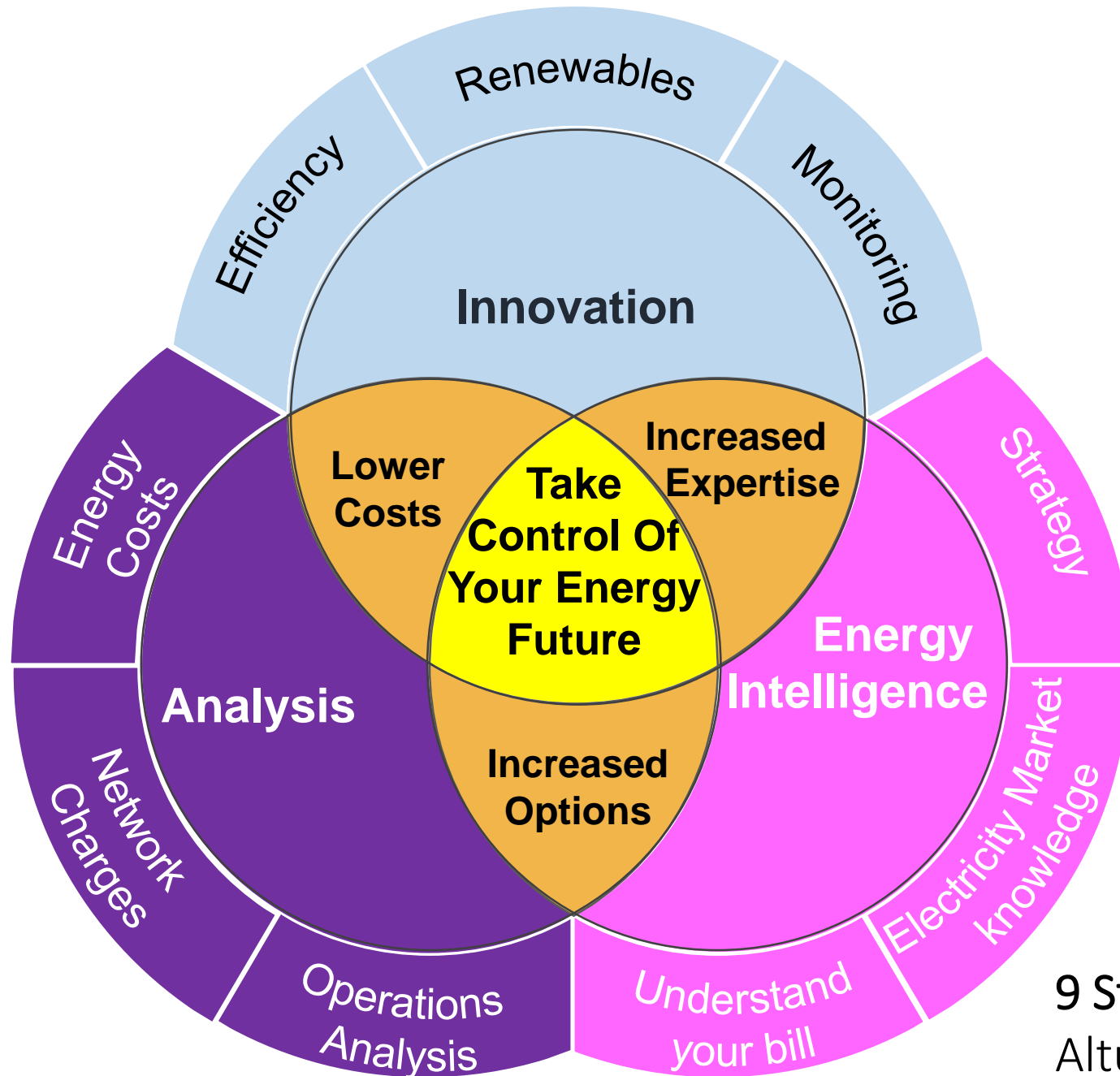


Your energy plan – more than just an energy audit

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Tandem Energy





The cheapest energy is the energy you don't use

SA Energy Productivity Program

- Combined annual spend on electricity \$10.63m (51.5GWh)
- Identified savings \$1.87m (7.6GWh) for outlay of \$8.09m
- 17.6% reduction in electricity cost (up to 51.9% for one happy client)
- Payback period of 4.3 years
- Simple ROI of 23.1%

