

# **PRACTICAL APPLICATIONS OF COOKING FUEL STANDARDS**

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## **CASE STUDIES IN HAITI & UGANDA**

Standards Alliance workshop on Standards for Liquid Cooking fuels

Session 5

Lusaka, Zambia

November 1, 2018

POET

# LARGEST COMPANY BY REVENUE IN EACH STATE 2015





# SEE THE WORLD DIFFERENTLY

**28**  
PLANTS

**1,800**  
EMPLOYEES



**\$200**  
MILLION

(average) contribution  
to each plant's  
local economy

**4** BILLION  
KILOGRAMS

of distillers dried grains  
produced annually

**6.4**  
BILLION

liter production  
capacity.

**\$6 BILLION**  
IN ANNUAL REVENUE

**800%**  
GROWTH  
since 2000.

**14**  
PLANTS

produce Voilà  
biorefined corn oil

and distributed  
to countries  
throughout  
the world.





# UNIQUE IN OUR INDUSTRY

## POET'S INTEGRATED BUSINESS MODEL





ROOTED IN A TRADITION OF  
**AGRICULTURE.**

+  
**THOUSANDS**  
of farmer investors

+  
**OVER 550  
MILLION**  
bushels of grain  
purchased  
annually

+  
**AGRICULTURAL  
IMPACT**  
Increased farm income  
Sustainable grain prices  
Increased land values  
Local jobs

+  
**OVER  
20,000**  
farmer  
suppliers

**100% HOMEGROWN.  
0% WASTED.**

OPPORTUNITY IS EVERYWHERE  
**IF YOU KNOW  
WHERE TO LOOK.**



In addition to producing fuel  
and feed, many POET plants  
also capture CO<sub>2</sub> for use  
in other industries.



**FUEL**

STARCH  
CONVERTED TO  
ETHANOL.

**FOOD &  
FEED**

PROTEIN, FIBER AND  
FAT CONVERTED TO  
DISTILLERS GRAINS,  
CORN OIL AND OTHER  
RENEWABLE PRODUCTS.



