

Congo Micro Grid Feasibility Discussion Forum #2



Record of Discussion

These design briefs developed within communities will contribute to SuRF project Milestone 5.4 High level concept and design for the eight communities

CONGO PLAYGROUND PARK 11 MAY 2023

Presented by Hedda Ranson-Cooper & Bjorn Sturmberg (ANU), Warwick Crowfoot & Matt O'Neill (Essential Energy) and Matt O'Regan (ITP). Moderated by Phil Shorten (SHASA)

Introduction and Context

The first step of the forum was to introduce the purpose and process of the forum and recognise the group participating in the discussion.

The purpose being to provide information on the context and status of the SuRF Microgrid feasibility study so that those participating leave with a deeper understanding of Microgrids and have a chance to comment on the different aspects of design that are important to them.

The context was provided by way of a series of project fact sheets about the SuRF project.

Step One: Natural Disaster The SuRF Project Resilience is one of and You! SuRF's goals EE What should you know about SuRf before you decide how to support this project? Project Fact Sheet 1.1 Surf Community Microgrid (MG) Feasibility Discussion Forum Funded by: Project initiated by: Who are the project partners? What is Surf? Lead partner: What are their motives? The Southcoast µ-grid Reliability Feasibility (SuR the feasibility of micro-grids in regional contexts from events such as bushfires, specifically in the Australian Australian Grid Hargeston University Design Phogen Hartonal Crid Hargeston Phogen Microgrids (MGs) Which communities have been targeted? Support sustainable e solutions in the Europ SHASA Recognise motivation of communities to participate and viability of MGs as a component of the Network ssential What is a microgrid?. zedoen 🖷 🎽 🛉 **Community participation** •Community planning groups, 548 man in SµRF •Feasibility discussion groups, 8666 •Electricity monitoring devices PROJECT AIM: Social Research PROJECT OBJECTIVES eferred In MILESTONES

Moderator Notes...

Introduction and Context



Design Objectives from Round 1 Community Discussion Group



Analysis of solar potential within the community

Analysis showing the potential generation available from rooftop solar and the time the microgrid could operate in islanded mode.

Solar and Microgrid potential supply			Energy consumption (kWh/da	n of appliances ay)
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	Congo Average time microgrid can ru	n independently		
	small microgrid - normal energy usage days		\leftarrow	
and the second sec	Small microgrid - 2.5 days			
	energy usage natived			
	Large moregoid - normal energy usage Effectively indefinitely			

Moderator Notes...

The analysis suggests that battery offered in the microgrid design by the SuRF team will provide almost half (0.5) a day of electricity in islanded (switched off from main) during a main grid outage.

If the community was to restrict their usage by 50% then the islanded time could be extended to 2.5 days.

Small Microgrid: Design brief offered from Rd 1 community discussion group

The design brief was informed by the outcomes from the Round 1 consultations held during the Spring of 2022.

Small Microgrid Congo SMALL Type 2 MG Mudmap (from Rd 1 discussions held Spring 2022)	Congo SMALL Type 2 MG Guidelines Support Uterm Rd 1 discussions held Spring 2022! Single Spring 2022! • Ensure all community served at same level → Needs to be fair/equitable in cost and benefit Needs to be fair/equitable • Single • Low maintenance • Reliable Needs to baselia reeds to have positive impact on property and value • I discusse alle needs to have positive impact on property and value • I discusse alle reeds to have positive impact on property and value • Needs to have low or no cost to community – part of energy supplier • Needs to have low or no cost to community – part of energy supplier
Indiantiary for rooting Solar Panels Large Community Battery Small main adultation Dissel Generator Back Up only	Congo SMALL Type 2 MG Guidelines (rom Rd 1 discussions held Spring 2022) Credit for existing/future installed infrastructure (foommunal battery – need to make sure power shared evenly in an emergency Emergency system Cost effective/no cost (Page 26)
Moderator Notes	

Small Microgrid: High Level Design Concept

Technologies with technical specifications and costings compiled by the SuRF team for the small Microgrid were made available for comment.



Small Microgrid: High Level Design Concept

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Large Microgrid: Design Brief offered from Rd 1 community discussion group.

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Moderator Notes...

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STEP 4

Large Microgrid: High Level Design Concept

Technologies with technical specifications and costings compiled by the SuRF team for the large Microgrid were made available for comment.



Moderator Notes...

Large Microgrid: High Level Design Concept

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	inframucture, and for which preliminary leasibility has been researched. Preliminary suring for three system topologies, outlined below, were supplied to feed into this concept design costing work.	and the second	Large Microgrid	Small Microgrid Diesel Only
	This report outlines the projected costs of the systems for which concept design has progressed		Development Works \$278,000	\$75,000 \$278,000
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Questions, Suggestions/Guidelines

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Questions	Suggestions/Guidelines
What are the automation 3 control options for operating the mG? What is the lifespan, disposal process for balleries - current 3 emerging?	The project should
How can we make a MG fireproof? (or, at least, more 30)	Properly investors should lose negative gearing . If they don't invest solar, battery + EV charging capability. (50% of house are vacant)
What consideration is there to building and installing equipment in coastal locations? What might the maintenance costs be	
for a battery system and a S/Farm.	

Moderator Notes...

QUESTIONS

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nance costs be for a Solar Farm?	

SUGGESTIONS/GUIDELINES

The project should ... abc ... so that ... xyz The microgrid should ... abc ... so that ... xyz

Let's start by maximizing potential rooftop solar in Congo. Start small with a system that <u>could</u> <u>be</u> upgraded to include a "solar farm" in the future.	
Property investors should lose negative gearing if they don't invest solar, battery and EV charging capability (50% of houses are vacant)	
Please don't be judgemental between villages regarding obviously visually obvious businesses and the many home-run businesses that can't be seen.	0

FERSIDIUM

APPENDIX A: SMALL (Type 2) MG design mud map offered from Rd1



APPENDIX B: Large (Type 3) MG design mud map offered from Rd1



ACKNOWLEDGEMENTS

The SuRF project team consists of: The Australian National University, SHASA, Zepben and Essential Energy.



The SuRF team would like to thank ITP for their valuable analysis and concept design insights.

The SuRF project team would like to acknowledge and thank the members of the Congo community who gave their time, provided their insights and support for this important Microgrid feasibility work

Carolyn Ardler Nick Blacklock Chris Bennetts Karen Harper Gavin and Mary Gilmour Ken Timms Roy Morrice Russell Fletcher David Setter Megan Mitchell Mandy Nott Jill Turner Lyn Smith Jennifer Abel Amadis Lachek Kay Fry Doug Fry Congo Community Association

The SuRF project team acknowledges that we meet at various locations across the traditional lands of the Yuin People. We pay our respects to the Elders, past, present and future.

This SuRF project work is funded by the Department of Industry Science Energy and Resources.

The SuRF team would like to thank the team from Sourced Energy for providing content around energy sharing solutions.