

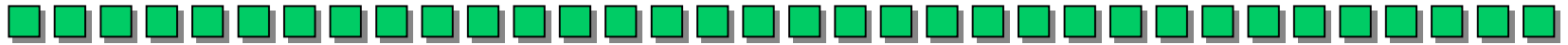


The Global Environmental Coordination Initiative



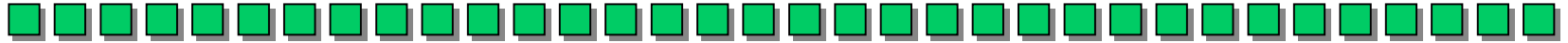
- Background
- Organizations Participating in GECI
- GECI Work Plan
- Survey of Key Lead-free Activities
- Roles of Involved Parties
- Lead-free Transition Roadmaps
- Elimination of Roadblocks to Lead-free Electronics
- The GECI Communication Plan

Background



- The first exploratory Global Environmental Coordination Initiative, GECI for short, meeting was held in April 2000 in Munich as a joint SEMI – HDP User Group activity
- Five informal GECI meetings were held in Tokyo, Munich and Silicon Valley the following 12 months
- GECI was formalized at a meeting July 20, 2001 in Silicon Valley
- The GECI Advisory Board makes the decision on behalf of GECI

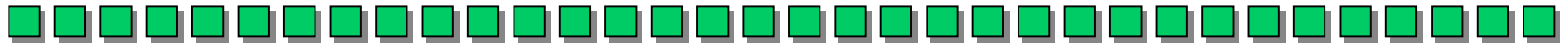
Organizations Participating in GECI



Organization	Representative
• HDP User Group	Vivek Gupta
• IPC	David Bergman
• ITRI Taiwan	Rong-Shen Lee
• JEDEC	Mark Bird
• Meptec	Bance Hom
• NEMI	Jim McElroy
• SAC	Marla Cooper
• SEMI	Bruce Gehman
• Soldertec	Kay Nimmo

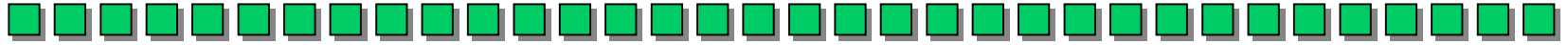
The GECI Work Plan

The Strategy



- Get all important organizations to cooperate
- Get consensus on some key recommendations
- Facilitate for organizations to share workload
- Communicate recommendations to the supply chain and their customers

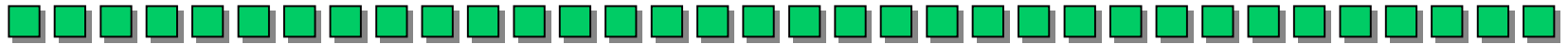
The GECE Work Plan Priorities

















- Lead-free Assembly
- Halide-free Electronics
- Design for the Environment

General Purpose Lead-free Assembly System

Survey of Key Activities



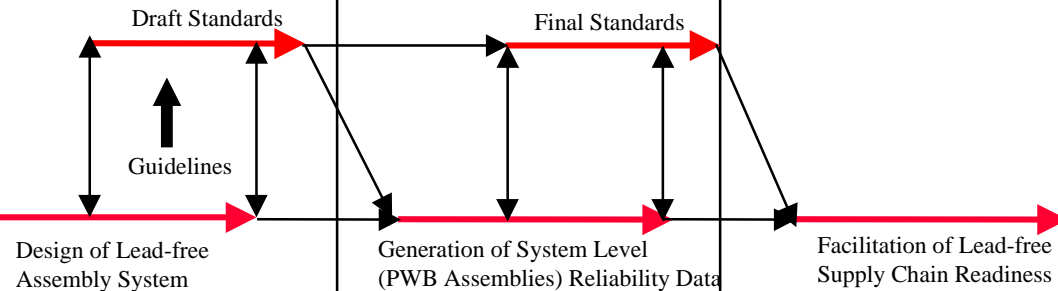
Generation Engineering Data




- Basic Reliability Data on Solder Joints 
- Temperature Variations in Reflow Ovens 
- Temperature Sensitivity of Components and PWB-s 
- Cost Information 
- Reflow Low Temperature Reliability Treashold Data 
- Double-sided Reflow Data 
- Component Self-centering Data 
- Wave Solderng Process Data 
- PWB Via Integrity Data 
- Rework Process Data (semi-automated and manual) 
- Environmental Load Data 
- Component Lead Finish Data 
- PWB Surface Finish Data 
- Lead-free Flux Compatibility Data 

