

# Understanding the electricity market

Winery Engineering Association  
7 September 2017

## SAWIA's Industry Partners and Sponsors





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# Our panel of experts

Name	Company
Dean Willis	Energy4Business
Nick Palousis	2XE
Joe Caruso	SA Power Networks
David Evans	FlowPower



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# The National Electricity Market

in 2 minutes and 39 seconds





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# Price changes

- How are prices likely to change in the future?
  - How much have prices gone up in the past?
  - Over what time frame?





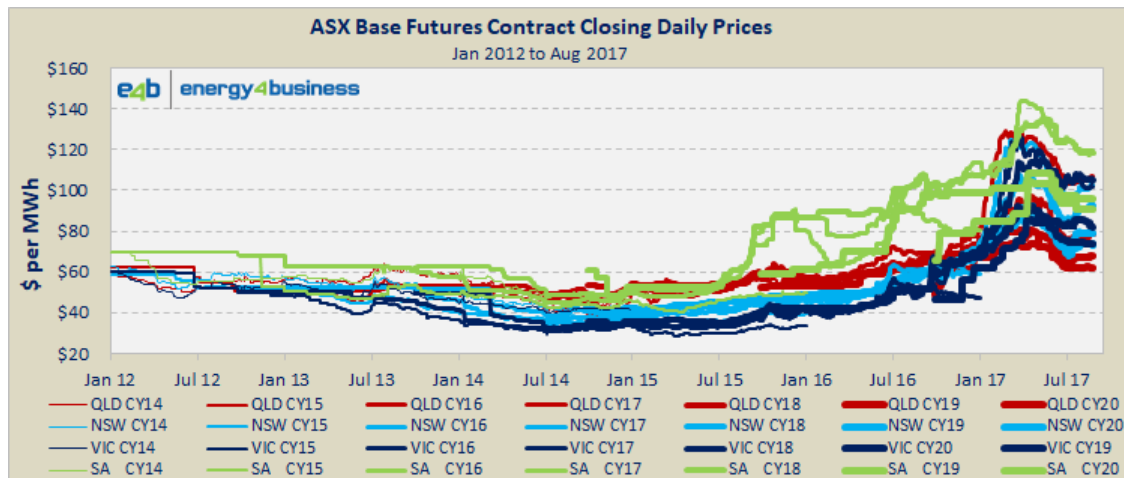
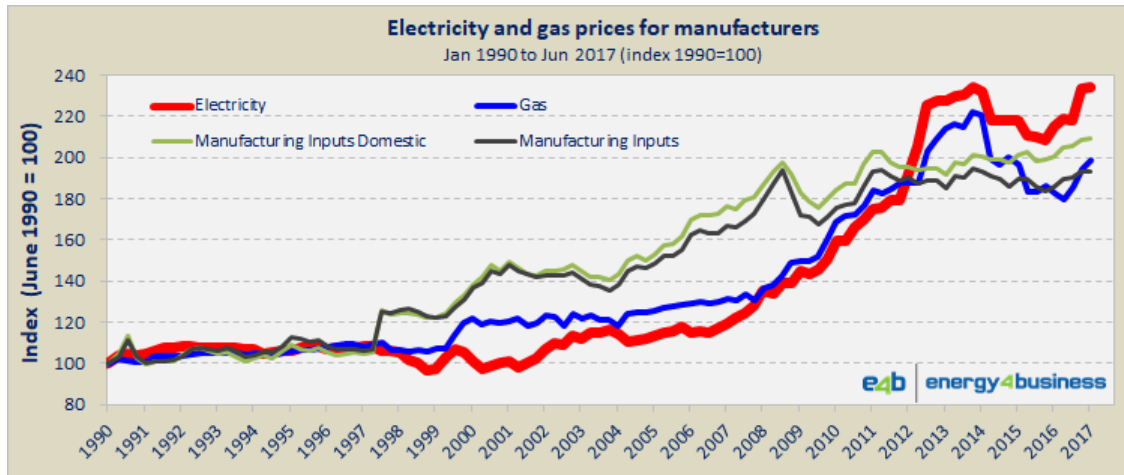
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# Dean Willis, e4b

- David Evans, Flowpower



# Electricity Prices





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# Price drivers

- What are the key causes of the price increases?
  - Renewables?
  - Gas market?
  - Network?
  - Other ...?





