

FUTURE

EcoStruxure Microgrid Flex

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June 22, 2023

Agenda

- The Market for Microgrids
- The Next Generation of Distributed Energy – **MG FLEX**
- What is a Configured to Order Microgrid – Why it Matters?
- Benefits

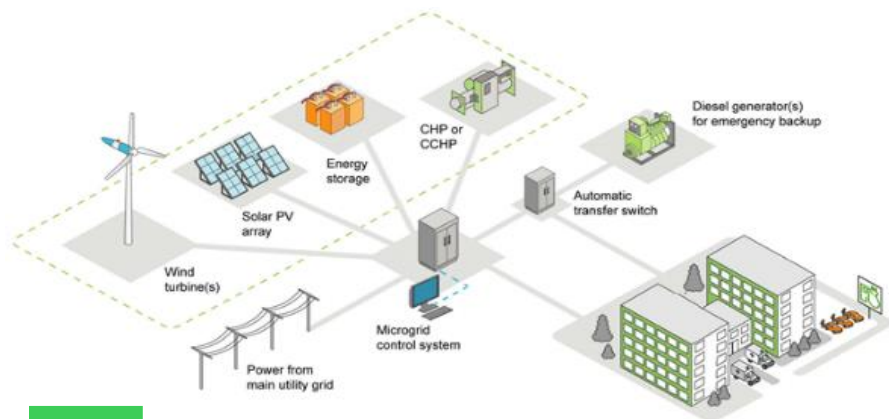


Microgrids

Microgrids deliver integrated outcomes through specific use cases

Technology that enables the New Energy Landscape

A microgrid provides a decentralized, digitized & decarbonized alternative...



... delivering integrated outcomes



- A group of interconnected loads ...
- Microgrid¹ → ... and distributed energy resources within clearly defined electrical boundaries
- acting as a single controllable entity with respect to the grid

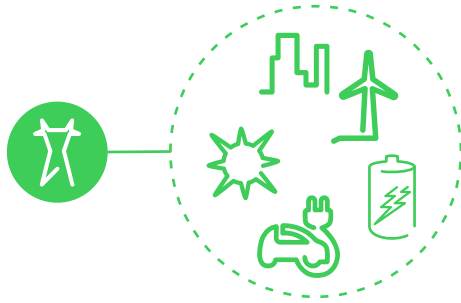
¹ US Department of Energy definition

Microgrids

Types

Optimize your electrical bill & sustainability footprint

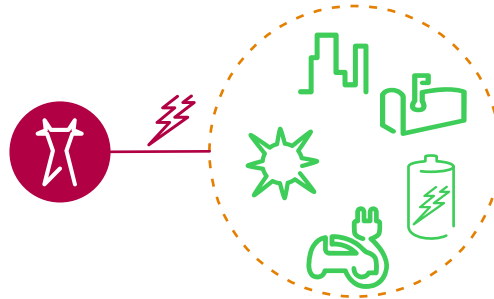
Grid + local generation + grid following storage



Always Grid-tied (Non-Islandable)

Manage blackouts while optimizing your electrical bill & sustainability footprint

Grid + Diesel/Gas &/or renewable generation + grid following/grid forming storage + load management



Islandable

“Power on” with efficient and future proof power systems

Diesel/Gas &/or renewable generation + storage + load management



Off-grid

Microgrids

Schneider Electric Microgrid Solutions : Value Proposition



1. Maximizing Outcomes from DER thanks to advanced Controls



Energy cost

Artificial Intelligence solutions that select the cheapest & greenest available energy at a given time



Sustainability



Resilience

Advanced controls that ensure power stability whatever grid configuration

2. De-risking Microgrid projects leveraging best in class consulting capabilities



System design

Consulting services that provides the best system sizing & tools according to today and tomorrow load profile

