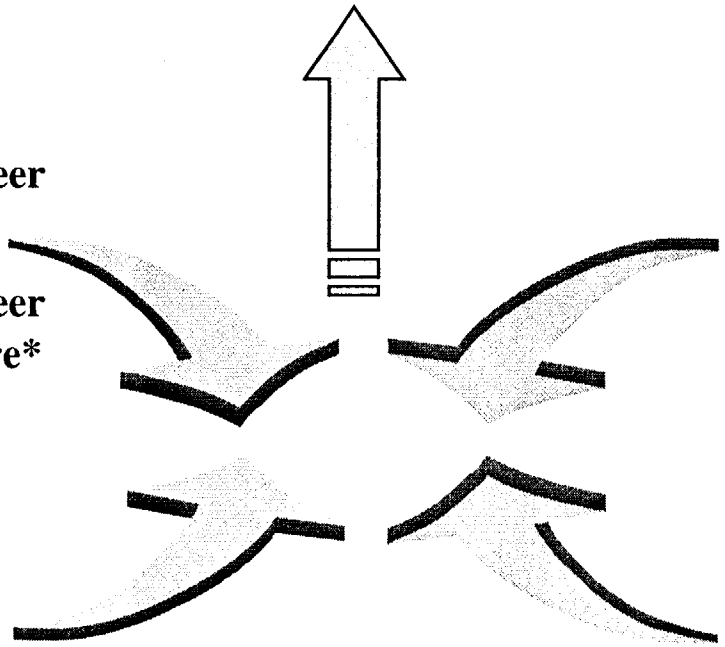
CEOG Approach to PSA Quality and Quality Applications

March 2001

Probabilistic Safety Assessment Subcommittee

Ensures Quality In PSA Applications



CEOG PSA Peer Reviews

CEOG PSA Peer Review Closure*

CEOG PSA Issue Resolution Process*

CEOG PSA Standards & Position Papers*

CEOG PSA Cross Comparisons Phases 1-6*

CEOG Joint Application Report Cross Comparison*

* unique to CEOG

CEOG COMBUSTION ENGINEERING OWNERS GROUP

Task Objective

- Develop summary report for submittal to NRC describing the CEOG activities towards RI Regulation

- Report will provide additional basis for NRC position on the Quality of CEOG PSA applications