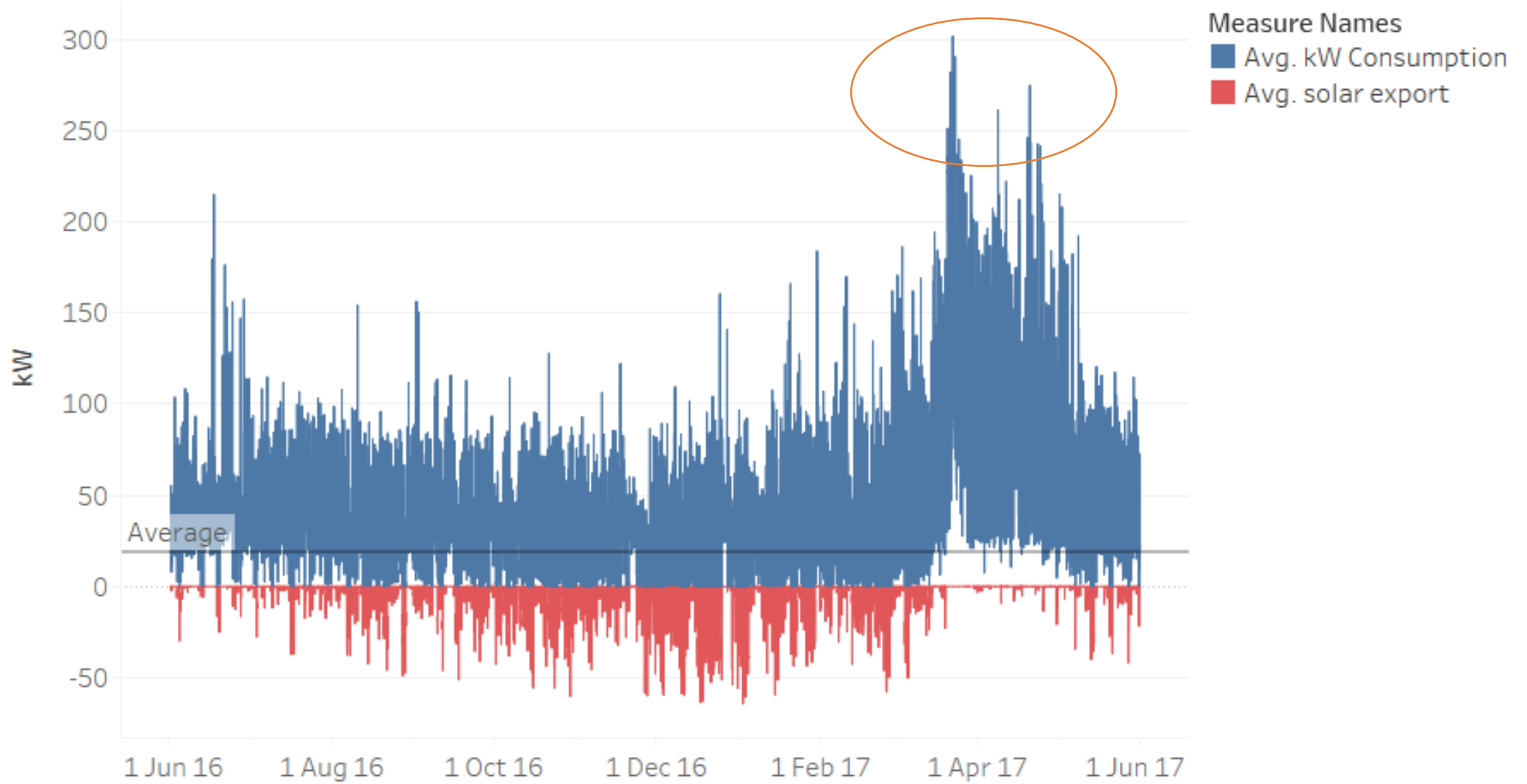




Analysis

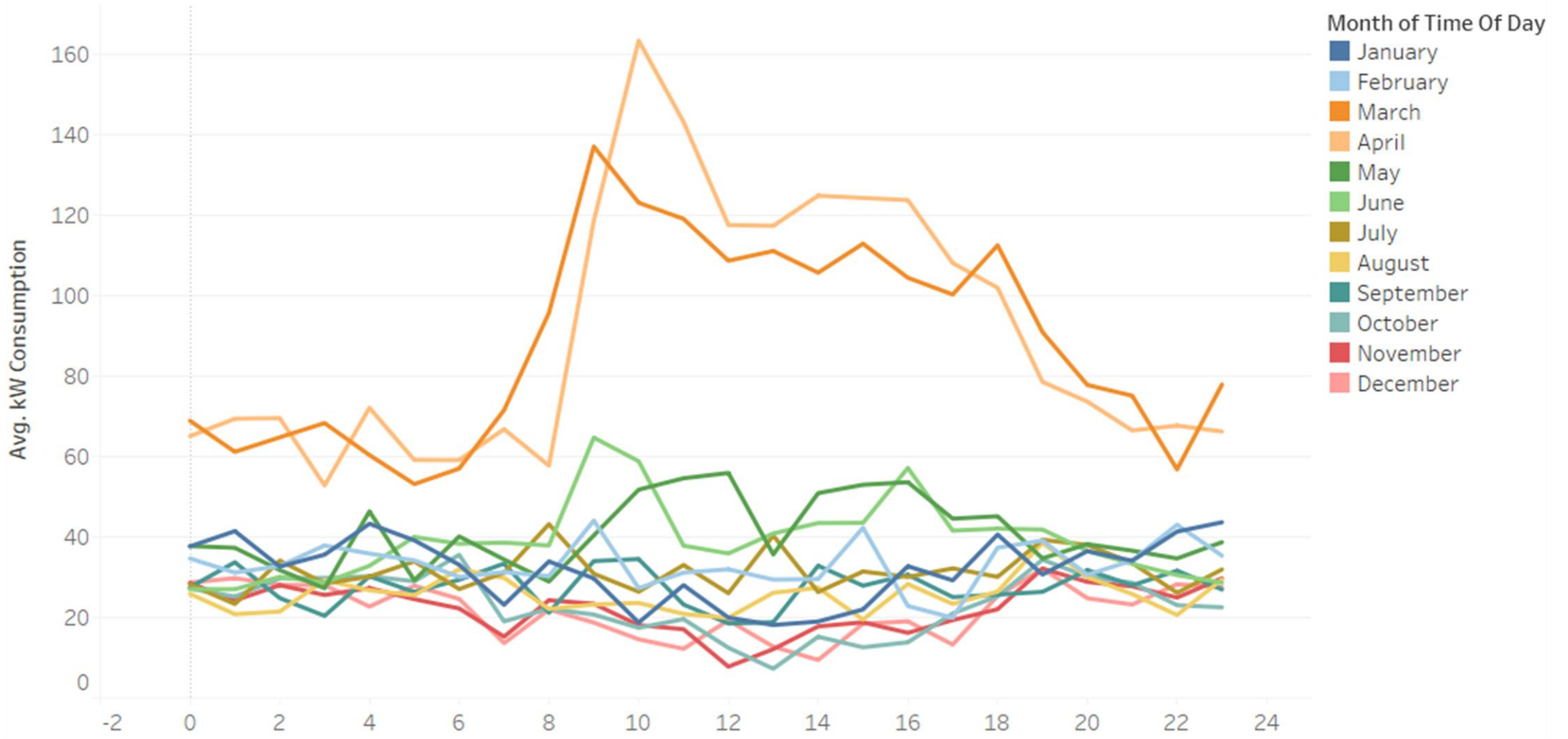
- Operations analysis
- Network charges
- Energy costs

Hourly consumption and surplus solar export





Daily profile for each month of the year



Motors

- Pumping, conveyors, fans, grinders, crushers
- 90% of the total lifetime cost of a motor is electricity to operate it
- More efficient motor (6000+ hours)
- Variable speed drives
- Operating times & controls



Compressed air

- Only 5% of the electricity used by an air compressor converts to compressed air
- Up to 30% of compressed air production lost as leakage
- Inappropriate use and artificial demand >> 50%
- Electricity cost typically more than 70% of total running cost
- Controls
- Correct sizing and pressure
- Heat recovery



