

Utility business model reform for remote communities

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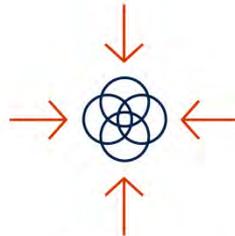


Leading Canada's transition to clean energy

The Pembina Institute is a non-profit think-tank that advocates for strong, effective policies to support Canada's clean-energy transition.



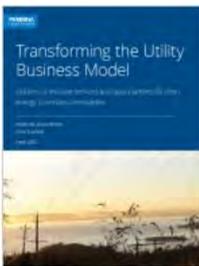
Research
and Analysis



Convening
Stakeholders



Credible
Perspectives



Transforming the Utility Business Model

Options to improve services and opportunities for clean energy in remote communities

PUBLICATION

April 8, 2022 - By Emily He, Grace Brown, Dave Lovekin

Canada's commitment to transitioning remote communities off diesel power is hampered by the way utilities operate in those areas. While the number of clean energy projects has



When business-as-usual is a barrier to clean energy

In remote communities, utilities need to change to meet climate goals and consumer needs

BLOG

Sept. 13, 2021 - By Emily He

The way utilities deliver energy to remote communities and generate revenue discourages the purchase of renewable energy as well as the implementation of energy efficiency measures. For Indigenous communities to realize a clean energy future this needs to change.



The future of the electric utility in Canada's remote communities

Regulatory and business model reforms could accelerate clean energy transition

BLOG

May 10, 2019 - By Dylan Heerema

In Canada, both utilities and proponents of renewable electricity projects face many challenges when working together to transition remote communities to clean energy.



Pre-engagement phase

Mar



Publication: Utility Business Model Reform research

Apr



Public webinar: Learnings from Utility Business Model Reform research

April 25-28



RIRC2022 conference

- Plenary discussion on the role utilities can play in remote community decarbonization
- Collaborative working session with utilities and governments (facilitated by Pembina)
- Further details around the FAIR campaign

May



Conference summary: A summary of the pre-engagement process, messages heard and work areas identified from RIRC2022 conference

Jun



Blog: Decarbonization, carbon pricing and the role utilities can play in remote community clean energy

Early engagement phase

July



Utility Working Group formation



20/20 Catalyst Program: Community-utility working session (Iqaluit, July 2022)

Aug



Further research and action on regulatory and policy design to support utility reform and increase Indigenous-led clean energy projects



FAIR campaign: next stages

Today's agenda

- Government, regulator, and utility roles and responsibilities
- Intro to utility business model reform
- Overview of utility business model reform options
- Questions

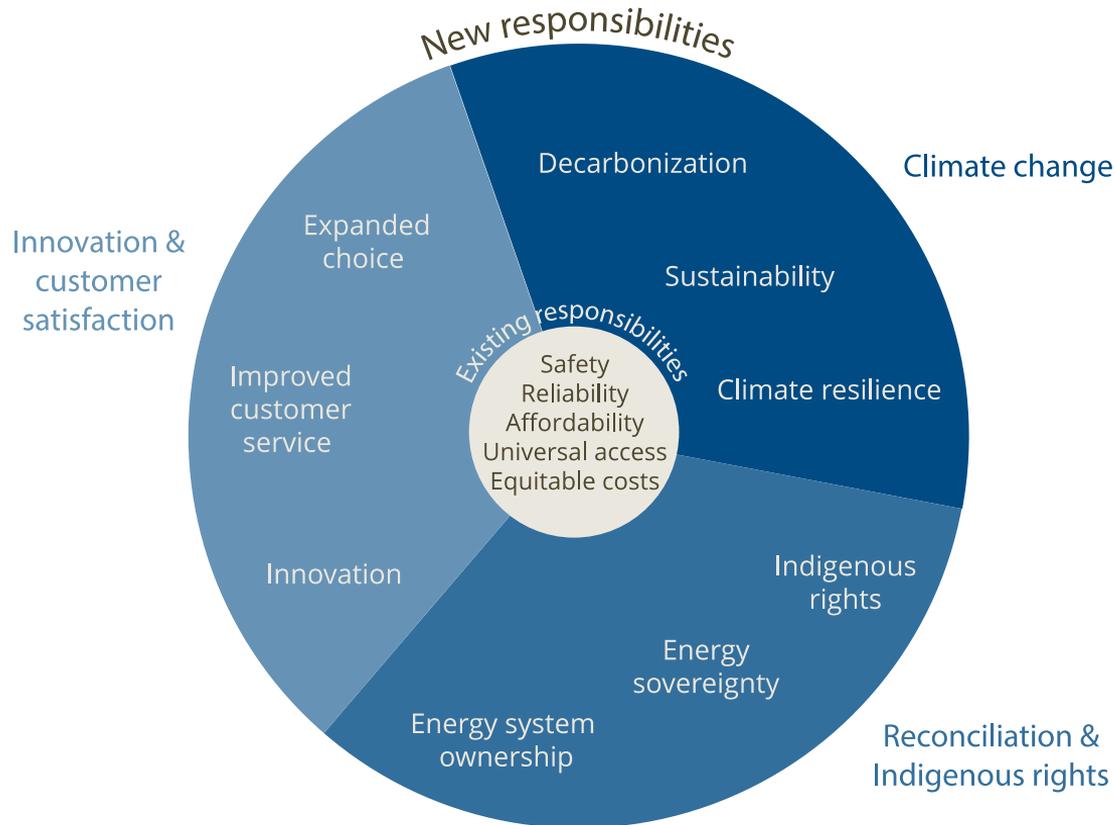
Government, Regulator, and Utility *Roles and Responsibilities*

