



# Severe Weather, Its Impacts, and Residents' Feelings of Resilience in the Houston area

Findings from the Greater Houston Community Panel

Resilience Committee  
City of Houston  
*May 15, 2025*



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Kinder Institute for Urban Research

# Kinder Institute for Urban Research

## Mission

*To improve lives through data, research, engagement, and action*

## Vision

### **Inclusive prosperity**

*Ensuring everyone has an opportunity to build and share in Houston's prosperity*



# Research approach

## Intersecting lines of research



# Our approach

## Research-practice partnerships



+10 other  
school  
districts



Harris County  
**Public Health**  
Building a Healthy Community



# Today's agenda

- Introduction of the Greater Houston Community Panel
- What we've learned about residents, extreme weather, and climate change
  - Houston-area residents are concerned and expect extreme weather to have a negative impact on their personal health and the economy of Houston
  - Residents take more disaster-preparedness actions than most Americans, but there is room for improvement
  - Impacts of extreme weather include the immediate impacts of the storm as well as health and economic impacts in the aftermath
  - Continue to bounce back while growing tired of needing to be #HoustonStrong





# Greater Houston Community Panel



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# Greater Houston Community Panel

- Survey study involving more than 10,000 Houston, Harris County, Fort Bend County (joined 2024), and Montgomery County (joined 2025) residents
- Follows same adults over time with surveys administered online throughout the year since 2023
- Surveys offered in English and Spanish
- Respondents provided an incentive for each survey they complete



# Greater Houston Community Panel

- Provides unprecedented and unparalleled insights into the attitudes, values, preferences, experiences, and circumstances of Houston-area residents
- Works with community partners, including nonprofit organizations and local leaders, to ensure the information being collected is relevant, timely, and useful
- Topics included on previous GHCP surveys include social connectedness, collective efficacy, mass deportation, parks and greenspace, civic engagement, experiences with crime, disaster preparedness, climate change, the energy transition, artificial intelligence, push-and-pull factors of living in Houston, and financial practices and security, along with an array of sociodemographic information





# **Houston-area residents concerned about climate change and want to see more done**



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# Houston-area residents worried about climate change and its impacts

**60%**  
worried

**84%**  
negative  
impact on  
health and  
well-being

**81%**  
negative  
impact on  
financial  
situation



# Want to see everyone doing more to address climate change

## 70%

think government  
and businesses should  
do more



## 57%

think ordinary  
residents can  
do more





# Disaster preparedness

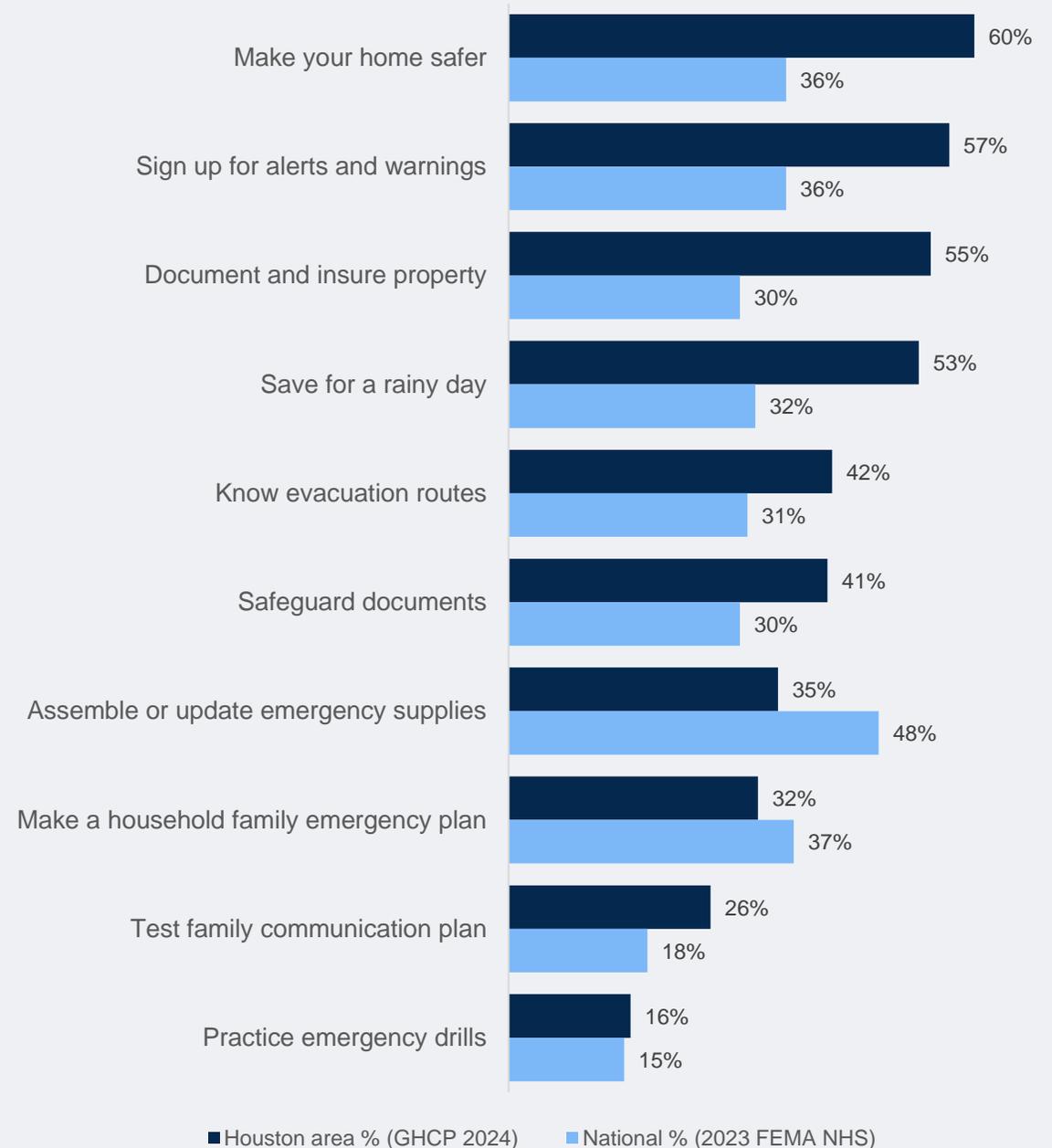


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# More prepared, can do better

- Houston-area residents take more general disaster-preparedness actions than residents from the rest of the country
- Typical resident reported doing 3 of 10 FEMA-recommended disaster preparedness actions
- Only 4 of 10 actions taken by more than half of residents

