

Available NRC Licensing Pathways and Associated Hearing Processes

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GAIN

Gateway for Accelerated
Innovation in Nuclear

Agenda

- Available NRC Licensing Pathways
 - Part 50 Construction Permit/Operating License
 - Part 52 Design Certification
 - Part 52 Early Site Permit (ESP)
 - Part 52 Combined License (COL)
- Available Hearing Processes
 - Contested Hearing
 - Mandatory Hearing
 - ITAAC Hearing

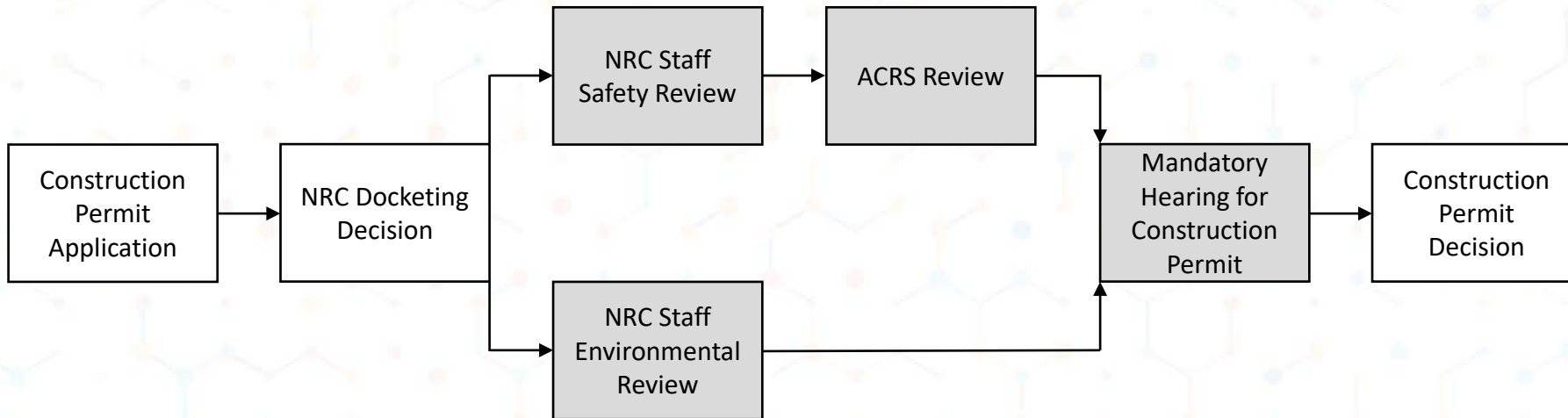
Part 50 Two-Step Licensing

- Licensing process used for current operating commercial reactors
- Construction Permit
 - Required prior to construction of a reactor
 - Application
 - Environmental
 - Siting
 - Preliminary Safety Analysis Report (PSAR)
 - “will not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit” 10 CFR 50.35(b)
 - Greater level of detail likely required if seeking such approval
 - States the earliest and latest dates for completion of construction (may extend)
- Flexibility with design changes during construction

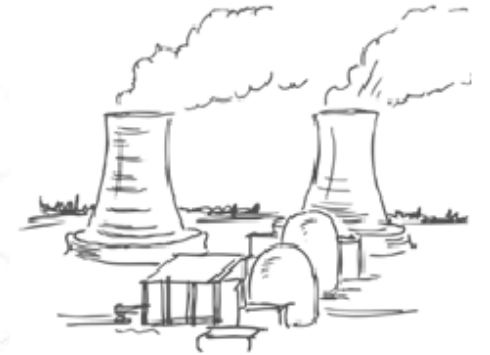
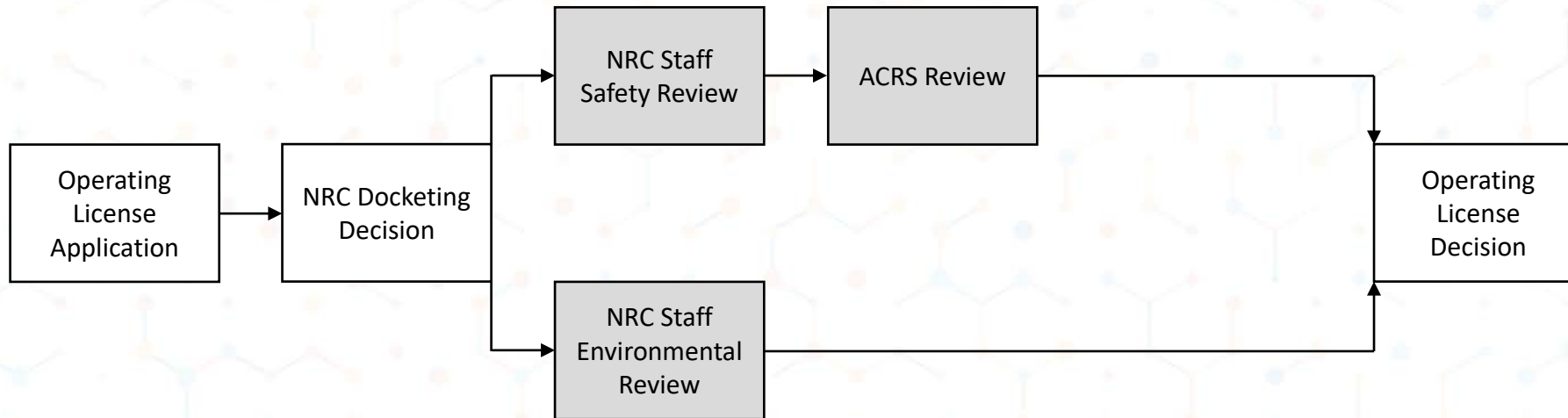
Part 50 Two-Step Licensing

