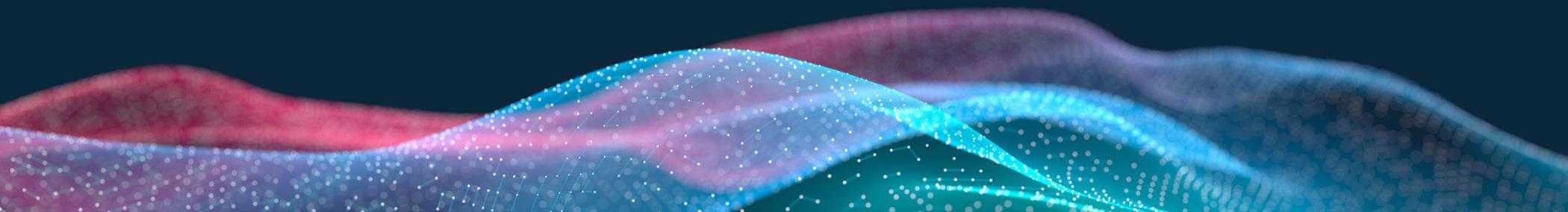


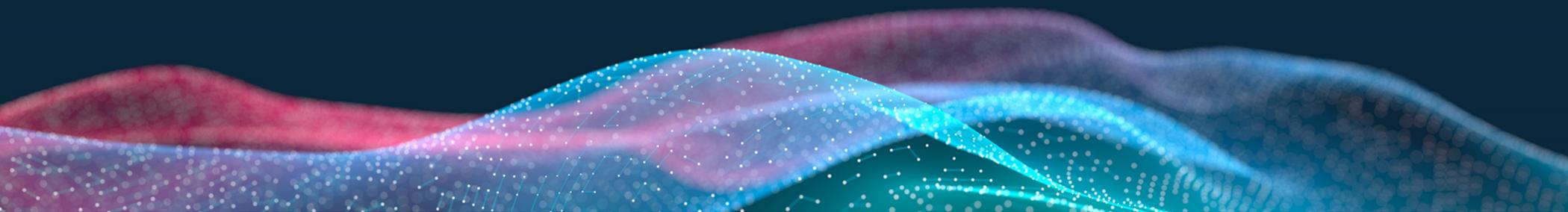
# Transformation at the NRC – Sustaining Progress as a Modern, Risk-Informed Regulator

June 1, 2022



# Daniel Dorman

Executive Director for Operations



# AGENDA

**Aida Rivera-Varona**, Acting Deputy Assistant for Operations, Office of the Executive Director for Operations

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**Tim Mossman**, EMBARK Venture Studio Managing Director, Office of Nuclear Reactor Regulation

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**Caylee Kenny**, Project Manager, Materials Rulemaking and Project Management Branch, Office of Nuclear Material Safety and Safeguards

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**Rebecca Richardson**, Chief, Intelligence Liaison & Threat Assessment Branch, Division of Security Operations, Office of Nuclear Security and Incident Response

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**Jeffery Wood**, Reliability and Risk Analyst, Probabilistic Risk Assessment Branch, Office of Nuclear Regulatory Research

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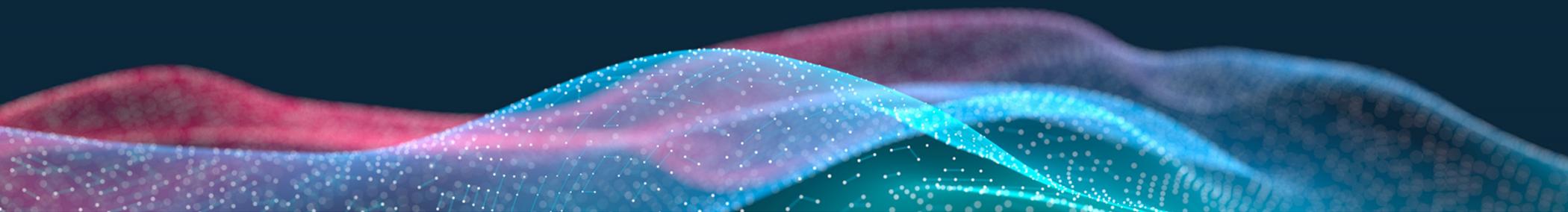
**Antonios Zoulis**, Chief, PRA Oversight Branch, Division of Risk Assessment, Office of Nuclear Reactor Regulation

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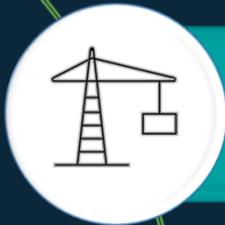
**Abby Olarte**, Senior IT Program Manager, Financial Systems Branch, Office of the Chief Financial Officer

# Aida Rivera-Varona

Measuring progress and initial responses to external survey



# Evolution of Objectives and Key Results (OKRs)



2020 OKRs: Building Transformation Infrastructure



2021 OKRs: Increasing Use of Transformation Tools



2022 OKRs: Sustaining Progress



# 2020 OKRs Drove the Development of Tools

- Major milestones completed in 2020 included:
  - Issuance and application of the Be riskSMART decision-making framework;
  - Deployment of the IdeaScale innovation platform;
  - Deployment of the Career Enhancement tool; and
  - Expansion and broad implementation of Office 365 and other collaborative work tools, while over 90% of employees were working remotely during the COVID-19 pandemic.

