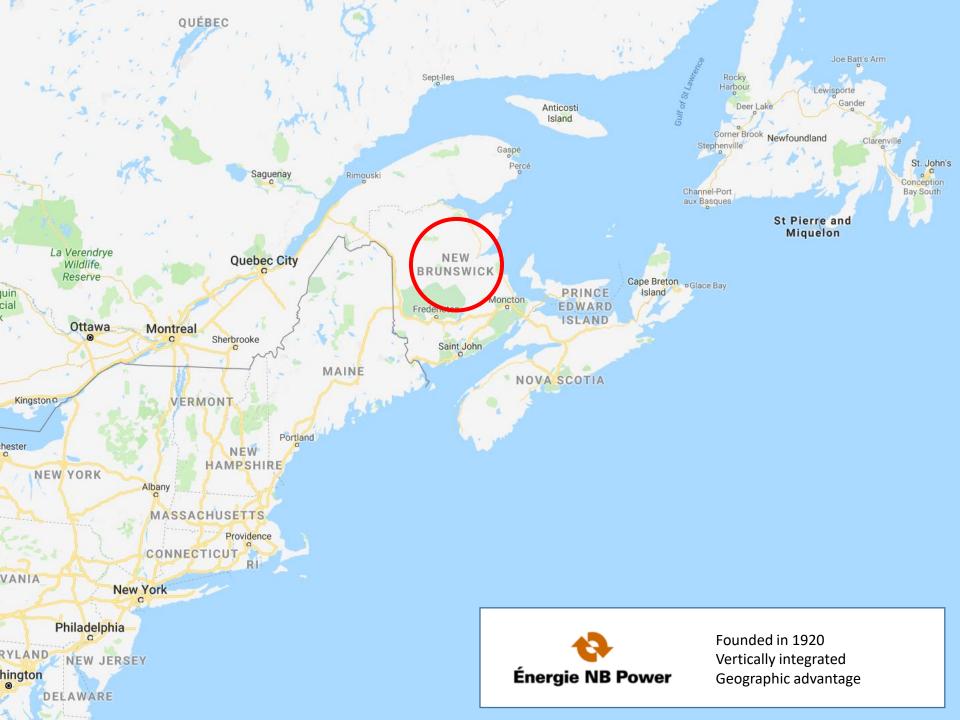
CIM as a Primary Key for a Corporate Digital Transformation

