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Survey of Residential and Business Customers of the Lansing Board of Water and Light about the IRP Process

Executive Summary and Demographic Analysis

December 2019

- Educational
- Political
- Industrial
- Consumer

- Market
- Research
- Analysis

Final Report

Table of Contents

METHODOLOGY	1
KEY FINDINGS	3
EXECUTIVE SUMMARY	8
MORE DETAILED REVIEW OF SURVEY RESULTS AND DEMOGRAPHIC ANALYSIS	13
More than 8-in-10 offer positive rating for the job BWL does in providing electric service	13
Cost, price, rate increases, billing errors and power outages top reasons for negative rating	15
7-in-10 say BWL electric rates are reasonable	16
Reliability, affordability, minimizing environmental impact top planning goals	19
Cleaner energy, reliability, affordability top goals for residential and business customers	20
Top business and residential goals out of three described	21
Top business and residential goals out of three others described	22
Reliability more important than affordability for both business and residential customers.....	23
Where should renewable energy be generated?.....	25
Should BWL purchase renewable energy & credits, or just credits?	26
Residential customers more willing than business customers to pay for renewable energy	27
Of residential customers willing to pay more, 9-in-10 would pay \$10 more per month	28
Are customers willing to pay more during times of high use, pay less in times of less use?.....	30
Are customers interested in BWL managing electric use for 1% of time for lower rates?.....	31
Business & residential customers support financial incentives for energy efficiency	32
Residential customers more willing than business to pay more for energy efficiency.....	33
Over 8-in-10 residential customers would pay \$5 more per month for energy efficiency	34
Business customers asked how much reliable energy is a factor in economic development?	35
Refrigerators, washers/dryers, dishwashers and furnaces top choices for rebates	37
Residential customers more supportive of BWL encouraging purchase of electric vehicles.....	38
Are customers interested in having solar panels installed on their roofs?.....	39
Less than 4-in-10 willing to pay extra in their monthly bill to have BWL install solar panels	40
How much would residential customers be willing to pay per month for BWL installation	41

METHODOLOGY

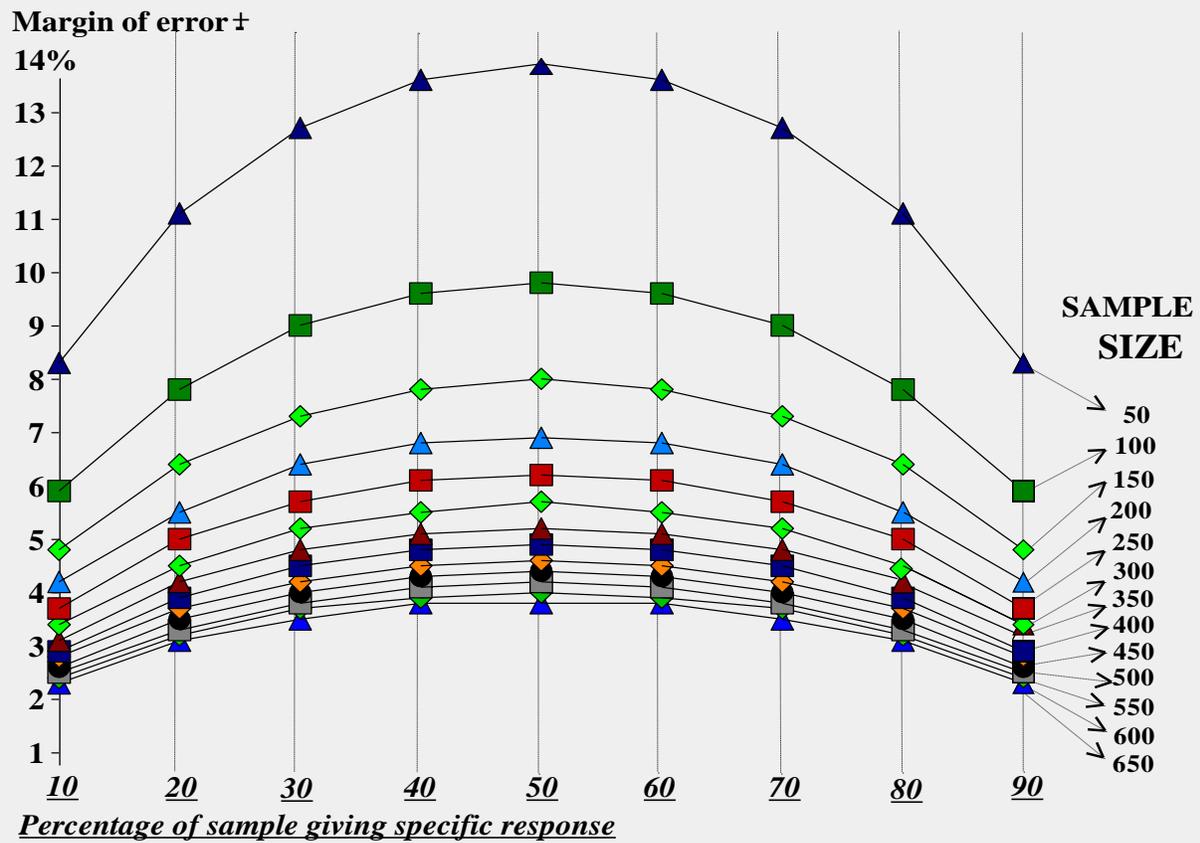
EPIC ▪ MRA conducted two sets of interviews among Board of Water and Light customers: one included 400 interviews with adult residential customers and the other consisted of 300 business customers. The business customer survey was conducted from November 11th through November 18th, 2019; and the residential survey was conducted from November 20th through November 23rd, 2019. The average length of the residential survey was 17 minutes and the average length of the business survey was 14 minutes.

In interpreting survey results, all surveys are subject to error; that is, the results of the survey may differ from those that would have been obtained if the entire population was interviewed. The size of the sampling error depends on the total number of respondents to a particular question. The table on the next page represents the estimated sampling error for different percentage distributions of responses based on sample size.

For example, a total of 51 percent of “all” 400 residential respondents offered a “pretty good” rating for the job the BWL does in providing reliable, affordable electric services over the past year or so (Q.2). As indicated in the table found on the next page, this percentage would have a sampling error of plus or minus 4.9 percent. That means that with repeated sampling, it is very likely (95 times out of every 100), that the percentage for the entire population would fall between 46.1 percent and 55.9 percent; hence 51 percent \pm 4.9 percent.

In the business survey, 49 percent of “all” 300 respondents stated that it was a top priority to “provide enough electric power while minimizing the environmental impact that contributes to climate change” (Q.7). Again, as indicated in the table found on the next page, this percentage would have a sampling error of plus or minus 5.7 percent. That means that with repeated sampling, it is very likely (95 times out of every 100), that the percentage for the entire population would fall between 43.3 percent and 54.7 percent; hence 49 percent \pm 5.7 percent.

EPIC • MRA		SAMPLING ERROR BY PERCENTAGE (AT 95 IN 100 CONFIDENCE LEVEL)								
		<i>Percentage of sample giving specific response</i>								
		<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	<u>80</u>	<u>90</u>
SAMPLE SIZE		% margin of error ±								
	700	2.2	3.0	3.3	3.7	3.6	3.7	3.3	3.0	2.2
	650	2.3	3.1	3.5	3.8	3.8	3.8	3.5	3.1	2.3
	600	2.4	3.2	3.7	3.9	4	3.9	3.7	3.2	2.4
	550	2.5	3.3	3.8	4.1	4.2	4.1	3.8	3.3	2.5
	500	2.6	3.5	4	4.3	4.4	4.3	4	3.5	2.6
	450	2.8	3.7	4.2	4.5	4.6	4.5	4.2	3.7	2.8
	400	2.9	3.9	4.5	4.8	4.9	4.8	4.5	3.9	2.9
	350	3.1	4.2	4.8	5.1	5.2	5.1	4.8	4.2	3.1
	300	3.4	4.5	5.2	5.5	5.7	5.5	5.2	4.5	3.4
	250	3.7	5	5.7	6.1	6.2	6.1	5.7	5	3.7
	200	4.2	5.5	6.4	6.8	6.9	6.8	6.4	5.5	4.2
	150	4.8	6.4	7.3	7.8	8	7.8	7.3	6.4	4.8
	100	5.9	7.8	9	9.6	9.8	9.6	9	7.8	5.9
	50	8.3	11.1	12.7	13.6	13.9	13.6	12.7	11.1	8.3



KEY FINDINGS

- 83 percent of residential customers (up 2 points from 2015) and 89 percent of business customers (also up 2 points from 2015), offered a positive rating for the job done by BWL providing reliable, affordable electric service to homes/businesses.
- Among the small number of customers offering a negative job rating, the top reason for doing so was “cost/too expensive” among residential customers (cited by 40 percent), and “cost/price increases” among business customers (cited by 65 percent).
- 70 percent of residential customers (up 7 points from 2015) and 69 percent of business customers (up 8 points from 2015) said electric rates are reasonable.
- When residential customers were read eight planning goals and asked for each one if it should be a top priority, important, but not a top priority, only somewhat important, or not important at all. Those earning the highest percentage total importance were affordability (93 percent); reliability (91 percent); providing electric power while minimizing the environmental impact that contributes to climate change (84 percent); generating electric power from renewable energy, such as wind and solar, located in the greater Lansing area (78 percent); and having diverse energy generation options, including natural gas, wind, solar, hydro-electric, power storage, and energy efficiency programs (76 percent).
- Business customers offered somewhat different responses, with reliability cited as the top response (93 percent); followed by affordability (92 percent); providing enough electric energy at an affordable price to attract economic development projects and businesses to locate in Lansing (84 percent); provide electric power while minimizing the environmental impact that contributes to climate change (78 percent); having diverse energy generation options, including natural gas, wind, solar, hydro-electric, power storage and energy efficiency programs (74 percent); and having the ability to generate electric power from renewable energy, such as wind and solar, that is located in the greater Lansing area (68 percent).
- When residential customers were read a list of five planning goals and asked which one was most important, generating cleaner energy was the top choice (31 percent), followed by affordability (30 percent), reliable power (17 percent), diverse energy options (15 percent), and economic development and attracting business (5 percent).
- When business customers were read the same list of five planning goals and asked which one was most important, reliable power was the top choice (26 percent), followed by affordability (22 percent), generating cleaner energy (21 percent), diverse energy options (16 percent), and economic development and attracting business (13 percent).
- When residential customers were asked which one of the following three planning goals was most important; generating electric energy while increasing clean energy was first (42 percent), followed by affordability (31 percent), then reliability (26 percent).

- When business customers were asked about the same list of three planning goals, the top goal was reliability (34 percent), followed by affordability (33 percent) and generating electric energy while increasing clean energy (31 percent).
- When residential customers were asked about a different set of three planning goals, the top choice was keeping the price of electric service as low as possible (40 percent), closely followed by increasing clean energy when generating electricity (38 percent), with providing an adequate power supply to meet customer power needs last (20 percent).
- When residential customers were asked to choose between reliability and affordability, a 53 percent majority chose reliability first, with affordability second at 43 percent.
- When business customers were asked to make the same choice, a 68 percent majority chose reliability and 30 percent picked affordability.
- When residential customers were asked where it would be most important for the BWL to provide new or expanded sources of renewable energy generation, 34 percent said within the BWL service area, in other Michigan sites and in sites in the Midwest region; 33 percent said only within or near the BWL service area, with 23 percent saying only within or near the BWL service area, as well as within other areas of Michigan.
- When business customers were asked the same question, 37 percent said only within the BWL service area, 30 percent said within the BWL service area, in other Michigan sites and in sites in the Midwest region, with 22 percent saying within the BWL service area as well as in other areas of Michigan.
- After hearing a description of renewable energy and renewable energy credits, residential customers were asked which approach they would prefer to see the BWL use in the future to invest in renewable energy; 42 percent said just purchasing renewable credits, which is generally at a lower cost than purchasing both renewable energy and credits, 38 percent said by purchasing both renewable energy and credits, with 20 percent unsure.
- After hearing the same description of renewable energy and credits, 41 percent said BWL should purchase both renewable energy and credits, 41 percent said just purchasing renewable energy credits, which is generally at a lower cost than purchasing both renewable energy and credits, with 18 percent unsure.
- Residential respondents were informed that BWL is on track to meet its clean energy target of 30 percent by next year, which is well above the state requirement. They were then asked if the cost of renewable energy exceeds the cost of more traditional fossil fuel energy supplies, like natural gas, would they be willing to pay more each month to increase the amount of electric energy generated from renewable energy supplies. Forty-eight percent said yes, and 43 percent said no.

- When business customers were asked the same question, 40 percent said yes, they would be willing to pay more, with 53 percent saying no.
- Of the 48 percent of residential customers who said they would be willing to pay more per month, 88 percent said they would be willing to pay \$10 more per month. Business customers were not asked this question.
- Residential and business customers were asked if they would prefer to pay a flat rate for their electric bill, like what they have now, or if they would prefer to pay a rate that would charge for electric use based on the time of day that you use it? Forty-nine percent of residential customers said they prefer a flat rate like they have now, as did 55 percent of business customers, with 42 percent of residential customers and 38 percent of business customers preferring a rate based on time of day it is used.
- A 57 percent majority of residential customers and 58 percent of business customers said they would be willing to pay more to use electricity during times of high energy usage, like hot daytimes, so they could pay less during times when the need for electricity is less.
- A 65 percent majority of residential customers would be willing to actively manage their electrical use if they could save on their electric bill, and in a follow-up question, 68 percent would be willing to actively manage electric use if they could save \$5 to \$10 per month.
- A 56 percent majority of business customers and 54 percent of residential customers are interested in participating in a new program where the BWL would manage air conditioner and water heater usage for no more than 1 percent of the time per year in return for a lower electric bill.
- An 87 percent majority of residential customers and 90 percent of business customers supports a BWL program that provides financial incentives for customers to use more efficient lighting, or to install more efficient heating and cooling systems in their homes and businesses.
- A 49 percent plurality of residential customers and 46 percent of business customers said they would be willing to pay more per month if it would significantly decrease the amount of energy wasted by investing in energy efficiency and conservation efforts, if the money paid in higher rates is used to provide customer incentives to encourage energy efficient lighting and installation of energy efficient heating and cooling systems.
- Of the 49 percent of residential customers who are willing to pay more per month to support energy efficiency programs, 82 percent said they would be willing to pay additional \$5 per month to make more electric energy available through energy efficiency programs.

- Residential customers were asked what kind of appliances or other products you can purchase for your home that you can receive a rebate because it uses less energy. The top responses cited: refrigerators (16 percent); washer/dryer (13 percent); dishwashing machine (10 percent); furnace (10 percent); and air conditioners (9 percent).
- Among residential customers, 39 percent said they would be most willing to pay higher electrical rates to provide increased use of renewable energy from wind and solar energy sources, 25 percent said to have a battery or other electric storage backup service, and 18 percent said for energy efficiency and conservation programs.
- Among business customers, 33 percent said they would be willing to pay higher electric rates for increased use of renewable energy from wind and solar energy sources, 27 percent would be willing to pay more for energy efficiency and conservation programs, with 22 percent willing to pay more to have a battery or other electric storage backup service.
- Among residential customers, a 55 to 36 percent majority said BWL should encourage its customers to purchase and use electric vehicles.
- When business customers were asked the same question, a 48 to 45 percent plurality narrowly said BWL should NOT encourage its customers to purchase and use electric vehicles.
- A 54 percent majority of residential customers, but only 45 percent of business customers said they would be interested in installing rooftop solar panels to generate renewable electric energy in their homes or businesses.
- While 39 percent of residential customers said they would be willing to pay extra on their monthly BWL electric bill to have solar panels installed on their roof by BWL, only 34 percent of business customers offered the same response.
- When residential customers were asked how much extra per month they would be willing to pay to have solar panels installed by BWL, the largest percentage, 33 percent, said they would be willing to pay between \$10 to \$24 per month, 18 percent said they would be willing to pay \$25 to \$49 more, 17 percent said they would be willing to pay less than \$10 per month, 20 percent were unsure and 12 percent were willing to pay more than \$50 per month. Business customers were not asked this question.
- Business customers were also asked if they would be willing to pay an additional amount on their electric bill so BWL could provide any of the following services? 25 percent would be willing to pay more for backup generators, micro-grids or batteries, 22 percent would be willing to pay more for solar energy, 12 percent would be willing to pay more for combined heat and power systems, 36 percent were not willing to pay any more for any services, and 5 percent were unsure.

- Residential customers were asked if they would be willing to pay an additional amount on their electric bill so BWL could provide any of the following services? 34 percent said they would be willing to pay more for backup generators to provide electric power if there is a power outage, 18 percent said for appliance repair, and if it cannot be repaired, replacement, 14 percent said for tree trimming or vegetation management on or near their property, with 29 percent volunteering that they would not be willing to pay more for any of the services listed.
- Business customers were also asked how much of a factor the availability of a reliable BWL power supply, at an affordable price, is in the decisions made by developers to consider locating economic development projects, or locating businesses in the Lansing area? A 62 percent majority said it was a major factor (25 percent), or important but not a major factor (37 percent), with 31 percent saying it is only a minor factor or not a factor at all.

