CHALLENGE 2024

DIGITAL

ENERGY

Four years of commitments















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≪ Digital Energy is AFD Group's strategic response to the challenge of digital transformation for local electricity utilities in Africa. This initiative highlights our commitment to ensuring access for all to reliable, modern and affordable energy services, in line with Sustainable Development Goal 7. Supported by

the European Union and the French Agency for Ecological Transition (ADEME), Digital Energy offers funding and networking solutions tailored to energy access players, aligned with Europe's Global Gateway strategy. With €1.8 billion in financing dedicated to energy in 2023, AFD Group is diversifying its actions to meet its partners' growing needs. Digital Energy aims to be a lever for building a more reliable, inclusive and sustainable energy future. ≫

Bertrand Walckenaer

AFD Group Deputy CEO

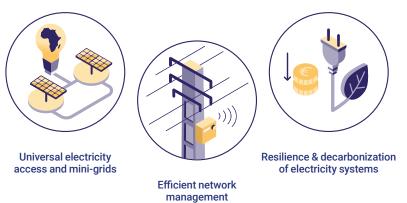


nder current policies, it is estimated that 670 million people will remain without electricity by 2030. In Africa, this is a priority issue for public policy: more than 8 out of 10 people on the continent do not have access to electricity.

Since 2020, AFD has been implementing Digital Energy with the support of the European Union and ADEME. The aim? To offer a full range of instruments to support African energy operators and start-ups in their digitalization process: technical assistance projects, calls for projects, networking opportunities and seed financing. Since its launch in 2020, nearly thirty projects have been supported through grants, loans or technical assistance, and a dozen public operators have been supported on their digital projects.

Our objective?

Supporting the digitalisation & modernisation of the energy sector in AFD's countries of intervention and accelerate electricity access on **3 key domains**:



The Digital Energy Challenge & the Bootcamp

A special occasion to celebrate its laureates and discuss burning topics of the sector

Since 2020, the Digital Energy Challenge, supported by the European Union and ADEME, has been driving the development of innovative digital solutions that enhance energy access, integrate renewable energy sources and improve the performance of utilities across Africa. Since its creation. the Challenge has supported 29 Start-ups and Public Power Utility projects.

This year's Bootcamp & Award Ceremony bring together the 10 Start-ups and Public Power Utilities of the 4th edition of the Challenge, former winners, prominent players in Africa's energy access sector and guest speakers from the European Commission, AFD Group, and ADEME (French Agency for **Ecological Transition).**

> Access to the conferences. panel discussions and the 10 winning innovative projects live & replay here:



In a nutshell

Alongside funding and technical assistance, Digital Energy offers incubation opportunities for laureates in an integrated approach, from financing to mentoring with I&P and Gaia Impact Fund. To find out more



Digital Energy Challenge

START-UPS



Digital Energy Challenge





Grant & TA









in partnership with

€4.0M

for 10 start-ups with the seed fund

Gathering people, projects & shared knowledge

A phygital approach to create bridges between key players, share knowledge, nurture innovation & develop a community of help and value creation.



Join the Digital Energy community & the digital-energy.eu platform





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Networking & Visibility AFD Digital Energy Day 2024 70+ key players gathered



