Battery Customer Perceptions, Purchasing Motivators and Willingness to Play

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Background on Fort Collins and Solar/Storage Program

Fort Collins, Colorado

Municipal Electric Distribution Utility

- 'home rule' municipality
- 55 square mile territory
- 320 MW peak (summer) / 240 MW peak (winter)
- 2000 miles of distribution lines underground
- Reliability > 99.99%

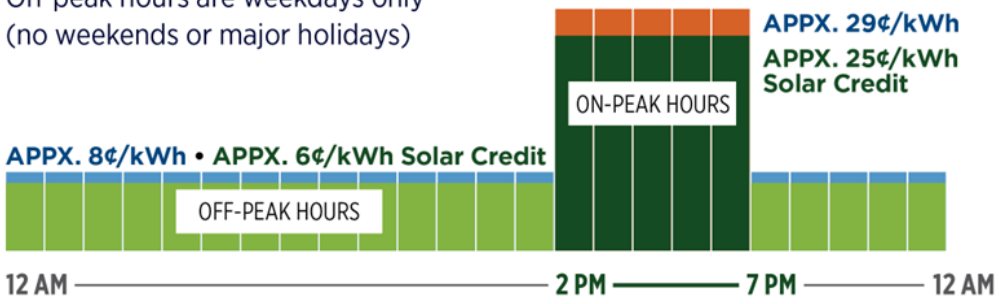
OUR CLIMATE FUTURE

Climate Action Plan Goals by 2030:

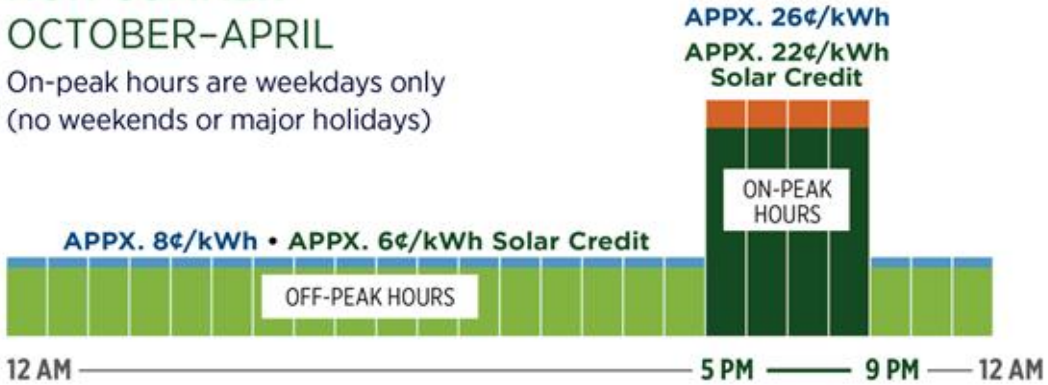
- 80% carbon reduction by 2030
- 100% of energy served from non-carbon sources
- 5% generation from local renewables
- 5% of peak demand represented by flexible load

Fort Collins Residential Rates

SUMMER
MAY–SEPTEMBER
On-peak hours are weekdays only
(no weekends or major holidays)



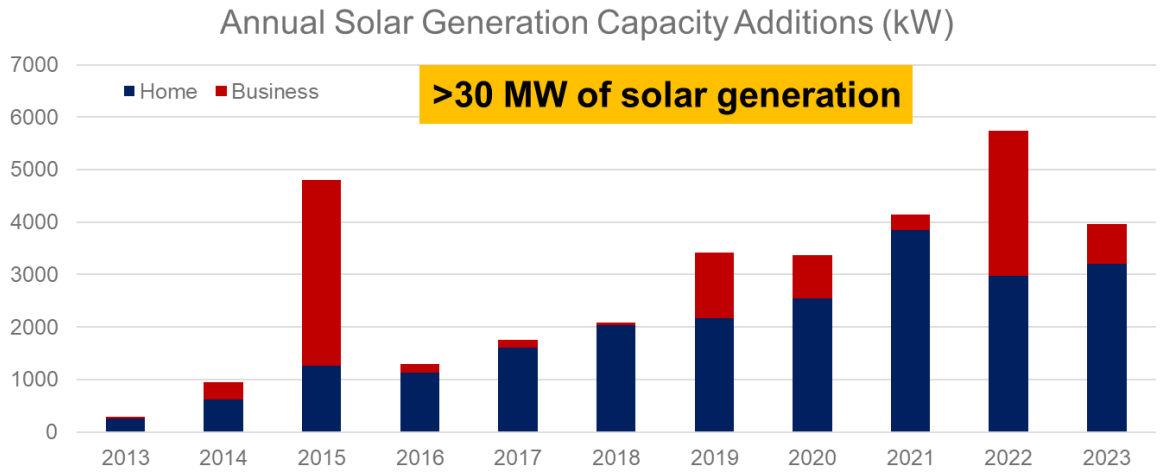
NON-SUMMER
OCTOBER–APRIL
On-peak hours are weekdays only
(no weekends or major holidays)

