ENERGY 393-94T / ENERGY 795-96T

Reexamining Nuclear Power in the Carolinas and Beyond (2026–2027)

Bass Connections in Energy & Environment

Fall 2026 / Spring 2027

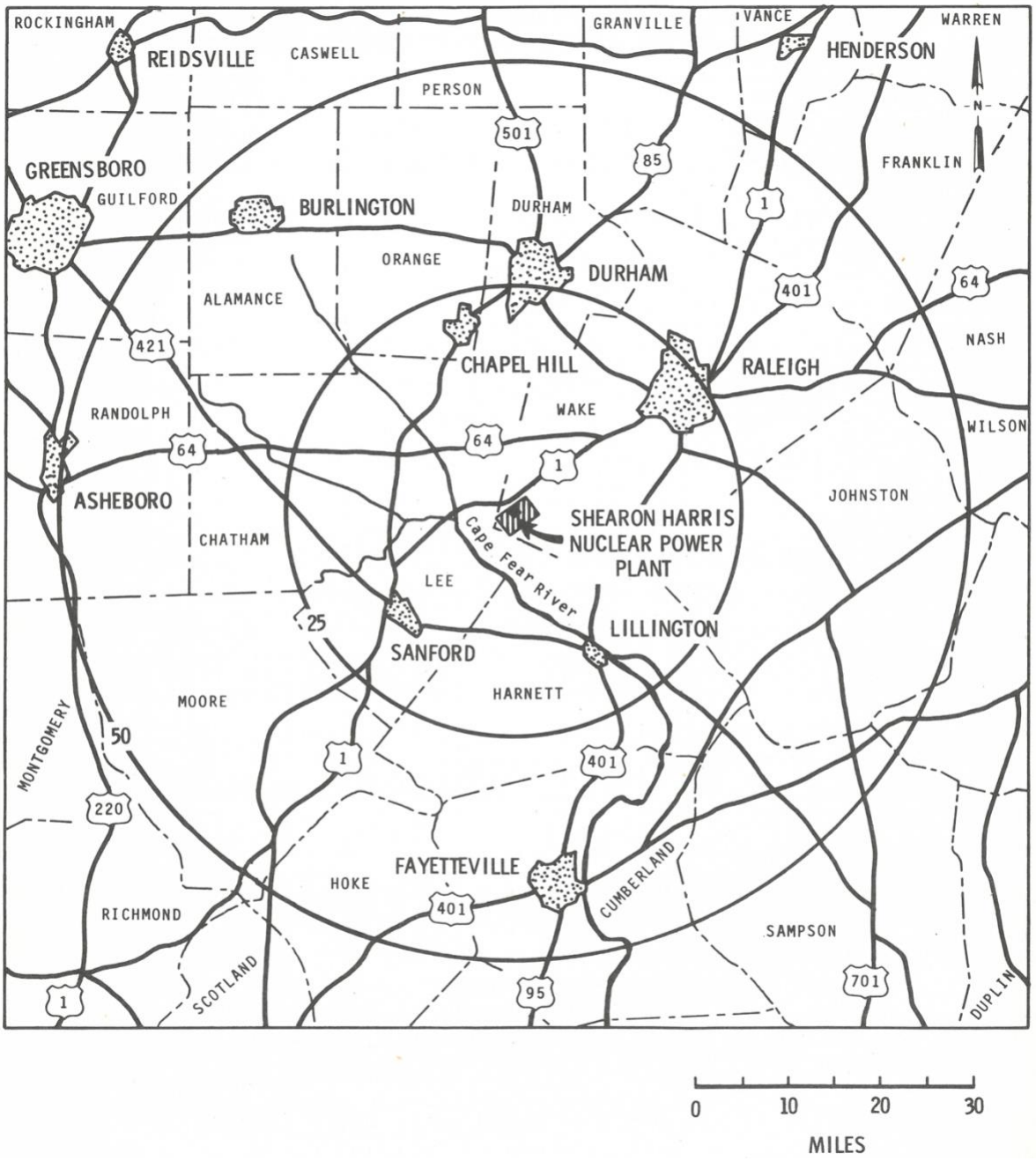


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Cover Image: U.S. Atomic Energy Commission, Directorate of Licensing, *Revised Final Environmental Statement Related to Construction of Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4, Carolina Power and Light Company, Docket Nos. 50-400, 50-401, 50-402, 50-403* (Washington, DC: U.S. Atomic Energy Commission, March 1974), Figure 2.1 Plant Site and Surrounding Area, available via U.S. Nuclear Regulatory Commission, Agencywide Documents Access and Management System (ADAMS), https://www.nrc.gov/docs/ML0633/ML063330486.pdf.

ACKNOWLEDGEMENTS

This syllabus represents the accumulated knowledge and experience of two previous Bass Connections project teams (2024–2025 and 2025–2026). What is more, it incorporates the advice of a broad array of subject-matter experts in- and outside of Duke University, including Jeffrey A. Albano (Energy Solutions Barnwell), Alex Crowell (Triangle Universities Nuclear Laboratory), Bryan Koen (Nicholas Institute for Energy, Environment & Sustainability), Edwin S. Lyman (Union of Concerned Scientists), Michael McCracken (Southern Nuclear), Colleen Nieto (NIEES), Caroline R. Peyton (University of Memphis), Jonathan Phillips (NIEES), Thomas R. Wellock (U.S. Nuclear Regulatory Commission), and Kelly Woods (Duke Energy). This syllabus, then, benefits at least much from their generosity and insights as it does those of the team's leaders.

1. OVERVIEW

1.1. Problem

This Bass Connections project team seeks to address the contested role of nuclear power in clean energy systems in general and North Carolina's electrical grid in particular. Each year, nuclear plants not only provide a quarter of the world's low-carbon electricity but also prevent 470 million metric tons of CO2 emissions – the same as the exhaust from 100 million passenger cars. Yet despite such contributions, the use of nuclear power in advanced economies faces an uncertain future. Natural disasters, public opposition, regulatory uncertainty, shrinking investment, and cheaper (if dirtier) alternatives have all threatened or diminished the largest nuclear fleets just as the global demand for clean energy has surged. Indeed, the International Energy Agency has even predicted that without action nuclear power in advanced economies could fall by two-thirds before mid-century. Such a "nuclear fade case," as experts call it, would have far-reaching consequences, especially in North Carolina, where nuclear power accounts for almost a third of state-generated electricity supply. This project, then, aims to critically reexamine nuclear power as a cornerstone of low-carbon electricity generation on local, national, and global scales.

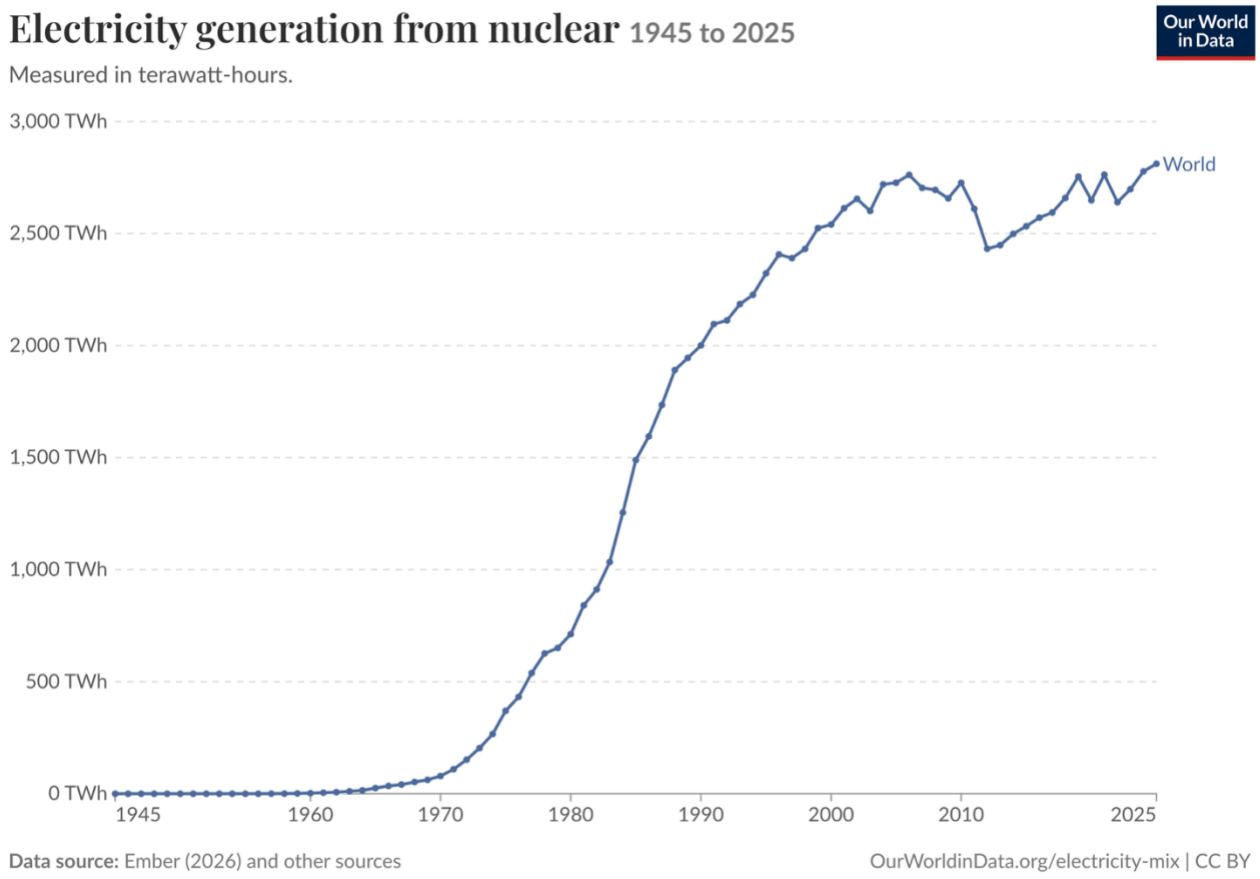


Figure 1: ***World electricity generation from nuclear power, 1945–2025, in terawatt-hours.*** *The chart shows global nuclear output growing from negligible levels before 1960 to a peak of nearly 2,700 TWh by the mid-2000s, a dip following the Fukushima accident in 2011, and a renewed climb toward record highs by 2025.* Source: Ember (2026) and other sources; chart from Our World in Data, https://ourworldindata.org/nuclear-energy.

