

The discovery of Electricity

Electricity in early Victoria and through the years

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Collins Street, 1886



The discovery of electricity fact sheets reviewed and updated with the assistance of STAV Publishing



A gas company was formed and by August 1857 the lamplighter with his ladder was tending 300 iron lamp posts in the streets. Soon, Bourke Street was 'almost cosmopolitan' under the flaming gas jets, with large crowds attending the 'lavish productions' at the theatres and music-halls.

A few years later, the large crowds were gaping in amazement at the first manifestation of the new marvel of the age - electric light.

The first application of electricity in Victoria was the telegraph installed between Melbourne and Williamstown in 1854, mainly to transmit information about shipping movements.

The first authentic record of electric light in Melbourne was in the late 1860s.

As no-one at that stage had solved the problem of how to carry electricity very far from where it was generated, it remained for years a static wonder.

In this form electricity enabled a football match to be played at the Melbourne Cricket Ground on a night in August 1879. It also brought new brilliance to the theatres.

2 The discovery of Electricity

Old Melbourne Post Office, 1853



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The diScovery of Electricity

Generating plants

Small generating plants sprang up in the city serving very small areas; in 1880, the first electric light company was formed. It was called the Victorian Electric Company (VEC) and one of its first contracts was to light the Eastern Market, a rambling building which housed stalls and sideshows. Six arc lamps were used, each with a separate steam-driven dynamo. The VEC did not last long and was taken over in 1881 by the Australian Electric Company.

Electricity, despite its advantages, still bore the same shackles as steam: it had to be used near the place of generation. Towards the end of the 1880's, however, new discoveries abroad made it possible to transmit current for some distances. In 1891, a button pressed at an industrial exhibition in Frankfurt, Germany, lit lamps with current that had travelled 170 km.

Melbourne's electricity companies began to move their plants from the crowded city, where in any case, the Melbourne City Council planned to enter the supply business in a big way. Three went to Richmond, where there was plenty of room among the Chinese market gardens and ample water from the Yarra for their steam engines.

<The Dark
Ages activity>

Growing use of electricity

The number of lights in Melbourne doubled in the 12 months up to April 1893. The lights were under verandahs, in shops, in the hotel bars, theatres, clubs and music halls and the Houses of Parliament.

Lighting was not the only use for electricity. Ladies in Melbourne had an ornamental kettle and teapot stand in the drawing room. There were electric ventilating fans in the hotel smoking-rooms. Electricity was also coming into use to drive motors.

Electric street lighting

Melbourne's streets, however, were still lit by gas. But between 1892 and 1894, the Melbourne City Council established 20 dynamos and four boilers at Spencer Street - a plant of quite formidable size by the standards of the time. On 7 March 1894, streets in the central city were lit by electricity.



Trams

Electricity was not generally used for trams until 1903, although what is claimed to be Australia's <first electric tramway> opened in Melbourne in 1889. It could hardly be called a tramway service, for only two small cars ran on a line that went from the then sparsely settled Box Hill through open country to the heights of Doncaster. It was mainly a holiday and weekend attraction, covering 4 km in 20 minutes.

<Electric
gadgets activity>

Regulations

During the 1890s, Victoria's legislators perceived that a lack of Government intervention in electricity supply was costly, inefficient and dangerous. They decided the industry needed to be regulated and standards of supply, installation and maintenance should be put in place. State Parliament passed an Electric Light and Power Act in 1896. Thereafter, no-one could set up to supply others without permission but could generate electricity for his own needs.

For the Melbourne consumer of electricity in those days bills were high and service uncertain. Appliances which worked on one system were not suitable for others, so that if you moved you needed new equipment. Power stations did not operate on Sundays and street lights went off at midnight.

Country areas

Nevertheless, electricity was catching on, even in the country areas. In 1891 the Nhill Electric Light Company Pty Ltd had beaten the Melbourne City Council in establishing a town supply. Other country towns followed. Their supply came mostly from a local industry, such as a butter factory, which had surplus power to sell.

Growing demand

Electricity was obviously the power of the future. Electric motors, lighter and smaller than steam engines of equal capacity, needed no stoking; they could just be switched on and off.

