The 3DEN Initiative: State of the Art and Future Perspectives

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23 Year Partnership on Sustainable Energy Finance

A history of collaboration since 2002 with Italy:

- Mediterranean Renewable Energy Programme (2002)
- Mediterranean Investment Facility (2009)
- Mediterranean Investment Facility (Phase II, 2014)
- Mediterranean Investment Sustainable Energy Facility (2020)
- **The 3DEN Initiative** - launched in 2021with the IEA - expands this legacy, focusing on digital solutions for decarbonization and energy efficiency.

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The Digital Demand Driven Networks Initiative

Financing Digitalization : A Strategic Imperative

- The energy sector urgently needs to decarbonize and provide wider accessibility for the millions of people that still lack access to modern energy services, particularly in low-income communities

- Digitalization can be a key enabler of the transition to sustainable energy by optimizing resources, testing solutions through pilot projects, and empowering communities for an inclusive energy transition

- However, there is a need for financing of pilot projects to demonstrate the commercial viability and environmental benefits of digitalisation - bridging the gap between innovation and market adoption to create scalable business models

Reflections on 3DEN Phase I Pilots, 2022-2024

India

Digital Twin for Enhanced Electric Distribution Grid Operation and Management

Implemented digital twin technology in New Delhi to enable optimal grid management, integrate increasing roof-top PV, as well as rapid growth in EV charging and electrical loads.

Colombia

Distribution system operator's grid flexibility

Implemented a flexibility scheme strategically designed to alleviate grid congestion and guarantee the reliability of services in Bogota

Brazil

Digital districts for flexible energy services

Implemented digital tools in social housing projects in Fortaleza, empowering residents to manage their energy consumption more effectively

Morocco

Advanced digital industrial and energy monitoring systems

Implemented digitalization and AI modules at two major bottling sites in Bouskoura, enabling energy consumption forecasting, energy loss reduction, and predictive maintenance

3DEN Phase II – Expanding across Africa

- Building on the successes from Phase I, **Phase II** will begin in the coming months, for an additional **3 years cycle.**

- Phase II will retain **Brazil** from Phase I and extend activities to six countries in **Africa**

- Phase II activities will include the selection, deployment, and monitoring of pilot projects that highlight the fiscal, environmental, and energy-saving potential of **digitalization in agriculture and urban energy systems.**

Phase II - Focus Areas

- **Digitalization in Agriculture:**
  - Pilot projects would aim to build resilience while boosting profitability within the agricultural sector, enabling farmers and agribusinesses to make informed, data-driven decisions.

- **Digitalization of Urban Energy Systems**:
  - Pilot projects would aim to integrate digital solutions like smart grids, real-time monitoring, and data-driven energy management, supporting sustainable urban development and making energy systems more efficient, resilient, and accessible.

Digital Demand-Driven Electricity Networks Initiative (3DEN): Phase II Open Call for Proposals

Digitalisation for flexible and resilient energy systems

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3DEN Phase II: Background and Objectives

3DEN Initiative: Demonstrating the commercial viability and environmental benefits of digitalisation - bridging the gap between innovation and market adoption

Building on Phase I:

- Four pilot projects in Colombia, Brazil, India and Morocco – covering industry, housing, and power sector
- Increasing scope and focus areas of the intervention
- Scaling up across the African continent

Phase II goals:

- Accelerating digital transformation to modernize power systems
- Contributing to socio-economic development
- Enhancing energy efficiency and climate resilience

3DEN Phase II: Call for Proposal Focus Areas

Thematic Focus

Type 1: Agro-Food Sector:

Projects applying digital tools to improve energy and water efficiency in agro-food industrial processes, including resource management systems and data-driven tools, amongst others, across the value chain.

Type 2: Urban Energy Systems:

Projects that modernise urban energy systems with technologies like smart meters, energy management software, demand response and solar energy or battery storage solutions to improve grid resilience and efficiency.

Geographic Focus

Phase II will retain **Brazil** from Phase I and extend activities to six countries in **Africa :**

South Africa, Morocco, Tunisia, Kenya, Nigeria, Ethiopia and Tanzania

3DEN Phase II: Examples of Eligible Projects

Type 1: Agro-Food Sector:

Energy and Water Management - Smart irrigation and water management systems, advanced monitoring platforms, AI controls

Predictive Maintenance – IoT enabled condition monitoring, Big-Data analysis, Smart storage systems

Integration of Renewable Energy – Advanced energy management systems, hybrid systems, solar PV with battery storage

Supply Chain Transparency - Blockchain for tracking and eco-labelling, shipment monitoring

Digital Twins for Operations - Simulated energy optimization models for agro-food facilities and processing lines

Type 2: Urban Energy Systems:

Smart Grid Technologies – IoT monitoring tools, digital twins, fault detection systems, real time grid optimisation

Energy Management Systems – AI driven software, real time dashboards, community scale energy management platforms, automated demand side management

Renewable Energy Integration – Rooftop solar with batteries, microgrids, building integrated PV, EV charging stations with grid storage

Demand Response – IoT based apps, smart devices, AI powered algorithms

Digital Twins for Urban Energy – Urban scale energy modelling and simulation, digital twins of neighbourhoods

Behavioural Change Technologies – Gamified energy apps, real time feedback systems, incentive-based energy conservation programmes

