UniStar Business Model and Licensing Plans

Presentation to: Nuclear Regulatory Commission

by: Constellation Energy, Framatome ANP

November 2, 2005

Overview

Objectives

- Presentation of:
  - UniStar's business model, including potential NRC interactions
  - Constellation's desired licensing strategy to support commercial operation in 2015
    - COL without an ESP
    - COL submittal while DC is in review
    - Proposed COL schedule
- Conclude by establishing the need and timing of future meetings
- Introduction of presenters and agenda

Agenda

• 1:00 pm	Introductions and Remarks	NRC
• 1:10 pm	Overview	Constellation
• 1:15 pm	UniStar Business Model	Constellation
• 1:35 pm	Constellation Licensing Plans	Constellation
• 1:45 pm	Licensing Standard Designs	Constellation
• 2:00 pm	Parallel DC/COL Review	FANP
• 2:30 pm	Summary and Next Steps	Constellation
• 2:45 pm	Opportunity for public comment	All
• 3:00 pm	Adjourn	

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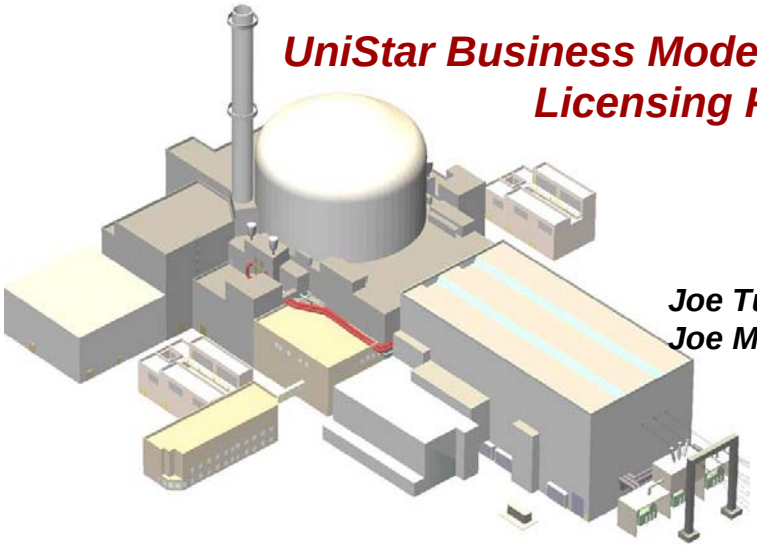
UniStar Business Model and Licensing Plans



Joe Turnage
Joe Mihalcik

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New Nuclear – The Right Time

Now Is The Time To Act

- Favorable Energy Legislation
  - Loan Guarantees
  - Standby Default Coverage
  - Production Tax Credits
  - Potential Research Credit
  - Qualified Decommissioning Costs
  - Price Anderson
- Favorable Policy Climate
  - Environmental concerns over greenhouse gases
  - Focus on energy security
  - Public support and confidence
- PJM and New York Regions below 15% reserve by 2008

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U.S. EPR - The Right Technology

The U.S. Evolutionary Power Reactor ("U.S. EPR") is a mature, evolutionary design

- Olkiluoto 3 (Finland) (commercial operation expected 2009)
- Flamanville (France) in planning
- Desirable/viable NSSS / low first of a kind (FOAK) risk
  - Operability and outage management efficiencies
  - Thermal margin
  - Safety and security improvements
- Detailed design for U.S. is underway
- Straight forward design
  - Similar to "4 – Loop" PWRs in operation
  - Incorporates SAMG Concepts
- Fleet deployment strategy provides economies of scale
- Largely American sourced

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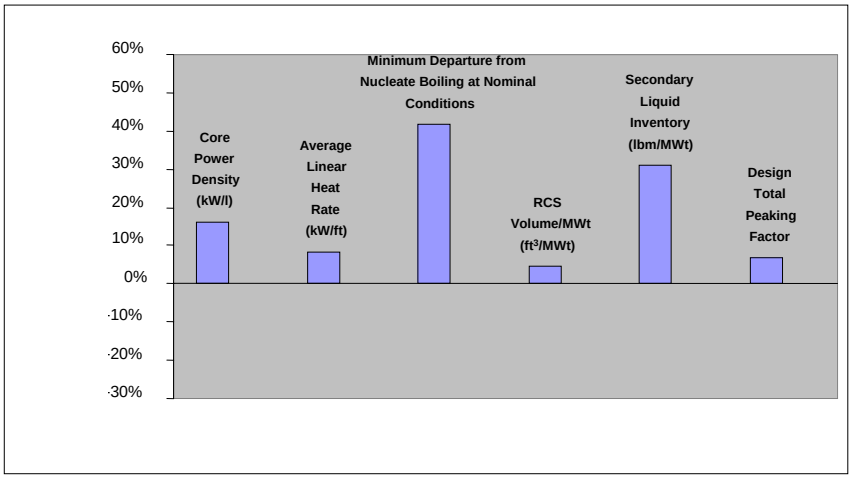
Increased Power with Improved Margins



EPR improves margins over current designs.

