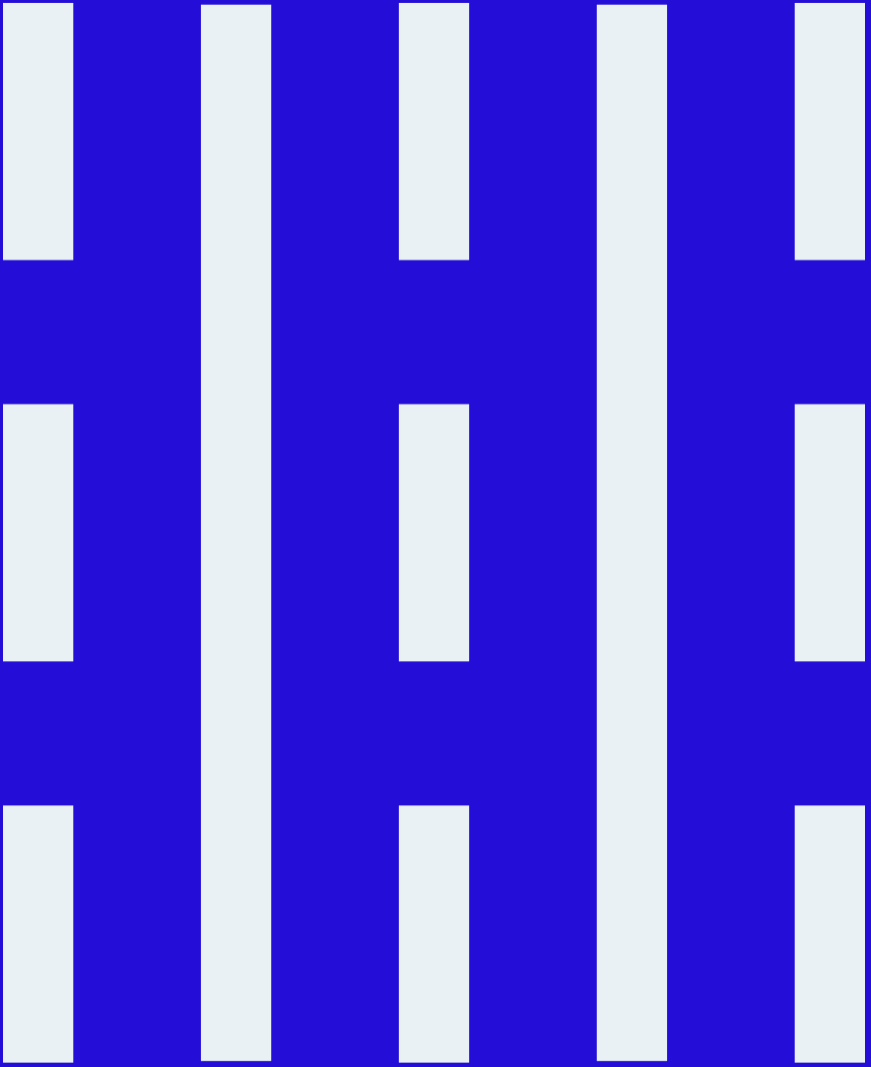




LVDC DATA CENTER SUMMIT

MAY 26, 2026 // AACHEN, GERMANY

hosted by

Current  S

Addressing
Emerging Needs
in IEC Standardization

Goals

- Map standardization requirements and identify gaps in IEC standards
- Define priorities
- Agree on fast tracks and define actions

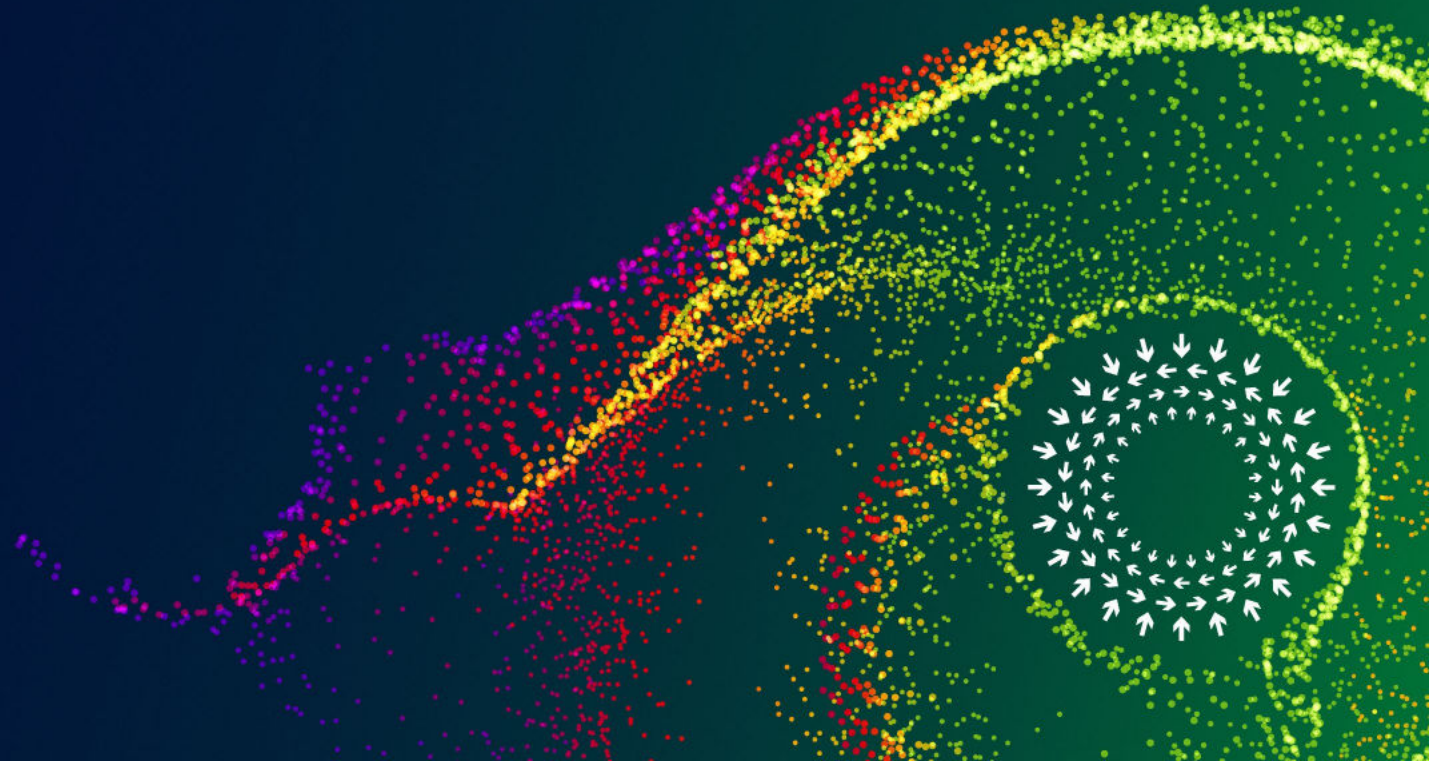
Agenda and Speakers

Timing	Topic	Speaker
14:00 -14:15	Welcome and opening remarks (motivations and goals of the Summit)	Vincenzo, Brian
14:15 -14:30	Datacenters in the IEC world	Zane Ball, CTO at OCP
14:30 -15:00	The role of IEC IEC initiatives addressing data centers, finding fast tracks	Gilles Thonet, Deputy Secretary-General at IEC and Secretary of SMB
15:00 -15:50	Standardization gaps and priorities (1 st session)	Michael, Antonello, Arnaud Brozek + open discussion
15:60 -16:20	Coffee break	
16:20 -17:30	Standardization gaps and priorities (2 nd session)	Michael, Antonello, Arnaud Brozek + open discussion
17:30 -17:50	Actions and Next steps	Antonello, Arnaud
17:50 -18:00	Wrap up and closure	Vincenzo, Brian

Data Centers in the IEC world

Zane Ball

CTO – Open Compute Project Foundation



Projected AI Capital Expenditure to 2030

McKinsey & Company Mid-Case Scenario Breakdown



\$5.2T

Total AI
Capex



\$3.3T

IT
Equipment



\$1.6T

Data Center
Infrastructure



\$0.3T

Power



Source: McKinsey

<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-cost-of-compute-a-7-trillion-dollar-race-to-scale-data-centers>

