CLEAN ENERGY CREDIT STAKEHOLDER SURVEY

Prepared for the IESO

Final Report

April 2022

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OBJECTIVES & METHODOLOGY

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OBJECTIVES

The IESO has been asked by the Ministry of Energy to evaluate options for the development, operation, and management of a registry to support the creation and/or recognition, trading and valuation, and the retirement of clean energy credits (CECs) within Ontario.

Engagement with stakeholders is integral to this process. As such, the IESO commissioned Ipsos to field a survey of stakeholders to better understand what their clean energy goals are and how clean energy credits can support these goals.

METHODOLOGY

An online survey targeted at large energy customers in Ontario was conducted by Ipsos.

A total of 34 stakeholders completed the survey of the 381 invited to participate. This represents a response rate of 9%. However, multiple contacts were provided per organization in many instances and of the 381 stakeholders invited to participate, 121 unique organizations were represented which corresponds to a response rate of 28%.

The list of large energy customers was provided by the IESO.

Fieldwork was conducted between March 3 and 25, 2022.

EXECUTIVE SUMMARY

Executive Summary (1/2)

Clean/renewable electricity targets: The vast majority of organizations surveyed have implemented or plan to implement targets for clean/ renewable electricity and nearly half report a long-term target of 100% clean/renewable electricity.

GHG reduction targets: The vast majority of organizations surveyed have implemented or plan to implement targets for Scope 2 greenhouse gas emissions (GHG) reductions and over half report a long-term target of 100% GHG emissions reductions.

Key customer priorities: Keeping costs reasonable ranks as the most important priority (35% rank 1st), followed by additionality (32%) and having a range of different types of credit options (18%).

Interest in different fuel types: Half expressed interest (ranking of 8-10 on 10-pt scale) in investing in solar (50%) through CECs, followed closely by hydroelectric (47%). Fewer expressed interest in wind (35%), bioenergy (32%) or nuclear (24%) while nearly half (47%) expressed interest in using energy fed into the grid from storage technologies.

Minimum clean supply mix: Just under half of respondents (44%) feel CEC sales should be capped to ensure Ontario's supply mix has a defined level of cleanliness for all customers.

How province should invest any CEC revenues: The majority (59%) think it is very important that the money generated through CECs be spent on new incremental clean generation for the province.

Executive Summary (2/2)

Clean Energy Options: Respondents expressed high interest (8-10 on 10-pt scale) in the following clean energy options:

1. Self-generation* (47% with high interest)
2. Unbundled CECs (35%)
3. Power Purchase Agreements (35%)
4. Green pricing programs (29%)

Preferred Clean Energy Option: When asked to choose only one type of credit, respondents selected:

1. Self-generation (29%)
2. Power Purchase Agreements (24%)
3. Unbundled CECs (18%)
4. Green pricing programs (9%)
5. Don't know enough/no opinion: (21%)

Tracking Clean Energy Consumption: Amongst respondents who track the portion of their electricity demand supplied by clean energy generation, IESO data is the most common method for determining clean energy usage.

General: Opinions are mixed towards preferred vintage, timeframe to match with consumption, certification standards, and the furthest location they are willing to purchase due to more limited knowledge.

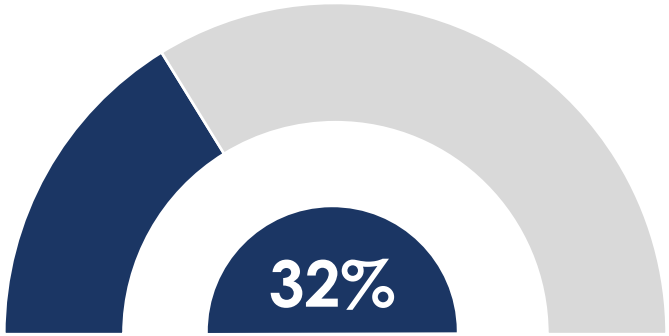
* Generation owned by customers, located behind customers meter

DETAILED FINDINGS

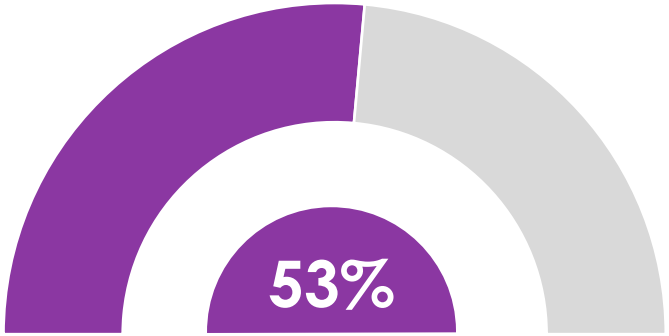
CLEAN ENERGY & GHG TARGETS

Clean / Renewable Electricity Targets

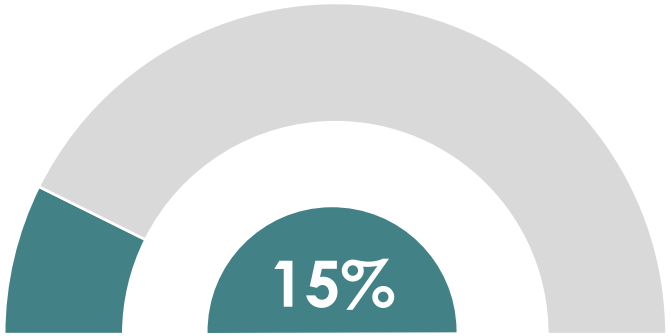
- At more than eight in ten (85%), the vast majority of organizations surveyed have implemented (32%) or plan to implement (53%) clean/renewable electricity targets.



Already implemented



Plan to implement

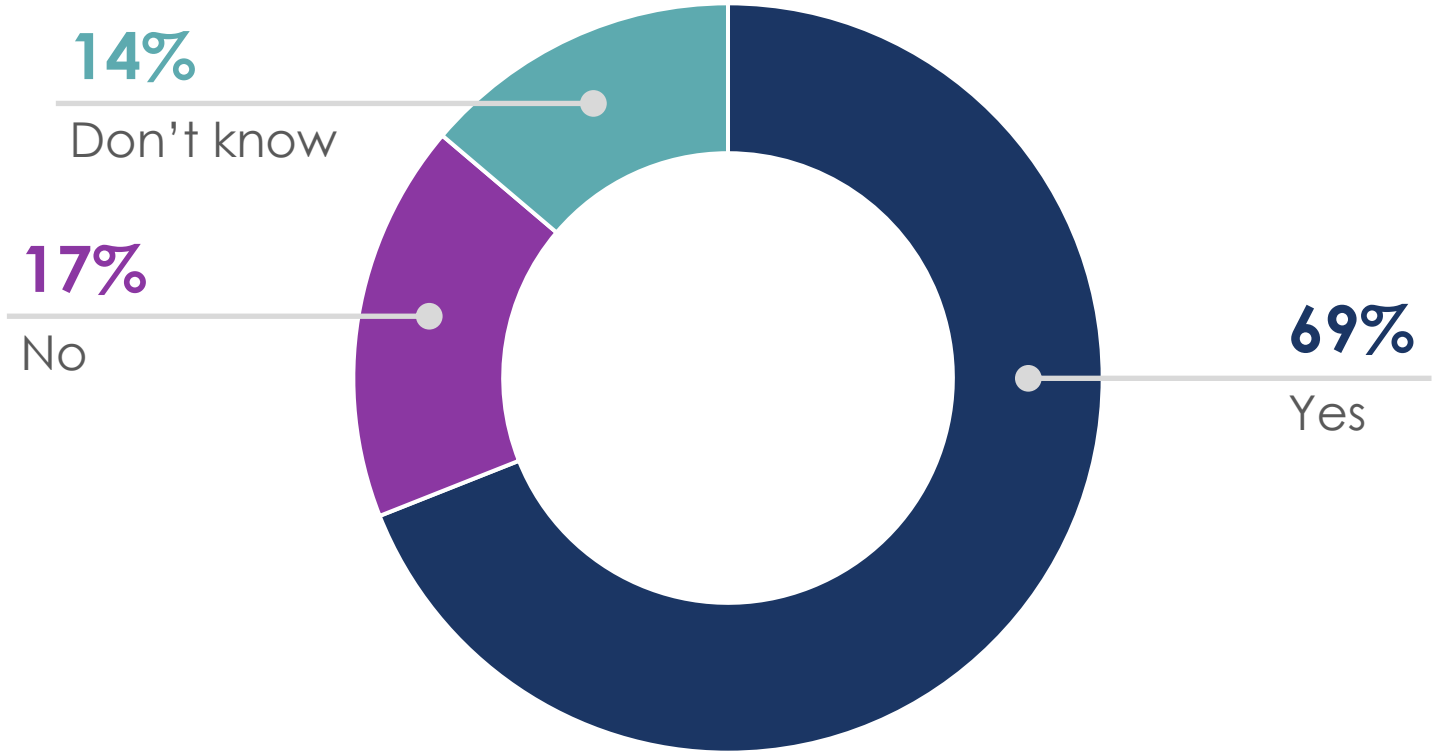


Do not plan to implement

Base: All respondents (n=34)
Q1. Has your organization implemented or set out plans to implement clean/ renewable electricity targets?

Clean / Renewable Electricity Interim Target

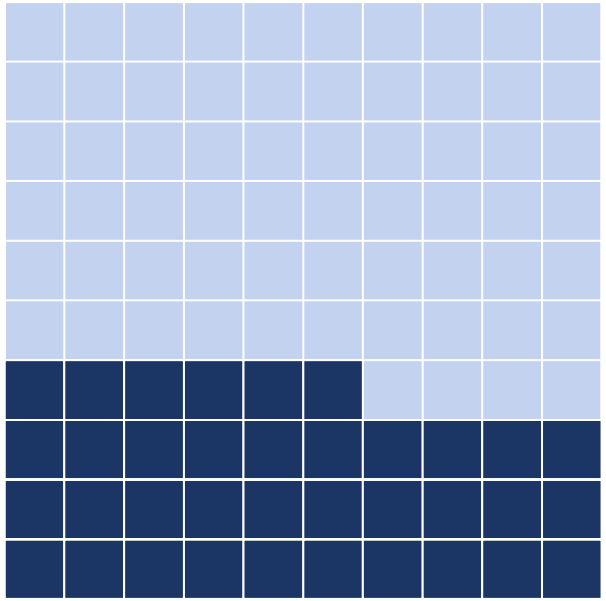
- Most (69%) of the organizations surveyed that have implemented or plan to implement clean/renewable electricity targets indicate that they include an interim target in addition to an overall long-term target. Around one in ten (14%) aren't sure if their organization plans to include an interim target.



