GREEN STORAGE TWG

2024 Review and 2025 Plans

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Green Storage TWG 2024 Accomplishments

Green Storage TWG Charter link

- Recent completed work – summary:
  - Supported 2023 EPA DCS Unit Shipment Report Submissions; 2024 in progress
  - Collaboration with TGG on EU Lot9 Regulatory updates
  - Supported Lot9 Titanium power supply extension
  - Ongoing Industry Support for V4.0 Emerald Measurement Specification test tools & kits
  - Engaged w/ the EPA regarding revised/future test methodologies
  - Worked towards a revised test methodology for block level Storage Systems (Emerald 5.0)
  - Planning to use SPEC file IO revised workloads and upgraded toolset for Emerald 5.0
  - Developed a new test methodology for Storage Devices
  - Working to release Emerald Device Level Spec (Preliminary draft in review)
  - Ongoing technical advisory for SNIA-J for next release of Japan TopRunner Program

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Green Storage TWG ROADMAP- 2025

Approximate and subject to change

Update 01-07-2025

#	Events	CY2025 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	CY 2026 Q1	Q2	Q3	Q4	CY2027
1	SNIA-GTWG F2F Invite EPA to concall			vF2F				vF2F			vF2F			SNIA Member vSymposium Jan '26				
2	EPA-SNIA Industry Meetings								...as needed...					DCS Stakeholder Meeting				
3	ENERGY STAR Data Analysis (on file submittals)									V2.0/2.1 data analysis								
4	Emerald Measurement Spec v5.0 CTS lite replacement for Vdbench Update to Spec Strorage 2020			Spec V5.0 (internal draft)			Spev V5.0 Public review		Sbmit for SNIA Approval		Publication							
5	ISO version of Emerald 5.0 (tentative)														Submit to ISO		Publish ISO standard based on Emerald 5.0	
6	Storage Device Level Power Efficiency Measurement			Spec V1.0 Public review			Submit for SNIA Approval		Publication									
7	Futures																	
	Memory attached persistent storage		Investigate and make recommendations															
	Test methodologies for capacity optimization, data protection, etc. (impact on performance, energy consumption)																	
	Energy measurement for large / new distributed systems; consider small scale measurement as system indicator																	
	Collaborate w/ other Servers, Switch		SW-defined, Hyperconverged configs															
	Cloud data centers		Data caching, remote VS local, hybrid, etc. How to actually measure the energy efficiency?															
	Object storage		Is market large enough? Is growing, e.g. S3. Plug-ins available SPEC Storage 2020															
8	Partner Collaboration/Tracking	ESTAR, ITI/ TGG (incl 80PLUS, Digital EU), EU Lot 9, ASHRAE, SPEC-Storage/Power, SNIA-Jpn TopRunner, ISO, →																

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Green Storage TWG Membership as of 6-Jan-2025

- Calypso Sysyems
- Dell, Inc.
- Ellisys Group SA
- HPE
- Hitachi
- Huawei Technologies
- IBM
- JetIO Technology
- Kioxia Corp.
- Leil Storage
- Micron Technology Inc.
- NetApp Inc.
- Pure Storage
- Samsung Electronics
- Seagate Technology
- Solidigm
- Toshiba America
- Ultrastratech

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Green Storage TWG Participation

- What is the expected industry impact of this work
  - One architecturally unbiased test methodology to serve regulatory bodies worldwide
  - Proactively provide a single test methodology worldwide
  - Industry knowledge of storage system power consumption and best practices/configurations to optimize power usage w/o compromising system functionality
- What is the industry segment relevance
  - Storage System Manufacturers; Storage Device Manufacturers; DCIM SW Vendors
- Why you should join and participate in Green Storage TWG
  - Participate in developing Standards used worldwide for datacenter data storage power efficiency
  - Influence regulations worldwide related to datacenter data storage power efficiency
  - Refresh and renew focus on best practices (whitepapers, planning tools)
  - Maintain / create competitive advantage in product sustainabilty
  - Avoid being surprised when a new regulation goes live and affects your product portfolio/revenues
- Who to contact for additional information
  - GTWG Co-chairs: Don Goddard, Donald.Goddard@netapp.com
  - Carlos Pratt, cpratt@ultrastratech.com

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