PORTFOLIO **OVERVIEW**
AUGUST 2020

# FACTOR[e] VENTURES

We are a team of **impact venture builders** dedicated to supporting the people and ideas that turn challenges in **energy, agriculture, mobility, and waste** into de-carbonized solutions for emerging and frontier markets.

Working across the globe, we bring disruptive innovation to the world's **fastest-growing markets**. We serve as a conduit between philanthropic and commercial investors who are like-minded in their pursuit of **sustainable development** through **market-driven** forces.

## IMPACT BY **NUMBERS**

**20**
INVESTMENTS MADE

**44**
PORTFOLIO OPERATING COUNTRIES

**65k**
CUSTOMERS SERVED IN EMERGING MARKETS

**1.15m**
SUSTAINABLE LIVELIHOODS IMPROVED

**392k** METRIC TONS
GREENHOUSE GAS EMISSION REDUCTION

## OUR **THESIS AREAS**

### ACCESS TO ENERGY

Access to energy is a driving force for human development and well-being. We fund the development of off-grid and grid-edge technologies for emerging and frontier markets.

### AGRICULTURE

We focus on technology ventures driving impact for smallholder farmers by increasing productivity and/or improving financial and physical access to inputs or access to markets.

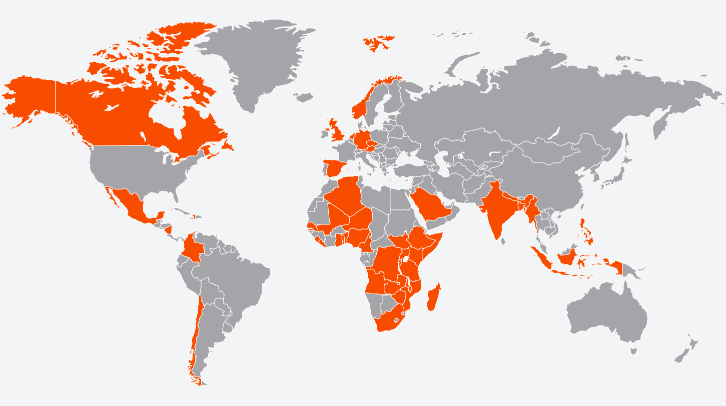
### WASTE

The burden of health risks is disproportionately borne by those who have the least access to sanitation and water resources. Waste as a resource fuels the circular economy, reducing the cost of waste management and decreasing carbon emissions.

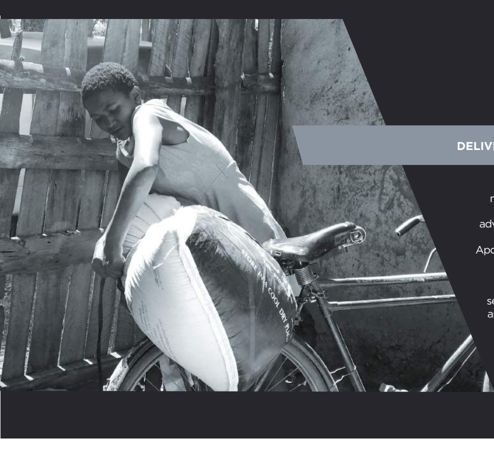
### MOBILITY

The challenge of sustainably moving people and goods around in developing countries presents unique opportunities. New approaches are necessary that can leapfrog the limitations of current infrastructure and address the needs of a rapidly growing and mobile population.

## PORTFOLIO **CUSTOMER LOCATIONS**



## OUR **PORTFOLIO**



### APOLLO AGRICULTURE

**DELIVERING MODERN FARMING EVERYWHERE**

Apollo Agriculture helps smallholder farmers maximize their profits. While the tools that farmers need to increase their yields—high-quality inputs, advice, insurance, and credit— are known, the cost of delivering these services has proven prohibitive. Apollo Agriculture fundamentally changes the cost of reaching these farmers.

Apollo uses agronomic machine learning, remote sensing, and mobile phones to deliver input finance and customized advice to smallholder farmers with radical efficiency and scalability. In the process, Apollo generates individualized credit scores and tailored insurance products for farmers using advanced statistical techniques and detailed geographical information.

