

# **Incentives to Build Pennsylvania's Capacity to Produce Gasoline Substitutes from Local Renewable Resources**

## **Summary**

It is generally agreed that Pennsylvania would benefit from the establishment of capacity to produce gasoline substitutes like ethanol. Petroleum imports would be reduced as would the export of dollars to pay for it. New jobs and economic activity would be generated, and the standard of living of Pennsylvania citizens would be improved. There would be an increase in the tax base at Federal, State and local levels.

It is also generally agreed that, if this capacity were to be based on wood wastes and other under-utilized cellulosic resources and efficient energy crops, Pennsylvania could obtain a competitive advantage over its neighbors in the advancement of the welfare of its citizens. Pennsylvania probably is the State with the largest abundance of high quality accessible cellulose resources.

Achievement of the above benefits requires reduction in the risk of building the first commercial facilities to produce fuel ethanol from cellulosic biomass. Much of this risk has already been mitigated. Reduction of the remaining risk is best provided through grants/loans comprising 15-20 percent of the capital cost for the first one or two facilities.

## **Risk Discussion**

Risk associated in the building of a first-of-a-kind Biorefinery of the type and size needed for economic commercial production has both technical and financial components:

1. Will the Biorefinery be economically competitive?
  - a. Based on the Process Design Package (PDP) developed for a 30 million gallon per year commercial Biorefinery by experienced engineering firms for SWAN Biomass Company, the answer is YES.

SWAN has been working at the reduction in ethanol costs from its process for a long time. In California, feedstock costs for this process have been reduced from about \$0.78 per gallon initially, to \$0.43 per gallon. Introducing a new variety of cane further reduces the feedstock cost to \$0.26 per gallon. These reductions in costs convert directly to increases in cash margin/manufacturing cost/EBITDA.

In Pennsylvania the initial cost of feedstock per gallon of fuel ethanol is predicted to be \$0.39. We are working with others to achieve a reduction similar to that accomplished in California.

- b. Cellulosic feedstocks do not have to exhibit the price swings typical of the petroleum or grain markets. If the price of one feedstock goes up, it is easy to switch to another one available at lower cost. Thus the cost for cellulosic-based ethanol can be expected to rise in cost predictably in parallel with general inflation.

2. Has the technology been developed sufficiently to be applied at a commercial scale? The answer is YES
  - a. Reputable engineering firms have indicated that they will stand behind their designs in the PDP.
  - b. The PDP has been reviewed by an Independent Engineering firm and found to be acceptable.
  - c. Permitting studies are almost complete for the cane-based facility, and have been well received by the relevant approval groups.
  
3. Even with all the above evidence of confidence in the technical community, the financial community is predictably going to be uncomfortable until the first commercial facility is working. The concern is not “the EBITDA may shrink” (which could be mitigated with a cents-per-gallon tax benefit), but is the risk of the unknown that they can not articulate. Such risks in the past have been offset by the provision of grants/loan guarantees and these are the most potent tools in the public sector arsenal today.

The federal government has chosen to provide up to \$80 million in support for several Biorefineries recently, representing about 80 percent of the cost for a SWAN-based facility. The issue has been discussed with several financial entities in the private sector, and a range of 15-20 percent was found to be sufficient given the advanced state of SWAN’s developments.

This level of support for the first Biorefinery is therefore recommended for Biorefineries in Pennsylvania. After the first plant is constructed with a given technology it is unlikely that any such support is going to be needed for subsequent Biorefineries utilizing that technology, and the amount needed, if any, to support a first-of-a-kind Biorefinery using another technology should be less.

Should the recommended incentives be provided, and SWAN’s development program remain on schedule, we would expect to have one Biorefinery ready for ground-breaking in 2008 and two others in an advanced stage of development. That progress would make Pennsylvania the clear leader in the production of ethanol from cellulosic feedstocks.

Respectfully submitted,

Robert H. Walker, President  
SWAN Biomass Company