1.2. Goal

This Bass Connections project team's overarching goal is to produce two publications for the Nicholas Institute for Energy, Environment & Sustainability, each examining the historical and regulatory context of a real Duke Energy nuclear licensing effort: the Shearon Harris Units 2 & 3 Combined License (COL) application and the Belews Creek Early Site Permit (ESP) application. These two publications are conceived as a follow-on to a broader Nicholas Institute publication on the history of nuclear power in the Carolinas that is currently in the editing phase, extending that regional narrative into site-specific case studies.

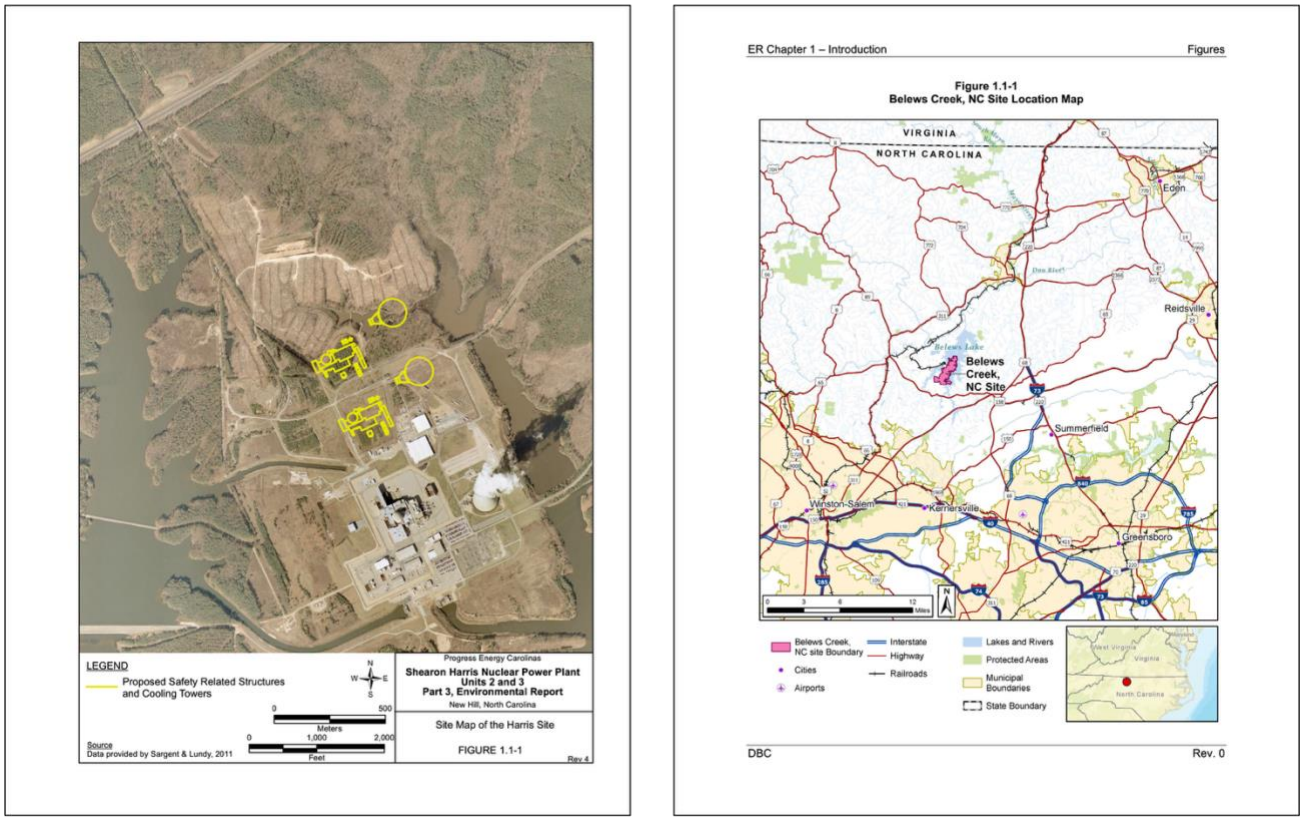


Figure 2: *Figure 1.1-1 site maps for two proposed nuclear power plant sites in North Carolina.* *Left: aerial site map of the Shearon Harris Nuclear Power Plant, New Hill, NC, showing proposed safety-related structures and cooling towers for Units 2 and 3 (Docket Nos. 52-022 and 52-023). Right: regional location map of the Belews Creek, NC site (Docket No. 52-055), showing the site boundary relative to nearby cities, highways, and Belews Lake.* Source: Both images were accessed from the U.S. Nuclear Regulatory Commission's Agencywide Documents Access and Management System (ADAMS); the Shearon Harris figure is available at https://www.nrc.gov/docs/ML1311/ML13112A782.pdf, and the Belews Creek figure is available at https://www.nrc.gov/docs/ML2536/ML25364A006.pdf.

To reach that goal, the team builds a shared historical and methodological foundation in nuclear power—from the discovery of fission through today's "second nuclear era," its accidents, its alternatives, and its present-day stakes—paired with practiced skill in reading primary and regulatory sources. Working in site-specific sub-teams, members then parse the actual NRC filings for Harris and Belews Creek section by section, tracing each application's administrative history, safety analysis, environmental review, and emergency-planning and security provisions. That regulatory analysis is layered with original archival research into each

site's pre-nuclear and nuclear-era community history—land acquisition, displaced families, and early agency correspondence—so that the final publications tell one continuous "then vs. now" story rather than treating history and regulation as separate threads. The team ultimately merges this work into finished, public-facing reports for both sites, alongside a team poster for the Fortin Foundation Bass Connections Showcase, translating close archival and regulatory scholarship into accessible accounts of nuclear power's contested role in North Carolina's and the nation's clean-energy future.

1.3. Historical / Institutional Context

At the turn of the twentieth century, James B. Duke launched an ambitious campaign to modernize the Piedmont Carolinas. Establishing the Southern Power Company, Duke and his associates dammed portions of the Catawba River to electrify a growing business empire of tobacco warehouses, cotton mills, and furniture factories. The company's goal, as Duke himself declared, was to industrialize the region with "white coal," or underutilized hydropower. And from that perspective, the venture succeeded spectacularly.[1] By 1912, it boasted a total generating capacity of 84,000 horsepower; and by 1924, a capacity of more than 700,000 horsepower, the largest in the region. Simultaneously, Southern Power even became multinational, leading the construction of Canada's Ile Maligne Hydroelectric Station, then the largest in the world.[2]

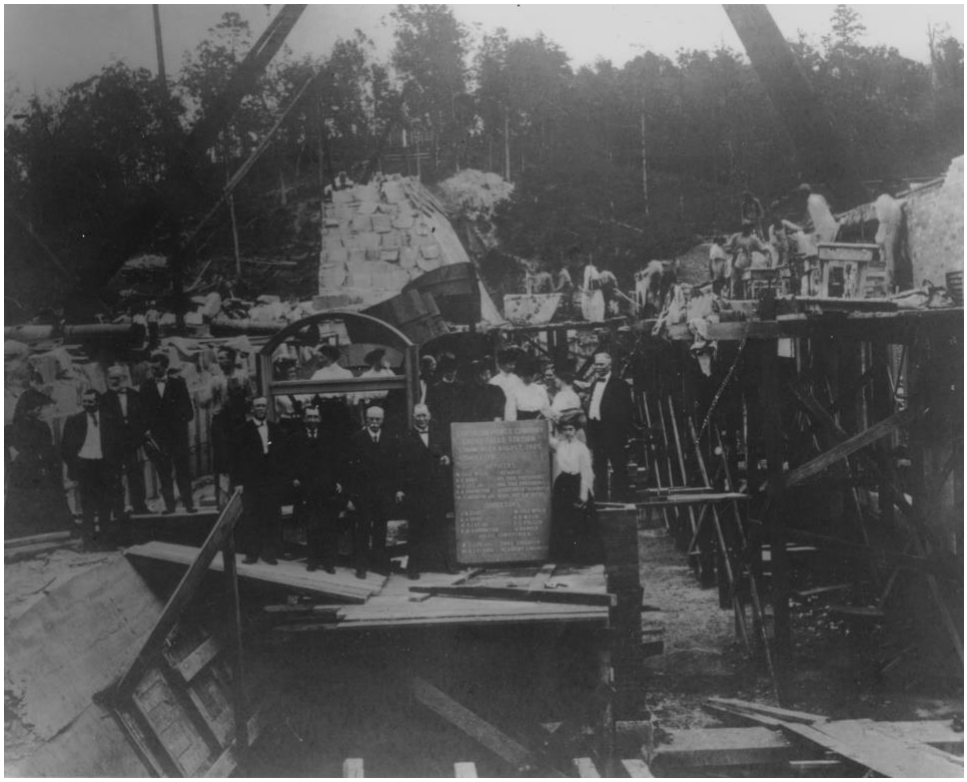


Figure 3: *Southern Power Company Directors, Great Falls Station, Catawba River, S.C., 1905.* Source: Rubenstein Library, Doris Duke Photographs, https://idn.duke.edu/ark:/87924/r4028sq54.

[1] Christopher J. Manganiello, *Southern Water, Southern Power: How the Politics of Cheap Energy and Water Scarcity Shaped a Region* (Chapel Hill, N.C.: University of North Carolina Press, 2015), 47–49.
[2] David Massell, *Amassing Power: J. B. Duke and the Saguenay River, 1897-1927* (Montreal: McGill-Queen's University Press, 2000), 57.

The achievements of what one influential sociologist later dubbed "the Piedmont Crescent of Industry" came at a cost, however.[3] Straightjacketed by dams and artificial reservoirs, North Carolina's rivers receded and overflowed with frustrating irregularity, casting doubts over white coal's potential to fuel the Southeast's modernization. The debate came to a head in 1925 when drought-induced blackouts compelled Southern Power to adopt a new operating strategy. For the next seventy years, the company and its successors, including the Duke Energy Corporation, built a fleet of thermal power plants along the very same reservoirs originally engineered for hydroelectric generation.[4] Ironically, the shift led James Duke's brainchild to become synonymous not only with ordinary black coal, but also with nuclear power.[5] By 1986, Duke Energy operated a fleet of three nuclear power plants. Yet it had also abandoned plans to build two others, including one just an hour's drive from Duke University.