- Operating License
 - Required prior to operation of a reactor
 - Application
 - Final Safety Analysis Report (FSAR)
 - Technical Specifications
 - Emergency plan
 - Security plan
 - Issued for 40-year initial term; may be renewed for 20-year periods
 - NRC must find “construction of the facility has been substantially completed”
- Hearing opportunities at both stages
- Process traditionally has been lengthy and costly

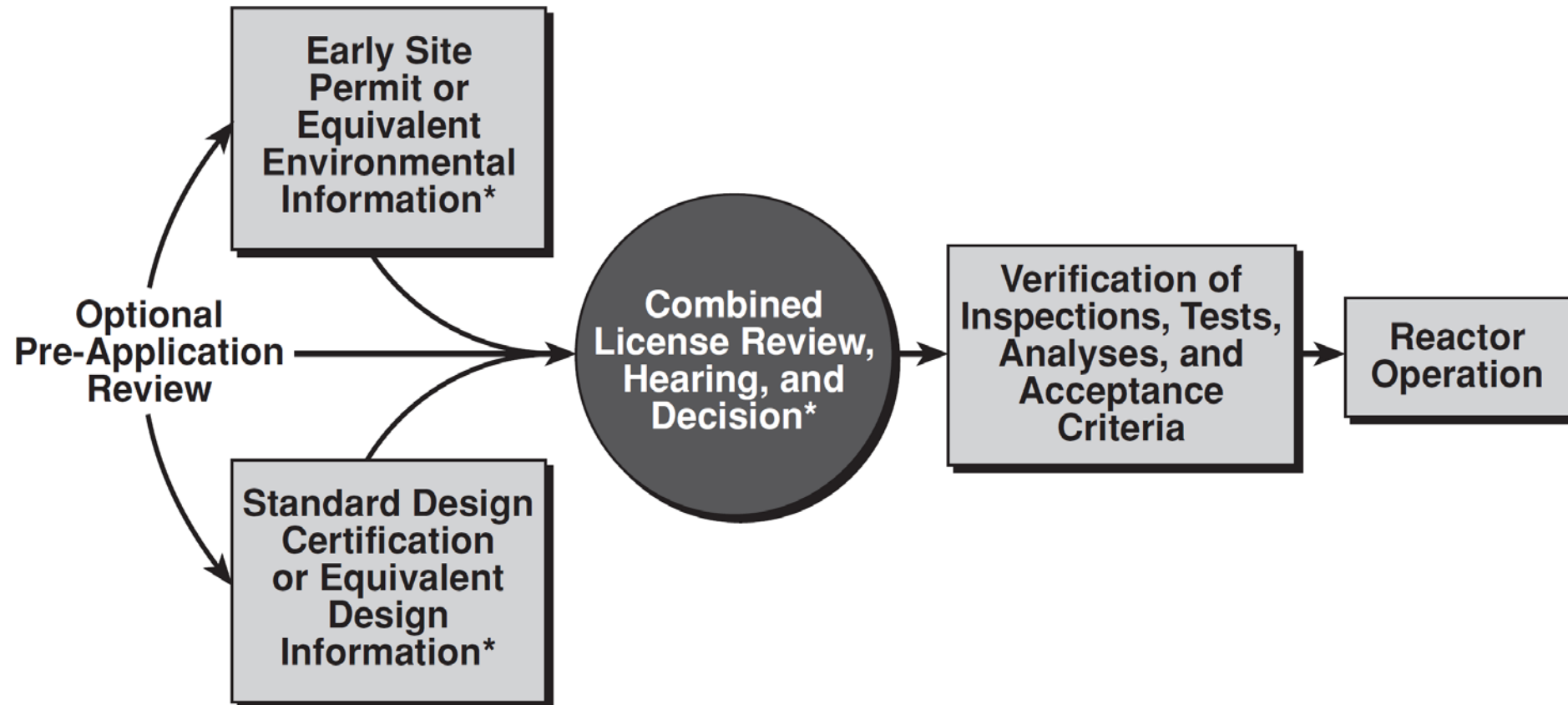
Part 50 Construction Permit



Part 50 Operating License



Part 52 Overview (“One-step”)