Base: Plan to implement clean / renewable electricity targets (n=29*) *small sample size
Q2. Do the clean/ renewable electricity targets [IF ALREADY IMPLEMENTED AT Q1 'set by your organization' IF PLAN TO IMPLEMENT AT Q1 'your organization plans to set out'] include an interim in addition to an overall long-term target?

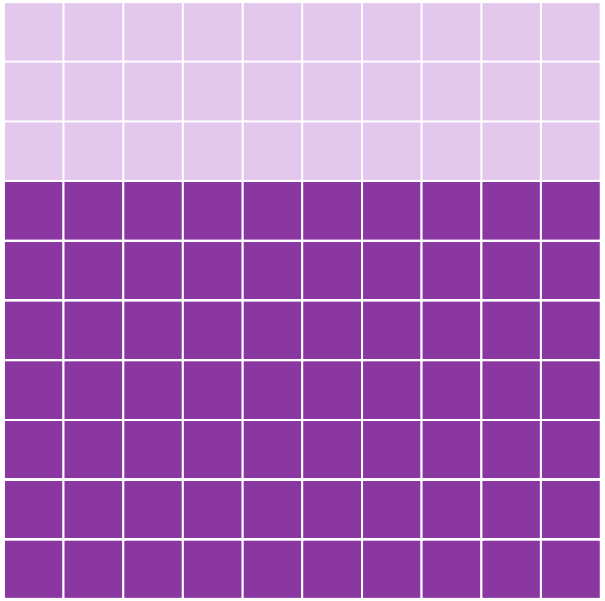
Clean / Renewable Average Electricity Targets

- The average interim target is for 36% of electricity consumption to be from clean/ renewable energy and the average long-term target is 70% of electricity consumption (although notably, more than half report their long-term target is 100%)



36%

AVERAGE INTERIM TARGET
% of energy consumption



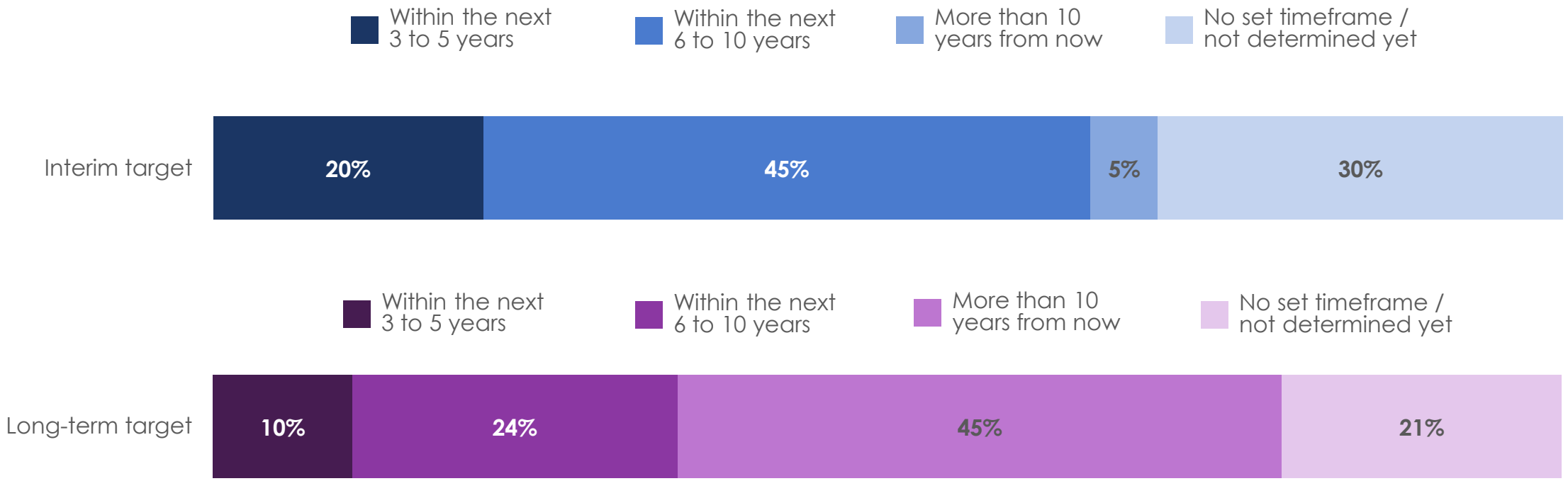
70%

AVERAGE LONG-TERM TARGET
% of energy consumption

Base: Plan to implement clean / renewable electricity targets; Interim Target (n=19*), Long-term Target (n=25*) *small sample size
Q3. What is the target your organization [IF ALREADY IMPLEMENTED AT Q1 'has set' IF PLAN TO IMPLEMENT AT Q1 'plans to set'] for the amount of clean/renewable energy it would like to utilize? If you are uncertain, please provide your best estimate.

Timeline to Achieve Clean / Renewable Electricity Targets

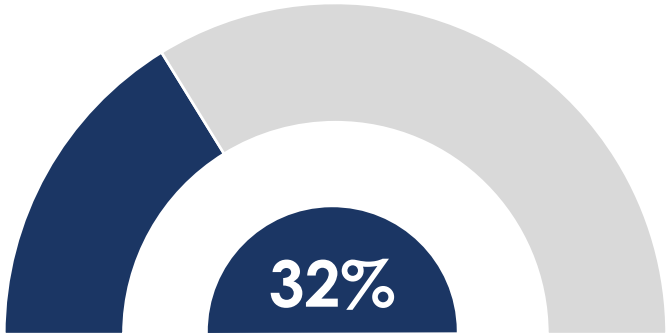
- Most organizations aim to achieve their interim target within the next 6 to 10 years (45%) and their long-term target more than 10 years from now (45%), although a sizeable minority have not set the timeframe or either target (30% and 21% respectively). Notably, no organizations surveyed plan to achieve their targets within the next 1-2 years.



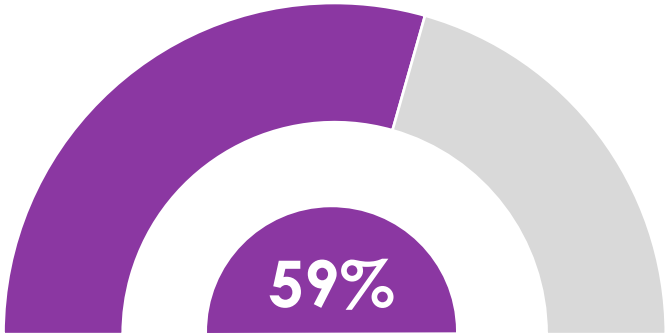
Base: Plan to implement clean / renewable electricity targets; Interim Target (n=20*), Long-term Target (n=29*) *small sample size
Q4. What is the timeframe your organization has set to achieve this target by?

Scope 2 Greenhouse Gas Emissions Reduction Targets

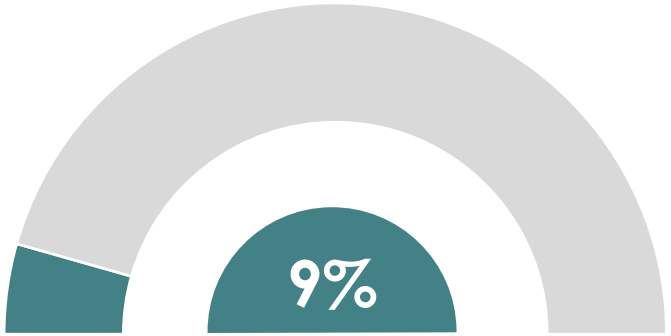
- At nine in ten (91%), the vast majority of organizations surveyed have implemented (32%) or plan to implement (59%) Scope 2 greenhouse gas emissions reduction targets.



Already implemented



Plan to implement

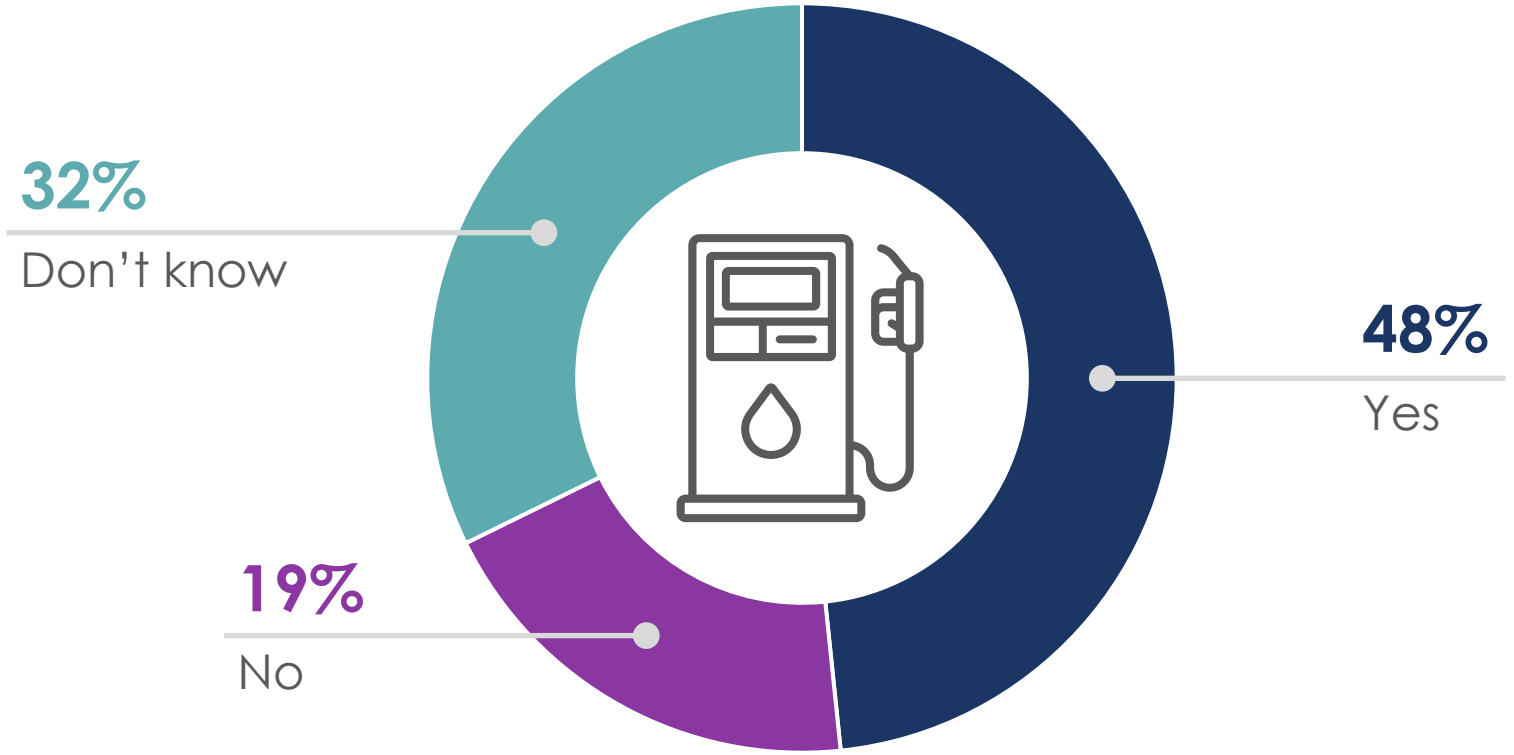


Do not plan to implement

Base: All respondents (n=34)
Q5. Has your organization implemented or set out plans to implement Scope 2 greenhouse gas emissions reduction targets associated with your organization's electricity consumption?