### S4S technologies
science for society

**DEVELOPS AND UTILIZES FOOD PROCESSING TECHNOLOGIES TO CREATE A SUSTAINABLE SUPPLY OF PROCESSED FOOD PRODUCTS**

S4S Technologies is the food preservation company that invents new food processing machines, creates valuable markets for smallholder farmers, and produces branded and white-labeled snacks and meals to delight the Indian market. S4S' products are not only the best quality, they are also natural and healthy.

Smallholder farmers are the backbone of their business and their innovative technologies not only reduce food waste, but also add substantial value to the products of India's massive farmer population in order to serve its booming consumer market.

### AMPERSAND

**MASS MARKET ELECTRIC MOBILITY TO MOVE AFRICA FORWARD**

Ampersand makes motorcycles that are better, cheaper, and just so happen to be electric.

East Africa's 3 million motorcycles combine to take a round-trip journey to the sun each day. Along with minibuses, these two-wheelers are the backbone of mass-mobility on the continent.

An electric bike, fit for market and ruggedized for context, can out-compete the incumbent petrol vehicles today. Starting in Kigali, Ampersand sells such a bike at a competitive price to motorcycle taxi drivers; a high-mileage, high-impact customer base.

Ampersand supports these drivers with a network of charging stations and battery swap depots, earning recurring revenue in the process. Meanwhile, the fuel savings enable taxi drivers to more-than-double their take-home income.

### CLEAN CROP TECHNOLOGIES

**NEXT GENERATION TECHNOLOGY SOLUTIONS FOR CROP LOSS AND FOOD SAFETY**

On a global scale, mycotoxins, molds and pathogens lead to an estimated 500 million tons of supply chain food waste, and 600 million cases of food borne illness every year. This waste is worth nearly $250 billion, and is responsible for approximately 3% of global greenhouse gas emissions. This spoilage is more prevalent in regions with less developed agricultural infrastructure and technology, and is a major driver of economic losses around the world.

Clean Crop Technologies is translating groundbreaking research on ways to reduce molds, toxins, and pests into commercial scale services for the global grain and nut sectors. The team is currently building a propriety, energy efficient ionized air generator to optimize treatment effect in the food processing environment.

### ODYSSEY

**MARKETPLACE FOR ALL PLAYERS IN THE RURAL ELECTRIFICATION ECOSYSTEM, IMPROVING EFFICIENCY, AND REDUCING FRICTION IN MICROGRID AND DISTRIBUTED POWER DEVELOPMENT**

Odyssey is a technology-enabled, web-based platform working to unlock the energy access market and facilitate rapid deployment of microgrids and distributed power plants in emerging markets.

Odyssey is designed to meet the needs of rural communities and businesses, project developers, vendors, financiers, and governments. The innovative platform simplifies, streamlines, and reduces the costs of developing and financing rural electrification projects around the world.

### InspiraFarms

**OFF-GRID COLD STORAGE AND AGRIPROCESSING FACILITIES TO TRANSFORM GROWING AGRIBUSINESSES**

Food losses are stunting food system sustainability, farmer incomes, and economic development. InspiraFarms reverses this trend by delivering fully integrated facilities and remote, customer-centered services.

InspiraFarms provides turn-key refrigerated process and storage solutions, technical support and affordable leases that enable small and growing agribusinesses to reduce produce losses, cut energy costs, access new markets, and grow sustainably – on or off-grid.

**12K+** INSTALLED UNITS

### SISTEMA.bio
CREATING VALUE FROM WASTE

**MODULAR, SCALABLE BIODIGESTOR TRANSFORMS ANIMAL WASTE INTO ENERGY**

Sistema is an integrated biogas solutions company for farmers. Sistema's end-to-end philosophy engages smallholder farmers across the spectrum of animal waste processing, sanitation, cooking fuel, cold storage, agricultural processing, fertilizer, and electricity.

Sistema's growing range of applications and appliances allows farmers to customize solutions according to their needs.

Sistema provides financing and training support for seamless product adoption.