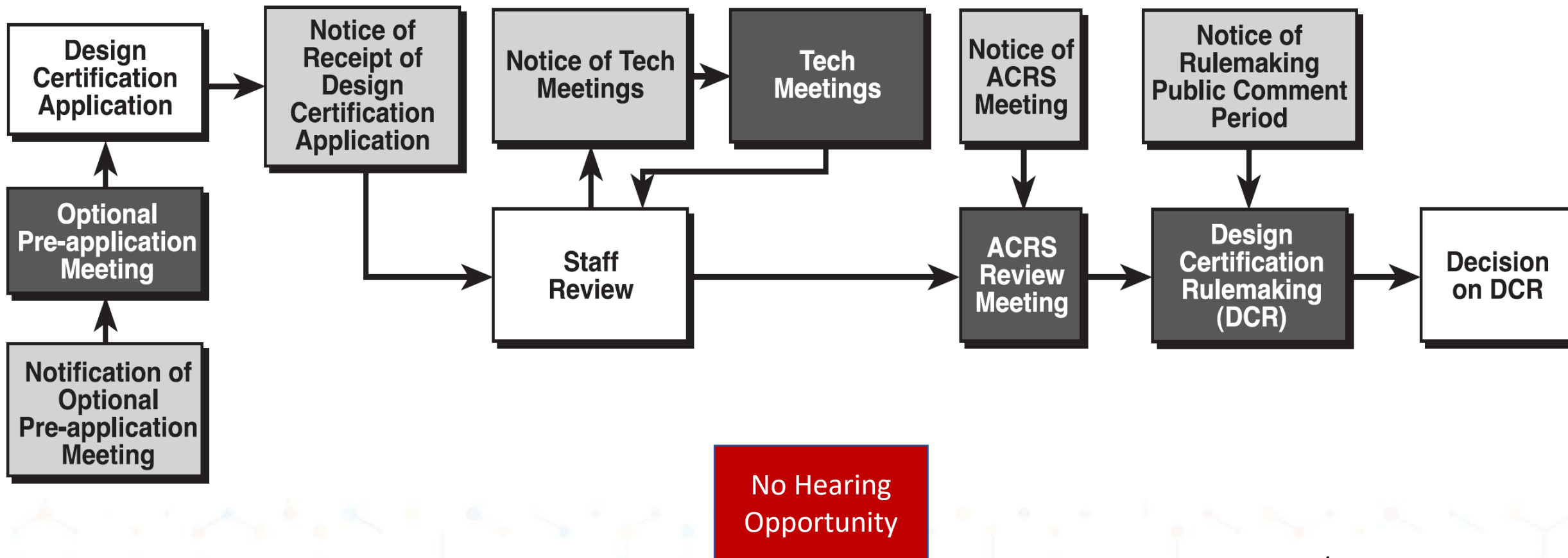


Source: NUREG/BR-0298, Rev. 2

Design Certification

- NRC approval of a standard plant design
 - Requires an essentially complete design
- Certification through rulemaking process
 - Opportunity for public comment
- Design Control Document
 - Tier 1 – Top level design information, reflected in the Rule certifying the design
 - Tier 2 – Similar to FSAR
- Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
- Finality of approved design issues in COL review
- Departure/change process
- Certifications effective for 15 years, but may be renewed
 - Reactor may be supplied by any *qualified* vendor

Design Certification (continued)



Source: NUREG/BR-0298, Rev. 2

Design Certification (continued)

Design	Date Received	Certification Effective	Duration	Status
ABWR (Part 52, App. A)	09/29/1987 – 08/31/1989	06/11/1997	~ 10 years	Renewal Pending
System 80+ (Part 52, App. B)	03/30/1989	06/20/1997	~ 8 years	Expired
AP600 (Part 52, App. C)	06/26/1992	01/24/2000	~ 7.5 years	Expired
AP1000 (Part 52, App. D)	03/28/2002	02/27/2006	~ 4 years	Revision effective 2011
ESBWR (Part 52, App. E)	08/24/2005	11/14/2014	~ 9 years	Effective
APR1400 (Part 52, App. F)	12/23/2014	09/19/2019	~ 5 years	Effective
U.S. EPR	12/11/2007	N/A	N/A	Suspended
US-APWR	12/31/2007	N/A	N/A	Suspended
NuScale	01/06/2017	N/A	N/A	Review Complete

Early Site Permit

- Pre-approval of site for future reactor construction (NEPA/Site Safety)
- Application
 - Siting Information (e.g., seismology)
 - Environmental Report (no Need for Power analysis required)
 - Major features of emergency plans (or complete and integrated plans)
- Plant Parameter Envelope (PPE)
- ESPs valid for period of 10-20 years (may be renewed)
- Finality in COL proceeding with some exceptions (e.g., new and significant environmental information)
- Limited Work Authorizations

Early Site Permit (continued)