EXECUTIVE SUMMARY

An 89 percent majority of business customers (up 2 points from the 2015 survey), and 83 percent of residential customers (also up 2 points), offered a positive rating for the job the Board of Water and Light does in providing reliable, affordable electric service to business or homes of customers.

A significant increase since 2015 was also found in the percentage of both residential and business customers who consider their electric energy rates reasonable. A 70 percent majority of residential customers (up 7 points) and 69 percent of business customers said that their electric rates are reasonable, including 27 percent of residential customers who say they are very reasonable and 21 percent of business customers also saying rates are very reasonable.

Another notable change in the 2019 residential survey, when compared to the one conducted in 2015, is the significant increase in support for renewable energy. A 78 percent majority of residential customers (up 12 points from 2015) said it was important (45 percent a top priority, up 14 points), in “having the ability to generate electric power from renewable energy, such as wind or solar, that is located in the greater Lansing area.”

On another question on the residential survey, when asked which of five planning goals all respondents thought was most important, 31 percent said it should be “generating cleaner energy” (up 17 points from 2015) when it read “minimizing the environmental impact.”

Thirty percent of residential customers said the top planning goal should be “affordability,” down 2 points from 2015, with 17 percent saying it should be “reliability” (down 6 points), and 15 percent saying “diverse energy options including conventional, wind, solar and energy conservation” (up 6 points).

In the 2019 business survey, when asked to choose which of three planning goals was most important, 34 percent of respondents said, “reliability of electric service,” 33 percent said, “affordability of electric rates,” and 31 percent said “generating electric energy while increasing clean energy.” When residential customers were asked the same question, 42 percent said the most important planning goal was “generating electric energy while increasing clean energy” (up 7 points); 31 percent said “affordability of electric rates” (up 1 point); with 26 percent saying “reliability of electric service” (down 4 points).

On another question on the business survey about planning goals in the 2019 survey, 35 percent of respondents said the most important goal was “keeping the price of electric service as low as possible” (up 1 point from 2015), 34 percent said “providing an adequate power supply to meet customer power needs” (down 3 points), with 28 percent saying “increasing clean energy when generating electricity” (up 4 points).

When residential customers were asked the same question, 40 percent said the most important planning goal was “keeping the price of electric service as low as possible” (up 3 points); 38 percent said “increasing clean energy when generating electricity” (up 6 points); and “providing an adequate power supply to meet customer power needs” (down 9 points).

When residential customers were asked whether “reliability” or “affordability” was a more important priority, 53 percent said “reliability” (down 1 point) and 41 percent said “affordability” (up 2 points). When business customers were asked the same question, 68 percent said “reliability” was more important and only 30 percent said “affordability” was more important.

The most to least important planning goals among residential customers were:

1. “Making electric power as affordable as possible” (93 percent total important—unchanged from 2015/61 percent said top priority);
2. “Making electric power reliable as possible so it continuously meets the demand for power from both residential and business customers” (91 percent total important—down 4 points from 2015/59 percent said top priority);
3. “Provide electric power while minimizing the environmental impact that contributes to climate change” (84 percent total important—down 2 points/59 percent top priority);
4. “Having the ability to generate electric power from renewable energy, such as wind or solar, that is located in the greater Lansing area” (78 percent total important—up 12 points/45 percent top priority);
5. “Having diverse energy generation options, including natural gas, wind, solar, hydro-electric, power storage and energy efficiency programs” (76 percent total important—up 5 points/37 percent top priority);

6. “Providing enough electric energy at an affordable price to attract economic development projects and businesses to locate in Lansing” (72 percent total important—down 8 points/35 percent top priority);
7. “Offering programs that provide incentives for customers to manage their power usage with energy management programs, or generating their own power with on-site solar systems” (68 percent total important—up 2 points/30 percent top priority);
8. “Purchasing electric energy from the interstate electric grid, which could reduce or eliminate the need to generate electric power in Lansing” (45 percent—up 2 points/17 percent top priority).

The most to least important planning goals among business customers were:

1. “Making electric power reliable as possible so it continuously meets the demand for power from both residential and business customers” (93 percent total important—down 4 points/67 percent top priority);
2. “Making electric power as affordable as possible” (92 percent total important—down 1 point/66 percent top priority);
3. “Providing enough electric energy at an affordable price to attract economic development projects and businesses to locate in Lansing” (84 percent total important—down 4 points/46 percent top priority);
4. “Provide electric power while minimizing the environmental impact that contributes to climate change” (78 percent total important—down 5 points/49 percent top priority);
5. “Having diverse energy generation options, including natural gas, wind, solar, hydro-electric, power storage and energy efficiency programs” (74 percent total important—up 8 points/41 percent top priority);
6. “Having the ability to generate electric power from renewable energy, such as wind or solar, that is located in the greater Lansing area” (68 percent total important—up 6 points/37 percent top priority);
7. “Offering programs that provide incentives for customers to manage their power usage with energy management programs, or generating their own power with on-site solar systems” (65 percent total important—up 2 points/29 percent top priority);

8. “Purchasing electric energy from the interstate electric grid, which could reduce or eliminate the need to generate electric power in Lansing” (49 percent—up 13 points/19 percent top priority).

On another topic, while a 58 percent majority of business customers and a 57 percent majority of residential customers said they would be willing to pay more to use electricity during times of high electricity usage so they can pay less during times when demand is less, a 55 to 38 percent majority of business customers and a 49 to 42 percent plurality of residential customers said they prefer having the current flat rate electric bill instead of a rate based on time of use.

It is also worth noting that a 56 percent majority of business customers and a 54 percent majority of residential customers said they would be interested in having the BWL manage devices such as air conditioners and water heaters for no more than 1 percent of the time per year to reduce usage in return for a lower electric bill. While both business and to a lesser extent residential customers may prefer the current flat rate electric billing structure, there appears enough support - based on the results of other atmospheric questions - to proceed with discussions with customers about the benefits of rates based on time of use to see if support for that approach can be increased in the future. Given the “big picture” that forms when responses from other, related questions in the survey are taken into account, support among customers is likely to increase even further with more information put out by the BWL.

Among residential customers, there is a willingness voiced by a 65 percent majority to actively manage their electric use if they could save on their electric bill, which increases to 68 percent if they could specifically save \$5 to \$10 per month.

About 9-in-10 business and residential customers said they support the BWL program to provide financial incentives for customers to use more energy efficient lighting and heating and cooling systems. However, less than half of customers (46 percent of business and 49 percent of residential customers), would be willing to pay more per month to help finance the program. Among the 49 percent of residential customers who would be willing to pay more, 82 percent would be willing to pay \$5 more per month. It may be worth considering putting in place a voluntary program for customers since there is significant interest, but not by a majority.

The idea of BWL encouraging customers to purchase and use electric vehicles was met with much more enthusiasm by residential customers than business customers. Among business customers, a 48 to 45 percent plurality said BWL should NOT encourage the purchase and use of electric vehicles by customers, while a 55 to 36 percent majority of residential customers said BWL should encourage customers to purchase and use electric vehicles with incentives.

There is also more interest among residential customers than business customers to have solar panels installed on their roofs to generate renewable electric energy. A 54 percent majority of residential customers said they are interested (32 percent very interested), while a 52 to 45 percent majority of business customers are only a little interested or not interested at all. Also, a significant 39 percent of residential customers and 34 percent of business customers said they would be willing to pay extra on their electric bill to have BWL install rooftop solar panels.

Among the 39 percent of residential customers willing to pay more, 33 percent would be willing to pay \$10 to \$24 more per month, 18 percent would be willing to pay \$25 to \$49 more per month, with 17 percent saying they would be willing to pay less than \$10 per month.

A 62 percent majority of business customers said that it is a major factor (25 percent), or an important but not major factor (37 percent), in the decisions made by developers in considering locating economic development projects, or locating businesses in Lansing, to have a reliable, affordable power supply provided by BWL. While a 62 percent majority is a strong response, it is 13 points lower than the 75 percent of businesses who offered the same view in the 2015 survey.

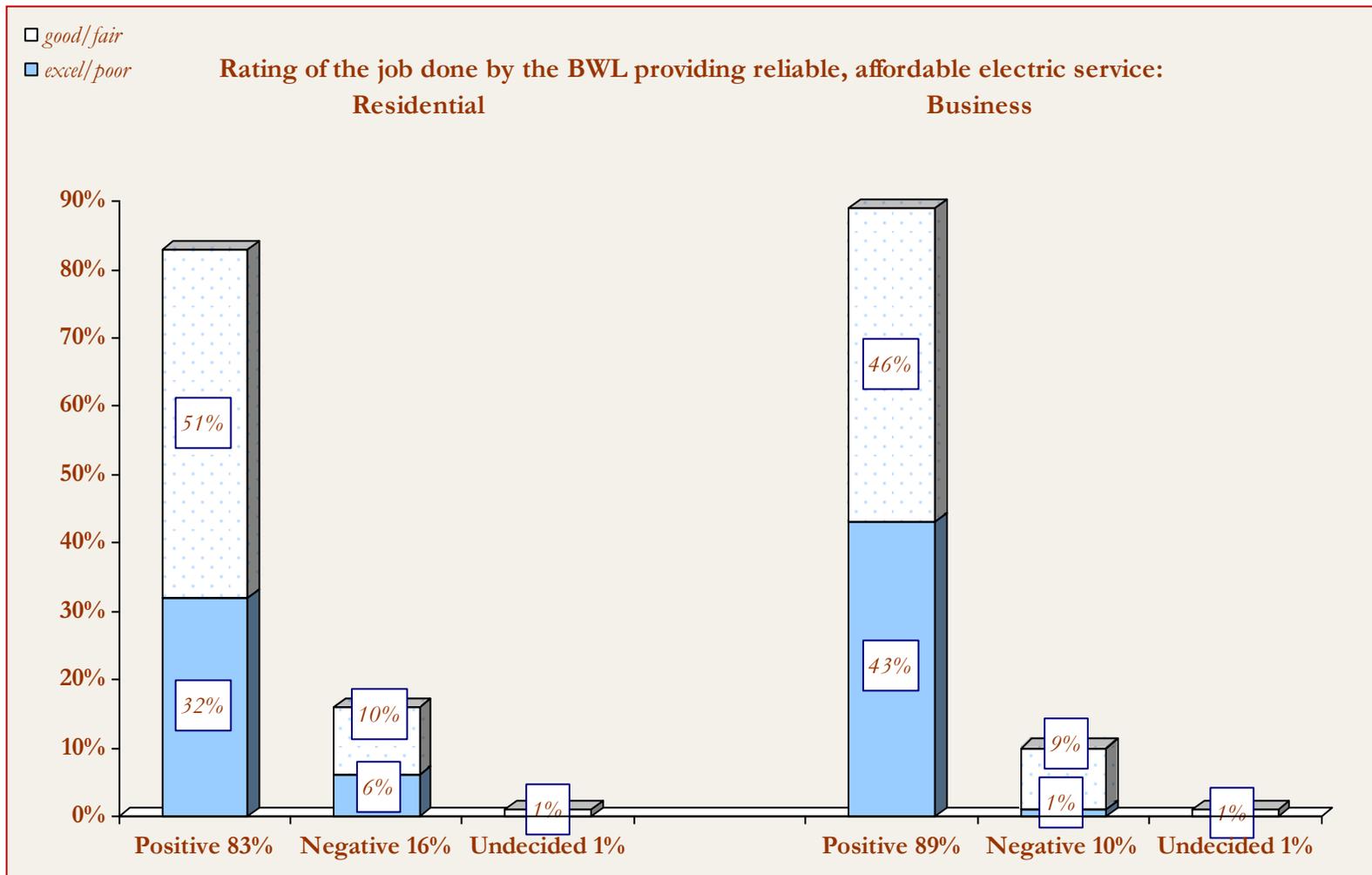
When asked what services they would be willing to pay an additional amount on their electric bill to receive, business customers said backup generators, micro-grids or batteries (25 percent), or solar energy (22 percent), while residential customers were most willing to pay more for backup generators to provide electric power if and when there is a power outage (34 percent), or to have an appliance repair and replacement program (18 percent).

While business customers were split on the question of whether they preferred BWL to invest in renewable energy and credits, or just credits (at 41 percent each), residential customers narrowly preferred just purchasing renewable credits (at 42 percent), by a higher percentage than purchasing both energy and credits.

MORE DETAILED REVIEW OF SURVEY RESULTS AND DEMOGRAPHIC ANALYSIS

More than 8-in-10 offer positive rating for the job BWL does in providing electric service

The percentage of respondents offering a “positive” rating for the job done by the BWL in providing electric service is more than 8-in-10 among residential customers (83% -- up 2 points from 2015), and nearly 9-in-10 among business customers (89% -- also up 2 points). An 83 to 16 percent majority of residential customers offers a positive rating for the job done by the BWL in providing reliable, affordable service to the homes of customers, including 32 percent who offered an “excellent” rating. An 89 to 10 percent majority of business customers offered a positive rating, including 43 percent offering an “excellent” rating.



Key demographic **residential** groups saying by the highest percentages (significantly above 16 percent), that they offered BWL a negative job rating, included:

- 40 percent: Electric rates not reasonable
- 30 percent: African Americans
- 29 percent: Lansing, Ward 3
- 28 percent: Affordability more important planning goal than reliability
- 26 percent: Low price top planning goal of three described
Would not be willing to pay more for renewable energy costs
Would be willing to pay \$25 or more per month for solar
- 24 percent: Affordability top planning goal of five
Gets info from word-of-mouth
- 23 percent: Incomes under \$25K
- 22 percent: Interested in having rooftop solar panels installed
Men without college
- 21 percent: Prefers electric rates based on time of use
Willing to pay more for conservation
Says BWL should not encourage the purchase of electric vehicles
Other races
Age 18-49 without college
- 20 percent: Undecided about electric rates
Unmarried, single customers
Renters

Key demographic **business** groups saying by the highest percentages (significantly above 10 percent), that they offer BWL a negative job rating for providing electric service, included:

- 35 percent: Electric rates NOT reasonable
- 26 percent: Gets info from word-of-mouth
- 25 percent: 6 to 10 years in Lansing
- 24 percent: Reliable, affordable BWL energy major factor in business decisions
- 19 percent: Retail business
- 18 percent: Business sells a product
- 17 percent: Affordability a top planning goal out of five described
- 16 percent: Non-white races
Men age 18-49
- 15 percent: East Lansing
Diverse energy top planning goal out of five described
Pay more for conservation
Interested in rooftop solar panels
Gross dollar amount of business under \$500K
Age 18-34

Cost, price, rate increases, billing errors and power outages top reasons for negative rating

Those respondents that issued a negative rating on the previous question were asked, “What is the main reason why you gave the Board of Water and Light a **NEGATIVE** rating?” The responses were:

<u>Business</u>	<u>Residential</u>	
<u>N=31</u>	<u>N=63</u>	
65%	40%	Cost/price increases/too expensive
3%	13%	Billing errors
3%	8%	Customer Service is Poor
10%	6%	Outages
---	6%	No choice/no competition
---	5%	Inconsistent rates
---	3%	Lack of disability discount
2%	2%	Poor planning
---	2%	Slow service
---	2%	Service cut for no reason/small amount owed
3%	2%	No reason/nothing special
13%	13%	Undecided/Refused

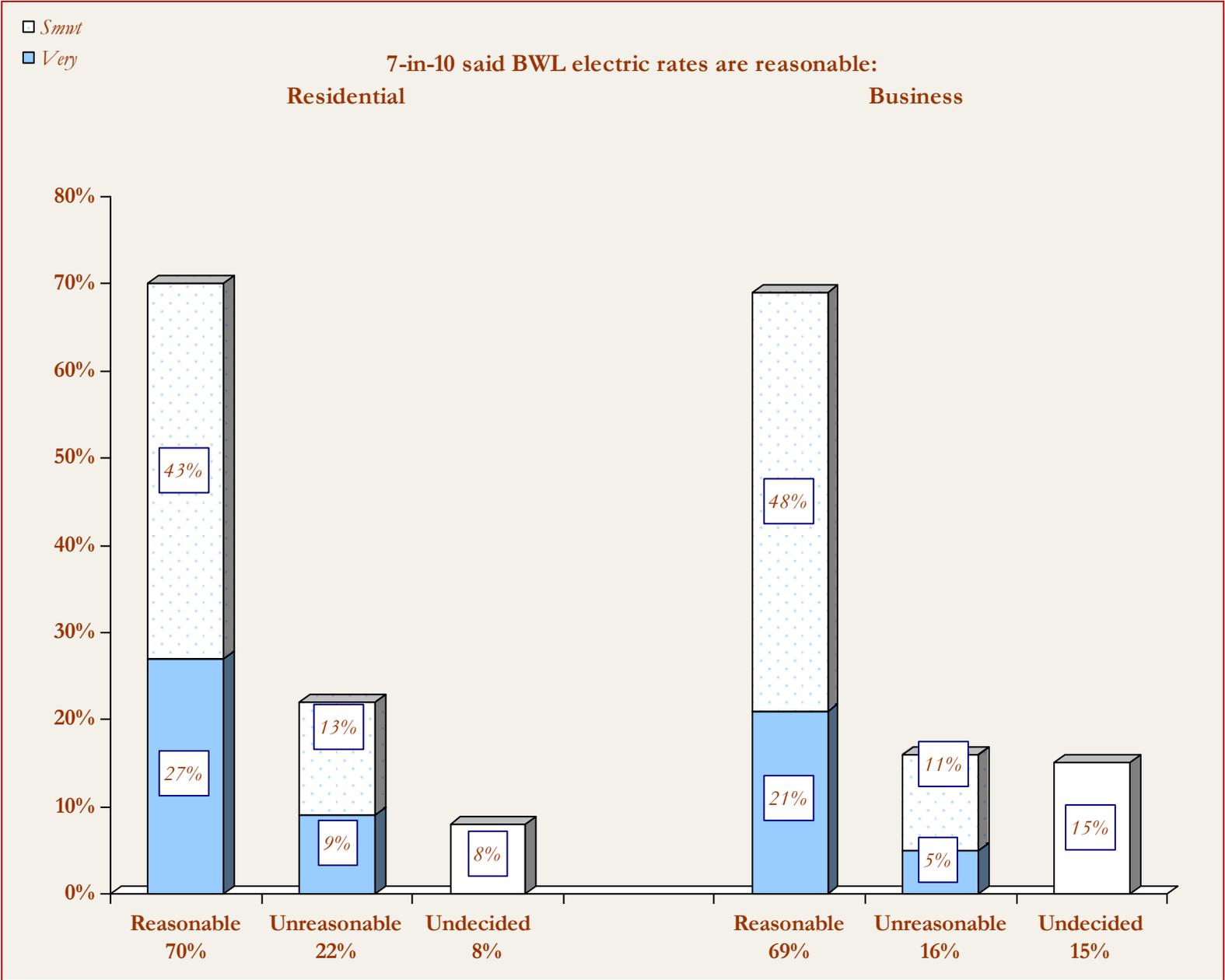
In the 2015 survey, the second highest reason mentioned for a negative job rating for residential customers, at 28 percent, and the fourth highest reason for business customers, at 10 percent, was power outages and the ice storm. Concern about power outages was mentioned by only 6 percent of residential customers and 10 percent of business customers in the current 2019 survey.

