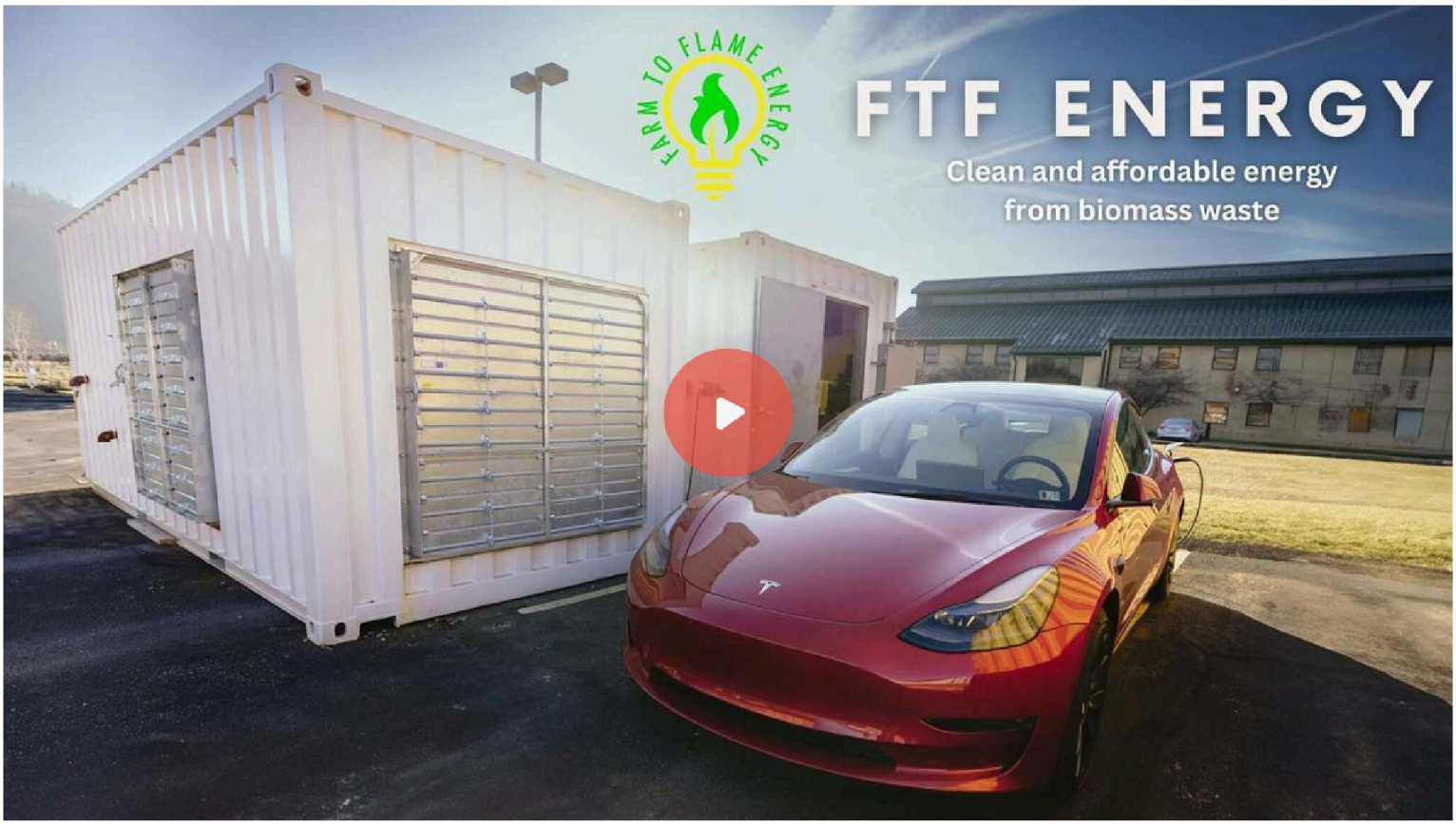


INVEST IN **FTF ENERGY**

Clean Electricity at Half the Cost of Diesel Tackles $4.4T Power Market

ftfenergy.com Pittsburgh, PA B2B Minority Founder Energy Science & R&D Sustainability

Highlights

1. $20M Contract Signed with Cocoa Processing Company for 5MW Combined Heat and Power Plant

2. 25+ Engineers and Technicians Working on Farm to Flame Generator Systems

3 Working Product charging Electric Vehicles and other electric appliances

4 See Subscription Agreement and Audited Financials in “details” section (Form C Coming Soon)

Featured Investor

Jake Jones

Invested $17,200

Follow

Syndicate Lead

Advid golfer and bourbon fan

"There is a common misperception that major innovations must be revolutionary in nature. I do not subscribe to that narrative. I believe that innovations that find solutions to public needs are equally transformative. It’s discovering the intersection between your expertise and societies needs (whether for public or private means) that results in “must have” products and services. FTF is doing just that in proving a reliable energy generation process that has global implications comparable to air conditioning and wireless communications allowing settlement in previously inhabitable regions."

Our Team

Kwaku Jyamfi Chief Executive Officer

+$34M in project procurement. Lead engineer, built FTF 30KW Generator. Won 7+ entrepreneurship competitions. Awarded NJ CSIT Seed Grant and SBIR Grant. Secured PPA contract for 30KW pilot deployment and a waste-to-energy project with Georgia-Pacific.

We are passionate about providing a sustainable solution to individuals who lack access to electricity. We have a patented combustion process that distinguishes us from other technologies, and an expert team passionate about the impact we can have.

Stefano Alva Chief Commercialization Officer

Awarded EPA grant. Inducted FTF in 4 accelerators program that provided funding. Enabled FTF to access sponsored work space, and employees. Produced commercially compliant fuel from biomass waste, certified by third party laboratory.

Carla Lam Head of Accounting

CPA with over 24 years of experience in accounting and CFO service. Top 1% Accounting Professional on UpWork. Her experience is gained from one of the Big 4 audit firms and many major banks / Fortune 500 corporations.

Fred Lewis Plant Manager

Responsible for start-up and operation of +4.5GW of combined heat and power (CHP) power plants ($13.5B in energy assets). Operations Manager at Wood Group, which owned and operated several Biomass CHP plants. 35+ years in the power generation industry.

Ric Airesman Systems Engineer

Managed Generator Operations for U.S. Naval Ships above 300MW. Bought FTF S2 Generator online, and designs generator automation loops. Has worked at the Bruce Mansfield Power Plant, operating and commissioning 2,550MW ($7.65B in Heat and Power Assets).

Will McKnight Business Development Advisor

Working with patented combustion process for 10+ year. Ran $15M/year sales department for Schneider Electric. Travelled to Nigeria to obtain $1.2M contract with the University of Calabar.

Mark DeSantis Business Development Advisor

CEO of Bloomfield Robotics. +$100M in exits. including BMW, GE and Michelin. Expert in ag-tech and energy, with a successful track record of commercialization

of new technology. Adjunct Professor at Carnegie-Mellon University.

Stan Fischer Business Development Advisor

VP of Sales of Vestlynx. $180M in exits, including an IPO. Serial Entrepreneur, experience in high-tech sales. Drives business development through client, investor and partner outreach.

Joel Ifill Commercialization Advisor

Raised $15M in precise air-drop startup. Managed team of sales experts and engineers, selling services to UPS and other fortune 100 companies.

