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**Melbourne  
Energy  
Institute**

# **MEInetwork21**

## **Energy Systems Seminar Series**

**Seminar 5**  
Retail markets

—  
**Nick Sissons**

*Head of Emerging Technology*

Hydro Tasmania



@MElunimelb #MEInetwork21

# Retail markets.

Way more interesting than you think.



Buyer beware

**But first a  
disclaimer.**

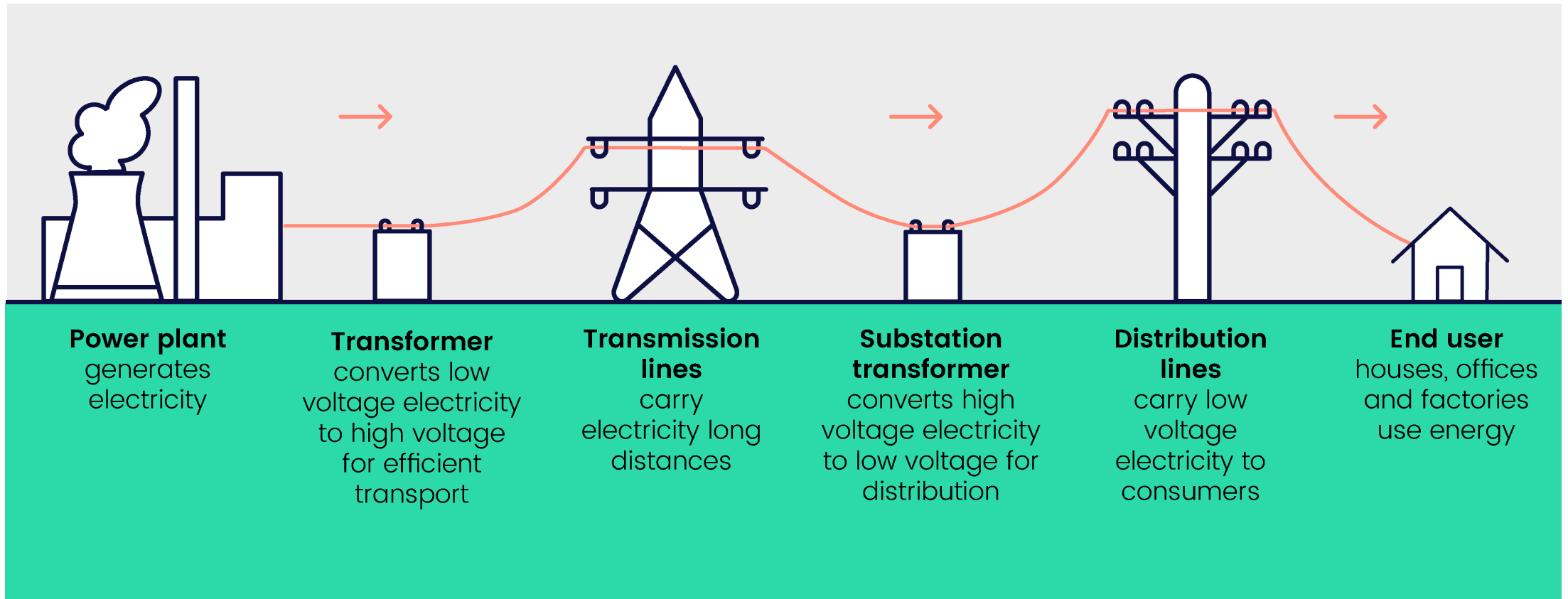


