

# Preliminary Site-Specific Results of the Environmental Review for Braidwood Station License Renewal

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# Meeting Background

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- Exelon has applied to renew the Braidwood operating licenses.
- The NRC:
  - is reviewing that application.
  - is reviewing the environmental impact of license renewal.
  - has developed preliminary results of that review.
  - wants your comments on those results.

# Overview

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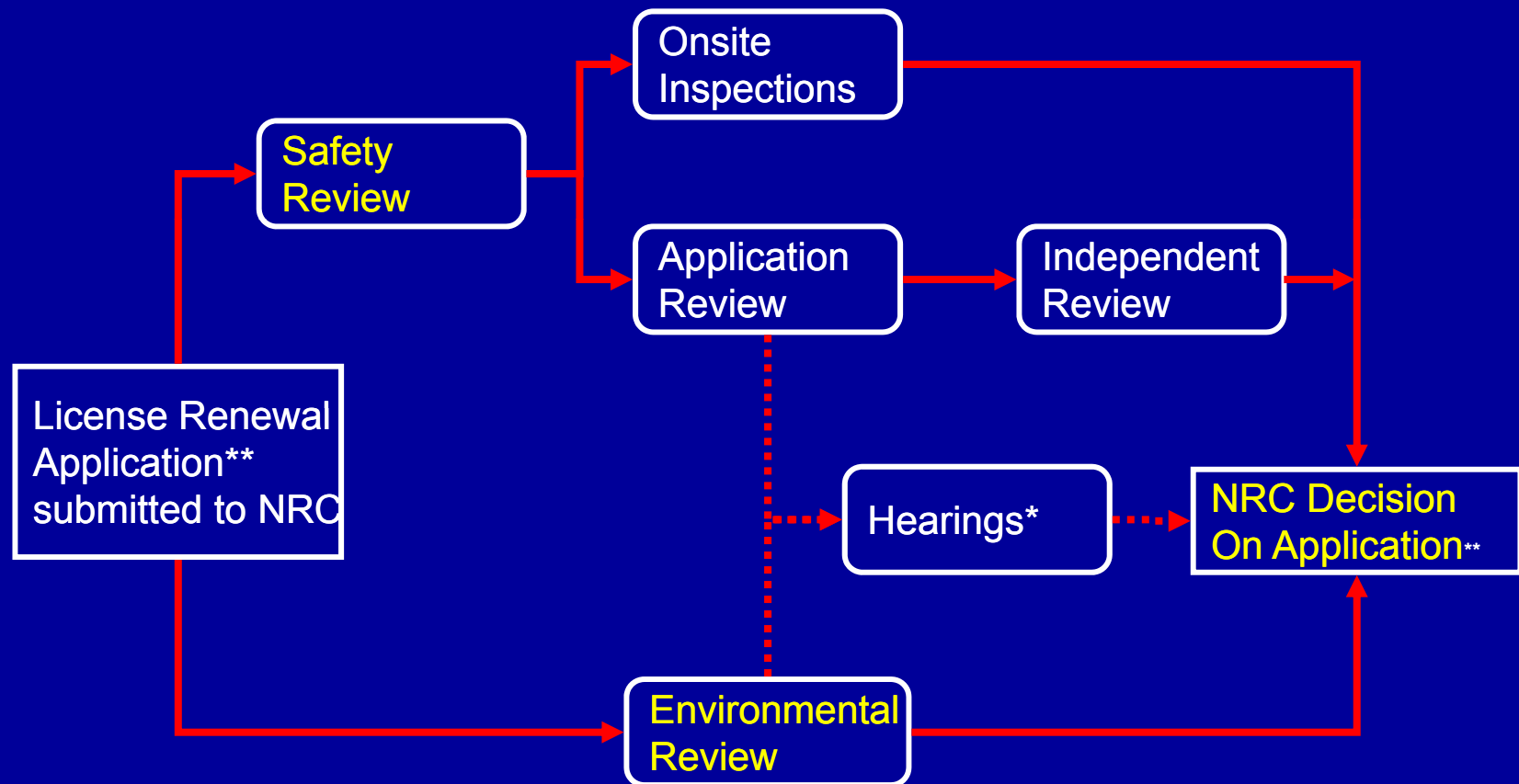
- NRC presentation
  - NRC's regulatory role
  - Summary of environmental review
  - Upcoming milestones and how to submit comments outside this meeting
- Your comments

# NRC's Regulatory Role

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- NRC regulates commercial use of nuclear materials including nuclear power plants
- NRC's mission:
  - Protect public health and safety
  - Promote common defense and security
  - Protect the environment