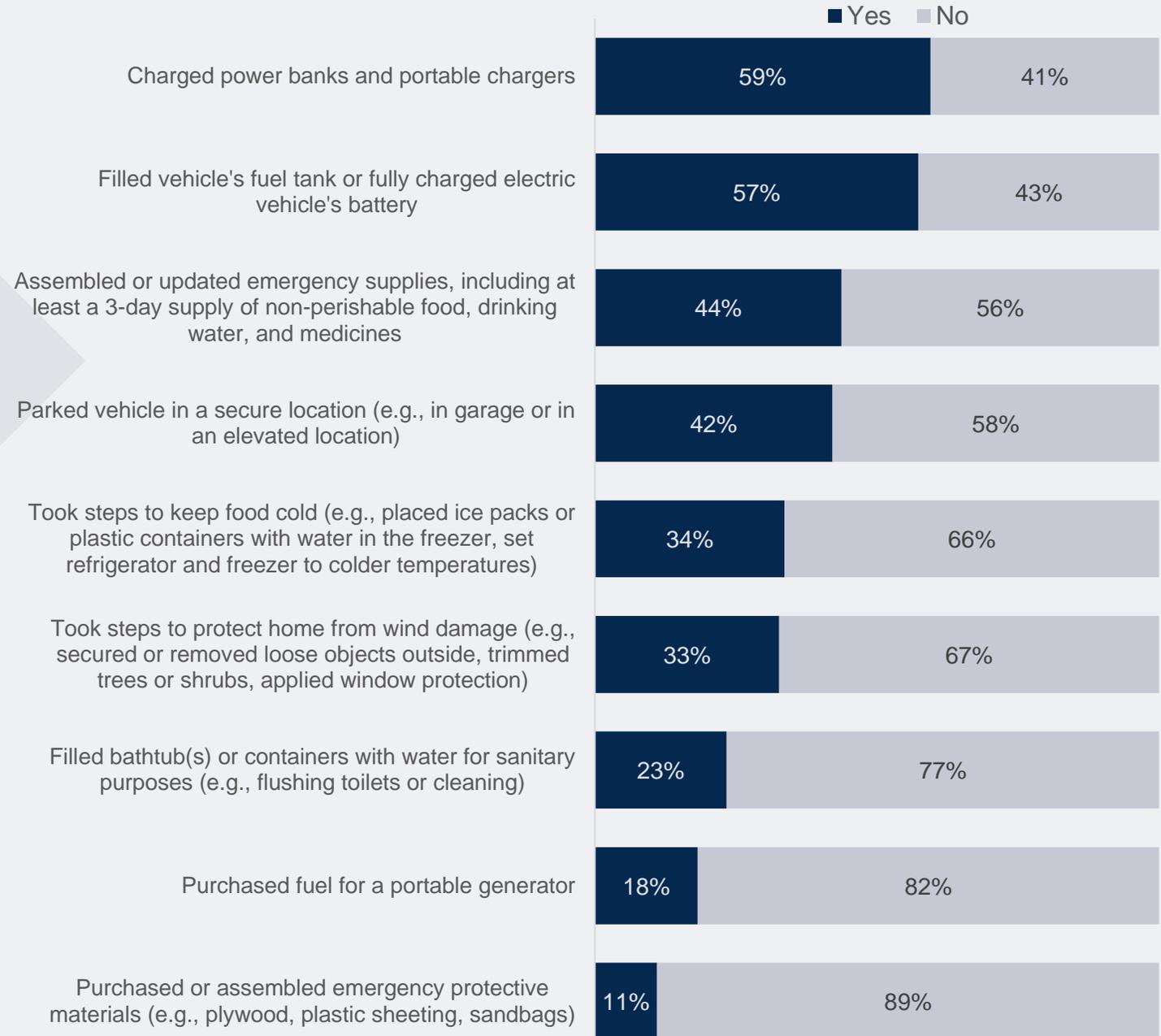
Rates of general disaster-preparedness actions taken by Houston and Harris County residents compared to national rates (2023 FEMA National Household Survey (NHS))



# Specific actions taken in advance of Hurricane Beryl

- Most common preparation steps
  - Charged power banks and portable chargers (59%)
  - Filled vehicle's fuel tank or fully charged electric vehicle (57%)
- Only two preparation actions taken by more than half of residents

Preparedness actions taken in advance of Hurricane Beryl



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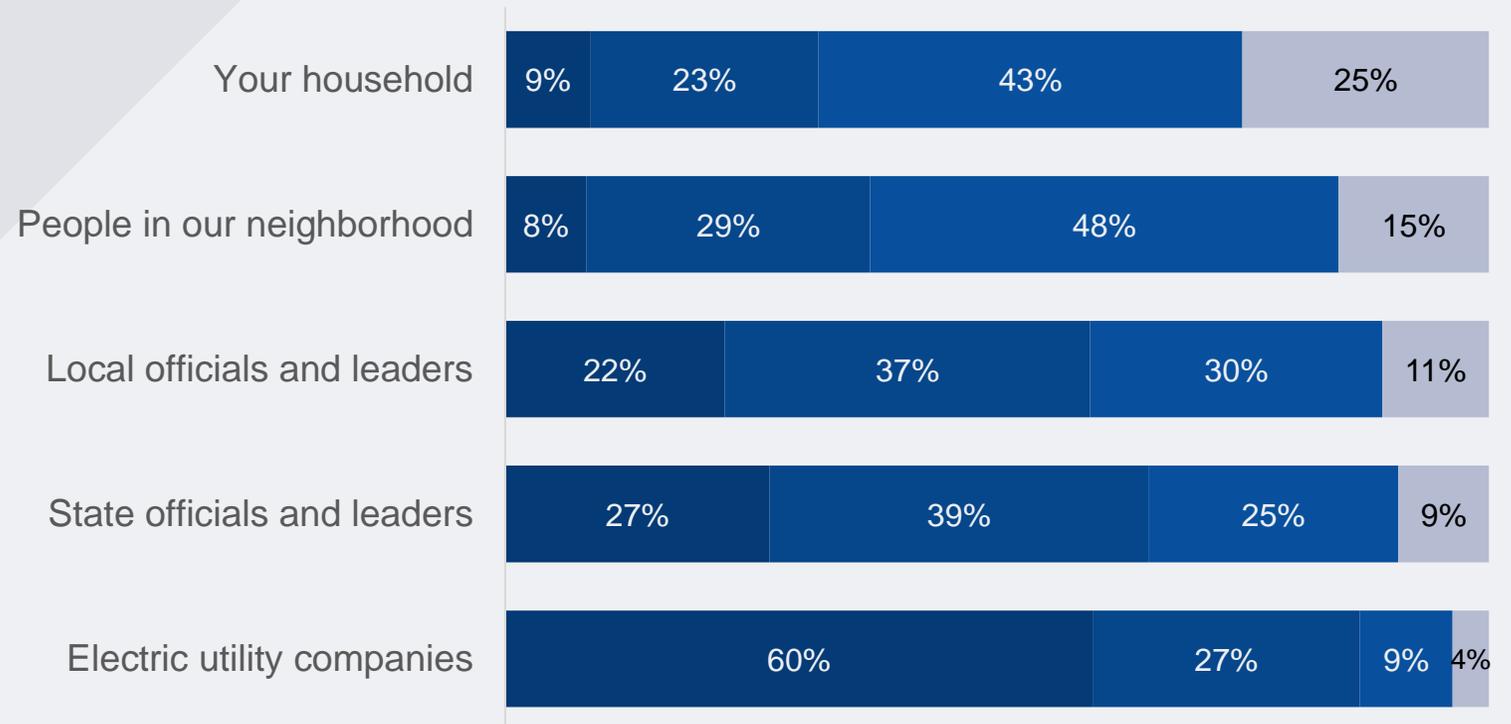
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# Residents felt they were prepared for Beryl, but that local officials, state officials, and electric utility companies were not

- One quarter of residents said their household was “very or extremely well prepared”
- Another 4 in 10 felt they were “moderately well prepared”
- Nearly 6 in 10 residents felt that local leaders were “not at all prepared” or “not too well prepared”

**Question: Overall, how well prepared do you think each of the following were for Hurricane Beryl**

■ Not at all prepared ■ Not too well prepared ■ Moderately well prepared ■ Very or extremely well prepared





