SEPTEMBER 2021

Industrial Conservation Initiative Distributed Energy Resources Engagement – Survey Results Summary

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Purpose

- To provide a summary of results of the survey data that was collected as part of the IESO's Distributed Energy Resources (DER) Survey engagement

Background

The IESO conducted a stakeholder engagement at the request of the Ministry of Energy to better understand the investment and operation of behind-the-meter DER in Ontario related to the Industrial Conservation Initiative (ICI)

The primary vehicle for the engagement was a voluntary survey to Class A consumers and energy services companies supporting consumer participation in the ICI program

The objectives of the engagement were to better understand:

- Existing DER investment
- Existing DER capacity

Survey Outreach and Response

The IESO used a multi-channel strategy to promote the survey, which included direct outreach to stakeholders by staff, promotion through the IESO's newsletters and social media, and leveraging relationships with LDCs and stakeholder associations

To avoid duplication of responses between Class A consumers and energy services companies, the survey was structured such that respondents only provided data for DER assets owned by their organization regardless of the DER assets' siting

Survey response:

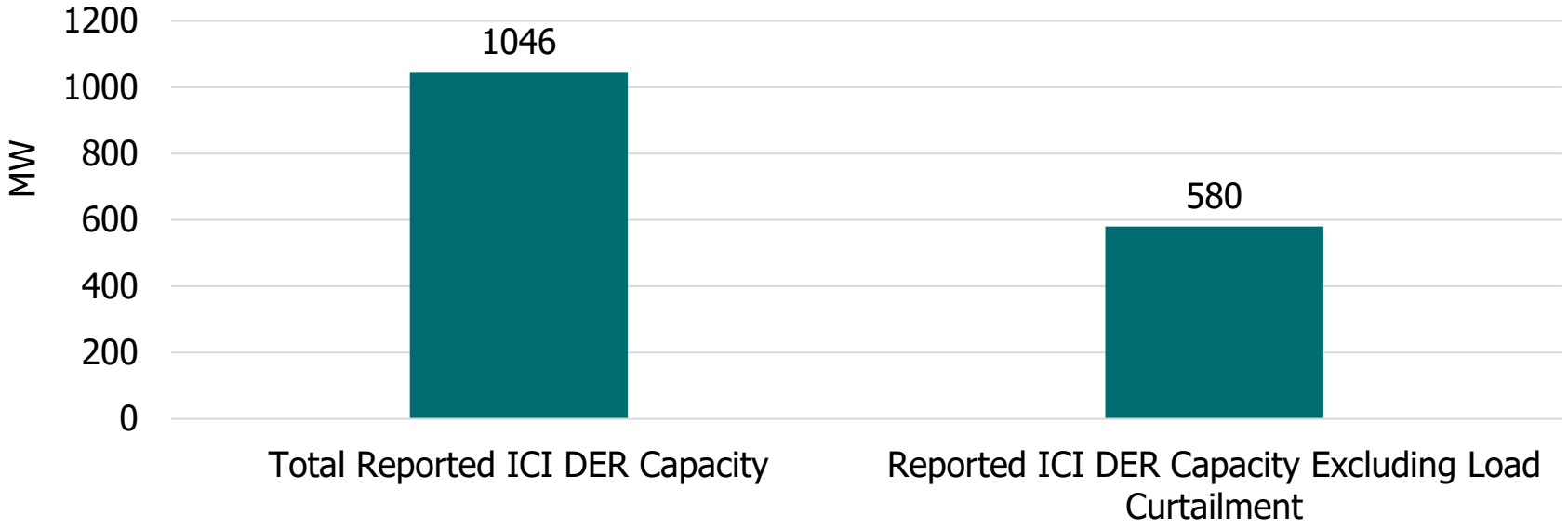
- 198 complete surveys submitted
- 131 surveys completed by Class A consumers
- 67 surveys completed by energy services companies and other stakeholders
- Highly variable response rate for individual questions given commercial sensitivity of some requested information (response rate indicated for optional questions)

Note on terminology, confidentiality, and interpretation

- In the interests of readability, this presentation will use "ICI DER" to refer specifically to energy resources installed behind-the-meter of Class A consumers, including transmission-connected consumers and to include load curtailment capabilities, unless otherwise noted
- Results have been aggregated to protect the confidential nature of the data provided by survey participants, including by removing all zonal results, and by summarizing results for all respondents rather than breaking out results by Class A consumers and energy services companies
- Readers should note that survey was voluntary and consequently the results do not capture all ICI DER resources and may exhibit self-selection bias

