Chartwell
Gold Winner
2023 BEST PRACTICES AWARDS
Outage Operations Category

Duke Energy's Planned Outage Portal Streamlines the Service Outage Planning Process

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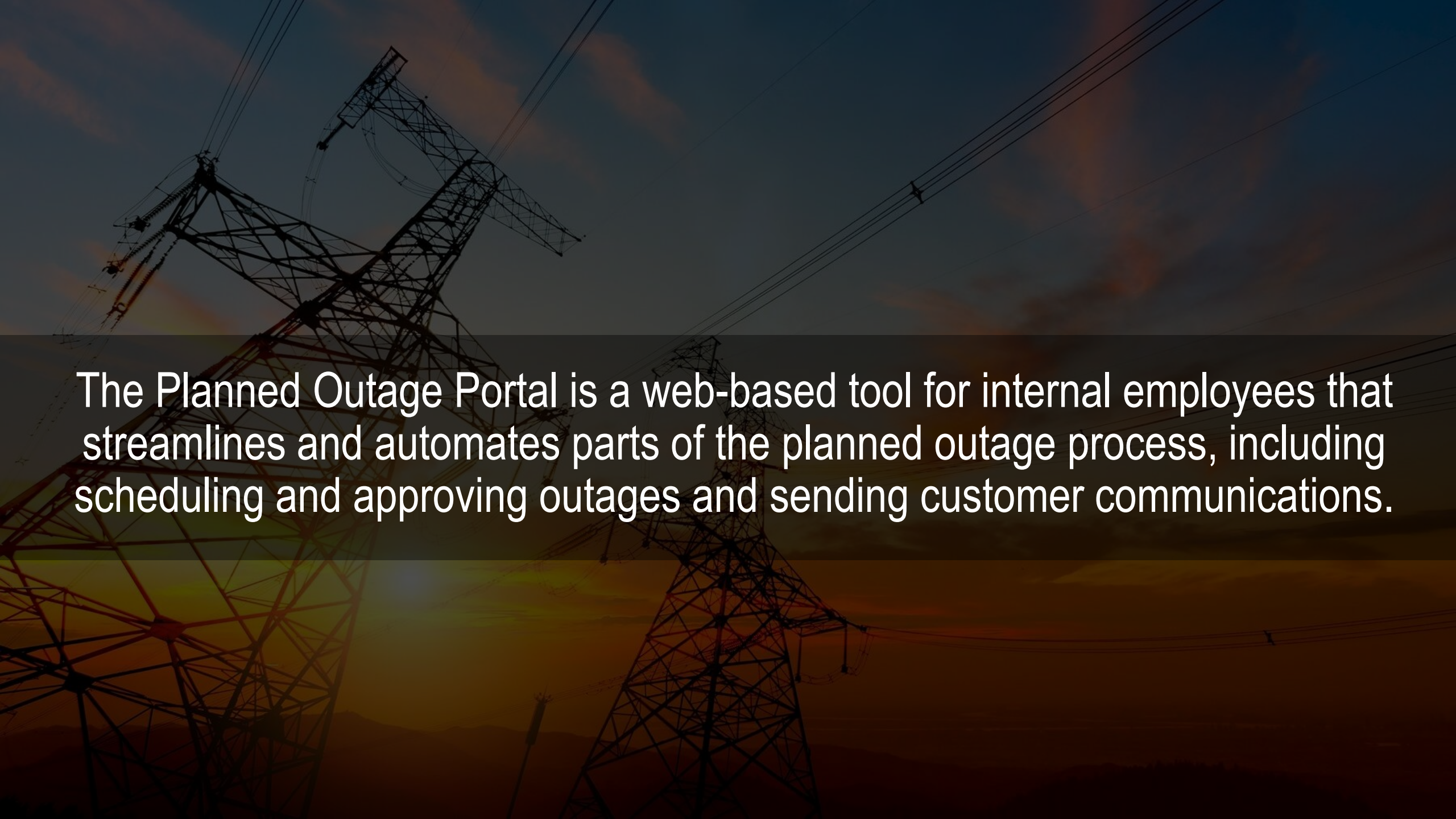
PowerUp Chartwell's OutageConference

DUKE ENERGY
PLANNED OUTAGE PORTAL



The Planned Outage Portal is a web-based tool for internal employees that streamlines and automates parts of the planned outage process, including scheduling and approving outages and sending customer communications.

AGENDA

- Identifying the Need
- Starting the Work
- The Journey to Build the Planned Outage Portal
- Designing the new Experience: Demo
- Customer Communication
- Fast Facts
- Up Next

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The Old Way of Doing Things

The vision for the Planned Outage Portal was borne from a disparate and manual process that varied depending on which state requested the planned outage.

FROM

- Customers notified **in different ways** and sometimes not at all
- **Generic** alerts for the type of outage and do not specify if planned
- **Highly manual** process for requesting and approving outages
- **Error – prone process** that differs by state
- **Long lead time** to get outage approved, scheduled, and communications out to customers
- **Limited visibility** internally around outages
- **Several steps** in approval process that take hours, sometimes days, to complete
- **Multiple systems** used for each step in the process

TO

CENTRALIZED ONE-STOP SHOP

Create a simple, standardized tool for requesting, approving and scheduling communications

SIMPLIFIED PROCESSES

Automate existing processes to increase efficiency for Duke Energy and improve customer sentiment

STANDARDIZED MESSAGING

Send timely and templatized communications to customers in their preferred channel, specifying details of the planned outage

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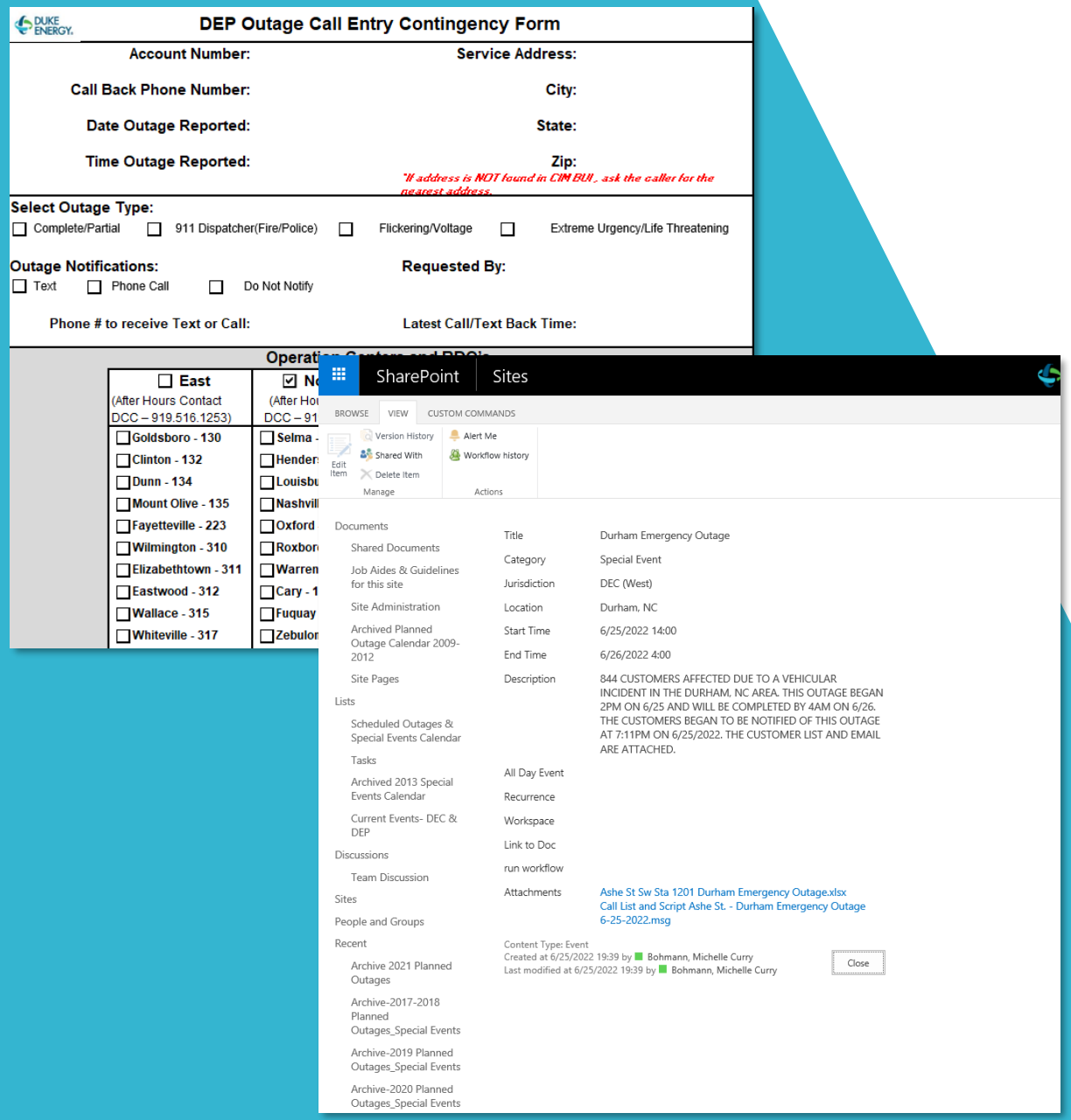


ONE | channel (voice) used to communicate with customers around planned outages

FIVE | separate tools and locations used to retrieve, upload and communicate information between approvers and requesters

FORTY - FIVE | minutes (sometimes over the span of days), on average, to submit and approve an outage

ZERO | visibility into all of the planned outages occurring for a given state at one time

DOZENS | of emails, chats, phone calls and conversations to schedule one planned outage