# Impacts of extreme weather

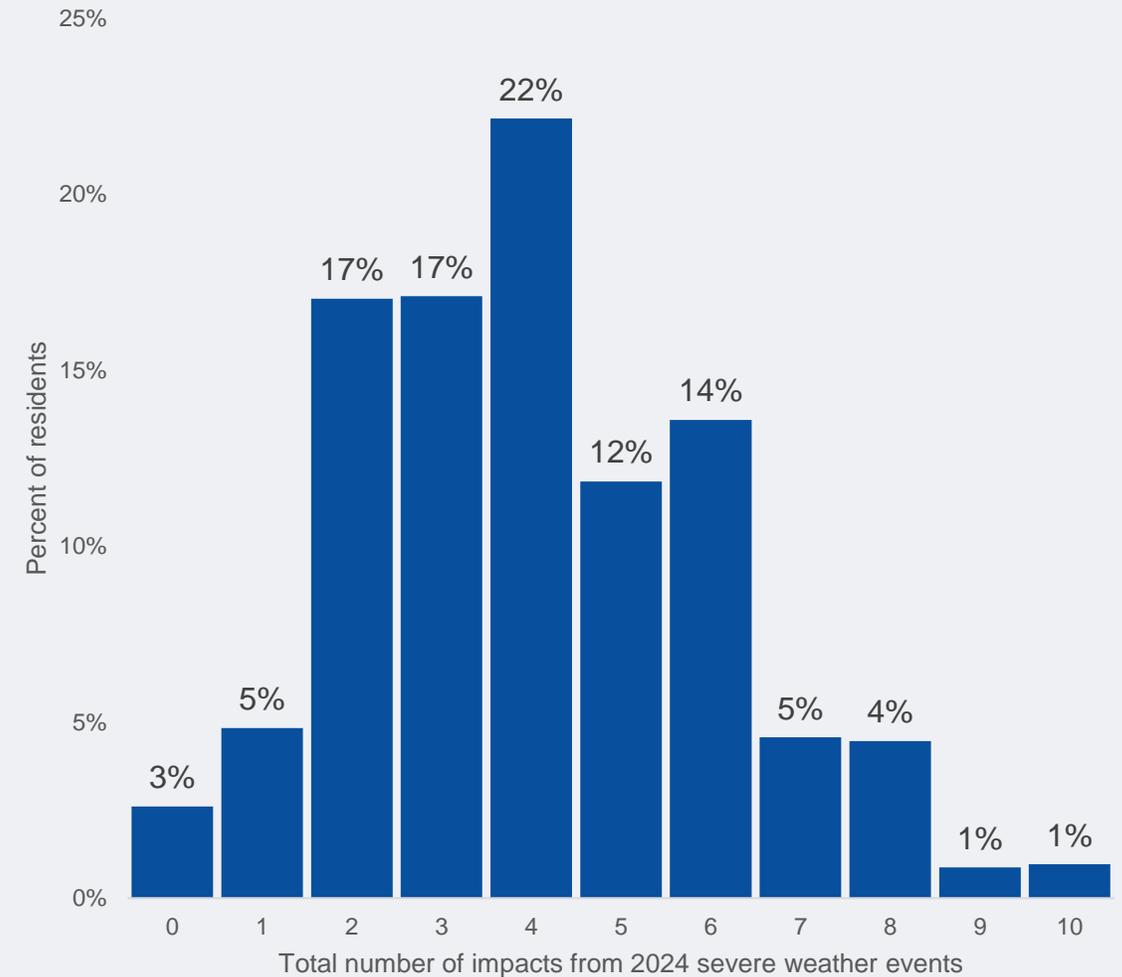


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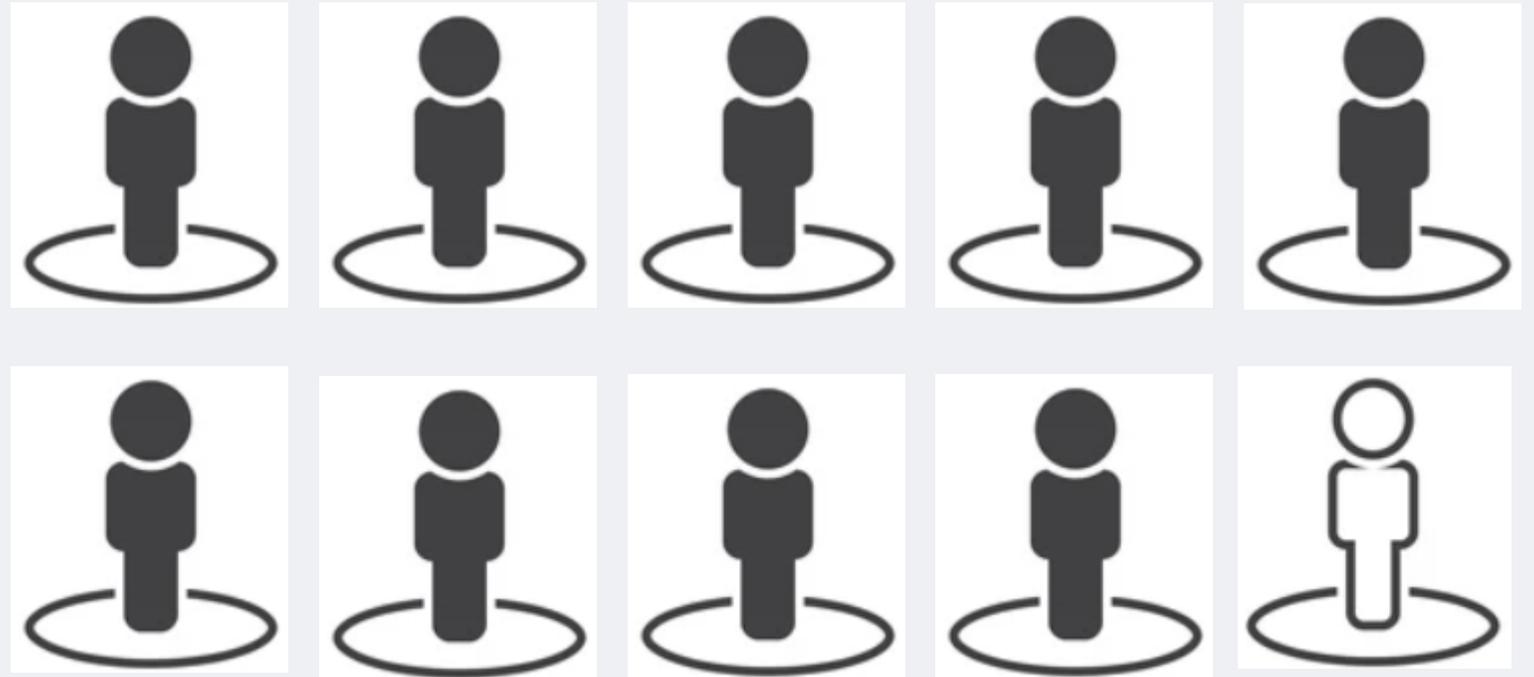
# From April to July 2024, Houston-area residents, on average, experienced four impacts from severe weather events

- Residents were asked about 11 different direct impacts from flooding, the derecho, severe thunderstorms, and Hurricane Beryl
  - Damage to home, vehicle damage, power outage, water loss, utilities out, etc.
- Average of 4 impacts
- Only 3% of Houston-area residents reported having 0 direct impacts from the severe weather