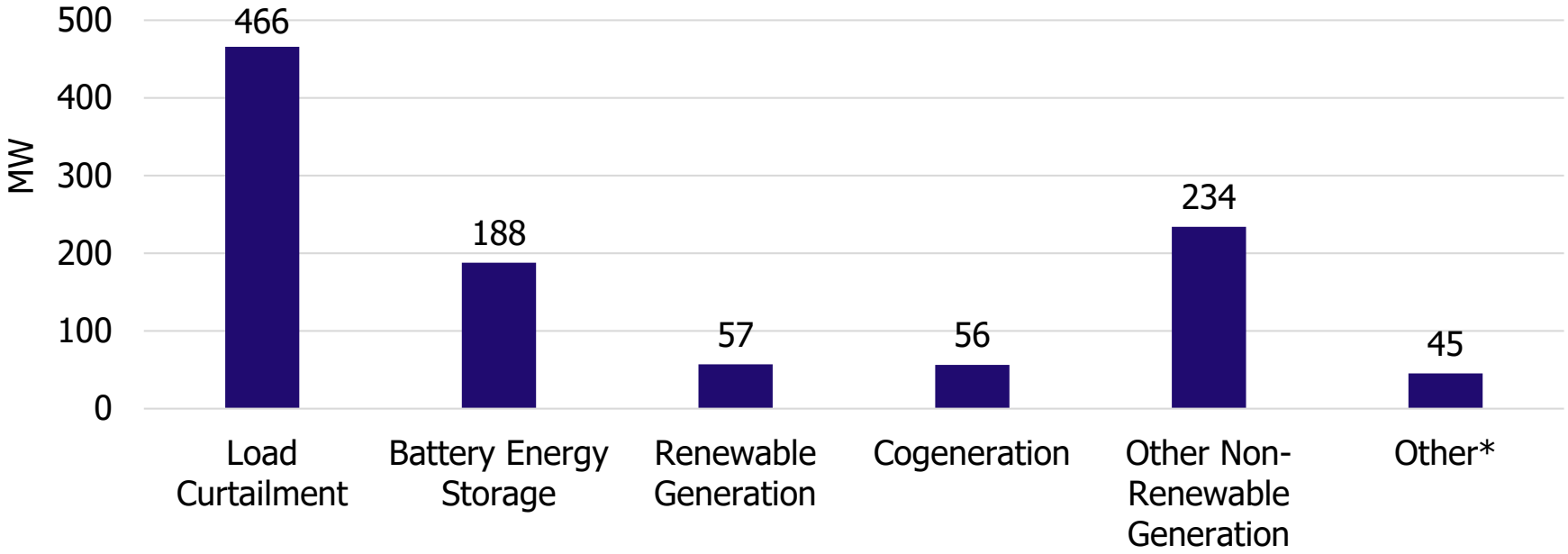
ICI DER Capacity

Figure 1. Reported ICI DER Capacity



ICI DER Capacity by Resource Type

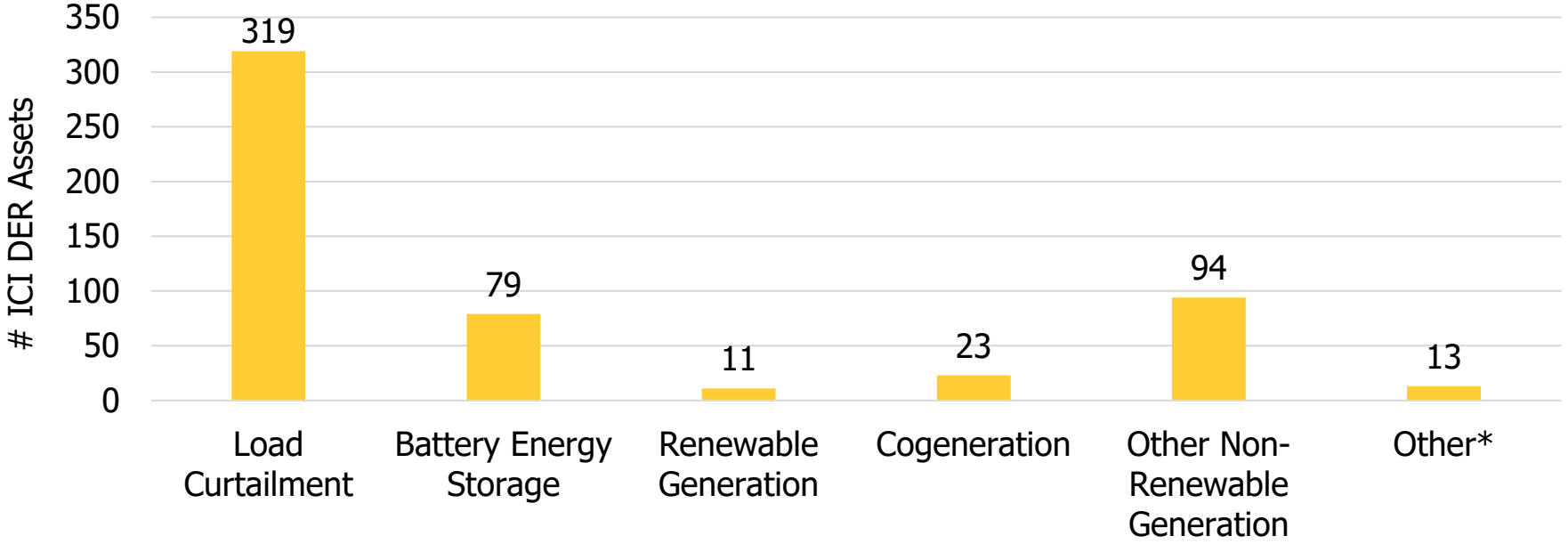
Figure 2. Reported ICI DER Capacity by Resource Type



* Other includes hydrogen storage, thermal storage, deep lake water cooling, and resources where the description does not enable clear categorization

Number of ICI DER Assets by Resource Type

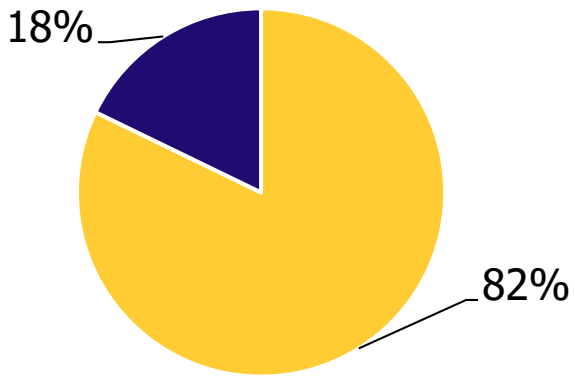
Figure 3. Number of Reported ICI DER Assets by Resource Type



* Other includes hydrogen storage, thermal storage, deep lake water cooling, and resources where the description does not enable clear categorization

Reliance on Peak Prediction Services

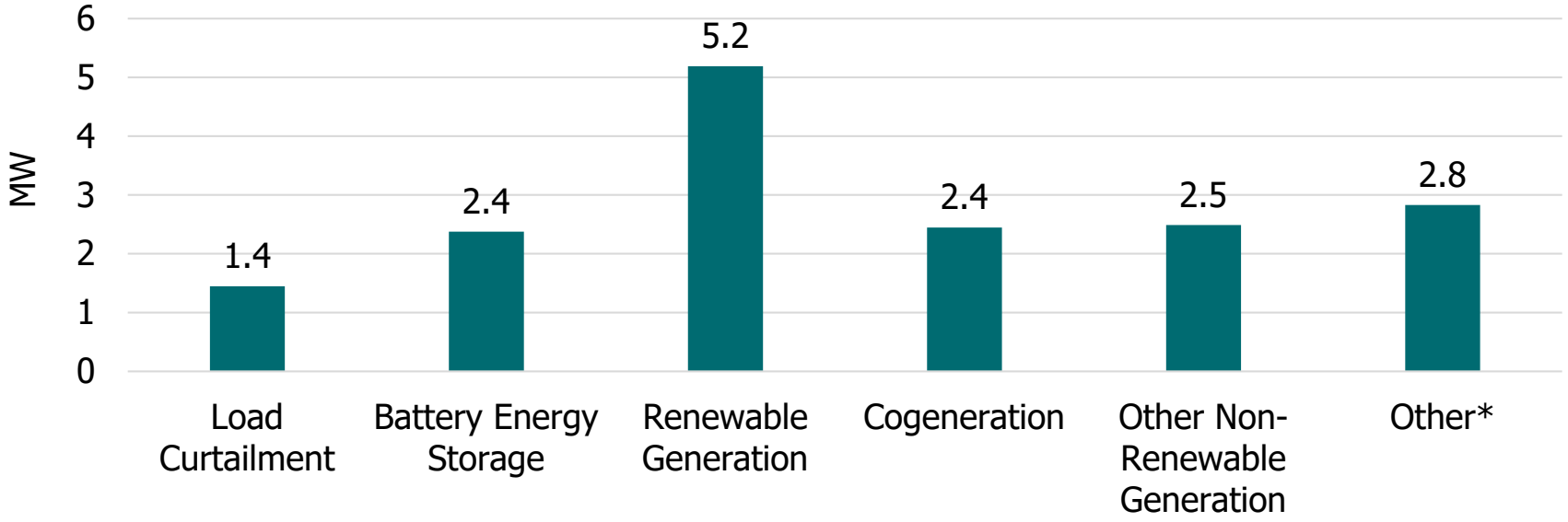
Figure 4. Reported ICI DER Asset Reliance on Peak Prediction Service



