



# ***Concept Evaluation Issues***

***GRNS Meeting  
Washington, D.C.  
February 5-6, 2002***

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# Overview

- ***Status of evaluations***
- ***Evaluation issues***
  - ***Basic approach***
  - ***System definition***
  - ***Consistency***
  - ***Discrimination capability***
- ***Resolution approach and schedule***

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# **Status of Evaluations**

**Concepts evaluated using “version 2” methodology:**

## **Water**

**U / Once through**

**U / Pu recycle (MOX)**

**CANDU-NG, SBWR, IPSR, HCABWR, SCWR-T/F**

## **Gas**

**U / Once through**

**U-Th / recycle**

**U / Actinide recycle**

**PMR, PBR, VHTR**

**Generic thermal-spectrum system**

**GFR**

## **Liquid Metal**

**U / Once through**

**U / Actinide recycle**

**4S**

**Na-Ox, Na-Met, Pb-RF, Pb-US, Pb-transportable**

## **Non-classical**

**U-Th / Once through**

**U / Actinide recycle**

**AHTR**

**MSR, VCR**

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## ***Status of Evaluations (cont'd)***

- ***Version 2 represents more of a TWG consensus than version 1 “demo” evaluations***
  - ***LM system evaluations done by subgroups***
- ***Version 2 evaluations were done with the benefit of***
  - ***Initial feedback comments from CGs***
  - ***Additional evaluation guidance from EMG***
  - ***Recent emphasis of***
    - » ***Corporate responsibility of TWG leadership***
    - » ***Planned peer reviews***

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# ***Observations from 1/25 Evaluations***

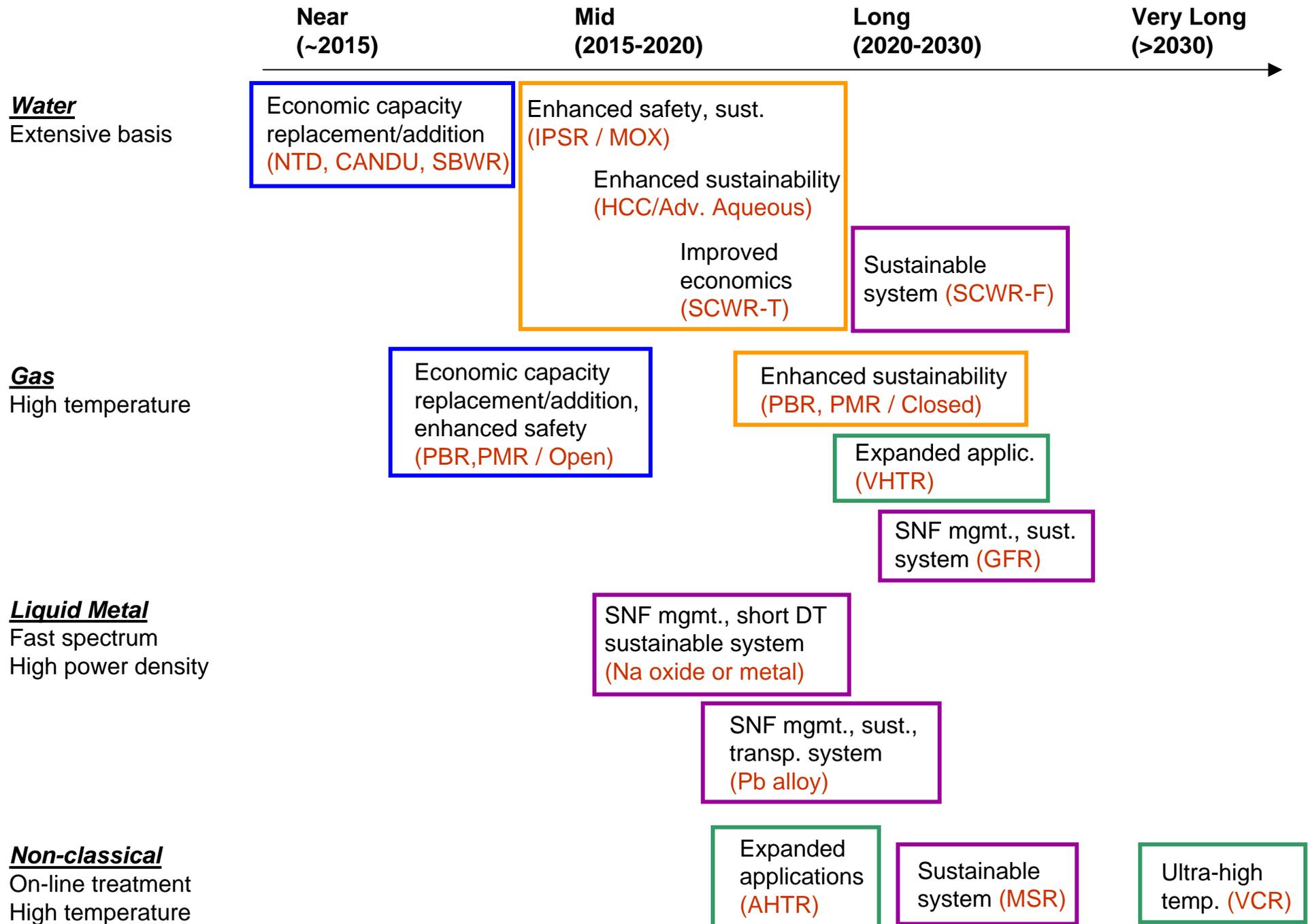
- ***Water Systems TWG***
  - ***Significant effort at consistency and consensus***
  - ***Pu recycle adopted to increase sustainability performance***
- ***Gas Systems TWG***
  - ***Uncertainties for VHTR may be underestimated***
  - ***More optimistic evaluation of small-plant economics than water***
  - ***Evaluation of thermal system with recycle very preliminary***
- ***LM Systems TWG***
  - ***Economic evaluations appear optimistic***
  - ***Estimated development costs comparatively high (except Na-oxide)***
- ***Nonclassical Systems TWG***
  - ***Evaluation figures of merit adversely affected by uncertainty***