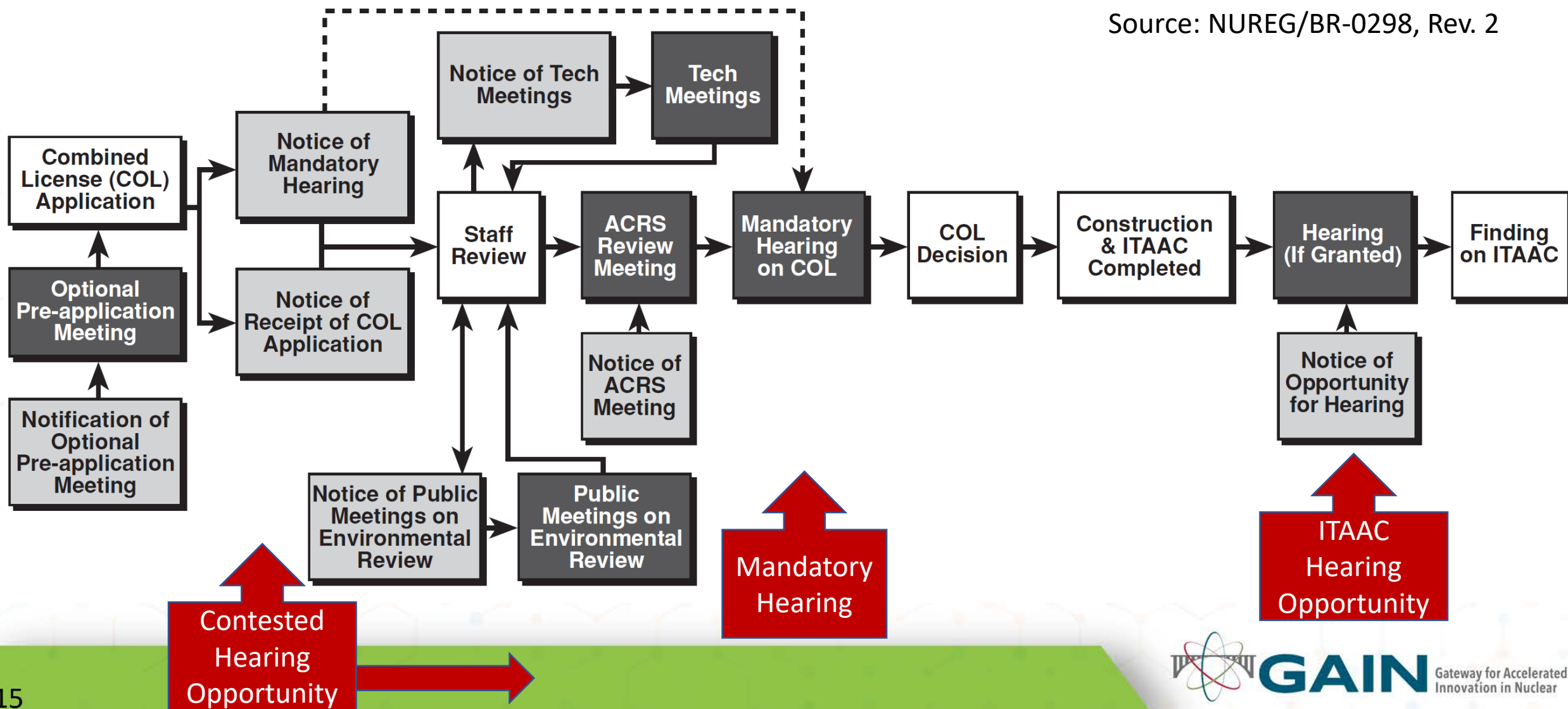
Project (Applicant)	Design	Date Received	ESP Issued	Duration
Clinton (Exelon)	PPE	09/25/2003	03/15/2007	3 years, 6 months
Grand Gulf (SERI)	PPE	10/21/2003	04/05/2007	3 years, 6 months
North Anna (Dominion)	PPE	09/25/2003	11/27/2007	4 years, 2 months
Vogtle (Southern)	AP1000	08/15/2006	08/26/2009	3 years
PSEG (PSEG)	PPE	05/25/2010	05/05/2016	6 years
Clinch River (TVA)	PPE (SMRs)	05/12/2016	12/19/2019	3 years, 7 months

Combined License

- Authorizes construction and operation of a reactor
- May reference a Design Certification and/or ESP
- Includes ITAAC
 - Must be satisfied prior to fuel load
- Application
 - General and financial information
 - Final Safety Analysis Report
 - Environmental Report
 - Emergency Plan
 - Security Plan
 - Departures
 - ITAAC
- Issued for 40-year initial term (from all-ITAAC complete finding); may be renewed for 20-year periods

Combined License (continued)

Source: NUREG/BR-0298, Rev. 2



Combined License (continued)