PSA Quality

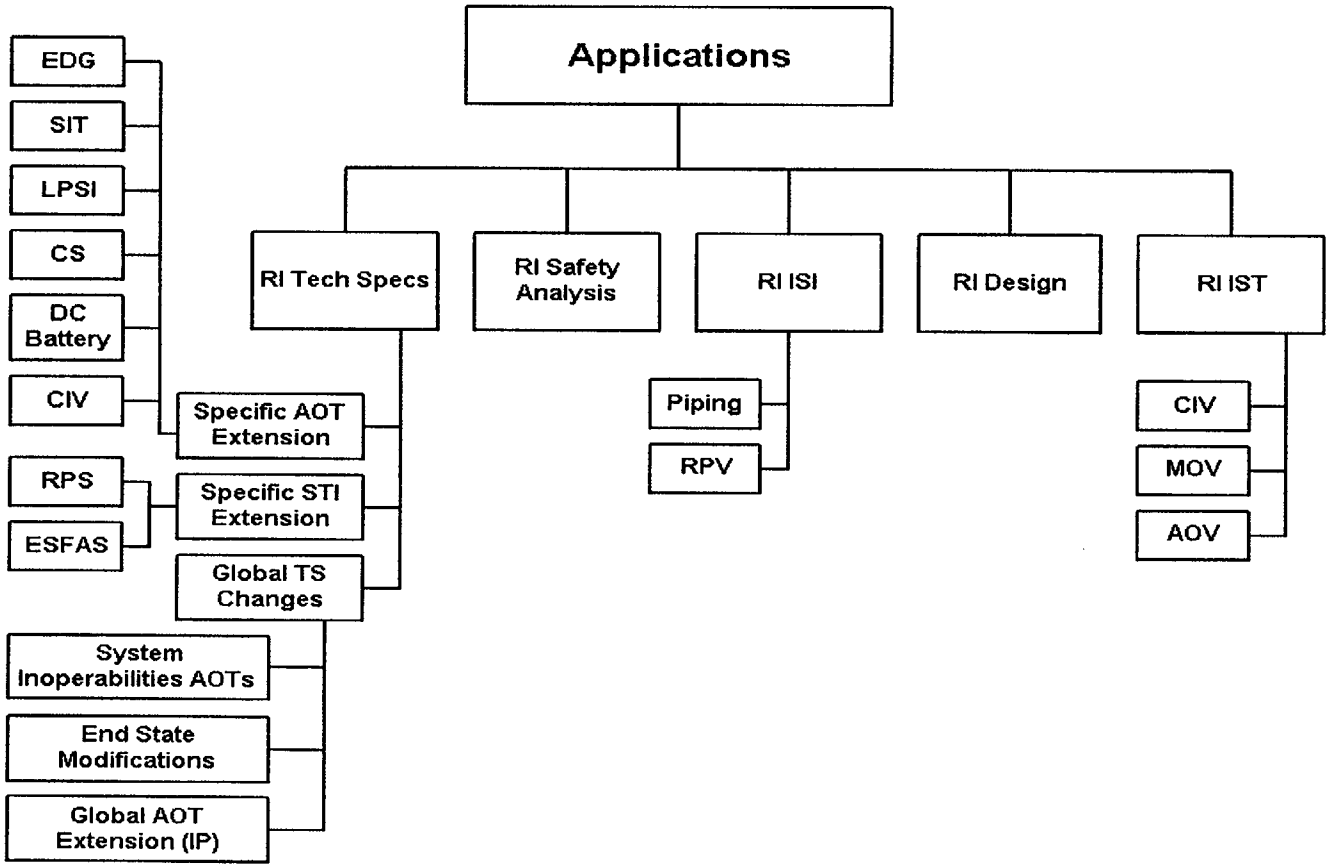
- CEOG process evolutionary and has evolved aver a period of 5 years

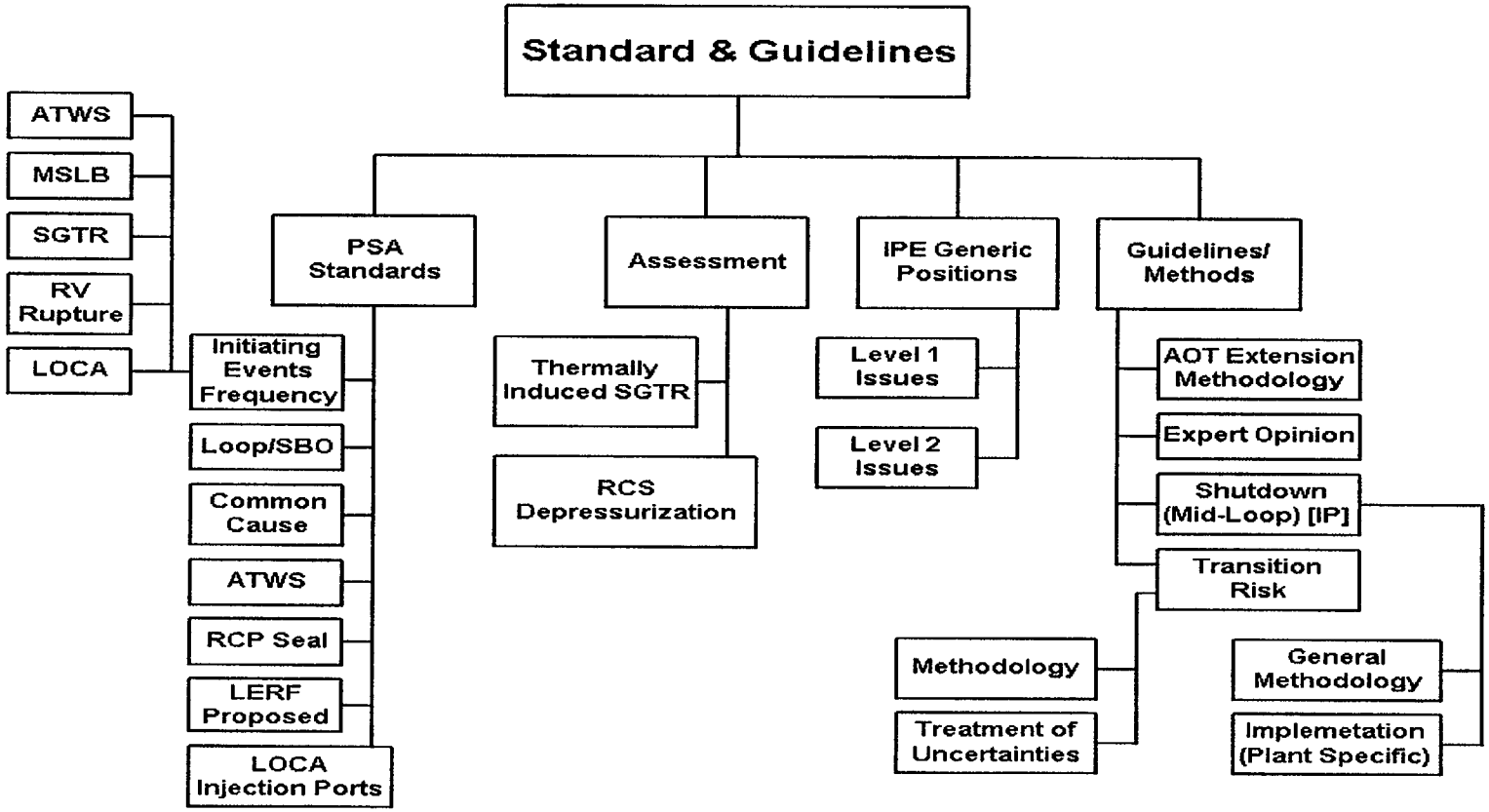
- Consistent with ACRS vision of "top down"/"bottom up" approach which both supports PSA development and validates specific applications