Figure 4: ***Aerial View of Duke Power's Cancelled Nuclear Station, Cherokee County, SC, 1989.*** Source: U.S. Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Aerial Imagery Collection.

3 Rupert B. Vance, *Human Geography of the South: A Study in Regional Resources and Human Adequacy* (Chapel Hill, N.C.: University of North Carolina Press, 1932), esp. chap. 12.

4 Christopher J. Manganiello, "Hitching the New South to 'White Coal': Water and Power, 1890–1933," *The Journal of Southern History* 78, no. 2 (2012): 255–92.

5 Eliot Marshall, "Bloody Harlan Revisited," *New Republic* 170, no. 23 (June 8, 1974): 14–16.

As participants in this project team, we have a special responsibility to learn from Duke's own energy history, one in which James B. Duke played but a part. Yet what does that responsibility entail, exactly, and what should we do about it? Working together, we will devote considerable time throughout the term to exploring these questions and debating our conclusions. Driven by a common desire to secure a sustainable energy future, we will strive to become better citizens of our campus, our communities, and our shared planet.

1.3. Crediting

All students on this project team will receive academic credit each semester by enrolling in the team's tutorial listing under the Energy & Environment theme's ENERGY 393T/394T & 795T/796T subject code (1 credit for undergraduates, 3 for graduate students), as outlined by Bass Connections.

Because Trinity is phasing in a new Arts & Sciences (A&S) Curriculum for students matriculating in Fall 2025 or later, the curricular codes attached to that tutorial differ by matriculation year. Students who matriculated before Fall 2025 remain under the sunsetting Curriculum 2000 and will receive Social Sciences (Fall), Research (Spring), and Small-Group Learning Experience (Fall & Spring) codes for the Energy & Environment theme. Students who matriculated in Fall 2025 or after fall under the new Arts & Sciences Curriculum and will instead receive a single Social & Behavioral Analysis (Spring) code. (The theme's alternative Natural Sciences / Investigating the Natural World track does ***not*** apply to this team.)

Undergraduate Public Policy majors may also be able to apply their participation on this team toward the Sanford School's undergraduate internship requirement, provided they simultaneously complete a supervised, individual policy-research project and submit the required Sanford paperwork by the school's deadlines.

Finally, one or two students taking on substantial writing responsibilities may be able to earn a Writing (W) code through a research independent study set up alongside the team's regular tutorial; students interested in this option should raise it with the team leaders as early as possible.

Term	Undergrad Tutorial	Graduate Tutorial	Curriculum 2000 Codes	A&S Curriculum Codes
Fall 2026	*ENERGY 393T*	*ENERGY 795T*	*Social Sciences (SS)*	*— (no code)*
Spring 2027	*ENERGY 394T*	*ENERGY 796T*	*Research (R); Small-Group Learning Experience (SGLE)*	*Social & Behavioral Analysis*

1.5. Important Due Dates

The table below highlights nine key deliverable due dates across the project's four quarters, from the shared timeline document produced early in the regulatory-filing analysis through the final report submission and team showcase presentation. It also flags the tentatively scheduled site visit to the Shearon Harris Nuclear Power Plant on January 22, 2027, which serves as a shared calibration point for both the Harris and Belews Creek sub-teams, connecting the team's archival and regulatory research to direct, on-site observation. Dates are drawn from the syllabus schedule and are subject to change as the term progresses.

Milestone / Meeting	Date	Deliverable Due
Meeting 10 — Administrative History & Submission Chronology	*Friday, October 23, 2026*	*Shared timeline document (Harris and Belews Creek) for use in final briefing reports*
Meeting 12 — Environmental Report	*Friday, November 6, 2026*	*Two-page plain-language environmental-impact summary per project (rough draft)*
Meeting 15 — Briefing Report Drafting & Peer Review	*Friday, December 4, 2026*	*Complete outlines of both public-facing briefing reports*
Meeting 18 — Site Visit: Shearon Harris Nuclear Power Plant	*Friday, January 22, 2027 (tentative)*	*Reflective Research Diary Entry; guided tour serves as shared calibration for both sub-teams*
Meeting 21 — Quarter 3 Synthesis & Transition to Quarter 4	*Friday, February 19, 2027*	*Consolidated site-history-and-regulatory-analysis packet (per sub-team)*
Meeting 25 — First Full Drafts	*Friday, March 19, 2027*	*Complete first-draft report (per sub-team) and complete first-draft poster (team-wide)*
Poster submission (hard external deadline, outside regular meeting)	*Tuesday, April 6, 2027, 5:00 p.m.*	*Submission-ready poster file, submitted via official online form*
Meeting 29 — Final Polish & Showcase Readiness	*Friday, April 16, 2027*	*Final report (per sub-team), submitted per instructor guidance*
Meeting 30 — 2027 Fortin Foundation Bass Connections Showcase	*Tuesday, April 20, 2027*	*Standalone event: team presents poster and fields questions*

Nota bene: The Shearon Harris site visit is tentative, pending confirmation with the plant. If it does not materialize by January 22, 2027, that session reverts to a standard integration workshop and the tour is rescheduled.

2. LOGISTICS

2.1. Team Leaders

This project team is guided by three leaders who together set the overall vision and direction of the research, oversee the team's progress, and foster the collaborative, hands-on environment central to the Bass Connections model. Tom J. Cinq-Mars, Lecturing Fellow at the Nicholas Institute for Energy, Environment & Sustainability, and Brooke Guthrie, Research Services Librarian at the David M. Rubenstein Rare Book and Manuscript Library, serve as team leaders and instructors of record, while Carson Holloway, Emeritus Librarian and External Academic Collaborator with the Nicholas Institute, contributes as an external academic collaborator. Their complementary backgrounds in energy research and archival scholarship anchor the team's dual focus on regulatory analysis and historical inquiry.



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In addition to the team's leaders, Jonathan Phillips, Director of the James E. Rogers Energy Access Project at the Nicholas Institute for Energy, Environment & Sustainability, Sam Miglarese, Adjunct Instructor in the Program in Education, and Alex Crowell, Program Director for the Research Experiences for Undergraduates program at the Triangle Universities Nuclear Laboratory (TUNL), serve as team contributors. Though not pictured above, both provide invaluable advice and expertise that helps guide the project team's work throughout the year.

2.2. Meeting Times & Locations

Throughout the 2026–2027 academic year, the project team will meet weekly on Fridays from 11:45 a.m. to 2:15 p.m. in Gross Hall 100C ("The Generator"). All students are expected to attend every team meeting; anyone unable to attend should notify Tom well in advance of the absence. In addition to weekly team meetings, Tom holds drop-in office hours on Monday afternoons from 1:00 to 3:00 p.m. in Gross Hall 102R, offering students an additional opportunity to check in one-on-one.

#	Event Type	Day	Time	Location
1	*Office Hours*	*Monday*	*1:00-3:00 p.m.*	*Gross Hall 102R*
2	*Weekly Meeting*	*Friday*	*11:45 a.m. -2:15 p.m.*	*Gross Hall 100C*

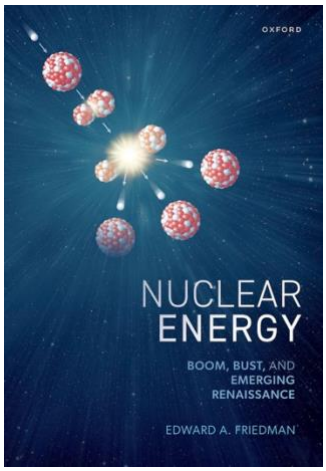
Beyond the scheduled Friday meeting, students should also expect to meet independently in sub-teams or smaller groups to advance the project's work, particularly as the team moves deeper into the academic year and takes on more focused, site-specific research. In sum, students should plan to commit roughly the same amount of time to the project as they would to a standard course — about 12 hours per week.

2.3. Learning Management System

This project team will use the Canvas Learning Management System to submit written work, review slide decks, and engage with other project materials, among several other tasks. At the start of the year, be sure to familiarize yourself with the team's Canvas site and its tools. To access it, follow this hyperlink: https://canvas.duke.edu/courses/84459. Should you have any questions about Canvas, be sure to connect with Tom as soon as possible.

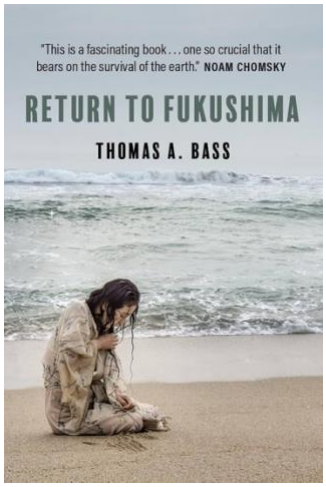
2.4. Textbooks & Materials

To guide our inquiry during the first seven weeks of the year (Quarter 1's "bootcamp"), the team will use two textbooks, both new 2025 publications provided to students free of charge. The first is *Nuclear Energy: Boom, Bust, and Emerging Renaissance* (Oxford University Press, 2025) by Edward A. Friedman. A sweeping survey of nuclear power's technical, political, and economic history, Friedman's book serves as our primary text throughout Quarter 1, anchoring the week-by-week progression from fission's discovery through the accidents, alternatives, and emerging technologies that define the current "second nuclear era." The second is *Return to Fukushima* (OR Books, 2025) by Thomas A. Bass, a firsthand journalistic account that will deepen our discussion of nuclear accidents and their long aftermath, particularly around Meeting 5.



Edward A. Friedman, *Nuclear Energy: Boom, Bust, and Emerging Renaissance*, (Oxford University Press, 2025).

Friedman traces the arc of nuclear power from the discovery of fission through the "first nuclear era" of rapid post-war expansion, the industry's subsequent contraction after high-profile accidents and cost overruns, and its present-day resurgence amid growing demand for low-carbon energy. The book moves country by country and reactor generation by generation, covering technical fundamentals alongside the political, regulatory, and economic forces that have shaped the technology's fortunes. Its broad scope and short, focused chapters make it well suited to grounding the team in the full sweep of nuclear history before turning to site-specific regulatory work in later quarters.



Thomas A. Bass, *Return to Fukushima* (OR Books, 2025).

