

## Emerging Cooking Solutions: Testing Employer Guarantees and a Pellet Business model

### Organization Profile

- Year Established: 2012
- Country of Operation: Zambia
- Headquarters: Sweden
- Type of organization: Stove distributor, fuel manufacturer and distributor
- Product(s)- Pellets, Philips stove- <http://catalog.cleancookstoves.org/stoves/47>, Prime Stove- <http://catalog.cleancookstoves.org/stoves/269>
- Grant (type) and round

### Organization Overview

Founders Mattias Ohlson and Per Löfberg started the Emerging Cooking Solutions when they became aware of the massive charcoal and deforestation problem in Zambia. Noting that pellets were a renewable source of fuel and could potentially lead to improved health outcomes when paired with the right stove, they invested their own savings to establish a cookstove and fuel company. Today, Emerging Cooking Solutions (ECS) manufactures and sells pellets under the Supa Moto brand in Zambia. They sell two models of household stoves and their own Supa moto institutional stove in urban areas around Lusaka.

## Grant Objective

At the time of the Pilot Innovation Fund application in 2014, ECS had started to manufacture and sell pellets and established a short track record of sales.

However, they had found it difficult to increase the per-user sales of pellets and stove sales were stagnating. ECS sought out a PIF grant to help them finalize their business model- testing which combination of stove and pellet fuel would result in the highest possible consumer uptake.

ECS had planned to first understand why the uptake of their current stove model, the Philips force draft stove was not going as planned. Then, they would test the Prime Stove, the ACE1 and Philips with customers and integrating consumer finance, ultimately deciding to distribute the stove with the highest uptake. The main variables that they wanted to investigate to find a high volume sales ratio were:

- amount of payment upfront
- amount of subsequent monthly payments until stove is paid off
- our ability to subsidize the stove(s) based on forward pellet sales
- the tradeoff between lower initial cost/lower quality/higher fuel consumption (Prime stove) and the opposite (Philips stove)
- amount given in commission to sales people to create a strong motivation
- different distribution channels (such as individual entrepreneurs, churches and women's groups)



In addition to the funding from the PIF, ECS invested their own funds to test institutional stoves and pellet sales. They would scale up institutional pellet sales if the market proved to be viable.

## Achievements of Grant

Overall, the PIF grant was successful in providing ECS with the capital to test and solidify their business model, though the founders admit that they still have a long road to reach a significant share of the fuel market in the country. The business model has solidified to sales through two main channels: institutional stove sales with pellets and household stove sales of Prime and Philips stoves through employer financing. By the completion of the grant term, ECS had sold more than 1500 household stoves, 120 institutional stoves and 140 tons of pellets.

With the institutional stoves, ECS found that there was not a force draft stove that was well optimized for their pellets. Instead of importing technologies, ECS has designed their own force draft stove that they sell to restaurants and institutions. Today, these customers represent the bulk of ECS' pellet sales.

ECS has also reduced the cost of managing relationships with each of these customers through a strong partnership with a distribution company responsible for taking orders and delivering pellets. The distribution company receives 20% of pellet revenue in exchange for their services. ECS only focuses on stove and pellet production and sales of new institutional stove + fuel systems.

Their business model at the household level now focuses on sales of stove and pellet systems through large employers, where customers can easily pay for their stove through payroll deductions and purchase additional pellets. They have expanded distribution to 11 outlets around Zambia through partnerships with Total and World Wildlife Fund, but have had to abandon plans for large scale, localized distribution through informal sales networks as they have not been a reliable source of sales and do not conduct business in line with ECS' ethical standards.

ECS remains committed to the sales of stoves and fuel to households where they believe they can have the greatest impact, but the leadership is aware that it is an uphill battle and more expensive sales channel. The company has noticed that market dynamics are quickly changing in favor of clean, renewable energy at the household level. Recent changes to the energy price and availability in Zambia have increased household demand for stoves. The charcoal price in 2015 skyrocketed and there were frequent power shortages, resulting in an increased demand for stoves and pellets that generate energy (for phones and lights) even among high income consumers.

#### Lessons Learned

***Flexible funding at the early stages of a cookstove and fuel enterprise is key.*** ECS had to test all aspects of their business model through trial and error, including stove model, fuel distribution model, fuel package sizes, repayment plans, and marketing messages. They found that there were very few funders that were willing to fund trial and error at the early stage of the company and without a guaranteed positive outcome. CEO Mattias Ohlson noted, "We are creating the market. It's not a straight line to develop the business model at all. Development in Zambia is not a linear thing. Suddenly everyone is looking for a solution."

