GREEN ELECTRONICS COUNCIL

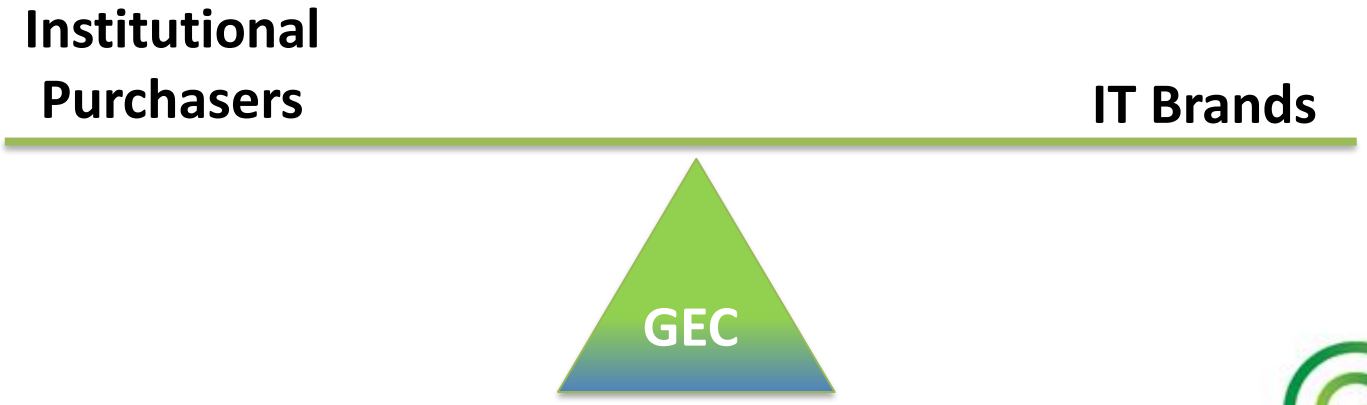
Green Electronics Council

QUALITY AND SUSTAINABILITY OF PV SYSTEMS CONFERENCE

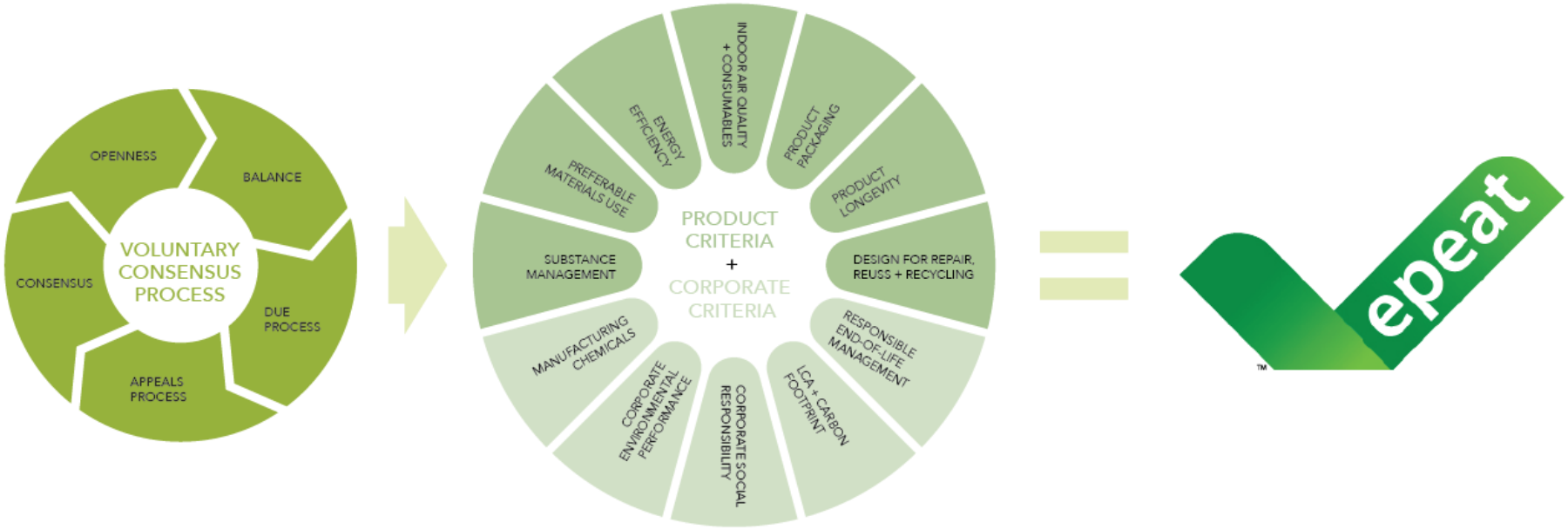
May 2018

WHO IS THE GREEN ELECTRONICS COUNCIL?

