Blockchain – The Future

Umit Cali, Ph.D. Norwegian University of Science and Technology Panel Session: Trading Electricity with Blockchain Systems August 31, 2022, 4pm Paris time







- Currently status: Energy DLT Use Cases
- Where are we heading to?: Digital Green Shift
- Outlook: AI meets DLT
- Conlusion







- Environmental commodities are non-tangible energy credits.
- The value of these credits comes from the need of market participants to produce and consume cleaner forms of energy.
- Renewable Energy Credits (REC) or Energy Attributed Certificates (EAC) are equivalent to 1MWH energy generated from a renewable source such as solar, wind and hydro.



Source: Cali U., Kuzlu M., Pipattanasomporn M., Kempf J., Bai L. (2021) **Digitalization of Power Markets and Systems Using Energy Informatics**. Springer, Cham. https://doi.org/10.1007/978-3-030-83301-5_1



Where Are We Heading To?





Source: Smart Contract as an Enabler for the Digital Green Transition Umit Cali , Komal Khan, Shammya Shananda Saha, Tamara Hughes, Farrokh Rahim, Leonard C. Tillman, Islam El-Sayed, Pablo Arboleya, Sri Nikhil Gupta Gourisetti, IEEE ISGT NA 2022





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AI meets DLT



Source: Gartner ID: 383155

New technologies will appear with the combination of DLT and AI





IEEE BCTE Objectives

- COVID 19 levels accelerates the transition to Full Digital Economies
- The electric industry landscape is changing due to decreasing cost and increasing penetration of renewable (decarbonization), distributed energy resources and digitalization technologies (Green –Digital Shift)
- There are upcoming opportunities: Green Ocean Markets
- Blockchain and distributed ledger technology (DLT) has a high potential to transform the future energy systems and markets landscape.
- Fusion of AI and DLT
- AI and DLT has great potential to contribute UN Sustainability Development Goals
- Standards: There is no global standards yet





Thank You! Umit Cali, Ph.D. (umit.cali@ntnu.no)



