



Market design review
MAC Workshop
15 June 2010

Purpose and Overview

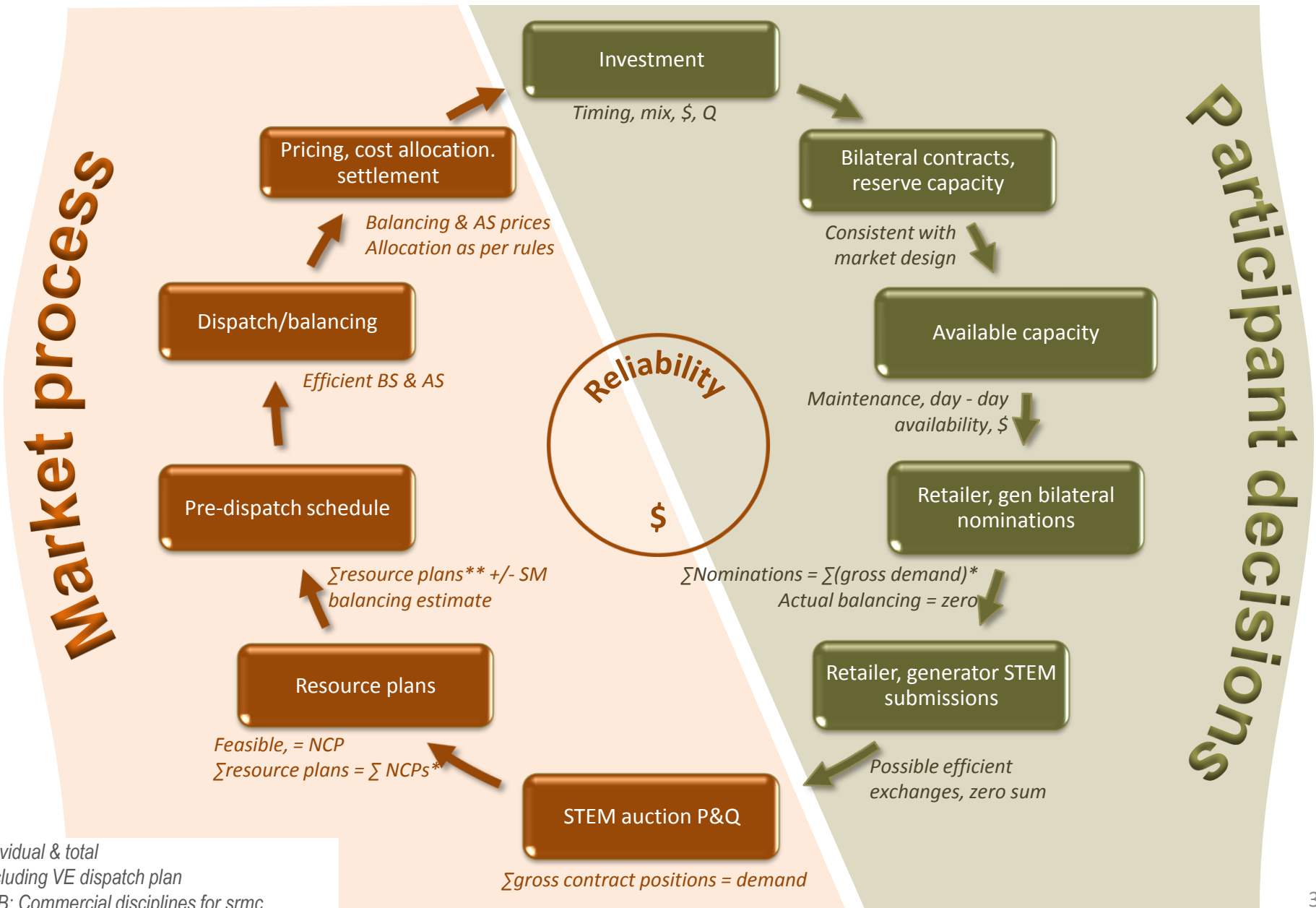
Purpose

- To seed workshop discussion

Overview

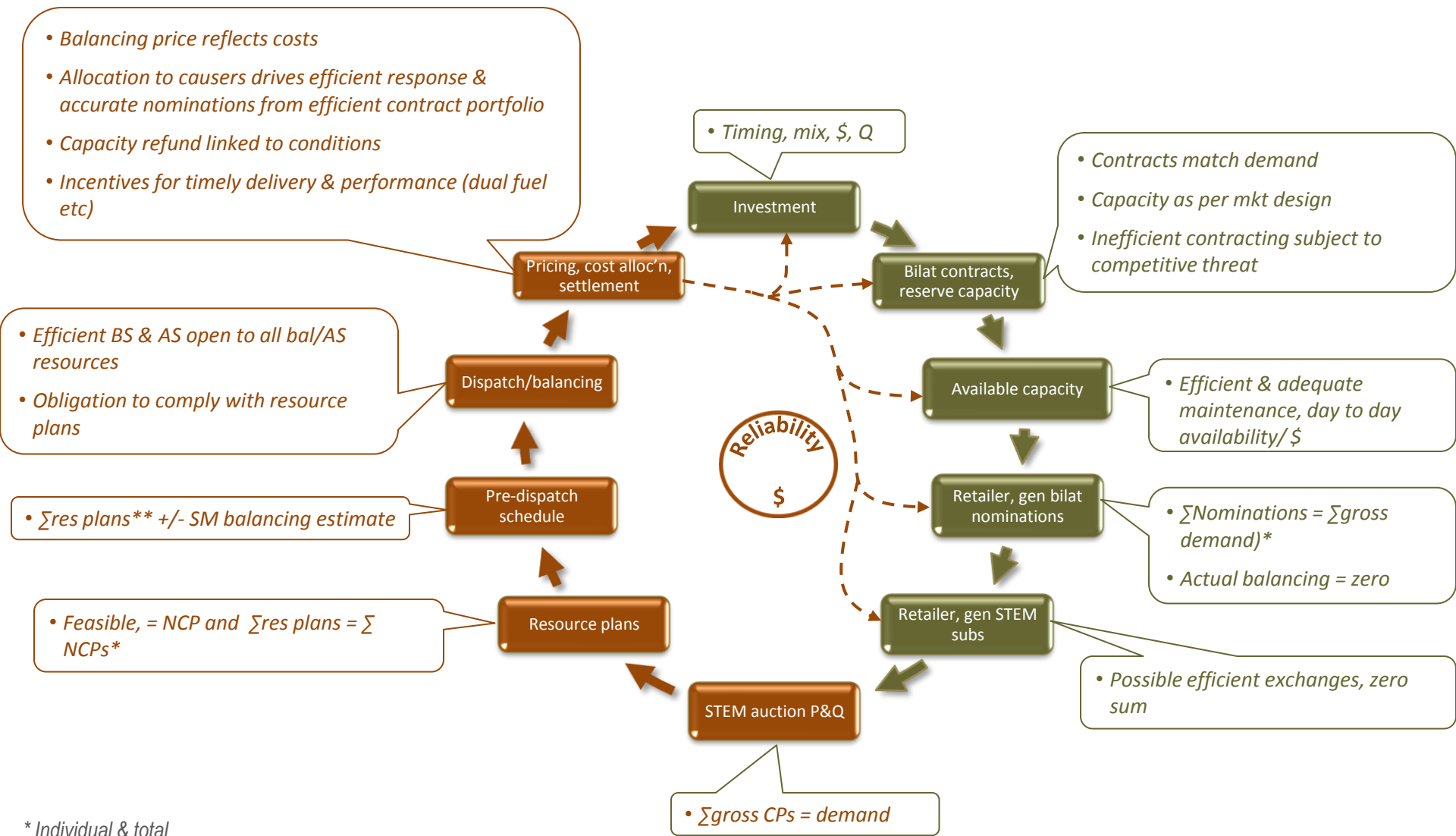
- Framework for considering development issues/ pathways
- Critique of status quo
- Pathway implications and proposed strategy
- Cost and benefit issues
- Detailed treatment

Operational processes and incentives cycle



* Individual & total
 ** Including VE dispatch plan
 *** NB: Commercial disciplines for srmc