Note: Captures 651 MW (62% of total) for which a response was provided

Average ICI DER Asset Size by Resource Type

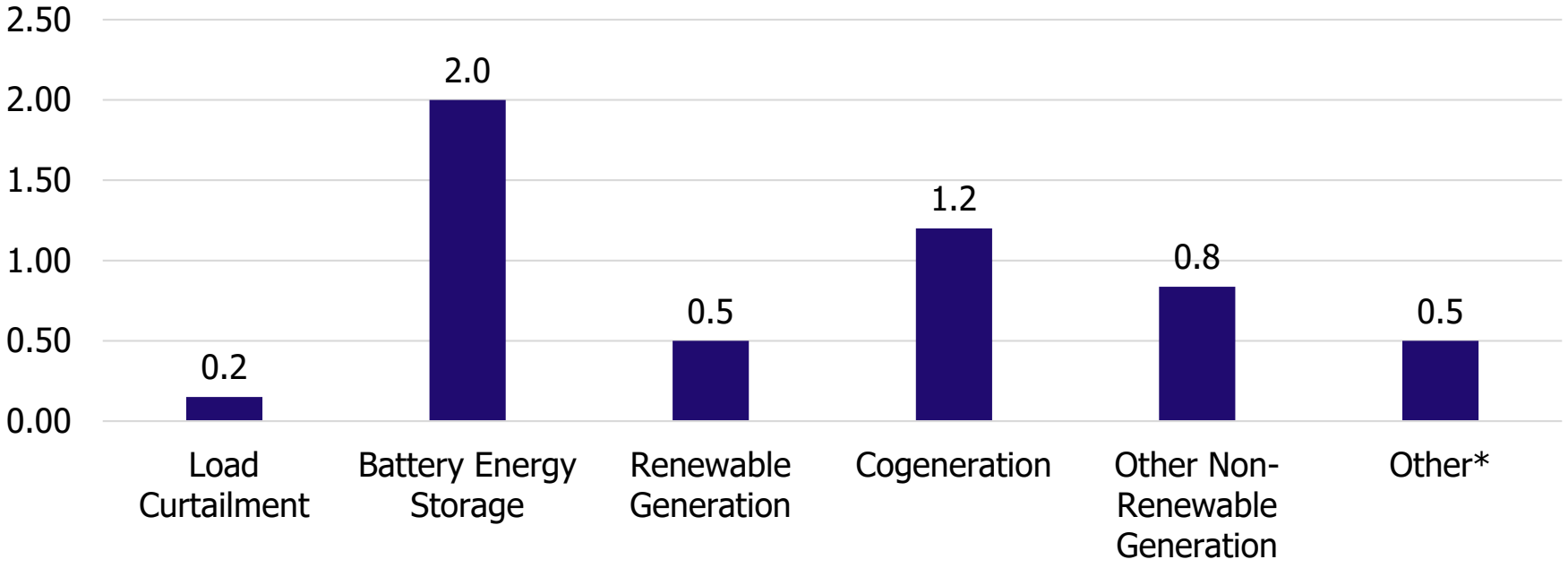
Figure 5. Average Reported Size of ICI DER Asset by Resource Type



* Other includes hydrogen storage, thermal storage, deep lake water cooling, and resources where the description does not enable clear categorization

Median ICI DER Asset Size by Resource Type

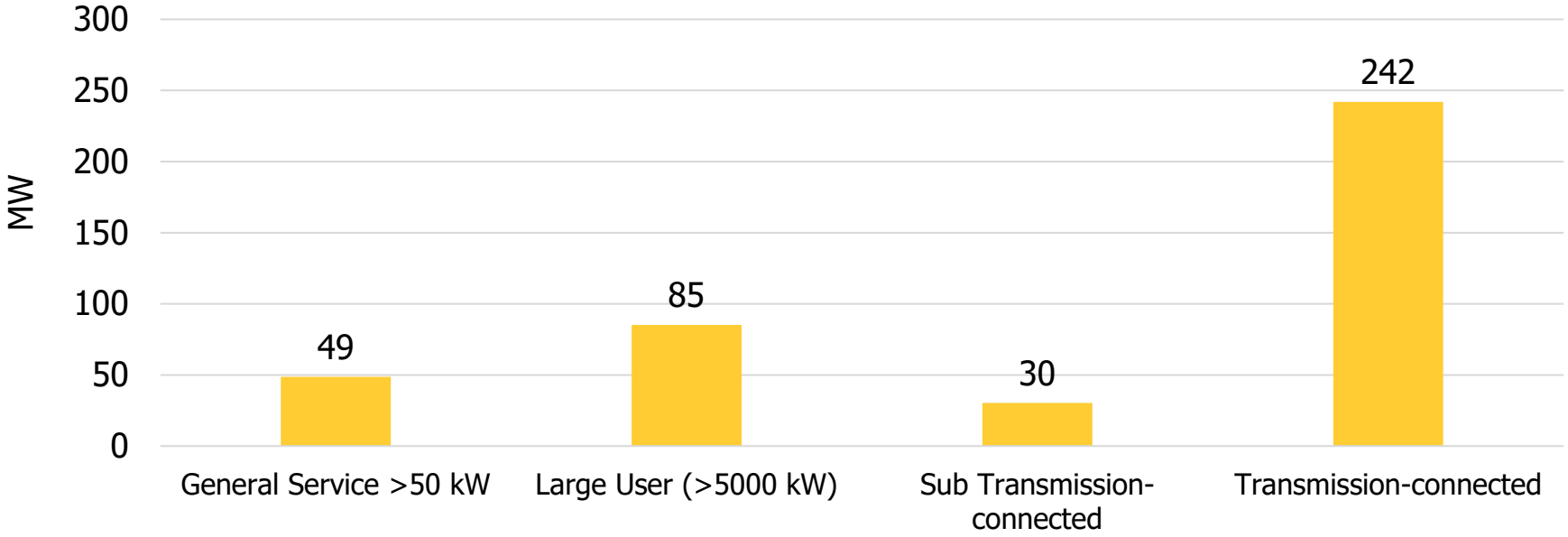
Figure 6. Median Size of ICI DER Asset by Resource Type



* Other includes hydrogen storage, thermal storage, deep lake water cooling, and resources where the description does not enable clear categorization