Farm to Flame Energy 5x's Their Value in One Year

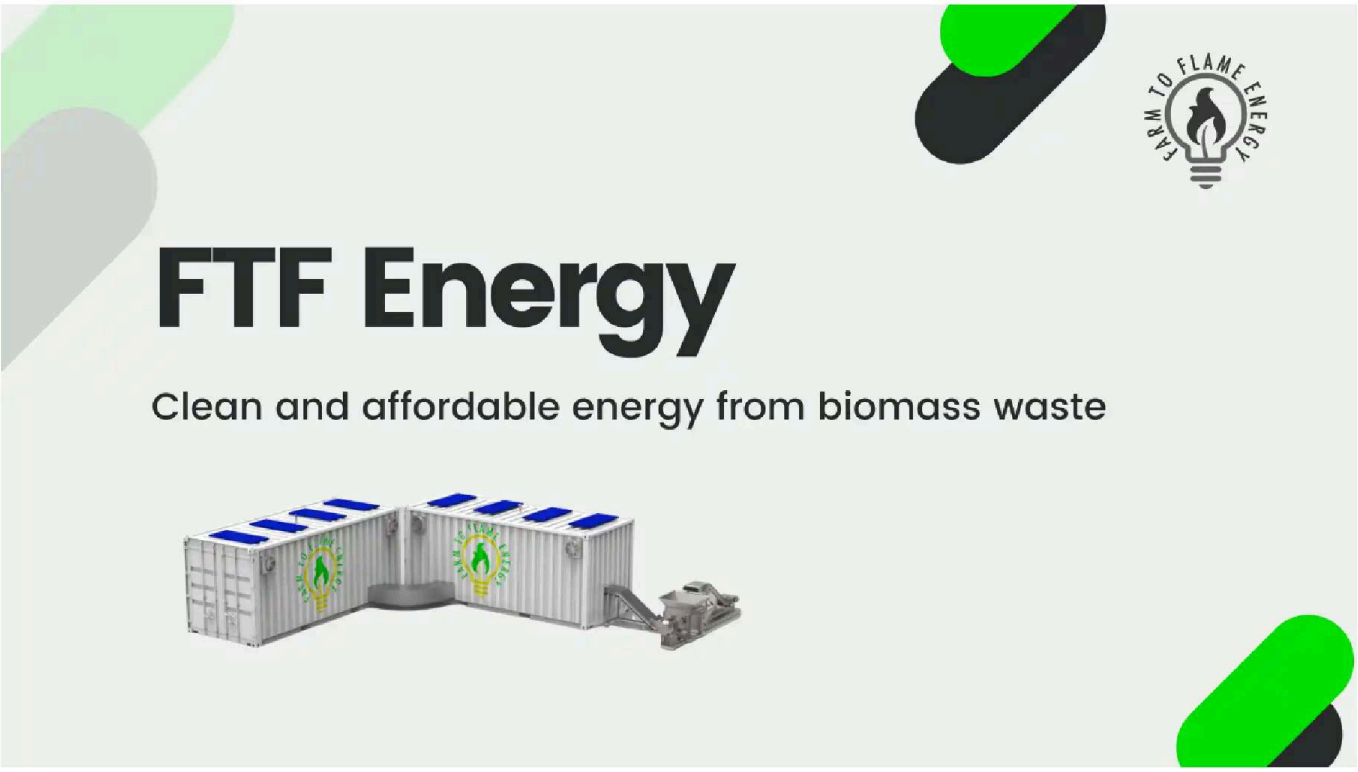
1. $20M Contract Signed with Cocoa Processing Company for 5MW Combined Heat and Power Plant
2. 25+ Engineers and Technicians Working on Farm to Flame Generator Systems
3. **Working Product** (see nat. gas pilot video) charging Electric Vehicles and other electric appliances.

13% of the world still lacks access to reliable electricity, and their best alternative is expensive, polluting and toxic backup diesel generators.

FTF's smokeless generators provide sustainable electricity at half the cost of diesel generators.

$5-$10 trillion of fossil fuel generation assets are bound to be decommissioned in the next 15 years, in order to meet the sustainability goals set by the U.S. and E.U. in order to prevent a climate catastrophe.

FTF Energy is uniquely positioned to provide the 24-hour renewable power needed to displace fossil fuel use.



FTF Energy provides renewable electricity to medium and large commercial operations using smokeless and odorless biomass electricity generators. Biomass refers to plant-based materials that can be used to create heat or electricity. We create fuel for our electricity generators, using biomass waste like woody debris, dry crop waste, and yard trimmings.

Our mission is to replace dirty fossil fuel backup generators.