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## ***Evaluation Issues: Approach***

- ***Evaluation process designed for comparing system options “on consistent basis”***
  - ***Entire “system”, but so far standalone***
  - ***Broad application, vs. specific markets or missions***
  - ***No explicit consideration of timing and market conditions***
- ***Concept performance against the different goals/criteria (individually or weighted) can be used to assess suitability under different scenarios***
- ***FCCG will report on implications of scenario studies for system evaluation and selection***

# Preliminary View of Potential System Missions and Availability



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# ***Evaluation Issues: System Definition***

- ***There are variations and some gaps in current system definitions***
  - ***Most concept sets feature options and variables***
  - ***Definition affects evaluation results and R&D scope***
  - ***Disparity in maturity of different concepts makes it difficult to formulate specific system definition criteria***
  - ***Guidance so far***
    - » ***Options in set should “evaluate similarly”***
    - » ***Less promising options within set should be eliminated***
- ***Results will be reviewed for adequacy of system definition***
  - ***Verify that impacts of system features in one goal area are reflected also in other goal areas***

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# ***Evaluation Issues: Consistency***

- ***Consistency of evaluations is key to selection process***
- ***Consistency issues exist:***
  - ***Within TWG***
    - » ***Influence of concept proponents***
  - ***Across TWGs***
    - » ***Different assumptions and interpretation of criteria***
    - » ***Competition-influenced scoring***
- ***Consistency is a central focus of the evaluation review process***

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# ***Evaluation Issues: Discrimination Capability***

- ***Evaluation results highlight performance tradeoffs, but***
  - ***Accuracy and precision of evaluation are limited***
  - ***Treatment of correlations among criteria affects performance measures***
- ***Implications***
  - ***Ability to discriminate using evaluated potential may be limited***
  - ***R&D challenge may provide important differentiation***
- ***Evaluation results are viewed as input to a selection process that will encompass broader considerations***

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# ***Scrubbing the Evaluations***

- ***The goal is evaluation results:***
  - ***That are technically accurate and defensible***
  - ***For which TWG CCs are collectively responsible***
  - ***That are endorsed by CG CCs, RIT, GRNS, GIF***
- ***Logistics and Steps:***
  1. ***CGs review evaluations across TWGs, focusing initially on four specific concepts; feedback to TWGs (Feb 11, 14)***
  2. ***TWGs revise their v2 evaluations (Feb 22)***
  3. ***TWG CCs collectively review evaluations (Feb 19-20 & Mar 5-8)***
  4. ***TWGs submit v3 evaluations (Mar 22)***
  5. ***GRNS briefing (April 2-3 ?)***
  6. ***WG quarterly meeting (Apr 9-11)***
  7. ***GIF Expert Group briefing (Apr 12 ?)***

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# ***Backup Slides***

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# ***Configuration Control of Evaluations***

- ***Evaluations will be placed under revision control starting in March***
  - ***Master copy of evaluations held by RIT***
  - ***Change in scores must be justified***
  - ***Comments may be changed to improve justification of score***
- ***CG and TWG review comments and evaluation change requests will be documented using an “evaluation review form”***
  - ***One set of comments per WG, transmitted by WG CC/TD to RIT***
  - ***RIT liaison communicates requested change to CC/TD of responsible TWG***
  - ***CC/TD of responsible TWG submits revised evaluation to RIT***
- ***A record of requested evaluation changes and their disposition will be kept and made accessible on the Roadmap Web Site***

# *Review of Evaluations*