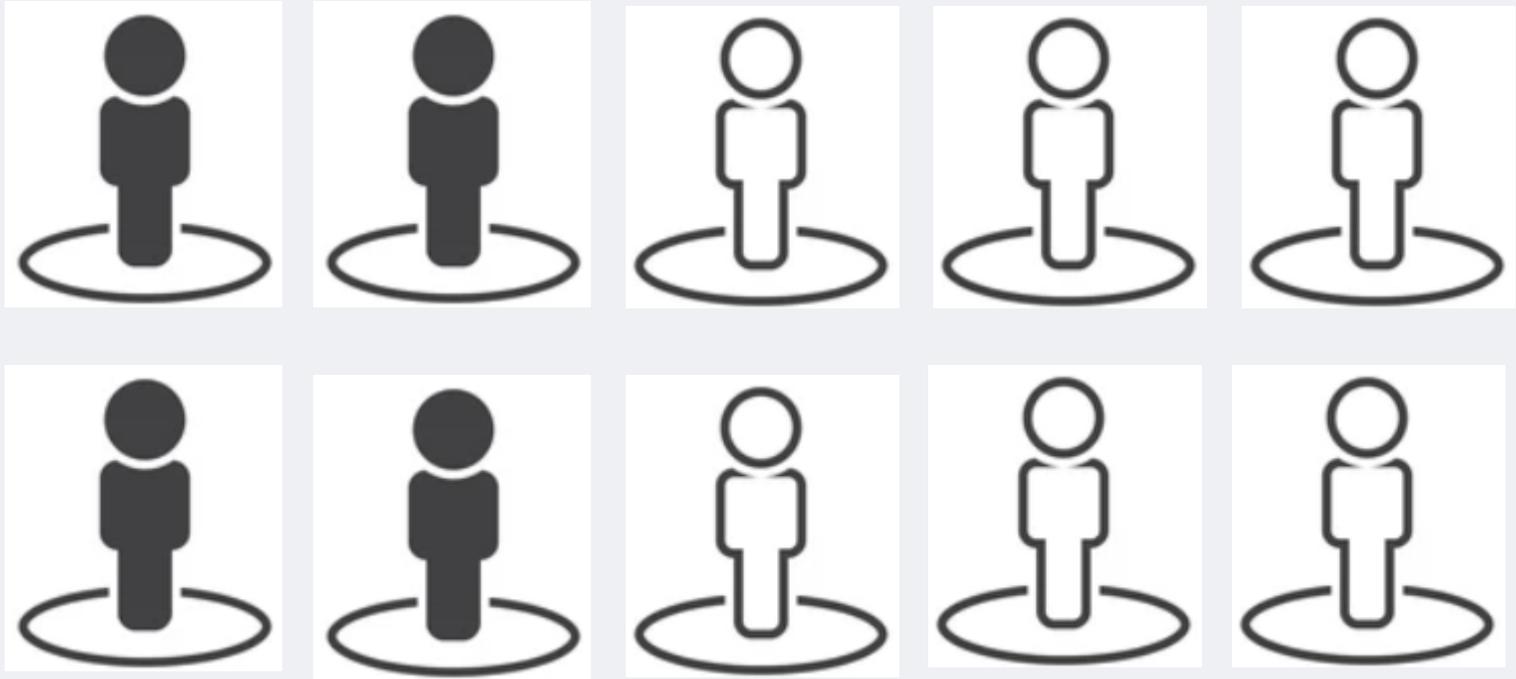
# Most common impact was loss of electricity

More than 9 in 10 residents lost electricity for at least 4 hours



# Extended power outages following Hurricane Beryl

About 4 in 10 residents were without power for at least 4 days



# Beyond the direct impacts of severe weather events in 2024 were impacts on health and finances

Amount and quality of sleep impacted

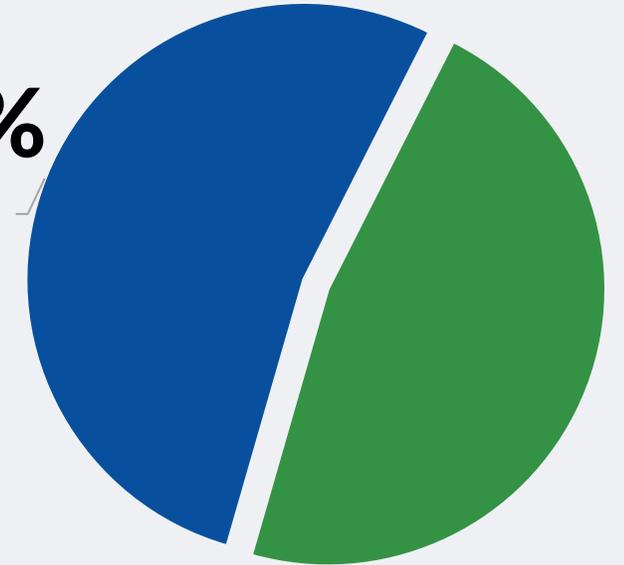
**6 in 10**

Mental health worsened

**36%**

Lost income or wages

**53%**



Houston-area residents reported their sleep had been impacted due to the severe weather events in 2024

of Houston-area residents reported their mental health worsened because of storm impacts

of Houston-area residents reported they lost wages or income due to severe weather events



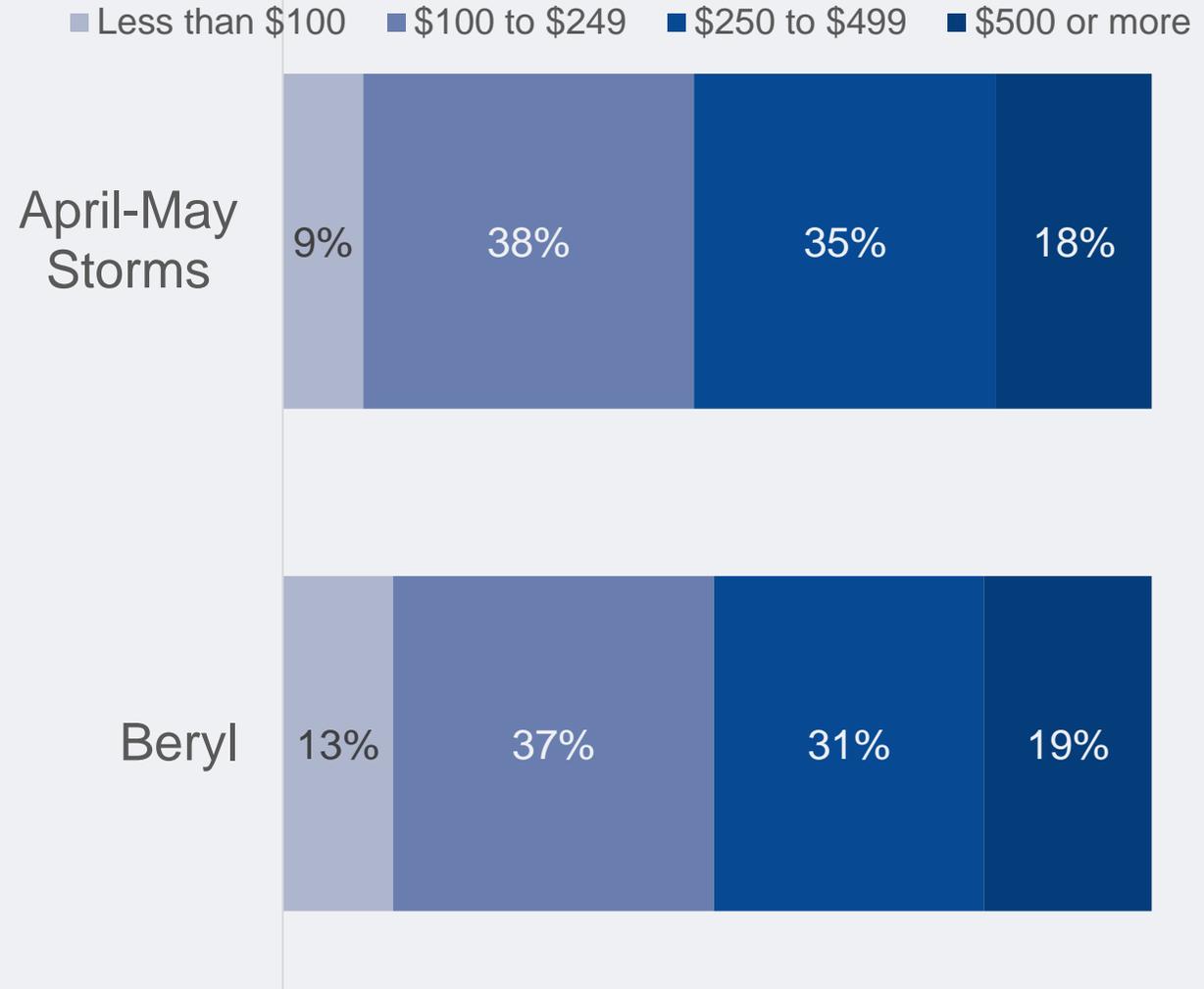
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# Thrown-away food

