

# **E Source Digital Strategy Summit for the Tennessee Valley**

## **Part 2: Website design**



**E Source**

**Heather Hilgenkamp, PhD**  
Lead Analyst



**E Source**

2:00–2:40 p.m. ET

How to improve your website's self-service features

2:40–2:50 p.m. ET

Break

2:50–3:30 p.m. ET

Why should I care about website accessibility? How to assess and improve your website's accessibility for all customers



# How to improve your website's self-service features

Heather Hilgenkamp, PhD  
Lead Analyst, E Source



**E Source**

# Presentation outline

- Why customers go to utility websites
- Findability of website features and how to improve it
- How to improve self-service of Outages or Emergencies and Make a payment features

# Why are customers visiting your website?



© E Source (2019 Residential Utility Customer Survey)

# 2019 website benchmark study info

- Conducted biennially since 2002
- Included 109 North American electric and gas utilities
- Covers desktop and mobile experiences
- Evaluated on four usability components:
  - Functionality
  - Content
  - Appearance
  - Findability



# Findability methodology

## User experience testing

Scored:

- Success rate
- Time to find
- Number of pages

At least 8  
residential utility  
customers per  
feature for each  
utility company—  
**over 16,000**  
usability tests

# Make it faster and easier to find features on your website

- Reviewers found 89.6% of all tasks that met our criteria
- Reviewers failed to find 7.9% of all tasks
- Reviewers abandoned 2.5% of all tasks
- Across all features, it took an average of seven page views to accomplish the task
- It took reviewers an average of 82 seconds to accomplish their task



# Findability: Best versus worst performing

## Contact us



- |               |     |     |
|---------------|-----|-----|
| Average time: | 48  | 54  |
| Success:      | 98% | 98% |

## My account

- |               |     |     |
|---------------|-----|-----|
| Average time: | 72  | 107 |
| Success:      | 99% | 97% |

## Outages

- |               |     |     |
|---------------|-----|-----|
| Average time: | 61  | 64  |
| Success:      | 97% | 97% |

## Pricing options



- |               |     |     |
|---------------|-----|-----|
| Average time: | 109 | 107 |
| Success:      | 76% | 81% |

## My energy use

- |               |     |     |
|---------------|-----|-----|
| Average time: | 96  | 126 |
| Success:      | 83% | 79% |

## Make a payment

- |               |     |     |
|---------------|-----|-----|
| Average time: | 65  | 85  |
| Success:      | 81% | 81% |

A person is shown from the chest up, sitting at a desk and using a laptop. The laptop screen displays a social media profile page with a header 'Profile', a 'My Status' section, and a list of links: 'My Friends', 'My Photos', 'My Videos', and 'My Groups'. The background is a solid blue color.

# Recommendations to improve findability of key features

# Optimize your Google site links

## Essential to include in your Google site links:

- Contact us (75% do)
- Outages (45% do)
- My account or sign in (35% do)
- Make a payment (31% do)

## Also important to include:

- Payment and billing options (57% do)

www.cemc.org ▾

### CEMC

Updates for our Members. **CEMC** wants to assure the communities we serve that we are prepared to safely continue our operations throughout the duration of ...

#### My Account

What are some key features of SmartHub? Pay your bill online ...

#### Contact Us

A Live Chat service link is available at the bottom right ...

#### Outage Map

Outage Map. Sign in to Cumberland Electric ...

[More results from cemc.org »](#)

#### Billing & Payment

Billing & Payment. View current rates and find information on ...

#### New Services

New Service. Welcome to Cumberland Electric ...







#### Establish Service

New Service. Welcome to Cumberland Electric ...

Source: CEMC

# Use quick links with icons generously



 Quick Pay	 Account Access	 Report a Problem
 Electric Outages	 Water Outages	 BGMU Voice

BGMU App

Source: BGMU

# Use simple menus

The screenshot shows the TVEPA website header with a login form and a navigation menu. The 'BILLING & PAYMENTS' menu is open, displaying a list of options: 'Ways To Pay', 'Understanding Your Bill', 'Fees & Charges', 'Residential Rate Schedule', and 'Pay Your Bill'. Below the header is a large banner image of a house at sunset, with a red navigation bar at the bottom containing buttons for 'PAY YOUR BILL', 'REPORT AN OUTAGE', 'VIEW OUTAGES', and 'APPLY FOR NEW SERVICE'.