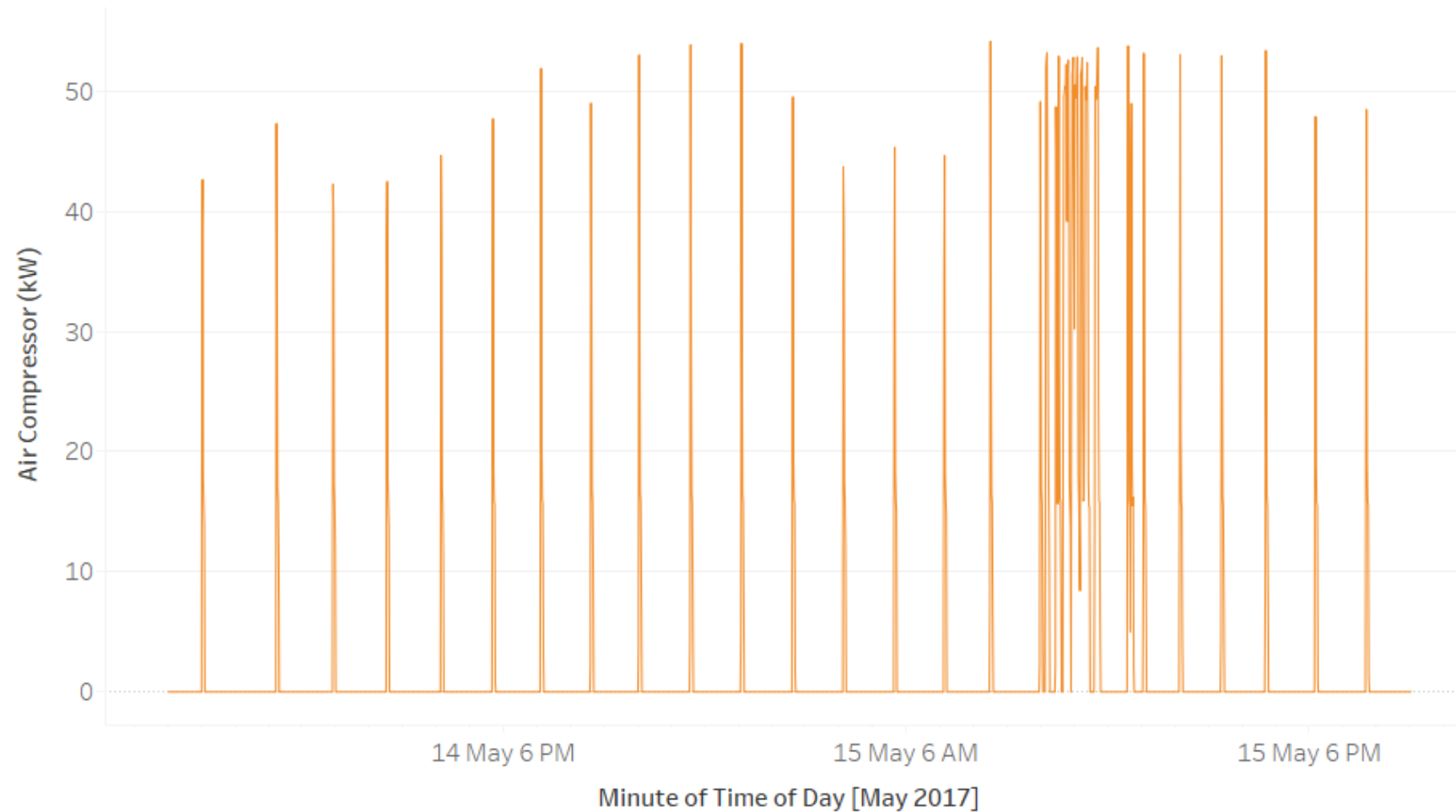
Compressed air

- Very large receiver = long storage capacity
- Crusher uses compressed air to crush grapes
- Waste water bubbler operates 24/7 at low pressure



- Bubbler operating only
- Leaks?
- Equivalent to 1.3kW continuous

Compressed air operation over weekend and Monday morning
(crusher not operating)



Compressed air recommendations

- Small pump for bubbler
- Turn off compressor when not needed
- Use excess solar to run compressor
- Run system at lower pressure outside of vintage

Recommendation	Estimated Capital Cost (\$)	Savings (kWh/yr)	Savings (Energy %)	Savings (\$/yr)	Savings (GHG T/yr)	Payback Period (years)	Simple ROI (%)
Rationalise compressed air	\$3,000	6,656	1.9%	\$1,780	4	1.7	59.3%