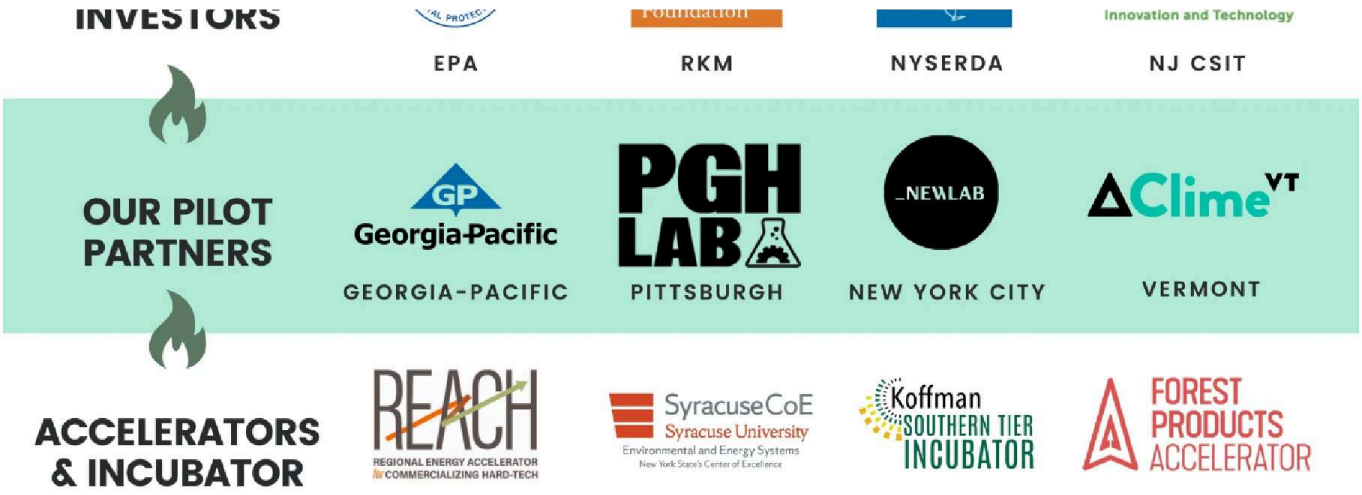
OUR SUPPORT

OUR INVESTORS

Richard King Mellon

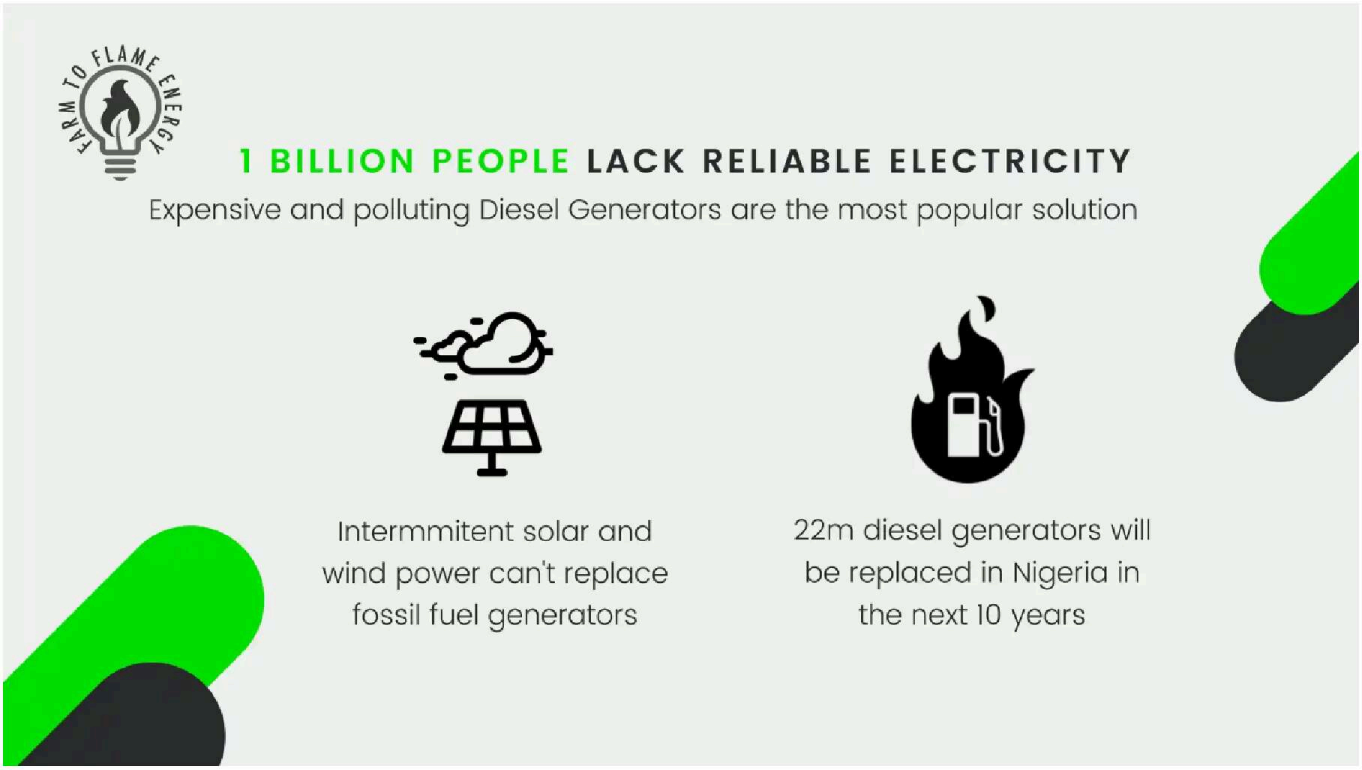
NYSERDA

New Jersey CSIT Commission on Science,



FTF Energy is supported by world-renowned organizations such as the Environmental Protection Agency and Georgia-Pacific. Our lead investor is social impact fund, the Richard King Mellon Foundation. This network has set us on track to deploy commercial units over the next 18-months, providing our clients in the Northeast U.S. with reliable clean energy.

The problem we solve



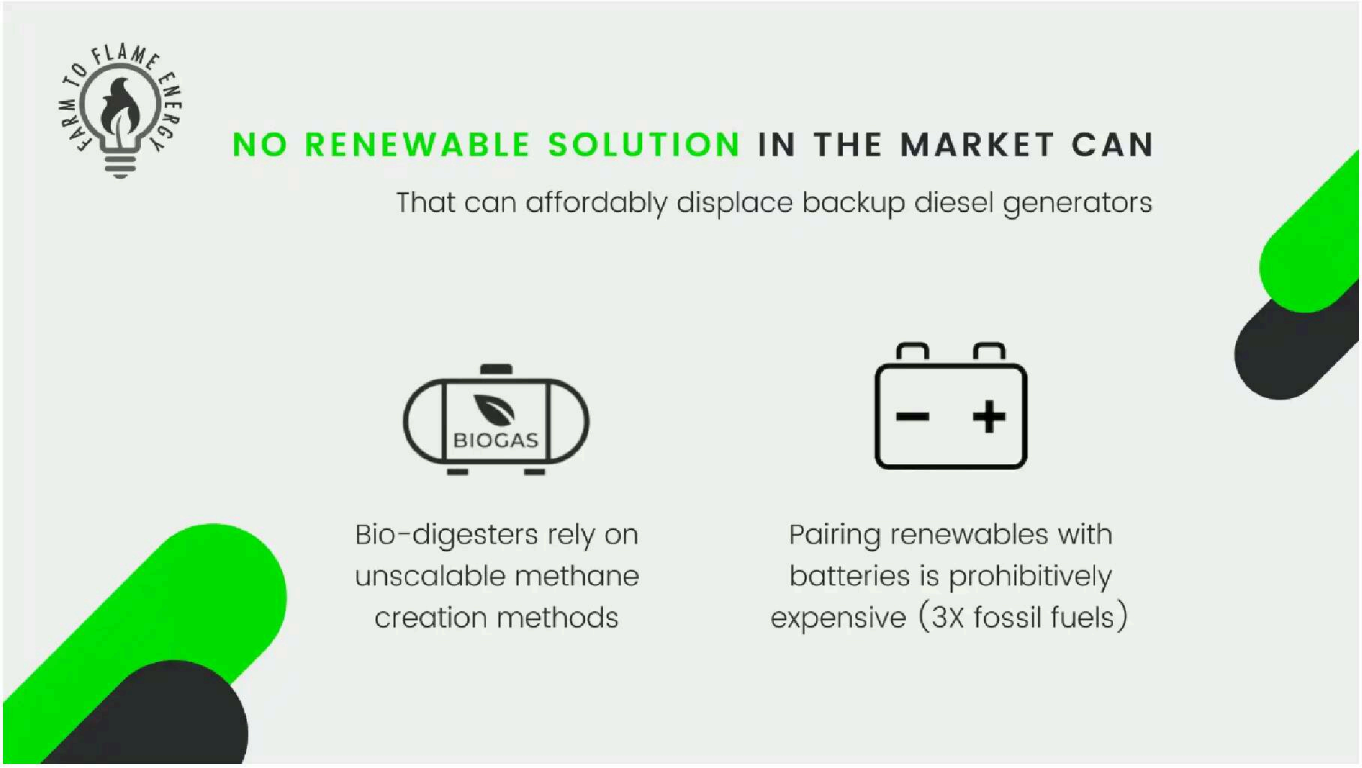
Electricity is a crucial part of every countries' economy, and lacking

Electricity is a crucial part of every countries' economy, and lacking access to it prevents them from improving their healthcare, education and from increasing their productivity.

Such is the case of Nigeria. 86% of businesses own diesel generators, in order to continue operating when the grid fails. On average, there are daily blackouts that last 12+ hours. **The fumes from these diesel generators cause 1,500 deaths per year, just in Nigeria.**

Solar alone can't solve this problem. Businesses need power when the sun is not shinning and batteries are cost prohibitive.

