

Forum for Nuclear Cooperation in Asia

Environmental Impact Assessment for Nuclear-Related Activities

Stephen G. Burns
Commissioner
United States Nuclear Regulatory Commission

Office: +1 301-415-8430

Stephen.Burns@nrc.gov

The NRC

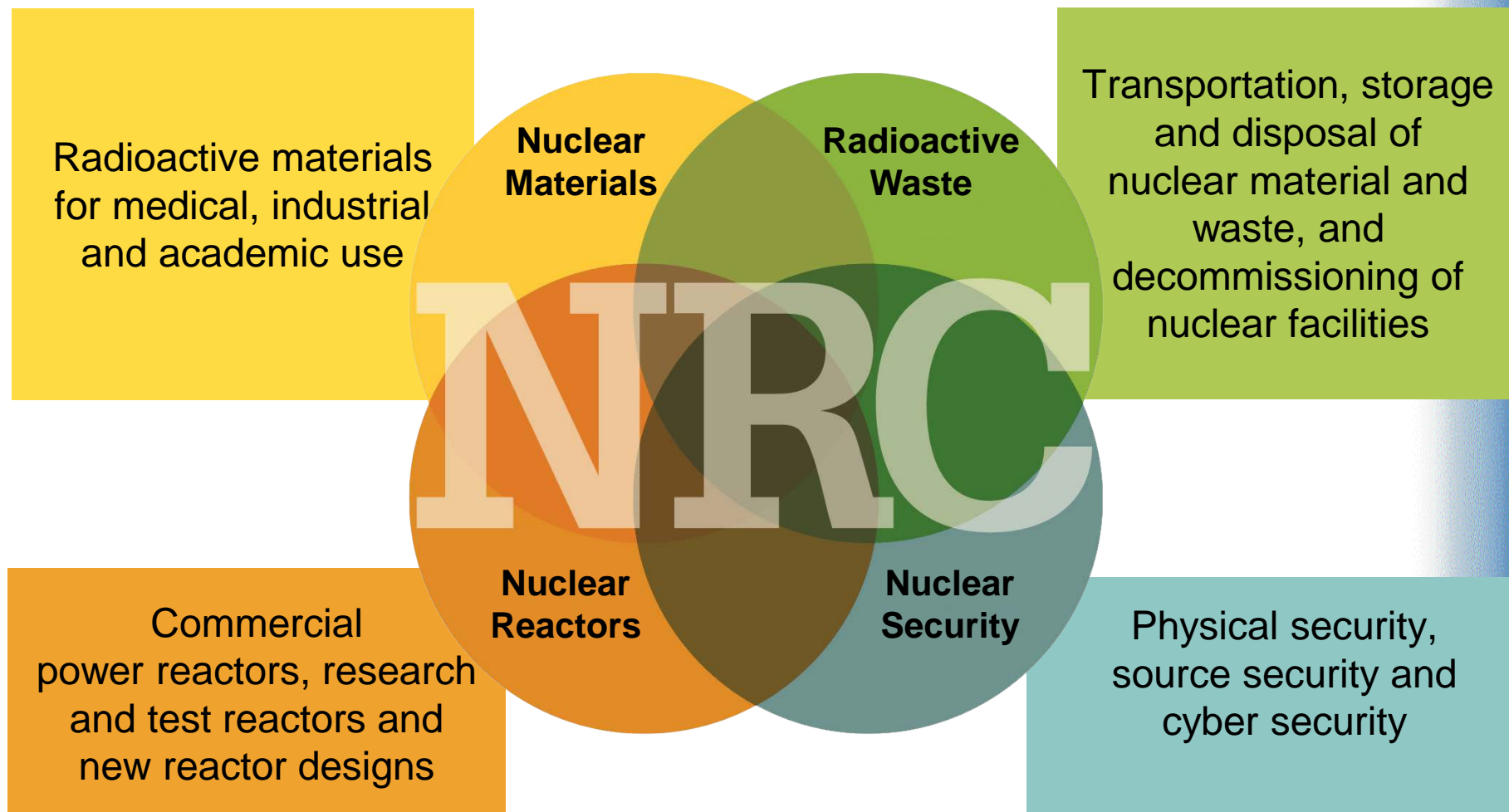
Mission:

To license and regulate the Nation's civilian use of radioactive materials to provide reasonable assurance of adequate protection of public health and safety, and to promote the common defense and security, and to protect the environment.



