



Transparency, Ambition and Collaboration - Advancing the Climate Agenda for the Semiconductor Value Chain

Supporting our Members in accelerating their ESG Journey

Mousumi Bhat, PhD, November 14, 2023

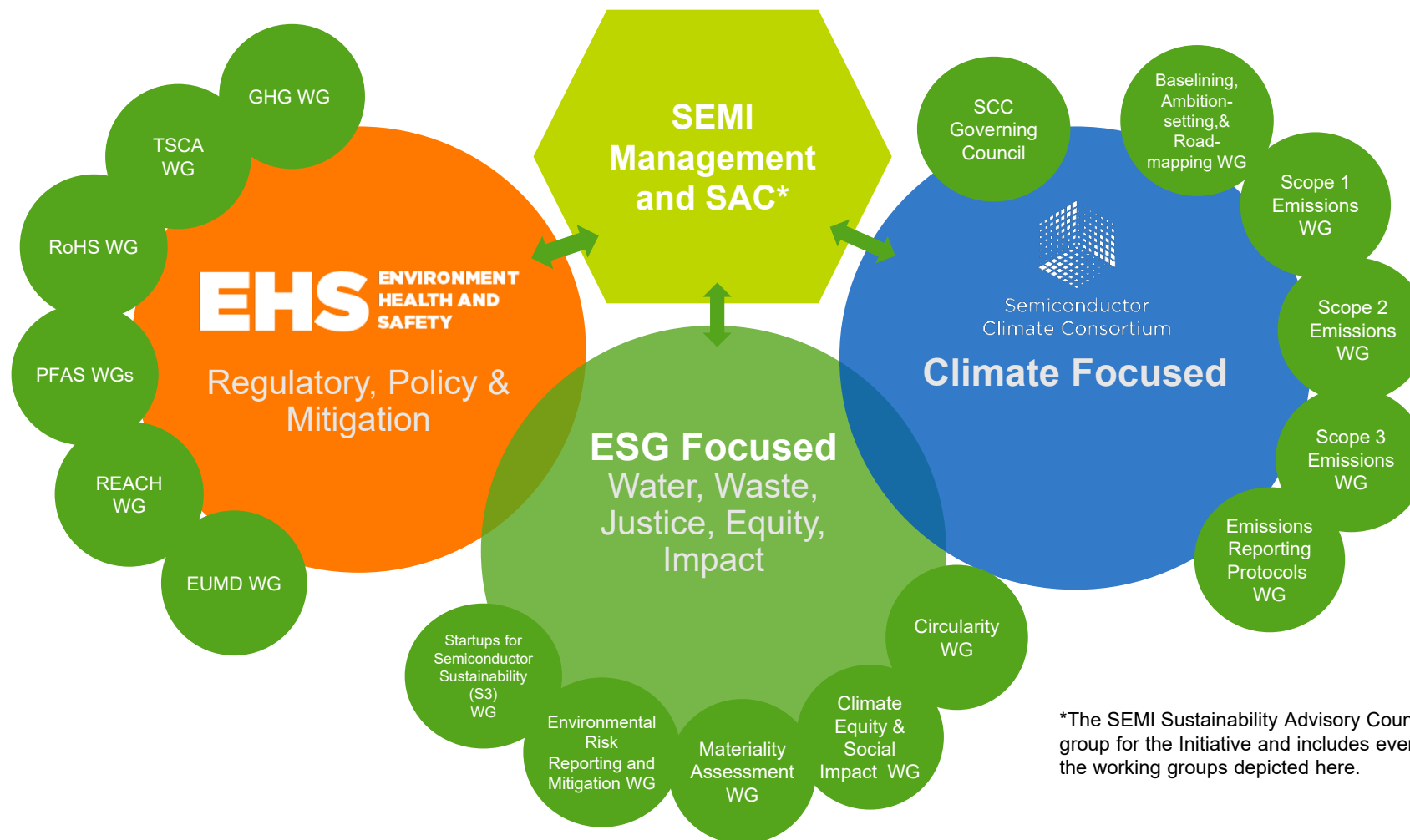
SUSTAINABILITY

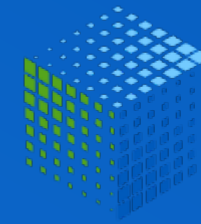
CONNECT - COLLABORATE - INNOVATE - GROW - PROSPER

