



Melbourne Renewable Energy Project

PPA Masterclass





Welcome!

John Griffiths, City of Melbourne



Purpose

To build a deeper understanding of the what, why and how of Corporate Power Purchasing Agreements (PPAs) and to share insights and advice from the MREP experience.



Agenda

Morning

- 09:30 Breakfast
- 10:00 Welcome & MREP Overview
- 10:10 Module 1: The opportunity to do things differently
- 10:35 Module 2: Key Considerations
- 11:15 Morning tea
- 11:25 Module 3: Panel discussion Q & A
- 12:00 Lunch

Afternoon

- 12:30 Module 4: Objectives and the MREP journey
- 12:50 Activity
- 13:05 Module 5: Market Conditions
- 13:20 Module 6: Contract Structures and Pricing Models
- 14:20 Break
- 14:30 Scenarios Activity
- 15:15 Module 7: Project Finance and Bankability
- 16:00 Module 8: How to work in a group model
- 16:25 Closing
- 16:30 Drinks!



Today's Facilitators

City of Melbourne: John Griffiths, Senior Sustainability Officer

Energetics: Anita Stadler, Associate, **Jamie Ayers**, Associate and **Alister Alford**, Senior Manager

Ashurst: Jeff Lynn, Partner and **Cassandra Wee**, Senior Associate

NAB: Ally Bonakder, Director, Energy, Specialised & Acquisition Finance



The MREP Journey



1. The opportunity to do things differently

Renewable Energy Will Be Consistently Cheaper Than Fossil Fuels By 2020, Report Claims



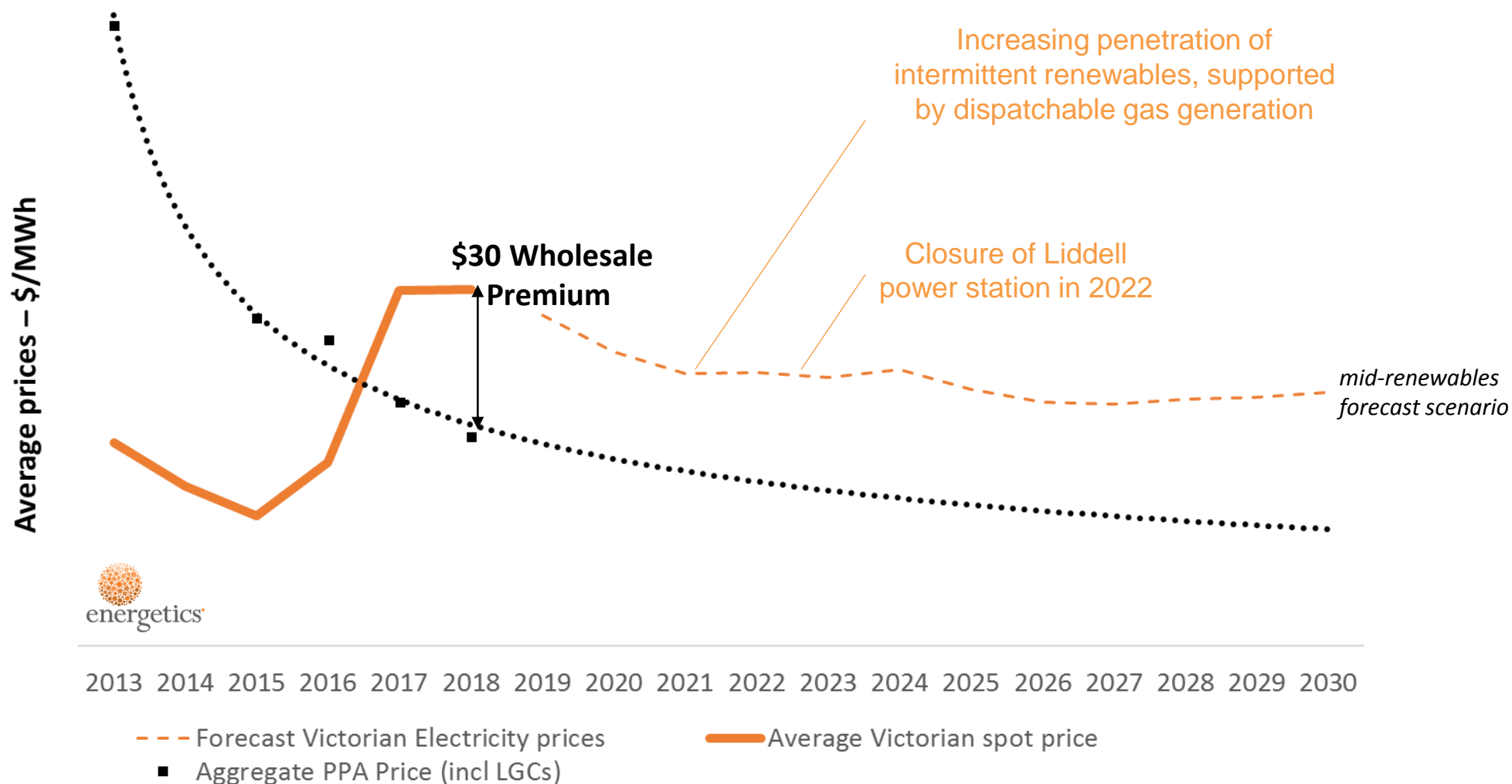


An international trend towards power purchasing



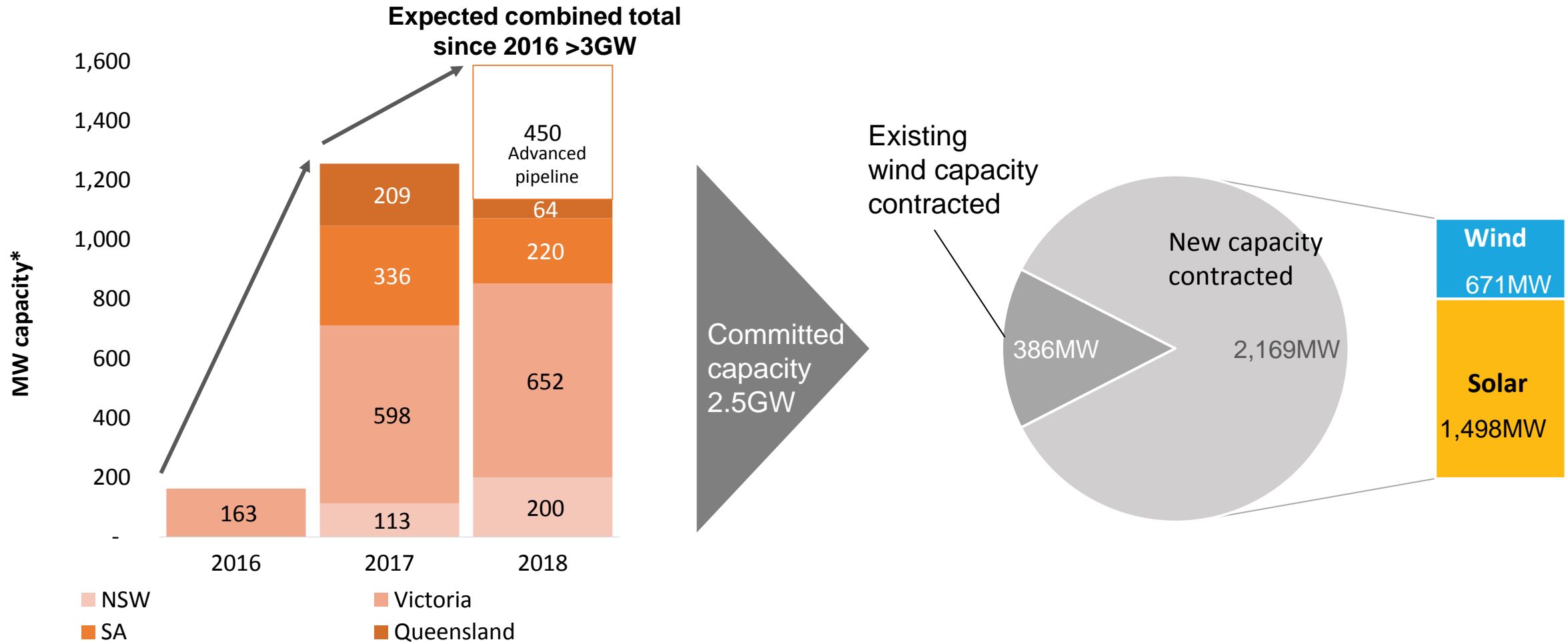


This trend is also evident in Australia





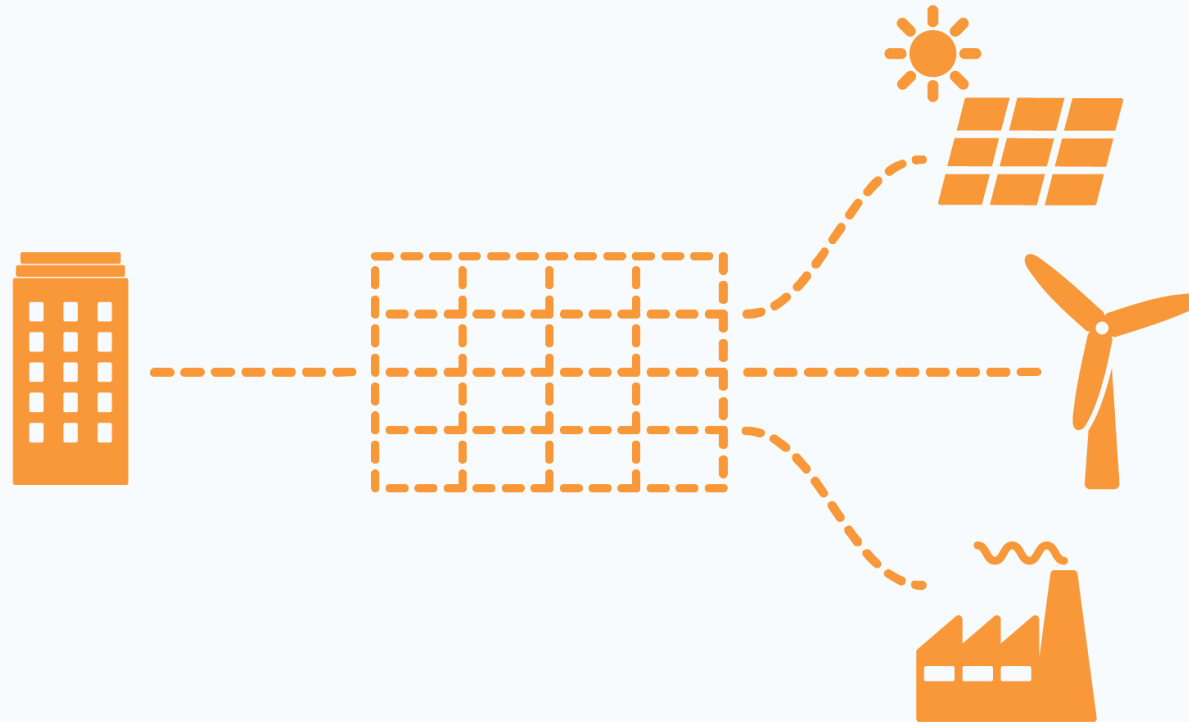
An Australian trend



* Project capacity enabled by a corporate PPA, with contracted PPA volume often smaller than the project capacity

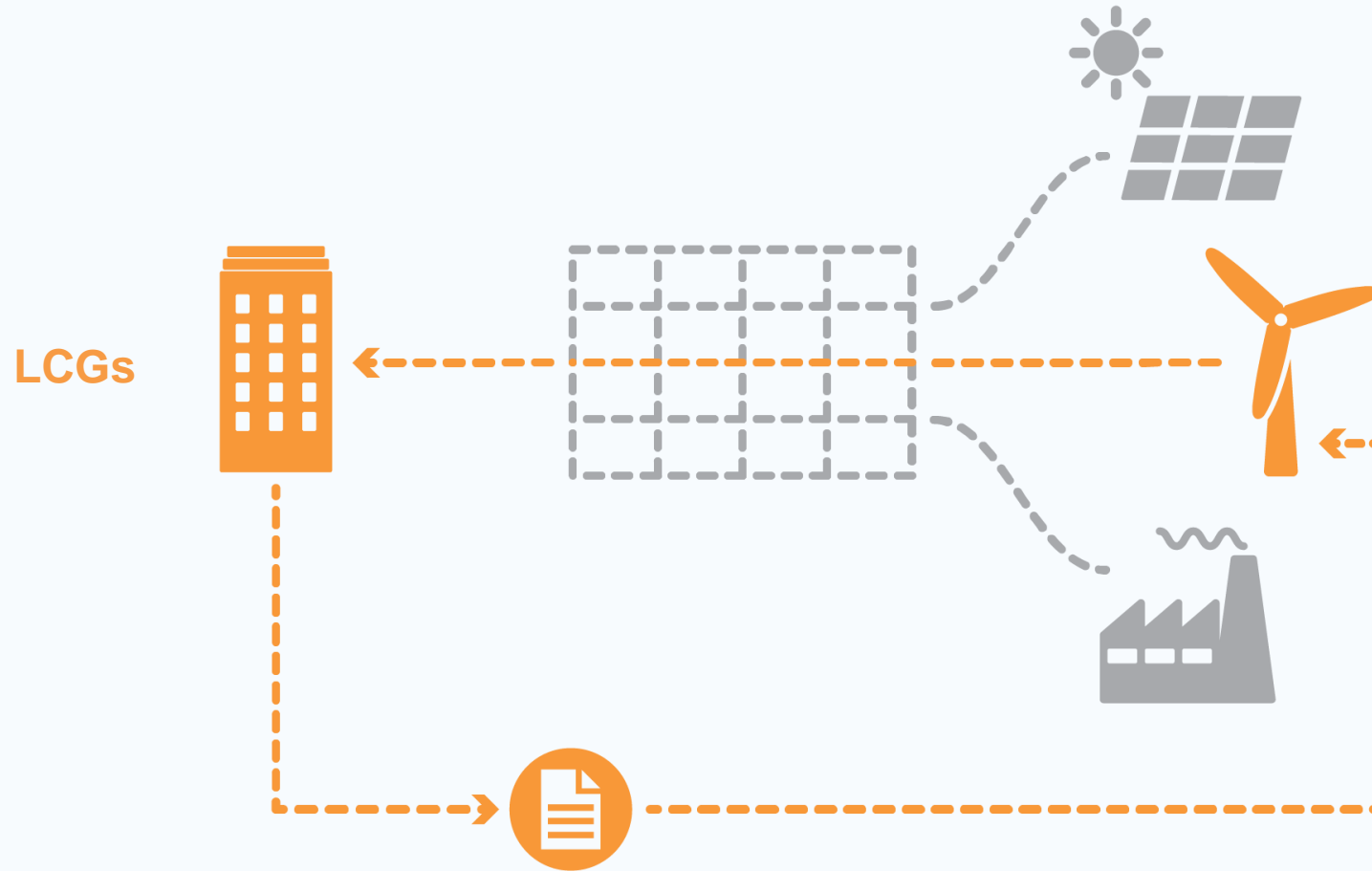


How do you purchase renewable energy?