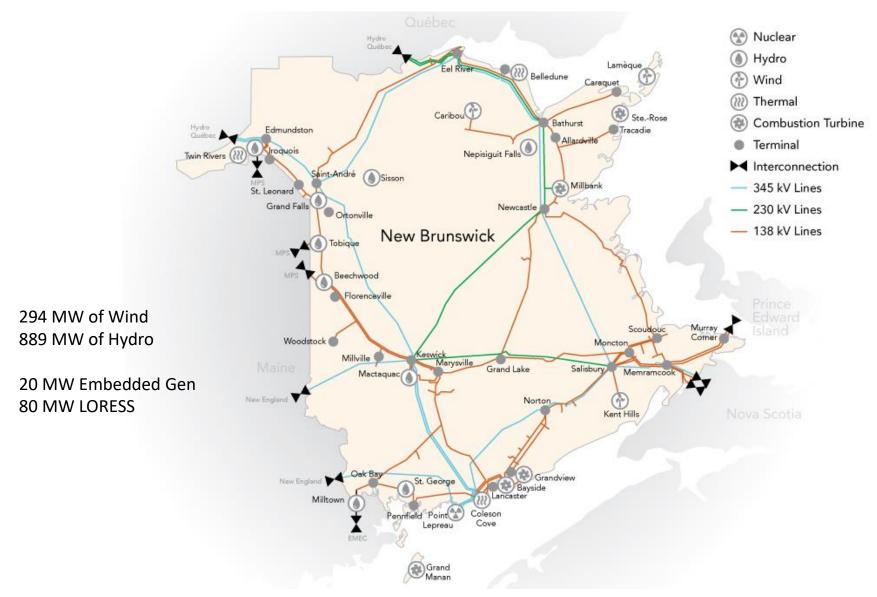


Brad Wasson, Chief Digital Innovation Officer



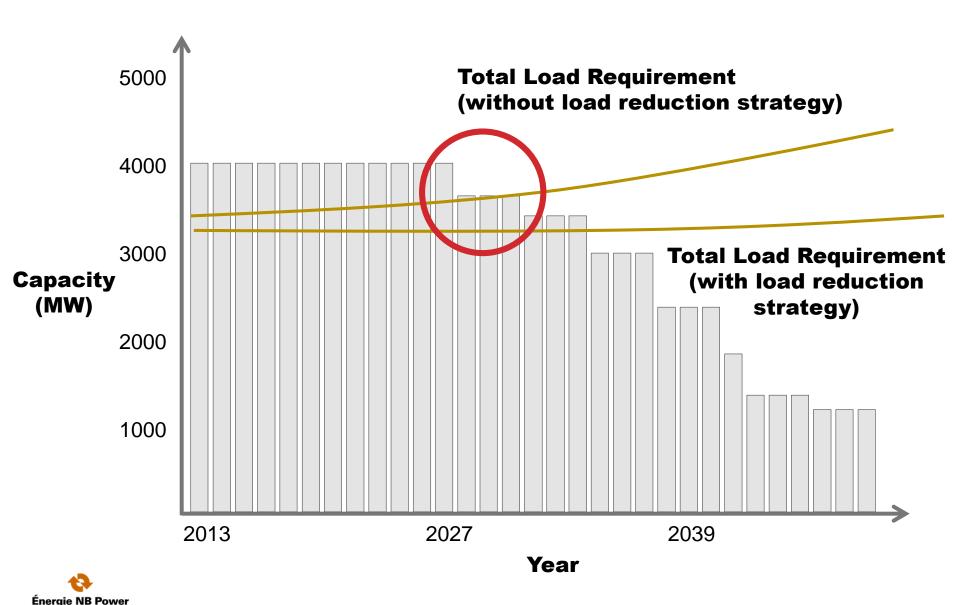


Today – the grid is the largest, most critical machine in the province

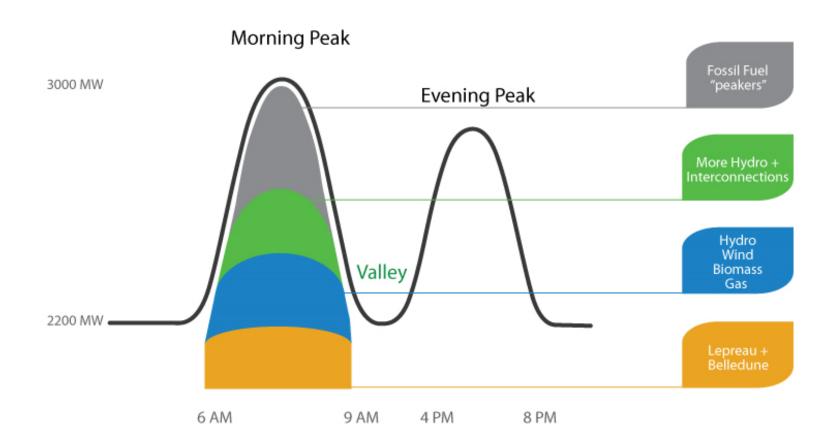




Supply and demand challenges



Peak load challenges









Customers are changing. Rapidly.

Customers have...

- More options for energy supply, advice, information
- Expanded range of options for on-site generation
- Improving ability to "manage" energy (tools, advice, information)

Customers desire...

- Cleaner, more resilient, more reliable electricity supply
- Energy use to have lower impact on the environment
- Better information, when and wherever they are
- More control over costs "keep rates low and stable"
- Better service



~\$5B Debt

Robust, But
Aging
Infrastructure

2019

Heightened
Dependency of
Society on
Electricity

Business Model
Has Reached End
of Life

The electricity system we know today...

...was conceived, engineered, built and deployed at a time when priorities, opportunities, political issues, environmental concerns, societal dependencies, and economics

were all different than today.