AGENDA

- 1 The Net Zero Journey – One Year On
- 2 SCC Vision – the next 3-5 years
- 3 The most significant decarbonization opportunity for the semiconductor value chain

SEMI Sustainability Initiative – The Big picture





The SCC Value Proposition

The Semiconductor Climate Consortium is the first global, ecosystem-wide effort to accelerate the semiconductor ecosystem's response to the challenge of climate change by facilitating our member's responses to reduce greenhouse gas emissions with a quantitative and qualitative approach.

Members collaborate on

- **Dependencies** associated with accurate accounting of Scopes 1-3 emissions
- Developing **tools** to assist reporting, baselining and ambition setting
- Identifying and pursuing solutions to **difficult challenges**

We also support innovation to utilizing microelectronics to combat climate change and partner with outside organizations to raise awareness of opportunities and best-known methods across all industries.

Membership is now at 90 Member Companies and 400+ Professionals

Support

Join the SCC and support the Paris Agreement and related accords driving the 1.5°C pathway and align on the need to drive climate progress within our industry.



Collaboration

Align on common approaches to continuously improve and reduce greenhouse gas emissions in the semiconductor industry value chain



Transparency

Publicly report progress and Scope 1, 2, & 3 GHG emissions annually according to the guidelines and principles in the GHG Protocol and agree to key underlying assumptions



Ambition

Set near-term and long-term targets in accordance with best available science, with the aim to reach Net Zero greenhouse gas emissions per the GHG Protocol no later than 2050