Bass revisits the site of the 2011 Fukushima Daiichi disaster more than a decade later, chronicling the region's slow and uneven recovery alongside the human stories of residents, workers, and officials still grappling with its consequences. Written in a journalistic, on-the-ground style, the book pairs technical explanation of the accident with a sustained inquiry into how communities and institutions respond to nuclear catastrophe over the long term. For the team, it offers a close, human-scale counterpoint to the more institutional and technical material covered elsewhere in the bootcamp, particularly around the unit on nuclear accidents.

2.5. Safety & Security

Throughout history, the United States' national defense has required that certain information be maintained in confidence to safeguard U.S. citizens, democratic institutions, homeland security, and interactions with foreign nations. Today, preserving critical U.S. national security information, including some nuclear information, remains a top priority. Nuclear information is protected by the Atomic Energy Act (AEA) of 1954, as amended. The U.S. Department of Energy (DOE) implements the AEA requirements for classification and declassification of nuclear information via 10 CFR 1045, Nuclear Classification and Declassification. The point here is simply that this team will be operating in a space considered vital to national security by federal authorities. You must therefore conduct yourself accordingly, especially during site visits, or risk facing grave consequences.

3. PEDAGOGY

3.1. Learning Objectives

To define the project team's learning objective, the team leaders have adopted a pedagogical framework known as Bloom's Taxonomy. Formulated in 1956 and revised in 2001, Bloom's Taxonomy has provided generations of college instructors with an effective roadmap for guiding students' work with knowledge. It comprises six main categories of educational goals lying along a continuum from simple to complex. The act of Remembering represents the simplest type of cognitive process, the act of Creating the most complex. In addition, this course adds a seventh category, the act of Collaborating, an even more demanding core competence essential to success in any job, career, and major undertaking.

#	Category	Description
1	*Remembering*	*Recall key milestones in the history of nuclear power, from the discovery of fission through the First and Second Nuclear Eras, and identify the major reactor accidents (Three Mile Island, Chernobyl, Fukushima) that have shaped public and regulatory attitudes toward the technology.*
2	*Understanding*	*Explain the structure and function of an NRC licensing application — including the Combined License (COL) and Early Site Permit (ESP) pathways — in terms of the safety, environmental, and emergency-planning requirements each is designed to satisfy.*
3	*Applying*	*Apply archival research methods (observation, contextualization, comparison) to primary sources — regulatory filings, agency correspondence, county histories, newspapers — in order to reconstruct a nuclear site's pre-nuclear and nuclear-era history.*
4	*Analyzing*	*Analyze the relationship between a nuclear site's historical development (land acquisition, community displacement, early regulatory engagement) and its modern licensing record, identifying where the two accounts align, diverge, or leave gaps.*
5	*Evaluating*	*Evaluate competing perspectives on nuclear power's role in a low-carbon energy future — from industry, regulatory, and advocacy sources — assessing the strength of evidence and the interests underlying each stance.*
6	*Creating*	*Compose original elements of a public-facing briefing report that translates complex historical and regulatory findings about a specific nuclear project into an accurate, accessible narrative for a general audience.*
7	*Collaborating*	*Work within a sub-team to divide research responsibilities, synthesize findings across parallel workstreams, and jointly produce a shared deliverable — such as a briefing report or team poster — that reflects the group's collective analysis.*

3.2. Teaching Philosophy

To help you achieve the learning objectives above, this project team is led according to three principles derived from academic training, classroom experience, and continuous reading in the field of college teaching. Students interested in learning more about these principles are warmly encouraged to consult with Tom, Brooke, and Carson, who are always eager to discuss ideas about teaching with students.

Principle 1: *Historians are information processors par excellence.* Although partial to the written word, historians weave together narratives using broad arrays of materials. Statistics, photographs, maps, engineering schematics, art — all have proven indispensable to richly textured studies of the past. This ability to synthesize vast and varied sources in compelling ways, Tom argues, sets historians apart from other scholars. When finely honed, it empowers practitioners to tackle major societal problems better than even the most advanced artificial intelligence — to become, in short, robot-proof. Thus, this course leverages a kaleidoscope of sources to help you cultivate a creative mindset that no smart machine can ever match.

Principle 2: *Studying history requires getting our hands dirty (literally).* The past is not just an abstraction. It persists in the material world around us — on our campus, in our homes, and even throughout the ground beneath our feet. Learning the history of energy, then, means engaging not only a variety of artefacts but also a variety of human senses, especially touch. To that end, several lessons in this course include hands-on components aimed at placing you in physical contact with things like fire, steam, coal, slag, and oil – messy substances one and all. Regardless, these exercises, when properly carried out, are eminently safe and designed to show you an academic discipline that is as much tactile as textual.

Principle 3: *Collective efforts yield impactful scholarship.* Popular histories often emphasize heroic achievements, or the work of exceptional individuals. We know, for example, that Darwin alone wrote On the Origin of Species (1859); that Einstein single-handedly revolutionized theoretical physics; that Carson all but launched the environmental movement on her own. Yet careful investigations of the past just as often reveal the prosaic realities behind such stylized narratives. In truth, the great majority of history's movers and shakers benefited from the support of others less known to us. Moreover, the most lasting achievements, including the advancement of entire industries, generally prove impossible to trace to any one person. Much of this course, therefore, is dedicated to leveraging the power of teamwork.

3.3. A Typical Team Meeting

Even the most engaged researchers have limited attention spans, especially across a two-and-a-half-hour block. To keep the team focused and productive, we will divide most Friday meetings into a series of shorter activities rather than one long, undifferentiated session. The table below outlines an example agenda for a typical meeting. Note that the order and balance of activities will shift over the course of the year — Quarter 1 meetings lean more heavily on shared readings and skill-building, while Quarter 2 onward gives more time to sub-team research and cross-team share-outs — and several meetings will include unstructured time for hands-on document or archival work.

#	Activity	Description	Time
1	*Warm Up*	*A brief check-in or prompt connecting the day's assigned readings or research diary entries to the meeting's milestone.*	*10 min*
2	*Full-Team Discussion*	*A team-wide conversation working through the week's readings, sources, or shared reference materials (timeline, glossary, source-evaluation notes).*	*35 min*
3	*Skill Practice / Workshop*	*A hands-on exercise practicing the week's core skill — close observation, contextualization, comparison, or reading a technical/regulatory source.*	*25 min*
4	*Sub-Team Work*	*Time for the Harris and Belews Creek sub-teams (once formed) to work in parallel on their assigned sections of the licensing applications or site-history research, or for rotating sub-groupings during Quarter 1.*	*40 min*
5	*Share-Out & Explainer*	*A brief report-back from sub-teams or a short explainer from Tom tying the day's work back to the meeting's milestone.*	*25 min*
6	*Cool Down*	*A look ahead to the next meeting's readings and deliverables, plus time for clarifying questions.*	*15 min*

3.4. Team Culture

A positive team culture is one that this team will build together, not one imposed from above. During our early meetings, we will work as a group to establish a short list of team norms — the shared expectations and boundaries that define how we treat one another and hold ourselves accountable. Rather than a preset list, these norms will emerge from open conversation: each member is invited to name a behavior they consider critical to the team's success, and the group will discuss, refine, and ultimately agree to abide by the resulting set. Once established, our norms will be posted prominently and revisited whenever the team needs to course-correct. While the specific language is ours to determine together, common starting points include letting one person speak at a time, listening with an open mind, holding all team members as equals, focusing on interests rather than positions, embracing constructive debate and disagreement, keeping commitments, and providing candid and constructive feedback. In addition to these norms, a healthy team culture depends on full participation, a willingness to discuss difficult issues directly rather than letting them fester, and a genuine effort to learn from the diverse perspectives and expertise each member — student and leader alike — brings to the project.



Figure 5: Grizzled veterans of this project team in March 2026 pose in front of Plant Vogtle Unit 3 in Waynesboro, Georgia during a guided tour. They exhort you to take this project seriously and to do your able best.

3.5. Academic & Wellness Resources

Effortless perfection is a myth. The reality is that learning at the college level pushes us to our intellectual, emotional, and physical limits, even when everything else in life is going well. To navigate these challenges, you are encouraged to explore the many academic and wellness resources Duke provides, including those listed below. After interacting with these places, students often emerge feeling more relaxed, better prepared, and wishing only that they had gone sooner.



Academic Resource Center (ARC): Offers free academic support services like peer tutoring to any Duke undergraduate student, in any year, studying in any discipline. Helpful resources include a real-time map of campus study spaces. For more information, and to schedule a consultation, check out ARC's website: https://arc.duke.edu/.



Writing & Communications Center: Facilitates critical and creative writing through collaborative workshops, writing groups, and events. Free non-evaluative consultations with specialized writing consultants offered in person and online. For more information, and to schedule a consultation, see the Center's website: https://wrp.duke.edu/wcc.



Center for Data & Visualization Sciences: Staffed by consultants who can help with a variety of data projects and related computing problems. Consultations in the Brandaleone Lab, on the first floor of Bostock Library, are available during walk-in hours as well as by appointment. Workshops on programming languages offered regularly. See https://library.duke.edu/data.



DukeReach: Provides comprehensive outreach services to students experiencing difficulties related mental health, physical well-being, social adjustment, post-hospitalization, and coordination of care. Encourages reports of non-emergency concerns from students, faculty, and staff. For information, see https://students.duke.edu/wellness/dukereach/.



Counseling & Psychological Services (CAPS): A short-term care clinic that provides individual and group counseling, including couples counseling, as well as a wide range of skill-building workshops and assistance with referrals for more specialized services. Located on the third floor of the Student Wellness Center next to Penn Pavilion. For information, see https://students.duke.edu/wellness/caps/.

4. ACCOUNTABILITY

4.1. Core Policies

Like most all regular courses, this project team follows a set of policies designed to support academic integrity, fairness, and a productive learning environment for everyone. Please review the guidelines below regarding academic integrity, attendance, accommodations, and classroom conduct, and AI tools. Most policies allow for flexibility in cases of genuine need. But this generally requires reaching out to team leaders in advance. If you have any questions about how these policies apply to your situation, don't hesitate to ask.



Academic Integrity: While completing this course, you are expected to uphold the Duke Community Standard. The Registrar's annual bulletin entitled *The Duke Community Standard in Practice* explains what this means in detail. Likewise, many students find the Duke Libraries' resources on avoiding plagiarism to be helpful: https://library.duke.edu/research/plagiarism.