ICI DER Capacity by Customer Class

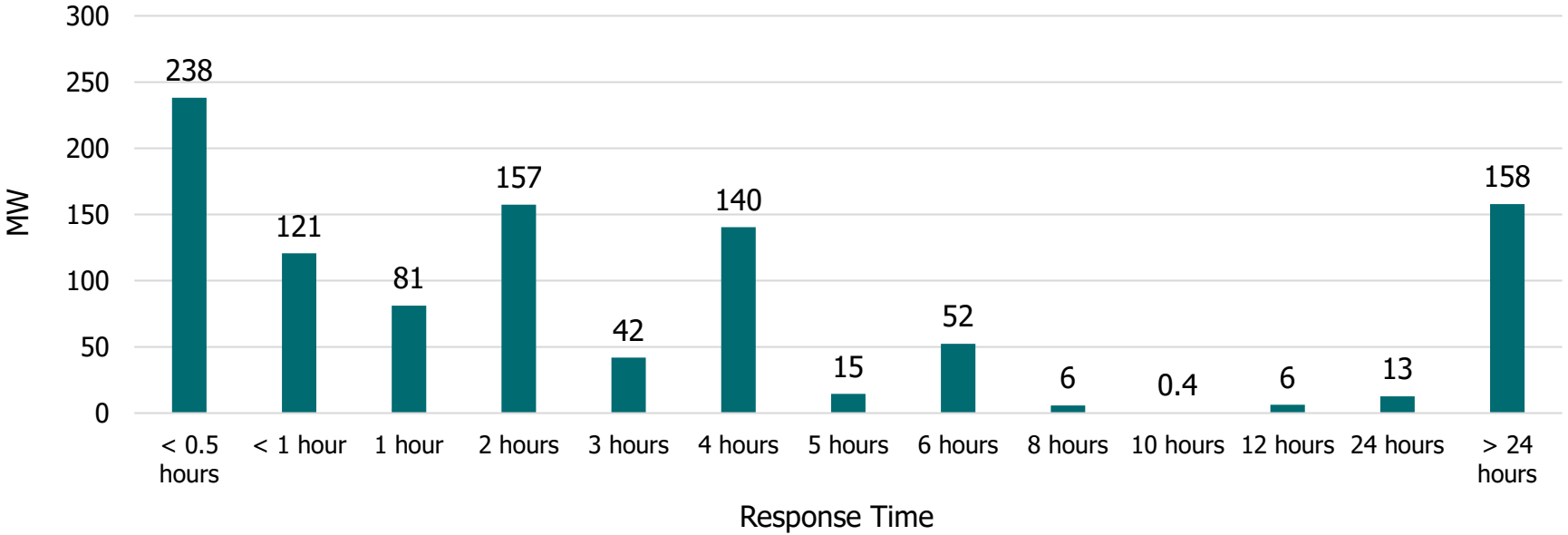
Figure 7. Reported ICI DER Capacity by Customer Class



Note: Captures 406 MW (39% of total) for which a response was provided

ICI DER Capacity by Response Time

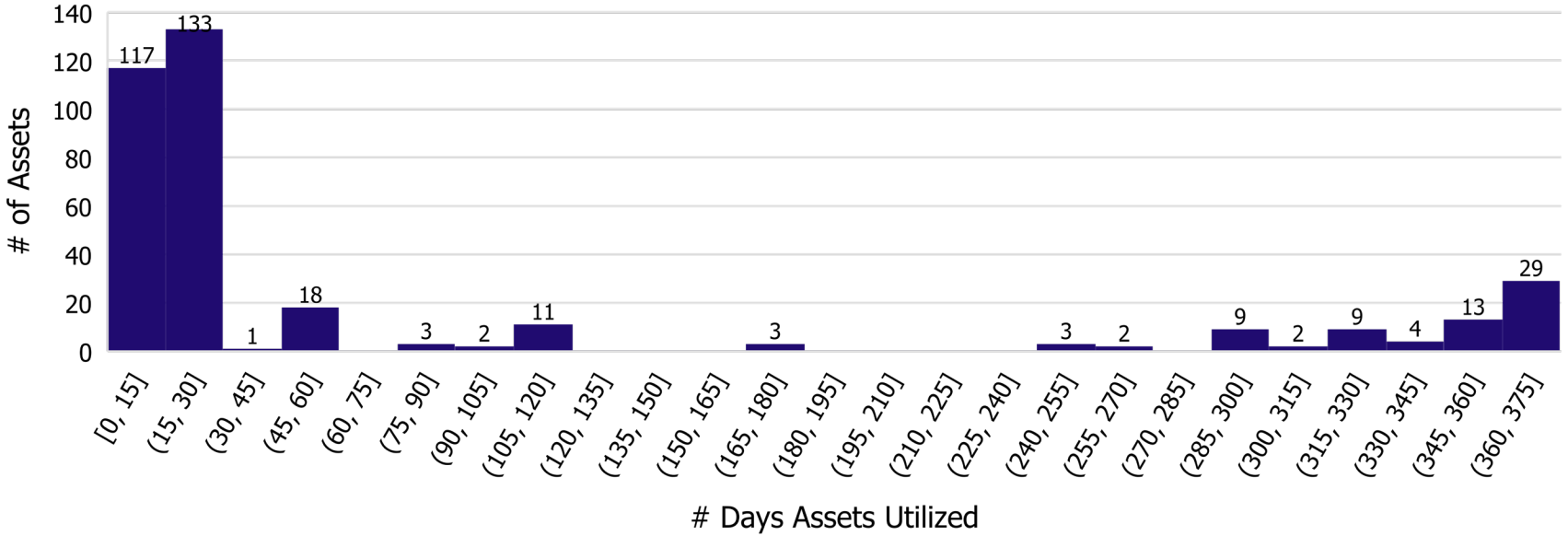
Figure 8. Reported ICI DER Capacity by Response Time