Scope 2 Greenhouse Gas Emissions Interim Target

- Around half (48%) of the organizations surveyed that have implemented or plan to implement Scope 2 greenhouse gas emissions reduction targets say they include interim targets. Notably, one-third (32%) aren't sure if their organization has any plans to implement interim targets.

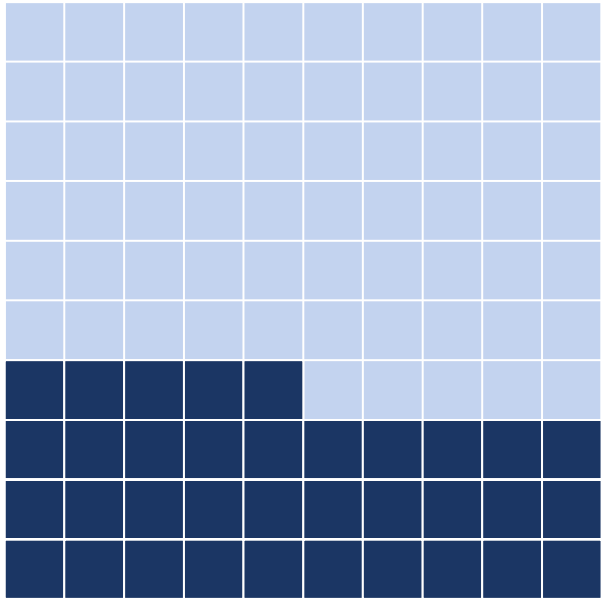


Base: Plan to implement Scope 2 greenhouse gas emissions reduction targets (n=31)
Q6. Do the Scope 2 greenhouse gas emissions reduction targets [IF ALREADY IMPLEMENTED AT Q5 'set by your organization' IF PLAN TO IMPLEMENT AT Q5 'your organization plans to set out'] include an interim in addition to an overall long-term target?

*Scope 2 emissions are indirect greenhouse gas emissions associated with the purchase of electricity, steam, heat, or cooling

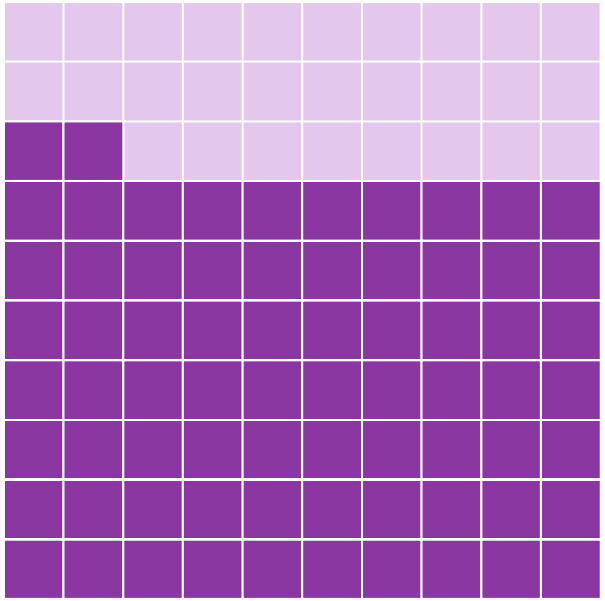
Greenhouse Gas Emissions Reduction Targets

- The average interim target is a 35% reduction in greenhouse gas emissions and the average long-term is a 72% reduction (although similar to clean/ renewable targets more than half report their long-term target is 100%).



35%

AVERAGE INTERIM TARGET
% reduction of GHG emissions



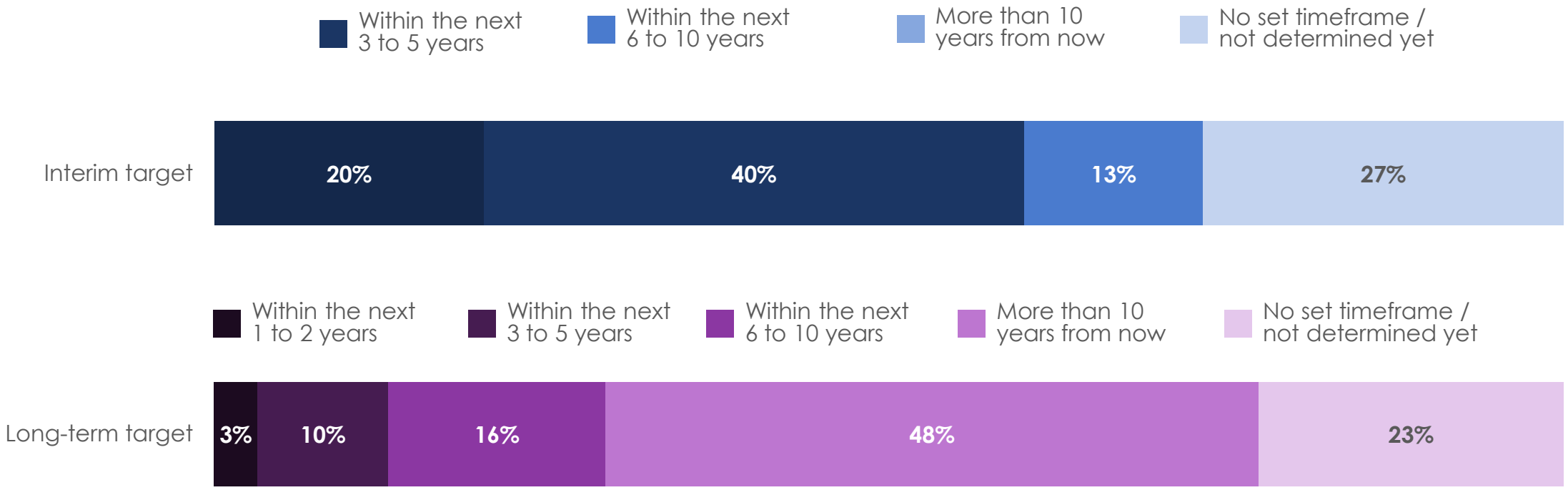
72%

AVERAGE LONG-TERM TARGET
% reduction of GHG emissions

Base: Plan to implement Scope 2 greenhouse gas emissions reduction targets; Interim Target (n=14*), Long-term Target (n=25*) *small sample size
Q7. What is the target your organization [IF ALREADY IMPLEMENTED AT Q5 'has set' [IF PLAN TO IMPLEMENT AT Q5] 'plans to set'] for the reduction of greenhouse gas emissions?

Timeline to Achieve Greenhouse Gas Emissions Targets

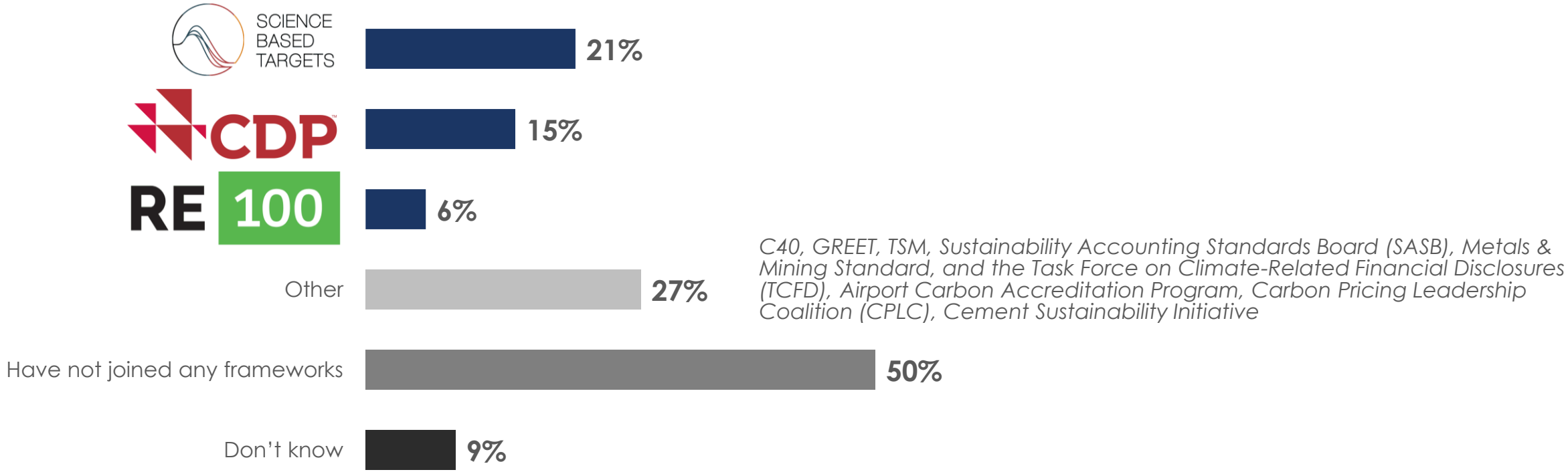
- Most organizations aim to achieve their interim target within the next 6 to 10 years (40%) and their long-term target more than 10 years from now (48%), although a sizeable minority have not set the timeframe or either target (27% and 23% respectively).



Base: Plan to implement Scope 2 greenhouse gas emissions reduction targets; Interim Target (n=15*), Long-term Target (n=31) *small sample size
Q8. What is the timeframe your organization has set to achieve this target by?

Experience with ESG Frameworks

- The majority have not joined any Corporate Environmental, Social & Governance (ESG) frameworks (50%) or aren't sure if their organization has done so (9%). Among those who have, the Science Based Targets initiative (SBTi) is most common (21%), followed by the Carbon Disclosure Project (15%) and RE100 (6%).