Strengthen your skills RTEi expert pedagogical content for utilities



Connect & Celebrate Bootcamp Digital Energy 2023



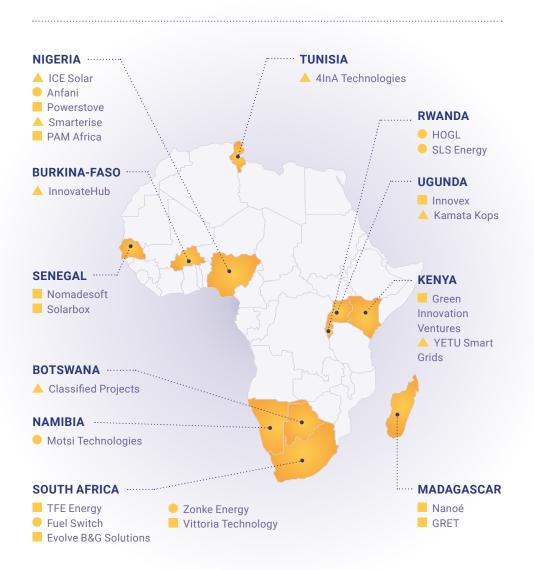
Our start-ups' projects

Digital Energy Challenge

Our utilities' projects **START-UPS**

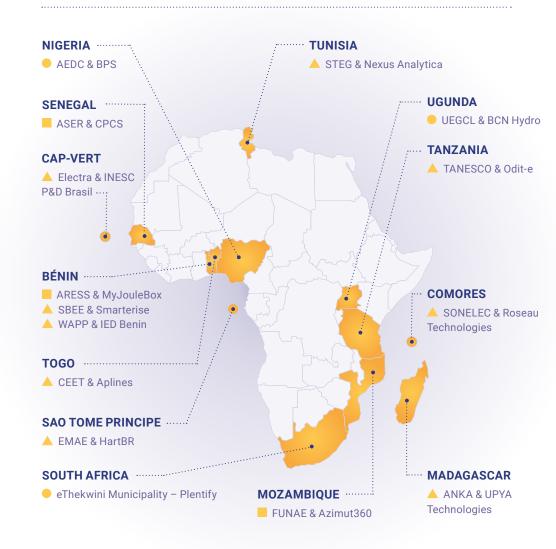
Digital Energy Challenge

39 projects across Africa





- Efficient grid management
- Resilience and decarbonation of power systems



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Universal electricity access

and mini-grids





ASER & CPCS

Awardee edition: 2021 Country: Senegal **Grant**: 45,8 k€

Georeferencing and mapping method using AI for electrical distribution networks. The "RobotMaper" by CPCS will enable ASER to map out the network of a locality in real time, in just a few days, with greater precision thanks to Al.

Project supported by: O. Sarr (director of Studies/Project Lead, ASER) and R. Frandji (Project Manager CPCS)

Mail: bambaspoid@gmail.com

Website: https://cpcs.ca



Nanoé

Awardee edition: 2021 Country: Madagascar **Grant**: 90,9 k€

Solar nanogrids for the 'lateral electrification' of rural areas.

Autonomous nanogrids that can power 4-6 households and can be connected together to form micro-grids or connected to a larger grid. Consumers use a mobile prepayment system for daily access and consumption.

Project supported by: N. Le Saux (Co-founder)

Mail: nolwenn.lesaux@nanoe.net

Website: www.nanoe.net



HOGL

Awardee edition: 2021 **Country:** Rwanda Grant: 94 k€

System that provides on-site operations assistance and remote monitoring of hydroelectric power plants.

The HPPBot improves hydro powerplant production by monitoring the plant's operations and effectiveness. The onsite and remote dashboards display energy losses identified in the plant and suggest remedial actions.

Project supported by : B. Lacroix (Director)

Mail: bernard.lacroix@hogl.rw

Website: www.hogl.rw



TFE Energy

Awardee edition: 2024 Country: South Africa

Grant: 150 k€

Improving access to finance for digital innovators and small businesses.

Software designed to automate and standardise risk assessment to improve access to finance for mini grid projects.

Project supported by: Dr S. Duby (Project Manager) and

H. Mahouli (Expert Fund Structure & investing)

Mail: sam@thefutureof.energy Website: www.tfe.energy

Universal electricity access

and mini-grids





FUNAE & Azimut 360

Awardee edition: 2022 **Country:** Mozambique

Grant: 330 k€

Digital tool that improves data acquisition process, design, operation, maintenance and monitoring of minigrids. Azimut 360 will create a digital tool that facilitates data collection and optimizes the design and operation of mini-grids in remote areas.

Project supported by: M. Gil (Project manager), A. and F.

Mondlane (Advisor, FUNAE) Mail: mireia.gil@azimut360.coop Website: https://funae.co.mz



PAM Africa

Awardee edition: 2023 Country: Nigeria **Grant**: 150 k€

Mini-grid optimisation platform with dynamic tariffs. Multi-purpose platform based on real-time data collection and analysis on energy demand in order to generate dynamic tariff to tackle high electricity tariffs for the final consumers.