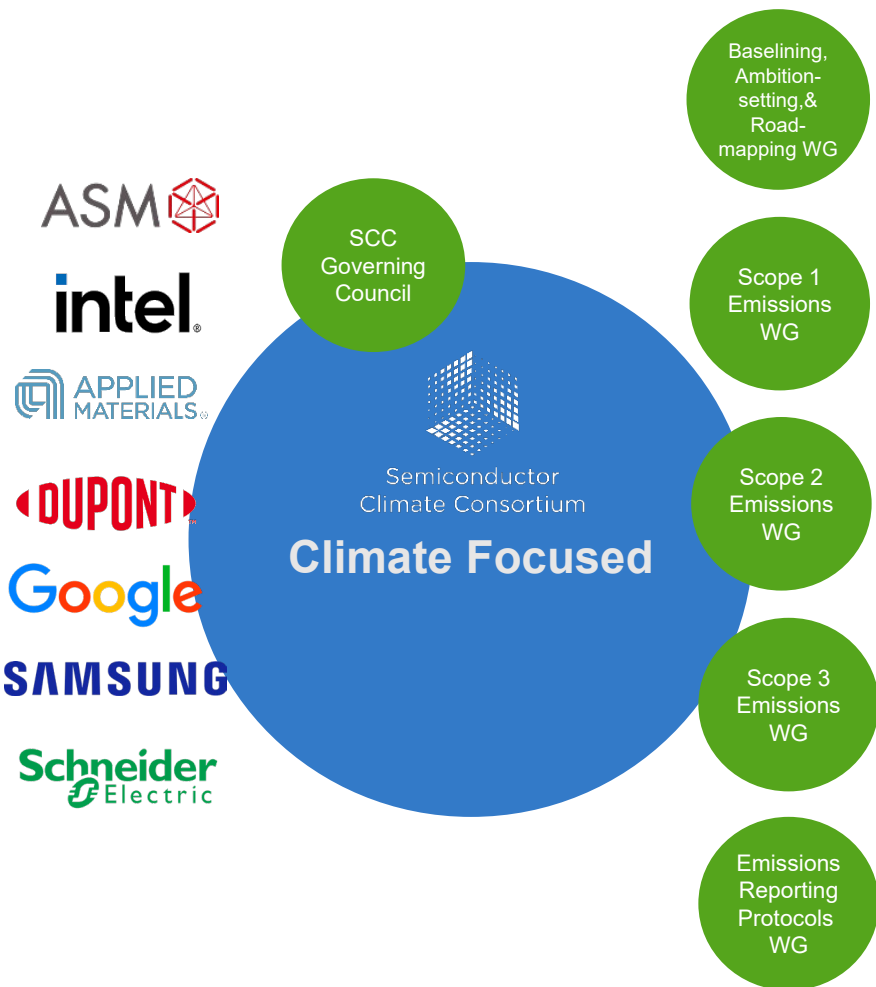
FOUNDING MEMBERS

- Advantest • AICELLO • AMD • ams OSRAM Group • Analog Devices • Applied Materials • Arkema • ASE • ASM • ASML • ASMPT • Athinia™
- Axcelis • Brewer Science • DAS Environment Experts • Dongjin Semichem • DuPont • EBARA • Edwards • Entegris • GlobalFoundries
- GlobalWafers • Google • Hermes-Epitek • Hitachi High-Tech • imec • Intel Corporation • JSR • KLA • KOKUSAI ELECTRIC • Kulicke & Soffa
- Lam Research • Lasertec • Longi • Marvell • Micron • Microsoft • Monument Chemical • MYCRONIC • Nanya Technology • Nikon • NXP • onsemi
- Ovivo • Pfeiffer Vacuum • Plexus Corp • Samsung Electronics • Schneider Electric • SCREEN Semiconductor Solutions • Showa Denko Materials
- SK hynix • SkyWater • Sphera • STMicroelectronics • Sumitomo Chemical • Teradyne • Tokyo Electron Limited • Tokyo Ohka Kogyo
- Tokyo Seimitsu • Tri Chemical Laboratories • TSMC • UCT • ULVAC • UTAC • VAT Group • Western Digital

NEW MEMBERS (joined since 11/1/2022)

- AMEC • AWS • Besi Switzerland AG • C2MI • CEA Leti • CFEX Inc. • Ecosys Abatement • Electronic Fluorocarbons
- EMD Electronics (Merck KGaA Electronics) • Exyte • Hewlett Packard Enterprise Company • Jacobs Engineering • Kinetics Holdings
- Mitsubishi Chemical Corporation • NALCO Water • NuMat Technologies • Renesas Electronics • Siemens AG • Sony Semiconductor Solutions
- Synopsys • Toshiba Electronic Devices & Storage • TRUMPF SE +Co. KG

SCC Projects Status



Created Transparency on our industry

Published the 1st inside out report for the semiconductor value chain emissions in collaboration with BCG & Climate Disclosure Project

Leading industry ambition discussions - how do we accelerate our journey?

Scope 1 Emissions High GHG Reductions

1st candidates for low GWP process gases (etch and chamber cleans) prototyping in flight and to be released in 12/23

Deep dives/subgroups on Abatement; GHG measurements

Addressing Low-Carbon Energy Supply in Asia

Highest pareto has been identified – 82% of our emissions can be addressed through Low Carbon Energy - Energy Collaborative forming to support – McKinsey & Co. as Knowledge Partner

Scope 3 Standardized Calculations for Reporting

Category 3.1 – upstream emissions accounting standardized process to be released in partnership with Arthur D. Little in Nov 2023