### REDAVIA
RENTAL SOLAR POWER

**COST-EFFECTIVE, RELIABLE RENTAL SOLAR POWER WITH REAL-TIME GENERATION CONTROL**

REDAVIA offers pre-configured, containerized solar farms on a rental basis to businesses and communities in Sub-Saharan Africa.

REDAVIA systems are easy to ship, scale, and redeploy. They can be used to set up new grids or to reduce consumption of expensive diesel fuel through seamless integration into existing power systems.

These unique pay-as-you-go solar farms are installed, operated, and maintained by local REDAVIA staff, enabling users to take advantage of clean solar energy without the upfront costs, technical specialty, and long-term power purchase agreements required in typical solar farm deployment.

**2.7K+** Tonnes of $CO_2$ Reduced

Supporting connections in **25+** COUNTRIES

### SPARKMETER

**SMART, LOW COST, ADVANCED FUNCTIONALITY METERING, AND PAYMENT PLATFORM FOR MICROGRID AND UTILITY OPERATORS**

SparkMeter offers comprehensive low-cost metering solutions for everything from rural microgrids to existing urban central grid utilities. SparkMeter helps make access to electricity possible in hard-to-reach places and underserved markets.

The SparkMeter system is a simple, but powerful smart metering solution designed for utilities serving traditionally hard to support low-income customers. With smart metering that's easy to install, use, and scale, SparkMeter gives microgrid developers the tools they need to manage their grids while keeping costs low.

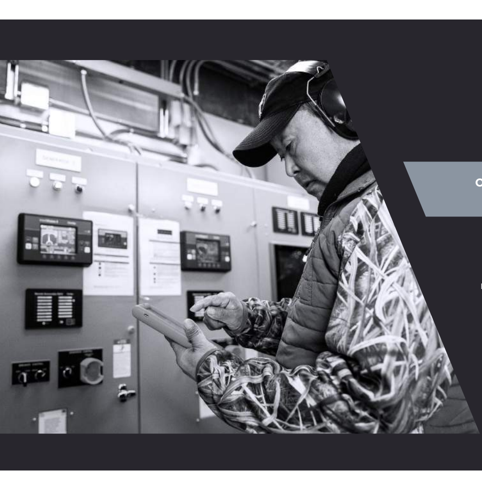
### crofarm

**EMPOWERING UNDERSERVED FARMERS BY IMPROVING THEIR MARKET ACCESS AND BARGAINING POSITION**

Lack of market access and inefficiencies in supply chain result in 50% of Indian farmers living in poverty.

Crofarm's technology-backed platform connects farmers with retailers – bypassing inefficient supply chains – not only improving the lives of farmers, but also reducing post-harvest loss by greater than 30%. Crofarm's solution leverages crop logistics, while empowering farmers to receive fair prices for their produce and reduce waste.

**10K+** FARMERS Positively Impacted



### 60HERTZ

**OFFLINE-FIRST MAINTENANCE SOFTWARE FOR REMOTE ASSETS AND TEAMS**

60Hertz is a microgrid maintenance software designed to suit villages, islanded grids, military resiliency grids, as well as non-traditional microgrids—from maritime vessels to backup power for critical infrastructure. As the first microgrid maintenance software on the market, their solution offers template checklists for common microgrid assets, and the ability to upload your own asset maintenance routine.

The software offers tablet-based maintenance routines for diesel, hydro, solar, and battery assets with a corresponding Administrator Dashboard.

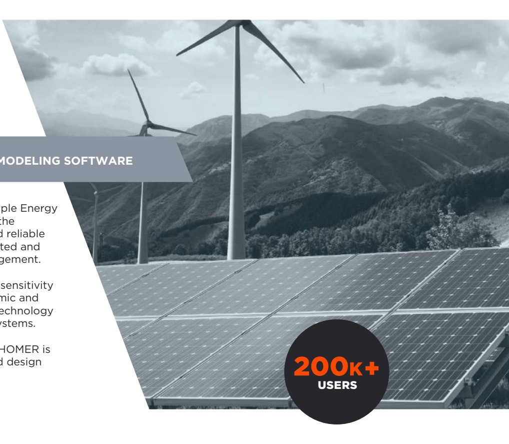
### HOMER Energy

**THE WORLD'S LEADING MICROGRID MODELING SOFTWARE**

The HOMER (Hybrid Optimization of Multiple Energy Resources) microgrid software navigates the complexities of building cost-effective and reliable microgrids combining traditionally generated and renewable power, storage, and load management.