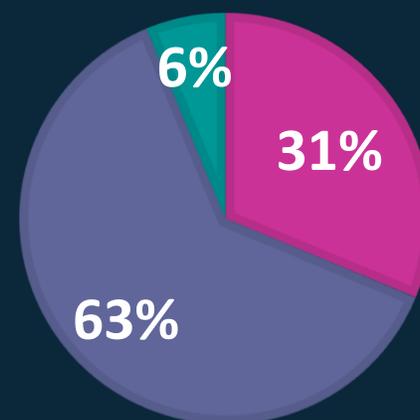
# 2021 OKRs Produced Greater Familiarity and Application of Transformation Tools

- **Successes:**

- Increased application of the Be riskSMART framework;
- Used innovation to identify and implement several process improvements;
- Modest positive increase in the 2021 Agency Culture Pulse Survey; and
- Increased use of data analytic tools to inform decision-making

## ASPIRATIONAL KEY RESULTS

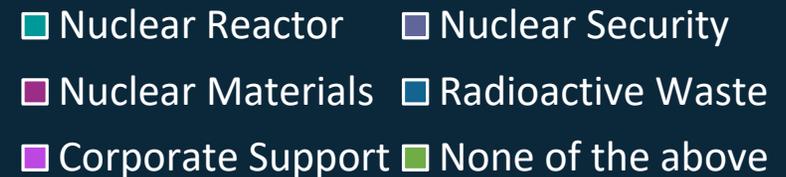
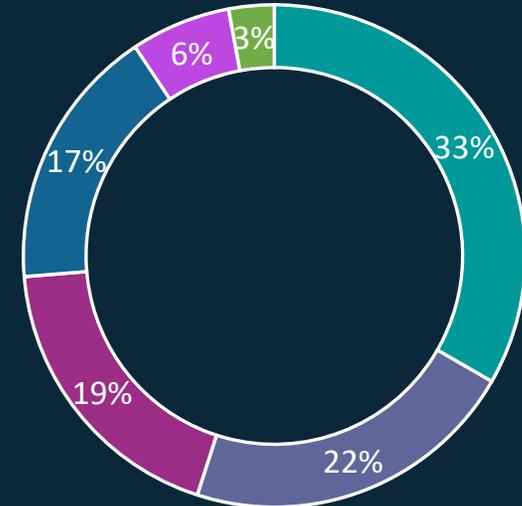
■ Met ■ Unmet ■ Undetermined



# External Stakeholders Provide Perspectives on Transformation Efforts

- Survey sought perspectives from various stakeholders regarding the agency's transformation efforts.
- Available from September 13, 2021 – March 31, 2022
- Total of 81 responses

Respondents





## Respondents are Knowledgeable about Transformation Efforts

- Positive feedback regarding the agency's information sharing and mission performance
- General uncertainty on what the agency means by data analytics and how risk information is used to make timely decisions



# Measuring the 2021 External Stakeholder Perspective



% of external stakeholder respondents who agree that NRC's **use of risk information** has improved.

(Target: 75%)

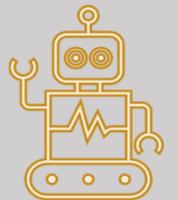
**RESULT: 44%**



% of external stakeholder respondents who agree that NRC's **adoption of new approaches and solutions** has improved.

(Target: 75%)

**RESULT: 57%**



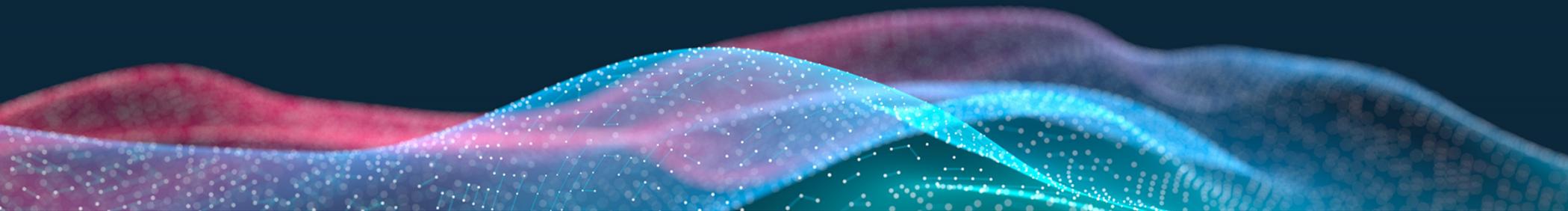
% of external stakeholder respondents who agree that NRC's **use of technology** has improved.

(Target: 75%)

**RESULT: 52%**

# Tim Mossman

Update on MAP-X module development and deployment



# Modernizing Data Transfer

- Transform the way we exchange information with external stakeholders
- Collecting “Data” instead of “Documents”
- Exchanging data is a two-way street

