Volatility is the Name of the Game:
Ensuring Chemical Supply Continuity in Times of Uncertainty

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CWWA NWWC
November 3, 2025

TORONTO Water

- Toronto is the fourth largest city in North America
- 4 drinking WTPs (2.8 BLD, 730 MGD), serves ~3.6 million people
- 4 WWTPs (1.554 BLD)
- Lake Ontario water source

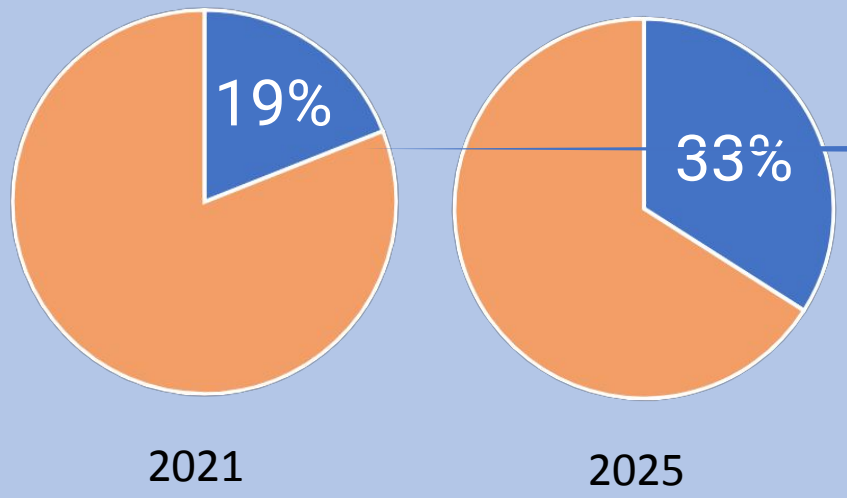
Treatment Chemicals

Water Tr

- Alu
- Ar
- Ch
- Hy
- Lic
- Ph
- Po
- Po
- Po
- So
- Sul

Water Treatment & Supply Operating Budget

Water treatment chemicals

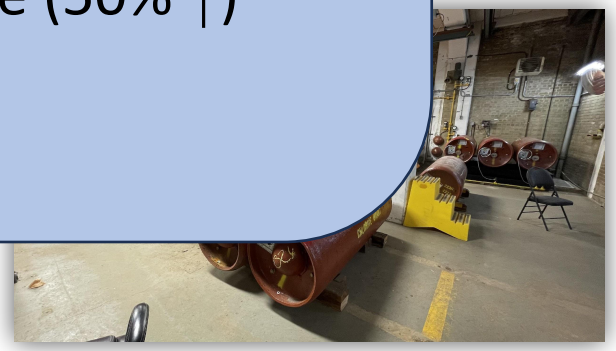


Liquid chlorine (240% ↑)

Aluminum sulphate (38% ↑)

Phosphoric acid (48% ↑)

Sulphur dioxide (50% ↑)



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History: multi-year bulk chemical supply contracts

Some chemical contracts still following this structure

Contract structure:

- 2-year base term (fixed price)
- 3 x 1-year option periods, unit price adjusted based on blended index

Blended Index = $(80\% \times IPPI_{All\ Items}) + (20\% \times CPI_{Transportation,Ontario})$

Blended Index = $(80\% \times IPPI_{Chemicals}) + (20\% \times CPI_{Transportation,Ontario})$

