1. Purpose

1.1 Purpose Statement

The Roadmap to Secure Industrial Control Systems (ICS) Subgroup was established by members of the Industrial Control Systems Joint Working Group (ICSJWG), a cross sector sponsored joint working group operating under the auspices and in full compliance with the regulatory requirements of the Critical Infrastructure Partnership Advisory Council (CIPAC). The purpose of the ICSJWG as laid out in the ICSJWG Charter is to facilitate the collaboration of control systems stakeholders to accelerate the design, development, and deployment of more secure control systems. Participants include international stakeholders, government, academia, owners/operators, systems integrators, and the vendor community. The Roadmap to Secure ICS Subgroup was formed to create a strategic model and business case to address the high level management of cyber risk within control systems environments, resulting in a "Draft Cross-Sector Roadmap for Cybersecurity of Control Systems" (Cross-Sector Roadmap).

The intent of the Subgroup as designated in this Charter is to suggest the use of the Cross-Sector Roadmap as a resource for all Sectors thus to provide a 'common lexicon' or set of ready to tailor models from which to draw during the construction and revision of Sector-specific Roadmaps which incorporate the cybersecurity and maturity of ICS as well as a supporting business model. Furthermore, the general purpose is to maintain a functioning Cross-Sector Roadmap Subgroup and establish an ongoing review of the state of ICS throughout all Sectors, incorporating relevant information into an updated Cross-Sector Roadmap.

1.2 Challenges

A clear strategy or common lexicon does not yet exist to coordinate the efforts of all stakeholders within the ICS community to identify and address cyber risk within control systems environments.

1.3 Objectives

The Roadmap to Secure ICS Subgroup will plan, coordinate and develop a methodology to develop and maintain the Cross-Sector Roadmap in order to address cyber risk management within control system environments. Periodic review and update of the Cross-Sector Roadmap will provide a model for Sector-specific Roadmaps to be developed, as desired by Sector representatives. Revision of the current Draft Cross-Sector Roadmap will embellish the notional cybersecurity and business case models already incorporated in order to make the document more robust and applicable to each Sector. A cybersecurity Maturity Model will be developed and merged into the document during the next revision.

The Subgroup will develop and maintain a methodology to solicit and receive information regarding Sectors meeting the goals set forth in the Cross-Sector Roadmap and report on a defined set of metrics.

The Subgroup will encourage participation from all Critical Infrastructure/Key Resource (CI/KR) Sectors to create a relevant Sector-specific Roadmap to Secure ICS based on the model Cross-Sector Roadmap and the related business case for Industrial Control Systems.

2. Operating Principles

The operating principles define and set forth how the group will operate including the authorities, duration, member roles and responsibilities, and the procedures it will follow to accomplish its purpose(s). Note that the overarching ICSJWG statutes, requirements, and objectives as outlined in the ICSJWG charter will apply to and govern this Subgroup.

2.1 Sponsorship and Authorities

The Roadmap to Secure ICS Subgroup is sponsored by the ICSJWG and derives its authority from the ICSJWG charter and this Subgroup charter, as approved. The requirements, stipulations, and authorizations of the ICSJWG charter are passed down and applicable to the members of this Subgroup and its operation.

2.2 Subgroup Duration

The Roadmap to Secure ICS Subgroup initial period of performance will be one year from the date of execution of this charter by the ICSJWG and Subgroup Co-Chairs. At the end of one year, the Subgroup Co-Chairs and members may choose to extend the period of performance upon approval of ICSJWG Co-Chairs. The period of performance may also be terminated prior to the one-year period if the ICSJWG Co-Chairs agree to dissolve the Subgroup.

2.3 Membership

The ICSJWG is a collaborative and coordination body operating under CIPAC regulations. Members of the ICSJWG and attendees invited to participate as SME members derive no authority as a result of their participation in ICSJWG activities. Members of the Subgroups will be selected from ICSJWG membership and from industry SMEs as follows:

2.3.1 Subgroup Co-Chairs

The Subgroup will be lead by two Subgroup Co-Chairs; one from the Sector Coordinating Council (SCC) membership, and one from the Government Coordinating Council (GCC) membership as nominated by the ICSJWG and approved by the ICSJWG Co-Chairs. The two Subgroup Co-Chairs shall act for the duration of this charter unless it is deemed necessary by the ICSJWG or Co-Chairs to nominate and appoint new Subgroup Co-Chairs.