LOGIN TO YOUR ACCOUNT:   [LOGIN](#) [NEW ACCOUNT](#)

[BILLING & PAYMENTS](#) [SERVICES](#) [OUTAGE CENTER](#) [COMMUNITY](#) [ABOUT US](#)

- Ways To Pay
- Understanding Your Bill
- Fees & Charges
- Residential Rate Schedule
- Pay Your Bill

[PAY YOUR BILL](#) [REPORT AN OUTAGE](#) [VIEW OUTAGES](#) [APPLY FOR NEW SERVICE](#)

<https://tvepa.com/billing-payments/>

Free

Free Wifi

TVEPA COVID-



# Focus on in-site search engine

**MURFREESBORO  
ELECTRIC**  
DEPARTMENT

How can we help?

-- ENTER SEARCH TERM --

[Home](#) | [Weatherlink](#) | [Contact Us](#)

**Pay My Bill**

[Access Your Account](#) |  
[Apply For Service](#)  
[Kid Zone](#) |

To Report an Outage Call 615.893.5515

for your  
**HOME**

for your  
**BUSINESS**

about  
**MTE**

## Search Results for: rates

### Rates

July 2020 Residential Rate – Schedule RS Customer Charge \$14.26 Energy Charge-per kWh per month \$0.07489 Total Monthly Fuel Cost – per kWh per month: \$0.01555 General Power Rate – Schedule GSA GSA-1 (0-50 kW) Customer charge-per delivery point per month \$24.86 Energy Charge-per kWh per month \$0.08781 Total Monthly Fuel Cost – per kWh [...]

### Home Energy Tools

Energy Usage Estimator– This calculator will provide you with estimates of energy use costs based on your inputs and will allow you to perform energy saving scenarios to pinpoint your opportunities for savings. Enter your account number or log into your SmartHub account for more precise analysis. Energy Usage Analysis–This program breaks down your [...]

### MED

Engineering Rates About MED Employment Open Bids

### Outdoor Lighting

Murfreesboro Electric offers the installation of automatic, dusk-to-dawn security lights for residential and commercial/industrial customers. Security light charges are added to your monthly energy charges. The standard monthly lamp charge covers the cost of electricity for the light(s), maintenance, and installation of the light fixture. Customers interested in obtaining a security light should contact the [...]

### Quick Links

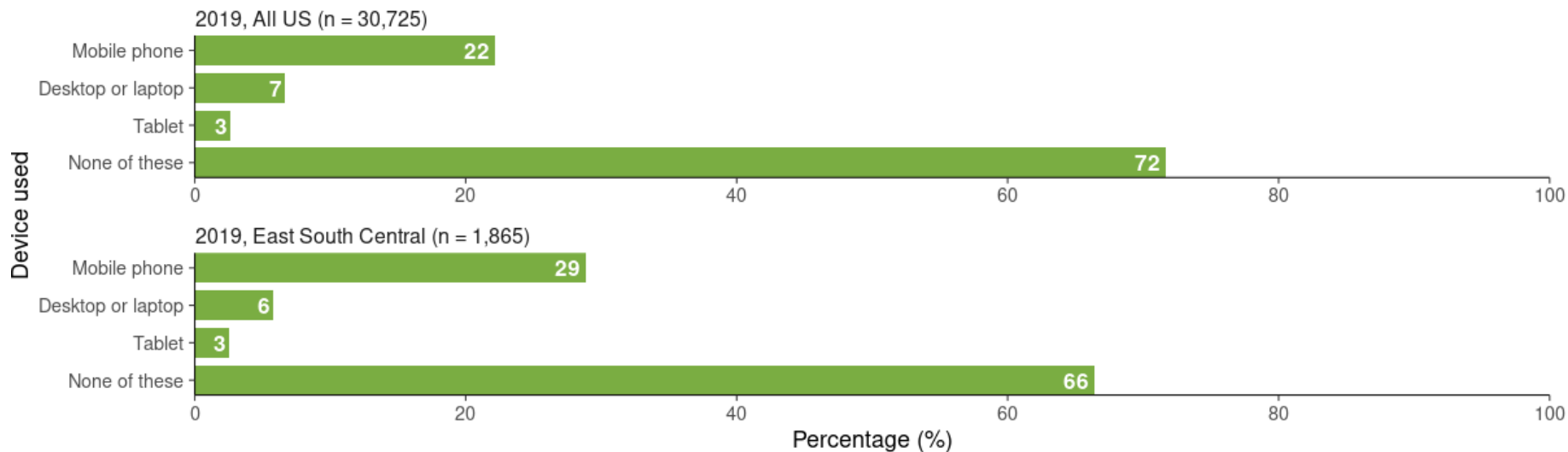
[January](#)  
[February](#)  
[March](#)  
[April](#)  
[May](#)  
[June](#)  
[July](#)  
[August](#)  
[September](#)  
[October](#)  
[November](#)  
[December](#)