Inference and Power drive Global Investment

- Inference has overtaken Training and is growing faster (35% CAGR vs 22%)
 - Chain of thought
 - Agents and automation
 - Large scale end user adoption
- 10ms Latency vs 100ms Latency → Infrastructure close to users
- Power availability driving site decisions



<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-next-big-shifts-in-ai-workloads-and-hyperscaler-strategies>

Herbert A. Simon

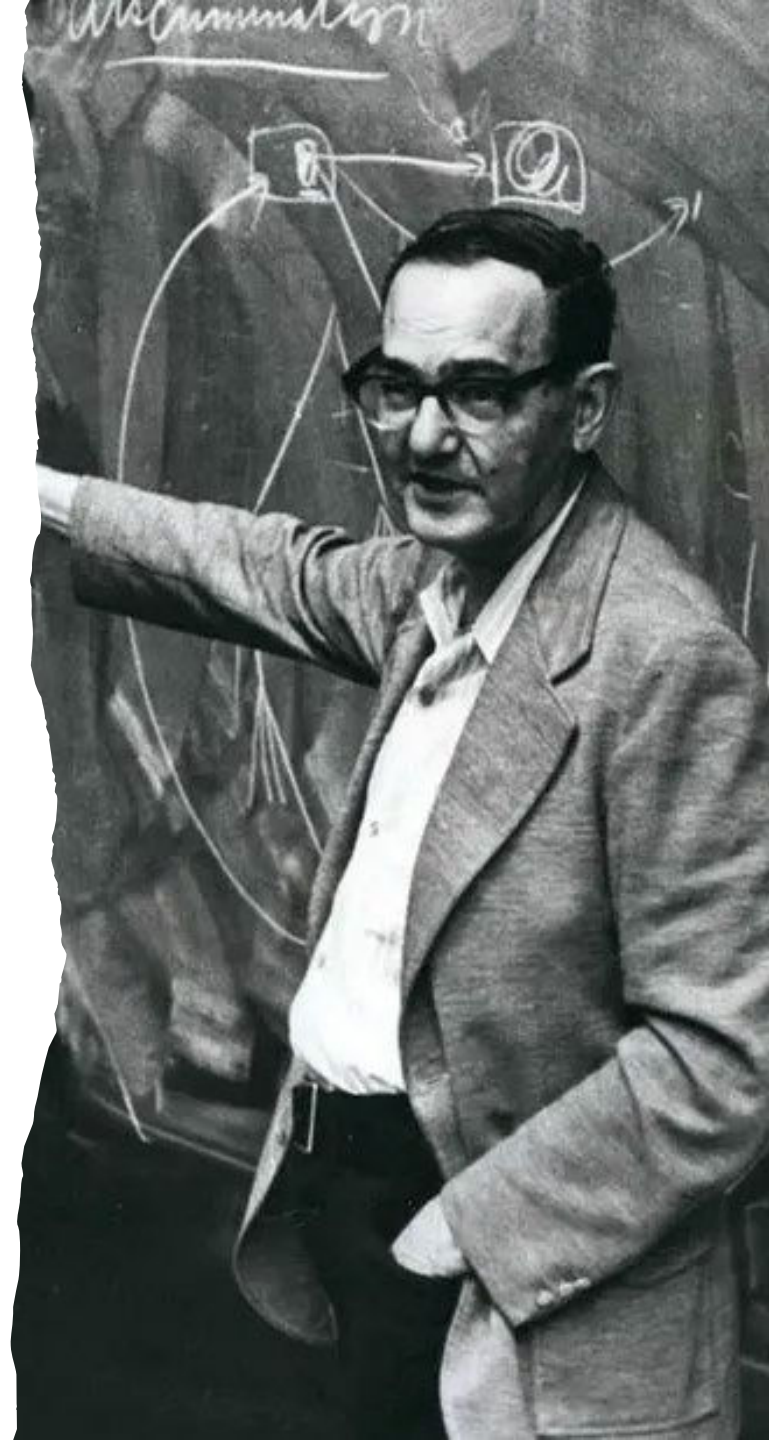


THE SCIENCES OF THE ARTIFICIAL

Issue of the third edition with a new introduction by John E. Laird

It's a Dense & Tightly Coupled World

- GPU to GPU
- CPU to GPU
- Rack Scale
- Pod Scale
- Data Center Scale
- Data Center to Grid



Supercomputing at Scale

AI Supercomputers:

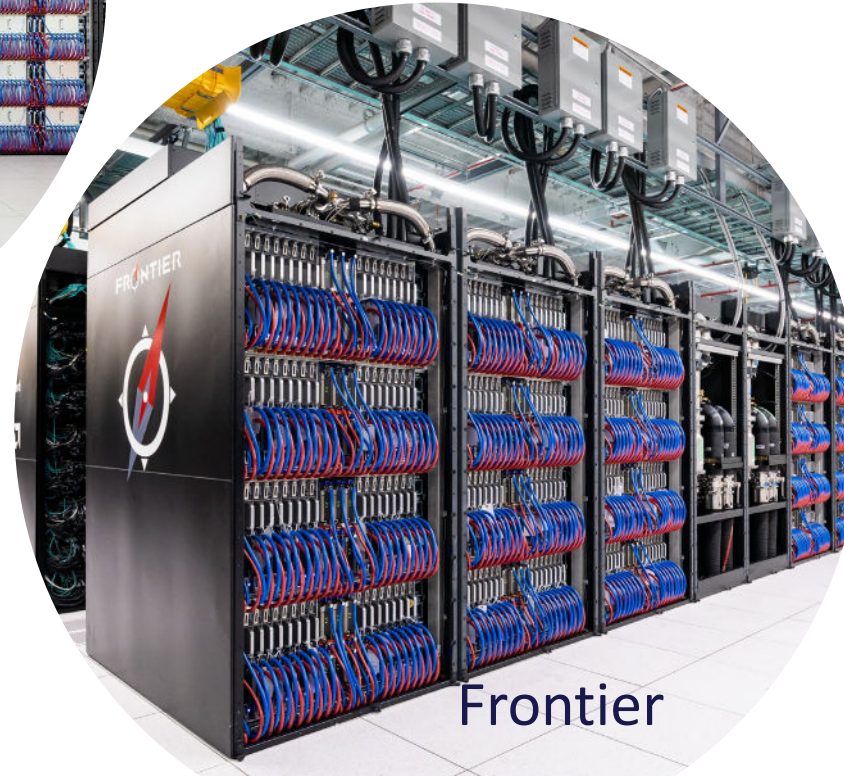
~1 per week and growing fast
600KW on the horizon
Path to 1MW wide open



Aurora

Top 5 Supercomputers:

1-2 delivered per year
Today: 400KW/rack
Bespoke and crafted



Frontier

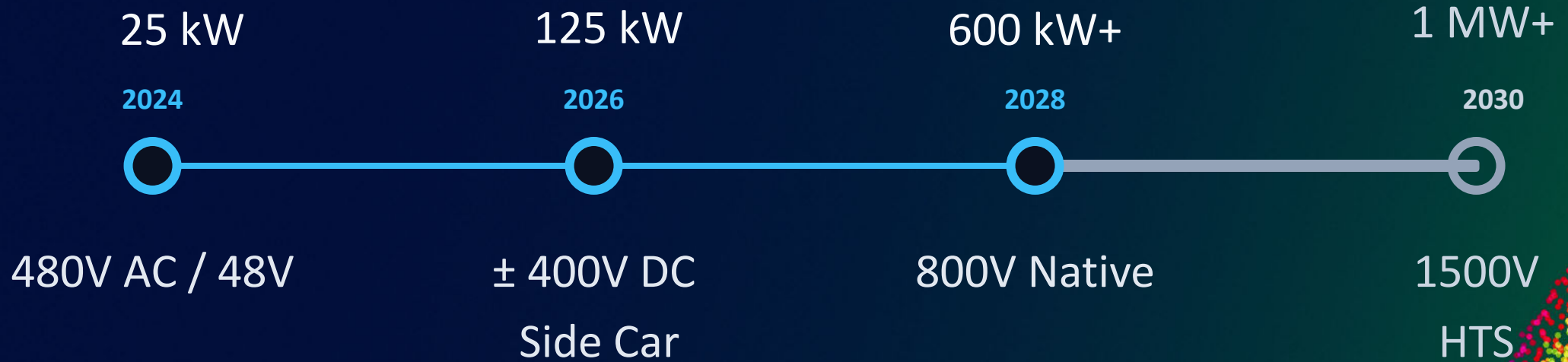


NVIDIA
Kyber

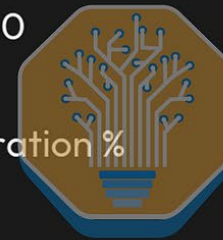
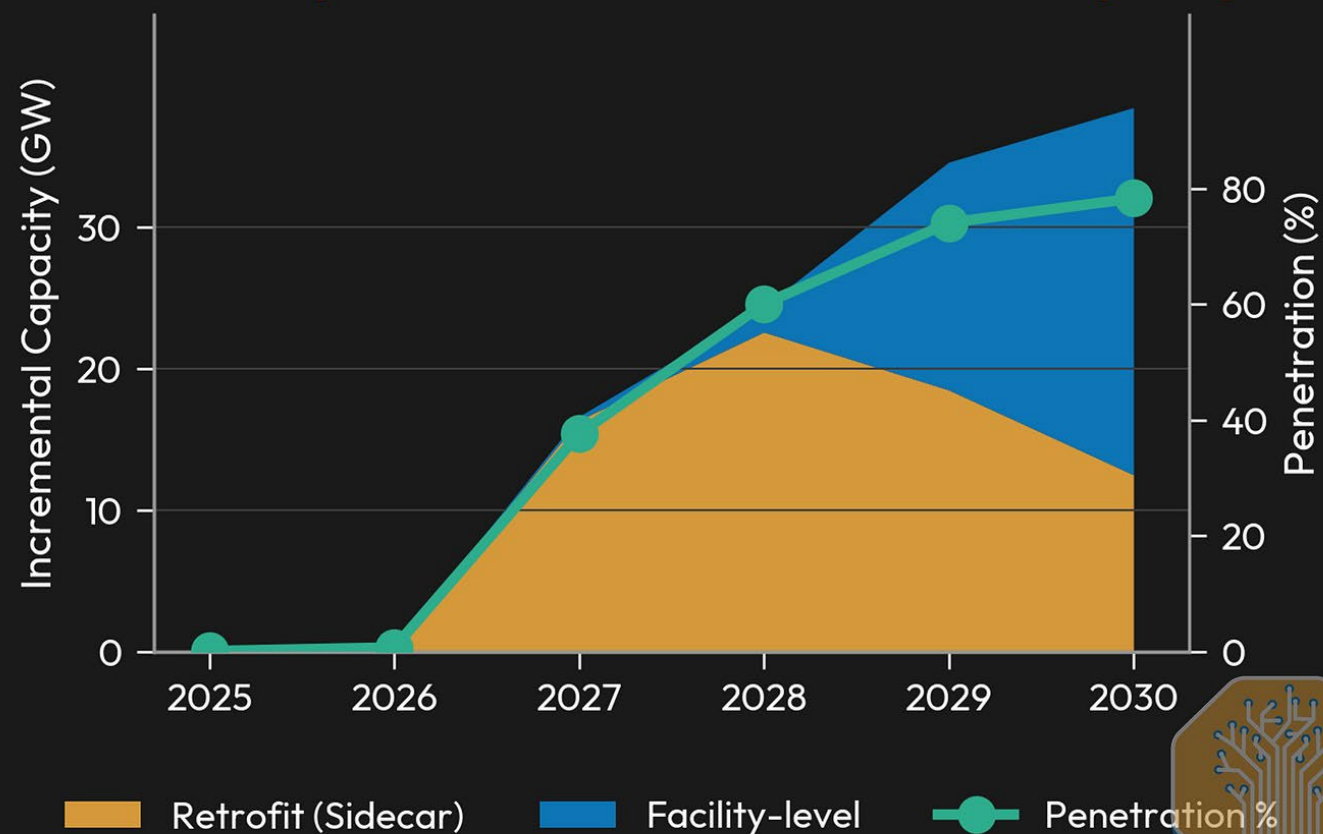


AMD
Helios

Transition to LVDC Power Distribution



800VDC penetration of new datacenter capacity



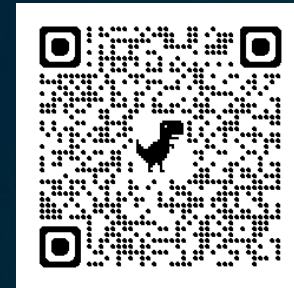
OCP and Current/OS

Accelerating the path LVDC

- Safe, scalable, cost-effective approaches for deployment
- Interoperability for AC and DC systems
- Clarity for insurance and permitting
- Workforce development

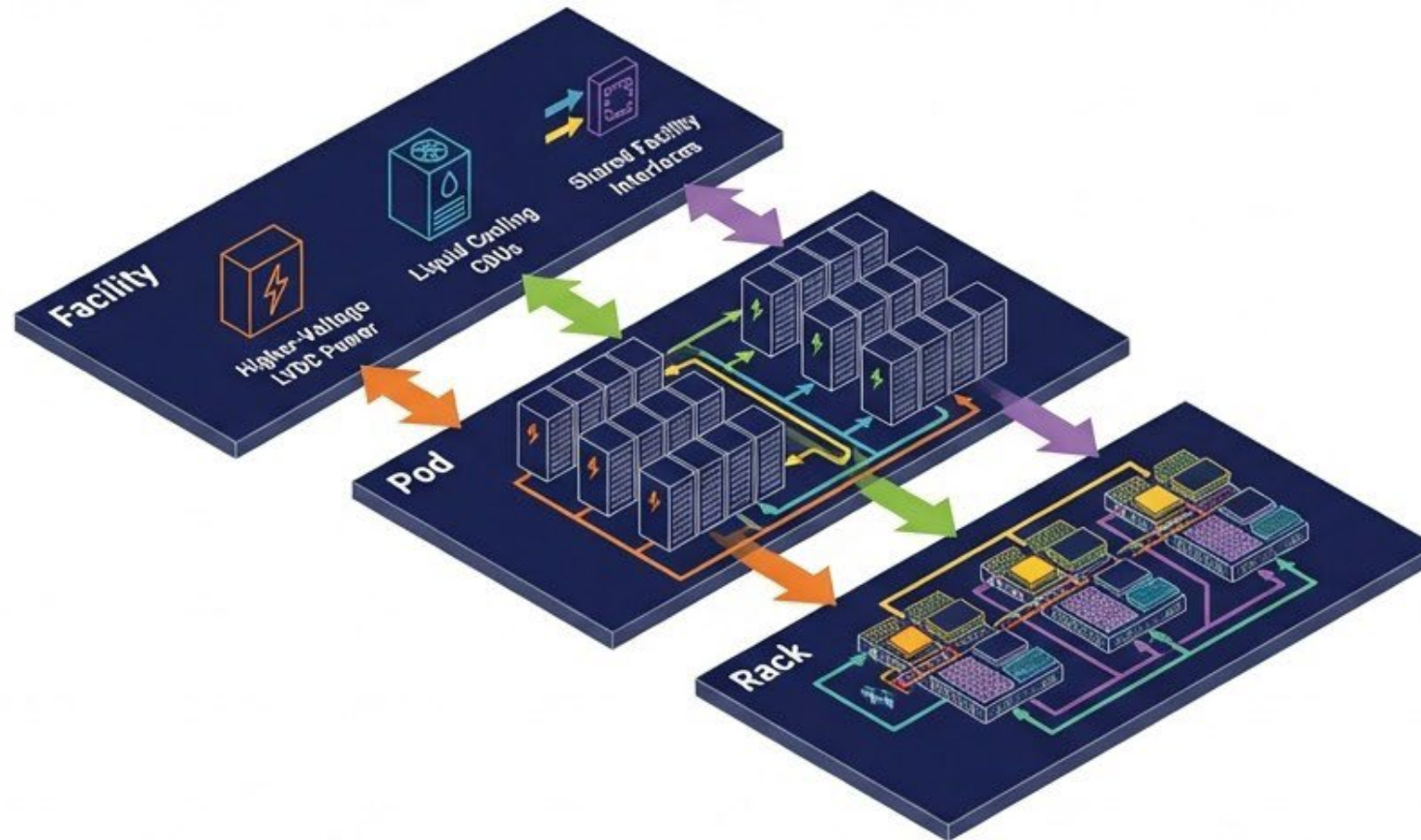
Open Data Center Facility/Power Distribution LVDC Whitepaper