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UniStar – The Right Team

Constellation and Framatome ANP, with Bechtel as primary constructor, architect and engineer

- Generation owner with broad nuclear licensing and operating expertise
- Preferred reactor vendor/nuclear service provider
  - Strong U.S. presence and global technology provider
- Leading constructor/architect engineer
- Together this team provides the platform for predictability and a low-risk path for success to:
  - Design, certify, license, develop, construct, own, operate and maintain the U.S. EPR

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UniStar Business Model

Objective - Deploy a fleet of at least four identical U.S. EPRs through project companies

- Standardization of fleet yields efficiencies in project cost, licensing and operation (Byron and Braidwood experience)
- Projects jointly developed and owned with Constellation
  - "Partnership" could be for individual sites or an entire fleet
- Constellation is operator and licensee
- Project partners in project companies will participate in:
  - Licensing COL
  - Development/construction
  - Ownership/operation/maintenance
- Framatome ANP is prime contractor for project companies
- Bechtel is FANP's primary constructor / architect engineer

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UniStar Business Model

Provides Predictability in…

- **Design**
  - Proven design (Finland, France, and possibly China)
    - Low first-of-a-kind engineering risk
  - Extensive owner/operator maintainability/operability design input
- **Licensing**
  - Respected nuclear fleet licensee, who will hold the Project nuclear license
  - Experienced Constellation licensing team backed by Bechtel and FANP
  - Ability to draw on fleet licensing resources and synergies
  - Potential to build on international precedent

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UniStar Business Model

Provides Predictability in…

Development and Construction

- Detailed reference design and reference cost estimate
- Form Engineering Procurement Construction (“EPC”) contracts
- Design standardization efficiencies
- Construction optimization and fleet learning curve benefits
- Secure access to equipment and fleet-leveraged sourcing

UniStar Business Model

Provides Predictability in…

Operations

- Experienced nuclear fleet operator
  - Ability to draw on fleet operating resources and synergies
- Operational risk borne by Constellation

Ownership

Risk/cost shared by Constellation

- Partnering with a respected nuclear generation owner with extensive experience in successful generation joint ventures

Implementation of the UniStar Business Model:

Constellation's Licensing Plans

- Relationship between Constellation and FANP
- Construction in the US depends on
  - Converting the EPR design to U.S. standards
  - Successful and timely licensing of U.S. EPR
    - Design Certification of the U.S. EPR
    - Combined Construction Permit and Operating License
    - Meeting construction lead times
- Constellation will apply for a COL using the U.S. EPR Technology
  - File a COLA without a prior ESP
  - Announce the site in early 2006
  - COL Application will follow the U.S. EPR Design Certification application by about six months

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UniStar Licensing Plans

Proposed Schedule

Present UniStar plans and overview of licensing strategy	Nov. 2, 2005
FANP submits U.S. EPR Design Certification application	Dec. 2007
First UniStar project submits a COLA w/o ESP	June 2008
Second UniStar project submits a COLA w/o ESP	TBD

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Efficiencies of Licensing Standard Designs

Combined Construction Permit and Operating License (COL)

- Follow-on COLs referencing the same DC will result in a more efficient review process
  - Nuclear Systems
  - Safety Analysis
  - Core Design etc.
- Standardized plants with an identical turbine island will result in more efficiencies
  - Owner/operator
  - Procedures and
  - Programs

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Standardization Leads to Common Content For FSAR

Chapter	Title	Generic % with Same DC	Generic % w/Same TI, Owner, Operator
1	Intro and General Plant Description	70	85
2	Site Characteristics	0	0
3	Design of SSCs	80	95
4	Reactor	100	100
5	Reactor Coolant System And Connected Systems	100	100
6	Engineered Safety Features	100	100
7	Instrumentation and Controls	100	100
8	Electrical Power	60	90
9	Auxiliary Systems	50	90
10	Steam and Power Conversion	50	95

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Standardization Leads to Common Content For FSAR

Chapter	Title	Generic % with Same DC	Generic % w/Same TI, Owner, Operator
11	Radioactive Waste Management	50	80
12	Radiation Protection	90	95
13	Conduct of Operations	30	90
14	Initial Test Program and ITAAC	60	90
15	Accident Analysis	90	95
16	Plant Specific Technical Specifications	80	90
17	Quality Assurance	20	95
18	Human Factors Engineering	100	100
19	Plant Specific PRA	80	95