BUSINESS CASE — 2020

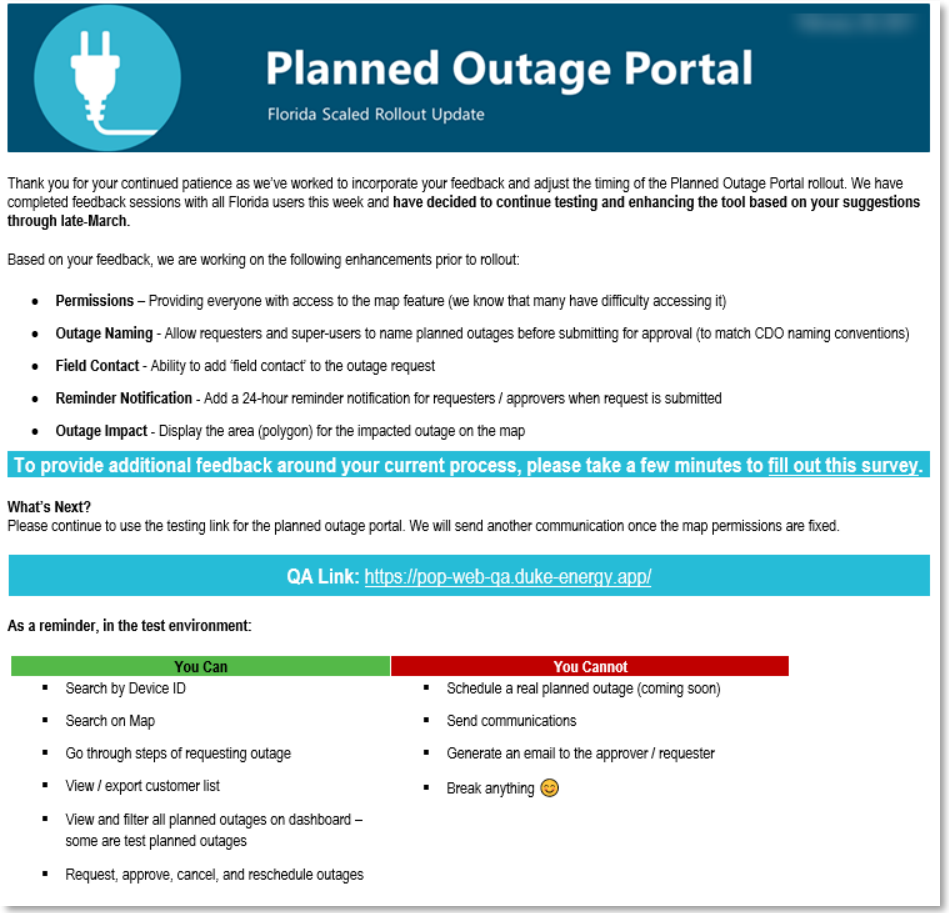
Duke Energy finalized the business case to build the Planned Outage Portal in house.

PLANNING & DESIGN — 2021

Over the course of the year, we strove to understand current pain points, user needs and the best way to create the Planned Outage Portal.

BUILD, ITERATE AND LAUNCH — 2022

Began to build and iterate on the designs of Planned Outage Portal, soliciting frequent feedback from leadership and users. Launched with an extended pilot in Florida before continuing in other states over the course of one quarter. Collected feedback and implemented enhancements, most notably improving map performance.



Planned Outage Portal

Florida Scaled Rollout Update

Thank you for your continued patience as we've worked to incorporate your feedback and adjust the timing of the Planned Outage Portal rollout. We have completed feedback sessions with all Florida users this week and **have decided to continue testing and enhancing the tool based on your suggestions through late-March**.

Based on your feedback, we are working on the following enhancements prior to rollout:

- **Permissions** – Providing everyone with access to the map feature (we know that many have difficulty accessing it)
- **Outage Naming** - Allow requesters and super-users to name planned outages before submitting for approval (to match CDO naming conventions)
- **Field Contact** - Ability to add 'field contact' to the outage request
- **Reminder Notification** - Add a 24-hour reminder notification for requesters / approvers when request is submitted
- **Outage Impact** - Display the area (polygon) for the impacted outage on the map

To provide additional feedback around your current process, please take a few minutes to fill out this survey.

What's Next?
Please continue to use the testing link for the planned outage portal. We will send another communication once the map permissions are fixed.

QA Link: https://pop-web-qa.duke-energy.app/

As a reminder, in the test environment:

You Can	You Cannot
Search by Device ID	Schedule a real planned outage (coming soon)
Search on Map	Send communications
Go through steps of requesting outage	Generate an email to the approver / requester
View / export customer list	Break anything
View and filter all planned outages on dashboard – some are test planned outages	
Request, approve, cancel, and reschedule outages	

One of several pilot launch communications for Florida

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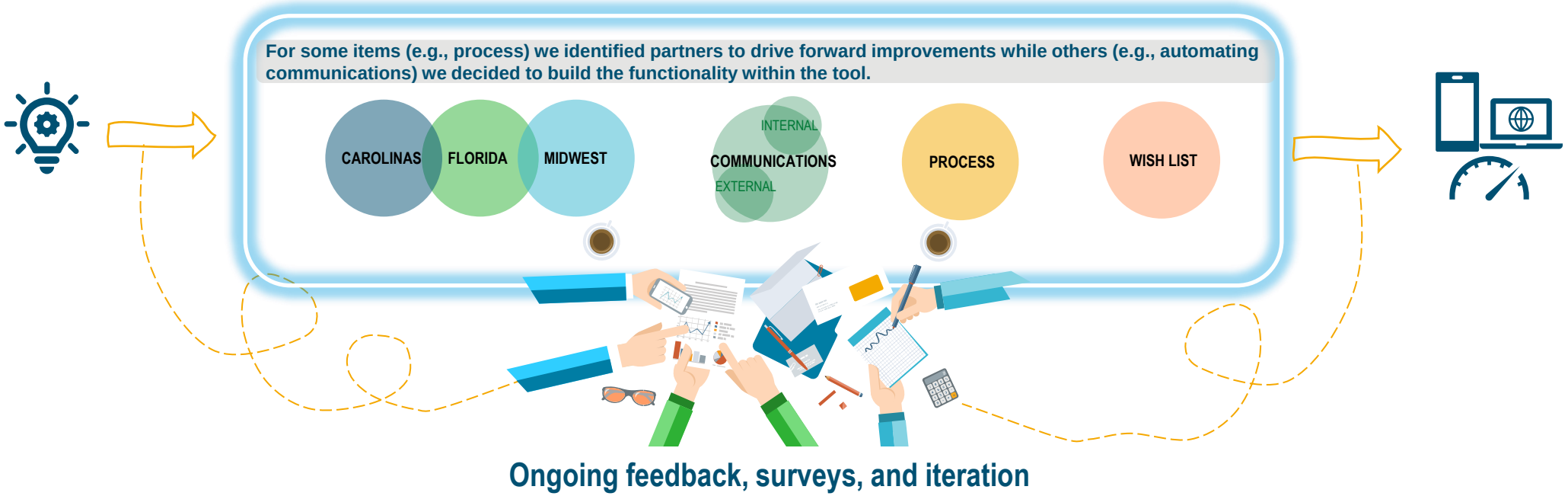
Communication and Pain Point Analysis

Over the course of several months, we launched into a pain point analysis around communications and process, understanding jurisdictional differences, and wish list items that users would want represented in the tool.



FOCUS GROUPS AND INTERVIEWS

We gathered individuals involved with planned outages at all points in the process and sought to understand their biggest pain points and wish list items.

PROCESS REVIEW AND ROLE IDENTIFICATION

Ensuring that the process and the planned outage tool we were building aligned and created a symbiotic approach to how we handled planned outages.

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Planned Outage Process – Before the Tool

Outage Submitter decides whether planned outage will be required, checks crew availability, etc.

Outage Submitter identifies devices for the outage and emails internal Specialist to receive list of affected customers

Specialist prepares and sends list of affected customers back to Submitter

Outage Submitter sends approval request to appropriate Approver

Outage Submitter determines number of customers affected

Outage Submitter completes and uploads the Planned Outage Approval Form to shared drive

Specialist places work on Calendar for field to be able to schedule crew for outage

Specialist contacts the Approver and schedules calls to customers

48 Hours Prior

Specialist uses separate system to upload affected customer list and schedule calls made to affected customers. Text and email not available.

Day of Outage

Field Operator reviews planned outage calendar and emails Specialist to confirm that communications to customers notifications were sent.

Crew performs scheduled maintenance

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Building the planned outage portal was made possible by:

CREATING AN IN-HOUSE SOLUTION

Building this tool internally allowed for customization and added operational efficiencies.