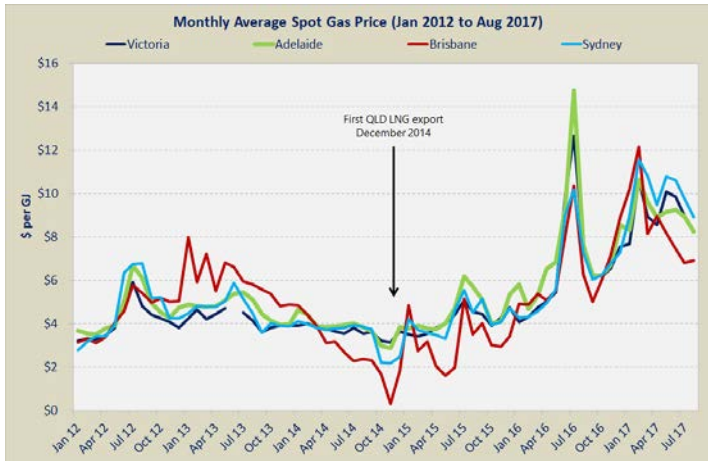
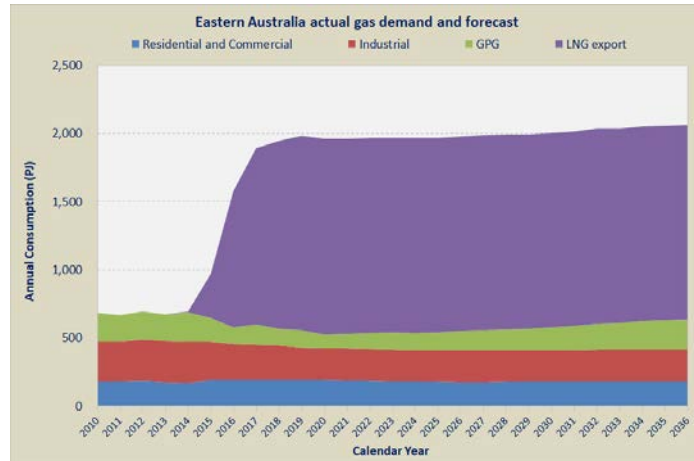
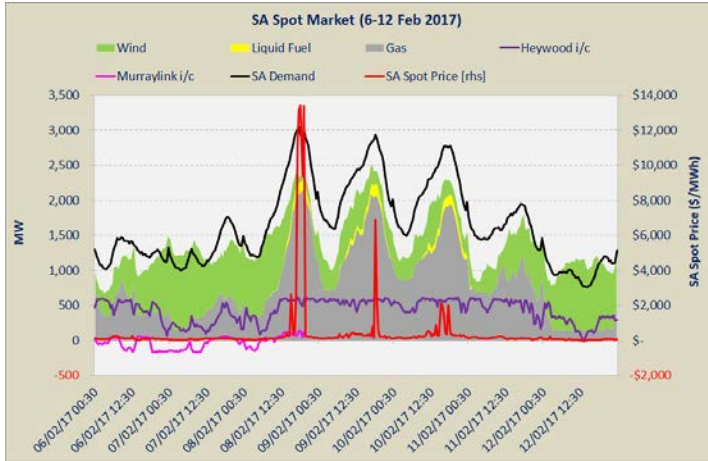
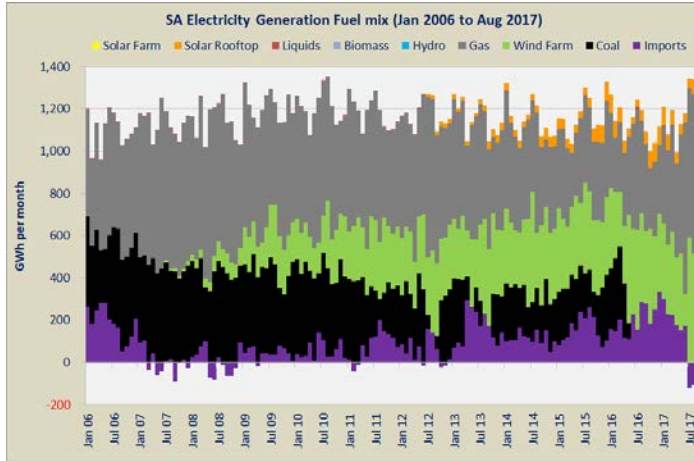
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# Causes





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# Price in SA vs other States

- Why are SA prices higher than other States?
- What are the likely impacts of implementation of the SA Energy Plan?