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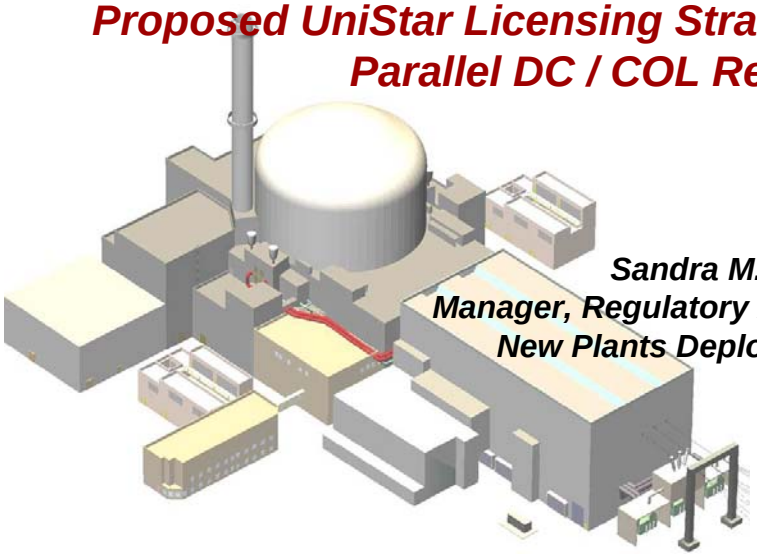
Proposed UniStar Licensing Strategy: Parallel DC / COL Review



Sandra M. Sloan
Manager, Regulatory Affairs
New Plants Deployment

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Objective of the Presentation

Provide an introductory overview of the proposed licensing strategy

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Goal of the UniStar Parallel DC / COL Licensing Strategy

To provide an efficient method to obtain a COL with the U.S. EPR to support new nuclear generation in the 2015 timeframe, respecting the NRC's resource challenges.

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Regulatory Foundation

- 10 CFR Part 52 specifically
  - Permits COL licensing scenarios that do not reference an approved DC and/or ESP [10 CFR 52.73]
  - Acknowledges a scenario wherein a COL application references a DC application that has been docketed but not granted [10 CFR 52.55(c)]

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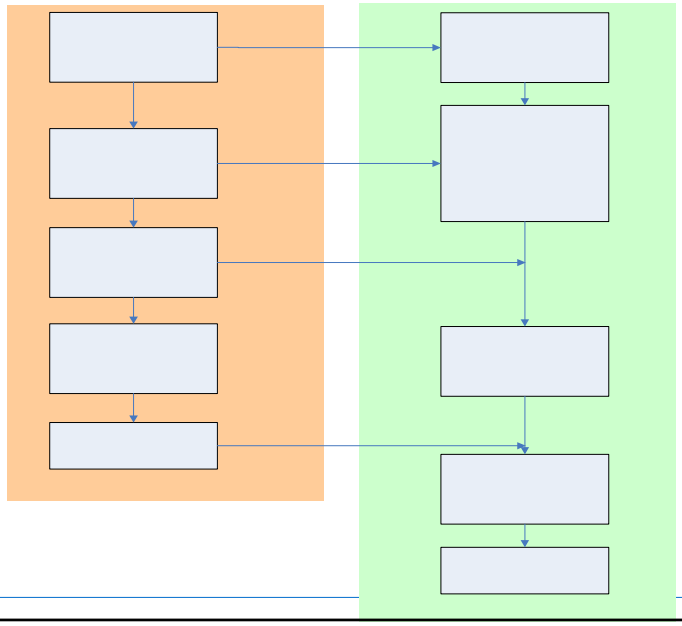
DC / COL Parallel Review Process



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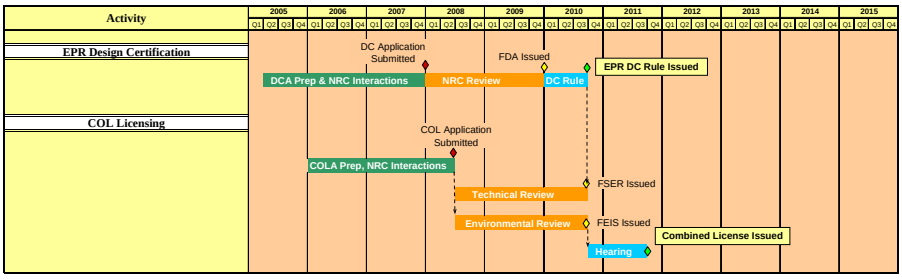
Key Process Elements

- NRC reviews generic U.S. EPR information exclusively in the DC application review process, with the opportunity for public comment
- NRC COLA review focuses on environmental, programmatic and site-specific topics
- U.S. EPR DC rule issued prior to COL ASLB hearing, providing finality on generic U.S. EPR issues with respect to COL proceedings

