



MONASH
University

MONASH
BUSINESS
SCHOOL

Big Data Challenge Day

Rob J Hyndman

How I use mathematics and data



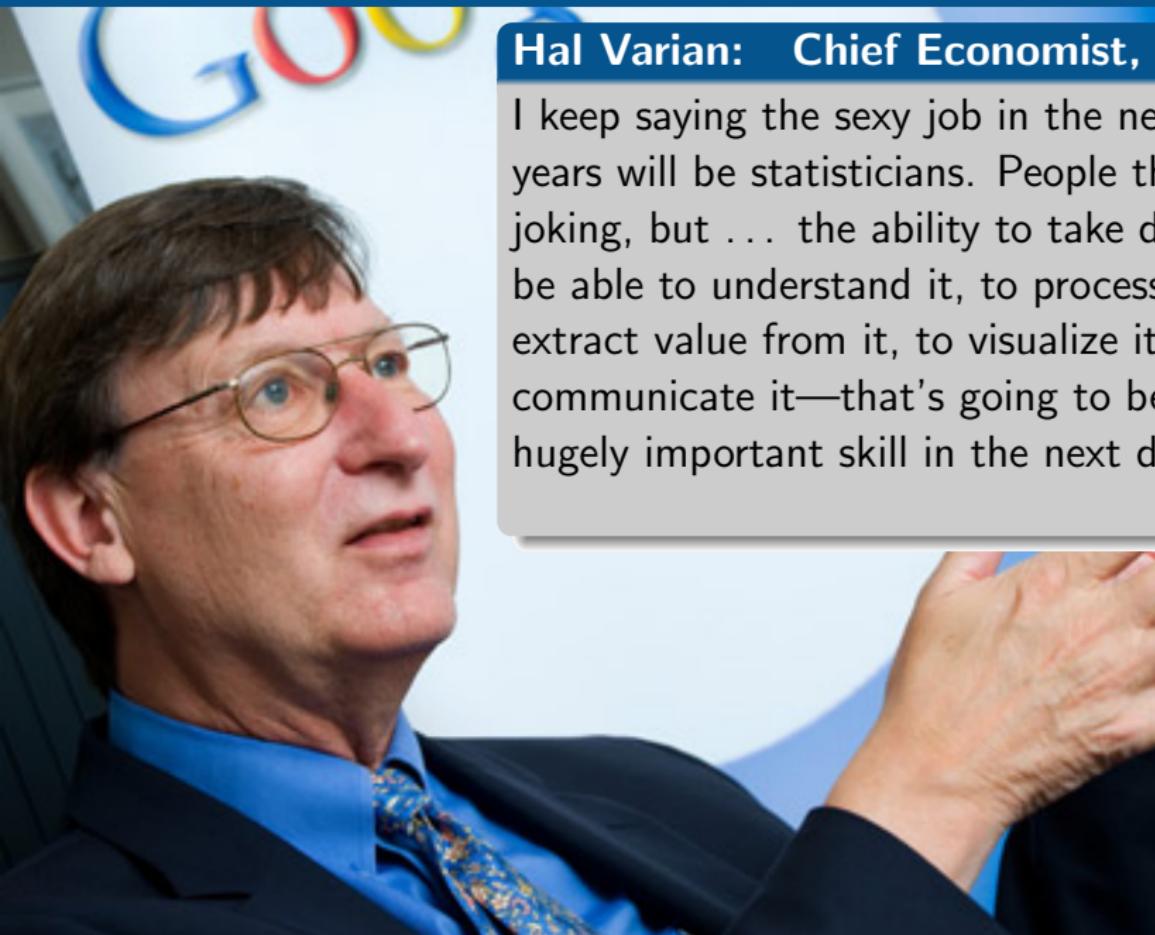
Calculating ATARs for every VCE student in Victoria.

How I use mathematics and data



Forecasting Google search traffic for
the top few thousand searches by
region.

Who would have thought . . .

