Company overview

Enabling a distributed energy future

SwitchDin at a glance

Why we exist

More and more, homes & businesses are installing solar PV, battery storage and controllable devices to reduce energy costs. As this happens, their role in the energy system is shifting from simple energy consumers to producer/consumers, or 'prosumers'. The rise of the prosumer poses a suite of challenges and opportunities for energy networks, markets and energy end users themselves.

SwitchDin provides the tools to address these challenges - while improving outcomes across the value chain.

What we do

SwitchDin creates software that brings communications, monitoring and smart control to distributed energy resources (DERs) like solar inverters, batteries and power meters.

Integration is the cornerstone of what SwitchDin does. We act as a 'babel fish' translator for a wide range of products, allowing device-to-control room management of DERs - regardless of the manufacturer or protocols used.

This lays the groundwork for the development and management of highly secure, vendor-neutral virtual power plants (VPPs), microgrids and other types of smart energy systems through our cloud platform.

Who we work with

Our client list includes energy utilities, original equipment manufacturers (OEMs), solar installers & retailers, property developers and asset managers (including government and industry).

Who we are

Founded in 2014, SwitchDin is a Newcastle-based technology company with a team of about twenty people - primarily electronic and software engineers. Our executive team have over fifty years of collective experience in renewable energy, energy markets, mission critical software development, facility management and technical services.

Technology overview

SwitchDin provides edge-of-grid and microgrid energy management solutions that offer intelligent asset monitoring, real-time aggregation and advanced control support. We ensure energy consumers, energy service companies, and utilities have visibility, flexibility and firm dispatch of heterogeneous fleets of small-scale distributed energy resources.

How it works

Droplets™ provide localised 'small picture' energy management & control

Control

SwitchDin Droplets™ are powerful generalised distributed energy resource (DER) controllers. They may be used on their own as energy management systems (EMSs) for homes & businesses, battery energy storage system controllers, microgrid controllers, managed DER controllers, AS4755 DRED controllers and DER system aggregators/monitors.

Each Droplet™-equipped site or device can operate autonomously or in coordination with other Droplets™ via Stormcloud™, our cloud platform.

Integration

Droplets™ connect directly with the devices they manage across a range of protocols and standards, acting as a protocol translator for different types and brands of products, including solar and batteries. Droplets™ also act as AS 4755-compliant virtual DRED controllers.

Stormcloud™ provides 'big picture' distributed energy management

Each Droplet™ is a gateway into Stormcloud™, SwitchDin's cloud platform. Energy companies and aggregators can use Stormcloud™ to tap into and control portfolios of Droplet™-enabled resources, which may include Droplet™-equipped sites or individual devices.

Scalable & secure

Stormcloud™ uses a standard IEC61850-based interface to provide scalable and secure data collection, analytics and orchestration of rooftop solar, battery storage and controllable loads with end-user and fleet manager web portals.

Vendor agnostic

Stormcloud™ provides a single, hardware-agnostic platform for fleet-wide operation for demand response management, energy trading or ancillary services.

SwitchDin Droplet™ controller (tabletop version)

Energy companies

Utilities, retailers, networks & aggregators

Offer more to your customers, old & new

More households and businesses are turning to solar and battery storage. SwitchDin allows energy companies and their customers to make the most of behind-the-meter assets.

SwitchDin's smart controller functionality improves operation of the customer's system whilst providing fine-grained visibility across the fleet. This includes the ability to monitor, forecast and control generation and consumption. This simplifies implementation of site specific and aggregated services including energy optimisation, energy market interactions, demand management, and ancillary support and enables business models such as peer-to-peer services and virtual power plants.

Case study:
Virtual power plant for network support

The Challenge

To maximise energy savings outcomes of solar & battery-equipped households exposed to a demand charge, while minimising load on the local pole transformer on a section of the local electricity network in Townsville, QLD.

The project involved nine homes in a cul-de-sac, with equipment from seven inverter and five battery manufacturers using both AC-coupled and DC-coupled configurations.

The Solution

SwitchDin Droplet™ controllers were installed at each home to create a common language and provide monitoring and control of solar inverters, batteries and power meters from multiple vendors. Droplets™ operated autonomously at each home to maximise self-consumption and minimise demand charges.