Design intentions/objectives for incentives

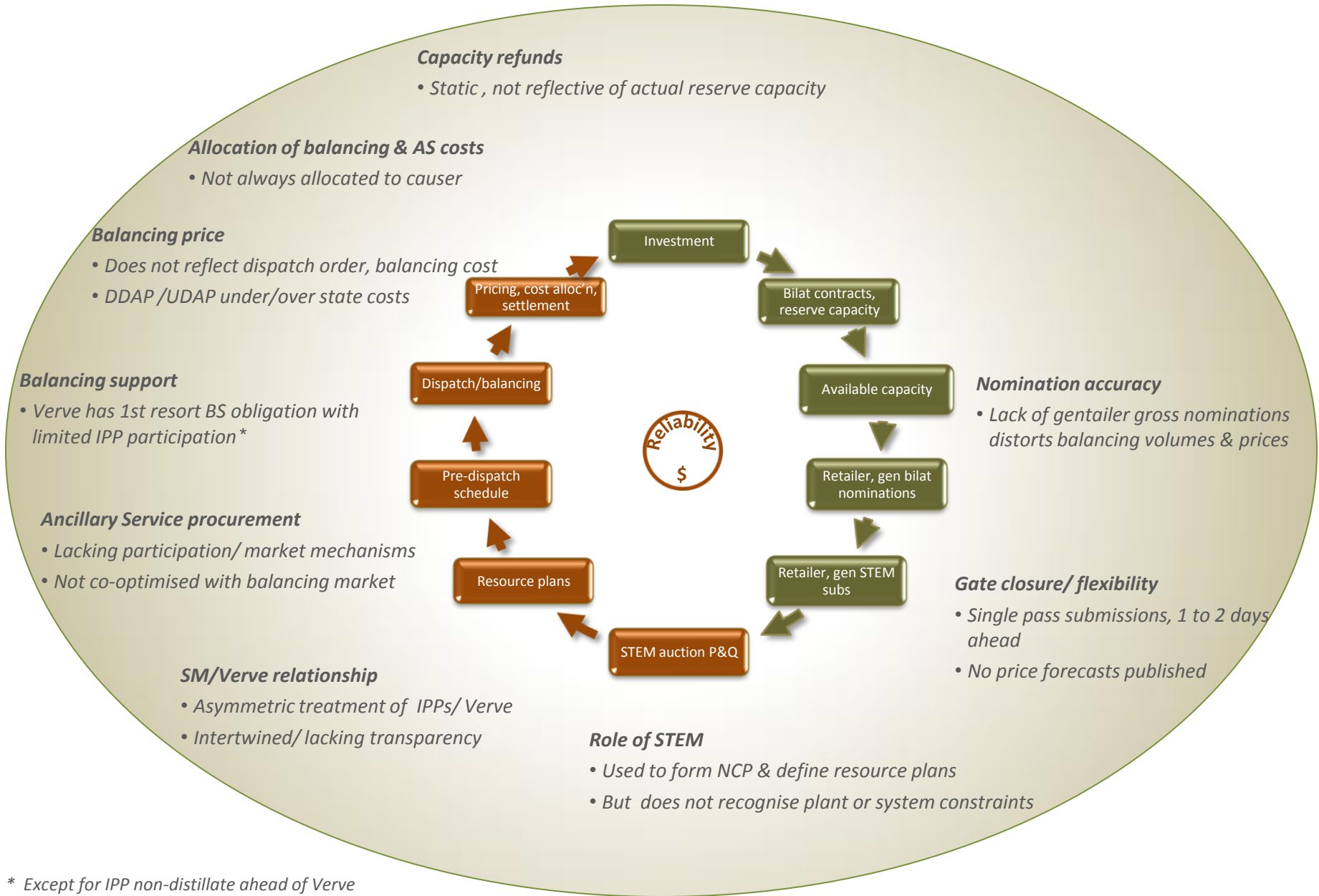


* Individual & total
 ** Including VE dispatch plan
 *** NB: Commercial disciplines for srmc

Framework application

- Critique status quo against design objectives/incentives
- Identify gaps in incentives
- Identify potential amendments to identified gaps

Overall critique of status quo



* Except for IPP non-distillate ahead of Verve distillate

Additional critique comments

Critique - summary

Capacity refunds tend to reflect peak rather than prevailing conditions

- Hence risk of large incentives that lead to inefficient reactions

Balancing prices often do NOT reflect balancing costs

- Results in over/under payment and over/under charging risk for all participants

Participation in balancing is restricted

- Results in potential lower efficiency balancing at higher (economic) cost

Lack of gross nominations mean volumes and prices for balancing invisible

Very early gate closure

- Means price submissions must have high risk or high risk premium

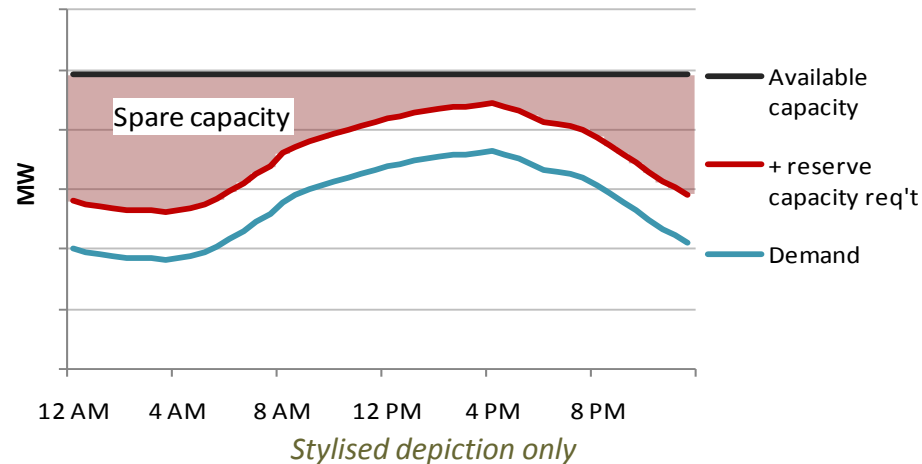
Close Verve/System Management relationship

- Lowers reality/perception of confidence and independence in market (investor issue)

Additional comments on critique of status quo

Capacity refunds

- Clawback/ refunds are appropriate if contracted capacity is unavailable
- Ideally refund rates should reflect the value of capacity at the time and create appropriate incentives
- Actual reserves can vary considerably



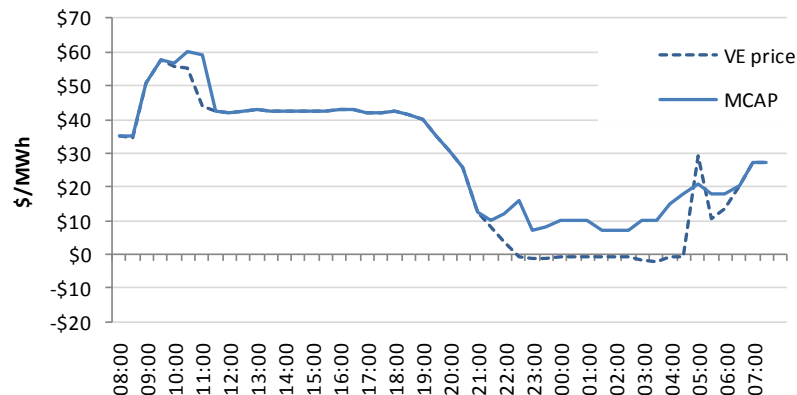
- Risks exaggerating energy impacts of deviations from resource plans
 - For which short term costs should be fully reflected in balancing payments