Renewable energy certificates

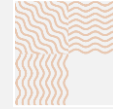




The benefits of purchasing renewable energy



Transitioning to renewable energy is a way to take action on climate change



More stable electricity budget and lower costs (incl environmental compliance cost)



Enhance reputation and speak to the values of customers

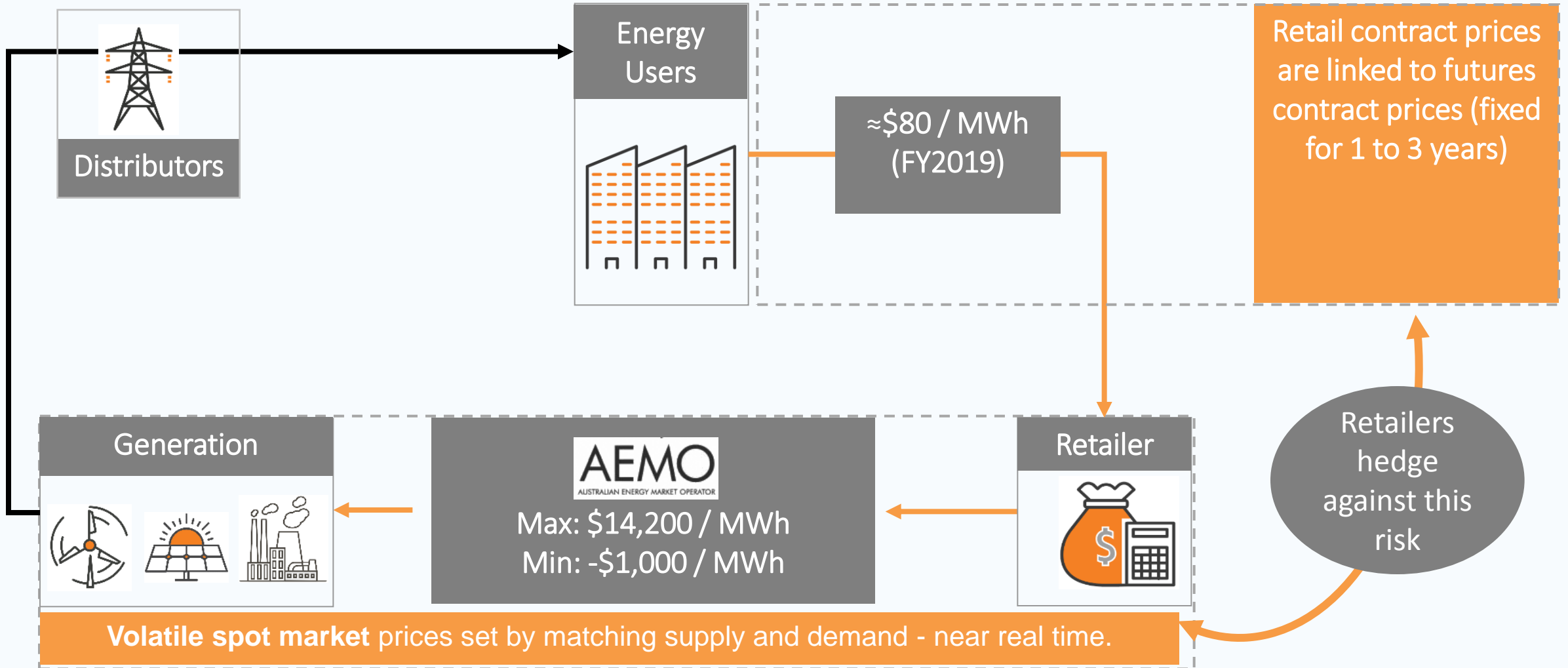


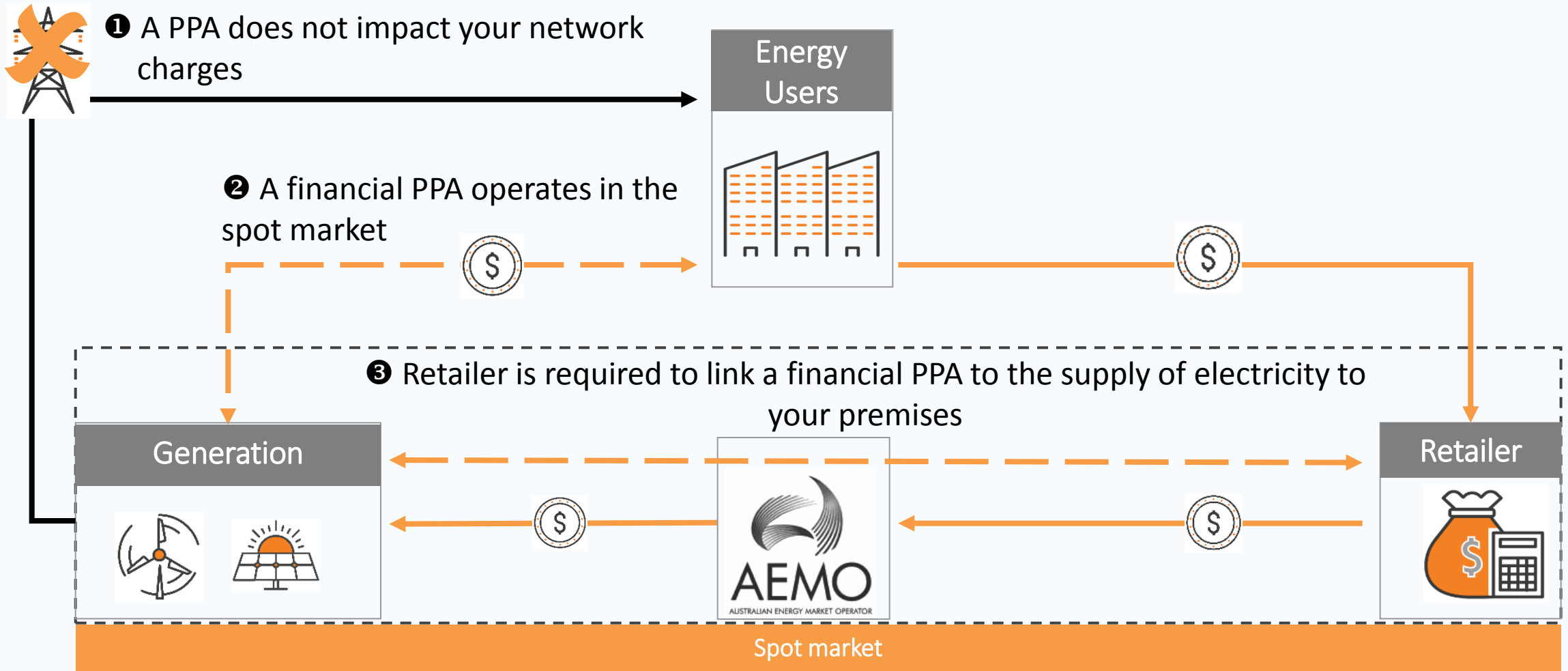
Behind the meter options lack scale and other retail electricity strategies do not provide a long term shield against electricity price increases and volatility





Prices in the National Electricity Market





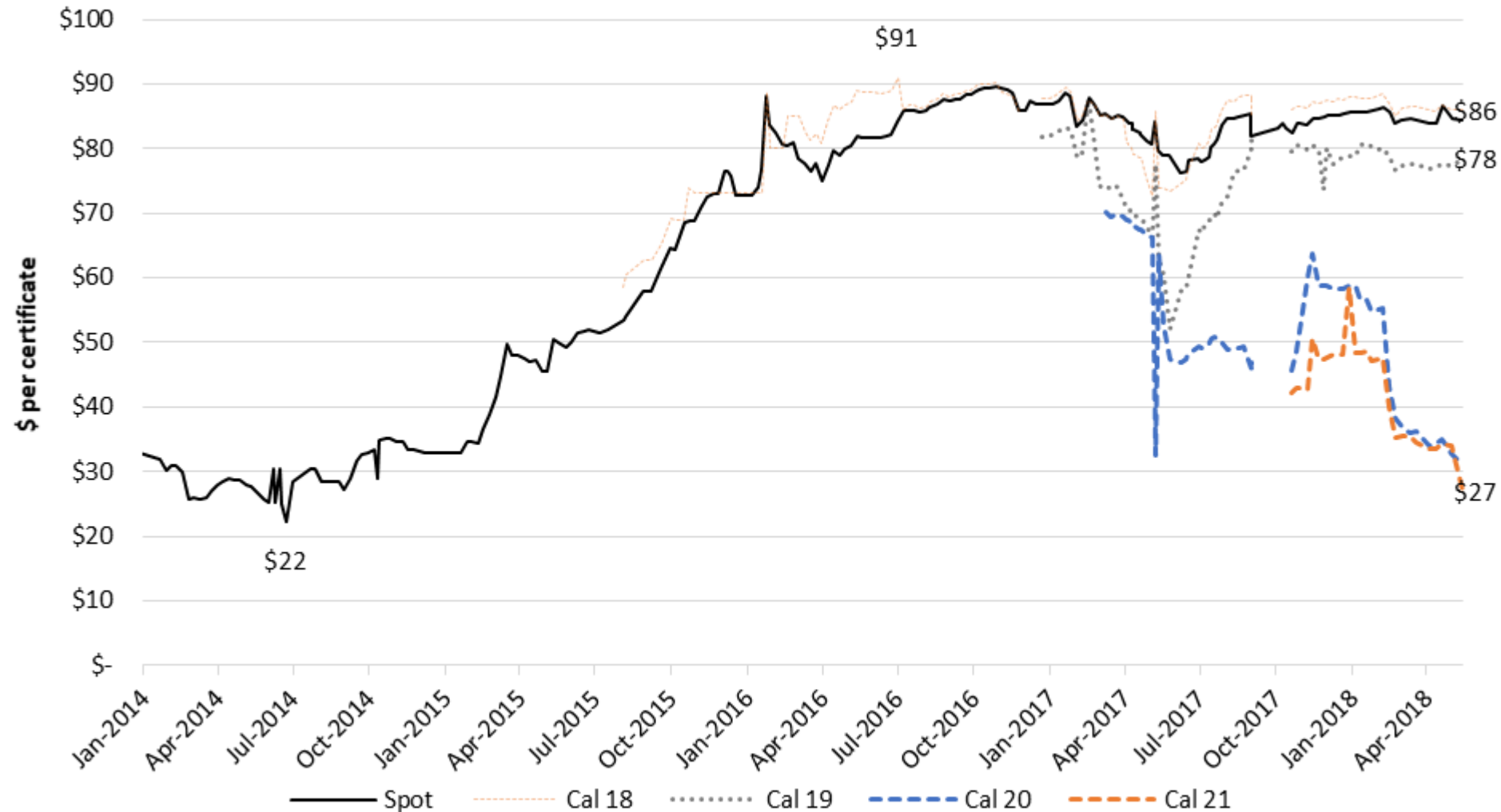


Be clear-eyed about the risks of “direct” power purchasing



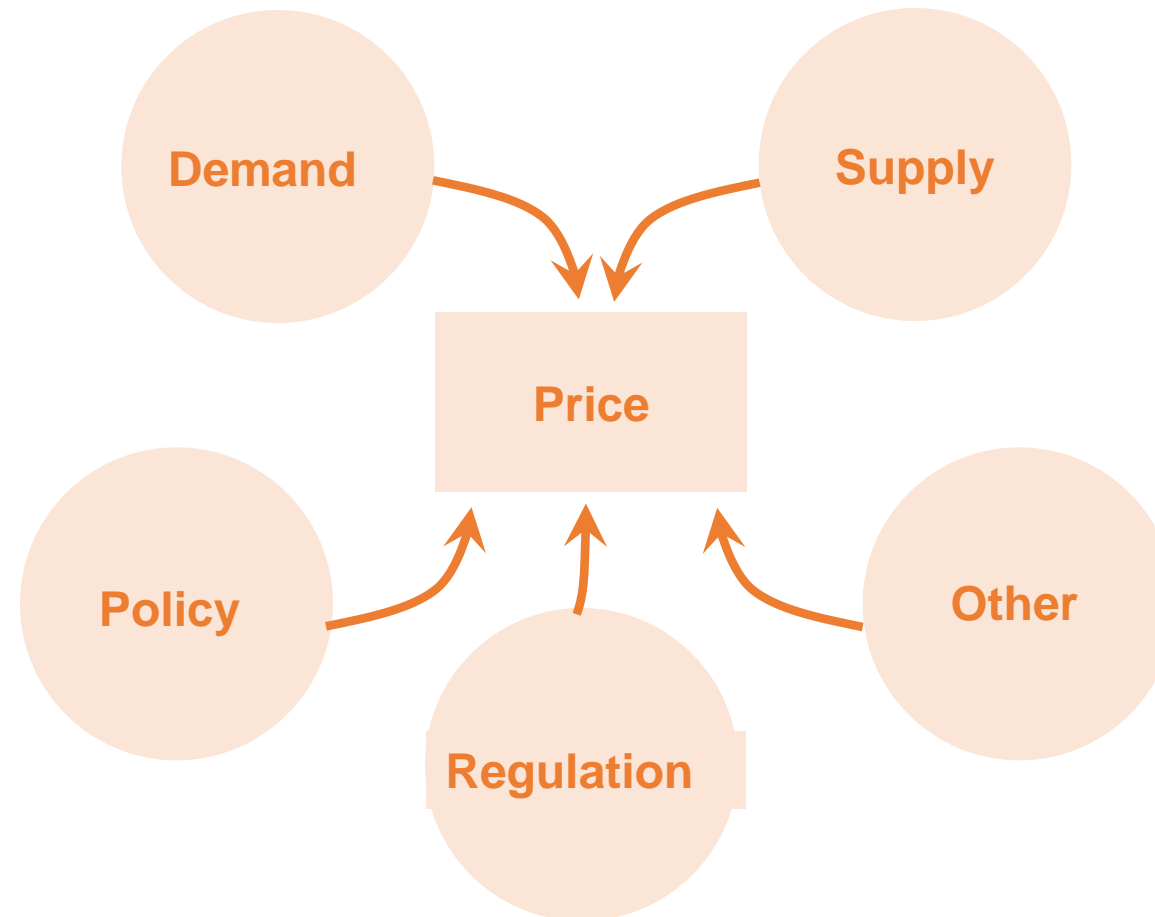


LGCs are subject to price volatility





What are the key market drivers impacting price?





What are the key market drivers impacting corporate PPA prices?





Understanding market drivers is critical

“Wholesale prices will continue to be volatile in this rapidly transforming market environment. Corporates interested in power purchase agreements need to understand the fundamental market drivers and their impact in order to mitigate their energy price risk over the longer term.”

