

Current Research Priorities and Needs in Low-Carbon and Climate Resilient Energy Sector

Professor Nelson Ijumba
University of Rwanda



caast-net-plus.org

Building Bi-regional Partnerships for Global Challenges



CAAST-Net Plus is funded by the European Union's Seventh Framework Programme for Research and Technological Development (FP7/2007-2013) under grant agreement n° 311806. This document reflects only the author's views and the European Union cannot be held liable for any use that may be made of the information contained herein.

Author(s): Can run onto two lines at a maximum.

Organisation Name(s): Can run onto two lines at a maximum

Dx.x.x | Version x.x.0 | PUBLIC / RESTRICTED | MONTH YEAR

Introduction

- Climate resilience
 - Capacity of socio-economic systems to:
 - Absorb stresses and continue functioning in the face of climate change imposed stresses
 - Adapt and evolve into more desirable configurations that improve system stability
 - Relatively new concept
 - Relating to adaptation and vulnerability

Introduction(cont..)

- Energy sector resilience
 - Capacity of the energy system or its components to cope with a hazardous event or trend
- ESR value chain
 - Robustness(ability to withstand both extreme and gradual weather changes
 - Resourcefulness(ability to manage operations during extreme weather events
 - Recovery(ability to restore operations after disruption

Risks and Impact

- Extreme weather conditions
 - Storms(infrastructure)
 - Floods(infrastructure)
 - Temperatures(high or low)(power plants efficiency)
- Water availability(hydro power plant operations, bio fuels production)
- Changing sea levels(infrastructure, power plant operations)

Responses

- Location specific and depending on impact and nature of the energy system
- Adoption of low carbon-technologies for electrification
- Increased use of renewable energy
- Microgrids and distributed generation
- Demand side management (increased efficiency)
- New technologies with low water consumption and use of recycled water

Responses(cont..)

- Research and training(new technologies, better methods for risk assessment)
- Institutional collaboration(Government, private sector, research institutions)
- Capacity building

Needs/Gaps

- Capacity building
 - Technical knowledge on energy systems
 - Research and development
 - Risk assessment
- Increased adaptation of renewable energy resources(solar, wind, biomass, minihydro.....)
- Access to accurate/reliable climate data
- Partnerships and collaboration(inclusiveness and coordination)
- Enabling frameworks

THANK YOU



Building Bi-regional Partnerships for Global Challenges



Building Bi-regional Partnerships for Global Challenges



Building Bi-regional Partnerships for Global Challenges

Thank you
Thank you



caast-net-plus.org

CAAST-Net Plus

Building bi-regional partnerships for global challenges



CAAST-Net Plus is funded by the European Union's Seventh Framework Programme for Research and Technological Development (FP7/2007-2013) under grant agreement n° 311806. This document reflects only the author's views and the European Union cannot be held liable for any use that may be made of the information contained herein.

Author(s): Can run onto two lines at a maximum.

Organisation Name(s): Can run onto two lines at a maximum

Dx.x.x | Version **x.x** | **PUBLIC** / **RESTRICTED** | **MONTH** **YEAR**