Additional comments on critique of status quo (cont'd)

Balancing prices (MCAP, DDAP, UDAP)

- MCAP does not always reflect balancing costs
- Further distorted by DDAP/UDAP
- Arises because balancing price formation can be determined by non-balancing capacity
- Creates misalignment between balancing price (MCAP) & dispatch order/ costs

e.g. low/ -ve overnight Verve prices*
blocked (1 Feb 2010)



* VE price = intersection of VE Qty and price curve formed from VE tranches only

Compounded by DDAP/UDAP

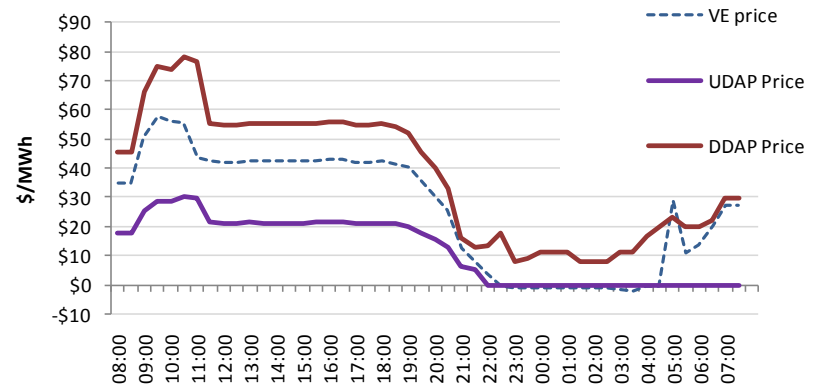


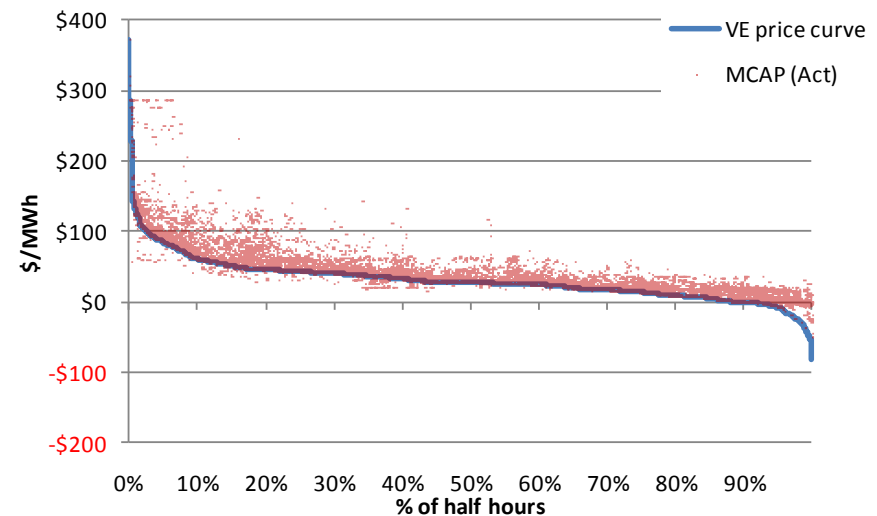
Chart shows VE balancing price & actual DDAP /UDAP

Additional comments on critique of status quo *(cont'd)*

Balancing prices *(cont'd)*

- Ideally:
 - Balancing prices would be cost reflective
 - Participants would face actual balancing costs due to their deviations
 - The market compliance regime would be relied on rather than arbitrary DDAP/UDAP penalties
 - Penalties risk implication that compliance is discretionary

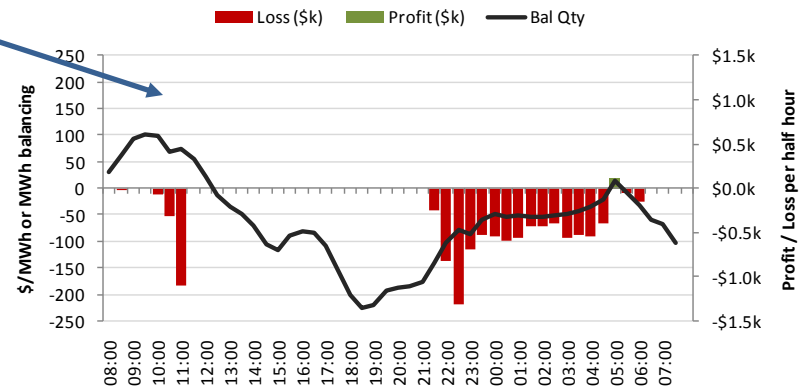
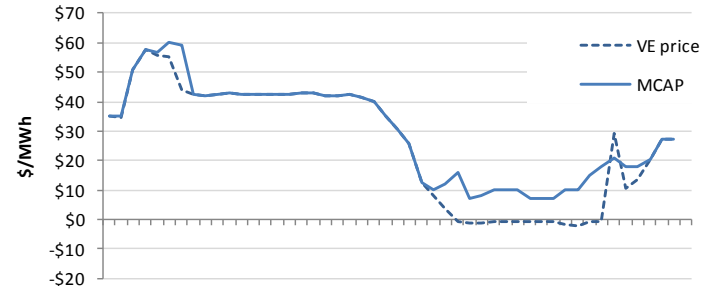
- Verve is subject to srmc obligations
- But MCAP is often above Verve's balancing price (yr ending 31 Mar 2010)
- This, and DDAP/UDAP penalties, mean that participants do not see efficient or cost reflective balancing prices