Gilles Walgenwitz, General Manager
Energy and Carbon Markets, Energetics

“Energy users must look beyond headline PPA prices to consider the physical market infrastructure capacity, long-term supply mix and expected price developments in the respective NEM markets. Failure to do so could result in what appears to be a cheap PPA price becoming very expensive five years down the track.”

Anita Stadler, Principal Consultant, Energetics



2. Key Considerations



What are the important questions to ask?



What are the strategic drivers behind my organisation's interest in corporate PPAs? Have we considered other avenues to meet those objectives?



Does my business have the necessary attributes to be able to enter into a PPA?



How will the PPA price we negotiate today be impacted by future market developments?



Which contracting/price model and volume is best suited to meet the strategic intent of my organisation?





Leading drivers of corporate PPAs



Cost savings /
budget certainty

Sustainability
leadership

Other value adds

Different uses of
LGCs have an impact



Should we consider a PPA?



**Be creditworthy
(investment grade
credit rating ideally)**



**Energy is a strategic
consideration, enabling your
organisation to make a long term
commitment**



**Ideally consume at least
15 GWh per annum in a State
(if you want to go it along)**



**Have relatively predictable
electricity needs over ~10 year
term**





What are the contracting options for a PPA?

Contract for Difference PPA

- Agreement between customer and generator
- Does not involve physical supply of electrons
- Pure financial product

Electricity supply-linked PPA

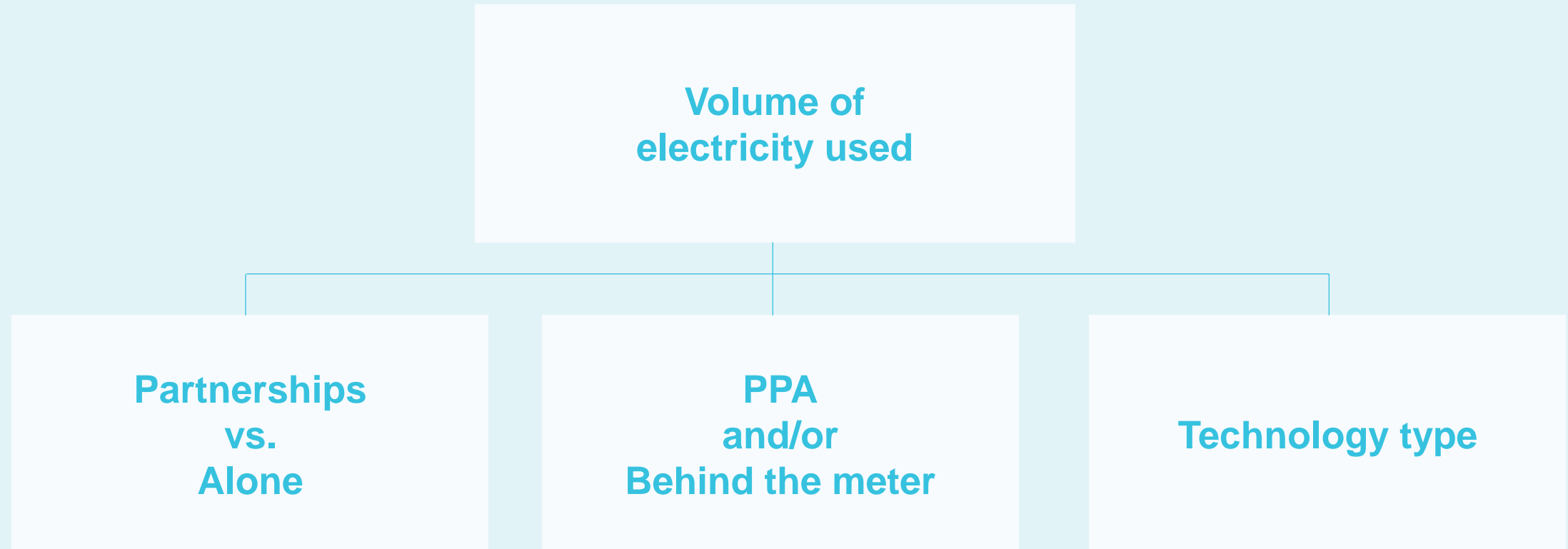
- Agreements include retailer/s as well as generator
- Links customers electricity use to a specific generation source

LGC Only

- Agreement between customer and generator
- No supply of power, LGCs or “Green Product” only

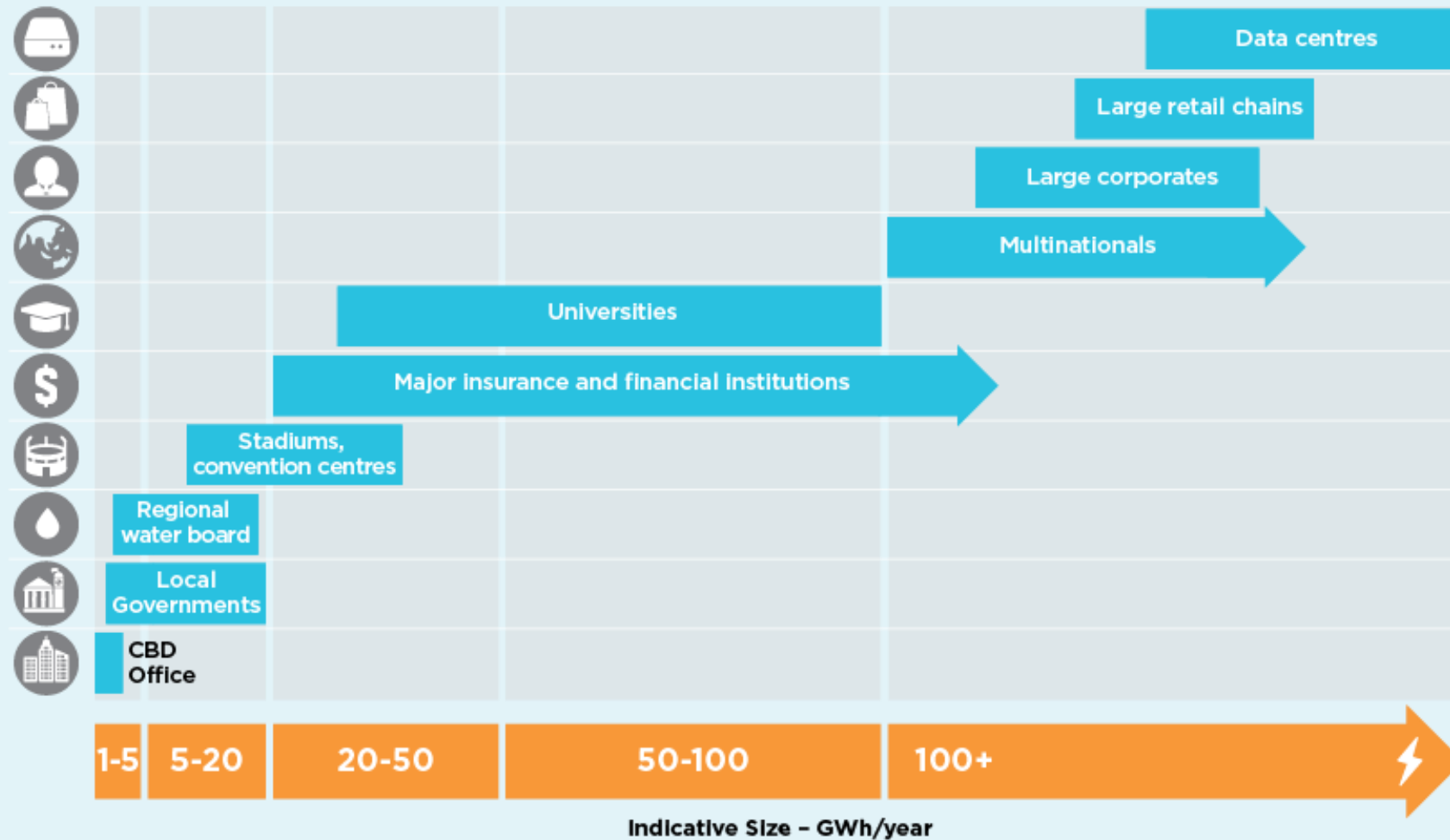


How big is our demand for power?





Typical demand for power by type of organisation





How variable is our demand for power?



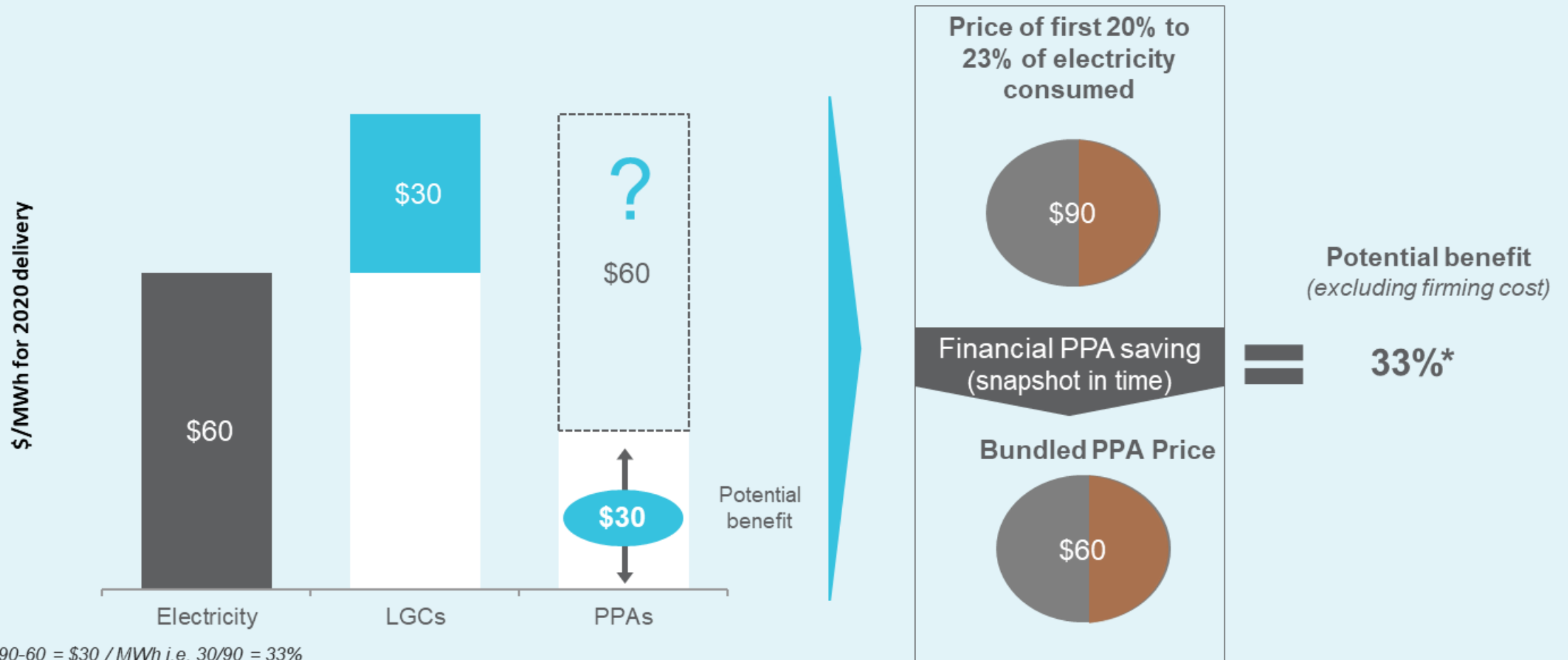


Morning Tea!



3. Q & A

Corporate PPAs can deliver significant financial benefits (2020 snapshot*)



* $90 - 60 = \$30 / \text{MWh}$ i.e. $30/90 = 33\%$

* Each project is unique, with the cost benefit dependent on the scale and risk transfer between parties. Value must be assessed over life of the transaction.



Lunch!



Welcome Back



4. Objectives and the MREP Journey

John Griffiths, City of Melbourne



Melbourne Renewable Energy Project

Principle Partners



Energy Partners





A New Wind Farm: Crowlands

80_{MW}
capacity

=



39
wind turbines



140+
Jobs during
construction

+



8 Jobs
Ongoing operation and
management of the plant

+



Opportunities
for local
businesses



Power Purchase Agreement



**Melbourne
Renewable
Energy
Project**

88 GWh
of energy

over a third of Crowlands
Wind Farm total capacity



17,600

average households power use every year

OR



22,512 cars

off the road every year

OR



96,800 tonnes

of greenhouse gas pollution every year

This project will help Melbourne achieve



Electricity
from
renewables



0
Net emissions



The benefits of this approach





Our big insights and takeaways



Do your homework.