The opportunity we see

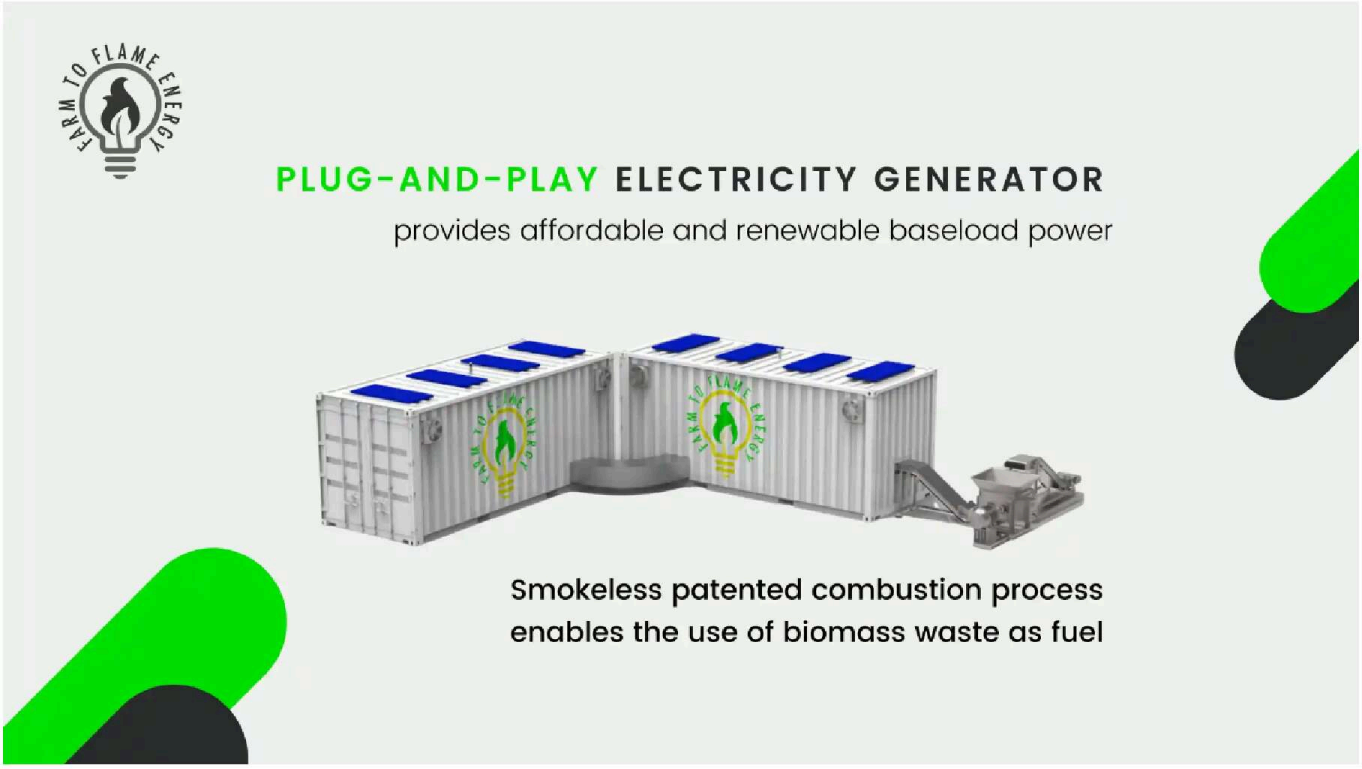


Until now, there were no solutions in the market that can effectively replace diesel generators.

Batteries enables businesses with solar panels to access 24-hour power; however, it increases the cost of electricity by 50% vs diesel generators ($0.45/kWh vs $0.30/kWh). This cost is expected to rise due to the shortage of battery raw-materials.

Bio-digestors rely on capturing methane from biomass decomposition. This process is complex, labor intensive and does not provide extensive fuel flexibility. For this reason, there are no automated bio-digesters that have scaled to date.

Our innovation



FTF's solution is a biomass electricity generator that provides renewable electricity directly to our clients. The FTF Generator is placed in a weatherproof shipping container that enables fast and efficient deployment.

The FTF Generator is installed at our clients site, alongside a storage tank that disburses the fuel as needed. The operation is completely automated, and remotely monitored, so that the client does not need to interact with the generator.

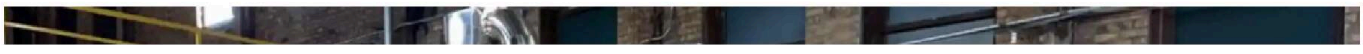
FTF Energy S2 Generator

This is our generator. Our patented combustion process outputs heat to create steam. We incorporate our own burner design into saturated and superheated steam producing boilers.

The steam-turbine, alternator and condenser system is the same used by natural gas and coal power plants.

The Generator can output 220MWh per year. **At a $0.15/kWh PPA, it's $33,000/year in recurring revenue, of which $19,000/year would be profit.**

The generator will be deployed at our client's site, Think and Grow Farms in New Jersey. Think and Grow Farm's lacked grid connectivity, wanted to power their operations with renewable energy and productively repurpose their biomass waste.



FTF Fuel Pulverizer

This is our fuel processor. It transforms mixed biomass waste to a dry, uniform micron-sized powder that is used by our generators to create electricity. This machinery is currently housed in our manufacturing space in Duquesne, PA.

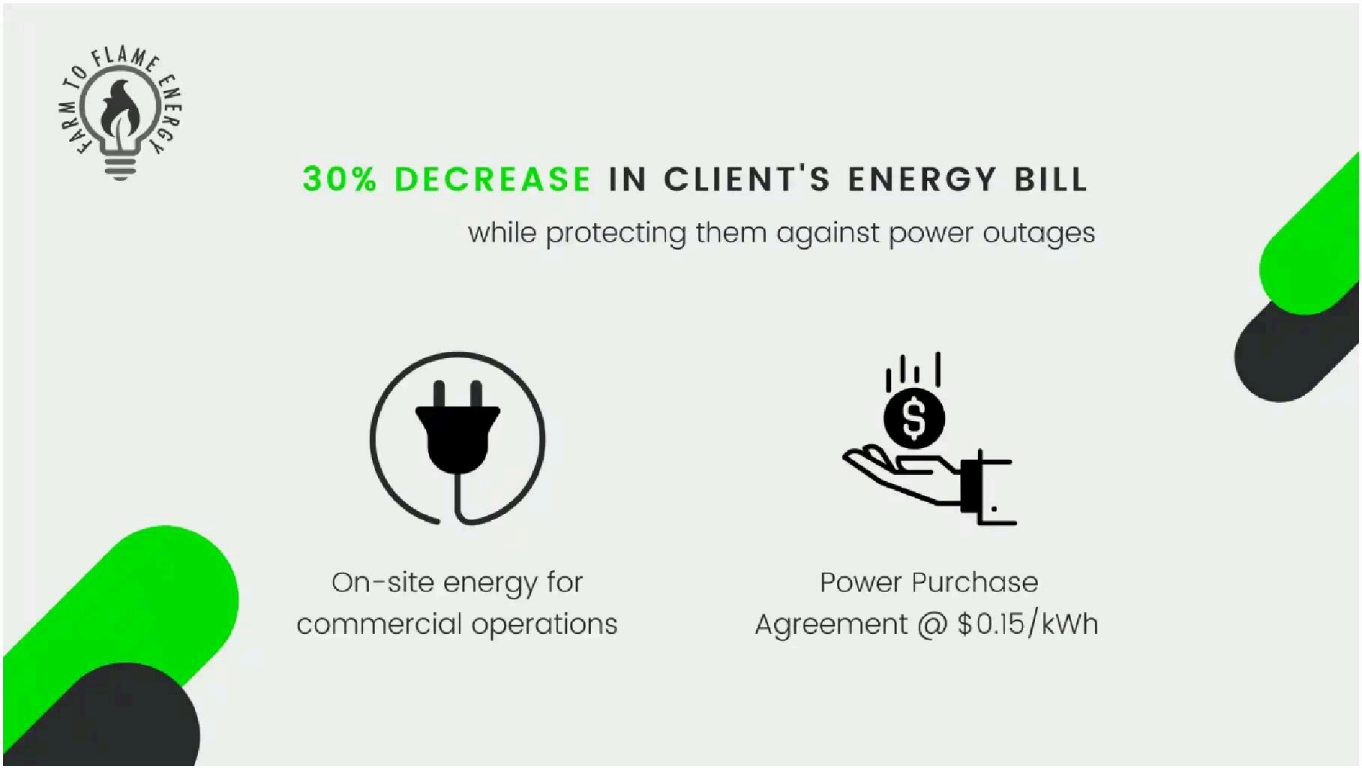
Our processor has the unique advantage of creating fuel from feedstocks that are typically unsuitable for electricity generation. **We can make fuel from:**

- Woody Debris such as hardwood and softwood. It is common for landscaping and pallet companies to pay to dispose this type of waste in landfills.