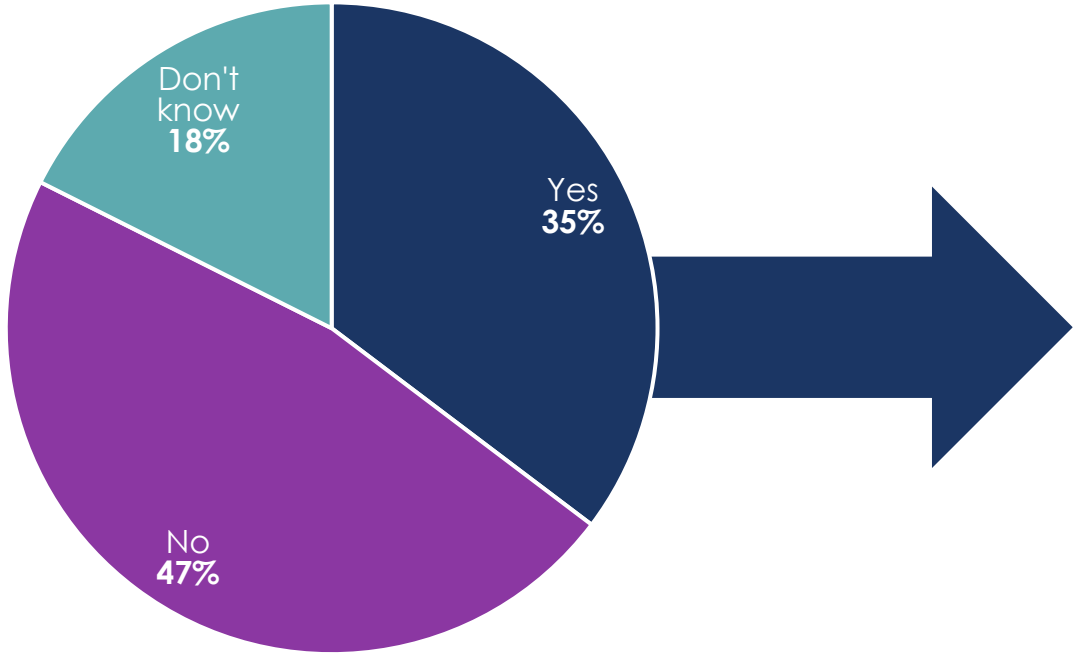


Base: All respondents (n=34)
Q9. Has your organization joined any of the following Corporate Environmental, Social & Governance (ESG) frameworks? Select all that apply. If your organization has joined a framework not mentioned, please specify it in the field provided below.

Measurement of Electricity Demand Supplied by Clean Energy

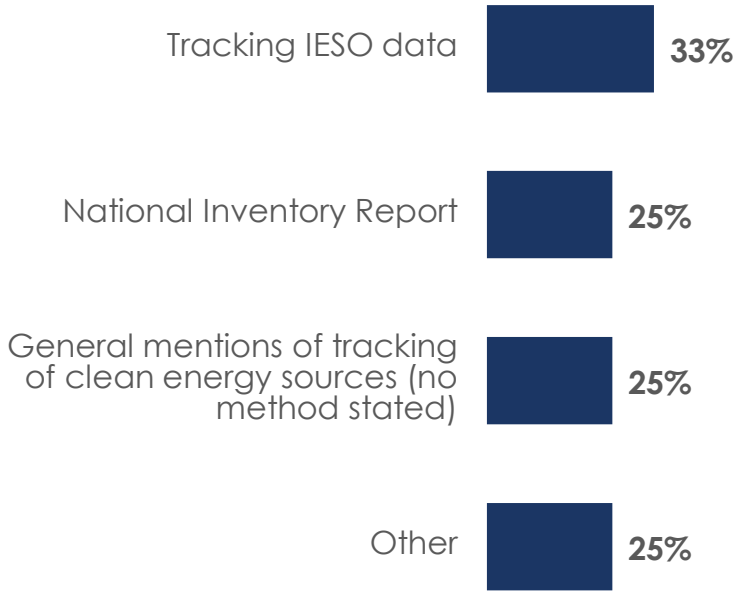
- Most do not have a method for determining the share of their electricity demand supplied by clean energy generation (47%) or aren't sure if their organization has a method (18%). Among the one-third (35%) who do, IESO data is the most common method for determining clean energy usage.

HAVE METHOD FOR DETERMINING SHARE



Base: All respondents (n=34)
Q10. Does your organization currently have a method for determining the share of your electricity demand supplied by clean energy generation in Ontario?

METHODS USED TO DETERMINE SHARE

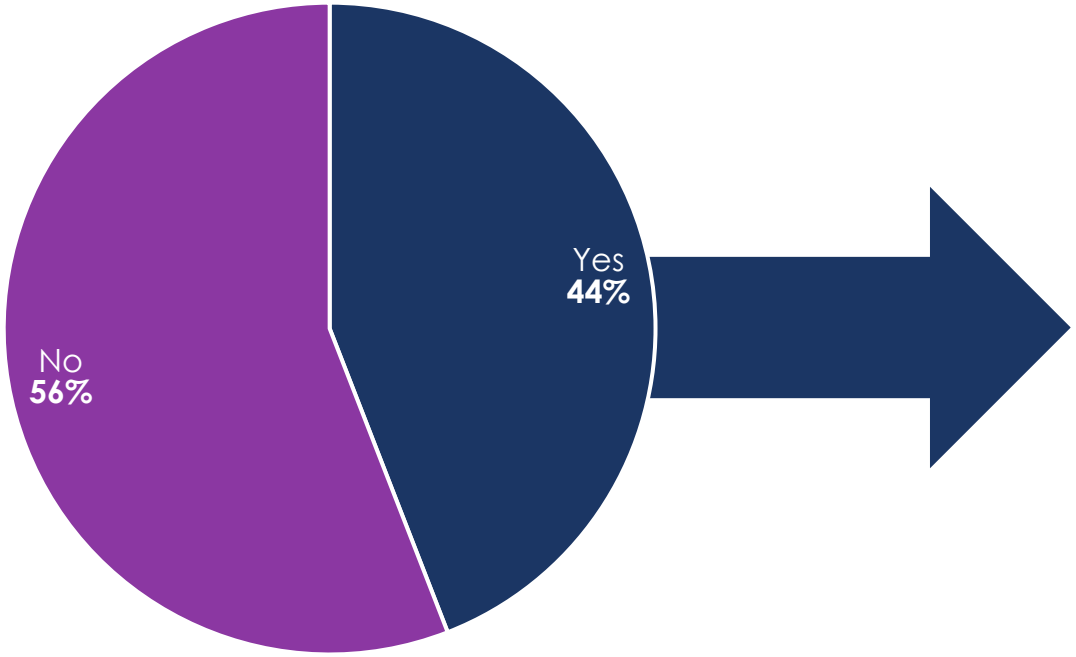


Base: Able to determine share of demand that is clean energy (n=12*) *small sample size
Q11. What methods does your organization use to determine the share of electricity demand supplied by clean energy generation? Please be as detailed in your response as possible.

Attitudes Towards Capping Volume of Credits Sold

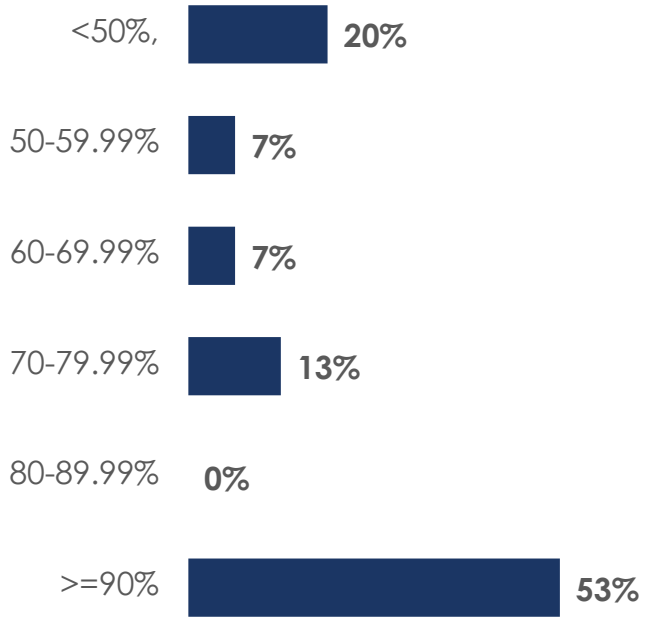
- Just under half (44%) of the organizations surveyed think clean energy credits should be capped to ensure Ontario's supply mix has a defined level of cleanliness for all customers. Among those who do, most (53%) think at least 90% of clean energy supply should be maintained for all customers.

CLEAN ENERGY CREDITS SHOULD BE CAPPED



Base: All respondents (n=34)
Q11a. Should the volume of clean energy credits sold in Ontario be capped to ensure Ontario's supply mix has a defined level of cleanliness for all customers?

LEVEL OF SUPPLY THAT SHOULD BE MAINTAINED

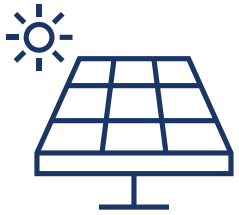


Base: Clean energy credit should be capped (n=15*) *small sample size
Q11b. What level of clean electricity supply should be maintained for all customers?

Experience with Clean Energy Credit Options

- Most of the organizations surveyed (73%) have experience with at least one of the clean energy credit options presented. Organizations report having the most experience with self-generation (44%) or Power Purchase Agreement (44%), while fewer have experience with unbundled clean/renewable energy credit purchases (29%) or green pricing programs (24%).

HAVE EXPERIENCE WITH…



44%

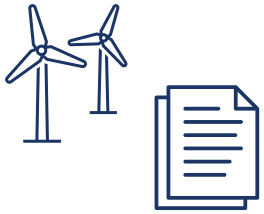
Self-generation

On-site electricity generation from clean energy (wind, solar, etc.)