BUILDING IN THE CLOUD

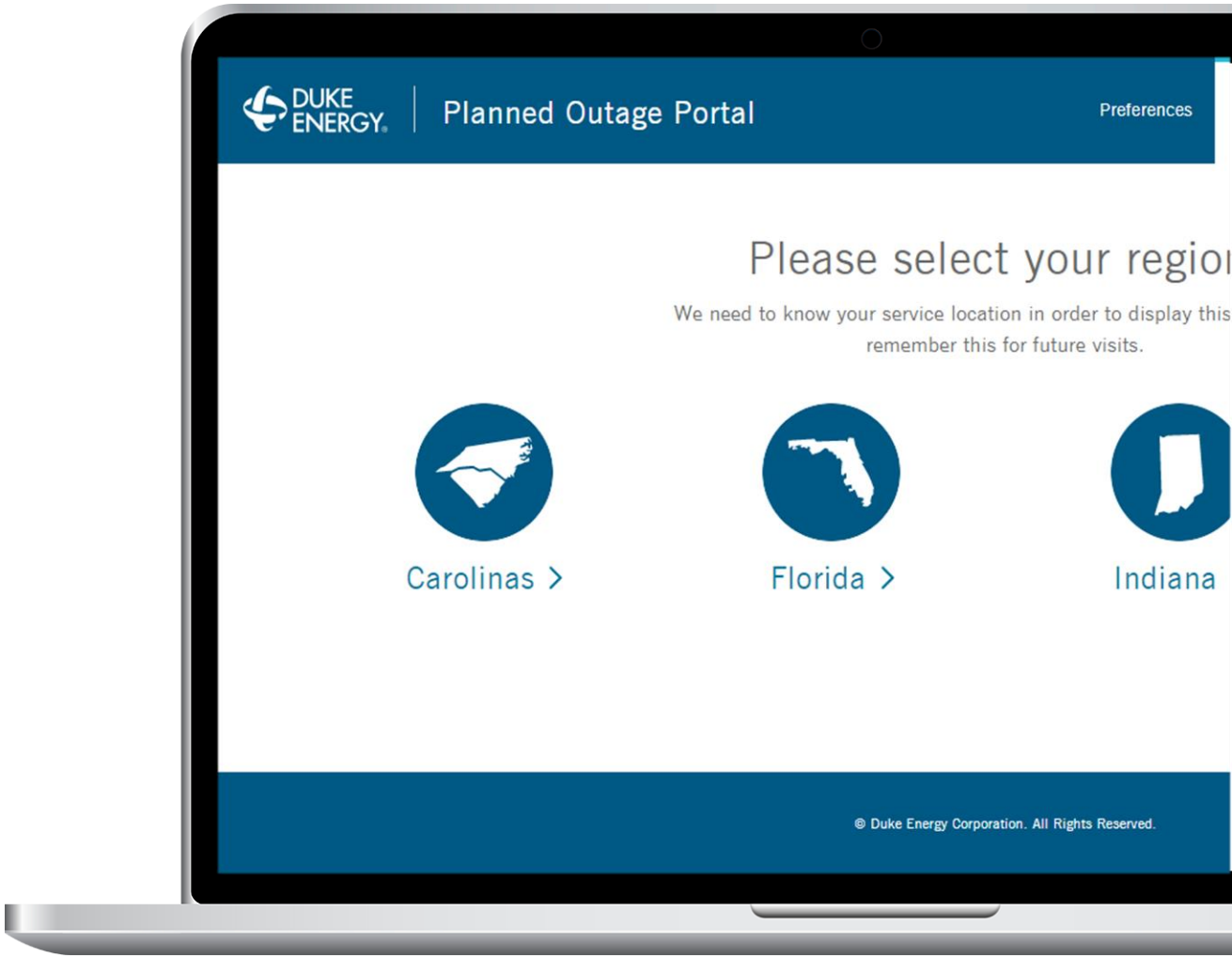
Utilizing Amazon Web Services (AWS) allowed us to produce a faster, more reliable product.

HAVING A DEDICATED DURABLE TEAM

An agile development team allowed for real-time improvements based on feedback.

LEVERAGING INNOVATIVE TECHNOLOGY

Serverless technologies and enterprise application programming interfaces (API's) allowed for real-time data and customer updates and to match customer data with devices used in the field for the first time ever.



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Planned Outage Process – with the tool

Duke Energy

Outage Submitter completes and submits the planned outage on a centralized platform

Planned outage is approved on a centralized platform

Specialists reviews planned outages and schedules communications to customers

One Week Prior

Communications sent to affected customers according to their preferences

Day of Outage

Field Operator reviews planned outage calendar and confirms that notifications were sent

Crew performs scheduled maintenance with regular outage alerts

Customer

Equipment near the customer's home is in need of repair

Customer receives advance notice of when they will experience a planned outage via their preferred method

Customer experiences the outage and received outage alerts updating them with proactive alerts, updates, and the restoration messages

Power is restored to the customer according the estimated time of restoration.

ON

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Pending Requests

Request ID	Outage Name	CMI	Requestor	Approver(s)	Date & Time	Duration	Zone	
4124	Robbinsville 1204	292,140			02/13/2023 8:00 AM	9h	MOUNTAINS	Review Request
4092	5682 Boomer Rd	12,720			02/13/2023 9:00 AM	4h	OH/KY NORTH	Review Request
4106	44816935-1	180			02/14/2023 9:00 AM	1h	TRIANGLE NORTH	Review Request
4107	44816935-1	120			02/14/2023 9:00 AM	1h	TRIANGLE NORTH	Review Request
4109	44816935-1	3,120			02/14/2023 9:00 AM	1h	TRIANGLE NORTH	Review Request
4110	44816935-1	180			02/14/2023 9:00 AM	1h	TRIANGLE NORTH	Review Request
4118	WO# 46525928	5,580			02/14/2023 9:00 AM	3h	SOUTH COASTAL	Review Request
4111	44815745-3	960			02/14/2023 11:00 AM	1h	TRIANGLE NORTH	Review Request
4112	44815745-3	960			02/14/2023	1h	TRIANGLE	

FOUR | channels used to communicate with customers around planned outages

ONE | streamlined tool to request and approve outages as well as schedule communications

FIVE | minutes, on average, to submit and approve an outage

ENTERPRISE | visibility into all planned outages occurring for at one time

TWO | automatically generated emails – one to the approver and one to the requester once approved

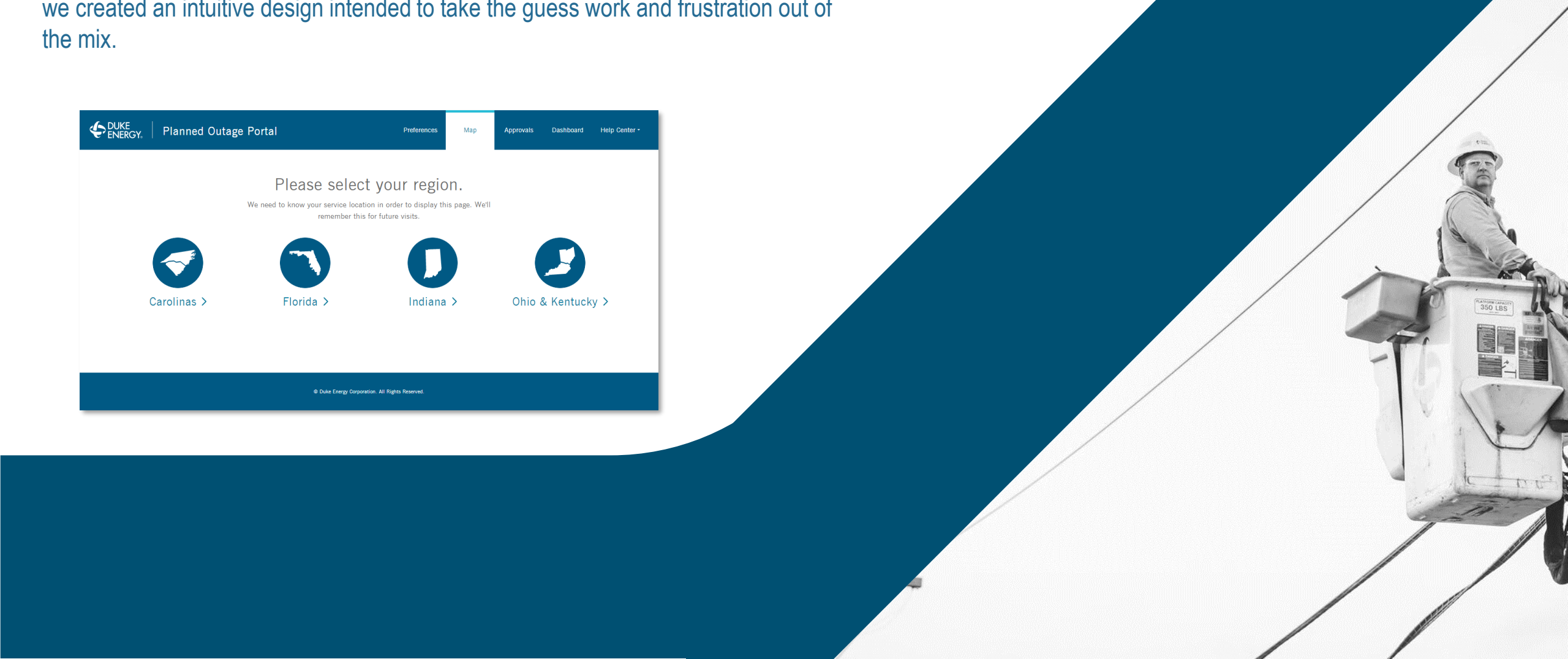
Planned Outage Roles

There are four primary roles we defined and assigned for the Planned Outage Portal:

1	Outage Requester:	Coordinates and gathers information ahead of the outage to ensure crew availability, device location and that outage is necessary. Submits necessary details for outage request.
2	Outage Approver:	Reviews outage request for accuracy, impact and business necessity.
3	Specialist:	Supports requesters and approvers where needed and schedules proactive communications to go out to customers. Specialists also cancel and re-schedule outages when applicable.
4	Operations:	Require a view of all planned outages for their area to ensure proper scheduling and coordination of crews, equipment and use of resources.

SEAMLESS END TO END EXPERIENCE

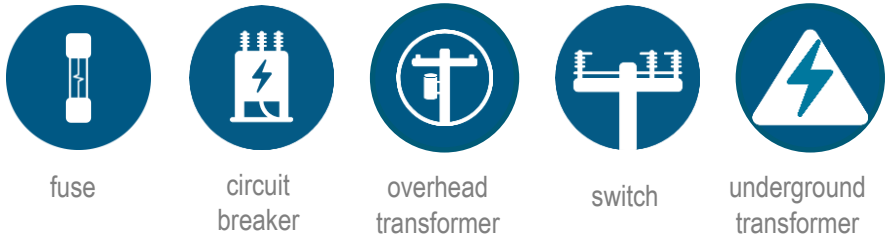
To deliver on an experience focused on our customer, we started with simplifying how our employees put in a planned outage request. By navigating to a simple site, we created an intuitive design intended to take the guess work and frustration out of the mix.