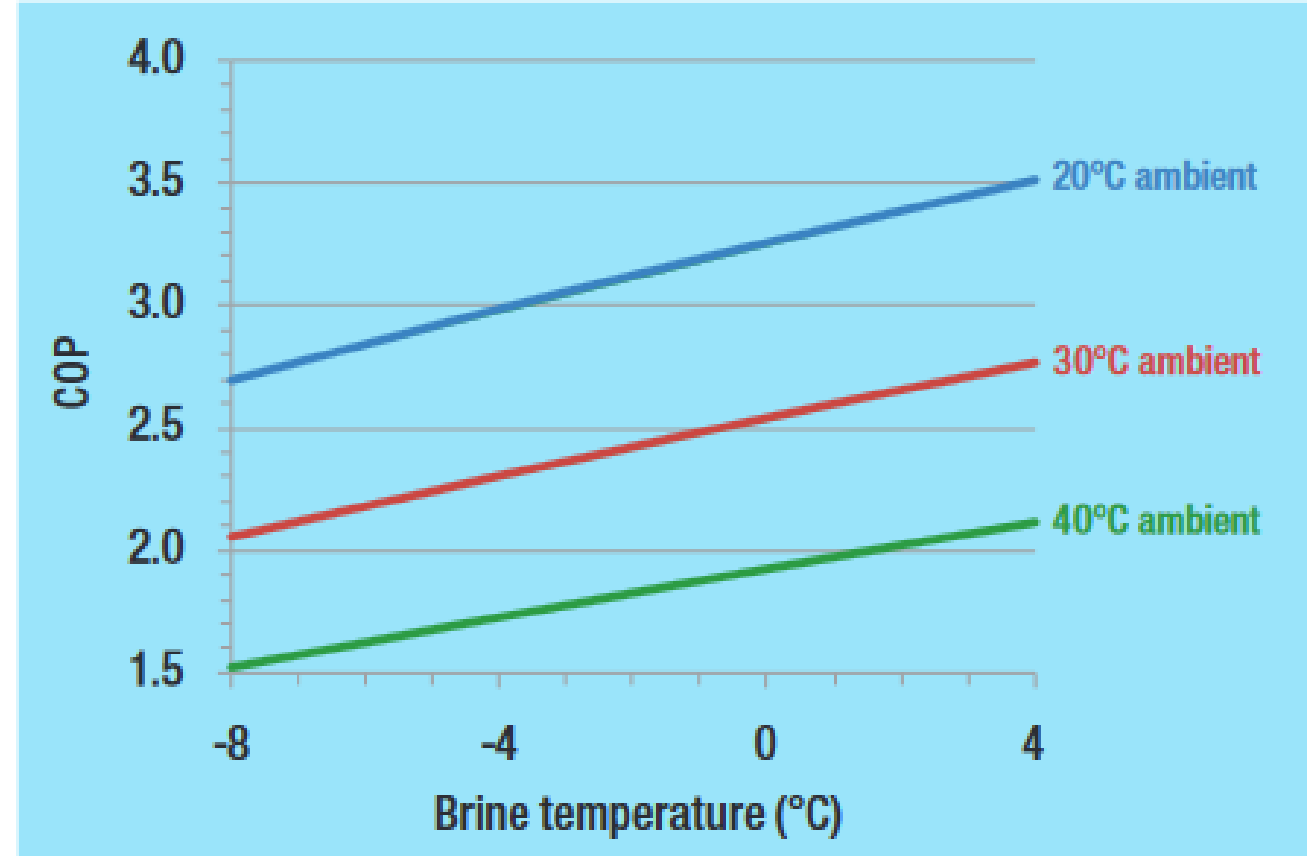
Refrigeration

- Insulation and sealing
- Behavioural practices
- Temperature set point / band
- Solar gain
- Controls
- Refrigerant
- Maintenance



Refrigeration

- Brine at -10C
- Increase by 4-6C at times, save up to 20% outside vintage
- Night time cooling – improve COP and pay less for power = save up to 15%