Traditional Roles

Governments, Regulators, and Utilities

Entity	Role
Governments	<ul style="list-style-type: none">• Develop electricity policies• Write acts and regulations• Oversee regulators based on acts and regulations
Regulator “Utility Commissions, Utility Boards”	<ul style="list-style-type: none">• Provide market oversight and enforcement (in open market structures)• Approve utility investments and electricity rates• Ensure electricity rates are reasonable• Ensure safe, adequate, and secure services• Approve long-term utility resource planning• Establish an appropriate utility profit margin (balancing utility desires to earn a higher rate of return and customer interests to keep electricity prices low)
Utility	<ul style="list-style-type: none">• Supply safe and reliable power at a reasonable cost

Why do utility business models need to change? – *Emerging Utility Responsibilities*



Emerging Roles

Governments, Regulators, and Utilities

Entity	Role
Government	<ul style="list-style-type: none">• Set climate targets and policies to achieve these targets• Direct specific actors (regulators and sometimes the utility through Special Directives) to achieve climate targets• Align actions with Indigenous rights and relationships such as reconciliation and labour
Regulator	<ul style="list-style-type: none">• Ensure consumer protection• Ensure utility long term planning reflects climate policy
Utility	<ul style="list-style-type: none">• Address new utility responsibilities• Some utilities are starting to develop their own climate action plans and targets

Challenges for utilities servicing remote communities

Technical

1. Maintaining energy reliability / security
2. Systems redundancy
3. Interconnection limitations
4. Limited telecommunications infrastructure

Financial and capacity

1. High cost and limited access
2. High electricity rates
3. Dependency on diesel subsidies
4. Small customer base and limited revenue
5. Limited internal capacity

Intro to Utility Business Model Reform

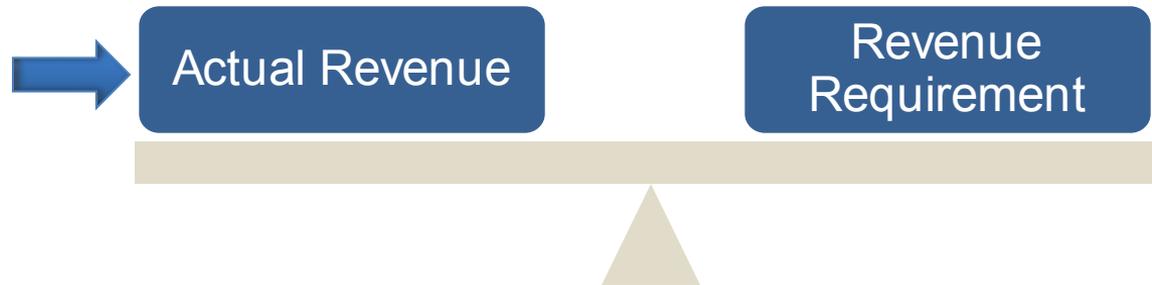
What is a utility business model? What is utility reform?