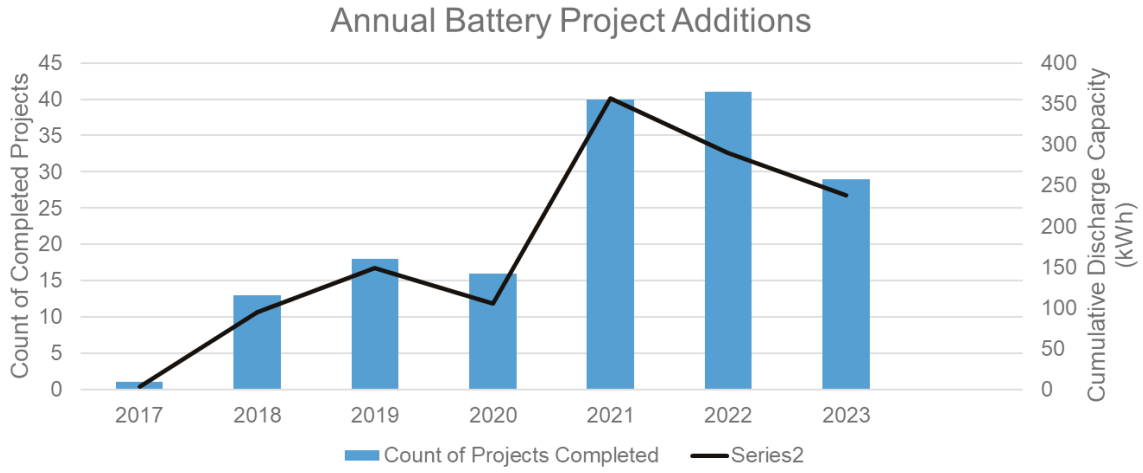


Net Metering Credits for Energy Returned:

- Subject to TOD structure
- Monetized monthly
- Applied to other charges on bill
- Valued at approximately 80% of energy charge

Solar and Battery Installed Capacity





24 MW-DC residential solar

3.3 MWh residential storage

Battery Incentive Program

Open to all battery technologies on CEC Approved Equipment list

Installation Incentive: $150/kWh of usable capacity up to $3,000 maximum

Incentive Eligibility:

- Sold and installed by Participating Solar Contractor
- Programmed for TOU or solar storage operations
- 6 kWh minimum installation

No 'Pay for Performance' program currently

Batteries are controlled by Utilities; all operating benefits derived from TOD rates

~80% of battery installations participate in the incentive program

Solar/storage Participant Survey Findings

Survey Objectives: Participant insights

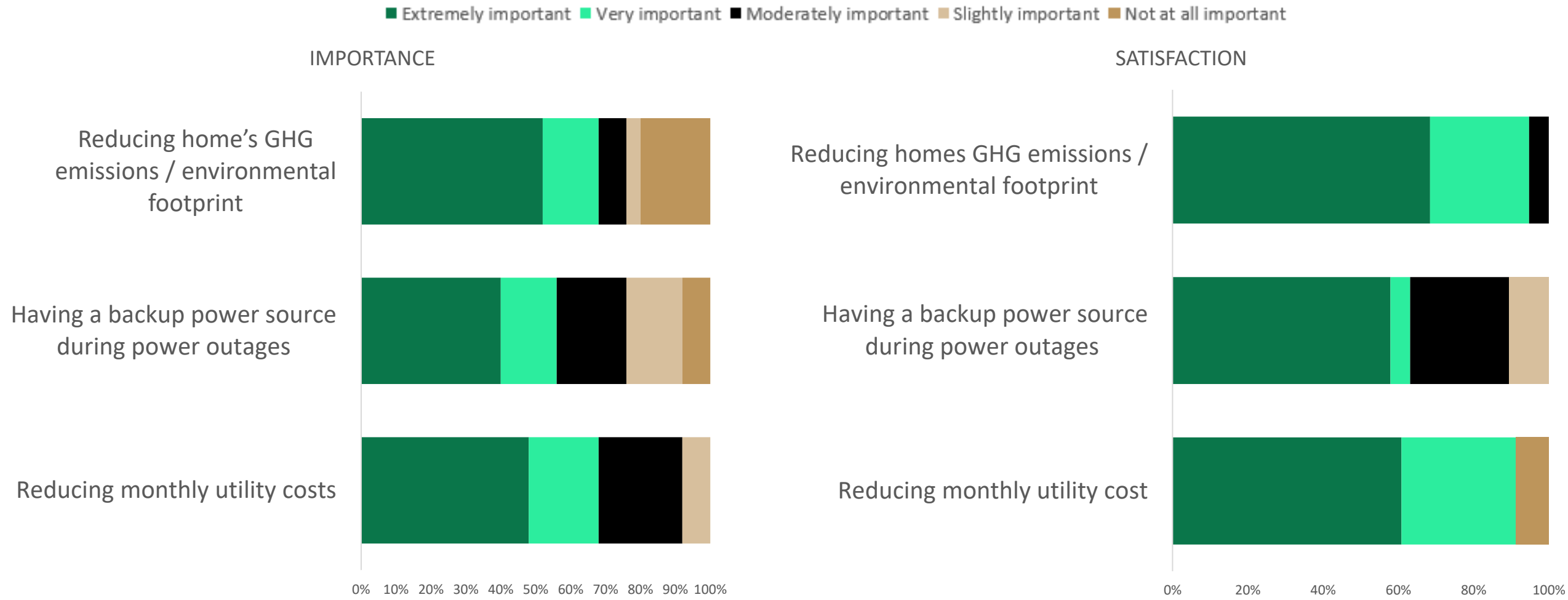
- Purchasing decision
- Operating mode and system usage
- Customer satisfaction
- Awareness of rates and billing policy
- Willingness to participate and concerns about load control

