

## NextGen RP



### U.S. Nuclear Regulatory Commission's 30th Annual Regulatory Information Conference

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## Industry Challenge

- Driver:
  - Economic viability of nuclear power plants around the world is being challenged
  - Sites are looking to maintain/improve worker and public safety while finding ways to operate more efficiently
  
- So how can RP be more efficient while still providing excellent protection?

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## Opportunities for Increased Efficiency

### Feedback from industry RPMs:

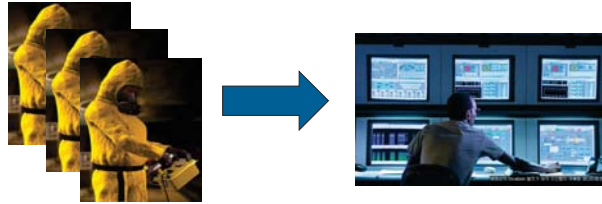
- Automated routine surveys
- Automated locked high rad area and high rad area control
- Semi-automated ALARA job planning
- Paperless radiation protection with automatic report generation and records retention
- Automated decontamination:
  - Floors (e.g. general housekeeping)
  - Reactor cavity (walls, floors)
  - Tools

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## Vision for NextGen RP

Apply advance technology to improve RP efficiency, targeting a 30% cost reduction, while maintaining worker and public radiological safety.




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## Examples of Industry Technology Applications




### Remote RP Job Coverage

- Improved utilization of RP staffing
- Reduced RP dose
- Technologies Applied:
  - Wireless dosimetry
  - Video streaming
  - Audio communication



### Pickering's Real-time Site Boundary Monitoring

- Real-time dose rate monitors at site boundary for emergency response
- Technologies Applied:
  - Solar powered, real time monitors
  - GPS and cellular data transmission



### Exelon's Digital Plant Viewer

- Web-based interface, connecting multiple digital information (e.g. Rad surveys, video feeds, monitoring data)
- Technologies Applied:
  - Virtual tour using photos
  - eSurveys, eWPs

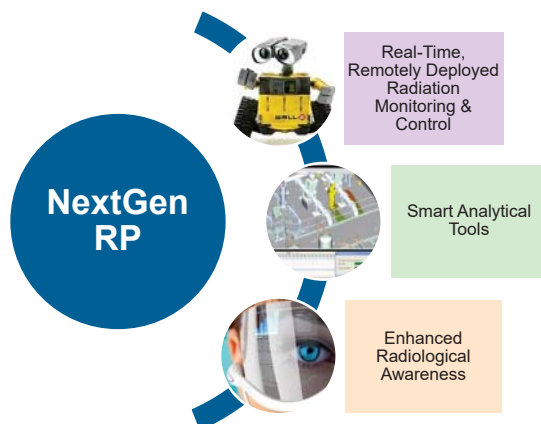
What's lacking is an integrated technology solution

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## Elements of NextGen RP



### 1. Apply real-time, remotely deployed monitoring and control technologies

- Redefine when manual surveys are needed and how they should be taken-- survey when conditions significantly deviates from baseline
- Remotely restrict/allow access to LHRA/HRAs based on credentials

### 2. Apply smart analytical tools for data trending, modeling, planning, and reporting

- Inform RP planning, decisions, and data interpretations → *risk-based RP decisions*

### 3. Enhance Radiological Awareness

- Provide workers with relevant radiological information in a format that is easily understood (e.g. augmented reality to visually display radiation fields)

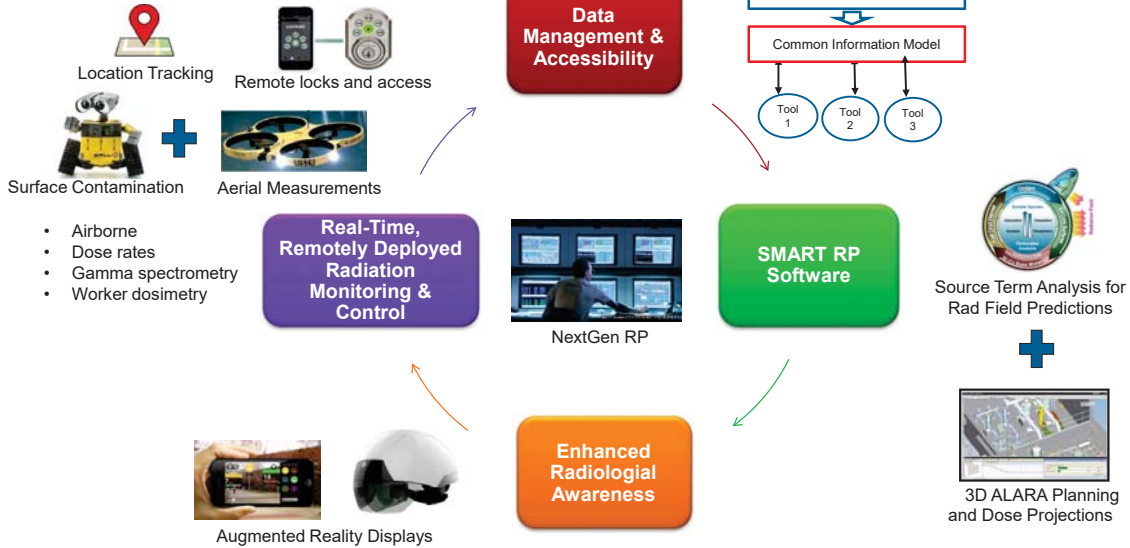
Goal: Reduce RP resource requirements and inform risk-based planning and protection practices

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# NextGen RP



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## Considerations

- Define business case
  - Capture potential costs and savings/benefits:
    - Impacts to RP resources
    - Resource needs for maintenance of equipment and software
    - Training needs
  - Articulation of value – is 30% cost savings the right target?
- Regulatory barriers:
  - Identify regulatory or licensing barriers to technology adoption
    - Example: Regulatory change may be needed to use real-time site boundary monitoring devices in the U.S.

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## Together...Shaping the Future of Electricity

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