- Utility business models: dictate how utilities generate **revenue** and **profit**. Influence utility **priorities** and **actions**.
- Utility reform: changing the ways that utilities:
 - **Make money** - introducing new revenue opportunities
 - **Charge customers** - moving away from just a \$/kW (fixed) and \$/kWh (variable) fee or shifting how much of your monthly bill will rely on the fixed vs. variable charges
- Utility reform is necessary to unlock partnership opportunities and make utilities more receptive of clean energy projects.

Why utilities function the way they do: *The Cost-of-Service (CoS) Model*

- Utilities need to earn enough revenue to cover their costs – this is their “Revenue Requirement”
- Rates are set based on a utility’s **expected operating costs** and **expected energy sales**
- A **change in energy sales** will impact whether utilities can cover their operating costs

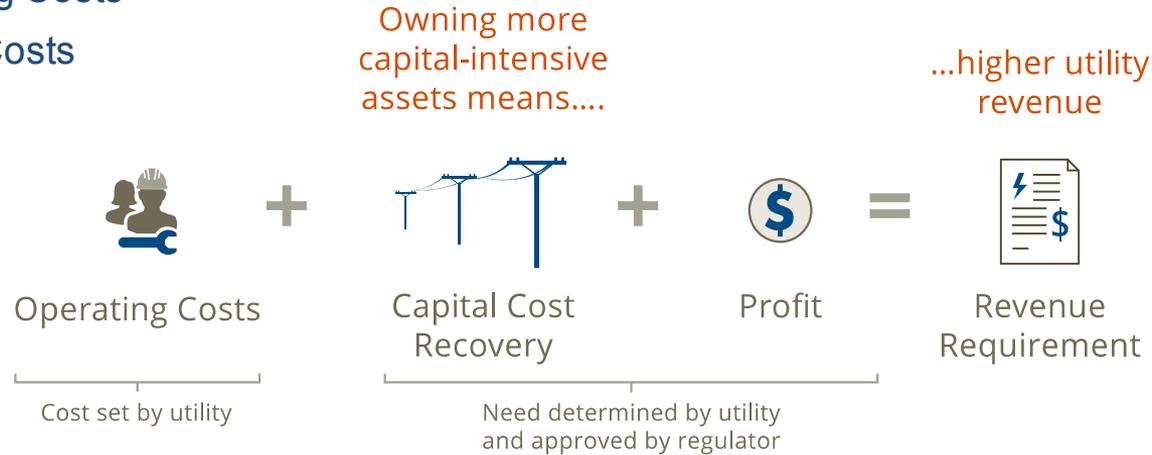
Energy sales
will decrease
with more EE
and RE projects



Why utilities function the way they do: *The Cost-of-Service (CoS) Model*

- The Revenue Requirement is made up of three components:

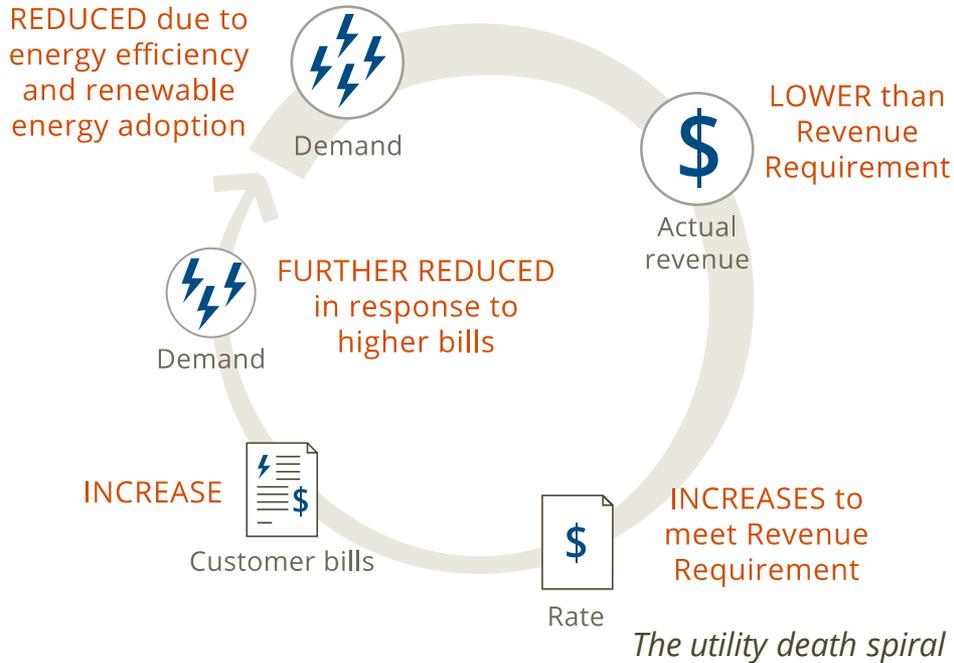
- Operating Costs
- Capital Costs
- Profit