Participants are engaged – 25% response rate

Distributed 248 recruitment emails to solar and census of solar & storage participants

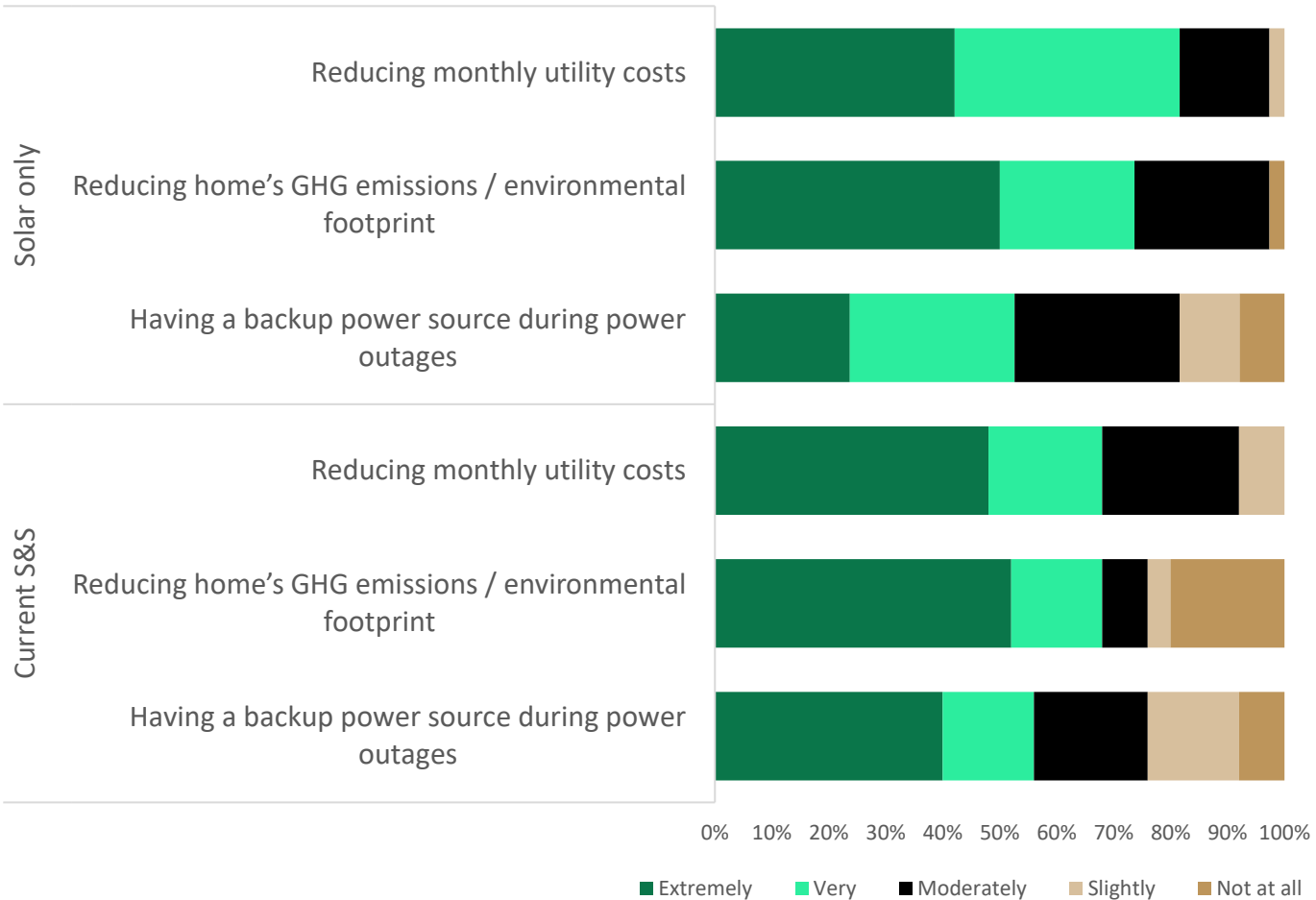
Targeted populations	Solar-only	Solar & Storage
Data Collection Mode	Online survey	
Recruiting Mode	Email	
Population Size	1,193	98
Recruitment emails	150	98
Targeted Sample Size	30	30
Survey completes	38	25
Response Rate	25%	26%
Incentive	$25 electronic gift card	