Project supported by : P. Agese (CEO) Mail: patrick.agese@pamafrica.com Website: https://pamafrica.com



Powerstove Offgrid Electricity Ltd

Awardee edition: 2021 Country: Nigeria Grant: 100 k€

Biomass-based cooking stoves that generate electricity.

Smart smokeless stoves using various fuels such as biomass pellets or woodchips burning 70 % less biomass than traditional ones. They can cook food 5 times faster and generate electricity, allowing off-grid households to charge small appliances.

Project supported by: O. Esse (CEO & Project Leader)

Mail: okeyesse@yahoo.com

Website: https://powerstove.africa



Gret

Awardee edition: 2023 **Country**: Madagascar

Grant: 150 k€

Digitisation of a social energy operator to extend sustainable electricity distribution to rural areas of Madagascar. Deploying a network of IoT sensors in a hydropower plant for two rural municipalities that will improve monitoring and reduce lead times for failure identification.

Project supported by : E. Sahondralalaina (PM)

Mail: sahondralalaina.mg@gret.org

Website: https://gret.org/en

Universal electricity access and mini-grids





Green Innovation Ventures Enterprises Ltd

Awardee edition: 2022

Country: Kenya **Grant**: 137,7 k€

An IoT platform to impulse the full benefits of electrification. The IoT platform PowerPay aims to tackle the problem of high prices of household appliances enabling consumers to purchase equipment in small, manageable mobile installments and track energy consumption.

Project supported by : G. Kimiti (Executive Chairman)

Mail: kimiti@powerpayafrica.com

Website: www.greeninnovationventures.com



Innovex

Awardee edition: 2022 Country: Uganda Grant: 75 k€

A smart meter coupled with an IoT solution. Using an IoT cloud based platform, REMOT, that delivers digital solutions for off-grid Photovoltaic intallations of different types, use cases and sizes in solar home systems and solar for productive use settings.

Project supported by: D.K. Baguma (managing Director)

and D. Tusubira (cofounder)

Mail: douglasbaguma@innovex.org

Website: https://innovex.org



Solarbox

Awardee edition: 2024 Country: Senegal Grant: 300 k€

Affordable, innovative electric mobility solutions.

Solarbox serves fleet managers/owners and logistic companies going electric for 2-wheeled vehicles and tricycles. It also converts shipping containers into solar charging point for its electric vehicules.

Project supported by : T. Watt (CEO)

Mail: tijan@wuri.vc

Website: www.solarbox.energy



Aress & MyJouleBox

Awardee edition: 2023

Country: Benin Grant: 229 k€

A digital surveillance solution to optimize mini-grid performance in remote areas. Deployment of an innovative tool for managing solar energy for energy operators, on nine solar mini-grids located in hard-toreach areas in northern Benin.

Project supported by : C. Cadoret (CFO, MyJouleBox) and L. Michael (Sinsin, Managing Director, ARESS)

Mail: charlotte.cadoret@myjoulebox.com

Website: https://en.aress.solar

Universal electricity access and mini-grids





Nomadesoft

Awardee edition: 2021 Country: Senegal Grant: 81 k€

A mobile application to optimise irrigation by solar water pumps.

Development of a Smart Farming Assistant providing farmers with clean, smart and more economic irrigation systems. The app also offers advice on agricultural matters through podcasts and videos.

Project supported: M. Fall (CEO & Project Lead)

Mail: momarfa68@gmail.com

Website: linkedin.com/company/nomadesoft



Evolve Battery & Grid Solutions

Awardee edition: 2023 Country: South Africa

Grant: 150 k€

A virtual power plant with batteries to avoid power cuts and rationing. Evolve, a virtual power plant meant to create an intelligent and interconnected web linking thousands of batteries and solar facilities to manage load and demand, and provide support services.

Project supported by : V. Mallet (Founder/CEO)

Mail: vmallet@catalyst-energy.com Website: https://evolve-bgs.com



Vittoria Technology

Awardee edition: 2022 **Country:** South Africa

Grant: 150 k€

Software-enabled 'Storage-as-a-Service' solution providing advanced battery leasing for scalable, affordable mini-grid energy systems. Battery Bank Africa is an innovative digital platform providing a full battery leasing service to mini-grids including sizing optimisation of storage solutions, battery and battery monitoring.