Statistics Canada Statistique Canada

CPI = Consumer Price Index
IPPI = Industrial Product Price Index

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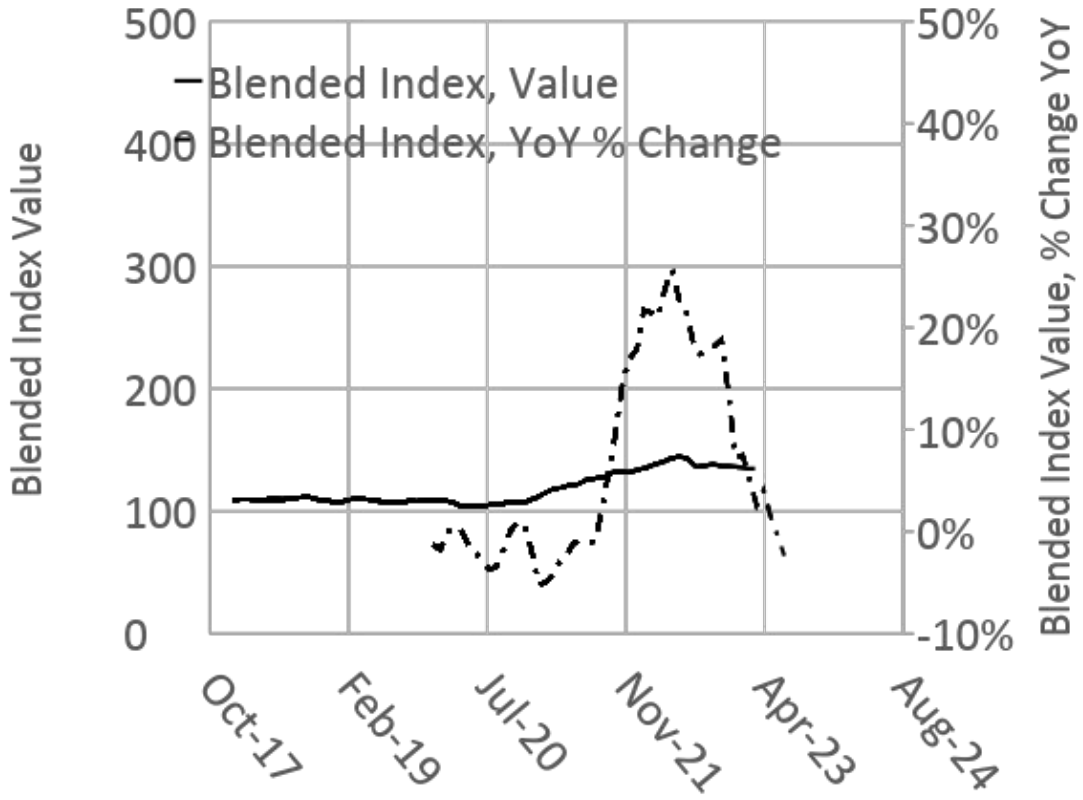
Option Year Unit Price Adjustment

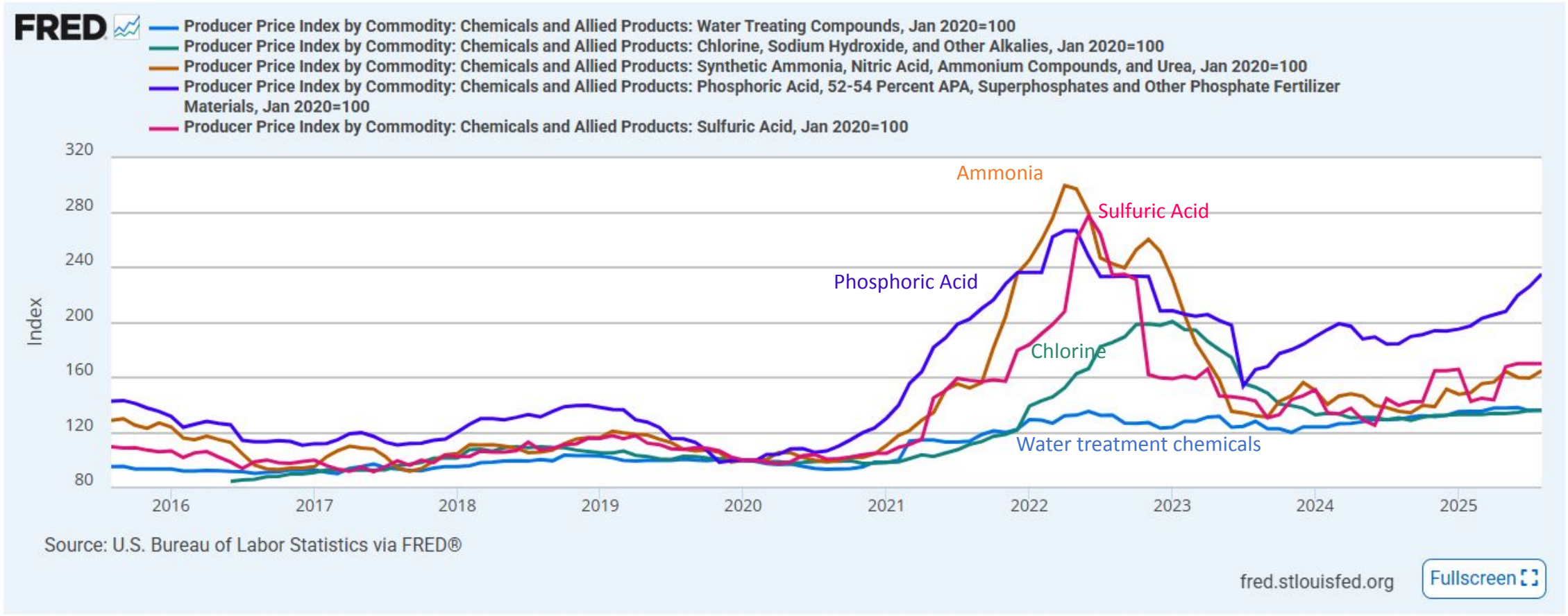
- Blended Index YoY adjustment has historically been around 1-3%
- 2021: negative
- 2022: 14.4 - 24%
- Blended index was not representative of market conditions
- Vendors no longer want to commit to firm pricing for more than 1 year (in 2022, 1-6 months)



