



## TUTORIAL N°3

# A Primer on Block Chain and its applications in the Distribution Networks

### Background

The utility industry value chain is undergoing a major transformation. Driven by regulatory, policy, business, technology and the consumer, change is being wrought in all aspects of the value chain. One such technology driver is Blockchain. Blockchain has grabbed the attention of the heavily regulated power industry as it braces for an energy revolution in which both utilities and consumers will produce and sell electricity. Blockchain could offer a reliable, low-cost way for financial or operational transactions to be recorded and validated across a distributed network with no central point of authority. While no change is immediate or quick, the industry is seriously evaluating the pros and cons of this technology and where the application can bring most value. This course will provide an introduction to Blockchain and review the applications across the value chain, with special focus around Distribution networks and how the goals of an Active Network, Active Consumer/ Prosumer, Active Market and other benefits can be accrued. A 360 review will be done with case studies and examples from across the world and the value of each application will be demonstrated.

### Aim of the tutorial

The aim of this tutorial will be to introduce Blockchain to those who are new to it and then quickly pivot to the application of this technology to the modern utility industry and how this can help in initiating new transformation opportunities or help complete existing initiatives. This tutorial will also seek to bring out the value to all the key stakeholders – the regulator, the policy maker, market, the utility as it seeks new business models to monetize new and existing services and most importantly, the customer/ prosumer.

### Content

1. Introduction to Block Chain & Technology overview
2. Challenges faced by today's Distribution Utilities
3. How Block Chain can help resolve some of these key challenges, especially as it pertains to the key issue of monetization and market participation
  - a. Renewable Energy Certificates
  - b. Peer to Peer Trading and how it plays out vs. Wholesale Markets
  - c. Rural/ Urban Electrification
  - d. Enable Realtime transactions for Supply/ Demand Balancing

- e. Infrastructure Management (including EV Charging/ DR-DER)
  - f. Prosumer – The positive sum
  - g. Any other topics that the CIRED team thinks is good to include
4. Case Studies and Examples
  5. Conclusion and Q/A

**Expected benefits (Already discussed in the Objectives)**

Participants will gain an improved understanding of:

- Block Chain
- Challenges faced by Utility Distribution networks
- Applications of Block Chain in Utility Distribution
- Monetization and Value Proposition
- The Road Ahead

**Who should attend**

- Business Leaders & Utility/ Market Operators Executives
- Utility Analytics, IT/ OT project team members
- IT / Operations managers
- Architects, Data Analysts/ Scientists, BI Developer/ DW Professional, QA, Performance SME's
- Regulatory personnel
- Transmission & Distribution (Planning and Ops)
- Customer Service Representatives
- Vendors
- Consultants, Technical, Marketing and Delivery team members

**Support material**

A copy of all the presentation material used in the tutorial will be supplied to delegates (electronic version).

**About the presenter(s)**

Anant Venkateswaran ( [anantven@yahoo.com](mailto:anantven@yahoo.com) )



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## Anant Venkateswaran Bio

Mr. Anant Venkateswaran is an industry thought leader, teacher, presenter and has over 20+ years of global experience. Anant has supported strategy, business case, cost-benefit analysis etc., and the development solution architectures, roadmaps and business cases and subsequently technology adoption and solutions delivery phases. Anant has conducted workshops with customers globally, resulting in their business challenges being translated first into innovative concepts and subsequently into intelligent solutions. Having been on both sides of the procurement process, Anant believes in reaching across and partnering with multiple customer stakeholders and developing comprehensive solution strategies and execution roadmaps. Anant currently serves GE's Grid Solutions business.

Anant's experience and expertise was built around the pillars of Power System & the Value Chain from generation to consumption, Industry Verticals, Supply Chain and Govt.

As a technology leader, Anant has also successfully influenced strategic planning & investments, procurement, design, development in prior roles. He is proven ability to envision, develop & execute business, marketing, technology and sales plans and streamlining processes to achieve productivity through technology have resulted in substantial savings for customers. As a corporate-wide leader for strategic planning & investments, procurement, design, development, Anant has been involved in planning & execution of Complex projects globally.

Anant is actively driving industry thought and standards through active participation in IEEE, CIGRE, AEE, IEC, ASHRAE and other technical bodies and has been a presenter, moderator, teacher and panelist at conferences and thought leadership events worldwide. Anant has taught many Utility University (Distributech), University level and continuing education courses around innovative and disruptive technologies (EE, DSM, Microgrids, Big Data, IoT, Block Chain, Cloud Computing, Line Monitoring, Situational Awareness etc) as well as traditional electric and gas utility value chain from generation to the customer.

+Ms. Reena Suri, Director, India Smart Grid Forum (she is a researcher and will present what is happening in India). She has presented at several global events.

+Gilles DELEUZE, Senior Researcher, Systems Risk Assessment, EDF R&D

+An Engineer from LO3 Energy.