

**OEB STAFF CLARIFICATION QUESTION 1**

1-Staff-4

**PREAMBLE:**

The IESO explained the following variances (Four Pension and OPEBs Variances) in response to an interrogatory:

1. **2022 Actual versus 2022 OEB Approved** – \$4.4 million higher in 2022 Actual for pension and OPEB
  - **Primarily due to a one-time OPEB adjustment of \$4.4 million** for plan changes to health and dental benefits that were granted by an arbitrator as part of collective agreement settlement
2. **2023 Budget versus 2022 Actual** – **\$1.4 million** lower pension and OPEB expense projection o Primarily driven by amortization of 2022 actuarial gains that start in 2023 (**excluding the above noted \$4.4 million adjustment**)
3. **2024 Budget versus 2023 Budget** – actuarial projected **\$1.8 million increase** of pension and OPEB liability
  - Mostly driven by higher service and interest costs
4. **2025 Budget versus 2024 Budget** – **\$3.7 million increase** in actuarial projected pension and OPEB liability
  - Mostly driven by higher service and interest costs, in addition to amortization of actuarial losses beginning in 2025

In this same interrogatory response, the IESO also provided Table 1 which showed dollar and percentage variances between 2022 Actual versus 2022 OEB Approved, 2023 Budget versus 2022 Actual, 2023 Budget versus 2022 OEB Approved, 2024 Budget versus 2023 Budget, and 2025 Budget versus 2024 Budget.

However, OEB staff was unable to reconcile the dollar and percentage changes in Table 1 to the changes listed above regarding the Four Pension and OPEBs Variances.

**QUESTION(S):**

a) Please reconcile the Four Pension and OPEBs Variances to the dollar and percentage variances shown in Table 1, specifically:

- 2022 Actual versus 2022 OEB Approved
- 2023 Budget versus 2022 Actual
- 2023 Budget versus 2022 OEB Approved
- 2024 Budget versus 2023 Budget
- 2025 Budget versus 2024 Budget

b) If there are any dollar and percentage variances in Table 1 that cannot be reconciled to the Four Pension and OPEBs Variances, please explain, including any drivers.

c) Please also quantify and explain the variance of 2023 Budget versus 2022 OEB Approved and also reconcile to Table 1 as presented in the interrogatory response.

## RESPONSE

a. See Table 1 below for the reconciliation between Table 1 in response to 1-OEB STAFF 4d) and the variances listed in Exhibit D-1-1, p. 4-6.

b. The Four Pension and OPEB variances are reconciled, except for 2024 Budget vs 2023 Budget due to error in number presented in the variance described in Exhibit D/Tab 1/Schedule 1/p.5. Table 2 below is the corrected table.

c. The variance between the 2023 Budget and the 2022 OEB Approved is \$1.7 million lower Pension and OPEB operating expenses, driven primarily by higher return on plan assets and amortization of net actuarial gains, as well as higher discount rate associated with higher interest rates.

**Table 1 – OEB Clarification 1 – Reconciliation of Four Pension and OPEBs Variances**

Included in OMA and Capital (\$000's)	2022 OEB Approved	2022 Actual	2023 Budget	2024 Budget	2025 Budget	2022 Actual vs 2022 OEB Approved	2023 Budget vs 2022 Actual	2023 Budget vs 2022 OEB Approved	2024 Budget vs 2023 Budget	2025 Budget vs 2024 Budget
Pension	10,203	8,368	9,557	11,004	13,678	(1,835) -18%	1,189 14%	(646) -6%	1,447 15%	2,674 24%
OM&A	9,037	7,186	8,377	9,593	12,316	(1,850) -20%	1,191 17%	(659) -7%	1,216 15%	2,723 28%
Capital	1,167	1,182	1,180	1,411	1,362	15 1%	(2) 0%	14 1%	231 20%	(49) -3%
Other Benefits (OPEB)	8,615	15,040	8,022	8,965	9,721	6,425 75%	(7,019) -47%	(594) -7%	944 12%	756 8%
OM&A	7,628	13,569	6,584	7,798	8,746	5,941 78%	(6,985) -51%	(1,044) -14%	1,214 18%	948 12%
Capital	988	1,471	1,438	1,168	976	484 49%	(33) -2%	450 46%	(270) -19%	(192) -16%
Total included in IESO Usage Fee and Capital	18,818	23,408	17,579	19,969	23,399	4,590 24%	(5,830) -25%	(1,240) -7%	2,390 14%	3,430 17%
Pension/OPEB - Other Segments (OM&A)	1,519	1,522	1,622	1,534	1,760	3 0%	101 7%	104 7%	(88) -5%	226 15%
Total IESO Pension and OPEB	20,337	24,930	19,201	21,503	25,159	4,593 23%	(5,729) -23%	(1,136) -6%	2,302 12%	3,656 17%
<b>Reconciliation of Variance between 1-OEB 4d Table 1 and Exhibit D / Tab 1/ Schedule 1/ p.4-6:</b>						302 2%	65 0%	567 3%	(128) -1%	(15) 0%
Capital and Other Segments (not part of Revenue Requirement/OM&A)						4,400 22%	(4,400) -18%	0%	0%	0%
One-time OPEB adjustment in OM&A 2022 Actuals						(309) -2%	(1,394) -6%	(1,703) -8%	2,430 13%	3,671 17%
Other changes in Pension and OPEB in OM&A (actuarial gains/service costs/interests)						4,593 23%	(5,729) -23%	(1,136) -6%	2,302 12%	3,656 17%
<b>Total Variance</b>						4,593 23%	(5,729) -23%	(1,136) -6%	2,302 12%	3,656 17%

**Table 2 - OEB Clarification 1 – Correct 2024 OM&A Expenses Breakdown**

<b>Table 4: 2024 OM&amp;A Expenses</b>	
<b>(\$ Millions)</b>	<b>2024</b>
<b>2023 Budget OM&amp;A Expenses</b>	<b>197.3</b>
Incremental costs to support key initiatives:	4.7
<i>MRP - ongoing operations of new functions</i>	<i>1.1</i>
<i>Resource and Transmission Adequacy</i>	<i>2.4</i>
<i>Enabling Resources</i>	<i>0.1</i>
<i>Stengthening Engagement</i>	<i>0.4</i>
<i>Sustaining Technology, Evolving Processes and Tools</i>	<i>0.4</i>
<i>Other initiatives</i>	<i>0.4</i>
Collective agreements/escalations	2.8
Higher employee pension and OPEB benefits expenses	2.4
MRP support for market rules amendments, manuals and change management	(0.9)
Various other	0.3
<b>2024 Budget OM&amp;A Expenses</b>	<b>206.6</b>



- 1 b) Please quantify the above-noted "actions taken to mitigate elevated attrition rates  
2 experienced at the IESO as a result of rising salaries in the market".
- 3 c) Please explain why the aggregated impacts noted in part a) and b) of this question were  
4 quantified as \$15.8 million in 3-Staff-18, but \$7.0 million in 1-Staff1.
- 5 d) Please explain why the IESO is making benefit enhancements (including to OPEBs) and  
6 increasing salaries for its employees, of amounts of \$4.4 million and \$15.8 million/ \$7.0  
7 million (as noted above), when it has agreed to make progress towards reaching the 50th  
8 percentile for total compensation.

9 **RESPONSE**

- 10 a. The impact in 2023 of recognizing the present value of benefit enhancements included  
11 in the collective agreement that was settled in Q1 2023, is \$13 million  
12
- 13 b. The projected impact in 2023 from actions taken to mitigate elevated attrition rates  
14 experienced at the IESO because of rising salaries in the market, is \$3.5 million  
15
- 16 c. The aggregated impacts noted in part a) and b) of this response were not quantified at  
17 \$15.8 million but rather identified as the main drivers of the variance. In response to 1-  
18 OEB staff - 1b, the IESO explained that the \$7 million forecasted higher expenses to  
19 budget is driven by the impacts explained in answer a) and b) above, and the partial  
20 offset of delays in hiring to the planned headcount, higher interest income and lower  
21 than expected amortization.  
22
- 23 d. The benefit enhancements are an outcome of collective agreement arbitrated awards;  
24 the impact being recognized in 2022 and 2023 corresponds to the present value of the  
25 future post-employment benefit enhancements. The recognition of future benefits in the  
26 year when the collective agreement is signed is in accordance with the Public Sector  
27 Accounting Board (PSAB). Similarly, most of the 2023 impact from actions aimed to  
28 mitigate elevated attrition rates and attract talent needed for the IESO to achieve its  
29 strategy and business plan, is due to the recognition of the present value of future  
30 enhancements in accordance with PSAB.  
31

32 The IESO remains committed to reaching the 50th percentile for total compensation. As  
33 noted in the responses to 1.0 OEB Staff Interrogatory 1 b, 1.0 ED Interrogatory 8, and  
34 1.0 EDA Interrogator 3a, in 2022 the IESO has experienced higher attrition rates than

1 those experienced historically due to a competitive labour market and has taken actions  
2 to mitigate them to ensure the IESO can attract and retain talent needed to achieve its  
3 strategy and business plan. The Non-Executive Total Remuneration Review, filed as D-3-  
4 1 Attachment 3 is dated February 18, 2022, is not reflective of current market conditions  
5 as it is point-in-time. Therefore, the IESO's next total remuneration review, to be  
6 undertaken in 2024, will be a more accurate reflection of the IESO's progress towards  
7 the 50th percentile for total compensation.  
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**OEB STAFF CLARIFICATION QUESTION 4**

OEB Staff 4

**QUESTION(S):**

In relation to OEB Staff Clarification 2 part a) related to OEB 1-Staff 3- the present value of benefit enhancements settled in Q1 2023, can IESO confirm if they will be recorded in the FVDA Q2 2023?

**RESPONSE**

The variances resulting from the present value of the benefit enhancements settled in Q1 2023 will be recorded at the end of Q2 2023 and will flow through the FVDA. These variances have been included in the forecast FVDA as of December 31, 2023 as described in the response to OEB Staff 3.



**OEB STAFF CLARIFICATION QUESTION 5**

OEB Staff 5

**QUESTION(S):**

If the IESO had to revise the year 4 usage fee, would it apply for a new usage fee or an additive rate rider (incremental to the year 3 usage fee)

**RESPONSE**

The IESO would contemplate a revised usage fee rather than a rate rider.

1                                    **SEC CLARIFICATION QUESTION 1**

2    **CLARIFICATION**

3    1.1-SEC-4

4    **QUESTIONS:**

5            a) Please respond to the interrogatory as posed and provide a full copy of the survey  
6            results as requested.

7    **RESPONSE**

8            a) Please see the 2022 IESO Stakeholder and Community engagement survey

# STAKEHOLDER & COMMUNITY SURVEY

2022 Annual Survey

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Presentation of findings

January 2023

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# METHODOLOGY & OBJECTIVES

# Research Objectives

Ipsos was commissioned by the IESO to conduct the 2022 Stakeholder and Community Survey. The primary audience for the survey were stakeholders who had engaged with the organization in the previous year.

The objectives of the research were to:

- Measure and track performance on key metrics compared to 2021;
- Assess overall impressions of the IESO and the organization's reputation;
- Measure satisfaction with and effectiveness of IESO's engagement process;
- Determine the factors most important to driving impressions of trust in the IESO and satisfaction with stakeholder engagement.

# Survey Methodology

- A mixed-method online and telephone survey was conducted among the IESO's stakeholders.
- A total of 414 stakeholders completed the survey (148 completed online and 266 completed by telephone) of the 3,424 invited to participate. This represents a response rate of 12% which was lower than previous years (23% in 2021, 19% in 2020) but consistent with industry standards (which range between 10-15% for similar studies).
- The list of stakeholders was provided by the IESO and included those who had participated in engagement activities in the previous year.
- Fieldwork was conducted between September 19 and October 25, 2022.

Stakeholder Type	Completes
Distributor/Transmitter	74
Emerging Technology Provider	21
Energy Services Provider	43
Environmental Advocacy	31
Generator	55
Indigenous	32
Large Consumer	39
Municipal Government	54
Other Government	12
Other*	44
Don't know	9
<b>Total</b>	<b>414</b>

\*stakeholders were allowed to provide an other 'specify' open-ended response. Those who could not be placed into one the stakeholder type categories provided were grouped as 'other'.

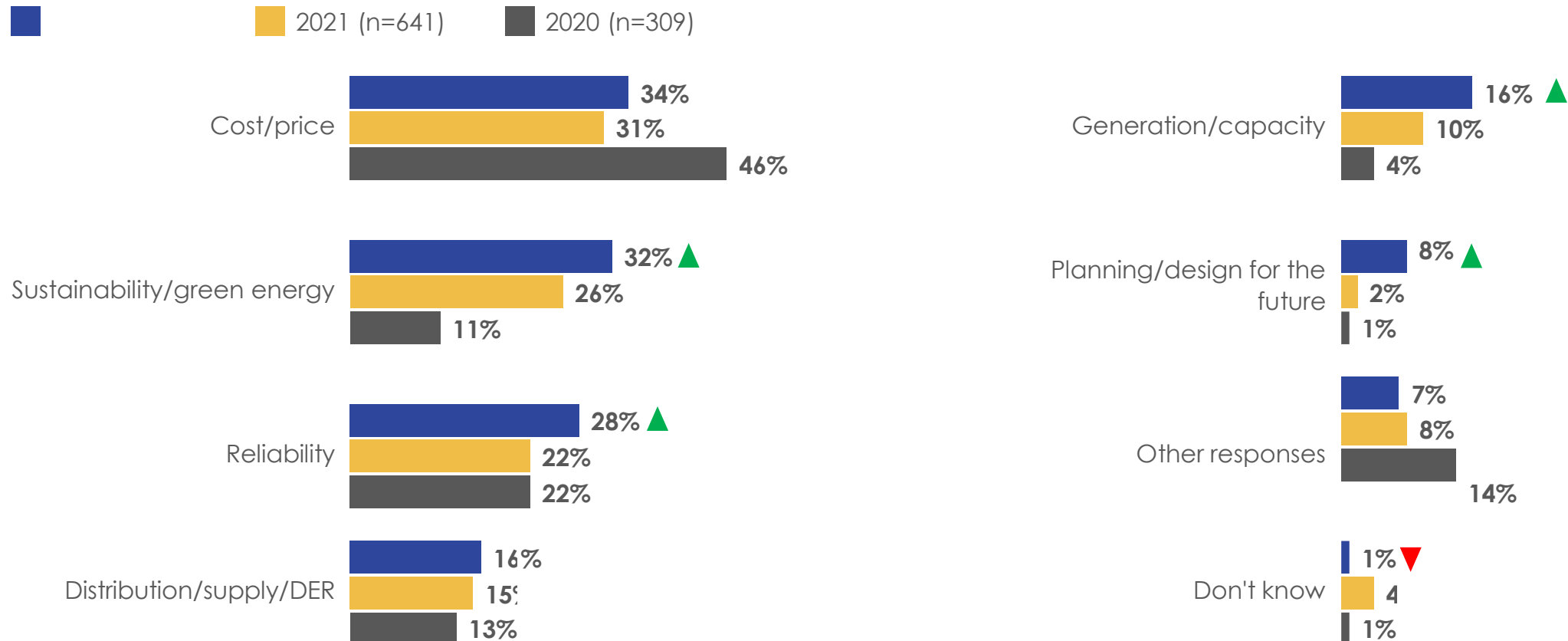


# IMPRESSIONS OF ELECTRICITY SECTOR

# Most Pressing Issues Related to Electricity System

Cost/price remains the most pressing issue related to the electricity system, followed closely by sustainability/ green energy and reliability. Other common issues include distribution/supply/DER and generation capacity.

The importance of sustainability (32%; +6 pts vs. 2021), reliability (28%; +6 pts), generation/ capacity (16%; +6 pts) and planning/ design for the future (8%; +6 pts) have all increased compared to 2021.



Note: Only Total responses of 7% or more are shown.

Q1. What are the most important and pressing issues for your organization [for Indigenous say 'communities like yours'] as it relates to the electricity system in Ontario?

Base: All respondents (n=398)





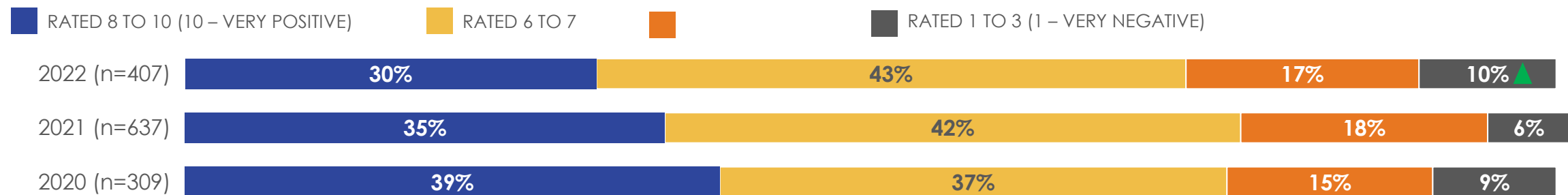
# Impression of Electricity System in Ontario

Three in ten (30%) stakeholders have a very positive impression of the current state of the electricity system, four in ten (43%) a soft positive impression, two in ten (17%) a soft negative impression and one in ten (10%) a negative impression.

Compared to 2021, a greater proportion of stakeholders have a negative impression while directionally fewer hold a very positive impression and notably, positive ratings of the electricity system have been gradually softening since 2020.

## Overall Impression of the Current State of Electricity System in Ontario

ON A 10-PT SCALE WHERE 1 MEANS VERY NEGATIVE AND 10 MEANS VERY POSITIVE



	TOTAL		Distributor/ Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	637	407	98	72	36	21	72	42	35	31	87	54	47	31	64	39	64	54	25	11	106	43
Rated 8 to 10 (10 – very positive)	35%	30%	45% DH	36%	39%	29%	40%	24%	26%	32%	36%	26%	32%	23%	34%	31%	25%	37%	16%	18%	36%	30%
Rated 4 to 7	59%	60%	52%	56%	56%	63%	54%	67%	60%	46%	60%	70%	64%	71%	59%	64%	66%	57%	80%	54%	59%	52%
Rated 1 to 3 (1 – very negative)	6%	10% ▲	3%	8%	6%	10%	6%	10%	14%	23% AEGH	5%	4%	4%	6%	6%	5%	9%	6%	4%	27%	5%	19% EH

Note: Those mentioning "don't know" were not included in the analysis.

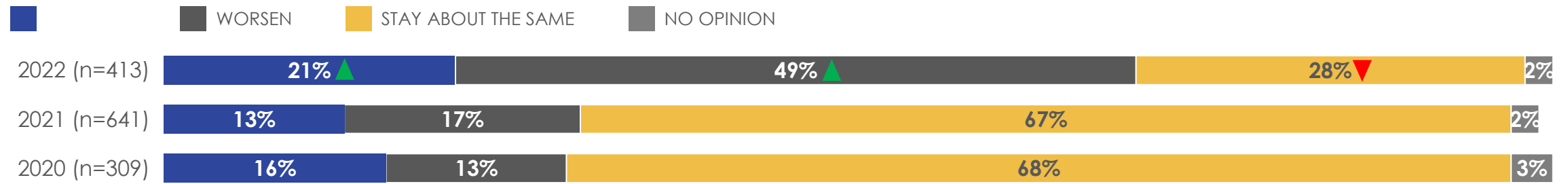
Q2. What is your overall impression of the current state of electricity system in Ontario? Using a scale from 1 to 10, where 1 is 'Very negative' and 10 is 'Very positive'.