High rates, prices and rate increases were mentioned by 40 percent of residential customers in the current 2019 survey, and the percentage citing that reason is unchanged from 2015. Among business customers, 65 percent mentioned concerns about rates and price increases as their top reason for a negative job rating, which is up by 29 points from 2015 when it was mentioned by 36 percent.

However, it is important to note the relatively small n-sizes found among both business and residential groups.

7-in-10 say BWL electric rates are reasonable

All respondents were asked, “Thinking about the electric energy rates your (household/business) pays, would you say your electric rates are reasonable or unreasonable?” and followed up with “Would that be very or somewhat?” A 70 percent majority of residential customers (up 7 points from 2015), and 69 percent of business customers (up 8 points) said electric rates are reasonable, as shown below:



Key demographic **residential** groups saying by the highest percentages (significantly above 22 percent), that electric rates are unreasonable, included:

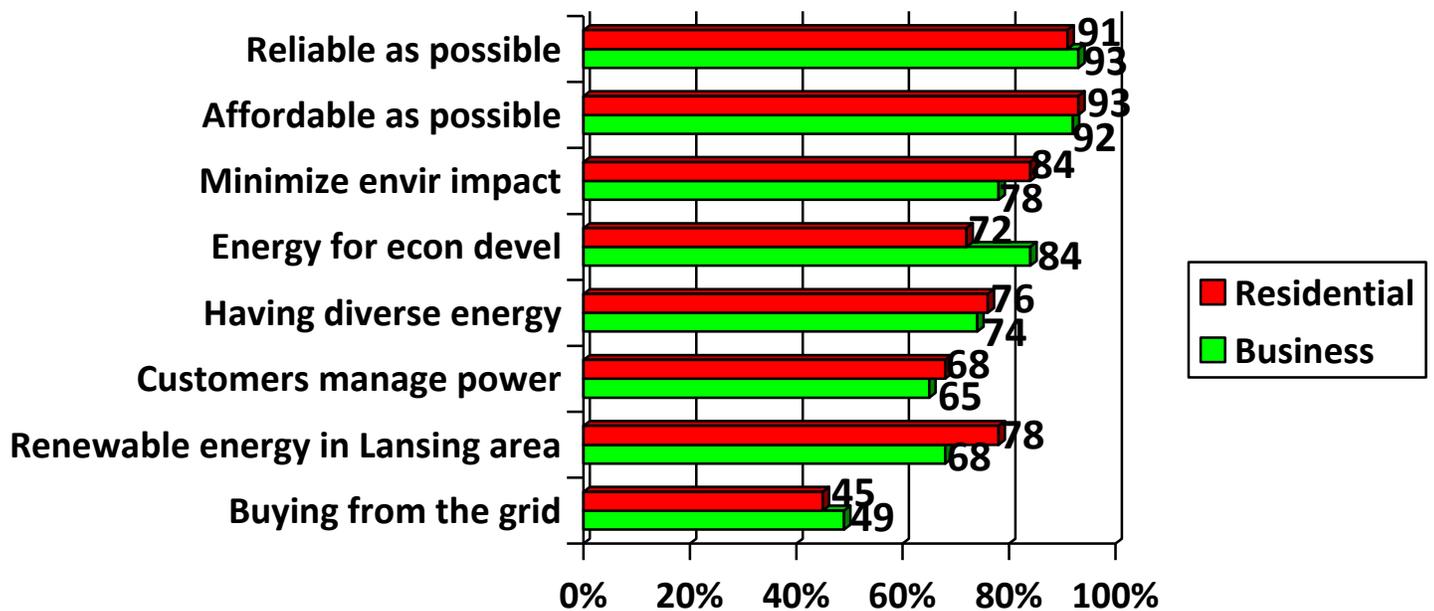
- 57 percent: Negative job rating for BWL
- 40 percent: Affordability top planning goal of 5 described
- 35 percent: Affordability more important planning goal than reliability
Low price top planning goal of 3 described
Would not pay more for renewable energy costs
- 33 percent: Affordability top planning goal of 3 described
- 32 percent: African Americans
- 31 percent: Lansing, Ward 2
Not willing to pay more for electric rates based on time of day
Not willing to pay more for any service
HS or less education
- 30 percent: Lansing, Ward 1
Incomes under \$25K
Women age 18-49
- 29 percent: Not willing to pay more for conservation
Willing to pay higher electric rates for batteries
Gets info from word-of-mouth
Households with children
Women without college
- 28 percent: BWL should just invest in credits
BWL should not encourage purchase of electric vehicles
- 27 percent: Lansing, Ward 3
Never visits BWL website
Age 35-49
Age 50-64
Lived in Lansing area 25 years or more
Other races
Age 18-49 without college
- 26 percent: Willing to pay \$25 or more per month for rooftop installation
Other marital status
All women
- 25 percent: Visits BWL website weekly or monthly
Renters
Age 50 and over without college
Men age 50 and over

Key demographic **business** groups saying by the highest percentages (significantly above 16 percent), that electric rates are unreasonable, included:

- 55 percent: Negative job rating for BWL
- 30 percent: Lived in Lansing 1-5 years
- 29 percent: Affordability top planning goal of 5 described
Gross dollar sales of business under \$500K
- 28 percent: Affordability more important planning goal than reliability
Interested in rooftop solar panels
- 27 percent: Reliable, affordable BWL energy major factor in business decisions
Men without college
- 26 percent: Word-of-mouth top info source
Retail sales is what business does
Age 50 and over without college
- 24 percent: Business sells a product and provides a service
Post HS technical education
- 23 percent: Increase clean energy top planning goal of 3 described
Not willing to pay more for renewable energy
Pay more for conservation
Construction is what business does
- 22 percent: Lansing
Renters
- 21 percent: Professional services is the type of business
Non-white races
Age 18-49 without college
Women age 50 and over
- 20 percent: Not willing to pay more for electric rates based on time of day used
Not willing to pay any more for business services
Top info source social media
Business sells a product
Age 50-64
HS or less education

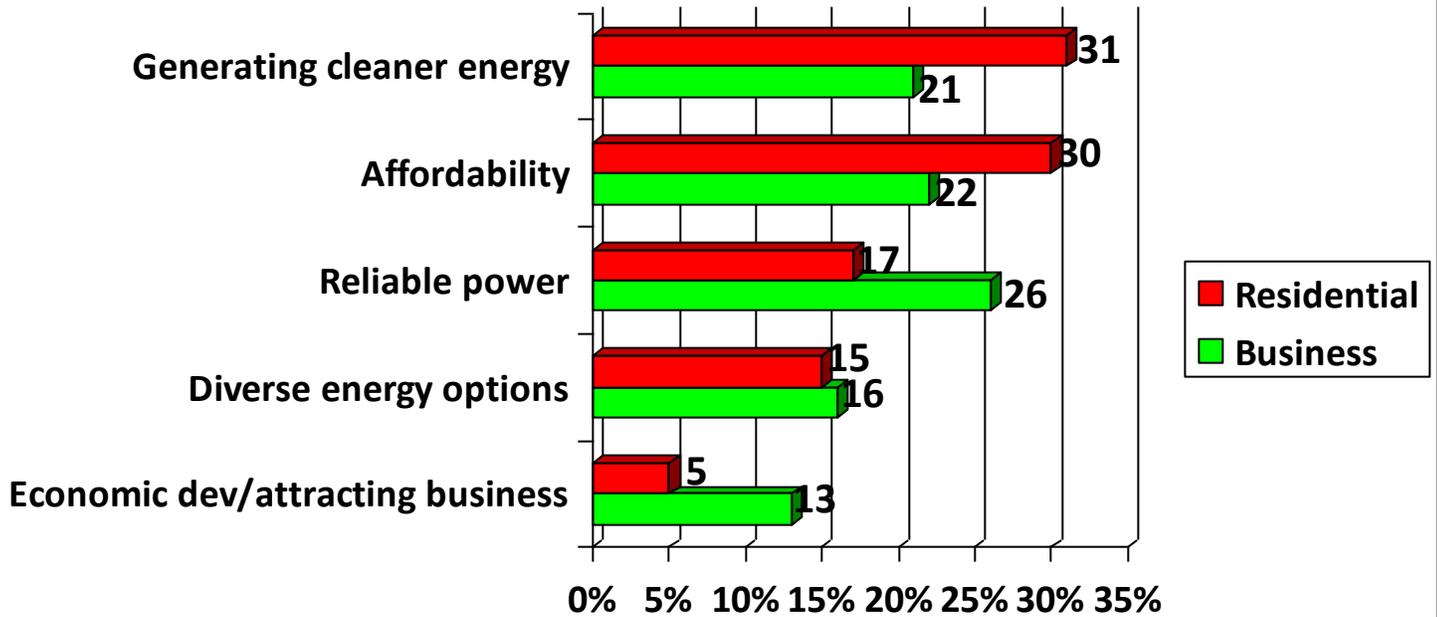
Reliability, affordability, minimizing environmental impact top planning goals

When respondents were asked, for each of nine statements describing planning goals that BWL should be considered in generating electric energy for residential and business customers, whether each should be a top priority, important but not a top priority, only somewhat important or not important at all, the combined important responses of top priority, and important but not a top priority, were as follows:



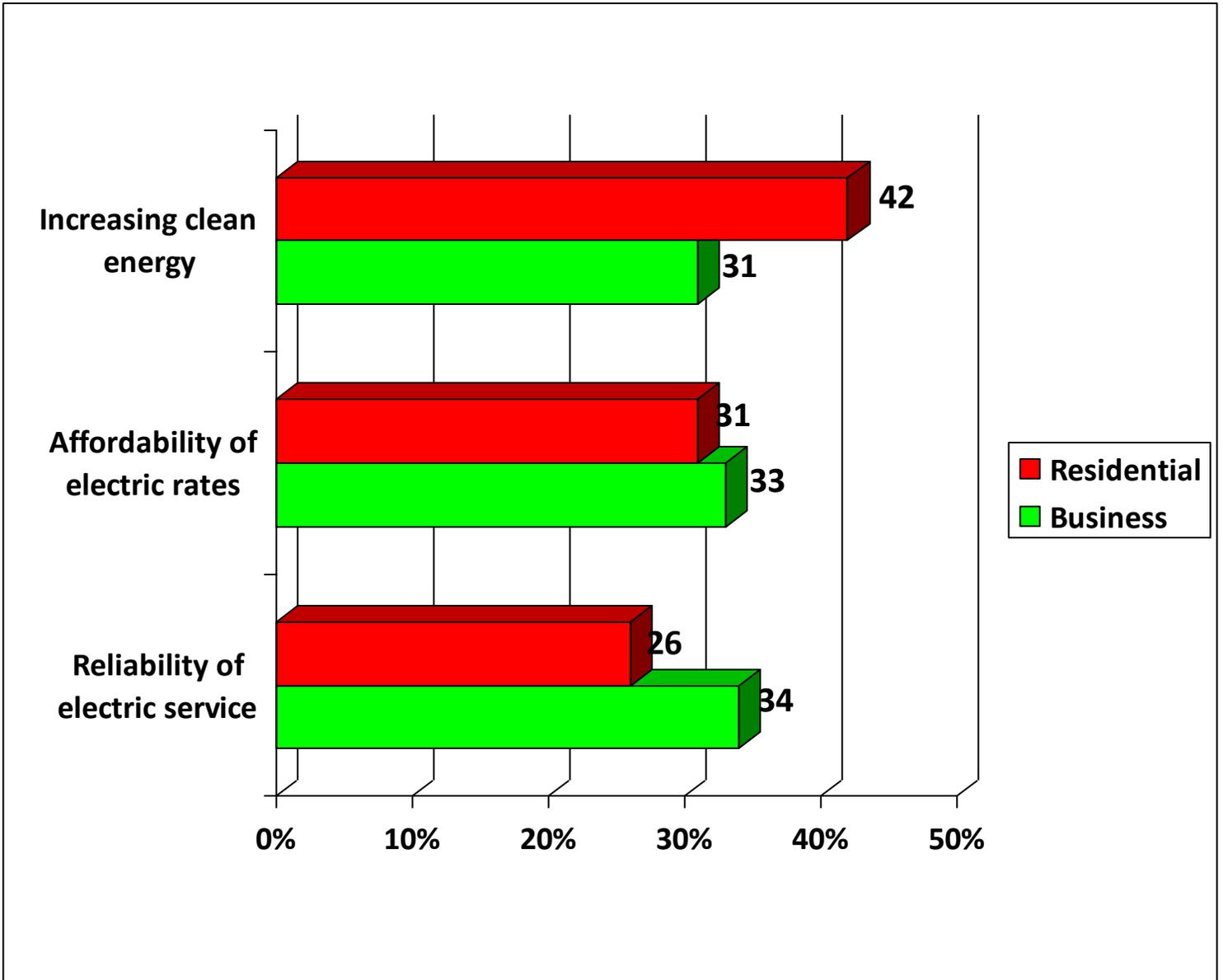
Cleaner energy, reliability, affordability top goals for residential and business customers

When respondents were asked which of five planning goals presented were most important, the responses of residential and business customers were as follows:



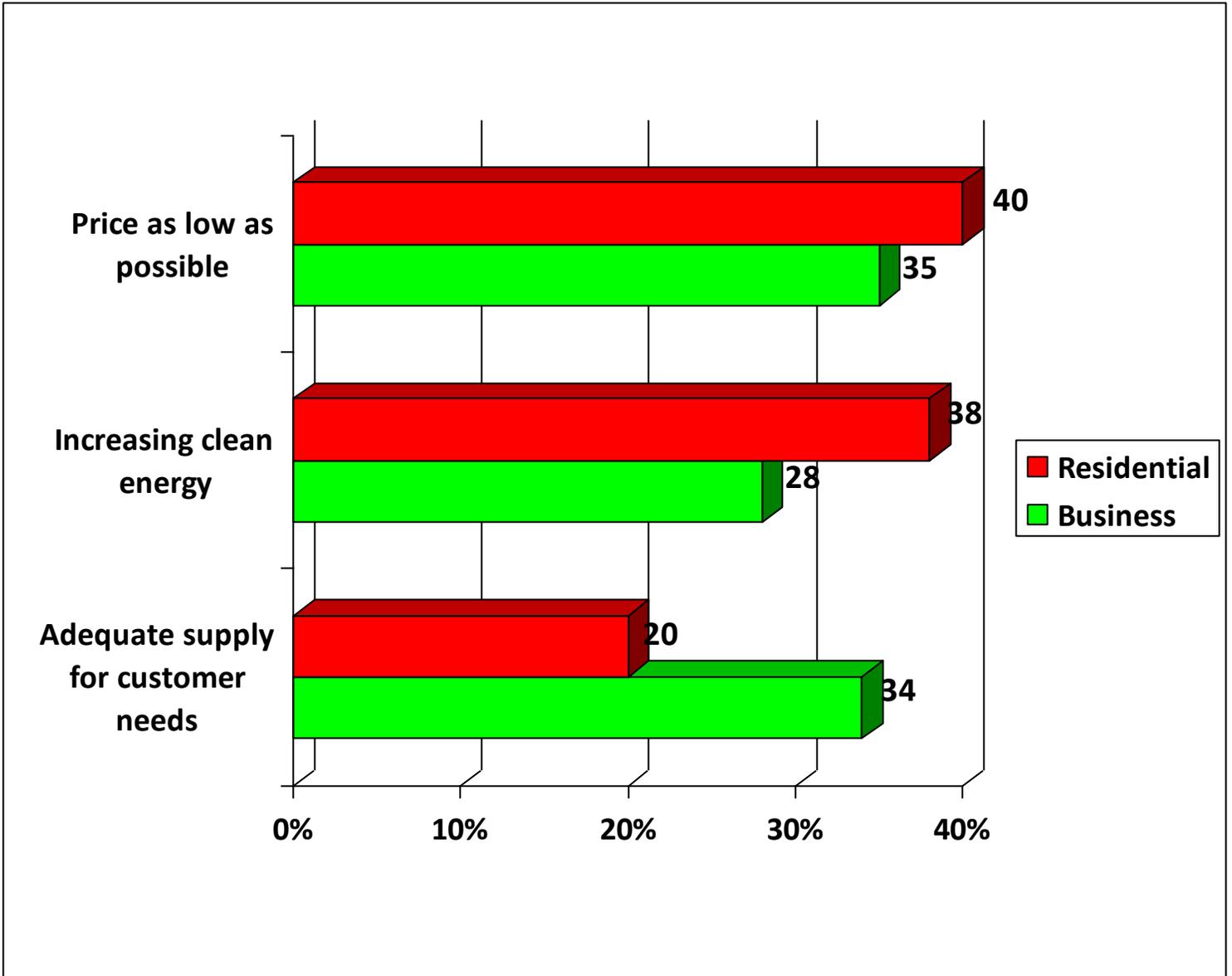
Top business and residential goals out of three described