- Profit is only a function of capital costs – utilities are incentivized to own more capital infrastructure to increase profits (contrary to community/Indigenous-owned renewables)

Clean Energy Projects and CoS

- Energy efficiency and customer-owned renewable energy mean that **energy consumption will go down** and:
 - Utilities will **sell less energy**
 - The **actual revenue** of utilities will be **lower** than their **revenue requirement** (the amount needed to cover operating costs)
- For utilities, both energy efficiency and renewable energy projects mean that either **rates will increase** or **utility revenues will decrease**



CoS Model Limitations

- **Discourages** renewable energy and energy efficiency
- **Limits utility** revenue and profit **opportunities**
 - Utility profits are dependent on the value of their physical assets – utilities do not earn profits on operating costs (including PPA and net metering expenses)
- Incentive for **capital investments over operational changes**
- Restrictive ratemaking process **limits innovation**
- **Limits Indigenous participation and independence**

Why is utility business model reform needed?

- Address all CoS limitations
- Governments set climate targets, but **utilities are the “gateways” for projects**
 - Utilities need to be planning for more RE and EE on the grid
- Utilities are often not supportive of RE and EE projects because doing so will lower their revenue and force them to raise rates - **Clean energy projects threaten utility bottom lines**
- Reform is needed so that:
 - Utilities can **earn revenue from new sources**
 - Utility revenue is not just based on the quantity of energy sold
- **This will allow utilities to be active partners and supporters of clean energy projects**

Utility Business Model Reform Options

Objectives for utility reform in remote communities

1. Align utility operations with **climate policy objectives**
2. **Support RE/EE** project implementation
3. **Remove utilities' incentive to grow energy sales**
4. Support **Indigenous rights and reconciliation**
5. **Share business and investment risks** between utilities, third parties, and customers rather than one party bearing adoption risks that may be associated with RE or EE
6. Minimize utility spending to **ensure that energy is provided at the lowest cost**

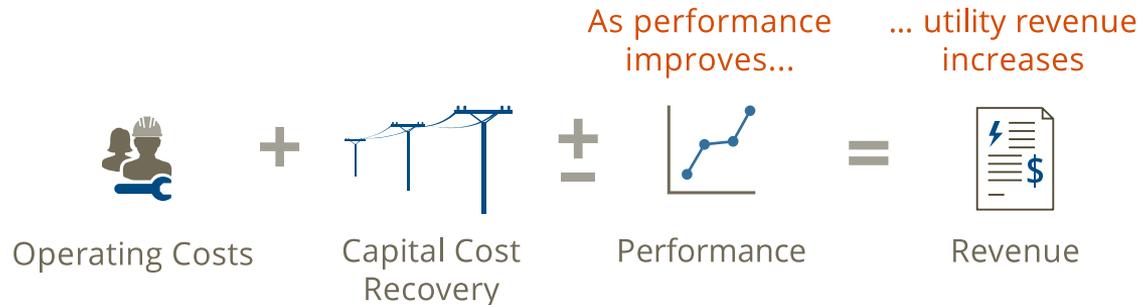
How can reform objectives be met?

- Through restructuring electricity bills and/or new utility revenue opportunities, met by:
 - **Government funding** for utilities to meet policy objectives
 - Changing what is factored into **rates**
 - **Direct payments** by non-utility companies for utility services

		Utility reform option			
		Performance Incentive Mechanisms	Revenue Decoupling	TOTEX	Platform Service Revenues
Reform objective					
Reform Objective	Align utility operations with government climate policy objectives	✓✓✓	✓✓✓		✓✓
	Support distributed energy resource/energy efficiency implementation	✓✓✓	✓✓✓	✓✓	✓✓✓
	Remove utilities' incentive to grow energy sales so as to encourage energy efficiency projects	✓✓	✓✓✓		
	Support Indigenous reconciliation	✓✓✓		✓✓✓	✓✓✓
	Distribute risk and value sharing between utilities and third parties	✓✓	✓✓		✓✓
	Encourage cost containment			✓	
Pathway for Change	Change how rates are determined and/or structured		■		■
	New revenue opportunities	■		■	■

Performance Incentive Mechanisms (PIMs)

- PIMs allow utilities to earn revenue from meeting performance goals set by regulators
- Incentives either come from direct payments to the utility by government or an increase in allowable profit margins
- Examples of PIMs: reduction of peak loads (increase in energy efficiency), reduction of CO2 per MWh, and an increase in customer satisfaction



PIMs – advantages



1. Aligns utility operations with climate and reconciliation policy goals.
2. Motivates utility spending towards programs that were otherwise not financially incentivized.
3. Increases information available to regulators and other stakeholders from PIM tracking and reporting.