# Retail 101.

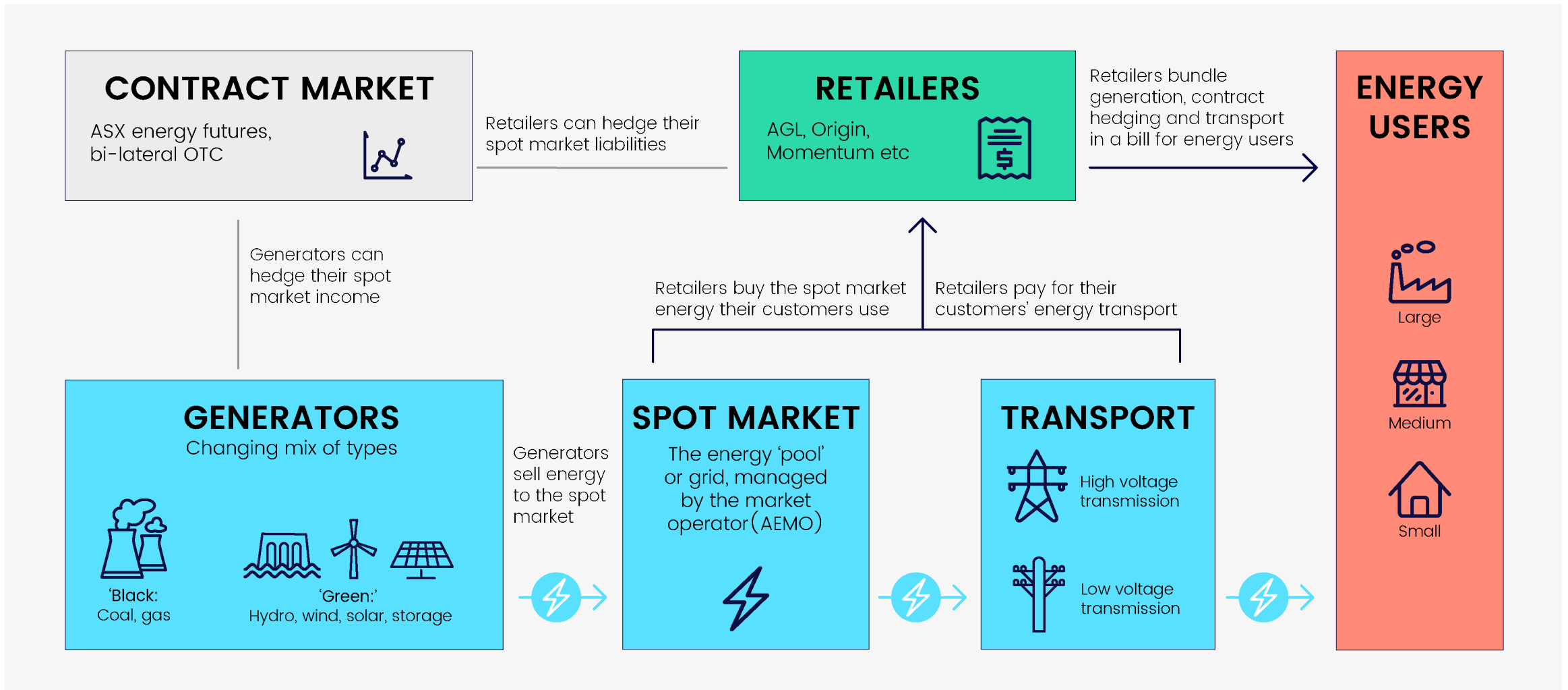
Let's start with the basics



# The electricity system.

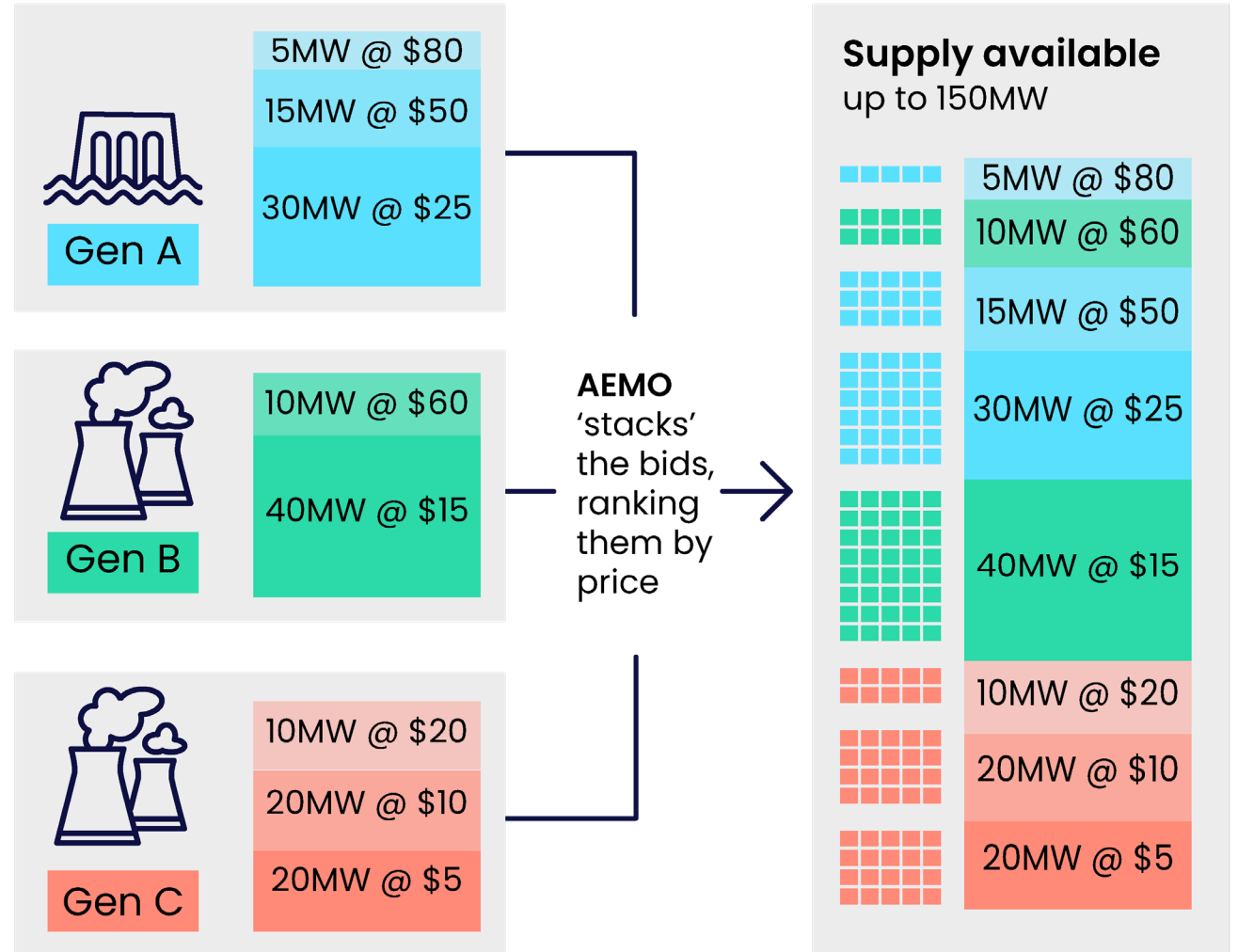


# The electricity market.



# The energy market.

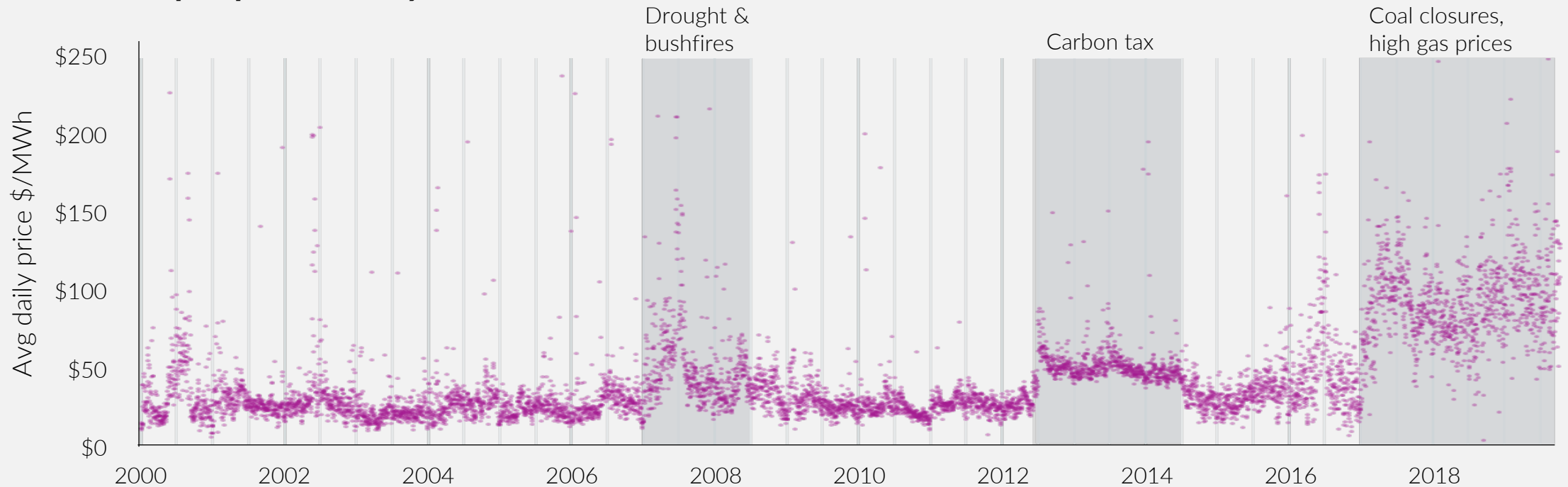
A price every five minutes.



# Energy prices.

More variable over time.

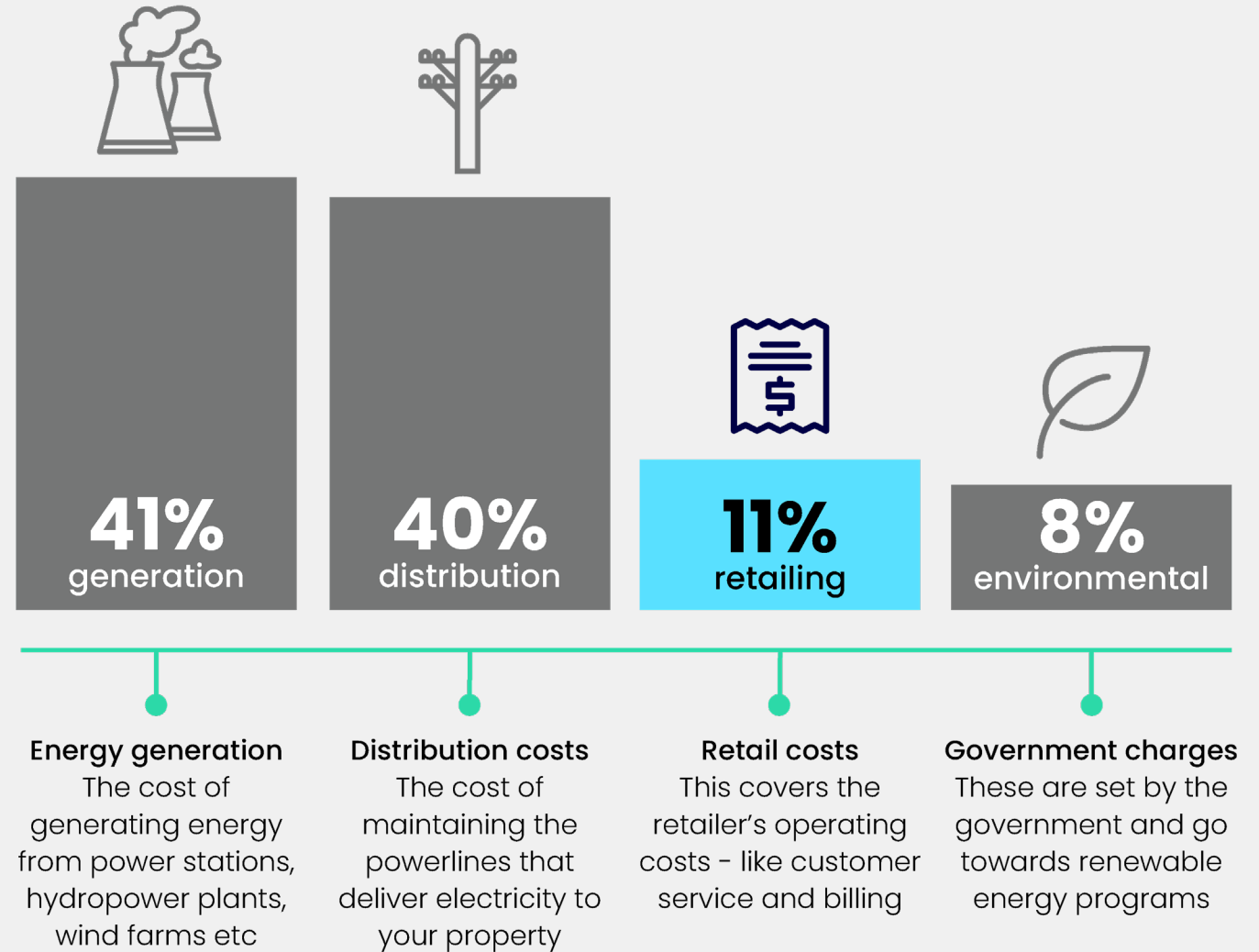
## Victorian spot price history






# Electricity costs.

About half are market facing.



