



toronto hydro  
electric system

# Harness the Power of Distributed Energy

A photograph of the Toronto skyline at night, showing illuminated buildings and the CN Tower against a dark blue sky. The image is partially obscured by a large, dark blue curved shape that frames the top and left sides of the slide.

Kyle Rees  
Manager Distributed Energy  
Toronto Hydro CDM

## Toronto Hydro's DE Scorecard;

- **18.2** MW's of load displacement
- **10.5** MW's dispatchable
- **154** MW's available
- **1000's** MW's potential



# Distributed Energy has many positive and practical attributes.

- ***Efficient*** – corrects spot supply issues.
- ***Urban Oriented*** – already installed in high congestion areas.
- ***Economical*** – capital costs already paid by end-users; not rates.
- ***Practical*** – already integrated into existing LDC infrastructure.
- ***Customer Engagement*** – end users support local grid.
- ***Environment Advantage*** - cleaner fuel options (i.e. NG, biodiesel)
- ***Business Continuity*** – prevents loss of revenue.

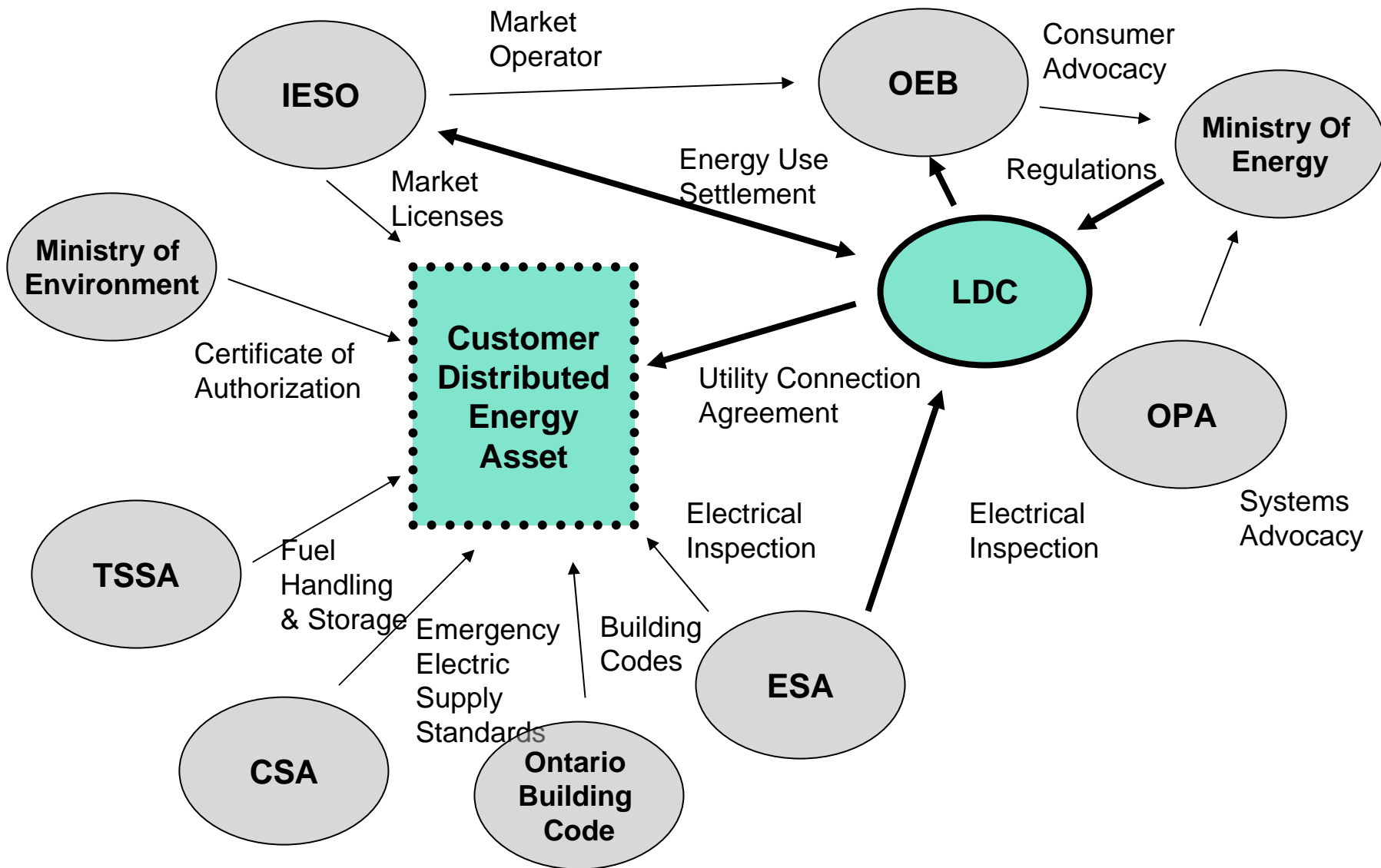
# Distributed Energy has immediate value.

- **Focused** - Leverage existing installed generation.
- **Impact** - lowers the risk of forced voltage reductions. (Edge Technology)
- **Practical** - capability for customer back-up power.
- **Real Results** - save on energy consumption, export excess

# Customer issues to overcome

- **Financial** -What are the gains? ROI, Payback?
- **Environmental** -Are there clean solution?
- **Technical** -Reliability? Skills and abilities to manage site generation?
- **Experience** -What happens if we wait?
- **Operational** - Alignment with core business, loss of control?
- **Market Uncertainty** - Stakeholder map is complex
- **Market Programs** – Confusing & Risky

# Overlapping stakeholder interests



# Issues can be overcome with industry support.

- Transfer Switch technology is mature, proven and very reliable. (open, closed & synchronous)
- There is a healthy competitive market for the supply of goods and services. (Recip, PV, Fuel Cell, etc.)
- Engineering Community is engaged and is closing the experience gap.
- Site management tools work well and getting better.
- The market is maturing with changes in rule, codes, standards, etc.
- Market gains attention with incentives

# Positive changes

- CSA 282.05
- OPA - Market Solutions: Standard Offer Contract.
- OEB- New connection agreement & Conditions of Service changes are clearing the way.
- Load Serving Entity (LSE) pilot underway



## LDC change management:

- Understand internal struggles. (Inside Sales)
- Utilize decision makers on DE teams.
- Use collaborative tools to engage and communicate a clear direction
- Don't be discouraged by unforeseen barriers, (Use the 80/20 rule to press on)

# LDC's can help

**Distributed  
Generation  
Assets**

(Many Owners)

**Owners**

(Market Participant)

## Potential LDC Roles

**Aggregators**

(Market Interface)

**Coordinators**

(Market Consultant)

**Independent  
Electricity  
System  
Operator**

(Bulk Market  
Manager)

**Generation  
Assets**

← **Value Chain** →

**Energy  
Market**

**Integrators**

(Market Solutions)

**Facilitators**

(Market Transactions)

**Managers**

(Market Control)

# Next Steps to realize DE potential

- **Leverage Immediate Opportunity**
- **Risk / Reward Re-alignment**
- **Environment Advancement**
- **Increase Customer Resiliency**



# We're making progress toward "Generation at the Edge"

- In the next 20 years, could Ontario look like Denmark looks today?