Source: MED



# How to improve self-service of Outages or Emergencies and Make a payment features

# Majority of customers haven't reported a power outage or emergency online



Base: Respondents of electricity or dual-fuel providers.

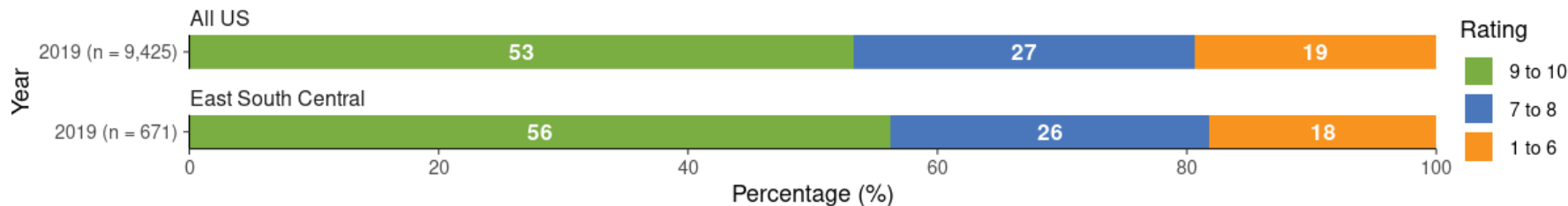
Question A6\_13: In the past 12 months, have you reported a power outage or emergency online with your electricity provider? (Select all that apply) [Filtered]

Note: This question was asked differently in prior years. Respondents were allowed to select more than one answer. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

© E Source (Residential Customer Insights Center)



# Of those who have, more than half say it was easy to do



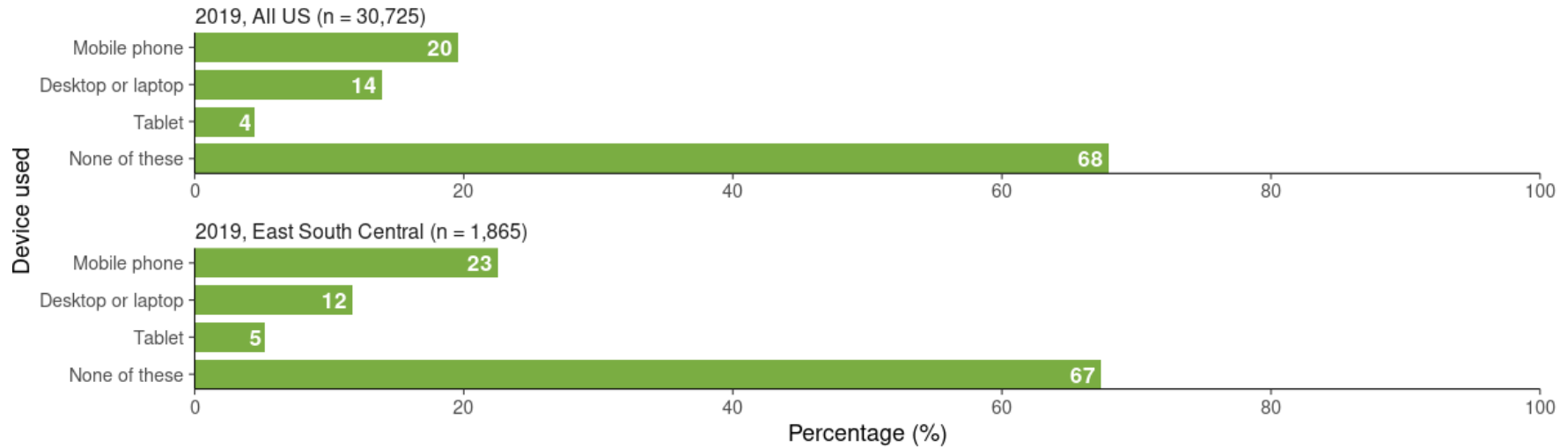
Base: Respondents who are customers of electricity or dual-fuel providers who reported a power outage or emergency online.