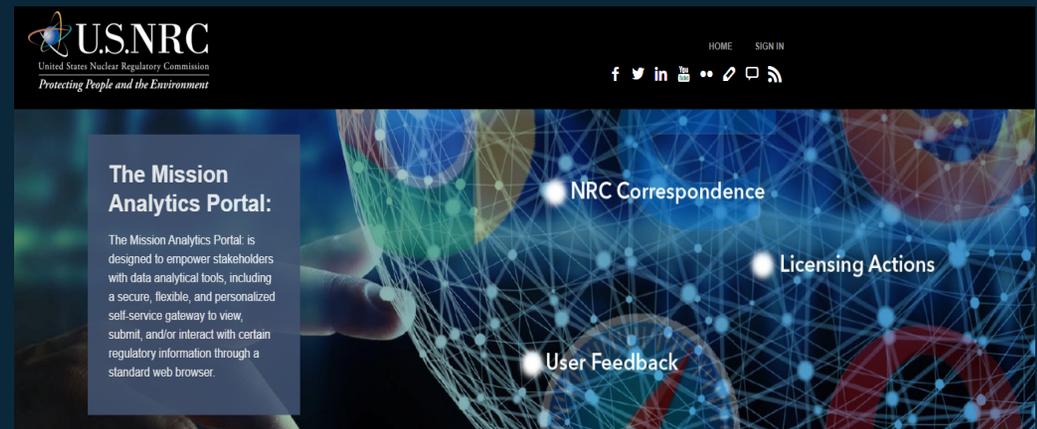


# MAP-X Offers Advantages for NRC and Stakeholders

- Collection of "data"
  - Readily parsed into internal systems
  - Potential for greater automation
- Ability to share data to select external stakeholders
- Accessible from anywhere
- Centralized, flexible, secure, personalized
- Data validation / auto-populated fields
- Create, edit, preview, submit, confirmation

# Early Modules Deployed for Use

- Web-Based Relief Requests – launched April 2021
- Event Notifications – launched January 2022
- Licensee Event Reports – expected 3<sup>rd</sup> Quarter CY22



The MAP-X Portal is Live!

URL: <https://mapx.nrc-gateway.gov/>

# Feedback from Stakeholders

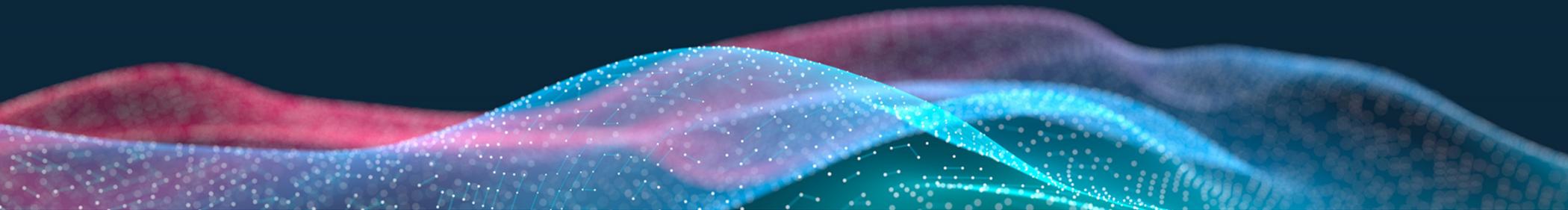
- Web-Based Relief Requests
  - Some early adopters have continued to use
  - Some trials did not result in repeat "business" – challenges with the interface, lack of stakeholder efficiency gains
- Event Notifications
  - Working through challenges
    - Licensee's Event Notification submitters not credentialed
    - Short timelines
    - Regulation does not recognize MAP-X as a method to meet requirements

# Future Modules and Outreach Activities

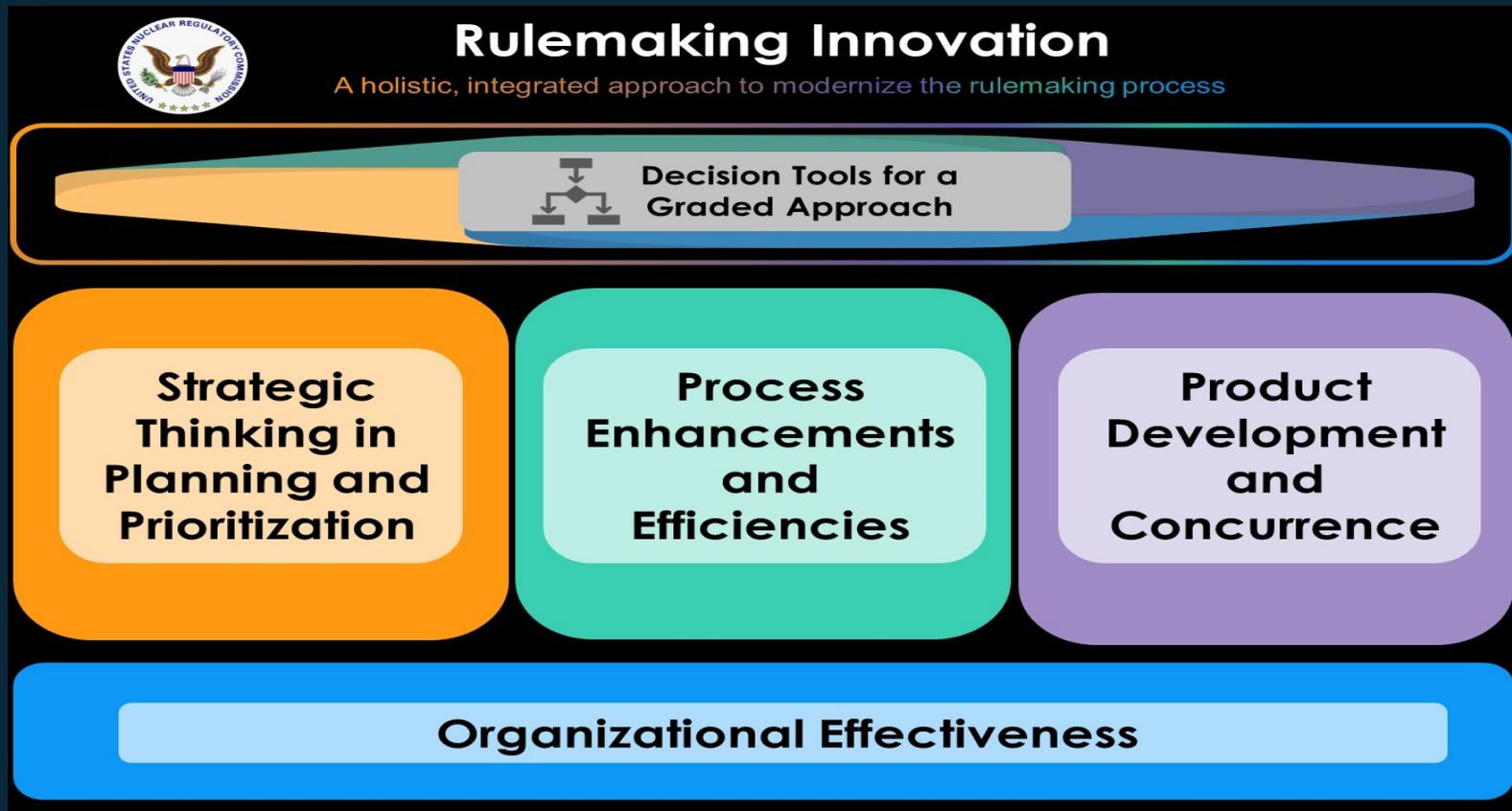
- Modules
  - Licensee Event Reports
  - Data exchange with non-reactor community
  - Sharing selected NRC data with external stakeholders
- Outreach activities
  - Feedback on new modules
  - Communications with reactor and materials licensees to explain benefits
  - Early marketing and buy-in from stakeholder groups

