

Last Date of Submission : 22nd November, 2021



National Institute of Solar Energy

(An Autonomous Institution of Ministry of New and Renewable)

Course Fees : 8000/- (exclusive of GST)
(Limited Seat)

**EXPLORE THE POTENTIAL OF
BLOCKCHAIN TECHNOLOGY IN
ENERGY SECTOR**

23rd - 25th November, 2021



What we see happening in India



Decreased tax burden on electric vehicles
Government support of the use of electric vehicles.



Integration of a growing number of renewable energy resources

Unpredictable renewable electricity production volumes will require a new grid balancing infrastructure



Support to promote renewable energy consumption and production

Make it worthwhile for prosumers to produce more electricity than they consume

Blockchain can be the solution

Transparent data access for involved stakeholders

Streamline EMS' grid management process by using a shared database to manage the data that its stakeholders require. – EMS, its BSO, the wind farms and thermal plants of the Grid Development Plan.

Secure and immutable record of data

Use the blockchain's record to create and manage an automated marketplace for the bids of energy flexibility from primary, secondary and tertiary energy resources.

Trustworthy and authentic data

Mathematical functions guarantee the security and authenticity of a blockchain's stored data.

You will learn more about this in the training!

OBJECTIVE OF THE TRAINING

01

To create awareness in utility officials, regulators, government officials, regarding the potential of Blockchain technology for utilities.

02

To give an overview of different applications of Blockchain technologies for utility businesses and explain them with on-ground use cases.

03

To create empowered teams on Blockchain technologies in Utilities who could critically evaluate different solutions for their business needs.

04

To build capacity in the industry, academia, and student community to design and implement Blockchain based solutions for utilities.

You will learn more about this in the training!



National Institute of Solar Energy

Autonomous Institute under Ministry of New and Renewable Energy Government of India.

Course Modules

| Module | Description |
|---|---|
| Introduction to Blockchain | <ul style="list-style-type: none">• What is Blockchain?• Is DLT same as Blockchain?• What are Crypto Currencies?• What is the hype all about?• What are the different types of Blockchains?• How is Blockchain different from other technologies?• How can this technology be applied to the Energy industry? |
| Deep Dive into Blockchain Technology | <ul style="list-style-type: none">• Introduction to Blockchain Technologies, Crypto Currencies and Crypto Mining• Introduction to Blockchain Platforms• Popular Blockchain Platforms• Programming with Hyperledger for a typical Application - Hyperledger Fabric deep dive• Introduction to Solidity deep dive for Smart Contracts |
| Blockchain Implementations and Use Cases | <ul style="list-style-type: none">• Use Cases in the Energy Sector• Energy-specific Blockchain infrastructure |
| Use Cases: Peer-2-Peer Trading of Decentralized Energy | <ul style="list-style-type: none">• Introduction to P2P Trading• How Blockchain is enabling effective transformation of energy industry: Energy Trading, Flexibilities• Discussion on Use case |
| Use Cases: Demand Response and Wholesale Energy Market | <ul style="list-style-type: none">• Introduction to DR and Whole Sale Energy Market• Deep-dive into use case |
| Use Cases: Renewable Energy Certificates (RECs) | <ul style="list-style-type: none">• Introduction to Green Certificates and RECs in India• Introduction to DR and Whole Sale Energy Market• Deep-dive into use case |

**WE KNOW ABOUT
BLOCKCHAIN IMPLEMENTATIONS IN THE ENERGY SECTOR.**

WE HAVE DONE IT BEFORE .

WE WILL SHARE OUR LESSONS LEARNED!





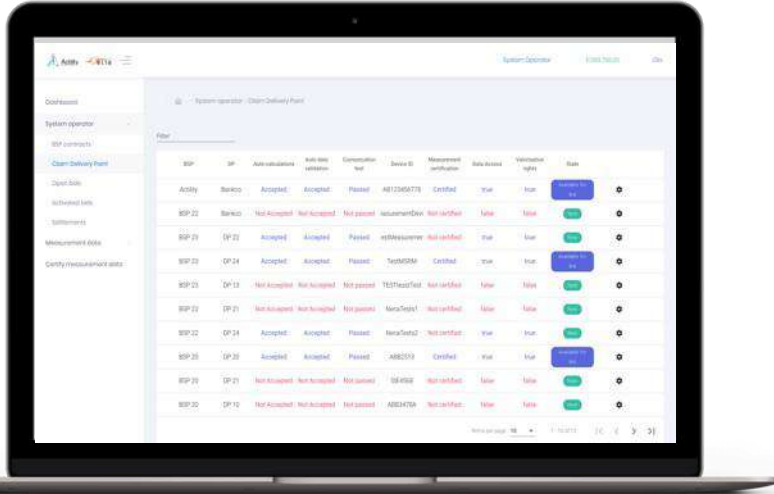
Securely balancing Elia's electricity grid

With this proof of concept, Elia wants to see how they can change the current processes of billing and activation of flexibility to make a step more towards the Energy Grids of tomorrow.

