



Power Forward Challenge - Project L2L Highlights

Executive Summary

Project L2L is one of seven finalist teams in the [Power Forward Challenge](#) (the “Power Forward Challenge” or the “Challenge”). The Challenge is a bilateral initiative by Natural Resources Canada (“NRCan”) and the UK Department for Business, Energy & Industrial Strategy (“BEIS”).

Project L2L is scheduled to run from August 2019 to December 2020. The project will **test drive innovative solutions with 100 customers and 10 new DER installations** to address energy market challenges, and promote **across Canada**, the growth of clean, sustainable and environmentally friendly DER.

Today’s utility customer is demanding choice, flexibility, and eco-friendly energy solutions. Electricity generation and distribution systems will therefore continue to experience significant changes driven by customer needs and critical factors such as climate change, decentralization, and cost.

Project L2L will identify and address the legal, market, privacy, security, and regulatory requirements to deploy an **Open Data Platform based**. The project will be utilizing **blockchain** technology for **peer to peer energy trading** while ensuring parties retain control and **privacy over their data**.

This document outlines the challenges and problems faced by customers and stakeholders, and proposes solutions to benefit local distribution companies (LDCs), prosumers, and consumers.

This document covers the following:

- Power Forward Challenges
 - Improving Situational Awareness
 - Enabling flexibility services
 - Enabling Peer-to-peer energy trading
- Project goals, scope, and milestones
- Use cases and business requirements covering:
 - DER visibility - **Open Data via Green Button & Directory Services** situational awareness
 - Grid Services - **Flexible Demand Response**
 - **Data driven** peer-to-peer energy trading
- Software and hardware requirements
- Identification of energy, privacy and cyber security legal requirements where applicable

Project L2L is a borderless collaborative effort involving a consortium of Canadian and UK partners, namely:

- London Hydro - Principal proponent
- Electron (UK) - Blockchain-based marketplace
- ENMAX - DER turnkey solution
- Navigant - Market assessment and validation
- Gowling WLG - Legal and regulatory
- Western - Analytics



L2L Problems and Solutions

Challenge #1 - Improving Situational Awareness. In today's data-driven economy customers require timely updates and multiple service options. Utilities need to be fully aware of customer energy installations and energy requirements.

DER Visibility

- DER location and impact
- Track DER asset performance
- Benchmark your assets
- Measure and track Carbon Footprint
- View neighbourhood assets

Challenge #2 - Enabling Flexibility Services. Traditional demand response programs can be limited in their ability to provide locational and temporal grid services and often exclude many DERs. Utilities need flexible grid management infrastructures supported by DER generated data.

Grid Services

- Maximize use of green energy
- Optimize EV charging
- Improve grid energy distribution
- Open Data Platforms
- Usage & Impact predictions

Challenge #3 - Peer-to-Peer Energy Trading. DERs are impacting the way traditional utilities operate. Customers are becoming prosumers. Utilities need to modernize their roles and implement new business models to support new customer demands.

Peer-to-Peer Energy Trading

- Earn green energy attributes
- Promote energy saving behaviours in community assets
- Increase use of green energy

