

Value – A Key Ingredient for Business Decisions



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Decisions, decisions, decisions.

Regardless of what industry or sector you are in, there are no shortage of decisions to be made. Big and small. It often feels like a balancing act with so many factors to consider. When evaluating alternatives, one of the key ingredients in the decision making process is value. This presentation will share some examples of how Enbridge has been applying elements of the Value Methodology to various types of business decisions.

Mike Tozer, P.Eng., VMA

Manager, Strategy & Engagement | LP Modernization & Change



- Held various positions in three different business units at Enbridge over the past 18 years
- Pioneered the company's Value Management Program from 2016 - 2021
- Elected to the VAC Board of Directors in 2019



A few words about me...

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Hi – my name is Mike Tozer, and it's my pleasure to be speaking to you this evening. For the purpose of this presentation, you could say I'm wearing two hats.

I've been an employee of Enbridge for the past 18 years, holding a number of roles in three of our different business units. My current role is Manager of Strategy & Engagement for the Modernization & Change journey that our Liquids Pipelines BU is embarking on.

Prior to that I pioneered Enbridge's value management program from 2016 to earlier this year.

I've also been serving on the Board of Directors for Value Analysis Canada since 2019, and enjoy this platform to inform others about the value methodology and how it can be applied.

Outline



- Setting the Stage
 - About Enbridge
 - Overview of VM at Enbridge
- Value-based Decision Making
- Application Examples
- Q&A

What we will cover...

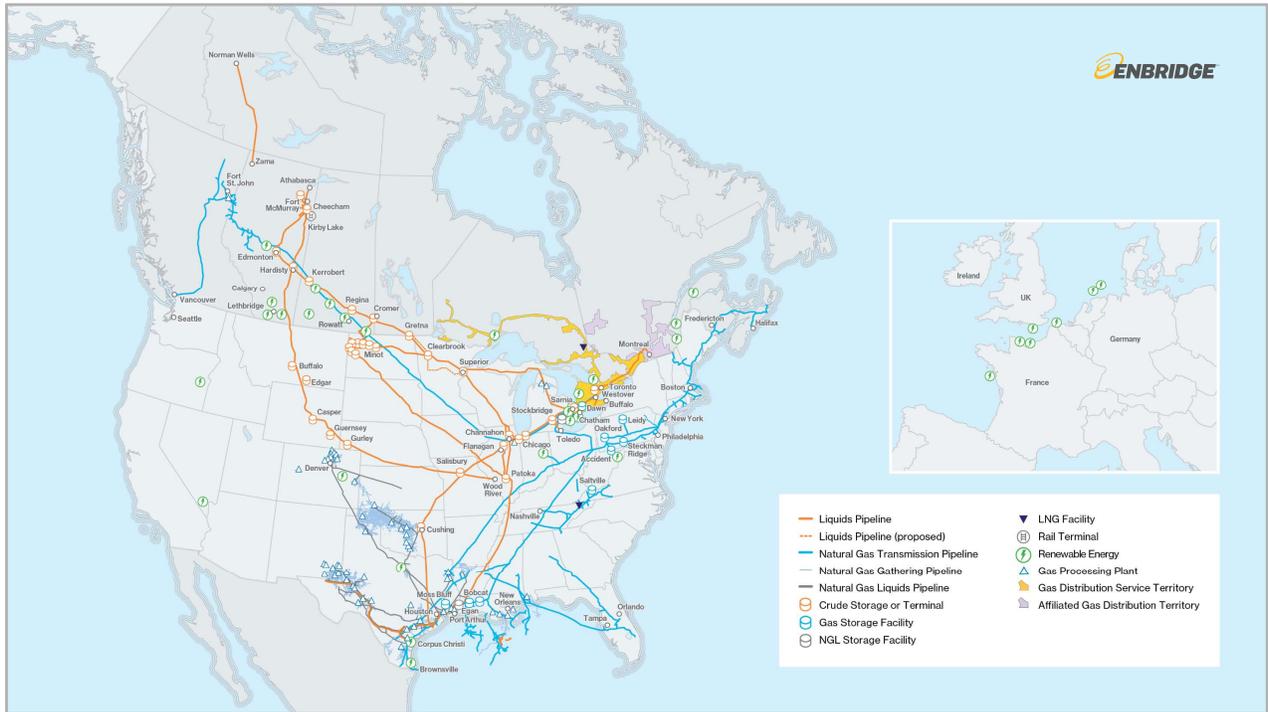
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Before getting into Value-based decision making, I'll begin my presentation by providing a little bit of context. First about Enbridge, and then about our VM program.

I'll conclude by sharing some examples of how we've starting incorporating elements of the value methodology for different types of business decisions.

About Enbridge





- Enbridge is North America's leading energy infrastructure company.
- We have a very large network of both natural gas and oil pipelines that go across Canada and the US. We also have a quite a few renewable power facilities in both North America and Europe.

