

Blockchain biofuel application

Jan Clement, Email:Jan.Clement@GeoJan.nl

Geo Jan Sustainable Environmental Solutions, Nethrelands

Abstract

Biofuels are essential in our future energy supply. Various sources and origin of biomass have a very different environmental impact. How can blockchain secure and safeguard origin throughout the whole supply chain? Some factors have a negative influence on what could otherwise have been a positive product; using wood from sources with high natural value. Non-traceable origin has a negative impact in itself. Long distance transport can also change the situation. Production forests that are not managed sustainably leads to negative effects like loss of soil fertility, erosion and diminishing availability of food crops locally. Blockchain when done well can improve several of these factors by introducing transparency, traceability and trust for all stakeholders in supply chains. Local sources that are marked and visible on the blockchain are preferable: The process can be followed exactly, and proves the source is trustworthy and meets sustainability and other criteria. It is essential to map sources of wood that are available for future use. These then will be visible on the ledger of the blockchain and can be followed over time. This give management information, planning tools and transparency for stakeholders and public alike. In Holland, the Government is going to plant 100,000 hectares of forest for biomass. A perfect opportunity to apply the proposed system. Everyone can see the forests grow and be certain of sustainable management and future consumption.

Few topics in business today stir more debate than blockchain and digital coins. It is important, however, to not get distracted by the hype and polarisation of that discussion. Blockchain and digital coins are technologies that can bring important changes to the commodities markets, and for that reason are receiving growing attention and investment from players in the oil, natural gas, metals, agriculture, power, and emission rights industries, among others. Biofuel market participants should also follow these technological developments closely. There are three areas particularly promising to the biofuels industry: supply chain integrity and traceability, access to financing, and downstream sales.

Increasingly, the management of commodities supply chains requires the ability to track products from source-to-sink. Today's prevalent method to do so is a combination of diligence, trust and a complex and expensive system of overlapping 3rd party audits and verifications. However, such 3rd party assessment are mostly used privately and not subject to public checks and scrutiny. Therefore, such reports are vulnerable to tempering. Further, the lack of public verification on representations around a commodity often leads to a belated discovery of fraud, when different parties reach for the same asset. The weaknesses of the current method

are best evidenced by some high profile cases, such as the large-scale fraudulent sale of Renewable Identification Number (RIN) in the United States or the multiple sale of the same warehousing space in the Qingdao Port in China.

Blockchain offers a potentially superior solution to supply chain management. While the technology has many layers, there are six key broad capabilities that are particularly relevant: It creates an immutable digital record of the title of a real asset; It creates an immutable digital record of any transfer of such asset; It can automatically crosscheck these new digital records against a public global ledger that contains all digital assets and their history of transfers; It can carry these tasks in an automated and very decentralised manner, in such a way that the system is immune to the disruption of any of its parts; The records created and the results of the crosschecks are subject to extensive public scrutiny that precludes any form of tempering; Parties' real identities can be concealed in the form of unique serial numbers.

These critical aspects of the technology carry several commercial implications. The immutability and cross checking of the records provide the confidence on the integrity of the asset traded electronically. The immutable recording of all transfers creates a reliable history to trace the asset from source-to-sink. The decentralised nature of the system means it is operationally reliable and resilient. Real identity concealment allows for the system to be used without jeopardising commercial interests. Automated and online, the system cuts transaction time and costs for the transfer of assets across the supply chain. These commercial implications explain the growing number of pilot tests being carried or planned for several commodities. Mercuria announced in 2017 the first publicly known and successful test with blockchain in oil trading. In early 2018, Dreyfus announced its first blockchain transaction for agricultural commodities. Similar initiatives have been publicly announced for metals, LNG, diamonds, cobalt and emission rights. Shell acquired in early 2018 a minority stake in a leading blockchain developer.

Commodity financing will change quickly in the years to come. As central banks reverse the post-financial crisis quantitative easing, and the implementation of recent and forthcoming regulations, such as Mifid II and Basel III, take effect, commodities financing, particularly for small and medium-size commodities firms, will be less available and more costly. For biofuels, which has a limited pool of banks and investors that understand and fund the sector, the impacts will be more acute. What would happen if a producer, rather than just counting on a small pool of financiers, could also access a global and efficient platform with millions of retail investors, accredited investors,

Extended Abstract

family offices and institutional funds? What if the producer could offer investors a liquid secondary market for their investment? What if the producer could set customised terms for its needs, rather than having to meet or compromise on the conditions required by traditional commercial banks or equity investors? The sheer potential volume of willing new investors to fund a commodity company and the potential secondary market liquidity to such investment should lower funding costs, and possibly tip the balance of power to companies as they would have more room to require terms customised to their specific business and cash flow needs.

Biography :

Jan Clement. Owner of Geo Jan Sustainable Environmental Solutions. Trustee of EnergyCoin Foundation. We developed EnergyParty; a robust decentralised platform for asset management which sits on top of the EnergyCoin Blockchain. This can facilitate all digital and social aspects of the energy transition. We provide the sustainable energy sector innovative solutions so we can build a future for humanity together using less fossil fuel and providing healthy local circular economies where our EnergyParty is the engine for exchange of locally produced energy and more! We provide asset management for business and prosumers that are connected or not connected to the electric grid. Making the electric grid smarter and greener with smart contracts between all kinds of users and devices. We create a market for smart energy applications and all related aspects to make the energy transition successful. We see more and more decentralised energy production but provide solutions in other fields too. Many environmental problems can be solved in a decentralised way, and the EnergyParty blockchain solution from EnergyCoin Foundation contributes to improving the world. We need people to believe that they can make a difference. That is the mission for EnergyCoin Foundation and Geo Jan Sustainable Environmental Solutions

This work is partly presented at 9th Edition of International Conference on Biofuels and Bioenergy

March 29-30, 2018 Edinburgh, Scotland