When respondents in both surveys were asked which of three planning goals - the reliability of electric service, affordability of electric rates, and generating electric energy while increasing clean energy – was the most important, the responses of both residential and business customers were as follows:



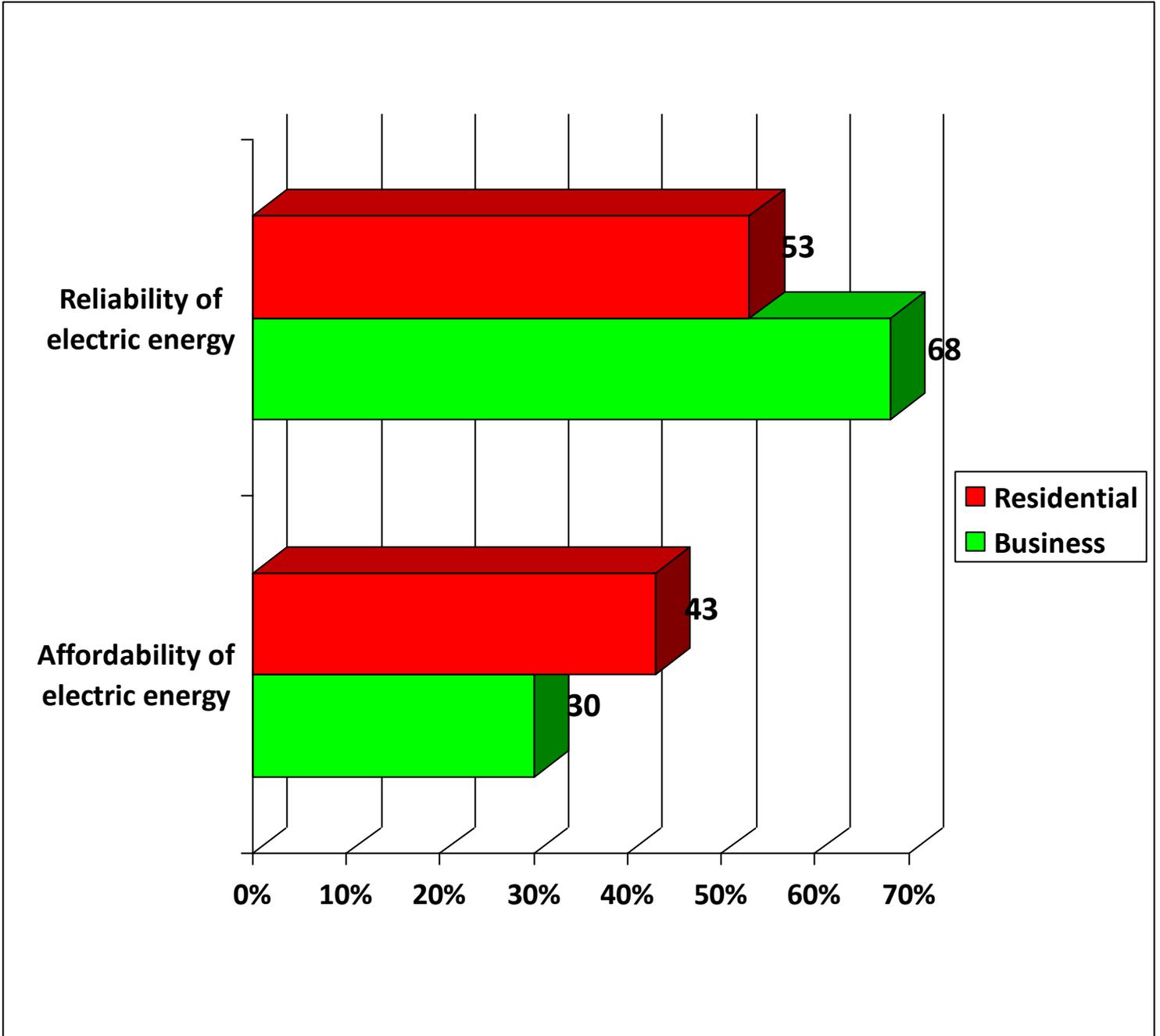
Top business and residential goals out of three others described

When respondents in both surveys were asked which of three planning goals - providing an adequate power supply to meet customer power needs, increasing clean energy when generating electricity, and keeping the price of electric service as low as possible – was the most important, the responses of both residential and business customers were as follows:



Reliability more important than affordability for both business and residential customers

Respondents were asked to choose whether reliability or affordability was most important. The responses of both residential and business customers were as follows:



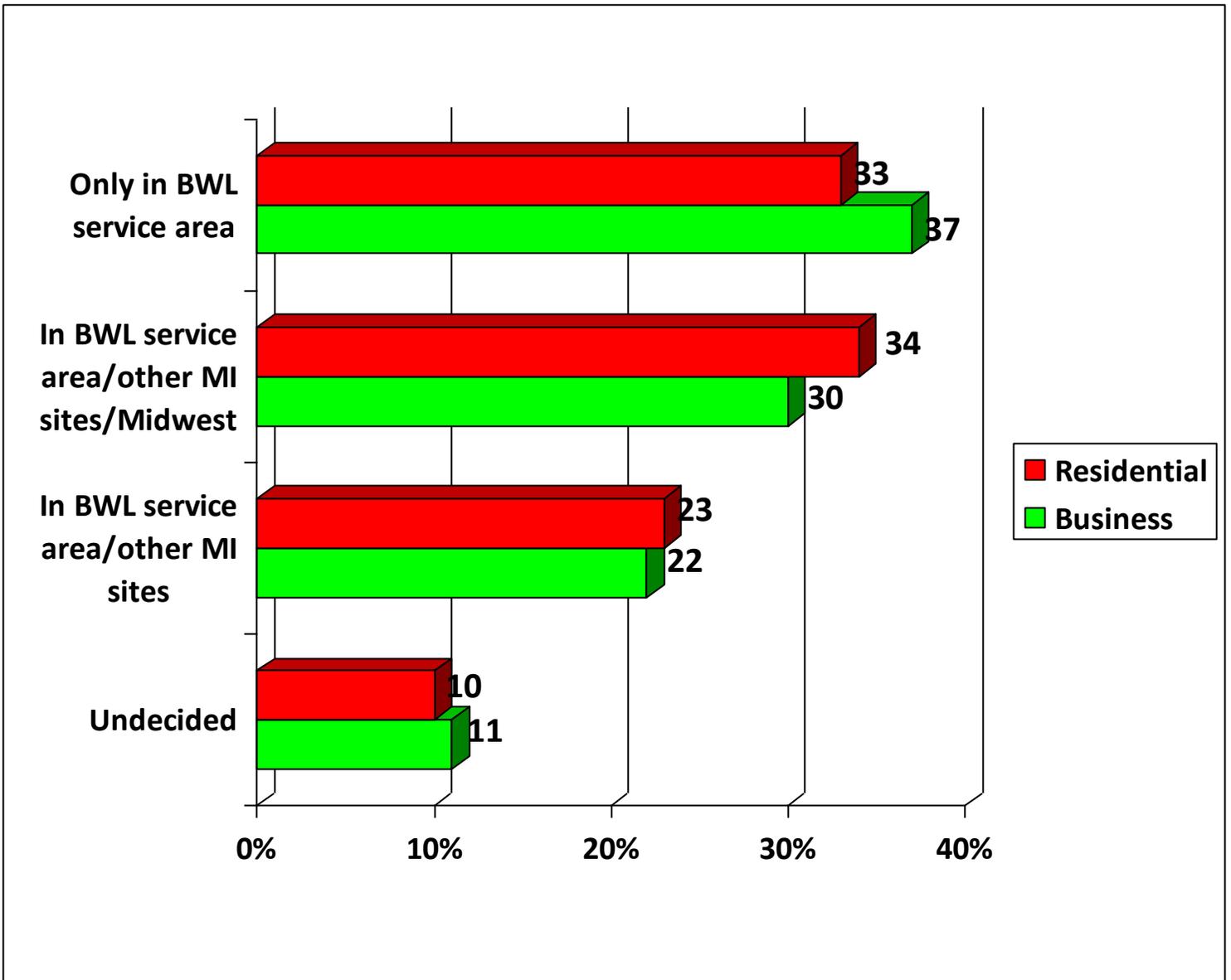
Key demographic **residential** groups saying by 50 percent or more that affordability is more important than reliability by the highest to lowest percentages, included:

- 67 percent: African Americans
- 64 percent: Electric rates NOT reasonable
- 62 percent: Negative job rating for BWL
- 61 percent: Lansing, Ward 3
- 58 percent: Not willing to pay more for renewable energy costs
Incomes under \$25K
- 56 percent: HS or less education
- 54 percent: Only willing to pay less than \$10 per month for solar installation
- 53 percent: Purchase just renewable energy credits
No services worth paying higher electric rates
Renters
- 52 percent: Incomes of \$25K to \$50K
Men without college
Age 50 and over without college
- 51 percent: Not willing to pay more for conservation
BWL should NOT encourage purchasing electric vehicles
- 50 percent: Lansing, Ward 1
Only a little willing or not willing to pay more for time of day rates
Visits BWL website weekly or monthly
Other races

Very few business groups indicated that affordability is more important than reliability, making cross-tabulation of any subgroups statistically valid.

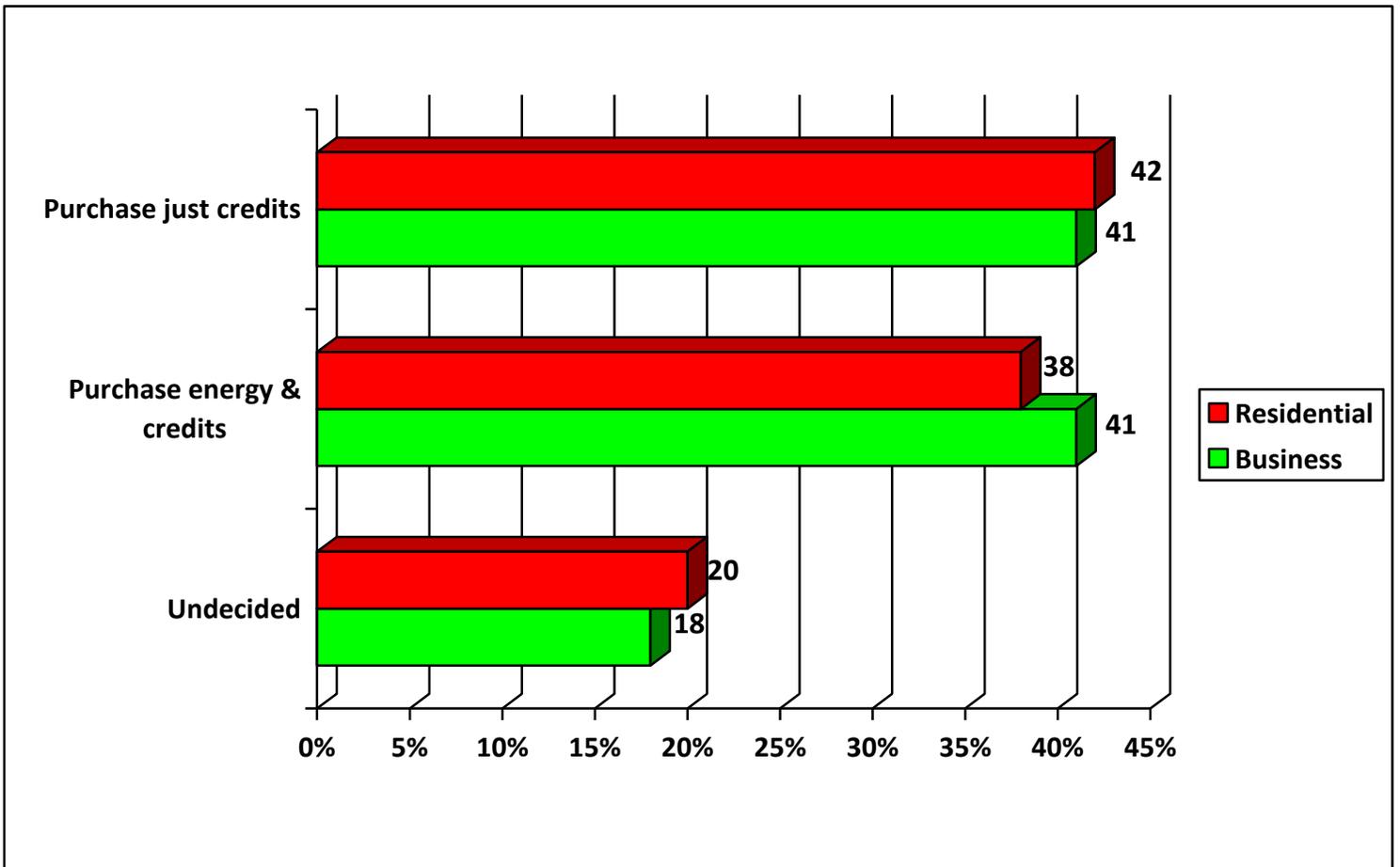
Where should renewable energy be generated?

Respondents in both surveys were asked where renewable energy should be generated of the following three choices: only within or near the BWL service area; within the BWL service area as well as within other areas of Michigan; or, within the BWL service area, in other Michigan sites and in sites in the Midwest region. The responses of both residential and business customers were as follows:



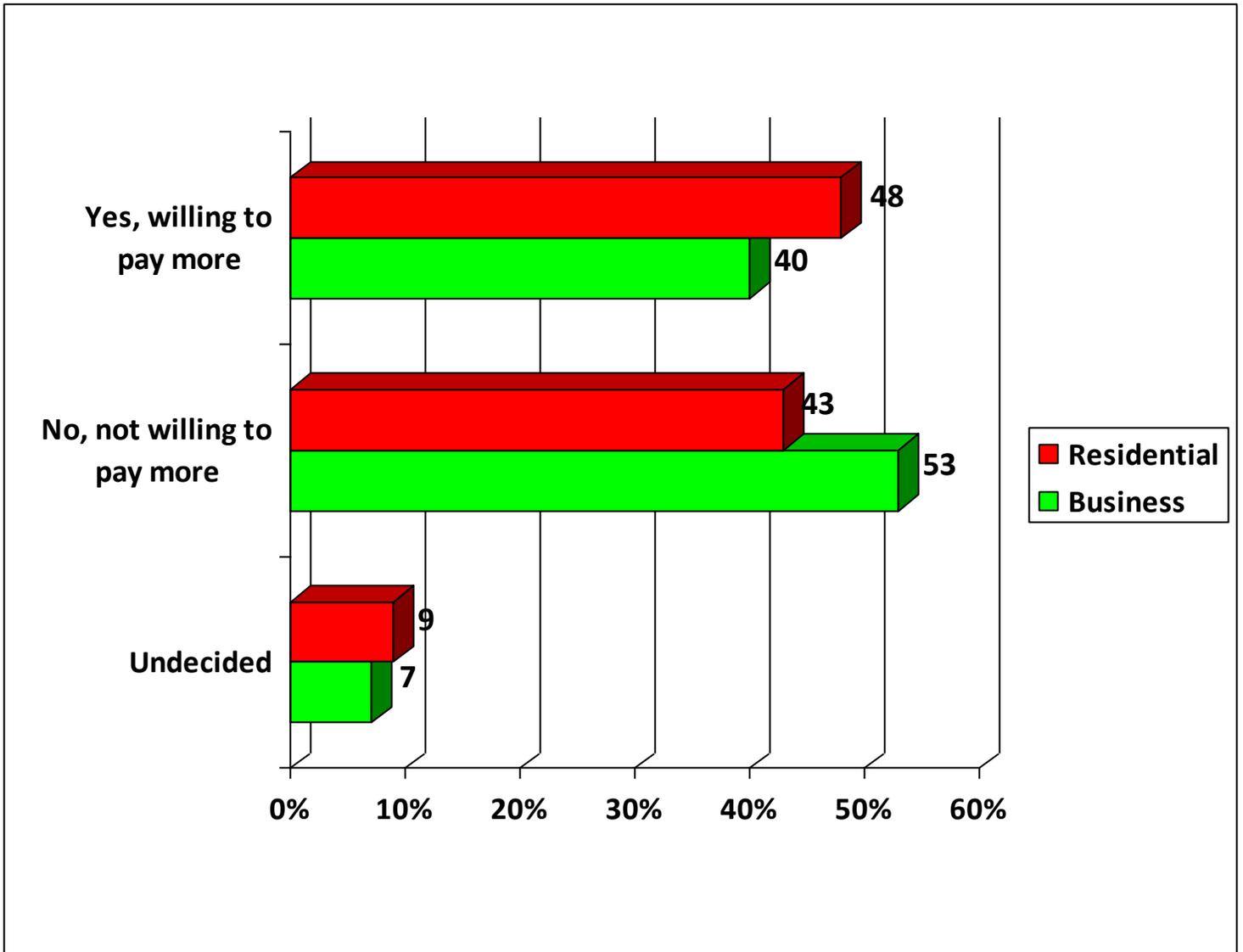
Should BWL purchase renewable energy & credits, or just credits?