Historic Strategic Lens: Supply and Demand Analysis

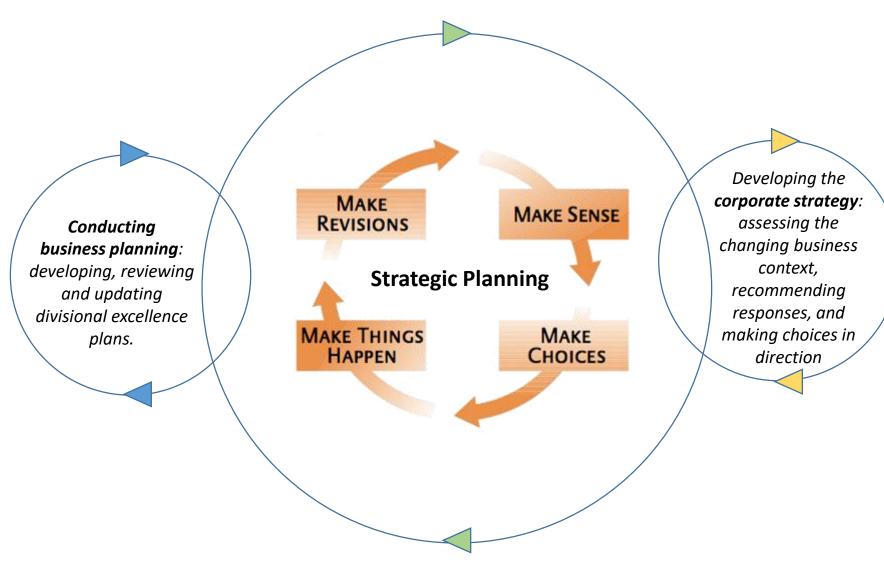


How is demand going to change?

What are the options to meet that demand?

What are the supply options?

Where to start?





STRATEGIC BUSINESS CONTEXT Trade Decline in Relations **Population** e Char B' and Canadian Dollar Energy Corridors/ Internet of **First Nations** Everything Treaties Atlantic Link Aging Infrastructure and Debt Aging **Business** Economic and Revenue Workforce Model Markets and Technological Jurisdictional Viability of Issues Org Distributed Energy STRATEGIC GDP/Growth Environment/ Structure Resources CONTEXT **IT Transformation** FOR CHANGE Low Carbon Skills Technology Demographic Political, **Economies** Changes Cultural, and Corporate Grid Religious Demographics Operations Cybersecurity Rise of Smart Ideologies & Staffing and Privacy Cities Emerging Smart Markets and Grid Digitalization Shifts in Customer Economic Acceleration of Centricity Power Urbanization Technological Sustainability and Breakthroughs the Environment and Advances Climate Change and **Resource Scarcity**

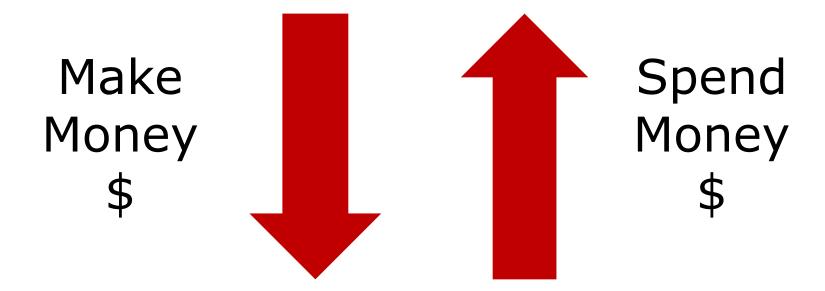


Key Drivers of Change

- Systemic changes to the business: end of load growth (declining population, loss of industrial load)
- Economic viability of small scale, localized, generation
- 3 Impact of the 4th Industrial Revolution convergence
- Changing customer interests building code changes
- Social and political interests climate change