Additional comments on critique of status quo *(cont'd)*

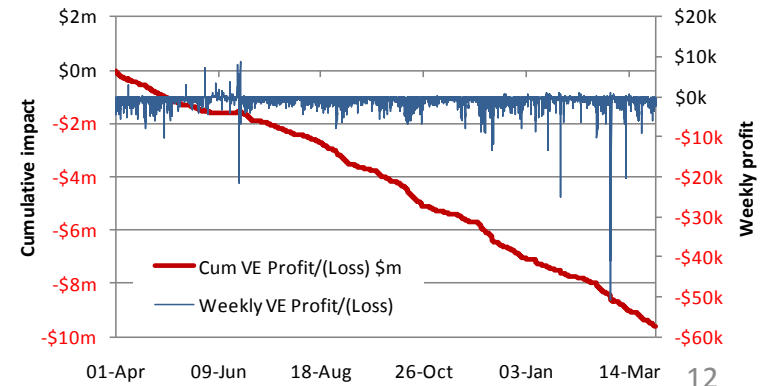
Balancing prices *(cont'd)*

- Verve obliged to balance the system but often at a loss



- Financial impact has been material (yr ending 31 Mar 2010)

- Inflated MCAP (result of non-balancing resources in price curve)
- Generally balancing downwards (result of over-nominations?)



Additional comments on critique of status quo *(cont'd)*

Balancing support

- Verve obliged to perform balancing role before (and for) IPPs
 - Except for SM dispatching non distillate IPPs ahead of Verve distillate or for security purposes

- Verve subject to unit commitment & dispatch uncertainty & cost
 - Portfolio cost curve submitted 1 to 2 days ahead
 - Facilities committed/ dispatched by SM wrt SM forecasts and Verve guidelines

- Limited opportunities for IPPs to participate in balancing
 - Rules provide for BSCs but commercial risks & market maturity limit application
 - IPPs face BS costs for resource plan deviations at a facility level (no self-balancing within portfolios)

- Lack of price forecasts

Additional comments on critique of status quo *(cont'd)*

Gross nominations

- Generators supplying own load (e.g. gentailers) make net submissions
- Market/SM do not know about gross positions until resource plans submitted
- Can spill load back into balancing
- Distorts balancing volumes and prices
- Materiality issues though with respect to size/ market compliance costs and potential distortions

Additional comments on critique of status quo *(cont'd)*

Gate closure/ rebidding flexibility:

- Single shot
 - 1 to 2 days ahead
 - Very limited price discovery
-
- This has number of consequences including:
 - Accuracy of prices and volumes is compromised
 - Composite/portfolio price curves very difficult to get right
 - Changing conditions cannot be reflected
 - Inevitable discrepancies between price and dispatch (breaks a cardinal rule of market design)

Additional comments on critique of status quo *(cont'd)*

System Management /Verve relationship

- An inherent feature of the current market design
 - Aims to manage and optimise within day Verve dispatch and fuel issues
 - SM indicates close control of Verve reserve plant facilitates lower level spinning reserve (70% cf 100% largest unit)
-
- Consequences of this design include:
 - System Management is unable to function as a fully independent entity with the same relationship with all players
 - Obligations on Verve as the 1st resort balancer and inherent impediments to IPPs participating in balancing
 - Risks to market credibility as a competitive environment – regardless of Verve and System Management practices

Options B & C

- Important to remember these are generic options at either end of a spectrum of mature competitive market designs
- There are many possible variants
- Both B and C designs feature:
 - Independent system management (having equal relationship with all participants)
 - Options for contract relationship between participants (financial and/or physical)
 - The ability to incorporate separate or integrated capacity mechanisms
 - WEM is separate (explicit), NEM is integrated (implicit)
 - Participant driven investment decisions – possibly but not always within capacity obligation or some form of safety net