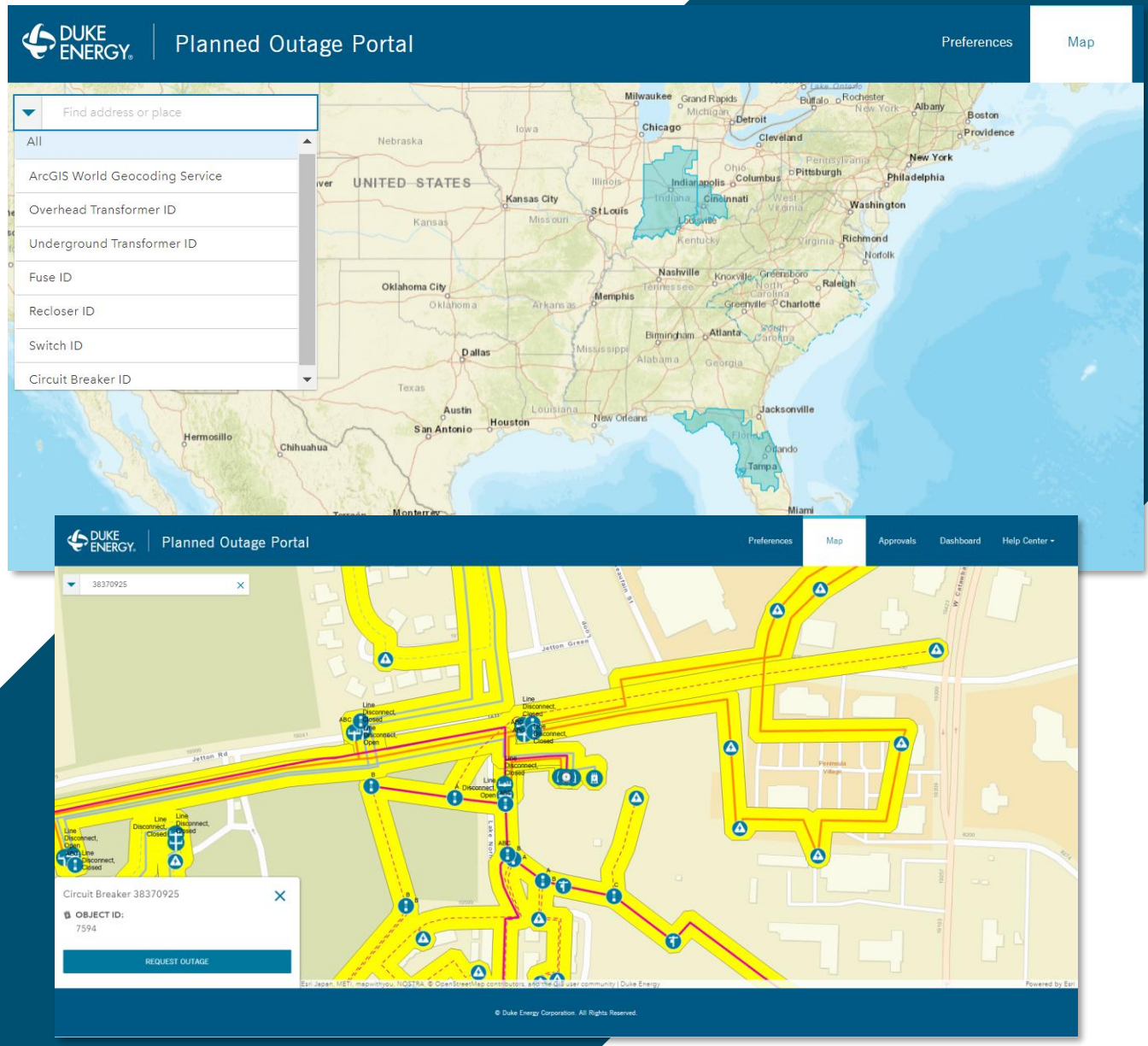


DESIGNING THE NEW EXPERIENCE

Using a familiar interface, similar to popular web-based maps, outage requesters may initiate a search and select the specific device(s) that is impacted by the planned outage to proceed through the request flow.

Unique icons are utilized to easily represent device types for the outage requester along with an impact area polygon view to assist with the planning of the request.





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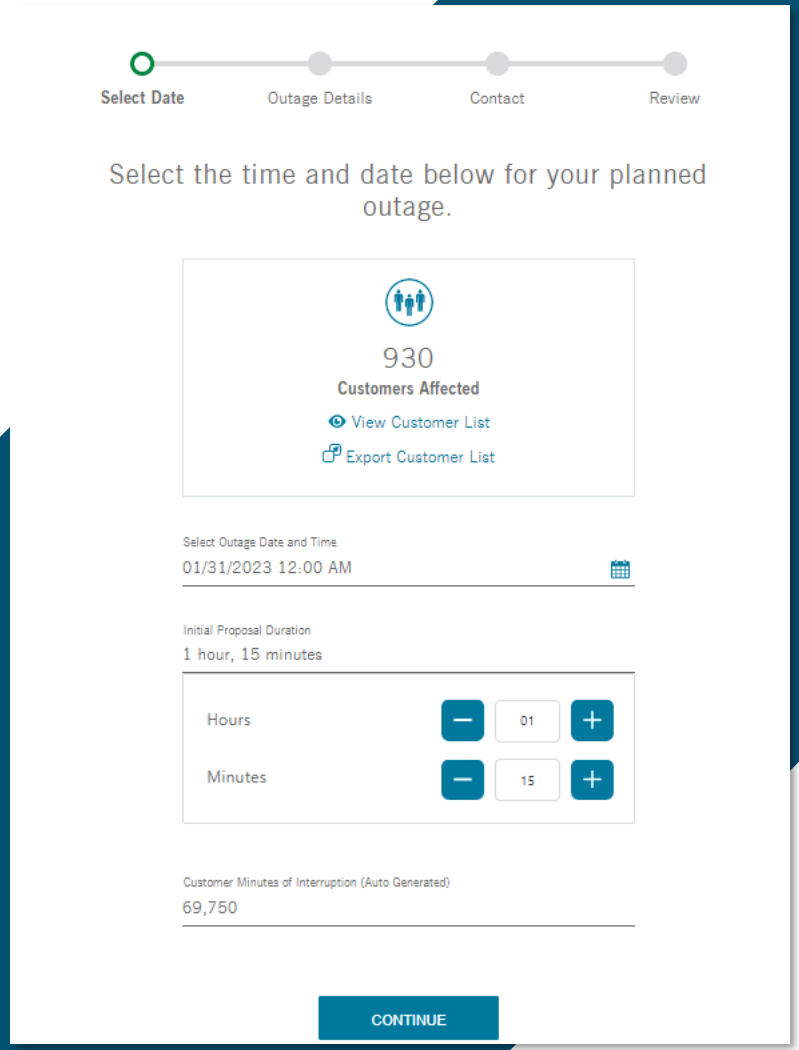
DESIGNING THE NEW EXPERIENCE

After a requester selects the device impacted by the planned outage, they can:

- View impacted customer list and count
- Understand if any customers are businesses, critical care facilities (e.g., nursing homes), government entities, or other important information
- Select date, time and duration of the outage
- Review the customers minutes interrupted (CMI) for outage



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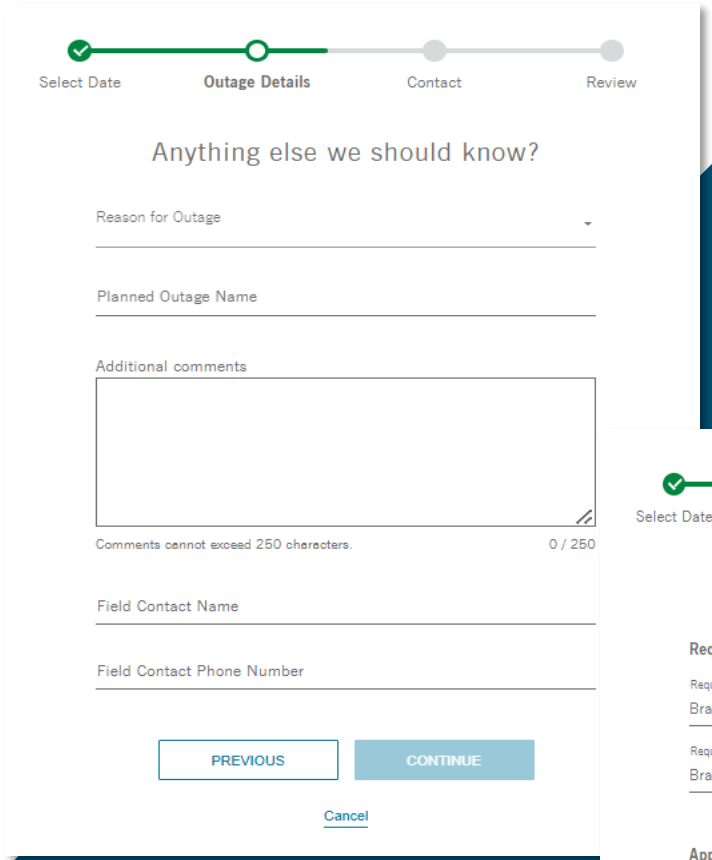
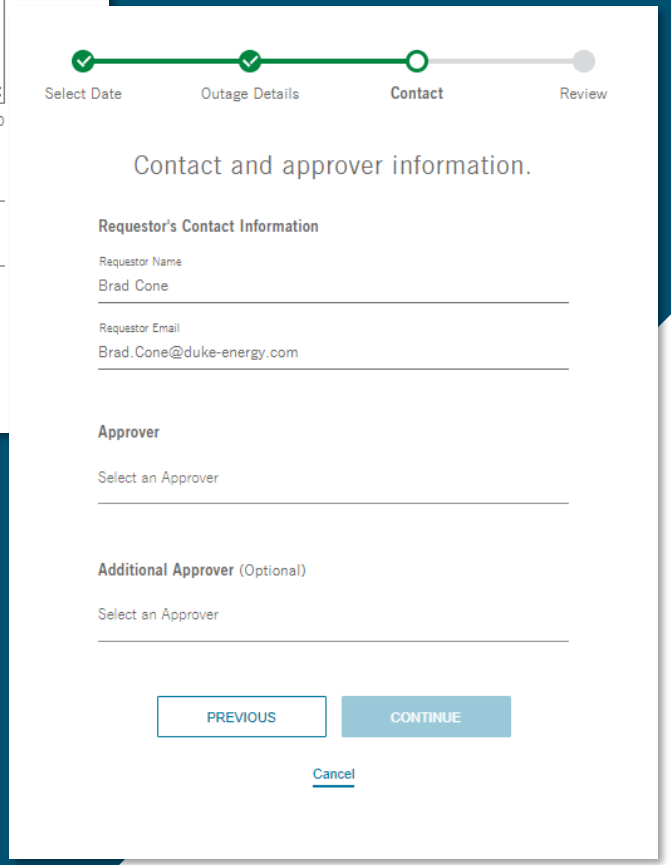
DESIGNING THE NEW EXPERIENCE

