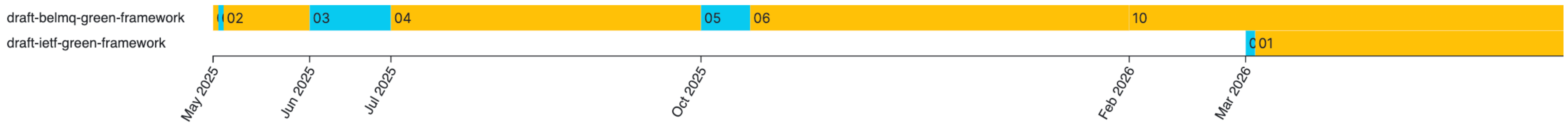
WG Adopted document

Framework for Energy Efficiency Management

draft-ietf-green-framework-00



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Document History and Recap

- IETF 124 KEY Decisions
  - Establish GREEN design team and organize bi-weekly GREEN design team meetings to accelerate work on device monitoring firstly.
  - Synchronize GREEN framework with the progress of the GREEN YANG data model.

- Framework draft has been adopted

GREEN Framework Reference Model

YANG Data Model
(Controller level)
Starting…

YANG Data Model
(Device/Component level)
70% of the work already DONE

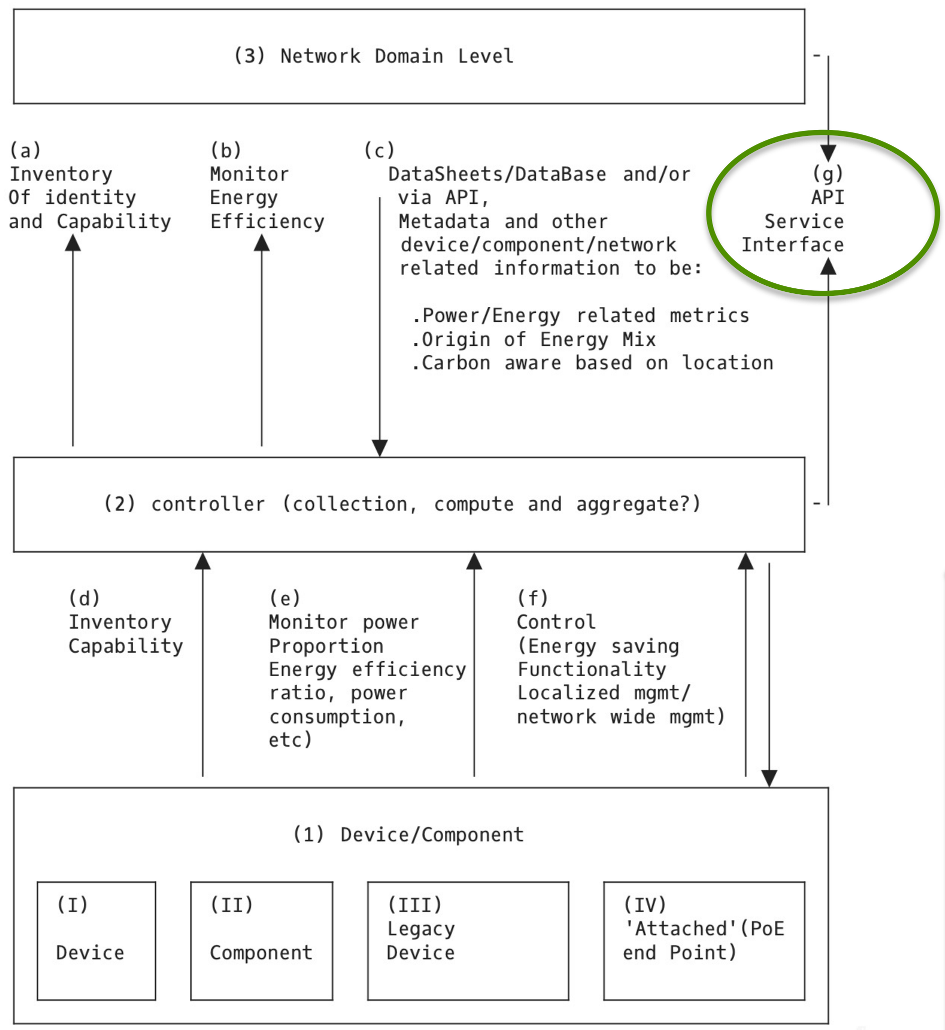

Figure 1: GREEN Framework Reference Model

Use Cases mapping
(In progress…)

Changes from v.06 to v.10

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YANG Data Model

(Device/Component level)

Use Cases mapping

Complementary to GREEN YANG Data Model

Focus on the architectural collection requirements:

- Leverage RFC 8348: energy metrics are anchored to hardware UUIDs (chassis, PSU, line cards…); controllers maintain a dual-identifier mapping between their own onboarding IDs and device UUIDs to enable cross-system correlation.
- Framework supports both initiation models: controller-initiated and device-initiated; dual-identifier UUID mapping is a defined requirement for onboarding.¶
- Data source classification and accuracy: measured, estimated, unknown
- Industry certifications (e.g., for PSUs), so operators can trust the data they act on. Done through IANA: YANG module maintained by IANA and IANA registry
- Unit multiplier consistency for the YANG data models
- Introduce Power Factor

Topics for Further Discussion
(later by Benoit C.)

- Power State Set Mapping&Intent

Defining how controllers map high-level operational intents to device-specific power states requires further alignment.

- Controller vs Device Initiated

Both models are complementary; coordination rules and edge cases need further definition.

- UUID-based Component Identification

Dual-identifier mapping between controller-assigned IDs and RFC 8348 device UUIDs requires further discussion.