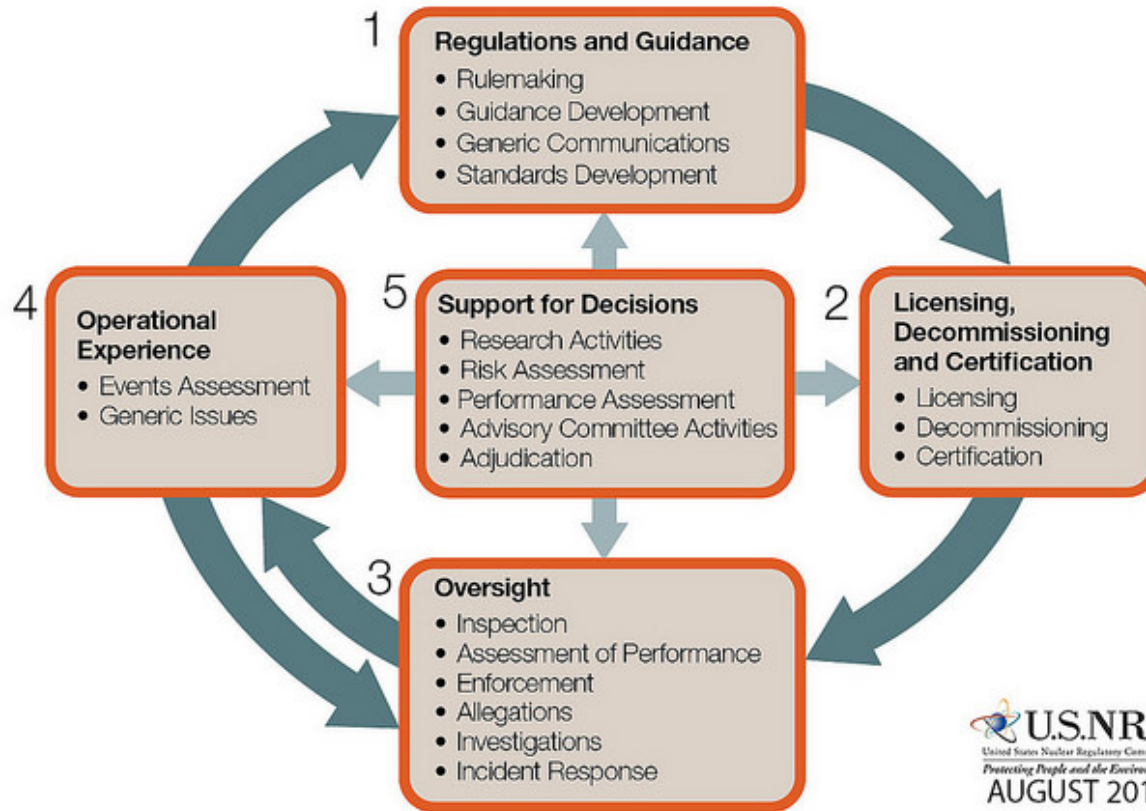
- Established by Congress under the Energy Reorganization Act of 1974.
- The Act divided the former Atomic Energy Commission's responsibilities between the NRC and what is now the Department of Energy.
- Need for separation between the regulation of nuclear energy and the promotion of nuclear energy.
- Adequate protection does not equal "zero risk".

The NRC at a Glance



Carrying out a Regulatory Program

How We Regulate



- (1) Develop regulations and guidance for applicants and licensees
- (2) License or certify applicants to use nuclear materials or operate nuclear facilities or decommissioning that permits license termination,
- (3) Oversee licensee operations and facilities to ensure that licensees comply with safety requirements,
- (4) Evaluate operational experience at licensed facilities or involving licensed activities, and
- (5) Conduct research, hold hearings to address the concerns of parties affected by agency decisions, and obtain independent reviews to support regulatory decisions.