<https://www.opencompute.org/documents/dcf-power-distribution-lvdc-white-paper-version-1-0-final-pdf-1>



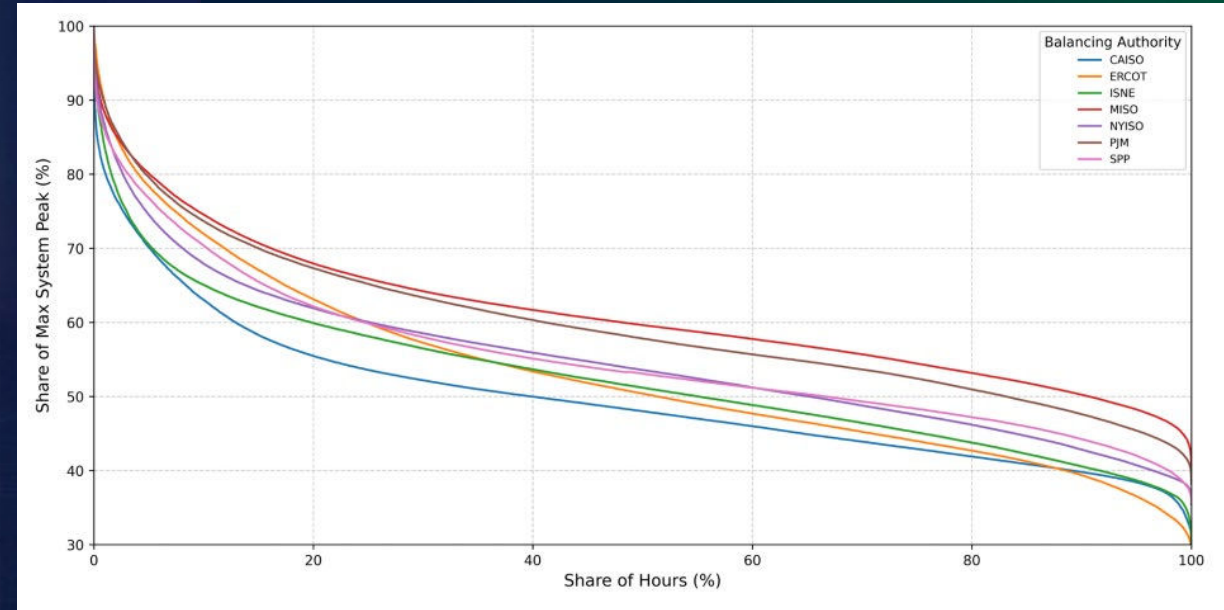
Coordination across vast new domains

AI requires common approaches at the pod and facility level, not only inside the IT rack.



Sources: OCP Open Data Center for AI Whitepaper

The case for flexible load



Source T. Noriss et al "Rethinking Load Growth"
nicholasinstitute.duke.edu

76 GW of North American grid used only 0.25%

Call to Action

- Accelerate path to LVDC adoption to enable global AI investment
- Enable the AI Data Center as an integrated Grid Asset
- Large Load flexibility is a crucial opportunity to seize

Data Centre Activities @ IEC

Gilles Thonet

IEC Deputy Secretary-General

IEC at a glance

Founded in 1906

170 countries

30'000+ experts worldwide

200+ Technical Committees

12'000+ publications

4 Conformity Assessment Systems

5 Regional centres

International Standards

- Rules, guidelines or characteristics developed by experts representing all relevant stakeholders
- Based on international consensus
- **Always voluntary**
- Not laws, regulations or policies, but often used, referenced or incorporated into laws and regulations

Facilitate global trade

Ensure interoperability

**Promote development and
quality infrastructures**

Ease regulatory compliance

Ensure safety

Increase efficiency

Existing IEC standards



Facilities & Infrastructures

ISO/IEC 2237 Series

General concepts and classifications
Building construction
Power supply and distribution
Environmental control
Cabling infrastructure
Security systems
Management and operation



Energy Efficiency & Sustainability

ISO/IEC 30134 Series

KPIs to measure and manage energy efficiency, resource consumption, and effectiveness of IT equipment

ISO/IEC 20125-1

Embedding environmental considerations into digital services



Electrical Safety & Power Distribution

Safety Requirements
(e.g. IEC 62368)

Uninterruptible Power Supply (UPS)
(e.g. IEC 62040)

Energy Storage Systems (ESS)
(e.g. IEC 62933)

Cabling & Connectivity
(ISO/IEC 11801, ISO/IEC 14763)

Accelerating standards development

How can we speed up standard development to meet the needs of the data centres industry?



Standards Production time

32.9

Previous year: 34.7 (-5.05%)



Modular development strategy

Targeted Technical Specification (TS) or Technical Report (TR) earlier in the maturity cycle before moving to International Standard (IS)

International Workshop Agreement (IWA)

Deeper engagement with industry and consortia

Involvement of relevant market actors earlier (e.g. utilities, hyperscalers, public authorities)

Publicly Available Specification (PAS)

Fast Track Procedure

Process modernization

Online Standards Development (OSD)

Content digitalization (SMART)

AI support for standards development

Balancing standardization and innovation

*An illustrative use case:
Multimedia standards*



Top topics shaping the data centre agenda

Data centres are becoming strategic infrastructure, not just IT facilities

Data centres underpin AI, cloud and national competitiveness

Electricity demand is rising but the main issue is local concentration

Local clusters can overwhelm substations and networks

Data centre growth is straining power grids

24/7 high density loads create connection and congestion pressure

AI workloads introduce new power quality challenges

Fast, irregular power fluctuations require new frameworks

Environmental impacts go beyond energy use

Energy, water, carbon, e-waste, land and embodied carbon

Cooling and IT hardware are central to sustainability

Liquid cooling and accelerator heavy IT define efficiency

Existing metrics are useful but incomplete

PUE is useful but incomplete; broader KPIs are needed; increased industry adoption is crucial

Regulation and standards need to rapidly evolve

Technology, reporting, grid impact and efficiency rules are accelerating

Data centres can support the grid, not just burden it

UPS, batteries and workload flexibility can help the grid

Priority workstreams for IEC

Quality

Define AI ready
power quality
standards

Interoperability

Standardize grid
interactive
behaviours and
interfaces

Safety

Develop DC
distribution and
HVDC safety
standards

Coordination

Coordinate cross
sector standards
work

Transparency

Create life cycle
analysis and
supplier reporting
templates

Provenance

Provenance and
24/7 carbon free
energy verification
framework

Participation

Guidance for grid
services
participation

**Cross-sector coordination within IEC but also with ISO, other SDOs,
and utilities is needed to prevent fragmented requirements**



One white paper is a start

A transition to multi-channel, multi-format insights that drive IEC outcomes is the target

IEC as the hub

Expert groups can provide technical input and dissemination

Actionable outcomes

Recommendations should support standards, policy and investment decisions

***From Gap Analysis to
Strategic Stewardship***

IEC Standardization Gaps and Priorities

1. 800V DC System Architecture – North America
2. Lessons Learned
3. Requirements for DC Systems
4. Discussion – IEC Approach
5. UL-IEC Standards/TC Mapping

UL Standards for power — 800V DC Data center

Source		Distribution equipment	
UL 3001	AC microgrids	UL 1558	Low-voltage switchgear
UL 3001D OOI	DC microgrids	UL 1008	Automatic transfer switches (ATS)
UL 9540	Battery energy storage systems (BESS)	UL 67	Remote power panel, panelboard, rack-mounted panelboard
UL 1973	Energy storage — stationary applications	UL 857	800 VDC busways and tap cans
UL 2877 OOI	Medium-voltage solid-state transformers (MV SST)	UL 508	Power distribution — DC busbars
UL 2200	Engine Generator Assemblies	UL 2140 OOI	Prefabricated power distribution assemblies
		UL 2755 OOI	Prefabricated modular data center systems
		UL 891	DC switchboards
		UL 1400-1 OOI, UL 1400-2	Industrial fault managed power (FMP)
		UL 62368-1, UL 2878	DC sidecars – 800V DC output
		UL 1008B	Source Interconnection Switches
Switching/control devices		Power supplies/converters	
UL 98, UL 98A OOI	DC disconnect	UL 1012 + UL 1778	DC UPS
UL 60947-4-1, UL 61810-1, UL 508	DC contactor	UL 1012	Power supplies
UL 6200	Controllers for Power Production	UL 1741	DC/DC converters
UL 508A	Industrial Control Panels		

