

The day must come when electricity will be for everyone, as the waters of the rivers and the wind of heaven. It should not merely be supplied, but lavished, that men may use it at their will, as the air they breathe.

Émile Zola

SmarterMicrogrid

Spawned by the internet, inspired by Linux

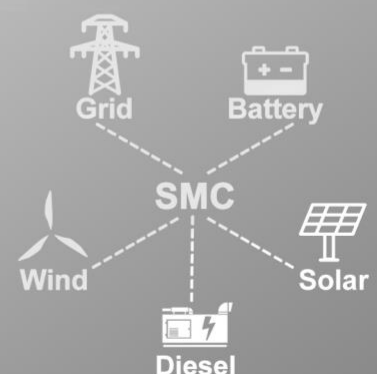
Rural electrification & economic development

The World Resources Institute confirms that by 2040, in sub-Saharan Africa, 140 million people could be provided with electrical power for economic development via between 100,000 and 200,000 microgrids. Such power facilities will need to include a hybrid of renewables, dispatchable generators and energy storage, and these community energy installations will be monitored and controlled by a smart microgrid controller.

We recognize that if such a proposition is to be focused on maximising the benefits to rural communities, it is necessary to deploy smart microgrids, and the associated generation and distribution facilities in such a way that they can be provided significantly by local communities themselves. This results not only in the lowering of costs but also a simultaneous increase in local jobs and services, greater self sufficiency and the stimulation of economic development.

Our vision of the necessary characteristics of an advanced SMC

- Affordable by everyone.
- Versatile for existing needs and adaptable to future needs.
- Robust to internal failures and resilient to external failures.
- Open and accessible and yet secure against external threats.
- Scalable in size and extensible in capabilities.



Policy driven system – Versatility and Adaptability

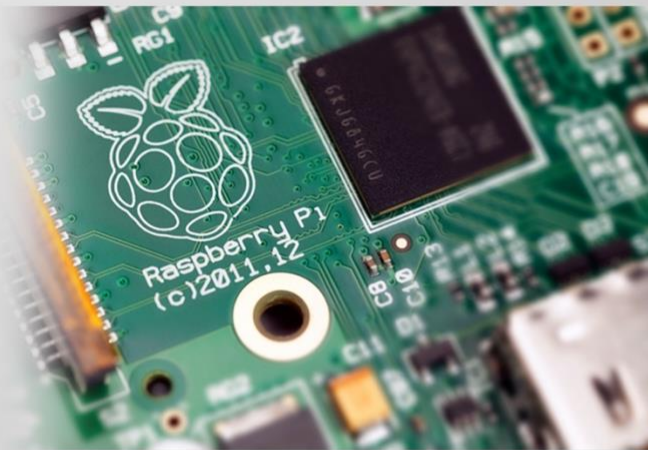
What makes the SMC so versatile is its advanced policy system which provides dynamic fine-grained control of the microgrid's generators and consumers. The policy it executes, that means, which generators and which consumers get assigned what priority, is configurable at the system administrator's discretion. This advanced user configurability of SMC system behaviour means that it is capable of providing exceptionally well matched solutions to the broadest possible range of microgrid operational control requirements – every community can configure their microgrid to behave how they need it to.

The policy the SMC executes can be adapted at any time by its operator to better service the currently prevailing conditions of the community. The SMC system's behaviour is highly adaptable to changes in the microgrid's local operating conditions, such as the scale or functional requirements of the community, as they evolve over time, and without requiring any code modifications by the system developer.

User configurable policy-driven operation puts power in the hands of the operator, but in order for the system to be tractable the way policy is configured has to be understandable by its operator. The SMC provides a user interface for policy definition that is both widely familiar and easily understandable.



Free for smaller or simpler installations, affordable by everyone



We believe that there does not need to be any correlation between price and functionality. One of the key goals of providing electrical power, and enabling mass adoption of the SMC technology to such remote rural communities, should be to do so in a way that maximises local benefits.

Having an SMC for which the software is free of charge for low-end installations, is a key enabler in achieving this challenging and worthwhile goal. In order to maximise overall system affordability our design priority has been to keep the computer hardware required to the minimum possible.

In order to achieve this without compromising on world-class functionality, our system is designed to run on low-energy-consumption, low-cost single-board computers such the incredible Raspberry Pi. As the Pi is such a low cost item this also means any required level of redundancy can be implemented in the SMC's hardware components to ensure high availability and reliability.



Changing the world one microgrid at a time

At Smarter Microgrid we have developed and deployed a prototype of a smart microgrid controller, in collaboration with the landowner and estate management at one of our existing customer sites. The site has electrical generation from one of our 500KW wind turbines, as well as solar PV and fossil fuel generation, providing domestic and commercial consumers.

Call to action

We want to initiate conversations with potential partners, who would be interested to work with us on this mission, in particular we wish to talk with:

- Financiers of such projects for whom the primary goal is to invest in such economic development of rural communities,
- Technology development partners, who could be commercial enterprises or university departments,
- Delivery partners who are willing and able to add appropriate expertise,
- Politicians and community leaders who are interested in helping to enable economic development of rural communities, and especially
- Early-adopter customer projects.

If you are interested to work with us on this mission to provide rural communities with electrical energy for economic development, via local smart microgrids, then please contact: Bob@distgen.com

It is our intention to give away the smart microgrid controller software free-of-charge for most installations in rural communities.

Financially and operationally we are not associated with any equipment suppliers of any sort. We own our company, without encumbrance or liability to anyone else, so we are free to act as we wish, including for the benefit of the economic development of rural communities.

We therefore have no implicit incentive to favour any particular suppliers of generator or storage device in any way.

Local communities can be trained to procure, install and maintain their microgrid generation assets as much as possible for themselves, further enabling their economic development. This would even include the option of using and maintaining lower cost refurbished generating equipment for themselves.