System Design

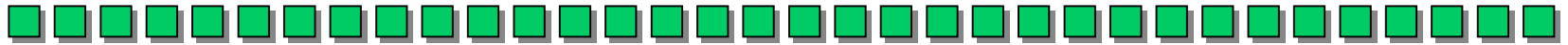
Verification

Implementation

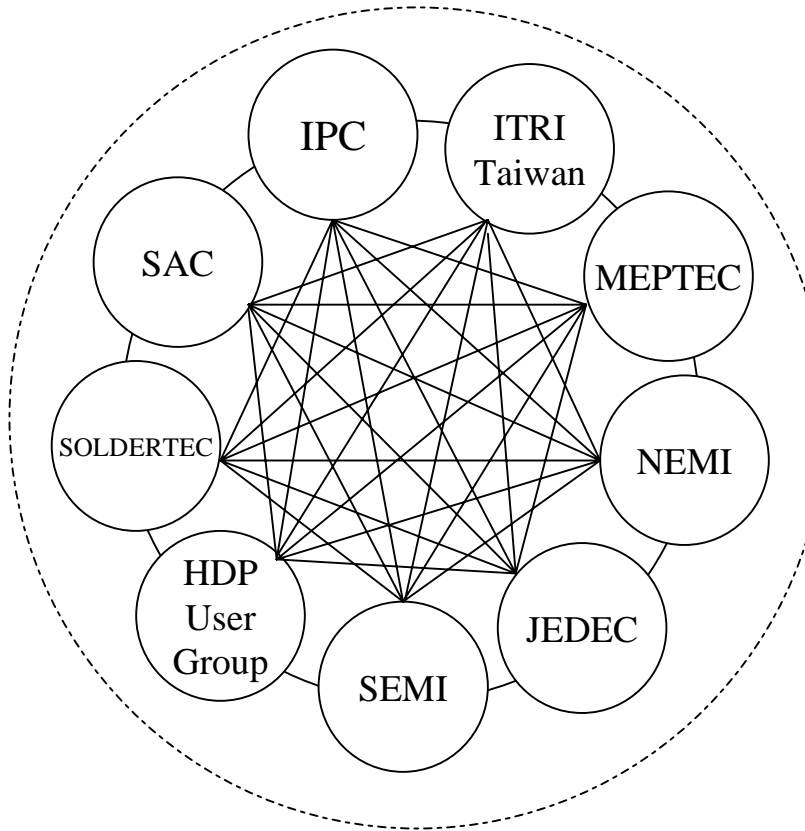


- Legend:**
-  Activity needed
 -  Basic information available
 -  Some information available

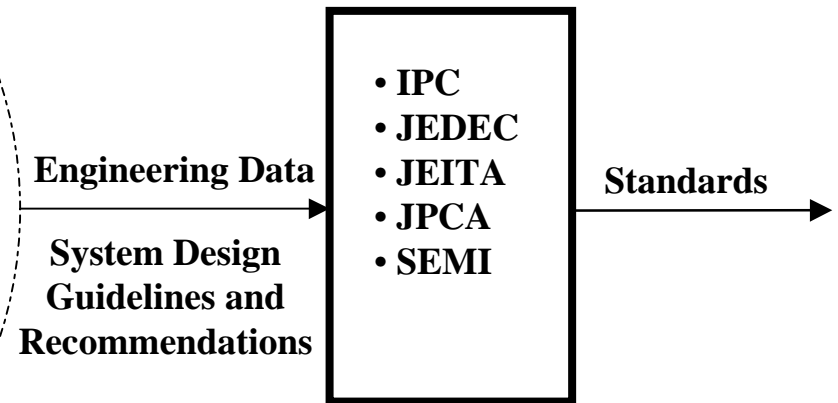
Roles of Involved Parties



GECI Global Network

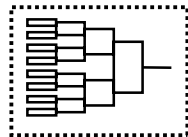
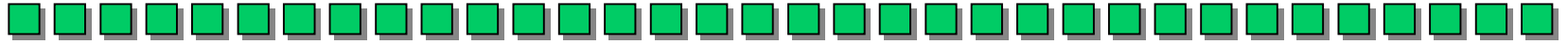


