HYDROGEN LEARNING FOR LOCAL LEADERS
GILLS ONIONS ADVANCED ENERGY RECOVERY SYSTEM

MAY 17, 2011
• GENERATED UP TO 300,000 LBS OF ONION WASTE PER DAY (TOP, TAIL AND PEEL)
• WASTE BECAME UNMANAGEABLE AND COST-PROHIBITIVE
• CREATED ODOR PROBLEMS, POTENTIAL GROUND WATER CONTAMINATION
SOLUTION
ONION WASTE TO ENERGY
ADVANCED ENERGY RECOVERY SYSTEM (AERS)

• CONVERTS ONION WASTE TO RENEWABLE ENERGY, ULTRA-CLEAN BIOGAS AND CATTLE FEED

• MEETS OUR GOALS FOR AIR QUALITY, ZERO WASTE AND RENEWABLE ENERGY

• WASTE NOW BECOMES A RESOURCE VS. LIABILITY
FUEL CELLS BECOME THE MOST INNOVATIVE PRACTICAL SOLUTION TO FULFILL OUR NEEDS

- MEETS OUR GOALS FOR AIR QUALITY, ZERO WASTE, AND RENEWABLE ENERGY
- HIGH FUEL-TO-ELECTRICITY CONVERSION RATE: 47-50% EFFICIENCY
- ELIMINATION OF 40,000 GALLONS DIESEL FUEL TO HAUL ONION WASTE TO FIELDS
- REDUCES GHG AND KEEPS US AHEAD OF AB 32 REGULATIONS
OVERALL PROJECT COSTS

• AERS TOTAL COST INSTALLED: $10.8 M
• SEMPRA ENERGY SELF GENERATION INCENTIVE $2.7 M
• ARRA (AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 $3.2 M
• CEC (TO WORK WITH GTI FOR THE STUDY OF THE GAS CLEAN UP) $499,000 (GRANT)
$10.8 MILLION PROJECTION ANTICIPATED PAYBACK BETWEEN 5-6 YEARS

IMMEDIATE SAVINGS IN HAULING AND ENERGY COSTS OF $1.1 MILLION ANNUALLY

GILL’S GENERATES UP TO 300,000 LBS/DAY OF ONION WASTE – CONVERTED TO BIOGAS

2 FUEL CELL ENERGY FUEL CELLS – 600 KW

PROVIDES 100% OF BASE-LOADED ELECTRICITY REQUIREMENT
“WE ARE TRULY HONORED TO HAVE OUR SUSTAINABILITY EFFORTS EXTENSIVELY VALIDATED THROUGH THESE PRESTIGIOUS AWARDS SIMPLY BY DOING THE RIGHT THING.”
• HIGH SULFUR CONTENT - REMOVE IMPURITIES AND MOISTURE FROM BIOGAS

• PERMITTING OF NEW TECHNOLOGY – NO STANDARDS EXISTED FOR REFERENCE

• FIRE & SAFETY - EXTRA ALARMS, LIABILITY WAIVER

• FINANCING – HAD TO DEVELOP A GOOD ECONOMIC MODEL
WHAT CAN BE DONE TO MAKE IT EASIER TO USE FUEL CELLS?

• EDUCATION FOR LENDERS

• EDUCATION FOR GOVERNMENT, REGULATORS AND CONTRACTORS
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