

Workshop on Smart Grid Technologies and Implications for Inclusive Development in Sri Lanka

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Research and development for smart grid innovation

Dr. Udayanga Hemapala

University of Moratuwa

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- The importance of R&D for Sri Lankan Power Industry: Current status and the social impact
- An overview of the R&D programs in smart grid: University of Moratuwa
- Potential research projects for Sri Lanka and developing countries: Weakness and opportunities
- Way forward with socio-economic considerations



The importance of R&D for Sri Lankan Power Industry

- Identify the key areas to determine the future shape of smart grids
- Target oriented research to achieve the objectives
- Technology development
- Industrial development with socio-economic considerations



Statistics and Impact: Research on Smart Grids

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42 Research publications in the area of Smart Grids Academic impact: High Economic and societal impacts: ????????



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Source: www.scopus.com

Key Projects: University of Moratuwa

- Develop a microgrid control platform for sustainable energy management in distribution Network
- Multi-agent system based micro grids for distribution network (Control of Cells using Agent based control)
- Reconfigurable architecture for Solar Photovoltaic microgrid systems
- Adaptive Protection of Microgrids Using Graph theory and Optimization algorithms



Multi-agent system based micro grids for distribution network (Control of Cells using Agent based control)

- Multi Agent System (MAS) : complex task to be broken down into several smaller tasks assigned to a team of agents.
- Several MGs should be interconnected together to form the MG clusters (Cell) to satisfy the power requirements.
- Ideal topology : cluster of cells which is formed from several MGs





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Reconfigurable architecture for Solar Photovoltaic microgrid systems (Smart Inverter)





Fault Detection, Isolation and Restoration using a Multiagent-based Distribution Automation System







Potential R&D projects for Sri Lanka

- Research Projects
 - Study possible clusters within the distribution network to convert them as Microgrid
 - Smart Building management systems with DR
- In house development projects
 - Distribution T/F monitoring system
 - Smart meter with DR facilities



Conclusion: Way forward

- Main criteria for selecting R&D Projects : Economic and Social Development
 - Target oriented Research and Developments
 - Funding for the commercial development for the R&D outcomes
 - Smart metering project
 - DR implementation
 - Fault detection, isolation and restoration systems
- Creating a research hub for Smart Grid research with key parties.



Thank you…!