Standards Bodies

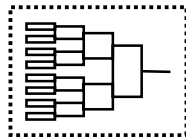


Lead-free Transition Roadmaps

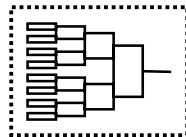
Current Situation



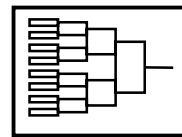
HDP User Group



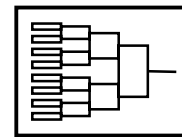
IPC



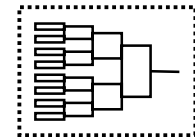
NEMI



Japan



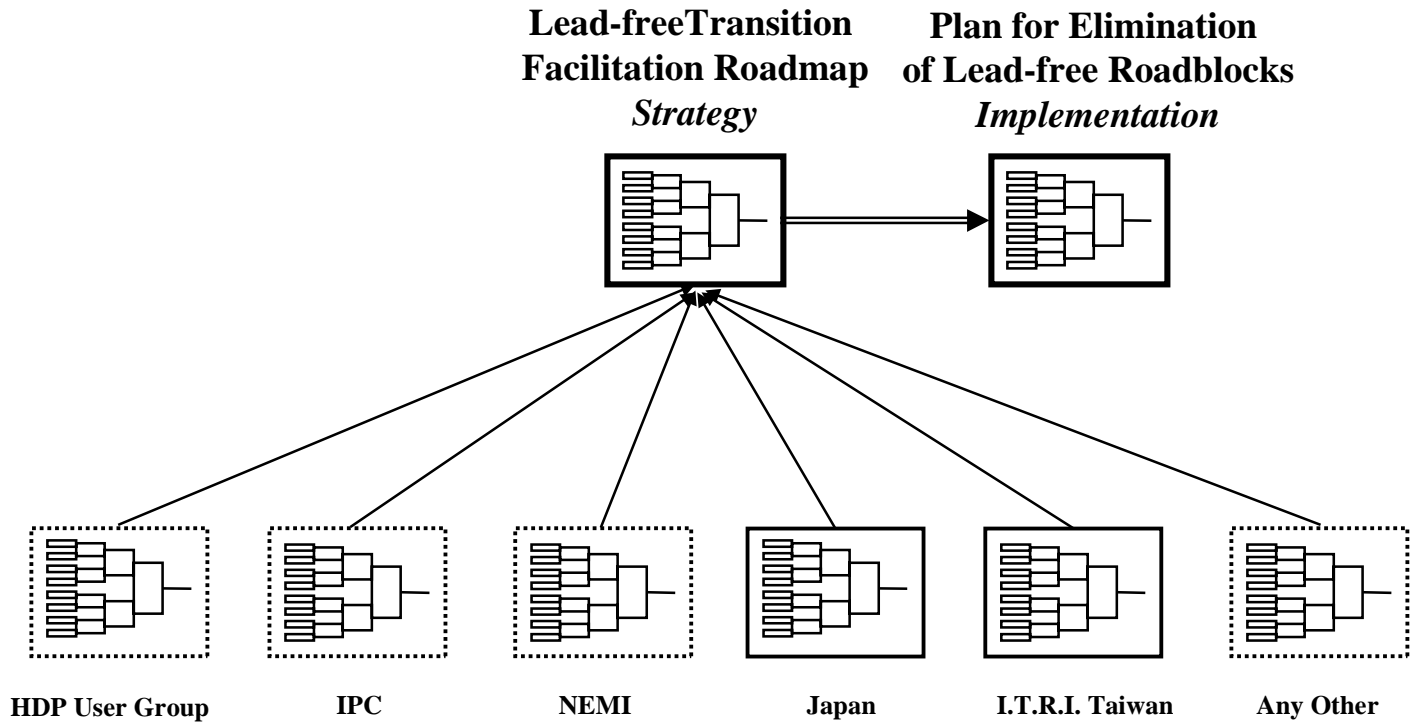
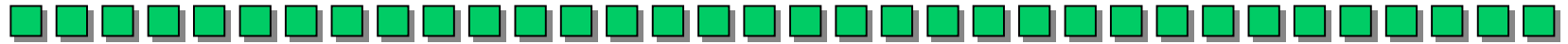
I.T.R.I. Taiwan