Mixed importance yet high satisfaction for purchasing criteria



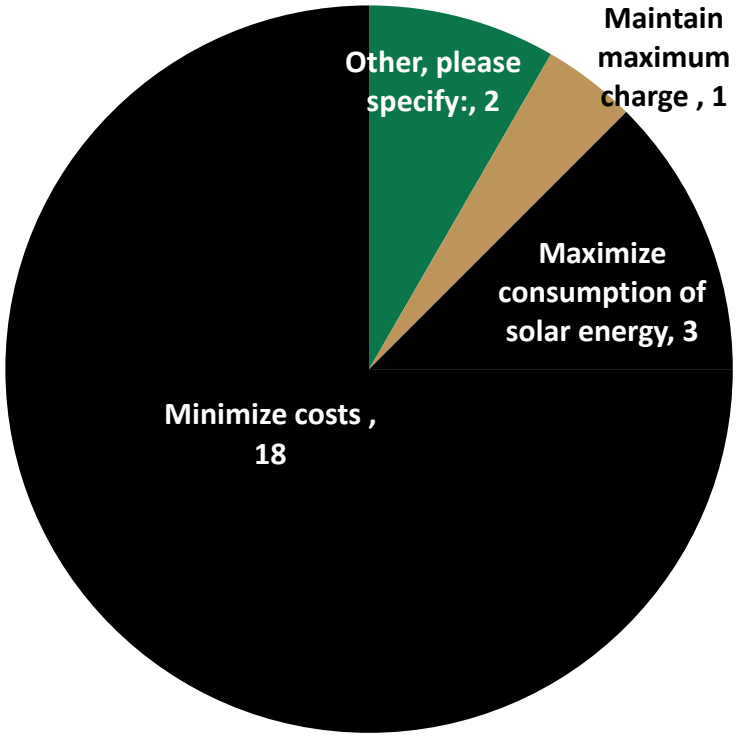
Perceptions vs reality between prospective and current owners

Perceived benefits of storage comparison between solar only & storage customers

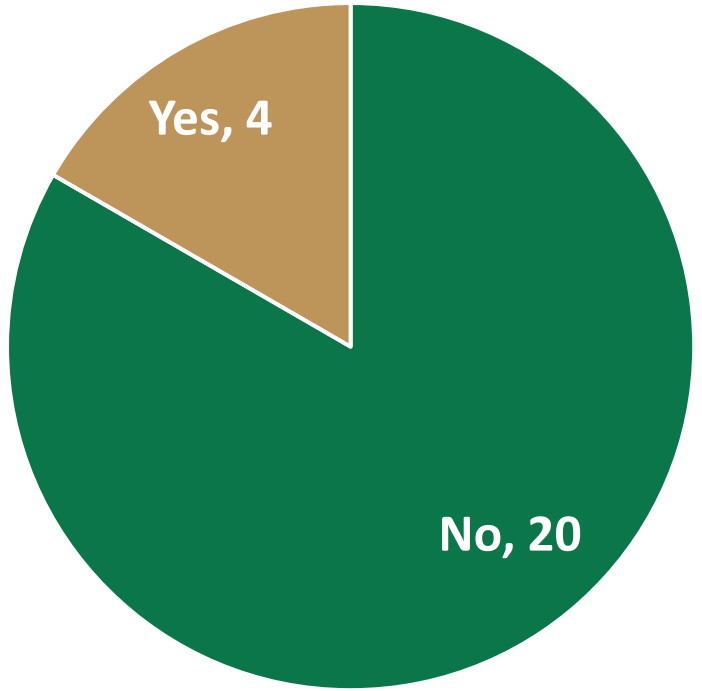


Most participants (75%) set storage system to minimize utility bills and do not change settings

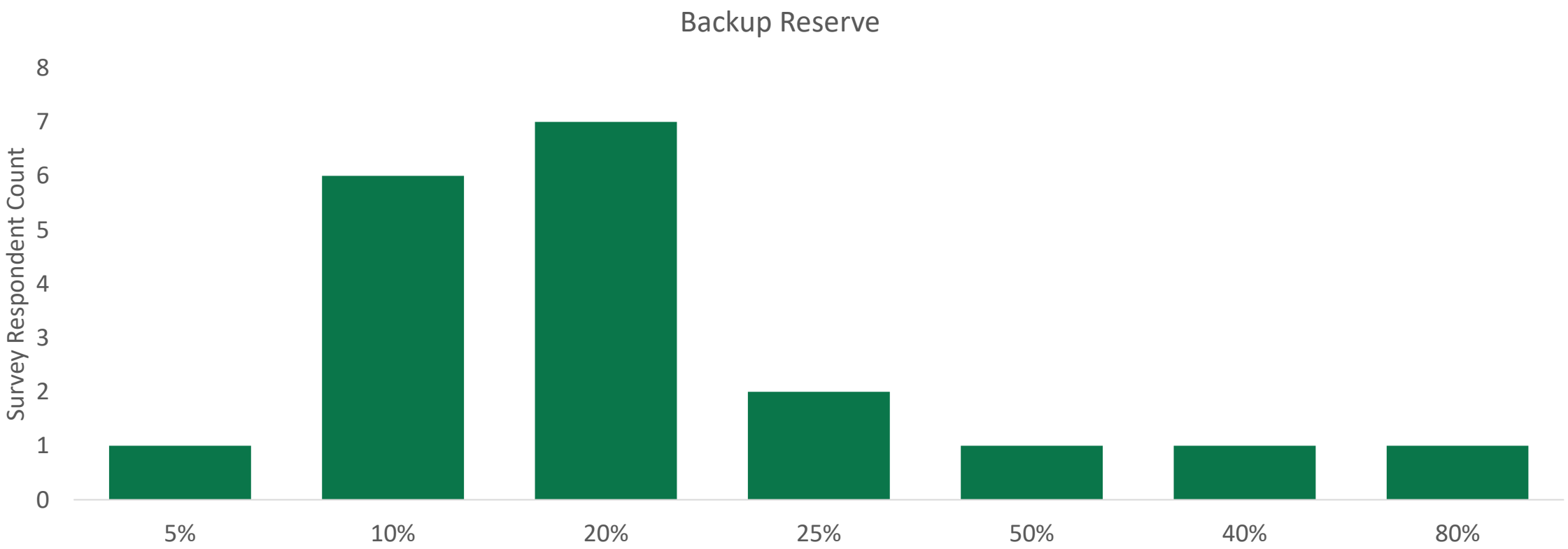
Which operating mode do you currently use to operate your battery storage system?