Late Work: All deliverables must be submitted before the start of the appointed team meeting. Should you need extra time to complete an assignment, contact Tom in advance of the due date or as soon as possible thereafter. Without Tom's written approval, late submissions will result in a reduction of five points per day late.



Attendance: You are expected to attend and participate in every team meeting and site visit. Excessive tardiness, or arriving to a meeting more than 15 minutes late, will count as an absence. In the event of a short-term medical issue or instance of distress, you should consult with Tom at your earliest convenience and submit an Incapacitation Form: https://class-absences.trinity.duke.edu/if/.



Accommodations: Since all students have the right to have certain accommodations met, you are encouraged to notify Tom about any needs as soon as possible. In addition, you are strongly encouraged to consult Duke's Disability Management System. For helpful information on Duke's accommodations policies, see https:// access.duke.edu/requests.



Artificial Intelligence: Students are allowed to use advanced automated tools (artificial intelligence or machine learning tools like ChatGPT) on assignments in this course if instructor permission is given in advance. Unless given permission to use those tools, you are expected to complete each assignment without substantive assistance from automated tools.

4.2. Deliverables & Evaluation

For most Quarter 1 meetings, you'll write a research diary entry on that week's readings — tracking your evolving understanding of nuclear power's history, technology, and regulation. This independent portfolio, capped by a reflection after the Shearon Harris site visit, builds the shared foundation the project relies on.

Most work, though, happens collaboratively in your Harris or Belews Creek sub-team. Q2: short analytical deliverables (fact sheet, timeline, environmental-impact summary, briefing outline) while working through your site's NRC licensing application. Q3: archival research — annotated bibliography entries, an integration memo linking history to regulation, and a consolidated site-history/regulatory-analysis packet. Q4: a full draft of your public report, a contribution to the team's showcase poster, and final versions of both.

Table below: deliverables by work mode, occurrences, and grade weight.

#	Title	Work Mode	Deliverable	Occs.	Weight
1	*Bootcamp Portfolio*	*Individual*	*Research Diary Entry*	*7*	*14%*
			Reflective Research Diary Entry (Site Visit)	*1*	*3%*
2	*Regulatory Filing Analysis*	*Collaborative (Sub-Team)*	*Project Fact Sheet*	*1*	*4%*
			Shared Timeline Document	*1*	*5%*
			Environmental-Impact Summary	*1*	*5%*
			Briefing Report Outline	*1*	*6%*
3	*Site History & Integration*	*Collaborative (Sub-Team)*	*Annotated Bibliography Entries*	*1 (set)*	*5%*
			Integration Memo	*1*	*6%*
			Consolidated Site-History Packet	*1*	*9%*
4	*Final Report & Showcase*	*Collaborative (Sub-Team & Full Team)*	*First-Draft Report*	*1*	*8%*
			First-Draft Poster (Full Team)	*1*	*6%*
			Submission-Ready Poster (Full Team)	*1*	*6%*
			Final Report	*1*	*23%*

4.3. Personal Engagement & Reflection

Beyond the deliverables outlined above, we also want you to make space for genuine reflection throughout the year. Bass Connections experiences are fast-paced and multi-faceted, often requiring students to adapt quickly to new kinds of knowledge and new styles of collaboration; they can also be transformative, sparking new ideas, surfacing alternative perspectives, and prompting us to rethink how and what we know. Because this kind of learning can be as disorienting as it is enlightening, reflection is not a peripheral exercise but an indispensable part of the learning process — a chance to think carefully and critically about your thoughts, experiences, and actions, to notice your own assumptions and biases, and to become more aware of how you learn and work with others. This is precisely the purpose your weekly research diary entries serve throughout Quarter 1, and it is why the reflective entry following the Shearon Harris site visit carries its own distinct weight in your portfolio: both ask you to pause and consider not just what you read or observed, but how it changed your thinking. Beyond their role in evaluation, we hope these habits of reflection will help you consolidate what you learn on this team and better articulate your growth — a skill that will serve you well in job interviews, graduate school essays, and future research applications alike.

4.4. Course Design

This project team's calendar is built on the Bradbury Model, a four-quarter framework developed by Kyle Bradbury, Director of the Data Analytics Lab at the Nicholas Institute for Energy, Environment & Sustainability. The model breaks a two-term Bass Connections project into four seven-week quarters, each paired with a distinct work mode, a signature deliverable, and a corresponding rung of Bloom's Taxonomy — so that, if the calendar is planned well, the learning objectives largely take care of themselves. The academic calendar sets the quarter, the quarter sets the work mode, the work mode produces the deliverable, and the deliverable maps to a level of cognitive skill, from remembering and understanding through creating and, in this team's own extension of the model, collaborating.

Our team's four quarters follow this scaffold directly:

Quarter 1: *Critical Mass (Bootcamp, individual work mode).* The whole team stays together as a single cohort, building a shared historical and methodological foundation in nuclear power through common readings and a weekly research diary. This quarter corresponds to the Bradbury Model's "remember" and "understand" levels, functioning as the project's level-setting phase — the equivalent of a literature review conducted collectively before any sub-team work begins.

Quarter 2: *Chain Reaction (Breakout, sub-team work mode).* The team splits into Harris and Belews Creek sub-teams, working in parallel through their respective NRC licensing applications and producing shared timelines, environmental summaries, and briefing report outlines. This corresponds to the "apply" and "analyze" levels, as students put the observation, contextualization, and comparison skills from Quarter 1 to direct use on primary regulatory sources.

Quarter 3: *Going Critical (Testbed, sub-team work mode).* Sub-teams continue working in parallel but now interleave archival research with integration work, culminating in a consolidated site-history-and-regulatory-analysis packet per sub-team. The tentative Shearon Harris site visit functions as this quarter's "fieldwork" moment. This quarter corresponds to the "evaluate" level, as students assess how well the historical record aligns with, or diverges from, the modern regulatory filing.

Quarter 4: *Fusion (Write Up & Report Out, whole-team work mode).* Report finalization and poster design run in parallel, with sub-teams producing their final public-facing reports while the full team collaborates on a single showcase poster for the Fortin Foundation Bass Connections Showcase. This final quarter corresponds to both the "create" level — producing the finished reports and poster — and the team's own added "collaborate" level, since the poster in particular demands one shared story built by the whole team together.

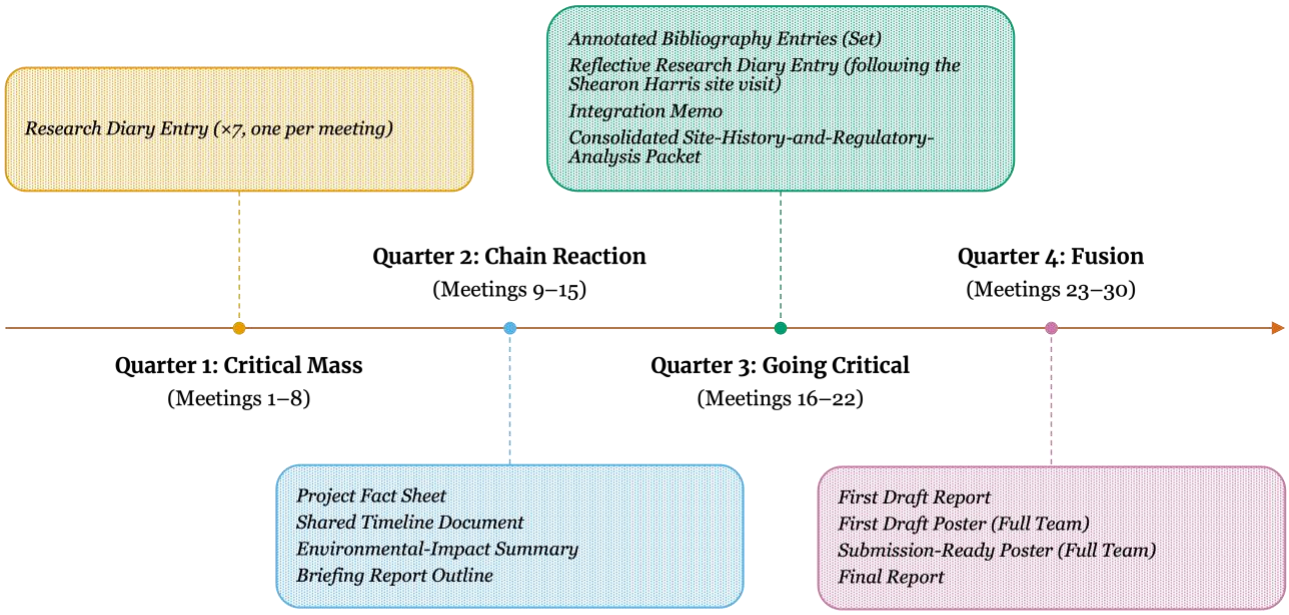


Figure 6: The project team's four-quarter calendar, adapted from Kyle Bradbury's model. Each quarter (Critical Mass, Chain Reaction, Going Critical, Fusion) pairs a seven-week span of meetings with its signature deliverables, moving the team from individual level-setting through sub-team analysis to a final, whole-team synthesis.

4.5. Keywords

Nuclear power, energy policy, NRC licensing, Shearon Harris, Belews Creek, Duke Energy, North Carolina energy history, archival research, public-facing research, Bass Connections

5. SCHEDULE

Quarter 1: Critical Mass (Historical and Methodological Foundations)

Goal: Build the full team's shared historical and methodological foundation before any sub-team work begins — tracing the arc of nuclear power from fission's discovery through the current "second nuclear era," so that every member enters Quarter 2 with the same command of the technology, its accidents, its alternatives, and its present-day stakes, and with practiced fluency in the archival skills (observation, contextualization, comparison) needed to parse primary regulatory documents.

Structure: Keep the team unified as a single cohort for all eight meetings rather than splitting into sub-teams. Each week's discussion builds directly on the last (observation in Meeting 2, contextualization in Meeting 3, comparison in Meeting 4, then applied practice through Meeting 7), with only light, rotating sub-groupings (e.g., Team 1/Team 2 in Meeting 6) used to rehearse the parallel-workstream format Quarter 2 will require. Meeting 8 serves as the capstone: shared references built across the quarter — timeline, glossary, source-evaluation notes — are consolidated into one document, and the team formally splits into the Harris and Belews Creek sub-teams to carry into Quarter 2.