Project supported by : L. Murphy (Co-founder)

and N. Sermonis (Co-founder) Mail: liam@vittoriatech.com Website: www.vittoriatech.com

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Efficient grid management



DIGITAL ENERGY CHALLENGE AWARDEE 2024

Kamata Online Protection Services

Awardee edition: 2024 Country: Uganda **Grant**: 37,5 k€

Power theft detection with OT/IT revenue protection system. KAMATA Online PS solutions detect electricity theft, targeting electricity utilities & telecom tower providers. Smart Device will complement a smart locking device controlled by a mobile app.

Project supported by: E. Aijuka (Project Manager), I. Mutebi (CTO) and P. Joyce (Head of software Dev)

Mail: eaijuka@kopservices.com Website: www.kopservices.com



SBEE & Smarterise

Awardee edition: 2023

Country: Benin **Grant:** 402,5 k€

A digital surveillance platform to optimize maintenance and reduce energy losses. Smarterise digital platform powered by the Cloud & the AI will increase the overall efficiency of energy distribution by SBEE. It will also prepare the way for the deployment of a smart grid.

Project supported by: K. Elisée-Sonon (Head of planification, SBEE) and E. bitar (Founder & CEO Smartrise)

Mail: ksonon@sbee.bj & e.bitar@smarterise.com

Website: https://sbee.bi



SONELEC & Roseau Tech

Awardee edition: 2022 **Country:** Comoros **Grant**: 203 k€

Energy-as-a-Service for SMEs based on AI. Using the data from the SONELEC network to build a digital twin of the grid that can be later used in Roseau's simulation tool Sirao to carry out technical studies.

Project supported by: N. Soilh (PM) and L. Muller (PM)

Mail: soilihnawal@yahoo.fr & florent.cadoux@

roseautechnologies.com

Website: soneleccomores.com /

roseautechnologies.com



ICE Solar Commercial Power

Awardee edition: 2024 Country: Nigeria **Grant**: 150 k€

Energy-as-a-Service for SMEs based on Al. Their solar DER feature Al-driven predictive maintenance analyses realtime solar grid data from IoT devices to minimise downtime and system losses, and lower maintenance costs.

Project supported by: E. Ekwueme (Engineer), M. Okperi

(Engineer) and O. Akoko Website: www.icesolar.co

Efficient grid management





Electra & INESC P&D Brasil

Awardee edition: 2023 Country: Cape Verde

Grant: 154 k€

Solar power forecasting using smart meters and meteo and geographical data. Software app to produce accurate short-term photovoltaic generation forecasts, by valueing from data already collected by smart meters (consumption and injection) & meteo data.

Project supported by: V. Miranda (President INSEC P&D)

and A. Pedro Pires da Cruz (Electra)

Mail: vladimiro.miranda@inescbrasil.org.br

Website: inescbrasil.org.br

DIGITAL ENERGY CHALLENGE AWARDEE 2024

WAPP & IED Bénin

Awardee edition: 2024

Country: Benin **Grant**: 264,5 k€

GIS application to support electrification work.

Creation of an integrated platform including a GIS type application: demand assessment application, network sizing application, application for creating ADP type documentation.

Project supported by : B. Hessou (Planning Department Director, WAPP) and M. Kohi (General Manager, IED)

Mail: jdzannou@ecowapp.org Website: www.ecowapp.org



ANKA Madagascar & UPYA Technologies

Awardee edition: 2024 Country: Madagascar **Grant**: 332,9 k€

Platform to automate all processes for mini-grid operators. Development of a platform to automate all processes for mini-grid including operators sales process. customers identification, process of connecting new customer and others features.

Project supported by: N. Malison (Access energy Director), M. Anezman (Operator Director) and G. Marchand

(Technical Director) Mail: dina.r@go-anka.com

Website: https://www.go-anka.com & https://upya.io



InnovateHub

Awardee edition: 2023 **Country:** Burkina Faso

Grant: 37.5 k€

Web and mobile app to predict lightning strike.

ElectroSafe uses the PREVISTORM® Thunderstorm Warning System to provide real-time data on the probability of lightning strikes in a specific area, thus facilitating the protection of electrical infrastructures.

