



OCTOBER 28, 2019

2019 CAN-TECH Law Annual Conference

Vantage Venues Toronto

Me Carolina Gallo, Vice-president, Government and institutional relations, ABB Power Grids Canada



Agenda

- **ABB at a Glance**
- **The problem: Energy mega trends and absence of women
Consequences on Sustainability**
- **The Grid:**
 - Past – Jurassic One Way
 - Current – Bi-Directional & Decentralized Generation
 - Future – Electrification of Transport + Micro-Grid + Battery Storage....
- **Conclusions**

ABB – A global technology pioneer

Leading market positions in power & automation

Quick facts



~147,000
employees



\$ US 34 billion
in orders (2017)



Present in
~100 countries



Formed in **1989**
merger of Swiss (BBC, 1891) &
Swedish (ASEA, 1883) engineering
companies

HQ in Montreal, Quebec



~ 4,000 employees
in Canada



~ 29
Manufacturing
& assembly
locations



50 locations
coast to coast



**Canadian market
leader** in power
transmission and
distribution



~ \$2.1 billion
revenue



North American
**Center of
Excellence** for E-
Mobility

Three energy megatrends that will influence our future



Urbanization



The Energy Revolution



The Fourth Industrial Revolution

Utilities

Industry

Transport & Infrastructure

Urbanization

Cities: Energy and CO2 challenges

Cities today...

Earth's surface

3%

World population

55%

Global energy
consumption

75%

Global CO²
emissions

80%



...and in 2050

70%

World population

55%

Years to double
the urban
capacity
developed over
the past 4000
years

The Energy Revolution

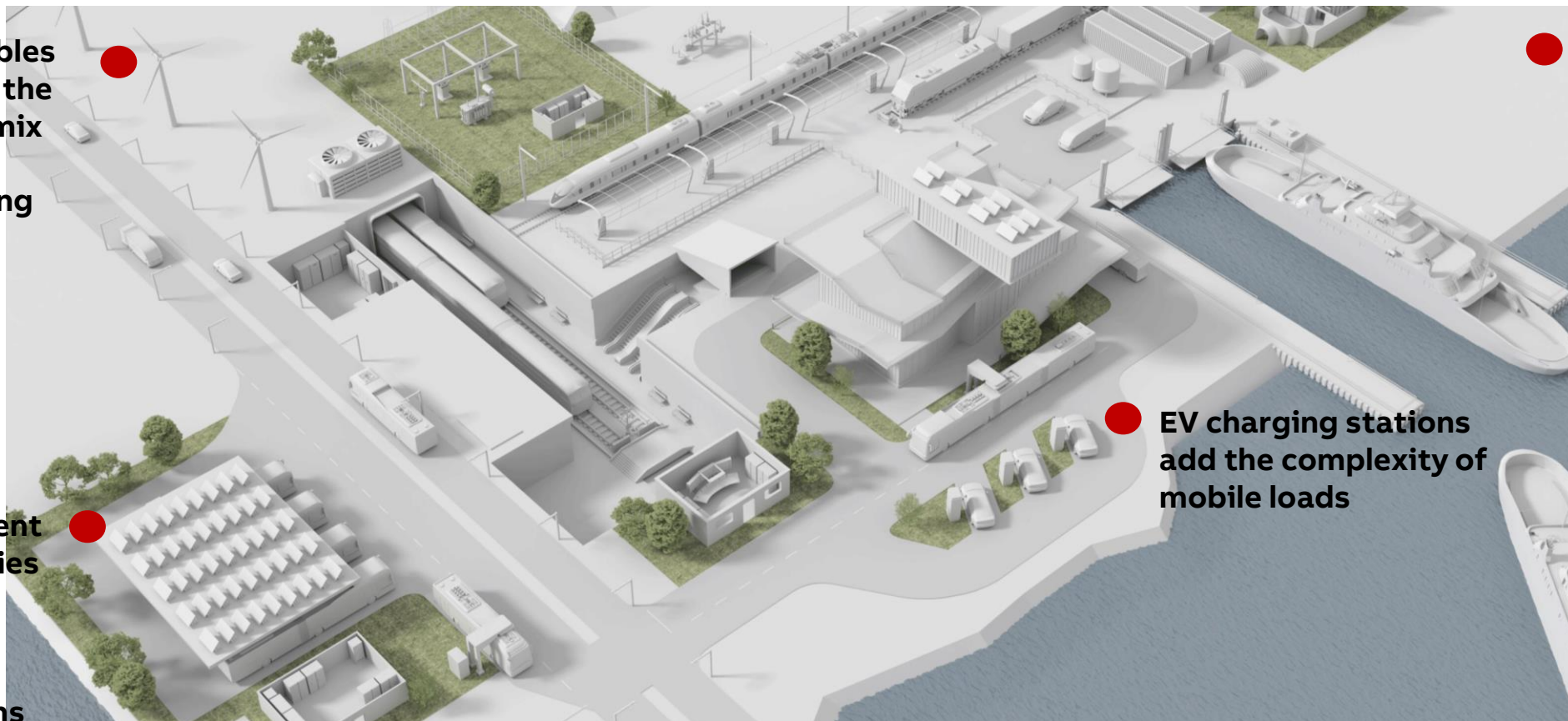
The Jurassic one-way energy-only grid becomes two-way, energy & IT

Renewables share in the energy mix started increasing

Government subsidies fueled a boom in solar and wind farms

1980's wave of deregulation stimulates new energy flows

EV charging stations add the complexity of mobile loads



The Fourth Industrial Revolution

What Happened in the Last Internet Minute



\$USD 862,823
Spent online



1.1 million
Emails sent



3.7 million
Google searches



375,000
Apps downloaded



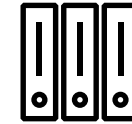
266,000
Netflix hours



973,000
Facebook logins



174,000
Instagram scrolls



67
Voice-First devices shipped



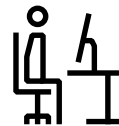
18 million
Text messages



481,000
Tweets sent



38 million
Messages



4.3 million
YouTube videos viewed



1.1 million
Swipes



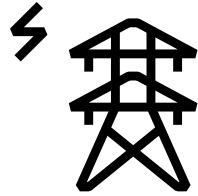
2.4 million
Snapchats

Consequences of the megatrends

Deep energy transformation needed by 2050



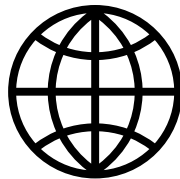
Consequences



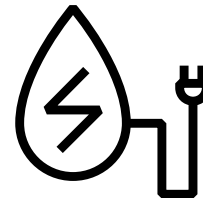
Frequent power outages



Raising energy prices

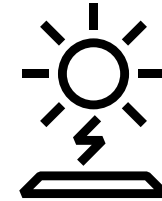


Climate change

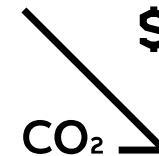


Conflicts for resource access & control

To avoid dramatic climate change by 2020...



95% of electricity will need to be **low-carbon** compared to about 1/3 today



Emissions need to fall by more than **70%** below today's levels



7 out of 10 Cars need to be electric **Compared to 1 in 100** today

Conclusions

Megatrends



Urbanization



Energy Revolution



Fourth Industrial Revolution

... We Can Do It

1. **New Type Generation**
2. **Energy Efficiency**
3. **Electrification of Transport**
4. **SMARTER Grid**

The time to act is now.



Let's write the future.
Together