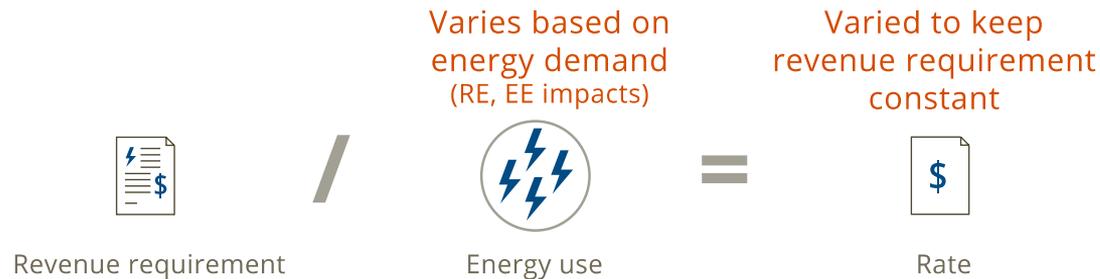
PIMs – addressing disadvantages

1. Complicated for regulators and utilities to establish and operate.
2. Requires significant additional capacity from the utility and regulator to support PIMs for reporting and validation.
3. Performance target setting is difficult.

1. Governments need to appropriately fund regulators such that they can carefully design programs.
2. Utilities and regulators should have adequate resources and capacity to address increased program requirements.
3. Pilot projects are required to test targets.

Revenue Decoupling

- Rates are regularly adjusted (within allowable bounds) to reflect actual sales levels to keep revenues consistent with expectations
- With Revenue Decoupling, a utility's Revenue Requirement can also be adjusted between rate applications to better reflect actual spending



Revenue Decoupling – advantages



1. Removes utility hesitancy to support renewable energy and energy efficiency projects that would have reduced their revenue under CoS.
2. Reduces utilities revenue loss risk to better align business practices away from growing sales and towards renewable energy and energy efficiency.

Revenue Decoupling – addressing disadvantages

1. Results in rate increases due to declining revenue regardless of whether this decline is due to clean energy or not.
2. Locks in utility revenue and shifts energy sales risks to consumers.

1. Cap rate increases to mitigate impacts.
2. Only allow rate increases to trigger from certain actions.
3. Increase availability and uptake of energy efficiency programs to lower demand and ensure that rate increases do not mean overall bill increases.

Revenue Decoupling – addressing disadvantages

- Fairness and cost shifting concern if EE and customer-owned generation are not evenly implemented across consumers.
- Implement equitable and accessible clean energy programs in tandem with Revenue Decoupling.

Revenue Decoupling – addressing disadvantages

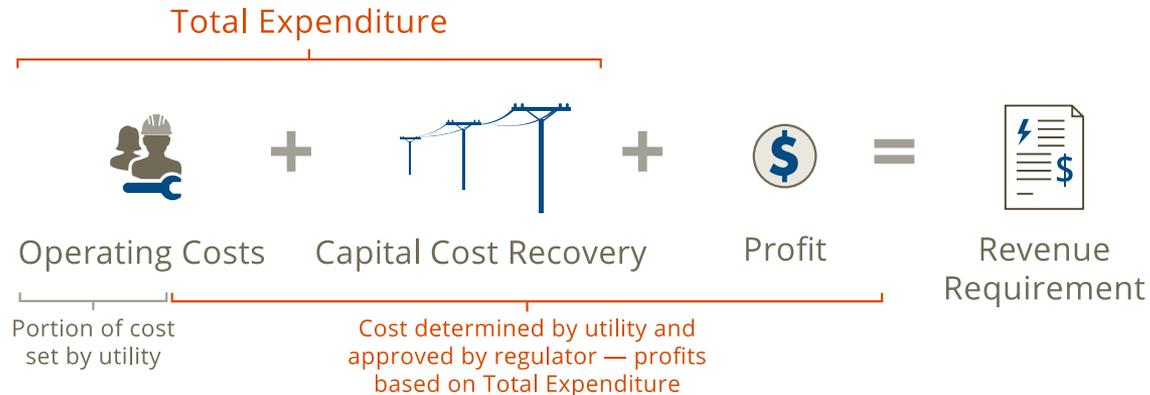
- Does not provide an incentive for the adoption of energy efficiency, renewable energy, or IPP agreements.
- Ensure Energy Efficiency Resource Standards (**EERS**) and/or Renewable Portfolio Standards (**RPS**) policies are already in place.
EERSs set specific, long-term energy savings targets for utilities. RPSs should specifically require utilities to procure a set amount of renewable energy rather than exclusively operate self-generation.