Proposed New Reactor(s)	Design	Applicant	Status
Aurora		Oklo, Power LLC	Under Review
Bell Bend Nuclear Power Plant	U.S. EPR	PPL Bell Bend, LLC	Withdrawn
Bellefonte Nuclear Station, Units 3 and 4	AP1000	Tennessee Valley Authority (TVA)	Withdrawn
Callaway Plant, Unit 2	U.S. EPR	AmerenUE	Withdrawn
Calvert Cliffs, Unit 3	U.S. EPR	Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC	Withdrawn
Comanche Peak, Units 3 and 4	US-APWR	Luminant Generation Company, LLC (Luminant)	Suspended
Fermi, Unit 3	ESBWR	Detroit Edison Company	Issued*
Grand Gulf, Unit 3	ESBWR	Entergy Operations, Inc. (EOI)	Withdrawn
Levy Nuclear Plant, Units 1 and 2	AP1000	Duke Energy Florida, LLC (DEF)	Issued*
Nine Mile Point, Unit 3	U.S. EPR	Nine Mile Point 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC (UniStar)	Withdrawn
North Anna, Unit 3	ESBWR	Dominion Virginia Power (Dominion)	Issued*
River Bend Station, Unit 3	ESBWR	Entergy Operations, Inc. (EOI)	Withdrawn
Shearon Harris, Units 2 and 3	AP1000	Progress Energy Carolinas, Inc. (PEC)	Suspended
South Texas Project, Units 3 and 4	ABWR	Nuclear Innovation North America, LLC (NINA)	Issued*
Turkey Point, Units 6 and 7	AP1000	Florida Power & Light Company (FPL)	Issued*
Victoria County Station, Units 1 and 2	ESBWR	Exelon Nuclear Texas Holdings, LLC (Exelon)	Withdrawn
Virgil C. Summer, Units 2 and 3	AP1000	South Carolina Electric & Gas (SCE&G)	Issued*
Vogtle, Units 3 and 4	AP1000	Southern Nuclear Operating Company (SNC)	Issued*
William States Lee III, Units 1 and 2	AP1000	Duke Energy	Issued*

- Fermi 3
- Levy Nuclear Plant Unit 1 – Terminated (4/26/2018)
- Levy Nuclear Plant Unit 2 – Terminated (4/26/2018)
- North Anna Plant Unit 3
- South Texas Project Unit 3 – Terminated (7/12/2018)
- South Texas Project Unit 4 – Terminated (7/12/2018)
- V.C. Summer Unit 2 – Terminated (3/6/2019)
- V.C. Summer Unit 3 – Terminated (3/6/2019)
- Vogtle Unit 3
- Vogtle Unit 4
- William States Lee III Nuclear Station Unit 1
- William States Lee III Nuclear Station Unit 2
- Turkey Point Unit 6
- Turkey Point Unit 7

Source: <https://www.nrc.gov/reactors/new-reactors/col.html>
<https://www.nrc.gov/reactors/new-reactors/col-holder.html>

Combined License (continued)

- COL includes authorization to construct and operate once ITAAC satisfied
- ITAAC ensure that a facility is constructed and operated in accordance with the COL and other applicable requirements
- ITAAC Example:
 - Design Commitment – pump flow rate > 100 gpm
 - ITA – test pump flow rate
 - AC – pump flow rate > 100 gpm
- ITAAC closed during construction
 - Licensee informs NRC when ITAAC satisfied
 - NRC reviews closeout letters, conducts some inspections, publishes notice
 - Operation after NRC concludes under 10 CFR 52.103(g) all ITAAC satisfied
- NRC can suspend fuel load and operation if necessary

Part 50 versus Part 52

- Part 50
 - Allows construction to begin earlier in licensing process
 - Flexibility during construction
 - Lack of finality on CP issues into OL review
 - Potential for delay in OL issuance (e.g., design evolutions during construction)
 - Repetitive hearing opportunities
 - Little recent licensing experience
- Part 52
 - More finality from licensing process
 - Changes during construction necessitate licensing actions
 - All regulatory reviews must be completed before construction can begin
 - Significant recent experience issuing certifications/licenses
 - Has not yet resulted in operation (Vogtle 3&4 nearing completion)
- Need to find right approach for your company



Contested Hearing

150 Atomic Energy Act of 1954 (P.L. 83-703)

42 USC 2238. Sec. 188. Continued Operation of Facilities
Whenever the Commission finds that the public convenience and necessity or the production program of the Commission requires continued operation of a production facility or utilization facility the license for which has been revoked pursuant to section 186, the Commission may, after consultation with the appropriate regulatory agency, State or Federal, having jurisdiction, order that possession be taken of and such facility be operated for such period of time as the public convenience and necessity or the production program of the Commission may, in the judgment of the Commission, require, or until a license for the operation of the facility shall become effective. Just compensation shall be paid for the use of the facility.

42 USC 2239. Sec. 189. Hearings and Judicial Review
a. (1)(A) In any proceeding under this Act, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees, and in any proceeding for the payment of compensation, an award, or royalties under section 153, 157, 186c., or 188, the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding. The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register, on each application under section 103 or 104b. for a construction permit for a facility, and on any application under section 104c. for a construction permit for a testing facility. In cases where such a construction permit has been issued following the holding of such a hearing, the Commission may, in the absence of a request therefor by any person whose interest may be affected, issue an operating license or an amendment to a construction permit or an amendment to an operating license without a hearing, but upon thirty days' notice and publication once in the Federal Register of its intent to do so. The Commission may dispense with such thirty days' notice and publication with respect to any application for an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration.³¹⁹
(B)(i) Not less than 180 days before the date scheduled for initial loading of fuel into a plant by a licensee that has been issued a combined construction permit and operating license under section 185b., the Commission shall publish in the Federal Register notice of intended operation. That notice shall provide that any person whose interest may be affected by operation of the plant, may

