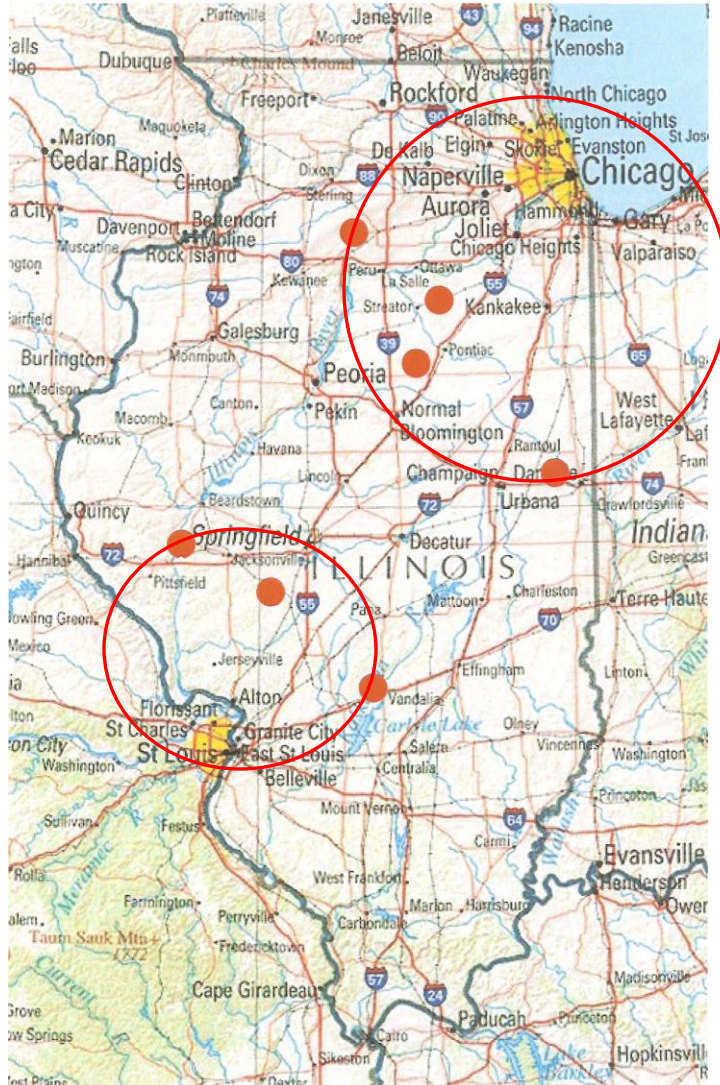




Governor's Conference on Biofuels
Trends in Biofuel Production: Biodiesel and Ethanol
May 31, 2007

Heartland Ethanol Project



Project Overview

- Knoxville-based investment group
- Memphis-based engineering group
- Seven sites located in Illinois
- Minimum facility size of 108 mgy
- Approximately 1 bgy by end of 2010

Key Site Features

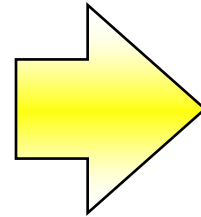
- Strategically located across the state
- All facilities are located on rail lines served by Class 1 carriers
- Griggsville corn feedstock needs represent only 12% of local production
- Royal corn feedstock needs represent only 7% of local production

Unparalleled Access to Corn, Rail and Major Ethanol Markets

Dry Grind Corn Ethanol Plants

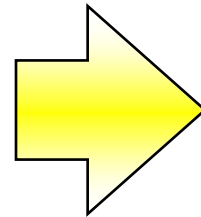
Typical LPR Production Profile

2.64 gallons ethanol / bushel of corn
1.5% residual sugars



More Ethanol

4.55 gallons water / gallon ethanol
32.6 KBTU of natural gas / gallon ethanol
0.96 KW-hours / gallon ethanol



Less Energy

Bottom Line: 32% energy gain (based on “Chronological Summary of Net Energy Balance Studies Since 1995”)

- All ethanol figures based on undenatured quantities
- All energy figures are based on 100% DDGS conversion