Base: All respondents (n=407)

# Expected State of Electricity System in Ontario Over Next Year

At nearly half (49%), most stakeholders expect the electricity system to worsen over the next year while two in ten (21%) anticipate things will improve and nearly three in ten (28%) that the system will stay the same. Year over year, a much higher proportion of stakeholders expect things to worsen (+32 pts) while there has also been an increase in those who feel it will improve (+8 pts). Fewer anticipate things will stay the same (-39 pts). With the exception of Indigenous stakeholders, all other types are more likely to expect the state of the electricity system in Ontario to worsen over the next year.

## Expectation of the State of the Electricity System in Ontario



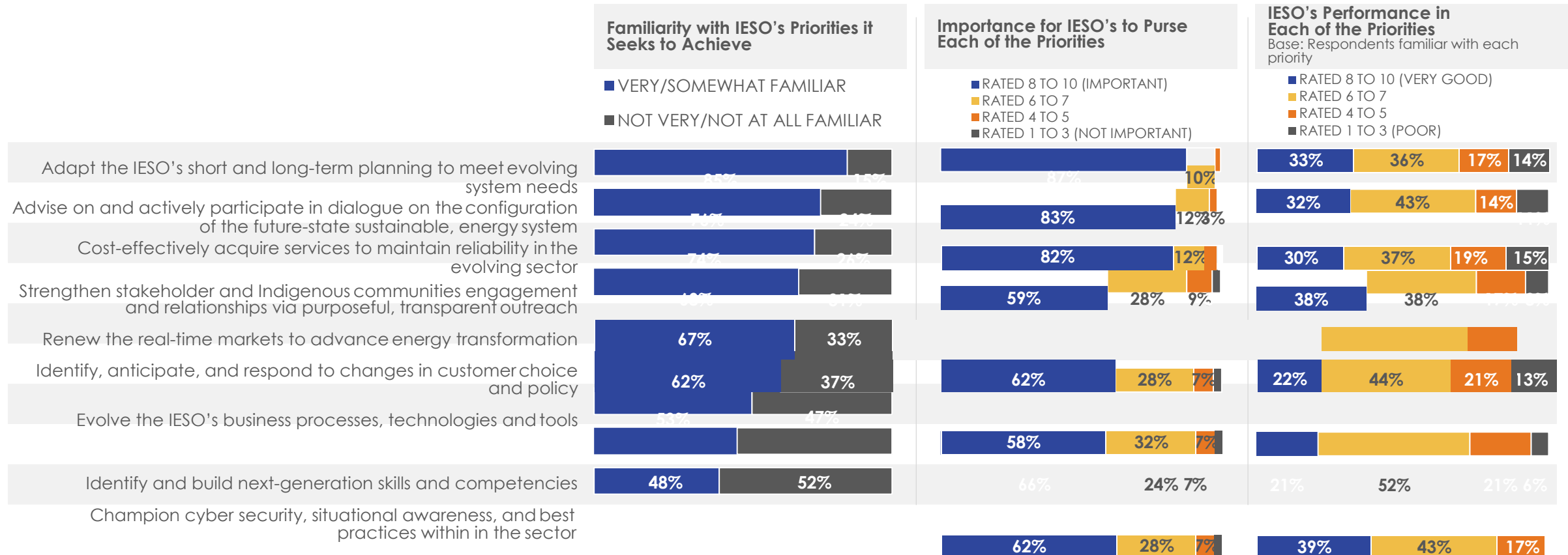
	TOTAL		Distributor/ Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	641	413	98	73	36	21	70	43	33	31	86	55	45	32	64	39	63	54	24	12	121	44
Improve	13%	21% ▲	16% G	29% EJ ▲	17% G	33%	15% G	26%	3%	16%	17% G	11%	19% DG	38% EGJ	5%	13%	11%	24%	12%	-	14% G	11%
Worsen	17%	49% ▲	7%	41% ▲	25% A	52% ▲	18% A	53% F ▲	43% ACEFGHJ	71% AFH ▲	17% A	58% F ▲	17%	22%	16%	51% F ▲	18% A	41% ▲	16%	58% ▲	15%	52% F ▲
Stay about the same	67%	28% ▼	73%	26% ▼	58%	5% ▼	67%	21% ▼	54%	13% ▼	66%	31% ▼	57%	38% D	80% BDFJ	36% D ▼	66%	31% ▼	72%	42%	66%	36% D ▼
No opinion	2%	2%	3%	4%	0%	5%	0%	-	0%	-	0%	-	6% CEG	3%	0%	-	5% E	2%	0%	-	5%	-
Don't know	0%	0%	1%	-	-	5%	-	-	-	-	-	-	-	-	-	-	-	2%	-	-	1%	-

Q3. Over the next 12 months, do you expect the state of the electricity system in Ontario will improve, worsen or stay about the same?  
Base: All respondents (n=413)

# REPUTATION METRICS

# Familiarity, Importance, Performance of IESO Priorities

A strong majority are familiar with most priorities, however fewer are aware of the focus on evolving the IESO's process, technologies and tools, identifying and building the next-generation skills and championing cyber security. By far the most important priorities are for adapting the IESO's short and long-term planning, advising and actively participating in dialogue on the future energy system, and cost-effectively acquiring services to maintain reliability. Performance ratings across each priority are largely neutral- ratings are highest for cyber security and strengthening stakeholder and Indigenous community engagement and lowest for evolving the IESO's process, technologies and tools, building the next-generation competencies and identifying, anticipating and responding to changes in customer choice.



Note: Those mentioning "don't know" were not included in the analysis. Values 2% or less not shown.

Q4. The IESO has a number of priorities it seeks to achieve for the electricity system in Ontario. How familiar are you with each of the following priorities as it relates the IESO? Base: 2022 (n=base varies)

Q5. And, how important do you feel it is for the IESO to pursue each of the following priorities for the electricity system in Ontario? Using a scale from 1 to 10, where 1 is 'Not at all important' and 10 is 'Very important'.

Base: 2022 (n=base varies)

Q6. And, how do you think the IESO is performing in each of the following priorities? Using a scale from 1 to 10, where 1 is 'Poor' and 10 is 'Very good'. Base: Stakeholders who are familiar with each priority Base: 2022 (n=base varies)



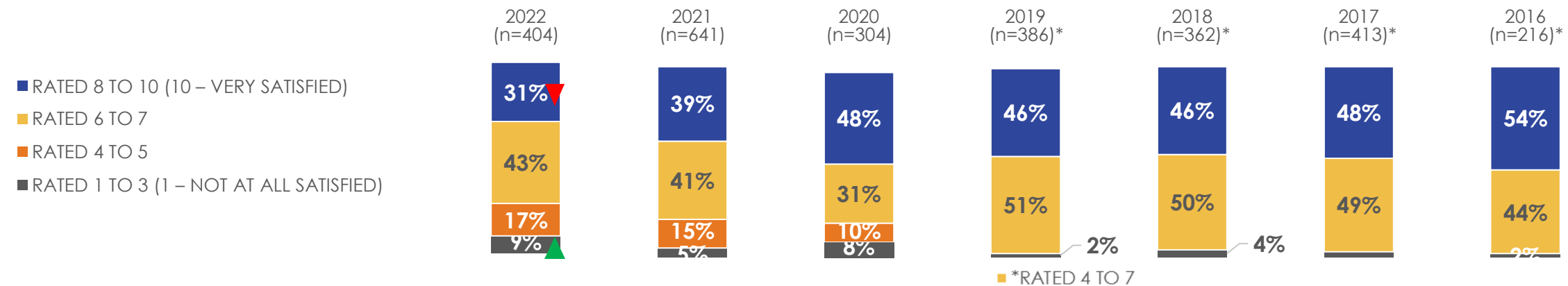


# Overall Satisfaction

Three in ten stakeholders (31%; -8 pts) have high satisfaction with the IESO's overall performance, four in ten (43%, +2 pts) have a soft positive impression, around two in ten (17%, +2pts) a soft negative impression, while 9% are not satisfied (+4 pts). Satisfaction is highest among Indigenous stakeholders and lowest among other government stakeholders and environmental advocacy groups. Year-over-year, fewer express a high degree of satisfaction, while a greater proportion are dissatisfied. The decline is driven primarily by lower ratings among energy service providers (dissatisfied: 18%; +14 pts)

## Overall Satisfaction with the IESO Organization

ON A 10-PT SCALE WHERE 1 MEANS NOT AT ALL SATISFIED AND 10 MEANS VERY SATISFIED



2022	TOTAL		Distributor/ Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	641	405	98	72	36	21	70	40	33	31	86	54	45	32	64	39	63	54	24	10	121	43
Rated 8 to 10 (10 – very satisfied)	39%	31%	43% D	36%	33%	33%	46% D	35%	14%	19%	39% D	28%	51% D	53% DEJ	39% D	31%	34%	31%	24%	-	44% D	28%
Rated 4 to 7	55%	58%	51%	60%	56%	58%	50%	47%	66%	68% F	54%	59%	49%	43%	58%	65%	65%	60%	72%	80% F	51%	60%
Rated 1 to 3 (1 – not at all satisfied)	5%	9%	5%	4%	11% FH	10%	4%	18% AG	17% AFGH	13%	7%	13%	0%	3%	3%	3%	2%	9%	4%	20%	5%	12%

Note: Those mentioning "don't know" were not included in the analysis.

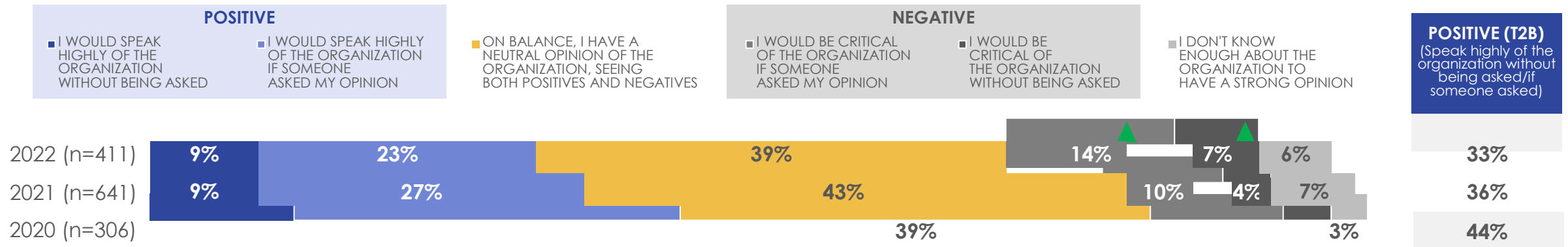
Q7. Based on your experience, how satisfied are you with the IESO's overall performance? Please use a 10-point scale where 1 means you are not at all satisfied and 10 means you are very satisfied with the IESO.

Base: All respondents (n=404)

# Advocacy

One-third (33%) of stakeholders would speak positively on behalf of the IESO, over four in ten (43%) hold a neutral opinion and two in ten (21%) would speak negatively. Advocacy is strongest among emerging tech providers, distributors and Indigenous stakeholders and weakest among environmental advocacy groups. Compared to 2021, opinions are more negative, and a higher proportion would be critical if asked (14%; +4 pts vs. 2021) or would be critical unprompted (7%; +3 pts) with much of the increase in negative sentiment being driven by energy service providers and environmental advocacy groups.

## View of the IESO



2022	TOTAL		Distributor/Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	641	411	98	74	36	21	70	42	33	30	86	54	45	32	64	39	63	54	24	12	121	44
<b>TOP2BOX</b> (speak highly of the organization without being asked/ if someone asked)	36%	33%	36% D	45% GJ	31%	52%	53% ABDE GH	33% F	14%	27%	31%	31%	43% D	44% GJ	34% D	21%	26%	30%	36%	17%	43% D	20% F
<b>LOW2BOX</b> (I would be critical of the organization if someone asked my opinion/ without being asked)	14%	21%	11%	16%	28% ACFG HJ	15%	10%	28% F	29% ACFG HJ	50% ABEF GHJ	22% ACFG	23%	2%	3%	9%	13%	11%	19% F	12%	34% F	12%	23% F
I don't know enough about the organization to have a strong opinion	7%	6%	6%	3%	6%	-	3%	7%	3%	-	5%	4%	26% ABCD EGHJ	9%	6%	8%	3%	19% ADEJ	8%	8%	8%	5%

Note: Among non-engaged respondents, this question was only asked of those who were familiar with any of IESO's priorities.  
Q8. Which one of the following statements reflects your view of the IESO?  
Base: All respondents (n=411)

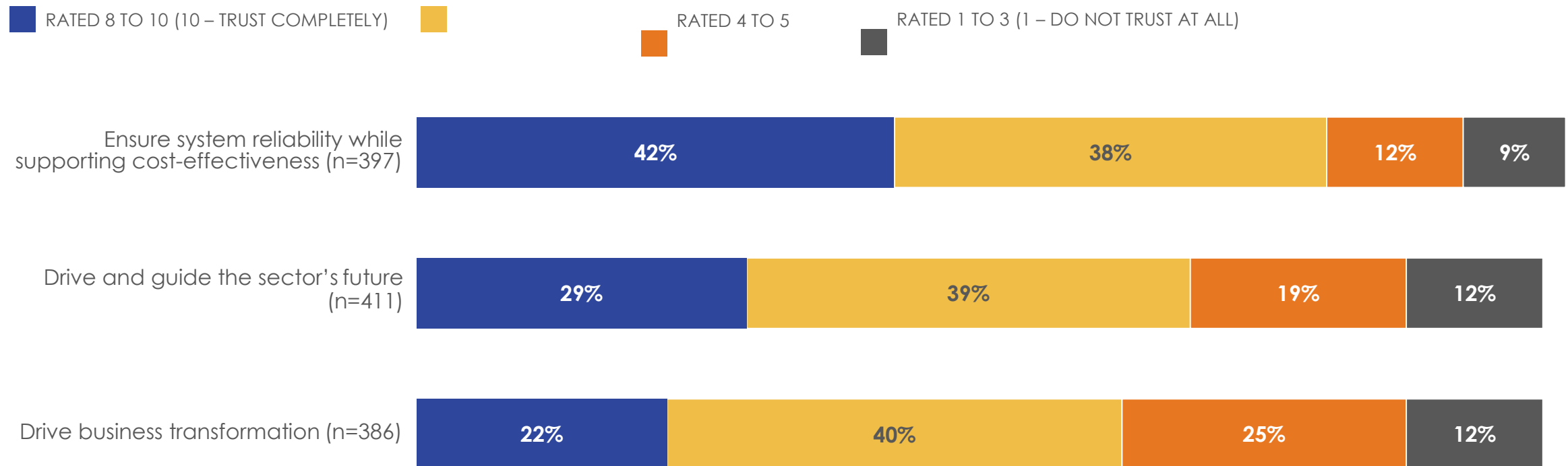


# Trust in IESO

At roughly four in ten (42%), stakeholders are most likely to express a high degree of trust in the IESO to ensure system reliability while supporting cost-effectiveness. Three in ten (29%) trust the IESO to driven and guide the sector's future, followed by closer to two in ten (22%) for driving business transformation.

## Trust in IESO

ON A 10-PT SCALE WHERE 1 MEANS DO NOT TRUST AT ALL AND 10 MEANS TRUST COMPLETELY



Note: Those mentioning "don't know" were not included in the analysis.

Q9. How much do you trust the IESO to do each of the following? Using a scale from 1 to 10, where 1 is 'Do not trust at all' and 10 is 'Trust completely'.

Base: Varies by statement

# Factor(s) With Most Influence on Level of Trust

When asked which factors have the most influence on their level of trust in the IESO, the highest proportion cite transparency (30%) followed closely by perceptions of a lack of communication/ listening (26%). Other common factors include government/ political intervention (16%) and to a lesser extent poor service (8%), cost effectiveness (7%), desire for greater focus on renewable energy (7%) and the implementation of feedback (7%).

## Had Most Influence on Level of Trust in the IESO

2022 (n=376)



Q10. What factors would you say have the most influence on the level of trust that you have in the IESO?  
Base: All respondents(n=376)




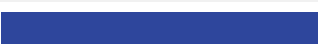









# IESO Performance Objectives

Impressions of the IESO continue to be strongest for operating a reliable system and the expertise of staff. Other areas of relative strength include seeking input from a broad audience of stakeholders and the establishment and enforcement of market rules. Year-over-year, ratings have softened across virtually all objectives and there has been a significant decrease in favourable ratings for operating a reliable electricity system (66%; -9 pts), enforcing market rules (45%; -8 pts), and sharing relevant and valued information and analysis that is used to inform decision-making (34%; -9 pts).

## Performance Objectives (Rated 8 to 10)

ON A 10-PT SCALE WHERE 1 MEANS POOR AND 10 MEANS VERY WELL

		2021	2020	2019	2018	2017	2016
Operating a reliable electricity system	 66% ▼	75%	75%	77%	81%		
Expertise of staff	 55%	60%	62%				
Seeking input from a broad audience of communities, customers and stakeholders	 45%	47%	48%	55%	52%	48%	48%
Establishing market rules for the conduct of market actors that ensure a reliable, and effective electricity system	 45%	44%	48%	52%+	51%+		
Enforcing market rules for the conduct of market actors that ensure a reliable, and effective electricity system	 45% ▼	53%	52%	52%+	51%+		
Providing you with adequate notice of decisions	 37%	40%	44%	43%	40%		
Sharing relevant and valued information and analysis that is used to inform decision-making	 34% ▼	43%	43%	41%	44%	39%	43%
Operating the system in a cost-effective manner	 33%	35%	36%				
Providing you with the rationale for decisions	 29%	32%	35%	32%	35%		
Demonstrating transparency in the decision-making process	 27%	33%	30%				
Acting on input from stakeholders, communities and customers	 25%	29%	32%	31%	33%	33%	30%

Note: Those mentioning "don't know" were not included in the analysis.

+ In 2019 and 2018, the attribute was asked as "enforcing and establishing market rules for the conduct of market actors that ensure a reliable sustainable and effective electricity system".

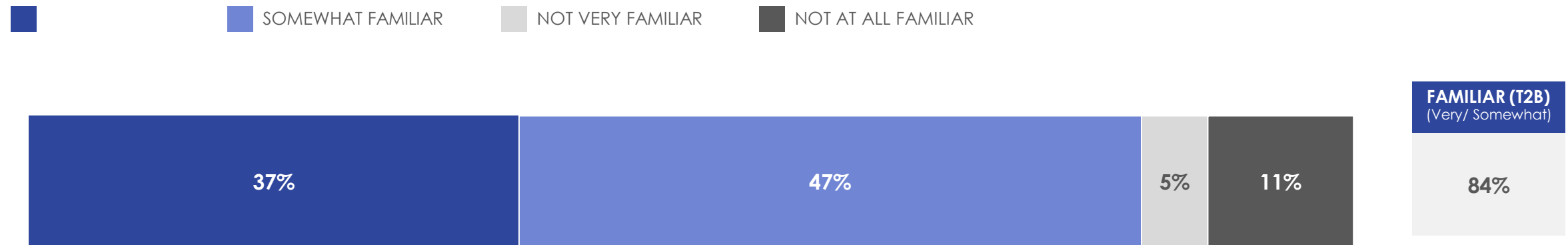
Q11. Thinking about the IESO's corporate decision-making processes and final outcomes, how well has the organization performed in each of the following areas? Using a scale from 1 to 10, where 1 is 'Poor' and 10 is 'Very good'.

