



**Our name signals our business focus in the Asia Pacific region**

Lantau Peak, on Lantau Island in Hong Kong, is also known as Chinese Phoenix Mountain, aptly reflecting the importance of renewal and reinvention to meet new challenges

Challenges of the Energy Transition/Transformation

# Three emerging areas of conflict and opportunity

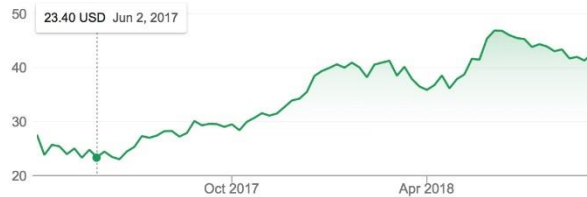
## Vanishing Assets?

# COAL?

Carbon Zero?

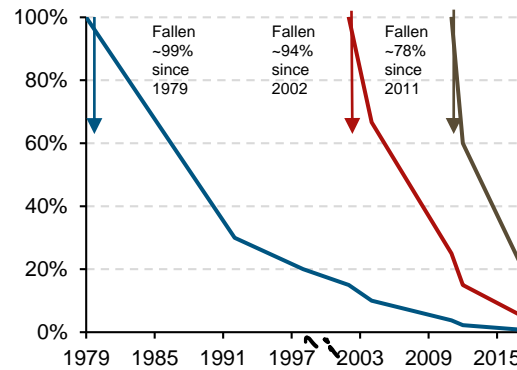
Carbon Negative?

### Peabody Coal Share Price



## Race to the Bottom?

Indexed PV Module Prices 1979-2017

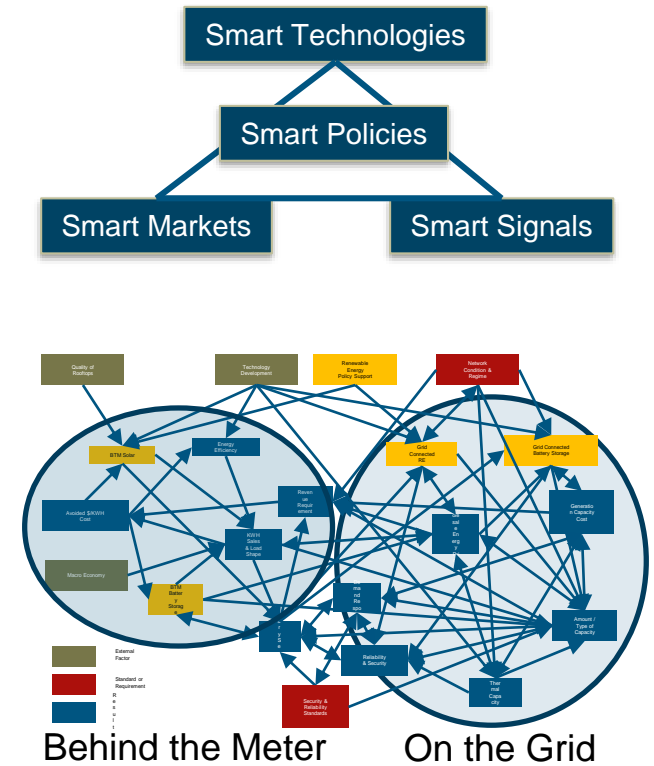


\* \$ price reflects Asian modules not exported to EU as reported on EU pvXchange platform. Other platforms show lower prices.