Huge Strides in Productivity and Efficiency

Differentiation of Ethanol Producers

Commodities in... Commodities out... Limited Sites

Kinetics Control

Cream Yeast

Gasification

Biomass Boilers

Anaerobic Digestion

Fractionation

HPR/HED

Separation

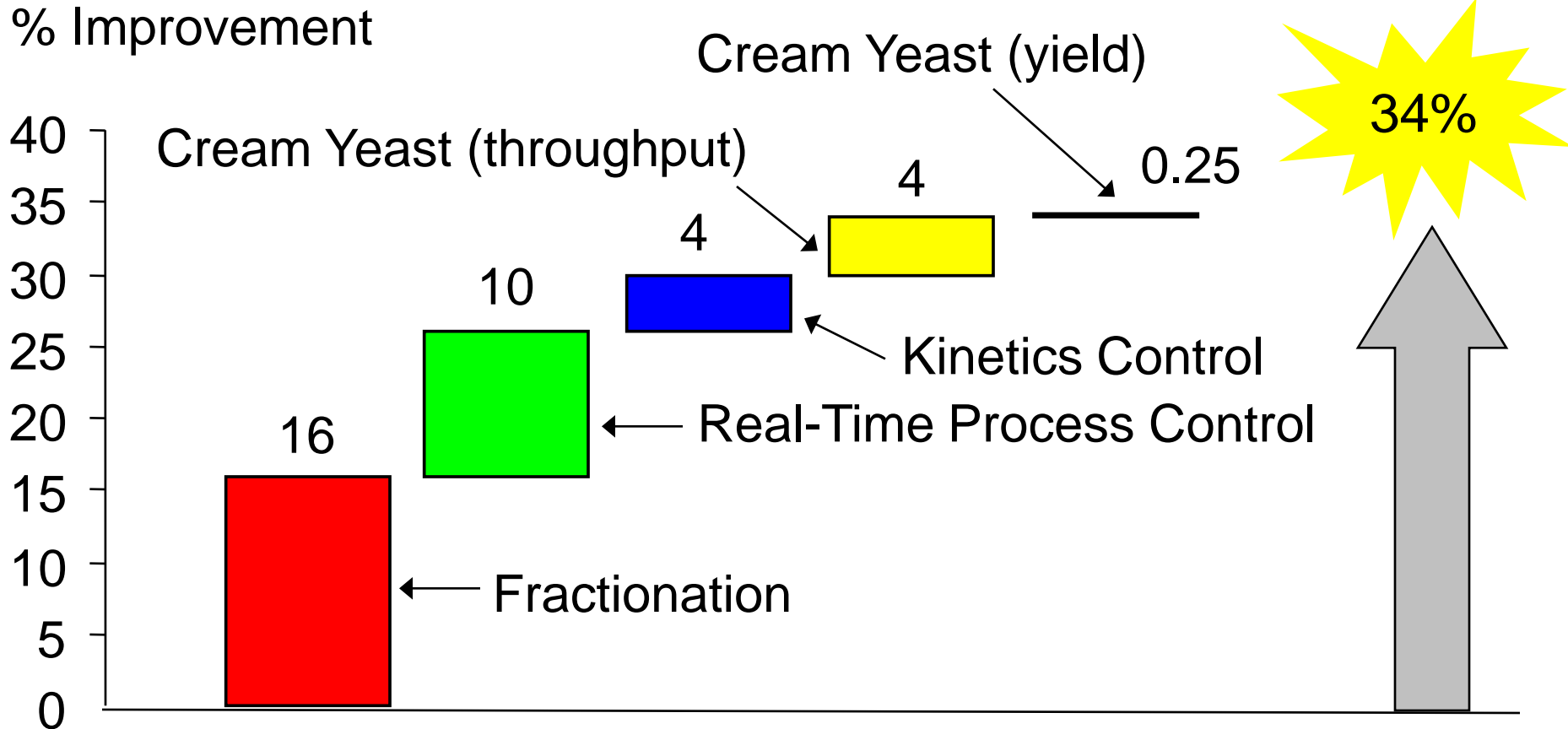
Cold Cook

Process Control

Cellulose

Technology Becomes the Basis of Competition

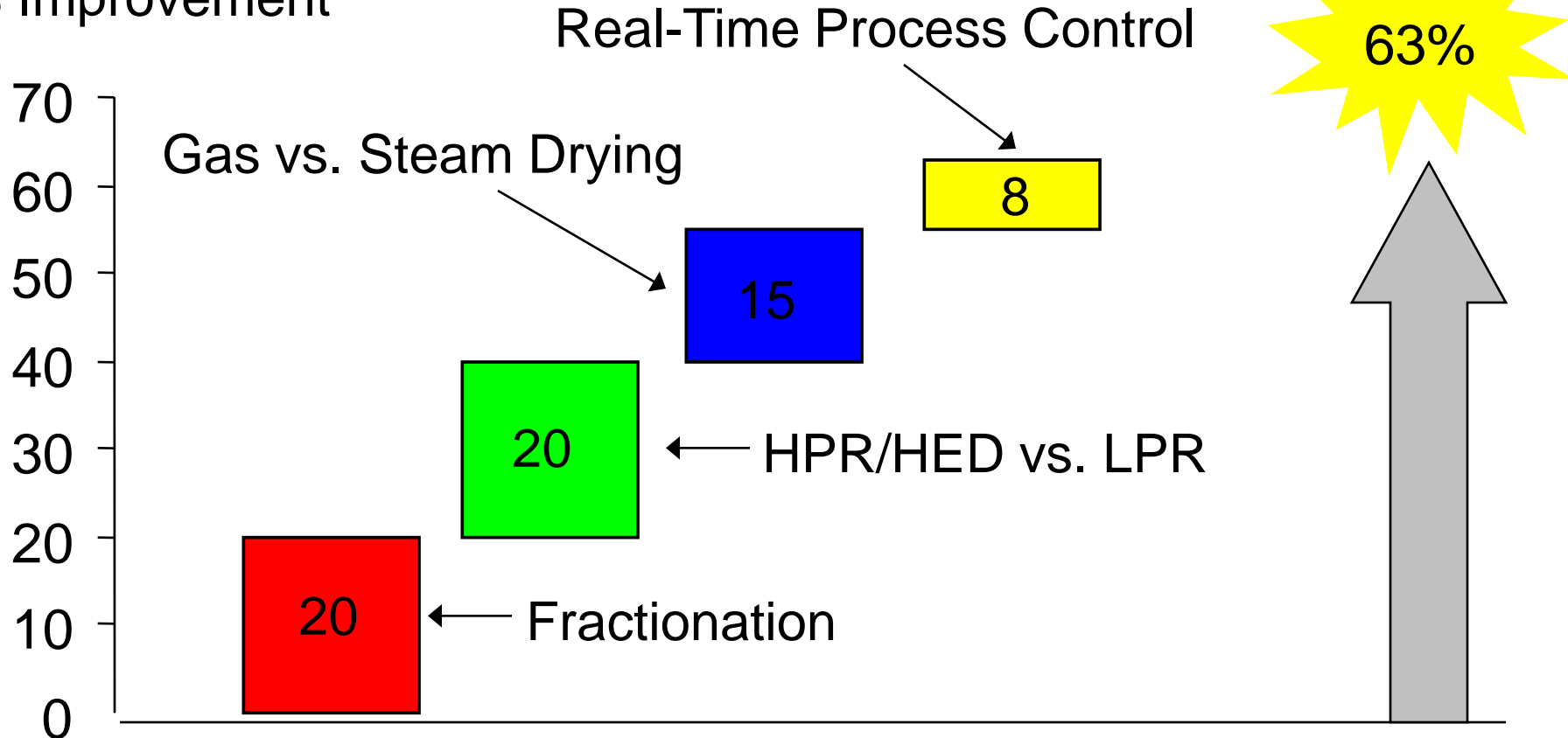
Impact of Technology on Production



Solid Opportunities to Improve Production Throughput

Impact of Technology on Energy Consumption

% Improvement



Solid Opportunities to Improve Net Energy Gain

Other Factors... The “Wild Cards”

Cold Cook vs. Hot Cook Technology

- Trading-off energy for enzyme cost

Cellulose-Based Ethanol

- Dramatic expansion of feedstock base

Enzyme/Microbe
Breakthroughs

Biomass Boilers

- Alternative fuels for steam
- Surplus DDGS for steam

Gasification

- Surplus DDGS to syngas

Natural Gas
Replacements

Larger Opportunities on the Horizon