Revenue Decoupling – addressing disadvantages

- Does not address incentives for large capital investments to grow the rate base.
 - Does not motivate utilities to choose lowest-cost or most effective solutions for meeting utility reform goals if they can earn a higher return by meeting demand with investments in new power plants and power lines.
- Implement in tandem with other utility reform measures such as TOTEX to mitigate capital investment incentives and well-designed PIMs to incentivize utilities to choose the most effective solutions.

Total Expenditure Approach (TOTEX)

- Under CoS, only capital costs result in an increase in utility revenue and profits, no profits are earned from operating expenses (including contracting services to third parties)
- TOTEX allows utilities to earn a return on operating expenses, providing an incentive for utilities to choose the most economical investment
- With emerging grid technologies and software solutions, capital infrastructure may not be the most cost effective or technically best option



TOTEX – advantages



- Makes utilities indifferent between CAPEX (traditionally earning a rate of return) and OPEX (traditionally not earning a rate of return) solutions such that they are incentivized to choose the best option.
- Allows utilities to earn a return on IPP contracts, creating opportunities for Indigenous companies and communities to develop renewable energy projects.

TOTEX – addressing disadvantages

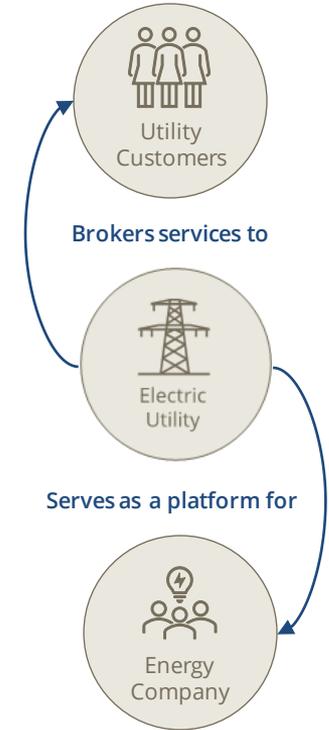
- Limited application in other jurisdictions introduces risks for early adopters.
- Early adoption should be done by utilities who serve predominantly grid-tied customers as they are less impacted by potentially unforeseen consequences.

TOTEX – addressing disadvantages

- Requires data collection and software upgrades.
- Utility infrastructure upgrades may require government investment and grants.
- TOTEX allows utilities to contract third parties for these data and software needs.

Platform Service Revenues

- Utilities serve as a “platform” operator for third-party energy service companies
- Utilities coordinate energy resources into the grid and provide direct access to customers in exchange for fees the third parties pay.
- Win-win-win scenario for the utility, third parties, and customers: utilities have a new revenue stream, barriers to entry are lowered for third parties and customers get expanded services



Platform Service Revenues – advantages



- Win-win-win scenario for the utility, third parties, and customers: utilities secure a new revenue stream, barriers to entry are lowered for third parties and customers get expanded services.
- Increase innovation in the energy sector and allow access for Indigenous entrepreneurs.

Platform Service Revenues – addressing disadvantages

- Utilities servicing remote communities have a small customer base which may mean that revenues from other services are limited.
- Although the impacts of a Platform Service Revenues model may be small in remote communities, this model still provide a multitude of benefits.