Question A6NEW\_6: Please rate the ease of reporting a power outage or emergency online with your electricity provider. [Filtered] (Grouped)

Note: This question was first asked in 2018. Respondents used a scale of 1 to 10, where 1 means very difficult and 10 means very easy. Data may not add to 100% due to rounding. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

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# Similarly, most haven't viewed an outage map online



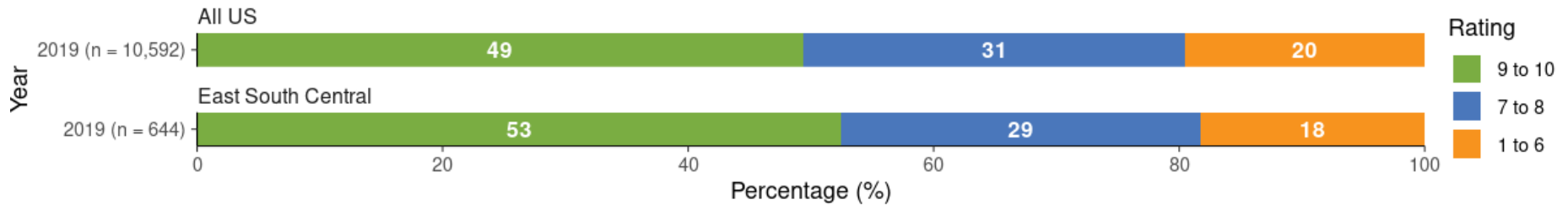
Base: Respondents of electricity or dual-fuel providers.

Question A6\_12: In the past 12 months, have you viewed a power outage map online with your electricity provider? (Select all that apply) [Filtered]

Note: This question was asked differently in prior years. Respondents were allowed to select more than one answer. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

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# But about half who have said it was easy



Base: Respondents who are customers of electricity or dual-fuel providers who viewed a power outage map online.

Question A6NEW\_5: Please rate the ease of viewing a power outage map online with your electricity provider. [Filtered] (Grouped)

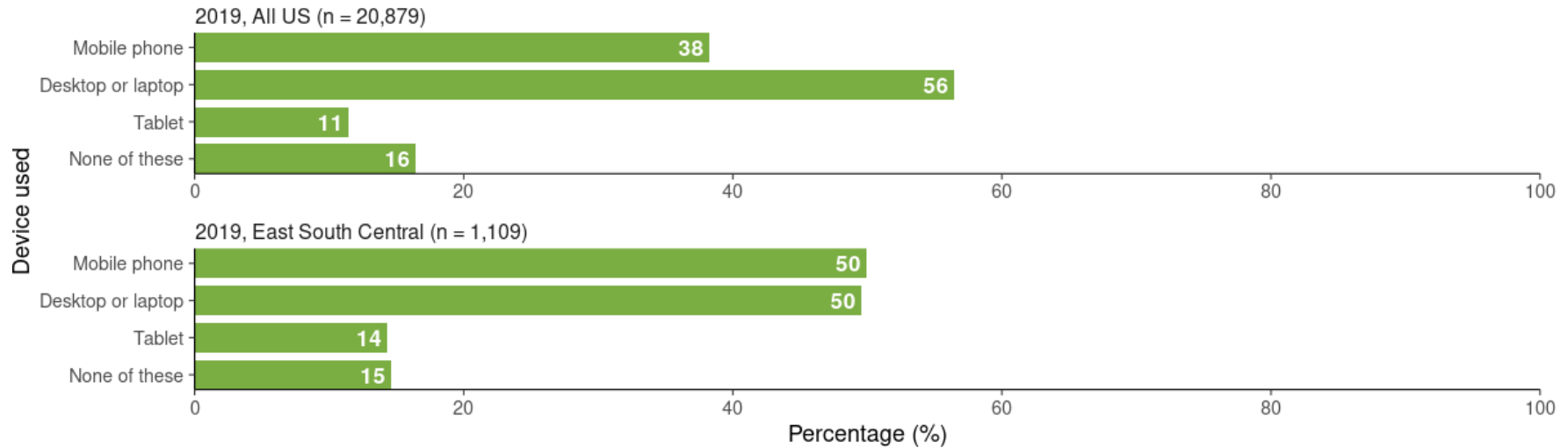
Note: This question was first asked in 2018. Respondents used a scale of 1 to 10, where 1 means very difficult and 10 means very easy. Data may not add to 100% due to rounding. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