***Technological innovation is still needed to reduce cost and increase usability of stoves that burn pellet fuels.*** Zambia has an average daily income of around \$4 US, significantly what their customers could spend up front for a technology. Emerging Cooking Solutions determined that a force draft stove that wholesaled for under \$20 would meet their goals for impact on health and affordability. Ultimately they wanted to reach a tier 3 for indoor emissions. In addition, they needed to partner with a stove manufacturer that could supply hundreds of stoves without a long lead time on orders. Many manufactures who required upfront payment took 3 months to manufacture the technology and then it would take up to another 5 months to get them into the country and sold, creating an 8 month cash cycle. They were not able to find a \$20 US technology within the grant period and have settled on giving

customers the option of a natural draft stove- the Prime stove- and a force draft stove- the Philips model. ECS sales agents promote the Philips model to anyone who can afford it, citing the health benefits. For lower income families, ECS is clear that the Prime stove and pellet fuel is a great alternative to charcoal, but does not claim that it will improve the health of their family. ECS noted with some of their lowest income customer segments that “when you give a customer a choice between 2 stoves: expensive versus cheap, fuel savings did not make a big difference. Customers had the option of spending 30 Kwacha on a Prime stove or 300 Kwacha on a Philips stove. It’s [spending 300 Kwacha] not something they can do.”

***Partnering with informal distributors was not cost effective.***

At one time, ECS was managing loans and distribution to 35 separate resellers. Many of them were informal entrepreneurs or small companies that did not pay their bills and were not honest with ECS about their operations and ability to pay. This had placed ECS in a difficult position as they had extended inventory loans to the distributors through a partnership with Kiva. They found that many entrepreneurs did not fully understand the concept of consignment and it was



very difficult to reach them after they had received inventory and training. The management team at ECS quickly discovered that when entering a fuel switching market you have to be prepared to be involved in every part of the value chain. Ultimately, their goal is to be pellet producers and wholesalers. They have achieved this with the institutional market, where they generate most of their recurring sales. ECS is still testing other distribution methods and is in the initial phases of a fuel distribution partnership with the retail business of Total. They have pellets in 5 Total stations across 3 regions of Zambia.

***Payroll deduction in partnership with private companies has been the most successful way to distribute stoves and fuels with a consumer financing option, but the stove needs to be bundled with a large volume of fuel for the upfront purchase.***

ECS worked with Chilembas, or rotating women’s saving groups. They found that they are consistently able to sell to women in these groups and that there is a high repayment rate for the stoves, but sales still occur at small volumes and require a significant time investment. Furthermore, ECS did not find the women would make recurring pellet purchases. Instead, the women would supplement their pellet fuel with twigs.

They also tried the employer guarantee model with government workers. ECS was initially excited about this partnership- the Zambian government workforce was a large potential market. Once they had gone through the process of all of the regulation and logistics of the payroll deduction, ECS discovered out that the government workers were already heavily indebted and not able to take out loans. Instead, ECS works with private employers and associations for payroll deduction with the majority of their household sales occurring through this channel. When ECS demonstrates the stove to employees of a

large company, consumers have the option to purchase a Prime stove with 3- 16 kg bags or a Philips stove with 2 16 kg bags. If they choose to purchase the Philips stove, they make a down payment of 300 Kwacha and pay an additional 250 Kwacha per month for 4 months. If they choose the Prime stove, they pay 30 Kwacha down and 150 Kwacha per month for 4 months. Customers can purchase additional fuel at their place of employment.

***The marketing message makes a difference.*** One of ECS' first marketing strategies was to highlight the stove's efficiency and savings on fuel over traditional charcoal. They quickly found that savings on fuel did not mean much to the target customer. ECS then tested marketing messages around the speed and convenience of cooking and found that to be the most effective. They also found the consumers in Zambia were well aware of carbon monoxide poisoning from their charcoal stoves and often ask about the amount of smoke the stove emits and knew that health messages would be effective when paired with a clean stove.

***The pellet business model is viable if when the institutional sales channel is added and stoves are not sold below cost.*** As stated in the results, ECS did not see very large recurring sales on the domestic side, and could not rely on recurring fuel sales to finance the stove. They found that they have to take decent margin on the stove to cover the cost of the sale and then charge about 12% for the financing service.