44%

Power Purchase Agreements

Contractual arrangement with clean energy generator for both electricity and environmental attribute (e.g. clean energy credit)



29%

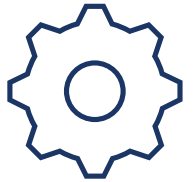
Unbundled clean / renewable energy credit purchases

Purchase of environmental attribute (e.g. clean energy credit) only; electricity purchased separately from the grid

24%

Green pricing programs

Premium tariff rate with utility provider in which you receive clean energy and electricity



3%

Other

24%

No Experience

3%

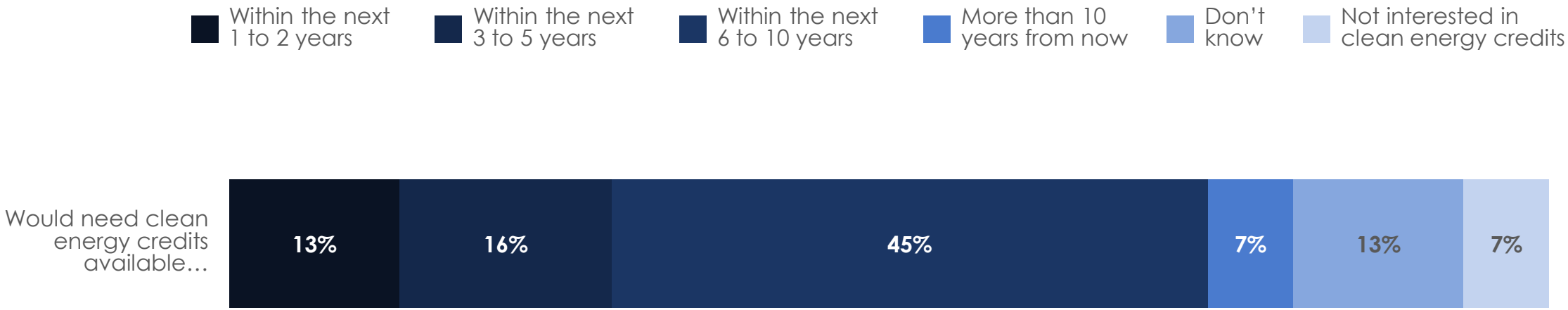
Don't know

Base: All respondents (n=34)
Q12. Does your organization have experience with the following clean energy credit options? Select all that apply. If your organization has experience with a clean energy credit option not provided, please specify it in the space provided below.

ATTITUDES TOWARDS CLEAN ENERGY CREDITS

Preferred Timeline for Availability of Credits to Meet Targets

- Among those who have either clean energy or greenhouse gas emission reduction targets, most would need clean energy credits available within the next 6 to 10 years (45%) to meet their targets, while three in ten would need them sooner (29% within the next 5 years). One in five (19%) say they are not interested in clean energy credits or that they are unsure when they would need them.

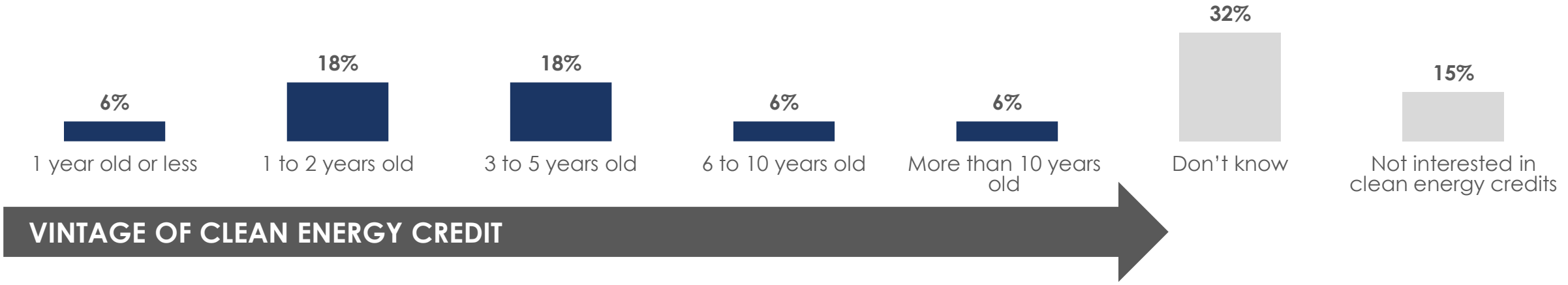


Base: Have clean electricity or greenhouse gas emission targets (n=31)
Q13. When would your organization need clean energy credits to be available in order to meet your clean/ renewable energy or greenhouse gas emissions reduction targets?

Preferred Vintage for Clean Energy Credits

- When asked the oldest vintage of clean energy credits they would be willing to purchase, almost half (47%) say they don't know (32%) or are not interested (15%). Of those that do provide a response, the highest proportion say the oldest vintage they would be willing to purchase is 1-2 (18%) or 3-5 years old (18%).

OLDEST VINTAGE WILLING TO PURCHASE

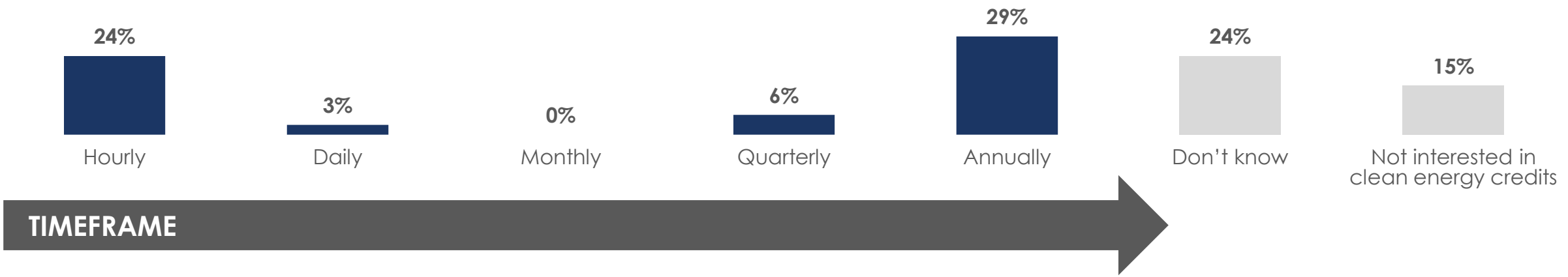


Base: All respondents (n=34)
Q14. The year that a clean energy credit is generated can be described as its vintage. If your organization were to purchase clean energy credits, what is the oldest vintage credit that you would be willing to purchase?

Preferred Timeframe to Match Electricity Consumption

- In terms of the shortest timeframe required for matching credit purchases to electricity consumption, opinions are mixed. Three in ten (29%) say they would require annually whereas one-quarter (24%) mention hourly. Notably, one quarter don't know (24%) and around one in ten are not interested in clean energy credits (15%).

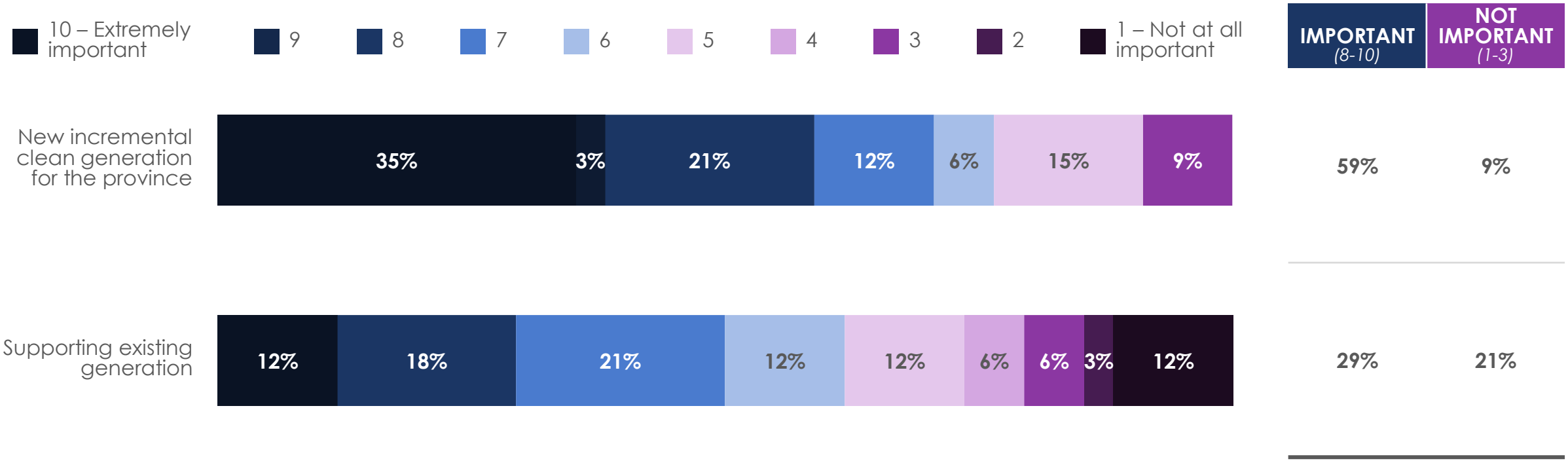
SHORTEST TIMEFRAME REQUIRED



Base: All respondents (n=34)
Q15. Clean energy credits can be matched to electricity consumption across different timeframes. What is the shortest timeframe your organization would require credit purchases to match your electricity consumption?

Importance of Spending on Different Types of Generation

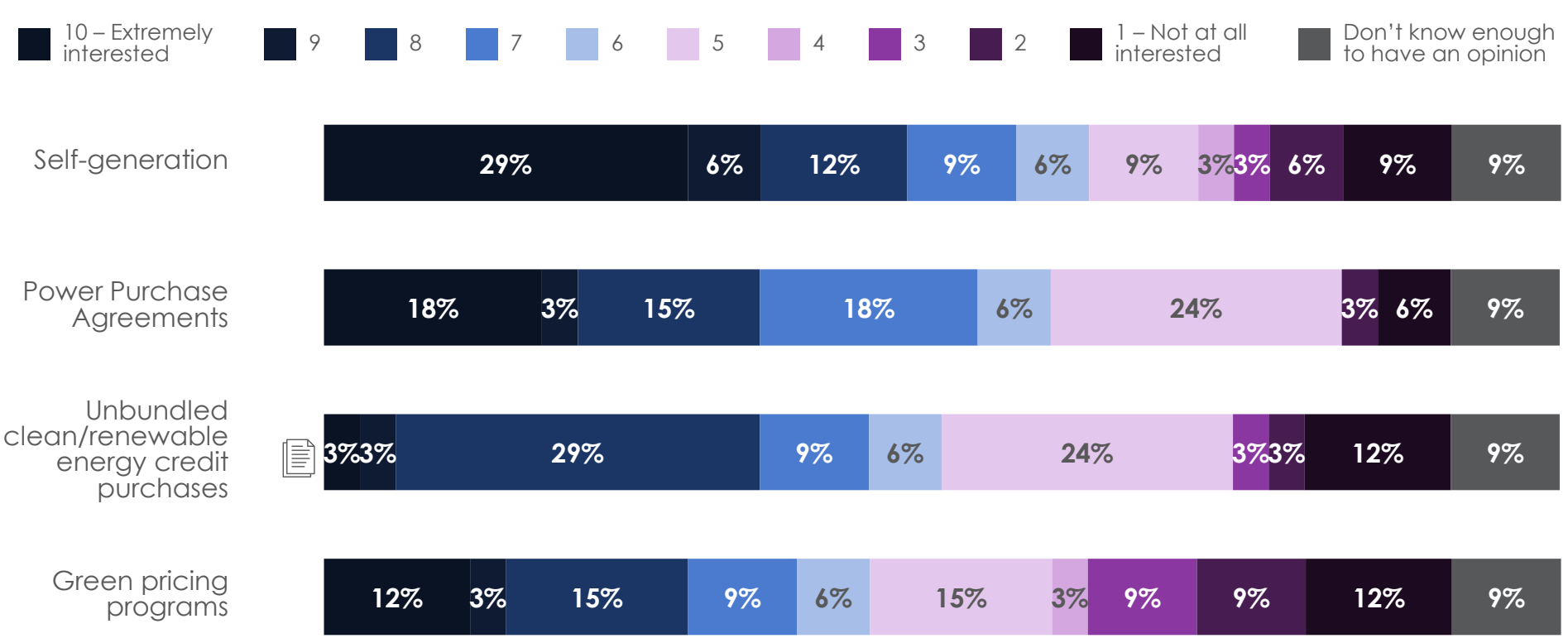
- At six in ten (59%), the majority of organizations surveyed think it is important (8-10 on 10-pt scale) to have new incremental clean generation for the province. By comparison, only half as many (29%) believe supporting existing generation is as important.



