Solar Hot Water Technology Reduces Winery Energy Costs

June 2014

Presentation Overview

- Who is Apricus
- Understanding Solar Technology
- Why Hot Water Makes Business Sense
- Case Study: De Bortoli Wines, Bilbul
- Start Your Own Sustainable Legacy

Who is Apricus?

The Company

- Apricus, a global company est. 2003
- Apricus Australia est. 2004 – Australian owned and operated
- Innovation embedded at its core
- Started as a solar hot water business
- Becoming hot water company with solar specialisation
- Own factory, manufacture collector and tanks
- Truly national support – Reseller Network, RM's, Warehousing, Technical/Installation, Engineering, After-sales, Marketing

WISA Supplier of the Year Awards 2013 WINNER Environment & Sustainability Award

BRW. GE Capital MOMENTUM MID-MARKET AWARDS 2013

BRW. 2012 most INNOVATIVE companies

smart company smart 50 2010

BRW. fast 100 2010

smart50 smartcompany.com.au 2009

BRW. 2009 FASTstarters

Apricus Synergies With Wine Industry

- Passion
  - Wineries strive for greatness & quality
- Sense of Pride
  - Putting customers first, Delivering on promises
- Family and Culture
  - Not just a business, but a legacy for future generations
- Environment
  - Wine is a product of the earth
  - Adopting sustainable processes = longevity of the industry

Our Goals

- Not to be a supplier, but a partner
- To become a trusted advisor on sustainable hot water solutions
- To encourage and shape the Australian wine industry to become leaders in sustainability

Some Recent Partnerships

Understanding Solar Technology

Collector Types

- Two Common Collector Types
- Evacuated Tube
- Flat Plate

Flat Plate Collectors

- Widely recognised technology
- Installed for decades in Australia and across the globe
- Perform best when sun perpendicular to panel
- Special considerations required for frost
- Heat loss can hinder cold weather/cold climate performance

- Work well throughout summer and in warmer climates – In fact, in summer with ideal conditions, a flat panel may even out perform evacuated tube.

Apricus Solar Collector

- Designed and manufactured by us, in our own factory
- Peace of mind with a 15 Year collector warranty
- Anodised aluminium frame rated for cyclonic wind conditions
- Excellent cold weather performance, rated for frost to −15℃
- No chemicals/Glycol
- One collector, all regions, unlimited applications

MIDDAY
MORNING
AFTERNOON
PASSIVE SUN TRACKING
Apricus
AUSTRALIA

How It Works?

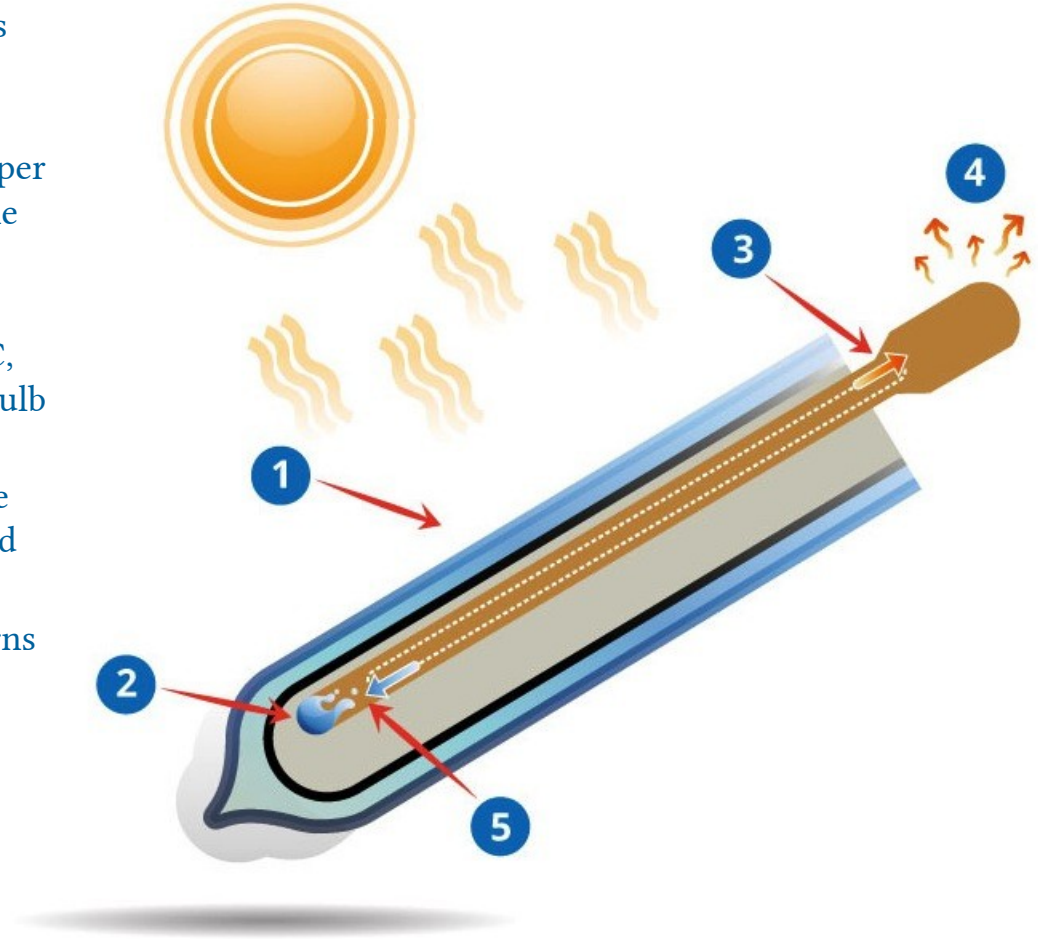
1. Evacuated tube absorber layer receives incoming solar radiation.