- Nearly 8 in 10 Houston-area residents had to throw away food due to prolonged power outage in 2024
  - 56% following April-May storms
  - 71% following Hurricane Beryl
- Nearly half of residents had to throw away food after both weather events
- Most commonly, food was valued at \$100 to \$249
- More than half threw away food worth over \$250

Estimated value of food thrown away





# Response and Recovery

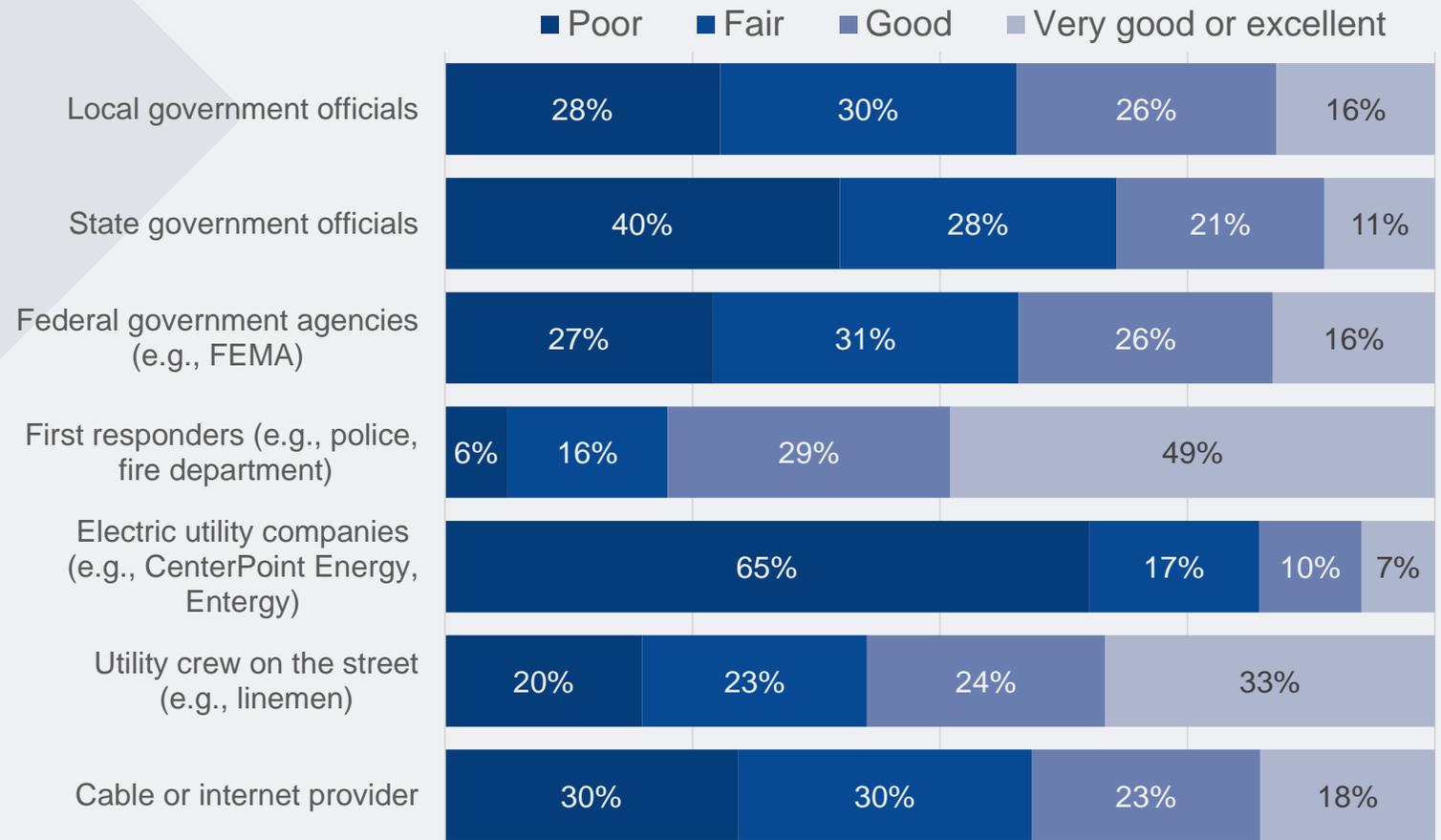


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# Residents not satisfied with response to Hurricane Beryl

- About 3 in 10 rated response of local government as “poor”
- Less favorable view of state’s response
- More favorable view of job done by first responders and utility crewmen working to restore electricity