2.3.1.1 Subgroup Co-Chairs Roles and Responsibilities:

- Draft, approve, and sign the Subgroup charter with concurrence of the ICSJWG Co-Chairs.
- Recommend and vet Subgroup membership and participant requests.
- Maintain the charter and ensure compliance by the Subgroup membership and participants.
- Assign members and participants to perform specific tasks to complete the scope, deliverables, and products of the Subgroup.
- Arrange and conduct meetings including documenting subsequent meeting minutes.
- Ensure that all meeting minutes are distributed to the Subgroup membership, the ISCJWG Co-Chairs, and to the ICSJWG program office at ICSJWG@dhs.gov.
- Review and approve products and deliverables with a simple majority concurrence of the registered Subgroup membership.
- Report or provide status updates on the progress of the Subgroup deliverables.
- Present deliverables and products to the ICSJWG Co-Chairs for acceptance.
- Recommend and perform updates to the goals and milestones of this charter as needed (with the approval of the ICSJWG Co-Chairs).
- Perform other duties as requested by the ICSJWG Co-Chairs.

2.3.2 Members

The Subgroup will have at least three members in addition to the Co-Chairs. Members will be selected from the ICSJWG membership and from subject matter experts (SME) in academia, government, and industry based on their ability to contribute to the completion of the goals and milestones of the Subgroup. The Subgroup will endeavor to ensure that its membership is representative of the various critical infrastructure and key resource sectors as identified and recognized by the National Infrastructure Protection Plan (NIPP).

Business of the Subgroup will be conducted with a simple majority when voting is needed to resolve issues. The Subgroup Co-Chairs will have the authority to break a tie. Members will assist with the development and approval of the products and deliverables of the Subgroup.

2.3.2.1   Members Roles and Responsibilities:

- Complete tasks as assigned by the Co-Chairs.
- Attend meetings of the Subgroup.
- Review and provide comments on products and deliverables.
- Vote on approval of products and deliverables.
- Comply with this charter and the obligations set forth in the ICSJWG charter.
- Ensure that the ICSJWG program office (icsjwg@dhs.gov) is copied on all written correspondence related to this Subgroup.

2.3.3   SME Members

The Subgroup Co-Chairs and members may choose to invite SME members on a task-by-task basis (in accordance with the ICSJWG charter) to contribute to the development of products or assist with specific tasks based on their expertise.

2.3.3.1   SME Member Roles and Responsibilities

- Comply with this charter and the regulations set forth in the ICSJWG charter.
- Complete tasks as assigned by the Co-Chairs and members.
- Attend Subgroup meetings, as invited.

2.3.4   Executive Secretarial Support

Upon request, DHS will provide executive secretarial support to the Subgroup Co-Chairs to perform administrative functions such as arranging for phone conference bridges, taking meeting notes, and notifying Subgroup members of upcoming events.

2.4   Communication Protocols

This section provides the details for generating, sharing, and recording information about the Subgroup's efforts and accomplishments:

2.4.1   Meetings

The Subgroup will hold regular meetings where members and/or relevant SMEs members are invited to attend to engage on the specific tasks and goals of this charter. The Subgroup may meet in a manner and frequency, as approved the Subgroup Co-Chairs, which is most conducive to completing the deliverables, addressing matters within the scope of the charter, and to status progress against the goals and milestones.

Subgroup meetings may be called in accordance with the process identified in the ICSJWG charter, which includes the requirement to provide notice to the Designated Federal Official's (DFO) Compliance Liaison. All ICSJWG or Subgroup meetings, conducted under the auspices of CIPAC, shall only be held when the CIPAC DFO designee, a DHS government official[1], is present.

If the Subgroup meetings will or are expected to include both government and non-governmental personnel and if the result will or might be characterized as a consensus endeavor, the meeting should be managed as a CIPAC meeting, and compliance for CIPAC regulatory obligations will be accomplished by DHS under the guidance of CIPAC Designated Federal Official (DFO) or the DFOs designee.

---

1. The DFO's Designee, also called the DFO's Compliance Liaison is a DHS government official who has been trained and certified by the CIPAC DFO to monitor, report, and ensure the regulatory compliance of any meeting held under the auspices of CIPAC

2.4.2   Agendas and Meeting Minutes

As directed by the Subgroup Co-Chairs, an agenda will be prepared for each meeting to identify the topics for review and the desired outcome of the meeting. At the conclusion of a meeting, minutes will be prepared to document the names of those in attendance and the decisions and actions agreed to. The agenda and subsequent meeting minutes will be distributed to members of the Subgroup, the two ICSJWG Co-Chairs, and icsjwg@dhs.gov.

2.4.3   Review and Approval Process for Products and Deliverables

The Subgroup will develop a method for its members to review and approve the deliverables which are completed to meet the goals and milestones of this charter. Deliverables approved by the Subgroup membership will be forwarded to the ICSJWG Co-Chairs for acceptance and presentation to the ICSJWG membership at large.

2.4.4   Correspondence

All correspondence associated with Subgroup business will be courtesy copied to icsjwg@dhs.gov

2.4.5   Confidentiality

Members of the Subgroup will keep the business and proceedings of all Subgroup meetings confidential and will not disclose any information to organizations or individuals outside the membership of ICSJWG, without approval from the Subgroup and ICSJWG Co-Chairs. Subgroup members may, however, discuss their roles within and activities of the Subgroup with their respective agencies or business units, provided such discussions are held as business sensitive.