2. The absorber moves energy to the copper heat pipe where energy is stored by the working fluid.

3. The working fluid boils at approx. 30℃, turns to vapour and rises to the heat bulb

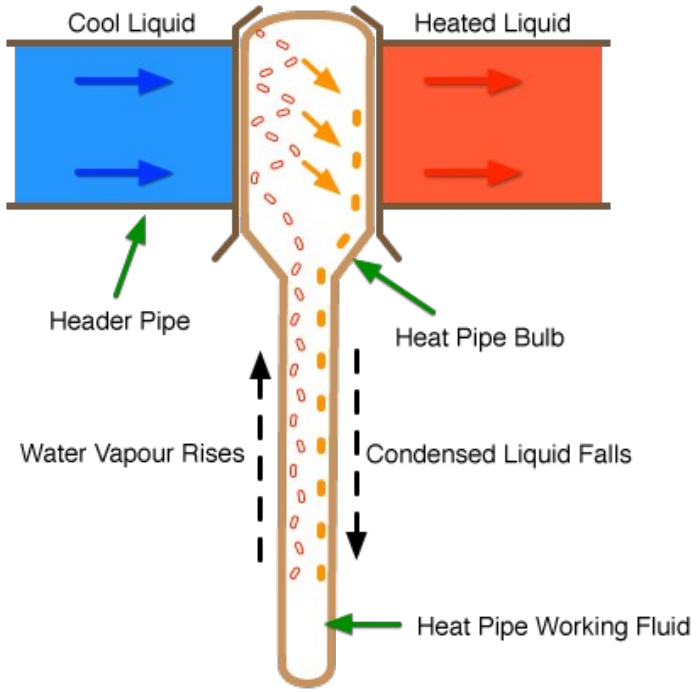
4. The heat bulb transfers energy into the water as it passes through the manifold

5. The vapour cools, condenses and returns to the base of the heat pipe where the process is repeated.



Inside the Manifold

- Apricus design and manufacture our header/manifolds
- Heavily insulated heat exchanger – extremely low heat loss
- Minimal braze points for maximum longevity



Storage Tanks

- Designed and manufactured in our factory – Melbourne VIC
- Any size, any configuration… 50L - 50,000L +
- Duplex construction – 20 year warranty
  - Roughly twice strength of 316
  - Excellent hard water and corrosion resistance