**Engage expert advisors
if you need to.**



**Ensure strong strategic
alignment amongst members in
your group.**



**Senior leadership
support is essential.**





Video





5. Understanding electricity markets

Alister Alford, Energetics



Electricity 101



Demand

Power



= 1 kW



x 1,000 = 1MW

Energy



1 kW x 1 hour = 1 kWh

Supply (e.g. Wind Farm)



= 100 MW



= 350,000 MWh

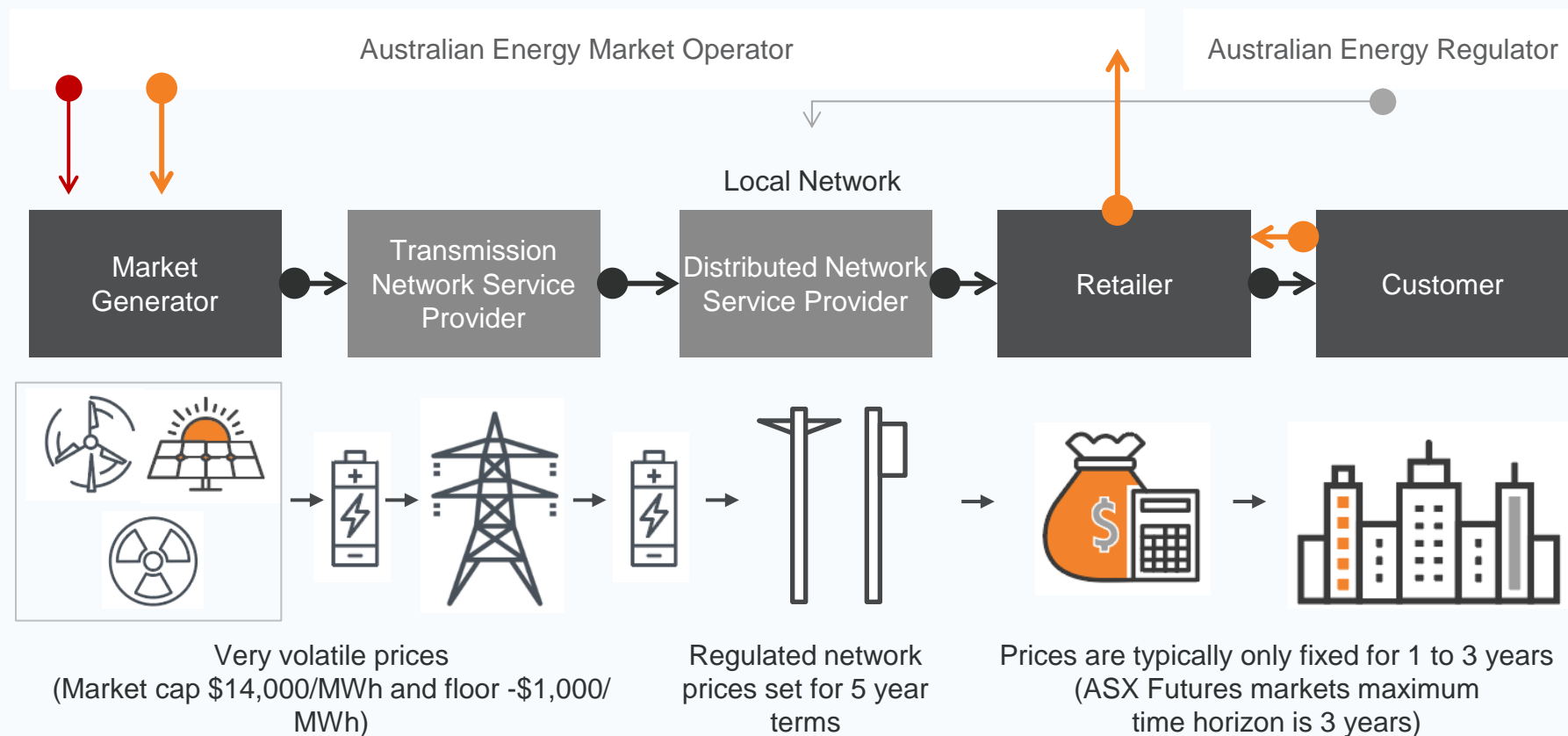
Water analogy

Dam = energy

River flow = power



The electricity supply chain



Under the National Electricity Rules the retailer is the financially responsible market participant for all the electricity consumed at the customer supply points managed by it

Legend: ● Dispatch Instruction (scheduled and semi-scheduled generators) ● Physical electricity flow ● Financial flows ● Performance standards



NEM spot market vs contract market



Spot market

All electricity supplied to the market is sold at the 'spot' price

Spot price fluctuates in response to supply and demand

Price set by marginal generator on a 5 minute basis with settlement price calculated on a 30 min basis

Contract market

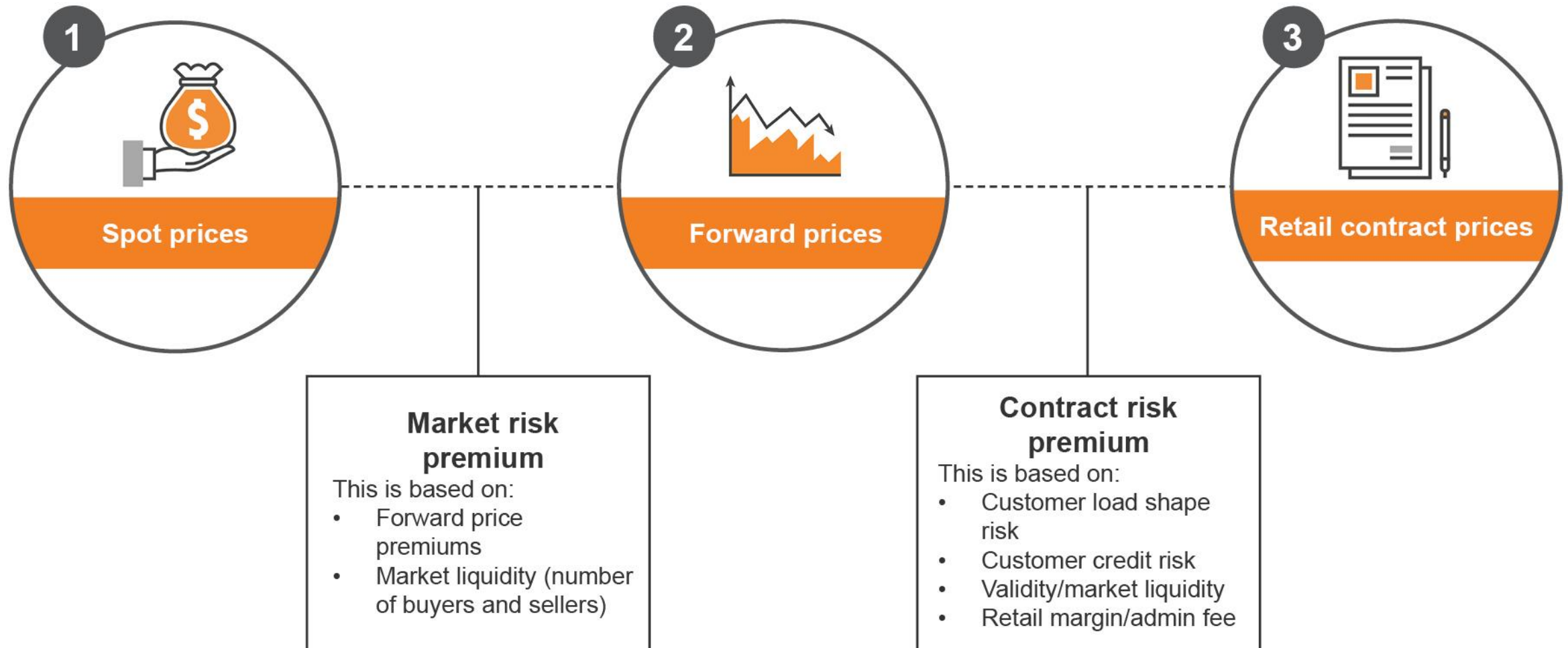
Basis for retail contract pricing

Retailers and generators lock in long term revenues or costs at a fixed rate (futures / forward contracts)

Quarterly/yearly futures contracts liquid over 3 years

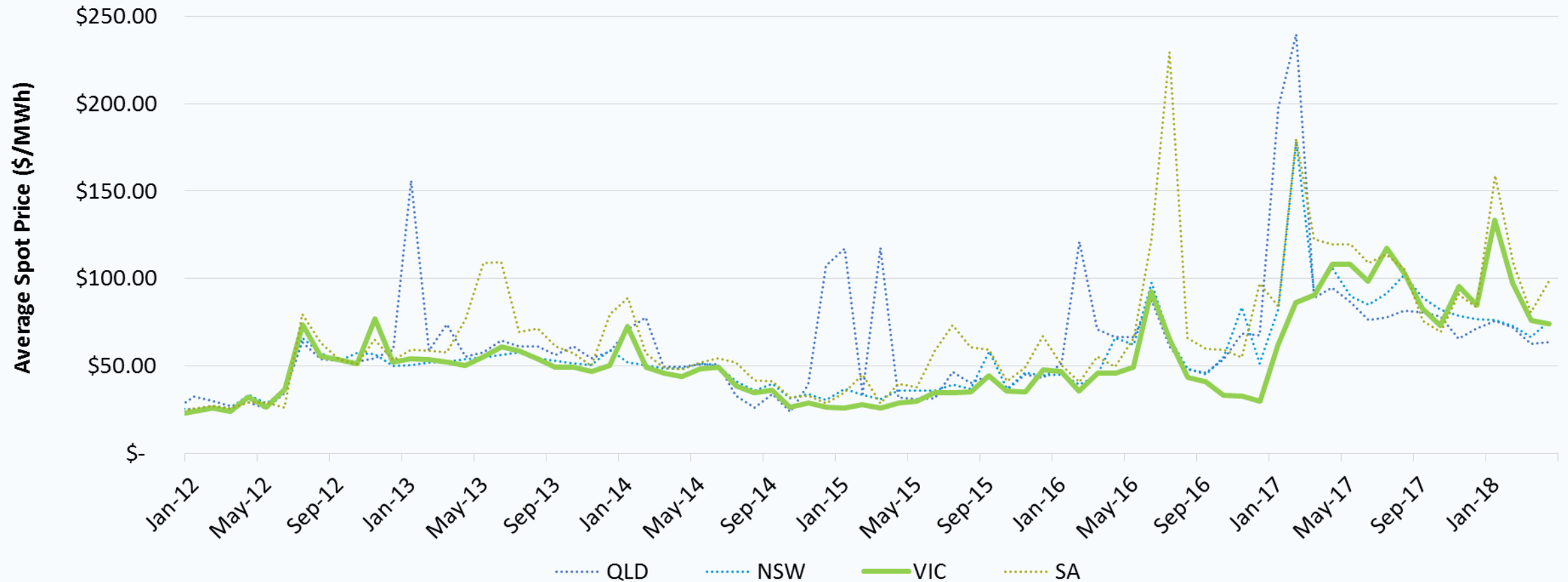


Retailer's cost of hedging



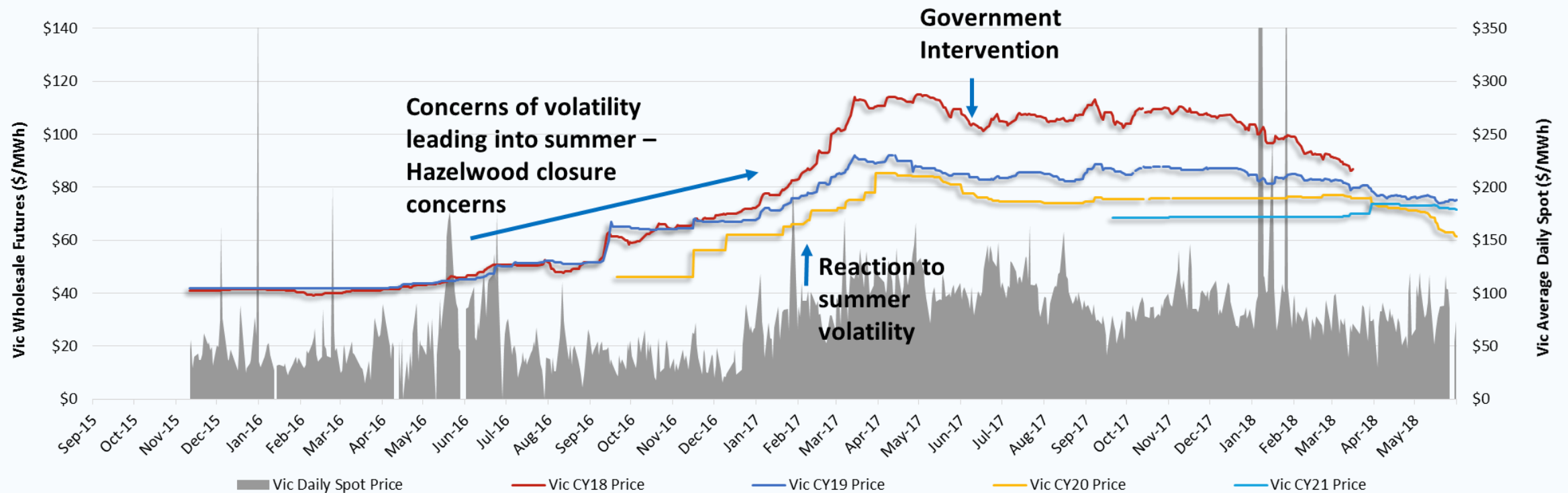


Electricity spot markets



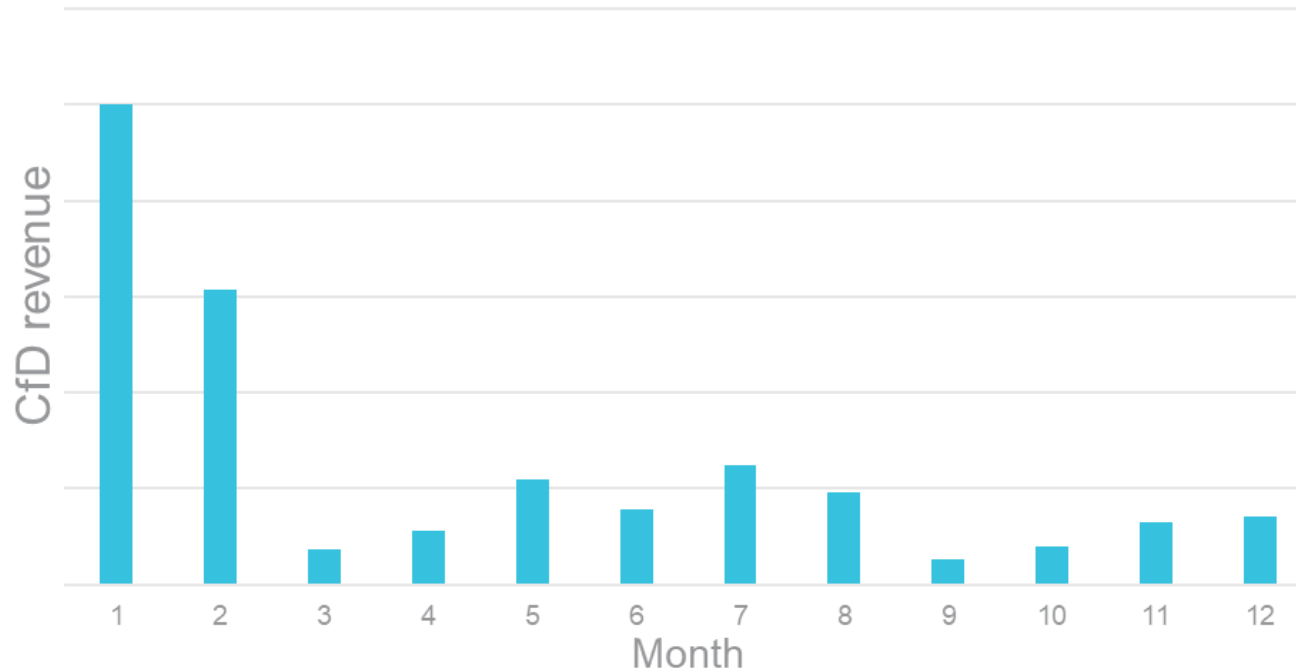


Wholesale futures pricing

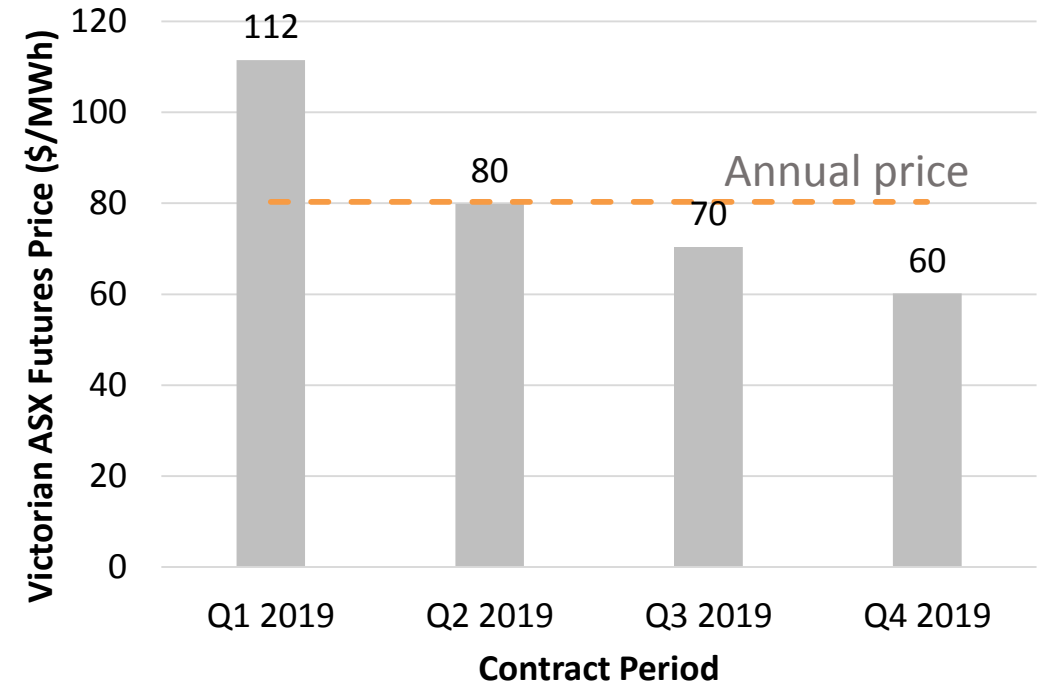




Volatility in seasonal price and cash flow impact



Revenue from generation linked Contract for Difference can exhibit significant seasonal behaviour