# Caylee Kenny

Update on improvements and successes in the Rulemaking program



# Achieving Results Through Rulemaking Innovation



URL: <https://www.nrc.gov/docs/ML2019/ML20198M408.pdf>

# Showcasing Successes

## Engagement



**Agreement State Interactions –**  
Increased participation in petitions

**Public Comment Resolution –**  
Improvements in quality,  
consistency, and documentation



**Rulemaking Summaries –**  
Increased public awareness  
and transparency

## Timeliness



**Concurrence Process –**  
Process level improvements realized

**Regulatory Basis Process –**  
Expected to save 6-9 months from  
overall rulemaking schedule



**Agile Concepts –**  
Petition review board  
held 1.5 months ahead  
of milestone

# Sustaining Progress



Incremental improvements & incorporation of original efforts into daily work

Targeted approach; focusing on most impactful activities



Full assessment of concurrence process improvements

# Reflecting on our Innovation Journey



Innovations have provided positive outcomes and results

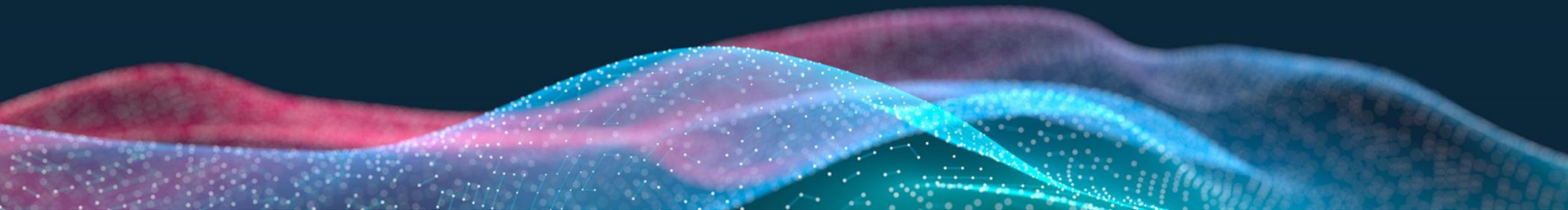
Rulemaking is a deliberative process; there is still room to innovate