Base: 2022 (n=varies by statement); 2021 (n=varies by statement); 2020 (n=306)

# Familiarity With IESO Opportunities (Emerging Technology Providers)

At more than eight in ten (84%), the vast majority of emerging technology providers are at least somewhat familiar with IESO-administered electricity markets and related procurements. Just under four in ten (37%) are very familiar, nearly half (47%) somewhat familiar, while fewer than two in ten (16%) were either not very or not at all familiar.

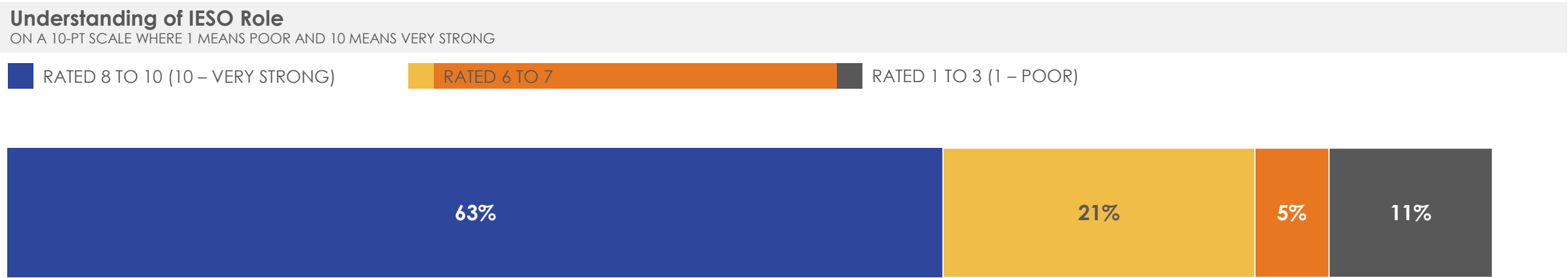
## Familiarity With IESO-Administered Opportunities



Q11a. How familiar are you with opportunities to participate in the IESO-administered electricity markets and related procurements?  
Base: Emergency Technology Provider (n=19)

# Understanding in Role of IESO Procuring Electricity (Emerging Technology Providers)

Nearly two-thirds (63%) of emerging technology providers feel they have a very strong understanding of the IESO's role in procuring electricity to meet Ontario's electricity needs. Two in ten (21%) provide soft positive ratings, while slightly fewer have a weaker understanding (16% rated 5 or lower)



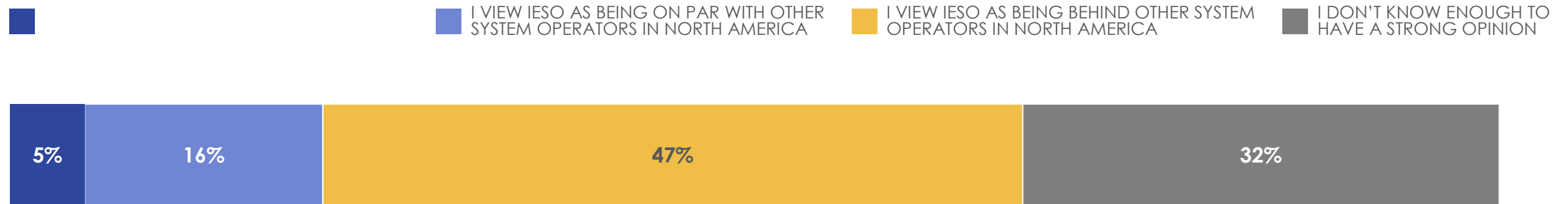
Q11b. How would you rate your understanding of the role of the IESO in procuring electricity to meet Ontario's electricity needs? Using a scale from 1 to 10, where 1 is 'Poor' and 10 is 'Very strong'.  
Base: Emergency Technology Provider (n=19)



# Point of View on IESO's Efforts to Enable Emerging Technologies (Emerging Technology Providers)

At nearly half (47%), most emerging technology providers view the IESO as having fallen behind other system operators in North America. Roughly two in ten (16%) feel the IESO is on par with other system operators in North America, while few (5%) believe it is a leader. Notably, one-third (32%) don't know enough to offer an opinion.

## Point-Of-View on IESO's Efforts to Enable Emerging Technologies



Q11c. And, which of the following is closest to your point of view on the IESO's efforts to enable emerging technologies to contribute to system reliability, affordability and sustainability needs by comparison to other system operators across North America?  
Base: Emergency Technology Provider (n=19)

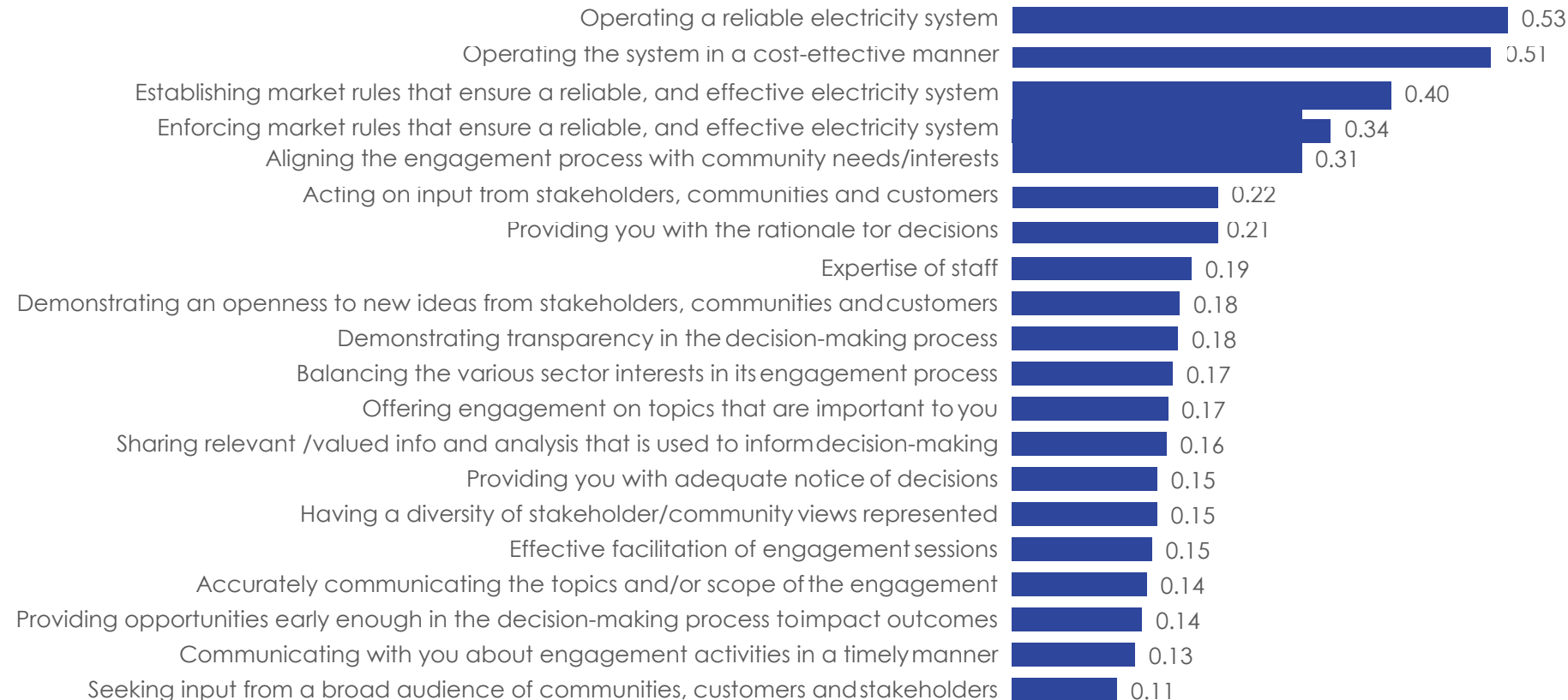
# KEY DRIVERS' ANALYSIS

Understand the Drivers of Trust in IESO



# Impact on Trust in IESO – Drivers Analysis

The most prominent drivers of trust in the IESO are impressions of how well the organization operates a reliable system and in a cost-effective manner. Prominent secondary drivers include the establishment and enforcement of market rules and aligning the engagement process with community needs.

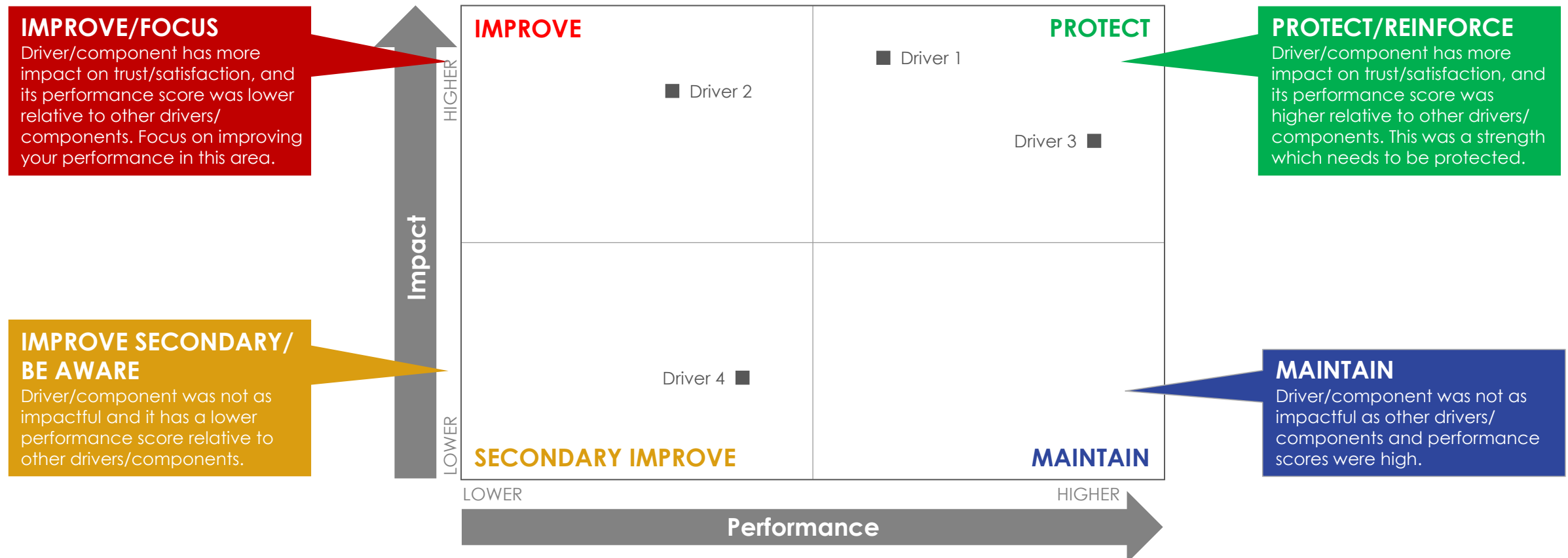


## Interpretation:

Every one-point increase in the given statement on a 10-point scale results in a 0.XX point increase in trust in IESO to ensure electricity availability where and when people need it.

# Priority Matrix – Overview

A priority matrix allows for decision makers to identify priorities for improvement by comparing how well clients feel you have performed in an area with how much impact that area has on the dependent measure (i.e. trust in the IESO or satisfaction with stakeholder engagement). It helps to answer the question 'what can we do to improve/ maintain trust or satisfaction'. Each driver or component will fall into one of the quadrants explained below, depending on its impact on trust or satisfaction and its performance score (provided by survey respondents).



# Priority Matrix (Trust) – Impact vs. Performance

Operating a reliable system remains a core strength for the IESO and an area that should be protected. The establishment and enforcement of market rules are also relative strengths and areas where performance should be protected.

The greatest opportunities to improve trust in the IESO are in building perceptions of how the IESO operates the system in a cost-effective manner and aligning the engagement process with community needs.



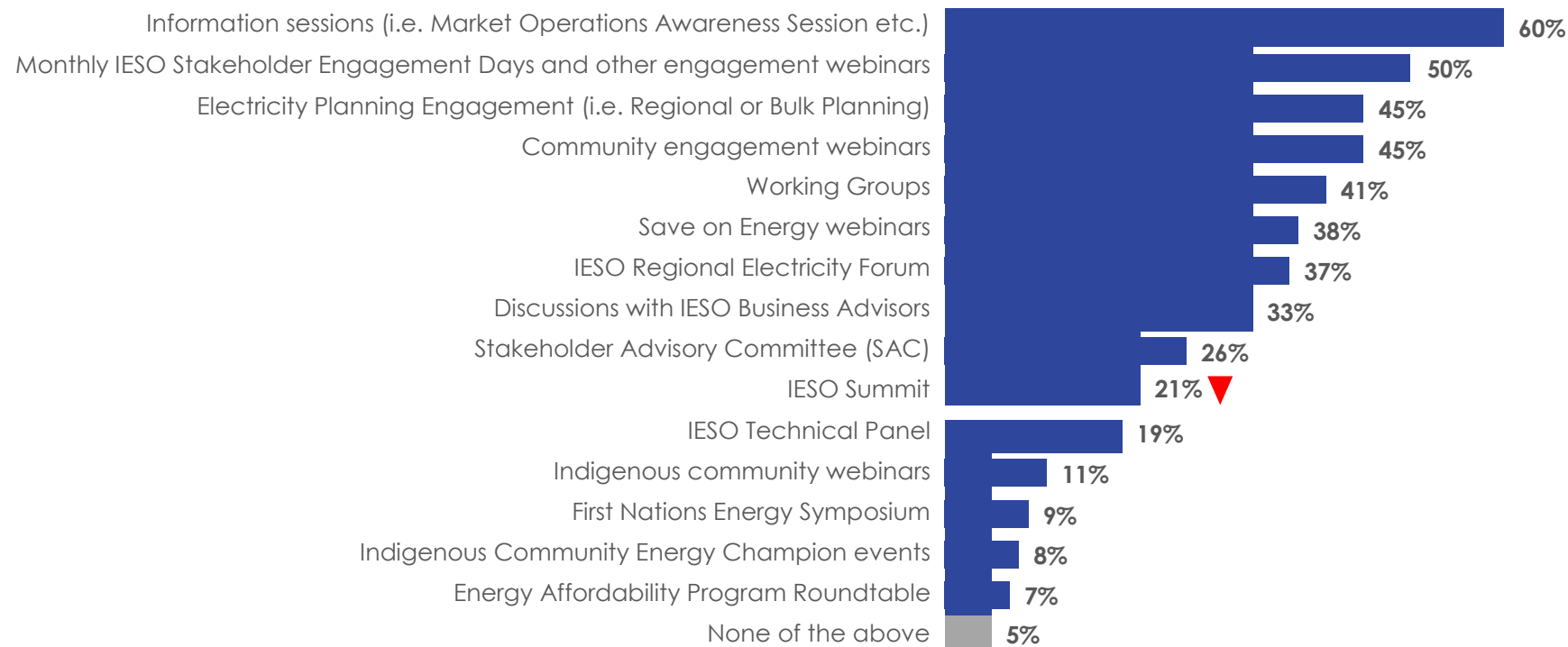


# STAKEHOLDER ENGAGEMENT

# Engagement/Outreach Activities Participation

At six in ten (60%), IESO information sessions are the most common engagement activity stakeholders have participated in, followed by monthly IESO Stakeholder Engagement Days and other engagement webinars (50%), Electricity Planning Engagement (45%) and community engagement webinars (45%). Compared to 2021, fewer indicate having participated in the IESO Summit (21%; -11 pts) .

## IESO Engagement/Outreach Activities Participated In



2021 (n=628)	2020 (n=303)
48%	49%
36%	27%
27%	47%
32%	
18%	29%
9%	14%
6%	

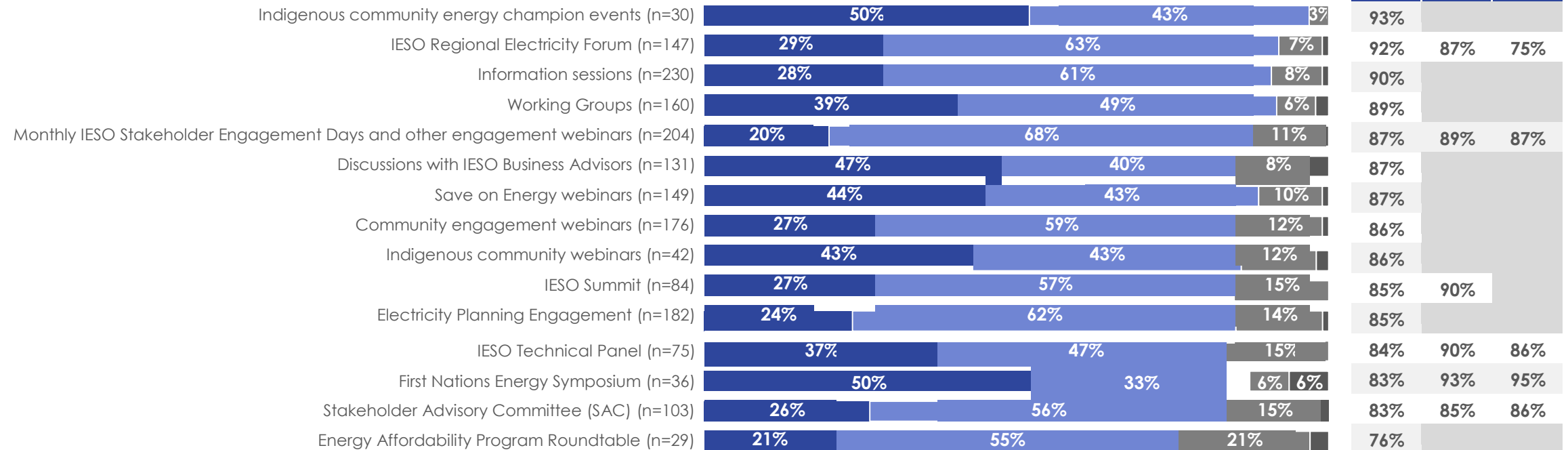
Q12. The following is a list of engagement activities and channels that the IESO uses to engage with communities and stakeholders like yourself. Which of the following IESO engagement/outreach activities have you participated in? (2020: Q15. Which of these channels/programs have you used and/or participated in?)  
Base: All respondents (n=410)

# Effectiveness of IESO's Engagement/Outreach Activities

The vast majority of stakeholders who participated in IESO engagement activities feel they are effective. Notably, half of those who participated in Indigenous community energy champion events (50%), the First Nations Energy Symposium (50%) or discussions with IESO business advisors indicate that they were *very effective*.

## IESO Engagement/Outreach Activities

■ VERY EFFECTIVE
 ■ SOMEWHAT EFFECTIVE
 ■ NOT VERY EFFECTIVE
 ■ NOT AT ALL EFFECTIVE



Note: Those mentioning "don't know" were not included in the analysis.

Q13. How effective are each of the engagement/outreach activities in enabling you to engage with the IESO? Please provide a rating for each activity you have participated in.

