

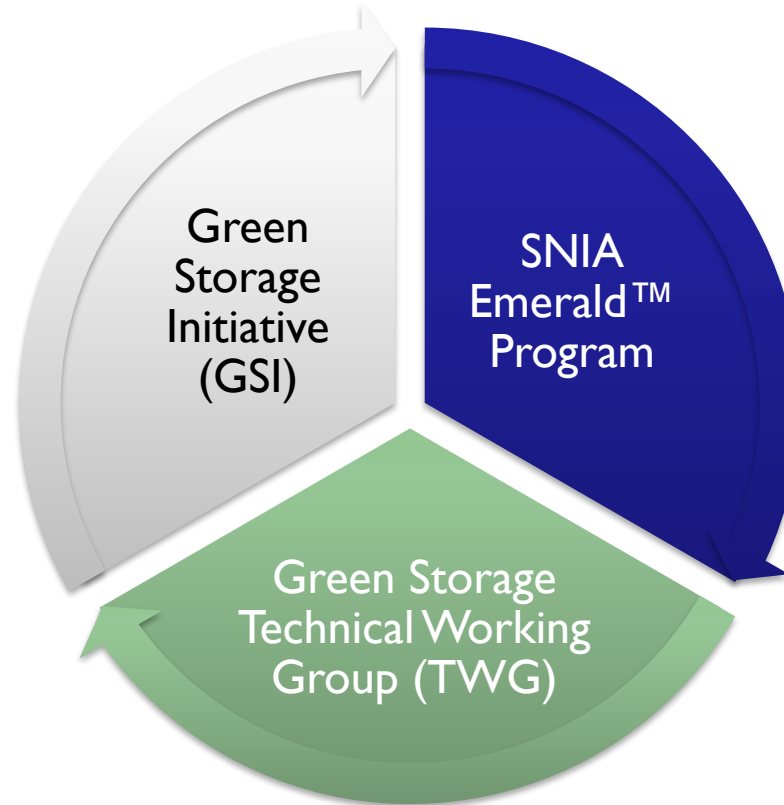


# SNIA Emerald™ Recognized Tester Program Overview



# SNIA Green Storage Overview



SNIA Initiative where SNIA members collaborate on market requirements, education, alliances, and events to promote energy efficient storage and the SNIA Emerald Program



SNIA program to promote usage by vendors and test labs the SNIA Emerald Test Specification and for IT professionals to reference energy usage metrics for storage vendor products to aid storage system procurement planning and optimization of IT storage operations

SNIA committee of technical storage system experts defining storage system energy measurement methodology, energy usage-related metrics, technical specifications, and best practices