2.5   Schedules and Reporting Progress

The Subgroup will prepare and present progress reports at each ICSJWG general meeting, or as directed by the ICSJWG Co-Chairs. The Subgroup will also develop a schedule to identify each product or deliverable and the estimated dates for completing the milestones outlined in Section 3.0 of this charter.

3.   Objectives, Goals and Milestones

3.1   Objective 1 – Establish and maintain a lifecycle for the "Draft Cross-Sector Roadmap for Cybersecurity of Control Systems" (Cross-Sector Roadmap) to provide for periodic updates and continued coordination with and incorporation of relevant material from relevant CI/KR sectors.

   3.1.1   Goal 1: On at least a biennial basis or as otherwise directed by the ICSJWG Co-Chairs, update the Cross-Sector Roadmap based on current trends, threat assessments, new technology, or industry best practices.

   3.1.2   Goal 2: Coordinate with applicable CI/KR Sector points of contact to ensure timely input for regular update of the Cross-Sector Roadmap with key or common issues relevant to all CI/KR Sectors in the use of ICS.

   3.1.3   Goal 3: Plan and develop with applicable CI/KR Sector points of contact and Subgroup members a Maturity Model for ICS security to be incorporated into the Cross-Sector Roadmap.

3.2   Objective 2 – Establish and maintain a methodology to capture and report relevant metrics which summarize status of goals defined in the Cross-Sector Roadmap and the Roadmap Subgroup Charter.

   3.2.1   Goal 1: Develop relevant metrics regarding the goals established in the authorized version of the Cross-Sector Roadmap.

3.2.2   Goal 2: Coordinate with applicable CI/KR Sector points of contact and Roadmap Subgroup members and establish a methodology and timeline for status updates, reporting, and maintenance of meeting Cross-Sector Roadmap goals.

3.2.3   Goal 3: On at least an annual basis or as otherwise directed by the ICSJWG Co-Chairs, provide a report of progress against the goals established by the Cross-Sector Roadmap.

3.2.4   Goal 4: On at least an annual basis or as otherwise directed by the ICSJWG Co-Chairs, provide a report of the analysis of the Cross-Sector ICS security posture.

3.3   **Objective 3** - Solicit participation from all CI/KR Sectors to create Sector-specific Roadmap to Secure Industrial Control Systems, using the authorized version of the Cross-Sector Roadmap as a baseline model. Assessment of cross-sector progress against the goals established in the Cross-Sector Roadmap and to ensure

3.3.1   Goal 1: Develop a key resources / points of contact list from each Sector to facilitate coordination and status update of Sector-specific Roadmap development based on the Cross-Sector Roadmap model.

3.3.2   Goal 2: Coordinate a timeline and milestones to facilitate regular updates of progress for those Sectors that propose to pursue a Sector-specific Roadmap based on the Cross-Sector Roadmap model.

3.4   **List of Key Milestones:**

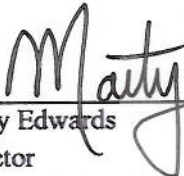| Key Milestones	Description	Due Date
Update the Cross-Sector Roadmap based on current trends, threat assessments or established industry best practices	Objective 1, Goal 1	2 years from signature
Coordinate solicitation and define key or common issues to be included in the revised Cross-Sector Roadmap.	Objective 1, Goal 2	6 months from signature
Plan and develop a Maturity Model and include in the revised Cross-Sector Roadmap	Objective 1, Goal 3	1 year from signature
Develop relevant metrics regarding meeting the goals of the Cross-Sector Roadmap	Objective 2, Goal 1	9 months from signature
Coordinate and establish a methodology and timeline for metrics of meeting the goals of the Cross-Sector Roadmap	Objective 2, Goal 2	10 months from signature
Provide a report of the progress against the goals in the Cross-Sector Roadmap	Objective 2, Goal 3	1 year from signature
Provide a report of the Cross-Sector ICS Security Posture	Objective 2, Goal 4	1 year from signature
Develop points of contact to coordinate development of Sector-Specific Roadmap(s) based on Cross-Sector Roadmap	Objective 3, Goal 1	6 months from signature
Develop timeline and milestones for updates of progress of Sector-Specific Roadmap(s)	Objective 3, Goal 2	1 year from signature

_9-30-11_

GCC Subgroup Co-Chair   Date
Perry Pederson
Security Specialist (Cyber)
Nuclear Regulatory Commission

_9-30-11_

SCC Subgroup Co-Chair   Date
Tim Roxey
Director of Critical Infrastructure Risk
Assessment and Technology Division
North American Electric Reliability Corporation

_10/4/2011_

Marty Edwards
Director
Control Systems Security / ICS-CERT
U.S. Department of Homeland Security
ICSJWG Government Coordinating Council Chair

Tim Roxey
Director
Critical Infrastructure Risk Assessment and
Technology Division
North American Electric Reliability Corporation
ICSJWG Sector Coordinating Council Chair