Overcurrent/protection devices		Connectors	
UL 489	Molded-case circuit breakers and associated devices	UL 1059, UL 60947-7-1	Terminal blocks
UL 1066	Low-voltage power circuit breakers and associated devices	UL 1977	Bus plug connectors
UL 489I	Solid-state circuit breakers	UL 1681, UL 1682	Pin and sleeve connectors
UL 248-4, -8, -10, -12, -15	Branch-circuit fuses (Class CC, J, L, R, T)	UL 2237	Multi-point interconnection power cable assemblies
UL 248-13	Semiconductor fuses	New OOI	LVDC Litz wire PDU2 connectors
UL 248-14	Supplemental fuses	New OOI	LVDC Litz wire J-box connectors
UL 1449	Surge protection devices	UL 486A, UL 486B	Wire connectors
New OOI	DC AFCI	UL 1953 OOI	Power distribution blocks
New OOI	DC GFCI	Grounding/bonding	
New OOI	Isolation monitors	UL 467	Grounding/bonding equipment
UL 1053 and New OOI	Ground-fault sensing and relaying equipment		
Cables/cords		Power utilization	
UL 817A OOI	AC/DC power whips	UL 62368-1	Compute rack/row equipment (GPUs, shelves, servers)
UL 2137 OOI	Data center power cables		
New OOI	Data center liquid-cooling cables		
New OOI	Superconducting Cable Systems		
Reference standards			
UL 840	Insulation coordination including clearances and creepage distances	UL RP 2986	Measuring incident energy exposures

Lessons Learned (to date)

Industry transformation is driving expedited change

- Requires expedited requirements development
 - Standards consensus process is too slow for these innovations
- Need to balance standardization with innovation
- Higher voltages and AC vs. DC
- Product vs. system level design
- Driving new product categories and integrations
- “Known Unknowns” need to be solved by industry
 - we need the engagement of more experts from Partners
- Opportunity for common IEC – UL rules
- IEC 60947-10 approach and example

Requirements for DC Systems

Across product categories

- Spacings
- Wiring sizes due to high frequencies
- Devices including energy storage
- Cooling methodologies
- Grounding configuration

Requirements for DC Systems

Industry “Known Unknowns”

- DC arc flash
- Worker protection
- DC voltage ranges
- Capacitive faults in DC circuits
- Evolving installation codes
- Key components
- Isolation requirements
- Integrating interoperability/system specifications into standards
- Product innovation and availability
- Utilities and interconnection

Discussion – IEC Approach

Potential approaches

- Standard gaps
- DC requirement gaps
- Industry “Known Unknowns”
- System-level/product-level
- Approaches to expedite development
- Priorities



Live Poll

- Scan to share your top 5 priority projects
- Additionnal suggestions can be added at the end of the form



UL-IEC Standards Mapping – 1 of 2

1. Source			2. Distribution equipment		
UL 3001	IEC 60364 series + country specific requirements	AC microgrids	UL 1558	IEC 61439-2	Low-voltage switchgear
UL 3001D OOI	IEC 60364 series + country specific requirements	DC microgrids	UL 1008	IEC 60947-6-1	Automatic transfer switches (ATS)
UL 9540	IEC 62933 series + other applicable/overlapping standards	Battery energy storage systems (BESS)	UL 67	IEC 61439-2, -3	Remote power panel, panelboard, rack-mounted panelboard
UL 1973	IEC 62619, IEC 63056	Energy storage — stationary applications	UL 857	IEC 61439-6	800 VDC busways and tap cans
UL 2877 OOI	IEC 62477-2	Medium-voltage solid-state transformers (MV SST)	UL 508	IEC 61439-2	Power distribution — DC busbars
UL 2200	IEC 60034 series + many additional requirements	Engine Generator Assemblies	UL 2140 OOI	IEC 61439-2	Prefabricated power distribution assemblies
			UL 2755 OOI	ISO/IEC 22237 series	Prefabricated modular data center systems
			UL 891	IEC 61439-2	DC switchboards
			UL 1400-1 OOI, UL 1400-2		Industrial fault managed power (FMP)
			UL 62368-1, UL 2878	IEC 62368-1, IEC 61439-2	DC sidecars – 800V DC output
			UL 1008B	EN IEC 62991:2025	Source Interconnection switches
3. Switching/control devices			4. Power supplies/converters		
UL 98, UL 98A OOI	IEC 60947-3	DC disconnect	UL 1012 + UL 1778	IEC 62040-5-1 IEC 62040-1, IEC 62477-1	DC UPS
UL 60947-4-1, UL 61810-1, UL 508	IEC 60947-4-1, IEC 61810-1, IEC 61810-10	DC contactor	UL 1012	IEC 62477-1 + appropriate part 2	Power supplies
UL 6200		Controllers for Power Production	UL 1741	IEC 62109 series	DC/DC converters
UL 508A	IEC 60204-1 (partly aligned with NFPA79)	Industrial Control Panels			

UL-IEC Standards Mapping – 2 of 2

5. Overcurrent/protection devices			6. Connectors		
UL 489	IEC 60947-2	Molded-case circuit breakers and associated devices	UL 1059, UL 60947-7-1	IEC 60947-7-1	Terminal blocks
UL 1066	IEC 60947-2	Low-voltage power circuit breakers and associated devices	UL 1977	IEC 61984	Bus plug connectors
UL 489I	IEC 60947-10	Solid-state circuit breakers	UL 1681, UL 1682	IEC 60309 Series	Pin and sleeve connectors
UL 248-4, -8, -10, -12, -15	IEC 60269 series	Branch-circuit fuses (Class CC, J, L, R, T)	UL 2237		Multi-point interconnection power cable assemblies
UL 248-13	IEC 60269 series	Semiconductor fuses	New OOI		LVDC Litz wire PDU2 connectors
UL 248-14	IEC 60127 series	Supplemental fuses	New OOI		LVDC Litz wire J-box connectors
UL 1449	IEC 61643 series	Surge protection devices	UL 486A, UL 486B	IEC 60999 series, IEC 61238 series	Wire connectors
New OOI		DC AFCI	UL 1953 OOI	IEC 60947-7-1	Power distribution blocks
New OOI	IEC 60755-1, TS 63053	DC GFCI	7. Grounding/bonding		
New OOI	IEC 61557-8, -9, -15	Isolation monitors	UL 467	IEC 60364 series	Grounding/bonding equipment
UL 1053 and New OOI	IEC 63112??, IEC 61557-19	Ground-fault sensing and relaying equipment			
8. Cables/cords			9. Power utilization		
UL 817A OOI		AC/DC power whips	UL 62368-1	IEC 62368-1 Edition 4, EN 62368-1 Edition 2	Compute rack/row equipment (GPUs, shelves, servers)
UL 2137 OOI		Data center power cables			
New OOI		Data center liquid-cooling cables			
New OOI		Superconducting Cable Systems			
10. Reference standards					
UL 840	IEC 60664-1, TS 62993	Insulation coordination including clearances and creepage distances	UL RP 2986	TS 63527, EN 50110	Measuring incident energy exposures
	IEC 60038	IEC standard voltages			