Source: U.S. NRC – How We Regulate
<http://www.nrc.gov/about-nrc/regulatory.html>

National Environmental Policy Act (NEPA)

- Passed by the U.S. Congress in 1969 and signed into law in January 1970.
- Established a national environmental policy for the federal government.
- Requires that every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment include a detailed statement assessing the environmental impacts.
- Established a Council on Environmental Quality (CEQ) to oversee NEPA implementation.
 - The AEC initially resisted application of NEPA to its activities.
 - The court in *Calvert Cliffs' Coordination Committee v. AEC* compelled the AEC to consider environmental issues just as they considered other matters within their statutory authority.
 - The court also set expectations for federal agencies' compliance with NEPA's procedural requirements.

National Environmental Policy Act (NEPA)

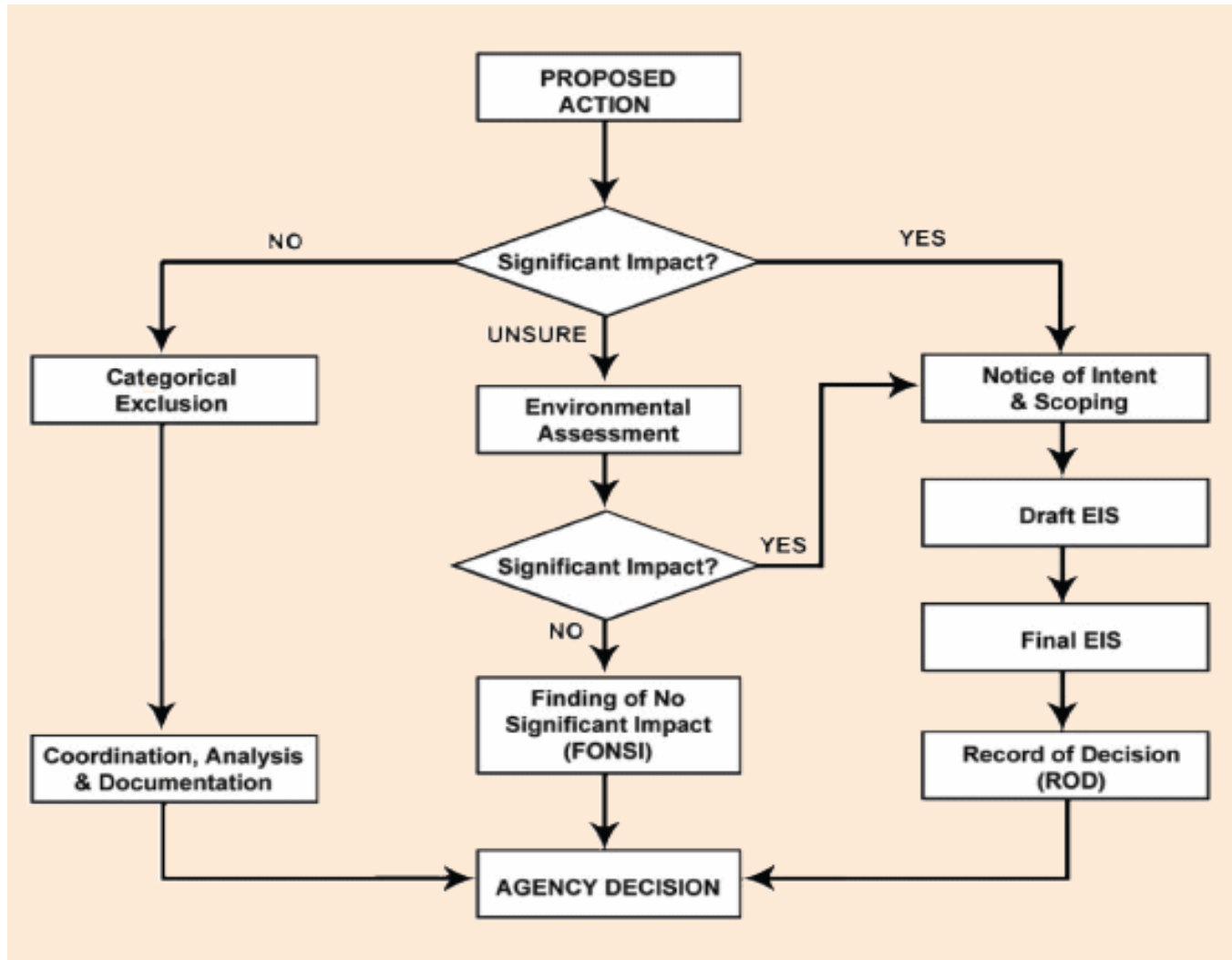
- NEPA requires all Federal agencies to evaluate the impacts of proposed major actions on the human environment.
- NEPA is a procedural statute that merely requires that the decision to go forward with a Federal project that significantly affects the environment be an environmentally conscious one.
- NEPA does not require the agency to favor an environmentally preferable course of action, nor does it prohibit the agency from taking action that may adversely affect the environment.
- NEPA also does not dictate which alternatives to the proposed action the agency must consider.
- NEPA provides for public participation in the process.
- The NRC framework for implementing NEPA is set forth in 10 CFR Part 51; Regulatory Guides 1.206, 4.2, 4.7; NUREG-1555, “Environmental Standard Review Plan”; and Interim Staff Guidance (ISG)-26 and 27.
- Some U.S. state governments have similar laws that require environmental review of proposed actions.