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# Managing costs

- What can I do to minimise and manage my electricity costs?
  - Procurement
  - Shave
  - Shift
  - Generate
  - Store
  - Improve Efficiency



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**Nick Palousis, 2XE**

**Dean Willis, e4b**

# Energy management strategy

$$\text{Energy Costs} = \text{Price} \times \text{Consumption}$$

Price

Consumption

Retail

Whole-  
sale

Demand

Supply

Bills  
Brokerage  
Contracts

Equipment  
Efficiency

Process Efficiency

Power Quality

Generation

Back-up & Storage

Load Management

Load shedding

Load shifting

Load control

# Plug the leaks first (Tackle demand before Supply)





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# Buying

- What purchasing solutions can businesses use?
  - Energy brokerage
  - Procurement
  - Retail vs wholesale
  - Risk management



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### About us

We're a licensed electricity retailer focusing on giving Australian businesses access to the wholesale market.

## We offer businesses



Transparency



Flexibility



Cost savings



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# Demand (efficient usage)

- What energy efficiency opportunities should I prioritise to help me save money?
- Funding programs available for energy efficiency (REES, BUF, EPP)



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# Nick Palousis, 2XE

- Joe Caruso, SA Power Networks



# Equipment Efficiency

Equipment Type	Proportion of winery energy Consumption
Refrigeration & Tank Storage	50-70%
Pumping	10-20%
Compressed Air	5-10%
Hot Water & Steam	5-10% elec. 70-100% gas
HVAC	5-15%
Lighting	5-10%



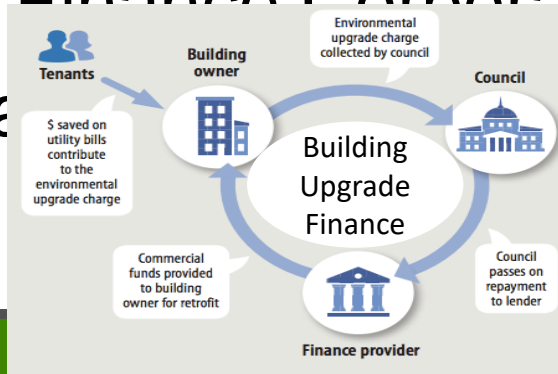
**OPTIMISE vs UPGRADE**

# Process Efficiency

Equipment Type
Refrigeration & Tank Storage
Pumping
Compressed Air
Hot Water & Steam
HVAC
Lighting

# Relevant funding programs

1. SA Energy Productivity Program (SAEPP)
2. Retailer Energy Efficiency Scheme (REES)
3. Business Transformation Voucher Program
4. Green Industries SA Industry Program
5. Clean Energy Finance Corporation (CEFC)
6. Building Upgrade Finance





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# Your bills

- What are the components of the electricity bill and their proportions for a typical winery?





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# Electricity Invoice

Distribution Loss Factor 7.8%

Marginal Loss Factor 0.32%

Total Loss Factor 8.14%

Highest actual metered demand this period is 884.03 kVA (Recorded on 07/02/2017 at 16:00:00)

Meter:  
213259002:1

Usage  
166419.5kWh

Period  
01/02/2017 - 28/02/2017

Days  
28

	Quantity	Unit	Rate /Unit	Amount	Sub Total (incl. GST)	
<b>1. Energy Charges</b>						<b>48%</b>
Peak	90043.20	kWh	13.3992 c/kWh	\$12,065.07		
Off Peak	76376.30	kWh	6.9862 c/kWh	\$5,335.80		
GST				\$1,740.09		
Sub Total					\$19,140.96	
<b>2. Network</b>						<b>42%</b>
Peak	166419.50	kWh	3.0700 c/kWh	\$5,109.08		
Additional Demand	11.00	kVA	3.589600 \$/kVA	\$39.48		
Annual Block 1 Demand Rate	1000.00	kVA	8.929200 \$/kVA	\$8,929.20		
Annual Block 2 Demand Rate	133.00	kVA	7.355600 \$/kVA	\$978.29		
Supply Rate	28	Days	11.133800 \$/Day	\$311.75		
GST				\$1,536.79		
Sub Total					\$16,904.59	
<b>3. Other</b>						<b>9%</b>
LREC Charge	166419.50	kWh	1.4886 c/kWh	\$2,477.32		
AEMO Charge	166419.50	kWh	0.0368 c/kWh	\$61.24		
AEMO Ancillary	166419.50	kWh	0.0270 c/kWh	\$44.93		
SREC Charge	166419.50	kWh	0.3967 c/kWh	\$660.19		
Meter Provider/Data Agent Charges			70.833333 \$/Bill	\$70.83		<b>1%</b>
Supplementary Metering Charge			25.000000 \$/Bill	\$25.00		
Service Charge			20.000000 \$/Bill	\$20.00		
Value Added Service Charge			118.625000 \$/Bill	\$118.63		
GST				\$347.80		
Sub Total					\$3,825.94	
<b>Total New Charges</b>					<b>\$39,871.49</b>	
<b>Total GST (for this invoice)</b>					<b>\$3,624.68</b>	



