

XIC12

BLOCKCHAIN FOR SUPPLY CHAIN AND LOGISTICS FORUM

www.blockchainsupplychain.io

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Blockchain and Energy Commodity Transactions



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Smart Contract

- Smart Contract – a digital protocol that automatically executes pre-defined processes of a transaction without the involvement of a third party
- Classic Form of Smart Contract – an “if/then” process
- Application to an energy commodity contract:
 - Multiple (outside) inputs
 - All inputs → the “then” activities are triggered
 - Standardized components & non-standard terms

Energy Commodity Transaction Lifecycle

- Three components to energy commodity transaction:
 - Pre-trade
 - Trade execution
 - Post-trade
- Departments involved in pre-trade component:
 - Legal
 - Credit
 - Compliance
 - Analytics
 - Operations
 - Risk
- Pre-trade preparations, in general:

Energy Commodity Transaction Lifecycle

- Pre-trade preparations, in general:
 - Counterparty agreements
 - Credit limits, policies and procedures
 - Compliance policies and procedures
 - Accounts on exchanges, trading platforms and scheduling systems
 - Pricing information services
 - Brokerage relationships and accounts are established
 - Research and analysis tracked on commodity movements

Energy Commodity Transaction Lifecycle

- Departments involved in trade execution component:
 - Front office sales personnel and traders
 - Risk management department
 - Credit department
- Trade execution, in general:
 - Trade executed and details captured
 - Trade analyzed and assessed for risk → entered into systems

Energy Commodity Transaction Lifecycle

- Departments involved in post-trade component:

- Confirmations
- Risk
- Credit
- Settlements
- Legal
- Front Office
- Finance
- Compliance
- Operations
- Finance

Energy Commodity Transaction Lifecycle

- In general, after a trade is executed:
 - Confirmations recorder into multiple systems
 - Once confirmed, risk management continues to track, analysis & distribute to:
 - Front office
 - Finance department
 - Credit department continuously runs analysis for credit exposure to each counterparty;
 - Transaction details → settlement systems
 - Regulatory reports
 - Physical settlements → bulletin boards / scheduling systems to insure delivery

Energy Commodity Transaction Lifecycle

- Multitude of departments, systems and interfaces needed
- Multiplied by # of counterparties
- Transaction accuracy paramount
- ENTER BLOCKCHAIN TECHNOLOGY!!

Potential Use Case in an Energy Commodity Transaction

- Main drivers to use blockchain technology:
 - Efficiency
 - Accuracy
 - Cost savings
- Scenario: Blockchain enabled sale/purchase of natural gas....
 - Smart contracts determine interest by scanning buy/sell orders
 - Executed buy/sell orders recorded to blockchain

Potential Use Case in an Energy Commodity Transaction

- Transaction details automatically confirmed
- Additionally, details available to:
 - Pipeline bulletin boards
 - Risk management department
 - Credit department
 - Settlements department
 - Finance department
 - Compliance department

Potential Use Case in an Energy Commodity Transaction

- Example advantages may include:
 - Removal of the need for a broker relationship or price discovery system
 - Removal of the centralized trading platform, or exchange
 - Removal of an internal trade capture system
 - Removal of the need for software or systems y, thus reducing the possibility of errors in the confirmation process
 - Streamlining internal department
 - Removal of the need to manually enter physical transaction
 - Automation of the cash settlements process

Regulatory – Current Regulatory Framework

- CFTC has exclusive jurisdiction over commodity futures and options trading in the U.S.
 - Requires all commodity futures and options to be traded on an exchange designated as a contract market by CFTC
 - Transactions involving the purchase or sale of a commodity for future delivery is only permissible if:
 - Rules of a board of trade designated by CFTC
 - Required information
 - 3 years open for inspection by CFTC and DOJ requirement
- Prior to 2010 difference from today

Regulatory – Current Regulatory Framework

- Dodd-Fran Act (2010) regulatory change:
 - Exempt commodities
 - Swaps
- Parties (not) allowed to enter into a swap
- Differences from Forward or Spot Contract Market
- A nonfinancial commodity
 - Deferred shipment or delivery of the nonfinancial commodity
 - Intent to physically deliver the nonfinancial commodity
- Energy is a commodity that can be delivered and therefore the CFTC has exempt it from its regulations
- Additionally, a spot contract, which calls for immediate/near term delivery is exempt from CEA and CFTC jurisdiction

Regulatory – Use of Blockchain Technology Under Current Regulatory Framework

■ Questions:

- How could a blockchain environment created for conducting an energy commodity transaction be permissible under the U.S. regulatory regime?
- Would the use of a blockchain environment for conduct of energy commodity transactions require a change to the current regulatory regime?

■ Possible Answers:

- Energy commodities swaps that utilizes smart contracts could be permissible under the exemption that transactions are executed solely between ECPs, provided the blockchain environment only permits participants that meet the ECP definition
- Energy commodity forward contract that utilizes smart contracts could be permissible under the forward exemption if the blockchain participants agree that only physical forward, or spot, contracts will be executed by participants

Regulatory – Use of Blockchain Technology Under Current Regulatory Framework

■ Additional Questions:

- If a decentralized blockchain environment created for conducting an energy commodity transaction is permissible under the U.S. regulatory regime, how would it be monitored and regulated?
- If a decentralized blockchain environment is used to conduct energy commodity transactions how will participants fulfill their self-regulatory duties?

■ Possible Answers:

Macintosh HD

- Allow the CFTC to join the blockchain environment and/or
- Allow the CFTC to establish certain requirements to be placed in the smart contract model
- Build into the smart contract model algorithms that automatically implement position or trading limits

Questions

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