GIP buys Equis

KEPCO stake in Solar Philippines

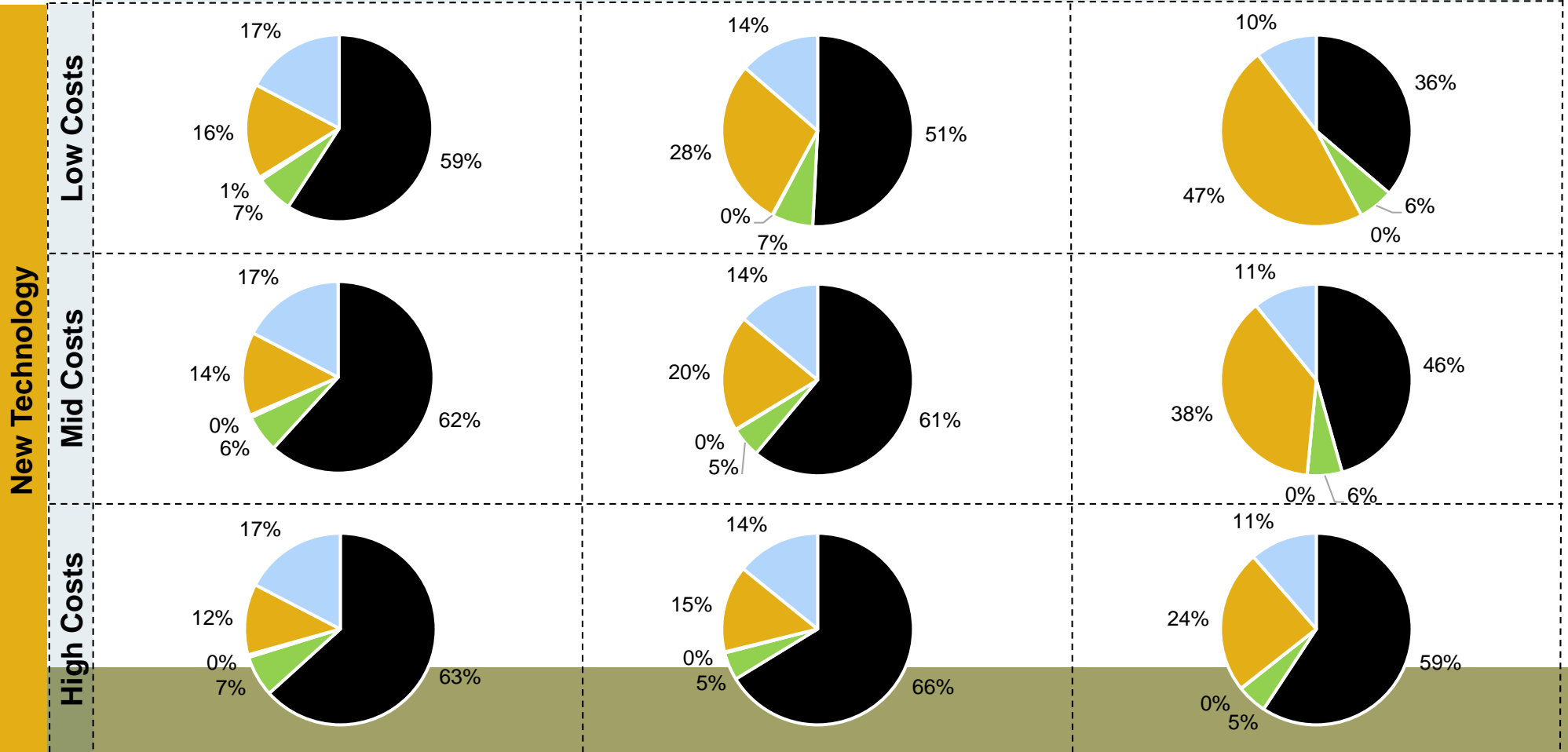
## Intricate Commercial Dilemmas



Nothing has been quite what it seems