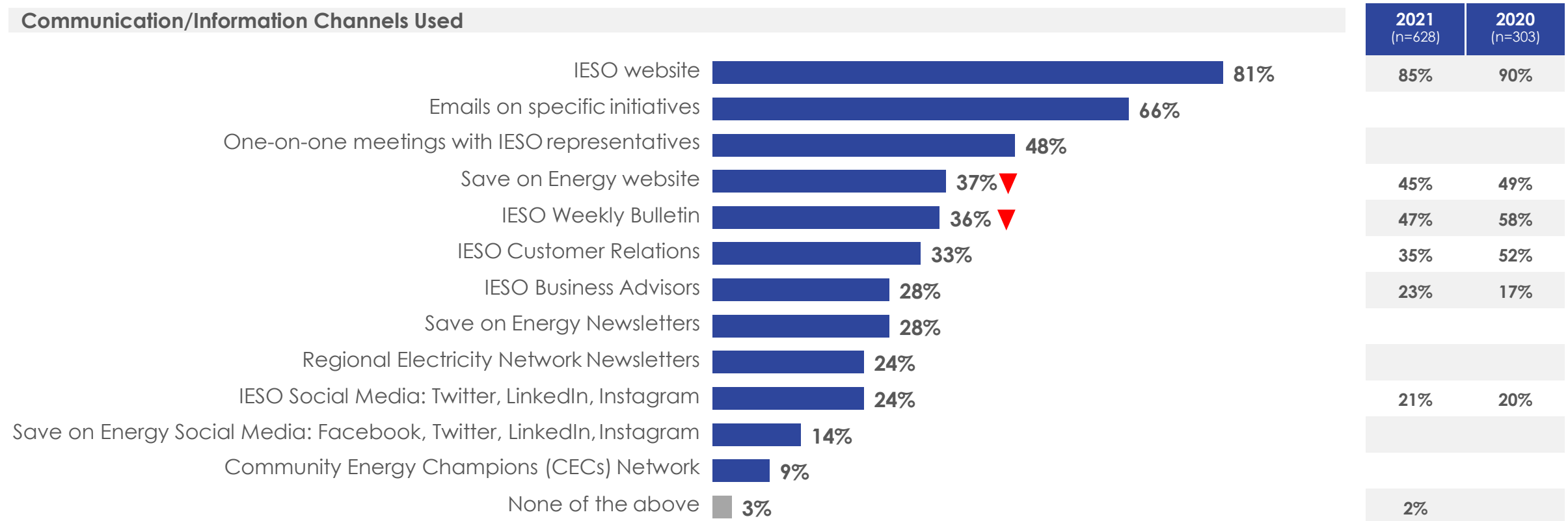
Base: Have participated in activity (varies) Data <5% not shown

# Channel Usage

The IESO website (81%) continues to be by far the most common channel that stakeholders have used, followed by emails on specific initiatives (66%), while nearly half have had one-on-one meetings with IESO representatives (48%).

Compared to 2021, fewer stakeholders report having visited the Save on Energy website (37%; -8 pts) or used the IESO weekly bulletins (36%; -11 pts).

## Communication/Information Channels Used



Q14. Which of the following IESO communication/information channels have you used? Please select all that apply.  
Base: All respondents (n=411)

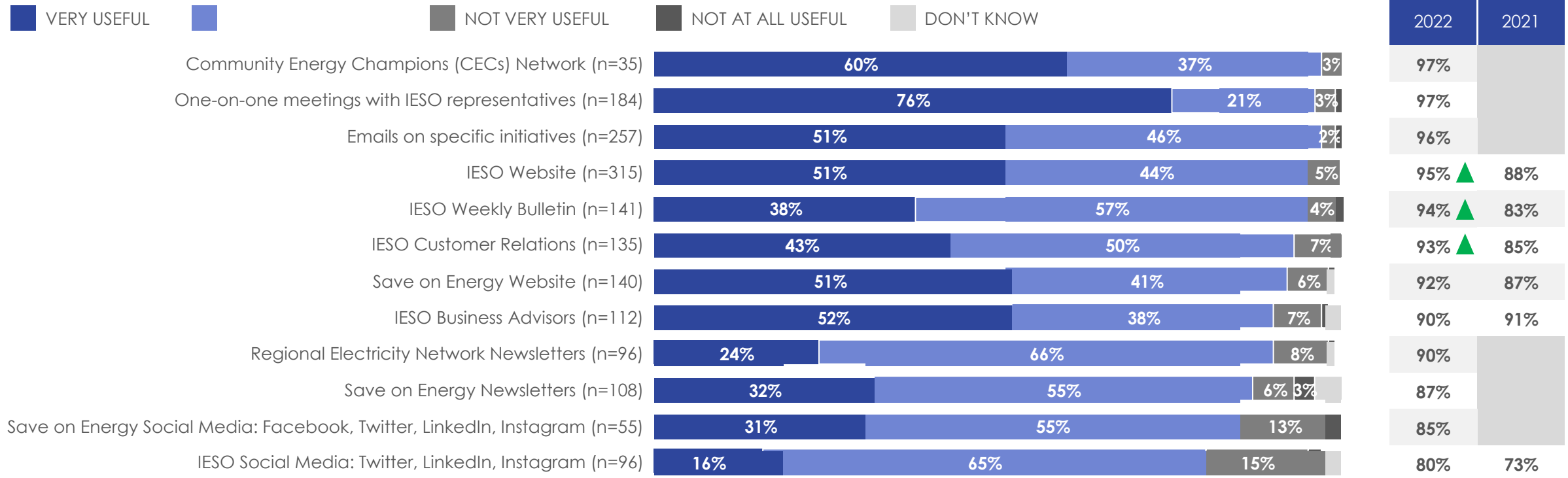


# Usefulness of IESO's Communication/Information Channels

The vast majority of stakeholders who have used the IESO's communication/information channels feel they are useful. Three-quarters (76%) of those who had one-on-one meetings with IESO reps and six in ten (60%) who used the CECs Network feel they were *very useful*.

Compared to 2021, stakeholders are more likely to feel the IESO weekly bulletin (94%; +11 pts), customer relations (93%; +8 pts), and the IESO website (95%; +7 pts) were useful.

## Communication/Information Channels Used



Q15. How useful are these tools in enabling you to communicate with the IESO? Please provide a rating for each channel you used and/or participated in.

Base: Have used/participated in channel (varies) Data <3% not shown

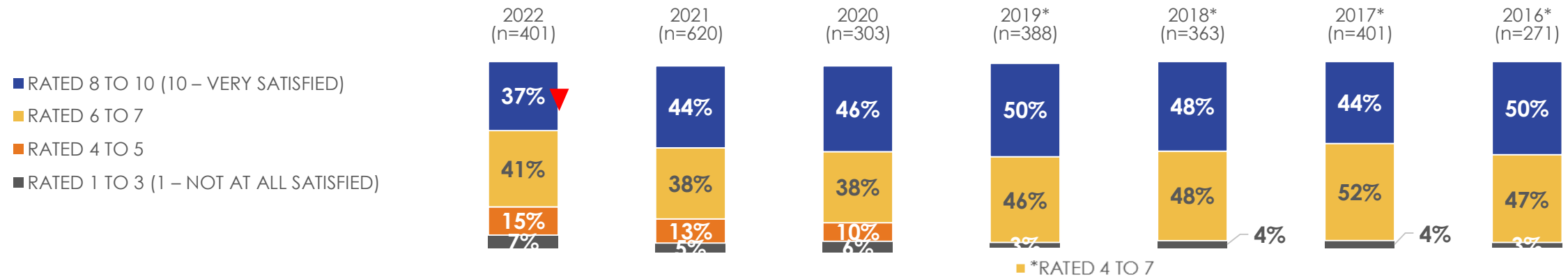
Note: data can't be tracked against 2020 as question wording was too different.

# Satisfaction with Engagement Process

Nearly four in ten (37%) stakeholders are highly satisfied with the IESO engagement process, while a slightly higher proportion (41%) have a soft positive impression, more than one in ten (15%) a soft negative impression and 7% are not satisfied. Satisfaction continues to be much lower among environmental advocacy groups. Compared to 2021, fewer are highly satisfied (37%; -7 pts) and ratings have been steadily declining since 2019.

## Overall Satisfaction with the IESO Engagement Process

ON A 10-PT SCALE WHERE 1 MEANS NOT AT ALL SATISFIED AND 10 MEANS VERY SATISFIED



2022	TOTAL		Distributor/ Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	620	405	96	72	36	21	71	41	32	31	87	53	47	31	63	39	62	53	23	12	102	43
Rated 8 to 10 (10 – very satisfied)	44%	37%	45% D	43% D	50% D	48%	51% D	44% D	12%	19%	40% D	30%	53% D	55% DEJ	44% D	33%	39% D	36%	43%	42%	50% D	26% ▼
Rated 4 to 7	51%	56%	52%	51%	44%	39%	46%	38%	75% ABC FGJ	65%	57% J	64%	45%	45%	52%	64%	60% J	63%	48%	42%	41%	63%
Rated 1 to 3 (1 – not at all satisfied)	5%	7%	3%	4%	6%	10%	3%	17% AEF GH	12% AEH	16% AFGH	2%	4%	2%	-	3%	-	2%	2%	9%	17%	9%	12% G

Note: Those mentioning "don't know" were not included in the analysis.

Q16. How satisfied are you with the IESO's engagement? Please consider all stakeholder engagement activities and communications with the IESO when responding. Please provide a rating on a 10-point scale where 1 means you are not at all satisfied and 10 means you are very satisfied.

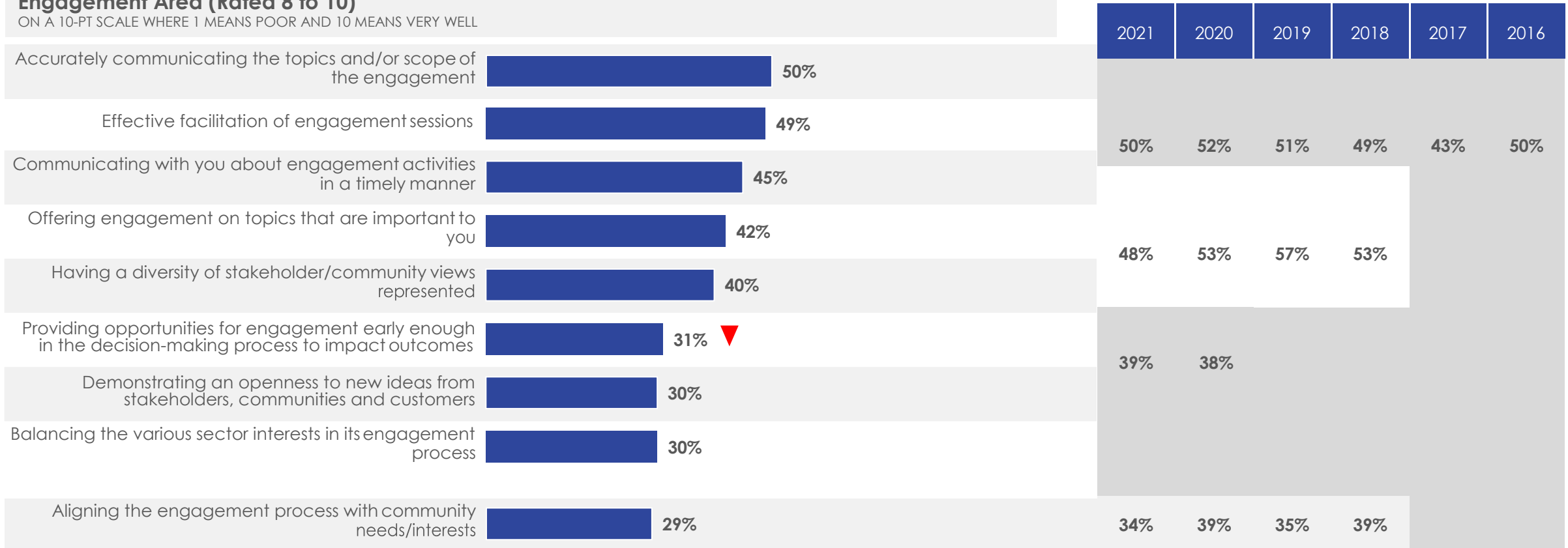
Base: All respondents (n=405)

# Performance on Aspects of Engagement

Roughly half of stakeholders rate the IESO as performing well for accurately communicating the topics and/or scope of engagement (50%) and effectively facilitating engagement sessions (49%), followed by communicating about engagement activities in a timely manner (45%). Year-over-year, ratings have declined for providing opportunities for engagement early enough in the decision-making process to impact outcomes (31%; -8 pts).

## Engagement Area (Rated 8 to 10)

ON A 10-PT SCALE WHERE 1 MEANS POOR AND 10 MEANS VERY WELL



Note: Those mentioning "don't know" were not included in the analysis.

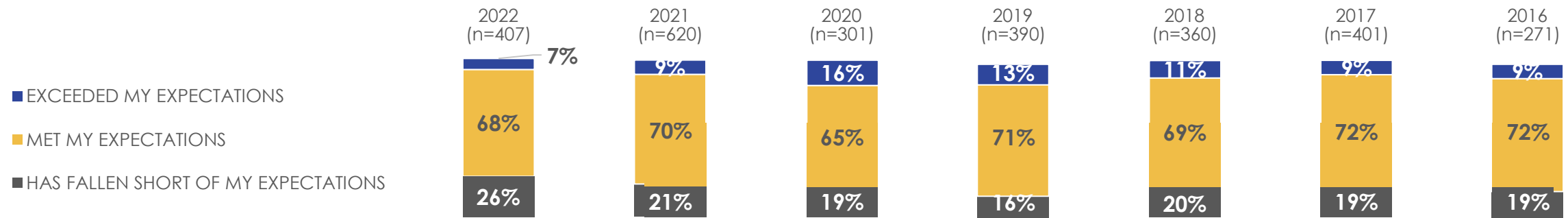
Q17. Thinking only about the IESO's engagement process and activities, not the final decisions or outcomes, how well has the organization performed in each of the following areas? Using a scale from 1 to 10, where 1 is 'Poor' and 10 is 'Very well'.

Base: 2022 varies (n=379-367); 2021 (n=526-540); 2020 (n=310-316)

# Stakeholder Expectations: Engagement Process

Three-quarters (75%) of stakeholders feel the engagement process met (68%) or exceeded their expectations (7%). Environmental advocacy groups continue to be more likely to feel that the process fell short of their expectations. Overall, ratings are consistent with 2021, however energy services providers are more likely to say the process fell short of expectations, while emerging tech providers are more likely to say it exceeded them.

## Incidence of IESO Exceeding/Meeting/Falling Short of Stakeholder Expectations Based on Their Experience with the Engagement Process



	TOTAL		Distributor/ Transmitter (A)		Emerging Technology Provider (B)		Energy Services Provider (C)		Environmental Advocacy (D)		Generator (E)		Indigenous (F)		Large Consumer (G)		Municipal Government (H)		Other Government (I)		Other (J)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Base n=	620	407	96	72	36	21	71	43	32	31	87	52	47	32	63	38	62	53	22	12	102	44
Exceeded expectations	9%	7%	4%	6%	-	14%▲	17% ABE	9%	3%	6%	5%	6%	17% ABE	9%	8%	5%	6%	2%	5%	8%	17% ABE	9%
Met expectations	70%	68%	78% DJ	74% D	61%	67%	70% D	60% D	44%	35%	74% D	65% D	70% D	78% D	73% D	79% D	73% D	83% CDEJ	73%	58%	65% D	61% D
Expectations fallen short	21%	26%	18%	21%	39% ACFGJ	19%	13%	30%▲	53% ACEFG HJ	58% ACEFG HJ	22%	29%	13%	12%	19%	16%	21%	15%	23%	33%	19%	30%

Note: Those mentioning "don't know" were not included in the analysis.

Q18. Which of the following best reflects your overall experience with IESO engagements?

Base: All respondents (n=407)

# Reason for Expectations Rating

The most common reasons for why the IESO's engagement exceeded expectations is good information and effective communication. Among those who feel the process fell short of expectations the most commonly reason is by far a lack of collaboration. Compared to 2021, a higher proportion of those who say the process exceeded their expectations cite that they received good information (48%; +26 pts vs. 2021), while those who say it fell short of expectations are more likely to cite a lack of collaboration (45%; +31 pts), slow process (17%; +12 pts), and needing better information (18%; +13 pts).

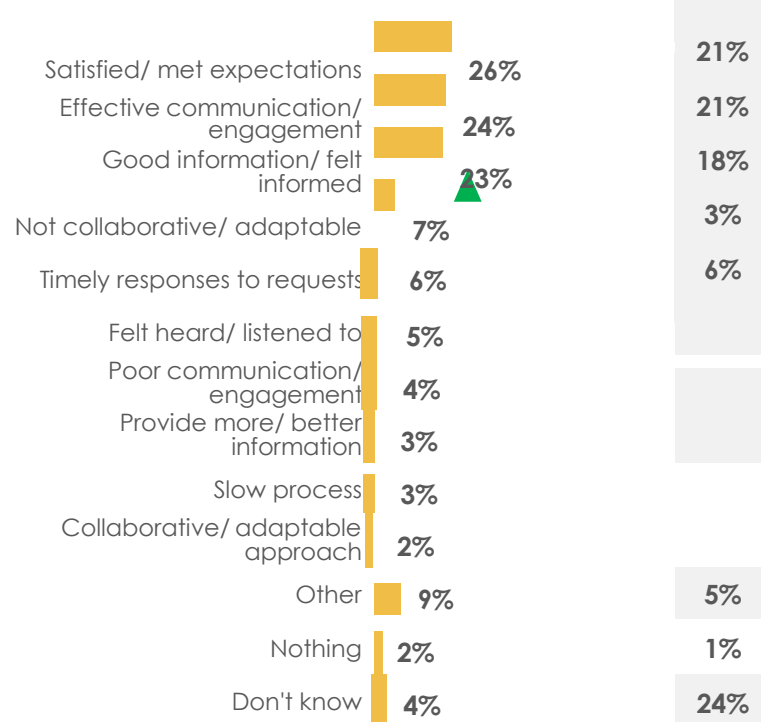
## Reason for Exceeded Expectations Rating 2022 (n=23)

2021  
(n=55)



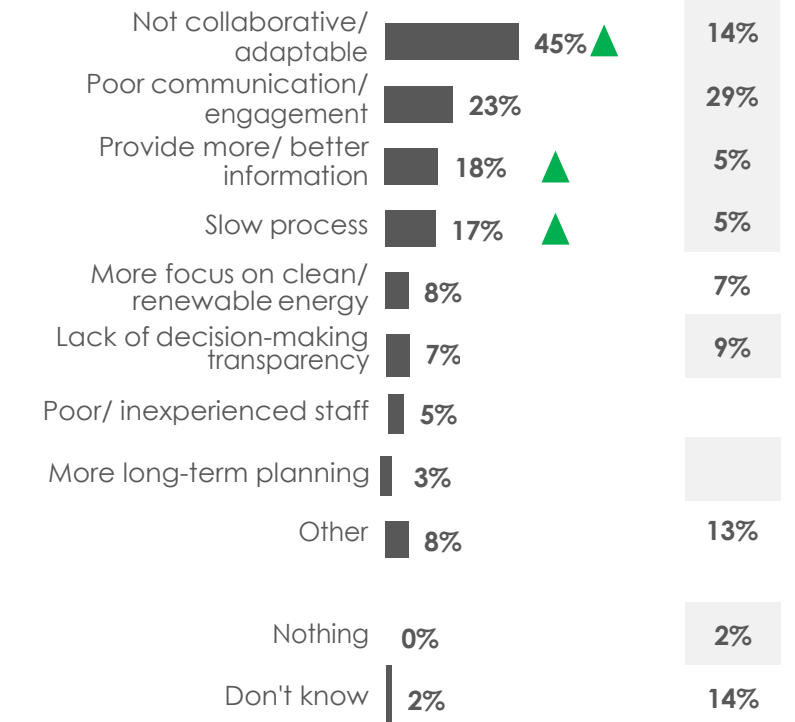
## Reason for Met Expectations Rating 2022 (n=234)

2021  
(n=433)



## Reason for Fallen Short Expectations Rating 2022 (n=99)

2021  
(n=132)



Note: Only responses of 3% or more are shown.