The local distribution transformer was also equipped with a Droplet™, measurements from which allowed SwitchDin to establish closed loop control of the network. The nine individual systems were then automatically managed to maintain transformer loads between maximum and minimum bounds. In this case control was implemented via SwitchDin cloud platform StormCloud™ using 4G communications.

Microgrid & embedded network developers

Simplify microgrid design & operation

Optimise & stabilise by balancing generators, batteries & loads

Each microgrid is a unique environment with unique requirements; microgrid applications range from greenfield subdivisions & strata blocks to remote communities & mining compounds. SwitchDin provides an overarching microgrid management solution that maximises reliability & efficiency while simplifying control - even in the most complicated situations.

SwitchDin integrates with most inverters, batteries, and power meters - and also enables virtual DRED control - to bring even the most diverse collection of devices together in a single portal.

Case study: Industrial embedded network for regional food processing plant

The Challenge

To improve electricity supply reliability and resilience to power quality issues for industrial food processing client connected to the regional network in Western Australia, while working within significant energy import and solar export constraints.

The client also had plans to expand production, necessitating an expansion of an existing solar PV system with additional PV as well as batteries.

The Solution

SwitchDin's platform made it possible for the client to integrate a range of new components (including an existing PV system with over a dozen inverters) while complying with the network's zero solar export and 140kW import restrictions.

The retrofit included three PCSs to form the local grid, 755kWh of battery storage, power metering for loads & generators, another 150kW of solar inverter capacity and a 160kW diesel generator.

SwitchDin's Droplet™ controllers provided the basis for single-portal monitoring, control and data management in this complex situation; smart control algorithms facilitated self-consumption control during normal operation, microgrid management during islanding events, and smart generator auto-start for low battery state of charge and black start scenarios

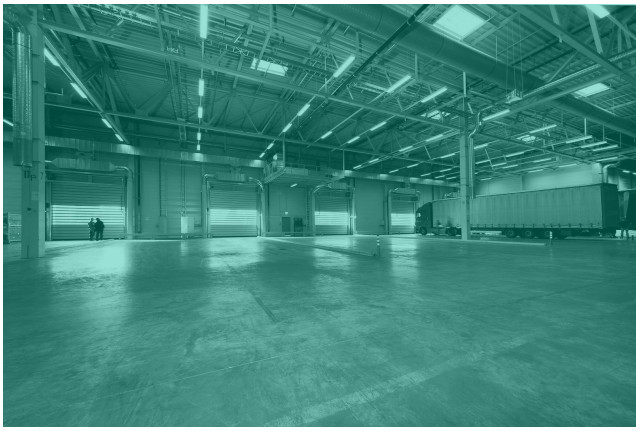
Original equipment manufacturers

Inverters, batteries, meters & more

Off-the-shelf energy management system that enables energy market participation

SwitchDin delivers a ready-made energy management system (EMS) that provides intuitive monitoring & control for end users as well as a fleet management platform for manufacturers and their partners.

Registered and connected to Stormcloud™ SwitchDin allows your company's devices to be incorporated into virtual power plants (VPPs) and unlocks a suite of other advanced smart grid features for utilities to tap into - and your customers to benefit from.



Case study: Embedded EMS for inverter manufacturer's battery storage system

The Challenge

To provide a turnkey EMS layer for a hardware-focused manufacturer of inverters and other power equipment looking to launch a battery product into the Australian and European markets.

Specific requirements included facilities for flow control, monitoring, fault handling, notifications and control algorithms for self-consumption and grid compliance.

The Solution

SwitchDin performed integration testing with the client's battery product at the client's lab over the course of six weeks to help produce a ready-for-market product. The ease and speed of the integration was possible thanks to SwitchDin's extensive integration experience.

SwitchDin's platform provides secure, ongoing data delivery for warranty support and fleet management; it also enables future upgrades to functionality, with features such as tariff optimisation, demand charge minimisation, export limiting support and energy market participation in the pipeline.

Product releases are planned in the Americas, Europe, Africa and Australasia, with trial sites in operation in Australia and Germany.