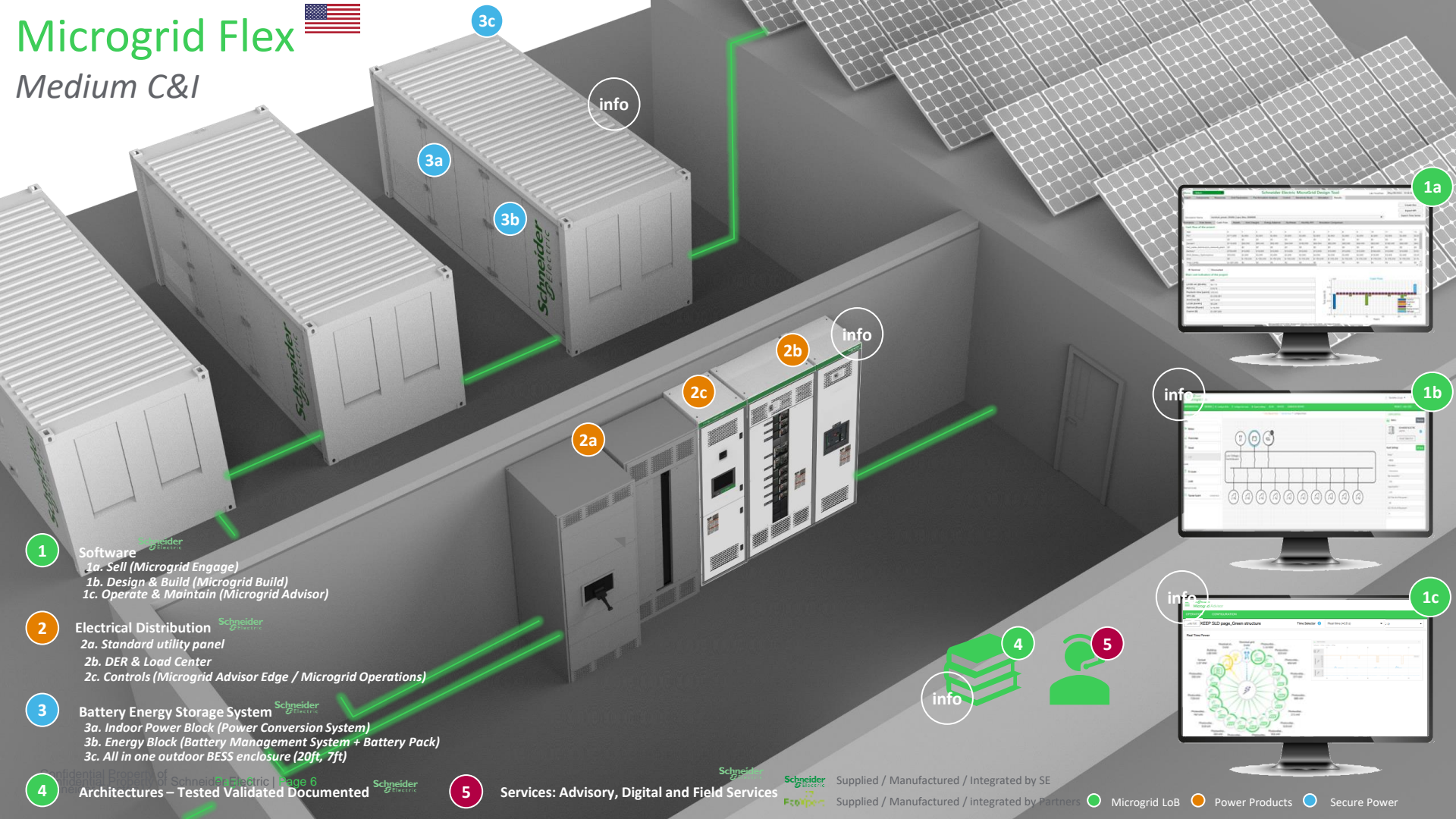


Energy as a Service

Build, Install, Operate, Maintain ensures outcomes from day1 w/o upfront invest

Microgrid Flex

Medium C&I



1

Software
 1a. Sell (Microgrid Engage)
 1b. Design & Build (Microgrid Build)
 1c. Operate & Maintain (Microgrid Advisor)

2

Electrical Distribution
 2a. Standard utility panel
 2b. DER & Load Center
 2c. Controls (Microgrid Advisor Edge / Microgrid Operations)

3

Battery Energy Storage System
 3a. Indoor Power Block (Power Conversion System)
 3b. Energy Block (Battery Management System + Battery Pack)
 3c. All in one outdoor BESS enclosure (20ft, 7ft)