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# Network (poles & wires)

- How are network charges changing?





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# LV/HV Actual Demand Tariff



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1:00							
2:00							
3:00	<b>Off-peak Demand Period</b> (all year round, local time)						
4:00							
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
13:00	<b>Shoulder Demand Period</b> (all year round, local time)						
14:00							
15:00							
16:00							
17:00	<b>Peak Demand Period</b> (November - March, local time)						
18:00							
19:00							
20:00							
21:00							
22:00							
23:00							
0:00							

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1:00							
2:00							
3:00							
4:00							
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
13:00							
14:00							
15:00	<b>Agreed Annual Demand Period</b> (November - March, local time)						
16:00							
17:00							
18:00							
19:00							
20:00							
21:00							
22:00							
23:00							
0:00							

# LV/HV Agreed Demand Tariff

TRANSITION PLAN .....



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# Data

- How can I get data about my usage pattern?





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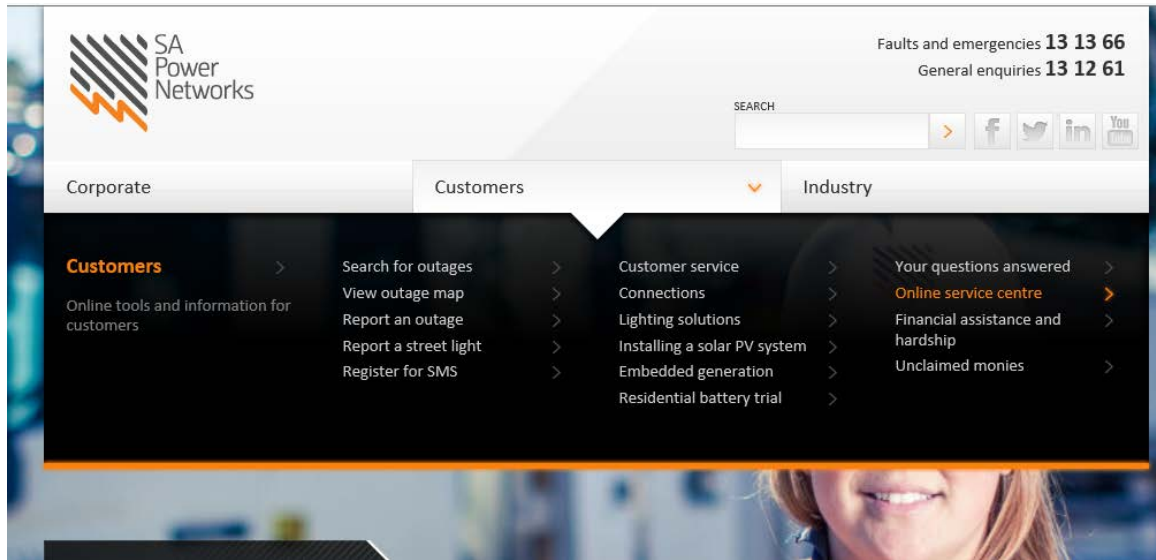
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# Online portal



[http://www.sapowernetworks.com.au/centric/customers/online\\_service\\_centre/your\\_meter\\_data.jsp](http://www.sapowernetworks.com.au/centric/customers/online_service_centre/your_meter_data.jsp)