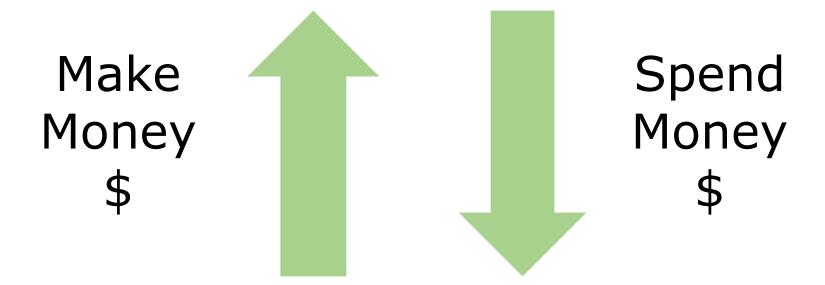


Our Financial Perspective





Our Financial Perspective





Some fundamental challenges

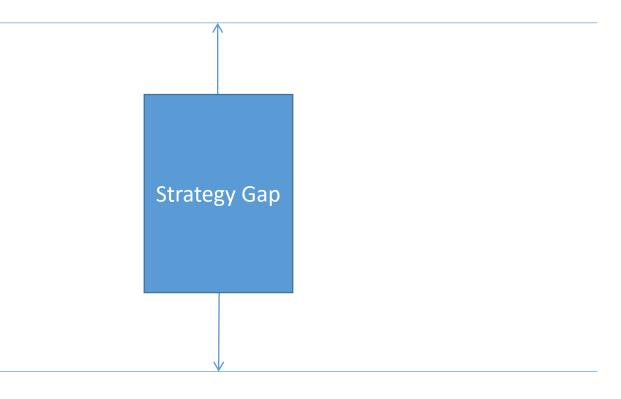
- Limited corporate experience with change programs
- Limited formal experience with strategic planning
- 3 Limited experience with data collection/dissemination
- Skill/talent issues the reality of an evolving business



The strategy gap

Vision

Sustainable Electricity for Future Generations
Utility of the Future



Operational focus

Smart Grid, digitization modernization, distributed energy resources, organizational change, distribution system operations, ...



How to close the strategy gap?

The world we live In

Research in this area was mostly focused on macro level trends impacting our world. These include the Fourth Industrial Revolution, climate change, and political developments impacting socio-economic factors.

The world of energy and those that use it

Research in this area has mostly focused on the changing world of energy production (small scale, localized) and the emergence of Distributed Energy Resources.

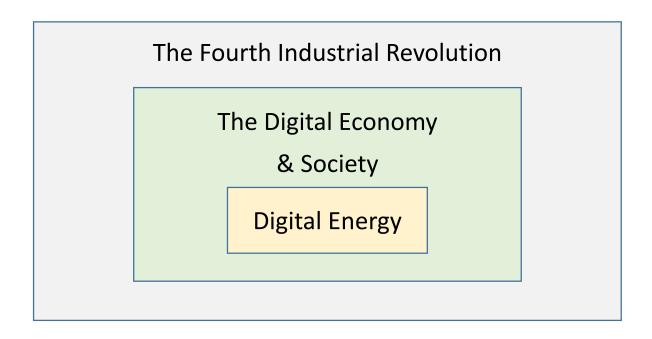
The role of the utility

Research has also focused on the changing energy customer, their interests and desires and trends for how they are being served by utilities.

Research in this area was mostly focused on evolving utility business models, ranging from Expanded Monopoly Services to Transformed Platform Operator, and Hybrid Models.



The Power of Digitization



Digital is a way of doing things, based on using information and communications-based technologies (ICT).

Digitization is the act of applying ICT tools to create connected computing systems and data (that we leverage for other things, like improving business processes).



Why bother with a digital strategy?