Electricity contract market seasonality



Getting the price right



Understanding relationship or correlation between:

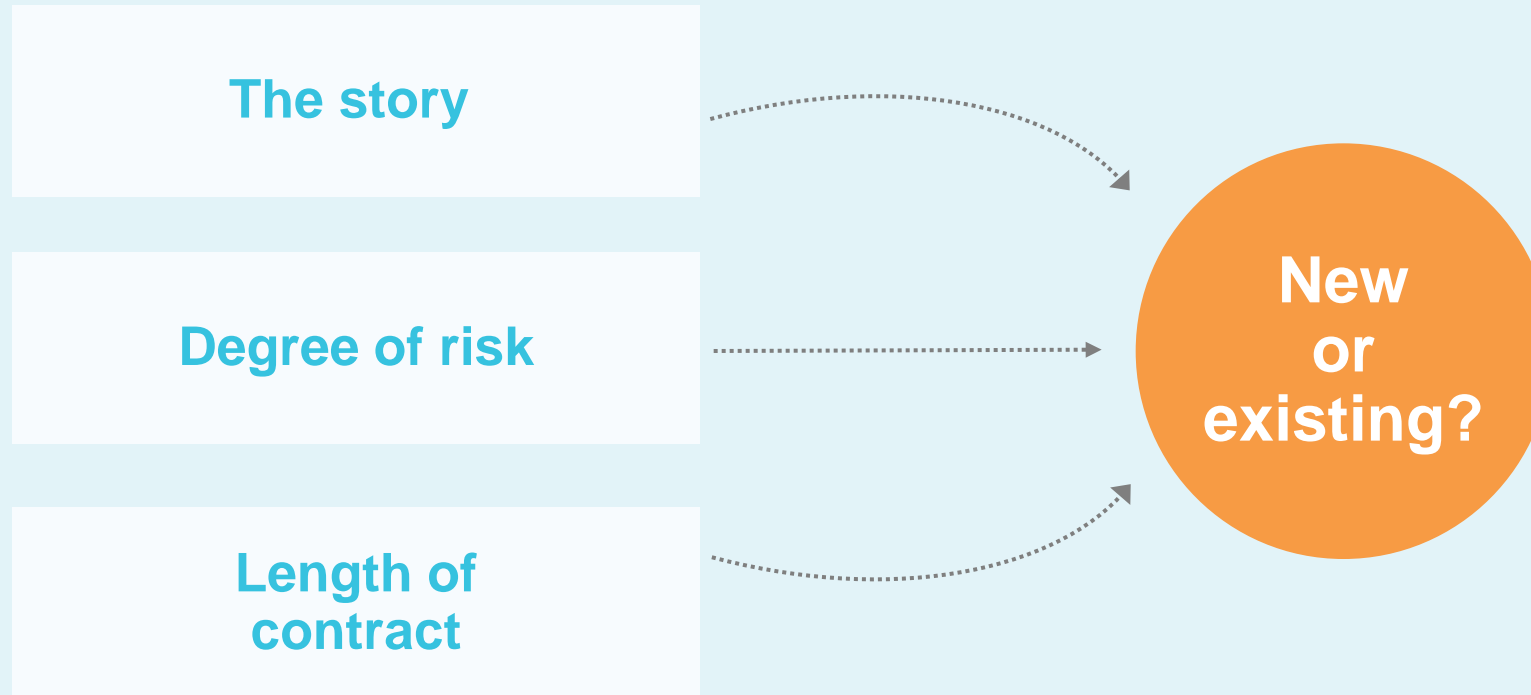
- Production weighted average spot price
- Average spot price
- Expected average spot price in contract year
- Standard contract price
- Consumption weighted average contract price



6. Contract Structures

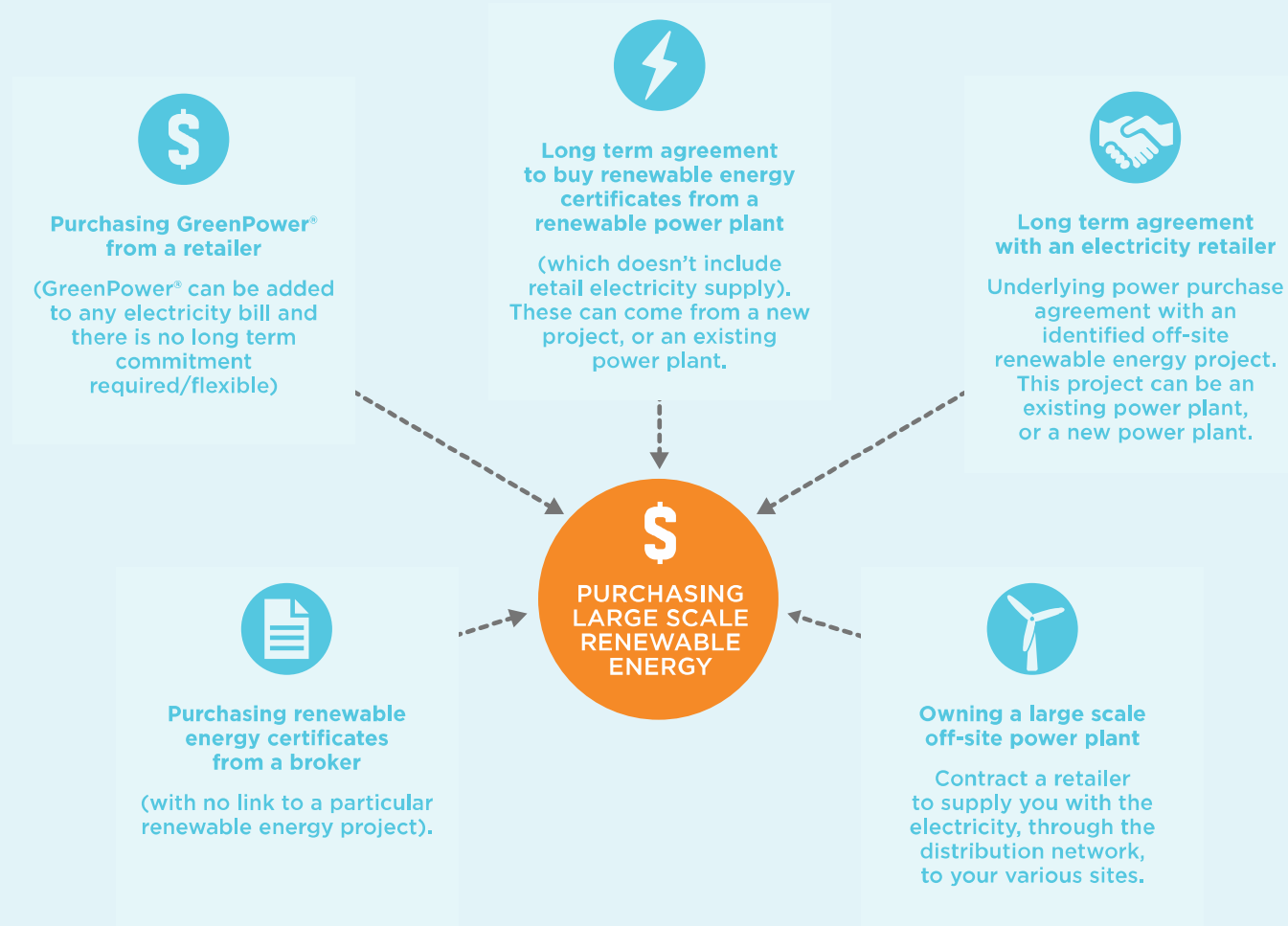


Project type





Contract options for renewable energy





Contract model categories

LGC only



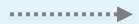
Used to take direct control of your compliance LGC cost; or to procure LGCs for voluntary carbon offset purposes

Contract for Difference PPA



Used as an instrument to mitigate your exposure to electricity market risk without the need to engage a retailer

Electricity supply-linked PPA (inc or excl LGCs)



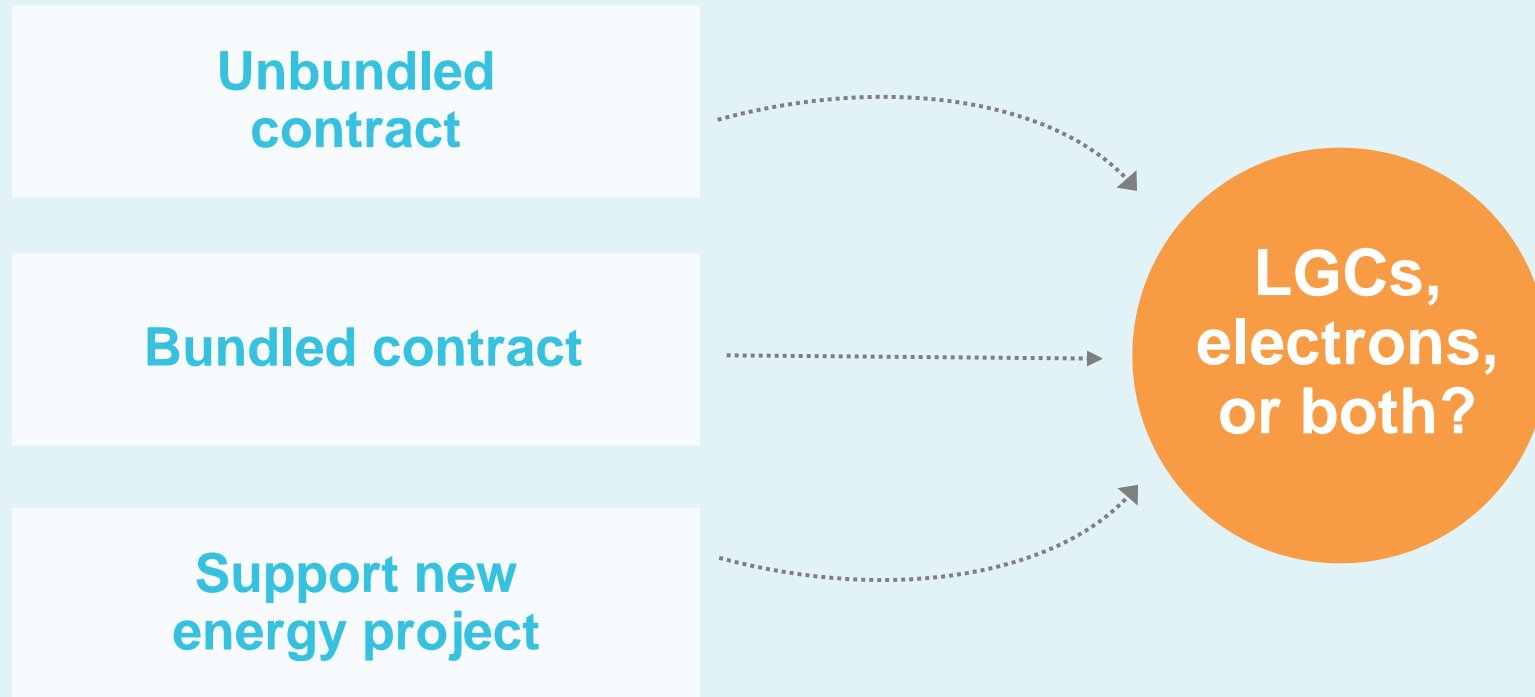
Involves a retailer to source or manage the supply of electricity from a renewable energy project

A different way of procuring electricity that replaces your current retail agreement