-Primary Grain waste incoming from farming operations. Tested feedstocks include hemp, hay, corn stover, husk, bamboo & miscanthus

- Yard Trimmings such as branches and leaves. Landscaping companies produces these on a regular basis and pay to get rid of them at the landfill.

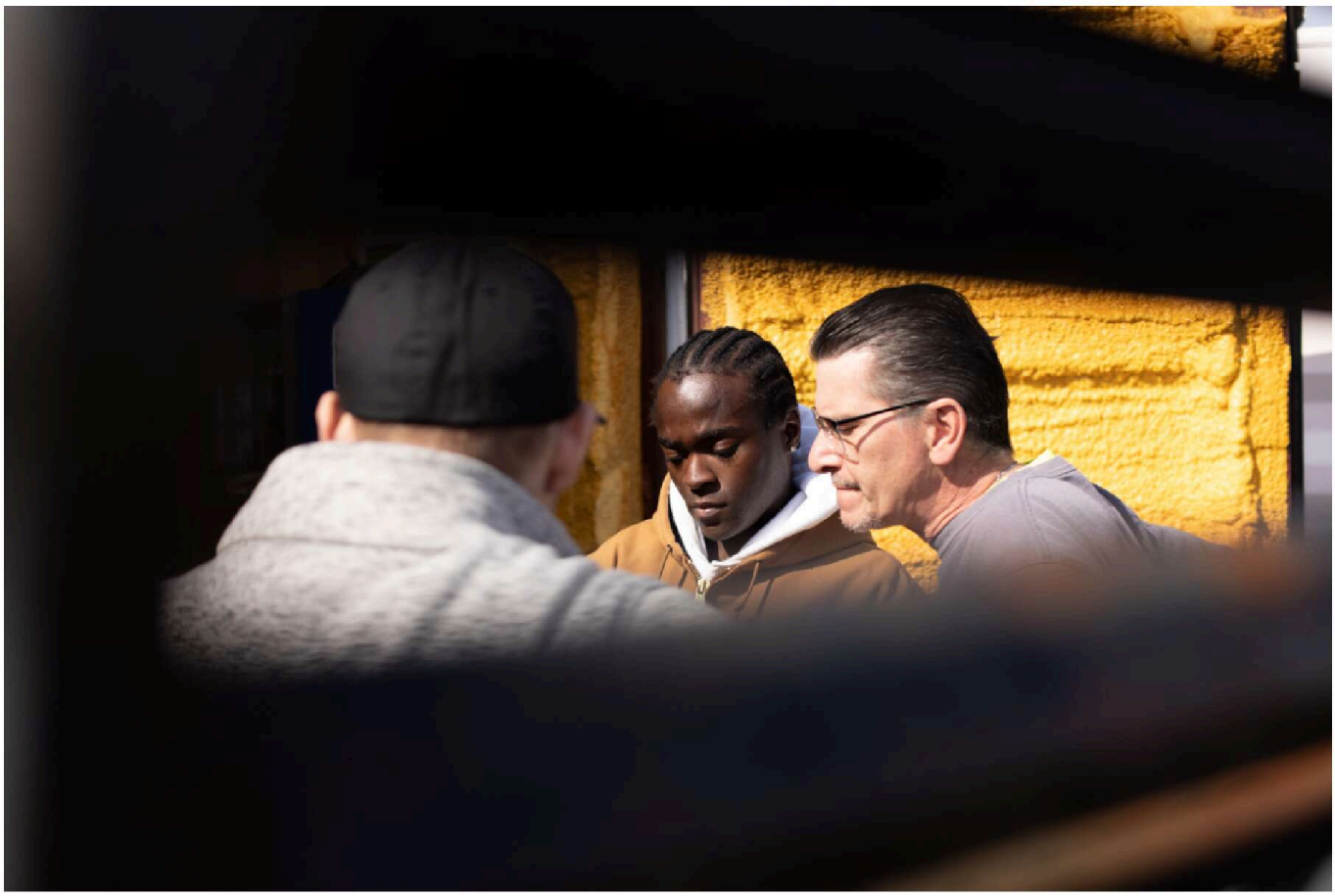
Why our clients choose us



We are targeting commercial operations that suffer from high electricity rates, to provide them with a substantial decrease in their monthly bills.

We also work with client's that suffer from power outages, enabling them to achieve energy independence, while saving them money from displacing diesel generators.

Impacting the Community



The environmental impact and community benefits of our technology has enabled FTF Energy to raise funding from social impact funds and federal organizations (click links below to read more).

BNY Mellon in Partnership with Innovation Works held a social impact competition, in which FTF Energy Won First Place and $150,000 in non-dilutive funding to Standardize our Generator Operating Procedure

The New Jersey Commission of Science, Technology, and Innovation

The New Jersey Commission of Science, Technology, and Innovation awarded Farm to Flame Energy a $250,000 grant to demonstrate our generator outputting electricity and charging electric vehicles.

The Richard King Mellon Foundation invested $200,000, through a funding round designed to support socially responsible companies. We are creating clean-tech jobs in the Pittsburgh area, enabling us to provide transition opportunities to workers that were previously part of the coal industry.

FTF won the $150,000 Grand Prize from the NY State Fuzehub commercialization competition. From a pool of hundreds of candidates and dozens of finalists, we were chosen as the number 1 startup-venture in the state,

Capital Innovators, VC Group, invested $50,000 in FTF's Seed Round. St. Louis has the ambitious climate change goals and biomass availability our technology needs to succeed. This accelerator investment can pave the way to a larger $500K - $1M investment from their venture group.

The Environmental Protection Agency awarded us $100,000, through a competitive innovation program aiming to create new uses for non-hazardous materials. We worked alongside the EPA for 6-months to build and test our current 30KW Generator. Our incubation partner, the Syracuse Center of Excellence, matched this investment with an innovation fund grant.

The NJ Commission of Science awarded $75,000, to support the development of clean technologies that can positively benefit the state. Their funds enabled FTF to tailor the FTF Generator to our New Jersey greenhouse client, Think and Grow Farms.

Cisco, the largest company in the networking and communications devices industry, awarded FTF Energy $50K grant to further commercialize our technology.

Our Network

We are partnered with organizations that are helping us commercialize our technology, access funding and identify pilot projects. Click links below to read more:

NewLab inducted FTF as part of their Founder Fellowship program to work at the Brooklyn Navy Yard, which opened doors of us to work together with them on pilot projects.

REACH Accelerator is sponsored by the Department of Energy, partnered with the Colorado State University (CSU), a hub for biomass energy technology development. They provide $50,000 towards in-kind services to FTF Energy.

PGH LAB is a program from the City of Pittsburgh focused on piloting innovative technology. Through the program, we received an electric vehicle charger to pilot the use of FTF Generators as electric vehicle charging stations to provide energy for the city-owned electric fleet.