NB POWER - ROADMAP OF WHERE TO FOCUS DIGITIZATION EFFORTS

(Business Function by Business Process)

Customer

Engagement/

Retail

3 Target 5-10% savings in these Energy **Digital Asset** Advanced five key Supply Management Metering functional areas Optimization by digitization. · Deliver safe, · Monitor asset Provide Distributed reliable and operations and bidirectional. maintenance in real sustainable energy precise, and timely Energy · Monitor operation time information to and Resource · Replace manual costs and supplies from prosumer in real time transaction work operations Operations with digital business processes · Track grid loads · Increase the Manage scheduling and and asset accuracy of Smart and load instantly network meter lifecycle and accurately performance management **Efficient** · Forecast energy Support Manage and demand and predictive report smart-

 Deliver a single. real-time, consolidated view of customer consumption information

Identify profitable service lines and customers by offering real-time reporting

· Run instant and

· Enable easier

accurate billing

analysis of all

offered services

Billing and

Revenue

Management

· Find and contract talent with specific noncore skills to deliver new services to support new business models

manage contingent

labor and services

Procure and

to optimize

regions

delivery across

Human

Resources

· Support real-time revenue recognition. profitability analysis, cash allocation, and working capital analysis

· Predefine reports

reporting tools for

Configure

non energy

services

products and

Finance

Enable economies of scale and flexible ordering with strategic and agile global supplier network management

procurement

strategies for

service parts,

specialized

such as 3D

printing

Innovate

Procurement

Distribution

Demand

and Supply

Balancing

Services

supply with greater accuracy Provide programs for efficient demand

management and

energy trading

Monitor

distributed

 Access available prosumer energy instantly while balancing grid loads

analysis of asset

health

· Fnable instant bidirectional meter communications

real time

meter rollouts in

· Personalize customer contracts for energy and non-energy services

· Provide customers

· Store and analyze

structured and

customer data in

unstructured

real time

access

with omni-channel

· Deliver a single source for realtime updates that are immediately visible to all parties across all channels · Identify, forecast, and address skill gaps

 Empower employees to make decisions in real time

· Provide a single source of truth

· Analyze profitability across multiple dimensions such as customers, projects, and plants · Integrate the contingent workforce efficiently

Bundle thirdparty services

Multichannel Retail to Digitalized Consumers generation loads and access to prosumer energy Gain real-time insights to ensure environmental

compliance

health and safety

· Analyze and provide timely and accurate information about energy usage and production · Detect fraud in

real time

· Offer more customer selfservices in an omnichannel environment

Present relevant and personalized recommendations · Provide all end customers with relevant processes across all channels

 Support omnichannel commerce and subscription billing · Onboard and train employees quickly and seamlessly

Identify and secure talent for prosumer engagement

· See profit margins in real time for new-product and service offers

 Support inventory and warehouse management for new energyrelated products

Benefits

· Optimized use of fuel · Lower fuel

costs

 Increased return on assets

 Greater operational efficiency

· Greater read accuracy

· More demand management programs

 Enhanced customer service

· Higher user productivity

· Better customer understanding

 Greater profitability

 Improved customer satisfaction

self-services

· More-effective

attendance cost HR full-time

Lower time and

equivalents: -44%

Automate reports:

· Days to close annual books: -40-

· Budgeting and forecasting cost: -25%-50%

Automate reports: Procurement function cost: -

15%-20% Worker

acquisition time: -30%-40%

Unlock new value streams

Neural Grid (Intelligent and Automated Grids)

Smart Cities

Transactive Energy

Building to Grid

Internet of

Energy

Transportation to Grid

ntegrated

DERS



Transformation imperatives

We must:

- 1. Address systemic changes to the corporation's financial situation based on lower cost of operations and increasing revenue.
- 2. Take advantage of the opportunity to deepen and expand our relationship with our customers for mutual benefit.
- 3. Increase our ability to respond to and leverage technological innovations, including unlocking data held in silos
- 4. Address the impact of new market players that are intermediating the utility.
- 5. The impact of Distributed Energy Resources (DERs) on NB Power's business model and on the operation of the grid.