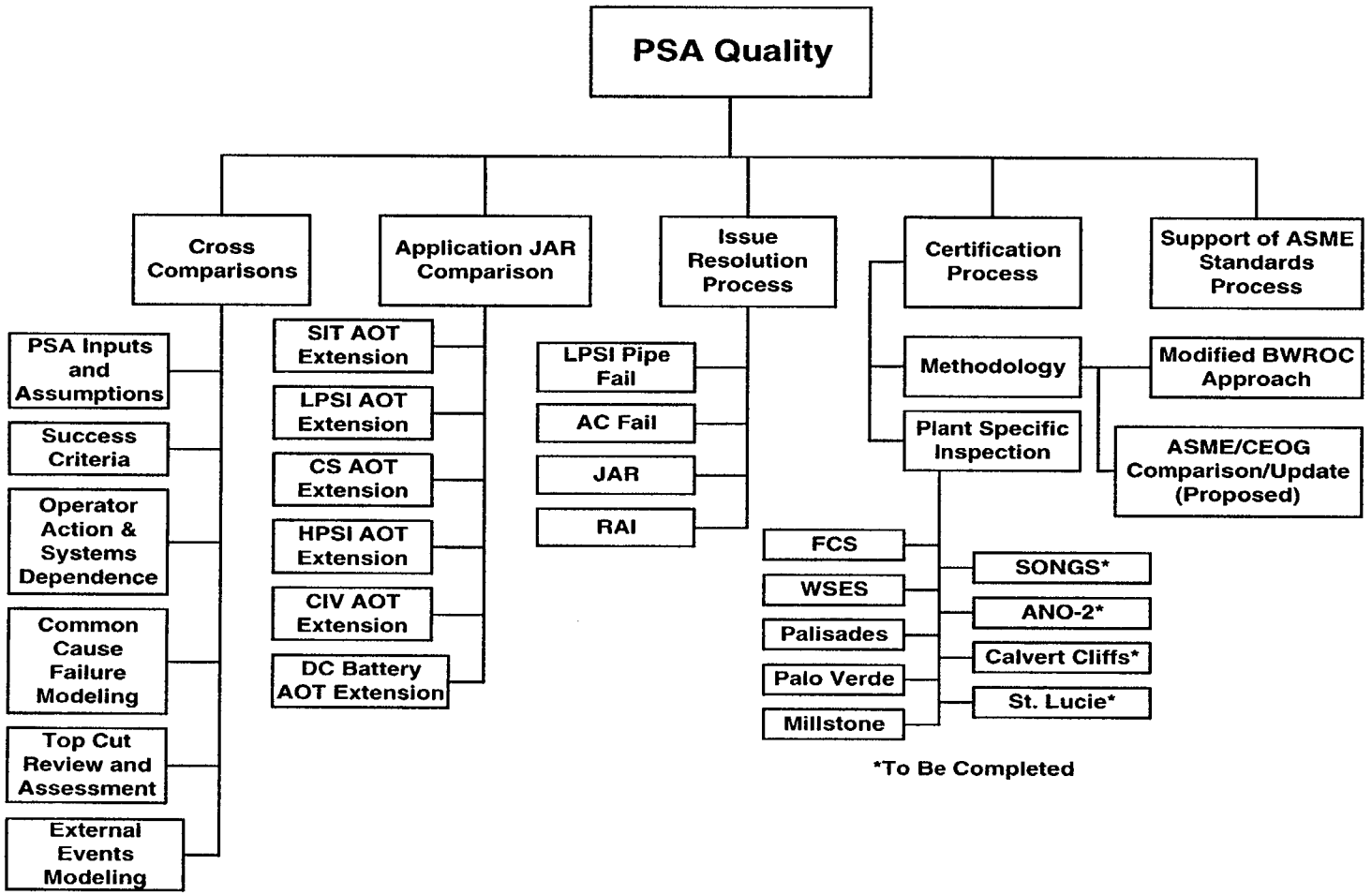
- Key elements of Quality process include:
  - PSA Insights gained from focused applications
  - Plant-Plant PSA feature comparisons
  - PSA Standards and Guidelines
  - "Peer Review" / Certification process