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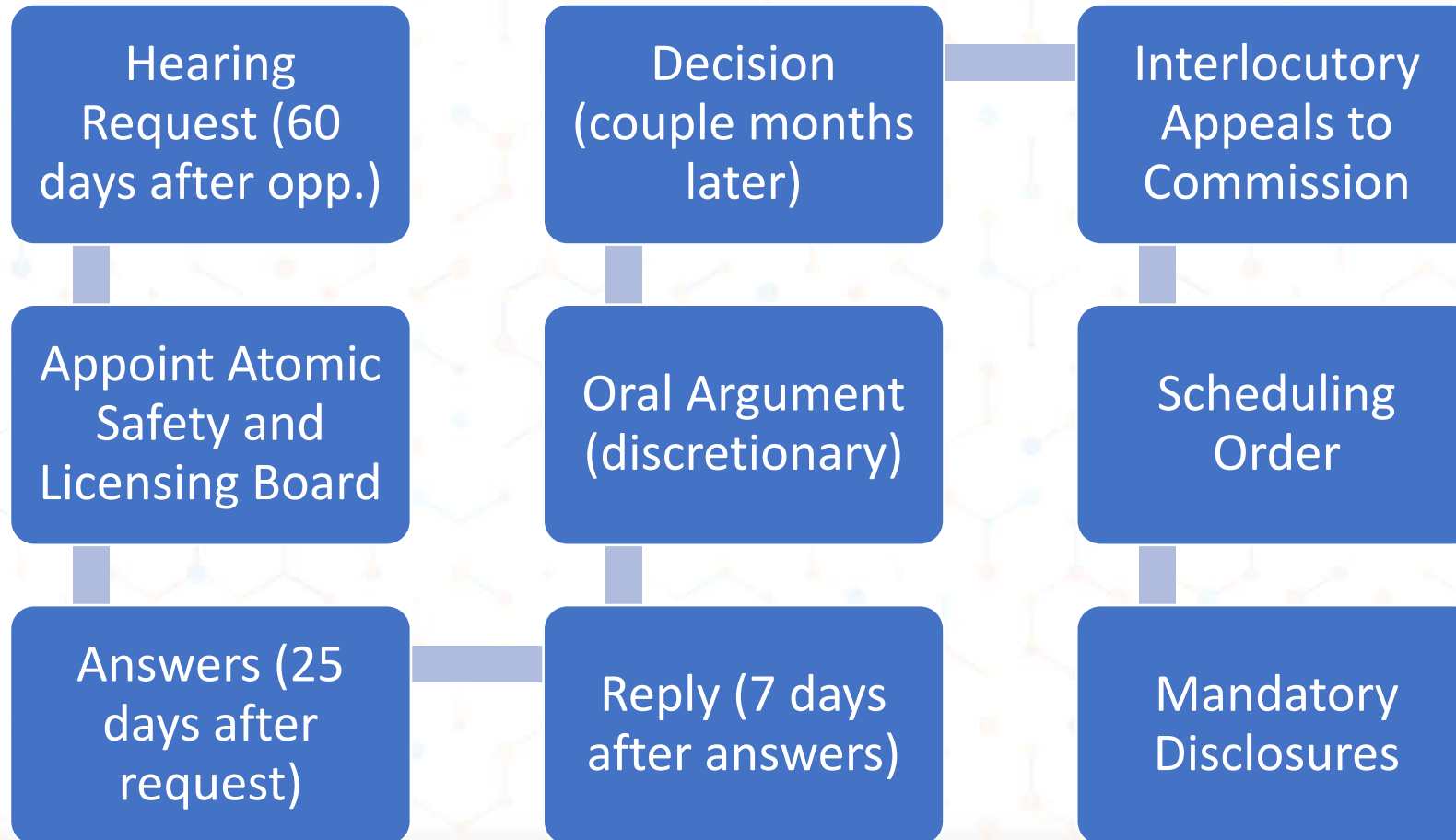
Contested Hearing – Requirements

- Four Primary Requirements for Granting Hearing
 - 1. Hearing Opportunity
 - 2. Timely
 - 3. Standing to Intervene
 - Harm
 - Causal Link
 - Redressability
 - Proximity Presumption (“obvious potential for offsite consequences”)
 - 4. Admissible Contention
 - Statement of the Issue to Be Controverted
 - Brief Explanation of the Basis
 - Within Scope of Licensing Action
 - Material to the Findings to Be Made by the NRC
 - Concise Statement of the Alleged Facts or Expert Opinions
 - Genuine Dispute Exists

Contested Hearing – Requirements (continued)

- Relevant Regulations (10 CFR Part 2)
 - Subpart C – Rules of General Applicability for Hearings
 - Subpart G – Rules for Formal Adjudications
 - Subpart L – Simplified Hearing Procedures
 - Default; almost always apply
- Atomic Safety and Licensing Board (ASLB)
 - 3 judge panel appointed (typically 1 legal, 2 technical)
 - Controls proceeding (e.g., schedule, motions rulings, decisions)
- Contention Topics
 - Environmental (e.g., endangered species, need for power, environmental justice)
 - Safety (e.g., design, accidents, seismic hazard)
 - Other (e.g., financial assurance)
 - Proposed contentions are not all created equal