# SNIA Emerald™ Power Efficiency Measurement Specification



Advancing storage & information technology

## SNIA Emerald™ Power Efficiency Measurement Specification

Version 3.0.1

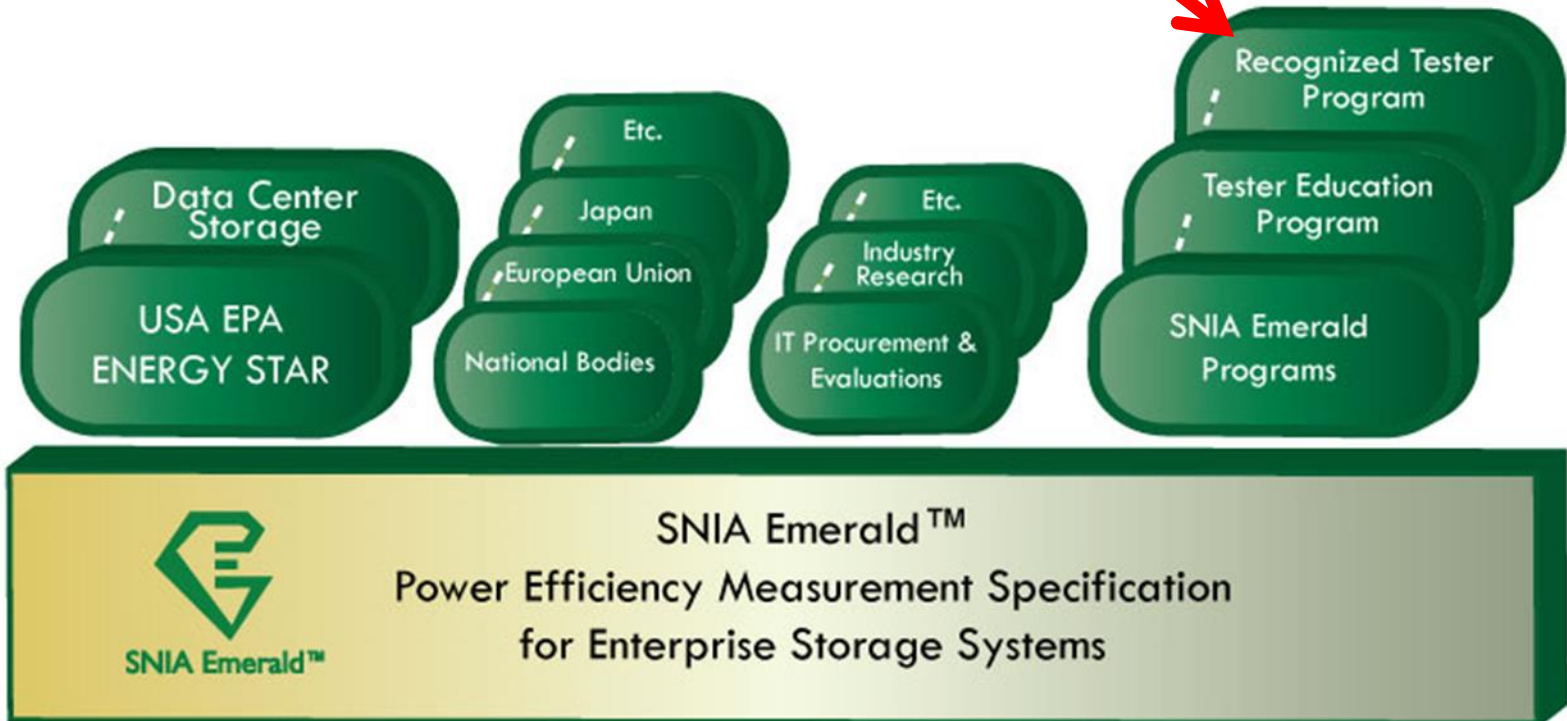
*ABSTRACT: This document describes a standardized method to assess the energy efficiency of commercial storage products in both active and idle states of operation. A taxonomy is defined that classifies storage products in terms of operational profiles and supported features. Test definition and execution rules for measuring the power efficiency of each taxonomy category are described; these include test sequence, test configuration, instrumentation, benchmark driver, IO profiles, measurement interval, and metric stability assessment. Qualitative heuristic tests are defined to verify the existence of several capacity optimization methods. Resulting power efficiency metrics are defined as ratios of idle capacity or active operations during a selected stable measurement interval to the average measured power.*

This document has been released and approved by the SNIA. The SNIA believes that the ideas, methodologies and technologies described in this document accurately represent the SNIA goals and are appropriate for widespread distribution. Suggestions for revisions should be directed to <http://www.snia.org/feedback/>.

SNIA Technical Position  
September 11, 2017

- ◆ **Taxonomy:** An industry-wide means of segmenting storage system products that span the range from consumer solutions to enterprise configurations. Used to categorize test results.
- ◆ **Test Methodology:** A detailed and consistent means of testing various types of storage systems with load generators and power measurement instruments.
- ◆ **Test Metrics - Idle Measurement Test:** **capacity/watt**  
Storage system is configured, powered up, connected to one or more hosts and capable of satisfying externally initiated, application-level initiated IO requests within normal response time constraints, but no such IO requests are being submitted.
- ◆ **Test Metrics - Active Measurement Tests:** **performance/watt**  
Storage system is in an “active” state processing externally initiated, application-level requests for data transfer between host(s) and the storage system.
  - ◆ 4 corners + hot band - Block IO
  - ◆ 4 application workloads – Filer IO
- ◆ **Capacity Optimization:** The specification addresses determining whether the storage system supports energy-saving storage capacity optimizations, including features such as deduplication and thin provisioning.

# Green Storage Initiative Launches New SNIA Emerald™ Program RTP = Recognized Tester Program



# ENERGY STAR Data Center Storage Submissions

<http://www.energystar.gov/productfinder/product/certified-data-center-storage>



ENERGY STAR Certified

## Data Center Storage

Visit the [Data Center Storage](#) page for usage tips and buying guidelines.