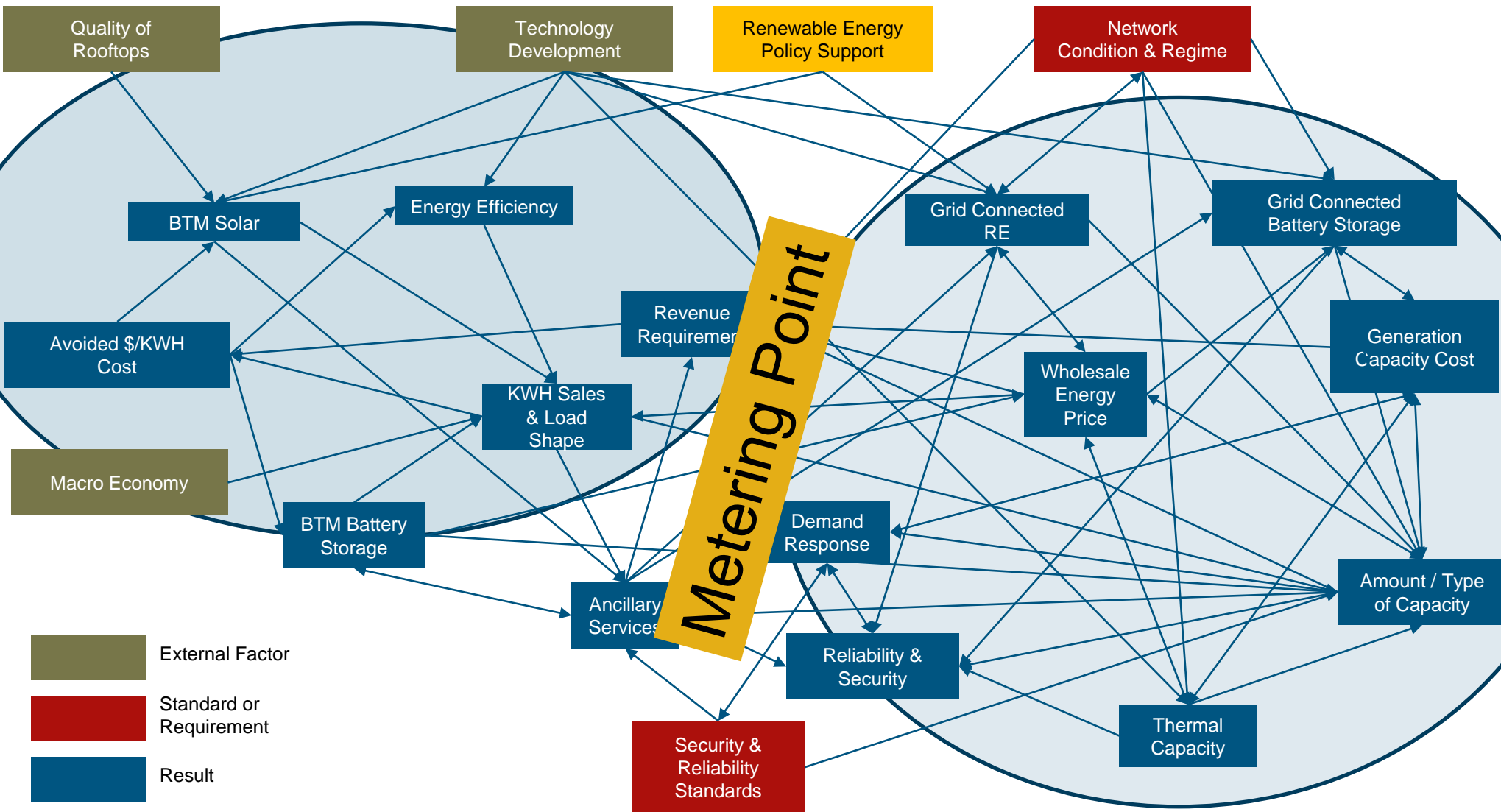
Not so fast...the outlook for the next 20 years still favours old coal, unless we spend a lot more money to push past it