National Environmental Policy Act (NEPA)

There are three potential courses of action under NEPA depending on project complexity and the significance of the reasonably foreseeable impacts

- ***Categorical Exclusion*** – applicable where a Federal agency makes a determination based on the consistency of prior reviews that a category or specific type of action will not have a significant environmental impact. These categories are set forth in the NRC's regulations. Examples of these types of actions are:
 - Recordkeeping and reporting requirements;
 - Licensing actions for which the impact has been generically documented.
- ***Environmental Assessment (EA)*** – a concise document providing sufficient evidence and analysis to aid the Federal agency in determining whether an EIS is necessary. Examples of the types of evaluations for which an EA is sufficient are:
 - No impacts expected to certain environmental resources because no new construction;
 - Minor amounts of ground water are needed for the proposed change.
- ***Environmental Impact Statement (EIS)*** – is intended to detail the environmental and economic effects of any proposed federal action so that the public may meaningfully participate and to ensure that the decision maker gives serious weight to environmental factors in deciding the course of action. An EIS is required for major proposed actions which could significantly affect the environment.

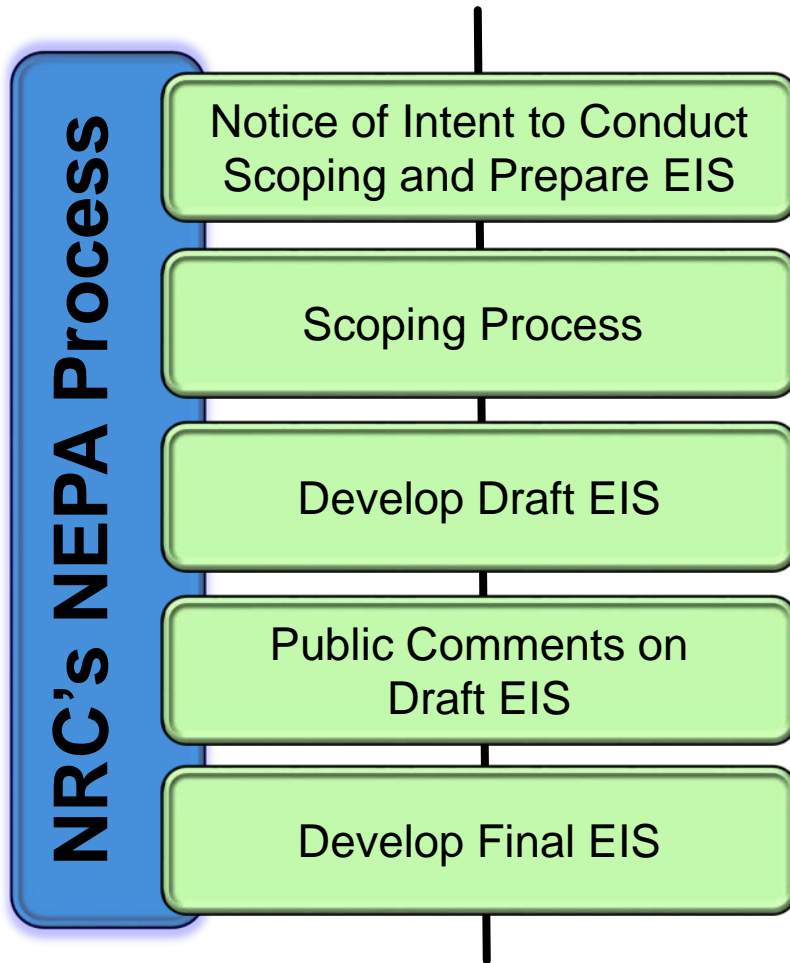
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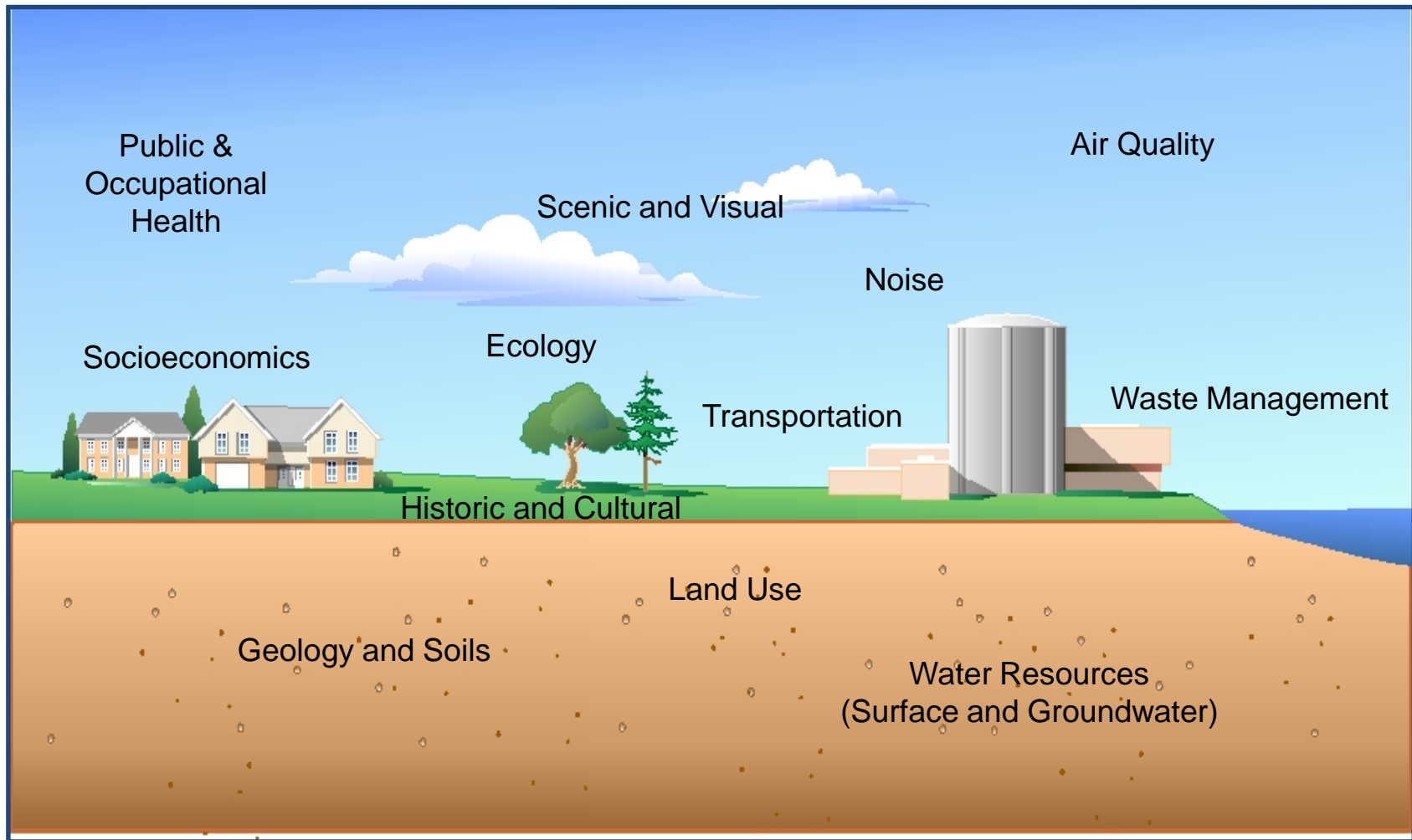
- The NRC's regulations at 10 C.F.R. § 51.20(a) require that an Environmental Impact Statement be prepared in two instances:
 - 1) the proposed action is a major Federal action significantly affecting the quality of the human environment; and
 - 2) the proposed action involves a matter which the Commission, in the exercise of its discretion, has determined should be covered by an EIS.
- The NRC's regulations at 10 C.F.R. § 51.20(b) identify those proposed actions requiring an EIS. Examples of those actions are:
 - Limited Work Authorization, Early Site Permit, or Construction Permit;
 - Issuance or renewal of an Operating License or Combined Operating License for a nuclear power reactor;
 - License for using special nuclear material in a processing or fuel fabrication facility;
 - Licenses for uranium milling or production of uranium hexafluoride;
 - License for a uranium enrichment facility;
 - Licenses related to nuclear waste facilities.