Platform Service Revenues – addressing disadvantages

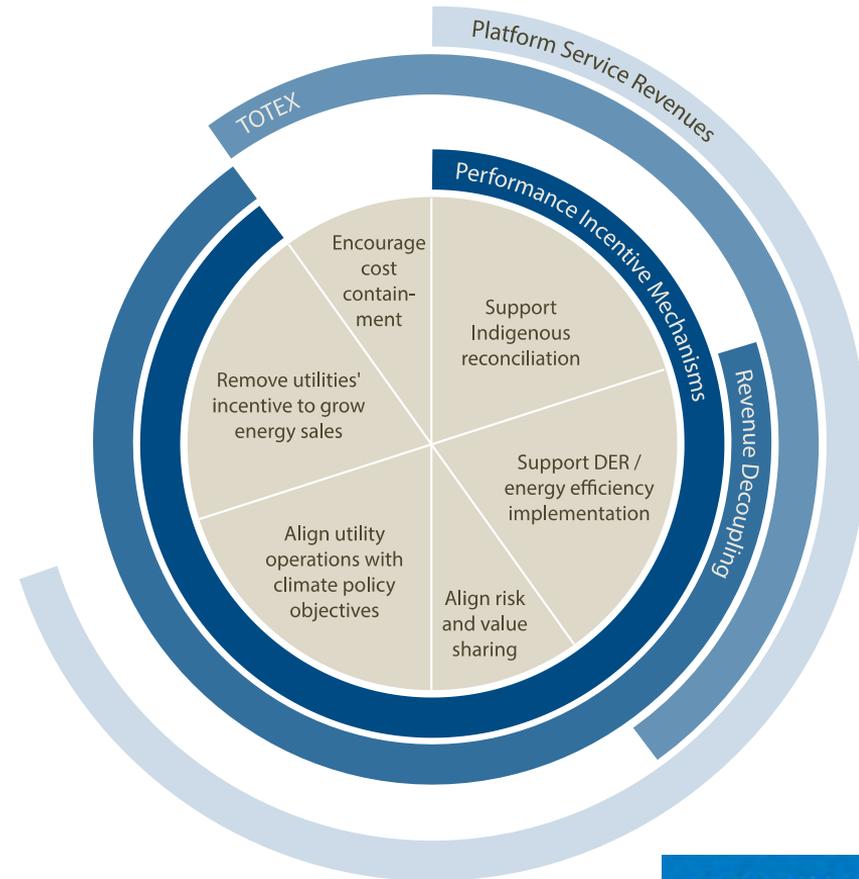
- Limited application in other jurisdictions introduces risks for early adopters.
- Early adoption should be done by utilities who serve predominantly grid-tied customers as they are less impacted by potentially unforeseen consequences.

Platform Service Revenues – addressing disadvantages

- Possibility for higher overall costs compared to utility independently providing services because of platform fees.
- Customers can lower their energy costs/bills (accounting for these potentially higher prices) through new energy efficiency and management service offerings.

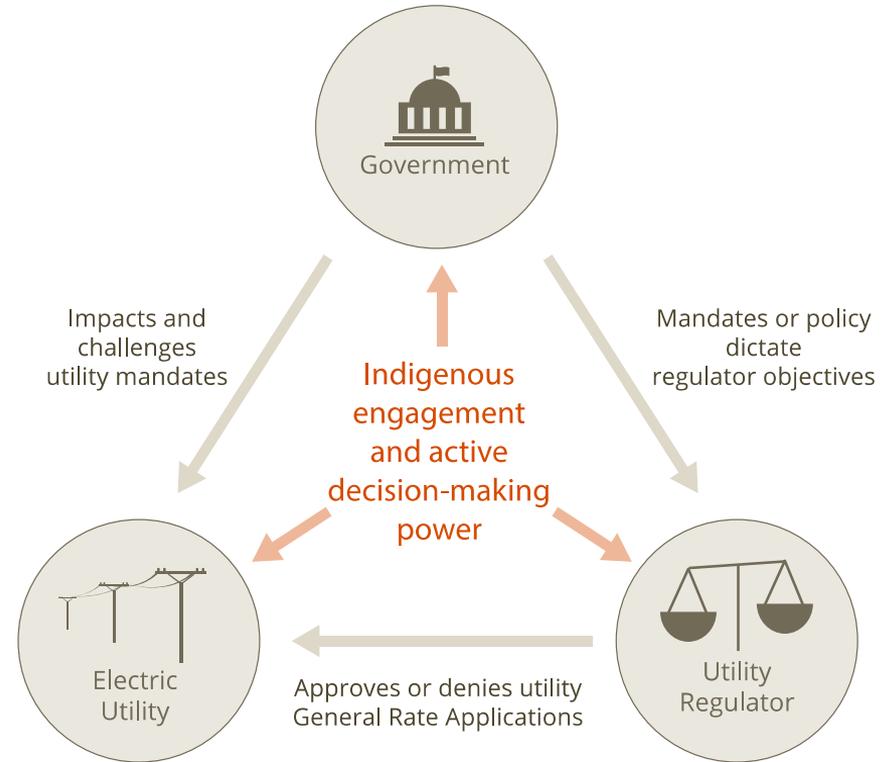
Choosing options for reform

- Reform options depend on your jurisdiction's **priorities**
- Multiple reform options may need to be **implemented in tandem** to address the desired reform objectives
- Some reform options, like *decoupling*, may need other reform options, like *PIMs*, to be **implemented together to address shortfalls**