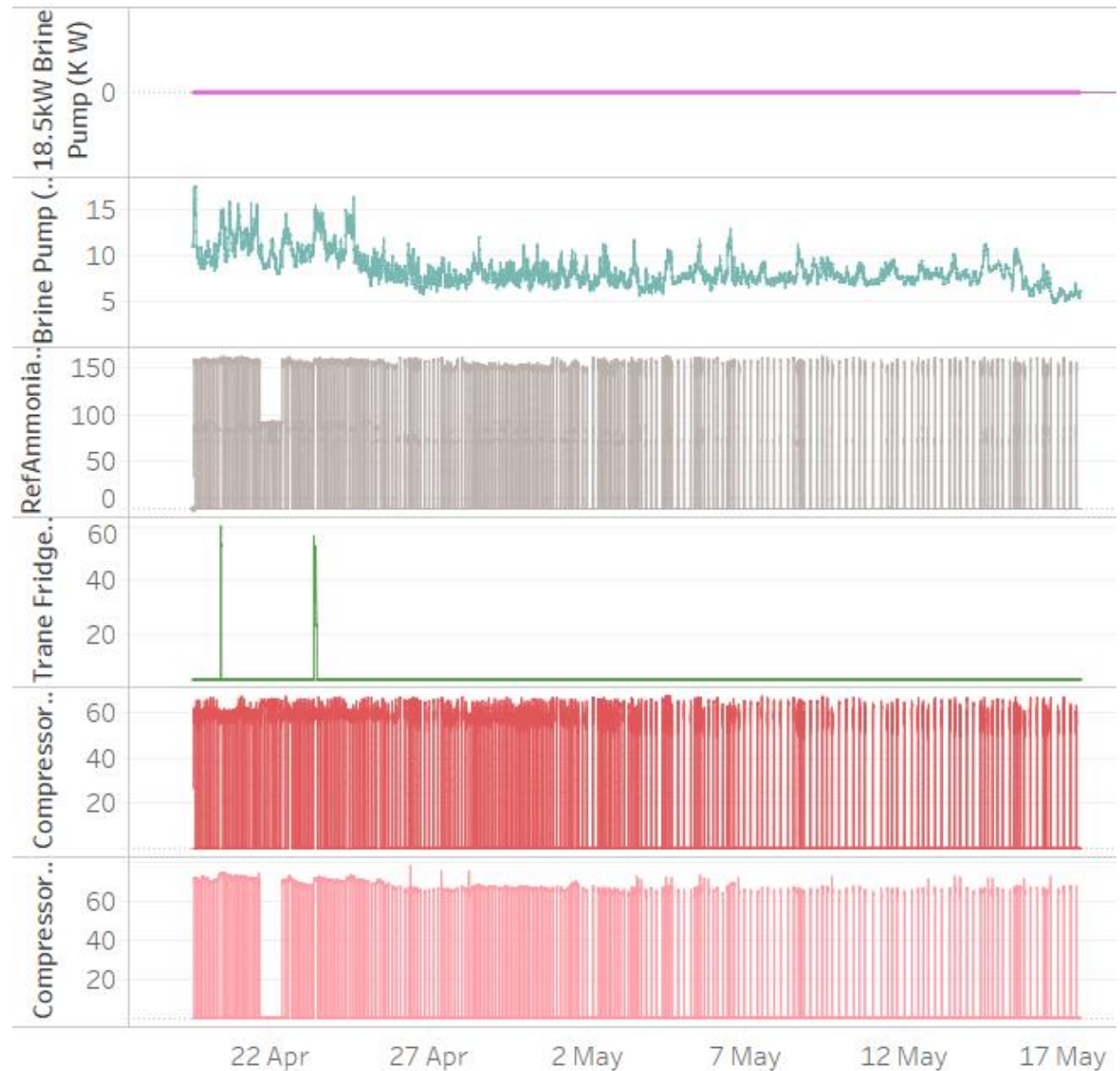


- Increase wine temperature. AWRI:
increase temp of 50kL by one degree =
\$400/week saving



- Brine pump should be VSD – doesn't look like it
- Compressors are fixed speed. Upgrade to VSD.
- Compressors don't work together as expected. Investigate controls.

Refrigeration



Thermal storage

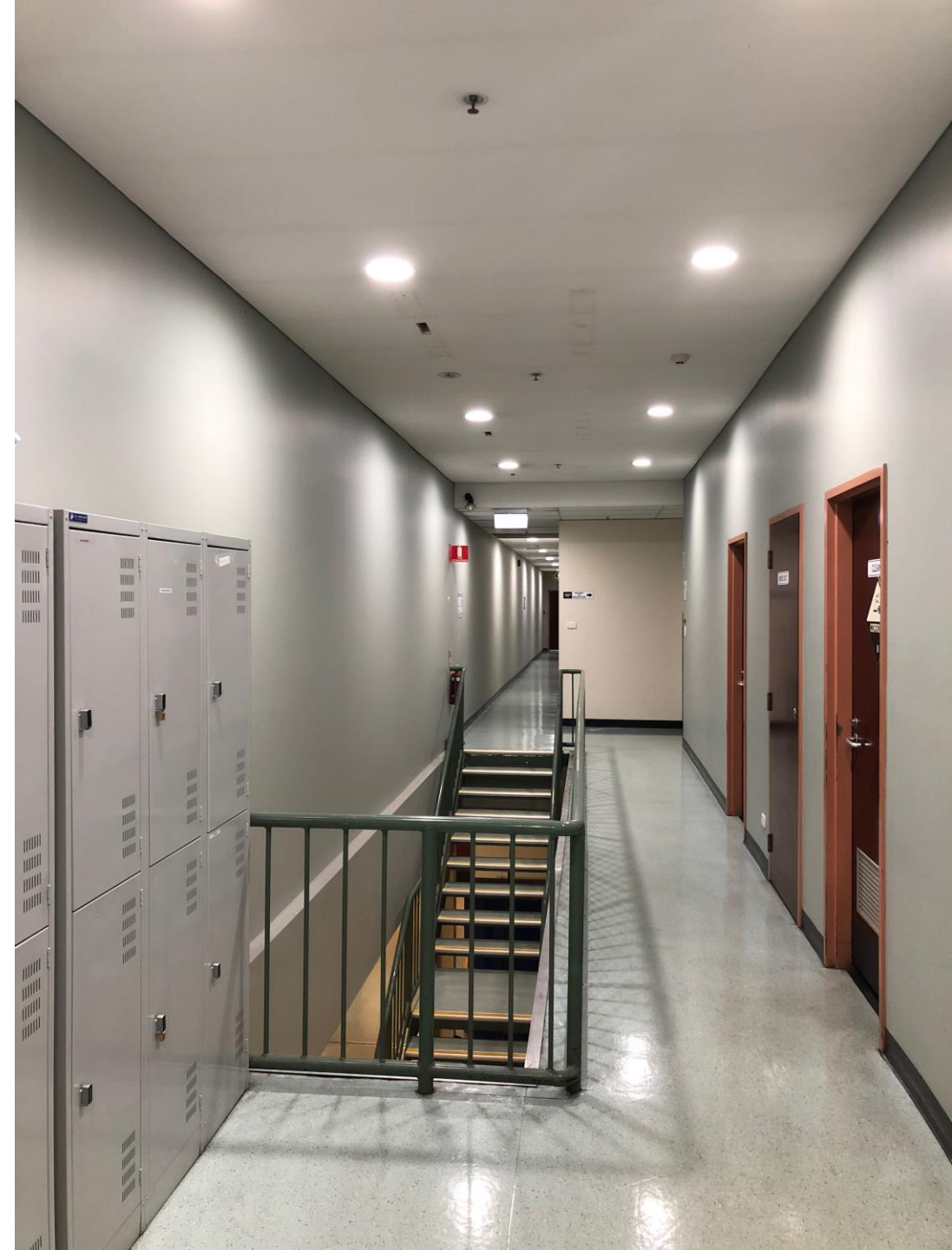
- Already existing: float wine or brine temps, large temp changes at night
- New: Increase brine capacity, introduce ice storage



