

## ***“A Revolutionary Blockchain Approach to Transforming Energy Infrastructure”*** ~ Hingham Municipal Light Plant

**Problem:** Traditional data management in energy utilities lacks the security, reliability, and transparency required for modern infrastructure. Centralized systems are vulnerable to cyber threats, inefficiencies, and regulatory pressures.

**Solution:** A private, permissioned HyperLedger Fabric blockchain integrated with SCADA and DNP3 systems for secure, real-time, and tamper-proof data logging. This pilot provides a pathway for future operational transparency and compliance in the energy sector.

### **Key Innovations:**

- **Smart Contracts:** Automates responses to critical grid events, enabling future capabilities for public safety alerts.
- **Optimized Blockchain:** Tailored HyperLedger Fabric blockchain network for secure, scalable, permissioned operations.
- **Data Security:** PKI-based access control ensures only authorized devices can log data.
- **Real-Time Monitoring:** Pilot achieved secure, real-time data capture, supporting future predictive maintenance.
- **Compliance Ready:** Aligns with NERC CIP standards, providing a transparent audit trail.

### **Future Potential:**

- **Expanding Smart Contracts:** Predictive grid management, DER integration, and settlement.
- **Scalable Adoption:** NREL ADMS Test Bed partnership for testing validation, aiming for industry-wide deployment.