All respondents were informed that two main features of a renewable generating facility include both the actual energy generated and the renewable energy credit. “Renewable energy credits are used to track the renewable energy generated, which can be sold independent of the actual energy produced. Renewable energy credits increase investment in renewable generating facilities. To allow its customers to invest in renewable energy, the BWL can either buy the actual energy and credits, or just the credits.” Respondents were then asked, “Knowing that these renewable energy credits were created from actual renewable energy, which approach do you prefer to see the BWL use in the future to invest in renewable energy - purchasing both the renewable energy and credits, or, just purchasing renewable credits, which is generally at a lower cost than purchasing both renewable energy and credits?” The responses were:



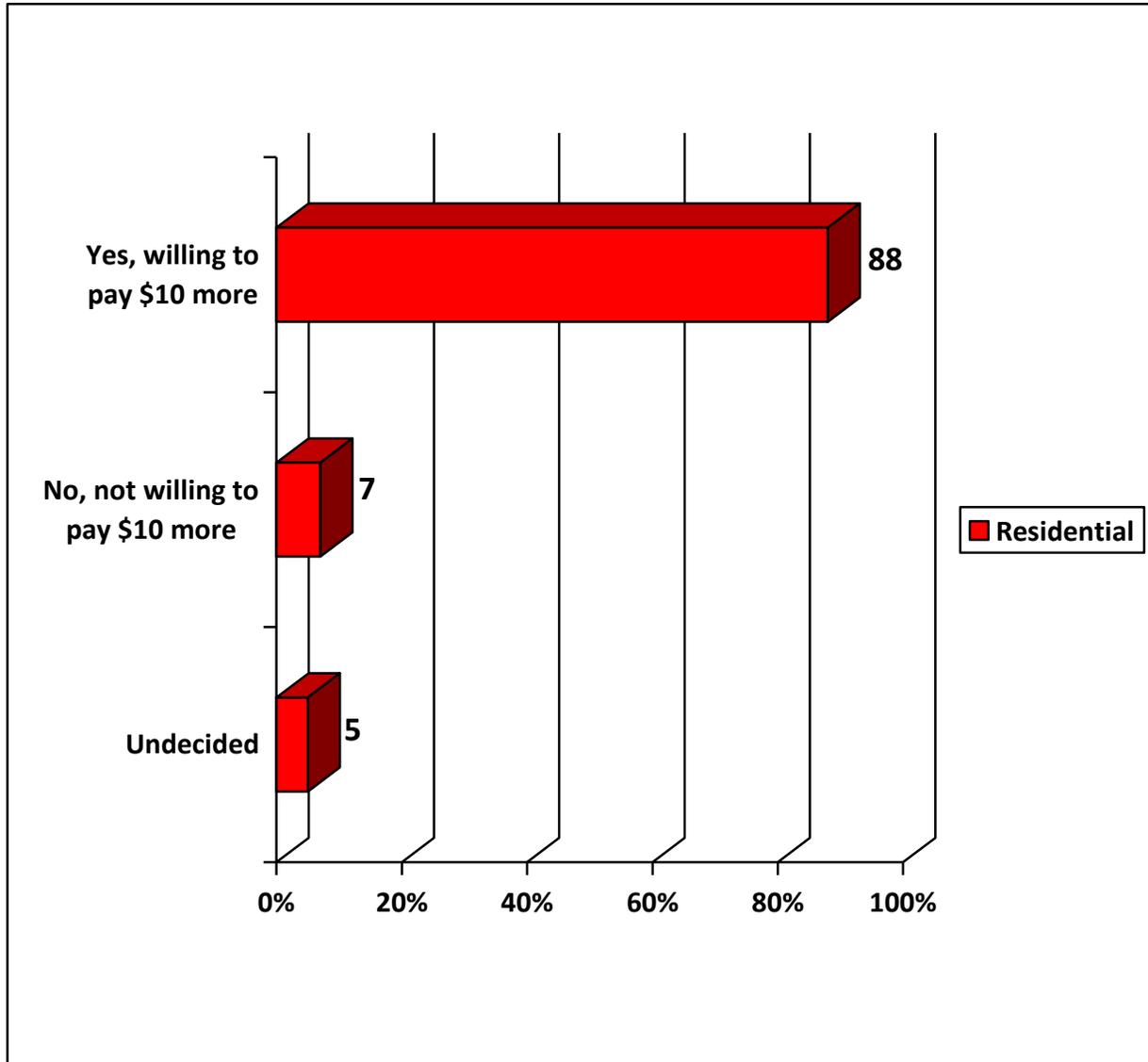
Residential customers more willing than business customers to pay for renewable energy

Respondents were informed that the BWL is on track to meet its clean energy target of 30 percent by next year, which is well above state requirements. They were then asked if the cost of renewable energy exceeds the cost of more traditional fossil fuel energy supplies, like natural gas, if they would be willing to pay more each month to increase the amount of electric energy generated from renewable energy sources. The responses were:



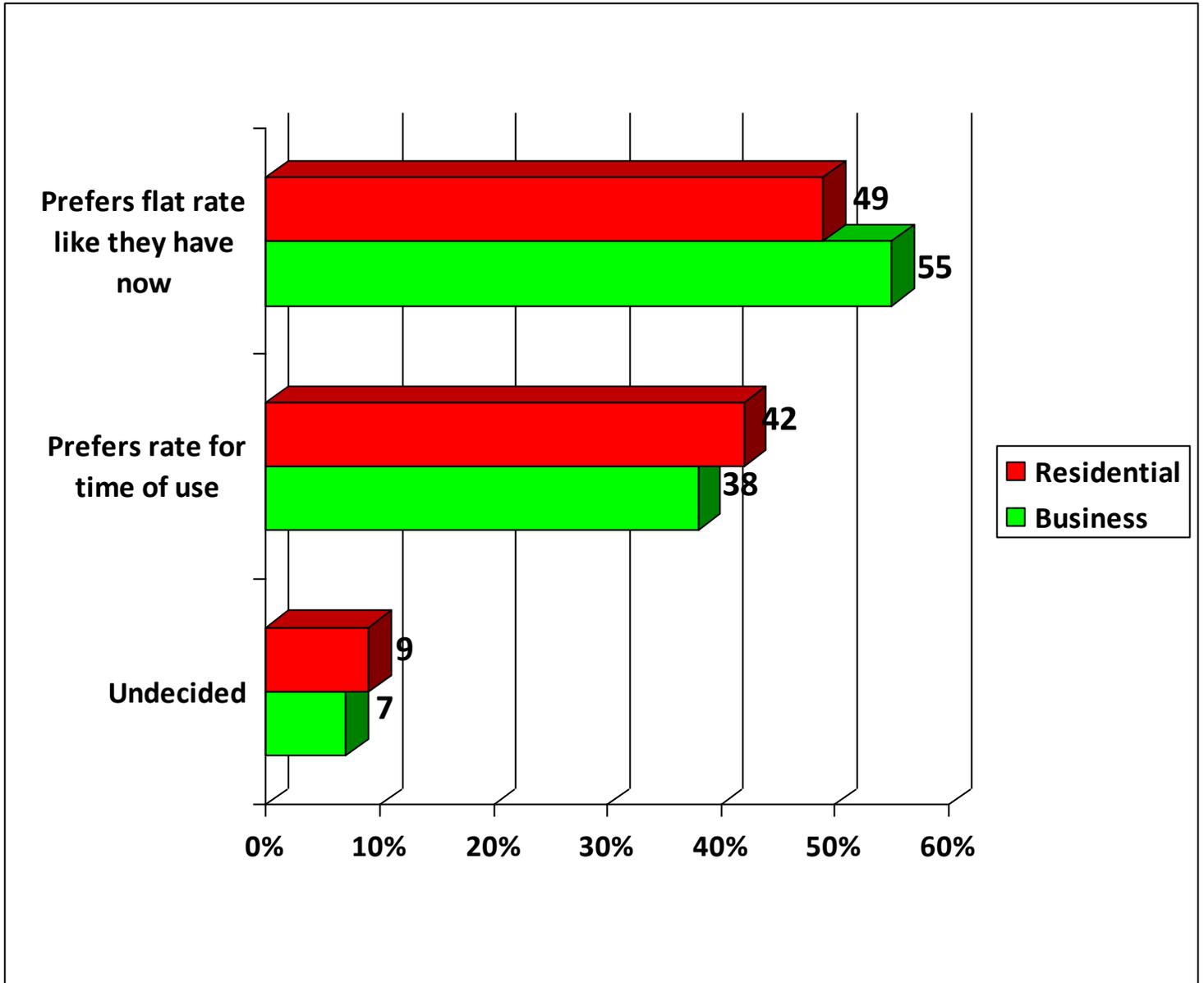
Of residential customers willing to pay more, 9-in-10 would pay \$10 more per month

Among those 48 percent of residential respondents who said they would be willing to pay more per month to increase the amount of renewable energy generated, they were then asked if they would be willing to pay \$10 more per month to increase electric energy produced by renewable energy sources. Business customers were not asked this question. The responses of residential customers were:



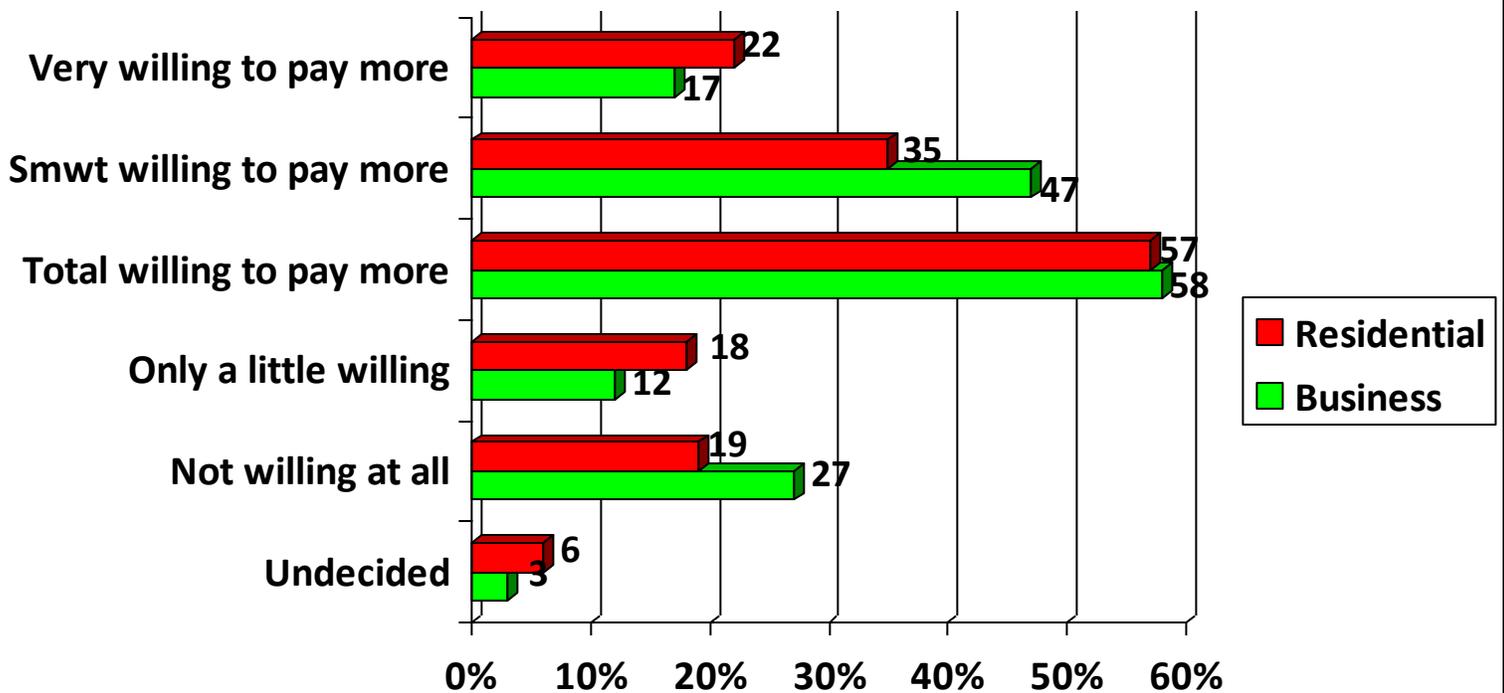
Business and residential customers prefer current flat rate over time of use

Business and residential customers were both asked if they would rather pay a flat rate for their electric use, like what they have now, or, if they would prefer to pay a rate that would charge for electric use based on the time of day it is used. The responses were:



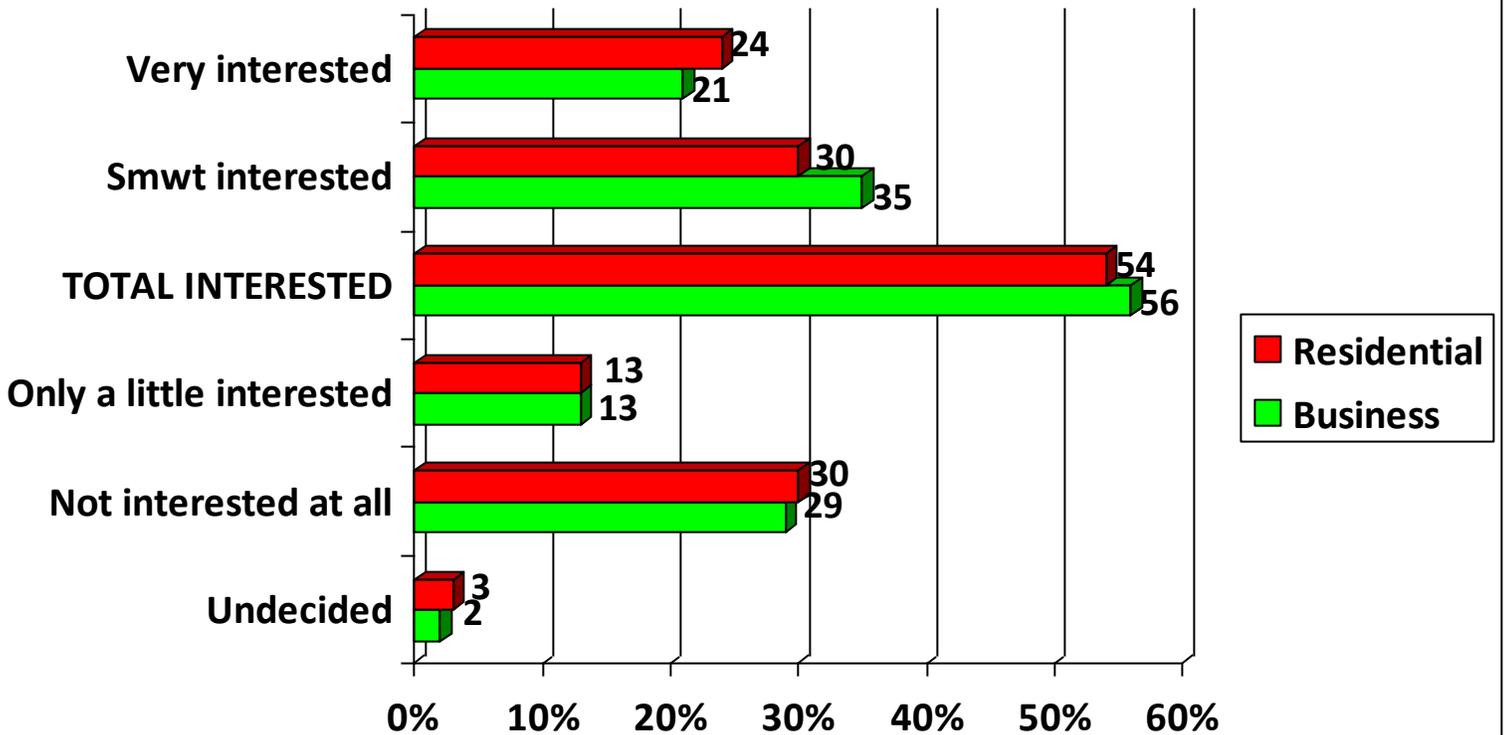
Are customers willing to pay more during times of high use, pay less in times of less use?

