

# Algonquin Power & Utilities Corp.



Algonquin



# SASB index<sup>1,2</sup>

## Electric utilities and power generators

### GHGs and energy resource planning

		2020	2019	2018	2017
EU-110a.1	Gross global scope 1 emissions (Mt CO <sub>2</sub> e)	1,989,091	2,658,162	2,749,473	3,090,976
	Percentage covered under emission-limiting regulations	99.7%	99.7%	98.9%	99.0%
	Percentage covered under emission-reporting regulations	97.6%	99.7%	99.96%	99.2%
EU-110a.2	Greenhouse gas (GHG) emissions associated with power deliveries	Owned Power	1,859,642		
		Purchased power	353,434		
EU-110a.3	Discussion of long-term and short-term strategy or plan to manage scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets			S 5 Letter from Arun Banskota, President and Chief Executive Officer S 8 The pathway to net-zero by 2050 S 36 Net-zero by 2050: Transitioning to a low-carbon economy and managing our emissions	
EU-110a.4	Number of customers served in markets subject to renewable portfolio standards (RPS)	95.3%	93.5%	92.9%	92.4%
	Percentage of fulfillment of RPS target	100%	100%	100%	100%

### Air quality<sup>3</sup>

		2020	2019	2018	2017
EU-120a.1	NO <sub>x</sub> (Mt)	493	1,162	1,274	1,360
	SO <sub>x</sub> (Mt)	10	734	753	918
	PM10 (Mt)	100	139	167	171
	Lead (Mt)	0.00007	0.00007	0	0
	Mercury (Mt)	0.00003	0.0008	0	0

1 Scope of disclosure: Unless explicitly noted, annual data herein is presented for the fiscal year beginning on January 1 and end on December 31 of the specified year, and data reflecting a specific point in time is given as of December 31 of the specified year. Unless explicitly noted, data does not include 2020 acquisitions; ESSAL (Chile) closed October 2020, and Ascendant (Bermuda) closed November 2020.

Data that includes acquisitions only includes months in which subsidiaries were under Algonquin's operational control.

2 Disclosure interpretation: "0" is used when value of data is equal to zero. "--" is used when data is unavailable. Data is left blank when historical data is not applicable.

3 Gross global scope 1 emissions, EU-110a.2, EU-110a.3, EU-140a.1, EU-000.A, EU-000.B, EU-000.D, EU-000.E include 2020 acquisitions.

4 100% of NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, lead, and mercury emissions are near population centers.

## Water management

		2020	2019	2018	2017
EU-140a.1	Total water withdrawn (ML)		8,273		
	Percentage of water withdrawn in regions with high or extremely high baseline water stress				
EU-140a.2	Number of incidents of non-compliance associated with water quantity and/or quality permits, standards, and regulations	7			
EU-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks				

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## Coal ash management

		2020	2019	2018	2017	
EU-150a.1	Amount of coal combustion residuals (CCR) generated (Mt CO <sub>2</sub> e)	0	30,375	31,189	36,215	
	Percentage of CCR recycled	0.0%	45.6%	45.8%	42.6%	
EU-150a.2	Total CCR impoundments by hazard	High hazard potential	0	0		
		Significant hazard potential	0	1		
		Low hazard potential	1	2		
		Less than low hazard potential	0	0		
		Incised	0	0		
EU-150a.2	Total CCR impoundments by structural integrity assessment	Satisfactory	1	3		
		Fair	0	0		
		Poor	0	0		
		Unsatisfactory	0	0		
		Not applicable	0	0		

## Energy affordability

		2019	2019	2018	2017	
EU-240a.1	Average retail electric rate by customer type (\$/kWh)	Residential	0.14	0.14	0.14	0.14
		Commercial and industrial	0.12	0.12	0.10	0.10
EU-240a.3	Number of residential customer electric disconnections for non-payment	2,412	6,366	-	-	
	Percentage reconnected within 30 days	58%	57%	-	-	

EU-240a.4 Discussion of the impact of external factors on customer affordability of electricity, including the economic conditions of the service territory

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Workforce health and safety		2020	2019	2018	2017
EU-320a.1	Total recordable incident rate (TRIR)	0.90	1.27	1.76	2.78
	Total recordable fatality rate	0	0	0	0
	Total recordable near-miss frequency rate (NMFR)	36.97	27.67	23.85	30.43

End-use efficiency and demand		2020	2019	2018	2017
EU-420a.1	Percentage of electric utility revenues from rate structures	42.0%	24.0%	10.2%	10.3%
	Decoupled Lost revenue adjustment mechanism (LRAM)	0%	0%	-	-
EU-420a.2	Percentage of electric load served by smart grid technology (%/MWh)	63%	-	-	-
EU-420a.3	Customer electricity savings from efficiency measures by market (MWh)	19,042	20,338	8,146	6,710