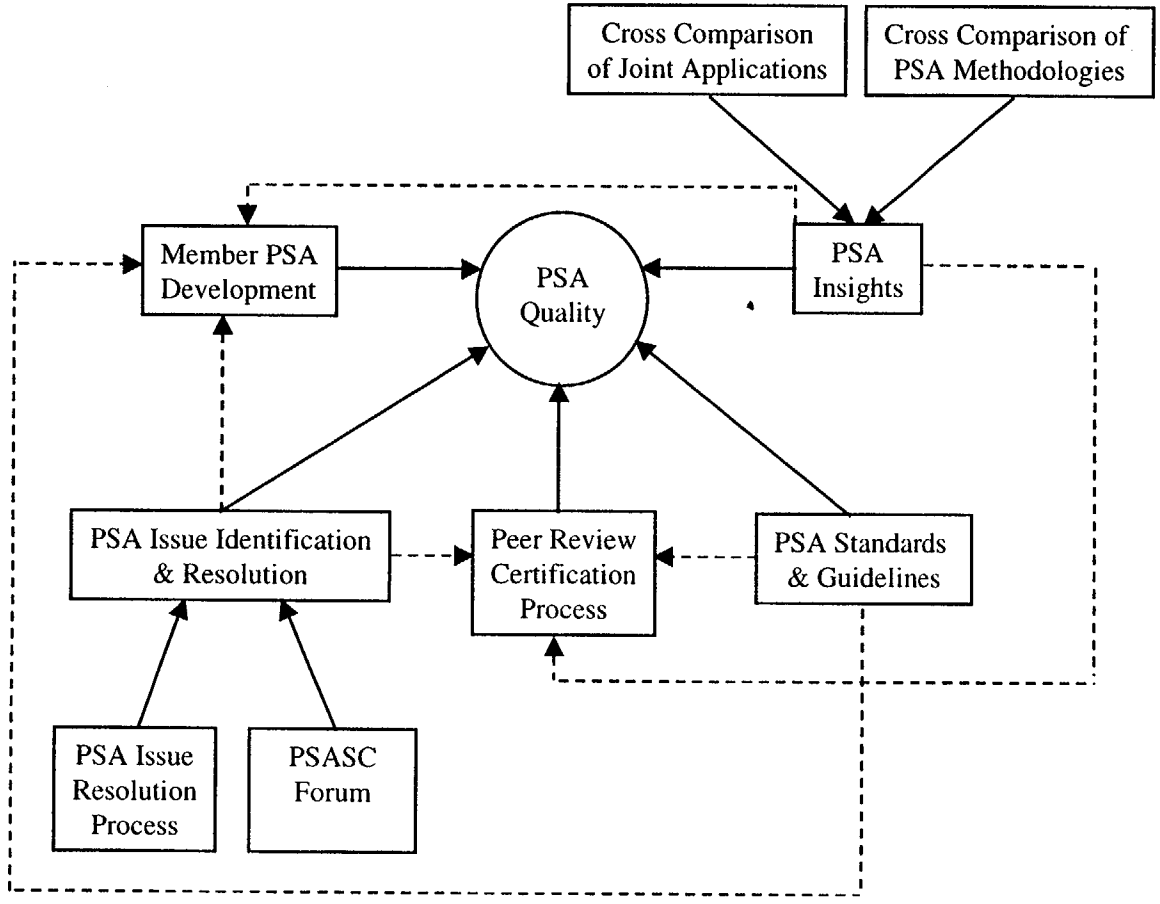
Task Status

- CEOG report in preparation (CE-NPSD-213)
  - document CEOG processes and their synergy for PSA quality
  - Draft reviewed by PSASC and LSC
  - To be issued by December 31
- Report to be submitted to NRC for reference in SERs
  - staff recognizes the benefits of the CEOG process
  - staff needs a reference document
- Report represents a unique CEOG capstone for PSA quality


Applications
RI Tech Specs
RI Safety Analysis
RI ISI
RI Design
RI IST
EDG
SIT
LPSI
CS
DC Battery
CIV
RPS
ESFAS
Specific AOT Extension
Specific STI Extension
Global TS Changes
System Inoperabilities AOTs
End State Modifications
Global AOT Extension (IP)
Piping
RPV
CIV
MOV
AOV


Standard & Guidelines
PSA Standards
Assessment
IPE Generic Positions
Guidelines/ Methods
ATWS
MSLB
SGTR
RV Rupture
LOCA
Initiating Events Frequency
Loop/SBO
Common Cause
ATWS
RCP Seal
LERF Proposed
LOCA Injection Ports
Thermally Induced SGTR
RCS Depressurization
Level 1 Issues
Level 2 Issues
AOT Extension Methodology
Expert Opinion
Shutdown (Mid-Loop) [IP]
Transition Risk
Methodology
Treatment of Uncertainties
General Methodology
Implemetation (Plant Specific)


PSA Quality
Cross Comparisons
Application JAR Comparison
Issue Resolution Process
Certification Process
Support of ASME Standards Process
PSA Inputs and Assumptions
Success Criteria
Operator Action & Systems Dependence
Common Cause Failure Modeling
Top Cut Review and Assessment
External Events Modeling
SIT AOT Extension
LPSI AOT Extension
CS AOT Extension
HPSI AOT Extension
CIV AOT Extension
DC Battery AOT Extension
LPSI Pipe Fail
AC Fail
JAR
RAI
Methodology
Plant Specific Inspection
Modified BWROC Approach
ASME/CEOG Comparison/Update (Proposed)
FCS
WSES
Palisades
Palo Verde
Millstone
SONGS*
ANO-2*
Calvert Cliffs*
St. Lucie*
*To Be Completed


Cross Comparison of Joint Applications
Cross Comparison of PSA Methodologies
Member PSA Development
PSA Quality
PSA Insights
PSA Issue Identification & Resolution
Peer Review Certification Process
PSA Standards & Guidelines
PSA Issue Resolution Process
PSASC Forum

Status of CEOG Technical Specification Applications

March , 2001

Review of CEOG Activities to Risk Inform Technical Specifications

Task ID	Scope	Status
836/849	TS specific AOT changes	SERs or equivalent obtained for SITs, LPSI, EDGs, CSs & CIVs. NRC review of DC Systems delayed due to SCE fire questions, Draft SER now prepare)
1115	Global TS changes to • End States • Exigent Condition AOTs	End State Report prepared (CE-NPSD-1186) (SER completed) Final Exigent AOT Report (CE-NPSD-1208, NRC review in progress)
1175	Global RI AOT	Draft Statement of Guiding Principle IP Preliminary discussions with Industry
1181	Missed Surveillances TS 3.0.4 Relaxation	Process report (NRC approval expected) Report issued (CE-NPSD-1267)