# License Renewal Process



\* If a Request for Hearing is Granted

\*\* Available at [www.nrc.gov](http://www.nrc.gov)

# License Review Status

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License renewal review status (safety and environmental) is on the NRC website at:

<http://www.nrc.gov/reactors/operating/licensing/renewal/applications/byron-braidwood.html>

# Environmental Review Milestones

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Application Received	May 29, 2013
Notice of Intent	July 31, 2013
Scoping Public Meeting	August 21, 2013
Scoping Period Ended	September 27, 2013
Scoping Summary Report	April 3, 2014
Draft SEIS	March 18, 2015
Draft SEIS Public Meeting	April 21, 2015
Draft SEIS Comments Due	May 12, 2015
Final SEIS	September 2015

# Purpose and Need for Proposed Federal Action

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- The proposed federal action is issuance of renewed licenses for Braidwood Station.
- The purpose and need is to provide a power generation option beyond the current license to meet future system generating needs to be determined by energy-planning decision makers.
- The NRC does not have a role in the energy-planning decisions of state regulators and utility officials.

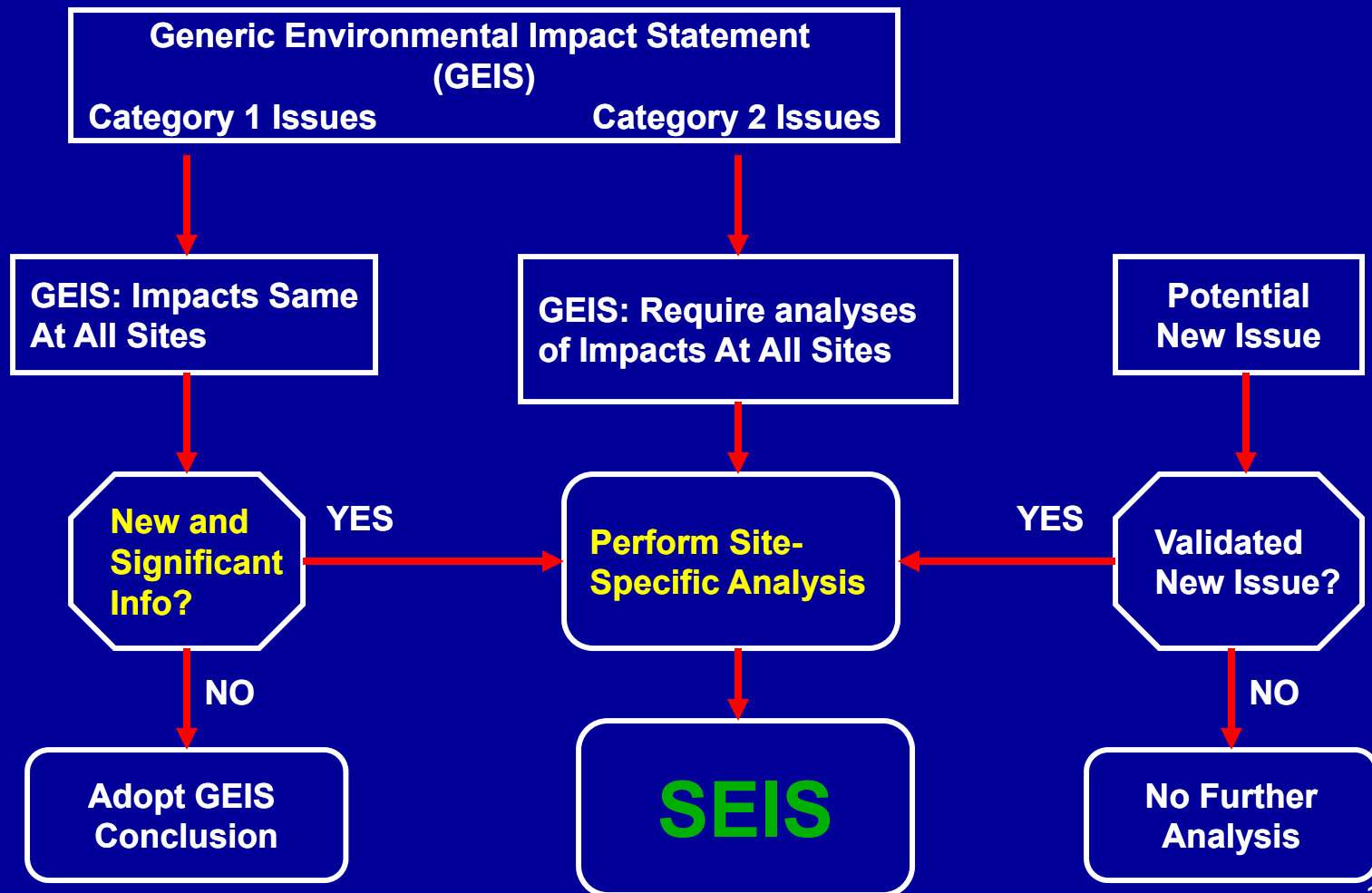


# Environmental Review

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- Generic Environmental Impact Statement (GEIS) addresses issues common to all plants
- Supplemental Environmental Impact Statement (SEIS) addresses site-specific issues for Braidwood Station (Braidwood) license renewal
- Review proposed action (license renewal) and alternatives

# Analysis Approach



# How Impacts are Quantified

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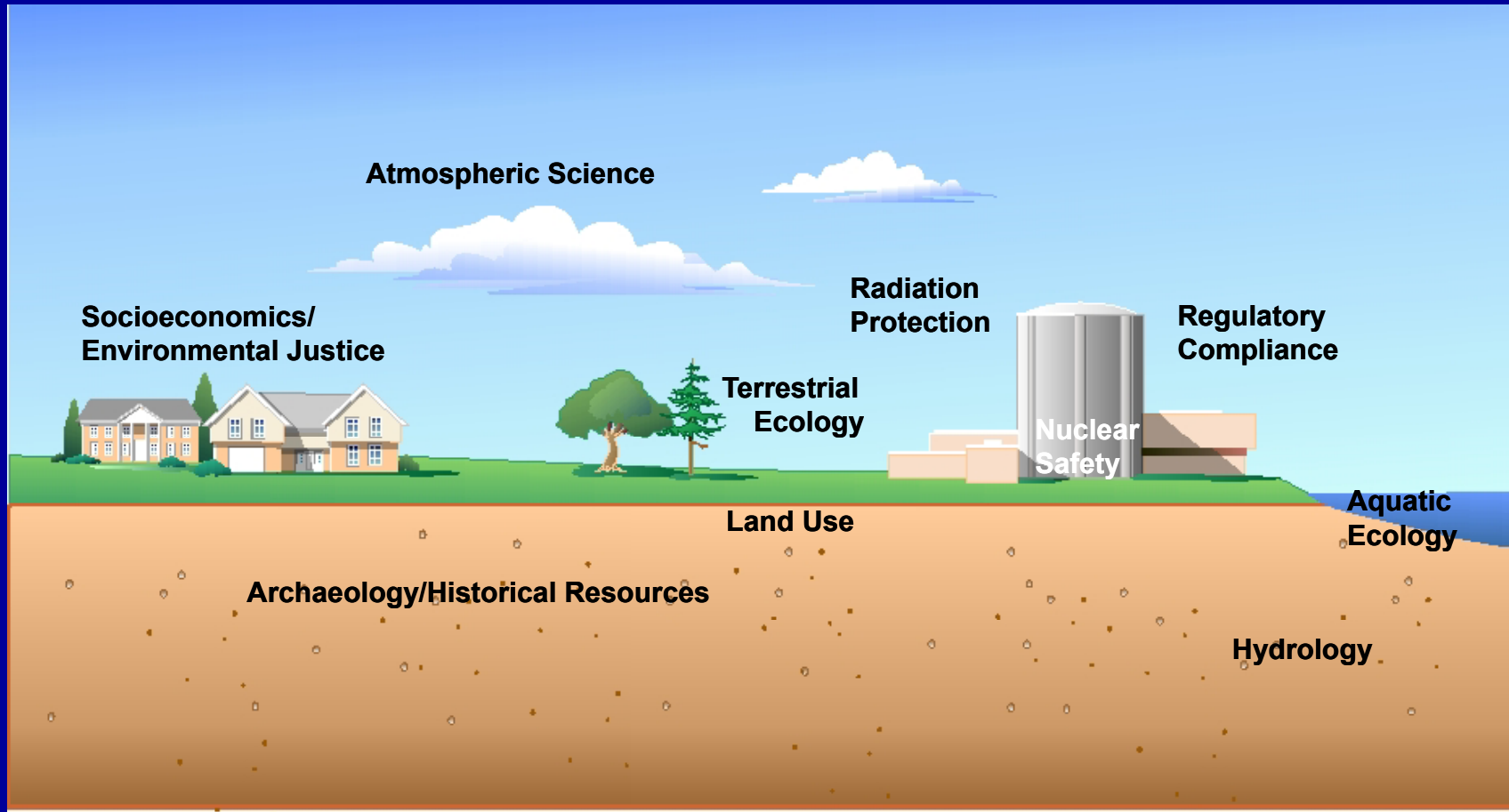
- NRC-defined impact levels:
  - **SMALL** - Effects are not detectable or are so minor that they will neither destabilize nor noticeably alter an important attribute of the resource.
  - **MODERATE** - Effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
  - **LARGE** - Effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