3DEN Phase II: Eligibility and Selection Criteria

Pre-Requisite Eligibility Criteria

Conformity with thematic and geographic focus areas

Project budgets should range from US$ 500,000 to US$ 2,000,000 (excluding co-funding)

Projects should include at least 30% co-financing, including in-kind contributions

Projects must be implemented within a 24-month timeframe

Projects must be submitted by consortiums – which may include international consortia, including public, private, and research institutions

Consortiums must submit an MoU or signed letters of intent including all members of the consortium and indicating the consortium head

Proposal Selection Criteria

Transformational Impact and Sustainability (40%):

- Projects must demonstrate how they will significantly enhance energy efficiency, resilience, and sustainability
- Considerations include environmental and social impact and SDG alignment

Scalability, Replicability, and Additionality (30%):

- Proposals must show potential for broader adoption and replication in similar contexts
- Proposals must explain unique benefits (including economic and technological) that would not occur without the project

Technical Feasibility, Monitoring, and Financial Viability (30%):

- Proposals must demonstrate that the solution is practical and based on proven technology or approaches
- Proposals must include MRV framework to track progress, ensure transparency, and share results
- Project should present a credible plan for sustaining operations beyond the funding period.

3DEN Phase II: Eligible and Ineligible Costs

Eligible Costs
Overhead (20% maximum)
Project management (7% maximum)
Hardware purchase (15% maximum)
Software costs (for permits, if any)
Installation costs
Working hours
Travel costs
Meeting costs
Communication
External services

Ineligible Costs	
Basic research	Investments in individual companies
Independent freelance activities	Writing applications
Overtime costs	Salary increases
Indirect taxes and duties, including VAT	Return on capital employed
Provisions for possible future losses and charges	Costs related to any interests
Provisions for doubtful debts	Unnecessary or ill-considered expenses
Marketing, sales and distribution costs for products and services	Leasing costs (or part thereof) where the leasing arrangement has the effect of unnecessarily increasing the charge made to the project

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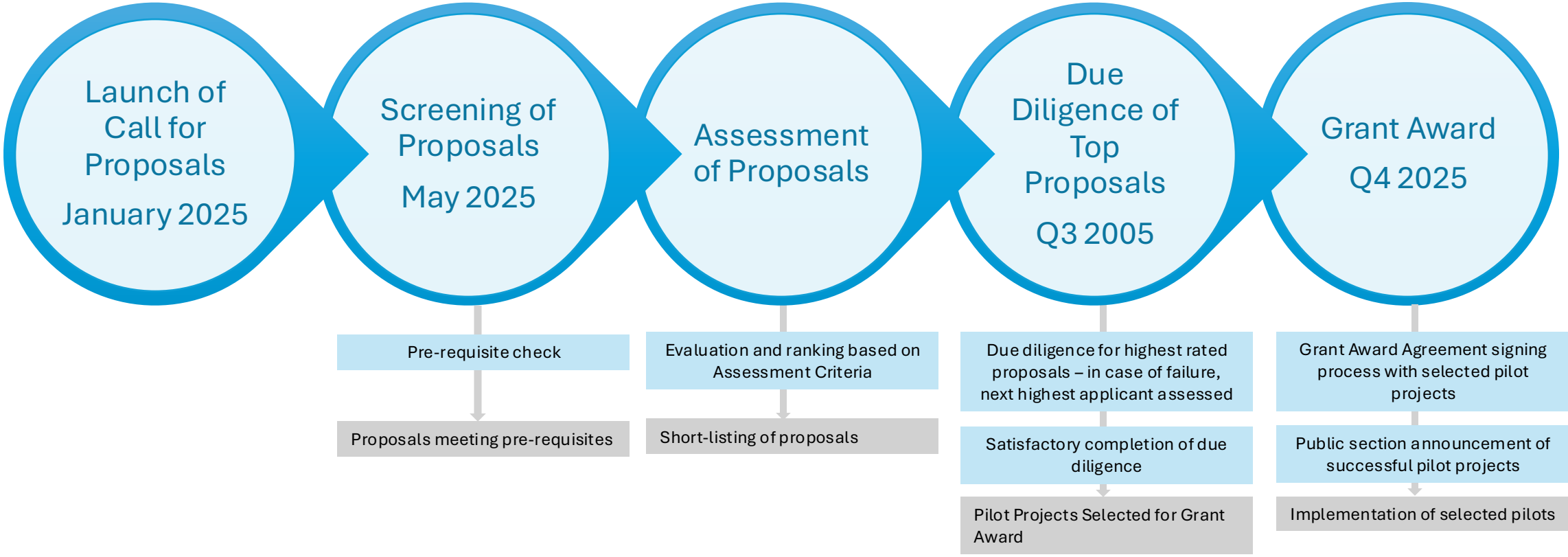
International Energy Agency

3DEN Phase II: Application Process and Timeline



3DEN Phase II: Accessing the Call for Proposals

- For additional information, please visit 3DEN.energy-base.org or scan
- Proposal submission deadline: 23rd May 2025
- Submit proposals to 3DEN@energy-base.org

Thank you

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Questions and Answers

- Please type your questions in the chat
- FAQ sheet will be shared on the project site
- Webinar will be on YouTube and shared with all participants
- To access the Call for Proposal, visit 3DEN.energy-base.org or scan