Meeting 1: Back to the Future

Friday, August 28, 2026

Milestone: Team is oriented to the seven-week quarter arc and has generated an initial shared list of open questions about nuclear power's past, present, and future. In addition, Team is Introduced the research-diary format and expectations (what counts as an entry, how it will be used later).

Everyone Reads:

1. Joe D. Boyd, "Cars of the Future," *National Future Farmer* 8, no. 5 (June–July 1960), 28–29, Internet Archive, https://archive.org/details/nationalfuturefa8560unse/page/28/mode/2up.
2. Alvin M. Weinberg, "Social Institutions and Nuclear Energy," *Science* 177, no. 4043 (1972): 27–3, https://doi.org/10.1126/science.177.4043.27.
3. Edward A. Friedman, "Introduction," in *Nuclear Energy: Boom, Bust, and Emerging Renaissance* (Oxford University Press, 2025), xvii–xx, https://doi.org/10.1093/9780198925811.002.0005.

Deliverable Due

None

Meeting 2: The Discovery of Nuclear Fission, 1895-1938

Friday, September 4, 2026

Milestone: Team can distinguish a primary source from a secondary source and has practiced close observation of a primary text.

1. Friedman, "The Energy Stored in Atoms: Radioactivity, Fission, and the Possibility of a Bomb," chap. 1 in *Nuclear Energy* (2025), 1–16. https://doi.org/10.1093/9780198925811.003.0001.

2. Ernest Rutherford, "Discussion on the Structure of the Atom," *Proceedings of the Royal Society of London. Series A, Containing Papers of a Mathematical and Physical Character* 90, no. 615 (1914): 1–19, https://doi.org/10.1098/rspa.1914.0107.
3. Ernest Rutherford et al., "Discussion on the Structure of Atomic Nuclei," *Proceedings of the Royal Society of London. Series A, Containing Papers of a Mathematical and Physical Character* 123, no. 792 (1929): 373–90, https://doi.org/10.1098/rspa.1929.0074.

Deliverable Due

Research Diary Entry 1

Meeting 3: "The First Nuclear Era" in the United States[6]

Friday, September 11, 2026

Milestone: Team can place a source in its institutional and political context (the "contextualization" skill).

Everyone Reads:

1. Alvin M. Weinberg, "The Light Water Adventure: 50 Years Later," *Nuclear Engineering International* 39, no. 483 (1994): 28–30.
2. Edward A. Friedman, "Nuclear Resistance," chap. 5 in *Nuclear Energy* (2025), 49–66, https://doi.org/10.1093/9780198925811.003.0005.

As Assigned:

1. Friedman, "US Developments: 1940–1945," chap. 2 in *Nuclear Energy* (2025), 17–28, https://doi.org/10.1093/9780198925811.003.0002.
2. — — —, "US Developments 1945–1960," chap. 3 in *Nuclear Energy* (2025), 29–40, https://doi.org/10.1093/9780198925811.003.0003.
3. — — —, "US Developments 1960–2000," chap. 4 in *Nuclear Energy* (2025), 41–48, https://doi.org/10.1093/9780198925811.003.0004.

Deliverable Due

Research Diary Entry 2

Meeting 4: From the First to the Second Nuclear Era

Friday, September 18, 2026

Milestone: Team can compare parallel developments across countries/sources (the "comparison" skill), completing the observation → contextualization → comparison sequence.

Everyone Reads:

1. Yican Wu et al., "Nuclear Safety in the Unexpected Second Nuclear Era," *Proceedings of the National Academy of Sciences of the United States of America* 116, no. 36 (2019): 17673–82, https://doi.org/10.1073/pnas.1820007116.
2. Logan Mintz and Matthew Sharp, "Balancing Global Uranium Enrichment Needs and Proliferation Risks: A Framework," *Bulletin of the Atomic Scientists*, July 27, 2026, https://thebulletin.org/2026/07/balancing-global-uranium-enrichment-needs-and-proliferation-risks-a-framework/.

As Assigned:

1. Friedman, "Reactor Development in Britain," chap. 6 in *Nuclear Energy* (2025), 67–74, https://doi.org/10.1093/9780198925811.003.0006.

[6] Alvin M. Weinberg, The First Nuclear Era: The Life and Times of a Technological Fixer (American Institute of Physics, 1994).

2. — — —, "Reactor Development in France," chap. 7 in *Nuclear Energy* (2025), 75–80, https://doi.org/10.1093/9780198925811.003.0007.
3. — — —, "Reactor Development in Russia," chap. 8 in *Nuclear Energy* (2025), 81–86, https://doi.org/10.1093/9780198925811.003.0008.
4. — — —, "Reactor Development in China," chap. 8 in *Nuclear Energy* (2025), 87–92, https://doi.org/10.1093/9780198925811.003.0009.
5. — — —, "Reactor Development in Other Countries," chap. 10 in *Nuclear Energy* (2025), 93–98, https://doi.org/10.1093/9780198925811.003.0010.

Deliverable Due

Research Diary Entry 3

Meeting 5: "The Curse of the Nuclear Genie"[7]

Friday, September 25, 2026

Milestone: Team has practiced reading a technical/regulatory source (accident analysis) for both facts and interpretive framing — direct rehearsal for reading NRC licensing documents in Quarter 2.

Everyone Reads:

1. Thomas R. Wellock, "A Figure of Merit: Quantifying the Probability of a Nuclear Reactor Accident," *Technology and Culture* 58, no. 3 (2017): 678–721, https://doi.org/10.1353/tech.2017.0078.
2. Charles Perrow, "Normal Accident at Three Mile Island," *Society* 18, no. 5 (1981): 17–26, https://doi.org/10.1007/BF02701322.

As Assigned:

1. Friedman, "The Three Mile Island Accident," chap. 11 in *Nuclear Energy* (2025), 99–110, https://doi.org/10.1093/9780198925811.003.0011.
2. — — —, "The Chernobyl Accident," chap. 12 in *Nuclear Energy* (2025), 111–130, https://doi.org/10.1093/9780198925811.003.0012.
3. — — —, "The Fukushima Accident," chap. 13 in *Nuclear Energy* (2025), 131–142 https://doi.org/10.1093/9780198925811.003.0013.

Deliverable Due

Research Diary Entry 4

Meeting 6: Reactor Generations, Waste, and the Solar / Wind Alternative

Friday, October 2, 2026

Milestone: Team practices working in the assigned-subgroup format that Quarter 2's Harris/Belews Creek sub-teams will use.

Everyone Reads:

1. Selections from U.S. Government Accountability Office, *Nuclear Waste: An Integrated Disposal Plan Could Help DOE Complete Its Cleanup Mission and Save Billions*, GAO-25-107109 (Washington, DC: U.S. Government Accountability Office, May 2025), https://www.gao.gov/products/gao-25-107109.

[7] Thomas Filburn and Stephan Bullard, Three Mile Island, Chernobyl and Fukushima: Curse of the Nuclear Genie (Springer International Publishing, 2016), https://doi.org/10.1007/978-3-319-34055-5.

Team 1:

1. Friedman, "Solar, Wind, and Battery Power," chap. 14 in *Nuclear Energy* (2025), 143–150, https://doi.org/10.1093/9780198925811.003.0014.
2. — — —, "Generation-III Reactors," chap. 15 in *Nuclear Energy* (2025), 151–162, https://doi.org/10.1093/9780198925811.003.0015.

Team 2:

1. — — —, "Fuel, Waste, and Radioactivity," chap. 16 in *Nuclear Energy* (2025), 163–178, https://doi.org/10.1093/9780198925811.003.0016.
2. — — —, "Generation-IV Reactors," chap. 17 in *Nuclear Energy* (2025), 179–186, https://doi.org/10.1093/9780198925811.003.0017.

Deliverable Due

Research Diary Entry 5

Meeting 7: Alternatives to Light Water

Friday, October 9, 2026

Milestone: Team can evaluate a source's stance (advocacy, regulatory, industry) and adjust how it's used accordingly.

Everyone Reads:

1. Edwin Lyman, *'Advanced' Isn't Always Better: Assessing the Safety, Security, and Environmental Impacts of Non-Light-Water Nuclear Reactors*, executive summary, Union of Concerned Scientists, March 2021, https://www.ucs.org/resources/advanced-isnt-always-better.

As Assigned:

1. Friedman, "Molten-Salt Reactors," chap. 18 in *Nuclear Energy* (2025), 187–192, https://doi.org/10.1093/9780198925811.003.0018.
2. — — —, "Liquid-Sodium Reactors (LSRs)," chap. 19 in *Nuclear Energy* (2025), 193–200, https://doi.org/10.1093/9780198925811.003.0019.
3. — — —, "Liquid Lead-Cooled Fast Reactors," chap. 20 in *Nuclear Energy* (2025), 201–206, https://doi.org/10.1093/9780198925811.003.0020.
4. — — —, "High-Temperature Gas-Cooled Reactors," chap. 21 in *Nuclear Energy* (2025), https://doi.org/10.1093/9780198925811.003.0021.

Deliverable Due

Research Diary Entry 6

Meeting 8: Emerging Technologies, Markets, and Climate Challenges

Friday, October 16, 2026

Milestone: Bootcamp capstone — team has synthesized seven weeks of readings into a shared knowledge base and is ready to split into the Harris and Belews Creek sub-teams.

Everyone Reads:

1. Selections from U.S. Government Accountability Office, *Nuclear Power Plants: NRC Should Take Actions to Fully Consider the Potential Effects of Climate Change*, GAO-24-106326 (Washington, DC: U.S. Government Accountability Office, April 2024), https://www.gao.gov/products/gao-24-106326.

Choose One:

1. Ryan Mallory, “Why Nuclear Power Is Most Viable Option for Data Centers,” POWER Magazine, March 12, 2026, https://www.powermag.com/why-nuclear-power-is-most-viable-option-for-data-centers/.
2. Molly Langabeer and M. V. Ramana, “Data Centers Powered by Next-Gen Nuclear? Don’t Fall for Big Tech's PR Hype,” Bulletin of the Atomic Scientists, July 20, 2026, https://thebulletin.org/2026/07/data-centers-powered-by-next-gen-nuclear-dont-fall-for-big-techs-pr-hype/.