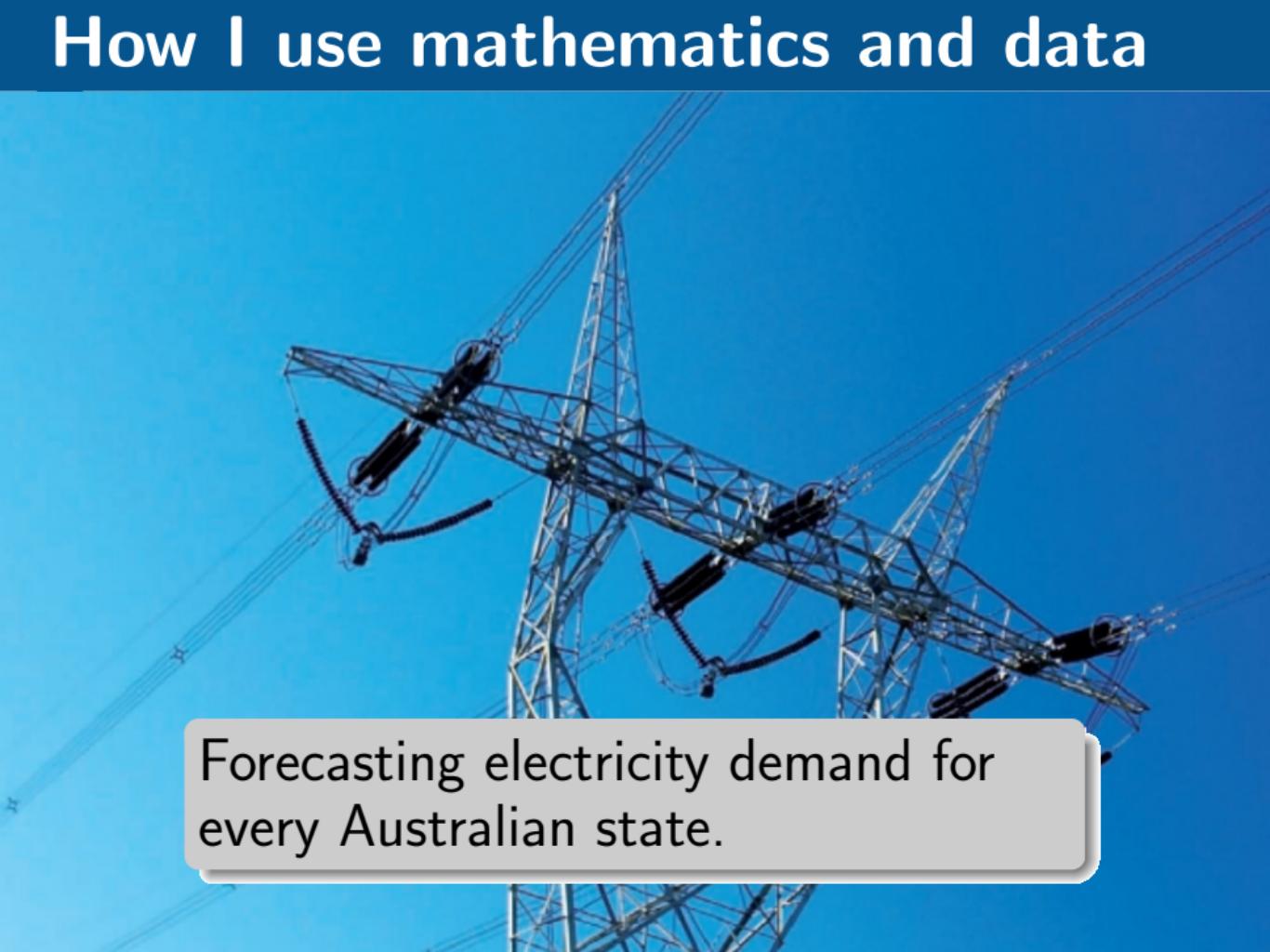


Hal Varian: Chief Economist, Google

I keep saying the sexy job in the next ten years will be statisticians. People think I'm joking, but . . . the ability to take data—to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it—that's going to be a hugely important skill in the next decades.