University of Canberra

De Bortoli Wines

Why Hot Water Makes Business Sense

Knowledge

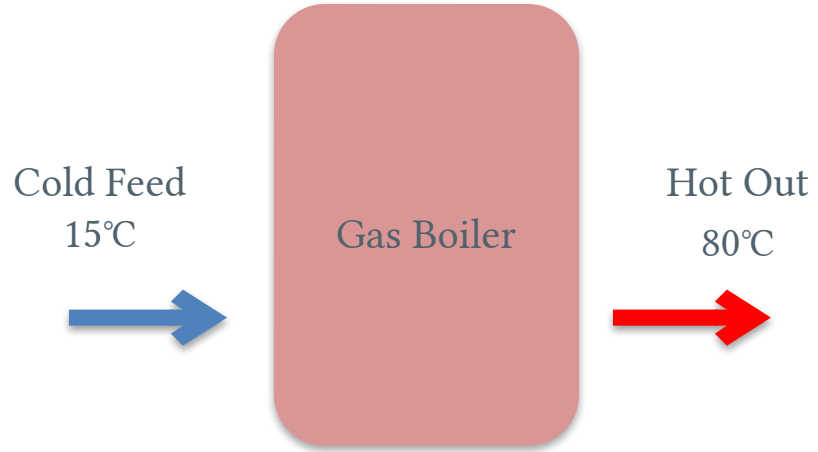
- Before considering whether a SHW system is right for you, you must first understand your facilities energy usage profile
- A typical SME Winery energy profile*:

Technology Area	Proportion of Energy Consumption
Refrigeration & Tank Storage	50-70%
Pumping	10-20%
Compressed Air	5-10%
Hot Water & Steam	***5-10% Electricity, 70-80% Gas***
HVAC	5-15%
Lighting	5-10%

**Example profile Information source: South Australian Wine Industry Association Incorporated Energy Saver Toolkit (WEST)*

Where Savings Are Made

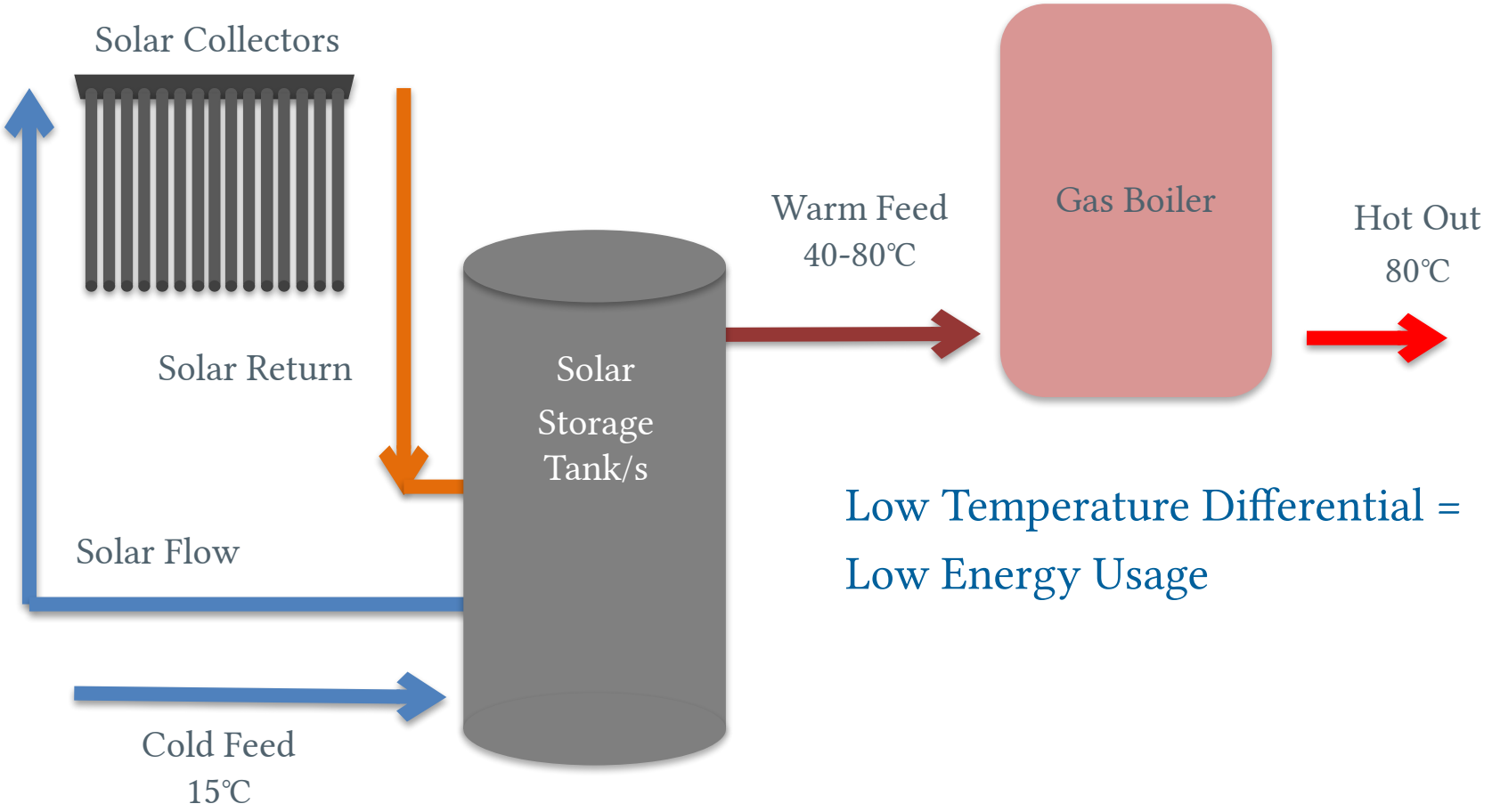
- Solar is generally used as a pre-heater to existing technologies to dramatically reduce reliance on electricity or gas
- Example: If water is required daily at 80℃ via gas