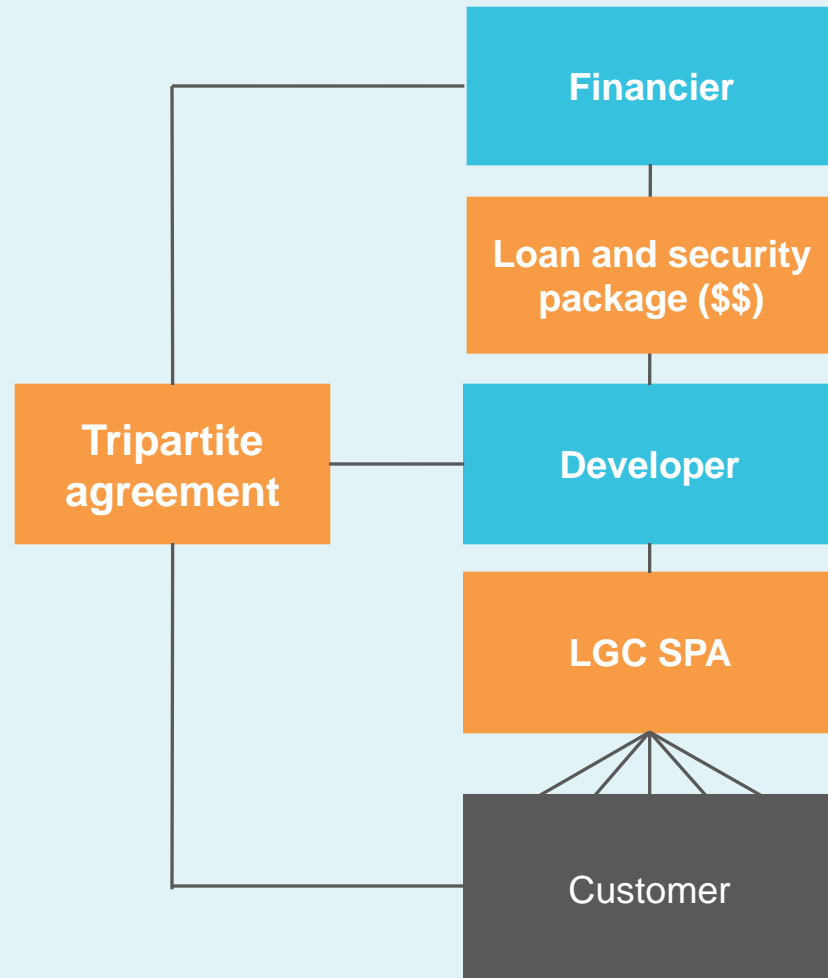


Form of renewable energy



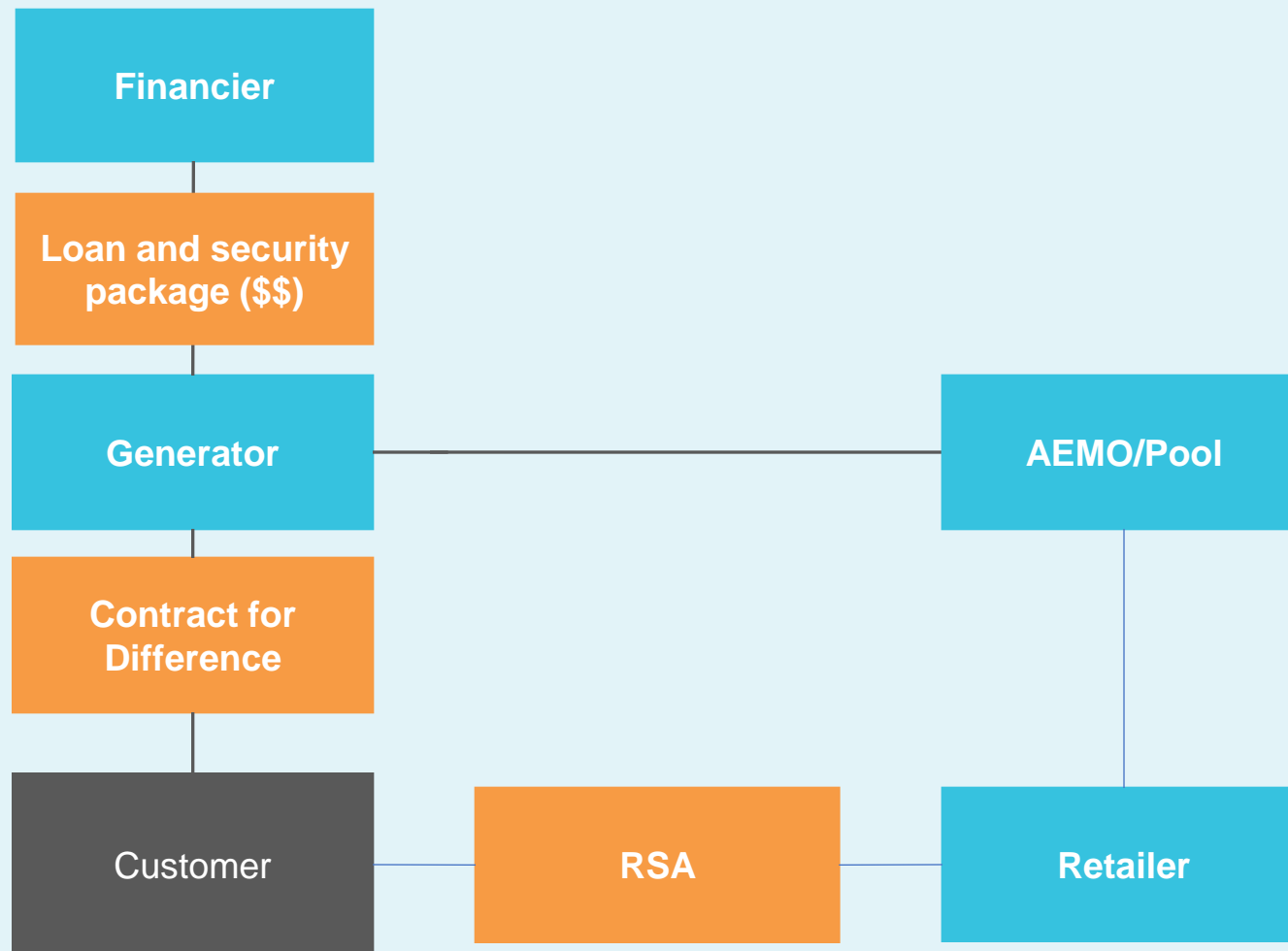


LGC Only



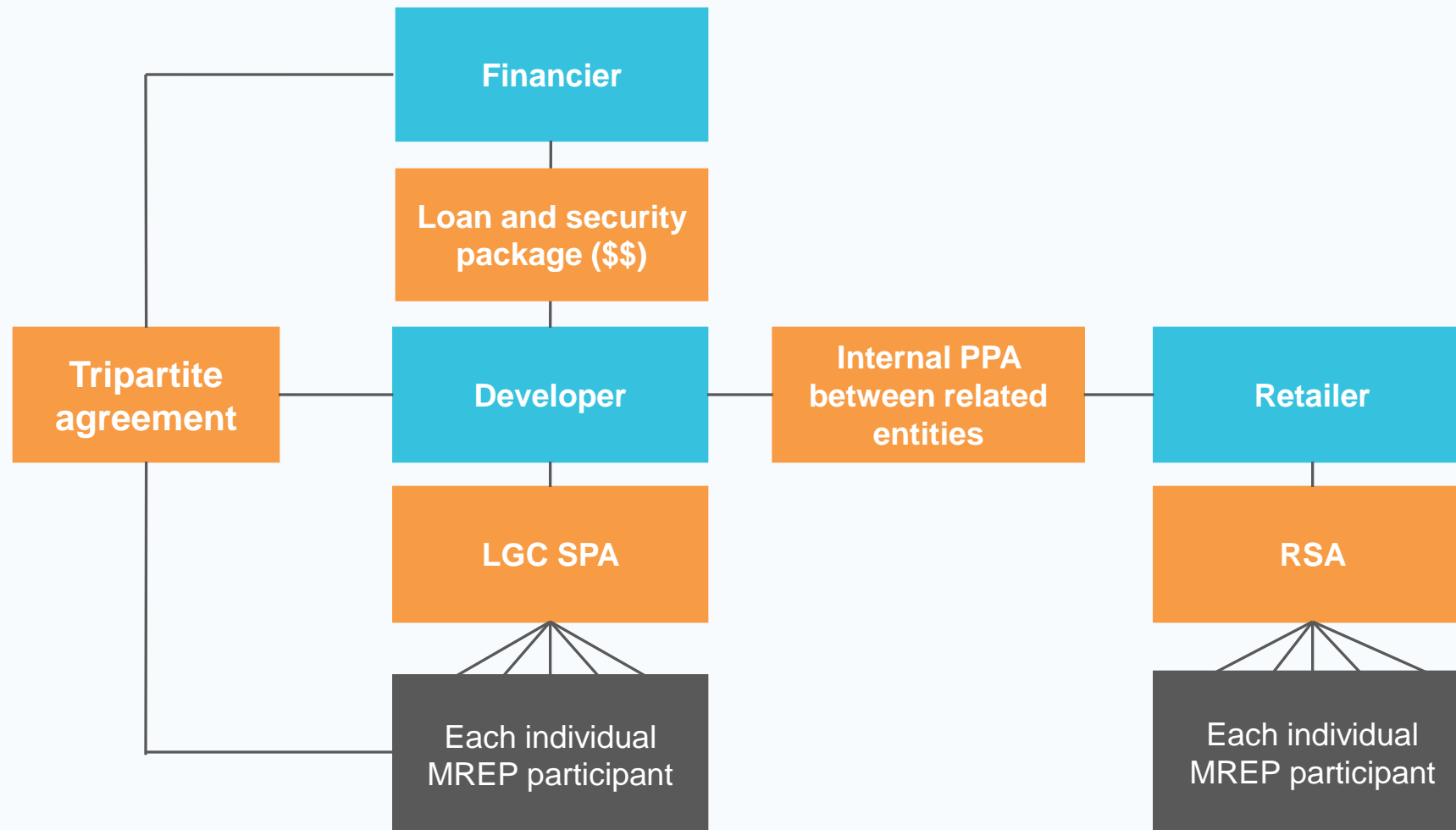


Financial PPA





Supply Linked Retail PPA - *MREP Contractual Structure*

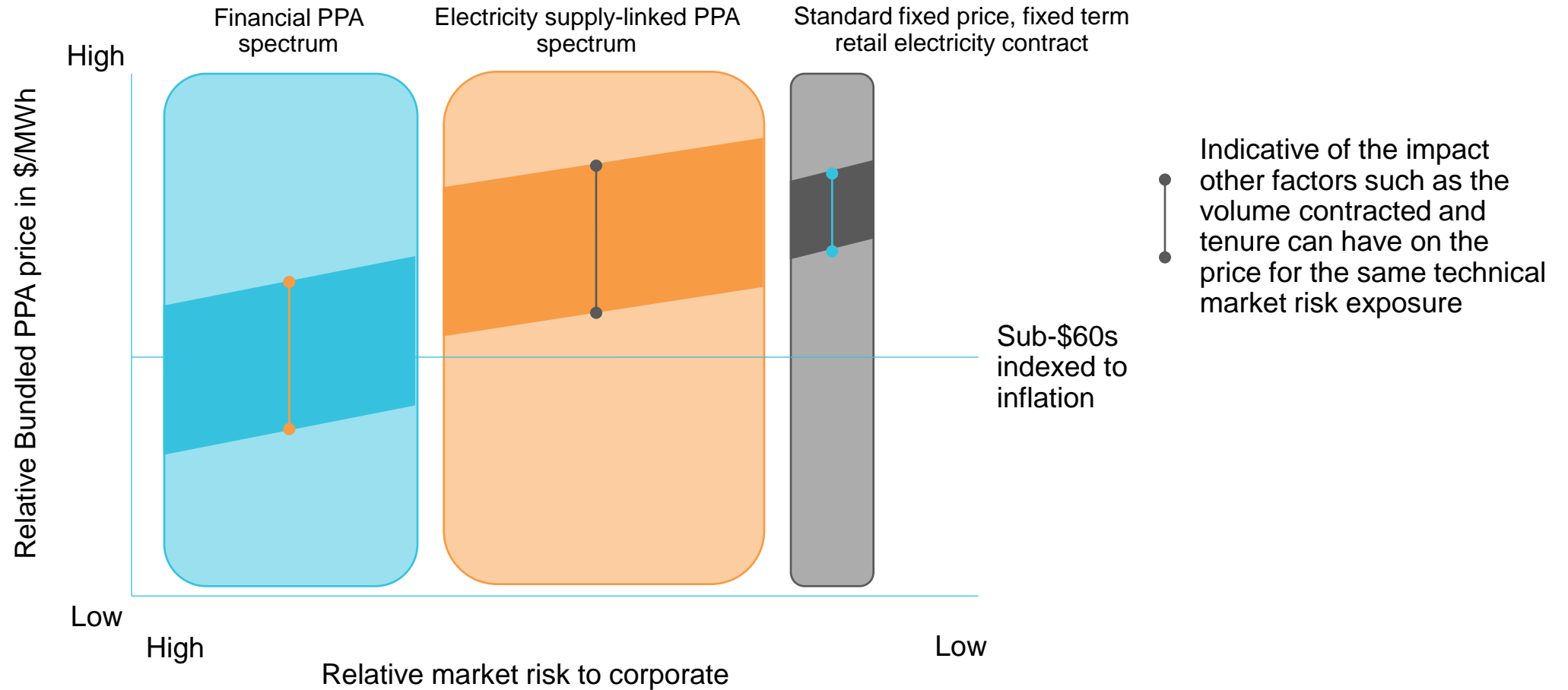




6. Pricing Models



Making the most of price benefits





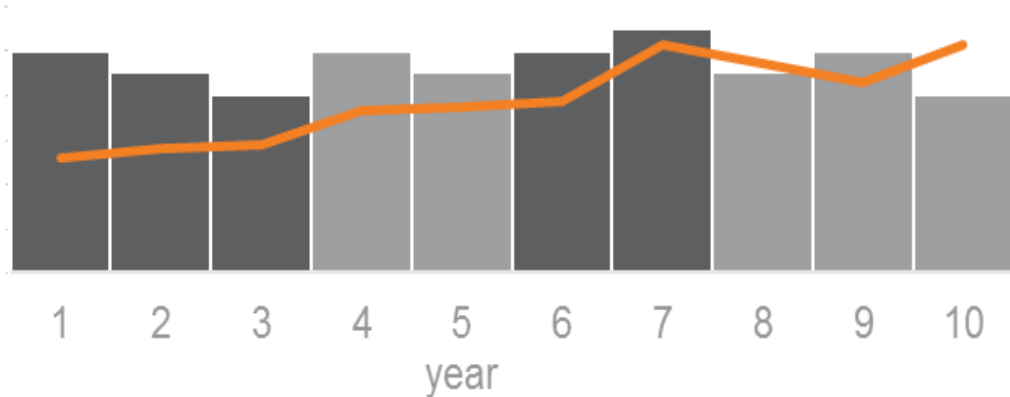
Key differences compared to a standard electricity contracting approach



Best suited in a low price, stable market

Standard approach: short-term retail electricity contract

Energy user pays a fixed price for 1-3 year contract period with some volume flex



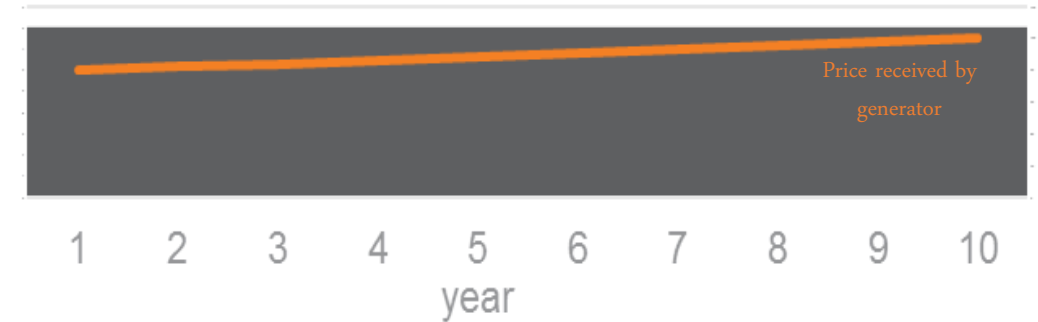
Prices are set according to the futures market every time the retail contract is renewed

Follows energy users' consumption pattern (i.e. load-following)