# Retail prices.

All the costs, without the volatility.



Return undelivered mail only to:  
PO Box 353  
FLINDERS LANE VIC 8009

**Electricity Account Tax Invoice**  
Momentum Energy Pty Ltd ABN 42 100 569 159

|  |   |
|--|---|
| <b>Customer Care</b><br>1300 662 778<br>Mon-Fri 8am-7pm AEST | <b>Electricity Faults 24hrs</b><br>United<br>13 20 99 |
| <b>Online</b><br>momentum.com.au/myaccount                   | <b>Post</b><br>PO, Box 353                            |
| <b>Email</b><br>info@momentum.com.au                         | <b>FUNDERS LANE</b><br>VIC 8009                       |

KATE LIGHTFOOT  
UNIT 4 / 1 ALBERT STREET  
HIGHETT VIC 3190

**Account number**  
705205  
**Invoice No**  
10475036  
**Issue date**  
6 August 2020


**Your Electricity Account**  
Current Plan: Smile Power Flexi Staff

**ACCOUNT SUMMARY**

|   |            |
|---|------------|
| Opening Balance 06/07/2020              | \$ 176.95  |
| Payment Received (thank you) 28/07/2020 | -\$ 176.95 |

tioned above will be Direct

The Victorian Default Offer is a reasonably priced electricity offer set by Victoria's independent regulator. Contact us on 1300 662 778 to discuss the suitability of this plan for you.



**Thanks for doing energy better.**

By choosing a 100% Aussie owned power company.

| Site Details  |                                    |                 |               |      |                       |
|---------------|------------------------------------|-----------------|---------------|------|-----------------------|
| NMI           | Supply address                     | Bill start date | Bill end date | Days | Total cost (GST Incl) |
| 64071068746   | 4/1 ALBERT Street HIGHETT VIC 3190 | 01-Jul-2020     | 31-Jul-2020   | 31   | \$ 201.14             |
| Meter Details |                                    |                 |               |      |                       |





  

|   |   |
|---|---|
| <p><b>Interpreters services</b></p> <p>Per a sistema di interpretazione,<br/>La preghiamo di telefonare al 1300 662 778.<br/>Para la asistencia de un intérprete llámese al 1300 662 778.<br/>To speak to our Interpreters, please call our friendly customer service team on 1300 662 778.</p> <p>සඳහා: භූමිකා නිවැරදි කිරීම,<br/>මම ඔබට දුන් ටීලි 1300 662 778<br/>1300662778 - 1300 662 778 - 1300 662 778</p> | <p><b>Customer Service</b></p> <p>If you would like more information or assistance with your account, payment methods, or any other services, please call our friendly customer service team on 1300 662 778.</p> |
|---|---|

|                                       |                            |                  |
|---------------------------------------|----------------------------|------------------|
| <b>Account Holder:</b> Kate Lightfoot | <b>Postal Payment Due:</b> | <b>\$ 201.14</b> |
|---------------------------------------|----------------------------|------------------|

|  |   |   |  |
|--|---|---|--|
| <p><b>Credit Card</b></p>  <p>Phone: 1300 662 778 or visit <a href="http://momentum.com.au">momentum.com.au</a> to use your credit card to make a payment.<br/>Tel: 7962952</p> | <p><b>Mail</b></p>  <p>Post this section with a cheque or money order to:<br/><b>Momentum Energy Pty Ltd</b><br/>164 MFD Lonsdale Bldg 7958<br/>Melbourne VIC 3004</p> | <p><b>BPAY</b></p>  <p>Make this payment via the internet or phone banking.<br/>Biller Code: 969957<br/>Ref: 7962952</p> | <p><b>In Person</b></p>  <p>Pay in person at any post office, phone 13 13 13 or go to <a href="http://postbillpay.com.au">postbillpay.com.au</a><br/>Biller Code: 9694<br/>Ref: 7962952</p> |
|--|---|---|--|

\*0000070520520114\*

Service: 7962952      Service: 7962952      Product Code: 7962952

+004963+      <0007052052>      <0000020114>      +444+

# Retail offers.

The sum of lots of risk, lots of regulation and low margins.

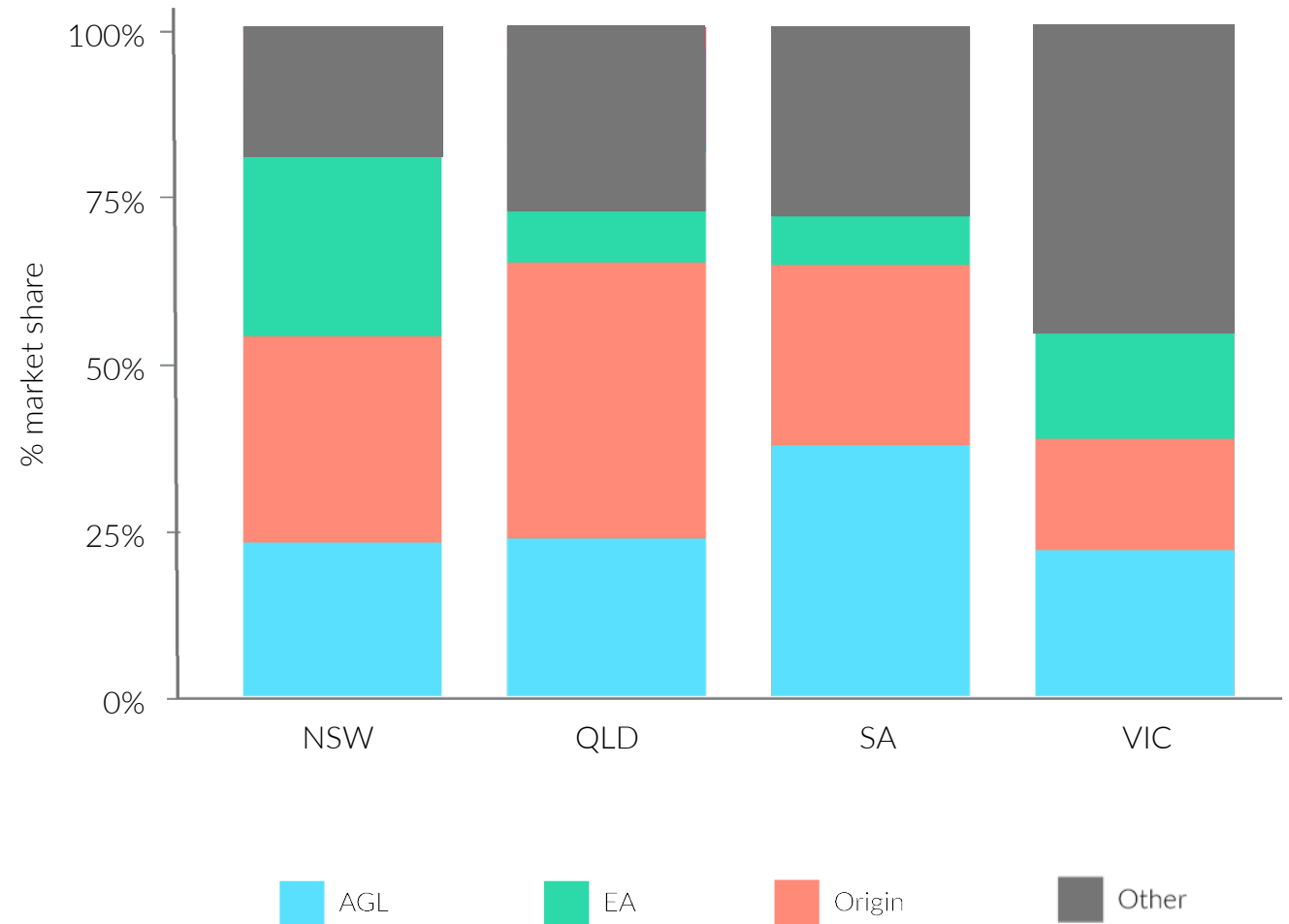
## Plan details

|                           |                    |
|---------------------------|--------------------|
| Customer support:         | Online only        |
| Card payment fees:        | Fees apply         |
| Exit fees:                | None               |
| Supply term:              | No fixed term      |
| Benefit period:           | None               |
| Payment options:          | Direct debit only  |
| Billing options:          | eBilling only      |
| Billing frequency:        | Monthly/Bi-monthly |
| Meter requirement (elec): | Smart meter only   |
| Online account access:    | Yes                |
| Available with solar:     | Yes                |