Overview of Environmental Review Process for an EIS



- Applicant's environmental report serves as a starting point for the staff's review.
- Public meetings are held during scoping and the comment period on the draft EIS.
- NRC review team visits the proposed site and alternative sites during audits.
- Frequent interactions are held with other agencies involved in related reviews.
- Draft EIS must be a complete evaluation.
- Final EIS is one input to the licensing process and the Commission's decision.

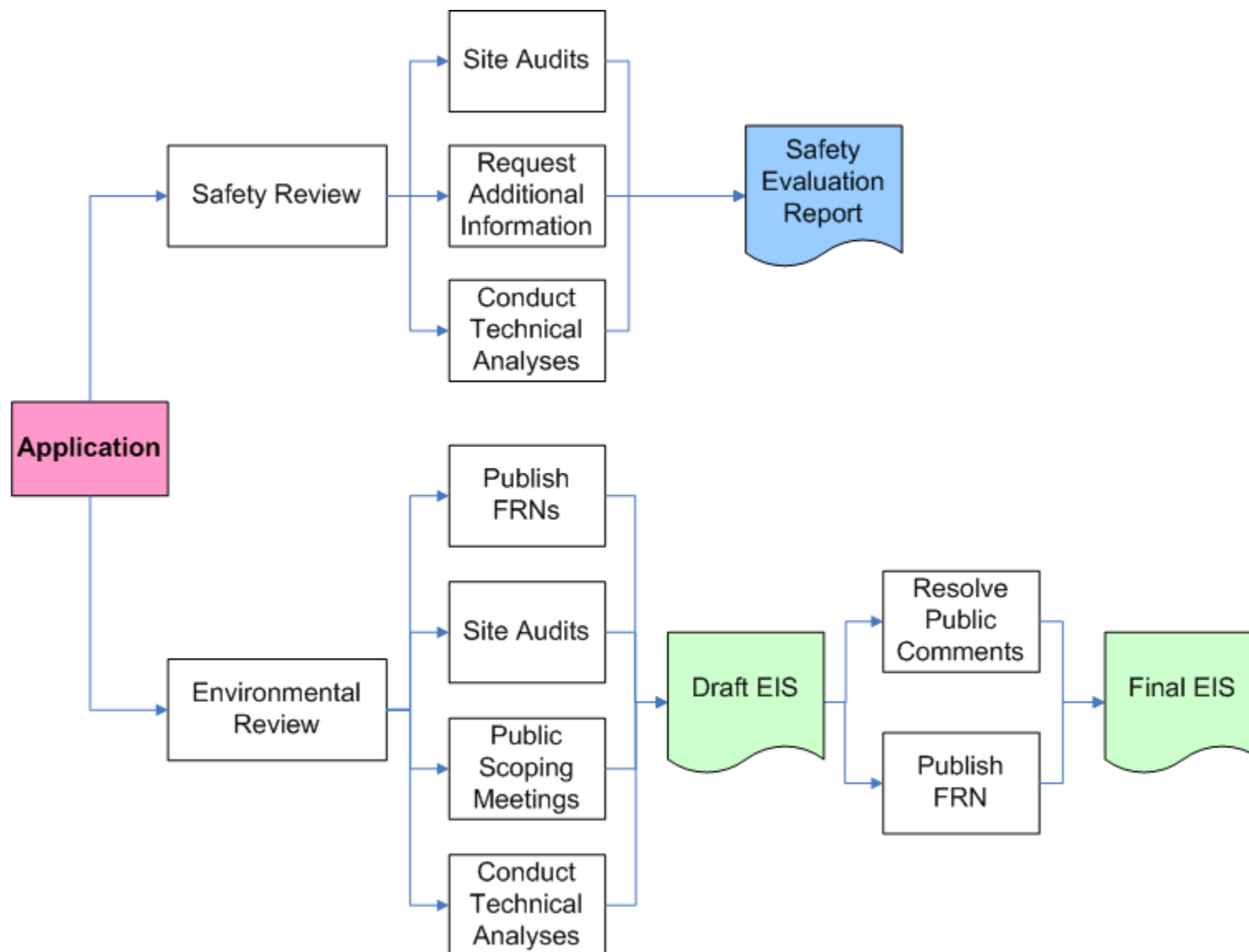
Environmental Impacts Considered in the Review