Note: Captures 1,029 MW (98% of total) for which a response was provided

Annual ICI DER Asset Utilization

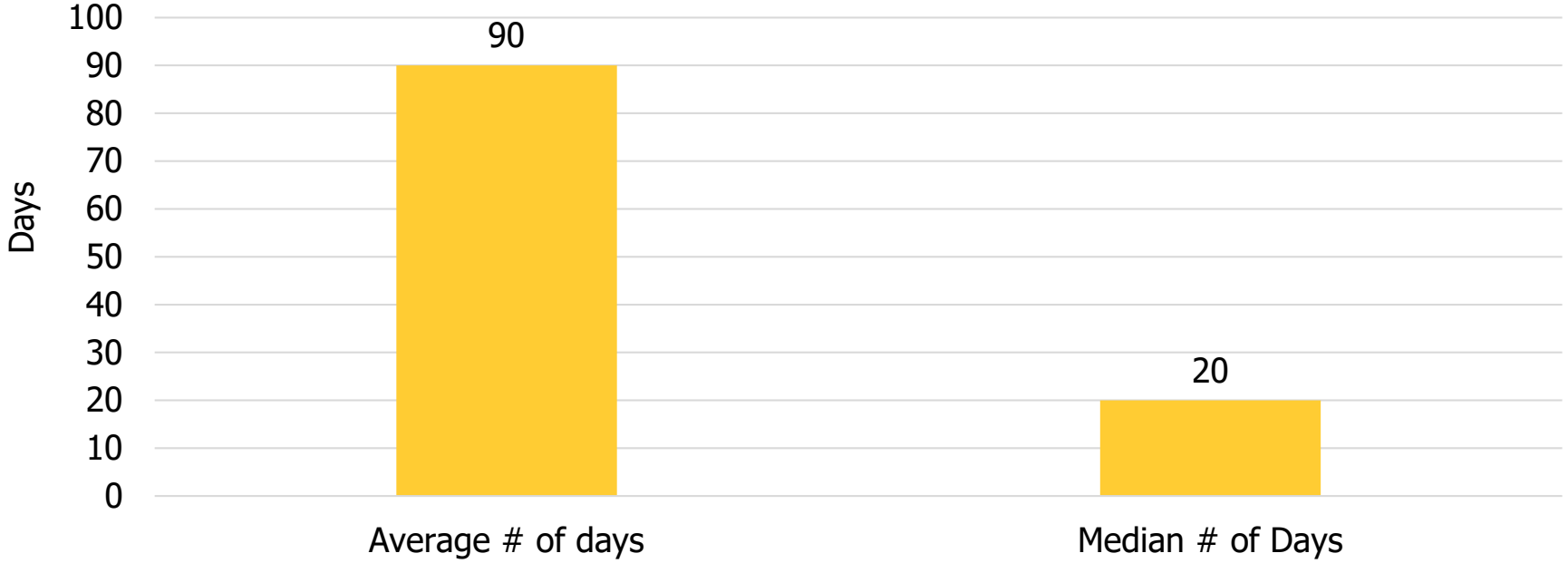
Figure 9. Annual Utilization of ICI DER Assets



Note: Captures 939 MW (90% of total) for which a response was provided

Average and Median ICI DER Asset utilization

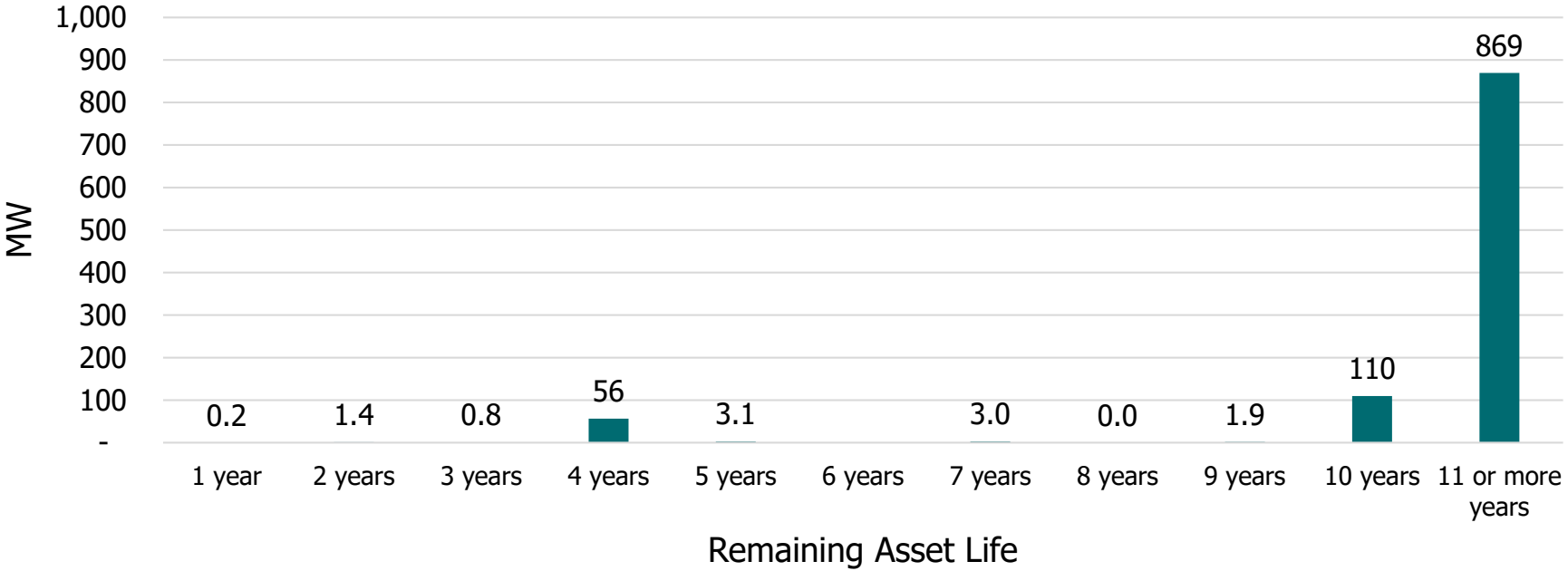
Figure 10. Average, Median Annual Utilization of ICI DER Assets



Note: Captures 939 MW (90% of total) for which a response was provided

Remaining Asset Life of ICI DER Capacity

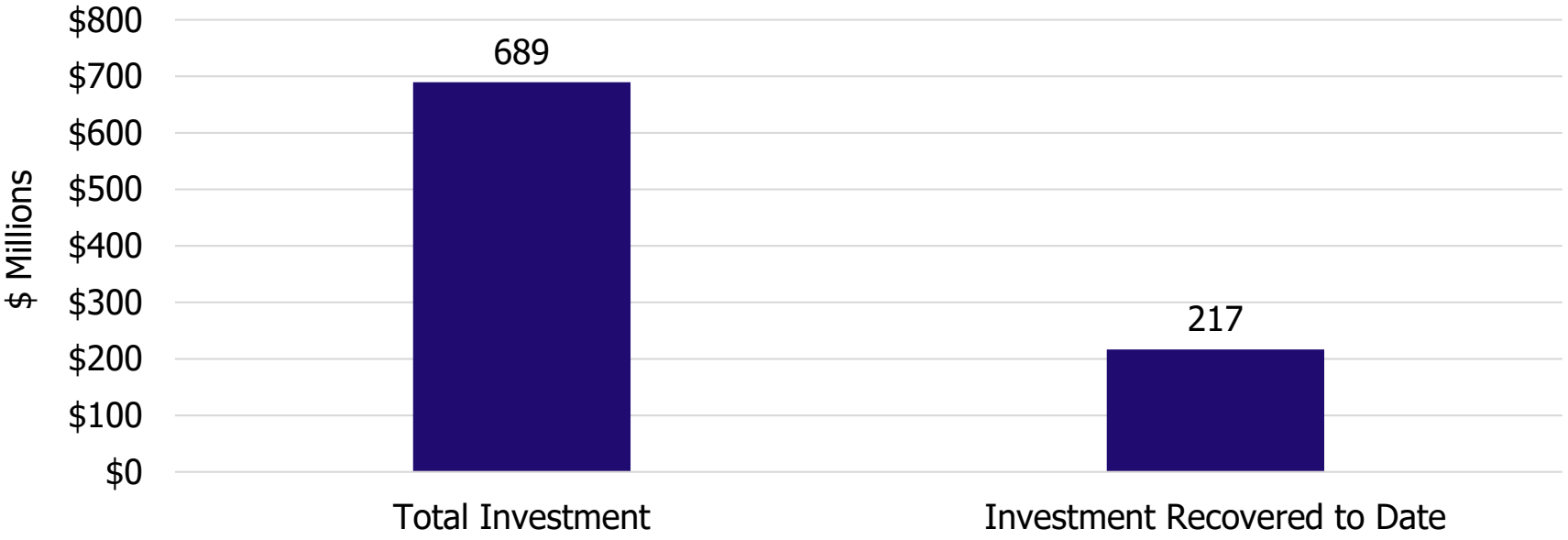
Figure 11. Remaining Asset Life of Reported ICI DER Capacity