Project supported by : Auguste Zaongo (Manager)

Mail: serzao2014@gmail.com Website: https://innovatehub.bf

Efficient grid management



DIGITAL ENERGY CHALLENGE AWARDEE 2024

EMAE & HartBR

Awardee edition: 2024

Country: Sao Tome and Principe

Grant: 331 k€

Al analysis based on smart switches to improve grid management. The software platform will minimise duration of temporary faults and the number of impacted customers, speed up the fault location and automatic self healing when feasible.

Project supported by: V. Carvalho (Head of communication,

EMAE) and C. Garcia Lellis Junior (CEO, HartBR)

Mail: ralf.campos@hartbr.com

Website: www.emae.st & www.hartbr.com



Tanzania Electric Supply Company Ltd & Odit-e

Awardee edition: 2021 **Country:** Tanzania Grant: 227.4 k€

Low-voltage grid digitisation software to optimise management and operation of electricity distribution.

Odit-e's AI module provide Tanesco with insights into the

blind spots in their low-voltage network.

Project supported by : L. Richaud (Project Manager)

Mail: luc.richaud@odit-e.com Website: https://odit-e.com



Smarterise Integrated Solutions Ltd

Awardee edition: 2021 Country: Nigeria Grant: 100 k€

Intelligent grid solution that enhances power utilitie's performance. Smart grid solution using the installation of remote sensors and AI applications providing grid operators with real-time insights to ensure better financial, operational and environmental performance.

Project supported by: E. Bitar (CEO) and L. Adeosun

(Project Manager)

Mail: e.bitar@smarterise.com Website: www.smarterise.com



Aplines (Schneider) & CEET

Awardee edition: 2021

Country: Togo **Grant**: 195,5 k€

Asset risk analytics, AI & satellite imagery for the prevention & reduction of network outages due to vegetation. Based on AI & satellite imagery the app assesses the risk posed by vegetation on electricity networks.

Project supported by: Y. Raoult (President Alpines)

& A. Boukari (Project Manager CEET)

Mail: ahamed.boukari@ceet.tg & bdiallo@aser.sn Website: www.linkedin.com/company/aplines

Efficient grid management





4ina Tech

Awardee edition: 2023 **Country:** Tunisia **Grant**: 150 k€

Smart Al-based energy management system for industry. Autonomous control system that uses AI to analyse

energy grid data, detect anomalies, and determine their underlying causes, while making recommendations to managers on maintenance planning.

Project supported by: H. Zribi (co-founder/Managing Director) and S. Mhimdi (Co-founder/Project Manager)

Mail: hindazribi123@gmail.com Website: 4ina-technologie



YETU Smart Grids

Awardee edition: 2024

Country: Kenya Grant: 150 k€

Integration of real-time smart energy meters to balance minigrids. ESIOS is a software which interpret and learn from data collected by smart meters. It allows to balance minigrids by predicting consumptions peaks and adjusting

power production accordingly.

Project supported by : A. Mumbi (Project Manager)

Mail: admin@yetusmartgrids.africa Website: https://yetusmartgrids.africa



Classified Project

Awardee edition: 2022 Country: Botswana

Grant: 75 k€

Digital monitoring and maintenance management system for the electricity distribution network. Solution enabling surveillance and preventive maintenance to increase operational efficiency and reduce the frequency of power outages.

Project supported by: P. Mutoka (Technical Director) and

M. Musunga (Director)

Mail: petermutoka@classifiedprojects.africa &

umbi@classifiedprojects.africa



STEG & Nexus Analytica

Awardee edition: 2022 **Country:** Tunisia Grant: 294,6 k€

Integrated platform for monitoring, predicting and optimising readings from various energy sources. The solution enable to monitor energy assets in real-time and make predictive diagnostics.

Project supported by : C. Rafik (Head of Microgrid, STEG)

and N. El Boghadady (CTO, Nexus Analytica)

Mail: rcherni@steg.com.tn & wessam@nexusanalytica.com

Website: steg.com.tn/fr & nexusanalytica.com

Resilience and decarbonation

of power systems





SLS Energy

Awardee edition: 2023 Country: Rwanda **Grant**: 147 k€

Energy storage for telecom towers using recycled batteries. Energy storage solution using recycled batteries for telecom towers, and eventually for minigrids. The solution can be monitored remotely using IoT sensors and Cloud technology.