Q19. You indicated that the IESO's engagement process and activities had [insert response from Q18]. Why did you select that response rating?

Base: n=Varies

# Perceived Impact of Engagement Process

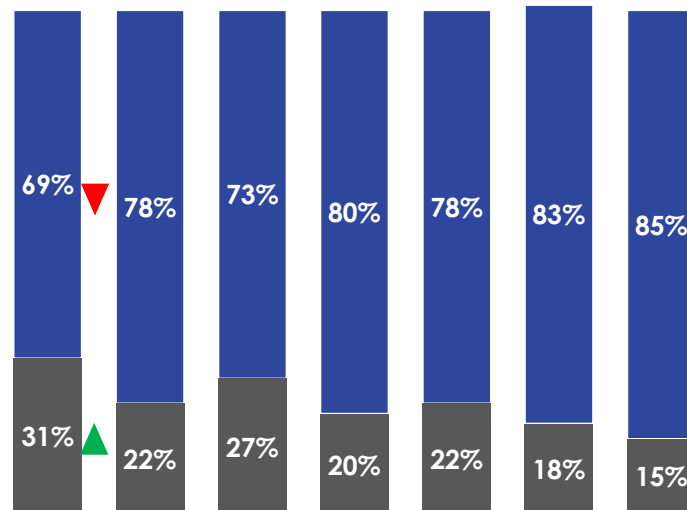
At seven in ten, the vast majority of stakeholders agree that engagement efforts led to effective change for stakeholders (69%) and the electricity sector overall (70%), while fewer agree it did so for their community or organization (60%). Year-over-year, fewer agree that engagement efforts have led to effective change for its stakeholders, communities, and customers (69%; -9 pts) or their community or organization (60%; -8 pts).

## Belief That IESO's Engagement Efforts ...

STRONGLY / SOMEWHAT AGREE      STRONGLY / SOMEWHAT DISAGREE

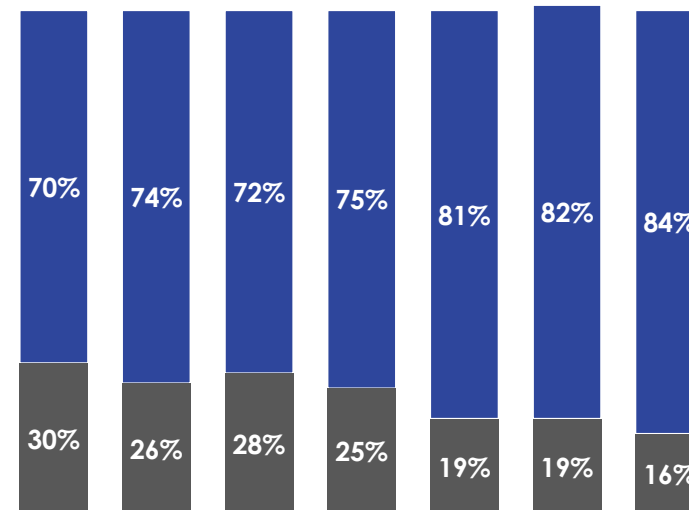
### ... Led to Effective Change for its stakeholders, communities and customers

2022 (n=365)   2021 (n=594)   2020 (n=303)   2019 (n=377)   2018 (n=349)   2017 (n=401)   2016 (n=271)



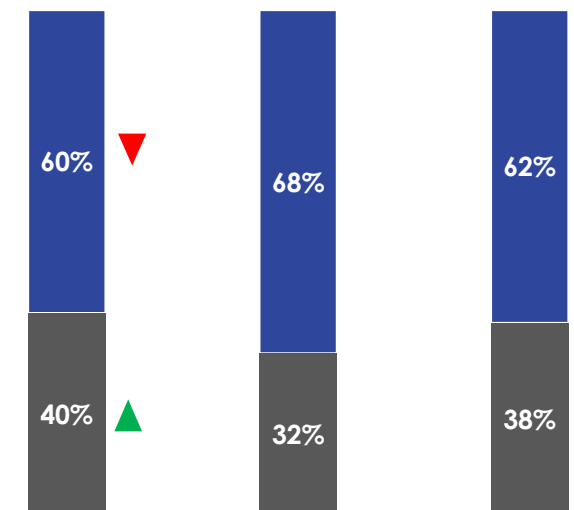
### ... Led to Effective Change for the Electricity Sector overall

2022 (n=368)   2021 (n=506)   2020 (n=303)   2019 (n=387)   2018 (n=350)   2017 (n=401)   2016 (n=271)



### ... Led to Effective Change for My Community or Organization

2022 (n=363)      2021 (n=503)      2020 (n=303)



Note: Those mentioning "don't know" were not included in the analysis.  
Q20. To what extent do you agree or disagree with the following statements? Please select one response per statement.  
Base: n=Varies

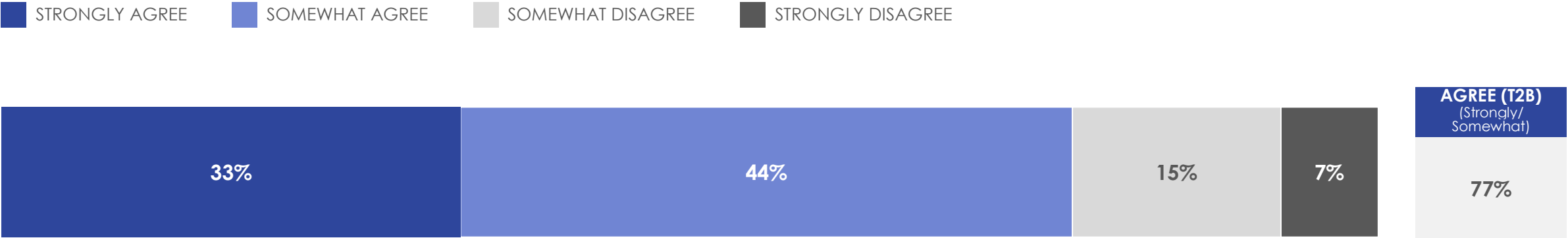




# Community Well-Equipped For IESO Engagements

At more than three-quarters (77%), the vast majority of Indigenous and municipal government stakeholders agree their community is well-equipped to participate in IESO engagements. One-third (33%) strongly agree, more than four in ten somewhat agree (44%), while two in ten (22%) disagree (either strongly or somewhat). Results are consistent across both groups.

## AGREEMENT THAT COMMUNITY IS WELL-EQUIPPED TO PARTICIPATE IN IESO ENGAGEMENTS



2022	TOTAL	Indigenous (F)	Municipal Government (H)
Base n=84	84	31	53
Strongly agree	33%	35%	32%
Somewhat agree	44%	45%	43%
Somewhat disagree	15%	13%	17%
Strongly disagree	7%	6%	8%

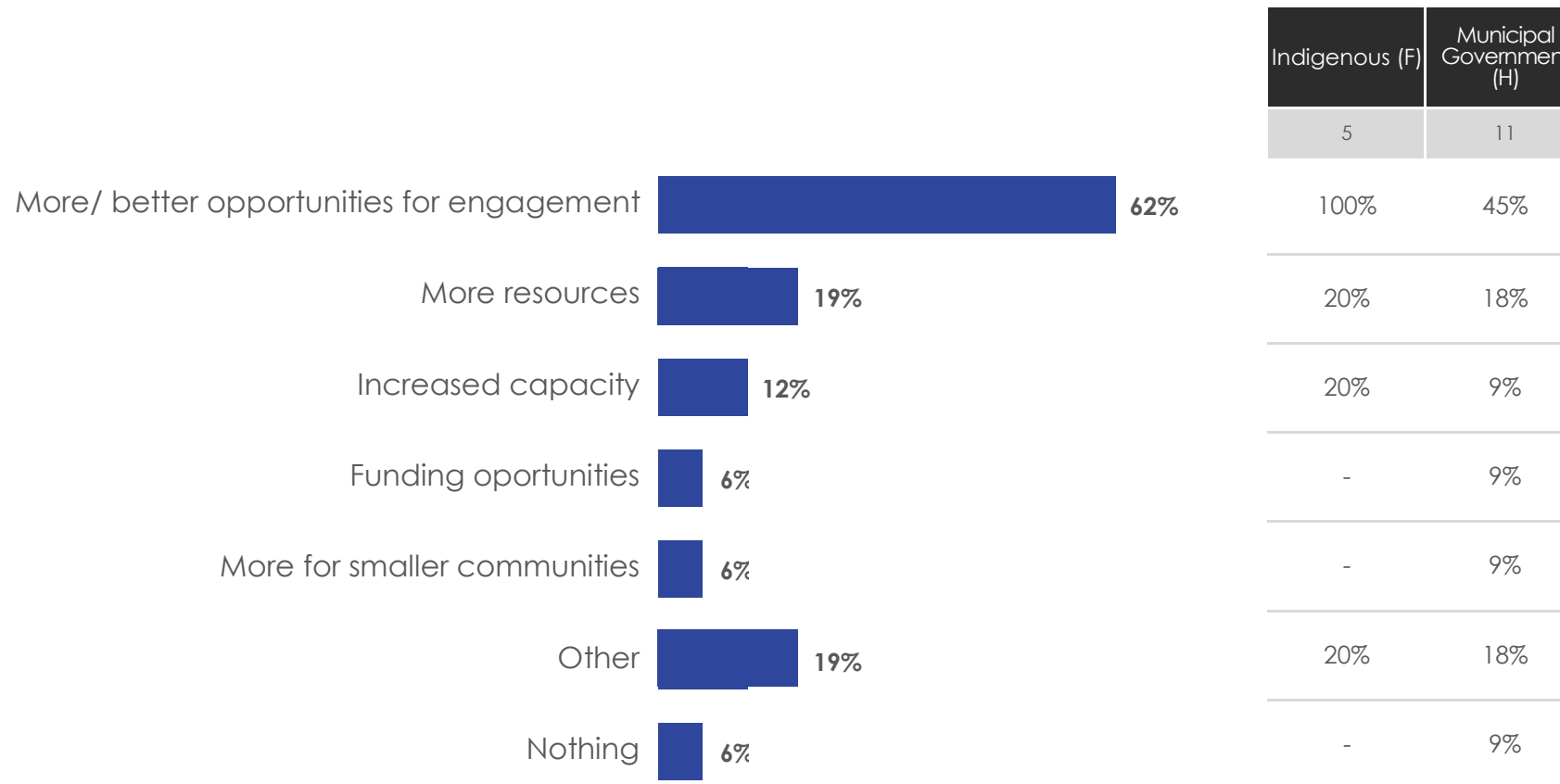
Q21. To what extent do you agree or disagree that your community is well-equipped to participate in IESO engagements?  
Base: Indigenous or Municipal Government





# Additional Support to Ensure Community is Well-Equipped

When asked the types of additional support that would be helpful in ensuring their community it well-equipped to participate, by far the most common suggestion is having more or better opportunities for engagement (62%), followed more resources (19%) and increased capacity (12%).

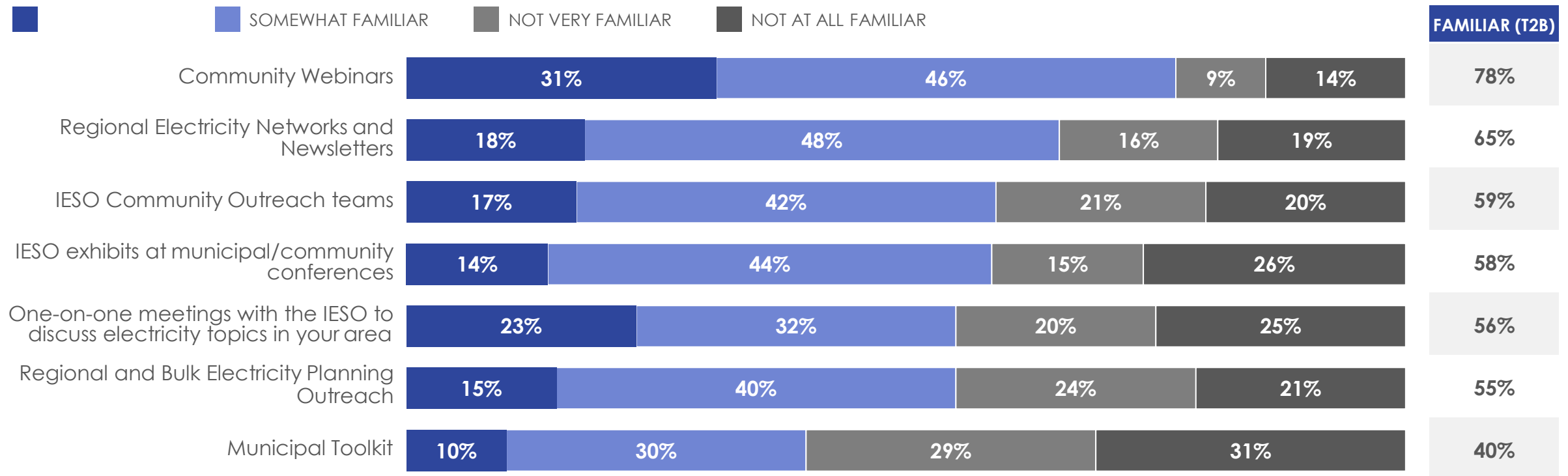


Q22. What type of additional support would be of assistance to your community to ensure you are well-equipped to participate in IESO engagements?  
Base: Indigenous or Municipal Government (n=16)

# Familiarity With IESO Community Outreach

At nearly eight in ten (78%), familiarity among Indigenous and municipal government stakeholders is highest for community webinars, followed by Regional Electricity Networks and Newsletters (65%), IESO Community Outreach teams (59%) and IESO exhibits at municipal/ community conferences (58%). Fewer than half are familiar with the municipal toolkit (40%).

## Familiarity With IESO Community Outreach Activities and Tools

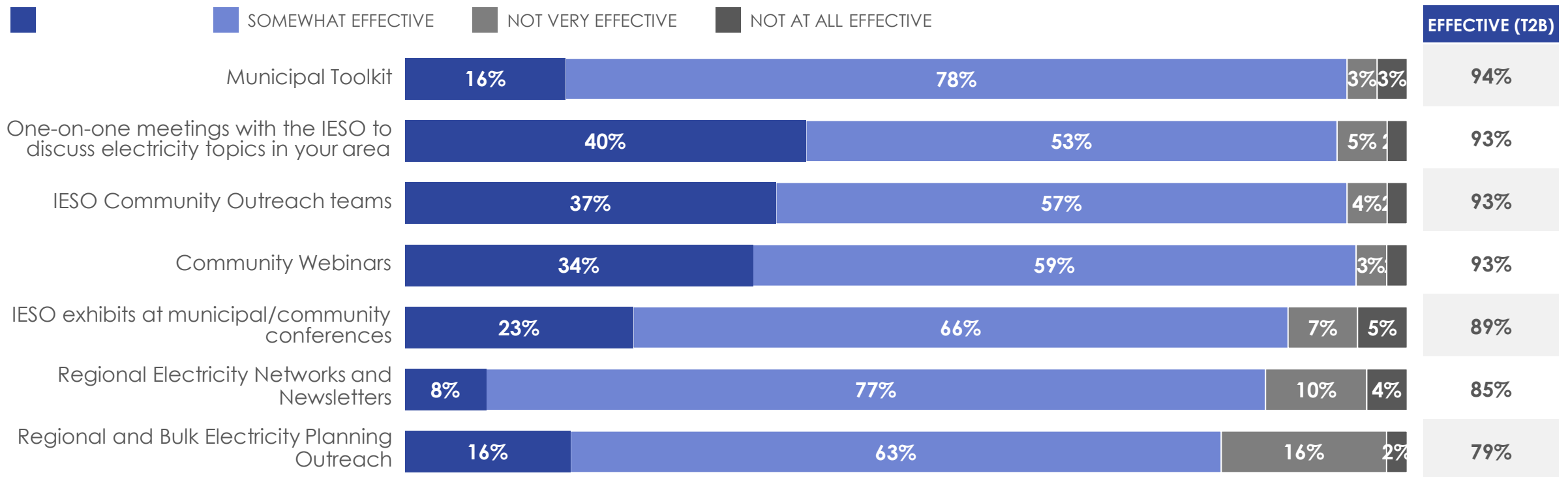


Q23. How familiar are you with the following IESO community outreach activities and tools?  
Base: Indigenous or Municipal Government (n=80)

# Effectiveness of Community Outreach Activities/Tools

The vast majority of Indigenous and municipal government stakeholders familiar with IESO community outreach activities and tools feel they are effective. Notably, four in ten of those familiar with one-on-one meetings with the IESO or IESO Community Outreach teams feel they are *very effective*.

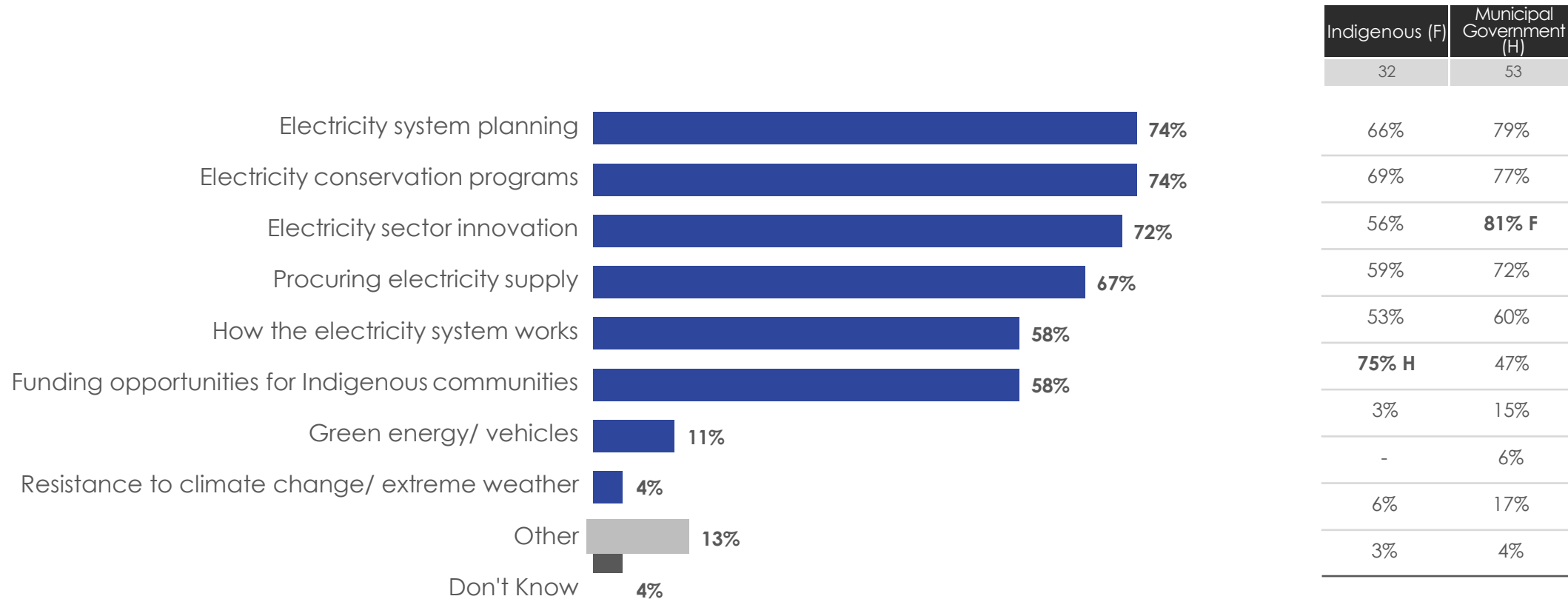
## Effectiveness of IESO Community Outreach Activities and Tools



Q24. And, how would you rate the effectiveness of the community outreach activities and tools?  
Base: Very/Somewhat familiar with activity/tool (n=varies)

# Specific Topics to Raise in Future

At nearly three-quarters, the vast majority of Indigenous and municipal government stakeholders would like to see electricity system planning (74%) and conservation programs (74%) raised in future community outreach activities, followed closely by electricity sector innovation (72%) and procuring electricity supply (67%). A majority are also interested in how the electricity system works (58%) and funding opportunities for Indigenous communities (58%). Municipal governments are more likely to want to mention electricity sector innovation (81% vs. 56% of Indigenous stakeholders), while Indigenous stakeholders express more interest in funding opportunities for Indigenous communities (47% vs. 75% of municipal government stakeholders).