Vendors & integrators

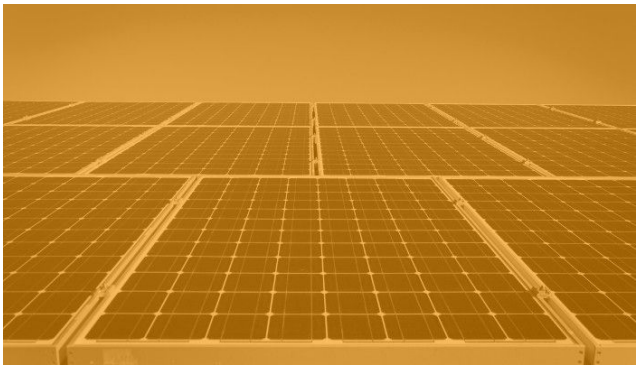
Wholesalers, solar retailers & solar installers

Intuitive integration with most popular equipment brands - plus monitoring, control & energy market participation

SwitchDin integrates easily with most inverter, battery & power meter products. Our Droplet™ controllers provide monitoring & smart control for individual devices; they also act as a 'virtual inverter', enabling a single monitoring & control interface for sites using two or more heterogeneous products.

The end result is simpler system design & operation with fleet monitoring & management accessible from a single portal. Our cloud platform - Stormcloud™ - also sends alerts and logs data for comprehensive warranty support.

SwitchDin is also virtual power plant ready, unlocking the door to energy market participation for you and your customers.



Case study: Simplifying complexity in a challenging residential solar & battery system

The Challenge

To harmonise operation of heterogeneous inverter & battery products while optimising performance outcomes for a custom-built home energy system.

The home belongs to a renewable energy advocate and consultant aiming to demonstrate how different products could be orchestrated to optimise outcomes. Components used in the system include 7kW of solar PV, a 10kWh lithium battery, a 10kWh redox flow battery and two separate inverters.

The Solution

A SwitchDin Droplet™ was installed at the site with the equipment to act as a protocol translator between the various components. With a common language established, SwitchDin was able to ensure that the batteries could be deployed in accordance with their relative strengths, maximising energy self-sufficiency and savings for the client while extending product lifespan. The Droplet™ also enables potential future energy market participation despite the system's complexity.

Cases like this will become more common as homes and businesses update and expand legacy systems. SwitchDin provides the key to making them work smoothly, effectively and in accordance with the evolving needs of the broader energy system.

Asset managers

Business, industry & government

Maximise energy asset value with smart management

SwitchDin solves complex energy problems where others can't. Our technology integrates easily with most inverters, batteries and power meters for uniform monitoring & management across a portfolio of energy resources.

SwitchDin also provides a platform for reporting on energy-related topics such as carbon emissions, renewable energy production and energy savings, while unlocking the potential for energy market participation via virtual power plant and similar programs.

Case study: Council facility saves through solar and shifting loads

The Challenge

To maximise the value of a 20kW solar PV system through smart management of new and existing assets.

The system had been installed to reduce peak demand charges at a council sporting facility, but was underperforming due peak consumption periods occurring outside of daylight hours.

The Solution

The council decided to retrofit a battery storage system to minimise exported solar electricity and help reduce early evening loads while overcoming compatibility challenges and avoiding lock-in to a single manufacturer.

Working with a local solar installation company, SwitchDin provided the EMS for the property to give council facility managers visibility and control of the system via a single, central portal (Stormcloud™).

The council is looking to expand the deployment of SwitchDin's technology across additional sites, with the possibility energy market participation using council resources.

Executive team

CEO: Dr Andrew Mears

Andrew is the former Chief Technical Advisor for United Nations in Africa and SE Asia, with over fifteen years experience in renewable energy and electricity market specialist roles in fifteen countries, including Australia.

CTO: Grant Traynor

Grant has over ten years experience at high profile firms in aerospace and infrastructure, plus over fifteen years as software lead for teams small and large working on mission critical systems. He has vast experience managing complexity and high tolerance technologies.

Chief of Sales & Operations - Gary Childs

Gary has over a decade of experience in executive sales and operations management, plus ten more years in building services and facility management, technical services and retail. He is a tactical leader in technical service provision including solar, telecoms and HVAC.

Get in touch

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