IEC TC Mapping – 1 of 2

Source				Distribution equipment			
UL 3001	IEC 60364 series + country specific requirements	TC 64	AC microgrids	UL 1558	IEC 61439-2	SC 121B	Low-voltage switchgear
UL 3001D OOI	IEC 60364 series + country specific requirements	TC 64	DC microgrids	UL 1008	IEC 60947-6-1	SC 121A	Automatic transfer switches (ATS)
UL 9540	IEC 62933 series (+ other applicable/overlapping standards)	TC 120	Battery energy storage systems (BESS)	UL 67	IEC 61439-2, -3	SC 121B	Remote power panel, panelboard, rack-mounted panelboard
UL 1973	IEC 62619, IEC 63056	SC 21A	Energy storage — stationary applications	UL 857	IEC 61439-6	SC 121B	800 VDC busways and tap cans
UL 2877 OOI	IEC 62477-2	TC 22	Medium-voltage solid-state transformers (MV SST)	UL 508	IEC 61439-2	SC 121B	Power distribution — DC busbars
UL 2200	IEC 60034 series + many additional requirements	TC 2	Engine Generator Assemblies	UL 2140 OOI	IEC 61439-2	SC 121 B	Prefabricated power distribution assemblies
				UL 2755 OOI	ISO/IEC 22237 series	ISO/IEC JTC1	Prefabricated modular data center systems
				UL 891	IEC 61439-2	SC 121B	DC switchboards
				UL 1400-1 OOI, UL 1400-2		TC 64	Industrial fault managed power (FMP)
				UL 62368-1, UL 2878	IEC 62368-1, IEC 61439-2	TC 108, SC 121B	DC sidecars – 800V DC output
				UL 1008B	EN IEC 62991:2025	SC 23K	Source Interconnection Switches
Switching/control devices				Power supplies/converters			
UL 98, UL 98A OOI	IEC 60947-3	SC 121A	DC disconnect	UL 1012 + UL 1778	IEC 62040-5-1, IEC 62040-1, IEC 62477-1	SC 22H, TC 22	DC UPS
UL 60947-4-1, UL 61810-1, UL 508	IEC 60947-4-1, IEC 61810-1, IEC 61810-10	SC 121A, TC 94	DC contactor	UL 1012	IEC 62477-1 + appropriate part 2	TC 22	Power supplies
UL 6200			Controllers for Power Production	UL 1741	IEC 62109 series	TC 82	DC/DC converters
UL 508A	IEC 60204-1 (partly aligned with NFPA79)	TC 44	Industrial Control Panels				

IEC TC Mapping – 2 of 2

Overcurrent/protection devices				Connectors			
UL 489	IEC 60947-2	SC 121A	Molded-case circuit breakers and associated devices	UL 1059, UL 60947-7-1	IEC 60947-7-1	SC 121A	Terminal blocks
UL 1066	IEC 60947-2	SC 121A	Low-voltage power circuit breakers and associated devices	UL 1977	IEC 61984	SC 48B	Bus plug connectors
UL 489I	IEC 60947-10	SC 121A	Solid-state circuit breakers	UL 1681, UL 1682	IEC 60309 Series, IEC TS 63641 (in dev.)	TC 48, SC 23H?	Pin and sleeve connectors
UL 248-4, -8, -10, -12, -15	IEC 60269 series	SC 32B	Branch-circuit fuses (Class CC, J, L, R, T)	UL 2237		TC 48	Multi-point interconnection power cable assemblies
UL 248-13	IEC 60269 series	SC 32B	Semiconductor fuses	New OOI		TC 48	LVDC Litz wire PDU2 connectors
UL 248-14	IEC 60127 series	SC 32C	Supplemental fuses	New OOI		TC 48	LVDC Litz wire J-box connectors
UL 1449	IEC 61643 series	SC 37A	Surge protection devices	UL 486A, UL 486B	IEC 60999 series, IEC 61238 series	TC 23, TC 20	Wire connectors
New OOI		SC 121A	DC AFCI	UL 1953 OOI	IEC 60947-7-1	SC 121A	Power distribution blocks
New OOI	IEC 60755-1, TS 63053	SC 121A, SC 23E?	DC GFCI	Grounding/bonding			
New OOI	IEC 61557-8, -9, -15	TC 85	Isolation monitors	UL 467	IEC 60364 series	TC 64	Grounding/bonding equipment
UL 1053 and New OOI	IEC 63112, IEC 61557-19	TC 82, TC 85	Ground-fault sensing and relaying equipment				
Cables/cords				Power utilization			
UL 817A OOI		TC 20	AC/DC power whips	UL 62368-1	IEC 62368-1 Edition 4, EN 62368-1 Edition 2	TC 108	Compute rack/row equipment (GPUs, shelves, servers)
UL 2137 OOI		TC 20	Data center power cables				
New OOI		TC 20	Data center liquid-cooling cables				
New OOI			Superconducting Cable Systems				
Reference standards							
UL 840	IEC 60664-1, TS 62993	TC 109	Insulation coordination including clearances and creepage distances	UL RP 2986	TS 63527, EN 50110	TC 128	Measuring incident energy exposures
	IEC 60038	TC 8	IEC standard voltages				



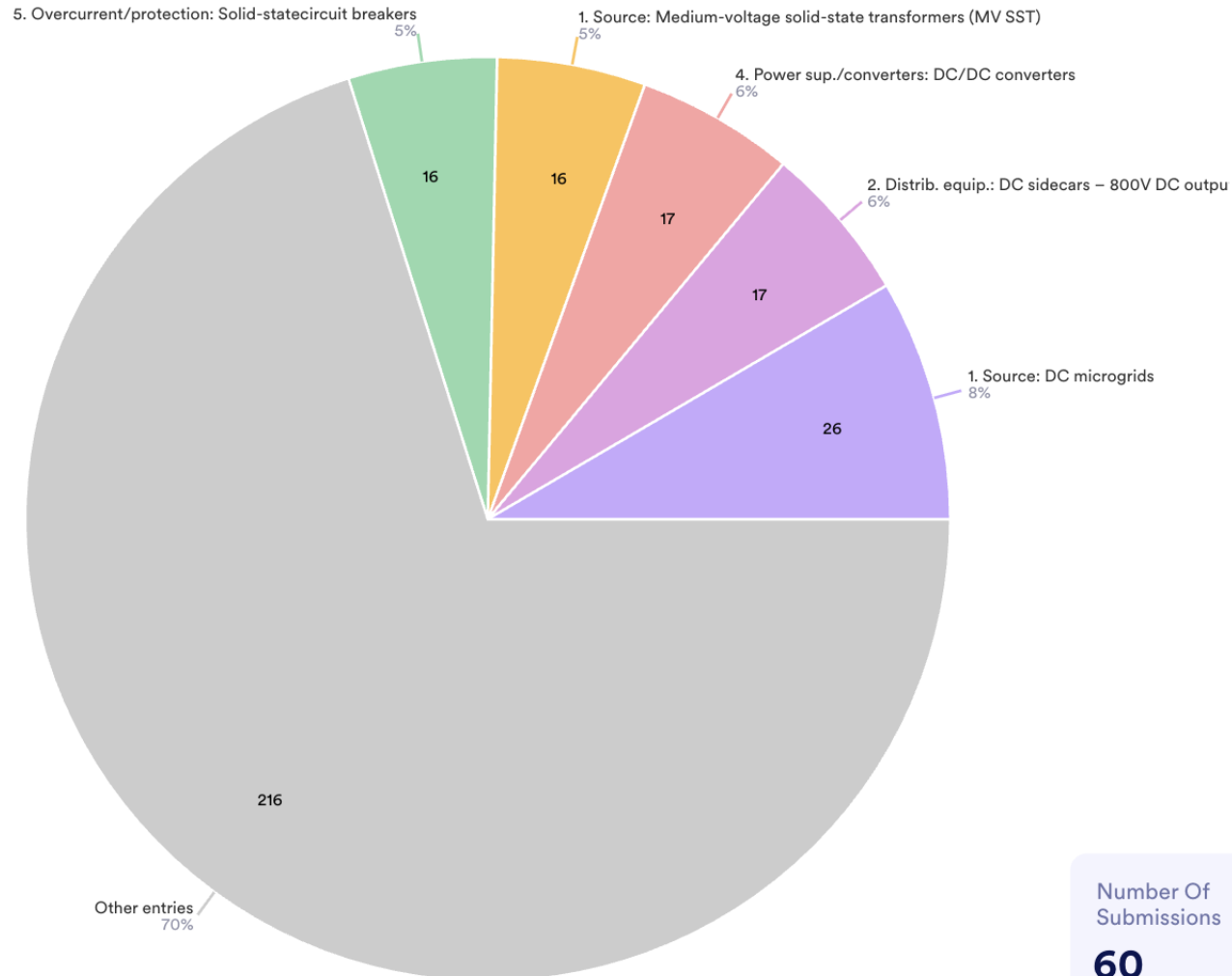
Live Poll

- Scan to share your top 5 priority projects
- Additionnal suggestions can be added at the end of the form