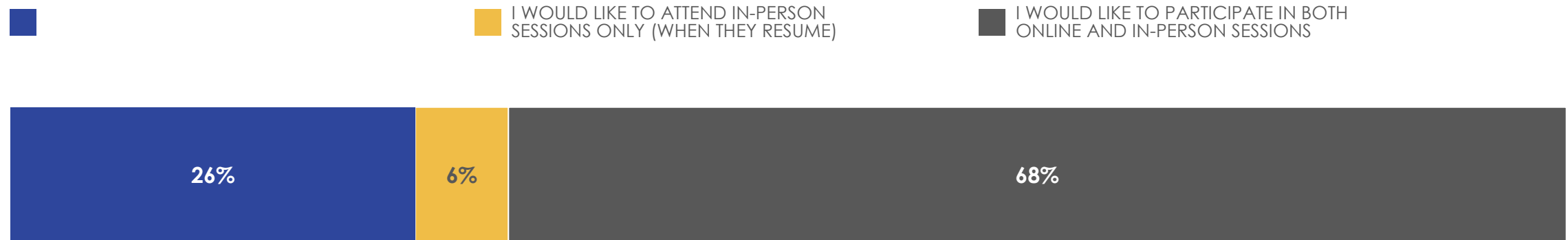


Q25. Are there specific electricity topics that you would like the IESO to raise in future community outreach activities and engagements?  
Base: Indigenous or Municipal Government (n=85)

# Preferred Method of Engaging With IESO in Future

At nearly seven in ten (68%), a strong majority of stakeholders would like to participate in both online and in-person sessions. One-quarter (26%) prefer online/ virtual sessions only, while 6% want to attend in-person sessions only. Indigenous stakeholders are more likely to would like to attend in-person sessions only.

## Participating in IESO's Engagements in Future



2022	TOTAL	Distributor/ Transmitter (A)	Emerging Technology Provider (B)	Energy Services Provider (C)	Environmental Advocacy (D)	Generator (E)	Indigenous (F)	Large Consumer (G)	Municipal Government (H)	Other Government (I)	Other (J)
Base n=408	408	72	21	42	31	54	31	39	53	12	44
I would like to participate in online/virtual sessions only	26%	<b>32% F</b>	24%	17%	<b>32% F</b>	<b>24% F</b>	3%	<b>38% CF</b>	<b>25% F</b>	50%	<b>23% F</b>
I would like to attend in-person sessions only (when they resume)	6%	4%	-	7%	-	4%	<b>16% ADE</b>	8%	9%	8%	5%
I would like to participate in both on-line and in-person sessions	68%	62%	76%	<b>76% G</b>	68%	70%	<b>81% G</b>	54%	66%	42%	73%

Q26. During the COVID-19 pandemic, the IESO moved to online/virtual engagement sessions. As restrictions have lifted, the IESO is considering reintroducing in-person sessions. How would you like to participate in IESO's engagements moving forward?  
Base: All respondents

# Areas for Improvement in Stakeholder Engagement

When asked how the IESO can improve its interaction and engagement with stakeholders, a variety of responses are provided of which the most common is a desire for greater transparency/ less technical information. Other common responses include better considering feedback when making decisions, more frequent communication on important issues and better direct communication and listening.



Note: Only responses of 3% or more in 2022 are shown.

Q27. Overall, how could the IESO improve its interaction and engagement with stakeholders, communities and customers like yourself? Please be as detailed and specific as possible in your answer.

Base: All respondents (n=325)

# KEY DRIVERS' ANALYSIS

Understand the Drivers of Satisfaction with  
Stakeholder Engagement

# Impact on Satisfaction with IESO Engagement – Drivers Analysis

The primary drivers of satisfaction with stakeholder engagement are impressions of how well it aligned with community needs/ interests and in demonstrating an openness to new ideas. Other prominent drivers include accurately communicating the topics/ scope of engagements, communicating in a timely manner and the effective facilitation of sessions.



## Interpretation:

Every one-point increase in the given statement on a 10-point scale results in a 0.XX point increase in satisfaction with IESO's stakeholder engagement.



# Impact on Satisfaction with IESO Engagement – Drivers Analysis

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# Priority Matrix (Stakeholder Engagement) – Impact vs. Performance

Communicating the topics and scope of the engagement, effective facilitation of sessions and communicating in a timely manner are core strengths and areas that should be protected.

The greatest opportunities to improve satisfaction with stakeholder engagement are in working to better align the engagement process with community needs/interests, demonstrating an openness to new ideas and in balancing the various sector interests in decision-making.





# KEY FINDINGS

# Key Findings (1/3)

- **Attitudes towards the IESO and the electricity system in general have softened for a second consecutive year and stakeholders are much more pessimistic about the future of the system.**
- **Perceptions have declined across several metrics including satisfaction, advocacy and impressions of operational reliability and enforcement of market rules which play a key role in driving trust.**
- **Of the IESO's priorities, stakeholders feel it is most important to focus on planning to meet system needs, engaging on the future energy system and maintaining reliability in a cost-effective manner.**
- **Indigenous stakeholders hold a more positive impression of the IESO, while environmental advocacy groups continue to be the more critical.**
- **Year-over-year, sentiment has grown more negative most notably among energy services providers who are less satisfied, less likely to advocate on behalf of the organization and have weaker impressions of the enforcement of market rules and expertise of staff.**

## Key Findings (2/3)

- Trust in the IESO is driven primarily by impressions of how well the organization operates a reliable system and in a cost-effective manner. The establishment and enforcement of market rules and aligning the engagement process with community needs also play a prominent role in influencing attitudes of trust.
- The greatest opportunities to build trust are to maintain strong performance on operational reliability and work to improve perceptions of how the IESO operates the system in a cost-effective manner and aligning the engagement process with community needs.
- Cost-effectiveness is best addressed through demonstrating transparency and providing rationale for decisions, while alignment of engagement activities to community need can be improved by demonstrating an openness to new ideas and balancing sector interests.

## Key Findings (3/3)

- **Most feel the stakeholder engagement process meets their needs; however satisfaction has declined and fewer feel it has led to effective change. A lack of collaboration is most commonly cited for the process falling short of expectations and has become a more salient concern, along with impressions of a slow process and the desire for higher quality information.**
- **The IESO performs well for clearly setting out the scope of activities, effective facilitation of sessions, and the timeliness of the process, while impressions are much lower for alignment with community needs, balancing sector interests, being open to new ideas and engaging early enough with stakeholders to impact outcomes.**
- **Satisfaction with stakeholder engagement is influenced by a variety of factors, of which aligning the process with community needs/ interests and demonstrating an openness to new ideas have the greatest impact.**
- **The greatest opportunities to improve satisfaction with stakeholder engagement are in working to better align the engagement process with community needs/interests, demonstrating an openness to new ideas and a in balancing the various sector interests in decision-making.**

**SEC CLARIFICATION QUESTION 2**

**CLARIFICATION**

D-2-1; 1-VECC-6 With respect to the Net Interest Expense

**QUESTIONS:**

- a) Please provide the IESO's current short-term interest rate received on market funds (comparable to the 2.75% included in the response to 1-VECC-6a)
- b) Please provide an updated forecast of the 2023-2025 net interest expense, by category, based on actual and/or more recent interest rate forecast information.

**RESPONSE**

- a) As of June 7<sup>th</sup>, the Bank of Canada overnight interest rate is 4.75%, which compares to the 2.75% interest included in the response to 1-VECC-6a. A projection for 2023 net interest is provided in response to 1-OEB STAFF 1a.
- b) The IESO does not have a further breakdown by category, as only the short-term income projection is revised from budget, 2024 and 2025 forecast remains aligned to budget.



**SEC CLARIFICATION QUESTION 3**

**CLARIFICATION**

1.7-SEC-16 With respect to contingency amounts

**QUESTIONS:**

- a) The response states that: "If the budget amounts included in Appendix 3 of the 2023-2025 Business Plan were all to include the individual project contingencies, the overall capital budget request would become inflated and would likely result in significant capital underspends in each year." This would seem to indicate that the overall contingency amount is not based on an aggregation of individual project contingency amounts. If correct, please explain how the contingency amount (at the portfolio level) is determined? Please provide the total annual contingency amount (at the portfolio level) included in the 2023-2025 capital budget used for the purpose of determining the revenue requirement.

**RESPONSE**

- a) As stated in IESO's response to 1.7-SEC-16, individual project contingency estimates are not reflected in the budgets that make up the IESO's capital envelope. The portfolio overall unused budgets (overestimates or underspends) are reallocated (across the portfolio) to address underestimates in other areas of the portfolio. If this is insufficient, timing adjustments can be used to manage expenditures within the overall portfolio. As stated in the original response, this is consistent with the IESO's past practices and has proven effective.

1                                    **SEC CLARIFICATION QUESTION 4**

2    **CLARIFICATION**

3    2.1-SEC-19

4    **QUESTIONS:**

5    a) Please provide each attachment in excel format (with formulas intact).

6    **RESPONSE**

7    a) See the excel files attached via email.

1

**SEC CLARIFICATION QUESTION5**

2

SEC 5

3

4

Clarification on the rebate of \$8.7 million stated in the original application

5

6

**Question(s):**

7

8

a) Is the rebate of \$8.7 million stated in the original application still the proposal ? It was  
not a clear response to OEB Staff 18 f)

9

10

11

**RESPONSE**

12

a) The IESO maintains the proposal in its application to rebate \$8.7 million from the FVDA.

13

**APPrO CLARIFICATION QUESTION 1**

2.0-APPrO -12

*Clarification provided by APPrO: As defined in Chapter 11 of the IESO market rules, "capacity import call" means "an energy import from an external control area that is supported by the capacity of a generation unit or the capacity for injection of an electricity storage unit within the external control that has committed its capacity, or a portion thereof, to the IESO control area and that capacity has been called by the IESO in accordance with section 19.9 or 19.9B of Chapter 7". We use the phrase "capacity export call" in lieu of "capacity export request" as also defined in Chapter 11 of the IESO market rules.*

**PREAMBLE:**

The application evidence states in part that "to calculate the 2023, 2024 and 2025 usage fees, the IESO requested Elenchus to rerun its model using the [IESO] Business Plan and the charge determinants discussed in the sections that follow."

**QUESTION(S):**

- a. Please provide a copy of the inputs (data, worksheets, etc.) and outputs that were used by the Elenchus model to calculate the proposed 2023-2025 usage fees for each of domestic and export customers.
- b. How might the modelling be impacted by capacity import calls and capacity export calls?
- c. How might the forecasted usage fees be impacted by capacity import calls and capacity export calls?
- d. Please advise which IESO Reliability Outlook was used to provide forecast volumes for the purpose of calculating 2023 usage fees, and which IESO Annual Planning Outlook reports were used to calculate the usage fees for 2024 and 2025.

**RESPONSE**

- a. No clarification requested/required.
- b. The IESO's forecast export volumes reflect the expected total volume of exports in 2023, 2024 and 2025, based on historical exports, and forecasted market prices and intertie capability, which is not broken down by export type. Therefore, the IESO is unable to comment on the impact of capacity export calls in the Elenchus model. Imports are not employed in the Elenchus model.

- 1 c. Please see the response to part b) above.
- 2
- 3 d. No clarification requested/required.

**APPrO CLARIFICATION QUESTION 2**

APPrO

**QUESTION(S):**

- a) Is the \$2.1M budgeted for the TR Market Enhancement and Platform Refresh Project for the implementation of these projects? Or for the proposed program itself?

Note. Correction by APPrO: \$2.4M is the budgeted TR Market Enhancement from APPrO IR 1

**RESPONSE**

- a) The \$2.4 million budget included in Exhibit E, Tab 2 Schedule 1 Attachment 10 includes the implementation of the TR Market Enhancements and the refreshed TR platform.

**APPrO CLARIFICATION QUESTION 3**

APPrO

**QUESTION(S):**

- a) What IESO labour costs are associated with the (Airport) Backup Operating and Data Centres Relocation Project? The IESO's application also states that relocation project costs are based on projected lease costs. What are the current lease costs for the BOC?

**RESPONSE**

- a) The original budget for this project, as reflected in the business plan, includes approximately \$1 million of capital labour, not including contingency. The IESO is currently in the planning phase of the project where the labour budgets will be further refined along with other project costs.

The lease costs for the current Backup Operating Centre are approximately \$423,000 per annum.

**APPrO CLARIFICATION QUESTION 4**

APPrO

**QUESTION(S):**

- a) What would the calculated usage fees be for each of 2023, 2024 and 2025 for domestic users and export users if the 'NERC and NPCC membership fees' were apportioned based on TWh instead of HALF?

**RESPONSE**

- a) The calculation of the IESO's usage fees is as per the Elenchus methodology developed in 2016, reviewed by Elenchus in 2021, and approved as part of the IESO's 2022 Revenue Requirement Submission proceeding (EB-2022-0002). The model allocates the NERC and NPCC membership fees 50:50 to export and domestic customers given that a large part of these membership fees are to maintain Ontario's import-export capability. Allocating the membership fees by TWh is inconsistent with the beneficiaries of these fees. The IESO has circulated the model with fields that can be adjusted by intervenors.



**APPrO CLARIFICATION QUESTION 5**

APPrO

**QUESTION(S):**

- a) How is the budgeted \$35M for O&A for the first 10 years post-MRP implementation allocated? Is it allocated entirely for the additional 20 FTEs?

**RESPONSE**

- a) Please see the responses to 4.0 AMPCO 21 b) and c), also transcribed below:

The IESO's costs ten years after MRP's in-service date are not within the scope of this proceeding, however the OM&A costs are equally comprised of staff required to run the Day-Ahead Market, Market Power Mitigation, and Forecasting-related functions. Capital costs are not expected to be material for this time period.

The FTEs required ten years after 2025 MRP go-live are not within the scope of this proceeding, however, it is roughly estimated that 20 FTEs will remain post-MRP implementation. The new market will introduce new features and tools that require additional resources for market operations, monitoring and ongoing maintenance and support in the IESO's Markets and Reliability, Information Technology and Services, and Market Assessment and Compliance divisions.

**AMPCO CLARIFICATION QUESTION 1**

5.1-AMPCO-31 (b)

**PREAMBLE:**

The response indicates that in January 2023, the Minister of Energy directed the IESO to undertake a call for proposals for a new Hydrogen Innovation Fund.

**QUESTION(S):**

- a. Please provide a copy of the January 2023 letter from the Minister of Energy.
- b. Please provide a description and objective of the new Hydrogen Innovation Fund.
- c. Please provide the proposed contribution from the Fund.
- d. Please provide the schedule and a breakdown of the costs including FTEs to implement the new Hydrogen Innovation Fund.
- e. Please provide details on the call for proposals.
- f. Please provide the status of the call for proposals.

**RESPONSE**

- a. Minister's Directive provided below.
- b. On January 26, 2023, the Minister of Energy directed the IESO to develop a Hydrogen Innovation Fund (HIF) with the goal of investigating, evaluating and demonstrating how low-carbon hydrogen technologies can be integrated into Ontario's electricity grid. Accordingly, on April 3, 2023, the IESO issued a Request for Proposals focused on hydrogen demonstration projects and research/feasibility studies that could support electricity supply, capacity, storage and demand management applied to clean energy integration, peak generation capacity, ancillary services and long-term / seasonal storage. Please see further information in the HIF Guideline attached.
- c. The Hydrogen Innovation Fund will have a total budget of \$15M over three years, as directed by the Minister.

- 1  
2 d. The IESO is forecasting between 0.5 – 1.5 FTEs required to support the HIF throughout  
3 the maximum 3-year duration of the contracts.  
4  
5 e. Please see full details on the call for proposals in the HIF Guideline below and on the  
6 Hydrogen Innovation Fund webpage<sup>1</sup>.  
7  
8 f. The Hydrogen Innovation Fund proposal intake window closed on May 5th, 2023. The  
9 IESO received 25 project proposals. The IESO Technical and Economic Review  
10 Committee is currently evaluating and scoring all eligible proposals based on evaluation  
11 criteria published in the HIF Guideline. The IESO will brief Ministry staff by the end of  
12 June 2023.

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<sup>1</sup> <https://www.ieso.ca/en/Get-Involved/Innovation/Hydrogen-Innovation-Fund/Overview>

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# The Hydrogen Innovation Fund Request for Proposals

Proposal Guideline

March 2023

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# 1. Overview: The Hydrogen Innovation Fund

On April 7, 2022, the Minister of Energy ("Ministry") sent a letter to the IESO, asking it to investigate and propose program options to integrate low-carbon hydrogen technologies into Ontario's electricity grid for the purposes of balancing and strengthening the electricity system and contributing to broader decarbonization. The letter also asked the IESO to report back to the Ministry by October 31, 2022, with program options, timelines, costs and any additional advice the IESO may have on how to proceed.

After conducting stakeholder engagement and its own research, on October 31, 2022, the IESO reported back to the Ministry with potential options and projects, as well as the proposed program scope, budget and timelines. The IESO's final report highlighted potential roles for hydrogen to benefit Ontario's electricity system, including use of hydrogen storage and generation to more efficiently balance supply and demand on the grid, and potentially blending hydrogen into natural gas-fired turbines for peaking capacity.

Based on a jurisdictional scan of comparable programs, discussions with stakeholders and the identified potential projects, the IESO proposed a total program budget of \$15 million over three years.

On January 26, 2023, the Minister of Energy directed the IESO to develop a Hydrogen Innovation Fund with the goal of investigating, evaluating and demonstrating how low-carbon hydrogen technologies can be integrated into Ontario's electricity grid.