# How Impacts are Defined

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- Special Status Species
  - no effect
  - may affect but not likely to adversely affect
  - may affect and is likely to adversely affect
- Cultural and Historic resources
  - effects on cultural and historic resources
- Environmental Justice (Executive Order 12898)
  - disproportionately high and adverse impacts

# Resource Areas Under Review



# Cumulative Impacts

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- Overall impacts to environment including past, present, and reasonably foreseeable future actions
  - evaluated to end of 20-year renewal term
  - geographic boundaries dependent on resource
- Preliminary findings
  - MODERATE to LARGE impacts on terrestrial ecology and groundwater
  - MODERATE impacts on aquatic ecology and climate change (green house gas impacts)
  - SMALL to MODERATE impacts on surface water
  - SMALL impacts on all other resources

# Braidwood License Renewal Impacts

Reviewing Areas	Impact	DSEIS Section
Land Use	SMALL	4.2
Air Quality	SMALL	4.3
Geologic Environment	SMALL	4.4
Water Resources	SMALL	4.5
Terrestrial Resources	SMALL	4.6
Aquatic Resources	SMALL to MODERATE*	4.7
Special Status Species	No Effect to May Affect but Not Likely to Adversely Affect	4.8
Historic and Cultural Resources	No Adverse Effect	4.9
Socioeconomics	SMALL	4.10
Human Health	SMALL	4.11
Environment Justice	No Disproportionately High and Adverse Impacts	4.12
Waste Management	SMALL	4.13

\* Impacts of impingement-and-entrainment and thermal effects on aquatic resources are SMALL to MODERATE

# Impingement and Entrainment Impacts on Aquatic Resources

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- Impingement of the State-endangered pallid shiner may create a noticeable effect on this species' population in Illinois.
- Impacts from larval entrainment would be noticeable for low population species (e.g., *Percina* spp., darters, and pallid shiner).
- Exelon has mitigation measures in the Braidwood NPDES permit and engineered-and-operational controls.



# Thermal Impacts on Aquatic Resources

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- Under Clean Water Act, the cooling pond is considered by the State of Illinois as a wastewater treatment facility.
- Based on the information on fish kills, the thermal impacts to the cooling pond aquatic community are noticeable and adverse.
- Exelon has consulted with experts for mitigation and concluded that “there are no practical or simple solutions that could prevent the occurrence of fish die-offs at Braidwood Lake.”

# Continued Storage Rule

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- Spent Nuclear Fuel (SNF) Continued Storage (CS) Rule addresses management of spent fuel after the renewal term
- Braidwood SEIS incorporates conformal environmental impacts from CS GEIS (NUREG-2157) and Rule (10 CFR 51.23)
- Impacts of onsite storage of SNF are addressed in CS GEIS and Rule
- Radiological impacts of offsite SNF and high-level waste disposal are addressed in 10 CFR 51

# Alternatives

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- Alternative energy sources analyzed
  - New generation (Coal, Natural Gas, Nuclear)
  - Combination of alternatives (Wind, Gas, and Solar)
  - Purchased electrical power
  - Other considered but dismissed alternatives (e.g., oil, energy efficiency and conservation, biomass, fuel cells)
- No action alternative

# Preliminary Conclusion

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The NRC staff's preliminary recommendation is that the adverse environmental impacts of license renewal for Braidwood Station are not so great that preserving the option of license renewal for energy-planning decisionmakers would be unreasonable.

# Additional Information

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- Environmental Project Manager:  
**Richard Baum**  
**(800) 368-5642, Ext. 0018**  
**richard.baum@nrc.gov**
- The draft SEIS can be viewed at:
  - Fossil Ridge Public Library, 386 W. Kennedy Road,  
Braidwood, IL 60408
- NRC's Web site ([www.nrc.gov](http://www.nrc.gov)):
  - <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/>

# Submitting Comments After the Meeting

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By mail: Chief, Rules, Announcements, and  
Directives Branch (RADB)  
Division of Administrative Services  
Mailstop OWFN-12-H08  
U.S. NRC, Washington, D.C. 20555-0001

In person: 11545 Rockville Pike  
Rockville, Maryland

Internet: [www.regulations.gov](http://www.regulations.gov),  
docket ID: NRC-2013-0169

**Comments due by May 12, 2015**