With expanding alternative energy sources and tertiary suppliers, grid balancing is increasingly complex.

Elia built a smart contract solution to automate processes associated with supplier registration, bidding, fulfilment measurement & verification and financial settlement for tertiary suppliers.

The impact



The screenshot shows a software interface with a table of data. The table has columns for various attributes and a 'Run' button for each row. The data is as follows:

| SRP | SRP | Admin/Validation | Self-Test/Validation | Commissioning | Device ID | Measurement/Verification | Self-Checked | Verification/Status | Run |
|----------|---------|------------------|----------------------|---------------|-----------------|--------------------------|--------------|---------------------|-----|
| Activity | Blocked | Accepted | Not accepted | Passed | AB12345678 | Certified | Yes | Run | Run |
| BSP-22 | Blocked | Not Accepted | Not accepted | Not passed | MeasurementDev | Not certified | False | False | Run |
| BSP-21 | DP-22 | Accepted | Accepted | Passed | SelfMeasurement | Not certified | True | Run | Run |
| BSP-22 | DP-24 | Accepted | Accepted | Passed | SelfMSM | Certified | Yes | Run | Run |
| BSP-21 | DP-13 | Not accepted | Not accepted | Not passed | TestHeadTest | Not certified | False | False | Run |
| BSP-22 | DP-21 | Not Accepted | Not accepted | Not passed | NoneTest1 | Not certified | False | False | Run |
| BSP-22 | DP-24 | Accepted | Accepted | Passed | NoneTest2 | Not certified | Yes | Run | Run |
| BSP-26 | DP-26 | Accepted | Accepted | Passed | ABB2559 | Certified | Yes | Run | Run |
| BSP-21 | DP-21 | Not Accepted | Not accepted | Not passed | SR-4938 | Not certified | False | False | Run |
| BSP-20 | DP-10 | Not Accepted | Not accepted | Not passed | ABB2476A | Not certified | False | False | Run |

100% Securely automate grid balancing
Automated actions: request for flexibility, bid acceptance

+100% Trustworthy data to prove compliance
Immutable record of data as proof of compliance for regulators

+84% Prepare for the grid of tomorrow
Easily onboard and manage new energy resources (wind, solar, tertiary reserves)

+93% Automate payment flows
Leverage real time and auditable energy payment capabilities

DISCOVER YOUR LEARNING JOURNEY

Learn about the **business value** of Blockchain

- ✓ **Understand what blockchains are, where they came from, how they work and what their underlying technologies are**
- ✓ **Be able to define strong blockchain use cases**
- ✓ **Master blockchain project characteristics**



- **Interactive session**
- **Benchmarks with industry-based use cases**
- **Tailored to you**

How to Apply?

1. Step by Step procedure to fill the Application.(Click Here)
2. To register click on link <https://training.nise.res.in/u/apply> .
3. Participant will have to give basic details in the registration page.
4. After filling the required details an OTP will be sent to your email ID through which participant will Login
5. After logging in participant has to fill the payment details as per the following details:

Participants may kindly make the Payments through RTGS/NEFT/Cheque/Demand Draft (DD) only, in favor of:

Account details are as follows:

ACCOUNT HOLDER NAME: NATIONAL INSTITUTE OF SOLAR ENERGY (NISE)

ACCOUNT TYPE: CURRENT ACCOUNT

BANK NAME: STATE BANK OF INDIA, DLF QUTAB ENCLAVE, SHOP NO.: 109-110 QUTUB PLAZA, SHOPPING

(SBI BRANCHCODE: 6604) ACCOUNT NO. 37266665652

C, GURGAON HARYANA,

IFSC CODE: SBIN0006604

Course Fees : 8000/- (exclusive of GST)

Note: If you require invoice against your organization, it is mandatory to mention GSTIN Number of your organization. Otherwise, your invoice will be generated as an individual.

The participants must clearly indicate their bank transfer details in the application form. Registration will be confirmed only after the making of desired payment and submission of the application form.

For any queries, please contact between 10:00 am to 17:30 pm during weekdays:

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