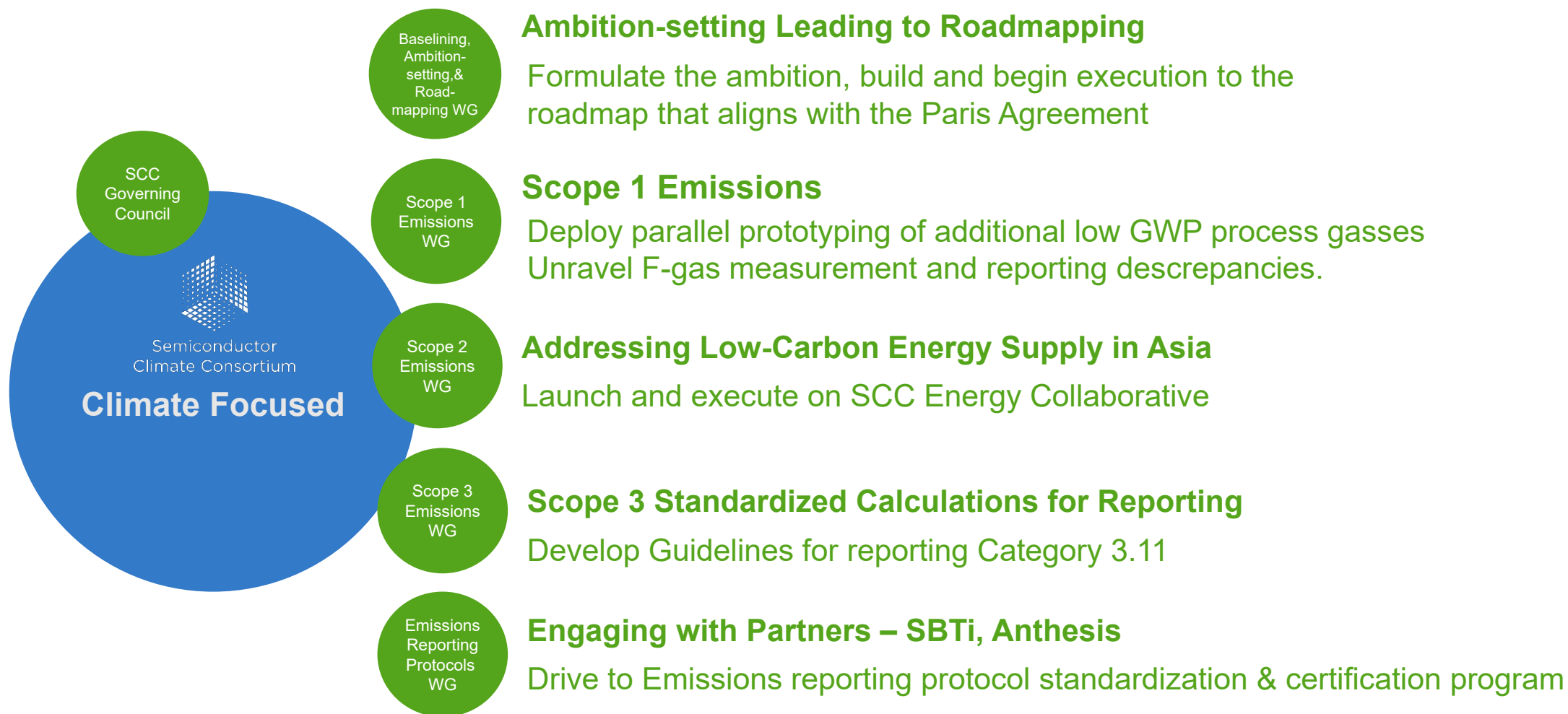
Engaging in Partners – SBTi, Anthesis

Developed analysis at Member reporting practices. Leadership transition paused efforts midflight – back on track