Note: Captures 1,046 MW (100% of total) for which a response was provided

Total Asset Investment and Investment Recovery

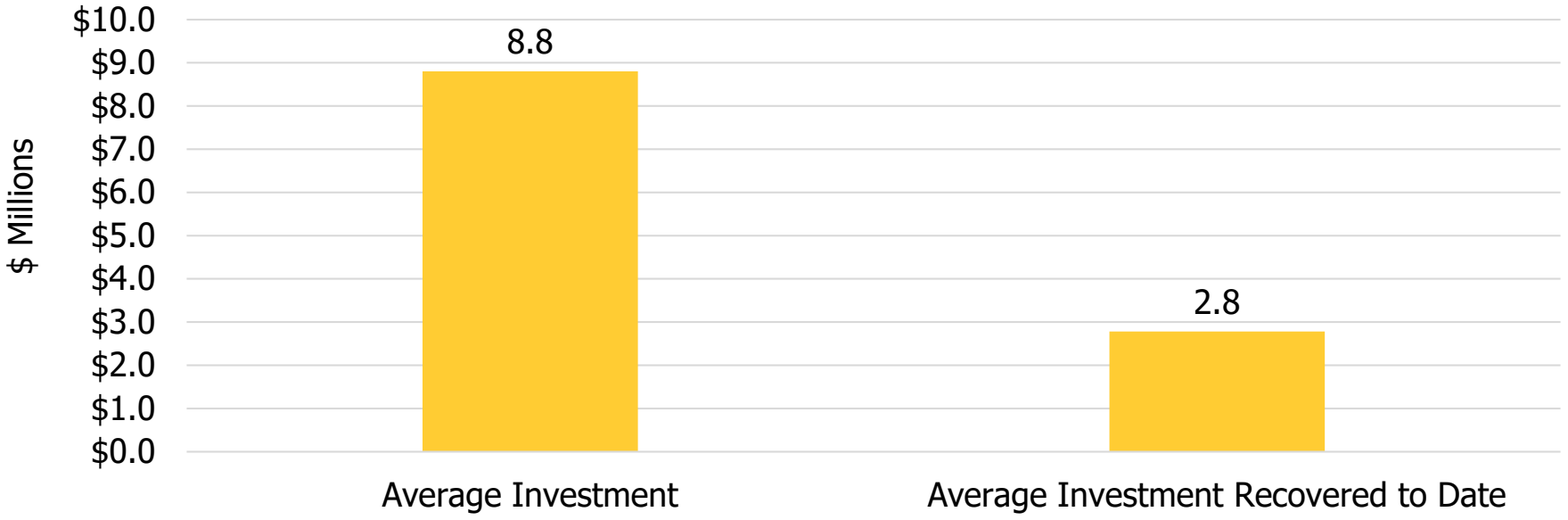
Figure 12. Total Investment, Investment Recovered to Date



Note: Captures 650 MW (62% of total) for which a response was provided

Average Investment and Invest Recovery

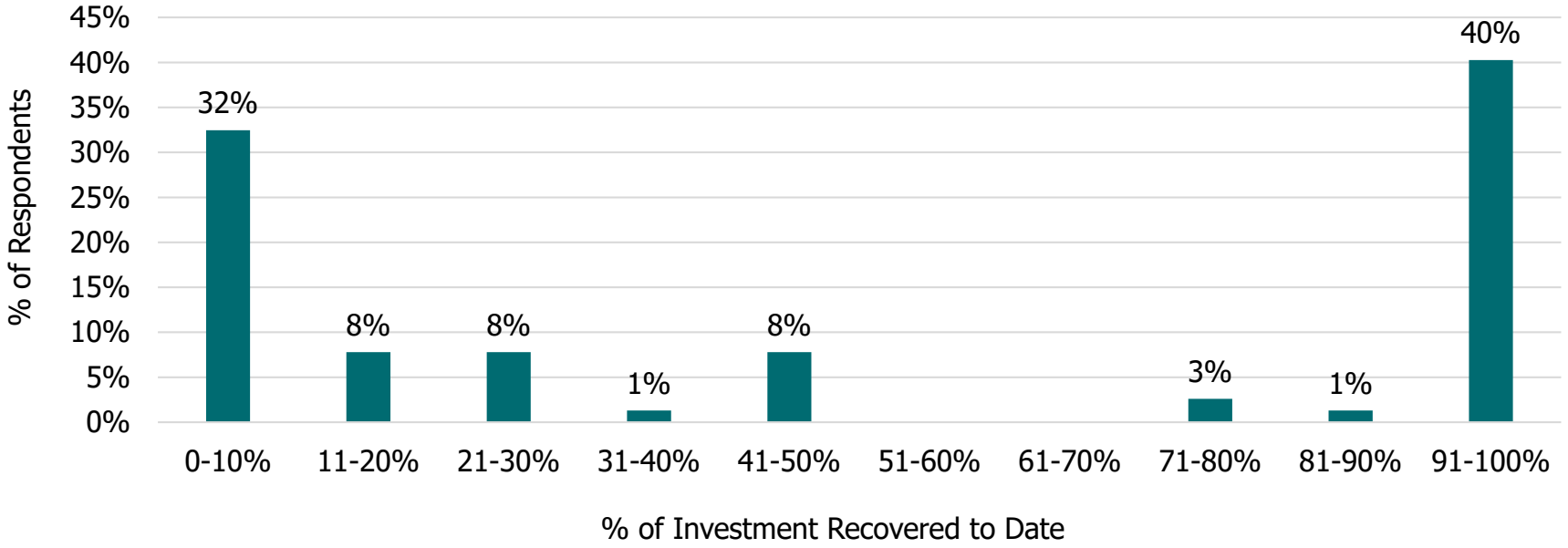
Figure 13. Average Investment, Average Investment Recovered to Date