Requesters can provide additional information around the reason for the outage and comments for the approver or specialist when reviewing the request.

The requester's information is automatically populated into the next step where they can select a primary and optional secondary approver. The list of approvers are managed by a security group which was identified at the start of the project and is easily amended.





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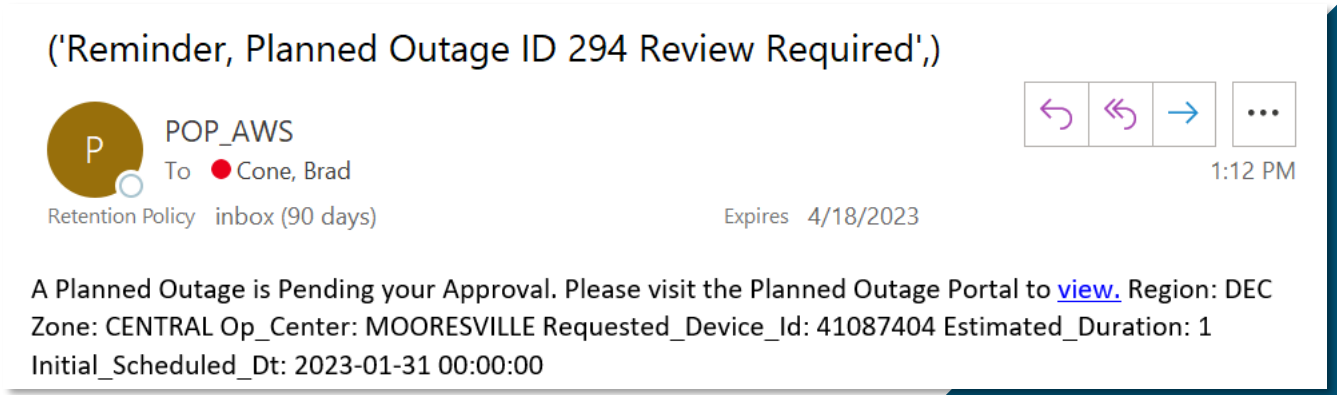
The requester then reviews a summary of their request, with the option to edit, before submitting the request for approval.

Upon submission, the assigned approver(s) will receive a system generated e-mail notification of an outage that requires their review. The link will direct them to the ‘dashboard’ to review the outage details.


('Reminder, Planned Outage ID 294 Review Required',)

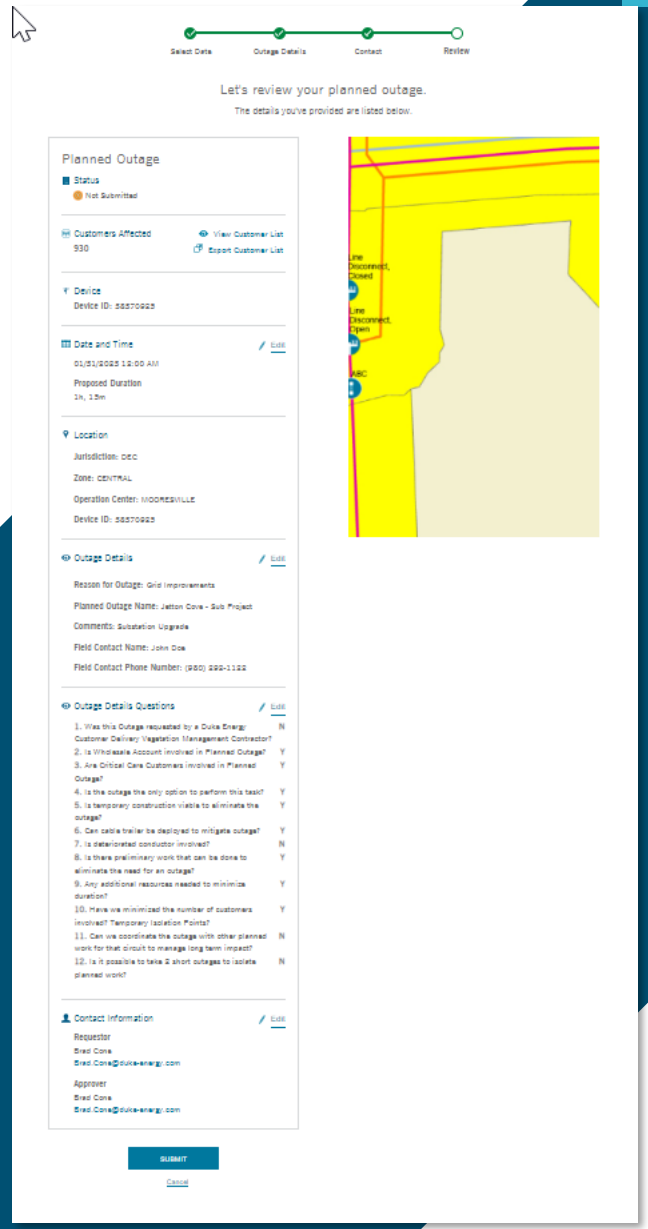
P POP_AWS

To Cone, Brad

1:12 PM

Retention Policy inbox (90 days) Expires 4/18/2023

A Planned Outage is Pending your Approval. Please visit the Planned Outage Portal to view. Region: DEC Zone: CENTRAL Op_Center: MOORESVILLE Requested_Device_Id: 41087404 Estimated_Duration: 1 Initial_Scheduled_Dt: 2023-01-31 00:00:00



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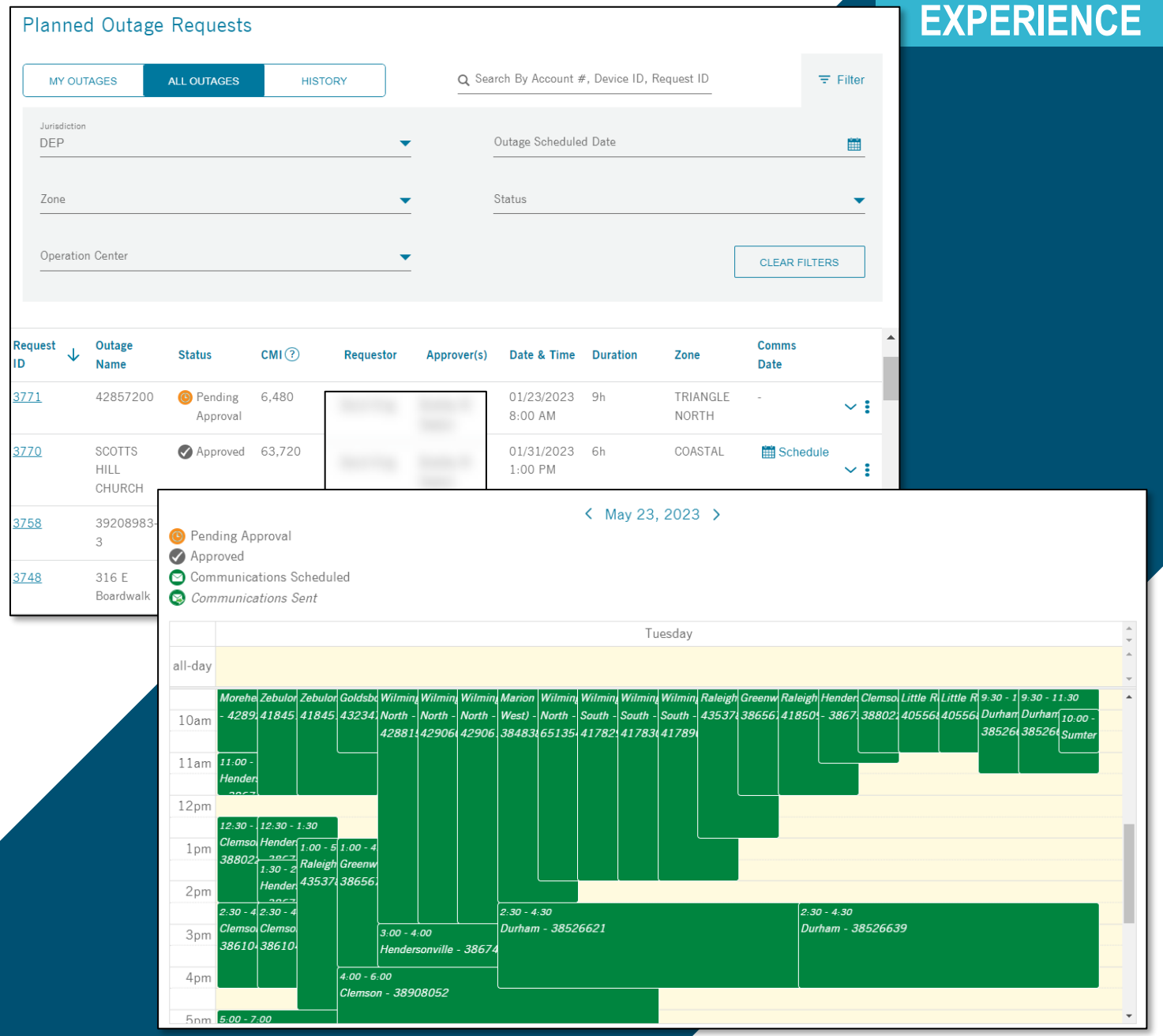
DESIGNING THE NEW EXPERIENCE

