markets when electronic trading was introduced due to the expected higher volume. However, increased price transparency would be expected to lead to lower end-user costs.

In this respect, the workshop noted that the goals of the Dodd-Frank reform in US and MiFID reform of EU commodity derivatives markets are mainly to put all derivative transactions under regulatory supervision and increase the transparency of the market through reporting of transactions and increase clearing of transactions as well as expanding position management and oversight, including the ability to set position limits.

The participants recognized that regulatory reform should preserve the ability of physical traders to use these markets as a mean for price risk management.

On position limits, some participants were concerned that any position limits that may be imposed should clearly recognize the volume of trade that a large trading company is involved in. Some other participants expressed concern that regulation may restrict the overall liquidity of derivative markets and as a result limit the ability to match the timing of pricing and price protection.

The Workshop stressed that international coordination of financial market regulation is essential to avoid loopholes and unintended consequences. Participants commended the high degree of international coordination, through international, regional and bilateral cooperation in many areas.

The Workshop acknowledged that transparency in the financial markets layer surrounding oil trading should mimic the enhancement of the international cooperation on physical market data transparency. Participants noted that data gaps in both physical and financial markets contribute to price volatility. They called for more data to enable a more complete picture of activities in both financial and physical markets. The Workshop commended the international efforts to increase market data transparency, such as the JODI process, and stressed the need to make further significant progress in this area.

Finally the workshop agreed to continue the efforts to improve the producer consumer dialogue to enhance stability for the benefit of all.

In this respect, the Workshop commended the role of the IEF in promoting and facilitating the dialogue among producing and consuming countries, both developed and developing, increasing awareness of their common interest in transparency, stability and predictability of energy markets.

IV. Conclusion

At the end of the event, the participants noted the successful outcome of the Workshop, as well as the positive and constructive nature of the dialogue among energy stakeholders. They recommended continuing efforts to improve the producer-consumer dialogue to enhance stability in the oil market and increase transparency through comprehensive, timely and reliable data.

It was recommended that further events covering the interlinkages between the physical and financial energy markets, as well as energy market regulation should be held again in future to promote a deeper understanding of, and dialogue on, these complex and important issues.

Annex
A joint IEA-IEF-OPEC Event (FINAL DRAFT)
Workshop
"on the interactions between physical and financial energy markets"
29 November 2011
InterContinental Hotel
Vienna, Austria

Monday, 28 November 2011	
Pre-Workshop Welcome Reception **18:00-19:30**	
Tuesday, 29 November 2011	
9:00 am to 9:30	Registration
9:30 to 9:45	Welcome and opening remarks
9:45 to 11:00	**Session I** **Developments and recent studies on commodity price formation** Discuss how the physical and financial markets have evolved since the first workshop in London. Recent studies have shed further light on commodity price formation. This session provides an update on recent academic findings in this area and the implications for energy markets; and also considers the view of traders and other physical market participants on the impact of speculation and oil market volatility. • How do financial energy market activities influence energy prices? • Can information obtained from futures and financial over-the-counter markets enhance the understanding of the underlying physical markets? • Can activity in futures and financial over-the-counter markets cause short-term price fluctuations in spot markets, even in the absence of immediately apparent changes in underlying oil market fundamentals? • What kind of models and data are most appropriate to understand fully the relationships between financial and physical markets? Moderator: Glen Sweetnam, Director, Energy Markets and Financial Analysis Energy Information Administration (EIA) Panelists: Scott Irwin, Professor, University of Illinois Wei Xiong, Professor of Economics, Princeton University Louis Ederington, Professor of OU Price College of Business
11:00 to 11:15	Coffee break
11:15 to 12:30	**Session II** **Interactions of physical and financial markets: An industry view** • This session considers the view of traders and other physical market participants on impact of speculation, oil market volatility, affect of pending regulation in the commodity exchanges, and swap derivatives markets, as well as the role of PRAs in commodity price formation. Moderator: Ken Koyama, Professor, Chief Economist, Managing Director, Institute of Energy Economics, Japan Panelists: Ian Taylor, President, Vitol Roberto Carmona, Crude Oil Manager, Pemex International Dario Speranza, Vice President, Planning and Control Department, Upstream Oil Scenarios and Long Term Strategic Options, ENI Spa

12:30 to 13:30	Lunch
13:30 to 14:45	**Session III** **Forum on Regulation: Update on regulatory reform in the energy derivatives markets** Regulators in the major energy derivative markets will provide an update on regulatory reform, including insights on the following questions: • What is the current status of regulatory reform in the energy derivative markets, at both the national and international level? • What are some of the ongoing challenges facing regulators going forward? • What impact have these efforts had on transparency, price formation and oil market stability? Moderator: John Kemp, Commodities & Energy Columnist, Thomson Reuters Panelists: Maria Teresa Fabregas, Deputy Head of Unit, Securities Markets, European Commission Robert Levin, Senior Vice President Research, NYMEX Richard Shilts, Director of Market Oversight, CFTC
14:45 to 16:00	**Session IV** **Emerging issues and key challenges** The panellists in this session will discuss the following issues: • How have investment strategies in the commodity markets evolved since the recent financial crisis? What impact is this having on oil price developments? • How are the oil derivative markets expected to develop in the key consuming Asian countries? • What are the effects of the current economic and financial crisis on the functioning of commodity markets? • What key challenges are likely to be seen over the coming years? Moderator: Frederic Baule, General Manager, Risk Management Services Total Oil Trading Panelists: John Parsons, Professor, MIT Sloan School of Management Nasser Al-Dossary, Economic Advisor to H.E. the Minister, Ministry of Petroleum & Mineral Resources Saudi Arabia Kosuke Araki, Manager, Research Institute of Market Structure, Tokyo Commodity Exchange, Inc
16:00 to 17:00	**Closing remarks**
	Note: The event is held under Chatham House Rule.