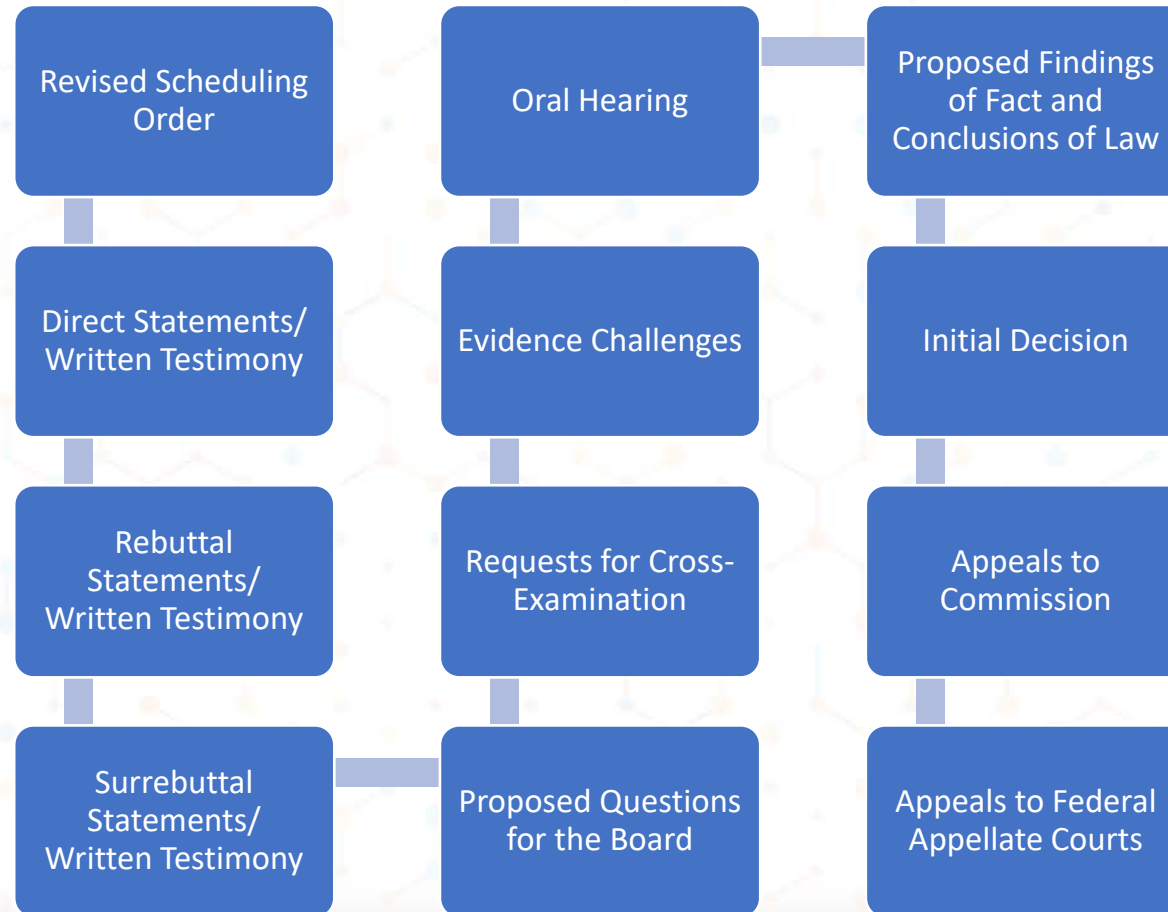
Contested Hearing – Typical Pre-Hearing Process



Contested Hearing – Activities During Application Review

- Attempts to Dismiss or Narrow Admitted Contentions
 - Motion for Summary Disposition
 - Granted if No Genuine Issue of Material Fact or Law
 - Motion to Dismiss
 - Application amendments
 - Staff documents (e.g., Draft Environmental Impact Statement)
 - Settlement
- Mandatory Disclosures
 - “A copy, or a description by category and location, of all documents and data compilations in the possession, custody, or control of the party that are relevant to the contentions . . .” 10 CFR 2.336(a)(2)
 - Agreement among parties
 - Protective Order
 - Parallel Staff Hearing File
- New or Amended Contentions
 - (i) The information upon which the filing is based was not previously available;
 - (ii) The information upon which the filing is based is materially different from information previously available; and
 - (iii) The filing has been submitted in a timely fashion based on the availability of the subsequent information

Contested Hearing – Typical Evidentiary Hearing Process



Mandatory Hearing

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42 USC 2238.