**VOILÀ!**



# FANTASY FUEL



FARMERS COLLECT  
**280,000 TONS**  
OF CROP RESIDUE  
ANNUALLY



**20-25 MGPY**  
OF CELLULOSIC ETHANOL  
WASTE STREAM USED FOR  
POWER GENERATION.



**83% LOWER**  
**GHG EMISSIONS**  
THAN GASOLINE

Project LIBERTY  
a POET-OSM joint venture

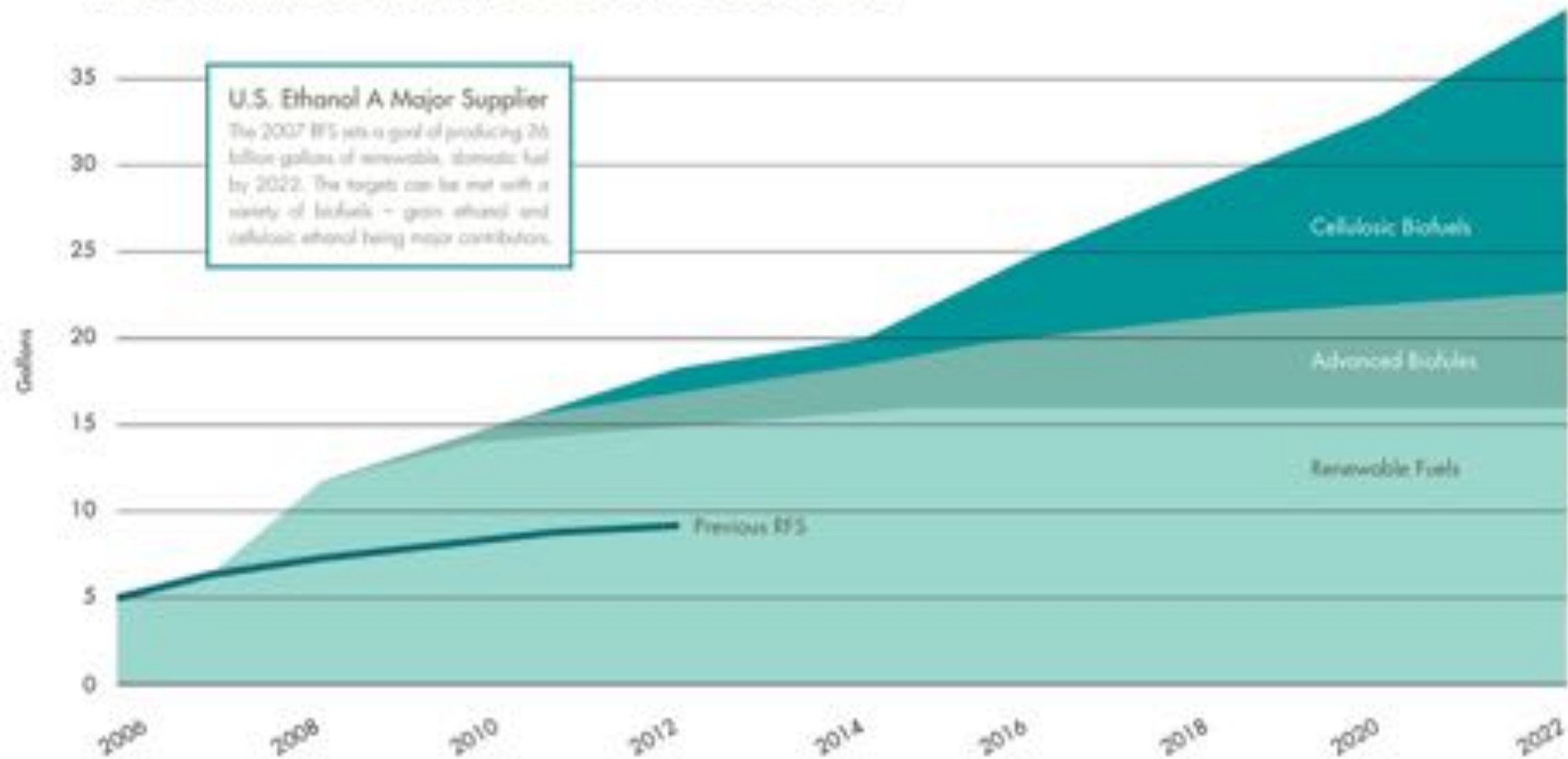






# RENEWABLE FUEL STANDARD

## HOW AMERICA CAN PRODUCE ITS OWN FUEL



# POET IN HAITI





# POET'S INVOLVEMENT IN HAITI

- POET began after the January 2010 earthquake
- More than 98% deforested, charcoal use prevalent
- Donated two isotanks of ethanol to provide fuel for ethanol cookstoves (50,000 liters)
- Formed commercial relationship with local company, Novogaz
  - POET supports and enables the development of a market for ethanol cookstoves and fuel
  - Software to track and monitor business and impacts





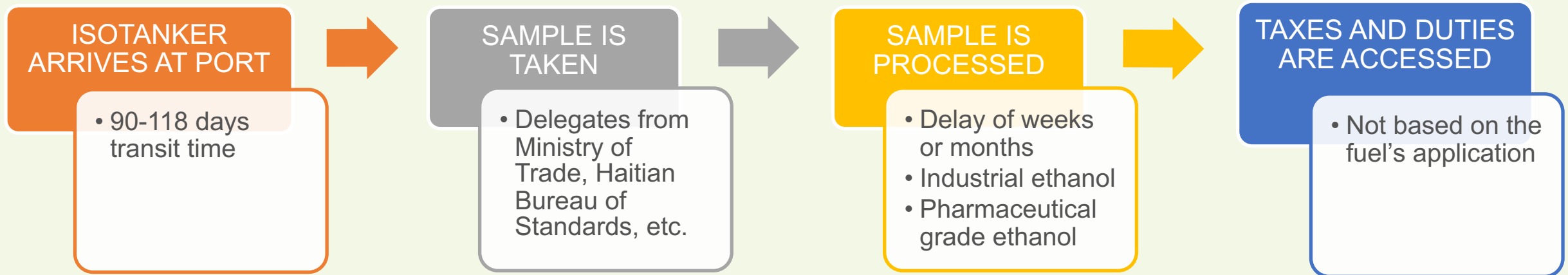
# Impacts To-Date

- A total of 5 isotanks have been shipped to Haiti for home cooking
- ASTM E3050 used for third isotank shipped from POET's
- Over 3,000 stoves distributed
- Partner's business warehouse, storage and distribution infrastructure established
- Marketing and civil education campaign launched to promote and educate consumers on the benefits of ethanol.
- Currently, demonstrating the positive impacts for a strong ethanol policy

# REGULATORY CHALLENGES

- No standard for shipping ethanol as a cooking fuel
- Most ethanol shipped around the world is as a blending fuel for transportation (denatured with gasoline/hydrocarbon)

# CUSTOMS PROCESS-HAITI





# COST BREAKDOWN

$$\begin{array}{|c|} \hline 10\% \\ \hline \text{Sales Tax (VAT)} \\ \hline \end{array} + \begin{array}{|c|} \hline 21+\% \\ \hline \text{Customs Duties} \\ \hline \end{array} = \begin{array}{|c|} \hline 31+\% \text{ Total} \\ \hline \text{Taxes + Duties} \\ \hline \end{array}$$