CHANGE  
product category

As of Sept 2017

Filter Your Results

163 Records Found

Sort by:

Brand Name



### D

- DELL (41)
- Dell EMC (8)
- Dot Hill Systems Corp. (9)

### E

- EMC VNX5400 (1)
- EMC VNX5600 (1)
- EMC VNX5800 (1)
- EMC VNX7600 (1)

### H

- Hewlett Packard (4)
- Hewlett Packard Enterprise (3)
- Hitachi (2)
- HP (1)
- HP StoreServ (5)
- HPE 3PAR StoreServ (4)
- HPE StoreVirtual 3200 (1)
- HUAWEI (1)

### I

- IBM (6)

### L

- Lenovo (12)
- Lenovo Ltd. (8)

### N

- NEC; HITACHI (1)
- NEC; Storage Engine; Scale Logic, Inc. (1)
- NetApp, Inc (37)

### P

- Pure Storage (1)
- Pure Storage, Inc. (2)

### S

- Seagate (8)
- Storage Engine (1)

### V

- Veritas (2)
- Veritas Technologies LLC (1)

# Recognized Tester Program (RTP)



- Recognize organizations that have demonstrated proficiency in performing testing in accordance with the SNIA Emerald Specification
  - ◆ Testing service vendors
  - ◆ Independent labs
  - ◆ Manufacturers' in-house test teams
- Leverage SNIA Emerald™ training
- Build global ecosystem of quality testers
- Nominal Fee to enroll; awarded Certificate; SNIA Emerald Program website listing



# Recognized Tester Program Web URLs

- Overview - <http://www.snia.org/emerald/rtp-overview>
  - ◆ Program Description
  - ◆ FAQ
- Application - <http://www.snia.org/emerald/rtp-application>
  - ◆ Application and Agreement
  - ◆ Order Form
- Testers - <http://www.snia.org/emerald/rtp-testers>
  - ◆ List of Recognized Testers and Audited Taxonomy Categories
  - ◆ Site specific
    - › Acme Labs, [www.acmelabsinc.com](http://www.acmelabsinc.com) , Online 2,3,4  
123 JFK Blvd, Los Angeles, CA 98456, USA



# Recognized Tester Program Process Steps 1-3, First Time Applicant



## Interest

- Interested Lab Initiates Interest
- SNIA Overview of Assessment and Expectations



