

Smart microgrid & system
integration



Lesson 3: Climate Proofing, Sustainable Energy Solutions

Phanice Mokeira Ombati
Urban Energy Officer, UN-HABITAT



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No. 101037141. This material reflects only the views of the Consortium, and the EC cannot be held responsible for any use that may be made of the information in it.

In this video you will learn:

- *What is* climate proofing for sustainable energy solutions
 - *How to* implement climate proofing for solar mini-grids
 - *The basics of* financing and risk assessment for scaling up climate proofing



Climate Proofing

- ❑ A process that identifies risks to an asset as a result of climate change and variability, and ensures that those risks are reduced through long-lasting and environmentally sound, economically viable, and socially acceptable adaptation measures.
- ❑ Benefits: Creates economic opportunities and ensures energy security in the face of climate change impacts
- ❑ Climate change poses risks to infrastructure and value chains, including energy, mobility, telecommunications, and water.

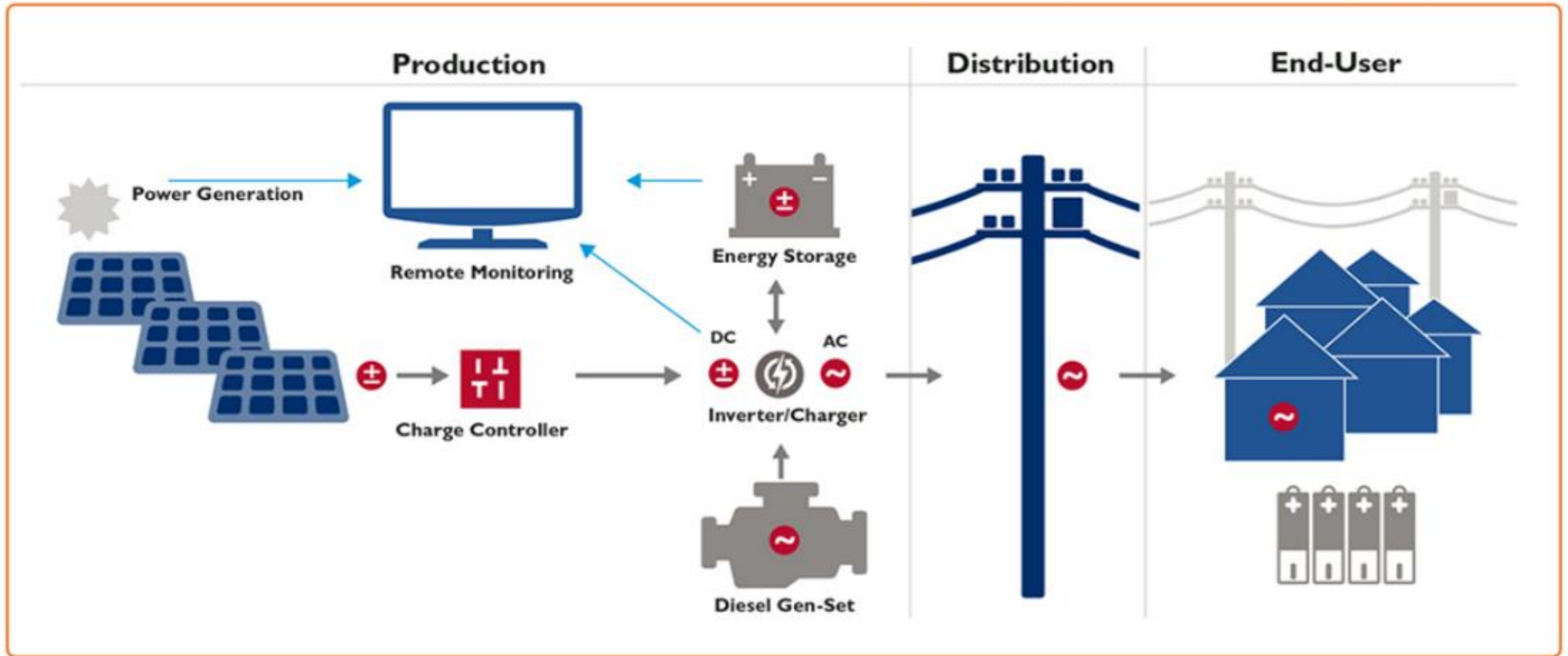


Climate-Proofing solar mini-grids

Towards Climate Proofing

- ❑ Key sustainable energy solutions including e-mobility fleets, solar mini-grids, clean cooking, PUE appliances, and e-waste from solar off-grid solutions, face climate-related risks.
- ❑ Solar mini grids are composed of a set of solar electricity generation and storage devices that are connected to a distribution network
- ❑ Mini grids can be operated and controlled independently from the main grid
- ❑ Climate-proofing measures include choosing appropriate PV panels and batteries for solar mini-grids

KEY COMPONENTS OF SOLAR MINIGRID



Climate Change Risks and Possibilities of Climate Proofing

RISKS FROM CLIMATE CHANGE

- ❑ Reduced efficiency of PV panels due to excessive heat
- ❑ Disruption or reduction of vital ICT services due to damage to telecommunications networks.
- ❑ Physical damage caused by flooding, wind, landslides, and fires.

POSSIBILITIES FOR CLIMATE PROOFING

- ❑ Choice of PV panels suitable for expected temperature variability
- ❑ Choice of sites that takes into account climate risks in the location
- ❑ Design of ICT and IoT components that are resilient and adaptable

Implementing Climate-Proofing

Implementing Climate Proofing