Both options can address the inherent limitations of the current design

Options B & C *(cont'd)*

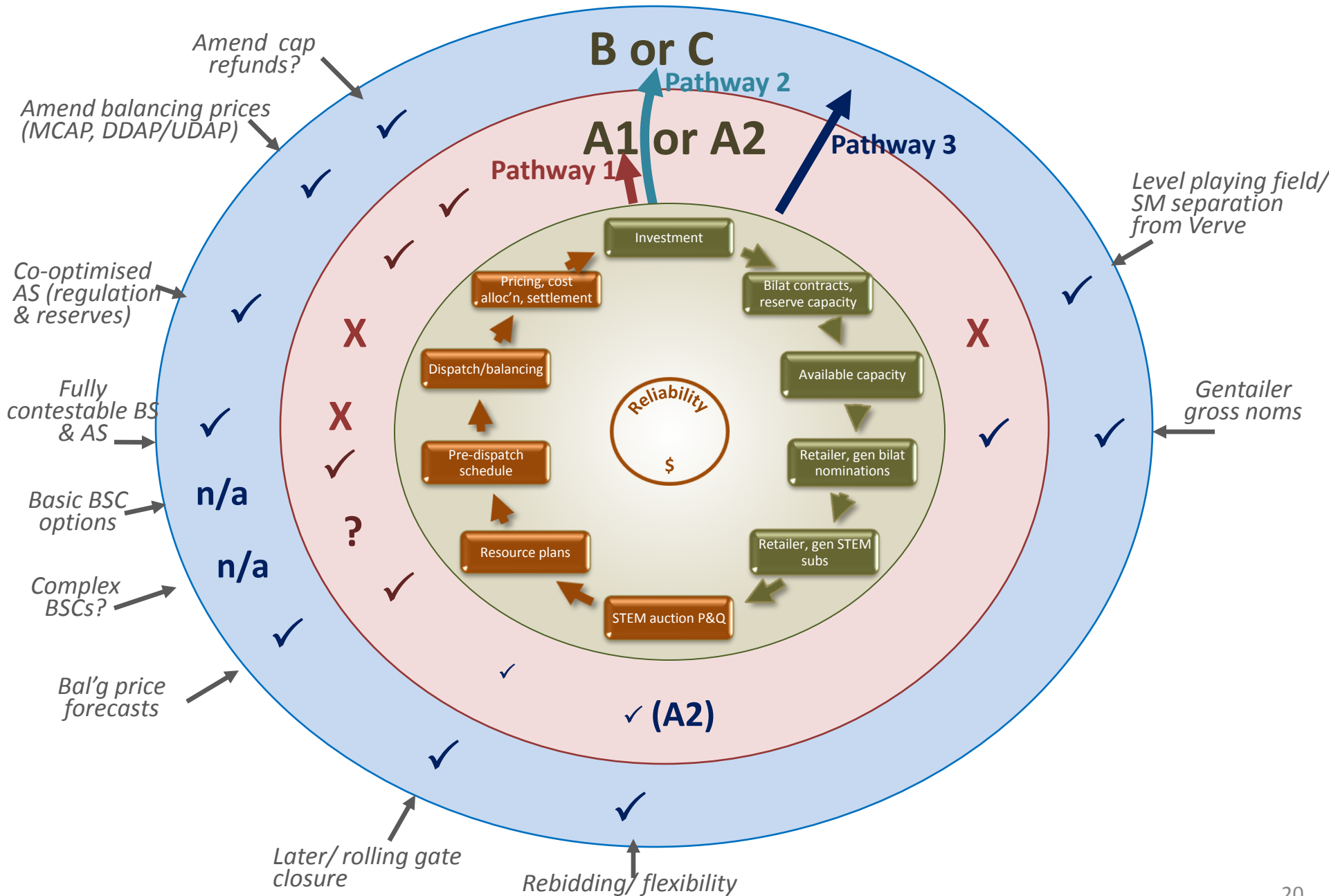
- B & C design features *(cont'd)*
 - Mechanisms designed to optimise dispatch for minimum cost, including market forecasts and rebidding flexibility
 - Competitive AS markets for frequency related reserves, with co-optimised dispatch & pricing (to varying degrees)
- Remember – the essence of these designs is disaggregated decisions
 - Mechanisms for rebids/resubmissions (possibly with rules to manage market power)
 - Price forecasts to allow participants to participate in an informed manner
 - Mechanisms exist to support decision-making, including for example advisory commitment services or optional central commitment (but open to all participants)

Both options can address the inherent limitations of the current design

Pathway implications

- Some issues could be addressed under A or B/C options: e.g.
 - Amend capacity refunds
 - Amend balancing price
 - Balancing price forecasts
 - Gross nominations
- Others could only be partially addressed under A options: e.g.
 - Participation in BS and AS
 - Gate closure/ resubmissions
- And some issues could only be addressed by moving to B / C options: e.g.
 - Full participation in balancing
 - (Close to) real time nominations/rebids
 - Independent System Manager (from Verve)
 - Fully contestable AS and balancing support

Pathway implications (cont'd)

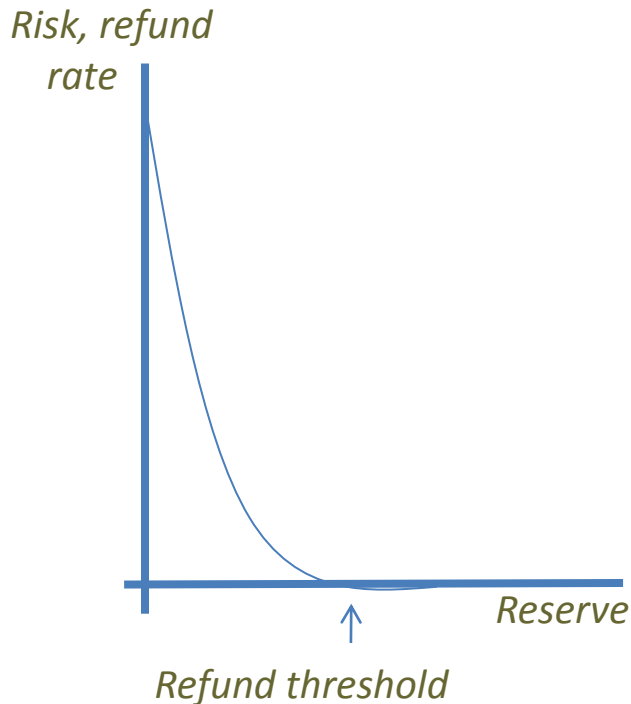


Design elements – capacity refunds

- WEM pays for capacity through fixed capacity payment less refunds
 - In ideal market arrangement level of refunds should be sufficient to guide generators when to take outages and on the value of not delivering
 - Outcome would be reliable without System Management needing to approve outages
 - Although SM would no doubt have a veto power (rather than approval role)
 - But this is a “bridge too far” at present
-
- Can current refund arrangements be enhanced
 - These arrangements would be part of A1/2 or B/C market design options