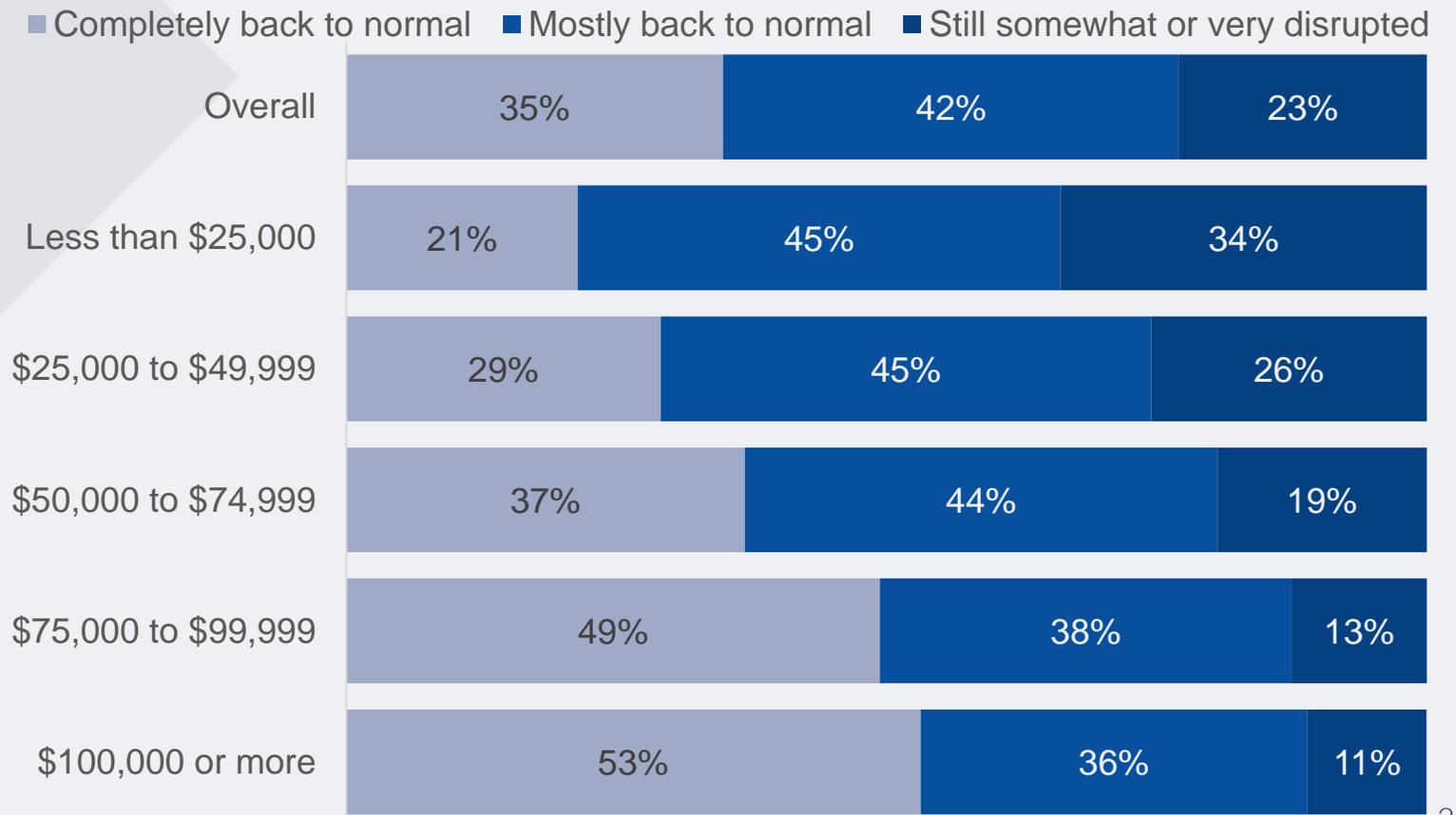
Question: Overall, how would you rate the job each of the following have done responding to Hurricane Beryl and its aftermath?



# Two weeks after Hurricane Beryl many residents were “back to normal”, but about a quarter were not – this differed by income

- One-third of households making less than \$25,000 not recovered two weeks after Beryl
  - Compared to 1 in 10 households making over \$100,000
- Income differences remained net of storm’s impacts on household

Question: Which of the following best describes your personal situation in terms of recovering from Hurricane Beryl?



# Residents concerned about paying for the costs resulting from severe weather events

Impacted ability to pay for basic necessities

2 in 3

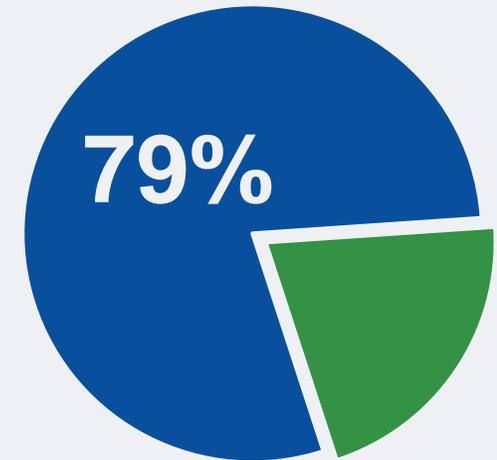
Houston-area residents said the severe weather events would make it somewhat or much harder to pay for basic necessities in months ahead

Difficult to pay for repairs

23%

of Houston-area residents said it was going to be very or extremely difficult to pay for repairs from the storms

Additional expenses from the storms



of Houston-area residents accrued additional costs due to the storms (e.g., hotel bills, batteries, groceries), and of those who did, three-quarters said it would be at least moderately difficult to pay for them

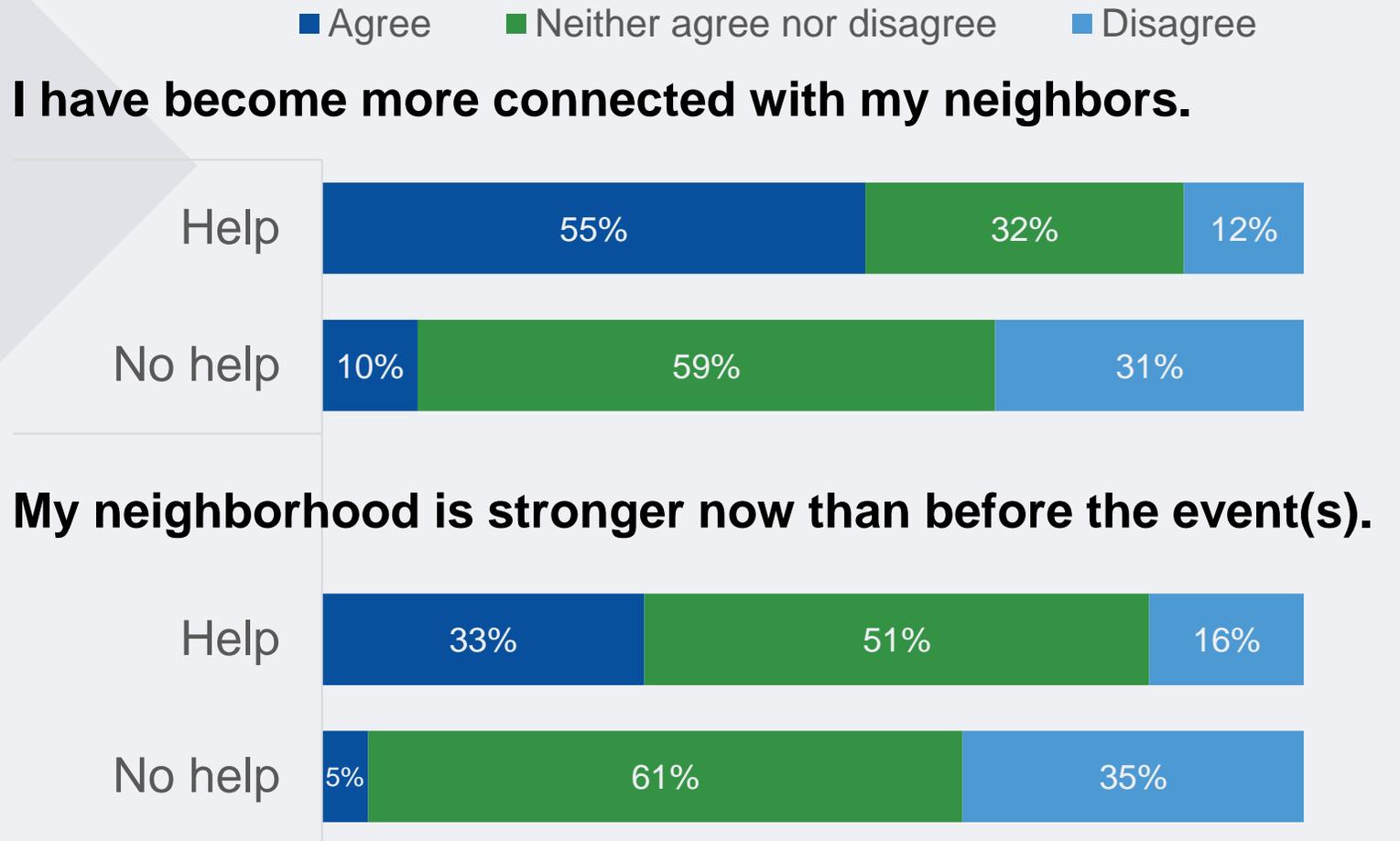


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# Residents helping one another led some to feel more connected and stronger as a community following Beryl