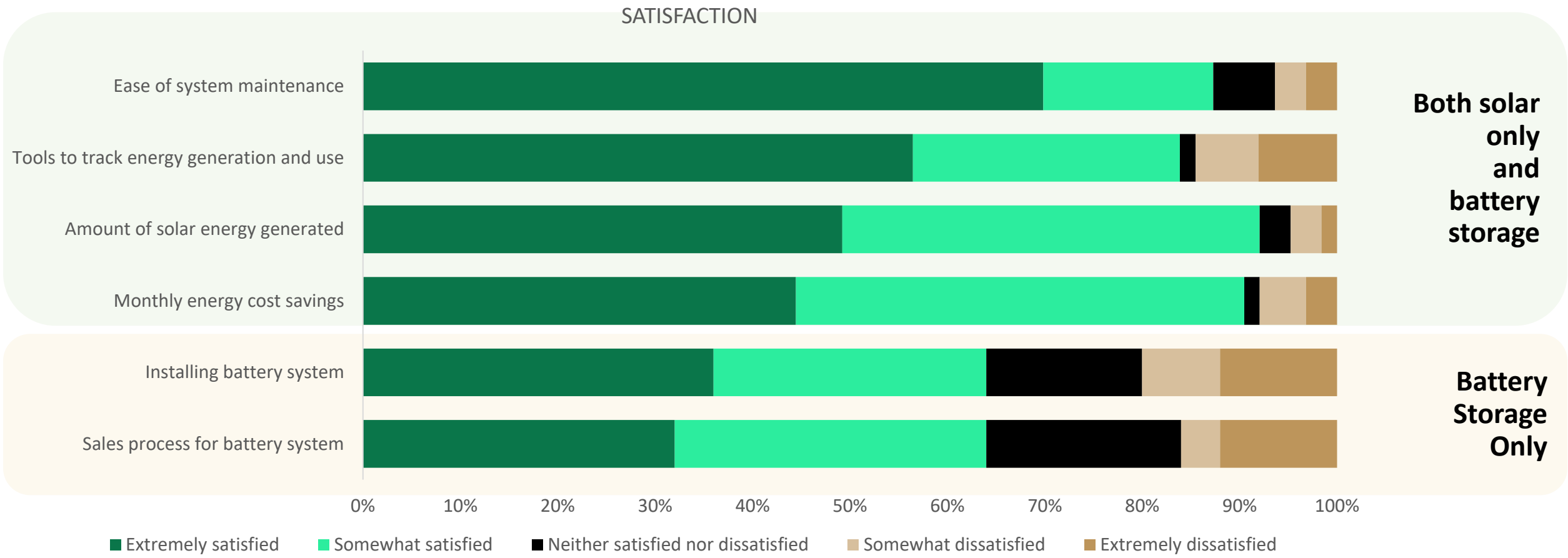
Have you changed the operating mode of your battery storage system since it was installed?