### Projected Generation Mix Scenarios

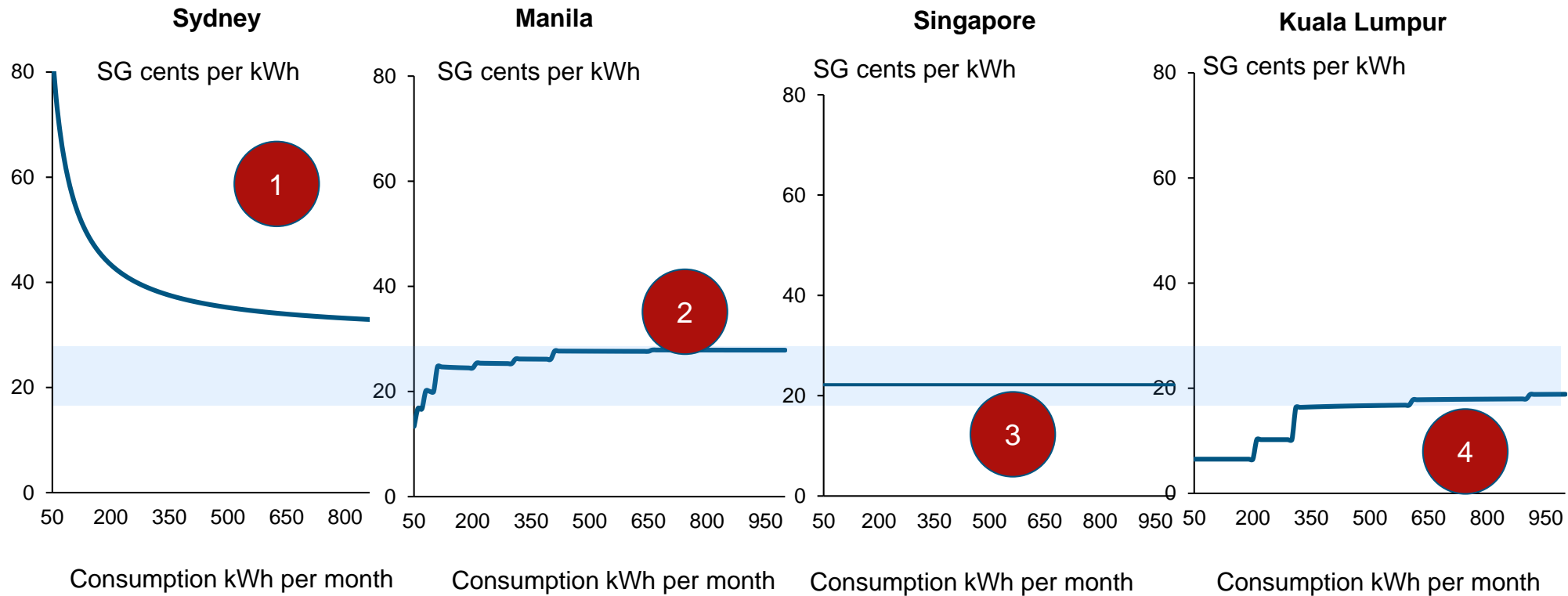


Gas Coal Solar & Batteries Oil Other

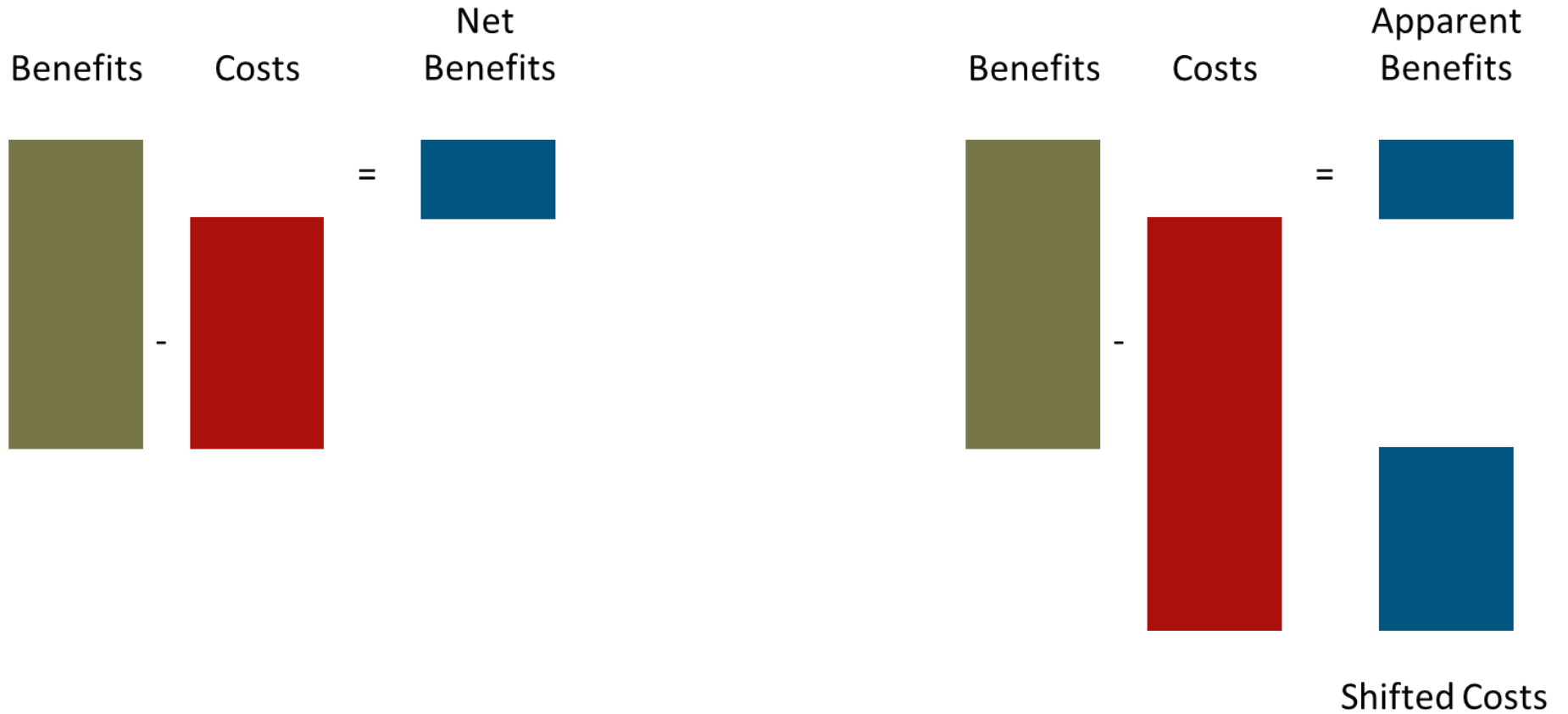
Complex interacting dynamics will pressure regulatory and policy decisions – not always fast enough and not always accurately enough...