Poll Results

Select your top 5 priorities across all categories



Top 5 ranking

8% DC microgrids

6% DC sidecars 800VDC output

6% DC/DC converters

5% MVSST

ex aequo 5% Solid-state circuit breakers

Current/OS welcomes new partners

Join Us to
Influence the Guidelines
&
Advance Direct Current Technology



info@currentos.org

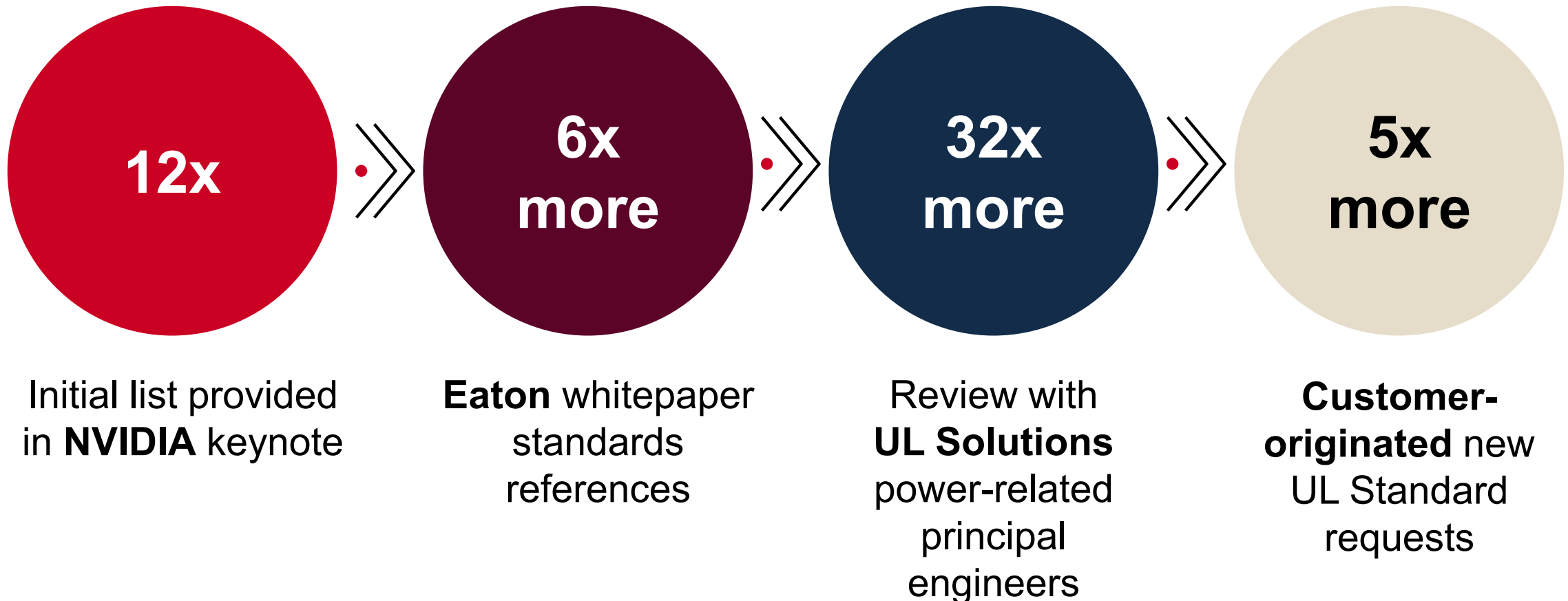


currentos.org

Appendix

UL Standards — Gap analysis development

55x total power standards for data center applications



UL Standards — Gap analysis

End to end — chip to grid

Looked at both 800 VDC and future 1,500 VDC

- Primarily focused on 800 VDC for initial gap analysis

Out of 55x UL Standards for power

- 34x already cover 800 VDC level (>60%)
- Others have updates already in progress

Product categories	UL Standards for power	Cover 800 VDC	Gaps for 800 VDC
Source	5	5	0
Distribution equipment	11	6	5
Power supplies/converters	3	2	1
Switching/control devices	5	5	0
Overcurrent/protection devices	12	6	6
Grounding/bonding equipment	1	0	1
Connectors	11	6	5
Cables/cords	4	3	1
Power utilization (GPU, shelf, server)	1	0	1
Reference standards	2	1	1
Totals	55	34	21

UL Standards — Gap analysis

End to end — chip to grid

Looked at both 800 VDC and future 1,500 VDC

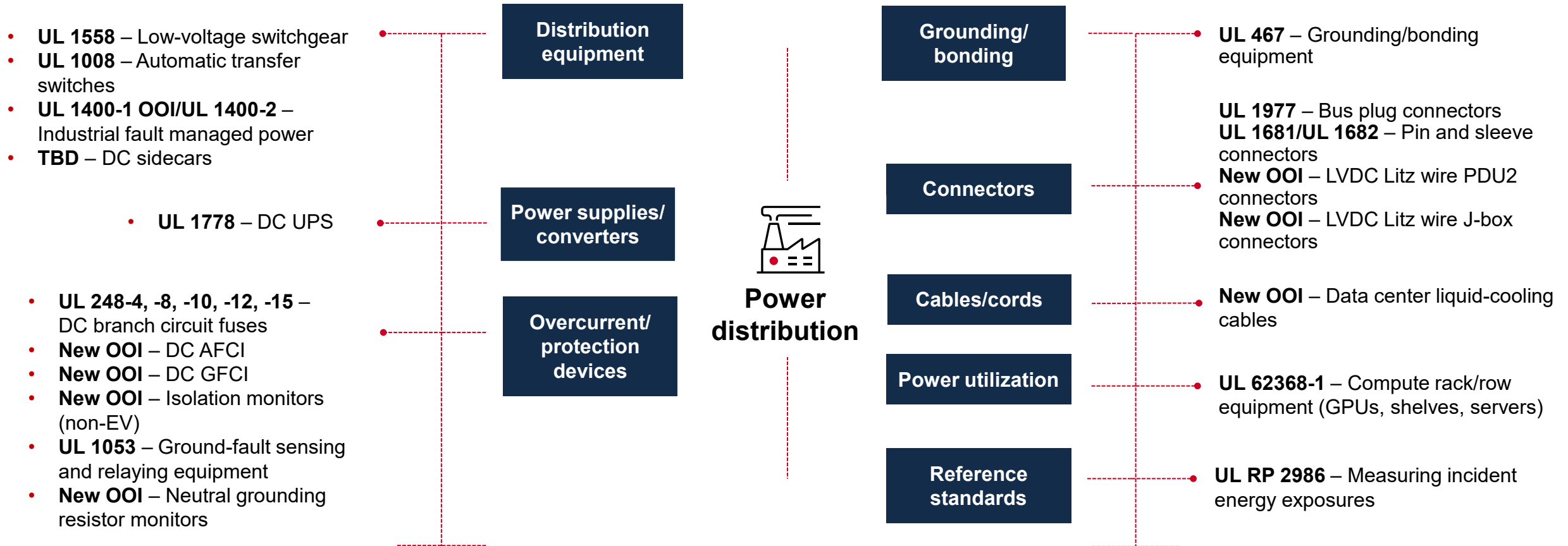
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Source	5	5	0
Distribution equipment	11	6	5
Power supplies/converters	3	2	1
Switching/control devices	5	5	0
Overcurrent/protection devices	12	6	6
Grounding/bonding equipment	1	0	1
Connectors	11	6	5
Cables/cords	4	3	1
Power utilization (GPU, shelf, server)	1	0	1
Reference standards	2	1	1
Totals	55	34	21