Proposed Licensing Timeline



Evaluation of Review Schedules

- The parallel DC / COL review process was not one of the scenarios evaluated in SECY-01-0188
- NRC estimates in SECY-01-0188 included the following scenarios:
  - DC (including rulemaking), 42 – 60 months
  - COL with a DCR and ESP, 27 months
  - COL with a custom design with or without an ESP, 33 – 60 months
- The proposed parallel DC / COL review durations to support new nuclear capacity in 2015:
  - DC (including rulemaking), 34 months
  - COL without an ESP, 39 months

Details of the proposed review plan should be discussed during the DC and COL pre-application reviews.

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Enhanced Licensability

- Use of evolutionary technology
  - Proven technology, enhanced design features
  - Extensive research and testing is not required
  - Safety system effectiveness demonstrated in existing plants
- Quality of DC / COL applications
  - Direct experience from previous design certifications
  - Lessons-learned from all previous design certifications
  - EPR lessons-learned from Finland and France
- International cooperation among nuclear regulators via Phase 1 of NRC's Multinational Design Approval Program
- Extensive NRC licensing experience
  - Constellation is a recognized nuclear operator
  - FANP is the leading U.S. supplier of nuclear components and services
  - Bechtel is the leading U.S. A/E-Constructor
- EPR FOAK engineering will be completed before DC / COL applications are submitted

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Potential Synergy Improvements in the DC and COL Review Processes

- Efficient evaluation of interface issues
  - Full context of the design features will be evident because the generic and plant-specific applications will both be under review
- Opportunity to use same reviewers for both applications
  - Minimize learning curve because of reviewer familiarity with the design
- Improved definitions of COL action items in the Design Control Document

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Key Success Elements

- Pre-application discussions for early dialogue and agreement on plan and schedule
- Frequent and regular meetings with NRC PMs, technical reviewers and line management for early identification and resolution of
  - Review process issues
  - Application-specific issues
- Local Constellation, FANP, and Bechtel presence to facilitate NRC review
- Frequent and regular senior management meetings between the applicants and the NRC

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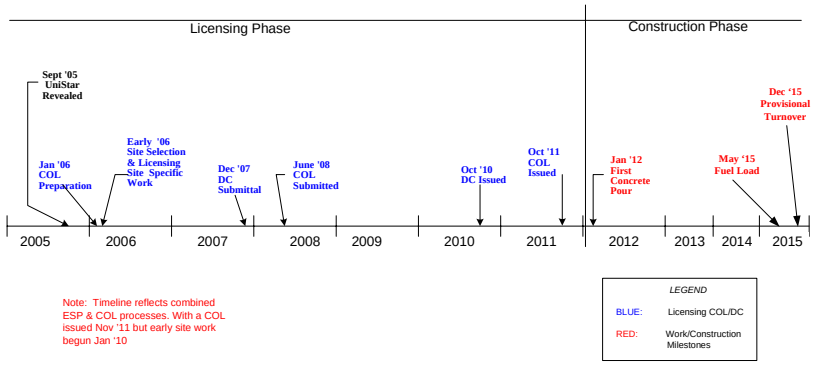
Conclusions

- The proposed DC / COL parallel review is a manageable process that builds upon existing regulatory experience to produce new base load generation in 2015
- Key aspects are a well-defined management plan, early/frequent communication between NRC and the applicants, and close coordination between the Constellation and FANP

Illustrative Example



TIMELINE

Summary

- Constellation plans to submit a COL referencing the Framatome U.S. EPR
- Constellation and Framatome ANP are committed to working with the NRC to define and implement a review plan which supports the need for new generating capacity in 2015
- Cooperation between Constellation, FANP, and the NRC to license the U.S. EPR demonstrates a commitment to:
  - Meeting U.S. electricity demands in a way that is both timely and ensures safe operation
  - Maximizing regulatory certainty
- Working together we will license a U.S. EPR to support the requirement for new nuclear generation in the 2015 timeframe, respecting the NRC's resource challenges

Next Steps

- End of Week: Letter from Constellation to NRC
- Working meeting in early 2006 to discuss details of licensing strategy and proposed schedules
- By May 1, 2006:
  - Agreement with NRC on strategy for managing the DC / COL parallel review, including:
    - Major review process elements
    - Scope of NRC application reviews
    - How applications will be submitted, reviewed for acceptability, and reviewed via the normal NRC review process
- Points of Contact
  - DC Sandra.Sloan@framatome-anp.com Phone (434) 832-2369
  - COL Joseph.Mihalcik@Constellaton.com Phone (410) 897-5196