Blended Index = IPPI(Chemicals)x80% + CPI(Transportation, Ontario)x20%

Chemical-Specific Price Indices

U.S. BUREAU OF LABOR STATISTICS



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By **Pool News**

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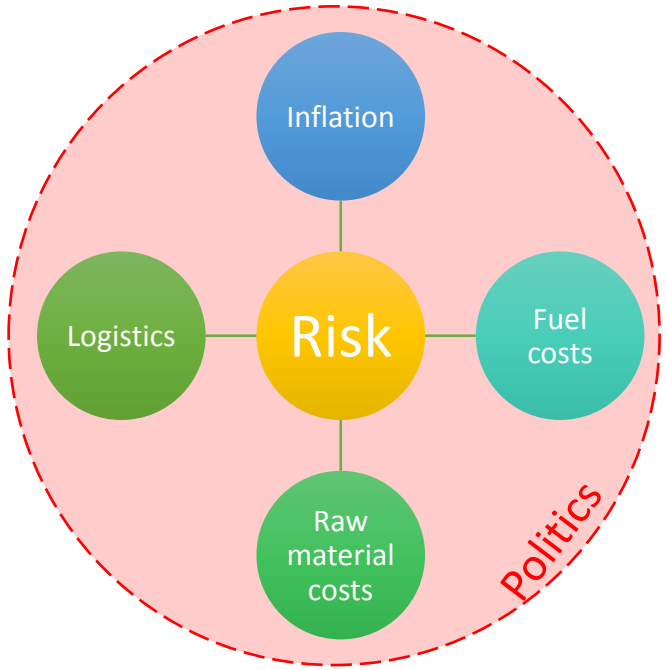
New Survey Finds Persistent Supply Chain Problems Deeply Impacted Chemical Manufacturers

Jan 10, 2022 | Read time: 7 minutes | Press Release

Complex Web of Economic Factors

Economic factors impacting markets at the same time:

- High levels of cost **inflation**
- **Supply/demand imbalance**
- Historic highs in key **raw material prices**
    - Shortages, supply chain disruptions, instability caused by the war in Eastern Europe and sanctions against Russia
- Increases in **logistics** costs
    - Rising **fuel costs**
    - Ocean freight delays due to slow movements in and out of ports and shortages of containers, truck and drivers, labour disruptions impacting ports and railways
- US tariffs / potential Canadian reciprocal **tariffs**?
    - Varying municipal/provincial mandates to buy Canadian