# The retail landscape.

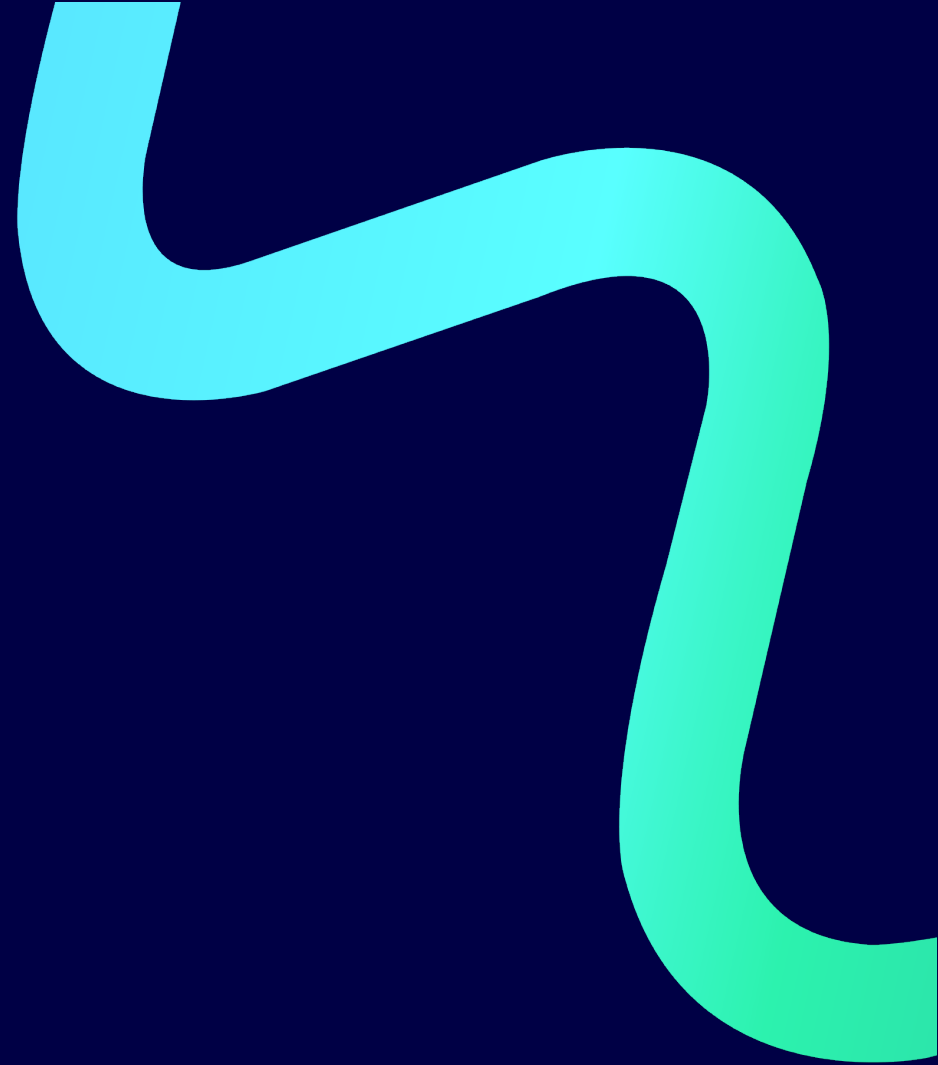
Scale matters, but less today than yesterday.

Market share 2019-20



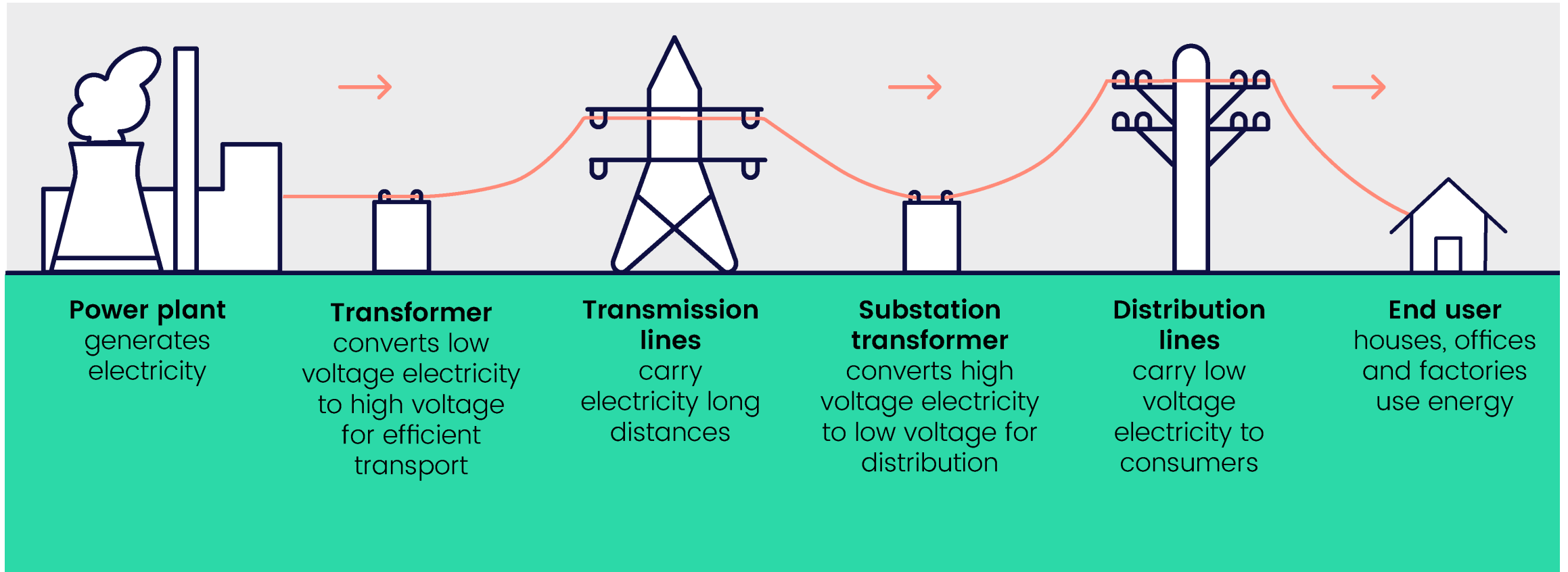
AMA.

Almost.