Between 1905 and 1915, capital expenditure on electric supply rose from \$1.6 million to \$5.5 million; cities and towns which had an electricity supply grew from eight to 68; plant capacity increased from 6,000 kilowatts to 40,000 (32,000 of it in Melbourne alone); the number of electric motors went up from 1050 to 5800. As an illuminant, electricity was beginning to cut into the gas market.

In 1918, the Victorian Government passed legislation to appoint Commissioners to regulate and investigate supply of electricity. This was followed in 1921 by another Act creating the State Electricity Commission of Victoria (SECV). The SECV was responsible for the generation, transmission and distribution of electricity in Victoria, which during the next 74 years brought the benefits of electricity to all corners of the State.

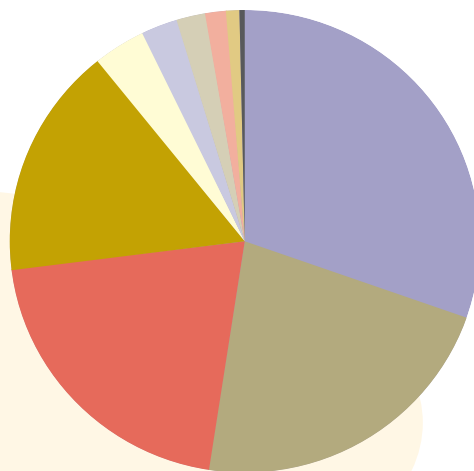
The Electricity Industry Today

In 1993 the Victorian Government announced the disaggregation and sale of the SECV.

The reform of Victoria's electricity industry began with the Government dividing the SECV into transmission, generation and distribution entities.

Generation

In 2004, 14 generators contributed to Victoria's electricity market share.



Generation Market Share 2004 - Victoria

| | |
|------------------------|-------|
| Loy Yang Power | 30.3% |
| Hazelwood Power | 22.1% |
| Yallourn Energy | 20.0% |
| Edison Mission Energy | 16.2% |
| Imports from NSW/Snowy | 3.5% |
| Alcoa | 2.5% |
| Energy Brix | 1.9% |
| Ecogen Energy | 1.7% |
| Southern Hydro | 0.8% |
| Other | 0.4% |

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of **Electricity**

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Transmission

Victoria's electricity is transmitted by <SP AusNet>.

The Victorian <transmission network> is centrally located amongst the eastern States of Australia that form the National Energy Market. The transmission networks provide services that are regulated by the <Australian Competition and Consumer Commission (ACCC)>.

Distribution

Five electricity distribution businesses own and manage the poles and wires across Victoria that deliver electricity to your meter. Distribution businesses are responsible for the quality and reliability of your electricity supply.

CitiPower and Powercor are two of the five distribution businesses. CitiPower's network supplies electricity to the Melbourne CBD and inner suburbs and Powercor supplies from Melbourne's western suburbs through central Victoria and all of western Victoria to the South Australian border.



