Resource Efficiency
or
Designing the Ideal Winery

Winery Engineering National Conference 2008

Resource Efficiency

- Reduction of water consumption
- Reduction of energy use
- Reduction of waste generation

EREP - Victoria

Trips if

- water consumption > 120 ML p.a.
- energy use > 100 TJ p.a. [total of electric & fossil fuel]

Audits on water, energy AND waste required if either the above are tripped

MUST implement solutions where payback is better than 3 years

Industry Comparison

Production	Wine Industry	Dairy Industry	Chemical Industry
Seasonality of Production	Highly Seasonal	Slightly Seasonal	Largely unseasonal
Influence of raw material costs.	Low	Medium - High	High
Influence of energy costs.	Relatively Low	Low	Variable but typically higher

Key Comparisons

- Seasonality makes us “capital averse”
  - fewer hours to get a return
- Low raw material cost - grape glut?
  - Hard to justify capital to reduce waste
- Low energy cost
  - Hard to justify capital for energy efficiency
- Seasonality affects the capital planning process
  - Typically done between seasons

Industry Comparison

Capital	Wine Industry	Dairy Industry	Chemical Industry
Operation Size	Mix of Niche & large processors	Some niche players – recent trend to large manufacturers	Typically larger
Barrier to Entry	Low	Medium – High	High
Levels of Automation	Relatively low	Increasingly high	High

Key Comparisons

- Presence of Small Operations & Lower barriers to entry
  - Increased resistance to capital spending
- Lower levels of automation
- Little instrumentation of process services
- Preference for spending on marketing & building brands

Industry Comparison

Support Systems	Wine Industry	Dairy Industry	Chemical Industry
Hygiene & cleaning systems	Increasingly seen as important	Critical	Dependent on sector
OHS Awareness	More recent awareness	More recent awareness	Historically high
Operation Information systems	Increasing in direct manufacturing – Lower in support systems	High in direct manufacturing – Lower in support systems	Typically High

Key Comparisons

- Cleaning systems largely manual
  - Process piping uses flexible connections
  - many once through systems
- Little instrumentation of process services
- **Few management information systems**

Optimising Refrigeration

- Insulation quality
- Coolroom Construction
- Correct refrigeration compressor sizing
- Manage refrigerant suction temperatures
- Manage brine pumping costs
- Use energy efficient motors
- Fan speed control on condensers

Automated Information Systems

- MIS systems are mature products
- Turn data into information
- Need submetering of all service systems
  - Not just at the gate
- **Need instruments to allow an M&E balance on each major unit operation in the plant**

- Thank you for your attention