As Assigned:

1. Friedman, “Floating Nuclear Reactors,” chap. 22 in *Nuclear Energy* (2025), 211–216, https://doi.org/10.1093/9780198925811.003.0022.
2. — — —, “Small Modular Reactors (SMRs),” chap. 23 in *Nuclear Energy* (2025), 217–226, https://doi.org/10.1093/9780198925811.003.0023.
3. — — —, “Nuclear Reactor Export Market,” chap. 24 in *Nuclear Energy* (2025), 227–234, https://doi.org/10.1093/9780198925811.003.0024.
4. — — —, “Meeting the Global Warming Challenge: Nuclear Contribution to Net Zero,” chap. 25 in *Nuclear Energy* (2025), 235–250, https://doi.org/10.1093/9780198925811.003.0025.

Deliverable Due

Research Diary Entry 7

Quarter 2: Chain Reaction (Shearon Harris COL & Belews Creek ESP)

Goal: Parse the near-entirety of two NRC licensing applications — the 2013 Shearon Harris Units 2 & 3 Combined License (COL) Application (Docket Nos. 52-022, 52-023) and the 2025 Belews Creek Early Site Permit (ESP) Application (NRC Project No. 99902121) — and produce public-facing briefing reports on the history of each project.

Structure: Split the team into two sub-teams from Week 1 — a Harris sub-team and a Belews Creek sub-team — working in parallel through analogous sections of each application, reconvening each Friday to compare notes. This keeps the two document sets moving at the same pace and sets up the Week 6 comparative analysis naturally.

Meeting 9: Orientation & Regulatory Landscape

Friday, October 23, 2026

Milestone: Team understands the regulatory instruments involved and has a shared map of both document sets.

- **Background briefing:** ESP (10 CFR 52 Subpart A) vs. COL (10 CFR 52 Subpart C) vs. Construction Permit — what each authorizes and why Duke Energy chose an ESP for Belews Creek but a COL for Harris.
- Walk through the Part 1–11 structure common to both applications (Administrative, SSAR/FSAR, ER, Technical Specs, Emergency Plan, Security, Exemptions, License Conditions/ITAAC, Withheld Information, QA, Supplemental Info) using the ML25364A006 format-and-content document as the Rosetta Stone for both.
- Set up shared document inventory (ADAMS accession numbers, file names, page counts) and a tracking spreadsheet/log for each sub-team.

Deliverable

Assign sub-teams; each drafts a one-page "project fact sheet" (docket/project numbers, applicant of record, site location, submission dates) for their assigned application.

Meeting 10: Administrative History & Submission Chronology

Friday, October 30, 2026

Milestone: A verified timeline of filings/revisions for each project, and corporate-history context.

- **Harris sub-team:** build a submission chronology from the Part 1 transmittal letters — original COL application, subsequent revisions (e.g., the April 2013 Rev. 5 letter NPD-NRC-2013-012), what changed in each revision, and the Progress Energy/Duke Energy merger (effective July 2, 2012) and its effect on the applicant of record.
- **Belews Creek sub-team:** parse the December 30, 2025 transmittal letter (RA-25-0239) — applicant (Duke Energy Carolinas, LLC), site description (Stokes/Forsyth County, NC), requested 20-year permit term, and the plant parameter envelope (PPE) concept as the substitute for a selected reactor design.
- **Both teams:** catalog what's public (Enclosure 2) vs. withheld (Enclosure 3/Part 9) and read the supporting 10 CFR 2.390 affidavits to understand why specific categories of information (financial projections for Harris; archaeological/cultural resources, private well data, and physical security details for Belews Creek) were withheld.

Deliverable

Shared timeline document (both projects) for use in the final briefing reports.

Meeting 11: Site Safety Analysis (SSAR/FSAR)

November 6, 2026

Milestone: First full pass through the safety/site-characteristics chapters.

- **Harris sub-team:** FSAR Part 2 — focus on site description, safety assessment, and how the FSAR differs structurally from an SSAR now that Harris is an operating-design COL rather than a PPE-based ESP.
- **Belews Creek sub-team:** SSAR Part 2, Chapters 1–3 — introduction/general description; site characteristics (geography/demography, nearby industrial/transportation/military facilities, meteorology, hydrology, geology/seismology); PPE parameters; aircraft hazards summary.
- **Both teams:** note alignment with NUREG-0800 numbering and flag any "intentional gaps" in section numbering (these matter for later CP/COL integration and are worth explaining to a lay audience).

Deliverable

Cross-team share-out — differences in what a design-specific FSAR (Harris) documents versus a bounding-parameter SSAR (Belews Creek).

Meeting 12: Environmental Report

Friday, November 13, 2026

Milestone: ER chapters mapped and summarized; environmental-impact narrative drafted for each site.

- Both sub-teams work their respective ER Part 3, Chapters 1–10: proposed site/affected environment, site layout, construction impacts, operational impacts, fuel cycle/transportation/decommissioning, cumulative impacts, alternatives, and conclusions.
- Note explicitly what's not included and why (e.g., "Need for Power," Chapter 8, is excluded from both under RG 1.206/10 CFR 51.50(b)(2)).
- **Belews Creek sub-team:** pay particular attention to how the ER frames impacts using "representative conditions developed from the PPE" rather than a single design, since this is a key difference to explain to general readers.

Deliverable

Two-page plain-language environmental-impact summary per project (rough draft).

Meeting 13: Emergency Planning, Security, and Quality Assurance

Friday, November 20, 2026

Milestone: Remaining operational/programmatic parts parsed; withheld-information logic fully documented.

- Emergency Plan (Part 5, both projects): Major EP features, Exposure Pathway Emergency Planning Zone, regulatory basis (NUREG-0654/FEMA-REP-1, RG 1.101, RG 1.242).
- **Security:** Note that Harris COL includes a Part 8 Safeguards/Security Plan (withheld/not reviewed in detail — sensitive) while Belews Creek ESP explicitly does not require Security Plans at this phase (per RG 1.206) — a useful contrast for the briefing report.
- QA Program Description (Part 10/Part 11 depending on project) — both rely on the Duke Energy QAPD; note revision history.

Deliverable

Finalize the Part 9/withheld-information inventory started in Week 2 — this becomes an appendix noting categories of information the public reports cannot include.

No Meeting – Thanksgiving Recess

Friday, November 27, 2026

Meeting 14: Briefing Report Drafting & Peer Review

Friday, December 4, 2026

Milestone: Complete outlines of both public-facing briefing reports, with a clear path to finalize in Quarter 3; comparative framework connecting the two projects into one coherent narrative arc.

- Each sub-team presents a structured outline (or draft) of its briefing report: project history, regulatory pathway explained for a lay audience, site/safety summary, environmental summary, emergency-planning summary, and current status.
- **Cross-team peer review:** Harris sub-team reviews the Belews Creek draft and vice versa, checking for accuracy, jargon, and missing context a general reader would need (e.g., explaining ESP/COL/PPE terms on first use).
- Identify any sections still needing primary-source verification and assign as follow-up work beyond the seven weeks.
- **Build a side-by-side comparison:** ESP vs. COL pathway, timeline, applicant/corporate history, why Duke Energy pursued each licensing strategy at each site, and what happens next procedurally (e.g., Harris COL is still pending Commission action; Belews Creek ESP review is just beginning).
- Identify remaining gaps or open questions to take up in Meeting 16

Wrap-up: Consolidate the shared timeline, comparison table, and withheld-information inventory as appendices to both reports.

Deliverable

Individual students begin drafting sections of their assigned briefing report outline.

Quarter 3: Going Critical (Site History & Regulatory Integration)

Goal: For each sub-team to research the pre-nuclear and nuclear-era history of its assigned site — using special collections, county histories, local newspapers, and early agency correspondence (e.g., the 1972 ACRS letter and 1974 Revised Final Environmental Statement for Harris; Forsyth County community histories for Belews Creek) — and to integrate those findings with the COL/ESP filing analysis completed in Quarter 2, so that each site's briefing report tells one continuous story rather than two separate ones (archival history and regulatory filing).

Structure: Sub-teams continue working in parallel, as in Quarter 2, but each week now interleaves two threads rather than pursuing one: (1) archival research — locating, digitizing, transcribing, and cataloging site-history material — and (2) integration work — mapping those findings onto specific chapters of the COL/ESP filing already parsed (land acquisition against the ER's affected-environment chapters, early agency correspondence against the Part 1 administrative history, etc.). The guided Shearon Harris site tour (Jan 22, tentative) sits at the quarter's midpoint as a shared calibration moment where the historical and regulatory threads meet in person. Weeks build toward a single deliverable per sub-team: an integrated site-history-and-regulatory-analysis packet, due at quarter's end, that becomes the backbone of the Quarter 4 briefing report.

Meeting 16: Orientation to Archival Research

Friday, January 8, 2027

Milestone: Team has identified relevant special collections and archives for each site and has a shared system for cataloging archival finds.

- Overview of special collections likely to hold site-relevant material: Duke (corporate/CP&L and Duke Power records), NC State (nuclear engineering and agricultural-extension records), UNC–Chapel Hill (Southern Historical Collection, NC newspaper archives).
- Introduce archival citation standards and a shared finding-aid tracking spreadsheet — the archival-research counterpart to the ADAMS accession-number log built in Quarter 2.
- Review the sample sources already in hand (1974 Environmental Statement, the Belews Creek newspaper retrospective, etc.) as models of what usable site-history material looks like and how to catalog it.

Deliverable Due

Each sub-team drafts a research-question list for its site: what's already known, and what needs to be found (land acquisition, displaced families, local opposition or support, earliest agency involvement).

Meeting 17: Pre-Nuclear Community History

Friday, January 15, 2027

Milestone: Each sub-team has a preliminary picture of its site's pre-nuclear community — settlement, families, local economy — drawn from county histories, newspapers, and local records.

- **Belews Creek sub-team:** Work from the Forsyth County heritage guide and the 1978 "Everyday History of a Country Place" article — extract settlement history, family names (Neal, Preston, Pegram, Martin, Robertson), the local economy (tobacco, general stores, the mill), and how Duke Power's 1969–1973 land acquisition (~13,000 acres) intersected with existing community life.