Status of DC Systems AOT

- Review is complete.
- RAIs centered on SONGS and Waterford Units for a 24 hr AOT extension (More robust DC systems)
- Methodology applicable to other PWRs but benefits will be less
- RAIs completed in November
  - Closure focused on:
    - Confirmation of modeling assumptions
    - Confirm loss of bus will not propagate to adjacent train
    - Impact of increased charger failure rate on CDF
- SER will be specifically applicable to SONGS and Waterford Units

Global Risk Informed TS

- Global Risk Informed TS Initiative includes 7 items
  ("Magnificent Seven" Plus one)

  - **Implementation of Risk Informed End States (*)**
  - **Grace period on Missed Surveillances (*)**
  - **Relaxation of Mode Restraints (*)**
  - **"Flexible" AOTs (MR controlled AOTs) (*)**
  - Move STIs to Adminsitrative Control (and develop RI STIs)
  - **Extended AOT for exigent conditions (*)**
  - Operability vs. Functionality (Definitions)
  - Relocate selected LCOs to Licensee controlled program (BWROG)

* CEOG Task authorized

STATUS OF TS INITIATIVES
Implementation of RI End State (initiative 1)

- Change ends state from (Mode 5 to Mode 4)
- CE-NPSD-1186 Submitted to NRC (May, 2000)
- RAI responses forward to NRC August 8
- Review included deterministic and PSA branches
- No formal RAIs to be received
- SER to be issued by end of year
- ISTS Markup in Progress
- BWROG follow-on program funded at $300-400 K Level

STATUS OF TS INITIATIVES

Missed Surveillances (initiative 2)

- TST-358 submitted to NRC via TSTF
- Review in progress
- No additional analyses required
- Missed surveillance process needed for implementation
- SER expected by end of year

STATUS OF TS INITIATIVES
Relaxation of Mode Restraints (Initiative 3);

- TSTF-359 to be submitted to NRC via TSTF
- CE-NPSD-1207 supports Relaxation of TS 3.0.4 for most equipment with specific generic exceptions:
    - **AFW, EDGs, HPSI , SDC (when in SDC)**
- Similar evaluations prepared by all Owner's groups

STATUS OF TS INITIATIVES
Flexible AOT (Initiative 4);

- Industry looking for common approach to Flexible AOT
- General guidance is emerging (OGs want to engage)
- Strawmen presented by:
    - CEOG (Task 1175)
    - STP
    - EPRI
    - BWROG
- EPRI approach viewed futuristic
- STP,CEOG,WOG,and BWROG looking for a common approach that accomodates key PSA and licensing needs

Extend AOT for Exigent Conditions (Initiative 6b & 6c)

- Report prepared and to be issued (CE-NPSD-1208)
- Industry review resulted in specific changes and delayed submittal. General industry support of approach.
- Intend to submit via TSTF to bypass review fees
- Submittal to NRC as a CEOG ISTS change in December
- WOG to follow.

STATUS OF TS INITIATIVES

- **Risk informed allowed outage times (Initiative 4b) Task 1161**
  - **Task directed at supporting the development of technical and philosophical bases of a MR based AOT.**
  - **Position paper to be reviewed by industry and used to support discussion of an improved TS structure with NRC**
  - **Preliminary Guiding Principle "Strawman"**
  - **Positions to be formalized via CEOG and presented to industry in September**
  - **Structured working paper to be shared with NRC**

Key Elements of the Guiding Principles for RI AOT

- Structure of TS should be familiar to Operating Staff
- AOTs should reflect plant risk and PSA insights
  - consistent with a(4) of MR
- RI AOTs should be implementable via a variety of PSA approaches

Summary

- NRC is actively supporting RI changes to plant Technical Specifications
- By the end of the current efforts most TSs will be Risk Informed with respect to AOTs and End States
- Future work should expand effort to RI STIs