All respondents were informed that “currently, customers pay the same rate regardless of when they use electricity. During time of high electric use, usually on hot summer days, electricity costs more to produce. If customers paid more for electricity during these times of high electric use, it would lower the amount of electricity needed.” Respondent were then asked how willing they would you be to pay more to use electricity during times of high electricity usage, like hot daytimes, so they could pay less during times when the need for electricity is less, like overnight – very willing, somewhat willing, only a little willing or not really willing at all? The responses were:



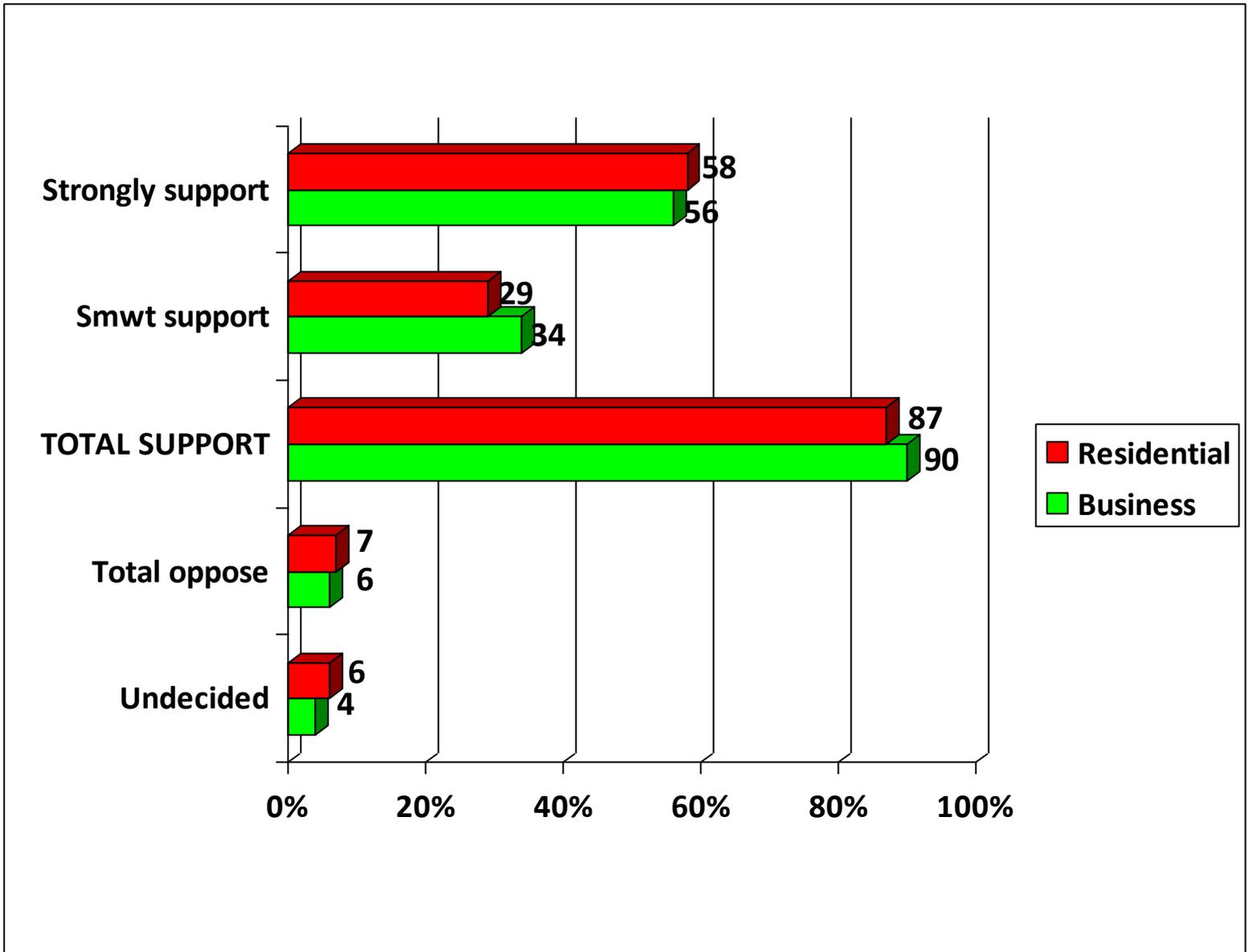
Are customers interested in BWL managing electric use for 1% of time for lower rates?

All respondents were told that some utilities have programs that can control customer devices, such as air conditioners or water heaters, for very short periods of time in order to reduce the amount of electricity needed. They were then asked how interested they would be in participating in a new program where the BWL would manage these devices for no more than 1 percent of the time per year in return for a lower electric bill – very interested, somewhat interested, only a little interested or not interested at all? The responses were:



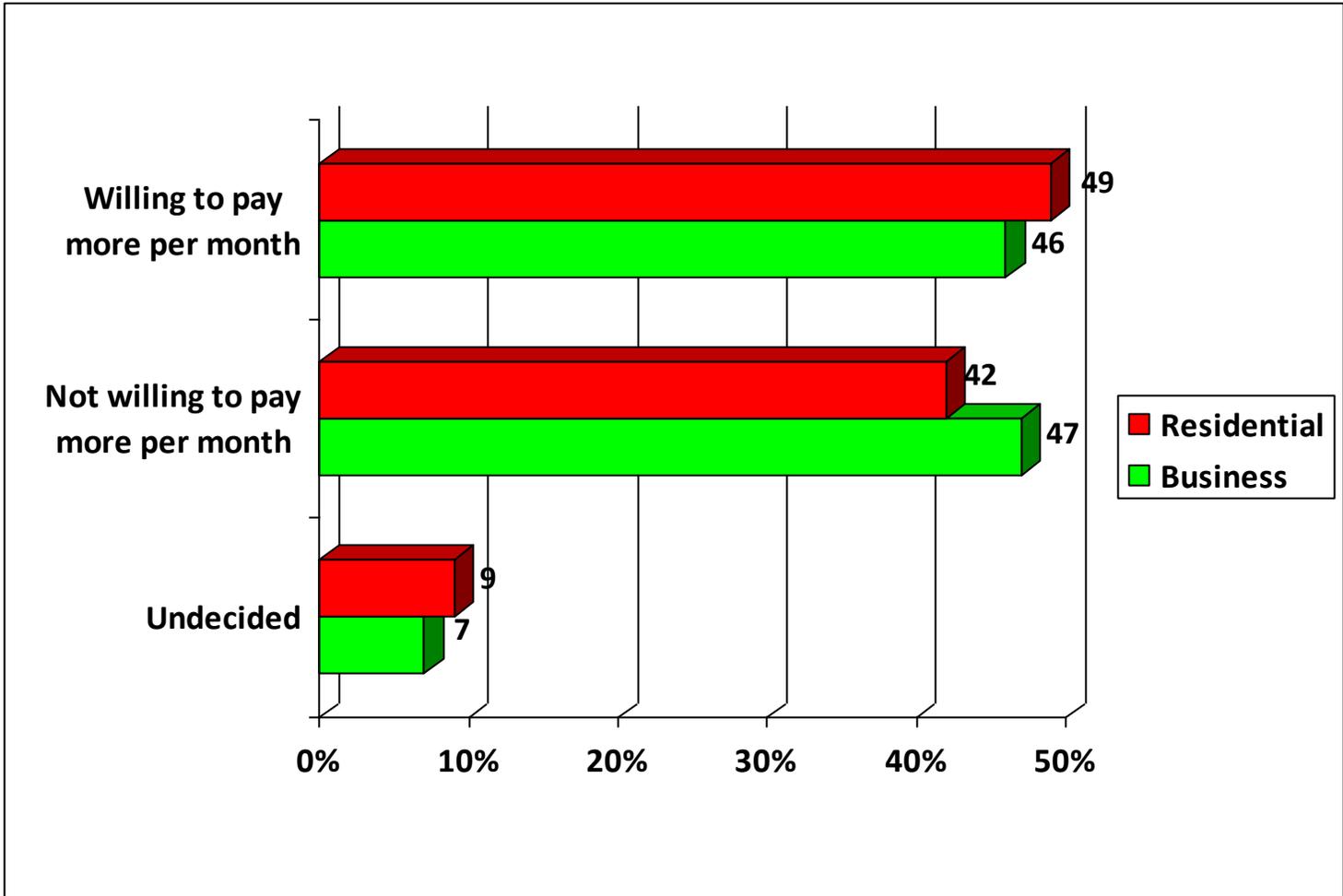
Business & residential customers support financial incentives for energy efficiency

All respondents were asked about an energy efficiency program the BWL is currently operating, and informed that the program provides financial incentives to customers to use more efficient lighting, or to install more energy efficient heating and cooling systems in their homes and businesses. They were then asked if they support or oppose this program. The responses were:



Residential customers more willing than business to pay more for energy efficiency

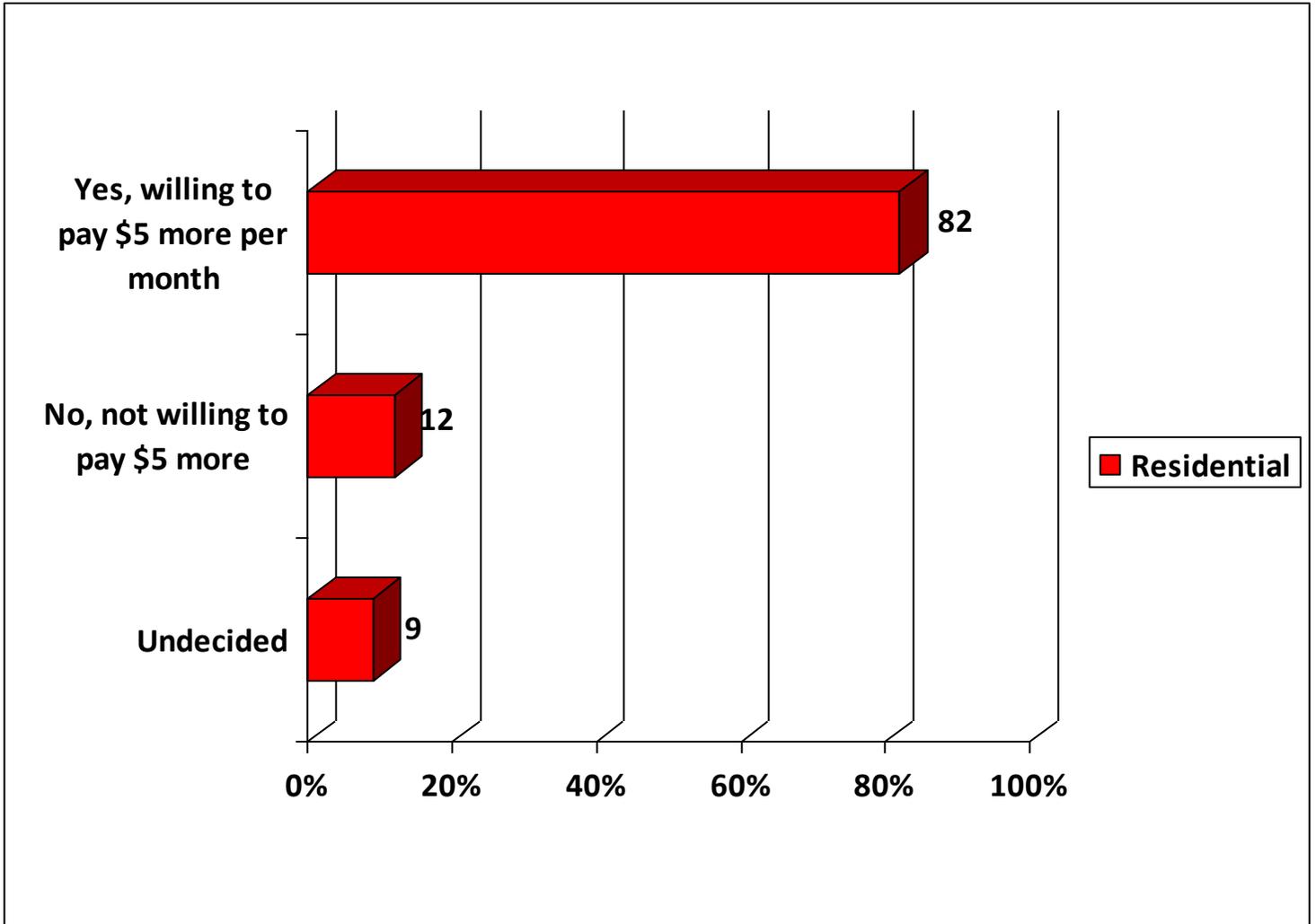
Business and residential customers were both asked if they would be willing to pay more each month if it would significantly decrease the amount of energy wasted by investing in energy efficiency and conservation efforts, if the money paid in higher rates were used to provide customer incentives that encourage energy efficient lighting and installation of energy efficient heating and cooling systems? The responses were:



Over 8-in-10 residential customers would pay \$5 more per month for energy efficiency

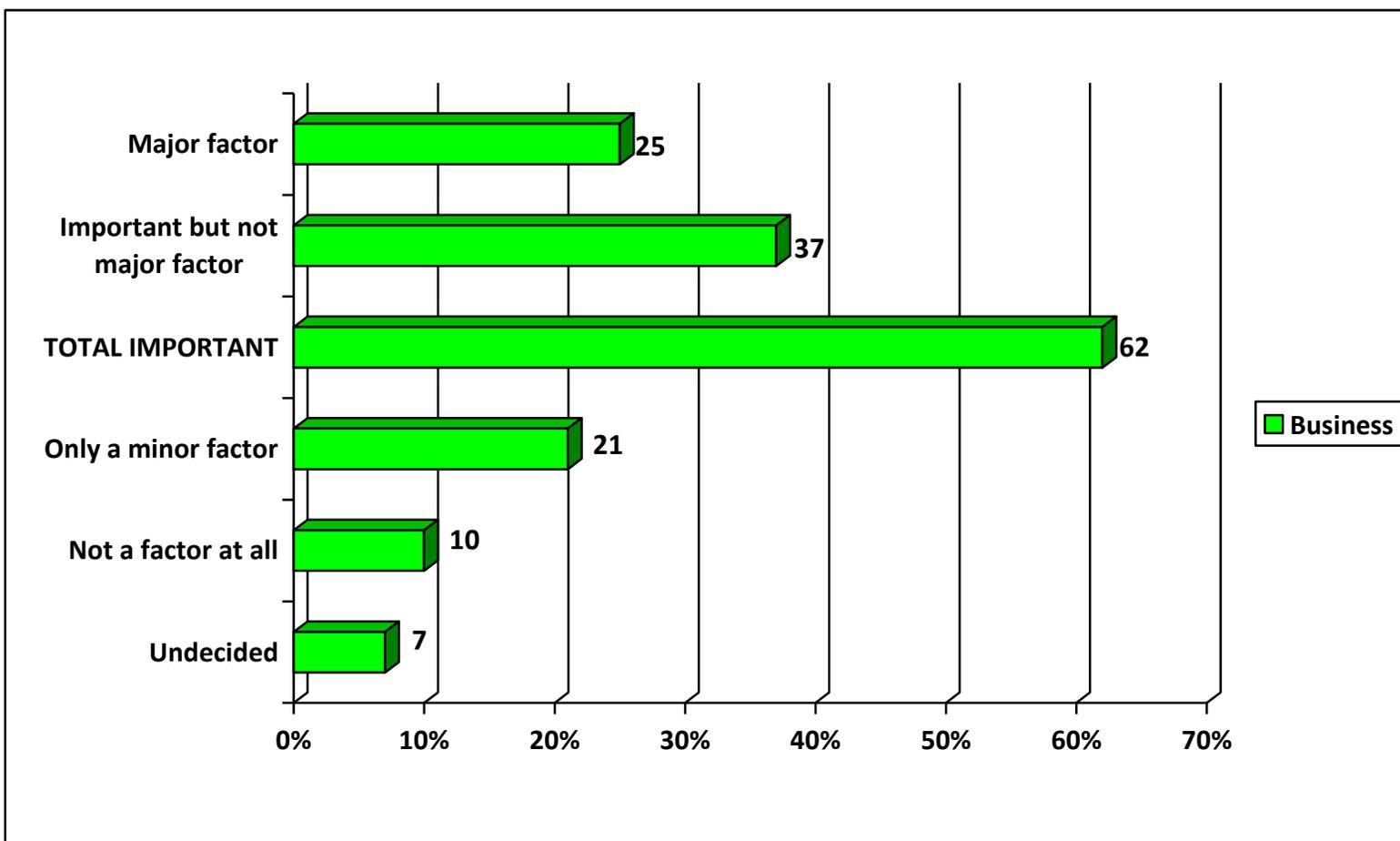
Residential customers were specifically asked if they would be willing to pay an additional \$5 more per month to make more electric energy available through energy efficiency.

The responses of residential customers were:



Business customers asked how much reliable energy is a factor in economic development?

All business respondents were asked how much of a factor the availability of a reliable BWL power supply, at an affordable price, is in the decisions by developers to consider locating economic development projects, or locating businesses in the Lansing area - a major factor, an important but not major factor, only a minor factor, or not a factor at all? More than 6-in-10 business customers said reliable, affordable BWL power supply is either a major or important factor in economic development decisions.