Term

Generator receives a pre-determined price for a fixed volume for 8-10 years from the buyer, who receives the market price

Volume
Price



Price

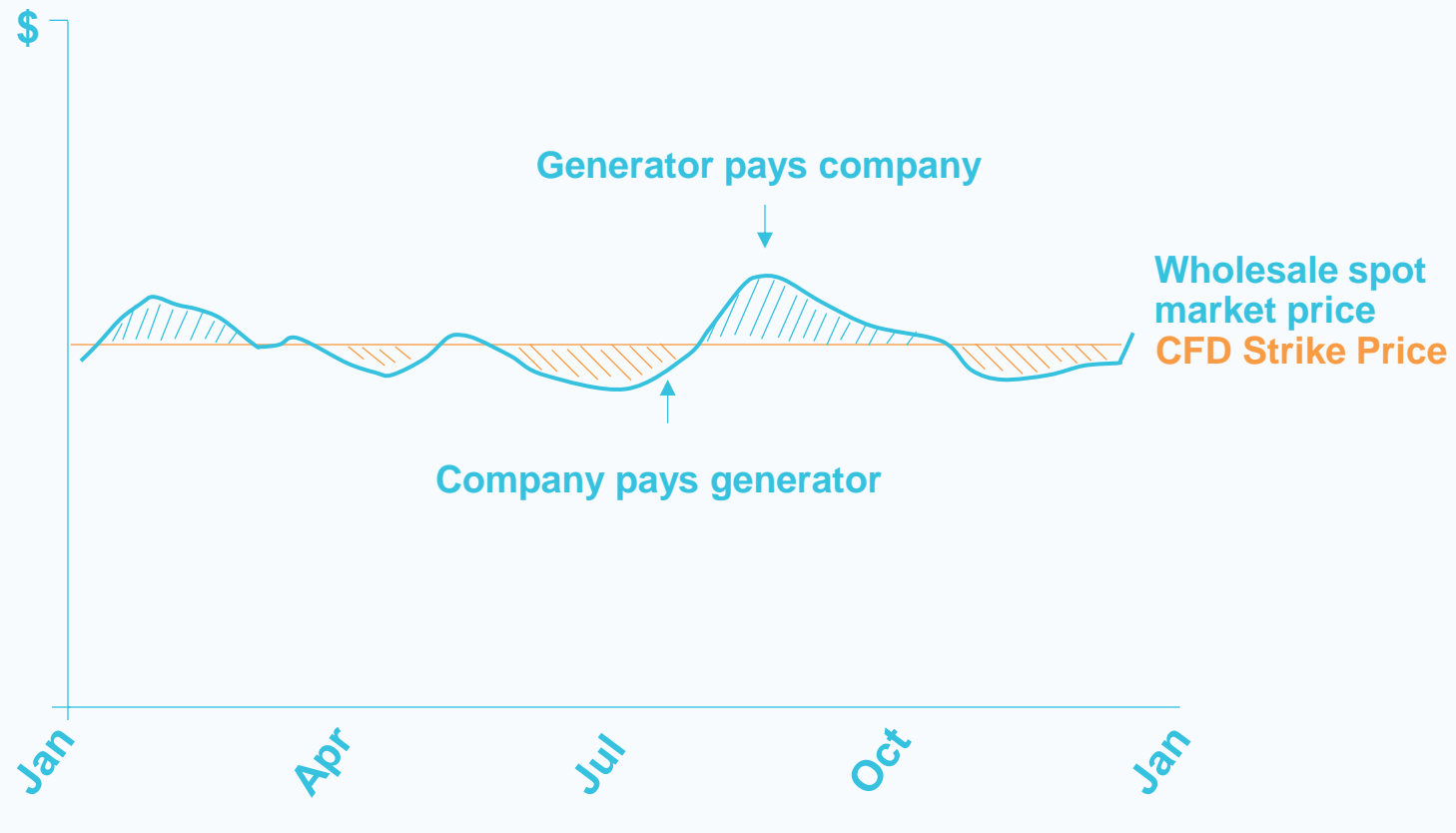
Buyer benefits if the spot market price increases above the contract price

Shape

Not load-following – requires retailer to link generation output to consumption plus provide balancing power to firm supply

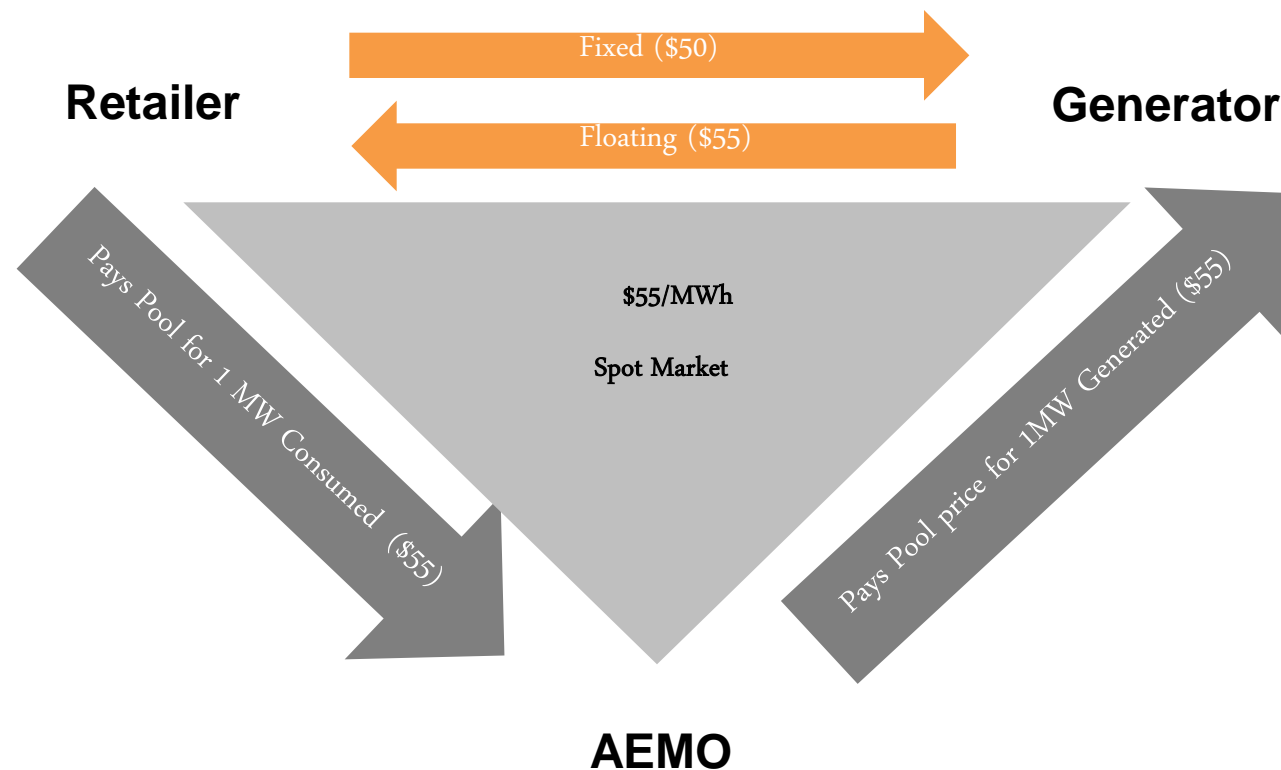


Contracts for difference





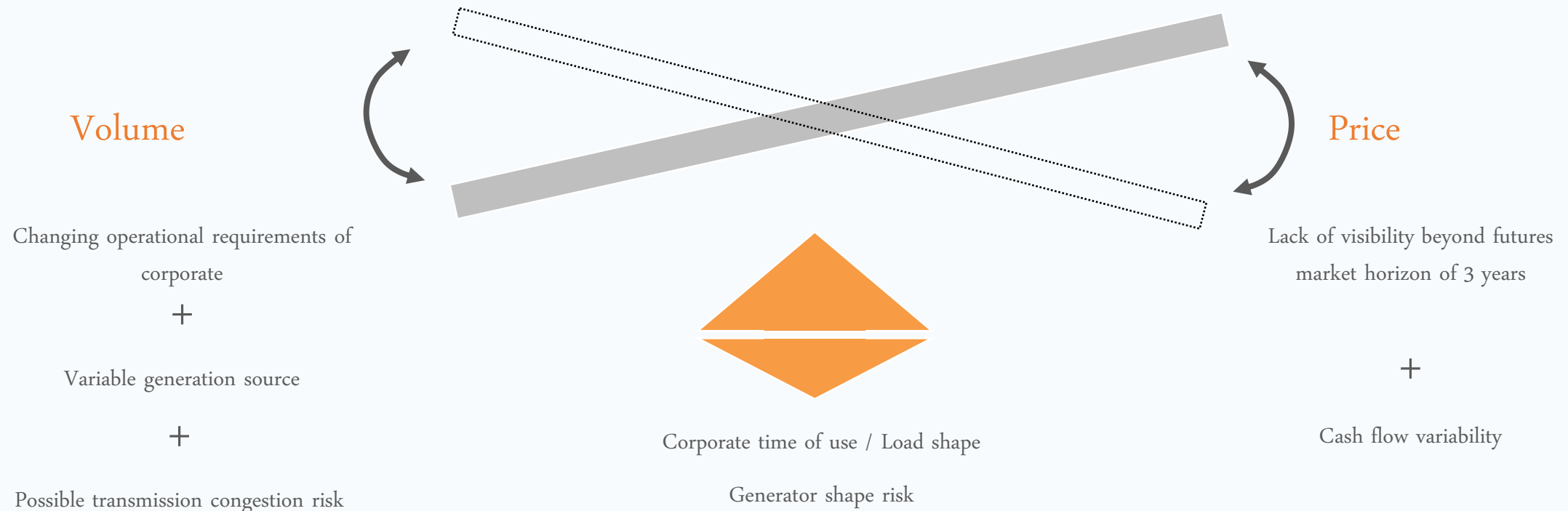
Cash flow cycle in a 1MW contract with a \$50 Strike price



For this settlement period the generator lost \$5



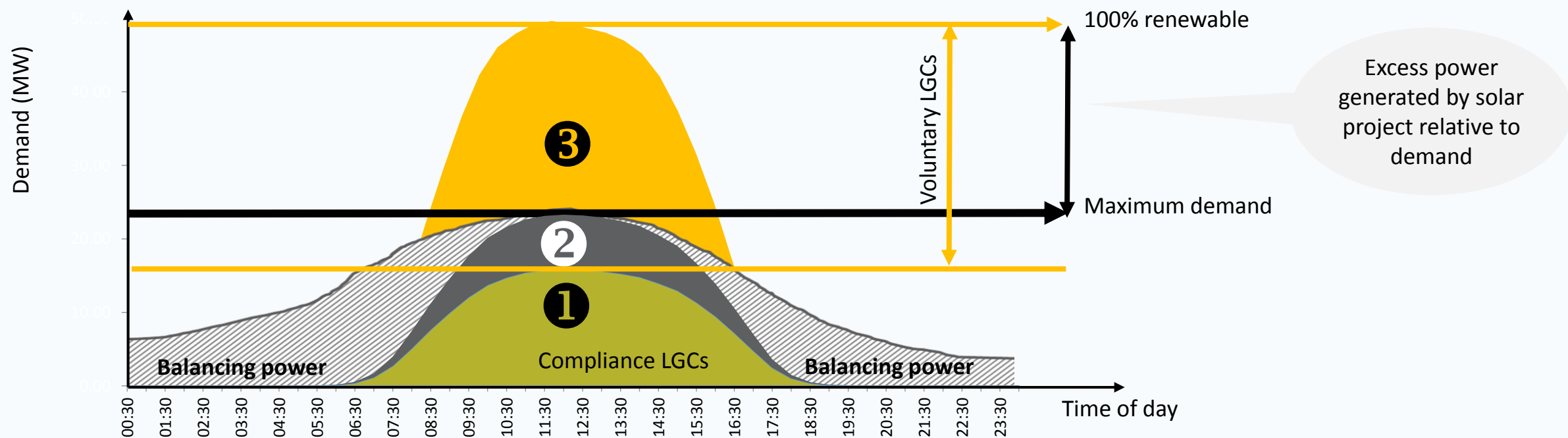
Key challenge for all parties





How have you sized your PPA?

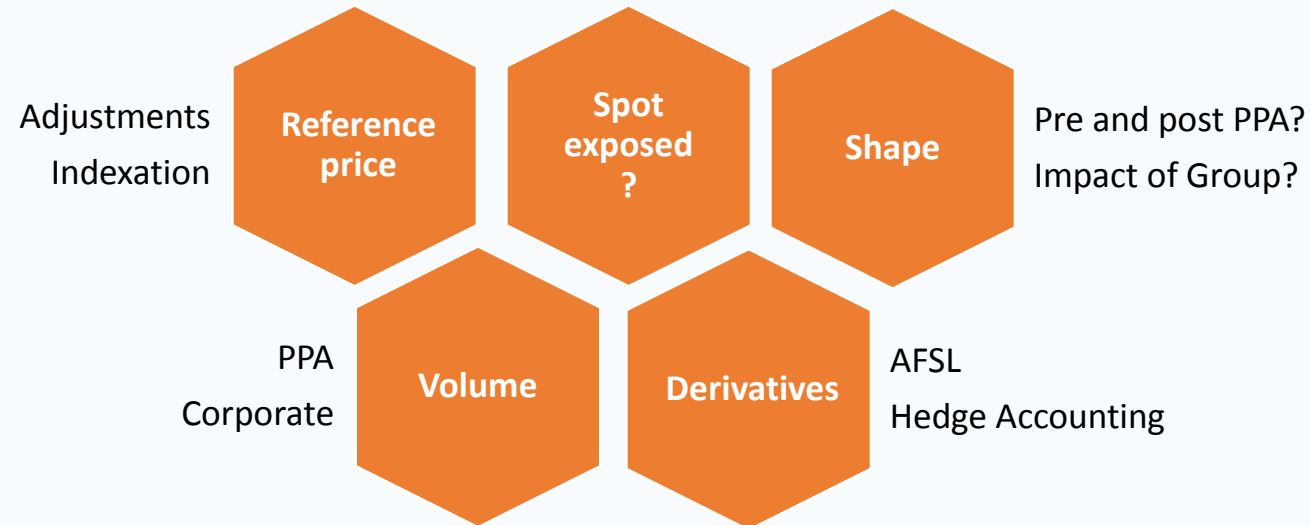
Illustrative example using the annual average production profile of the solar project sized to different consumption thresholds



— Typical day load profile of a commercial building



What pricing model to select for both power and LGCs?