Grid resiliency		2020	2019	2018	2017
EU-550a.1	Number of incidents of non-compliance with physical and/or cybersecurity standards or regulations	1	2	3	2
EU-550a.2	System Average Interruption Duration Index (SAIDI)	115.9	219.0	139.2	147.7
	System Average Interruption Frequency Index (SAIFI)	1.0	1.4	1.3	1.4
	Customer Average Interruption Duration Index (CAIDI)	114.8	161.2	109.6	108.6

Activity metrics		2020	2019	2018	2017
EU-000.A	Average active customer connections				
	Residential	262,100	227,200	225,200	223,200
	Commercial and industrial	42,200	38,100	37,800	39,200
EU-000.B	Total electricity delivered (MWh)				
	Residential	2,485,900	2,488,100	2,535,100	2,320,100
	Commercial and industrial	3,406,000	3,944,500	3,988,900	3,523,100
EU-000.C	Length of transmission lines (km)	2,279	2,287	2,128	2,028
	Length of distribution lines (km)	13,616	13,383	11,932	11,696

## Activity metrics (continued)

		2020	2019	2018	2017
	Total electricity generated (MWh)	9,499,073	9,477,090	9,754,000	9,380,000
EU-000.D	Coal	0.0%	8.7%	8.6%	10.5%
	Natural gas	48.8%	43.1%	44.9%	41.6%
	Diesel	0.9%	0.0%	0.0%	0.0%
	Hydropower	5.7%	6.0%	6.0%	6.7%
	Solar	4.2%	3.7%	3.3%	2.2%
	Wind	40.3%	38.5%	37.1%	39.0%
	Percentage in regulated markets	49.7%	51.9%	-	-
EU-000.E	Total wholesale electricity purchased (MWh)	2,194,326	1,910,416	2,057,114	1,956,293

## Gas utilities and distributors

### Energy affordability

		2020	2019	2018	2017	
GU-240a.1	Average retail gas rate by customer type (\$/MMBtu)	Residential	11.18	12.35	12.11	12.62
		Commercial and industrial	6.41	6.48	9.73	8.92
		Transportation	1.01	0.85	1.52	1.50
GU-240a.3	Number of residential disconnections (non-payment)	6,228	17,333	-	-	
	Percentage reconnected within 30 days	55%	53%	-	-	

GU-240a.4 Discussion of impact of external factors on customer affordability of gas, including the economic conditions of the service territory

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### End-use efficiency

		2020	2019	2018	2017
GU-420a.1	Percentage of gas utility revenues from rate structures	86%	86%	-	-
	Decoupled Lost revenue adjustment mechanism (LRAM)	0%	0%	-	-
GU-420a.2	Customer gas savings – efficiency measures (MMBtu)	195,890	198,690	179,235	141,716

## Integrity of gas delivery infrastructure

		2020	2019	2018	2017
GU-540a.1	Number of reportable pipeline incidents	12	7	2	5
	Number of corrective action orders (CAO)	1	0	0	0
	Number of notices of probable violation (NOPV)	13	15	5	18
GU-540a.2	Distribution pipeline that is cast/wrought iron (%)	1.60%	2.05%	2.41%	2.58%
	Distribution pipeline that is unprotected steel (%)	0.94%	1.41%	1.63%	1.98%
GU-540a.3	Gas transmission pipelines inspected (%)	48.7%	23.3%	0.9%	23.2%
GU-540a.4	Description of efforts to manage the integrity of gas delivery infrastructure, including risks related to safety and emissions	S 36 Net-zero by 2050: Transitioning to a low-carbon economy and managing our emissions S 67 Infrastructure investment and resiliency S 74 Risk management AR 60 Enterprise Risk Management T 16 Climate change risk control and mitigation			

## Activity metrics

		2020	2019	2018	2017	
GU-000.A	Average active customer connections					
		Residential	317,100	303,100	288,700	287,100
		Commercial and industrial	37,700	35,600	31,700	31,700
GU-000.B	Gas delivered (MMBtu)					
		Residential	21,214,000	20,213,000	20,065,000	17,621,000
		Commercial and industrial	22,032,000	15,676,000	14,529,000	12,672,000
GU-000.C	Length of transmission pipelines (km)	19.8	20.9	18.2	18.3	
	Length of distribution pipelines (km)	13,485.7	12,276.4	11,640.7	11,689.6	

## Water utilities and services

### Energy management

			2020	2019	2018	2017
WU-130a.1	Energy consumption	Total energy consumed (GJ)	292,726	225,430	-	-
		Percentage grid electricity	93.0%	91.0%	-	-

### Distribution network efficiency

			2020	2019	2018	2017
WU-140a.1	Water main replacement rate		0.050	0.011	0.015	0.016
WU-140a.2	Volume of non-revenue real water losses (ML)		7,600	7,420	6,258	6,496

### Effluent quality management

			2020	2019	2018	2017
WU-140b.1	Number of incidents of non-compliance associated with water effluent quality permits, standards, and regulations		7	-	-	-

WU-140b.2 Discussion of strategies to manage effluents of emerging concern

While contaminants of emerging concern (CECs) are currently not regulated, Algonquin may address these concerns in its wastewater effluents on a case-by-case basis through education, recycling, new technologies, and limiting the source of the constituent.