HOMER employs robust optimization and sensitivity analysis algorithms to evaluate the economic and technical feasibility of a large number of technology options for off-grid and grid-connected systems.

With over 120,000 users in 193 countries, HOMER is the established global leader for microgrid design optimization and feasibility.



**200K+** USERS

### FERNTECH

**MONITOR AND CONTROL OFF-GRID POWER SYSTEMS**

Ferntech has developed a universal controller for off-grid, hybrid, and microgrid power systems. Ferntech's Universal Monitoring and Control (UMC) technology allows off-grid power system operators to remotely monitor and control multiple systems at lower cost using logic-based programming to add smart behavior to grids.

This technology makes it possible for developers and operators of these systems to connect components from any manufacturer, monitor a fleet of systems from a single dashboard, and easily program behaviors to improve performance.

These features reduce monitoring and maintenance costs and improve returns on grid deployments.

### Village Industrial Power®

**BIOMASS STEAM ENGINE CREATING LOW-COST, OFF-GRID POWER FOR RURAL FARMING AND SMALL INDUSTRIAL APPLICATIONS**

VIP uses a robust, steam engine technology to provide a combined heat and power solution as a replacement to diesel gensets. The 10kw power plant provides extremely low-cost power solutions for rural farming and small industrial applications in areas with unreliable power supply. Ancillary applications include an add-on dryer unit for fruit and vegetable processing.

Ideal applications for the VIP technology include: maize processing, fruit and vegetable drying and processing, dairy pasteurization, jaggery production, and a variety of other biomass processing applications.

### WASE

**ACCELERATING WASTEWATER TREATMENT TO ENSURE ACCESS TO SUSTAINABLE WASTEWATER MANAGEMENT**

4.2 billion people lack safely managed sanitation services. WASE is developing decentralized wastewater treatment systems that embrace a circular economy to recover energy, nutrients, and water in wastewater.

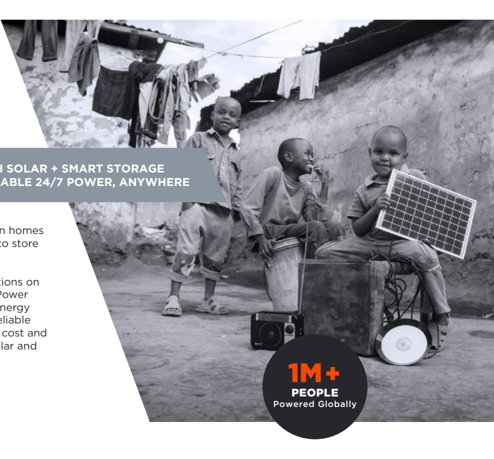
WASE's approach is based on the emerging science of Bio-Electrochemical Systems (BES) which combines various interdisciplinary areas of research, including electrochemistry, microbiology, and engineering to open up new areas of microbial electrochemistry.

### ZOLA

**DEMOCRATIZING ENERGY ACCESS WITH SOLAR + SMART STORAGE POWER SOLUTIONS THAT DELIVER RELIABLE 24/7 POWER, ANYWHERE**

ZOLA's solar power solutions enable people in homes and businesses across Africa, and the world, to store and consume energy sustainably.

ZOLA currently has two different power solutions on the market. ZOLA INFINITY is an Integrated Power System (IPS) that incorporates solar power, energy storage, and power from the grid to deliver reliable 24-hr power anywhere at the lowest possible cost and ZOLA FLEX is a plug-and-play, connected, solar and storage hybrid power system.



**1M+** PEOPLE Powered Globally

## OUR **PARTNERS**

Shell Foundation · Autodesk Foundation · The Stone Family Foundation · The Rockefeller Foundation · UKaid from the British people · Sweden · USAID From the American People · german cooperation Deutsche Zusammenarbeit

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