High Temperature Differential = High Energy Usage

Where Savings are Made

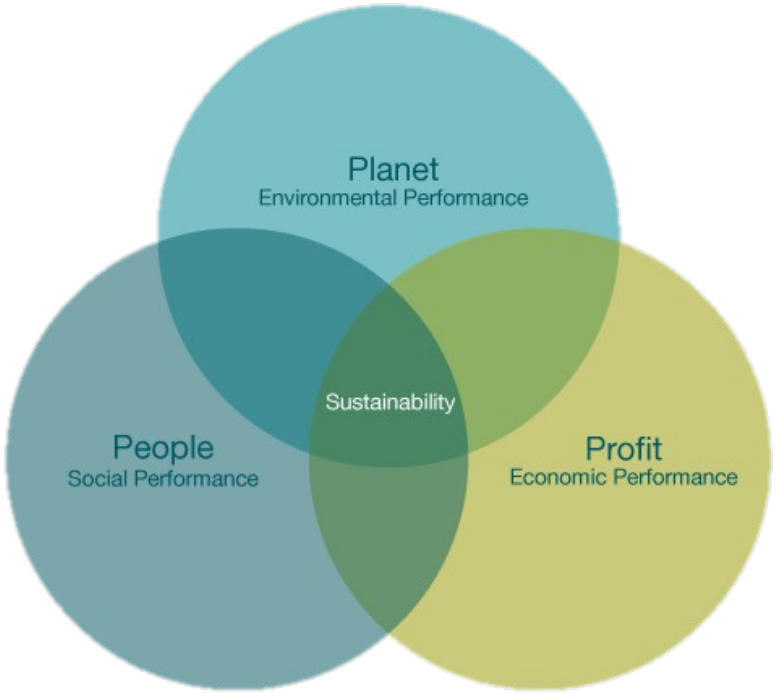
- The solar integration



Low Temperature Differential =
Low Energy Usage

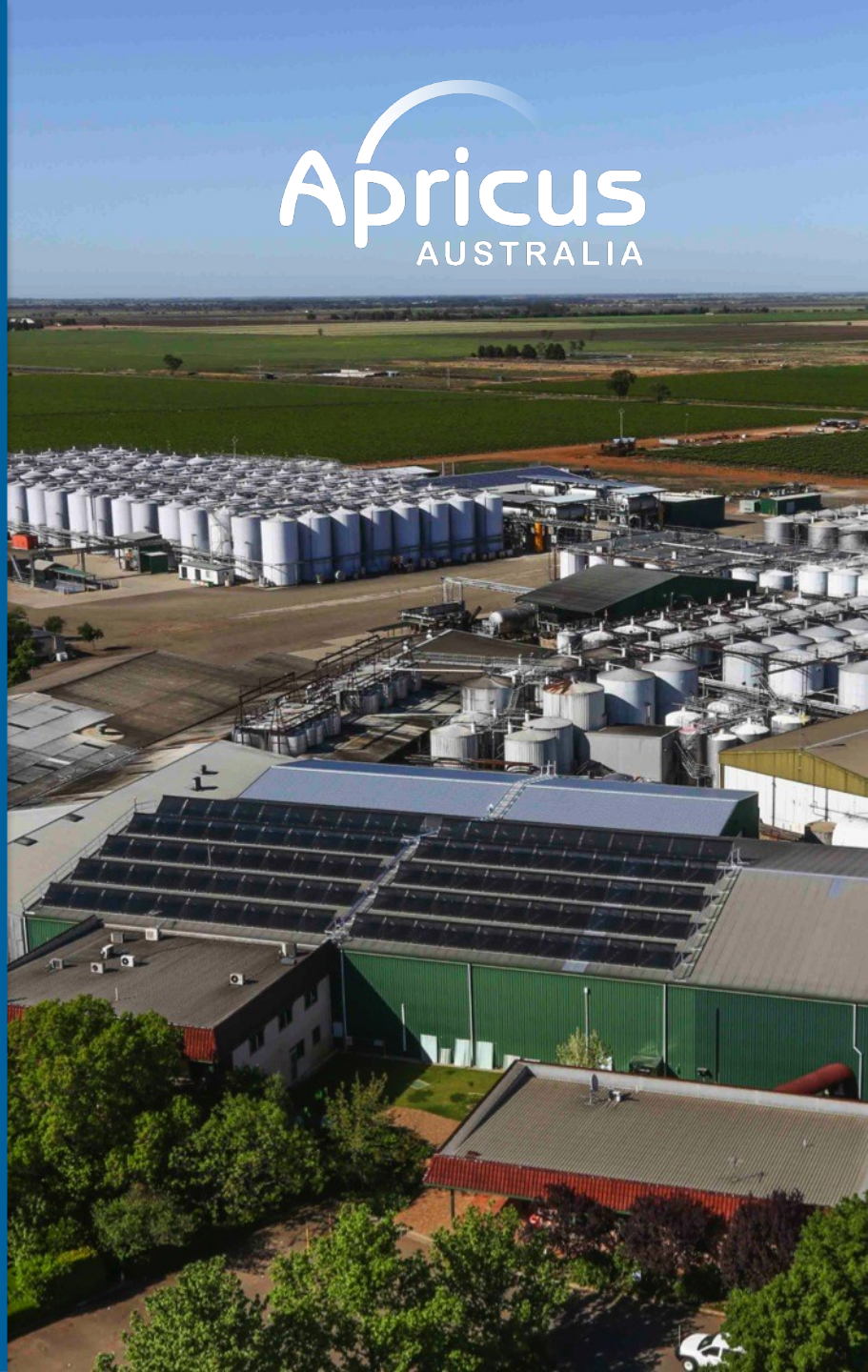
Economics & Environmental

- SHW directly compliments the triple bottom line.
  - Reduce fossil fuel demand
  - Reduce capital expenditure
  - Create local jobs
  - Dramatically reduce CO^2 emissions
  - Increase sustainability profile of the region



Project Profile:
De Bortoli Wines

Bilbul, NSW



De Bortoli's Philosophy

- "Great wine begins in the vineyard. The belief is that sustainable vineyard practices will deliver exceptional fruit quality to the winery as well as real environmental benefits.

- De Bortoli's ultimate goal is to become "The Zero Waste Wine Company"