Anyone at Duke Energy can view the Dashboard of planned outages. This calendar view is used to assist the operations team with a quick view of daily, weekly and monthly activity.

Note: Certain details of the planned outages are restricted to specific security groups (e.g., transmission information).

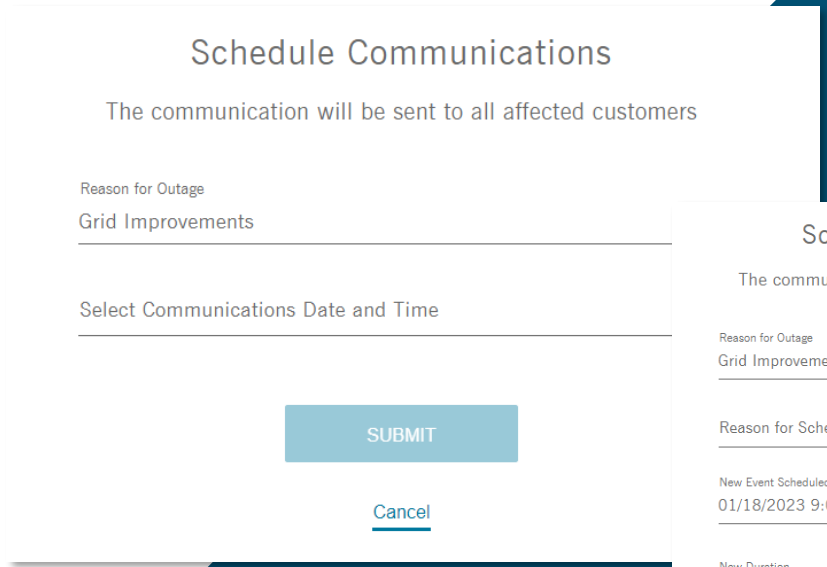
The dashboard view, in addition to the calendar, also includes details around the outage request which can be filtered.

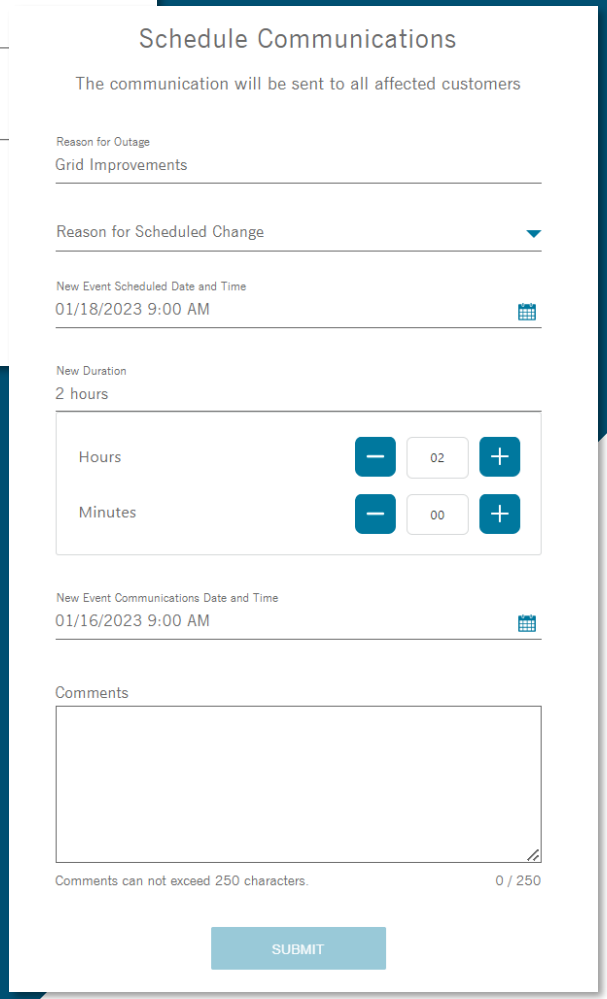


DESIGNING THE NEW EXPERIENCE

Once the outage is approved, specialists can go into the Planned Outage Portal to schedule a date and time for automated communications to go out to impacted customers.

If the outage is cancelled, specialists can easily re-schedule or cancel the outage which will trigger automated communications to go out to customers notifying them of the change.





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Communicating with the Customer

When scheduling a planned outage, we will attempt to contact the customer using the sequence of methods below, defaulting to their outage communication preference and using a physical postcard as our fallback option if other methods fail.

01 Communication Preference

Our primary method of communication is the customer's outage alerts preference – text, voice message or e-mail.

02 Phone Number

If a customer does not have an outage preference, we will use the number on file to communicate via text or voice call.

03 Email

If the customer does not have a phone number, we will utilize the e-mail on file to send a communication to them.

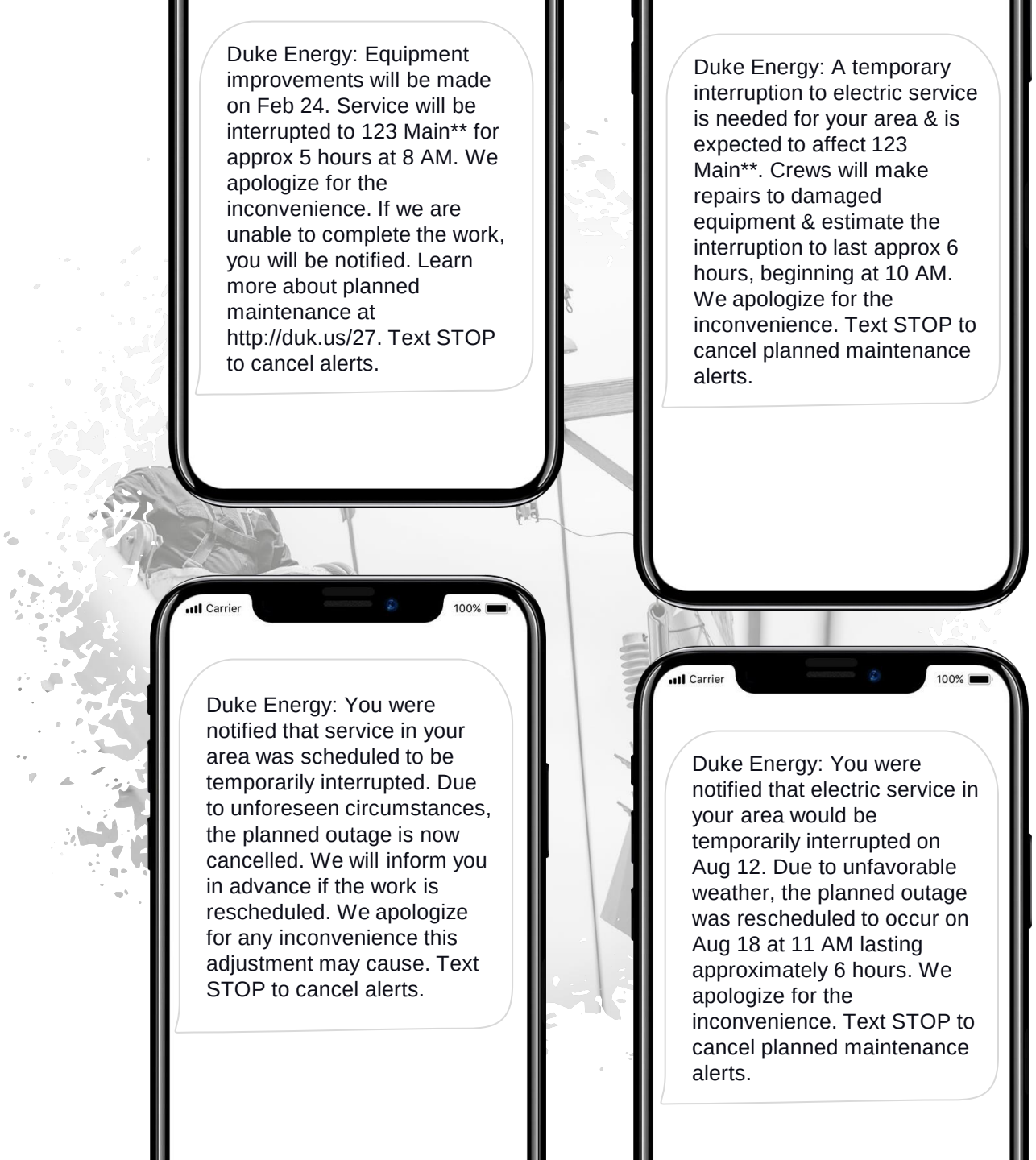
04 Postcard

If all other methods are unsuccessful and we are within 7 days of the planned outage, a physical letter will be mailed to the customer's address.