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# How to improve self-service adoption of the Outage or Emergencies feature

- Improve navigation and limit the number of pages customers have to visit regarding outages or emergencies
- Keep outage and emergency processes as simple as possible
- Provide detailed information via multiple channels

# Most customers have viewed their account status or bill online



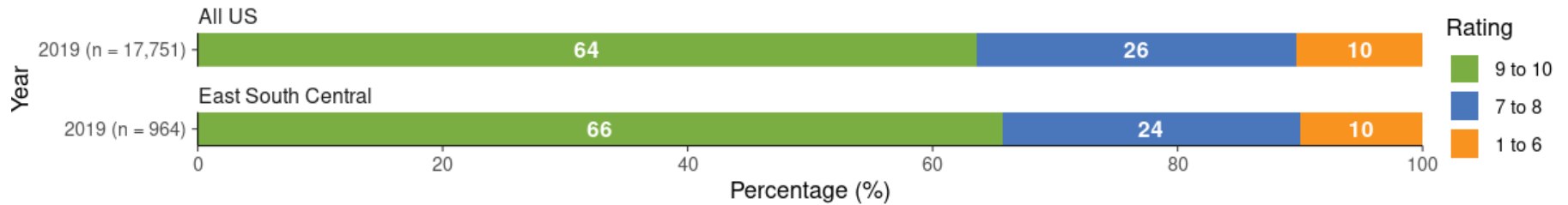
Base: Respondents of electricity or dual-fuel providers with an online account.

Question A6\_1: In the past 12 months, have you viewed your account status or bill online with your electricity provider? (Select all that apply) [Filtered]

Note: Respondents were allowed to select more than one answer. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

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# And said it was very easy to do so



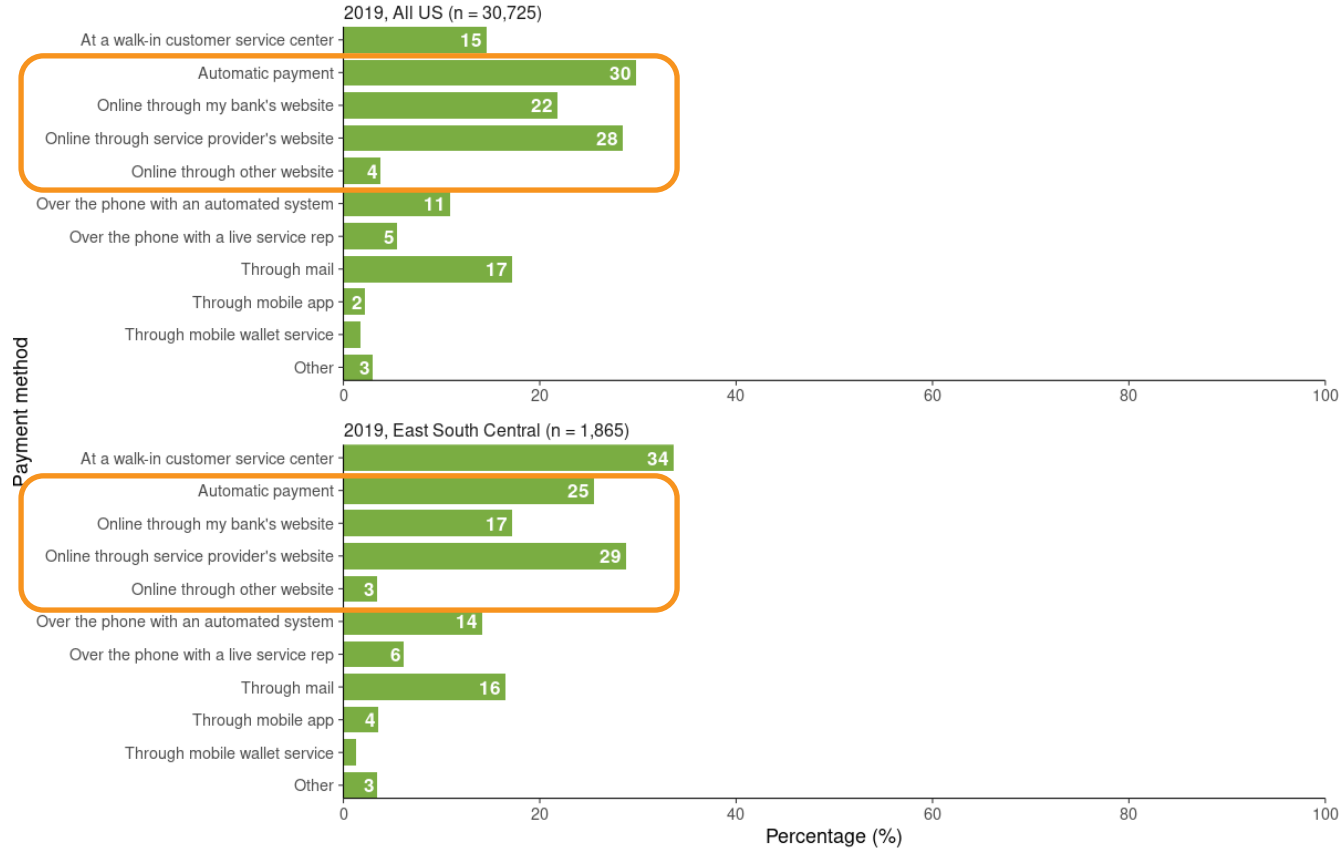
Base: Respondents who are customers of electricity or dual-fuel providers who viewed their account status or bill online.

