

## **With over 120 partners, Current/OS pushes for a global, unified approach to exploiting Direct Current**



**A shared platform for stakeholders from the electrical sector – manufacturers, design offices, installers, construction firms, trade groups, certification laboratories and academia – the nonprofit Current/OS Foundation advocates for a common systems approach governing the use of direct current (DC) in buildings, offices and appliances. With the demand for electricity set to rise sharply in the near future, Current/OS seeks to expand the use of DC as a complement to the public grid in buildings and offices, making energy supply more resilient, streamlining the integration of renewables and supporting the energy transition.**

Founded in 2021, the Current/OS Foundation now has over 120 partners across the world, spanning across North America, Europe and Asia. These include major manufacturers (Schneider Electric, ABB, Eaton, Siemens, Daikin, Trane, Siemens, MR, Hisense), large integrators (Jacobs, VINCI Energies, Ramboll, Equans,...), certification laboratories (Dekra, Intertek), a number of innovative SMEs, and universities (University of Stuttgart in Germany, University of Strathclyde in Scotland, TalTech in Estonia, Northwestern University in the US)



The mission of the Foundation is to promote the adoption and deployment of an electrical ecosystem based on Direct Current to support the energy transition and better accommodate growing electricity use, set to grow even further in the coming years.

### **Leveraging DC as the key to energy security**

Current/OS sees direct current as a strategic solution to growing concerns over energy security, focusing on the deployment of DC microgrids that use renewable sources such as solar power. With their ability to modulate consumption automatically in line with demand and supply, these microgrids work as a complement to the public AC grid, reducing load during periods of excess demand, and even reinjecting surplus energy into the main grid smoothly without destabilizing it. Furthermore, these DC microgrids remain operational in the event of a blackout, providing a valuable resource for a black start. With the rise of renewable energy (which naturally produces direct current), and the growing variety of devices (LEDs, electronics, EVs) that operate natively in DC, the long-standing interconnection to alternating current needs to be reconsidered. Repeated conversions reduce flexibility and engender avoidable losses in a context where every kilowatt counts, underscoring the relevance of direct current for a more resilient, decentralised and efficient energy system.

The Current/OS Foundation issues rules governing the manufacture or installation of compatible devices, ensuring safe operation in a DC electrical distribution network. These rules seek to encourage the development of more flexible, resilient and sustainable electricity networks, integrating seamlessly with decentralized and localized energy production.

DC responds to the changing nature of electricity use: most modern electrical devices, solar panels and battery storage solutions operate natively in DC. Its integration into buildings and wider infrastructure reduces energy losses through repeated AC/DC conversions, improves overall efficiency, streamlines energy storage and bidirectional transfers of energy and reduces energy drawn from the public grid. Thanks to progress in power electronics, direct current is now an increasingly important and feasible way to smarter and more effective energy management.

### **A number of pilot projects bearing results**

Current/OS has developed a complete set of rules, shared with its partners, governing the manufacturing and installation of compatible appliances for safe operation in electrical networks based on direct current.

These norms have underpinned a number of pilot projects for a few years. Consider a section of the N470 highway in the Netherlands, wherein solar panels have been installed in the noise barriers. Coupled with a 1MWh battery storage system, this forms a DC microgrid which powers the road's lighting and traffic signals more sustainably. Compared to similar AC systems, the highway achieved



energy savings of 10-20%, all while reducing dependence on the public grid. Copper use in electric cables also reduced by 35-50%.

The WAVE office building in Lille, France, by VINCI Energies, a Current/OS partner, provides another example. With part of the offices powered in DC drawn from solar panels, the WAVE building uses DC at the local level in conjunction with the public grid. This eliminates the need to install convertors, and reduces energy losses, demonstrating a real advance in energy management for offices. The building **reduced energy consumption by 20% within six months.**

According to **Yannick Neyret, President of Current/OS**, *“Current/OS has now become a virtuous ecosystem, providing numerous opportunities for collaboration. We are building the future of electrical distribution in DC, and are pleased to welcome a growing number of partners to support them in deploying DC-based solutions.*

### **Current/OS: A global partnership for DC**

Member of the IEC SyC LVDC

- 120 partners to date, adding new partners
- Partners from 30 countries in Europe, North America and the Asia-Pacific

### **Find Current/OS online**

- Site: <https://currentos.foundation>
- LinkedIn: [www.linkedin.com/company/currentos-foundation](http://www.linkedin.com/company/currentos-foundation)
- YouTube: [www.youtube.com/@Current-OS](http://www.youtube.com/@Current-OS)

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