Base: All respondents (n=34)
Q16. How important is it to your organization that the money generated through clean energy credits be spent on each of the following types of generation? Please use a scale from 1 to 10, where 1 is 'not at all important' and 10 is 'extremely' important.

Level of Interest in Purchasing Different Types of Clean Energy Credits

- At nearly half (47%), interest (8-10 on 10-pt scale) is highest for self-generation clean energy credit offerings, followed by unbundled clean / renewable energy credit purchases (35%), Power Purchase Agreements (35%), green pricing programs (29%)



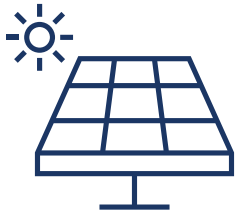
	INTERESTED (8-10)	NOT INTERESTED (1-3)
Self-generation	47%	18%
Power Purchase Agreements	35%	9%
Unbundled clean/renewable energy credit purchases	35%	18%
Green pricing programs	29%	29%

Base: All respondents (n=34)
Q17. Considering the potential types of clean energy credit offerings outlined below, how interested would your organization be in purchasing credits through each of the following? Please use a scale from 1 to 10, where 1 is 'not at all interested' and 10 is 'extremely interested'.

Preferred Clean Energy Credit Offerings

- When forced to choose only one type of credit, the largest proportion select self-generation (29%), followed closely by Power Purchase Agreements (24%). Fewer say unbundled clean / renewable energy credit purchases (18%) or green pricing programs (9%) are most desirable and notably two in ten (21%) don't know enough to have an opinion.

MOST PREFERRED METHOD



29%

Self-generation

On-site electricity generation from clean energy (wind, solar, etc.)

24%

Power Purchase Agreements

Contractual arrangement with clean energy generator for both electricity and environmental attribute (e.g. clean energy credit)

18%

Unbundled clean / renewable energy credit purchases

Purchase of environmental attribute (e.g. clean energy credit) only; electricity purchased separately from the grid

9%

Green pricing programs

Premium tariff rate with utility provider in which you receive clean energy and electricity

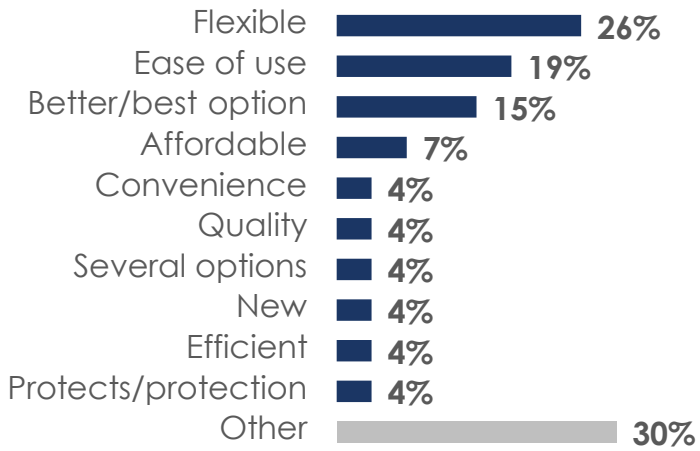
21%

Don't know enough to have an opinion

Base: All respondents (n=34)
Q18. And, if your organization had to select only one of the potential types of clean energy credit offerings which is the most desirable option?

Reason(s) For Preferred Offering

- Overall, flexibility (26%) is most commonly cited as the primary reason for preferring one of the clean energy credit offerings, followed by ease of use (19%). Sample sizes by each type of offering are very small and there are no statistically significant differences in results, however on a directional basis organizations are more likely to feel power purchase agreements are affordable, unbundled credit purchases are flexible and green pricing programs are efficient.



	Self-generation (n=10**)	Power Purchase Agreements (n=8**)	Unbundled clean / renewable energy credit purchases (n=6**)	Green pricing programs (n=3**)
Flexible	10%	25%	50%	33%
Ease of use	10%	13%	33%	33%
Better/best option	20%	13%	-	33%
Affordable	-	25%	-	-
Convenience	-	13%	-	-
Quality	10%	-	-	-
Several options	-	13%	-	-
New	-	13%	-	-
Efficient	-	-	-	33%
Protects/protection	10%	-	-	-
Other	50%	25%	17%	-

Base: Prefer [INSERT PURCHASE METHOD] (n=27*) *small sample size **very small sample size
Q19. You indicated that [INSERT RESPONSE FROM Q18] would be the most desirable option for your organization. Why did you say that? Please be as detailed in your response as possible.

Maximum Willing to Spend on Credits to Meet Targets

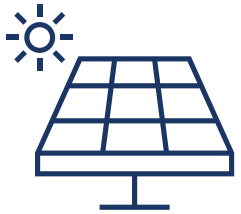
- Those who express interest in purchasing clean energy credits are willing to pay the most on average for power purchase agreements ($123 /MWh), followed by self-generation ($97), green pricing programs ($84) and unbundled credit purchases ($70).

AMOUNT WILLING TO SPEND (AVERAGE)

$123

Power purchase agreements
(n=7**)

Contractual arrangement with clean energy generator for both electricity and environmental attribute (e.g. clean energy credit) (including electricity and clean energy credit)



$97

Self-generation (n=7**)

On-site electricity generation from clean energy (wind, solar, etc.) (including electricity and clean energy credit)

$84

Green pricing programs (n=6**)

Premium tariff rate with utility provider in which you receive clean energy and electricity (including electricity and clean energy credit

$70

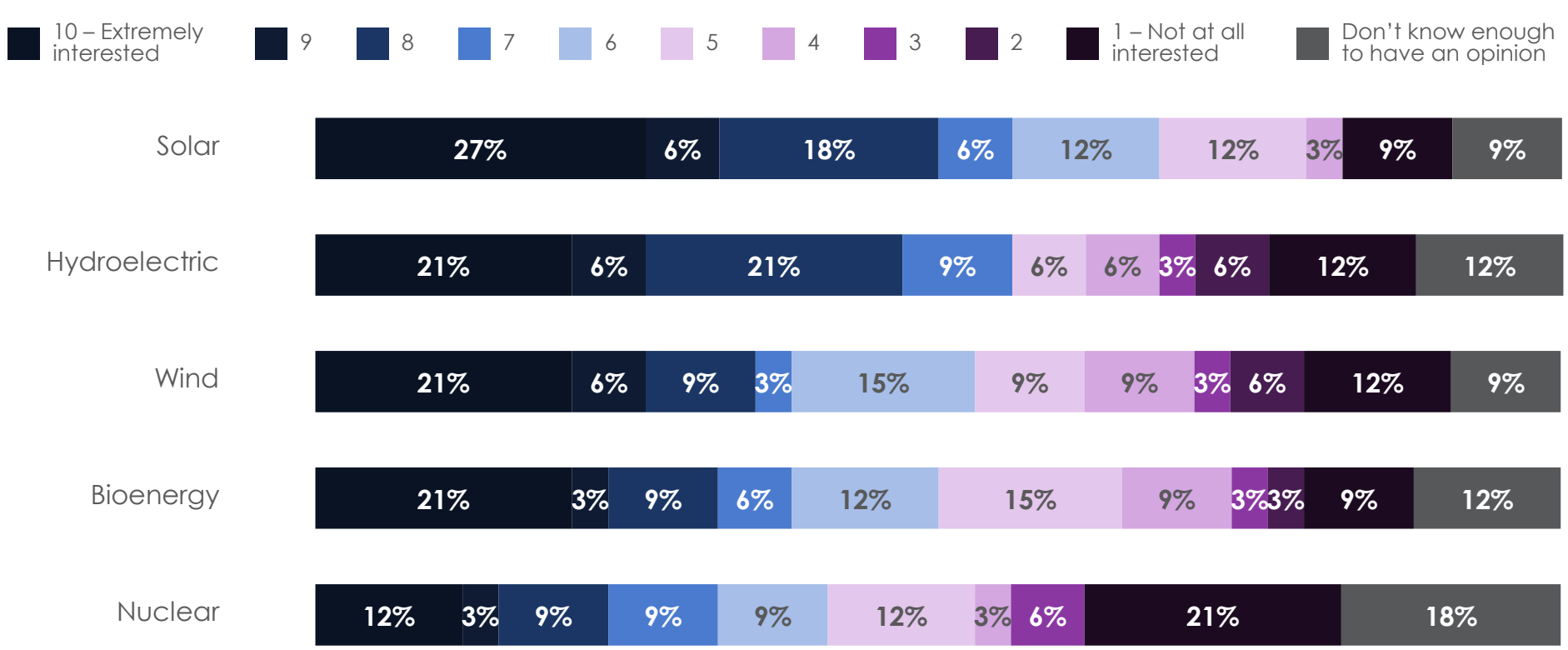
Unbundled credit purchases
(n=7**)

Purchase of environmental attribute (e.g. clean energy credit) only; electricity purchased separately from the grid (does not include electricity)

Base: Interested in purchasing clean energy credits (n=Varies) ** very small sample size
Q20. You indicated having interest in the following potential clean energy credit offering(s). What do you estimate would be the maximum your organization would be willing to spend (on a $/MWh basis) to meet your clean energy targets for each of the following options?