How to implement utility reform

- Reform requires action from **governments, regulators, and utilities**
- Working groups with **participants from all parties and Indigenous community leaders** are needed

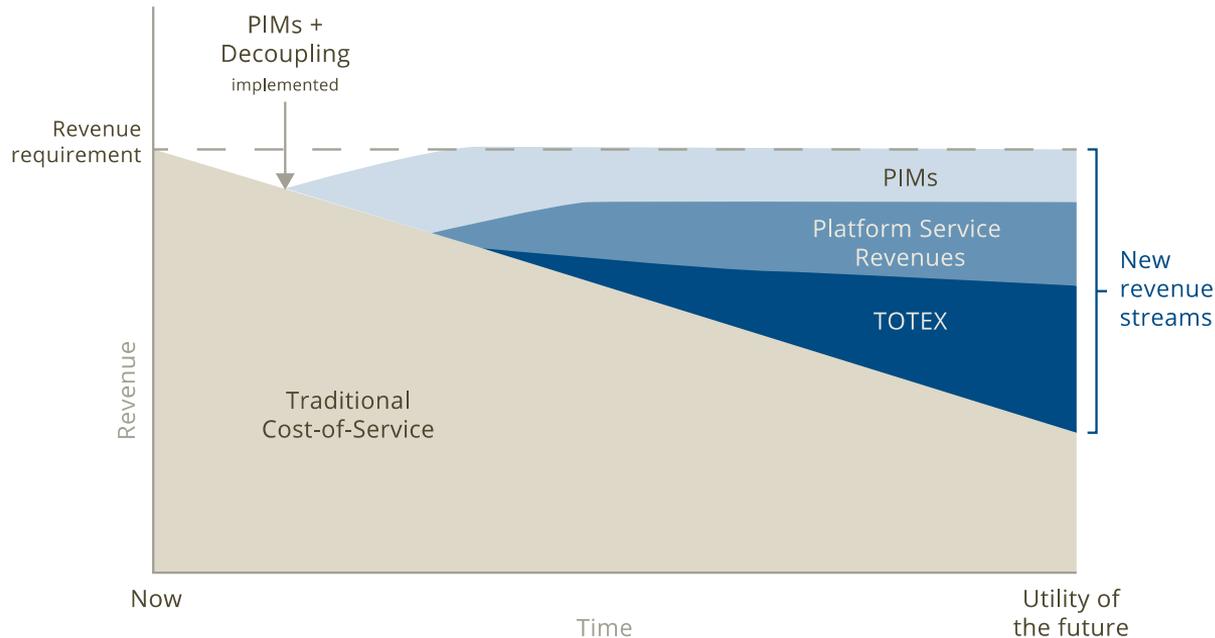


How to implement utility reform – eight steps for a working group

1. **Identify** and **categorize** new responsibilities for utilities into: climate change; reconciliation and Indigenous rights; innovation and customer satisfaction.
2. **Prioritize responsibilities** in accordance with the goals of utility reform.
3. Identify **challenges** to meeting responsibilities under CoS.
4. Determine which **reform objectives** to target for the jurisdiction.
5. Identify **reform options** to satisfy the selected objectives.
6. Revisit the main challenges in Step 3 to **ensure that the selected reform options will address these challenges**.
7. Map out **what utility reform will look like** in your jurisdiction.
8. Coordinate **next steps** amongst working group members and stakeholders.

The utility of the future

- The *utility of the future* operates under “CoS-plus” business model
 - Revenue requirement is no longer entirely dictated by the traditional CoS model, allowing for new and emerging responsibilities to be achieved.



Utility business model reform in the clean energy transition

- Utility reform unlocks opportunities and is a **necessary first step** in undertaking a **transition to clean energy**



Figure adapted from:
American Council for an Energy-Efficient Economy

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