2009

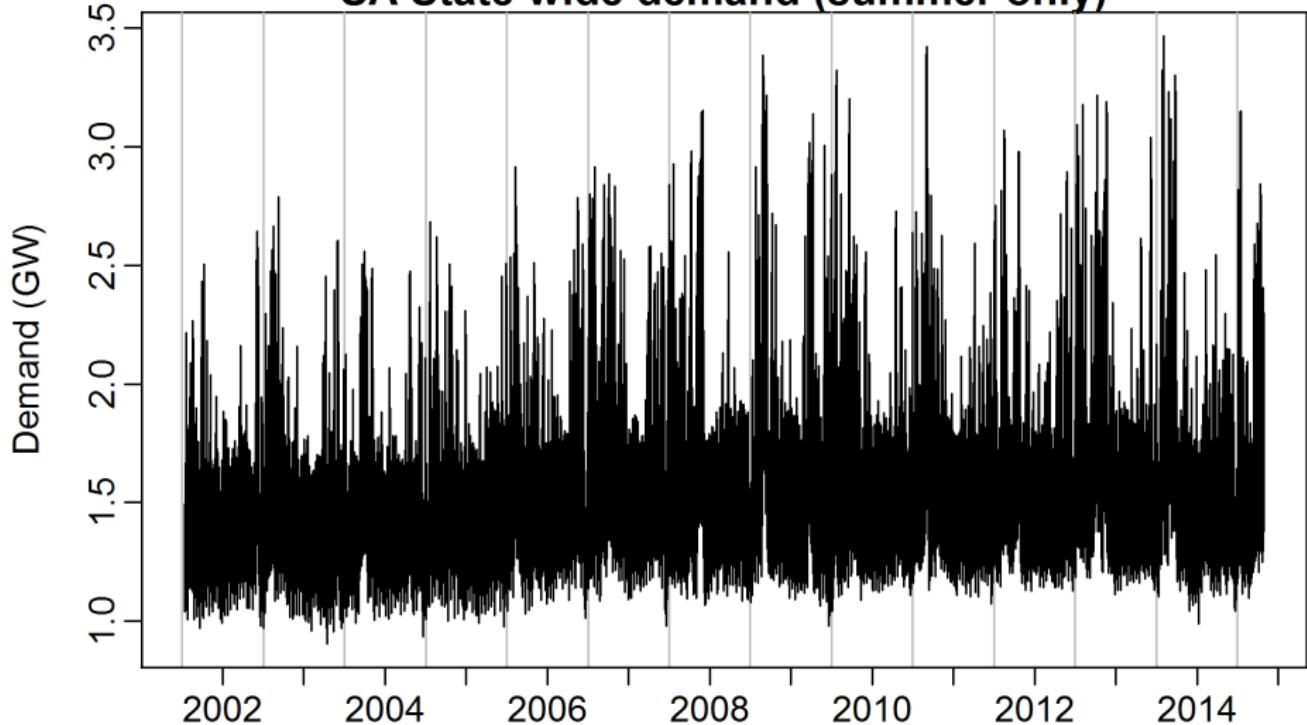
How I use mathematics and data



Forecasting electricity demand for every Australian state.