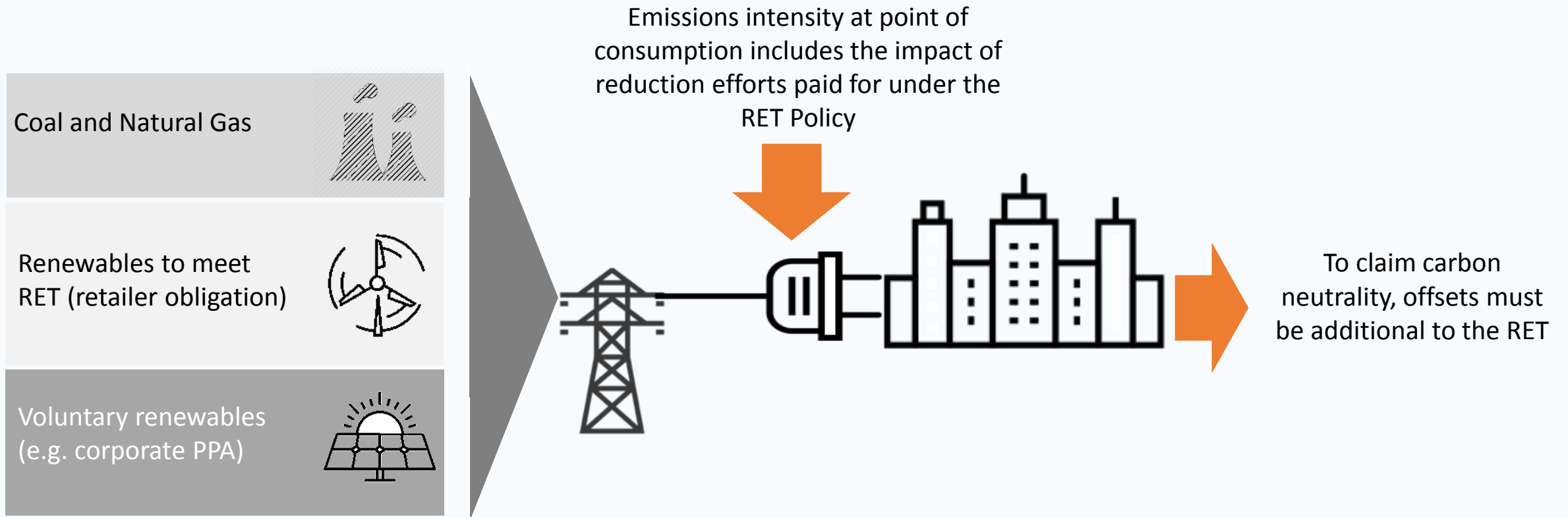




LGC Treatment



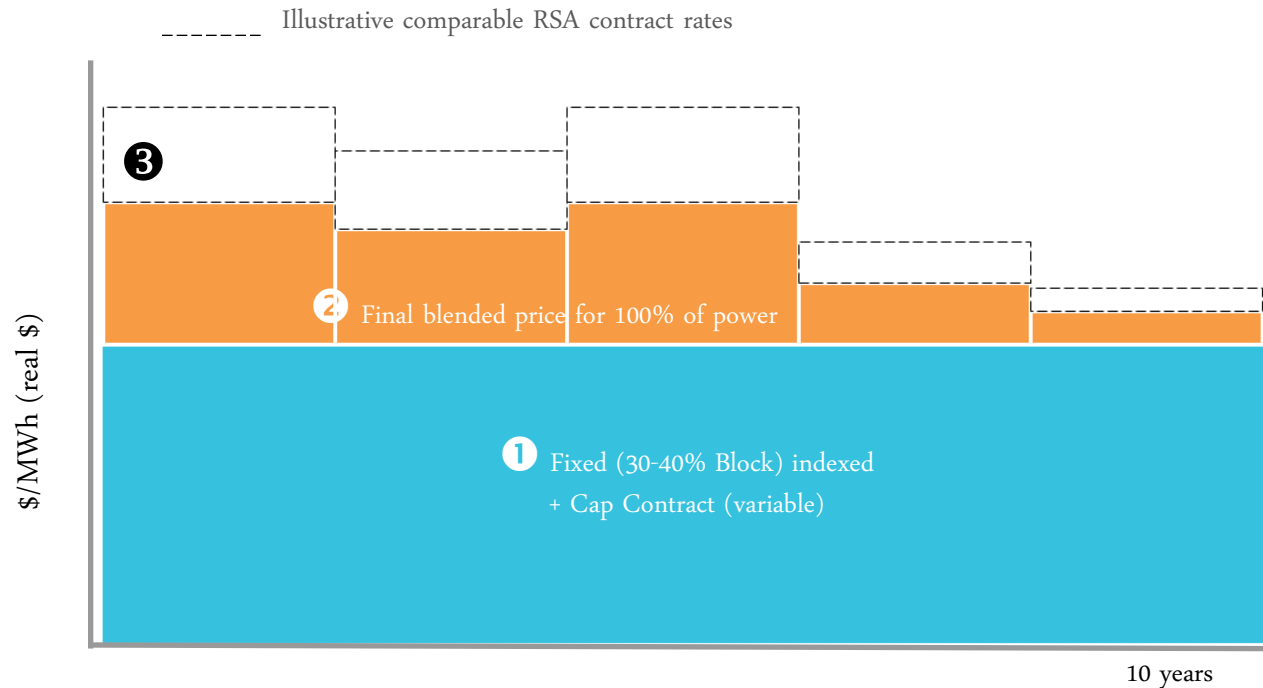
- * Energy users currently pay for LGCs as part of their electricity bill (presently 16.06% of volume and expected to increase to between 20% and 23.5% between 2020 and 2030).



... without the LGCs you cannot claim the green credentials from a renewable energy source



Illustrative hybrid model example



Price premium paid for the residual 60-70% of volume at the market price (i.e. ③). Resulting in the blended rate (i.e. ②) above the fixed PPA rate. Since the price for the fixed block ① is typically indexed, the premium will reduce in a falling market over time

Notes:

- Volume and price variance is managed by the retailer by re-setting the price for much of the power every 2-3 years
- The volume for ① may be fixed in MWh over term of contract or as a % of load



Activity

- What are your **organisational drivers** to purchase renewable energy?
- Do you have an interest in **securing a stable long-term electricity price**, or prefer to follow the market?
- Is it important that the renewable electricity project be a **newly constructed project**, or can it be sourced from existing power plants?
- Do you require the electricity to be accredited as renewable energy for **carbon neutral accreditation**?
- Are you prepared to **pay a premium** to achieve the above objectives, or do you want the lowest cost?
- Do you have a **preferred technology** (wind, solar or other)?
- Are you interested in **additional co-benefits**, such as community or educational benefits?



Break!



7. Project Finance and Bankability

Ally Bonakdar, NAB



8. How to work in a group model

John Griffiths, City of Melbourne
Jeff Lynn/Cassandra Wee, Ashurst



Deal type



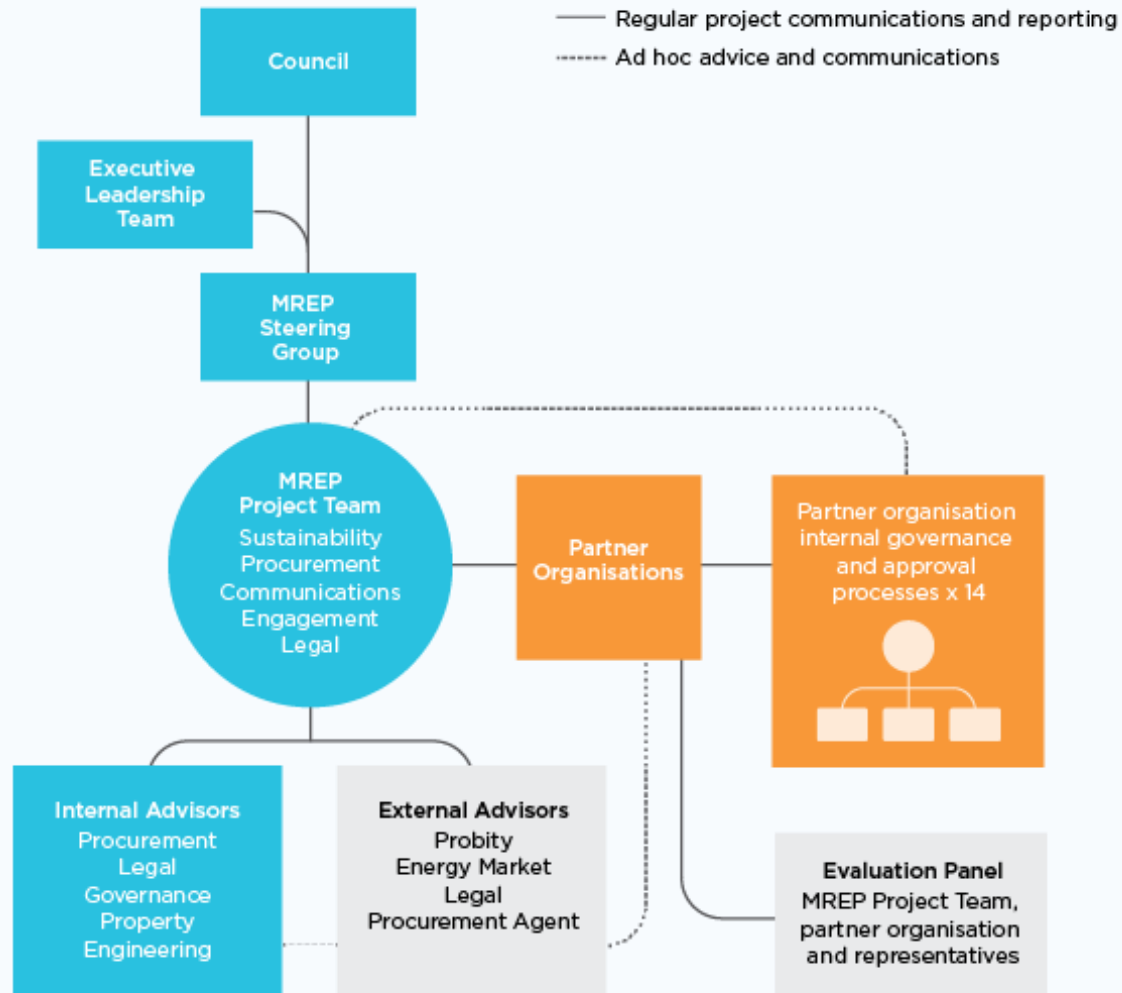


Group Governance





MREP Governance structure





Memorandum of Understanding or Participant Agreement

An agreement governing the
relationship between the participants,
and to facilitate the tender process and
execution of project agreements



MREP MoU





Competition Law & Group Purchasing

Successfully granted an authorisation from the Australian Competition and Consumer Commission, such that the proposal is effectively “immunised” from contravening the CCA.

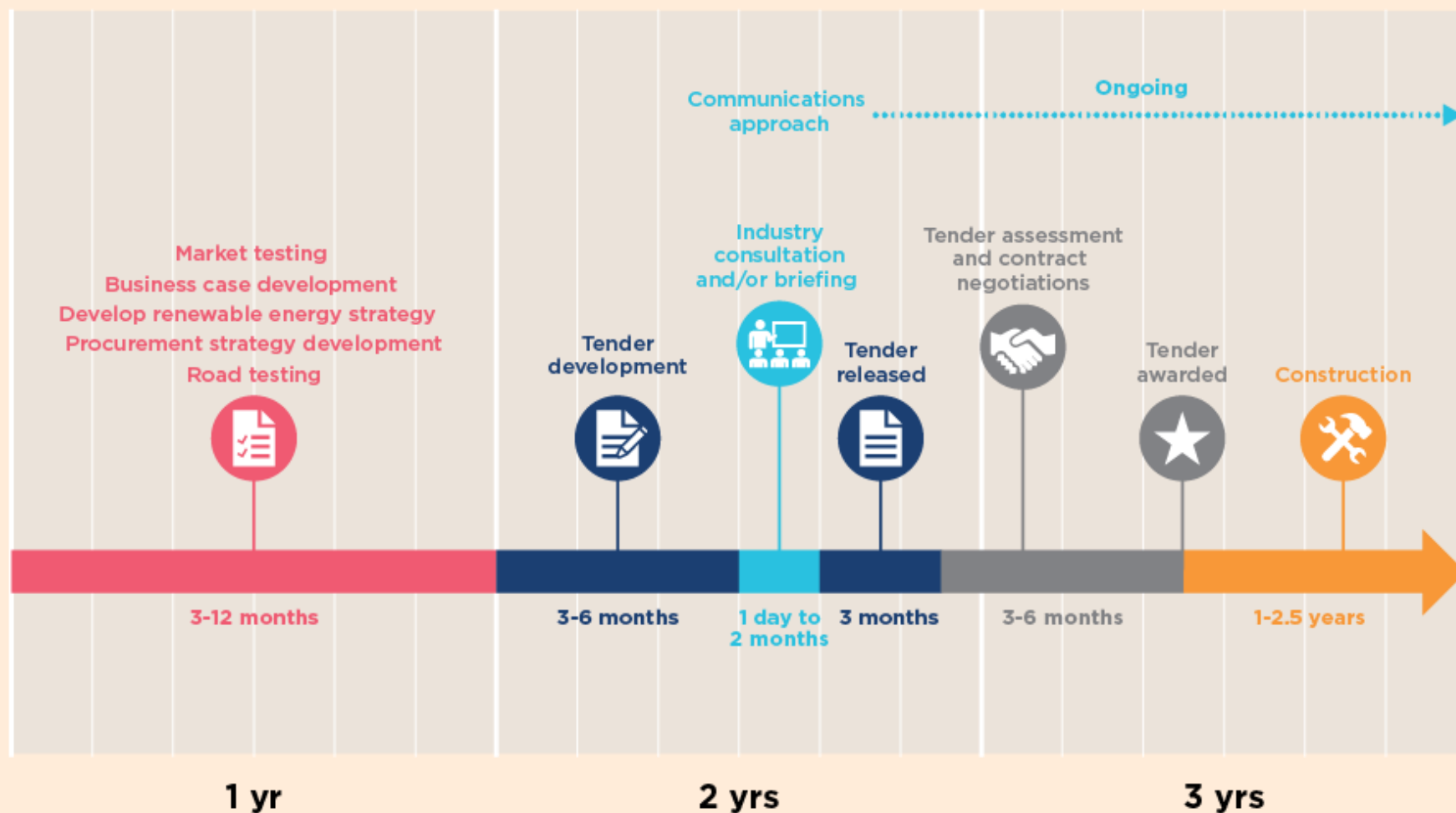


Facilitation & Leadership





MREP Timeline





9. Activity



Activity – Hypothetical Scenarios

1. At your tables you will see a pile of cards – these cards contain potential scenarios that could arise in the National Energy Market in the next 10 years.
2. Reflecting on the notes that you made earlier this afternoon, choose one of our hypothetical contracts
3. Take it in turns to pick scenarios from the deck and discuss how these would impact your chosen contract
4. Your table facilitator will have some outcome cards to identify how some of these issues could play out given your chosen contracting model



Thank you
