Breakthrough Technology for Process Energy Management
Titan Team: Who We Are

• Swanson Flo-Systems – 1960
• Swanson Process Services – 2000
• BioFuels Automation – 2005
  – Hans Alwin – Business Development
  – Jack Allen – Application Specialist
Titan Heat Transfer
Development Principles

- Sustainable Energy for Renewable Fuel
- Solve High Capital Expense to Re-Power
- Reduce BTUs Consumed per Gallon Produced
- Process Optimization to Reduce Cost/Gallon
**Heating Systems**
- Gas-fired Boilers
- Coal-fired Boilers
- Electric Heat Tracing
- Thermal Fluid Systems

**Cooling Systems**
- Evaporative Cooling Towers
- Industrial Electric Chillers
- Ground Water Cooling
Traditional Heat Pump Systems

- Condition only ambient for comfort
- Measurement & control very simple
- Built to divert undesirable BTU value
- Solution never “industrialized”
Heat Exchange Technology Comparison

Traditional Heat Exchanger

Colder Fluid

Hotter Fluid

BioFuels Automation
FUELING ENERGY INDEPENDENCE
Titan Heat Transfer

- Compact footprint
- Modular
- Multi-stage & variable
- Industrially controlled
- Unequaled BTU transfer performance
- Balanced loading
- Patents pending
Titan Heat Transfer

- Conserve Energy $$$$$
- Conserve Water $$$
- Conserve Electricity $$
- Conserve Chemicals $
- Qualifies for incentive programs
Effective System COP

Natural Gas

Water

Electrical

11.65

Cooling Water Return Flow (80-85°F)

Cooling Water Supply Flow (60°F)

CO2 Scrubber

Scrubber Water Discharge Pump

Scrubber Water Flow (75-80°F)

Scrubber Water to Process (130°F)

Titan Heat Transfer™

BioFuels Automation

Fueling Energy Independence
Design Flow 52-320 gpm @ 60°F
Max Flow 320 gpm
Operational Cost Impact—Water

- 450,000,000 gallons bypass cooling tower
- Annual consumption reduced over 15,000,000 gallons
- Plant discharge reduced over 2,100,000 gallons
Operational Cost Impact—Natural Gas

- Over 61 Therms of Natural Gas saved each hour
- 52,500 decatherms saved annually
- Effective Coefficient of Performance (COP) rating over 10.0
Operational Cost Impact—Electricity

- 368 tons of additional cooling capacity
- Over 1,100,000 kWh off-loaded from existing cooling systems
- Effective System Energy Efficiency Rating (EEER) over 30.0
Titan Heat Transfer

- **Performance Adaptability**
  - Process loads ever-changing
  - System “recipe” adapts to your plants’ economic drivers
  - All utilities are always positively affected
  - Controls tuning with minimal operator input
Titan Heat Transfer

- Additional Implications
- Plant-wide Carbon Footprint Reduction
- Natural Gas Reduction = NOX/SOX Reduction
- Water Reduction = EPA/PCA Environmental net positive impact
- Each system application reduces BTU/gallon consumption 5% or more
More Photos
More Photos
More Photos
More Photos
Thank You