Question A6NEW\_1: Please rate the ease of viewing your account status or bill online with your electricity provider. [Filtered] (Grouped)

Note: This question was first asked in 2018. Respondents used a scale of 1 to 10, where 1 means very difficult and 10 means very easy. Data may not add to 100% due to rounding. Percentages shown in the charts reflect weighted data; sample sizes (n) are based on unweighted data.

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# Online channels are popular ways to pay



# How to improve self-service adoption of the Make a payment feature

- Give customers multiple ways to make a payment, both in navigation and channel
- Keep the process as simple as possible and limit the amount of work customers must do



# How to make the online payment experience seamless for all customers

- Repeal credit card payment fees (at least temporarily)
- If you can't remove credit card fees, offer an incentive so customers don't have to pay them
- At the very least, make it clear which online payment options don't incur additional fees



**BREAK**  
**10 minutes**

# Why should I care about website accessibility?

How to assess and improve your website's accessibility for all customers

**Heather Hilgenkamp, PhD**

Lead Analyst, E Source

**Jeffrey Daigle**

Director and Senior Consultant, E Source



**E Source**

# Presentation outline

- Why should I care about making my website accessible?
- What are the current accessibility standards?
- What should I consider when improving website accessibility?
- Accessibility review
- WAVE tool and how to use it to improve your website's accessibility