Accordingly, the IESO is issuing a Request for Proposals focused on hydrogen demonstration projects and research/feasibility studies that could support electricity supply, capacity, storage and demand management applied to clean energy integration, peak generation capacity, ancillary services and long-term/seasonal storage.

The IESO will accept for consideration proposals submitted between **April 3, 2023 and May 5, 2023**. Up to \$15M in total funding over three years is available for approved projects.

## 2. Project Eligibility

In order to be eligible for funding under the Hydrogen Innovation Fund, proposals must be located in Ontario and meet requirements associated with the following four eligibility categories: (2.1) Project Type and Timelines, (2.2) Project Category, (2.3) Project Applicant and (2.4) Project Funding

The proposals will be screened for eligibility and those meeting all the eligibility requirements will be further evaluated according to the Evaluation Criteria set out in Section 5.

### 2.1 Eligibility: Project Type and Timelines

The Hydrogen Innovation Fund will consider proposals for three streams of project types:

- 2.1.1 Projects at existing facilities that are already built and/or operational and ready to participate in projects to demonstrate and/or evaluate reliability services;
- 2.1.2 Projects at new facilities that are not yet constructed, but could be in-service by a specified date; and
- 2.1.3 Projects undertaking research and/or feasibility studies that could investigate the feasibility of different hydrogen approaches or support future hydrogen project decision-making.

Successful projects funded through the Hydrogen Innovation Fund will be no longer than 36 months. Key dates to consider include the following:

- Demonstration projects at existing facilities shall commence by **June 30, 2024**;
- Demonstration projects at new facilities shall commence by **December 31, 2025**; and
- Reports on research / feasibility studies shall be submitted by **June 30, 2024**.

## 2.2 Eligibility: Project Category

In addition to proposals aligning with the "Project Type," successful proposals will test activities related to at least one of the following project categories:

### **Category A- Hydrogen production from electricity**

- A.1 Demonstration of how a hydrogen production facility participates in the energy, operating reserve, and capacity markets in Ontario, including analysis of hourly price-quantity pairs (as defined in [IESO Market Rules Chapter 11, Definitions](#)), price sensitivity and responsiveness, load profile, seasonal and monthly variations, average capacity factor, ramp rates, etc.
- A.2 Demonstration of how a hydrogen production facility might participate in peak-reduction and/or capacity programs including participation in the Industrial Conservation Initiative (ICI) or Interruptible Rate Pilot, or demonstration of demand reduction capabilities.
- A.3 Demonstration of how a hydrogen production facility would provide ancillary services to the IESO, such as frequency regulation.
- A.4 Integration of renewable energy, either through increased production during curtailment events or demonstrate ability to follow an IESO market dispatch signal.

### **Category B- Electricity generation from hydrogen**

- B.1 Demonstration of how an electricity generator using hydrogen participates in the energy, operating reserve, and capacity markets, including analysis of hourly price-quantity (PQ) pairs, price sensitivity and responsiveness, minimum loading, average capacity factor, ramp rate, carbon intensity of energy generated etc.

- B.2 Assessment of the impact of hydrogen blending with natural gas on generator performance (heat rate, ramp rate, cost, minimum generation block run-time, minimum loading point, emissions reductions and any other requirements specified in the IESO market rules).
- B.3 Demonstration of how an electricity generator using hydrogen would offer ancillary services to the IESO, such as frequency regulation.
- B.4 Performance of energy storage using hydrogen including round trip efficiency, hourly price-quantity pairs, charge/discharge profile (i.e., when is it economic to charge and discharge), ramp rate, availability, energy management, etc.

### **Category C- Integrating hydrogen and electricity within a broader hydrogen economy**

- C.1 Research and/or feasibility studies that assess larger integration challenges of hydrogen, the electricity system, and the economy. Potential feasibility study areas include integrating hydrogen hubs, long-term storage of hydrogen, site-specific conversion to hydrogen or production of hydrogen with applicability to other facilities, etc. A requirement of the studies is a direct assessment of the impact of potential projects on the electricity system.

Applicants are encouraged to include more than one sub-category as part of their project scope.

## **2.3 Eligibility: Project Applicant**

Proposals are welcomed from non-profit and for-profit incorporated entities.

Funding is not available to individuals, including incorporated individuals, sole proprietorships, trusts or joint ventures.

At the time of proposal submission, the applicant must provide audited financial statements and signed letters of support from all financial contributors of the project.

## **2.4 Eligibility: Project Funding**

The Hydrogen Innovation Fund has a total budget of \$15 million over three years, which will be available to projects that are successful under this Request for Proposals.

The maximum proposed limits of requested funding from the IESO are:

- \$5M IESO contribution for existing facilities and new facilities
- \$500k IESO contribution for research or feasibility studies

The Hydrogen Innovation Fund will provide support up to a maximum of 50% of eligible project expenses (see Appendix A). Applicant and partner contributions must comprise at least 25% (in cash) of the total project value. The lead applicant is required to make a cash contribution to the project.

Applicants are required to secure funding additional to the funding requested from the IESO. This includes cash and/or in-kind contributions from the applicant and all project partners. Each project partner must submit a signed letter of support specifying the contribution amount and the type of contribution (cash and/or in-kind), with the proposal submission package.



All budgeted expenses using IESO funds are subject to IESO audit.

Applicants must state whether they plan to receive other sources of funding/income from other IESO-administered programs or markets over the duration of the project. Receipt of funding will not impact project eligibility.

### 3. Proposal Details

Applicants should submit completed Proposals (based on the template set out in Appendix B – Project Proposal Template) and requested supporting documents (e.g., letters of support, audited financial statements, project team CVs etc.) to [hydrogeninnovationfund@ieso.ca](mailto:hydrogeninnovationfund@ieso.ca).

Proposals must be submitted between **April 3, 2023 and May 5, 2023** with the words “Hydrogen Innovation Fund RFP” in the subject line.

The IESO will respond by email to applicants to confirm receipt of proposals within two business days.

### 4. Support, Review Process and Approval

Potential applicants are strongly encouraged to contact the Hydrogen Innovation Fund team at [hydrogeninnovationfund@ieso.ca](mailto:hydrogeninnovationfund@ieso.ca) to discuss their project prior to submitting a proposal. Upon request, IESO staff will meet with potential applicants to discuss projects.

Once proposals are submitted, they will be screened for eligibility. Those proposals that meet all eligibility requirements will be further evaluated as follows.

The IESO will form an internal Business and Technical Review Committee, with the support of external technical experts as needed (the Review Committee) to evaluate and score each eligible proposal. Applicants with highly ranked proposals will be provided with the opportunity to work with the Review Committee to refine their proposals to address any questions and/or feedback.

To ensure that the IESO funds projects under each project type and in order to ensure ratepayers benefit from the learnings that can be provided by each project type, the IESO will take the following approach until the \$15M of funding is allocated:

- First select the highest scoring proposal from each project type
- If funding is still available, select the highest scoring proposals of all remaining projects

The Review Committee will bring high-ranking proposals forward for IESO executive approval in Q2 2023. Applicants will be notified of the outcome in early Q3 2023.

Successful applicants will have the opportunity to participate in IESO communication activities, including public announcement of successful Hydrogen Innovation Fund projects.

## 5. Proposal Evaluation Criteria

Proposals will be evaluated using the following framework. The IESO reserves the right to conduct brief interviews (30-45 minutes) with selected proponents to better understand project details.

CATEGORY	EVALUATION CRITERIA	WEIGHTING
Potential Impact	The project cost-effectively supports Ontario's evolving electricity system. The project demonstrates savings to ratepayers, produces efficient market outcomes and/or enhances electricity system reliability/operability. Clear metrics are included in the proposal indicating how ratepayer savings, market efficiencies and reliability/operability will be assessed.	10 points
Market Capability Building Impact	The project demonstrates the skills, knowledge and infrastructure required by the market to accelerate the adoption of hydrogen technologies in the electricity system.	5 points
Market, Program or Technical Advancement	The project is testing a novel approach and advancement of the "state of the art" in Ontario. The project includes innovative arrangements that test new activities, services or business models for hydrogen project proponents that are not currently in-service in Ontario.	10 points
Project Team and Partners	The project team has the qualifications and experience required to execute a large-scale, strategic project. The project team provides evidence of appropriate partnerships, including a utility partner where appropriate. The project demonstrates consideration of community and Indigenous engagement and/or participation. Projects with a greater number of highly qualified, experienced and committed partners will be given greater points due to the capacity-building aspects that such projects offer.	5 points

CATEGORY	EVALUATION CRITERIA	WEIGHTING
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Project Funding	The overall funding proposal satisfies IESO funding requirements outlined in the Proposal Guideline Section 2.4, and appropriately allocates risk between the proponent, partners and the IESO. Higher points will be allocated to projects with a lower percentage of IESO funding vs. total project value. The budget items outlined in the Proposal Template Part B are relevant to achieving the objectives of the project and the Hydrogen Innovation Fund. Audited financial statements demonstrate the financial ability of the applicant to support their contribution to the project.	20 points
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Project Purpose and Outcomes	The project purpose and outcomes are aligned with the Hydrogen Innovation Fund objectives and have the potential to influence technological evolution and wholesale market participation. The proposal clearly states which Project category and sub-category (Section 2.2) will be addressed, including identifying specific metrics that will be used to measure outcomes. The proposed deliverables demonstrate how the project will enable the IESO to better understand the opportunities and challenges of hydrogen in the electricity system.	20 points
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Project Design	The project's design is clear, reasonable and likely to meet the stated objectives. The project demonstrates the ability to integrate into the IESO-administered markets to provide system reliability or resiliency, where applicable. The scope, work plan and scheduled tasks are contained in a clear and logical framework that supports successful completion of the project (for example, any not yet in-service assets or other resources included in the project scope have already been commissioned or will be commissioned by Q4 2025).	20 points
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CATEGORY	EVALUATION CRITERIA	WEIGHTING
Emissions Impact	The proposal has assessed the greenhouse gas (GHG) emissions resulting from project activities. The proposal demonstrates a plan to limit GHG emissions increases or demonstrate economy-wide emissions reductions.	10 points

## 6. Notification of Successful Applicants

The Review Committee will evaluate all eligible proposals and recommend a select number for IESO executive approval. Applicants will be notified of the Review Committee outcome in early Q3 2023.

## 7. Funding Disbursement

Successful applicants will be required to enter into the form of agreement provided in Appendix C – Contribution Agreement. Note: **this agreement is non-negotiable**; the IESO will not make changes to the agreement for individual proponents and any applicants responding to this RFP should ensure they are comfortable signing the agreement as it is currently written before submitting an proposal.

Funding is disbursed on a milestone basis as projects complete key deliverables identified in the proposal. Submitted proposals must set out the number, content, timing, and budget of milestones in their proposal.

## 8. Electrical Safety Authority

Applicants should consider the following Electrical Safety Authority (ESA) codes and standards.

The Electrical Safety Authority (ESA) regulates and promotes electrical safety in Ontario. The Ontario government has given ESA a mandate to improve public electrical safety. The ESA administer Part VIII of the Electricity Act and oversee these four related regulations:

1. Ontario Electrical Safety Code (Regulation 777/21) — sets out how to do electrical work.
2. Licensing of Electrical Contractors and Master Electricians (Regulation 570/05) — sets requirements for businesses and certain people who can do electrical work.
3. Electrical Distribution Safety (Regulation 22/04) — provides objective-based electrical safety oversight and sets out the accountabilities of companies licensed to distribute electricity.
4. Electrical Product Safety (Regulation 438/07) — governs pre-market approval of electrical products before their sale, distribution and advertisement.

The Ontario Electrical Safety Code (OESC) has comprehensive requirements related to product approval, applying for inspection, submitting plans for review and connection authorization requirements. Including this program (\*), any work (where the OESC applies) on an electrical

installation will need to comply with the above requirements, which include what to install, who is eligible to install and how to install. Installers and designers are required to meet and satisfy the current OESC requirements, and are encouraged to refer to the latest bulletins issued by the ESA. The bulletins include interpretations, clarifications, and sometimes easements.

- A sample of these published bulletins are located on the following website link <https://esasafe.com/electrical-products/bulletins/>
- Notifications can be filed on the following website link <https://esasafe.com/fees-and-forms/forms/>
- Plan Review submissions can be filed on the following website link <https://esasafe.com/business-and-property-owners/electrical-plan-review/>
- For more information about ESA technical requirements, please refer to the following website link <https://esasafe.com/code-technical/>

(\*) OESC requirements apply to work on an electrical installation related to this program. Work on an electrical installation may include but is not limited to, the installation (e.g. new equipment, future modifications, replacement and retrofitting) of;

- DERs (e.g. energy storage systems, renewable energy systems such as solar/wind/fuel cell assets, generators); energy management systems; - example of related bulletins are Bulletin 64-1-\*, 64-7-\*, 84-1-\* which can be found along with other bulletins in the following link <https://esasafe.com/electrical-products/bulletins/>
- Section 18 – Hazardous locations and related bulletins – examples of related bulletin is Bulletin 18-1-\* which can be found along with other bulletins in the following link <https://esasafe.com/electrical-products/bulletins/>

All the generating facilities have to be inspected by ESA prior to be connected to the distribution grid. See Bulletin 2-28-\* in the following link <https://esasafe.com/electrical-products/bulletins/>

Generation equipment that is grid interconnected shall meet all the applicable requirements of the OESC including section 84 and Bulletin 84-1-\* in the following link <https://esasafe.com/electrical-products/bulletins/>

## 9. Appendices

### 9.1 Appendix A – Eligible Expenses

Eligible expenses are those directly related to the design, development, demonstration, installation, implementation, testing, measurement and performance verification of the project.

The following table summarizes eligible and ineligible expenses.

Eligible Expenses	Ineligible Expenses
<ul style="list-style-type: none"> <li>✓ Project-specific materials, equipment, products and services</li> <li>✓ Salaries and benefits of employees directly involved in the design, selection, purchase and installation of the project</li> <li>✓ Professional, engineering, scientific, technical, management and contracting services, including training</li> <li>✓ Permits and licence fees</li> <li>✓ Funding for marketing, communications and workshops directly related to project activities</li> <li>✓ Costs associated with the monitoring, verification and evaluation of the project's impacts, including data collection, processing, analysis and management</li> <li>✓ Equipment and products, including diagnostic and testing tools and instruments and associated software</li> <li>✓ Costs associated with providing approved incentives to project participants</li> </ul>	<ul style="list-style-type: none"> <li>✗ Budget deficits</li> <li>✗ Activities completed or costs incurred before the funding is approved or after the project is completed</li> <li>✗ For research/feasibility studies, costs over \$50,000 for any single consultant or contractor that has not been selected through a competitive process</li> <li>✗ For new or existing demonstration projects, costs over \$200,000 for any single consultant or contractor that has not been selected through a competitive process</li> <li>✗ Costs associated with the purchase of real estate</li> <li>✗ Any overhead costs generated by the lead applicant or third parties, such as operating costs related to general maintenance and repair</li> <li>✗ Hospitality, incidental or food expenses for the project team</li> <li>✗ Hospitality or travel costs not in compliance with the Government of Ontario's Travel, Meals and Hospitality Expenses Directive</li> <li>✗ Any costs not directly related to the achievement of the project's objectives as defined in the contribution agreement between the IESO and the applicant</li> <li>✗ Any cost related to System Impact Assessment (SIA) or Customer Impact Assessment (CIA) processes</li> </ul>

## 9.2 Appendix B – Project Proposal Templates

There are two [Proposal Templates](#) that are required, Proposal Part A and Proposal Part B, posted on the Hydrogen Innovation Fund page on the IESO website.

## 9.3 Appendix C – Contribution Agreement

Posted on the [Hydrogen Innovation Fund](#) page on the IESO website.

## 9.4 Appendix D – Project Brief Template

Posted [Hydrogen Innovation Fund](#) page on the IESO website.

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**Independent Electricity  
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Ontario

**Executive Council of Ontario  
Order in Council**

**Conseil executif de l'Ontario  
Decret**

On the recommendation of the undersigned, the Lieutenant Governor of Ontario, by and with the advice and concurrence of the Executive Council of Ontario, orders that:

Sur la recommandation de la personne soussignée, le lieutenant-gouverneur de l'Ontario, sur l'avis et avec le consentement du Conseil executif de l'Ontario, decrete ce qui suit :

**WHEREAS** on April 7, 2022, Ontario released its Low-Carbon Hydrogen Strategy to accelerate the development of the province's low-carbon hydrogen economy;

**AND WHEREAS** it is desirable that the Independent Electricity System Operator ("IESO") establish a program aimed at integrating low-carbon hydrogen technologies into Ontario's electricity grid for the purposes of balancing and strengthening Ontario's reliable electricity system;

**AND WHEREAS** the Minister of Energy may, with the approval of the Lieutenant Governor in Council, issue directives under subsection 25.32(5) of the *Electricity Act, 1998* that require the IESO to undertake any request for proposal or other initiative or activity that relates to, amongst other matters, electricity supply, capacity or storage;

**NOW THEREFORE** the Directive attached hereto is approved.

**ATTENDU QUE** le 7 avril 2022, l'Ontario a publié sa Stratégie relative à l'hydrogène bas carbone en vue d'accélérer le développement de l'économie d'hydrogène bas carbone de la province;

**ATTENDU QU'IL** est souhaitable que la Société indépendante d'exploitation du réseau d'électricité (SIERE) établisse un programme visant à intégrer les technologies relatives à l'hydrogène bas carbone au réseau d'électricité de l'Ontario afin d'équilibrer et de renforcer le réseau d'électricité fiable de l'Ontario;

**ET ATTENDU QUE** le ministre de l'Énergie peut, sur approbation du lieutenant-gouverneur en conseil, émettre des directives en vertu du paragraphe 25.32 (5) de la *Loi de 1998 sur l'électricité*, qui



obligent la SIERE à lancer une demande de propositions, une autre invitation à soumissionner ou toute autre initiative ou activité portant, entre autres, sur l'approvisionnement en électricité, la capacité de production d'électricité ou la conservation d'électricité;

**EN CONSÉQUENCE**, la directive en annexe est approuvée et est en vigueur à compter de la date des présentes.



---

**Recommended:** Minister of Energy

**Recommande par :** Le ministre de l'Énergie

**Conc** \_\_\_\_\_ **w** \_\_\_\_\_ **e** \_\_\_\_\_

**Appuie par :** Le président | la présidente du Conseil des ministres

**Approved and Ordered:**      **JAN 26 2023**  
**Approuve et décrète le :**

---

**Lieutenant Governor**  
**La lieutenante-gouverneure**

## MINISTER'S DIRECTIVE

### TO: THE INDEPENDENT ELECTRICITY SYSTEM OPERATOR

I, Todd Smith, Minister of Energy ("Minister"), hereby direct the Independent Electricity System Operator ("IESO") pursuant to section 25.32 of the *Electricity Act, 1998* (the "Act") with regard to procurement of electricity resources to ensure the reliable, cost-effective and efficient operation of Ontario's electricity system in response to ongoing and growing needs expected in the future, as follows:

### BACKGROUND

On April 7, 2022, Ontario released its Low-Carbon Hydrogen Strategy ("Strategy") to accelerate the development of the low-carbon hydrogen economy in the province to create jobs and reduce emissions. The strategy leverages the province's strengths including a highly skilled workforce, clean and affordable electricity, existing storage and pipeline infrastructure and an innovative industrial sector that is poised to collaborate on hydrogen.