New York State Energy Research and Development Authority enables us to access sponsored interns and mentors. **Koffman Southern Tier Incubator** and **Scale for Climate Tech** are working with us to refine our manufacturing strategy, alongside providing working capital funding.

DeltaClimeVT is sponsored by Vermont Utility companies. They chose FTF Energy to deploy pilot projects within the state of Vermont. Their electricity rates are >$0.18/kWh and so we can provide clients in this area with substantial savings while helping the utilities meet growing supply needs.

The trillion dollar market we tackle

Prior to tackling Nigeria, FTF will deploy 1MW of pilots (e.g. 5 200KW units) in the United States. These pilots will enable FTF to prove its client benefits and standardize our generator manufacturing and fuel processing approach at scale.

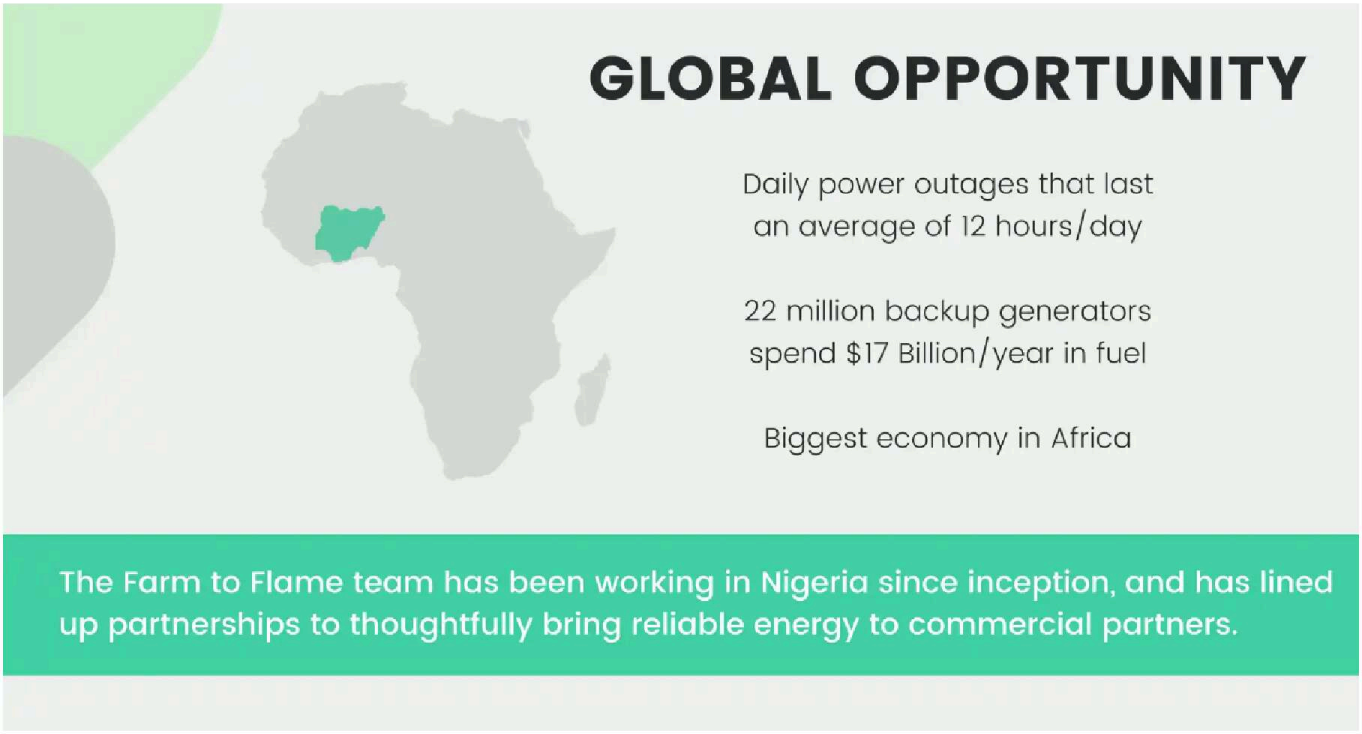
Value Proposition for U.S. Clients:

Georgia-Pacific - Increase the efficiency of their generator units, and leveraging their feedstock waste resources, transforming them from a liability to an energy asset

Vermont Utilities - Provide affordable renewable power to support their transition away from fossil fuels

Brooklyn Navy Yard - Local Law 97 banned natural gas installations in buildings. Their high electricity costs ($0.27/kWh) enable us to provide 40% savings on their energy bill.

City of Pittsburgh - Need of carbon-neutral electric vehicle charging stations, while helping them achieve reduction in wood waste disposal costs up to $130K/year.



The long-term market opportunity that FTF Energy is pursuing lies in the high diesel power consuming countries, beginning with Nigeria. **Nigeria is the biggest and most developed economy in Africa, yet lacks the grid infrastructure necessary for its citizens to access reliable electricity.** We will start by replacing 3.5MW of diesel generators at the the University of Calabar, and expand to service the millions of businesses that use large diesel generators on a daily basis.

FTF travelled to Nigeria in 2019 and 2020 to build these relationships.

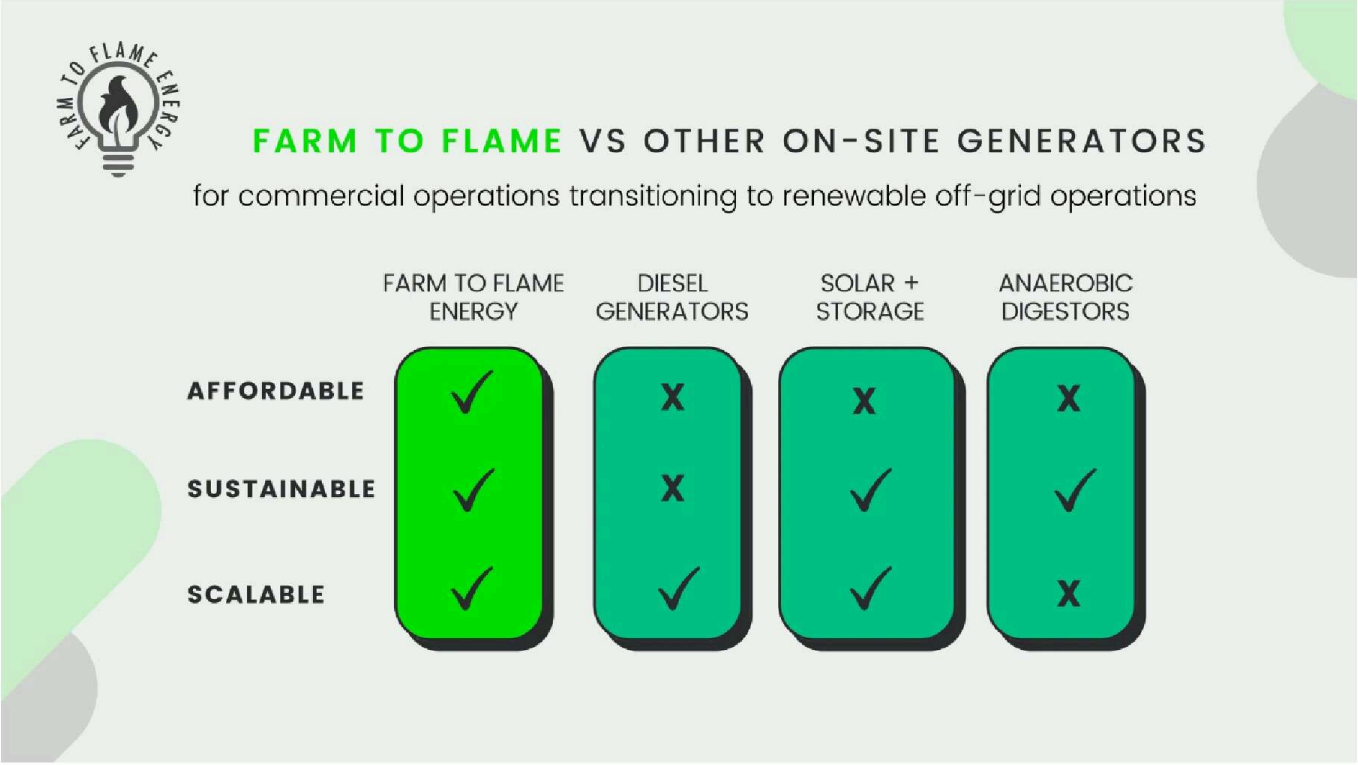
In our 2019 trip, we experienced poor air quality created from the diesel generators. These unbearable emissions are part of their every-day life, which results in over **1,500 deaths per year in Nigeria**