Level of Interest in Investing in Different Types of Clean Energy Generation

- Half express interest (8-10 on 10-pt scale) in investing in solar (50%) through clean energy credits, followed closely by hydroelectric (47%). Fewer express interest in wind (35%), bioenergy (32%) or nuclear (24%).

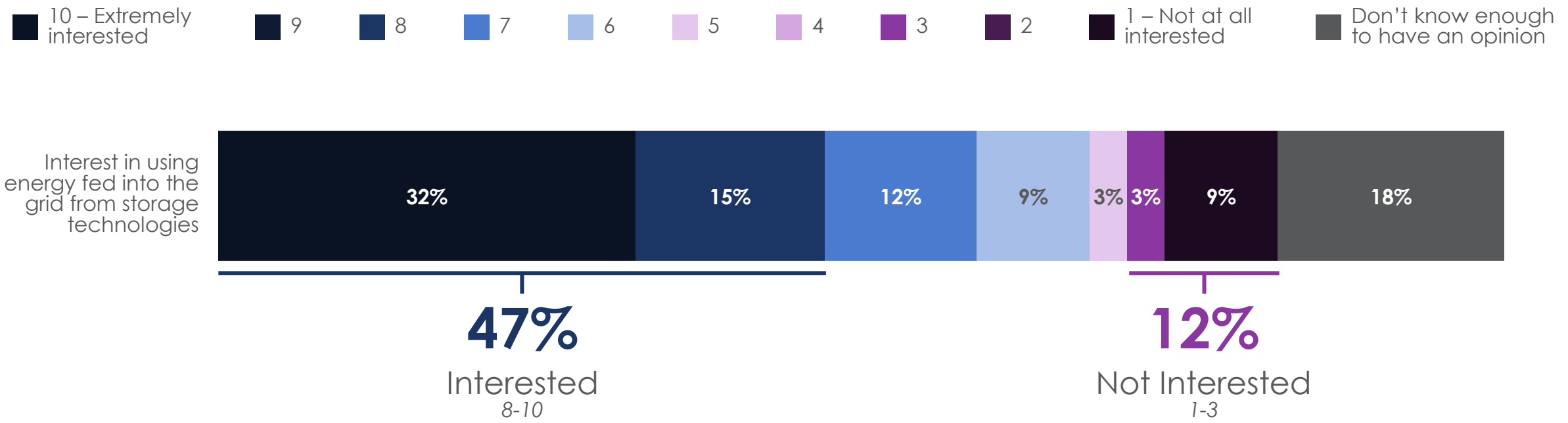


	INTERESTED (8-10)	NOT INTERESTED (1-3)
Solar	50%	9%
Hydroelectric	47%	21%
Wind	35%	21%
Bioenergy	32%	15%
Nuclear	24%	27%

Base: All respondents (n=34)
Q21. Considering the following types of clean energy generation, how interested would your organization be in investing in each of the following through the purchase of clean energy credits? Please use a scale from 1 to 10, where 1 is 'not at all interested' and 10 is 'extremely interested'.

Interest in Using Energy From Storage Technologies

- Nearly half (47%) express interest (8-10 on 10-pt scale) in using energy fed into the grid from storage technologies to achieve clean energy targets, though as many as one in five (18%) don't know enough to offer an opinion on the matter.

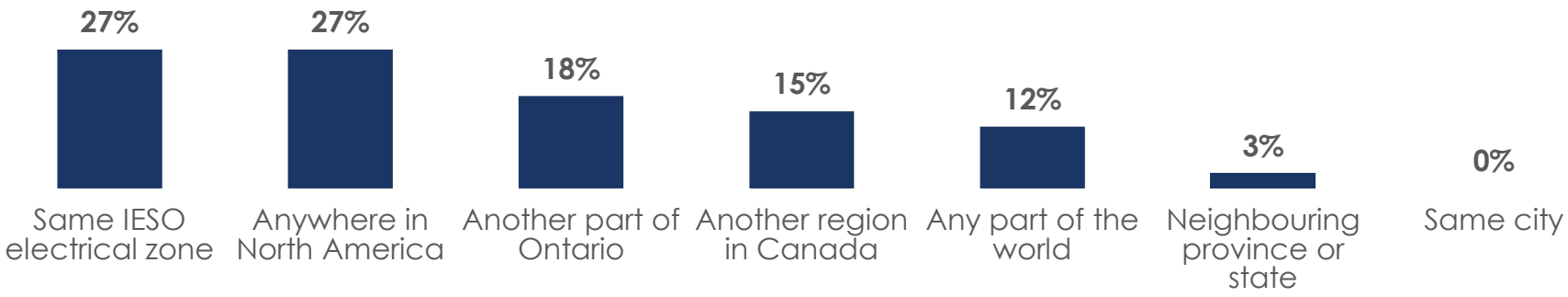


Base: All respondents (n=34)
Q22. How interested would your organization be in using energy fed into the grid from storage technologies to achieve clean energy targets? Please use a scale from 1 to 10, where 1 is 'not at all interested' and 10 is 'extremely interested'.

Distance Willing to Purchase Clean Energy Credits

- The highest proportion of organizations surveyed indicate that within the same IESO electrical zone (27%) or anywhere in North America (27%) are the farthest locations from which they would be willing to purchase clean energy credits.

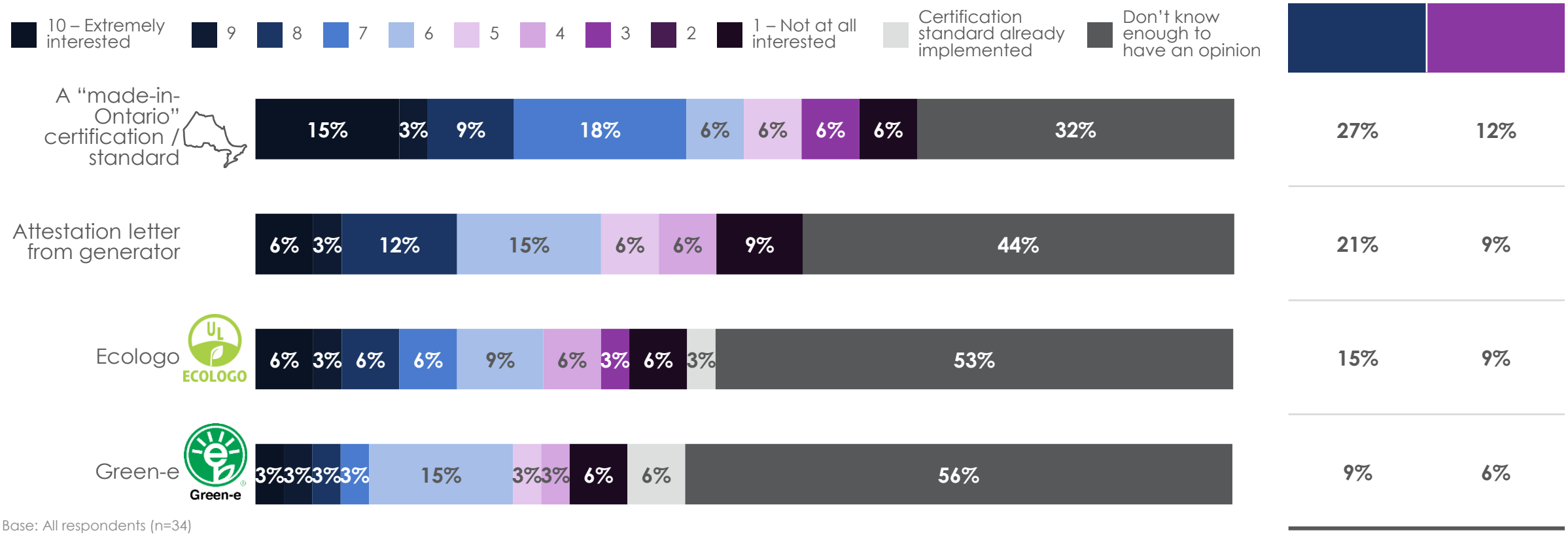
FARTHEST LOCATION WILLING TO PURCHASE FROM



Base: All respondents (n=34)
Q23. The clean energy credit registry currently envisioned for Ontario would cover domestic generation and consumption only; however, clean energy credits can be purchased from many different parts of the world. With this in mind, please select the farthest location from which you would be willing to purchase clean energy credits?

Interest in Certification Standards to Meet Clean Energy Targets

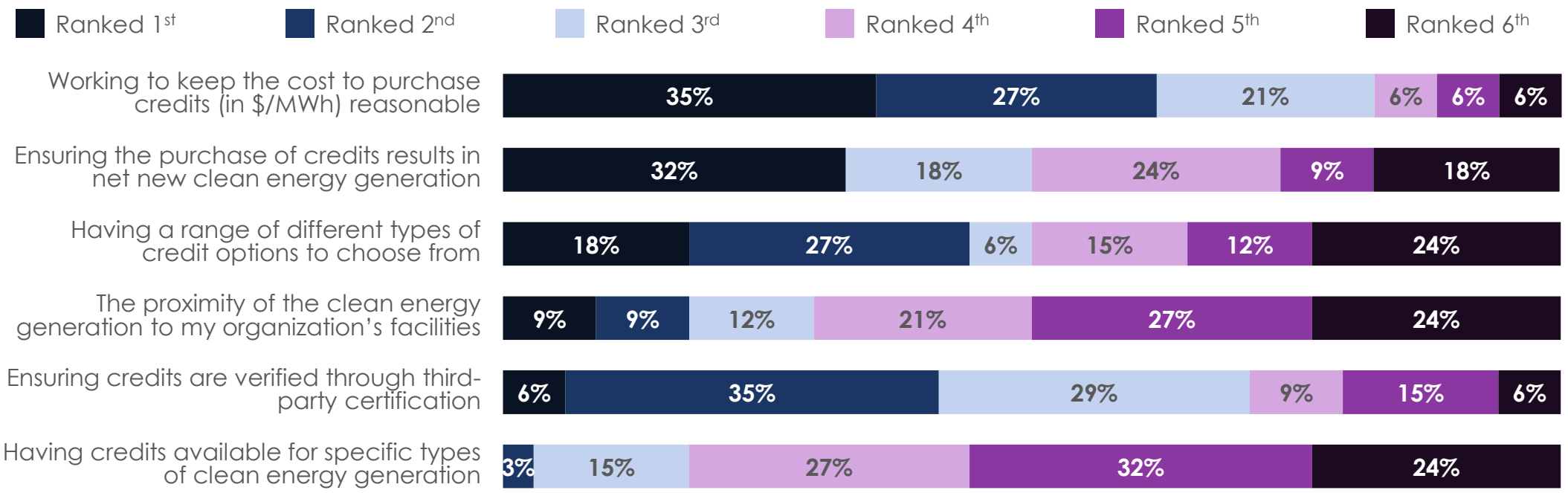
- Interest in certification standards to meet clean energy targets is limited and many organizations admit they don't know enough to offer an opinion on the matter. Of those that do offer an opinion, the highest proportion (15% 10 on 10-pt scale; 27% 8-10) express interest in a "made-in-Ontario" certification or standard, followed by an attestation letter from generator (21%), Ecologo (15%) and Green-e (9%).