UL Standards — 800 VDC gaps



UL Standards gaps

Expediting support for the industry

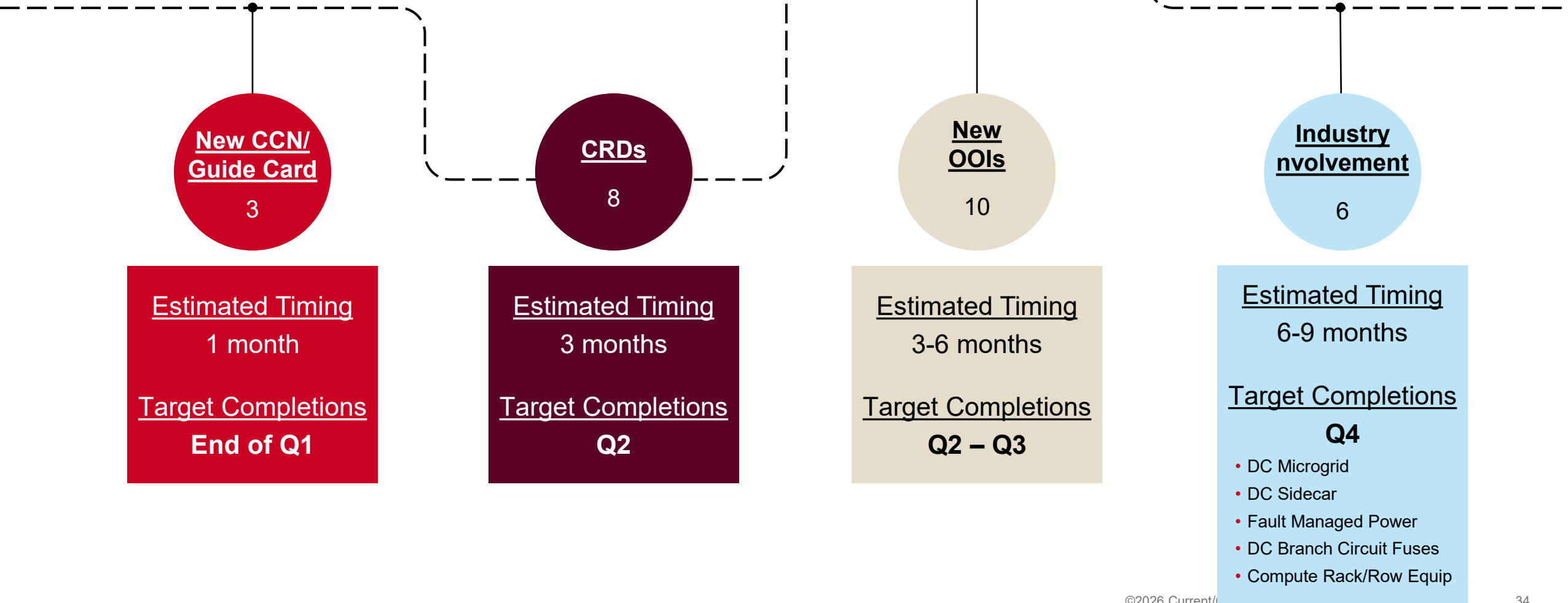
UL Solutions is working to expedite UL Standards updates with the following tools:

- **Certification Requirement Decision (CRD)** – An official UL Solutions determination that establishes new or revised safety requirements for products, often facilitating the adoption of new technology before formal standards are updated. These decisions provide immediate compliance paths, often addressing specific technical, performance or safety issues.
- **Outline of Investigation (OOI)** – A nonconsensus document, developed and owned by UL Solutions, containing specific requirements to certify products, components or systems for which no published, formal standards currently exist. These documents are used to evaluate, test and apply safety certification marks to emerging technologies or specialized products.
- **Category Control Number (CCN)** – A four-letter code assigned by UL Solutions to classify products and components based on their specific safety standards and intended use. These codes can be used to find guide information in the Product iQ® database and allow for quick verification of safety compliance by regulators and manufacturers.
- **Guide Information** – Provides essential details on product safety standards, usage limitations and installation requirements for UL Certified products, primarily accessed through the Product iQ® database. It defines the scope of certification, applicable standards and the specific Mark required for compliance.

UL Standards — Overview of updates

Product Categories	UL Standards for power	Action	Status	Product Categories	UL Standards for power	Action	Status
DC microgrid	UL 3001D OOI	New OOI	Industry – WG	Isolation monitors	TBD	New OOI	Starting
LV switchgear	UL 1558	CRD	Starting	Ground-fault sensing and relaying equipment	UL 1053	CRD	Starting
ATS	UL 1008	CRD	Starting	Neutral grounding resistor monitors	TBD	New OOI	Starting
DC busbar	UL 508	New CCN	Starting	Grounding/bonding equipment	UL 467	CRD	Starting
Prefabricated power distribution assemblies	UL 2140 OOI	New OOI	Customer pilots	Bus plug connectors	UL 1977	CRD	Starting
Prefabricated modular data center systems	UL 2755 OOI	New OOI	Customer pilots	Pin and sleeve connectors	UL 1681/1682	CRD	Starting
Industrial fault managed power (FMP)	UL 1400-1 OOI/ UL 1400-2	CRD	Industry — codes	LVDC Litz wire: PDU2 connectors	TBD	New OOI	In-process
DC sidecar	TBD	New OOI	Industry — codes/ industry alignment	J-box connectors	TBD	New OOI	In-process
DC UPS	UL 1012 + UL 1778	Guide Card	Starting (+ long-term UL 62040-5-1)	Data center power cables	UL 2137 OOI	New OOI	Customer pilots
DC/DC converter	UL 1741	New CCN	Starting	Data center liquid-cooling cables	TBD	New OOI	In-process
DC branch circuit fuses (Class CC, J, L, R, T)	UL 248-4, -8, -10, -12, -15	CRD	Industry – TC task group in-process	Compute rack/row equipment	UL 62368-1	CRD	Industry — codes/ TC alignment
DC AFCI	TBD	New OOI	Starting	Measuring incident energy exposures	UL RP 2986	CRD	Starting
DC GFCI	TBD	New OOI	Starting				

UL Standards road map timeline – Focus on speed



Key IEC TCs /1

priority	TC		contacts	
	TC85	Measuring equipment for electrical and electromagnetic quantities	Chair Secretary	Mr Jiri STEPANEK (Schneider Electric) Ms Guiju HAN (Harbin Research Institute, CN)
	TC 20	Electric cables	Chair Secretary	Mr Richard Noyes (Prysmian UK) Mr Walter Winkelbauer (ZVEI)
	TC22,	Power electronic systems and equipment,	Chair Secretary	Mr Preben Holm Nielsen Ms Chuanhong Zhao (Hitachi Energy)
	SC 22E	Stabilized Power supply	Chair Secretary	Mr Miao-Xin WANG (Schneider Electric) Mr Clemens Klemm (Siemens)
	SC 22H	UPS	Chair Secretary	Mr Jari Uusitalo (Eaton) Mr Miao-Xin WANG (Schneider Electric)
	SC 48B	Electrical connectors	Chair Secretary	Mr Andreas Starke (Harting) Mr Jeffrey R. Toran (Amphenol)
	TC108	Safety of electronic equipment for AV & ICT	Chair Secretary Assistant Sec. Assistant Sec.	Mr Bob Griffin (IBM) Ms Valara Davis (UL) Mr Albert P. Brazauski (independent) Ms Grace Roh (UL)
	TC121	LV Switchgear&Controlgear and assemblies	Chair Secretary	Mr Silvio Foersch (Siemens) Ms Alban Notin (Schneider Electric)
	SC121A	LV Switchgear&Controlgear	Chair Secretary	Mr Andreas Baeumler (Siemens) Ms Alban Notin (Schneider Electric)
	SC121B	LV assemblies	Chair Secretary	Mr Adam Tennant (Eaton) Mr Jörg Hußmann (Siemens)

Key IEC TCs /2

priority	TC		contacts	
	TC85	Measuring equipment for electrical and electromagnetic quantities	Chair Secretary	Jiri STEPANEK (Schneider Electric) Ms Guiju HAN (Harbin Research Institute, CN)
	TC128	Safe management and operation of electrical installations	Secretary Assistant Sec.	Nicolas PERRIN (Enedis) Olivier CRAS (AFNOR)
	SyC LVDC	Low Voltage Direct Current	Chair Secretary Assistant Sec.	Mrs Uma Manickam-Chauhan (Siemens) Mr Asit Kumar Maharana (IN) Mr Nitish Kumar Jain (IN)
	ISO/IEC JTC 1	Information technology (??)		
	SC 32B	Low-voltage fuses	Chair Secretary	Mr Romain RIMBOUD (Mersen) Mr Andreas Schüppel (Mersen)
	SC 37A	Low-voltage surge protective devices		
	TC 64	Electrical installations and protection against electric shock	Chair Secretary Assistant Sec.	J. Perronet/ M. Lauherte (SE) Wolfgang Niedenzu (Siemens) Bernd Komanschek (DKE)
	TC 109	Insulation co-ordination for low-voltage equipment		