In our 2020 trip, we returned to Nigeria to convert the letter of interest we had with The University of Calabar to a contract. We will replace 3.5MW of diesel generators, with a biomass + solar hybrid system that allows the university to run off-grid at half the cost of diesel. FTF will provide a $1.5M/year savings, while earning $3.5M/year in recurring revenue.

We've incorporated in Nigeria, and built a network of engineers, real

estate agents and human resource specialists that help us stay in contact with these organizations.

Competitive Advantage



FTF Energy is uniquely positioned to provide the most competitive solution to clients looking to run operations off-grid, while transitioning away from fossil fuels. Our patented combustion process allows a complete combustion that maximizes thermal efficiency, and reduces Carbon Monoxide levels <50ppm, eliminates Volatile Organic Contents and the toxic emissions that are typically present when burning biomass.

Diesel Generators run at $0.30/kWh, and so they are 2X more expensive than FTF Generators. The toxic emissions caused from combustion are health hazardous, and ~1.5kg of CO_2 are released per kWh. They are the most popular solution due to the convenience of accessing diesel from any gas station.

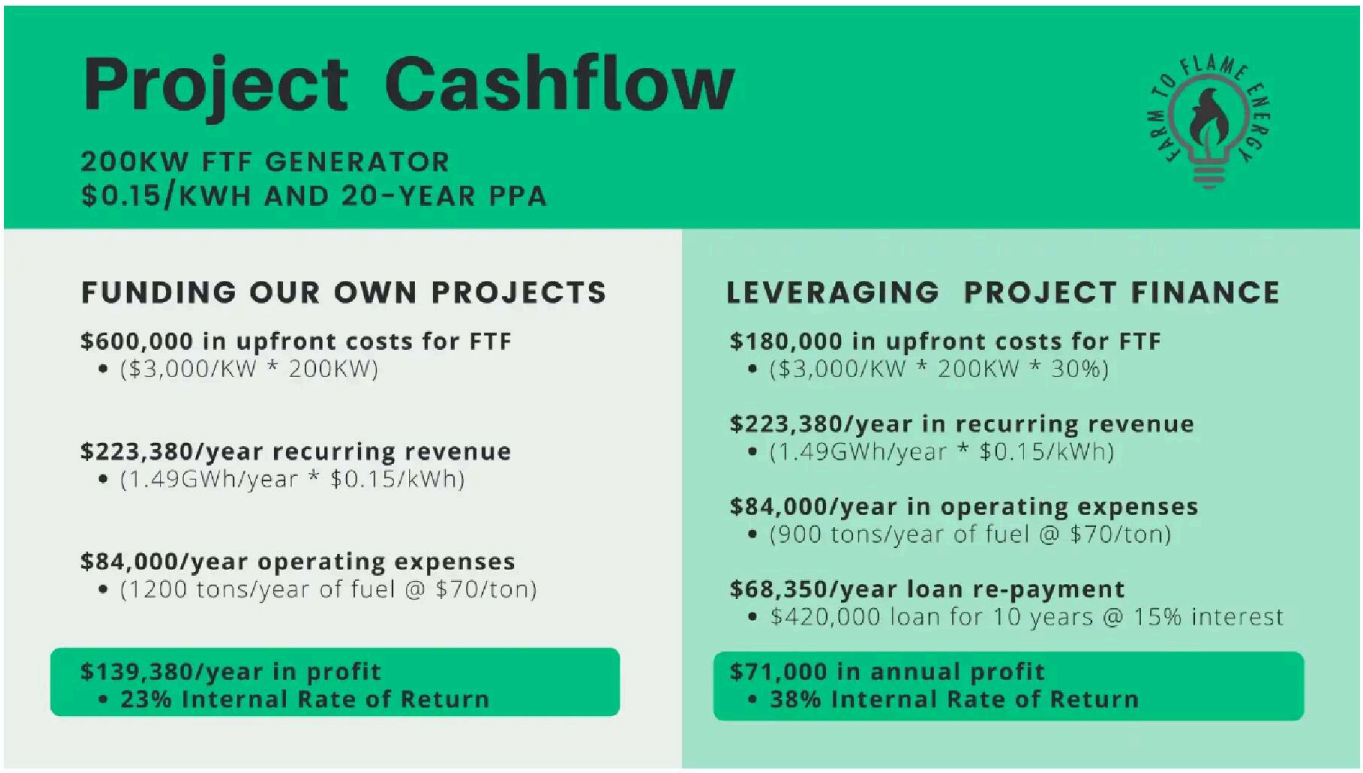
Natural Gas generators output 0.6 kg of CO_2 per KWh. Although they are more affordable than diesel generators, the need for pipeline

are more affordable than diesel generators, the need for pipeline infrastructure to distribute the natural gas prevents this fossil fuel from being ubiquitously used in the developing world.

Anaerobic Digestors (or bio-digesters) rely on creating methane from biomass decomposition. Predicting biomass decomposition is extremely complicated and dangerous to do at scale, which has resulted in multi-million dollar companies like Harvest Power to fail in the past. Anaerobic digestion is better suited for processing other types of organic waste, such as food scraps, manure and sewage sludge.

Solar + Storage costs >$0.45/kWh when used for 24-hours. This prevents current diesel generator users to switch to renewable options. The intermittency of solar is not capable of delivering the reliable base load power that businesses need to operate when the grid fails. The use of conflict minerals to create batteries has resulted in a shortage of raw materials, which is causing a rising trend in the cost storage ($130/kWh in 2021 vs $135/kWh).

Project Economics



Forward-looking projections are not guaranteed

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The following is the cashflow associated with a 200KW FTF Project.

Upon FTF self-funding a 200KW Generator, FTF receives ~$139,380/year in profit from an $600,000 initial investment. **This 23% IRR is more than the standard return for solar project in the U.S. (13%) and mini grid projects in Nigeria. (15%)**

The long-term strategy is to replicate the approach of solar project developers, in which project finance is leveraged to deploy revenue generating assets.

In order to access affordable project finance, FTF needs to build a record of revenue from similar projects. These will allow us to access more competitive debt and continue growing organically.

