

Turning it Down

If you reduce the flow from a fan or pump by half (i.e. 50%) how much energy would that save?

- a. 25%
- b. 50%
- c. 87.5%

Surprisingly, the savings are cubed, $1 - (\frac{1}{2})^3 = 87.5\%$ savings.

In Southbrook's case, the main ventilation fan in the winery can be slowed to 30% during periods when heating or cooling is not required. Slowing down the fan and controlling the quantity of make-up air is projected to save **\$13,000 annually, 16,000 m³ of natural gas, 49,000 kWh of electricity and 35 tonnes of Greenhouse Gas emissions.**



SOUTHBROOK VINEYARDS

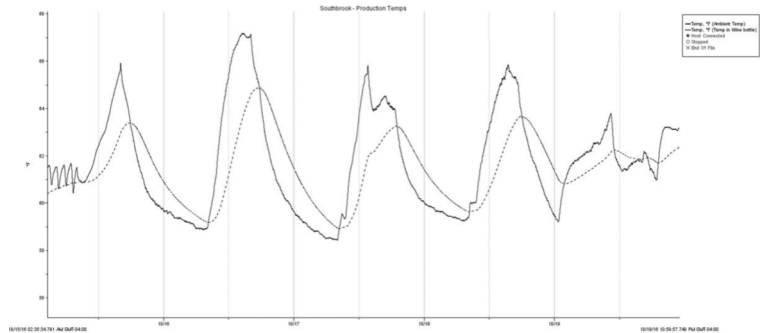
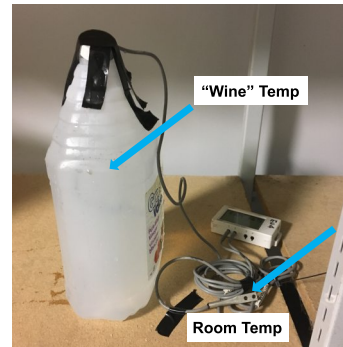


Enviro-Stewards
Engineers & Scientists

What Setpoint do you need?

Logging of a simulated “wine” temperature compared to room temperature found that water and wine have a substantial capacity to store heat and cooling (thermal mass).

Therefore, peak power consumption can be reduced by slightly overcooling the room at night when electricity is in less demand.



SOUTHBROOK VINEYARDS



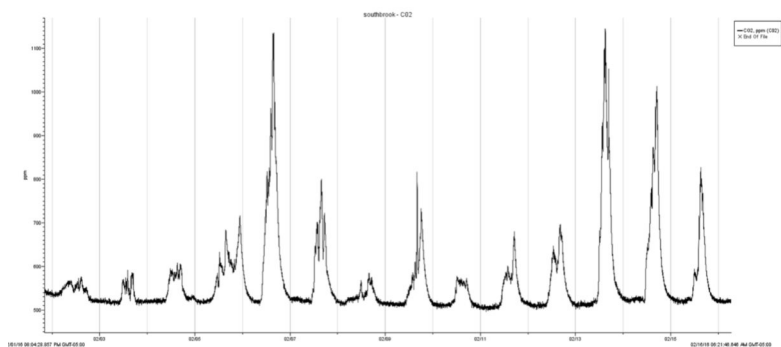
Enviro-Stewards
Engineers & Scientists

Should we Just Hold our Breath?

We breathe in oxygen and produce carbon dioxide. To prevent excessive buildup, buildings normally take in about 10% outside air. Heating and cooling this air requires a substantial amount of energy.

In Southbrook's case, adding carbon dioxide controls in the Pavilion allows outside air to be taken in (and heated or cooled) only during periods when it is necessary to do so.

This is projected to save **\$6,000 annually, 15,700 m³ of natural gas, 3,000 kWh of electricity and 30 tonnes of Greenhouse Gas emissions.**



SOUTHBROOK VINEYARDS



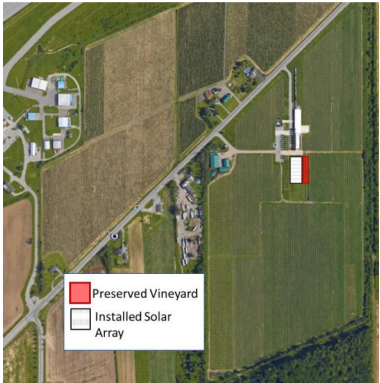
Enviro-Stewards
Engineers & Scientists

Conservation Before Solar

In Southbrook’s case, the facility was already LEED gold certified and a recent energy audit found conserving 5% more electricity would have an average payback of 20 years.

Even so, a comprehensive energy assessment by Enviro-Stewards found Southbrook could conserve 38% more electricity and 41% more natural gas with a combined payback of 4 months (0.3 years) and a Greenhouse Gas reduction of 65 tonnes per year.

Southbrook’s net metering system then required 1/3 less solar panels and preserved valuable vineyard land. Please enjoy some of the 50 Cases per year of organic, biodynamic VQA wine conserved!



SOUTHBROOK VINEYARDS