Recommendation	Estimated Capital Cost (\$)	Savings (kWh/yr)	Savings (Energy %)	Savings (\$/yr)	Savings (GHG T/yr)	Payback Period (years)	Simple ROI (%)
Optimise operation of refrigeration plant	\$0	33,435	9.6%	\$9,296	17.7	0.0	
VinWizard energy control module	\$13,500	25,076	7.2%	\$9,907	13.3	1.4	73.4%
Operate at part load for use of solar	NC	28,120	8.1%	\$7,806	14.9	NC	NC
Thermal Ice storage	\$150,000	0	0.0%	\$17,406	-	8.6	11.6%

Lighting

- Up to 40% of electricity costs
- Save up to 90% on lighting costs
- Turn it off (behaviour, sensors)
- LED upgrades
- REES
- Keep it clean



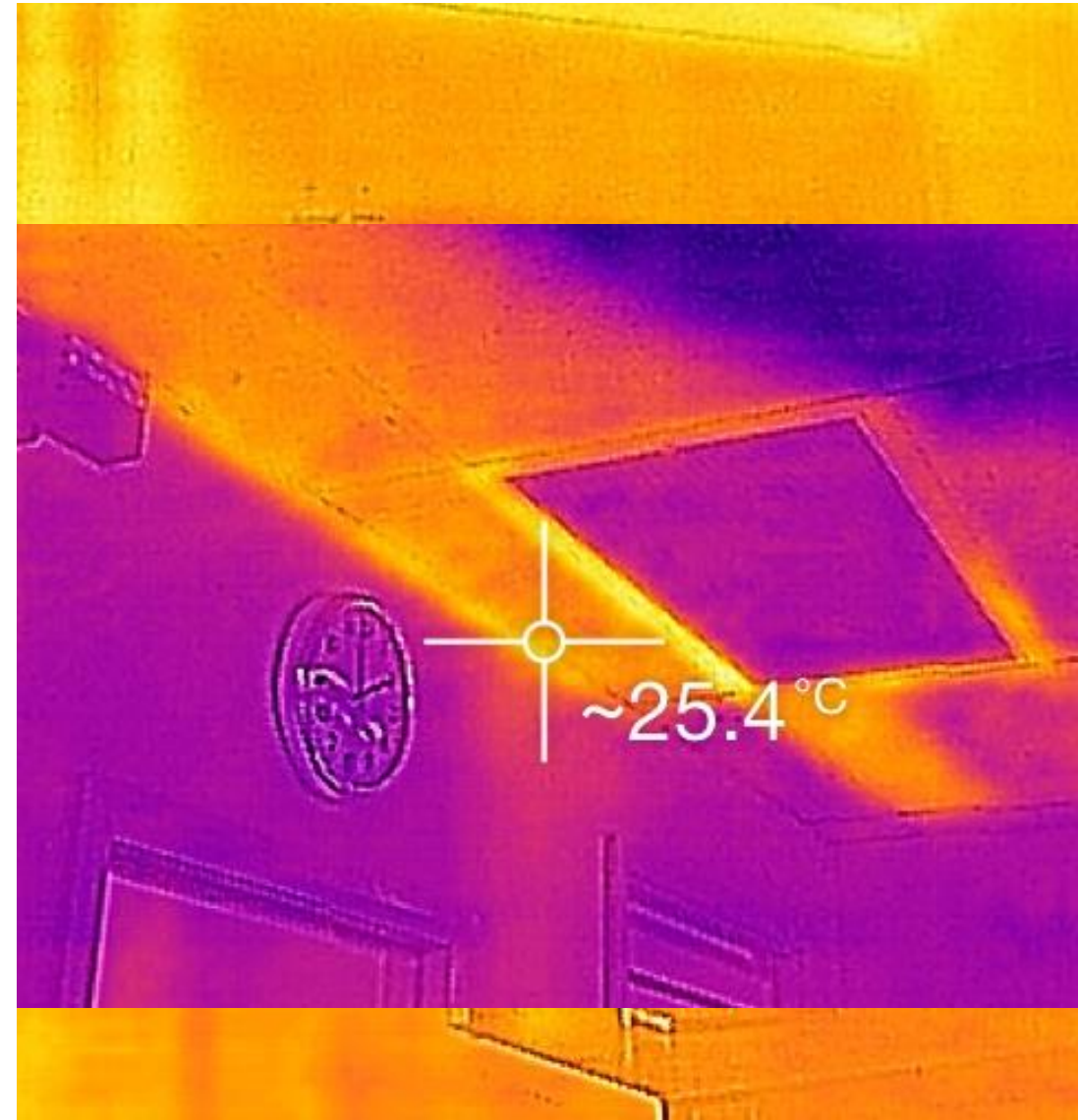
Hot water

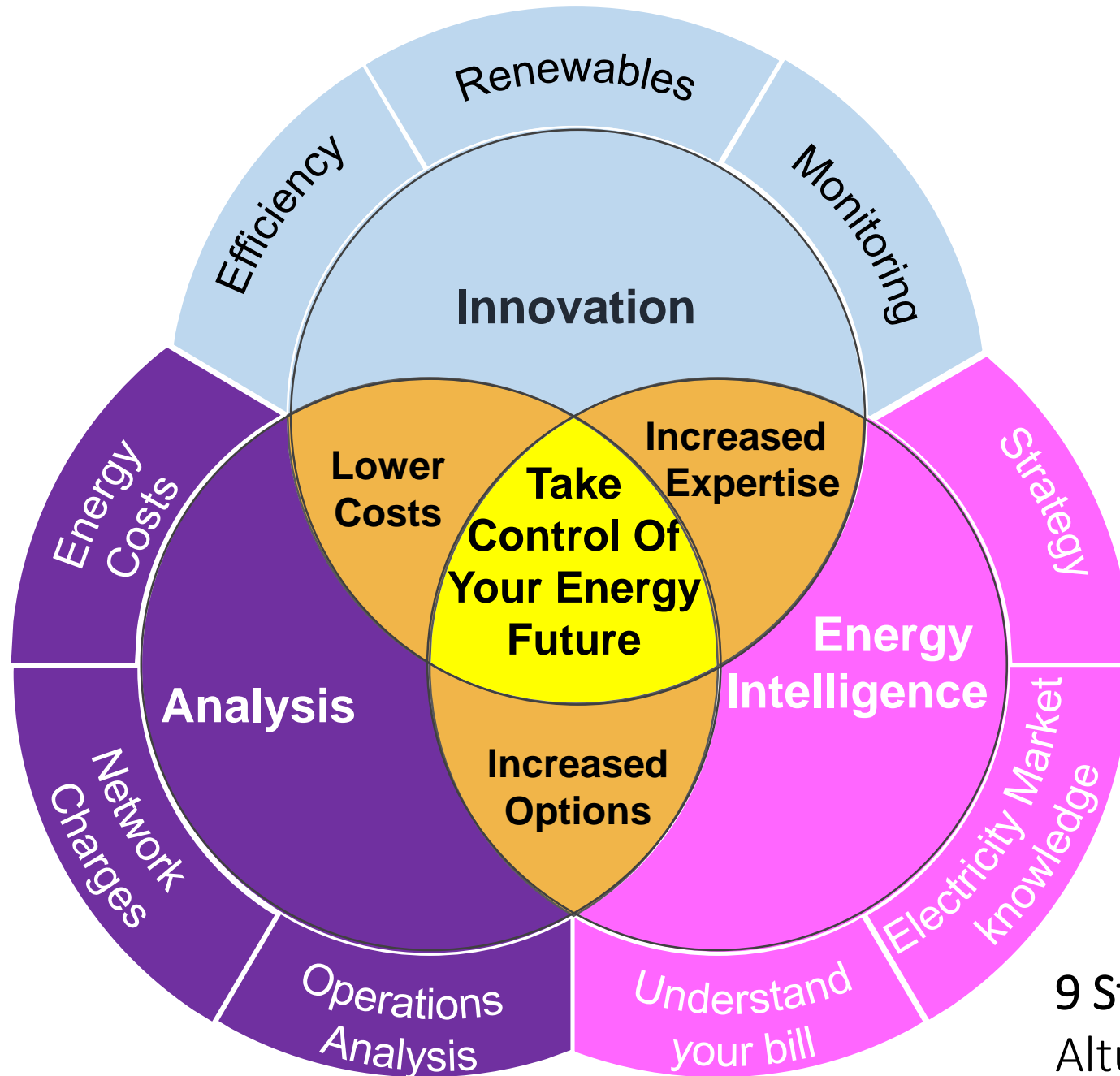
- Gas or electric
- Heat recovery/recirculation
- Set points
- Turn it off



HVAC (heating, ventilation, air conditioning)

- 9% of all electricity in Australia
- 40-60% of electricity per site
- Cooling the ceiling space or outside (hatches off)
- Operating overnight
- Maintenance
- Seasonal adjustments
- Passive design/shading/insulation
- Change expectations





Funding opportunities

- REES – Retailer Energy Efficiency Scheme (~\$4000 towards lights)
- REAP – Resource Efficiency and Productivity program
 - www.greenindustries.sa.gov.au
 - Energy, water and /or materials
 - \$10,000 1:1 funding for audit
 - \$10,000 to kickstart implementation
- SWOP – Solid Waste Opportunities Program
 - Up to \$15,000 to improve materials efficiency and solid waste management
- LEAP – Lead, Educate, Assist, Promote
 - Up to \$50,000 to assist business groups/NFPs to support industry to transition to a circular economy

THANK YOU!

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A Comprehensive
9-Step Framework For
Reducing Electricity Costs and
Boosting Profits

POWER PROFITS