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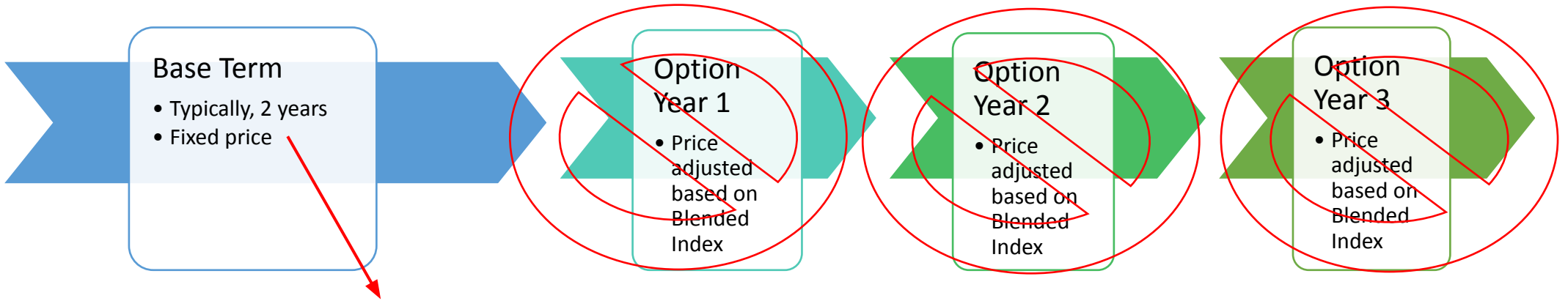
Current Strategy: 1-year renewals



- 1-year contracts, with no option to extend for each chemical where no chemical-specific price index identified (alum, PACL, phosphoric, fluoride, chlorine)
- Exception where we've been able to tie price to a chemical-specific index (aqua ammonia), or for contracts requiring onsite trials (polymers)

Effective… however, increased procurement resources required

- Further modify contract type/structure to reduce procurement resources?

Options being considered…	Issues/Roadblocks…
Implement a vendor of record/chemical vendor roster	City contract award value limit makes this impractical (but being investigated)
1-year RFQs with Option Years where price is negotiated	Legal concerns; timing for re-tendering is challenging if going back out to market
Negotiated RFPs	Extended time period to award (being investigated)

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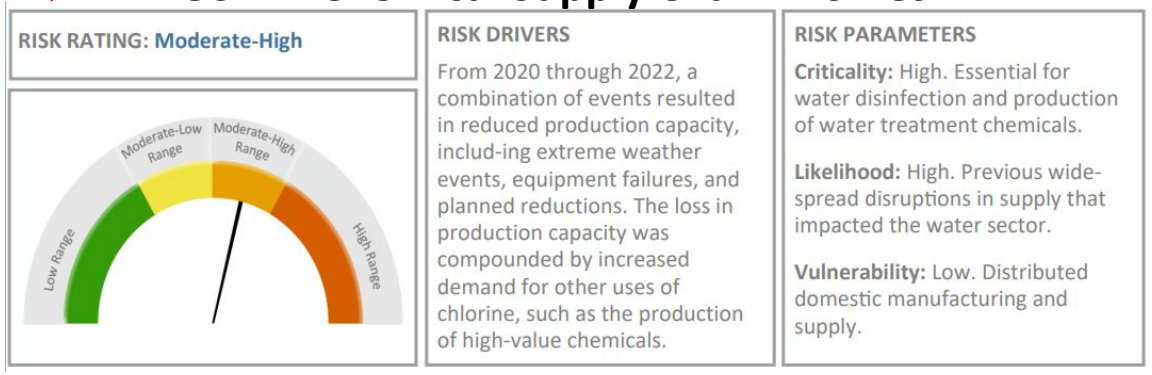
Where are we at most risk? Chemical Procurement Summary

- Compiled a repository of recent past procurements:
  - Bidders/suppliers & manufacturers
  - Pricing
  - Raw materials used and source location
  - Means of transportation
  - Procurement issues experienced
  - Alternative chemical options
  - Risk rating for supply

- Major risk factors identified:
  - Only one historical vendor available or participating
  - Critical chemicals that have experienced supply impacts, where there are no easy alternatives to switch to

USEPA Chemical Supply Chain Profiles



https://www.epa.gov/waterutilityresponse/water-treatment-chemical-supply-chain-profiles