Any Other

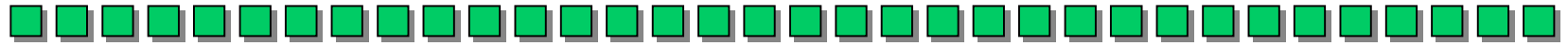
Lead-free Transition Roadmaps

The Facilitation Transition Roadmap



Lead-free Transition Roadmaps

The Transition Roadmap Activity



- Collect information about market and legislative requirements from system point of view
- Collect technological information about alternative solutions
- Draft a roadmap based on the needs of system integrators and technical feasibility

Note:

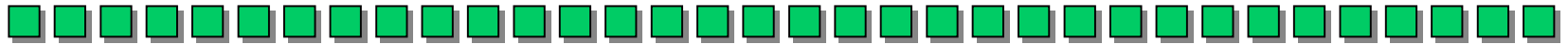
There is a lot of information available from participating organizations.

The Transition Roadmap should be focused on:

- Requirements as perceived by System Integrators
- Global business – All regions should be taken into account
- Cost and time efficient implementation through global cooperation

Lead-free Transition Roadmaps

Elimination of Roadblocks



The purpose of document is to create a plan for resolving roadblocks to electronics industry implementing lead-free electronics.

The GECI Communication Plan



External Communication

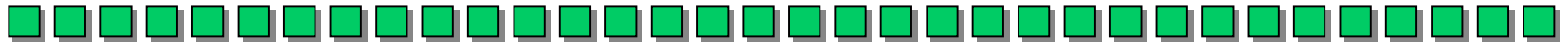
- GECI recommendations will announced by press releases
- A GECI website has been established
- Press releases and recommendations will be posted accessible at the GECI website
- Regional Workshops

Internal Communication

- At least three GECI Advisory Board face-to-face meetings/year
- Internet meetings to overcome problems with different time zones
- Phone conferences
- Press releases and recommendations will be approved by GECI Advisory Board

The GECI Work Plan

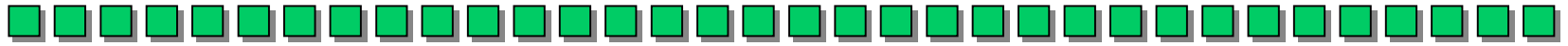
Potential Recommendations



- Definition of Lead/halide-free Products
- Lead-free Assembly Guideline
- Roadmap for Transition to Lead-free Electronics
- List of preferred purchasing specifications

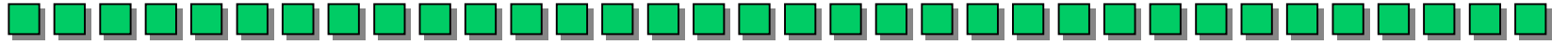
The GECI Network

Projected Achievements



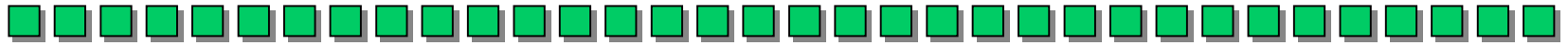
- Suppliers and organizations could work in coordinated fashion focused on transforming well defined system requirements in real environmentally compliant products
- Information is gathered about environmental activities run in regions and organizations on a global scale
- System requirements are conveyed to the Supply Chain with one voice
- It would be easier for the Supply Chain to comply with system requirements and get business

Back Up



The GECl Network

The Mission



Resolution of technical and logistics issues involved in conversion of over 200,000 electronic products to become lead-free is a complex and massive undertaking. Several of the world's leading electronics associations and consortia have therefore been participating in an effort to develop standardized alloys, processes, tools, etc.

