

**Senate Finance and Public Administration Legislation Committee
Supplementary Budget Estimates Hearing – October 2009
ANSWER TO QUESTION ON NOTICE**

Topic: Californian electricity demand

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Question: (Senator Abetz)

Senator ABETZ—... The question, as I am sure you well know, Dr Parkinson, was: what was the impact of that 30 per cent price rise on the demand for electricity in California?

Mr Parkinson—I would have to go and have a look at the exact details. I am happy to do so.

Answer:

Table 1 shows annual price and consumption data for California over seven years from 1998 to 2004. The reported prices have not been adjusted for inflation.

Table 1: Annual average electricity price and consumption for California per calendar year, 1998 to 2004

Year	Price ^a (\$/MWh)	Annual change	Consumption ^b Million kWh	Annual change	Consumption per capita '000 kWh	Annual change
1998	89.51		236,434		7.19	
1999	90.00	1%	234,831	-1%	7.03	-2%
2000	94.89	5%	244,057	4%	7.16	2%
2001	112.27	18%	247,759	2%	7.12	-0.5%
2002	122.17	9%	235,213	-5%	6.65	-7%
2003	118.03	-3%	243,221	3%	6.76	2%
2004	113.70	-4%	252,026	4%	6.90	2%

Notes: a – Total energy sector estimates; b – Total consumption of electricity by all sectors.

Source: Energy Information Agency (USA), State Energy Data System, Data files, all States and all years <http://www.eia.doe.gov/emeu/states/seds.html>, Consumption, Physical Units, 1960–2007 and Prices, 1970–2007, accessed 17 November 2009.

Population data source: California Department of Finance, California Statistical Abstract - Population http://www.dof.ca.gov/html/fs_data/stat-abs/sec_B.htm, accessed 26 November 2009.

The data in Table 1 shows a substantial increase in electricity prices (not adjusted for inflation) from 2000 to 2001 and then to 2002. Total electricity consumption rises from 2000 to 2001 and falls from 2001 to 2002, but consumption per capita falls in both periods, albeit only modestly from 2000 to 2001. This is consistent with general principles that per capita demand is often relatively unresponsive to changes in price over the short term, and more responsive over longer periods. Over longer periods, increases in per capita income would be expected to offset at least some of the reduction in per capita demand resulting from increased prices. It should also be noted that the higher prices in 2002 had been partly reversed by 2004. Consumers respond more to price changes that are viewed as permanent.

The Treasury-led modelling of the CPRS used a suite of economic models as part of its analysis. Each of these models included assumptions about the responsiveness of households and business to changes in prices as a result of the introduction of emission pricing.

The Australian Monash Multi-Regional Forecasting (MMRF) model includes the assumption that the price elasticity of demand over time at the household level is 0.5 and the price elasticity of demand over time for business intermediate inputs of electricity is 0.25. (A long-term price elasticity of demand of 0.5 means that, over time, a 10 per cent increase in the price of a good or service would be expected to decrease demand for that good or service by 5 per cent relative to demand in the absence of the 10 per cent price increase.) Aggregate electricity demand in the economy will also move in response to changes in the composition of consumer demand and industry output. Sensitivity analysis in the MMRF model suggests that such compositional effects account for around half of the total change in electricity demand as a result of the introduction of emission pricing.