Use Cases Focus

UC#	Use Case	Critical Capabilities
Device-Centric		
14	Power Shortage Management	Backup power awareness, autonomous operation
1	Incremental Deployment	Baseline metrics, certification reporting, capability discovery
Device + Controller		
4	Virtualized NF Metering	HW-layer metering, VM correlation, real-time telemetry push
9	WLAN Energy Saving	PoE power modes, double counting, coordinated state transitions
Controller-Centric		
2	Selective Energy Reduction	Traffic pattern analysis, coordinated sleep modes, global optimization
3	Lifecycle Reporting	External database integration, carbon factor correlation, metadata aggregation
5	Indirect Monitoring	PDU/meter integration, topology-aware aggregation, proxy measurement
6	Cross-Domain Metrics	Multi-domain API integration, double-accounting prevention, metric mapping
7	Wireless Transport Optimization	*Traffic-aware power adjustment, dynamic link control, pattern recognition
8	Video Streaming	Multicast optimization, cache placement, traffic engineering
10	Fixed Network Saving	pattern prediction, coordinated reconfiguration, AI/ML integration
11	Network-Wide Management	Centralized visibility, topology mapping, vendor-neutral aggregation
12	ISAC Smart City	Context-aware activation, city-wide coordination, sensing prioritization
13	Double Accounting Prevention	Metering topology awareness, relationship modeling, intelligent aggregation
15	AI Training Workloads	Energy-aware scheduling, data placement, East-West traffic optimization
16	Cross-Layer Saving	Multi-layer coordination (L0-L3), cross-layer state synchronization

Table 2: Use Case Implementation Focus

Next Steps

Continue working on mapping the GREEN framework to:

- GREEN YANG data model (focus on Controller)
- Prioritize Use Cases
- Review the GREEN terminology and keep aligning the terms
- Keep updating based of the open “Issues" under git repo:
  https://github.com/ietf-wg-green/draft-ietf-green-framework

Thank You

- Datatracker :

https://datatracker.ietf.org/doc/draft-belmq-green-framework/

- Github :

https://github.com/ietf-wg-green/...

- Mailing List :

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