Continued commitment to improvement

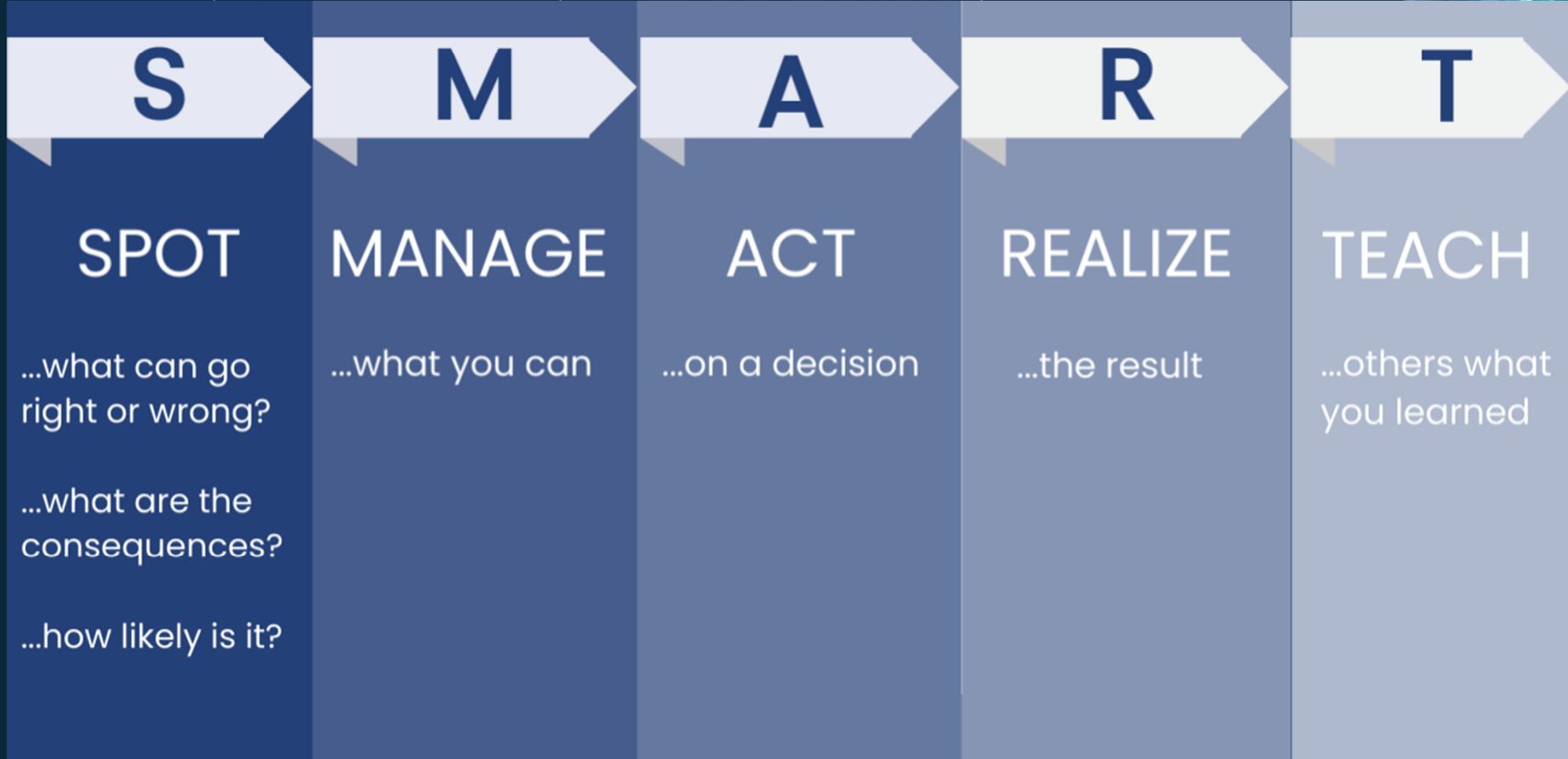
# Rebecca Richardson

Applying the Be riskSMART framework to NRC's security oversight programs



# Be ... clear about the problem

\* Note: Step 1, Be ... clear about the problem, includes "What is required?"



# Making Decisions In The Presence Of Uncertainty

*Be riskSMART* allows us to use all available information to decide how to approach the challenge

The structured framework of *Be riskSMART* gives us confidence in making decisions with uncertainties

*Be riskSMART* helps identify uncertain conditions so they can be managed before they become issues



**Using All Available Information To Make A Decision**

# Conducting Force-on-force Inspections During the COVID-19 PHE



How to execute effective oversight during the COVID-19 PHE?



Used the Be riskSMART framework to address challenges.



Developed a plan that balanced protecting the health and safety of our staff while accomplishing our safety and security mission.

# Cyber Security Inspections



How can cyber security inspections be more efficient and performance-based?

Developed multiple options that considered the risk and benefits for each.

Developed an option for performance-based testing and advance submittal of metrics.

# Reasonable Assurance of Protection Time (RAPT)

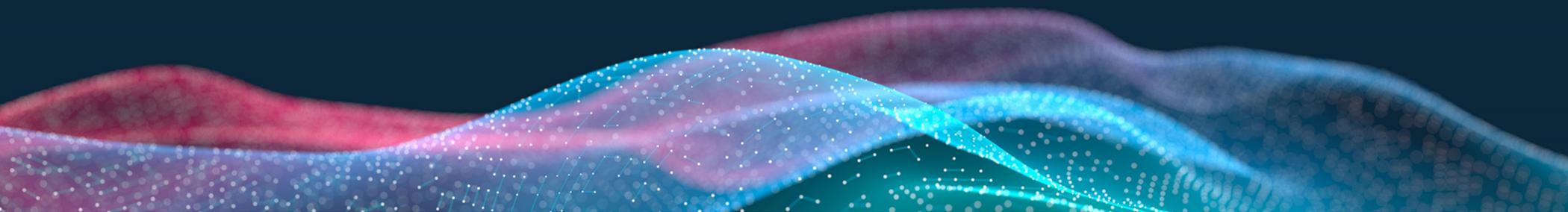
How can we provide credit for operator actions and law enforcement response at operating nuclear power plants?

Used Be riskSMART framework to assess the challenges and develop an approach to provide this credit.

Staff developed the RAPT to increase regulatory clarity and enable licensees to refine their protective strategies.

