

NRC Public Meeting with Industry on Accident Tolerant Fuel

February 27, 2018

Agenda

- I. Brief outline of ATF project plan
- II. Overview of comments received
- III. Path forward

I. ATF Project Plan

- Developed and maintained by the ATF steering committee and working group
- Outlines activities associated with preparing the agency to conduct efficient and effective reviews of ATF designs
- Includes preliminary estimates of lead time necessary to complete activities in each area
- Intended to be a living document

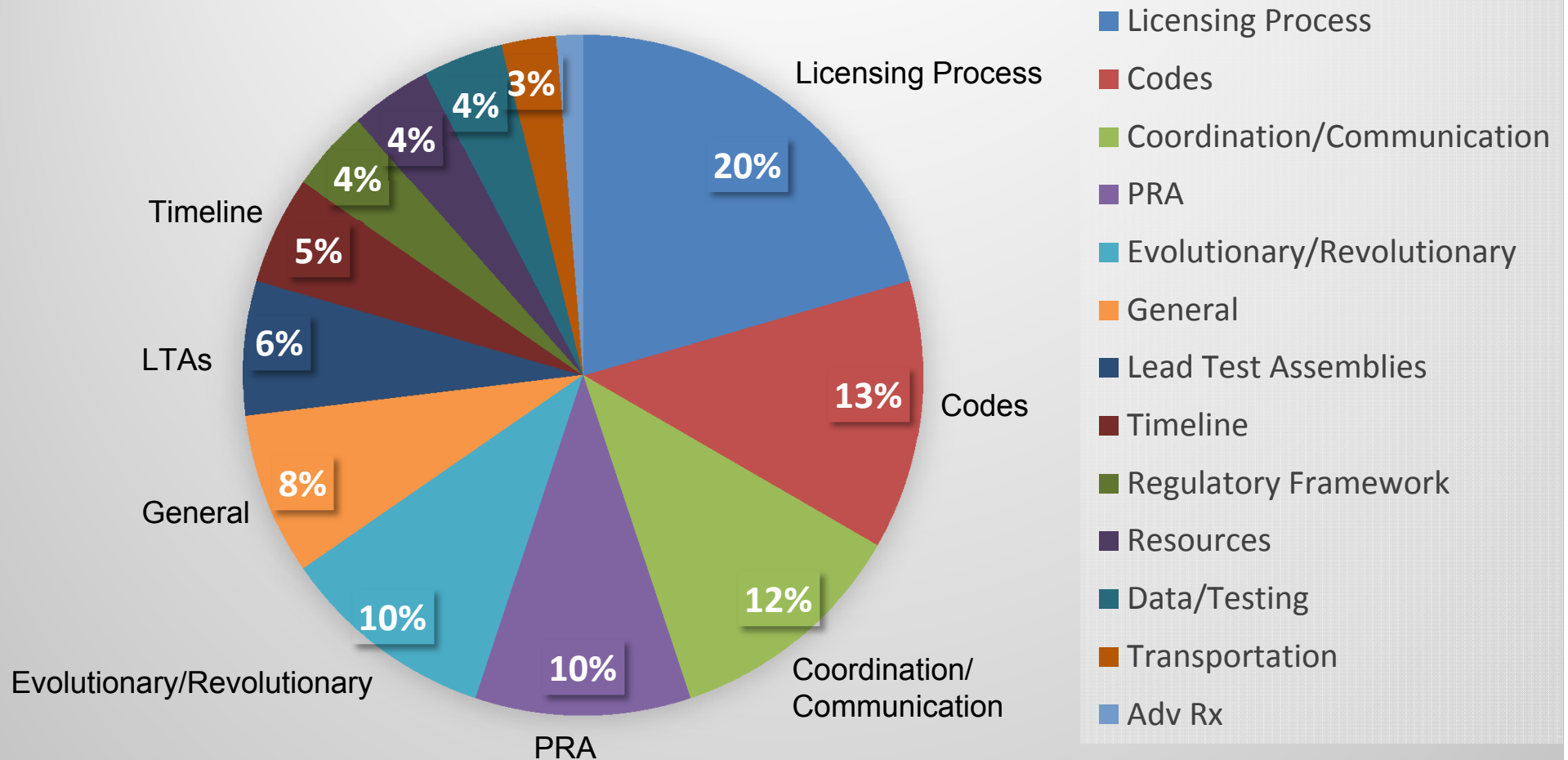
Plan Outline

- Assumptions
- Open items
- Stakeholder interactions
- Initiating staff activities
- Preparatory activities:
 - Regulatory framework, In-reactor performance
 - Fuel cycle, transportation and storage regulatory framework
 - PRA activities
 - Analysis capability development

II. Public Comments Received

- Draft plan published in the Federal Register on December 21, 2017 for 45 day public comment period
- Received nearly 80 comments from
 - U.S. Department of Energy (DOE)
 - Louisiana Energy Services (UUSA)
 - Nuclear Energy Institute (NEI)
 - Pressurized Water Reactor Owners Group (PWROG)
 - General Atomics
 - Southern Nuclear Company
 - Westinghouse Electric Company
 - three individuals

Draft ATF Project Plan Public Comments



Overall Themes

- Concerns with regulatory requirements associated with lead test assemblies
- Emphasize importance of communication and coordination
- “Evolutionary” vs. “revolutionary”