DE BORTOLI WINES

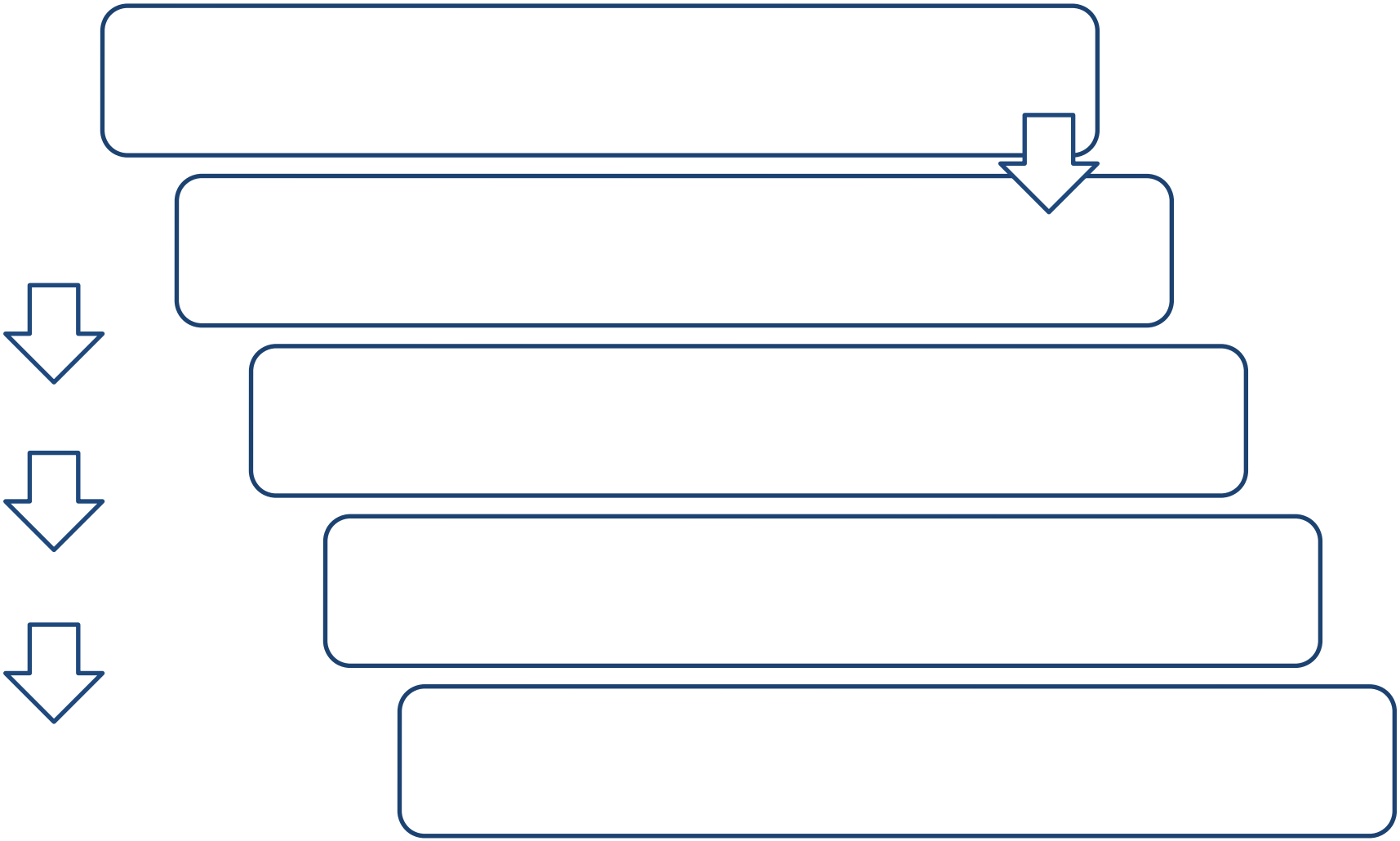
Project Overview

- Project was part of an overall $15M energy efficiency plan
- Commissioned in August 2013
- Largest solar thermal plant on a winery in Australasia
- 100 x AP30 Collectors (3,000 Evacuated Tubes)
- 2 x 6,000L Duplex storage tanks
- Solar heat supplies pre-heated water to:
  - Cleaning in Place (CIP) Set
  - General hot water ring main
    - Sterilising, filtration and other hot water
  - Bottle warmer
- Goal to have 1MW (960kW) boiler permanently switched off!

The System Design

- Solar system designed to meet 100% summer load and on average 85% of energy required annually.
- De Bortoli's engineers optimise performance via smart controls and future pre-heating from waste air-conditioning heat.

The Process



Energy Savings

- Currently reducing natural gas usage by approximately 20%
- When 1MW Boiler powered down will reflect closer to 80% saving
- De Bortoli are expecting a 6 year payback, without factoring in future energy price increases.

Start Your Sustainable Legacy

We Partner With You

- Advice – On site & remote
- Design/Sizing – Preliminary design and recommendation
- STC Modeling – New plants can be modeled for STC's
- Specification – Engage recommended specifiers/consultants
- Installation – Recommend experienced installers, Plumbers on staff to guide and assist the process
- Commissioning – On site or remote commissioning
- Optimisation – Data logging and ongoing optimisation
- Service and Support – 15 year collector, 20 year tank warranty

We Partner With You

"The relationship does not end when a system is installed... That is when it begins!"

Thank You

Apricus AUSTRALIA

Apricus AUSTRALIA

Your Partner For Life!