Base: All respondents (n=34)
Q24. How interested would your organization be in implementing each of the following certification standards in order to meet current or future clean energy targets? Please use a scale from 1 to 10, where 1 is 'not at all interested' and 10 is 'extremely interested'.

Clean Energy Credit Market Priorities

- In terms of clean energy credit market priorities, keeping costs reasonable ranks as the top priority (35% rank 1st), followed by ensuring the purchase of credits results in net new clean energy generation (32%). Having a range of different types of credit option (18%) is the next highest priority, followed by the proximity of generation to the organization's facilities (9%) and third-party verification of credits (6%) while having credits available for specific types of clean energy generation ranks as the lowest priority (0%). Notably, ensuring credits are verified through third-party certification stands out as being a prominent secondary priority.



Base: All respondents (n=34)
Q25. A clean energy credit market can support different priorities depending on the specifics of the product offerings. Considering the following factors related to clean/ renewable energy, please rank each in terms of priority for your organization where 1 is the highest priority and 6 is the lowest.

Other Factors to Consider: In their Own Words

GHG emission factors need to be more localized, rather than Ontario-wide. 1 kWh of clean energy in Niagara Falls has a lower carbon value, due to hydroelectric power, than in the Toronto area, that is sourced from natural gas. The use of a generalized emissions factor unfairly benefits low-carbon local systems.

Lobby Green-e, CDP etc. to qualify large hydro in Ontario as renewable.

Model policy/procedure on locations where successful CEC programs have already been implemented. Reduce learning curve through analysis.

Credits for offsetting carbon for natural gas consumption.

This program has the opportunity to catalyze greater availability of clean energy. However, this could be limited if the market becomes saturated with old credits owned by the Province.

Please don't do it. This will not result in emissions reductions.

Additionality of credits, i.e. ensuring that they represent true reductions in greenhouse gas emissions, is critical. Enhanced geothermal power generation should be explored.

The IESO needs to consider the fact that Ontario rate payers have been paying to decarbonize the grid over the past years. If that existing renewable electricity is bought up by organizations, the average ratepayer will have a grid with more ghg emissions and be more exposed to fluctuations in fossil fuel prices and carbon taxes. For this reason, we believe clean energy credits should only be generated from NEW clean energy generators. If the IESO decides to include existing non-emitting generation in the program, the revenue generated should be invested directly into building new, non-emitting generation.

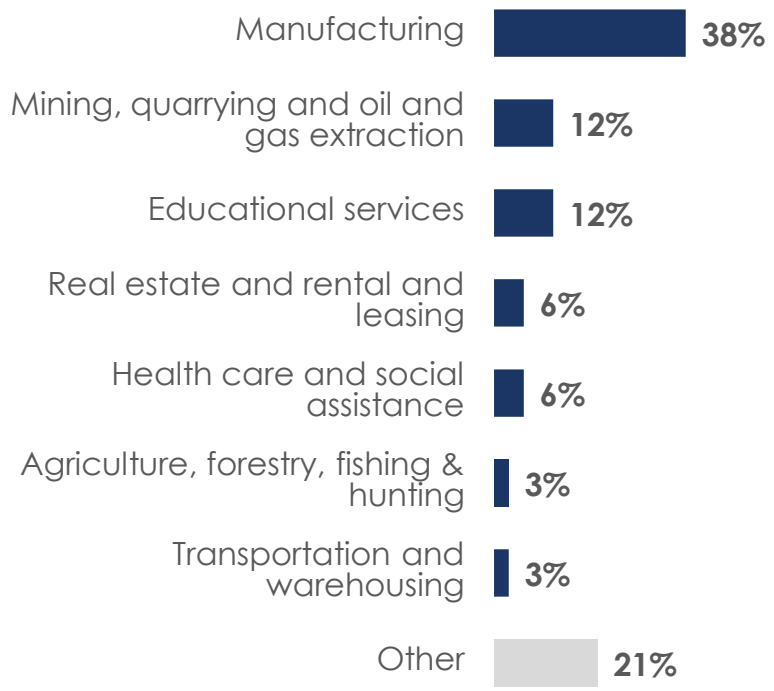
The credits need to be linked with other markets such as California and New York for it to be successful.

Clean Energy Demand Response: Consideration for a DR program which would prevent GHG emitting generation to come online or reduce GHG generation could be applied to generate clean energy credits

Base: Total answering (n=34)
Q26. Are there any other factors and/or technologies related to clean energy credits that the IESO should consider?

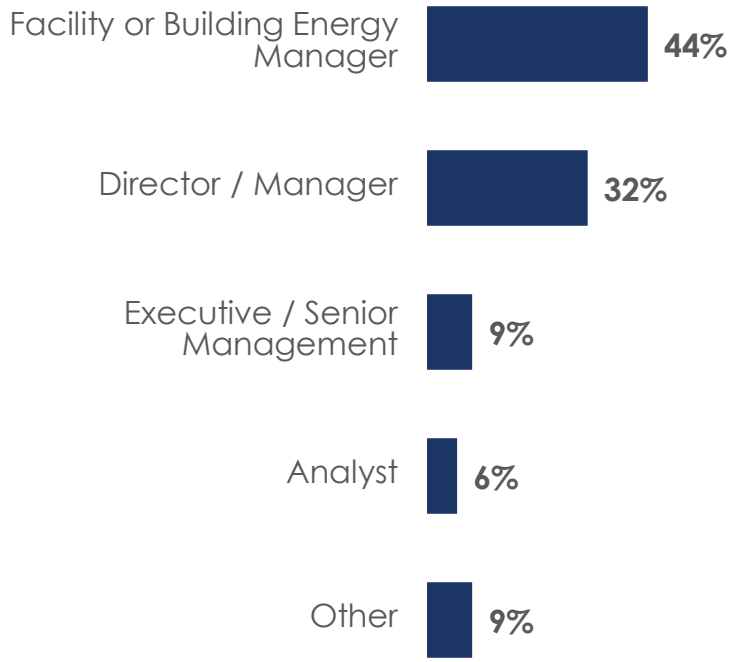
FIRMOGRAPHICS

Industrial Classification



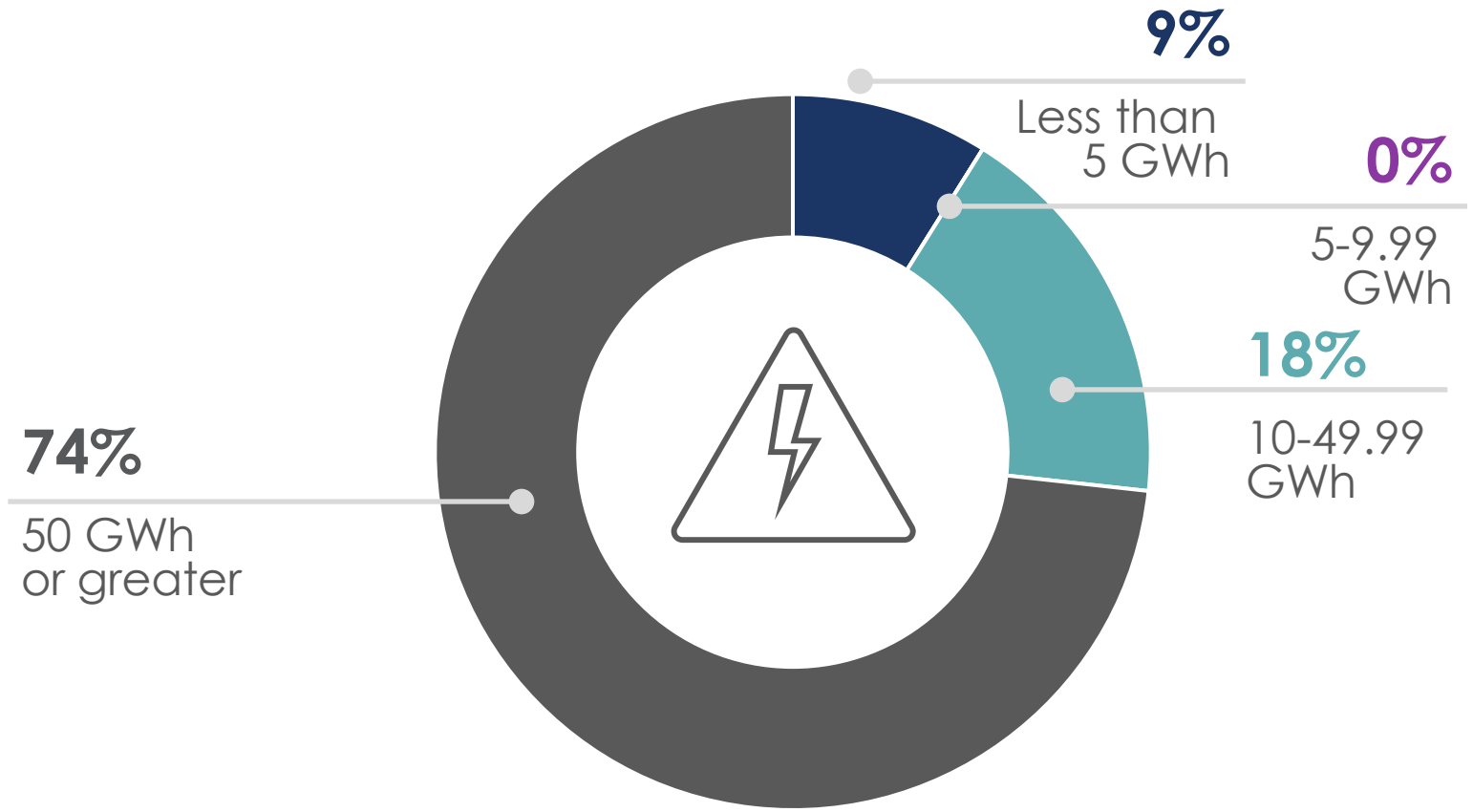
Base: All respondents (n=34)
A. Which of the following industrial classifications best describes your organization?

Organizational Role



Base: All respondents (n=34)
C. Which best describes your title within your organization?

Organization's Approximate Electricity Usage



Base: All respondents (n=34)
D. What is your organization's approximate average annual electricity usage? If you are uncertain, please provide your best estimate.