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Where are we at most risk?
Chemical Procurement Summary

Chemical Supply Risk Assessment

Summary

DRINKING WATER

Chemical	Facilities				Contract Cycle	Criticality	Dependence	Risk				Prepared	Reviewed
	FHA	FHO	FCL	FIS				Competition Risk (40%)	Market Volatility Risk (40%)	US Tariff Risk (20%)	Overall Risk		
	X	X	X	X	April - March	High	High	10	8	4	VERY HIGH	AH	SW
	X	X	X	X	December - November	Medium	High	10	6	1	MODERATE	AH	SW & EZ
	X	X	X	X	January - December	High	Medium	2	3	1	MODERATE	AH	SW
			X		November - October	Medium	High		6	8	MODERATE	RV	SW
		X		X	January - December	High	Low	8	3	3	MODERATE	AH	SW
	X	X	X		July - June	High	Low	3	4	2	MODERATE-LOW	AH	SW
		X	X			Medium	Low	9	6	3	MODERATE-LOW	AH	SW
	X	X		X	January - December	High	Medium	6	1	1	MODERATE-LOW	RV	SW
		X			January - June	Low	[illegible]	4	1	8	LOW	RV	SW
		X			February 23 - February [illegible]	[illegible]	[illegible]	8	1	1	MODERATE-LOW	SW	AH
	X	X	X	X	October - Septem[illegible]	[illegible]	[illegible]	6	6	6	MODERATE	SW	AH
	X				Jan[illegible] June								
		X			[illegible]uary - [illegible]e	[illegible]	Low	5	5	7	MODERATE	RV	SW
			X		[illegible]uary - Ju[illegible]								

WASTEWATER

Chemical	Facilities				Contract Cycle	Criticality	Dependence	RISK				Prepared	Reviewed
	TAB	THC	THR	TNT				Competition Risk (40%)	Market Volatility Risk (40%)	US Tariff Risk (20%)	Overall Risk		
	X	X	X	X	January - December	High	Low	10	7	1	MODERATE-HIGH	RV	SA/EZ
		X	X	X	January - December	High	Medium	6	1	1	MODERATE-LOW	RV	SA/EZ

Other Approaches for Mitigating Supply Risks

1. **Optimization (use less chemical)**

2. **Encourage more market participation**
   - Engage with past and current suppliers about entering a new market
   - Reconsider contract structure to allow for award to multiple vendors
     - Award on a per plant basis
     - Guarantee portion of supply to multiple suppliers

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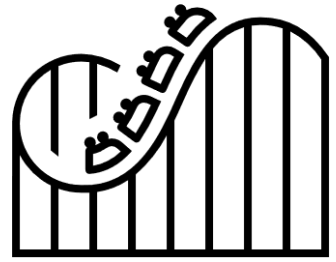
Other Approaches for Mitigating Supply Risks

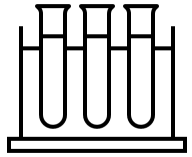
3. Identify / evaluate alternative chemical options

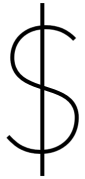
- If a supply disruption happens, what options do we have?
  - What other chemicals could we use, who supplies them, is our equipment compatible?
- Confirm feasibility through bench-, pilot-, full-scale trials
- Recent examples
  - Evaluate other forms of chlorine (sodium hypo, onsite generation)
  - Piloting biological phosphorus removal

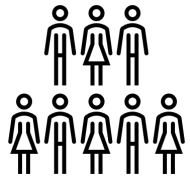
Considerations Moving Forward



- Remain focused on our chemical procurement objectives:
  1. Continuous supply of high-quality product
  2. Pay a fair market price; safeguard taxpayer dollars
  3. Balance risk between both parties / encourage competitive bids
  4. Minimize contract procurement/ management resource requirements







Considerations Moving Forward

- Allow for price adjustment to align with the market price
  - Chemical-specific price index
  - Renew contract on an increased frequency
  - Currently renewing 1 year supply contracts
- Maintain communications with vendors; they know their markets
- Maintain communications with neighbouring utilities; we are in this together

Questions?

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