



OCTOBER 28, 2019

2019 CAN-TECH Law Annual Conference

Vantage Venues Toronto

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ABB

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



Present in
~100 countries



\$ US 34 billion
in orders (2017)



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



~ \$2.1 billion
revenue



Canadian market leader in power
transmission and
distribution



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%

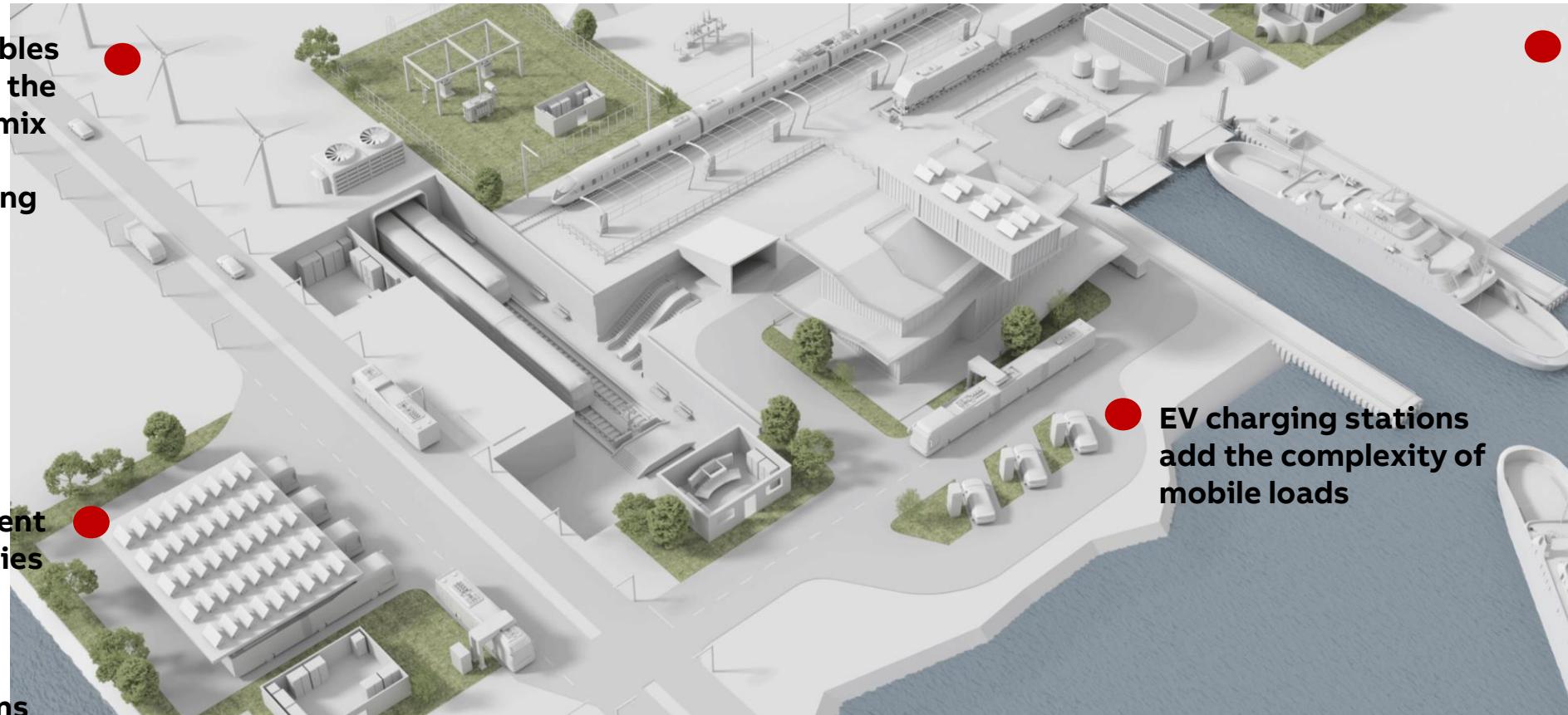
World population

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



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



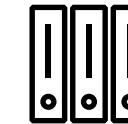
266,000
Netflix hours



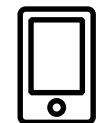
973,000
Facebook
logins



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



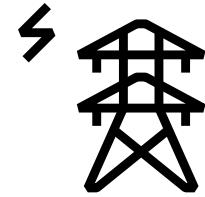
2.4 million
Snapchats

Consequences of the megatrends

Deep energy transformation needed by 2050



Consequences



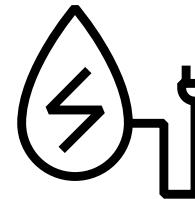
Frequent power outages



Climate change

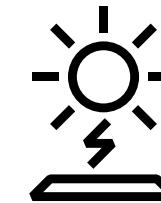


Raising energy prices

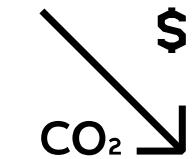


Conflicts for resource access & control

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 todays 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