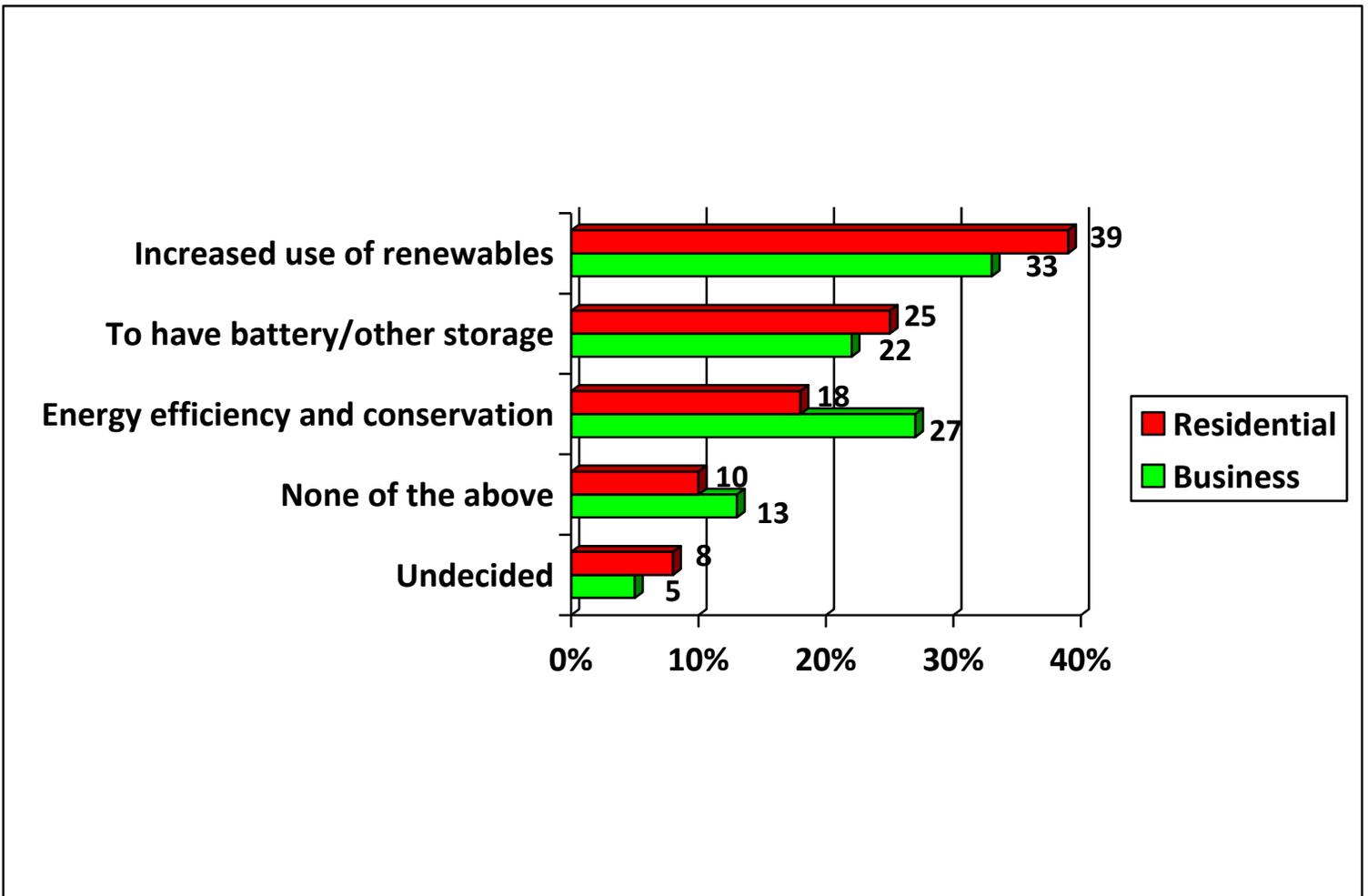


In the 2015 survey, a 75 percent majority of business customers said a reliable, affordable power supply from BWL was a major factor (38 percent), or an important but not major factor (37 percent), which means that the view by business that the BWL power supply is an important factor slipped by 13 points overall, and among those saying it is a major factor, that number also slipped by 13 points.

What purpose would customers be most willing to pay more for per month?

Respondents were asked, “Which one of the following would you be MOST willing to pay higher electric rates for?” The responses were:

<u>Business</u>	<u>Residential</u>	
33%	39%	Increased use of renewable energy from wind and solar energy sources
22%	25%	To have a battery of other electric storage backup service
27%	18%	Energy efficiency and conservation programs
13%	10%	None of the above (<i>volunteered</i>)
5%	8%	Undecided/Refused



In the 2015 survey, instead of a choice of a battery or other storage service, respondents were given a choice of building a new gas-powered electric plant, which was the top choice of both business and residential customers. Now, renewable energy is the top choice.

Refrigerators, washers/dryers, dishwashers and furnaces top choices for rebates

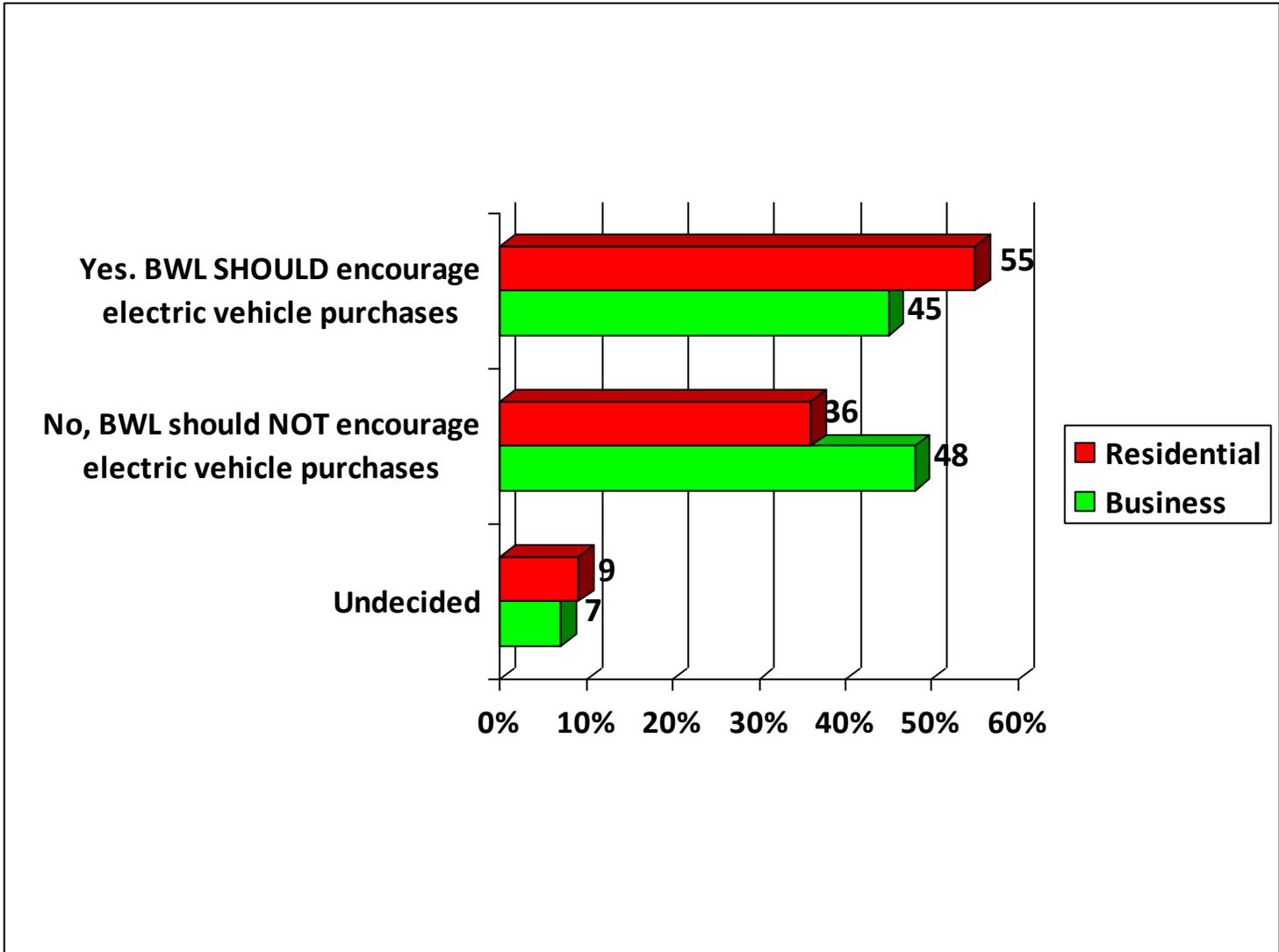
Residential respondents were asked, “Based on what you know or have heard or read, what kind of appliances or other products that you can purchase for your home can you receive a rebate because it uses less energy? The responses were:

Residential

16%	Refrigerators
13%	Washer/dryer
10%	Dishwashing machine
10%	Furnace
9%	Air conditioners
7%	LED lighting
6%	Water heaters
2%	Stove
1%	Dehumidifier
1%	Microwave
1%	Thermostat
1%	TV
1%	Windows
22%	Undecided/Refused

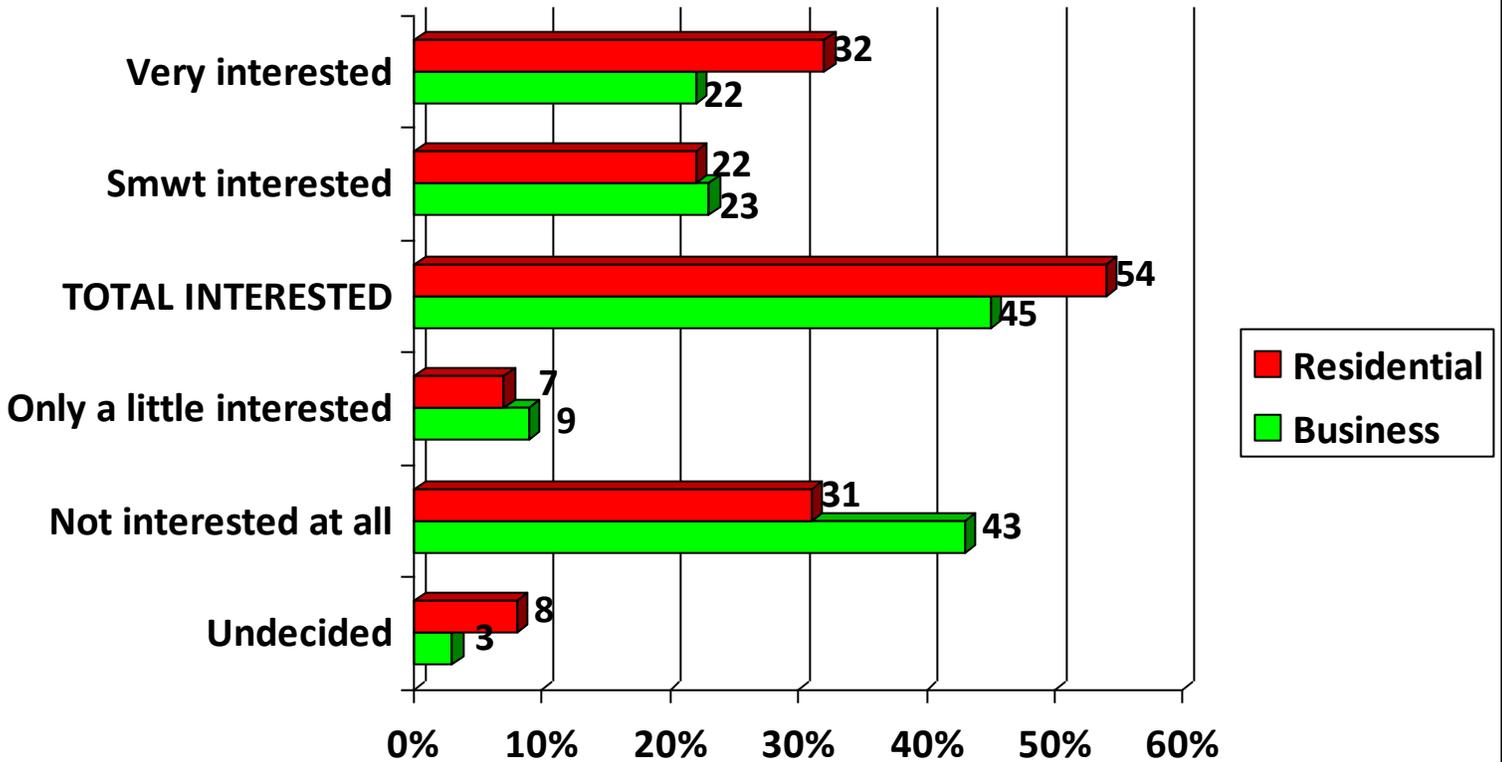
Residential customers more supportive of BWL encouraging purchase of electric vehicles

Business and residential customers were both informed that “The BWL has a program that provides incentives for customers who purchase electric vehicles. Studies show that more electric vehicles on the road can lead to reduced electric rates. Do you think BWL should encourage its customers to purchase and use electric vehicles?” The responses were:



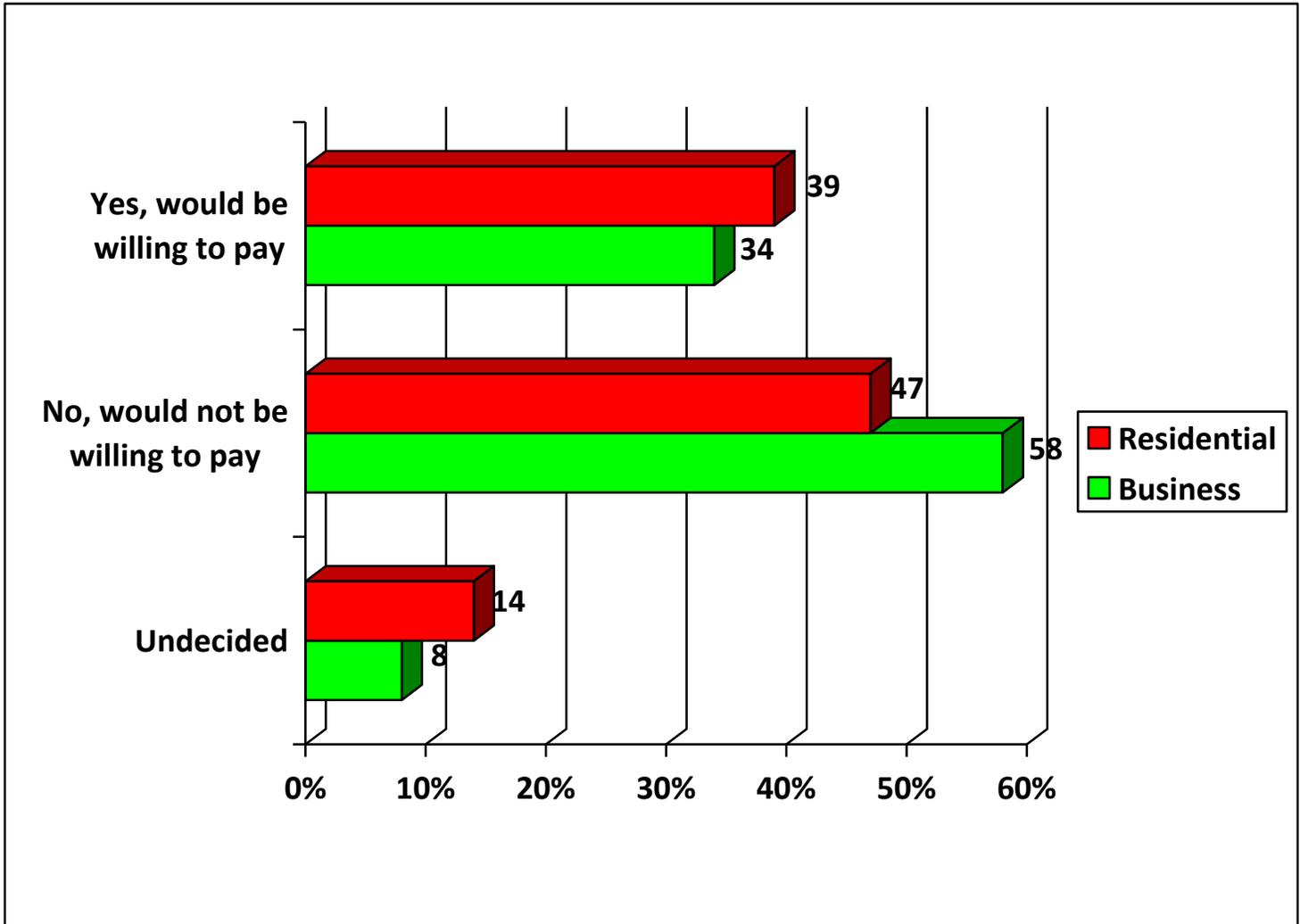
Are customers interested in having solar panels installed on their roofs?