- **Harris sub-team:** Pursue the parallel record for Wake/Chatham counties — local-newspaper coverage, county histories — focused on the roughly 10,744 acres eventually acquired and the ~25 families the 1974 Environmental Statement notes were relocated.
- **Both teams:** Start a shared "land acquisition and relocation" tracker, since this connects directly to the ER "affected environment"/construction-impacts chapters from Quarter 2, Week 4.

Deliverable Due

One annotated bibliography entry per primary source located this week.

Meeting 18: Site Visit — Shearon Harris Nuclear Power Plant

Friday, January 22, 2027

Milestone: Team has direct, observational grounding at the Harris site to anchor both sub-teams' historical and regulatory work.

- **TENTATIVE:** A guided tour of the Shearon Harris Nuclear Power Plant is planned for this date, pending confirmation with the plant. Both sub-teams attend together, since the tour is a shared calibration experience regardless of site assignment.
- **Before the tour:** Each student prepares 2–3 site-specific questions drawing on both the archival history (relocations, land acquisition) and the COL filing (site description, safety systems) from Quarter 2.
- **After the tour:** Debrief comparing what's observable on-site against what the FSAR and 1974 Environmental Statement describe — where does the documentary record match physical reality, and where does it stay silent or diverge?
- **Contingency:** If the tour does not materialize by this date, this session reverts to a standard integration-workshop meeting, and the tour is rescheduled for the first available date once confirmed.

Deliverable Due

Reflective Research Diary Entry

Meeting 19: Regulatory History — Early Agency Correspondence

Friday, January 29, 2027

Milestone: Each sub-team has traced the earliest regulatory engagement with its site and placed it against the modern COL/ESP filing.

- **Harris sub-team:** Work through the 1972 ACRS letter (requesting a single review of four reactor units) and the 1974 Revised Final Environmental Statement — extract original plant specs (2775–2785 MWt per unit, 3600 MWe total), the planned 1977–1980 operating timeline, and how the "single review of four units" strategy compares to the two-unit COL application read in Quarter 2.
- **Belews Creek sub-team:** since Belews Creek has no comparable historical nuclear-review record, trace Duke Power's original 1969–1973 land-acquisition rationale and any earlier siting/planning records available, to establish what regulatory or corporate decision-making preceded the 2025 ESP application.
- **Both teams:** Build a "regulatory lineage" note: Which agency (AEC → NRC), what permit type, and what site scope applied at each stage of the site's history?

Deliverable Due

Research Diary Entry (site-history + regulatory-history synthesis).

Meeting 20: Integration Workshop — Site History Meets the Filing

Friday, February 5, 2027

Milestone: Each sub-team has a first-pass draft showing where its site-history findings map onto specific sections of the COL/ESP filing analyzed in Quarter 2.

- Cross-reference land-acquisition and relocated-families findings against the ER's affected-environment and construction-impacts chapters.
- Cross-reference early agency correspondence against the modern Part 1 administrative history and submission chronology.
- **Identify gaps:** What does the historical record show that the modern filing omits or compresses, and vice versa? This becomes the "then vs. now" narrative thread for the final report.

Deliverable Due

One-page draft site-history-and-regulatory-history integration memo per sub-team.

Meeting 21: Deepening the Record — Transcription & Digitization

Friday, February 12, 2027

Milestone: Team has produced clean, citable transcriptions of key archival finds, ready for use in the public-facing report.

- **Hands-on transcription session:** convert scanned or photographed archival material (newspaper clippings, letters, county-history excerpts) into searchable, properly cited text.
- Standardize citation format across both sub-teams, extending the ADAMS-document citation style from Quarter 2 to archival sources.
- **Peer-check:** each sub-team reviews a sample of the other's transcriptions for accuracy and completeness.
- Continue closing gaps identified in Week 5's integration memo with targeted follow-up archival searches.

Deliverable Due

Research Diary Entry (transcription log).

Meeting 21: Quarter 3 Synthesis & Transition to Quarter 4

Friday, February 19, 2027

Milestone: Each sub-team has a complete, integrated site-history-and-regulatory-analysis packet ready to anchor its Quarter 4 briefing report.

- Each sub-team presents its consolidated site history and regulatory analysis to the full group, highlighting the strongest "then vs. now" narrative threads.
- **Cross-team peer review:** check citation consistency, terminology, and depth of coverage between the two site packets.
- Identify remaining archival or regulatory gaps to carry forward as open questions into Quarter 4.
- **Wrap-up:** finalize the shared land-acquisition/relocation timeline, regulatory-lineage notes, and annotated bibliography as appendices feeding the Quarter 4 dataset and publication series.

Deliverable Due

Consolidated site-history-and-regulatory-analysis packet (per sub-team).

Quarter 4: Fusion (Final Report & Showcase Poster)

Goal: Merge the site-history-and-regulatory-analysis packets from Quarter 3 into finished, public-facing final reports for both projects, while producing a single polished team poster for the 2027 Fortin Foundation Bass Connections Showcase (Tuesday, April 20, 2027) — meeting the poster's hard external deadline of Tuesday, April 6, 2027 (at least two weeks prior to the showcase) without derailing the final report's own timeline.

Structure: Two tracks run in parallel — report finalization (continuing the Harris/Belews Creek sub-team split) and poster design (a single combined team effort, since the showcase displays one poster per team). Poster work is front-loaded and closes out by the April 2 meeting, giving a few days' buffer before the April 6 submission deadline; report work continues at full intensity through the final meeting on April 16. No meeting occurs March 12 (Spring Recess), which effectively compresses the poster-design runway — plan accordingly during first two weeks. The showcase itself (April 20) falls after the last scheduled team meeting and is noted as a standalone milestone.

Meeting 23: Quarter 4 Kickoff — Report Outline & Poster Concept

Friday, February 26, 2027

Milestone: Team has a shared outline for both final reports and an initial concept/storyline for the single team poster.

- Review the Quarter 3 site-history-and-regulatory-analysis packets as the raw material for both the final reports and the poster.
- Each sub-team drafts a full report outline (project history, regulatory pathway, site/safety summary, environmental summary, emergency-planning summary, current status — per the Quarter 2 Week 7 outline) and assigns drafting responsibilities.
- **Full-team poster session:** decide the single story the poster should tell (per Bass Connections guidance: one clear finding/story, not the whole project) and sketch a rough layout on a whiteboard or sticky notes before touching PowerPoint.

Assign a poster lead responsible for submission and final formatting; note the April 6 submission deadline and April 20 showcase date for the whole team.

Meeting 24: Drafting Begins — Report Sections & Poster Wireframe

Friday, March 5, 2027

Milestone: First complete section drafts exist for each report, and the poster has a digital wireframe ready for content.

- Each sub-team drafts its assigned report sections in parallel, pulling directly from the Quarter 3 integration memos and annotated bibliography.
- Poster team builds a wireframe in the Bass Connections poster template (36"×48", Bass Connections logo required), blocking out sections and headline space without finalizing content.
- **Cross-team check-in:** confirm both reports are using consistent terminology, citation style, and structure so they read as a matched pair.

Given the upcoming Spring Recess gap, assign specific take-home drafting goals for the two weeks between this meeting and March 19.

No Meeting – Spring Recess

Friday, March 12, 2027

Meeting 25: First Full Drafts

Friday, March 19, 2027

Milestone: Full first drafts of both reports exist, and the poster has its first complete digital draft ready for feedback.

- Each sub-team assembles its section drafts into a complete first draft of its report.
- Poster lead compiles a first full draft in PowerPoint, incorporating key findings, visuals, and a draft narrative arc.
- Schedule a poster consultation (e.g., with the Bass Connections poster-design resource) for Week 4, and identify 2–3 outside readers for the report drafts.

Deliverable

Complete first-draft report (per sub-team) and complete first-draft poster (team-wide).

Meeting 26: Peer Review & Outside Feedback

Friday, March 26, 2027

Milestone: Both reports have been peer-reviewed across sub-teams, and the poster has received outside design/content feedback.

- Harris sub-team reviews the Belews Creek draft and vice versa (continuing the Quarter 2 cross-team peer-review model), checking for accuracy, jargon, and missing context for a general reader.
- Poster consultation feedback is incorporated; team stress-tests the poster's single-story clarity by asking someone unfamiliar with the project to read it in under a minute.
- Begin revision passes on both reports based on peer-review notes.

Deliverable

Consolidated peer-review notes for both reports; revised poster draft.

Meeting 27: Poster Finalization & Report Revision

Friday, April 2, 2027

Milestone: Poster is finalized, proofed, and submission-ready ahead of the April 6 deadline; reports are substantially revised.

- **Full-team focus on locking the poster:** final copy edit, high-resolution image check (zoom to 400% to confirm no blurring), and confirmation of correct poster size and Bass Connections branding.
- Poster lead submits the poster via the official online form no later than Tuesday, April 6, 2027, 5:00 p.m. (outside this meeting — flag as a hard external deadline).
- In parallel, both sub-teams continue revising report drafts based on Week 4 feedback.

Deliverable Due

Submission-ready poster file (team-wide); revised report draft (per sub-team).

Meeting 28: Full Focus on the Final Report

Friday, April 9, 2027

Milestone: Final reports are in near-final form, and the team is prepared to discuss the poster at the showcase.

- With the poster submitted, redirect the full team's energy to report finalization: close remaining gaps, verify citations, and finalize appendices (shared timeline, comparison table, withheld-information inventory, regulatory-lineage notes).

- **Prepare showcase talking points:** each student should be able to summarize the project's purpose, approach, and findings in under a minute, per showcase expectations.
- **Assign showcase-day logistics:** who staffs the poster and when, given the showcase's open-house format.

Deliverable

Near-final report draft (per sub-team).

Meeting 29: Final Polish & Showcase Readiness

Friday, April 16, 2027

Milestone: Final reports are complete and ready for submission/publication, and the team is fully prepared for the April 20 showcase.

- Final read-through and copy edit of both reports; confirm all appendices are attached and consistent between the two.
- Full-team dry run of poster talking points and Q&A handling.
- **Wrap-up:** Consolidate lessons learned across the full year for use in any post-showcase publication with the Nicholas Institute.

Deliverable Due

Final report (per sub-team), submitted per instructor guidance.

Meeting 30: 2027 Fortin Foundation Bass Connections Showcase

Tuesday, April 20, 2027

Milestone: Standalone event, outside the regular Friday meeting schedule; team presents the poster and fields questions from a broad interdisciplinary audience.

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