4

Architectures – Tested Validated Documented

5

Services: Advisory, Digital and Field Services

Supplied / Manufactured / Integrated by SE

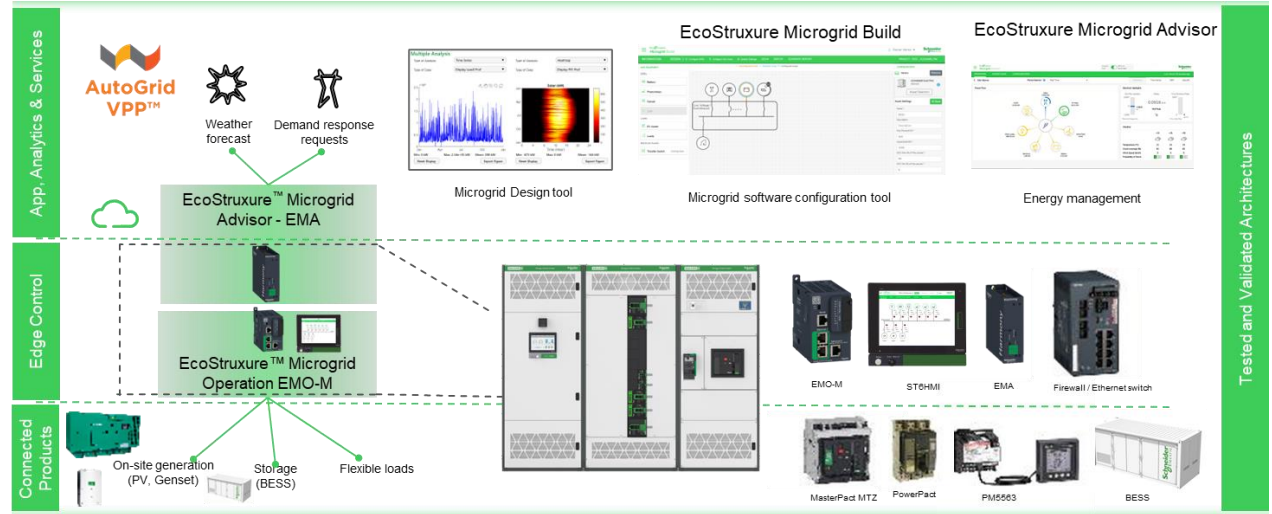
Supplied / Manufactured / Integrated by Partners