- Does not support industry’s deployment schedule & staff not employing a graded approach
- Opportunity to transform fuel licensing process
- Leverage DOE/advanced computational capabilities

Lead Test Assemblies

- Comment
 - Lack of clarity on current requirements
- NRC response
 - Outside scope of ATF project plan
 - Separate NRC steering committee actively working to address

Communication/Coordination

- Comment
 - Appreciate NRC's project plan effort
 - Key to meeting implementation schedule
- NRC response
 - Plan relies on early engagement
 - Staff committed to continue
 - Will seek to enhance

Evolutionary/Revolutionary

- Comment
 - Oversimplification
 - Creates uncertainty
- NRC response
 - Project plan is technology independent
 - Concept-specific licensing roadmap developed based on PIRT
 - Remove evolutionary and revolutionary distinction to improve clarity

Timeline and Graded Approach

- Comment
 - Plan does not support industry's deployment schedule
 - Staff not employing a graded approach
- NRC response
 - The plan did not present a schedule but rather individual activities, many of which can proceed in parallel
 - The staff is committed to minimizing the lag between the time required to establish the technical bases for safe operation and the completion of licensing activities
 - PIRTs will inform the licensing roadmaps for individual concepts
 - PIRTs will facilitate employing a tailored approach for each concept, thus enabling a graded approach