What we do



Enbridge is North America's largest energy infrastructure company



Liquids Pipelines

- ~27,500 km/17,000 mi of pipe
- Moving 3 million barrels/day

25%
of crude oil produced
in North America



Natural Gas Pipelines

- ~38,375 km/23,850 mi of pipe
- Moving 18 Bcf/day

20%
of the natural gas
consumed in the U.S.



Natural Gas Utilities

- 3.8 million retail customers
- Serving 670+ communities

75%
of Ontario residents'
energy needs delivered



Renewable Power

- 30+ renewable power facilities
- 2,075 MW generating capacity

940,000
homes powered
by our assets

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We transport about 25% of the crude oil produced in North America.

We transport about 20% of the natural gas consumed in the United States.

Our renewable energy facilities, primarily wind and solar projects, generate enough energy to power nearly 940,000 homes.

Liquids Pipelines

Enbridge operates the world's longest and most complex crude oil and liquids transportation system, with approximately **17,127 miles (27,564 kilometers)** of active crude pipeline across North America—and we move about **25%** of the crude produced across North America.

We deliver more than **3 million barrels** of crude oil and liquids every day

Natural Gas Transmission and Midstream

Enbridge's natural gas pipeline network is unrivaled in the industry due to its scale, scope and connectivity, moving about **20%** of all gas consumed in the U.S.

Our gas transmission and midstream pipelines cover about **23,850 miles** (about **38,375 kilometers**)

We transport about **18 billion cubic feet (Bcf)** of natural gas every day

We have **158.9 Bcf** of net working gas storage through our U.S. transmission operations

Natural Gas Distribution

Enbridge Gas Inc. is North America's largest natural gas utility by volume, and third largest by customer count. With 3.8 million residential, commercial, institutional and industrial customers in Ontario, Enbridge Gas has been delivering energy for 170 years. Enbridge's gas distribution network also includes affiliates [Gazifère](#) and [Énergir LP](#) in Quebec.

Enbridge Gas distributes about **2.3 Bcf/d** (billion cubic feet per day) of natural gas

The Enbridge Gas network consists of **78,214 km (48,600 miles)** of gas distribution mainlines, **66,787 km (41,500 miles)** of gas distribution service lines, and **5,471 km (3,400 miles)** of gas transmission lines

We have 278.7 Bcf of net working storage associated with our gas distribution operations, largely in southwestern Ontario.

Renewable Energy

Since Enbridge's initial investment in a wind farm in 2002, we've committed more than **C\$7.8 billion** in capital to renewable energy and power transmission projects currently in operation or under construction. Our operating renewable energy portfolio—which spans North America and Europe—includes 20 wind farms, four solar energy operations, five waste heat recovery facilities, a geothermal project, and a hydroelectric facility.

Our renewable energy projects in operation have the capacity to generate **1,991 MW net** of zero-emission energy

These projects in operation enough green energy to meet the electricity needs of nearly 940,000 homes, based on net generation figures

Preparing for the energy future

- We are committed to supporting North America's energy transition by:
 - Modernizing our infrastructure
 - Investing in innovation and cleaner energy solutions
- Enbridge is developing cutting-edge, innovative solutions to prepare for the energy transition



Enbridge is ensuring we will meet the growing energy needs of the future while reducing emissions

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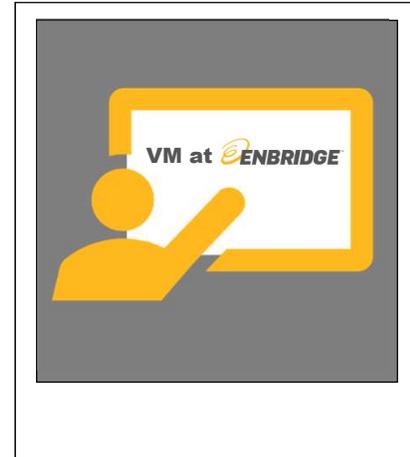
- To Enbridge, the energy future is more efficient, more stable and more important than ever.
- Within the next 20 years, the global population is expected to grow from 7.7 billion today to more than 9 billion, and energy demand is set to increase by 25 percent as forecasted by the International Energy Agency (IEA); continued economic development depends on access to more affordable and reliable energy that Enbridge delivers.
- Enbridge is partnering and investing to provide cleaner energy sources while building and maintaining a modernized infrastructure network that plans for the energy and environmental needs of future generations.

VM at Enbridge



VM Program Snapshot

- Created in October 2016
 - First value study conducted in June 2017
- 12 VM workshops completed to-date
- Started by supporting projects → now also applying VM to processes, products and organization strategy
- Primarily utilize external VM consultants for workshop facilitation → developing internal competency



A slow & steady journey that has seen us transition from 'push' to 'pull'

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These next few slides will provide you with little background information regarding the VM Program at Enbridge.