- Nearly 8 in 10 residents reported helping others, receiving help from others, or seeing others helping one another
- More than half of residents felt more connected to neighbors after experiencing helping following Beryl





# Resilience and Looking to the Future

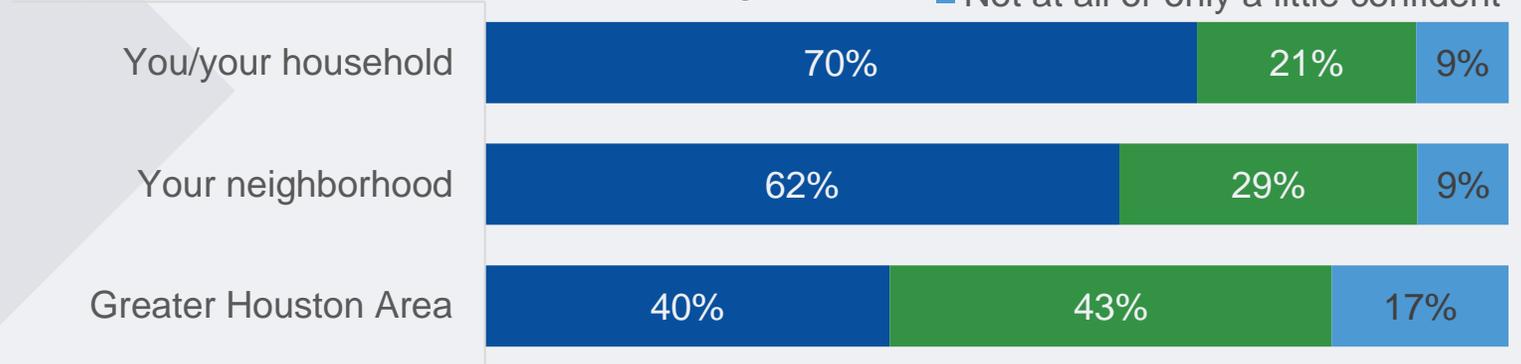


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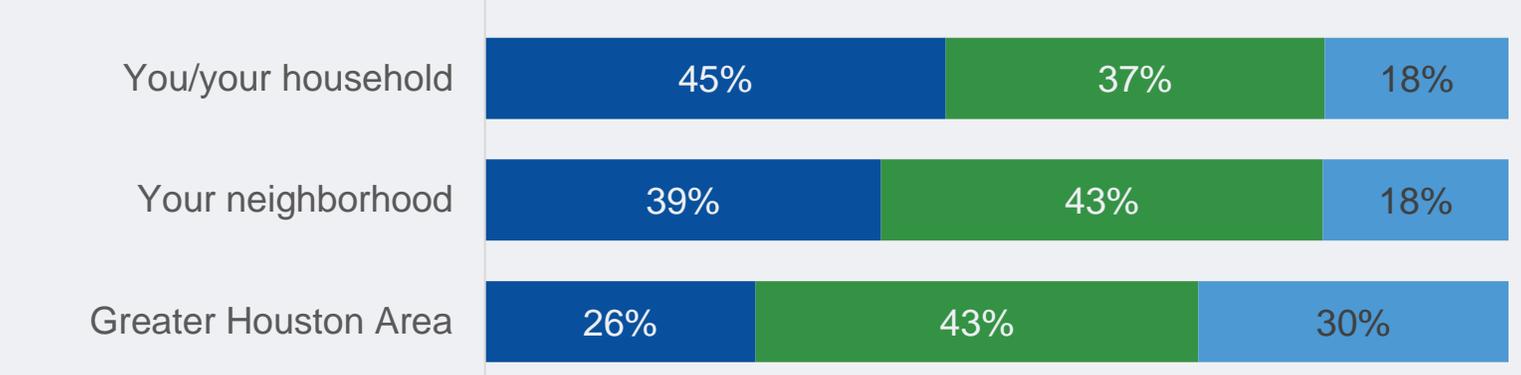
# Residents were confident they would recover from Beryl, but not as confident for the area or future severe weather events

- About 7 in 10 households said they were very or extremely confident they would recover from Beryl
- Only 4 in 10 held same confidence for the Greater Houston area
- Less than half (45%) held same confidence they could recover from an additional storm in 2024

## Recover from Hurricane Beryl



## Recover from an additional storm in 2024



# Residents more trusting of local officials to prepare effectively for future storms, not so sure about state or electric utility companies

Trust local officials

**5 in 10**

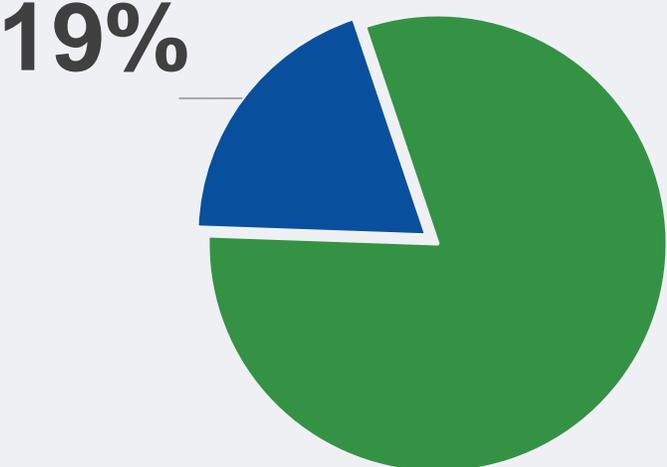
Houston-area residents said they trusted that local officials would prepare effectively for future storms

Trust state officials

**32%**

of Houston-area residents said they trusted state officials would prepare effectively for future storms