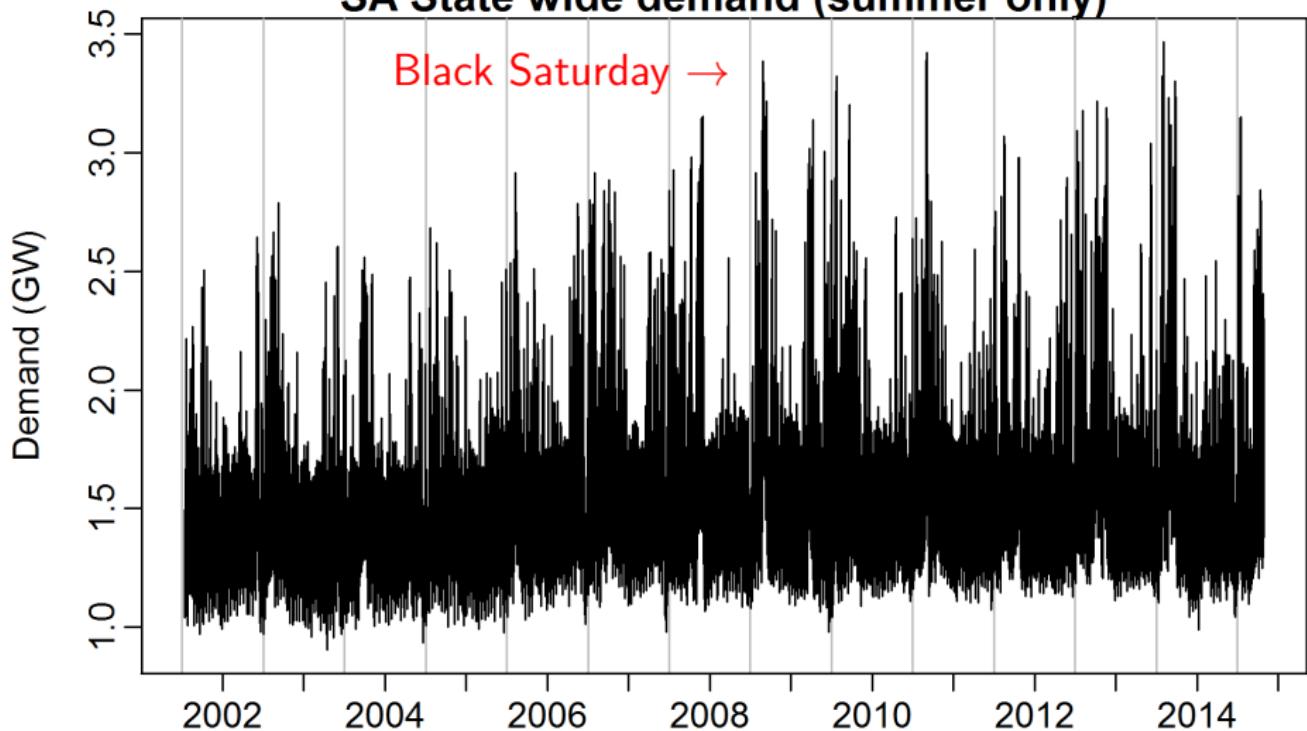
Electricity demand data

SA State wide demand (summer only)



Electricity demand data

SA State wide demand (summer only)