One of the immediate actions in the strategy is to support hydrogen storage and grid integration projects by asking the IESO to report back on program options to support pilot projects to help develop and advance these opportunities. The Strategy noted that hydrogen producers are very well suited to provide electricity system benefits and have previously worked with IESO to provide ancillary services such as grid frequency regulation. The strategy also noted that projects to support hydrogen electricity storage and grid integration pilots will help to improve Ontario's experience and understanding of the potential benefits and limitations of hydrogen in supporting Ontario's provincial electricity grid.

On April 7, 2022, the Minister sent a letter to the IESO, asking it to investigate and propose program options to integrate low-carbon hydrogen technologies into Ontario's electricity grid for the purposes of balancing and strengthening its reliable electricity system and contributing to broader decarbonization. The letter also asked the IESO to report back to the Ministry of Energy ("Ministry") by October 31, 2022, with program options, timelines, costs and any additional advice the IESO may have on how to proceed.

The IESO's October 31, 2022 report highlighted potential roles for hydrogen to benefit Ontario's electricity system, including the use of hydrogen storage and generation to efficiently balance supply and demand on the grid, and the possibility of blending hydrogen into natural gas-fired turbines for peaking capacity.

Based on a jurisdictional scan of comparable programs, discussions with stakeholders and the identified potential projects, the IESO proposed a total program budget of \$15 million over three years. The IESO proposed funding for three streams of project types:

1. Projects at existing facilities that are already built/operational and ready to participate in projects to demonstrate/evaluate reliability services;
2. Projects at new facilities that are not yet constructed but could be in-service by a certain date; and

3. Research/feasibility studies that could investigate the feasibility of different hydrogen approaches or support future hydrogen project decision-making.

Ontario already has one of the cleanest and most flexible electricity systems in the world, with over 90 per cent of the electricity generated in Ontario in 2021 coming from non-emitting resources. The use of low-carbon hydrogen, and other innovative technologies currently funded through the Grid Innovation Fund, for balancing and strengthening the grid, will ensure the province continues to build on that foundation. Recognizing the importance of integrating new technologies the Ministry will also seek opportunities to raise the profile of these important opportunities to advance the reliability, affordability and cleanliness of the provincial grid.

## **DIRECTIVE**

Therefore, in accordance with the authority under section 25.32 of the Act, the IESO is hereby directed as follows:

1. The IESO shall commence developing a "Hydrogen Innovation Fund" with the goal of investigating, evaluating and demonstrating how low-carbon hydrogen technologies can be integrated into Ontario's electricity grid for the purposes of balancing and strengthening our reliable electricity system.
2. Projects and research/feasibility studies procured through the Hydrogen Innovation Fund to support electricity supply, capacity, storage and demand management could involve hydrogen technologies applied to:
  - a. Clean energy integration (e.g., hydrogen storage and generation for smoothing of intermittent renewable generation, or for utilization of surplus or constrained clean electricity);
  - b. Peaking generation capacity (e.g., blending hydrogen with natural gas in gas-fired turbines, hydrogen fuel cells, electrolyzers as a dispatchable load to provide capacity services);
  - c. Ancillary services (e.g., adjusting electrolyzer load and/or fuel cell electricity output to respond to grid conditions); and
  - d. Long-term/ seasonal storage (e.g., hydrogen storage of surplus wind or hydroelectric generation during shoulder seasons for use in peak summer or winter needs).
3. The Hydrogen Innovation Fund:
  - a. Will have a total budget of \$15 million over three years;
  - b. Will have funding for three streams of project types:
    - i. Projects at existing facilities that are already built and/or operational and ready to participate in projects to demonstrate and/or evaluate reliability services;
    - ii. Projects at new facilities that are not yet constructed but could be in-service by a specified date; and
    - iii. Projects undertaking research and/or feasibility studies that could investigate the feasibility of different hydrogen approaches or support future hydrogen project decision making.

4. The IESO may determine how the total program budget is allocated among the project streams outlined in paragraph 3 b. above, in order to ensure the best projects move forward.
5. The IESO is expected to implement the Hydrogen Innovation Fund on the following timelines:
  - a. Commence developing program rules in Q1 2023;
  - b. Issue a targeted Request for Proposals ("RFP") in Q2 2023;
  - c. Report the successful RFP applications to the Minister by Q2 2023; and
  - d. Aim to have:
    - i. Demonstration projects at existing facilities commence by Q4 2023;
    - ii. Demonstration projects at new facilities commence by Q2 2025; and
    - iii. Receive reports on research / feasibility studies by Q4 2023.
6. The IESO shall work with the Ministry on a communications plan for the Hydrogen Innovation Fund that includes a plan on issuing the RFP, the selecting of projects and the announcing of successful projects.

## **GENERAL**

This Directive takes effect on the date it is issued.

## DIRECTIVE DU MINISTRE

### A L'INTENTION DE LA SOCIÉTÉ INDÉPENDANTE D'EXPLOITATION DU RÉSEAU D'ÉLECTRICITÉ

Je soussigné, Todd Smith, ministre de l'Énergie, enjoint par les présentes à la Société indépendante d'exploitation du réseau d'électricité (SIERE), en vertu de l'article 25.32 de la *Loi de 1998 sur l'électricité* (la « Loi »), en ce qui a trait à l'acquisition de ressources en électricité, d'assurer un fonctionnement fiable, rentable et efficace du réseau d'électricité de l'Ontario en réponse aux besoins courants et aux besoins croissants escomptés, comme suit :

#### CONTEXTE

Le 7 avril 2022, l'Ontario a publié sa Stratégie relative à l'hydrogène bas carbone (la « Stratégie ») visant à accélérer le développement de l'économie de l'hydrogène bas carbone dans la province, à créer des emplois et à réduire les émissions. La Stratégie tire parti des atouts de la province, notamment une main-d'œuvre hautement qualifiée, une électricité propre et abordable, des infrastructures de stockage et de pipeline existantes et un secteur industriel novateur prêt à collaborer dans le domaine de l'hydrogène.

L'une des mesures immédiates que prévoit la Stratégie est de soutenir des projets pilotes de stockage de l'hydrogène et d'intégration au réseau en demandant à la SIERE de faire rapport sur des solutions qui soutiendraient ces projets pilotes. La Stratégie mise sur le fait que les producteurs d'hydrogène sont très bien outillés pour apporter des avantages au réseau d'électricité et ant déjà travaille avec la SIERE pour fournir des services auxiliaires comme la régulation de la fréquence du réseau. La Stratégie souligne aussi que des projets pilotes de stockage de l'électricité à base d'hydrogène et d'intégration au réseau contribueront à améliorer l'expérience de l'Ontario et sa compréhension des avantages et des limites potentiels de l'hydrogène pour soutenir le réseau électrique provincial de l'Ontario.

Le 7 avril 2022, le ministre a envoyé une lettre à la SIERE, lui demandant d'étudier les options de programmes capables d'intégrer les technologies de production d'hydrogène bas carbone au réseau électrique de la province et de lui en proposer quelques-unes. Ces options devraient pouvoir équilibrer le réseau et renforcer sa fiabilité tout en contribuant à la décarbonisation. La lettre demandait également à la SIERE de présenter son rapport au ministère de l'Énergie (le « ministère ») avant le 31 octobre 2022 au plus tard. Ce rapport devrait contenir des options de programmes, des échéances, des coûts et des conseils sur la meilleure façon de procéder.

Le rapport que la SIERE a présenté le 31 octobre 2022 décrivait différentes utilisations de l'hydrogène pouvant créer des avantages pour le réseau d'électricité de l'Ontario, dont des services de stockage et de production d'hydrogène afin de parvenir à un bon équilibre entre l'offre et la demande dans le réseau et la possibilité de mélanger l'hydrogène dans les turbines de combustion du gaz naturel pour assurer la capacité pendant les heures de pointe.

En se fondant sur une étude comparative de programmes semblables dans d'autres territoires, des discussions avec des intervenants et les responsables des projets potentiels repérés, la SIERE a proposé un budget total de 15 millions de dollars sur trois ans. La SIERE a proposé de financer trois types de projets :

1. Des projets en place dans des installations existantes qui sont déjà opérationnels et prêts à participer à des initiatives afin de démontrer et d'évaluer les services de renforcement de la fiabilité du réseau;
2. Des projets dans de nouvelles installations, qui ne sont pas encore en place mais qui pourraient l'être dans un certain délai;
3. Des études de recherche et de faisabilité afin d'étudier la faisabilité de différentes approches liées à l'hydrogène ou de soutenir de futures décisions liées au projet d'hydrogène.

L'Ontario est déjà doté d'un des réseaux d'électricité les plus propres et les plus souples du monde, avec plus de 90 % de son électricité générée en Ontario, en 2021, provenant de ressources non polluantes. Le recours à l'hydrogène bas carbone et à d'autres technologies innovantes financées actuellement par le Fonds d'innovation pour le réseau, en vue d'équilibrer et de renforcer le réseau, assurera que la province continue dans cette voie. Conscient de l'importance de l'intégration de nouvelles technologies, le ministère cherchera aussi des occasions de promouvoir le potentiel de ces technologies pour favoriser la fiabilité, l'abordabilité et la propreté du réseau provincial.

## **DIRECTIVE**

En conséquence, en vertu du pouvoir que me confère l'article 25.32 de la Loi, j'ordonne par les présentes à la SIERE ce qui suit:

1. La SIERE doit commencer à concevoir un « programme de financement de projets innovants dans le domaine de l'hydrogène », dans l'objectif d'étudier, d'évaluer et de démontrer comment intégrer les technologies de production d'hydrogène bas carbone au réseau électrique de la province afin d'équilibrer et de renforcer son réseau d'électricité fiable.
2. Les projets et recherches ou études de faisabilité financés par ce programme de financement pour soutenir l'approvisionnement en électricité, la capacité, le stockage et la gestion de la demande d'électricité pourraient porter sur des technologies de production d'hydrogène servant à :
  - a. intégrer de l'énergie propre (p. ex., stockage et génération d'hydrogène pour lisser la production d'énergie renouvelable intermittente ou pour utiliser l'électricité propre excédentaire ou limitée);
  - b. assurer la capacité aux heures de pointe (p., ex., mélanger l'hydrogène dans les turbines de combustion du gaz naturel, piles à combustible à hydrogène, électrolyseurs comme charges répartissables pour assurer la capacité);
  - c. fournir des services accessoires (p. ex., ajuster la charge d'électrolyseurs et/ou l'électricité produite par la pile à combustible pour répondre aux conditions du réseau);
  - d. stocker l'hydrogène à long terme et de manière saisonnière (p. ex., stocker l'hydrogène provenant de la production excédentaire de vent ou d'hydroélectricité pendant les saisons intermédiaires en vue des périodes à demande élevée en été et en hiver).
3. Le « programme de financement de projets innovants dans le domaine de l'hydrogène » :

- a. disposera d'un budget total de 15 millions de dollars sur trois ans;
  - b. octroiera des fonds pour trois types de projets :
    - i. Des projets en place dans des installations existantes qui sont déjà opérationnels et prêts à participer à des initiatives afin de démontrer et d'évaluer les services de renforcement de la fiabilité du réseau;
    - ii. Des projets dans de nouvelles installations, qui ne sont pas encore en place mais qui pourraient l'être dans un certain délai;
    - iii. Des études de recherche et de faisabilité afin d'étudier la faisabilité de différentes approches liées à l'hydrogène ou de soutenir de futures décisions liées au projet d'hydrogène.
4. La SIERE peut décider comment le budget total du programme sera distribué parmi les types de projets décrits au paragraphe 3 b. ci-dessus, afin d'assurer l'avancement rapide des projets.
5. La SIERE doit mettre en œuvre le « programme de financement de projets innovants dans le domaine de l'hydrogène » en respectant le calendrier suivant :
- a. Début de l'élaboration des règles du programme : 1<sup>er</sup> trimestre 2023;
  - b. Publication d'une demande de propositions ciblées : 2<sup>e</sup> trimestre 2023;
  - c. Communication des propositions retenues au ministre : 2<sup>e</sup> trimestre 2023 au plus tard;
  - d. Échéances attendues :
    - i. Début des projets de démonstration dans des installations existantes : 4<sup>e</sup> trimestre 2023 au plus tard;
    - ii. Début des projets de démonstration dans des nouvelles installations : 2<sup>e</sup> trimestre 2025 au plus tard;
    - iii. Réception des rapports sur les recherches ou études de faisabilité : 4<sup>e</sup> trimestre 2023 au plus tard.
6. La SIERE travaillera avec le ministère à la préparation d'un plan de communications pour le Fonds pour l'innovation relative à l'hydrogène, qui comprend un plan de publication de la demande de propositions, de sélection des projets retenus et d'annonce des projets retenus.

## **DISPOSITIONS GÉNÉRALES**

La présente directive entre en vigueur à la date de sa publication.

**1** **ED CLARIFICATION QUESTION 1**

2 ED

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**4** **QUESTION(S):**

5 a) In the attached letter on the IESO system losses consultation, the IESO said: "The IESO  
6 and Hydro One have also agreed to work jointly to draft a report that will document our  
7 respective practices regarding mitigating transmission losses as well as identifying  
8 potential areas for overall net benefit reductions in transmission losses." I have not seen  
9 any IESO materials on that second question of "identifying potential areas for overall net  
10 benefit reductions in transmission losses." Did I miss something? If not, will the IESO be  
11 taking that next step this year?

**12** **RESPONSE**

13 a) The IESO incorporated feedback from the stakeholder engagement and finalized the  
14 transmission losses guideline document. See 5.1 ED 9 for the link to the recently posted  
15 document. The guideline describes how the IESO identifies opportunities to  
16 economically reduce losses as part of its planning.



**VECC STAFF CLARIFICATION QUESTION 1**

1.0-VECC 5

**QUESTION(S):**

- a) What was the impact of Bill 124? What do you know and has that been updated as of end of June? VECC would like a quantitative answer on the expected adjustment to Bill 124 and how significant it might be.

**RESPONSE**

- a) The IESO does not have any further updates at this time and is not prepared to provide an estimate of the quantitative financial impact if Bill 124 is overturned. As stated in response to SUP 7a, to respect good faith bargaining outcomes as part of the ongoing arbitration with the Society on the reopening provision for wages for 2022, 2023 and 2024, the IESO is awaiting the outcome of the Ontario government's appeal of the Ontario Superior Court of Justice decision to overturn Bill 124. Arguments in the appeal were heard last week by the Court of Appeal and the decision was reserved.

**ALL INTERVENORS CLARIFICATION QUESTION 1**

**QUESTION(S):**

Intervenor want a better understanding of the Space Needs Program, specifically the costs and the reason for why it is required to be done beginning in 2023. Can the IESO please provide further information. We would like to speak to someone who has direct knowledge of the program.

**RESPONSE**

The first step in the Space Needs Program will be to prepare a Project Charter (by Q4 2023) that will validate the Project's business objectives, overall schedule, budget assumptions and establish project scope. The IESO is in the process of retaining a construction manager to support the project planning and expects renovation work to commence in a phased approach starting in early to mid-2024.

The timing of the Space Needs Program is being driven by the following factors:

- a. The IESO has determined that its operations will remain at the Mississauga control centre, which was built in 1989. The IESO commissioned a Building Condition Assessment in 2020 that identified critical building systems (electrical, mechanical and structural) that require significant investment within the next 5 years.
- b. The IESO's lease at Upper Middle Road (UMR) is expiring in 2025. Optimizing space at Clarkson and Adelaide will allow the IESO to avoid or minimize an extension of the UMR lease. The IESO's lease at Adelaide Street West offices also expires in late 2025. The optimization of space at the IESO's downtown location may allow the IESO to reduce the amount leased space needed post-2025. These steps would be expected to reduce the IESO's ongoing lease costs.
- c. In the absence of space optimization, the IESO would be required to acquire and lease additional space for the planned new FTEs needed to carry out its objectives over the period of the business plan.
- d. The modernization of the work environment is an important factor in providing a work environment to meet the future needs of the organization and support employee attraction and retention.

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**ALL INTERVENORS CLARIFICATION QUESTION 2**

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**QUESTION(S):**

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6 With respect to the VECC Interrogatory on Bill 124 [1.0 VECC 5] the original response stated  
7 that the outcome of bargaining was expected by the end of Q2. Has the decision been  
8 communicated?

9

**10 RESPONSE**

11 No

12

13

**ALL INTERVENORS CLARIFICATION QUESTION 3****QUESTION(S):**

Discussion on Adjustment Proposal Scenarios:

- Exhibit F-1-1, page 4 and 5 – if there is a significant impact to IESO operations and in reference to seeking approval of the IESO Business Plan, discuss if amendment to year 1, 2 or 3 usage fees is necessary.

**RESPONSE**

The IESO would not request retroactive rate changes, any changes would be for periods after an OEB decision.

**ALL INTERVENORS CLARIFICATION QUESTION 4****QUESTION(S):**

The intervenors ask that the IESO provide:

The \$30M estimate over the 2023-2025 period for the Space Needs Program

**10 RESPONSE**

As set out in Exhibit E, Tab 2, Schedule 1 - Attachment 4, a total estimated capital expenditure of \$40 million is required to complete the project, which is shown in the table below. As the IESO has not yet initiated the project we are unable to further break down these costs at this time. The costs include costs for construction, IESO labour, Furniture, Fixtures and Equipment and they are based on the costs experienced in our recent office pilot as per the response to 1.0 APPrO Interrogatory 2b). The costs also include \$10 million of critical building system upgrades at our Clarkson facility which will be undertaken as we renovate this 30-year-old facility.

Program Name	2023 Capital Budget	2024 Capital Budget	2025 Capital Budget	2026 Capital Forecast
Space Needs Program	\$7.0M	\$10.0M	\$13.0M	\$10.0M

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**ALL INTERVENORS CLARIFICATION QUESTION 5****QUESTION(S):**

The intervenors ask that the IESO provide:

The \$10.4M estimate (excluding 50% contingency) over 2023-2024 for the Backup Operating and Data Centres Relocation Project.

**RESPONSE**

The total estimated cost for the Backup Operating and Data Centres Relocation Project discussed in Exhibit E, Tab 2, Schedule 1 - Attachment 4 is \$21.1 million of which \$15.9 million is capital. The \$15.9 million includes a 50% contingency. The \$10.4 million cost estimate shown in Appendix 3 of the 2023-2025 Business Plan does not include this contingency. A breakdown of the \$10.4 million cost estimate is presented below.

Project Capital Budget (not including contingency)	2023	2024
	(\$million)	(\$million)
IESO Labour	\$0.5	\$0.5
Computer Services	\$1.1	\$1.1
Computer Equipment	\$1.4	\$1.8
Facilities Equipment & Services	\$0.9	\$0.9
Leases for period of construction	\$1.0	\$1.0
Miscellaneous	\$0.1	\$0.1
<b>Budget without Contingency</b>	<b>\$5.0</b>	<b>\$5.4</b>

The Backup Operating and Data Centres Relocation Project is undergoing revised planning. As part of proceeding with Alternative 1, as noted in Exhibit E, Tab 2, Schedule 1, Attachment 6, the IESO has determined that leasing space for the Backup Operating Centre is not viable. An updated project budget to include the purchase of a Backup Operating Centre will be included in a revised project charter in Q3 of this year. The updated budget will be managed within the overall capital budget.