CUSTOMER COMMUNICATIONS

Customers receive messages via text, e-mail, voice call or postcard at least 48 hours in advance of the planned outage (unless it is an emergent issue). The messages we send relate to:

- **Equipment Failure**
- **Grid Improvements**
- **Vegetation Management**
- **Emergent Issues**
- **General Cancelations**
- **General Cancelation and Reschedule**
- **Weather Related Cancelation & Reschedule**



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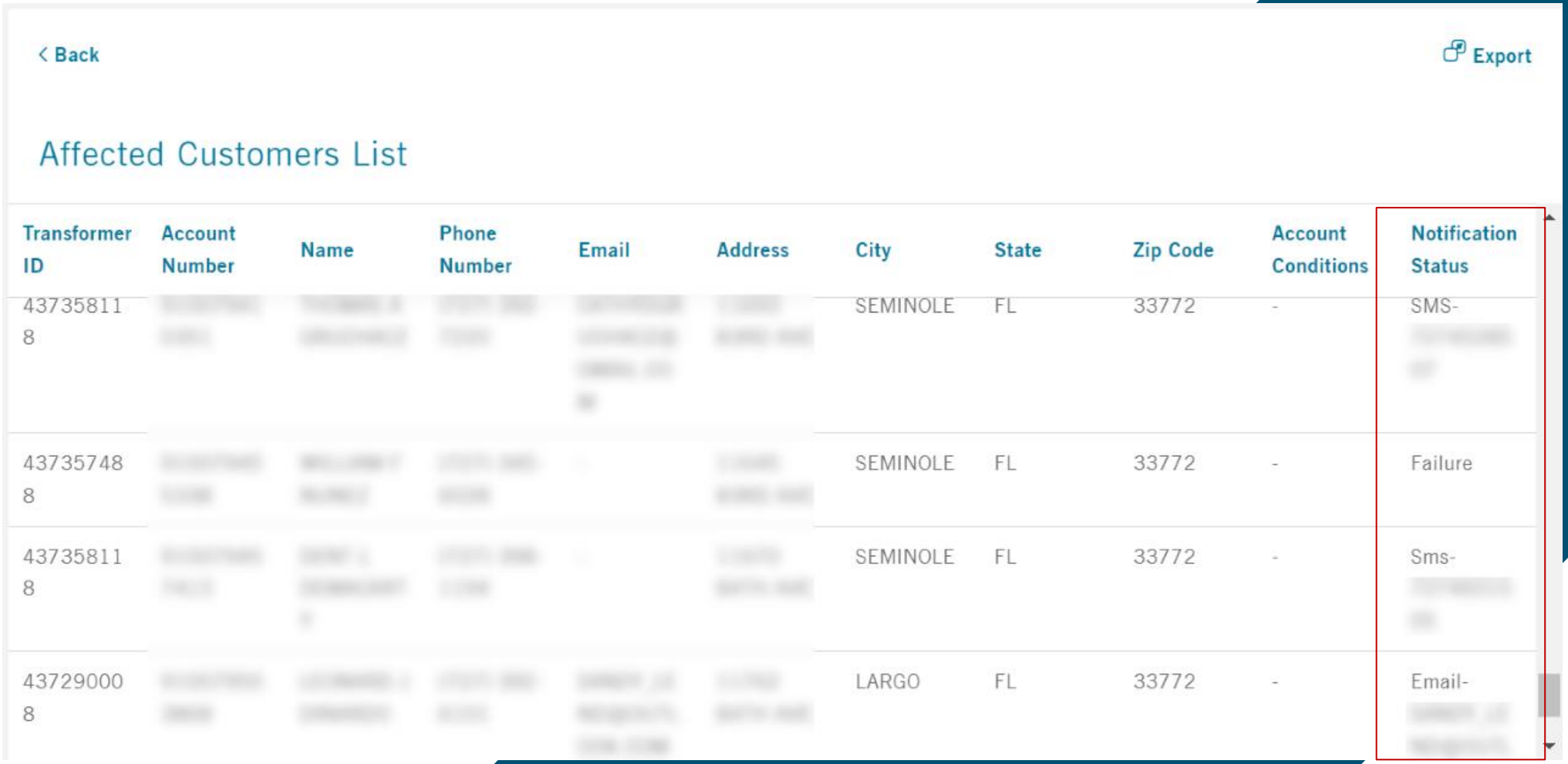
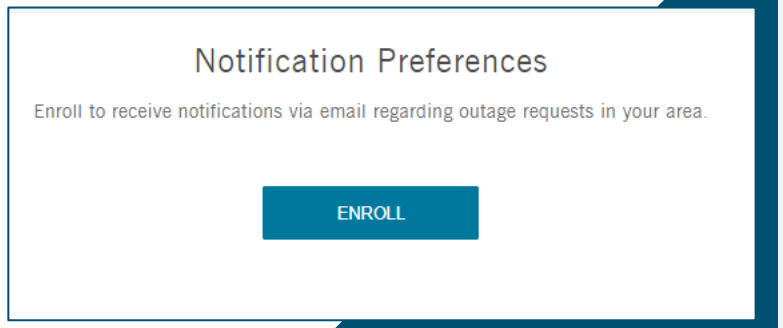
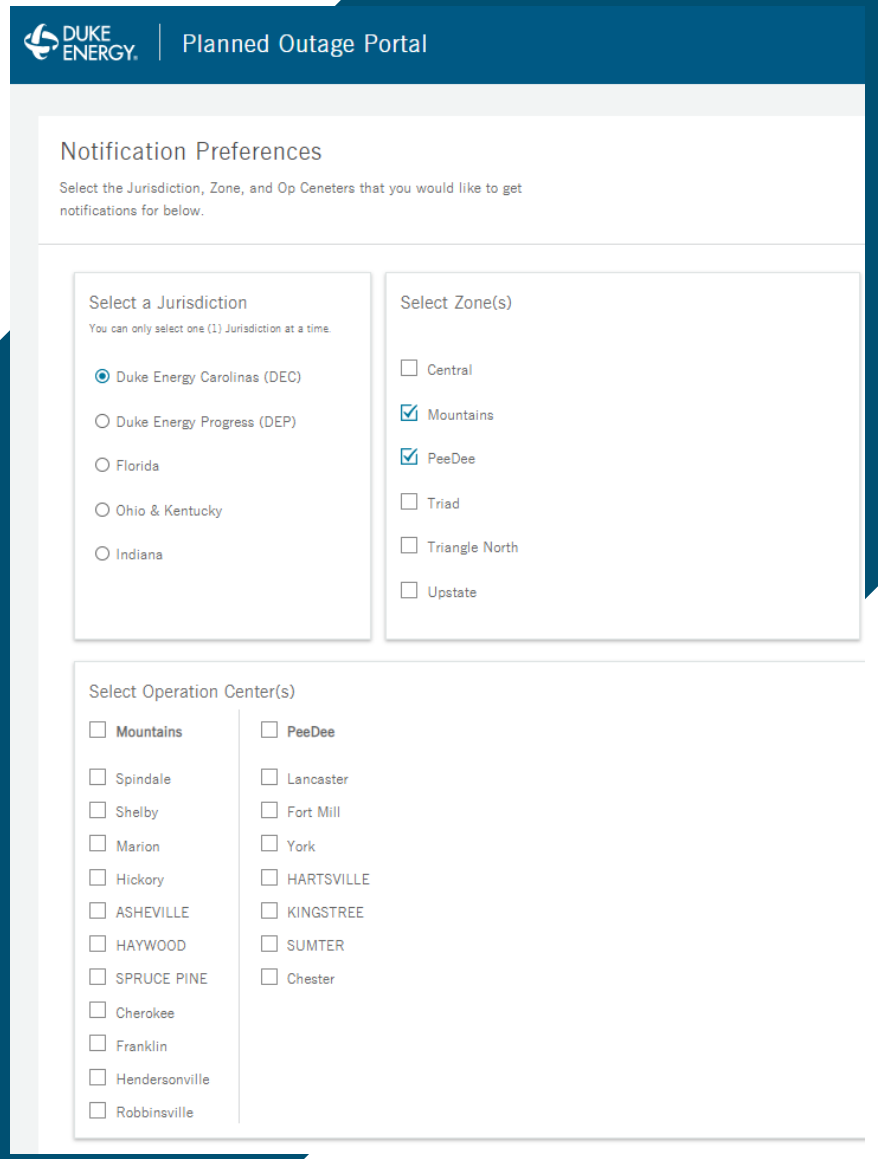
Once communications are sent to customers, the dashboard will automatically update with the status of the communication and e-mail or phone number to which the notification was delivered.



DESIGNING THE NEW EXPERIENCE

Another feature of the portal is the ability for anyone at Duke Energy to go in and set a preference to be notified about approved outages in a specific state, zone or operations center.





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DESIGNING THE NEW EXPERIENCE

The Planned Outage Portal was designed to not only be an intuitive and optimized submission flow for the requester but to also create transparency for our customers.

CONTACT CENTER RECORDS

A call center specialist will soon be able to see if a customer received a communication about a planned outage within the account notes.

COMING SOON

AUTOMATED COMMUNICATIONS

The Planned Outage Portal automatically triggers communications to go out to the customer ahead of the planned outage.

PREFERRED CHANNEL

Customers receive communications in their preferred channel rather than just via a voice call.