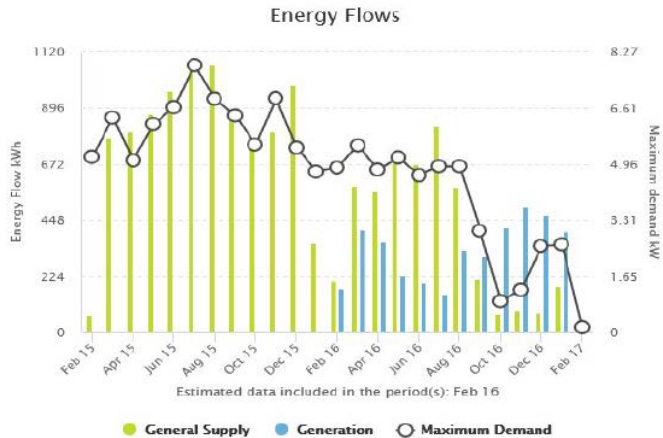
# Report types



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
62	300	20160321	0.222	0.281	0.768	0.627	0.245	0.201	0.265	0.19	0.558	0.653	0.169	0.282	0.402
63	300	20160322	0.197	0.158	0.192	1.05	0.155	0.195	0.17	0.168	0.187	0.165	0.899	0.358	0.265
64	300	20160323	0.203	0.262	0.237	0.283	0.635	0.567	0.257	0.184	0.475	0.247	0.291	1.079	0.585
65	300	20160324	0.451	0.224	0.283	0.266	0.272	0.752	0.722	0.265	0.438	0.353	0.279	0.364	0.876
						218	0.2	1.13	0.195	0.156	0.198	0.167	0.158	0.267	0.101
						252	0.25	0.241	0.212	0.259	0.231	0.284	0.305	1.126	0.296
						094	0.392	0.301	0.279	0.38	0.258	0.202	1.192	0.241	0.238
						1.15	0.217	0.244	0.21	0.257	0.252	0.2	1.102	0.198	0.248
						149	0.285	0.192	0.267	1.06	0.202	0.284	0.22	0.23	1.192
						813	0.078	0.129	0.084	0.092	1.174	0.078	0.153	0.232	0.258
						384	0.327	0.138	0.378	0.73	0.131	0.094	0.111	0.907	0.13
						224	0.943	0.312	0.215	0.259	0.327	0.297	0.268	0.388	1.194
						3.29	0.246	1.224	0.24	0.253	0.26	0.233	0.211	0.266	1.126
						112	0.271	0.972	0.125	0.151	0.258	0.088	0.109	0.107	0.063
						3.16	1.005	0.219	0.202	0.224	0.226	0.182	0.209	0.216	1.16
						127	0.122	1.038	0.11	0.121	0.11	0.115	0.123	0.102	0.126
						322	0.708	0.876	0.257	0.288	0.255	0.33	0.672	0.9	0.26
						479	0.957	0.263	0.259	0.196	0.47	0.279	1.095	0.305	0.273
						282	0.296	0.996	0.542	0.244	0.434	0.321	0.249	1.041	0.46
						3.25	1.166	0.197	0.285	0.199	0.227	0.436	1.085	0.33	0.211
						3.78	0.393	0.167	0.134	0.109	0.185	0.503	0.571	0.154	0.088
						1.15	0.361	0.28	0.25	0.212	0.188	0.62	0.742	0.383	0.288
						349	0.375	0.205	0.226	0.515	0.825	0.28	0.227	0.22	0.296
						086	0.227	0.246	0.237	0.258	0.261	0.244	0.279	1.09	0.265
						203	0.168	0.204	0.244	0.24	0.19	0.204	0.158	1.056	0.154
						381	0.304	0.252	0.276	0.62	0.763	0.34	0.286	0.385	0.279
						182	0.268	0.155	0.227	1.06	0.235	0.28	0.281	0.325	0.334
						353	0.259	0.22	0.263	0.229	0.247	0.246	0.207	1.234	0.187
						213	0.22	1.133	0.205	0.228	0.234	0.235	0.221	0.276	0.71
						983	0.267	0.175	0.237	0.23	0.175	1.03	0.176	0.255	0.242
						308	1.174	0.39	0.276	0.387	0.335	0.315	0.364	1.067	0.346
						235	0.233	0.2	0.229	0.201	0.267	1.082	0.133	0.133	0.238

## Interval Meter Summary Report

Report period from 27/02/2015 to 28/02/2017



SA Power Networks



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# Resources

- SAWIA – *Leading Environmental Practice*
- Government – GISA, DSD
  
- Industry partners
- Speakers
- Peers
- Suppliers