Note: Captures 650 MW (62% of total) for which a response was provided

Percentage of Investment Recovery to Date

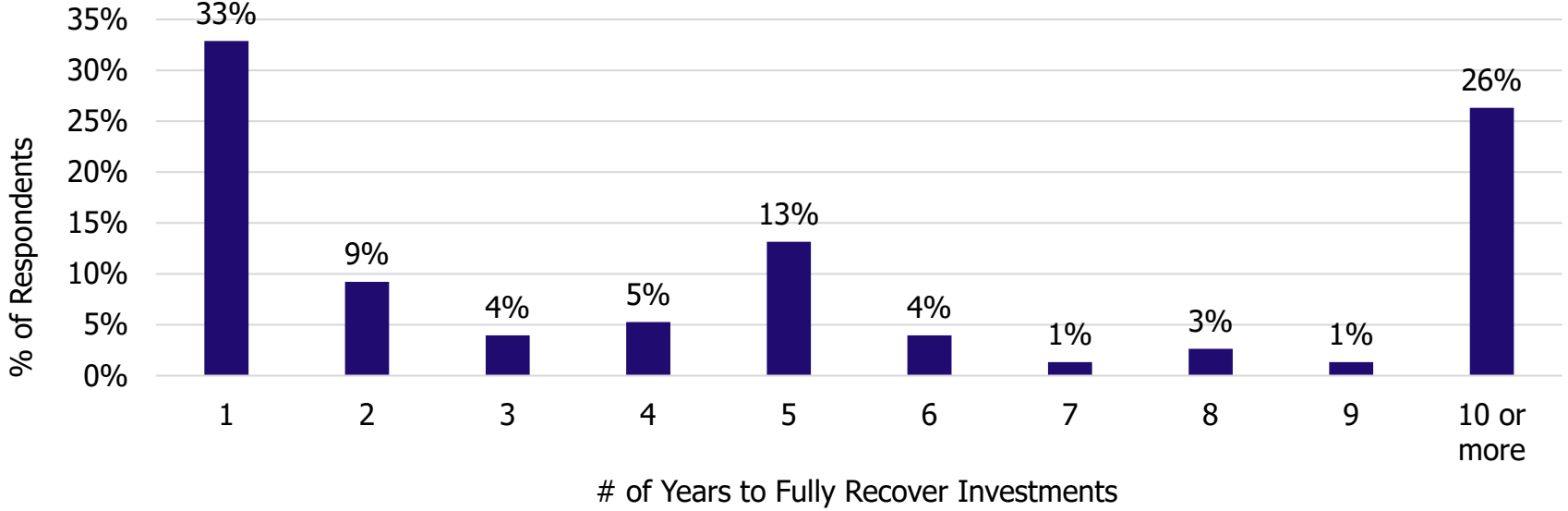
Figure 14. Percentage of Investment Recovered to Date



Note: Captures 650 MW (62% of total) for which a response was provided

Time to Full Investment Recovery

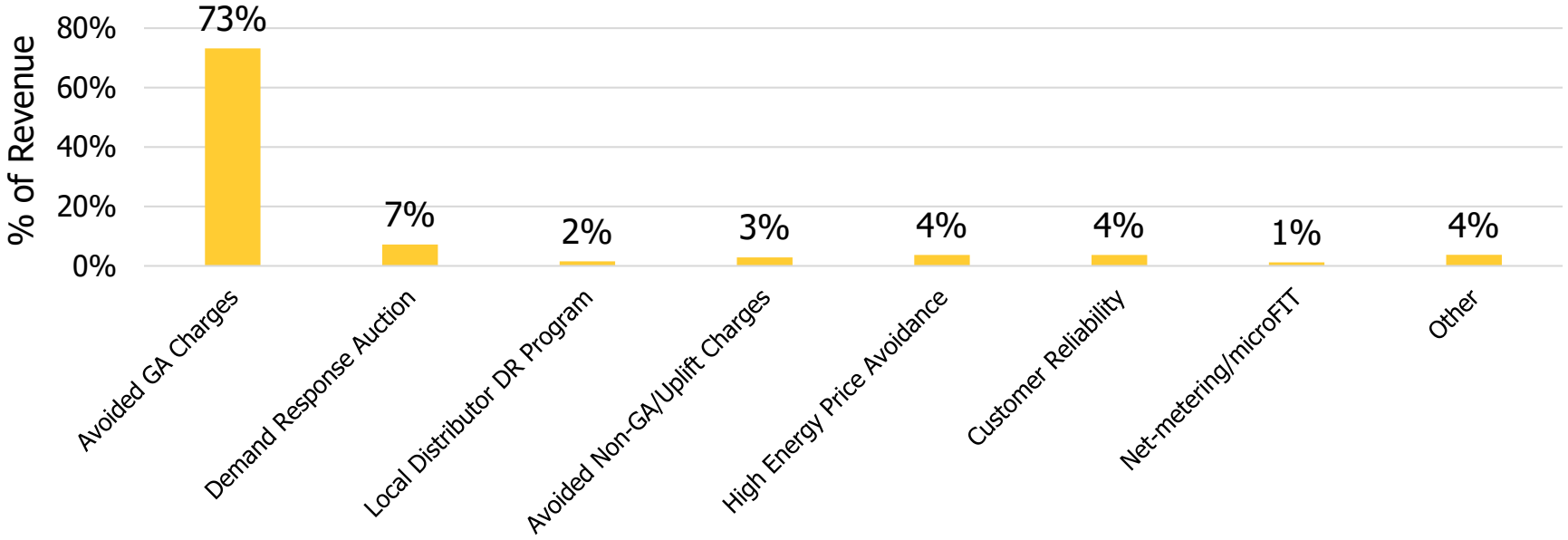
Figure 15. Number of Years to Fully Recover Investments



