Question 8:

- Yallourn has a nameplate capacity of 1480MW and an annual generation of between 8.3GWh and 11.6GWh p.a. This is very similar to the annual generation of Hazelwood, which is around 11.5GWh p.a. See AEMO 2015 NEM Historical Market Information Report, attached. https://www.aemo.com.au/media/Files/Electricity/Planning/Reports/ESOO/2015/2015 NEMHMIR spreadsheet.xlsx
- If Yallourn were to close immediately, this would remove around 10% of the generation capacity of Victoria (total capacity of Victoria's generation is 12,292MW), which provides around 20% of Victoria's annual energy demand (Victorian power stations generate around 55GWh p.a.). The implications for this is that Loy Yang would likely be dispatched more and its capacity factor would increase, and the black coal generators from NSW would enjoy higher capacity factors and supply more energy across the border into Victoria. There would likely be an increase in wholesale electricity prices as the black coal generators have higher short run marginal costs than Yallourn. The increase in wholesale prices would help to support renewable energy generators entering the market as these have negligible short run marginal costs and are dispatched ahead of thermal generators. There would be little risk to security of supply from the immediate closure of Yallourn as the market is very oversupplied at present. The portfolio of generators in the NEM delivers around 207GWh of energy p.a., which means that the portfolio of generators in the NEM are running at a capacity factor of around 47%.
- In 5 years time, it is expected that further coal power stations will have exited the market and the impact of the closure of Yallourn will be more significant. As more and more dispatchable electricity generators exit the market (such as Yallourn), there will be a requirement to source this dispatchability from elsewhere in the market. This will increase the reliance on gas (which is lower emissions than coal but higher cost) and will incentivise renewable energy projects which have storage to enter the market to compete with the incumbent gas generators and any potential new build of gas.

Question 9:

- There are two alternatives to incentivizing coal power stations to exit the market, carrot and stick.
- On option for the carrot approach is to hold an annual auction whereby the existing generators bid the price they would need to permanently exit the market (ie not mothball but decommission). All coal power stations will be required to participate in the auction and submit an annual bid, with the auction process dictating the capacity of the market that must be retired and the agreed timing for the retirement (suggesting a period such as 2 years – 4 years would be appropriate). The lowest bidders up to the threshold of capacity will be awarded as the winner, with the cost bid borne by the market participants remaining in the process per their proportion of capacity in the NEM. This approach will encourage companies to bid low to exit as the cost will be borne by fewer participants as the year's progress resulting in a higher average cost to the remaining participants.
- An option for the stick approach is to set an annual emissions threshold and power stations that exceed the threshold have 2 years to reduce their emissions below this threshold or lose their generation license. The threshold could be outlined in advance with a reducing

target each year. This will encourage coal power stations to introduce measures to reduce their emissions if they are able to do so, or be able to see in advance when their plant will exceed the threshold and will be able to plan for the closure accordingly. Such an approach will also give the market time to assess the capacity likely to exit the market each year.

Question 10:

- For new build gas, the LCOE is a calculation which looks at the capital cost, fixed operating and maintenance cost (FOM), variable operating and maintenance cost (VOM) and the variable fuel cost. According to Core Energy Group's 2015 study for AEMO, delivered wholesale gas prices in Victoria are expected to ramp up to $9.50/GJ by 2020 and stay at those levels for an indefinite period of time. At this price, with typical VOM and FOM costs and a typical heat rate unit we would expect the short run marginal cost to be in the order of about $100/MWh - $110/MWh at these gas prices for a typical gas fired power station. Noting that some units will be higher and lower than these typical values. In addition to this, the capital cost of the facility will need to be recovered, which assuming a 200MW facility is built at a cost of $900/kW and is dispatched 30% of the time over a 10 year period, this would add a further $30-$40/MWh, bringing the LCOE to $130/MWh to $150/MWh.