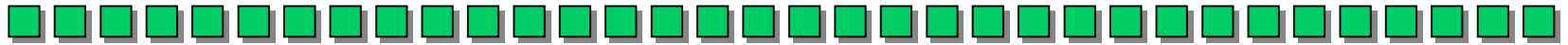
The mission of the "Global Environmental Coordination Initiative", GECl is to

- Agree on a process for the orderly transition of the electronics industry to comply with the market driven and legislative environmental requirements with respect to product materials content and design.
- Facilitate global cooperation to make the transition as smooth and cost efficient as possible while preserving the quality, reliability and safety of the electronics industry's products.

Resolving the Lead-free issue has the first priority due to the impact on the electronics infrastructure. Halogen-free issues are next in line. However, "Environmental Load Analysis" of potential technologies, "Design for the Environment" and "End of Life Treatment" issues could also be addressed at a later stage.

The GECI Network

The Constitution



GECI is a network of organizations, companies and people understanding the need for global cooperation to resolve environmental, health and safety issues in a timely and cost efficient manner.

An "Advisory Board" shall direct the coordinated efforts. The Advisory Boards shall consist of:

- One representative from each organization in the GECI Network
- Representatives from the industry. Participating organizations recommend the Advisory Board to invite industry representatives to become participants of the GECI network
- Technical advisors. The advisors are invited by majority vote of organizational representatives
- Liaison persons from geographical regions. The liaison persons are invited by majority vote of organizational representatives
- A chairperson

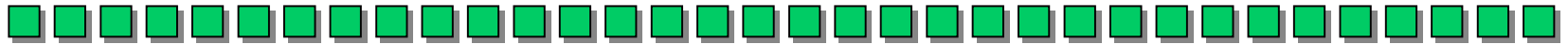
The technical coordination of GECI shall be done by HDP User Group.

All organizations and people participating in the GECI Network are responsible for their own expenses.

Decisions of GECI shall be made by a majority vote of the organizational representatives in attendance at a duly scheduled meeting.

The GECI Network

Execution of Tasks



All activities of the GECI Network are performed by the individual organizations in the network

The representatives of the GECI Network shall have face-to-face meetings at least three times a year at locations in Europe, the Far East and USA respectively. Additional "Internet meetings" and "phone meetings" may be held whenever needed to speed up the processing of tasks.

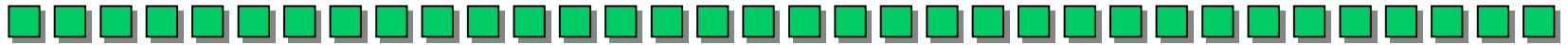
Minutes of meetings and other proceedings of the GECI Network shall be kept, and, unless a majority of members in attendance at a meeting agree otherwise, such minutes shall be communicated to the public by posting such minutes on a Website to be maintained by the GECI Network.

The GECI Network shall discuss and agree and take action on issues such as:

- Definition of key areas of cooperation
- Definition of format of lead-free transition roadmaps
- Establishing synergy between the various lead-free transition roadmaps
- Listing of gaps in accomplishing transitions
- Dividing up the workload aimed at closing the gaps
- Listing of standards activities needed for cost-effective implementation
- Defining the process for moving forward.

The GECI Network

Milestones and Success Criteria



Milestones

- All major organizations participate in the GECI Network
- Revision 1 of Transition Roadmap released
- Revision 1 of Plan for sharing the workload released
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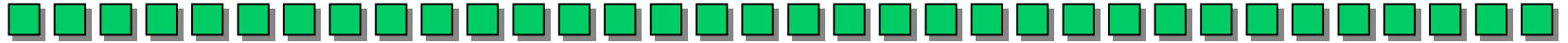
Success Criteria

Ability to:

- Assemble globally accepted requirements on environmentally compliant products
- Establish cooperation on a global basis between major organizations
- Establish globally accepted transition roadmaps
- Get major organizations to agree on sharing the workload for developing and producing the key documents for the transition to environmental compliant solutions
- Get the global supply chain to accept producing environmentally compliant products meeting the requirements of the key documents
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GECI Task Processing Strategy

Lead-free Electronics



The network diagram describes the relation between the GECI tasks.
 See GECI01021 GECI Advisory Board Activity Plan for schedule.