# Jeffery Wood

SPAR-dash, a risk-informed mobile application for applying risk insights  
to NRC regulatory programs



# SPAR-DASH: Tool for Accessing Risk Results

Making risk information accessible

Easy-to-use, interactive dashboard

***SPAR-DASH***

Communication of risk insights

Support Be riskSMART

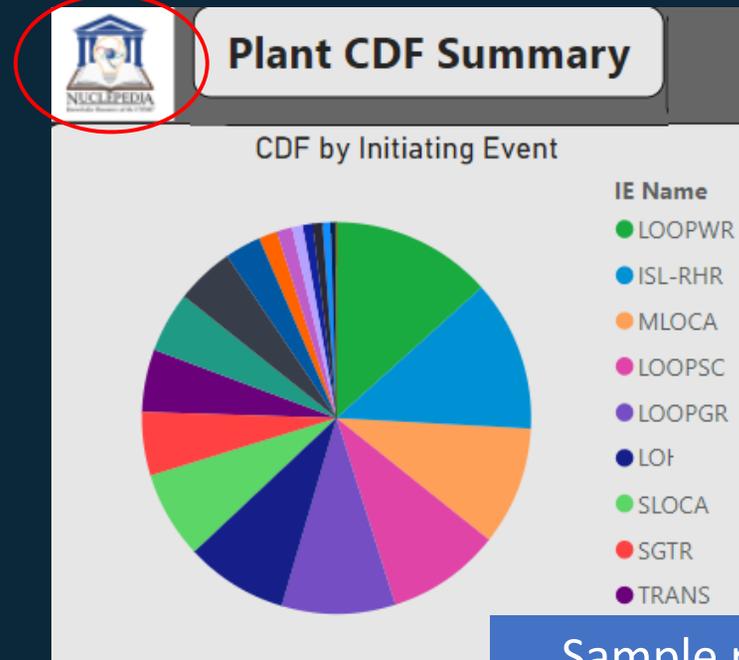


# What Can SPAR-DASH Do?

Making efficient use of risk results

- Ranking risk importance
- Assessing events & hazards
- Off-normal conditions
- Plant-to-plant comparisons

Easy access to reference materials

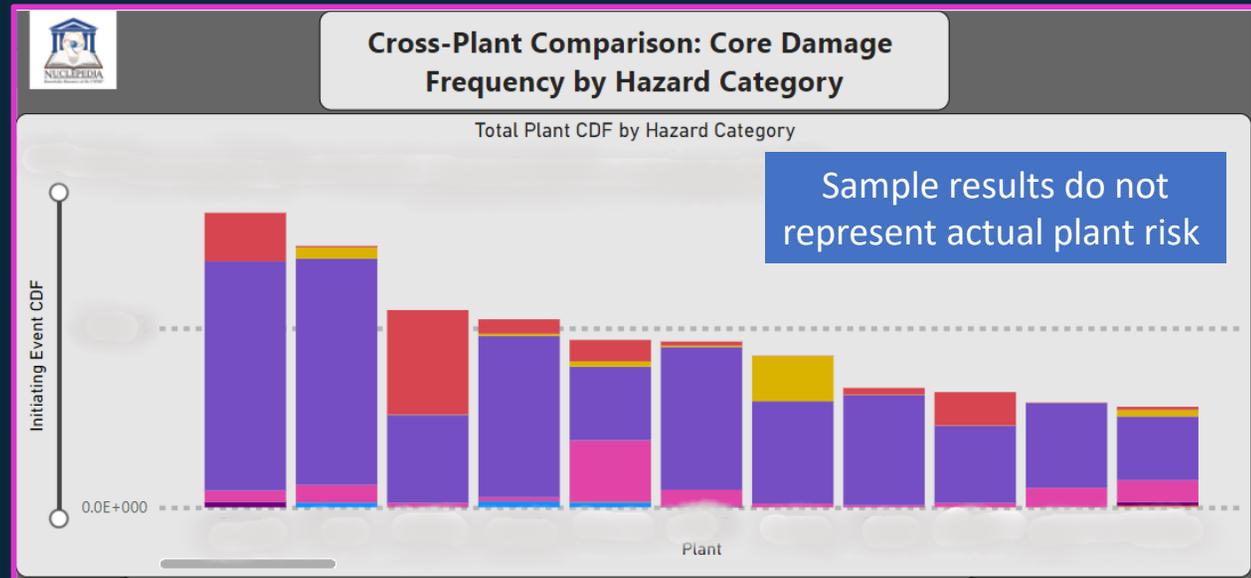


Sample results do not represent actual plant risk

# SPAR-DASH Applications

Support operating reactor licensing and oversight

- Work planning
- Prioritizing reviews
- Emergent issues
- Risk-informed inspection sampling
- Independent risk tool for NRC staff

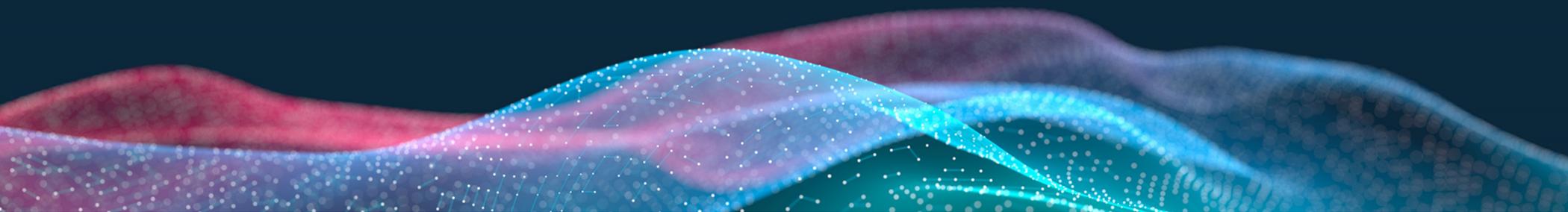


The **SPAR-DASH** Team:

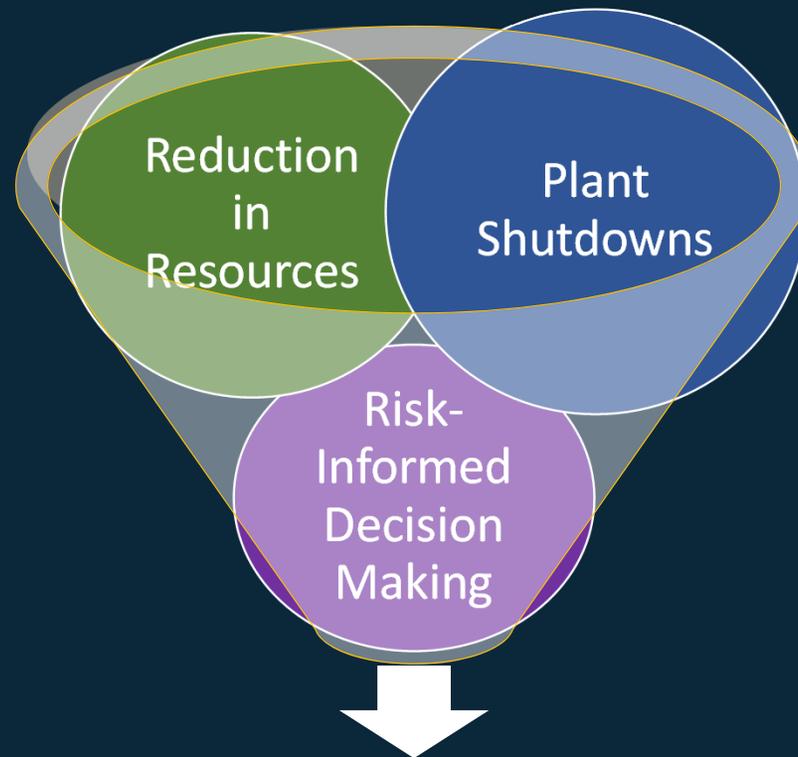
Ching Ng (NRR/DRA) Jinsuo Nie (RES/DE)  
Qin Pan (RES/DRA) Jeff Wood (RES/DRA)

# Antonios Zoulis

NRC's streamlined review process for very low safety significance issue resolution using the Risk-Informed Process for Evaluations (RIPE)



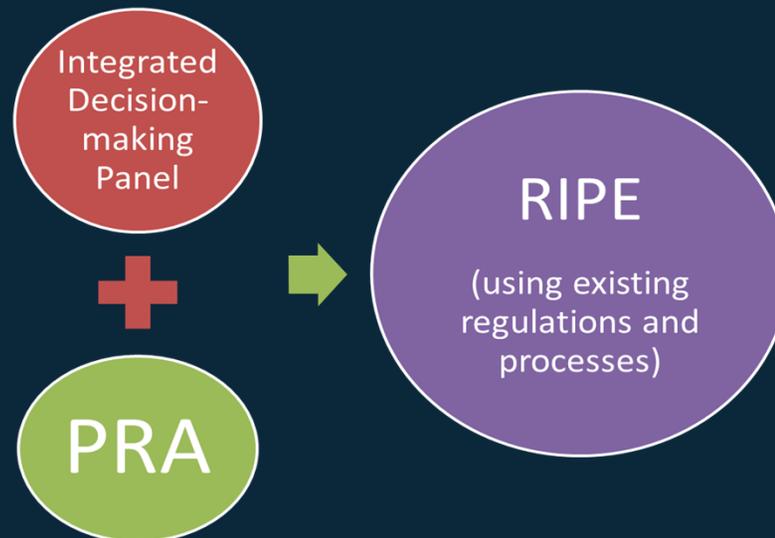
# Transformation in NRR



Risk-Informed Process for Evaluation

# Leverage Existing Regulations & Processes

Very  
Low  
Safety  
Significance  
Issue  
Resolution



# Leverage Existing Regulations & Processes (cont.)

Define  
licensing  
issue

Identify risk  
management  
actions as  
necessary

Evaluate  
using IDP  
and assess  
plant-specific  
risk

Assess  
cumulative  
risk

Request via  
streamlined  
licensing process

Review and  
Approval

# Why RIPE?



Focuses NRC and licensee resources on the most safety significant issues

Addresses low safety significant issues in an efficient and predictable manner



Leverages existing regulations and risk informed initiatives

Incentivizes the further development and use of PRA models and risk-informed applications



# Application of RIPE

- First-of-a-kind exemption request

Successful Implementation

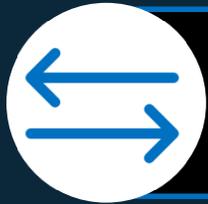
Lessons-Learned

- ~ 100 hours of staff review
- Identified challenges

- RIDM workshops
- Enhanced guidance

Continuous Improvement

# Building on Progress



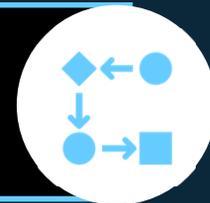
Effective change management is critical to success of any new initiative