Microgrid LoB Power Products Secure Power

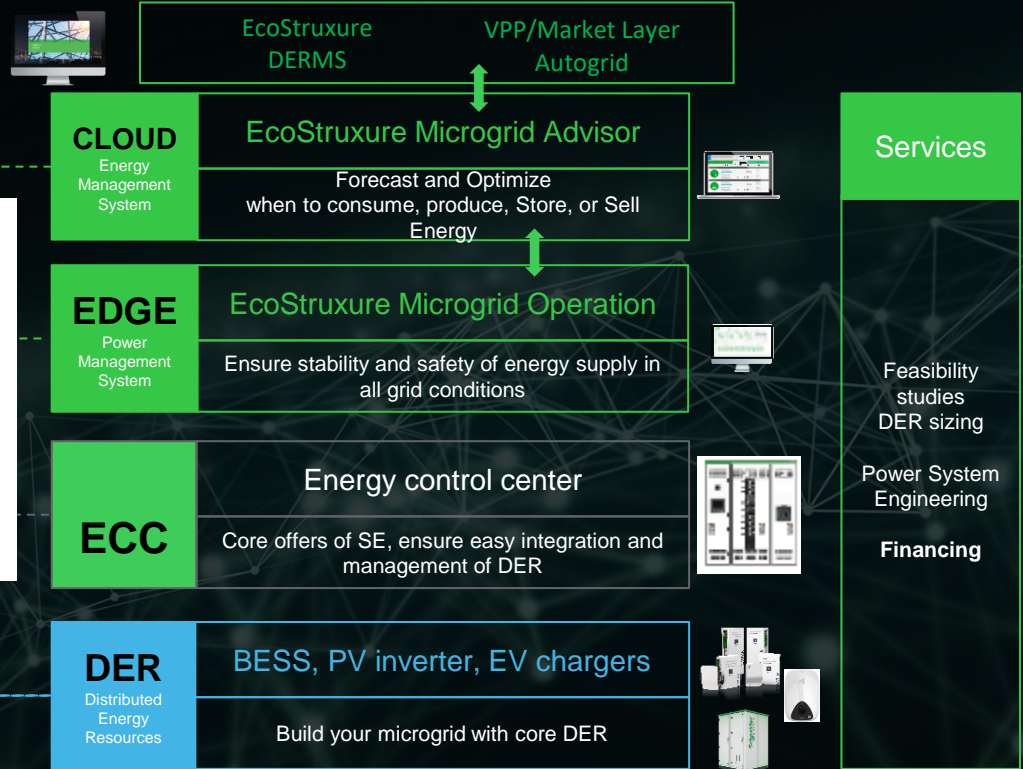
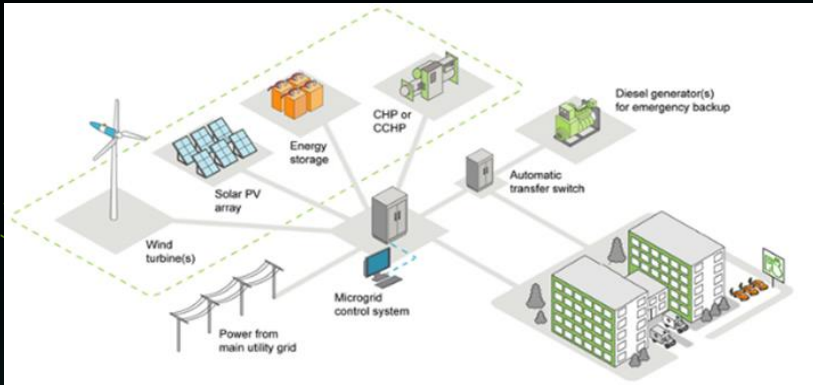
EcoStruxure Microgrid Flex

EcoStruxure Microgrid Flex is a **simple, standardized, validated & scalable** microgrid solution, platformed on a unique concept of horizontal and vertical standardization.

- Standardization across components
- pre-tested and validated architectures
- set of **easy-to-use tools & standard services**
- makes it “**simpler**” to design, install, commission, and maintain the microgrids
- has capabilities to **accelerate growth** of microgrids in commercial and industrial segments
- **extend the benefits** of resilience, decarbonization, and energy price reduction to a broader set of users, than ever before.
- accelerate our journey to reach **net-zero**.
- play a major role in designing **Buildings and Grids of the Future**.



A unique set of technologies and services to de-risk microgrid project and maximize its outcomes



Schneider Electric Microgrid – CTO vs ETO

EcoStruxure Microgrid Flex

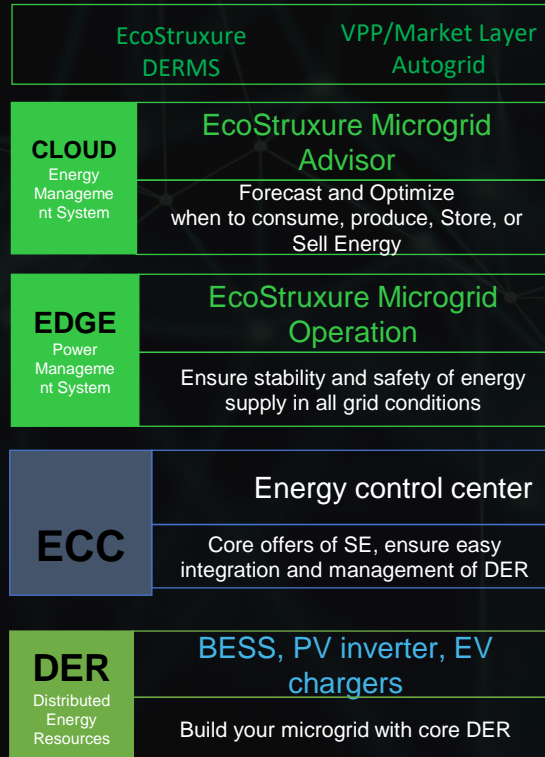
Services: Standard

TVDA + Tools (EMB, Product Selector)