All respondents were asked how interested they would be in having rooftop solar panels installed to generate renewable electric energy (at their business/on their home) – very interested, somewhat interested, only a little interested or not interested at all. The responses were:



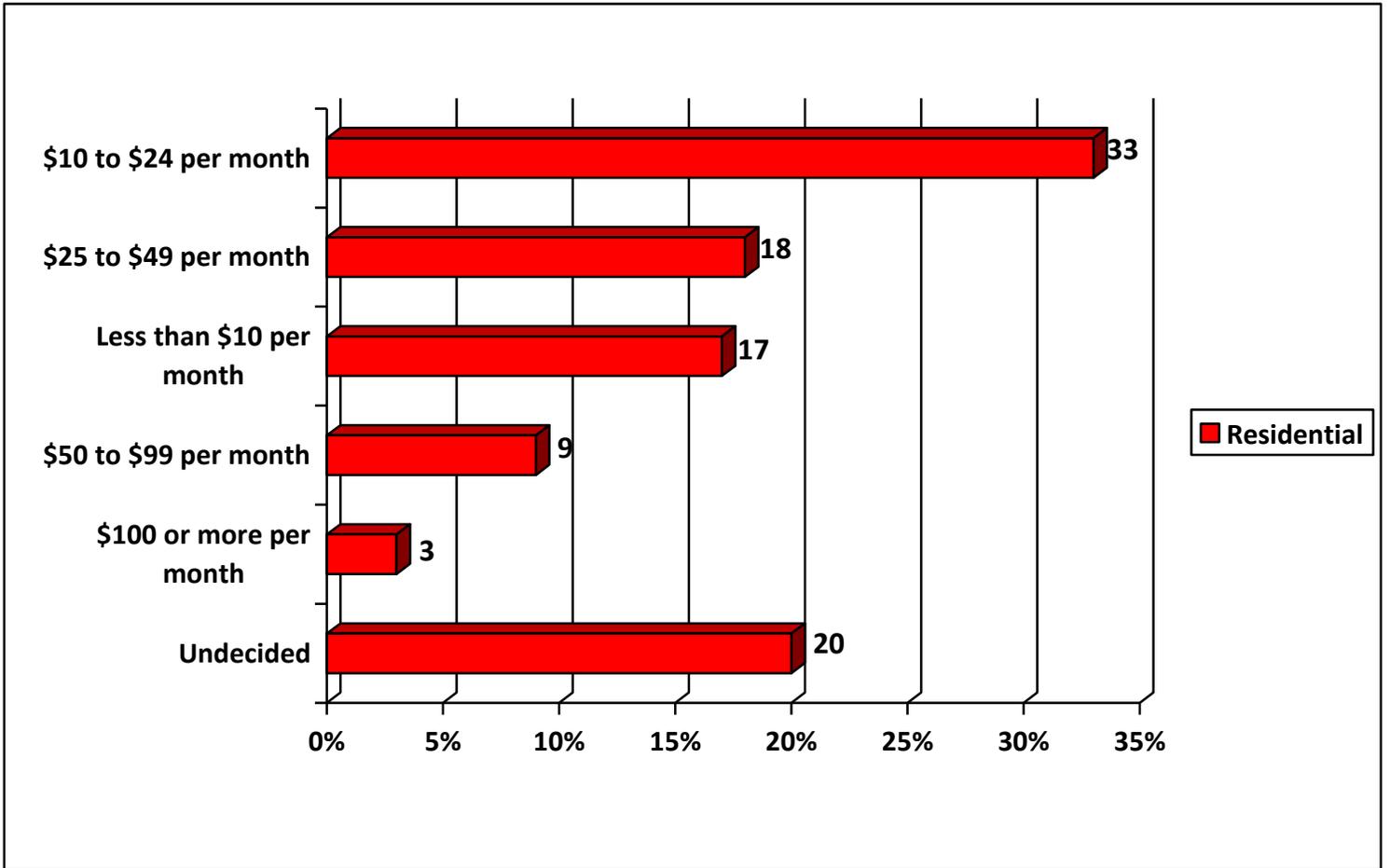
Less than 4-in-10 willing to pay extra in their monthly bill to have BWL install solar panels

Business and residential customers were both asked: “Would you be willing to pay extra on your monthly BWL electric bill to have solar panels installed on your roof by BWL?” The responses were:



How much would residential customers be willing to pay per month for BWL installation

When those residential customers who said they were willing to pay more per month to have rooftop solar panels installed by BWL were asked in an open-ended question how much they would be willing to pay per month, the responses were:

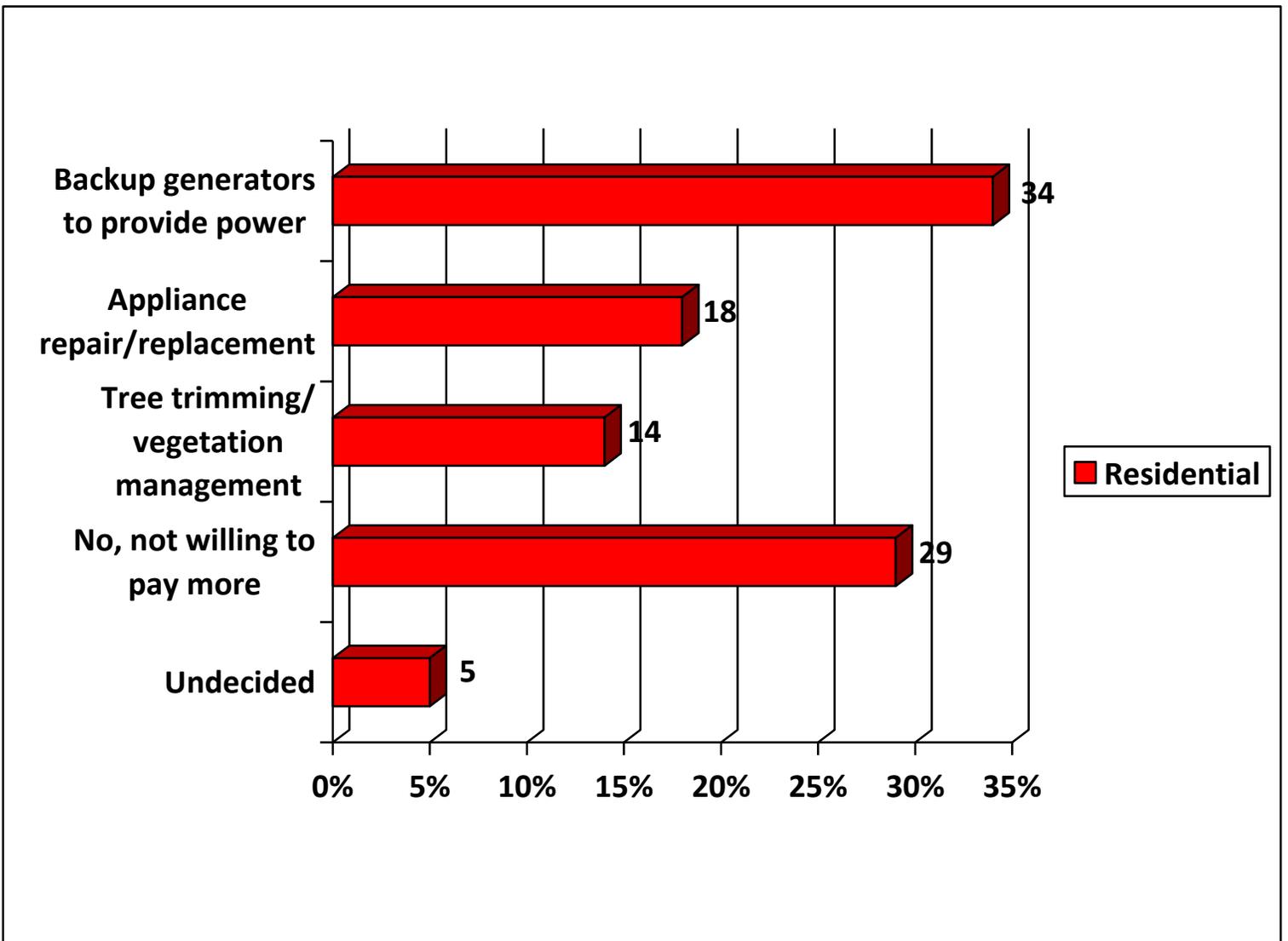


Residential customers would be willing to pay more for the following services

Residential customers were asked if they would be willing to pay an additional amount on their electric bill so that the BWL could provide any of several listed additional services. The responses were:

Residential

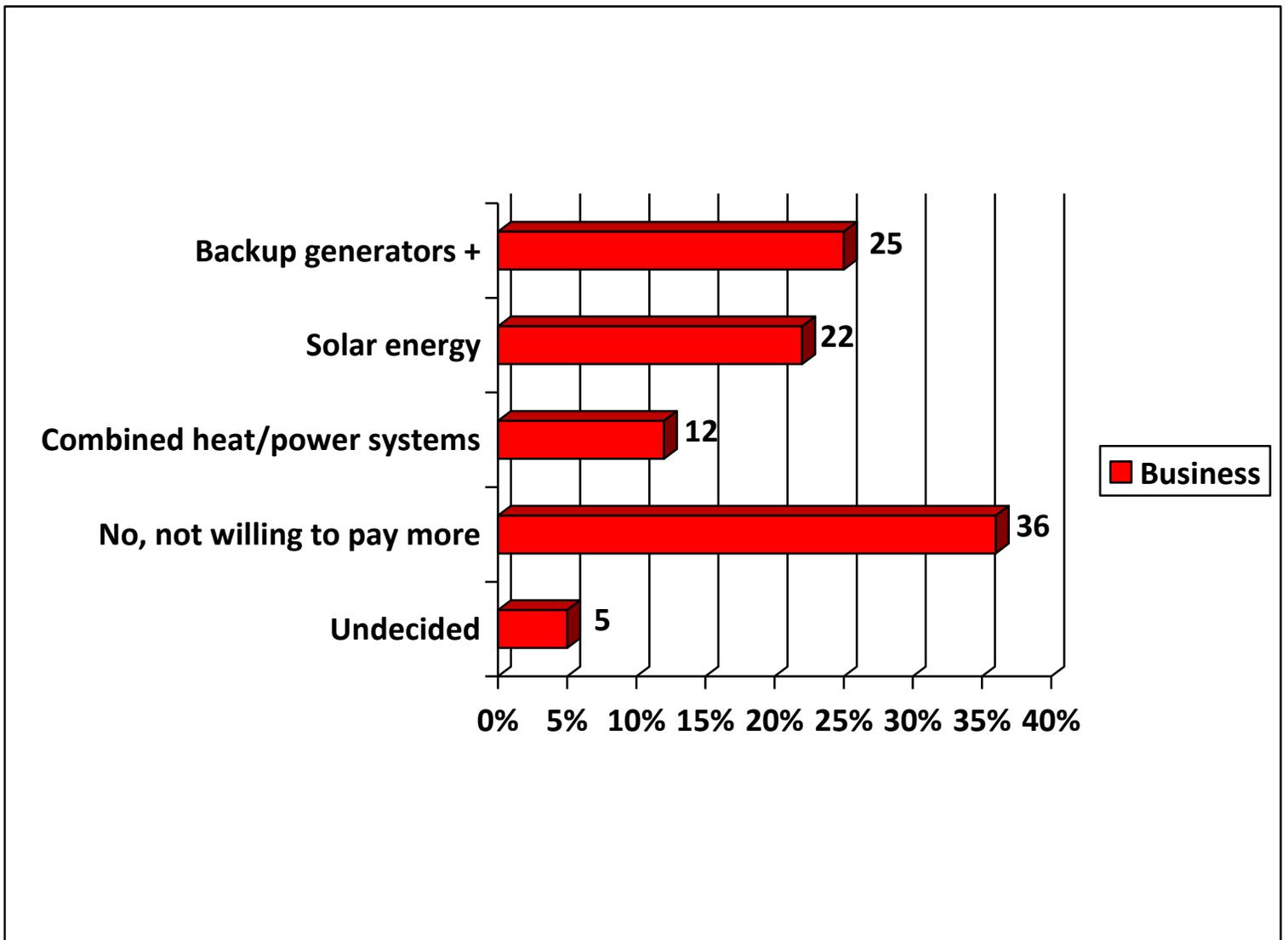
- 34% Backup generators to provide electric power if & when there is a power outage
- 18% Appliance repair and if it cannot be repaired, replacement of appliances
- 14% Tree trimming or vegetation management on or near your property
- 29% No, would not be willing to pay more for any services (*volunteered*)
- 8% Undecided/Refused



Business customers would be willing to pay more for the following services

Business customers were asked if they would be willing to pay an additional amount on their electric bill so that the BWL could provide any of several listed additional services. The responses were:

<u>Business</u>	
25%	Backup generators, micro-grids or batteries
22%	Solar energy
12%	Combined heat and power systems
36%	No, would not be willing to pay more for any services (<i>volunteered</i>)
5%	Undecided/Refused

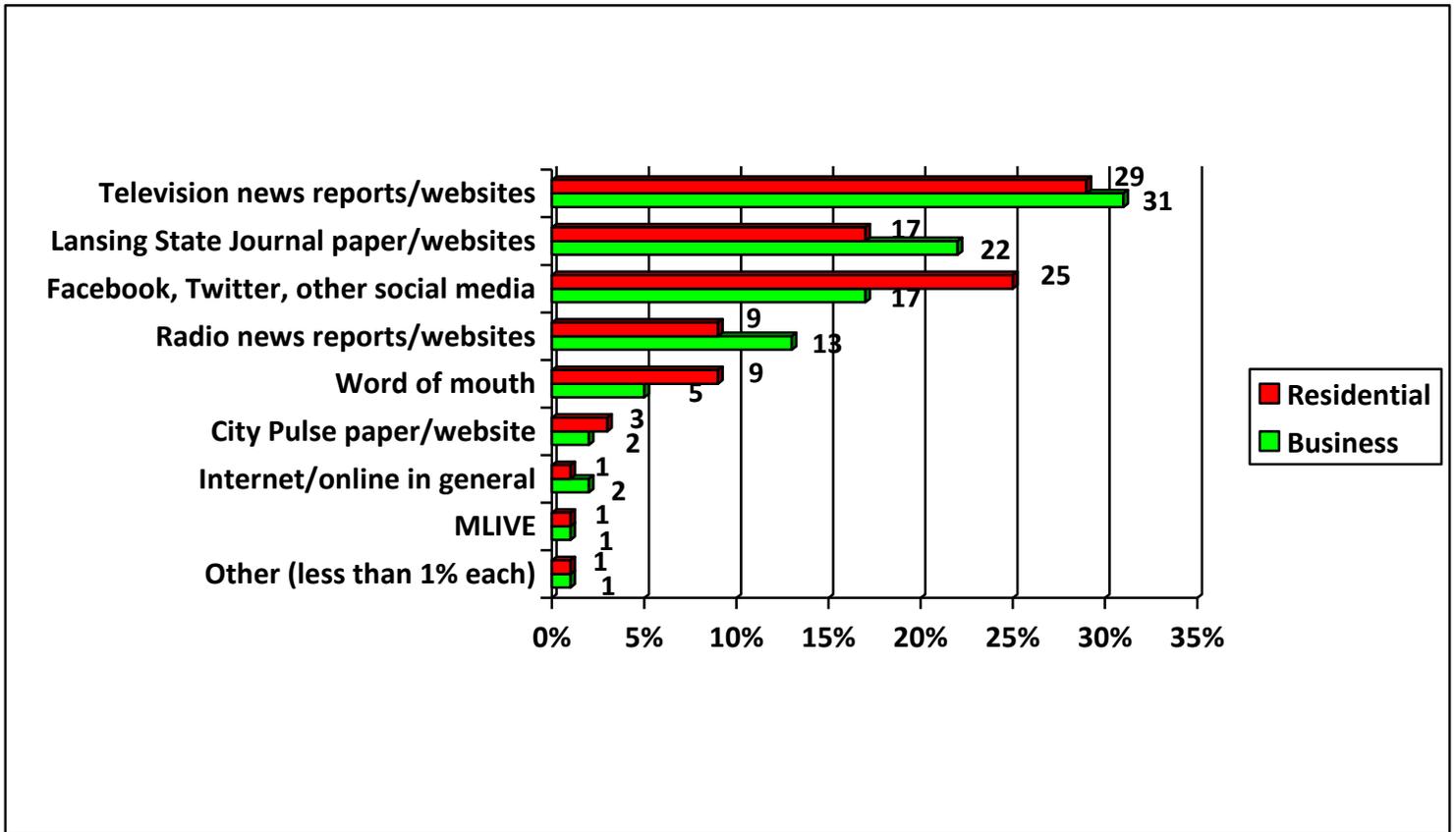


Television news and websites, word of mouth top sources of information

All respondents were asked, "Where would you say you get most of your news and information about local government issues and services in your community?" The responses were:

<u>Business</u>	<u>Residential</u>	
31%	29%	Television news reports/websites
22%	17%	Lansing State Journal paper/website
17%	25%	Facebook, Twitter or other social media
13%	9%	Radio news reports/websites
5%	9%	Word of mouth
2%	3%	City Pulse paper/website
2%	1%	Internet/online in General
1%	1%	MLive
---	1%	BWL newsletters
1%	1%	None, no source of information
1%	1%	Other (<i>at less than 1% each</i>)/Undecided/Refused
2%	4%	Undecided/Refused

Where BWL customers get their information about local government issues/services



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