Environmental Impacts considered in the review

- In 2009 the Commission directed NRC staff to consider carbon dioxide and other **greenhouse gas emissions** in its environmental reviews for major licensing actions. See *Duke Energy Carolinas, LLC* (William States Lee III Nuclear Station, Units 1 and 2) and *Tennessee Valley Authority* (Bellefonte Nuclear Power Plant, Units 3 and 4).
- The U.S. Court of Appeals for the Ninth Circuit held that the NRC must consider the environmental impact of **terrorist attack** in its NEPA review of a proposed interim spent fuel storage installation. See *San Luis Obispo Mother for Peace v. NRC*. However, the whether a terrorist attack is actually required to be considered within the NEPA of an NRC major proposed action continues to be unsettled as Courts of Appeals in the 2nd and 3rd Circuits have each ruled that the NRC is not required to considers such impacts. See, e.g., *New Jersey Dept. of Environmental Protection v. NRC*.

NRC Review Process



Other Applicable Laws

NRC also has obligations under other statutes:

- National Historic Preservation Act
 - NRC must identify cultural resources and historic properties
 - NRC must consider the impacts the proposed action may have on cultural resources and historic properties.
- Endangered Species Act
 - Section 7 of the Act provides for consultation between the NRC and the U.S. Fish and Wildlife Service on the proposed action

Applicants/Licensees may need permits under other statutes related to environmental protection:

- Clean Water Act
- Clean Air Act
- CERCLA (Superfund)
- State statutes

Government agencies are encouraged to work together

- For a major proposed action where more than one Federal agency has a licensing or permitting role, the respective agencies may choose to combine their environmental reviews and develop a single Environmental Impact Statement with one agency assuming the role of lead agency.
- NRC works cooperatively with other Federal agencies on joint program activity and shares information on practices and procedures to improve effectiveness and efficiency in Federal services
- NRC seeks appropriate consultation at the earliest possible stage between NRC and States, local governments, other Federal agencies, and Federally recognized Native American tribes.
- Federally recognized Tribes are domestic, dependent sovereign nations with their own customs, culture, concerns, interests and needs. Consultations occurring between the Federal government and a Federally recognized Tribe are considered government to government meetings.

Public Involvement

- **Public interaction during environmental review**
 - A comment period on an Environmental Assessment or a draft EIS
 - Public meetings may also be held
 - Scoping
 - Draft EIS
- **Environmental issues may be considered in licensing hearings**
 - The opportunity for public hearings on NRC licensing actions is established under the Atomic Energy Act
 - The Commission has included its environmental reviews within the scope of the hearing process.
 - An opportunity to participate is usually provided before a three-member Atomic Safety and Licensing Board.
 - Hearings cover both the safety and environmental reviews

Transboundary Impacts

- NEPA itself, does not specifically require federal agencies to consider transboundary impacts.
- However, CEQ recommends that Federal agencies include an analysis of reasonably foreseeable transboundary effects of proposed actions in their analysis of proposed actions in the United States.
- Such impacts are generally identified during the scoping stage, and are analyzed to the best of the agency's ability using reasonably available information.
- Absent a “sufficient causal relationship” between the proposed action and an alleged transboundary impact, the federal agency is not required to consider the transboundary impact in its final Environmental Impact Statement
- Consideration of such impacts is consistent with the obligation recognized in the *Trail Smelter Arbitration* (1938) that a nation avoid undertaking actions on its territory that will harm the territory of another state.