Note: Captures 545 MW (52% of total) for which a response was provided

Revenue from Different ICI DER Asset Use Cases

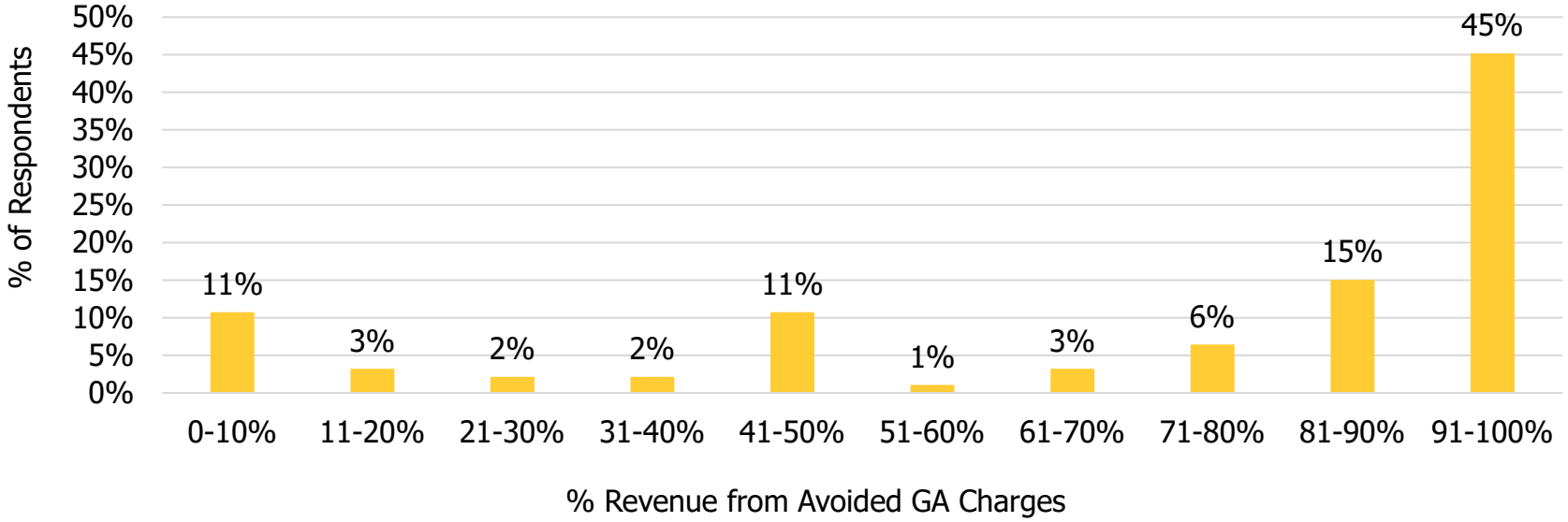
Figure 16. Average Percentage of Revenue Derived from Each Use Case



Note: Captures 953 MW (91% of total) for which a response was provided

Revenue from Avoided Global Adjustment Charges

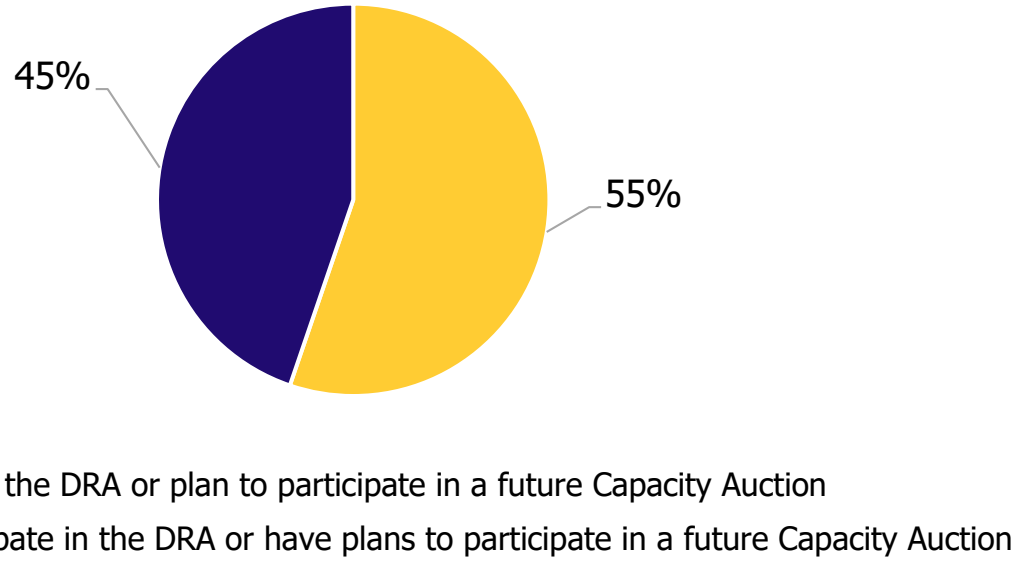
Figure 17. Revenue Derived from Avoided Global Adjustment Charges



Note: Captures 953 MW (91% of total) for which a response was provided

Demand Response Auction Participation

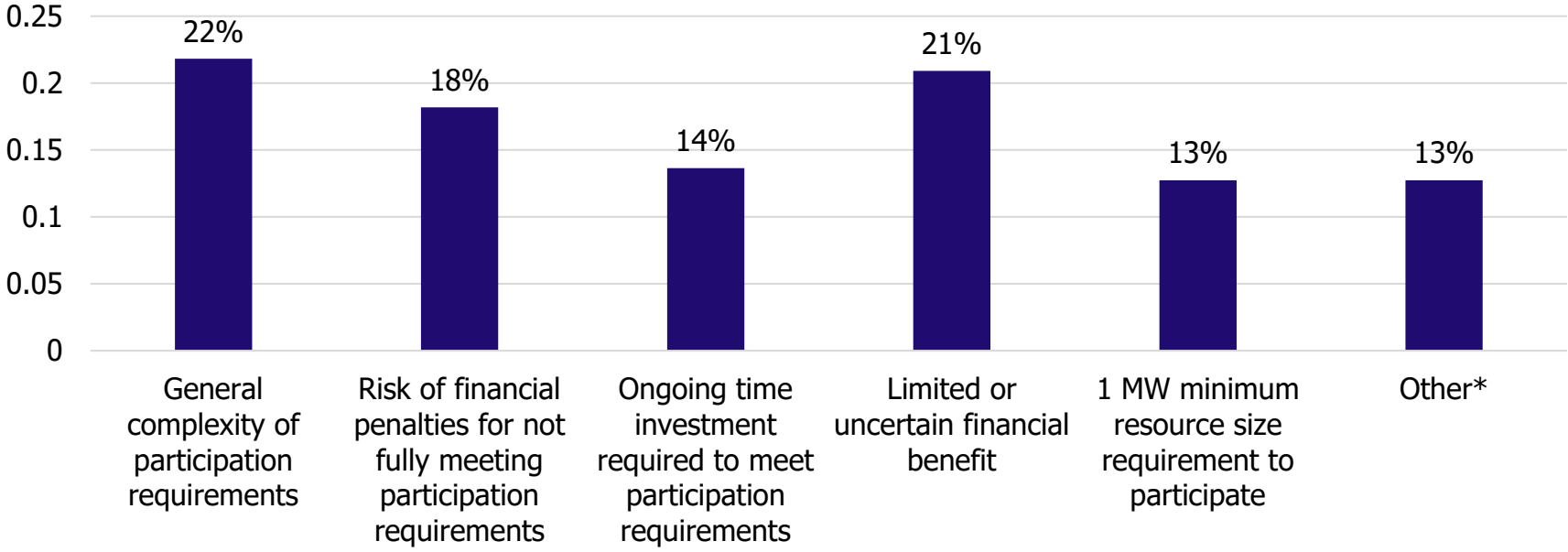
Figure 18. Demand Response Auction Participation



Note: Captures 1,043 MW (99% of total) for which a response was provided

Barriers to Demand Response Auction Participation

Figure 19. Barriers to Participation in the Demand Response Auction



*Other includes cost of investment, low grid availability, timing not suitable to business operation, risk to business needs
Note: Captures 186 MW (18% of total) for which a response was provided

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

@IESO_Tweets

linkedin.com/company/IESO

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