



## CLEAN FLAME FUND

### *Grantmaking for Pellet Gasification Cooking*



#### Summary

This prospectus invites contributions to the [Clean Flame Fund](#), a grant program to help commercialize pellet gasification cooking in Sub Saharan Africa. This cooking solution can save millions of lives, reduce greenhouse gas emissions, deforestation, and poverty, and improve the lot of women and children in particular. Deployed under appropriate business models it can be highly profitable and scalable, helping the world reach UN Sustainable Development Goal 7 of providing modern, affordable, and sustainable energy for all. The Clean Flame Fund received a seed donation of \$100,000, has issued two high impact grants thusfar, and targets a total raise of \$20 million.

#### Background

Four billion people in poor nations cook with biomass, using open fires and rudimentary stoves. This costs \$2.4 trillion a year in lost productivity, climate change, environmental degradation, and—most importantly—disease and death from smoke exposure. Cooking smoke causes diseases that prematurely kill four million people a year, concentrated among women and children.

Development organizations and governments have tried to solve this problem for decades, with disappointing results. Although the number of people cooking with cleaner alternatives has increased, this is outstripped by population growth among those who use traditional cooking systems. The problem is getting worse.

Solutions to this crisis haven't evaded us because of a lack of technology. There are multiple advanced cooking systems, fueled with electricity, LPG, ethanol, biogas, and gasification of biomass pellets. The greater challenge is to make these modern solutions affordable, convenient, sustainable, and widely accessible to the world's poorest families.

This challenge is too enormous to solve with philanthropy and subsidies alone. Instead, we need to use modest amounts of philanthropy to nurture innovative business models that can deliver advanced cooking solutions to the world's poor, profitably, over the long haul. Profitable enterprises can then attract private investment and scale widely.

## Fuel + Stove + Business Model

In recent years, several African firms have piloted promising business models using biomass pellets to fuel fan-powered gasifying stoves. The stoves are clean burning and efficient, but they cost nearly \$100 each, an unaffordable up-front cost for poor households. That's where the business model comes in, using variants of the Pay As You Go approach applied successfully in the off-grid solar market.

Customers sign contracts to buy pellet fuel and then receive one or more gasifying stoves, either through a free lease or installment purchase plan. Because the stoves are so efficient, they use very little fuel. Customers obtain a clean, modern cooking system with little or no up-front investment and their monthly fuel bill goes down. Not surprisingly, customer demand for this solution has been very strong.

Besides being the lowest cost cooking solution in many settings, pellet gasification offers multiple additional benefits, including improved health and convenience, especially for women and children. It reduces the amount of biomass needed for cooking by 85 percent relative to firewood and charcoal. If universally adopted it would reduce global greenhouse gas emissions by two percent, displacing the release of the entire aviation sector. It can run on renewable, home grown fuel, generating local jobs. Contrast this with LPG, a fossil fuel that is imported into many poor countries and often subsidized at considerable drain on national treasuries. The wood, grass, and agricultural residues used to produce pellets are more widely available across the world than the feedstocks used to make ethanol or biogas.

Despite its promise, pellet gasification has received less attention and support than other advanced cooking options. A handful of pioneering firms have demonstrated the model at pilot scale of up to 5,000 households with enthusiastic customer demand. To be profitable and to attract investment to fuel further growth, however, these companies have to operate at utility scale, which requires millions of dollars in capital, primarily for pellet factories and stoves.

These firms are caught in a Catch 22. They have compelling business plans showing a path to healthy profits, with predictable, recurring revenue. But the solution is poorly understood, it hasn't yet been proven at scale, and investors and donors are risk averse. So the companies limp along in start-up mode, with insufficient capital, while the global problem they seek to solve continues to grow.

It is time to try something new.

## Grantmaking Fund

That something new is to create a \$20 million grantmaking fund targeted solely at commercialization of pellet gasification cooking. Initial support of \$100,000 has been provided by a private donor. Two initial grants have been awarded. Although these initial grants were small, they are having outsized impact, as described at [hezaearth.org](http://hezaearth.org).

The fund will make targeted grants to help up to five pellet gasification firms across sub-Saharan Africa reach commercial scale and profitability.

Once several companies reach commercial viability, the sector should be able to attract significant private investment, and spread globally, as happened in the off-grid solar market. That industry began over a decade ago with about \$20 million of investment per year and now draws more than \$300 million annually in new financing.

## Approach

The grantmaking process will be managed by [Heza](http://Heza), a non-profit focused on clean, renewably fueled cooking in the global south. Heza is led by Michael Shepard, former director of the energy program at RMI, and former Chairman and CEO of E Source, a research, advisory, and data provider in energy efficiency and renewable energy. Over the past several years, Michael has advised several pellet gasification cooking firms in Africa. He is intimately familiar with the sector.

Heza sits under the fiscal sponsorship of [ISET International](http://ISET International), an NGO with a 25 year track record in sustainable resource use and climate change resilience in the global south. ISET will provide back office management and oversight of the fund. ISET has managed over \$40 million in grants, from such funders as Rockefeller Foundation, Ford Foundation, the UK Department for International Development, U.S. Agency for International Development, International Red Cross, The World Bank, and others.



### Contact us

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