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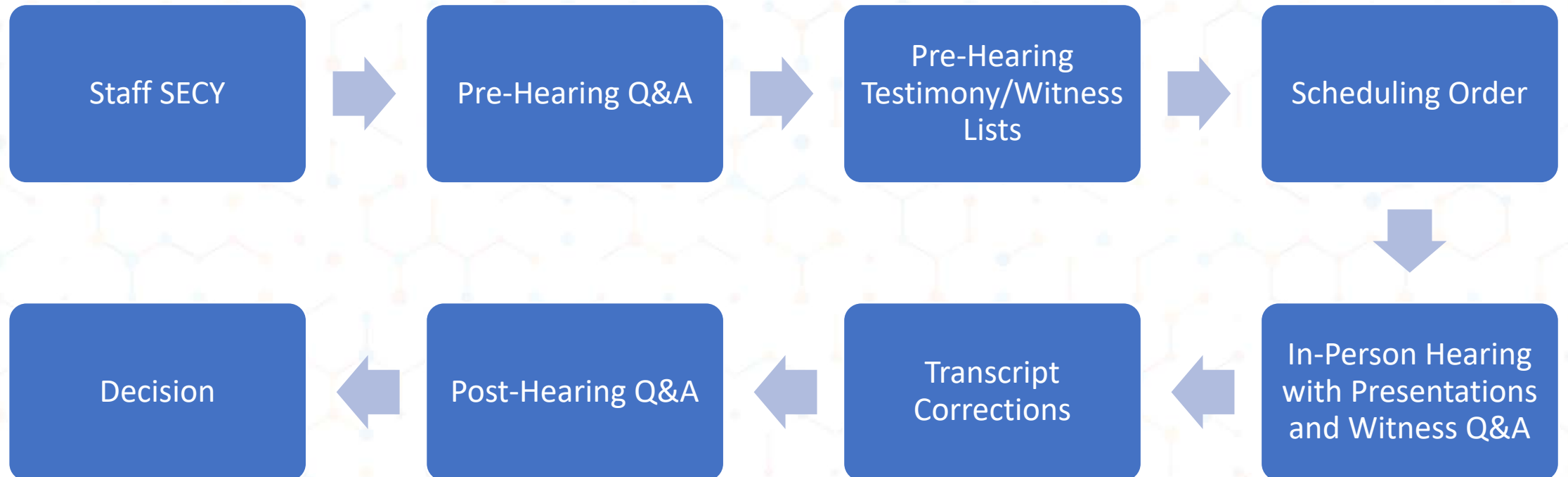
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Mandatory Hearing – Overview

- Required for “construction permits,” including ESPs and COLs
 - ESP considered partial construction permit
- Mandatory even if no challenges exist
- Applicant and NRC Staff are only parties
- Commission conducts, or delegates to ASLB
- Begins with NRC Staff SECY paper supporting licensing action
 - After Final Safety Evaluation Report/Final Environmental Impact Statement
- About 6 months from SECY paper to decision

Mandatory Hearing - Process



ITAAC Hearing

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ITAAC Hearing

- COL holder required to submit uncompleted ITAAC notification (UIN) at least 225 days before scheduled fuel load
- NRC issues Notice of Intended Operation at least 180 days before fuel load
 - Provides the opportunity to request an ITAAC hearing
 - May be published earlier (up to 285 days before fuel load if UIN submitted earlier)
- Narrow hearing opportunity:
 - Standing
 - Contention admissibility requirements
 - Must make *prima facie* showing:
 - 1. one or more of the acceptance criteria in the COL have not been, or will not be met;
 - 2. the specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety
- Claims of incompleteness
 - ITAAC closure incomplete and prevents *prima facie* showing
 - If sustained, licensee must provide information and then a new opportunity for proposing contentions

ITAAC Hearing

- Generally follows informal hearing procedures modified to address expedited schedule and specialized nature
 - Generic ITAAC hearing procedures (81 Fed. Reg. 43,266), but subject to case-specific changes
 - Template A – Notice of Intended Operation and Associated Orders
 - Template B – Procedures for Hearings Involving Testimony
 - Template C – Procedures for Hearings Not Involving Testimony
 - Template D – Procedures for Resolving Claims of Incompleteness
- Hearing process begins in front of Commission, but portions delegated to the ASLB (e.g., evidentiary hearing)

ITAAC hearing

- Hearings could delay operation
 - “The Commission shall, to the maximum possible extent, render a decision on issues raised by the hearing request within 180 days of the publication of the [NOI] or the anticipated date for initial loading of fuel into the reactor, whichever is later.” 10 CFR 52.103(e).
 - Tight hearing schedule
 - Near end of construction
- The Commission may allow interim operation under 10 CFR 52.103(c) pending completion of hearings, if reasonable assurance exists
 - E.g., challenged issue will not be present during interim operation; sufficient mitigation measures

Key Hearing Takeaways

- Adversarial process (other than mandatory hearings)
- Almost every new reactor proceeding has been challenged
 - Wide range of level of challenges (e.g., 1 vs. 5 petitioners, 1 vs. 30 contentions)
- Potential for delay because hearings may be on critical path
- Engage experienced legal counsel
- Structured process, but always unique features/uncertainties
- Prepare ahead of time
 - Ensure documentation in order
 - Account for hearing possibility in schedules and budgets
- Applicants typically prevail because flexibility to address any valid contested issues