Project supported by : L. Berwa (CEO)

Mail: leandre@slsenergy.io Website: www.slsenergy.io

DIGITAL ENERGY CHALLENGE AWARDEE 2024

Anfani Ltd

Awardee edition: 2022 **Country**: Nigeria **Grant**: 42,2 k€

Brokerage platform for financing renewable energy project. Promote connectivity between different types of stakeholders. It allows fractional ownership of RE assets using blockchain technology.

Project supported by: I. Bolarinwa (CEO/Project manager) and A. Apooyin (Technical Lead)

Mail: abiola.apooyin@anfani.uk & ishaq@anfani.uk

Website: www.anfani.uk



eThekwini Municipality & Plentify

Awardee edition: 2024 Country: South Africa

Grant: 296 k€

Plug-and-play hardware controller to optimise solar production. SolarBot intelligently control when appliances turn on and off, and adjust the state-of-charge of the battery throughout the day thanks to AI analysis of IoT devices.

Project supported by : S. Buthelezi (Energy Efficiency Manager, eThekwini Municipality) and K. Nair (Plenfy Cofounder/Chief Growth Officer)

Mail: sindile.buthelezi@durban.gov.za

Website: www.durban.gov.za & https://plentify.io



Zonke Energy

Awardee edition: 2022 **Country:** South Africa

Grant: 142 k€

Integration of Solar Home Systems into a mini-grid for two-way energy trading. Electronic interface to allow solar home system owners to connect to the mini-grid and buy or sell power in the case of excess energy production.

Project supported by : A. Densmore (Technical Director)

Mail: alex@zonkeenergy.com Website: zonkeenergy.com

Resilience and decarbonation

of power systems





Beacon & AEDC

Awardee edition: 2022 Country: Nigeria **Grant**: 385 k€

Network mapping and automation of grid operations for clearer view of grid outages and losses. Digitize and provide visibility for grid using IoT meters and AI.

Project supported by : B. Ibironke (CFO, AEDC)

and B. Adisa (CEO, iBeacon) Mail: badisa@bpsafrica.com

Website: www.abujaelectricity.com & www.beaconpowerservices.com



Fuel Switch

Awardee edition: 2024 **Country:** South Africa

Grant: 150 k€

Blockchain-based renewable energy trading platform.

Smart contract technology to execute transactions and allow peer-to-peer trading of renewable energy certificates.

Project supported by : J.-P. Spangenberg (Founder/ CEO Delta Carbon) and G. Maasz (Product Manager)

Mail: gideon@fuelswitch.io Website: www.fuelswitch.io



Uganda Electricity Generation Company Limited & BCN Hydro Renewables

Awardee edition: 2022 Country: Ugunda Grant: 382,9 k€

Digital tool for monitoring turbine vibrations. Improve availability, reliability and preventive maintenance of hydropower plants.

Project supported by: A. Kasedde (Research Officer, UEGCL) and A. Balcells (General Manager, BCN Hydro)

Mail: allan.kasedde@uegcl.go.ug &

abalcells@bcnhydro.com

Website: www.uegcl.com & www.bcnhydro.com



Motsi Technologies Group (RENEX)

Awardee edition: 2022 Country: Namibia Grant: 80 k€

Blockchain-enabled peer-to-peer solar electricity trading platform for industrial and commercial players. Unlock the potential for peer-to-peer trading by pooling demand from commercial & industrial customers and facilitating trading with producers.

Project supported by : J. Andreas (Power System Analyst) and A. Victoria (Trading Analyst)

Mail: victoria@renexenergy.com Website: www.renexenergy.com

Our funder's

Our partner's

























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Towards a world in common

Agence Française de Développement (AFD) Group finances, supports and accelerates the transitions necessary for a more just and resilient world. It thus contributes to implementing France's policy on sustainable development and international solidarity. It is with and for communities that we build, with our partners, solutions in more than 160 countries, as well as in 11 French over¬seas departments and territories.

Our objective: To reconcile economic development with the pre-servation of common goods: the climate, biodiversity, peace, gender equality, education and health. Our teams are involved in more than 3,600 projects in the field, which are part of the commitment of France and the French people to fulfilling the Sustainable Development Goals.For a world in common.



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