Software (EMO, EMA, Autogrid)

Electrical distribution & control: Standard

DERs: Standard



Microgrid Projects

Services: Customized

Engineered solution

Software (EMO, EMA, Autogrid)

Electrical distribution & control:
Engineered

DERs: Engineered

Life Is On

Schneider
Electric

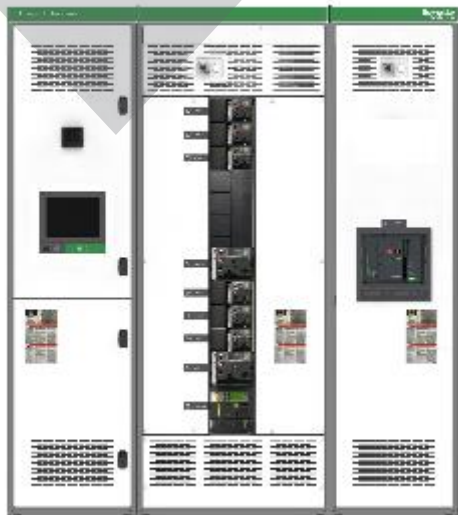
EcoStruxure Microgrid Flex - Guardrails

Energy Control Center (Medium ECC): approx. 30 weeks lead time



Microgrid controllers

HMI



ECC Marketing Specifications

Column 1

- Microgrid controller – EMO-M, EMA
- ST6 HMI Optional for NEMA 1 (Not available for NEMA 3R)
- One PM5563 meter (Revenue grade) for PV metering

Column 2

- 3000A i-line
- 1200A max individual capacity (PowerPact)
- 1 BESS, 1 Genset, remaining space on i-line stack for controllable loads
- 2 PV breakers (max),
- Embedded metering for rest of the circuits (if needed)

Column 3

- 3000A IMCB (Masterpact MTZ)
- Embedded metering for mains (if needed)
- Protection relay

- 65kA @480V
- NEMA1/3R
- No utility entrance
- All circuit breakers with motor operators

Transition:

- Grid to genset: Open transition
- Genset to grid: Open/closed transition
- No transition between DERs

Anchor resource:

- Genset (BESS in second round of testing)

Fixed specifications in medium ECC design

*IMCB – Individually mounted circuit breaker

Internal

EcoStruxure Microgrid Flex- Use Cases





Outcomes



Use cases

Use Cases Supported		PV	BESS	Genset
Grid tied	Remote energy monitoring & forecasting	■	■	■
	Tariff management (Static)	■	■	--
	Demand charge Reduction	■	■	--
	Self consumption optimization	■	■	--
	Export predictive optimization	■	■	--
	BESS charging/discharging management	--	■	--
Islanded	Export real time optimization	■	■	--
	Grid Connection Management Grid outage detection Anchor resource: Genset (BESS in future) Transition: Open (Closed/Fast/Seamless in future) Genset optimization/ Backfeed protection BESS charging limitation	■	■	■
	Load Shedding	■	■	■
	Load Sharing (active Power)	■	■	■