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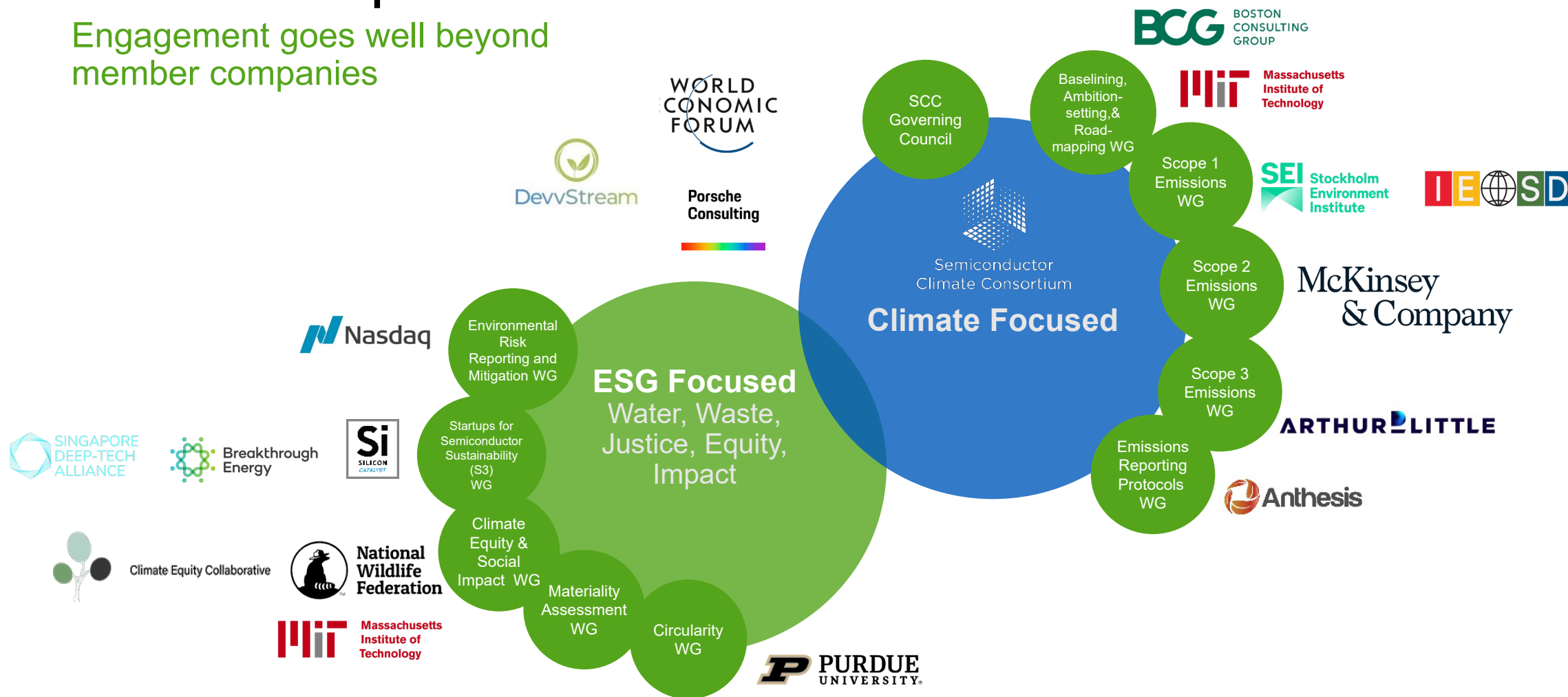
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SCC Ambitions for 2024-26



Partnerships

Engagement goes well beyond member companies



SEMI Sustainability Initiative – Outstanding Challenges and support needed from community

The next set of challenges

- Emissions – high GWP GHG process gases will take the longest to solve. This will have an impact of the overall emissions curve that would need to peak by 2025 for the ecosystem. Need for innovation for replacement gases
- Understanding our residual emissions and ways to compensate for this
- An analytical understanding of the handprint of the semiconductor industry on the society.
- Drive to transparency by lowering the barrier to reporting
- Accelerate our decarbonization journey by leveraging on the power of the collaborative
- Harness the opportunity to Accelerate and Amplify the best practices that apply to Environmental and Social Stewardship – paving the path for a public private partnership that will positively impact One million Lives by 2025

The SCC brings together thought leadership, is inclusive globally and is working collectively to tackle the biggest industry sustainability challenges