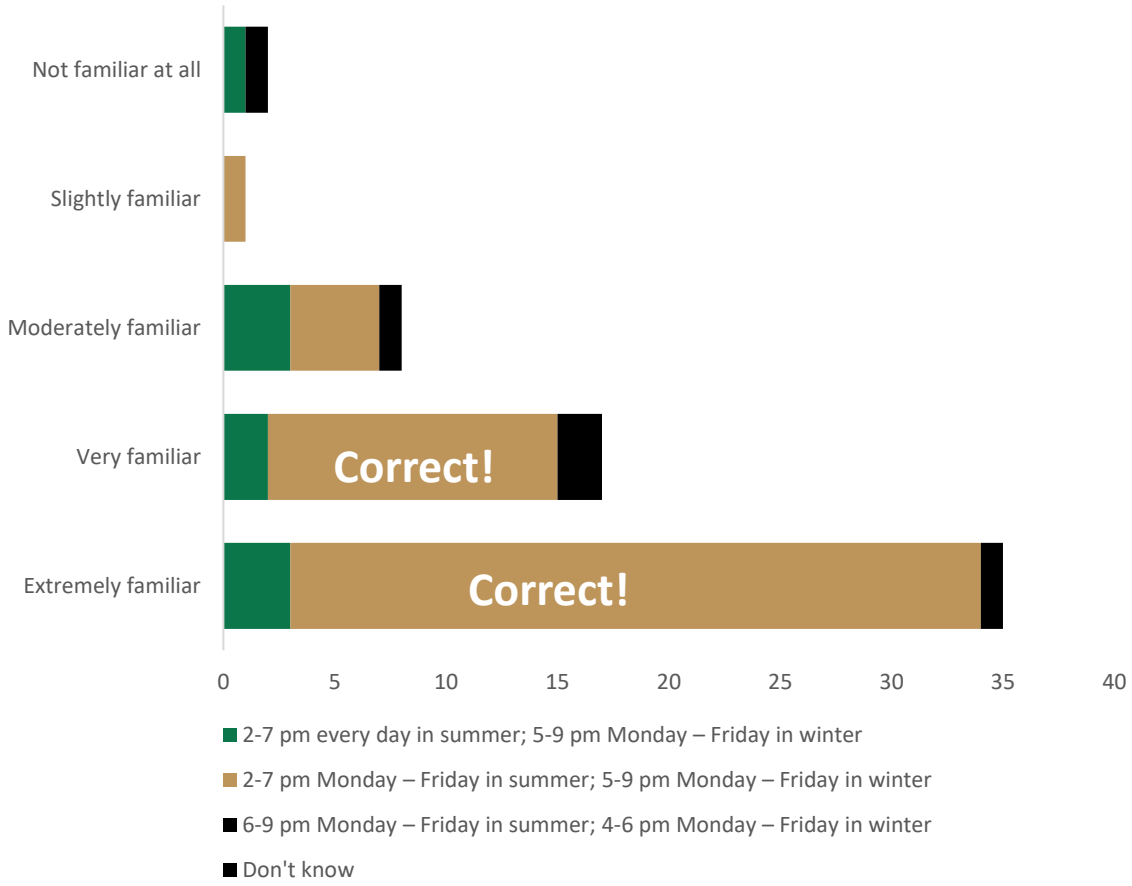
Storage participants prefer 10-20% backup reserve – contractor interviews confirmed reserve settings (~15%)