SEAMLESS CUSTOMER DATA

For the first time at Duke Energy, we are able to associate a customer data set with a device within seconds, pulling complete and robust customer records.

BUILT IN CUSTOMER MINUTES INTERUPPTED (CMI) CALCULATOR

Visibility into the customer minutes interruption can allow us to reduce cost of total outage events and minimize total impact to customers when we schedule a planned outage event.

The Rollout

It took several months to implement the Planned Outage Portal to over 2,000 users.

FEEDBACK LOOPS

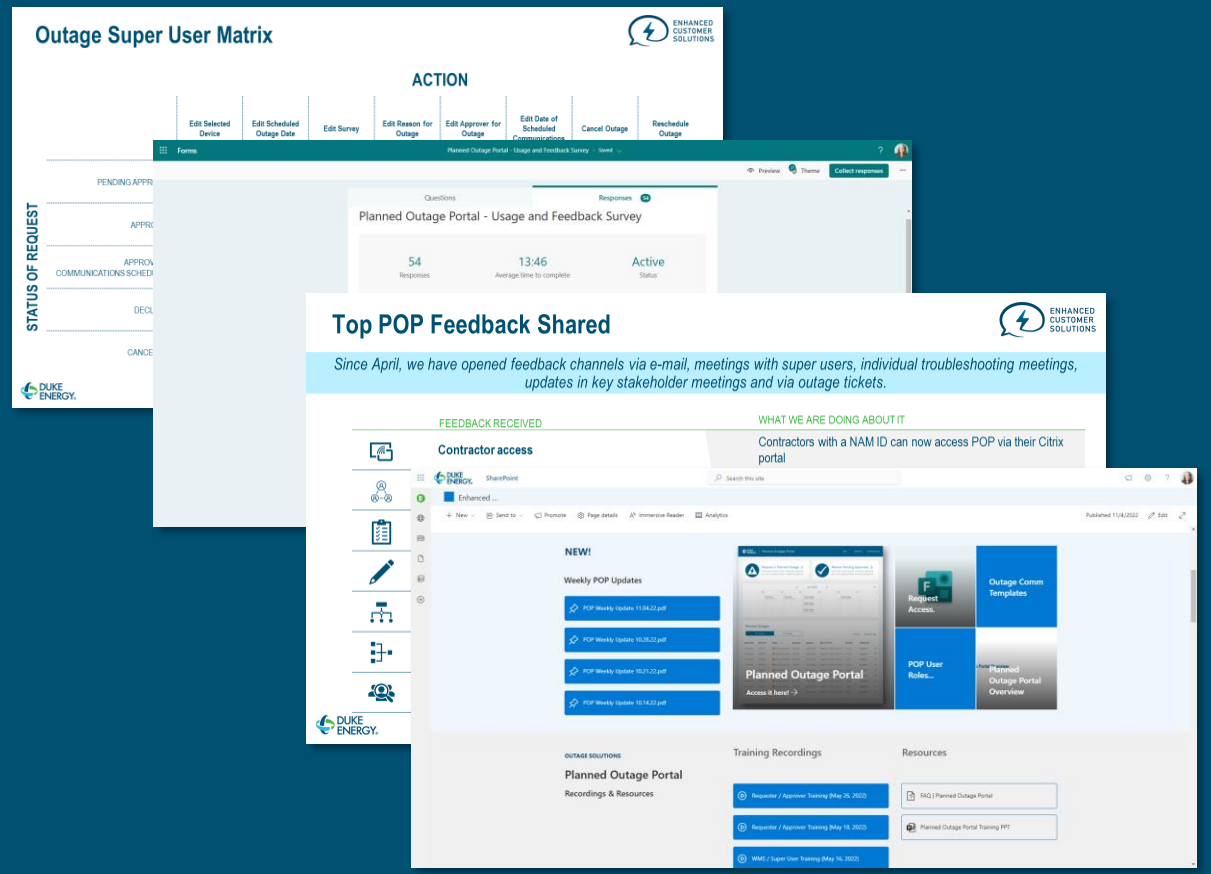
Kept in frequent contact with our users, constantly asking and incorporating feedback.

TRAINING AND COMMUNICATIONS

- Dedicated overview sessions and weekly support sessions for questions
- Built a site with FAQs, recordings of sessions and helpful documentation
- Set up mailbox that was monitored daily

SPONSORSHIP AND LEADERSHIP ALIGNMENT

Asked leaders to help roll the tool out and reinforce adoption



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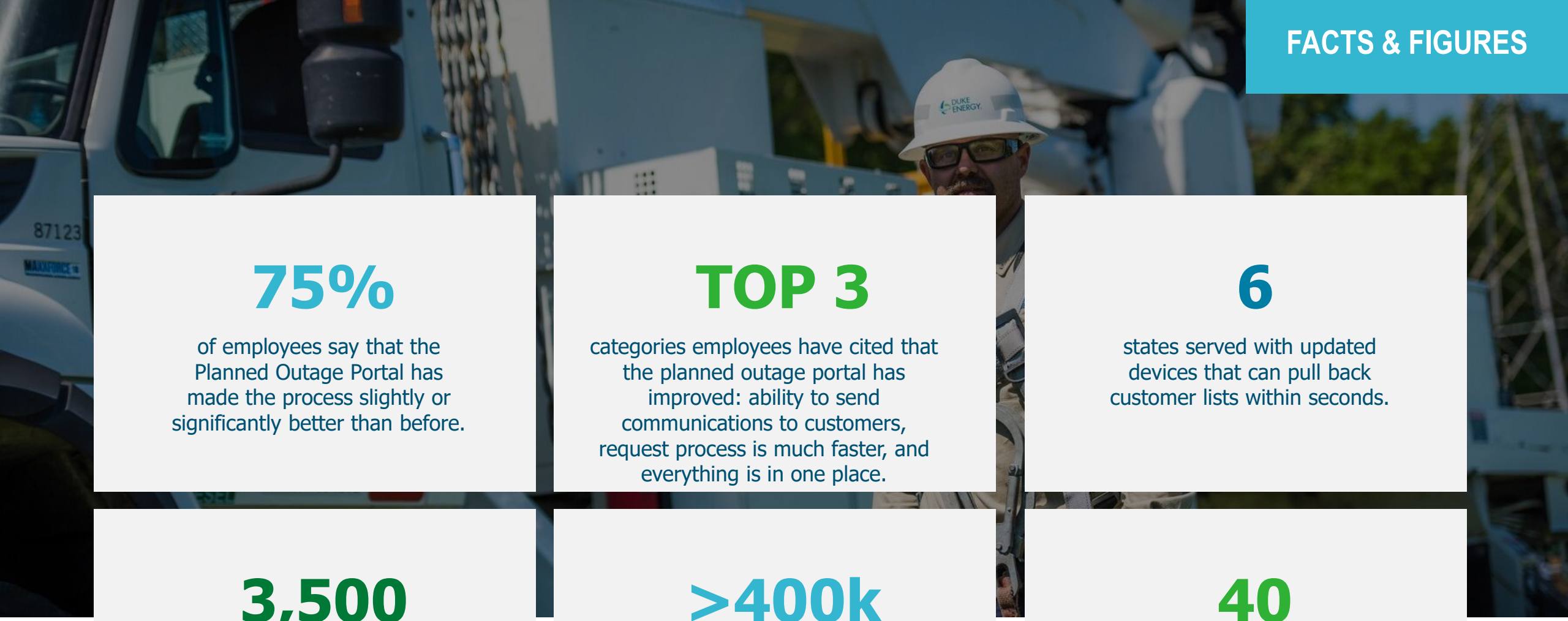
FACTS & FIGURES



75%

of employees say that the Planned Outage Portal has made the process slightly or significantly better than before.

TOP 3

categories employees have cited that the planned outage portal has improved: ability to send communications to customers, request process is much faster, and everything is in one place.

6

states served with updated devices that can pull back customer lists within seconds.

3,500

unique requests for planned outages have been submitted since launching the planned outage portal.

>400k

communications sent to customers in 2022:

32k voice calls
85k emails
283k text messages

40

less minutes to complete a request and approval of a planned outage end to end (from 45 minutes down to 5).

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What are customers saying?

THREE-DAY NOTICE. ACTUAL OUTAGE CLOSELY MATCHED THE PLANNED TIME THAT WAS COMMUNICATED. EMAIL CONFIRMATION WAS SENT WHEN POWER WAS RESTORED. GOOD JOB!

LOVED THE NOTICE AND EXPLANATION OF OUTAGE!

RECEIVED PROMPT COMMUNICATION INCLUDING SOME EXPLANATION OF THE REASON FOR THE OUTAGE AND ESTIMATE OF OUTAGE LENGTH.

IT WAS PLANNED IN THE MOST CONVENIENT TIME OF THE NIGHT. EVERYONE WAS ASLEEP. THE TEMPERATURE HAD COOLED SO AC WAS NOT NEEDED. GREAT PLANNING ON YOUR GUYS' PART. AND THE REPAIR OR FIX DID NOT TAKE LONG. WAS QUICKER THAN WAS EXPECTED.

THE NOTIFICATION EMAILS ABOUT THE OUTAGE WERE CLEAR AND INFORMATIVE. I KNOW THAT THERE IS NO 'IDEAL' TIME FOR A PLANNED OUTAGE BUT AS I WORK FROM HOME THIS WAS IMPACTFUL.

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Up Next

The possibilities for this are endless…

- Scheduling customers in impacted zone for more targeted outage, minimizing CMI
- Targeting multiple devices above transformers
- Leveraging backbone of application to send communications by device for other initiatives
- Automating data offered by POP for other enterprise initiatives (e.g., equipment inspections / drone flights)
- Continued iteration based on feedback

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QUESTIONS?

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