All other fuels have tax regulations:

- LPG: not taxed
- Kerosene: not taxed
- Charcoal: not taxed but arguably 50 – 80% of cost is transportation (fuel) and gasoline is not taxed and additionally subsidized

# HOW E3050 BENEFITS HAITI & CONSUMERS



- Avoids possible fuel interruption delays as customs process is streamlined by providing a classification for a new product:
  - Imports & local production
- Potential cost savings
  - If duties reassessed, ethanol would be even more affordable for consumers and create more value to retailers
- Provides dedicated VAT revenue to the government
- Denaturant known-ethanol as a cooking/appliance fuel cannot enter beverage market and no fear of ingestion
- Provides a basis for policymakers to access tax structure versus other fuels





# POET IN UGANDA





# PROMOTION OF FUEL STANDARDS

- Workshop held in Uganda November 2016 to promote quality ethanol fuel standards for household appliances.
- Uganda adopts a national standard (US-685) for cooking fuel in July 2017, based on ASTM E-3050

NEWS



### Ethanol fuel to be standardized

As the campaign for clean energy solution continue to take deep roots in Uganda, the Uganda National Bureau of Standards has embarked on a process to develop standards for production of ethanol a home cooking and appliance fuel.

This comes at the time when the world is moving towards reduction of carbon emission as a way of protecting environment.

Now speaking during awareness workshop on ethanol, the Uganda National Bureau of Standards deputy executive director Patricia Ejaru said that they are in process of adopting revised standard developed by American society for testing and material.

She explained that many companies are producing ethanol in large quantities especially agro-processing companies, making it more accessible, yet it does not emit carbon.



PARTICIPATING COUNTRIES

- INDONESIA
- PERU
- CENTRAL AMERICA
- COLOMBIA
- EAST AFRICA
- WEST EAST/SOUTH AFRICA
- SOUTHERN AFRICA
- WEST AFRICA
- ASIAN
- THAI
- MEXICO

### UGANDA WORKSHOP ON ETHANOL STANDARDS

The American National Standards Institute, through its public-private partnership with USAID called the Standards Alliance, organized an ethanol standards workshop in Kampala, Uganda on November 23. The Uganda National Bureau of Standards (UNBS) served as host for the workshop, while ASTM International and POET served as co-sponsors and co-organizers. The one-day workshop enabled a technical exchange on the ASTM International standard for ethanol as a home cooking and appliance fuel.

In East Africa, the household cooking sector is the main consumer of solid biomass, representing the largest share of final energy consumption in the region. In Uganda, biomass fuels account for more than 91 percent of all energy use, and 97 percent of the population uses solid fuels for cooking.

While traditional biomass fuels such as wood and crop residue are renewable in principle, the current level of usage is not sustainable and contributes to excessive deforestation and negative health impacts. In 2012, an estimated 25 million Ugandans were affected by household air pollution from indoor smoke and airborne particles as a result of cooking with solid fuels. This exposure led to more than 13,000 premature deaths in Uganda.

Ethanol, however, is uniquely suited for household use. When used in a proper stove, ethanol burns cleanly and efficiently, cannot explode, and cooks meals faster than traditional biomass. Cleaner, more efficient cooking fuels are an essential component of regional efforts to reduce environmental impacts of deforestation and risks to human health, but also create an opportunity for smallholder farmers to diversify their incomes through access to a second market.

The promise of ethanol cannot be achieved without a sound technical and policy framework to support the production, sale and distribution of ethanol. In addition to technical standards and conformity assessment that address the performance and safety requirements for ethanol, laws and tariffs on ethanol also need to be addressed before an enabling business environment can be realized.

The November 23 Standards Alliance training session, entitled "Ethanol as a Home Cooking and Appliance Fuel Technical Standard" featured presentations from the U.S. and Ugandan public and private sectors. The workshop started with a presentation from UNBS, discussing the need for standards and the role of UNBS, as well as the standards development process. Next, speakers from POET discussed the content of ASTM Standard E3050 for denatured ethanol for use as a clean cooking fuel and appliance, as well as the structure of POET's ethanol production business. Its work in East and the potential for ethanol production and use in Africa. A representative from CLASP spoke next about how standards and labeling can support the use of efficient appliances, especially cook stoves. Future Sugar representatives also spoke about their new ethanol plant based in Uganda, as well as market opportunities and challenges for deploying their product. Finally, a speaker from the University of Energy spoke about the legal framework for supporting ethanol as a fuel for vehicles, cook stoves and appliances in Uganda.



### Standards Alliance Organizes Uganda Workshop on Ethanol Standards

12/01/2016


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**THANK YOU**