Significant step forward in advancement to a modern, risk-informed regulator



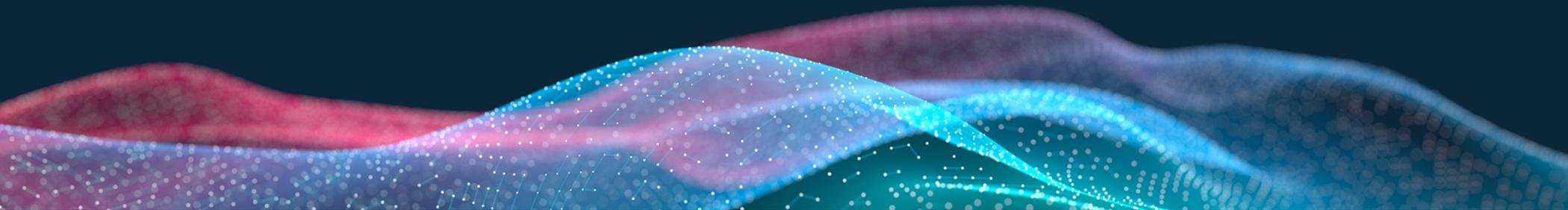
Expansion to allow technical specifications changes and develop a generic application

Reliability and clarity on our regulatory process



# Abby Olarte

eBilling Innovation



# eBilling: Transforming NRC's Fee Billing Process



## Heavily Manual Billing Process

Previous process was cumbersome and required significant manual intervention



## Partnership with Licensees During Development

Small group of licensees provided iterative feedback on features/user interface



## Modern Electronic Billing Application

Digitized and improved billing experience for licensees

# eBilling: Key Features



## **Instant Delivery of Invoices**

- Invoices are generated and delivered to licensees on the same day



## **Automated Alerts & User-Friendly Dashboard**

- Dashboard provides a snapshot of licensees' invoices
- Automated and configurable e-mail alerts to notify licensees of invoice activity



## **Streamlined Small Entity Application Process**

- Small Entity Application can now be submitted online
- Automated alerts when the application is rejected or approved

# eBilling: New Enhancements



## **New Reporting Features**

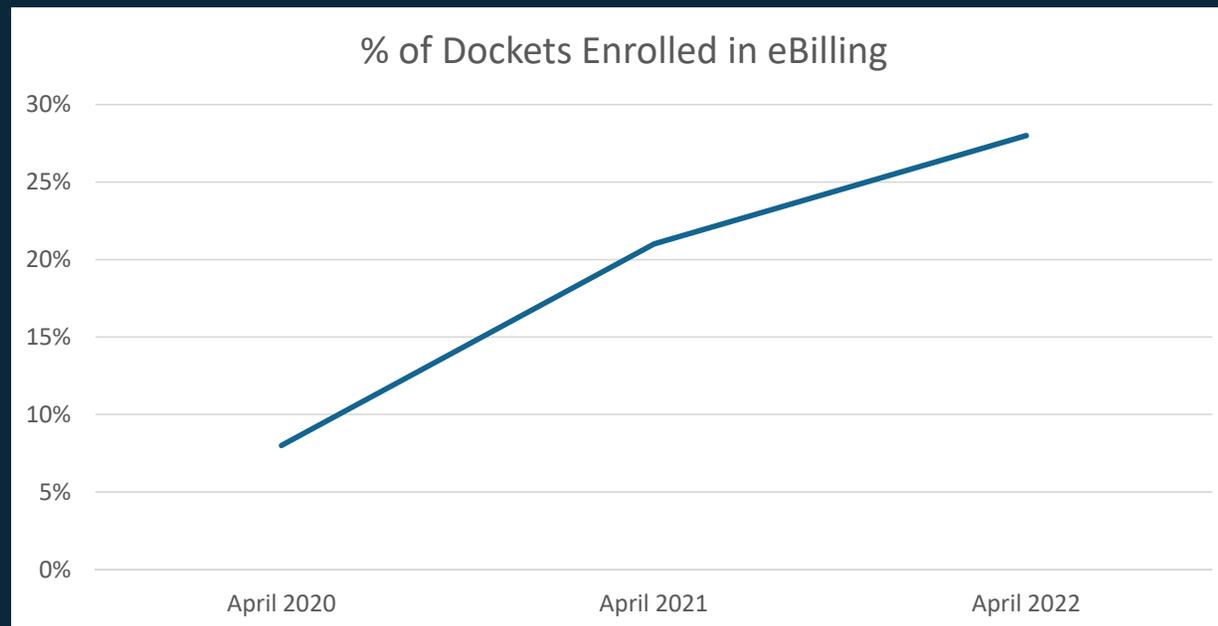
- Enhanced reporting features provide the ability to filter for data over time by Docket/CAC/EPID



## **Part 170 Accruals Available Online**

- Licensees can view and export Part 170 charges that are accrued for billing throughout a billing quarter

# eBilling: Enrollment



URL: <https://ebilling.nrc-gateway.gov>

**Mission Excellence**



**Modern,  
Risk-Informed  
Regulator**

**Highly skilled, adaptable  
& engaged workforce**



**Diverse, Inclusive, &  
Innovative Environment**