old & new

old

new

time

technical basis
development

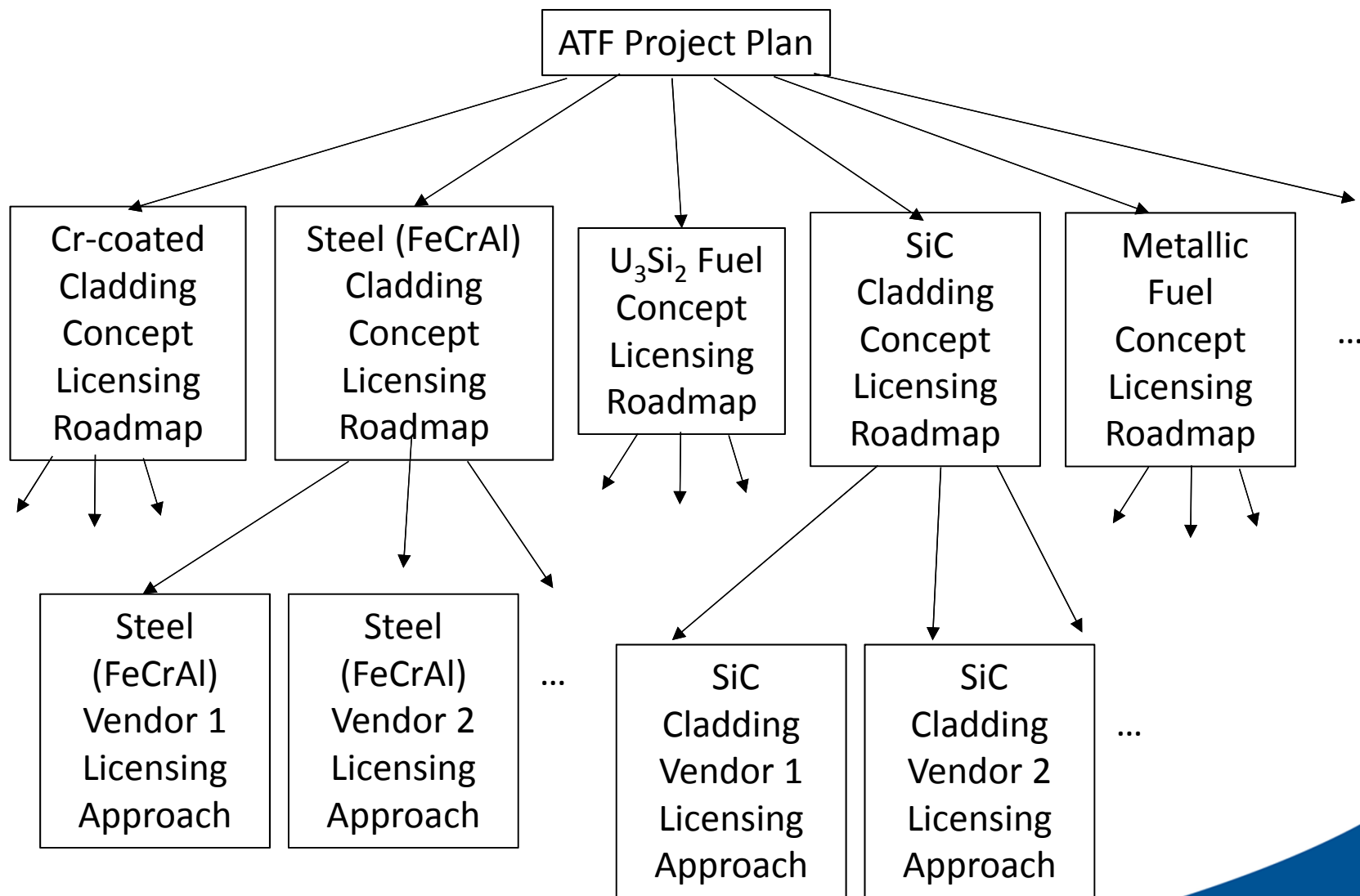
development of
regulatory
infrastructure

development of
regulatory
infrastructure*

licensing
activities

licensing
activities

*as needed



Fuel Licensing Process

- Comment
 - ATF presents an opportunity to transform
- NRC response
 - Staff continually evaluating potential efficiencies
 - Expediting regulatory guidance
 - Use of vendor inspections to verify data intended to support licensing activities (e.g., topical reports)
 - Change processes for topical reports
 - Leveraging the use of DOE/commercial codes
 - Staff is open to other specific suggestions

DOE/Advanced Modelling Capabilities

- Comment
 - Use DOE codes in lieu of developing independent NRC capability
 - Use advanced simulation techniques in lieu of experimental data
- NRC response
 - Need for confirmatory calculations
 - Depends on the strength of the technical basis presented by the applicant
 - Use of non-NRC codes
 - Staff and licensees have used the same codes in the past (e.g., Fluent for dry storage casks)
 - Effectiveness and efficiency of using a non-NRC codes depends on many factors (e.g., readiness of existing NRC codes, V&V needs of non-NRC codes, learning curve for the non-NRC codes)
 - Simulations in lieu of experimental testing
 - At this time, the staff is not aware of any computational tool that obviates the need for experimentation to support licensing decisions
 - Staff is receptive to addressing this issue as the state of the art warrants it

III. Path Forward

- Provide staff response to all comments in publically available document
- Incorporate changes to the project plan
- Finalize plan mid-2018
- Continue engagement with stakeholders
- Maintain project plan as “living document”