Strawman for discussion- Capacity refunds

- If refunds are to reflect value (to customers), refunds should create incentives for reliability, i.e. to manage the risk of load shedding
- Value may be very low or zero when reserves are well above reserve requirement (rate to be determined) – occurs for much of the year. But value at peak may be higher



- *Retain SM approval of planned outages and exemption from refund for planned outages*
- *Link refund rate to actual reserve at anytime*
- *Refund applies to all plant with capacity less than accredited level adjusted for planned outages*
- *E.G. 3 day forced outage may see low/no refunds on day 1 but high refunds on day 3 if demand rises or other forced outages occur*
- *SM approval of planned outages on transparent criteria*
 - *Includes discretion to approve outage that reduces reserve below threshold AND thus incurs refund on a planned basis (for amount below threshold)*
- *Link future capacity accreditation to history (needs more work but aim is to encourage efficient/reliable timing of maintenance)*
- *Incentives for increased availability?*

Design elements – Clean balancing prices (MCAP, DDAP/UDAP)

- Under B/C market design options, there would be a clean balancing price
 - Balancing price formation based on balancing resources only
 - Those causing balancing would face actual costs (no DDAP/UDAP)
- A1/A2Hybrid enhancements would include a single clean balancing price:
 - Set nominally by Verve price curve and actual Verve quantity
 - Verve subject to smc obligations
 - + incentives to bid at smc if direction of balancing is uncertain
 - With ability for SM facilitated BSC options to enter the price curve
 - e.g. *turn-down* or *turn-up* BSCs discussed previously
 - No DDAP and UDAP (i.e. set to factors to one)

Compliance implications?

Design elements – Basic BSC options

- BSCs only apply under the hybrid design (i.e. B/C designs = full BS contestability)
- Rules currently provide for Verve to enter BSCs
 - Presumes willing counterparties - too hard or commercially unattractive?
 - Is there a case for including a *good faith* obligation to negotiate in the rules?
- Rules also provide for SM to enter BSCs
 - Less direct economic drivers (security is primary concern)
- Options for the market to facilitate BSCs have been considered (See notes on “BS Options”)
- SM could facilitate BSCs as alternatives to Verve overnight de-commitment or, at the other end of the merit order, avoid GTs
 - This could address immediate and growing de-commitment concerns and enable IPPs to participate in high cost/ high value parts of the merit order
 - IPPs could make price based offers and, if dispatched, enter price curve

Design elements – Basic BSC options *(cont'd)*

- More complex/ generic options would:
 - Risk significant operating inefficiency/cost and/ or require significant effort/cost
 - Be possible considerations if pathways involving A1/2 options were to be pursued
 - Be less effective than B/C options at enabling all participants to participate actively in balancing

Design principles – gross nominations

- Gross submissions/ offers would be inherent features of the B/C market design options (net market settlements/ BS volumes only though)
 - Enhance market forecasts
 - Avoid balancing volume and price distortions
- With deminimus set at a level to avoid risk of market compliance costs in excess of market benefits