Priorities through 2024 and Beyond

Accelerate
Industry
Roadmaps to
Net Zero

Operationalize
Energy
Collaborative

EHS – Amplify
focus on PFAS
and build a
resilient supply
chain

Build Climate
Equity and
Social Impact:
Impact 1 Million
lives

Test and
Implement
Impact Fund
based on
residual carbon
credits program

Continued
Development
of Reporting
Standards

High GWP
GHG
Replacements
R&D

Broad global
outreach for
Startups for
Sustainable
Semiconductors

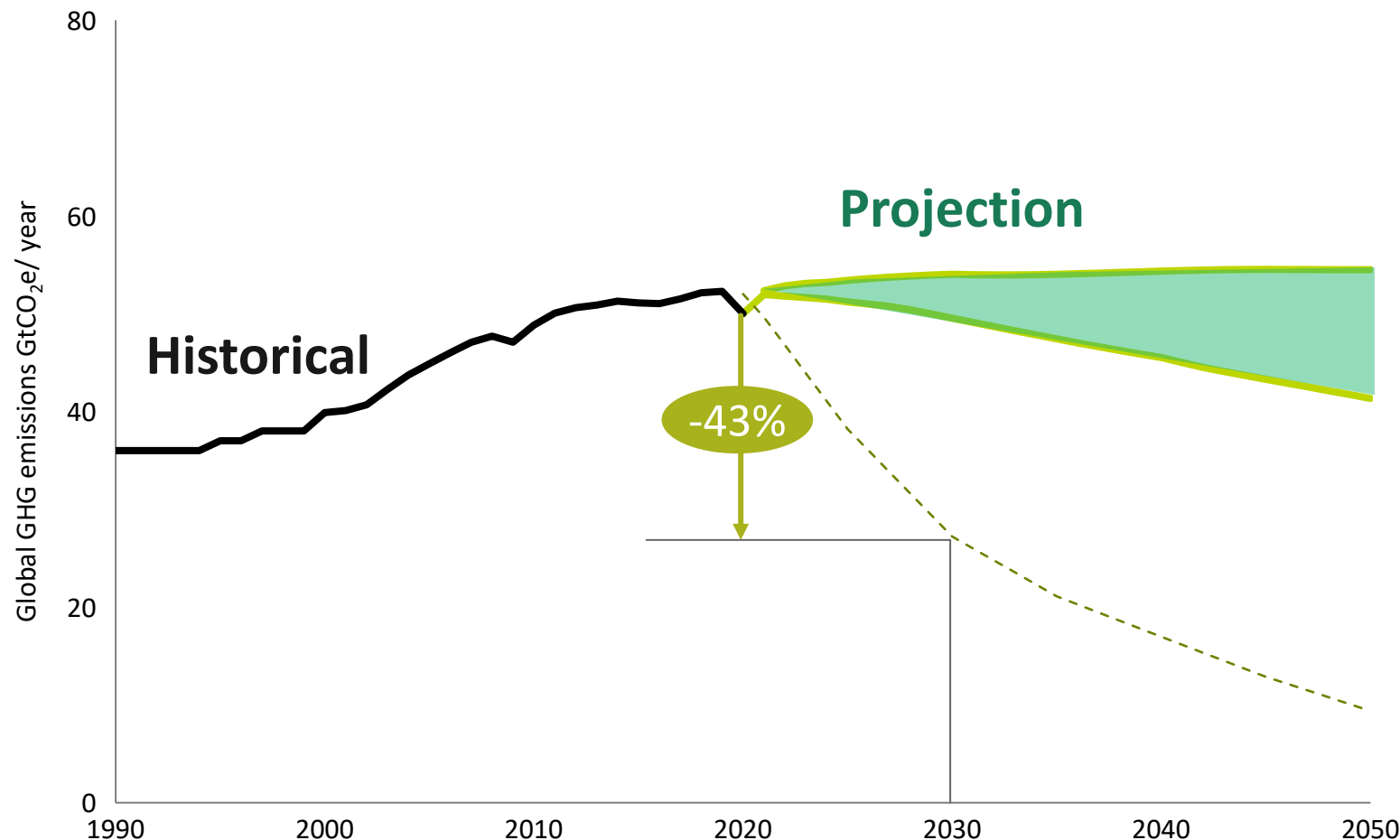
Build out and
Operationalize
the aspiration
for 100%
Circularity

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COP28 | What is at stake for the world

Ahead of COP28, we are on a +2.2 to 3.4°C pathway



Warming Projected by 2100

2.2°C-
3.4°C Policies and action
2.8°C median

1.5°C
Compatible
pathway

COP28 UAE must deliver a landmark response to current challenges and opportunities

Adding the Energy Collaborative



Executive Summary:

Build the Pathway and Ensure Access to Low-Carbon Energy



Up to 82% of overall semiconductor emissions are energy-related*



Failure to act means overshooting our 2050 emissions footprint budget of 1.0GT by up to 2.3GT *



Today, there is **no clear path** to achieve energy-related emissions goals in APAC without this collaboration



Failure to act will result in dramatic challenges at regulatory, commercial and social levels...and massive costs