# Why should I care?

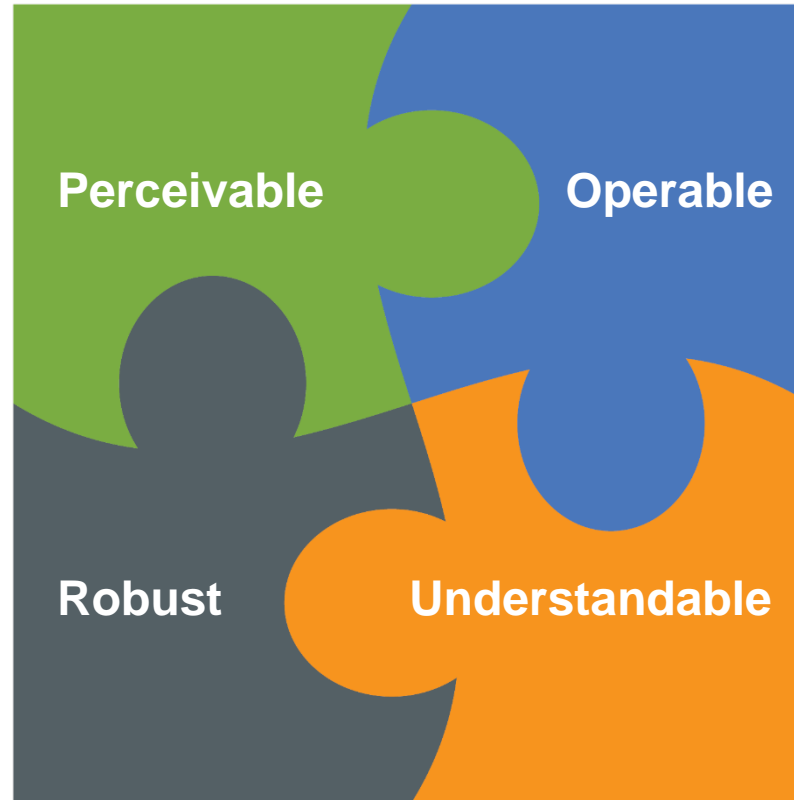


# Web Content Accessibility Guidelines (WCAG)

- Created by the World Wide Web Consortium (W3C) in 1999
- Developed protocols so all individuals can understand online content
- WCAG 2.1 released June 2018



# WCAG 2.1 at a glance



Source: [WCAG 2.1 at a Glance](#), W3C

# Content editor responsibilities

- Do all images have alternative text (alt text)?
- Do all heading levels (H1, H2, etc.) follow a proper outline hierarchy?
- Do all data tables have correct header designations?
- Is all link text appropriately descriptive?
- Do all videos have closed captioning?

Source: [Is your website accessible? Here's a handy checklist to find out.](#), Juicebox Interactive



# Developer responsibilities

- Do your pages have a straightforward document structure that's readable without a CSS file?
- Can all links and navigation drop-down functionality be used without a mouse?
- Is a "Skip to main content" link present before the navigation when tabbing?
- Does the site use ARIA landmarks and other assistive technology indicators where appropriate?
- Does small text (18 px or smaller) have a contrast ratio of at least 4.5:1 against the background?
- Does large text (bold > 18 px, normal weight > 23 px) have a contrast ratio of at least 3:1 against the background?

Source: [Is your website accessible? Here's a handy checklist to find out.](#), Juicebox Interactive

# Accessibility review

Utility home page metric	Errors	Contrast errors	Alerts
Average	15	14	24
Minimum	0	0	3
Median	12	10	16
Maximum	72	64	112

# WAVE tool: Details section

The screenshot displays the WAVE tool interface for the Tennessee Valley Authority (TVA) website. The interface is divided into a sidebar on the left and a main content area on the right.

**WAVE Tool Sidebar:**

- Logo: WAVE powered by WebAIM web accessibility evaluation tool.
- Styles: OFF (toggle switch) ON.
- Summary section with navigation tabs: Summary, Details, Reference, Structure, Contrast.
- Summary statistics:
  - 1 Errors
  - 3 Contrast Errors
  - 15 Alerts
  - 13 Features
  - 31 Structural Elements
  - 10 ARIA
- View details button.

**Main Content Area:**

- Header: TVA Tennessee Valley Authority.
- Navigation: About TVA, Newsroom, Careers, Investors.
- Search bar.
- Menu items: Energy, Environment, Economic Development.
- Main image: A large image of fireworks exploding over a body of water at night.
- Code icon: A green button with a code symbol (</>) and the text "Code".

# WAVE tool: Details section

**WAVE** powered by **WebAIM**  
web accessibility evaluation tool

Styles: OFF ON

### Details

Summary Details Reference Structure Contrast

- 1 Errors
  - 1 X Empty button
- 3 Contrast Errors
  - 3 X Very Low Contrast
- 15 Alerts
  - 3 X Redundant alternative text
  - 1 X Unlabeled form element with title
  - 1 X Missing first level heading
  - 3 X Redundant link
  - 7 X Redundant title text

The main content area displays the Tennessee Valley Authority (TVA) website. The header includes the TVA logo, navigation links (About TVA, Newsroom, Careers, Investors), and a search bar. The main content area features a large image of a woman wearing sunglasses, with the text "POWERED BY PEOPLE YOU KNOW." overlaid. Below the image are links for Energy, Environment, and Economic Development. The footer contains the text "After a Pause. Ready for F" and a Code icon.