Trust electric utility companies

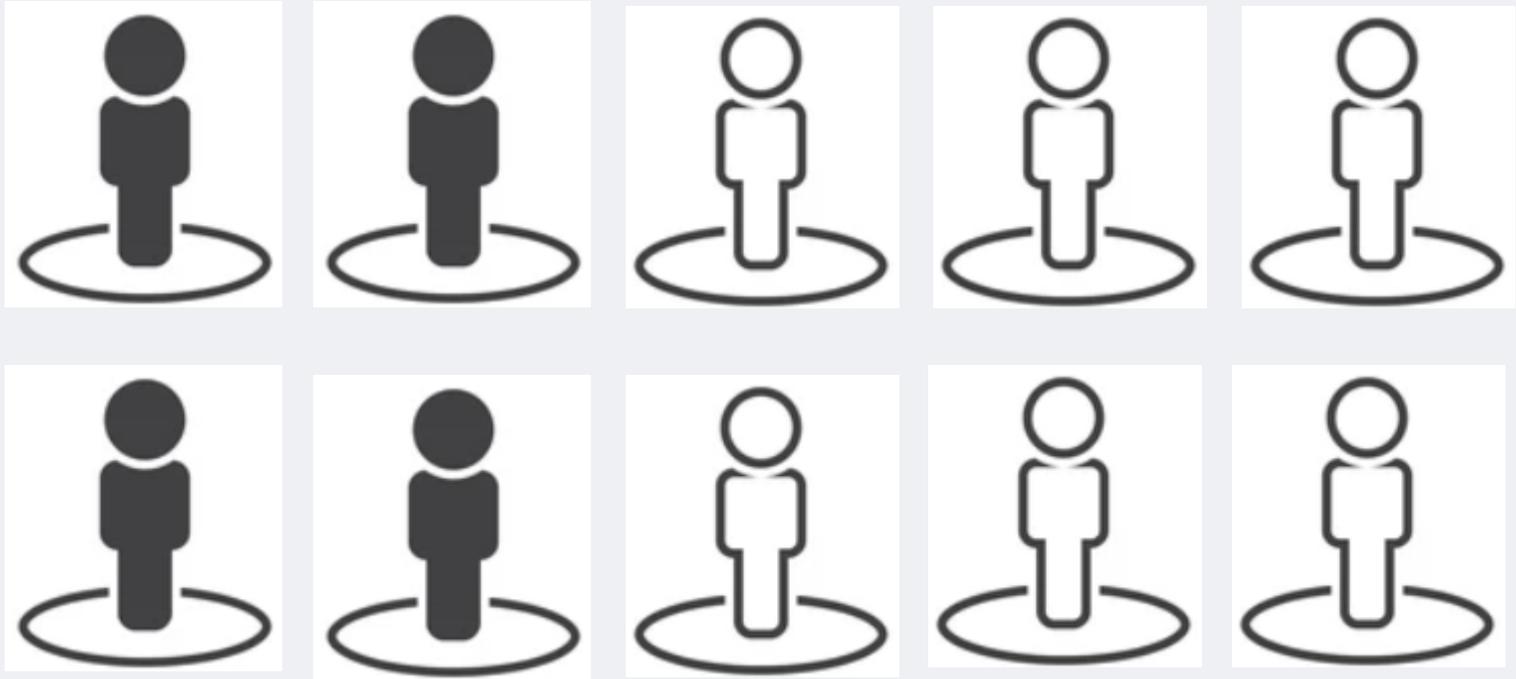


of Houston-area residents said they trusted the electric utility companies to prepare effectively for future storms



# Thinking about leaving the Houston area

About 4 in 10 residents considering moving away due to severe weather





# Summary of Findings



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# Preparation for severe weather events

- Houston-area residents are more prepared than others around the country, but still room for improvements
- Programs and resources can be targeted to help support preparation, particularly for more costly items such as non-perishable food, batteries and solar technology
- Preparation will not stop the next storm from happening but helps individuals, neighborhoods, and the broader Houston community bounce back when it does



# Storm impacts

- Severe weather in 2024 impacted (nearly) everyone in the Houston area
- Power outages were particularly impactful having consequences for health and well-being, people's finances, and the accrual of additional expenses
- Around 8 in 10 residents had to throw away food at least once because of prolonged power outages



## Response and recovery

- Residents were not satisfied with the response to Hurricane Beryl
- Many residents helped one another in the immediacy of Beryl and found themselves feeling closer to their neighbors and stronger as a community
- Residents were concerned about paying for basic necessities and storm-related bills
- Recovery was related to income, so programs and resources aimed at meeting the needs of lower-income households will be particularly helpful in getting individuals and families “back to normal”

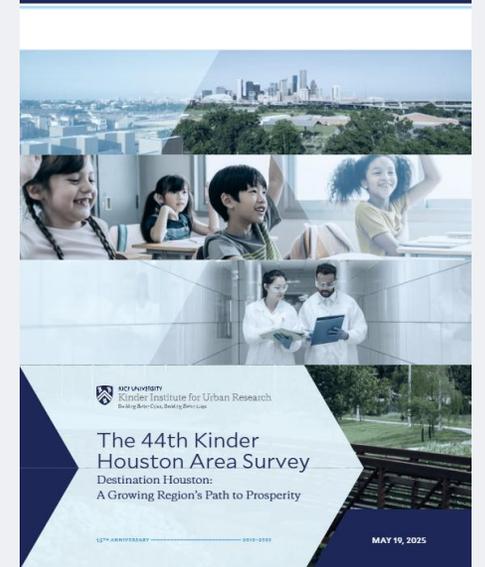
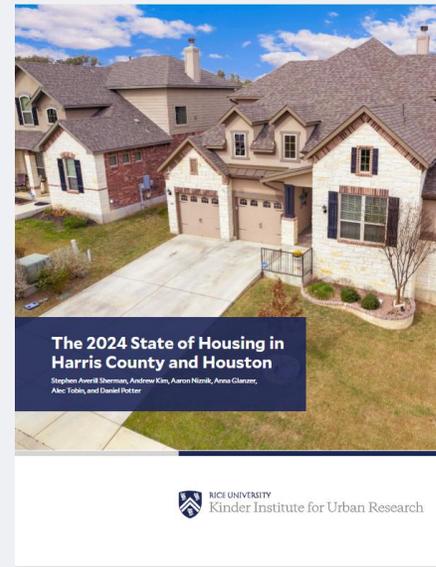
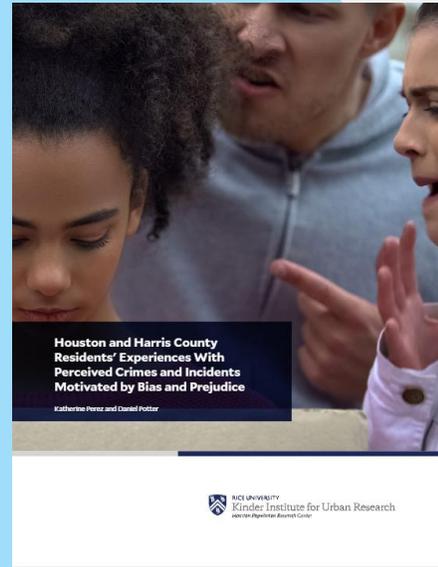
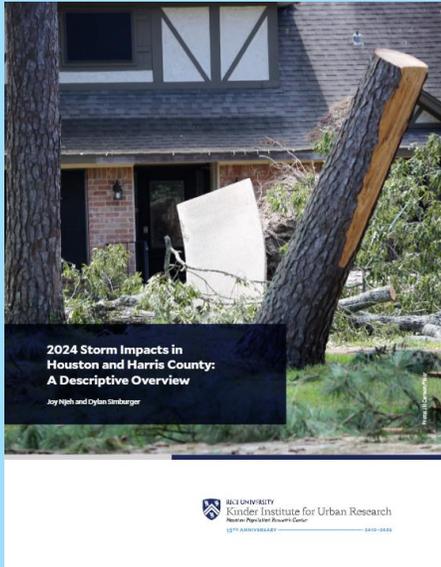


# Resilience of residents

- Residents were confident they could recover from Beryl
- Less confidence that the Greater Houston area would recover
- Even less confident about being able to recover from more severe weather in 2024
- Ready to not need to be #HoustonStrong



# Some of our research



Explore more at  
[kinder.rice.edu/research](https://kinder.rice.edu/research)



# Questions & Thank you!

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