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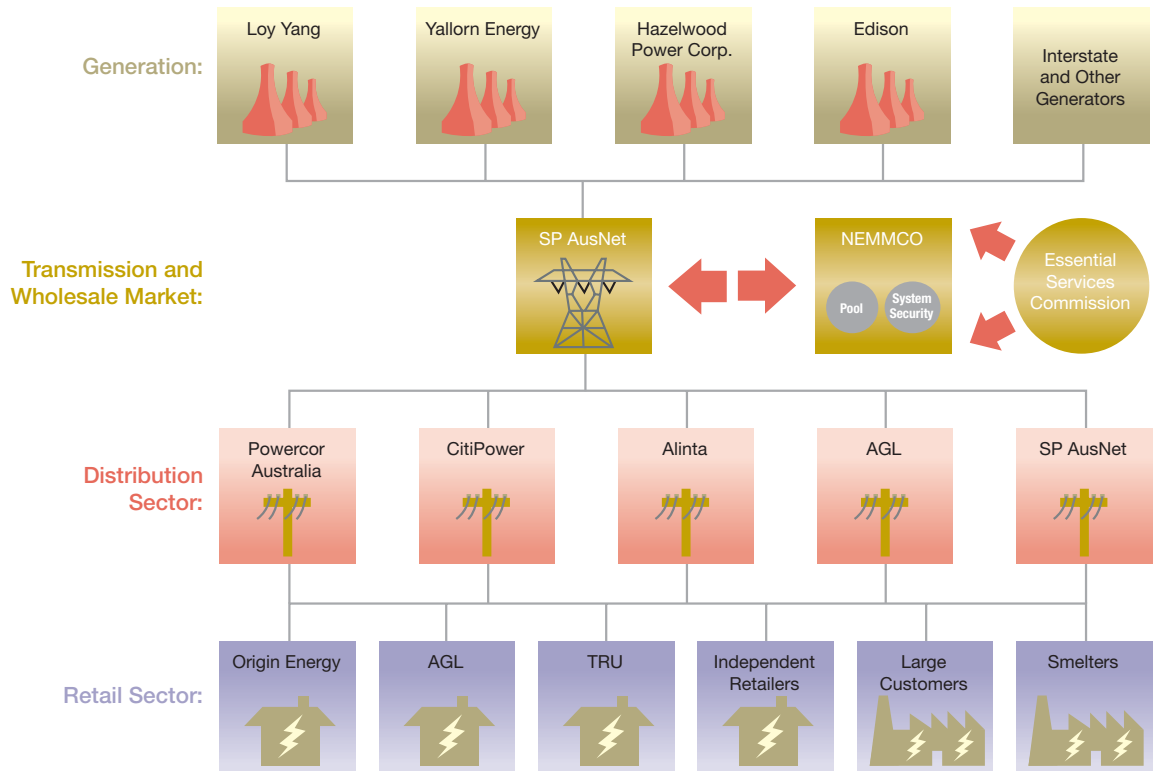
Retail sector

Electricity retail competition for domestic customers began in Victoria on 13 January 2002.

This means that all Victorians can now choose to buy their electricity from any licensed electricity retailer in the State.

Consumers select their retailer of choice in contracting the delivery of electricity to homes and businesses.

Victorian Industry Structure 2005



The Essential Services Commission is the independent economic regulator established by the State Government of Victoria, to regulate the electricity industry. The Commission commenced operations on 1 January 2002, to include the <Office of the Regulator-General Victoria>.

Further investigations

Electric trams in Melbourne

<www.railpage.org.au/tram/melbhist/html>

History of electricity

<www.scholzelectrical.com.au/electricity.htm>



The Dark Ages Activity

(Life before electricity)

Task 1:

Imagine you are a journalist living in Melbourne in 1854. The first electric telegraph signal has just been sent from Melbourne to Williamstown. Write an article for *The Argus* newspaper about the event. Include the following details in your article:

- How a telegraph works
- Why it is so useful for society in the 19th century
- Plausible predictions of other electric inventions that could follow this amazing invention (remember that you are writing as a 19th century journalist!)

Try the following websites for information:

<www.howstuffworks.com>

Who built the first telegraph in Melbourne?

<<http://meltingpot.fortunecity.com/whitburn/94/history/mcgowan.htm>>

Museum Victoria

<<http://www.museum.vic.gov.au/treasures/record.aspx?img=2&Path=8&ID=44>>

Electric Gadgets Activity

In the 19th century, many people started to use electricity to make their lives easier: “...the ornamental wire attached to the kettle is inserted into a knob in the wall, and the kettle boils in a few minutes.”

- Find five other examples of electric gadgets from the pre-1930's. For each gadget, produce a diagram or picture showing how it worked, describe how it saved time, and estimate the cost in today's prices.
- What were some of the early problems of electricity supply and generation in early Melbourne? In your answer, describe the differences between the electricity supply in Melbourne in the 1890s and the supply now.

Choose one of the gadgets and design a promotional advertisement suitable for a magazine in the early 20th century.

Some of the following sites may help you with this task:

The *Scholz Electrical Company*, based in Queensland, has a great site with information about the history of electricity in Australia as well as the rest of the world.

<http://www.scholzelectrical.com.au/electricity.htm>

Greatest Engineering achievements of the 20th century: lots of information here about early household gadgets.

<http://www.greatachievements.org/>

The Great idea finder: find out about hundreds of gadgets and gizmos as well as their inventors.

<http://www.ideafinder.com/history/index.html>

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