# WAVE tool: How to interpret details

The image shows the WAVE web accessibility evaluation tool interface. On the left is a sidebar with a list of detected issues:

- 1 Errors
  - 1 X Empty button
- 3 Contrast Errors
  - 3 X Very Low Contrast
- 15 Alerts
  - 3 X Redundant alternative text
  - 1 X Unlabeled form element with title
  - 1 X Missing first level heading
  - 3 X Redundant link
  - 7 X Redundant title text

The main area displays a live preview of a webpage. A tooltip titled "Redundant link" is shown over a "Continue Reading" link, stating "Adjacent links go to the same URL." Below the tooltip, the text "REFERENCE" and "CODE" are visible. The webpage content includes a header with "#TVA Run", a main heading "h5 Boating Safety", and a paragraph: "Taking the boat... job that never... read our tips to keep you and your vessel safe on the water. Boating safely is one...". Below the text are several images and buttons, each with a WAVE icon and a tooltip indicating an issue: "Canoeing", "Power System", "Code", and "Feedback Banner".

# WAVE tool: Reference and structure

The image shows a screenshot of the WAVE web accessibility evaluation tool. The tool is powered by WebAIM and is used to evaluate web accessibility. The main window displays the structure of the page being evaluated, which is the Tennessee Valley Authority (TVA) website. The structure is organized into sections: Header, Navigation, Search, and another Navigation section. The Reference panel shows the following elements:

- h5 Boating Safety 101
- h5 Solar, Solar Everywhere
- h5 After a Pause...Ready for Fun!

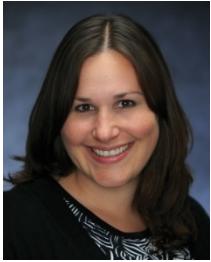
The main content area of the page being evaluated features a large banner with the text "BUILDING A CLEANER FUTURE for 10 MILLION Residents" and an illustration of a community with solar panels. The TVA logo and navigation menu are visible at the top. The WAVE tool interface includes a "Styles" toggle (OFF/ON), a "Structure" panel with tabs for Summary, Details, Reference, and Contrast, and a "Code" panel at the bottom.

# WAVE tool: Contrast errors

The screenshot displays the WAVE tool interface with the following components:

- Header:** WAVE logo, "powered by WebAIM", and "web accessibility evaluation tool".
- Styles:** A toggle switch set to "ON".
- Contrast Section:**
  - Navigation: Summary, Details, Reference, Structure, Contrast.
  - Instruction: "Click a Contrast icon below or within the web page to view details."
  - Color Selection: Foreground Color (#747474) and Background Color (#E6E6E5) with corresponding lightness sliders.
  - Contrast Ratio: 3.74:1
  - Text Size: Normal
  - Normal Text: Sample (AA: Fail, AAA: Fail)
  - Large Text: Sample (AA: Pass, AAA: Fail)
  - Desaturate page button and note: "Contrast is not tested when background images, gradients, etc. are present. Ensure fall-back contrast is defined in case images or CSS do not display."
- Page 1: "Power of Partnerships"**
  - Title: Public Power Partnerships
  - Image: A photograph of a large industrial building with a tall chimney.
  - Error: "Coal Ash" / CCR
- Page 2: "Automotive Fast Lane"**
  - Title: The Valley's Automotive Fast Lane
  - Image: A photograph of a person fishing in a lake.
  - Error: "Fishing Guide"
- Footer:**
  - Navigation icons for Home, Details, Reference, Structure, Contrast.
  - Links: Doing Business with TVA, Employees and Retirees, Inspector General, Safety, TVA Kids, TVA Police, TVA STEM, Accessibility Information, Equal Employment Opportunity Policy, Freedom of Information Act, Information Quality, Legal Notices, No Fear Act Data, TVA Privacy Policy.
  - Social Media: Facebook, Twitter, Instagram, YouTube, LinkedIn, Flickr.
  - Contact: Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, TN 37902, 865-632-2101, tvainfo@tva.com.
  - Feedback: "Have issues or suggestions for the website? Please send us feedback."
  - Code icon.

# Thank you! Questions?



Heather Hilgenkamp, PhD  
Lead Analyst, Market Research, E Source  
303-345-9115  
[heather\\_hilgenkamp@esource.com](mailto:heather_hilgenkamp@esource.com)

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Jeffrey Daigle  
Director and Senior Consultant, Customer Engagement Solutions, E Source  
303-345-9183  
[jeffrey\\_daigle@esource.com](mailto:jeffrey_daigle@esource.com)

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