Benefits

-  Time-Efficiency
-  Reliability
-  Cost-Efficiency
-  Simplicity

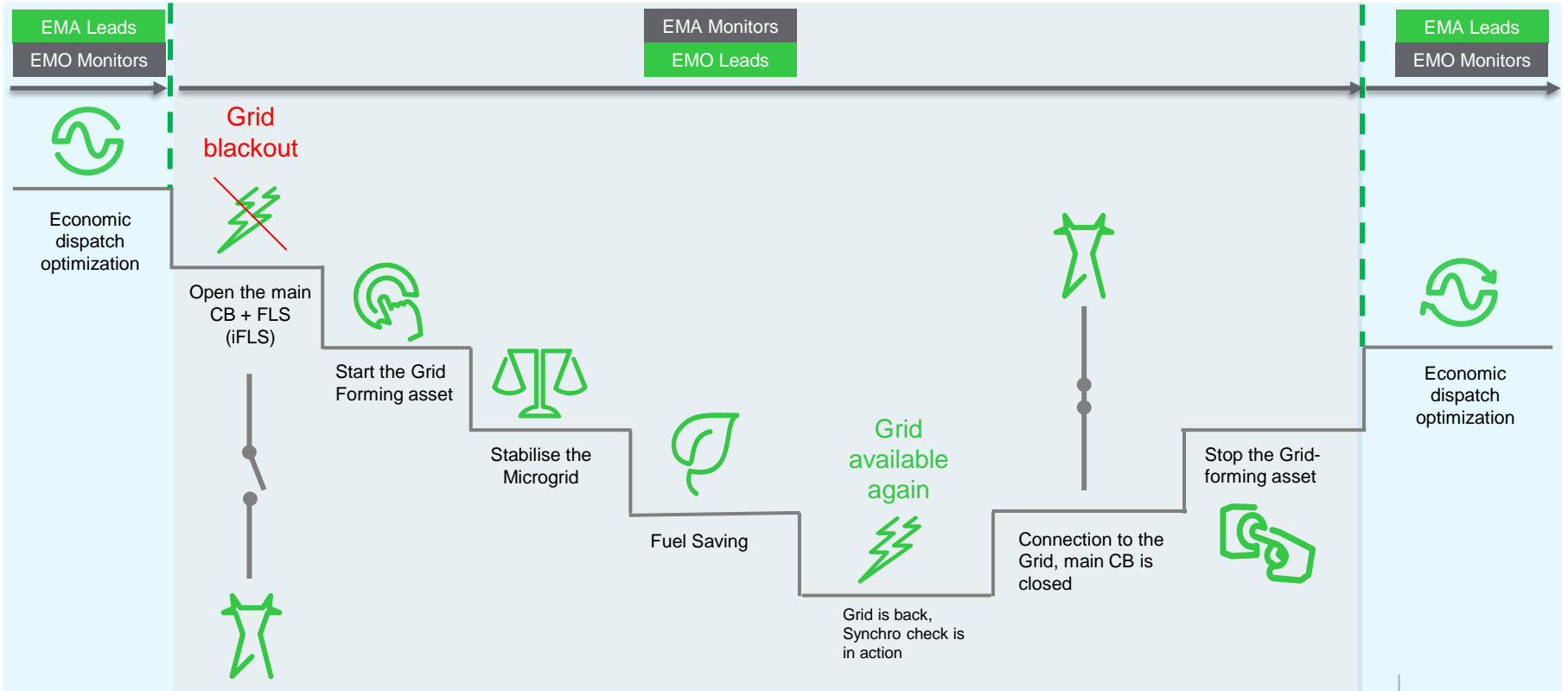
C&I segments (PV ~ 1MW, BESS ~500kW, Genset ~500kW)

Life Is On



EcoStruxure Microgrid Flex

EMO: Grid connection management



Grid connected

Off grid

Life Is On Grid Forming

EcoStruxure Microgrid Flex

... delivered in steps... Available for order in July

DERS: (PV+BESS) ~1.5MW



Medium ECC

Target: C&I segments

PV ~ 1MW

BESS ~500kW

Genset ~500kW

Loads – as per the available space & bus capacity

Bus Capacity – 3000A

Release 1: July 2023



Release 2: Nov 2023



Release 3:



.....

Standard Medium ECC
EaaS

Standard Medium ECC
All other customers

Value we offer to Partners and End Users...

Vertical Standardization

Time Efficiency

ECC **lead time** reduction:
 >1yr to 30W (>50% decrease)
Simplification: Program, Install & Commission-Month to days (Upto 90% reduction)
Fast-Track: Start monetizing the investments sooner

Reliability

- **Interoperability**
 - Higher operational **availability**
 - Reduced **rework**
 - **Quality**
- Peace of mind, improved quality of outcomes**

Cost Efficiency

- Onsite **Labor savings**
 - Lower **lifecycle cost**
 - Reduced **Energy costs**
- Increased **profitability**

Simplicity

- **Utility interconnect** approvals made easier
 - **Plug, play** and quickly move to the next project
 - Standardized **O&M services** from SE
- Accelerate:** Spend less time on issue resolution more time on accelerating business



BESS



ECC



PMS



EMS



Market



Services

Horizontal Standardization

Tools (Design, Build, Select)

Life Is On



Thank You



Life Is On



Schneider
Electric