Case study: Considering Transboundary Impacts

- In 2015 the NRC considered the impact that granting DTE Electric Company's application for a combined license (COL) application to construct and operate a new nuclear reactor at the Fermi Nuclear Power Plant site in Monroe County, Michigan would have on the nearby Province of Ontario, Canada and as part of that proceeding the NRC staff communicated with and sought input from their Canadian counterparts.
- The proposed site is located in Monroe County, Michigan, approximately 48 km southwest of Detroit, Michigan, and about 11 km from the United States-Canada border. The site is also within an international wildlife refuge.
- Data from public sources within a 50-mi (about 80 km) radius of Fermi 3 was included on possible impacts on Canadian resources and the First Nations population in Canada.
- The following Canadian governmental entities were invited to provide input during the scoping process for the draft EIS to ensure consideration of environmental and safety implications:
 - The City of Windsor and other municipalities bordering the Detroit River and Lake Erie
 - The County of Essex
 - The Ontario Ministry of the Environment
 - Environment Canada
- The NRC staff communicated with the Environment Canada and the Ontario Ministry of Natural Resources which jointly manages the wildlife refuge with the U.S. Fish and Wildlife Service
- Comments on the final environmental impact statement were also received from the Walpole Island First Nation.
- Transboundary impact of emergency preparedness were thoroughly explored during the Commission hearing and as part of the bilateral agreement on emergency response with the Canadian regulator

Thank you!



Bibliography

Statutes and Case Law

- National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4437 – <https://ceq.doe.gov/>
- Council on Environmental Quality (CEQ) – <https://www.whitehouse.gov/ceq/>
- Executive Order 12114, “Environmental Effects Abroad of Major Federal Actions,” (44 Fed. Reg. 1957; Jan. 4, 1979)
- National Historic Preservation Act (NHPA), 52 U.S.C. § 306180 *et seq.* – <https://www.achp.gov/>
- Endangered Species Act, 16 U.S.C. § 15314 *et seq.*
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 *et seq.*
- *Calvert Cliffs’ Coordination Committee v. Atomic Energy Commission*, 449 F.2d 1109 (D.C. Cir. 1971)
- *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006)
- *New Jersey Dept. of Environmental Protection v. NRC*, 561 F.3d 132 (3rd Cir. 2009)
- *Duke Energy Carolinas, LLC* (William States Lee III Nuclear Station, Units 1 & 2) and *Tennessee Valley Authority* (Bellefonte Nuclear Power Plant, Units 3 & 4), CLI-09-21, 70 NRC 927 (2009).
- *Sierra Club v. Clinton*, 746 F.Supp.2d 1025, 1043-46 (D. Minn. 2010)
- *DTE Electric Company* (Fermi Nuclear Power Plan Unit 3), CLI-15-13, 81 NRC 555 (2015)

Bibliography (cont.)

NRC Resources

- NRC Regulatory Guides:
 - [Draft RG 4.2](#), Preparation of Environmental Reports for Nuclear Power Stations (being revised)
 - [RG 4.7](#), General Site Suitability Criteria for Nuclear Power Stations
 - [RG 4.11](#), Terrestrial Environmental Studies for Nuclear Power Stations
 - [RG 4.24](#), Aquatic Environmental Studies for Nuclear Power Stations
- NRC's Environmental Standard Review Plan, [NUREG 1555](#) (being revised)
- NRC Interim Staff Guidance (ISG):
 - [ISG-26](#), Environmental Issues Associated with New Reactors
 - [ISG-27](#), Specific Environmental Guidance for Light Water Small Modular Reactor
- [Tribal Protocol Manual](#), NUREG-2173, Rev. 1