



INCOSE Charter: Power and Energy Working Group

1 PURPOSE

Briefly define the purpose of this Working Group (WG) or Initiative. (Note: An Initiative is defined as an effort that is sponsored directly by INCOSE corporate leadership or INCOSE Chapter and does not otherwise fall under an INCOSE WG. "INCOSE WG" applies to WG's that are formally chartered by INCOSE Technical Operations.)

This section should include the reason for initiating this effort: problem, issue or opportunity it will address and how this effort aligns with the goals/strategic aims of INCOSE.

The Power and Energy Working Group seeks to organize experts from within the ranks of INCOSE as well as other professionals in the Energy sector of the economy to facilitate a "systems approach" to the analysis and future development of effective energy solutions.

The purpose of the PESWG is to direct expertise and a "systems" focus to support decision makers in the critical challenges of developing future energy systems that meet stakeholder needs for safety, effectiveness, and availability. The principal means of approaching these challenges will be to combine the disciplined system lifecycle methodologies evolved in INCOSE with sophisticated modeling tools, guided by Energy systems subject matter experts toward desired outcomes.

2 GOAL

Summarize the specific goal(s) for this WG or Initiative in terms that are clear and measurable. This area may also include:

PESWG goals and objectives include:

1. Identification of viable candidate energy systems for inclusion in the scope of PESWG studies / activities (this includes viable Aero and Space Power systems, as well as terrestrial applications)
2. Define standard system methods for assessment and life-cycle development process
3. For each candidate system solution:
 - Definition of stakeholders and the relevant needs as applicable
 - Interpretation of key needs, risks, and requirements into quantifiable "measures of effectiveness" for comparative analysis
 - Development of system models for simulation of performance and effectiveness
4. Comparative assessments (model-based) of system behavior and effectiveness
5. Recommendations on system methods and key priorities for future energy development

Customer(s)/Stakeholder(s):

Energy sector organizations; Research Organizations; Government Agencies; Universities; (Potential collaborative INCOSE working groups: System Architecture, Model-driven System Design, Infrastructure, Complex Systems, Space Systems, Systems Security Engr,)

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Intended outcome(s)/product(s)/services(s):

- Reports / papers on applications of SE methods for Power & Energy systems
- Effective comparative energy system assessments based on credible “Systems Methods” and executable simulation models to support decision makers for future energy systems.
- Establishment of INCOSE / PESWG as a leading entity on the forefront of energy solution concepts and methods of development

Expected completion date(s) or time-frame (e.g. short, mid or long-term)

Goals 1 & 2 (above) expected mid-term (i.e. < 1 year). Goals 3-5 expected long term

3 SCOPE

Describe the scope (framing) of this effort. The intent of scoping is to clearly define the boundaries which describe what is “in” and what is “out” of scope. For example: “This WG will address Modeling and Simulation (M&S) as it relates to Systems Engineering (SE) throughout the acquisition life-cycle.” This framing definition would therefore exclude M&S that would apply to business enterprise or service after the sale applications.

Working group members are being organized to focus on the following categories within the energy sector:

- Smart Grid / Energy Distribution concepts
- Advanced Nuclear Reactor design
- Alternative Energy concepts
- Aero / Space power systems
- Energy Storage
- System Life-cycle Methods and Models

4 SKILLS AND EXPERTISE REQUIRED

Define the skills and expertise that will be required for success. Identify any gaps and define how they will be acquired, denoting if they will need to be acquired from outside INCOSE (See Resources Required below).

- Subject Matter expertise in the relevant topic areas
- System Engineering skills
- Modeling expertise
- Risk assessment

5 MEMBERS, ROLES AND RESPONSIBILITIES

List the names of members and briefly describe their responsibilities.

Lead:

Raymond Beach

Responsibilities:

Define Vision, Charter, project roadmaps, conduct board meetings



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Co-Lead(s): Charles Alexander

Responsibilities

Support lead in all activities; act in the absence of the lead.

Resource advocacy and status reporting to the INCOSE BOD and external stakeholders.

Members

TBD <individual member names may be listed here and/or listed in individual Technical Project Plan(s) (TPP) that align to this WG/Initiative.>

6 OUTCOMES (PRODUCTS/SERVICES)

If known, list the intended deliverables (products/services) that will be produced by those participating in this WG/Initiative. Details applicable to deliverables shall be defined in separate Technical Project Plans (TPP's). TPP's shall be developed, submitted and tracked as defined by the applicable Technical Operations procedure.

TBD -- Outcomes will be defined by team during preliminary meetings, and confirmed at IW11

7 APPROACH

Define the general approach that will guide this WG/Initiative including:

- *Meeting frequency of the entire WG/Initiative team*
(Monthly via Telecon, in person at IW11)
- *Decision making*
Project meetings by sub-teams as required
Board meeting monthly, including Chair, Co-Chair, Sub-system leads
- *Norms or ground rules*
TBD
- *Accountability*
TBD
- *Communications, if not previously covered under roles & responsibilities above*
TBD
- *Challenges*
TBD
- *Assumptions*
TBD
- *Major phases or milestones, if applicable*
TBD

8 MEASURES OF SUCCESS

TBD

Define the overall measures of success for the WG/Initiative. Note that detailed measures of success for individual products/services produced will be contained in the applicable individual TPP. Examples of WG/Initiative measures of success include:



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Size of membership

Number of enterprises involved in the project

Number of products/services under development (as defined by individual TPP's)

Number of products/services delivered

9 RESOURCE REQUIREMENTS

TBD

Summarize the overall resources required to attain success in terms of both human and annual dollar (US) requirements. Also, include infrastructure support (e.g. telecoms, Microsoft LiveMeeting.)

If resources outside INCOSE are required, define these resources and the proposed method to secure attainment (e.g. MOU/MOA).

10 DURATION

Charter will remain in effect until rescinded by signatory

Define the duration/end date (if applicable). If no end date is planned then state that this Charter will remain in effect until rescinded by the signatory.

11 SIGNATURES

Enter the signature block of the submitter

Date

1st Level of Approval

Technical Director, INCOSE

Date August 2011

2nd Level of Approval (Note this will be added by the INCOSE Technical Director when deemed appropriate.)

Chairman, INCOSE Board of Directors

Date

Revision History

<i>Date</i>	<i>Revision</i>	<i>Description</i>	<i>Author</i>
	<i>1.0</i>	<i>Initial Draft.</i>	