## PreVisit

- Application Agreement, Invoice
- Pre-visit Assessment Checklist and Concall

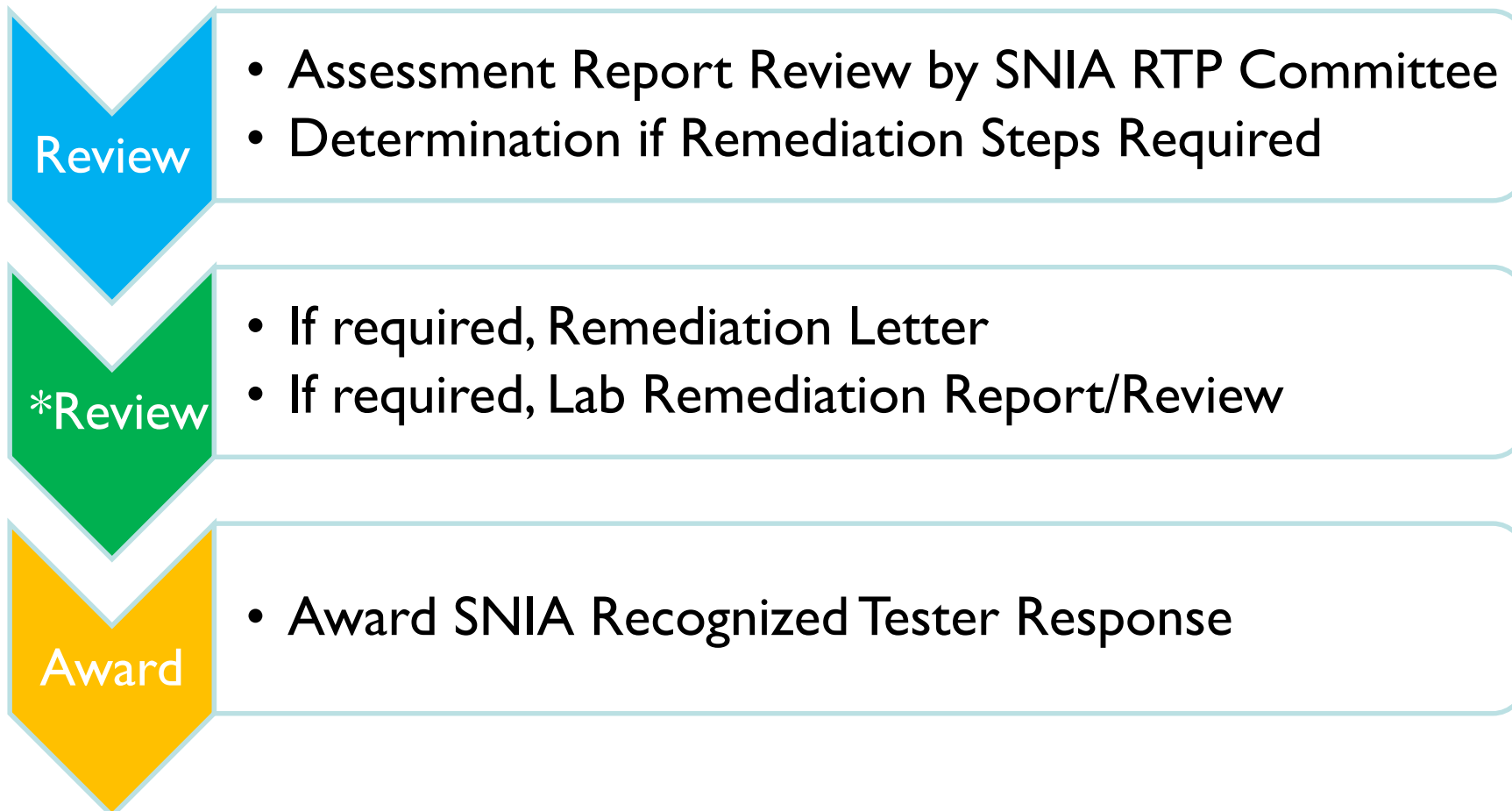


## Onsite

- Onsite Assessment Visit
- Assessment Report



# Recognized Tester Program Process Steps 4-6, First Time Applicant



# Program Overview

## A few details

### ➤ Estimated time to complete Steps 1-6

- ◆ 2-5 months based on application, payment, site readiness, and if remediation is required

### ➤ Program Fees

- ◆ \$12,000 + travel for Initial on-site review
  - 25% discount for GSI members; 10% SNIA members
- ◆ \$6K, \$9K, or \$12K+ travel for renewals, taxonomy class add-ons
  - \$1K application fee to assess level of effort; applied towards total fee



# Program Overview

## A few details, continued...

### ➤ Confidentiality

- ◆ Observations, materials and data collected
- ◆ Assessment report
- ◆ Remediation

### ➤ Promotion and Communication

- ◆ SNIA Emerald Newsletter/Bulletin
- ◆ Webinar
- ◆ Outreach to storage industry



- SNIA Green Storage Initiative
  - ◆ <http://www.snia.org/forums/green>
  - ◆ Green storage tutorials, white papers, and alliances
- SNIA Emerald™ Program
  - ◆ <http://sniaemerald.com>
  - ◆ SNIA Emerald Test Specification
  - ◆ Comprehensive online technical training
  - ◆ Storage vendor product listing with measured energy usage metrics
- USA EPA ENERGYSTAR Data Center Storage
  - ◆ Specification: <https://energystar.gov/products/specs/node/144>
  - ◆ Storage vendor product listing with measured metrics
    - › <https://data.energystar.gov/Active-Specifications/ENERGY-STAR-Certified-Data-Center-Storage/gqtf-hp7x?>

# Summary

- A complimentary program to build an ecosystem of verified testers
- Not required to be a tester for SNIA Emerald or EPA ENERGY STAR
- Validates capabilities to run SNIA Emerald tests, generate/analyze data test results, and complete reports
- No interdependencies with ISO 17025 for test facility
- No interdependencies with EPA registered test labs

# Questions ?



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