### Water affordability and access

			2020	2019	2018	2017
WU-240a.1	Average retail water rate (\$/100 CCF)	Residential	0.5	0.06	0.03	0.04
		Commercial and Industrial	0.3	0.04	0.04	0.03
WU-240a.3	Number of residential disconnections (non-payment)		1,973	8,280	-	-
	Percentage reconnected within 30 days		80%	90%	-	-

WU-240a.4 Discussion of impact of external factors on customer affordability of water, including economic conditions of the service territory

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### Drinking water quality

			2020	2019	2018	2017
WU-250a.1	Number of drinking water violations	Acute health-based	0	-	-	-
		Non-acute health-based	0	-	-	-
		Non-health-based	1	-	-	-

Drinking water quality (continued)

**WU-250a.2** Discussion of strategies to manage drinking water contaminants of emerging concern

Algonquin's regulated subsidiary, Liberty Utilities, is committed to protecting public health and meets or surpasses all state and federal health standards for tap water in the communities where it does business. To help advance the science of drinking water, we have been collecting data for the EPA since the Unregulated Contaminant Monitoring Rule was enacted. Collecting information about the occurrence of unregulated compounds is the first step in the EPA's efforts to determine whether they should be regulated. Water quality is at the foundation of our regulated water utility business and we act proactively, in advance of proposed regulations, to ensure the health and safety of our customers.

End-use efficiency

	2020	2019	2018	2017
<b>WU-420a.2</b> Customer water savings from efficiency measures, by market (m <sup>3</sup> )	75,213	89,732	-	-

Water supply resiliency

	2020	2019	2018	2017
<b>WU-440a.1</b> Total water sourced from regions with high or extremely high baseline water stress (ML)	69,033	54,046	68,581	64,586
Percentage purchased from third-party	39%	55%	55%	67%
<b>WU-440a.2</b> Volume of recycled water delivered to customers (ML)	2,191	1,571	1,823	1,397

**WU-440a.3** Discussion of strategies to manage risks associated with the quality and availability of water resources

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Network resiliency and impacts of climate change

	2020	2019	2018	2017
<b>WU-450a.1</b> Wastewater treatment capacity located in 100-year flood zones (m <sup>3</sup> /day)	1,341	829	-	-
<b>WU-450a.2</b> Number of sanitary sewer overflows (SSO)	21	32	16	13
Volume of sanitary sewer overflows (SSO) – (m <sup>3</sup> )	304	505	490	605
Percentage of volume recovered	37.4%	-	-	-



Network resiliency and impacts of climate change (continued)

			2020	2019	2018	2017
WU-450a.3	< 4 Hours	Occurrences	230	220	62	91
		Connections	3,711	949	1,157	2,783
	4 – 12 Hours	Occurrences	13	33	10	14
		Connections	129	197	205	468
	> 12 Hours	Occurrences	0	1	0	1
		Connections	0	12	0	50

WU-450a.4	Description of efforts to identify and manage risks and opportunities related to the impact of climate change on distribution and wastewater infrastructure	S 8	The pathway to net-zero by 2050
		S 44	Climate resiliency and energy efficiency
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Activity metrics

			2020	2019	2018	2017
WU-000.A	Average active wastewater connections		45,300	43,900	42,200	41,000
	Average active water distribution connections		355,500	115,500	112,800	121,400
<b>Total water sourced (ML)</b>			<b>69,033</b>	-	-	-
WU-000.B	Percentage of water sourced by source type	Surface water	7.5%	-	-	-
		Groundwater	78.6%	-	-	-
		Third-party water	13.6%	-	-	-
		Other	0.2%	-	-	-
WU-000.C	Wastewater treated (ML)		9,596	8,850	8,638	8,426
	Water provided (ML)		73,130	57,553	59,897	63,992
WU-000.D	Average volume of wastewater treated per day (m <sup>3</sup> /day)	Sanitary sewer	46,465	-	-	-
		Storm water sewer	-	-	-	-
		Combined sewer	183,540	-	-	-
WU-000.E	Length of water mains (km)		3,208	3,976	3,594	3,522
	Length of sewer pipes (km)		980	1,037	1,034	953

5 WU-130a.1, WU-140b.1, WU-250a.1, WU-440a.1, WU-000.A, WU-000.B, WU-000.C, WU-000.D include 2020 acquisitions.

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