Design principles – BS price forecasts

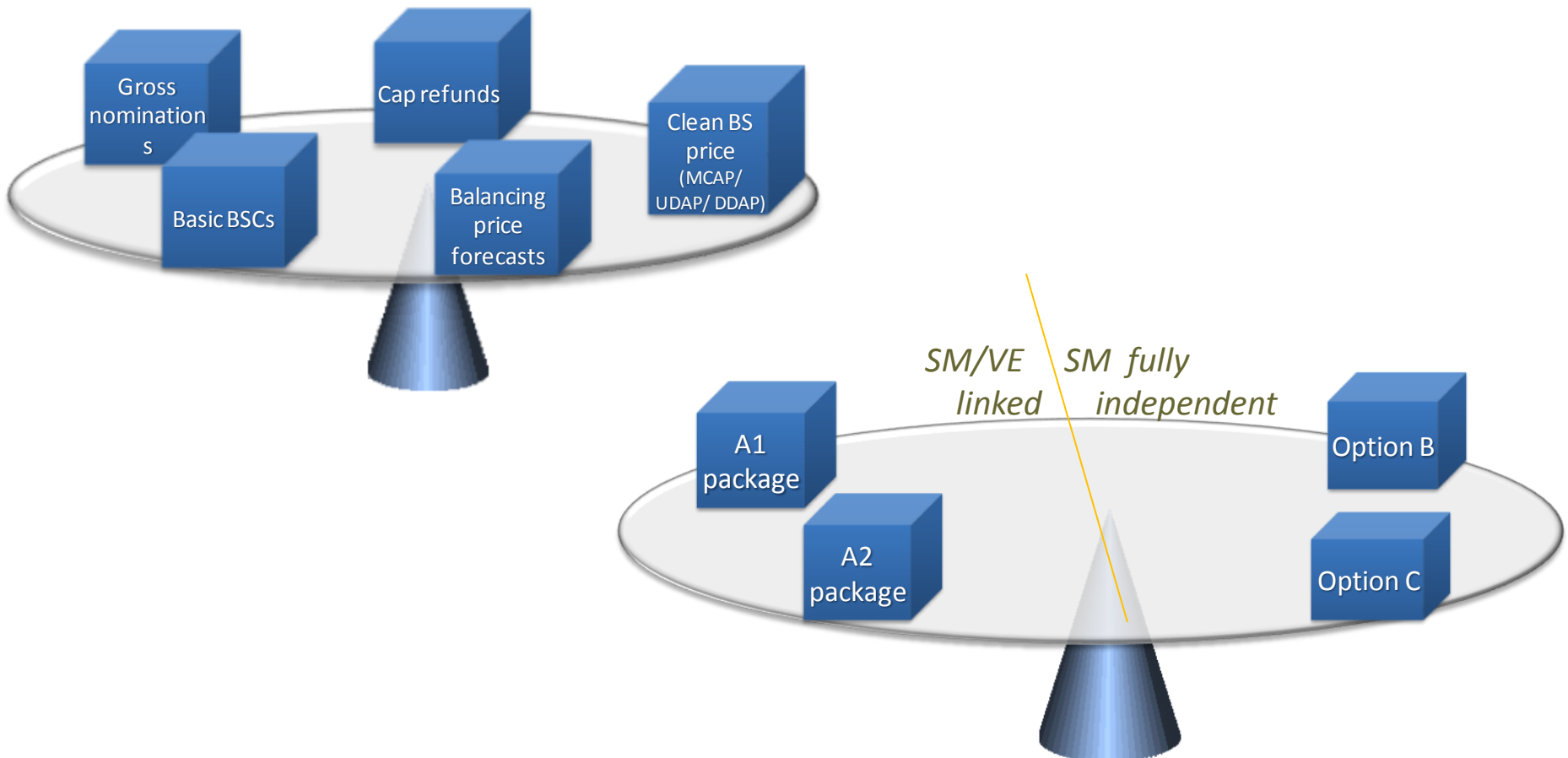
- Price forecasts are a pivotal and inherent feature of B/C market designs
- A clean price forecast would be relatively straightforward under hybrid design:
 - SMs dispatch plan for Verve provides forecast Verve QTY for each trading interval
 - Verve STEM submissions = balancing price curve (subject to BSC insertions)
 - Intersection of curve and forecast QTY = forecast balancing price
- Forecasts could be published when SM prepares/revises Verve schedule:
 - After 10:30 am following STEM
 - Assuming gross nominations (currently only available when resource plans submitted)
 - Noon (BOM forecast)
 - Around 2pm (if changes due to resource plans)
 - new BOM forecasts (4pm, 7pm, 7am)
 - When material changes occur (e.g. IPP outages)
- Basic BSCs assume balancing price forecasts

Oates Review cross-check

- Any amendments to be subject to Market Objective test(s) under market rules as the primary acceptance criteria
- Oates Review recommendations also relevant in practice

ISSUE	PROPOSAL
Capacity accreditation, payment and refund	Capacity refunds and incentives
Participation in balancing	Clean balancing prices (MCAP, UDAP, DDAP), price forecasts
Managing low (overnight) demand conditions	BSCs, Clean balancing prices (MCAP, UDAP, DDAP), price forecasts (indirectly: contract nomination incentives)
Emergency management	(Clear authority definition, capacity refunds, information)

Balancing acts?



- *Do nothing is not an option*
- *Counterfactual to major change and the basis for cost benefit comparison will be status quo amended by “low hanging fruit”*

Costs and benefits - indicative issues

- Costs are generally easier to quantify than benefits
- Important to consider true economic benefits (net public benefit) not “wealth transfers”
- Cost categories include:
 - IT for IMO, SM, participants
 - Staff
 - Operational costs
 - Design and development
 - (Other)
- Benefits categories include the potential to:
 - Lower delivered electricity costs
 - e.g. improved dispatch efficiency leading to lower market wide operating costs
 - Improve system wide investment decisions
 - Evidenced through lower delivered price)
 - Occurs if global mix of generation matches customer profile (market mechanisms aid or hinder)
 - Non government underwriting to free up capital for other social uses – often a major benefit of market reform in many places

Costs?

Development	Hybrid enhancements	B/C design options
Mkt systems costs	\$??	\$???
SM & Participant costs	\$??	\$??
Rule changes	\$??	\$??
Ongoing		
Market/ SM	\$??	\$??
Participants	\$??	\$??

Market objective test (indicative)

Objective	Impact
Economic efficiency	Improved by changes relating to balancing price, balancing participation (improved in all proposals but more so in some), Capacity refunds
Competition	Balancing participation
Technology discrimination	Limited impact in these changes although cost allocation unwinds current discrimination
Long-term cost	Enhanced investment environment , reduced cost . Options B&C offer largest benefits
Demand side	General improvement through timely price forecasts and in Options B&C better incentives for participation