A Regulatory Blockchain Design

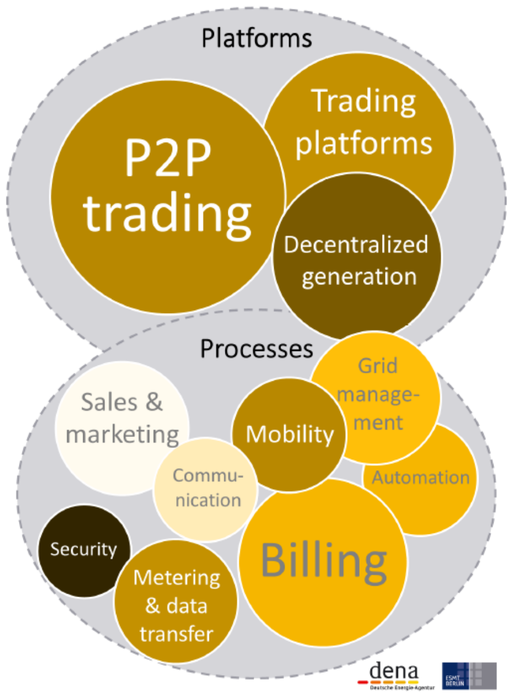
Onur Uyanusta
Energy Market Regulatory Authority of Turkey

Introduction

Many authorities in the tech business see the blockchain "the next big thing " after the internet while many others approach it carefully. However it cannot be denied that blockchain will distrupt many sectors and a policy change will be needed. One of the potentially distruptable sector is the **energy sector**.

1. Blockchain & Regulation

The solution which we come up with is called a regulatory blockchain where all the actors of the energy can be observed in a more secure and immutable manner. With the regulatory blockchain, the regulatory processes are going to be completely digital.



Potential use cases of Blockchain in the energy sector. (DENA, 2016)

2. The Idea

Blockchain can be the solution for many problems the energy sector is currently facing in these transitive times; like micro-payments, DisCOs handling customer data etc. But what if a regulator acts as a blockchain master node and regulate the market via a blockchain?

3. Why should we use blockchain to regulate and stop using the old ways?

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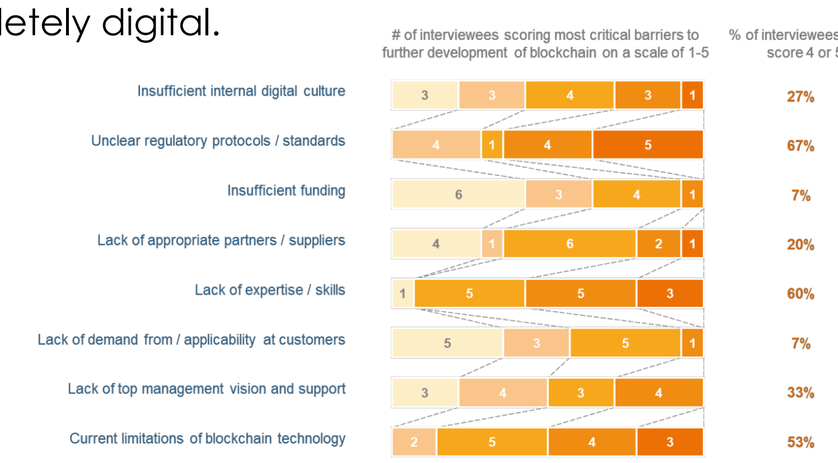
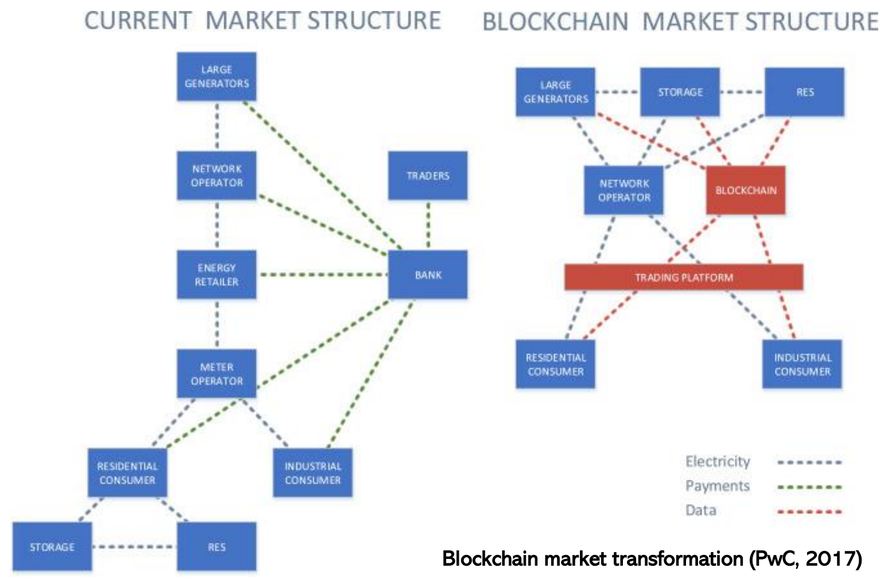


Overview of the most important barriers to further development of blokcchain in the sector (WEC & PwC, 2017)

4. Structure

- Government institutions will act as validator nodes, who verifies and package the data required to enter the market, on the blockchain.
- Any new validators added or forks that are executed will be applied to the system via law & legislation changes in real world.
- Every government actor defined on the specified chain will have power to vote in league or against for the licensing.
- The consensus mechanism called Proof of Authority will be used for maintaining the integrity of the network.
- EMRA will be the master node which can surpass the other nodes if the intervention is needed but will have to make a feedback why he did it. In addition EMRA will have the full power to modify the chain which could be seen by all network participants' which will escalate transparency.
- The difficulty level on the chain (A.K.A block confirmation time) will be fixed to the nodes' votes about the performance criteria that the companies are showing to them. This performance will be evaluated with some key actions required from the companies like taking some permissions earlier than expected or giving higher prices for LOGs(letter of guarantee).
- Nodes will have different voting power in numbers.
- This evaluation will arise competition for the companies entering the market and who will be the fast one to take the seat first.
- If the competition level becomes low the block creators will lower the criteria while maintaining the essentials and the block creation time will reduce.
- The stability will eventually be established and the optimal time will be received on the blockchain.



Blockchain market transformation (PwC, 2017)

Conclusion

This is a completely hypothetical approach and EMRA hasn't got any plan to create a regulatory blockchain at the moment. This paper simply offers a proposition for one of the possible futures which we believe is yet to come.

Reference Materials

- Blockchain in the energy transition – A survey among decision-makers in the German energy industry – DENA
- The developing role of blockchain – World Energy Council & Pricewaterhouse Coopers
- Blockchain – an opportunity for energy producers and consumers? – Pricewaterhouse Coopers

Keywords

blockchain, energy, energy transition, decentralization

In case of interest, please contact:
ouyanusta@epdk.org.tr