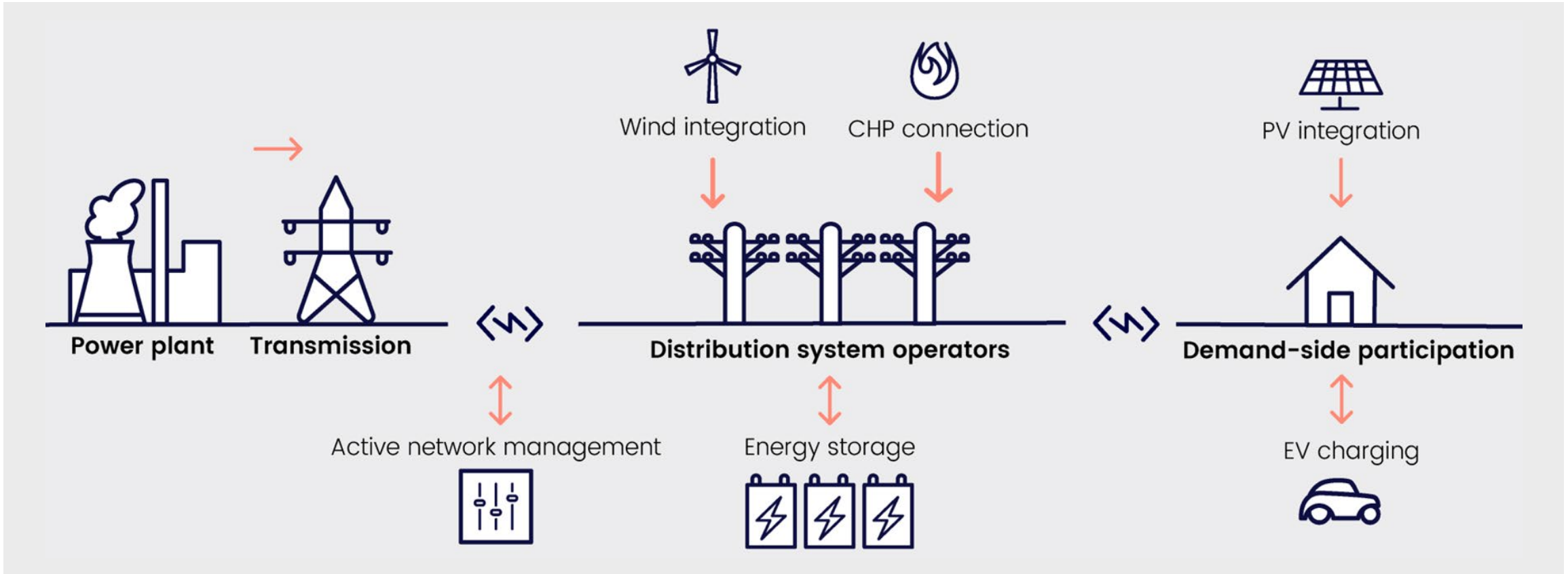
# Remember this slide?

It's mostly wrong.



# The <distributed> electricity system

Production is moving closer to consumption.

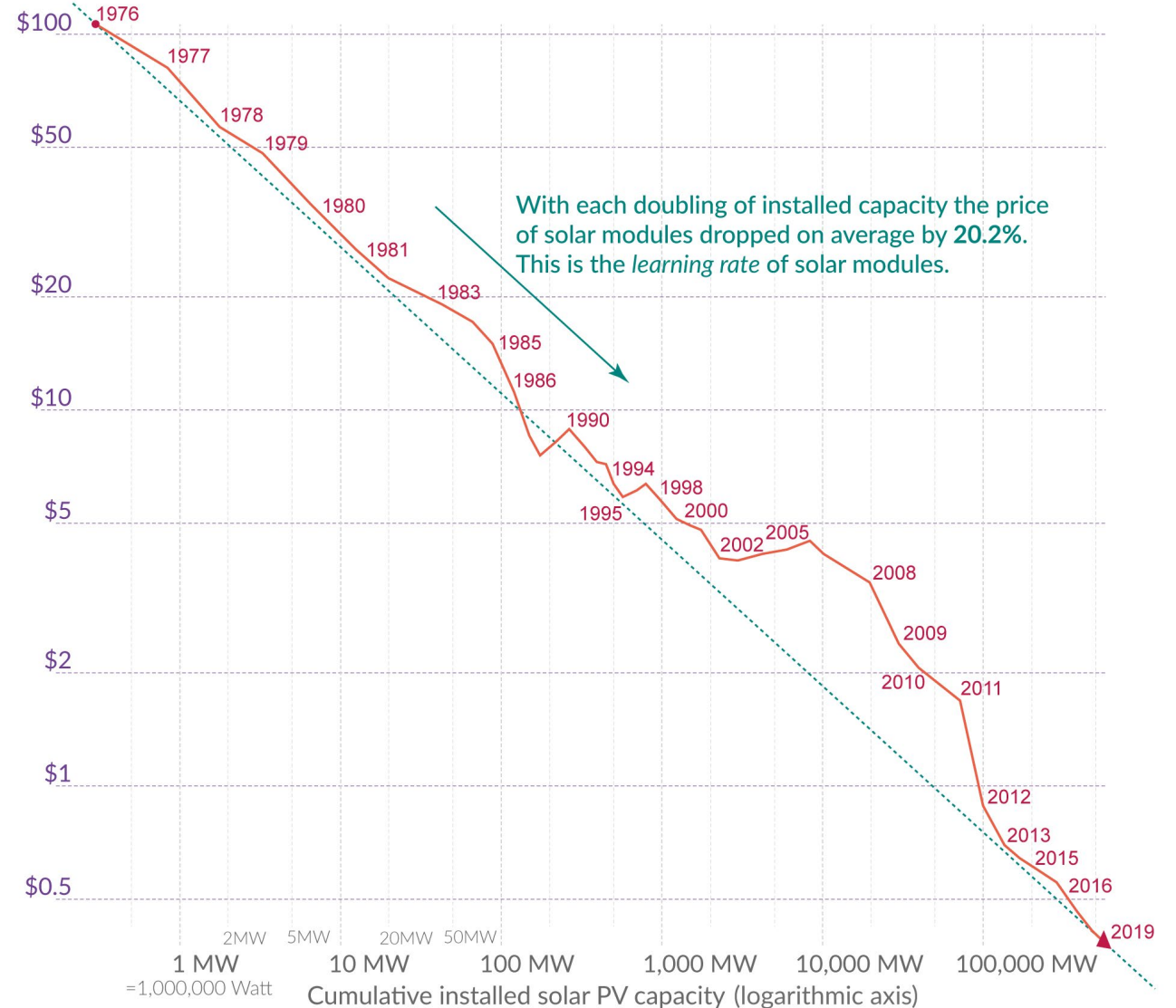


# The most important curve in energy.

AKA Wright's Law.

## The price of solar modules – down 99.6% since 1976.

Price per watt of solar PV modules (logarithmic axis), adjusted for inflation and shown in 2019 UD\$