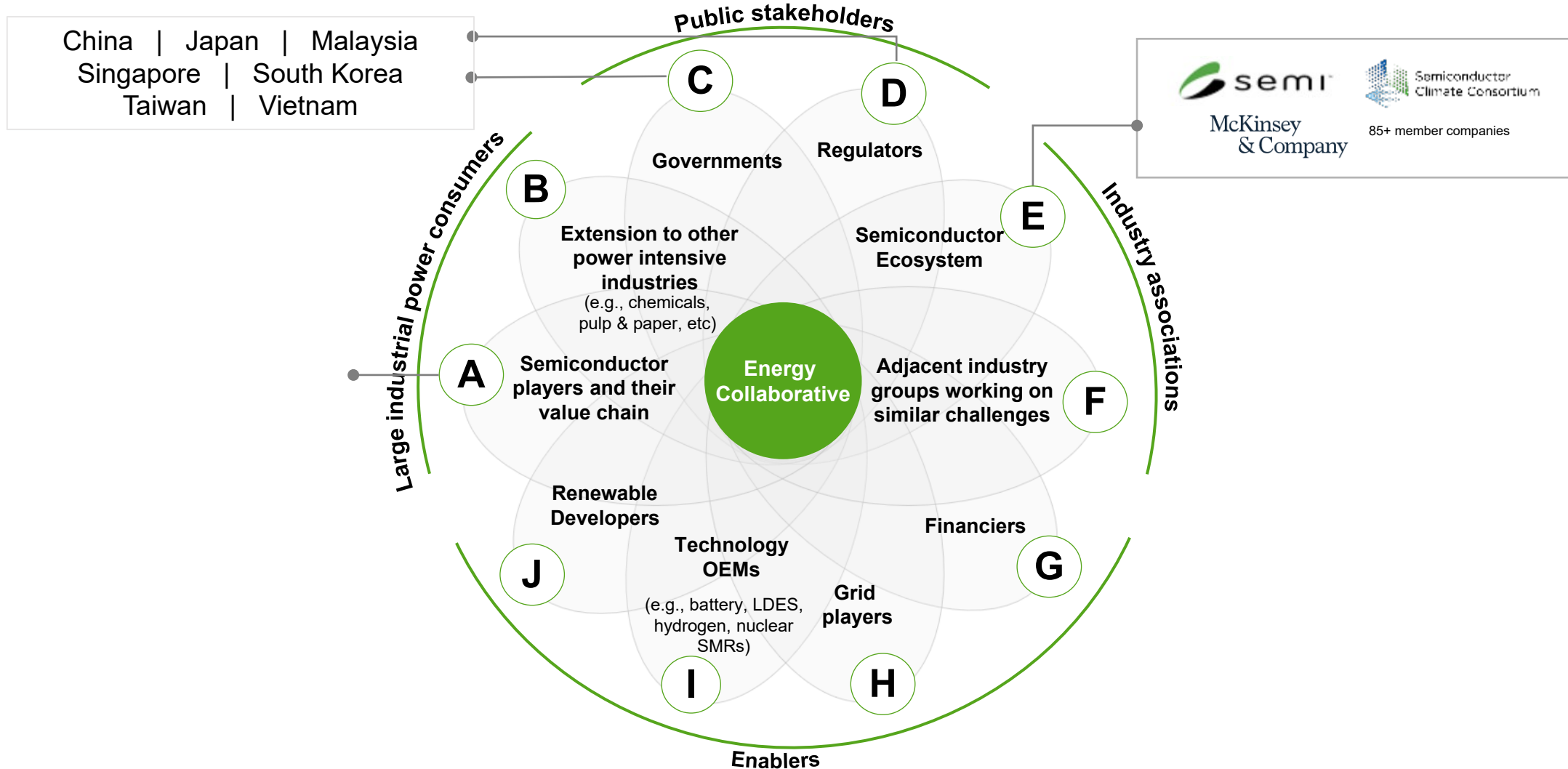
By collaborating and providing a strong market signal **we can set a path to unlock roadblocks associated with regulations and investments from a ready ecosystem**



We require a common starting point: analytically grounded, developed collectively and reflected in a model of active collaboration

Join now and be part of the solution:  **SCC Energy Collaborative**

Our objective: bring together multiple stakeholders to address the greatest challenge to semiconductor decarbonization targets





ENERGY COLLABORATIVE

Hosted by:
SEMI & McKinsey & Co

Request a Briefing:
scc@semi.org