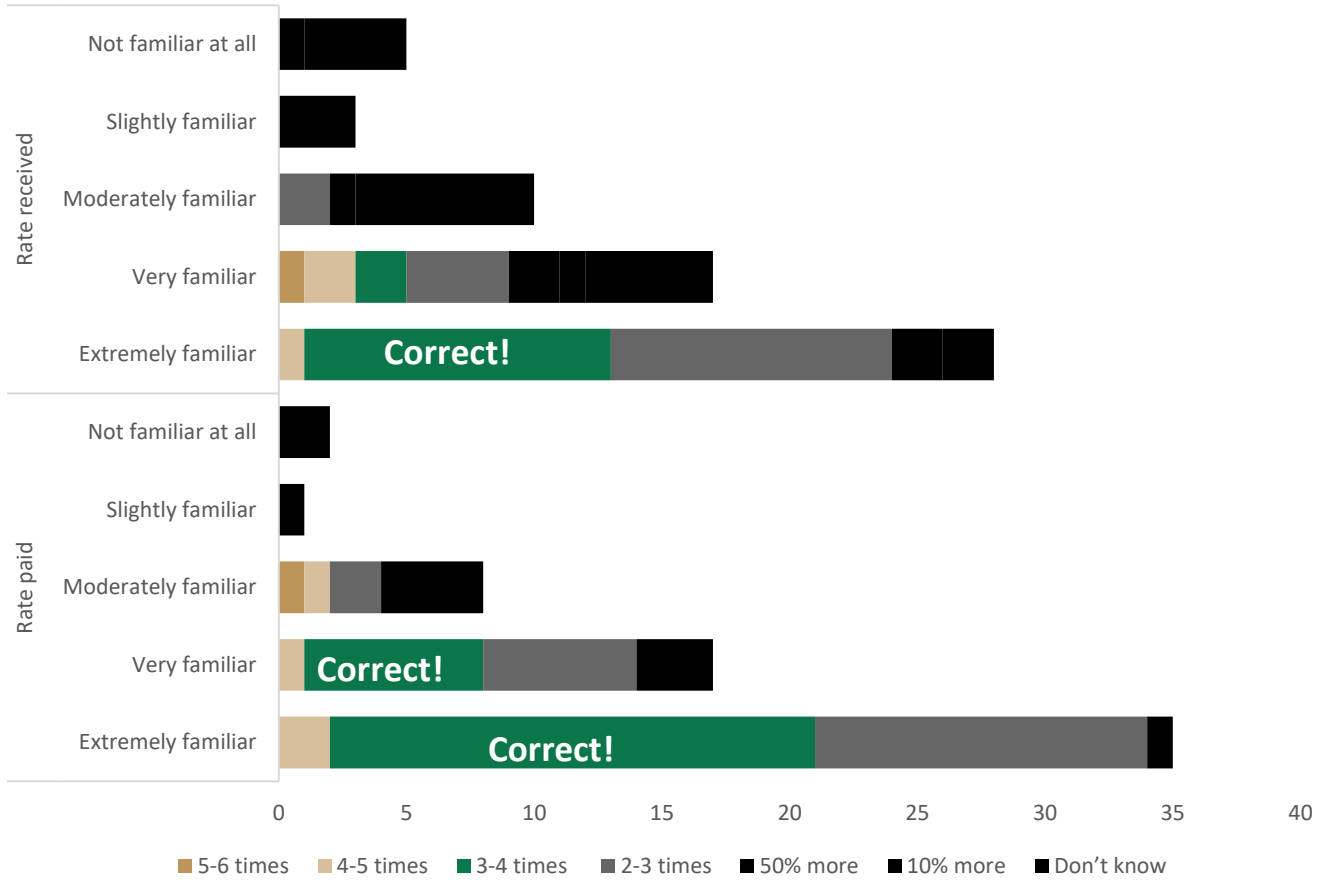


Dual system installations reported generally higher satisfaction vs storage only

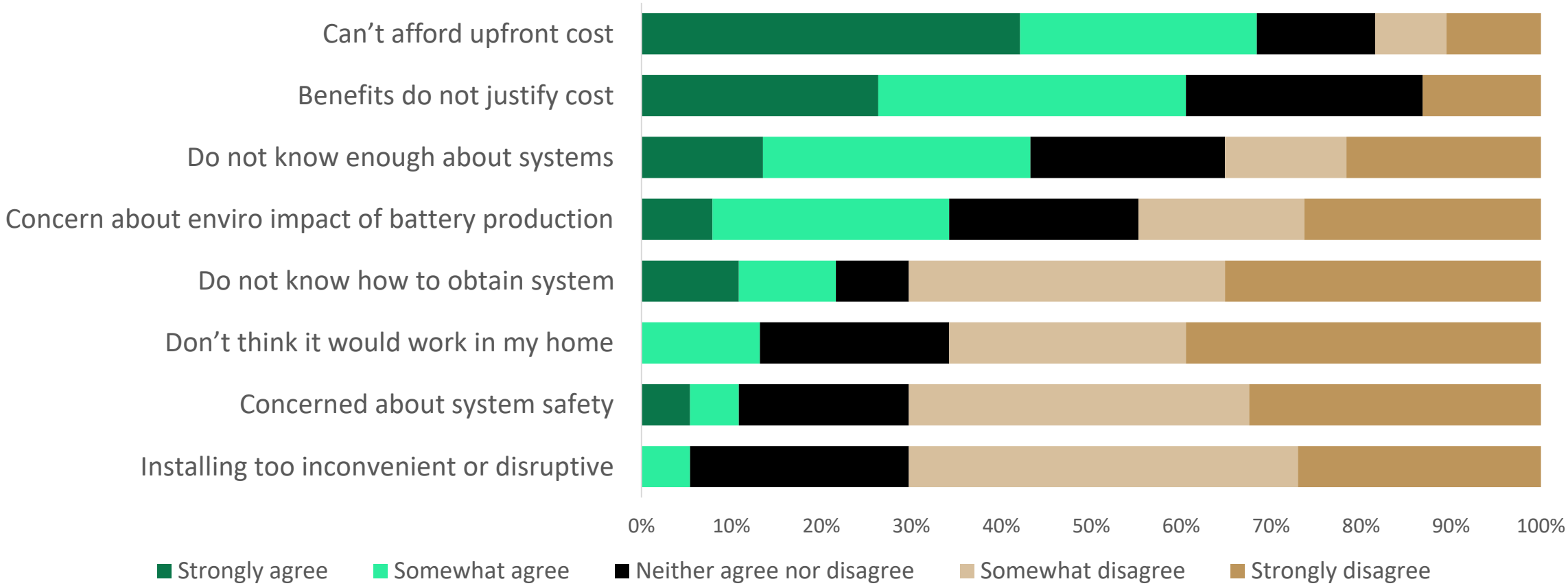


Participants are generally aware of rates and billing policy

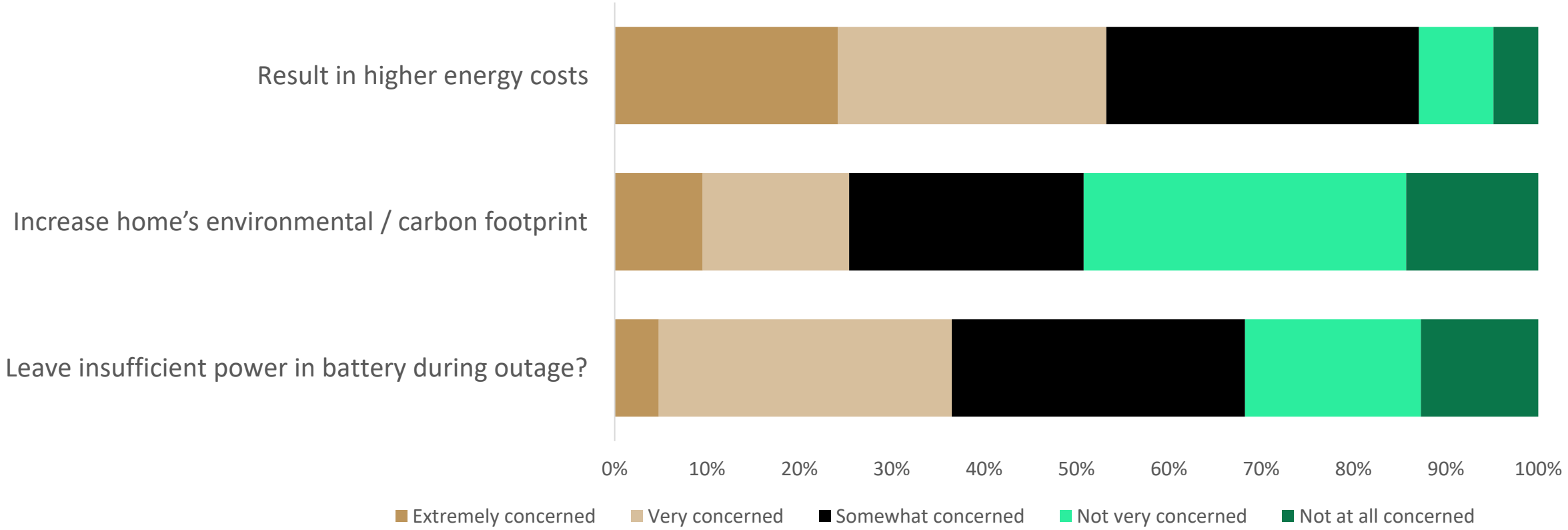




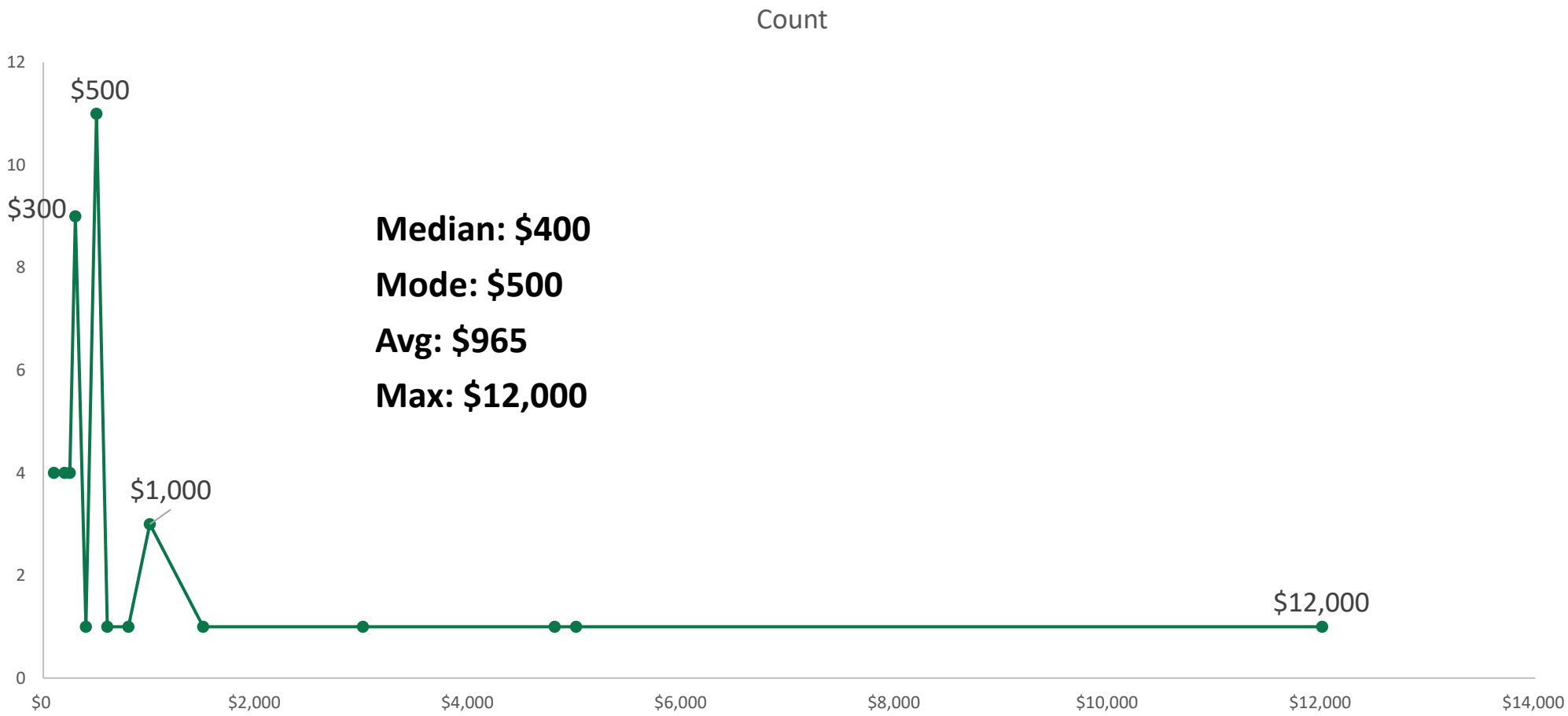
Costs and perception of lower benefits primary barriers to storage installation



Higher energy costs and insufficient backup primary concerns with storage



Incentive value needed to consider allowing control over storage system



- Wrap up – conclusions, next steps

Conclusion 1:	• Most storage participants are engaged, aligned with program, and largely amenable to utility control/access • There is a smaller group focused more on backup and unwilling to cede control regardless of the incentive
Conclusion 2:	• There is a tangible disconnect in perceptions between current vs future storage customers • This could be a function of contractors overselling and systems underdelivering
Conclusion 3:	• YYYYY

Q&A?