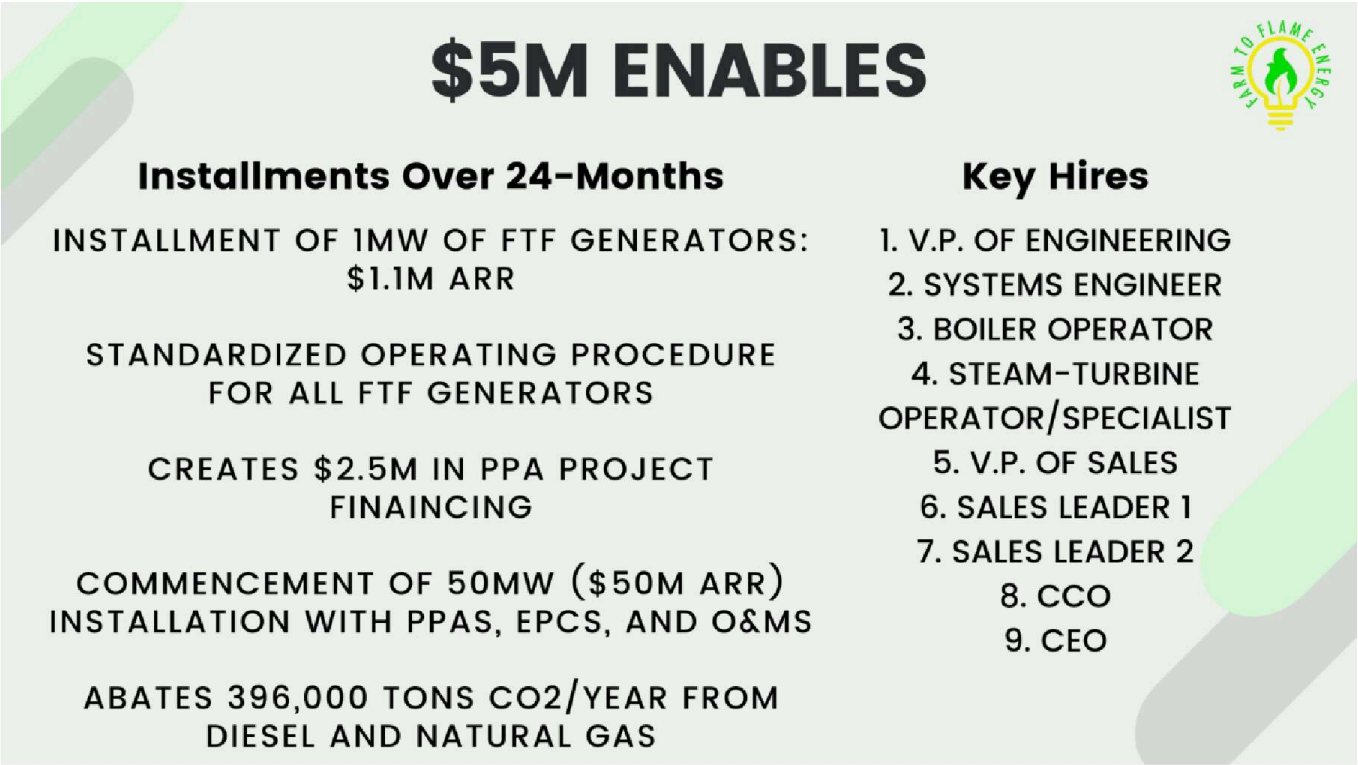
Traction

Demonstrating our technology through our initial pilot and

R&D projects allowed us to secure the clients, equipment suppliers and feedstock necessary to continue deploying FTF Generators.

The funding capital raised will enable FTF Energy to build a team that can service the clients waiting for our solution, and prepare further expansion to 1MW of FTF Generators on the ground, while entering long-term contracts for 50MW of future generator installation.

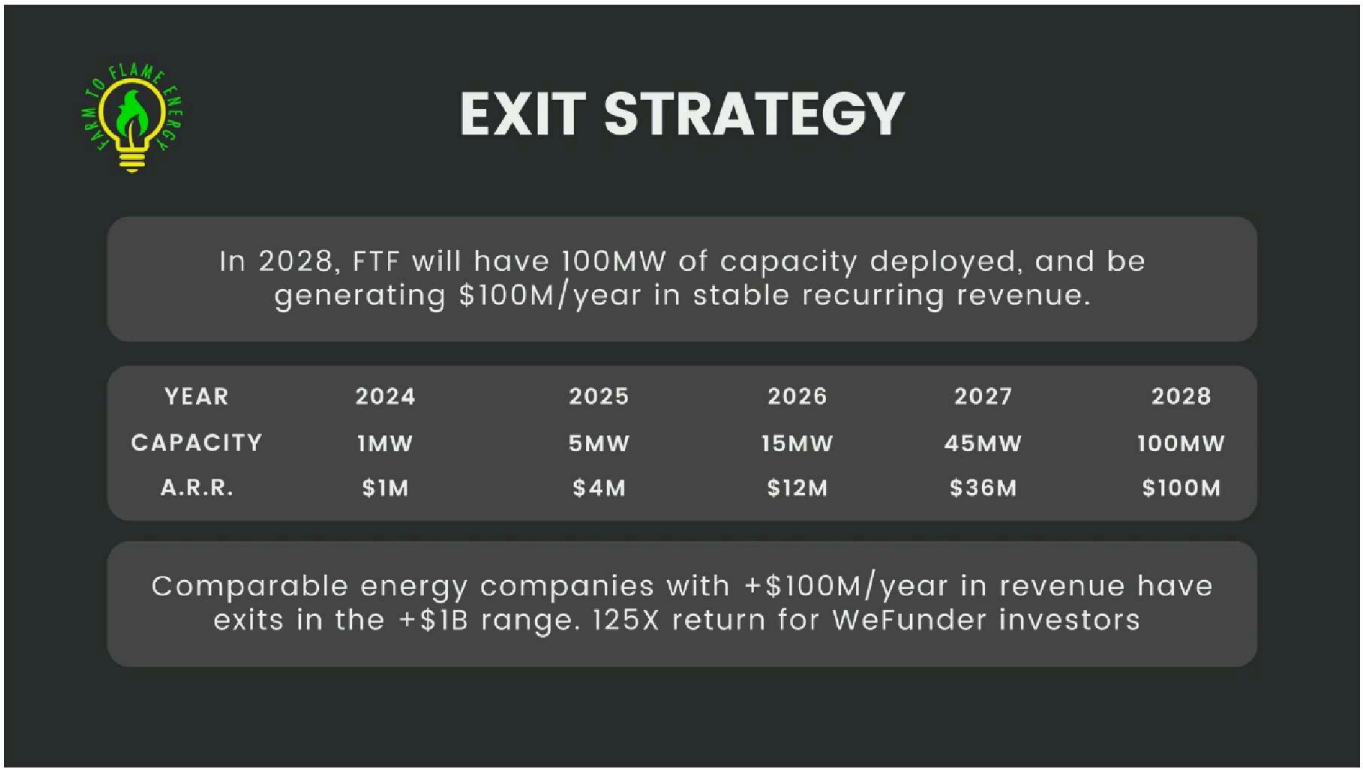
Funding Strategy



Forward-looking projections cannot be guaranteed.

At the end of the 24-months following the raise, FTF Energy will have 1MW of capacity deployed through 3-4 locations. At this point, we could have ~$1.1M in annual recurring revenue. We will be in the middle of constructing the 5MW plant for Cocoa Processing Company, which will provide $17.25M in fixed revenue, and $1M in yearly revenue for three years. We will then be in an ideal position to pursue a series B round to accelerate growth. *Projections cannot be guaranteed.*

Exit



Forward-looking projections cannot be guaranteed.

FTF Energy will work arduously to provide its early investors meaningful returns. Exit options include M&A with energy conglomerates, or creating our path towards IPO.

Downloads

2023-2022 Audited Financials Financials Farm to Flame Energy Inc..pdf

Farm to Flame - Form of Subscription Agreement(318118968.2) .docx