The five corporate themes of change: 2019-2022

C1

Establish Longterm Financial Health C2

Establish a two-way energy and information grid **C3**

Transition to a Lower Carbon Economy

C4

Engage Customers, Partners and Stakeholders **C5**

Innovate to improve the business and generate new value



Strategic initiatives in the transformation plan



Digitize the business to enable cost savings of 5-10% EBIT (and greater beyond three years)



Build and operate a digital energy platform to drive revenue generation in new value streams



Position NB Power as a leader in the energy ecosystem



Re-model our workforce to accommodate the need to better support a digital business and society

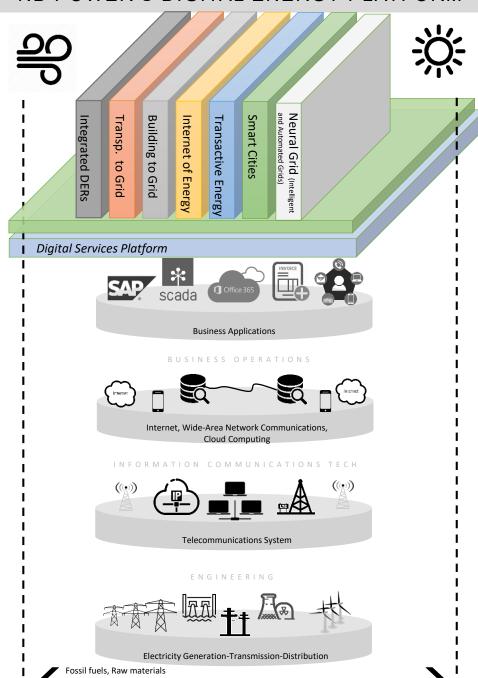


Digitize the business

- Modernize the working environment. Move to cloud/hybrid/on prem. Enable people to collaborate remotely, while mobile, with external stakeholders, ...
- Build an innovation culture and capability through pilots
 - Real time situational awareness
 - Augmented reality/virtual reality
 - Innovation challenge
 - Digital twins for plant operations
 - 3D printing/Blockchain/AR/VR
 - Community energy
- Establish mindset: IT is a strategic asset, we are a digital company
 - Integrate IT/OT across the business
 - Build understanding of the power of data
- Expand core competencies in the areas of data and analytics



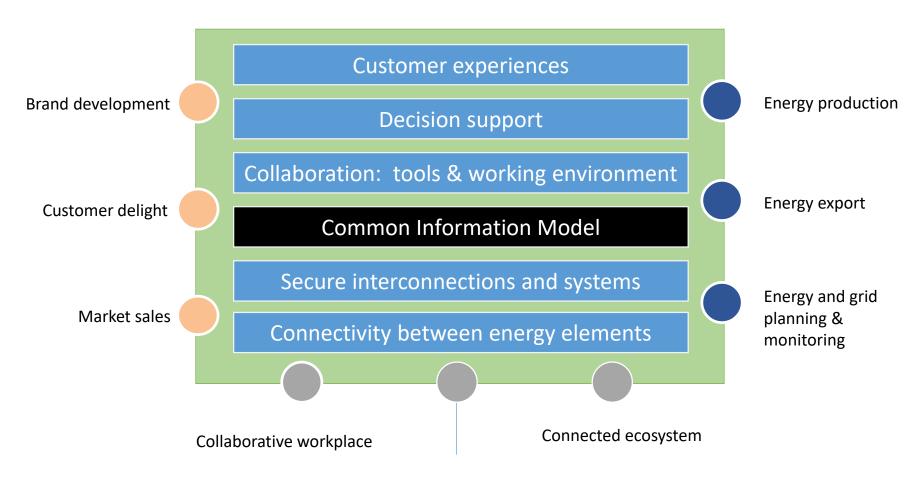
NB POWER'S DIGITAL ENERGY PLATFORM





Build and operate a digital energy platform

CONEPTUAL VIEW - CORE DIGITAL ENERGY PLATFORM





A chance meeting...





CIM is a primary key for success

CIM is enabling us to...

- 1. Pursue a "digitize the business" strategy
- 2. Unlock the data currently in silos and integrate it
- 3. Better understand what our data means
- 4. Inform the enterprise plan for transformation
- 5. Achieve our bottom line "Save more money", "Make more money"

CIM and Xtensible are helping us to close the strategy gap ... and keep it that way



Brad Wasson

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