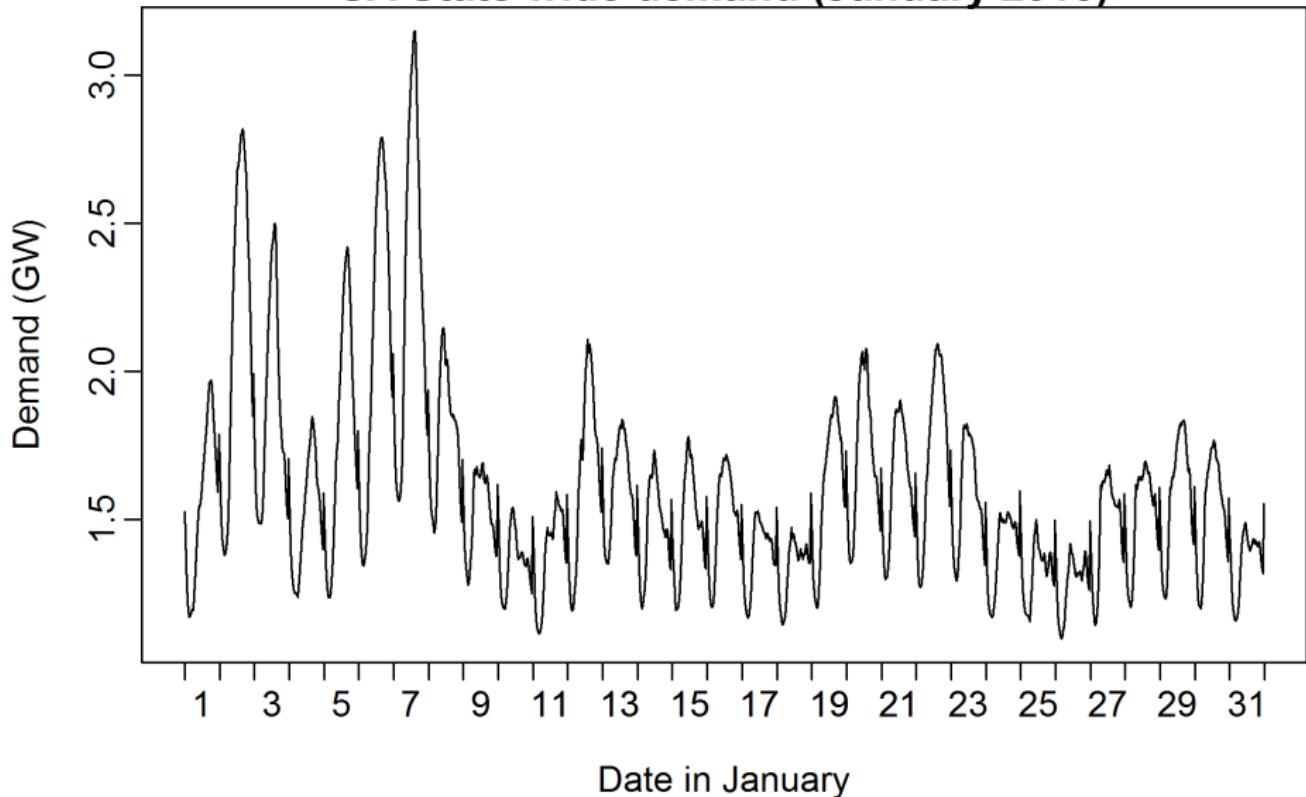


The heatwave



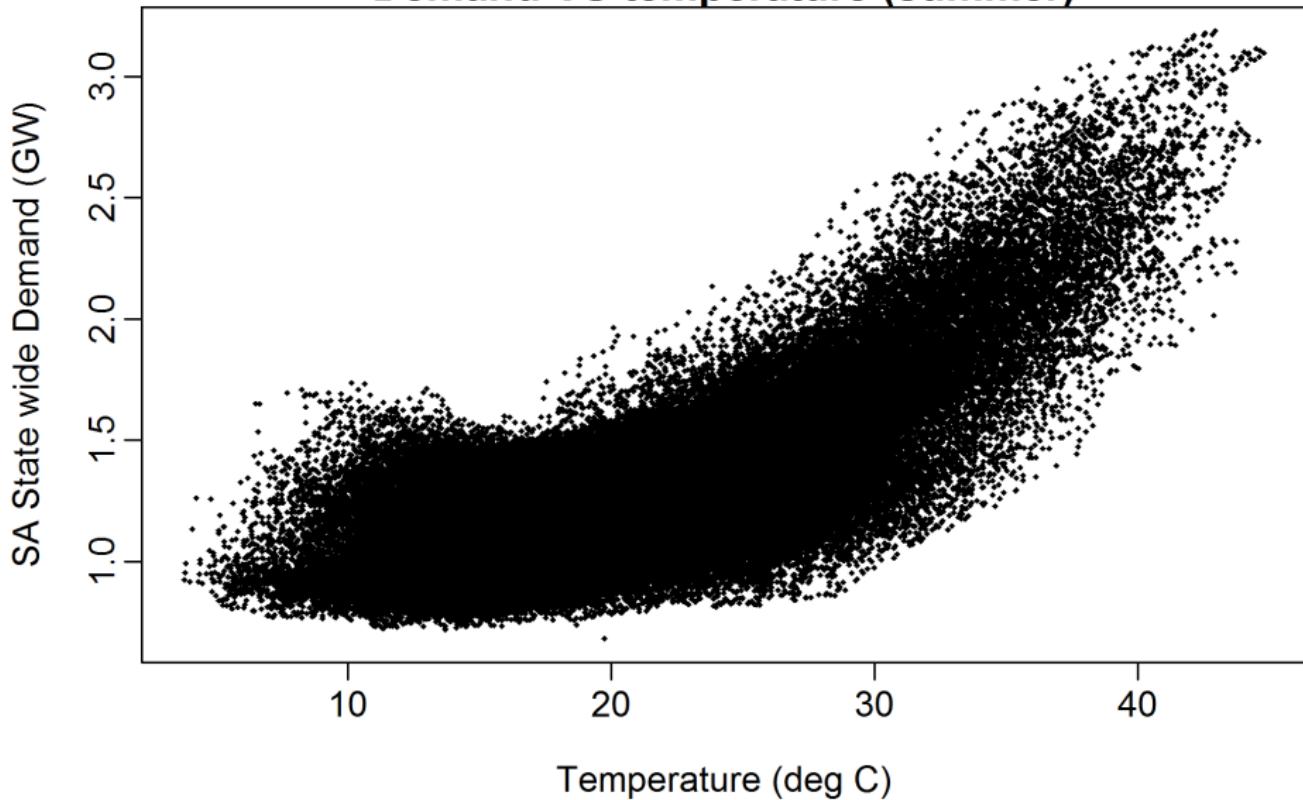
South Australian demand data

SA State wide demand (January 2015)