Meanwhile, for the customer, it is getting simpler – but will / should tariff structures remain unchanged?



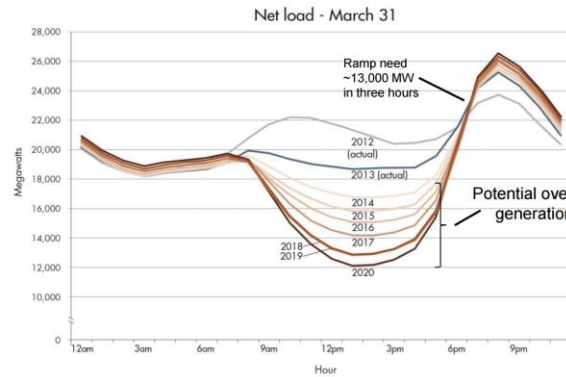
# Cost shifting is real → affordability will be an rising challenge



# Much commercial opportunity responds to imbalances... (which can be the product of regulation and policies)



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## Battery storage

**ADVANCION CASE STUDY**

### AES Alamos Energy Storage

Energy Storage is the most cost-effective solution for peaking applications, based on gas peaking plants, considering long-term economics and the full range of benefits gained from grid balancing capabilities delivered by Advancion.

LOOK HERE	THE NEED	THE SOLUTION
Long-term, California	Environmentally responsible and highly flexible resources that are flexible.	AES Advancion's energy storage
It is the most profitable in regions with abundant renewable energy and high electricity prices, especially during peak demand.	A flexible, environmentally responsible and highly flexible resource that is flexible.	The AES Alamos energy storage facility will be a peaking plant that will provide the flexibility to dispatch during off-peak periods and discharge during on-peak hours to maximize value, providing a net revenue stream.

Too much Renewable Energy is like Spilling Hydro – there would be value if it could be stored....

There is often more money to be made in fixing imbalances and exploiting imperfections than in creating value....(which takes a lot longer)

# Return to the fundamentals

- When avoiding regulated pricing structures are part of the “incentive” – how do you handle that fairly for the grid company or for the financially vulnerable?
- When tariff avoidance and cost-shifting is the attraction for consumers – how to refocus the debate on efficiency?
- When it is easy to create imbalances because of the highly interactive nature of “everything” – how do you ensure your markets and processes will operate consistently with your system security requirements?





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Thank you

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