- Climate risk assessments should be integrated into each project development steps: planning and strategies, feasibility studies, technical design, and operation and maintenance.
- Integrate climate proofing at an early stage – project planning and design
- Integrating climate-proofing into the financing and business models of sustainable energy solutions
- Allocate sufficient resources, create the most appropriate working team, and ensure compliance with applicable legislation and regulations

Scaling Up

- Crucial for the widespread success of sustainable energy solutions. Accelerating this process requires reliable climate change impact projections and risk assessments, providing essential data for policymakers and businesses.
- Availability of reliable climate change impact projections and risk assessments
- Availability of financing: approaches such as loans, grants, debt relief, and blended finance can support climate adaptation.

ADDITIONAL RESOURCES

1. ADB (2013). Guidelines for Climate Proofing Investment in the Energy Sector. ISBN 978-92-9254-109-5 (Print), 978-92-9254-110-1 (PDF)
2. IEA. (2022). Africa Energy Outlook 2022 – Analysis. IEA. www.iea.org/reports/africa-energy-outlook-2022
3. IPCC. (2022). Sixth Assessment Report- Regional fact sheet - Africa. www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Africa.pdf
4. Johnstone, K, 2021. Productive uses of energy for resilient livelihoods in LDCs. IIED. (Accessed Nov 15, 2022). <http://pubs.iied.org/20356IIED>
5. Riello Elettronica. (2022). How Does Temperature Affect Batteries? (Accessed Nov 15, 2022). www.riello-ups.co.uk/questions/28-how-does-temperature-affect-batteries
6. UN Habitat. (2021). Climate Proofing Toolkit: For Basic Urban Infrastructure with a Focus on Water and Sanitation | UN-Habitat. <https://unhabitat.org/climate-proofing-toolkit-for-basic-urban-infrastructure-with-a-focus-on-water-and-sanitation#:~:text=The%20Climate%20Proofing%20Toolkit%20is,current%20and%20future%20basic%20urban>
7. Watkiss, Paul. (2020). Principles of Climate Risk Management for Climate Proofing Projects. www.adb.org/publications/climate-risk-management-climate-proofing-projects

THANK YOU

sesa-euafrica.eu/
toolbox.sesa-euafrica.eu/



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No. 101037141. This material reflect only the views of the Consortium, and the EC cannot be held responsible for any use that may be made of the information in it.