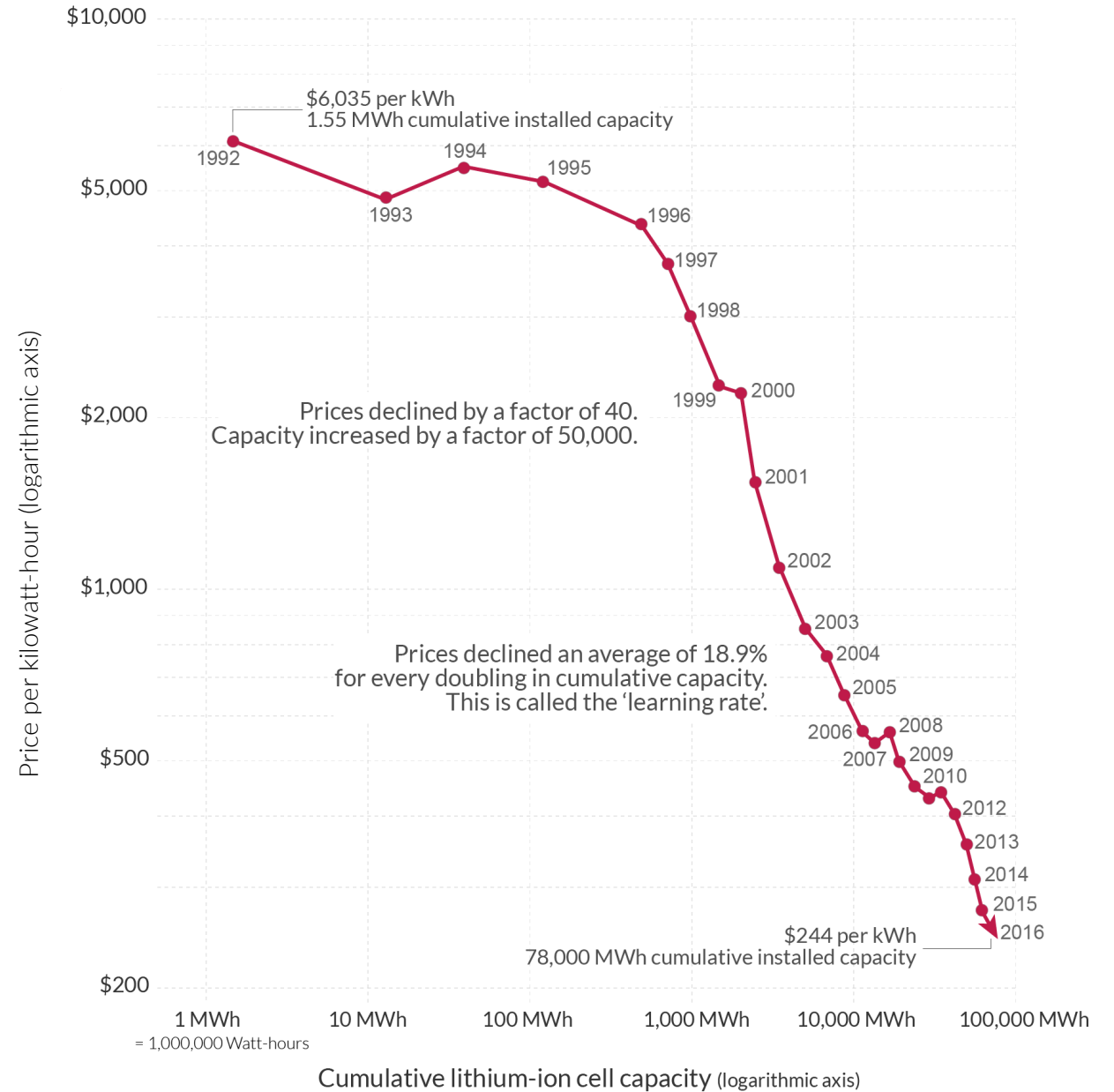




# Learning effects also apply to batteries.

But not to coal or nuclear.

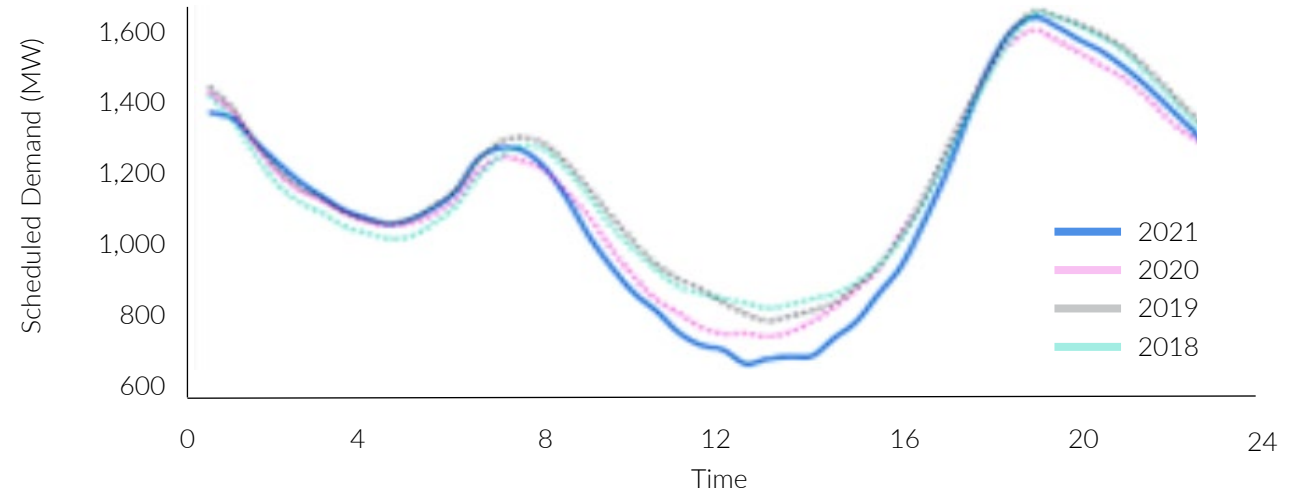
## Price and market size of lithium-ion batteries since 1992



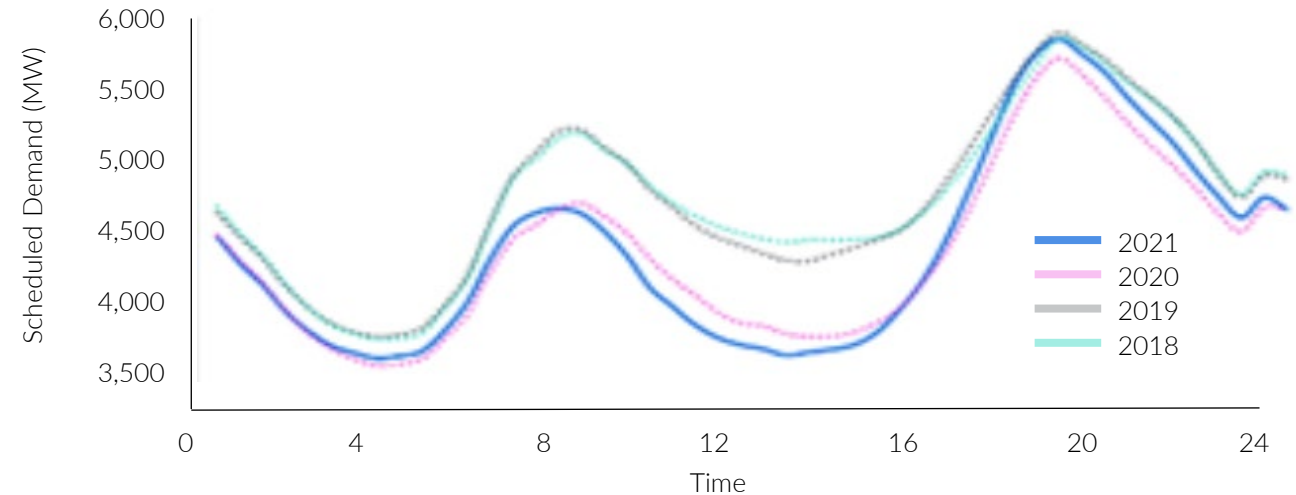
# The second most important curve in energy.

AKA the duck curve.