So the VM group was created at the end of 2016 as result of a company re-organization. Interestingly none of the people placed in the group had any previous background or experience with VM, so the first year consisted of a lot of knowledge building – leading to our first value study in June of 2017.

The VM group has ranged in size from 2 to 6 people.

I would say that the growth of our VM program has been a slow and steady journey, and as a result of our success we have seen an increase in demand for VM in the organization.

Value-based Decision Making



Value - A Key Ingredient

ingredients



Defining Value



$$\text{Value} \approx \frac{\textit{Function Performance}}{\textit{Resources}}$$

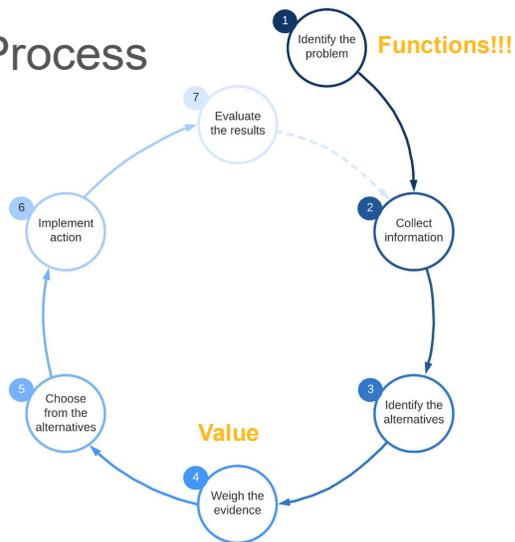
$$\text{Value} \approx \frac{\textit{Achievement of a Desired Outcome}}{\textit{Resources}}$$

$$\text{Value} \approx \frac{\textit{Satisfaction of Business Needs}}{\textit{Resources}}$$

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Value: An expression of the relationship between the satisfaction of business needs relative to the resources required to realize them.

Decision Making Process



Understand the relative **Value** of alternatives to inform your decision

Application Examples



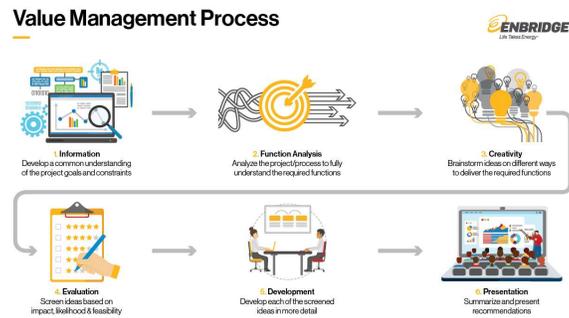
Decisions, Decisions



- Can We Do It Differently?
- Which Option to Choose?
- Which Initiative Should We Fund?
- What Area(s) Should We Focus On?
- What Does It Need To Do?
- What Are We Trying To Do?

Applying VM Principles to Decision Making

Can We Do It Differently?



Traditional VM Workshop

This helps us to understand the relative value of alternatives compared to a baseline, which in turn informs our decision

Which Option to Choose?



When the alternatives are known

Image Credit: Lyme Light Fight (<https://lymelightfight.wordpress.com/2013/04/23/decisions-decisions/>)

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Examples:

Route Selection

Selecting software / hardware for business applications

Understand the functions we require (business needs that we need to satisfy), use that to establish our performance / evaluation criteria, weight the criteria to understand relative importance, and finally assess the resources (cost, time, people, etc.) for each alternative.

Decisions, Decisions

Which Initiative Should We Fund?

Competing for Resources

Image Credit: Animal Competition (<https://www.ck12.org/book/ck-12-biology-advanced-concepts/section/14.13/>)

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As no organization has an infinite supply of resources, it becomes a constraint. By understanding the extent to which each initiative satisfies our business needs, and the resources required to accomplish it, value becomes an important part of selection criteria. We want to get the most bang for our buck.

What Area(s) Should We Focus On?



Road Mapping / Objective Setting

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First step is to map out the functions of a particular group or department.

Then we identify pain and gain areas.

By mapping these pain and gains to functions – we can then determine where to focus our efforts to help us get better. This can be more long term / strategic in nature, or short term, when trying to establish annual objectives. Things to do in addition to our day to day activities.

What Does It Need To Do?

FPS

Functional Performance Specification

When starting from scratch

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Tunnel ROV example

Decisions, Decisions

What Are We Trying To Do?



Strategy & Business Planning

Image Credit: TechMahindra (<https://www.techmahindra.com/en-in/digital/strategy-and-design/>)

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High level strategy & planning... may start with an ambition (or ambition like statements)

Need to distill it down further.... What are the underlying business capabilities or functions that we need to get better at

It provides to provide clarity and alignment on the path forward. Now we have the numerator in our value equation.

This is what I'm working on right now as we try to figure out what we need to do to modernize a business that is over 70 years old and be prepared for the energy transition.

Q&A