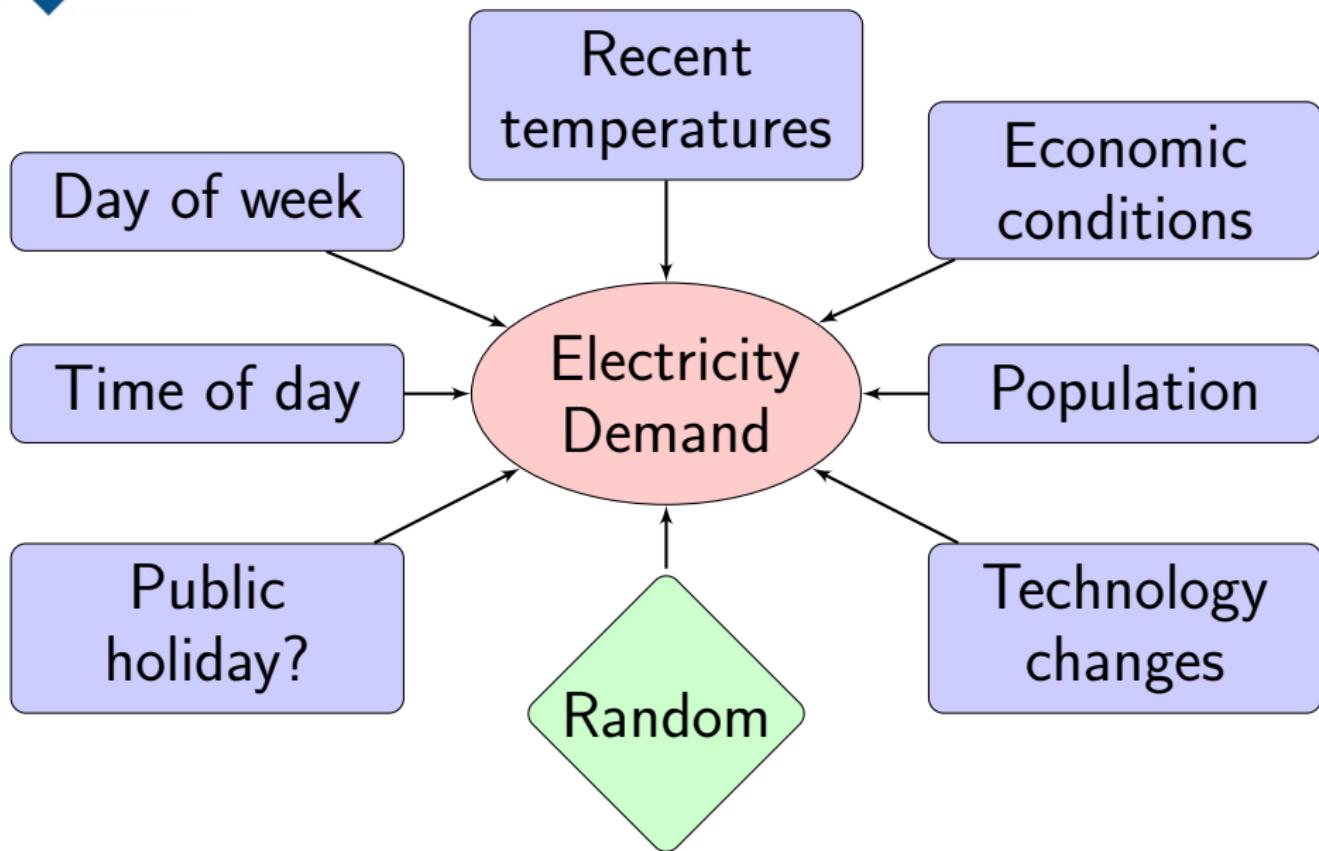
Temperature data (Sth Aust)

Demand VS temperature (summer)



Temperature data (Sth Aust)

Mathematical model



Mathematical model

Day of week

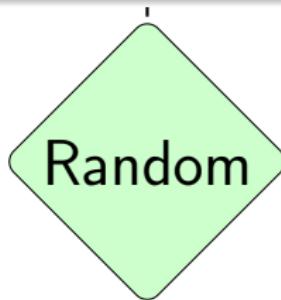
Recent
temperatures

Economic
conditions

Time

The Monash Electricity Forecasting Model is now being used in every state of Australia for long-term generation planning.

Public
holiday?



Technology
changes

The best job in the world

Top-ranked jobs: CareerCast 2015

- 1 Actuary
- 2 Audiologist
- 3 Mathematician
- 4 Statistician
- 5 Biomedical Engineer
- 6 Data Scientist
- 7 Dental Hygienist
- 8 Software Engineer
- 9 Occupational Therapist
- 10 Computer Systems Analyst

The best job in the world

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By 2018, the US could face a shortage of up to 190,000 workers with analytical skills
—McKinsey

Doing data science at Monash



MONASH University

- 1 Do a Bachelor of Commerce with a major in data analytics, actuarial science, or econometrics.
- 2 Do a Bachelor of Computer Science with a specialization in data science.
- 3 Do a double degree (Bachelor of Commerce/Bachelor of Computer Science).