### SA Hourly Average Demand September 2018-2021

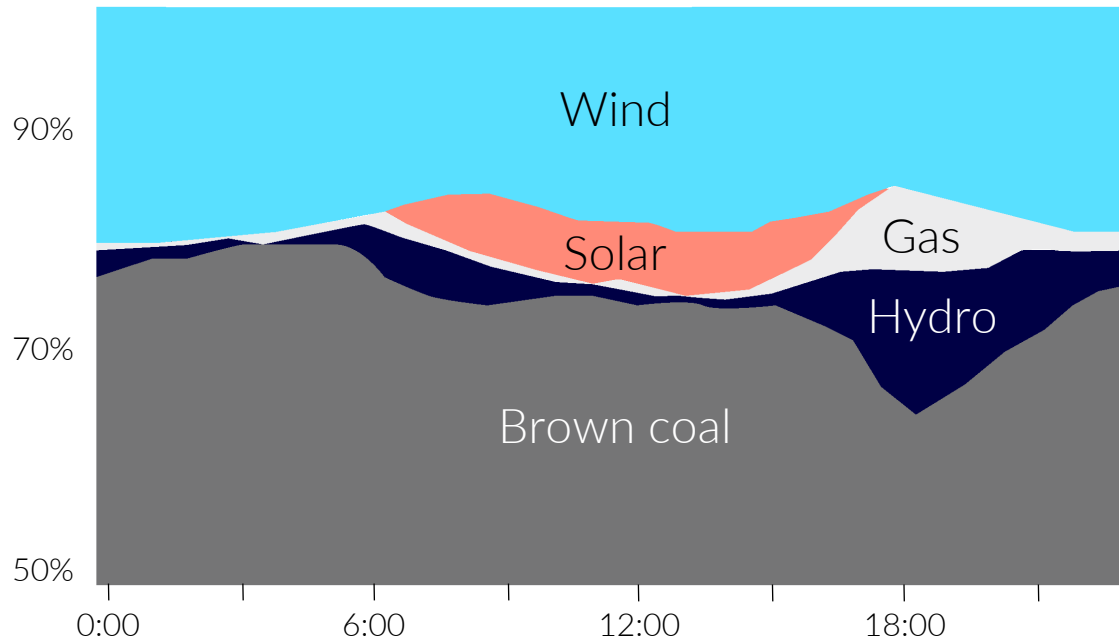


### VIC Hourly Average Demand September 2018-2021

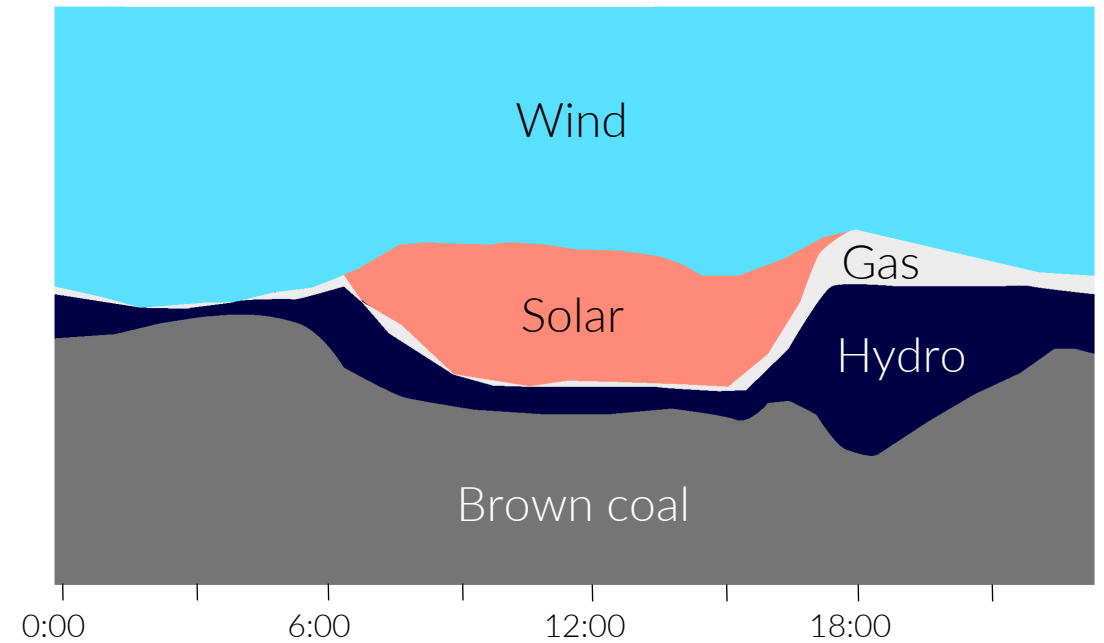


# The generation mix is changing.

Vic generation mix **September 2020**



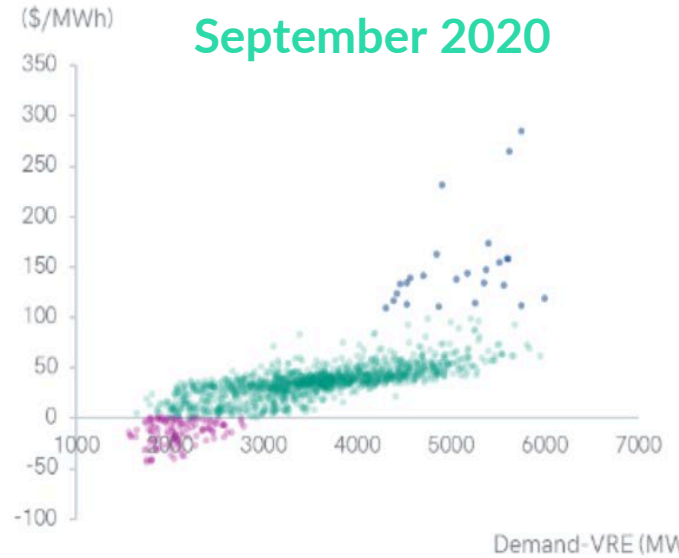
Vic generation mix **September 2021**



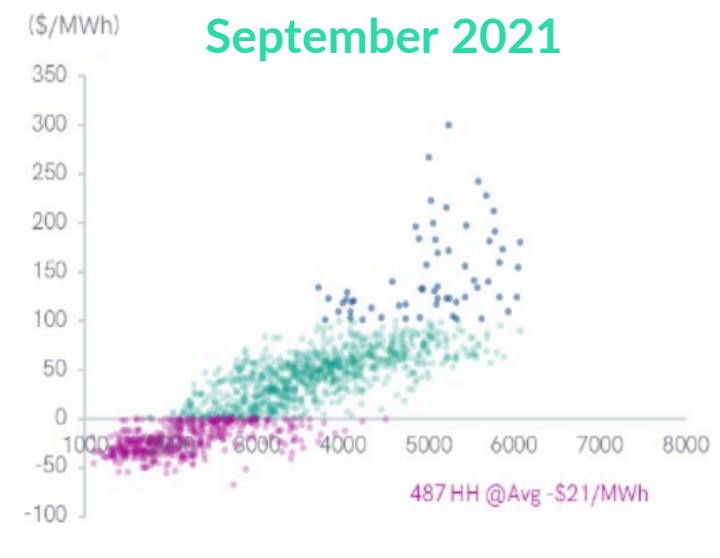
# The pricing mix is changing.

Now negative 32% of the time!