- The Green Electronics Council (GEC) is a mission driven non-profit founded in 2006
- Our vision is a world in which only sustainable IT products are designed, manufactured, and purchased
- Our flagship program is EPEAT, the leading ecolabel for IT Products [Computers & Displays, Imaging Equipment, Televisions, Mobile Phones, Servers]



HOW ARE EPEAT CRITERIA DEVELOPED?



Balanced Voluntary Consensus Process

Lifecycle of Product

HOW PRODUCTS ARE RATED BY EPEAT?

- Products must meet all required criteria for inclusion
  - Simply being registered in EPEAT indicates high environmental performance
- Products are rated bronze, silver or gold based on the number of optional criteria they meet

Meets <50% Optional Criteria

Meets 50 – 75% Optional Criteria

Meets > 75% Optional Criteria

WHO USES EPEAT?

Thousands of **public jurisdictions**, dozens of **national governments**, 300+ **colleges and universities** and hundreds of **private sector** organizations in Hospitality, Finance, Healthcare and other sectors specify EPEAT

EPEAT highlighted in countless laws, directives, policies, best-practices, and guidance documents

Widespread adoption and repeated endorsement for over a decade based on:

- ✓ Trust
- ✓ Credibility
- ✓ Ease of use in procurements
- ✓ Product availability - broad range of brands available via EPEAT

Global EPEAT-registered IT shipments surpassed **One BILLION units** in 2016

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NSF/ANSI 457: SUSTAINABILITY LEADERSHIP STANDARD FOR PHOTOVOLTAIC MODULES

In Scope

- **PV modules** for installation on, or integral with buildings, or
- primarily used as components of free-standing power-generation systems, including but not necessarily limited to:
    - photovoltaic cells that generate electric power using solar energy
    - interconnects (materials that conduct electricity between cells)
    - encapsulant (insulating material enclosing the cells and cell interconnects)
    - superstrate (material forming primary light-facing outer surface) and substrate (material forming back outer surface) (e.g., glass, plastic films)
    - wires used to interconnect photovoltaic modules and connect junction boxes to the balance of system equipment
    - frame or integrated mounting mechanism, if present

NSF/ANSI 457: SUSTAINABILITY LEADERSHIP STANDARD FOR PHOTOVOLTAIC MODULES

Not in Scope

- Balance of **system equipment**, such as cabling and mounting structures, equipment intended to accept the electrical output from the array
- **Inverters**

NSF/ANSI 457: SUSTAINABILITY LEADERSHIP STANDARD FOR PHOTOVOLTAIC MODULES

Sustainability Performance Categories

- Substance Management
- Manufacturing Chemicals
- Preferable Materials
- Design for Recycling
- Product Packaging
- Responsible End of Life Management
- Water Use
- Energy Management
- Life Cycle Assessment
- Corporate Environmental Performance
- Corporate Social Performance
- Conflict Mineral Sourcing

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Management of substances
Required - List of declarable substances
Required – List of declarable substances used in manufacturing
Required - Disclosure of substances on the European Union REACH Regulation Candidate List of Substances of Very High Concern
Required - Avoidance or reduction of high global warming potential (GWP) gas emissions resulting from photovoltaic module manufacturing
Preferable materials use
Required - Declaration of recycled content in product
Life cycle assessment
Required - Conducting life cycle assessment
Energy efficiency & water use
Required – Water inventory
End of life management & design for recycling
Required – Product take-back service and processing requirements (corporate)
Product packaging
Required - Elimination of substances of concern in product packaging
Required - Elimination of chlorine in processing packaging materials
Required - Enhancing recyclability of packaging materials
Corporate responsibility
Required - Environmental management system (EMS) certification (corporate)
Required - Manufacturer conformance with occupational health and safety performance (corporate)
Required - Reporting on Key Performance Indicators (corporate)
Required - Commitment to Environmental and Social Responsibility (corporate)
Required - Public disclosure of use of conflict minerals in products (corporate)

NSF/ANSI 457

REQUIRED CRITERIA

NSF/ANSI 457: SUSTAINABILITY LEADERSHIP STANDARD FOR PHOTOVOLTAIC MODULES

PV Module Timeline

26 Months

November 2015
Launch Joint Committee [photovoltaic manufacturers, installers, purchasers, suppliers, government representatives, academics, environmental NGOs, certification organizations]

January 2017
Go to Ballot/ANSI public comment

December 2017
Publication of NSF 457 Standard

Adding Inverters Timeline

8 Months

July 2018
Expand existing Joint Committee [inverter manufacturers]

December 2018
Go to Ballot/ANSI public comment

March 2019
Publication of NSF 457 Standard Revision that includes Inverters

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THANK YOU

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