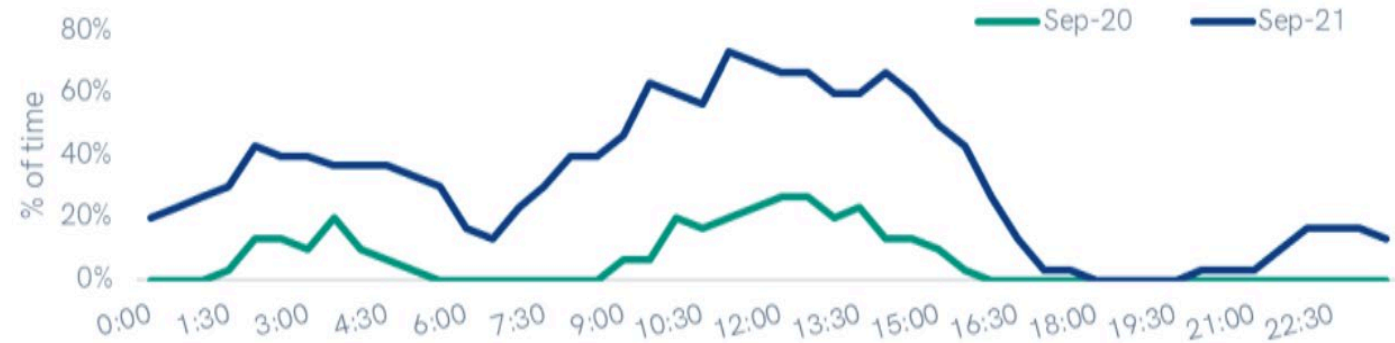
### Vic Price vs Demand September 2020



### Vic Price vs Demand September 2021



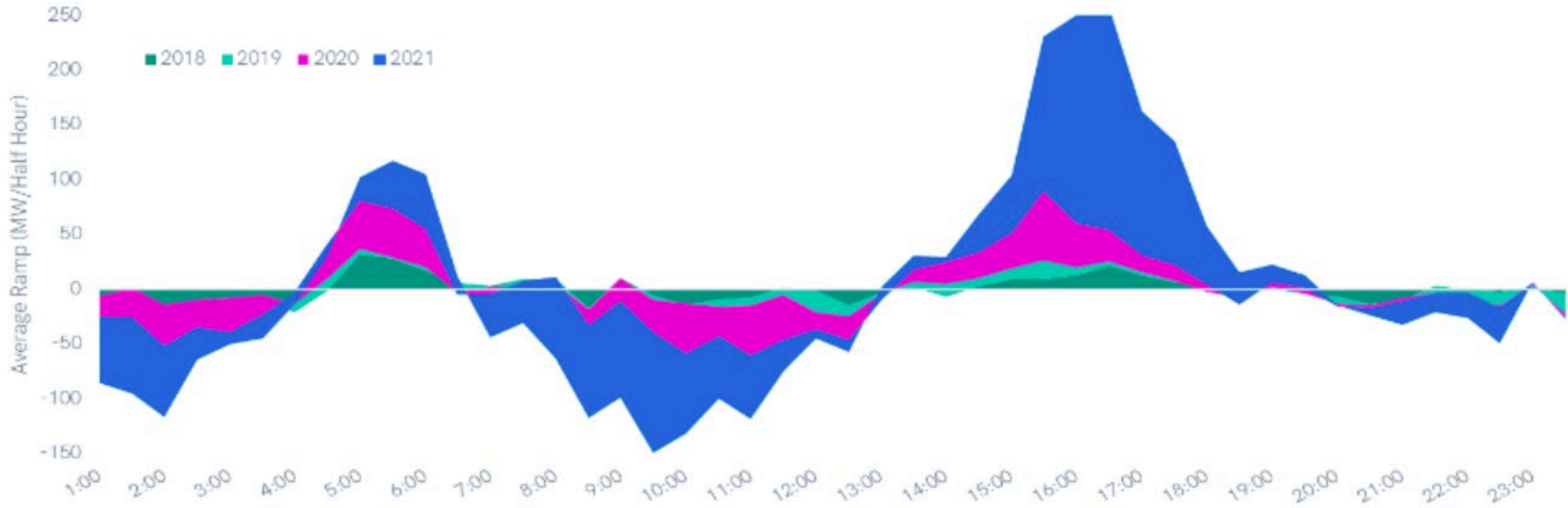
### Vic Negative Price Occurrence: TOD



# Which is all good news.

Unless you own a coal-fired power plant.

Vic brown coal average historical ramping - September 2018-2021



# It's happening faster than you think.



**BHP signs landmark renewable energy deal for huge Olympic Dam mine**

14 October 2021



**Forrest signs up Plug Power for world's biggest hydrogen electrolyser Gigafactory**

15 October 2021



**Stunningly cheap solar to power China's pivot away from coal**

19 October 2021



**Contractor announced for biggest battery installation in Western Australia grid**

20 October 2021



**"Green is good": Johnson delivers conservative vision for green jobs and zero emissions**

20 October 2021



**Red Sea solar and battery project to feature 1,300MWh of energy storage**

20 October 2021

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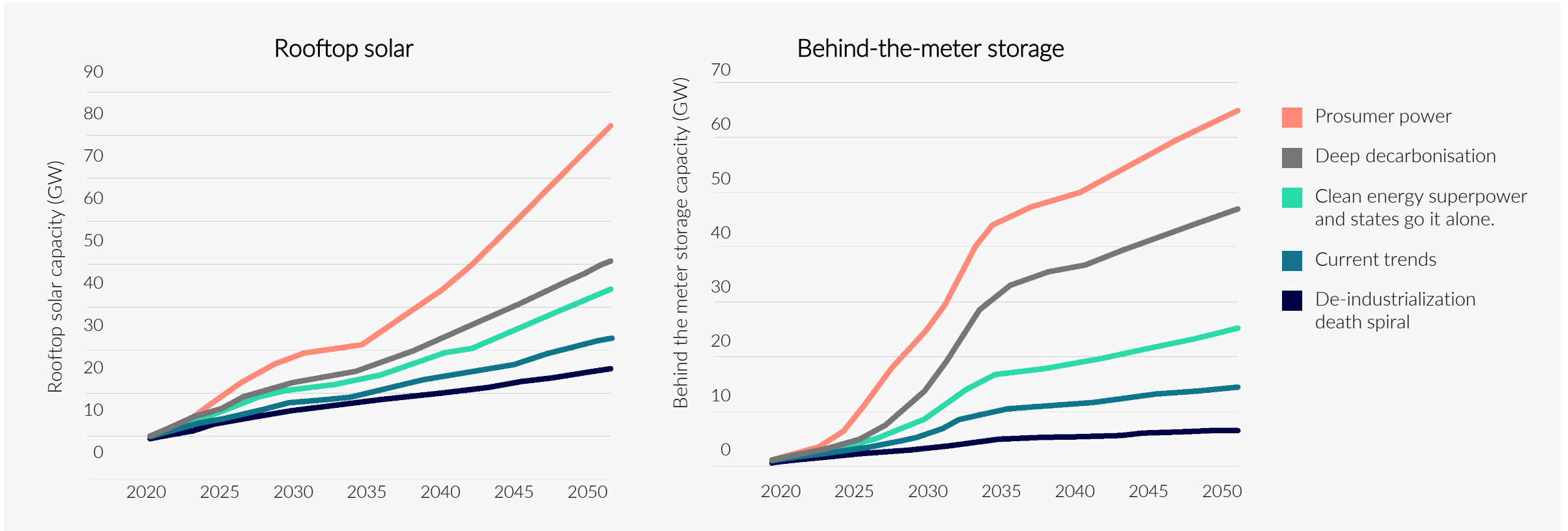
The future

**But what does it  
mean for you?**



# The rise of the prosumer.

Rooftop solar for the win.



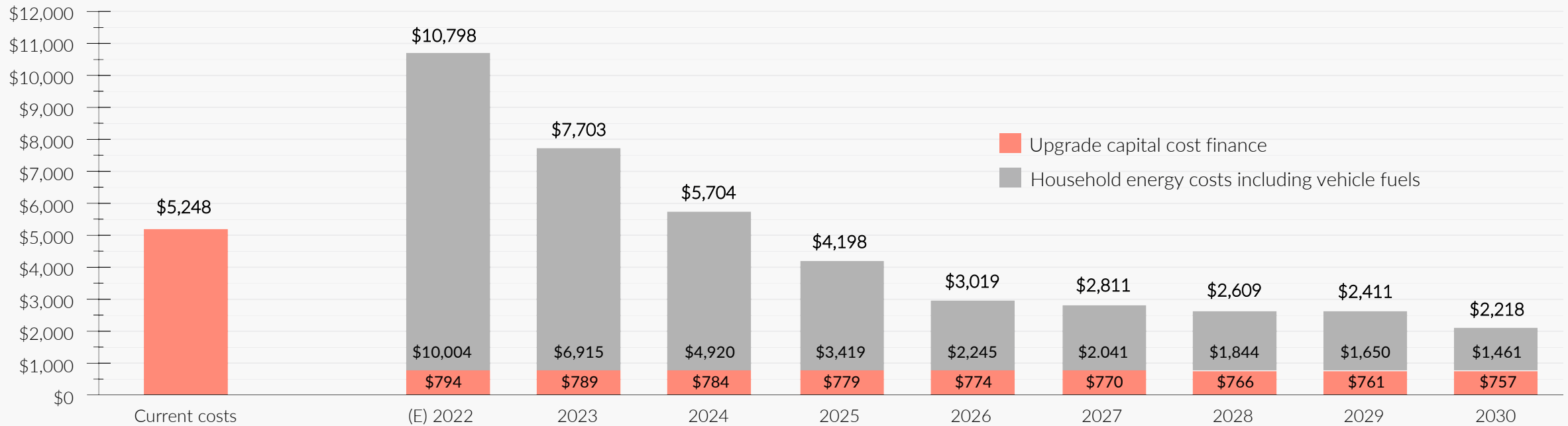


# Electrify everything.

Good for you and the climate.

## Current energy costs and costs with electrification

Electrified household has solar, battery, electric appliances and electric vehicles. (Excludes EV capital cost savings after reaching parity in 2026, where EV's are predicted to become cheaper than petrol vehicles.)



The future

# Join the electricity market.

Virtual Power Plants.



The future

# Share your generation.

There's good news and bad news.



The future

# Share your storage.

Community batteries.



# Now what?



**Install solar**  
And bankrupt a coal plant.



**Electrify everything**  
And save \$5k a year.



**Reach out**  
We love interns, graduates and  
people who care.

**Over to you.**

And thanks

