



Department
of Energy &
Climate Change

CfD Expert Group: Auction Design Workshop

24th February 2014



Agenda

- 10.00 – Introductions, Constrained Allocation and Budget Management
- 10.30 – Question and Answer Session
- 11.15 – Tea/Coffee break
- 11.30 – Auction payment (Pay-as-bid vs pay-as-clear)
- 12.45 – Lunch
- 13.30 – Incentives for Contract Signature and Delivery
- 14.15 – Auction clearing – overview
- 15.15 – Tea/Coffee break
- 15.30 – Auction clearing – Bidder flexibility & Tiebreaker rules
- 16.00 – Question and Answer Session
- 16.30 – Way forward & close



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Introduction, Context and Objectives



Introduction

Objectives for the day:

- Update on recent decisions and related consultations
- Share thinking on detailed auction mechanics
- Seek views, including on incentives to sign and deliver against a CfD, and on the payment rule

Scope:

- Not considering budget allocation issues (e.g. definition of ‘established’ technology, size of any pots, etc)
- Need to focus on delivery of a sealed-bid auction approach



High-level decisions on auction mechanics

- Significant engagement on the issue of descending clock vs sealed bid:
 - Sought views in August
 - Engagement with a range of stakeholders on the issues
 - Workshop in Autumn 2013
- Considered the arguments for both approaches
 - Common value uncertainty / efficiency gains
 - Provision of bidder flexibility
 - Complexity of auction systems
 - Concerns about confidentiality of bid data
- After careful consideration, the Secretary of State has asked officials to develop a sealed bid auction for CfDs.
- Also confirmed Government's intention to develop regulations to protect the confidentiality of bid information.



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Constrained Allocation and Budget Management



Constrained Allocation and Budget Management

The consultation on competitive allocation closed on 12 February. It set out the following proposals:

- Government intends to divide the CfD budget between two groupings: of more established technologies and a group of less established technologies,
- That a period of First Come First Served will not apply; we would commence with allocation rounds for both groups.
- The size of the budget in the CfD allocation rounds for more established technologies grouping would be set to ensure competition from the start of the CfD regime. **Therefore at least the more established technologies would be subject to an auction process from the beginning of CfD allocation.**
- We also set out our rationale for which technologies should be considered **established and less established.**



Next steps

- Currently carefully considering consultation responses
- Recognise stakeholders wish to see the whole picture
- Policy update in early April will
 - Set out Government response on technology groupings and competition
 - Consult on any technology specific minima or maxima
 - Include further relevant details of auction design and budget context



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Q&A



Auction payment (Pay-as-bid vs pay-as-clear)



Pay-as-clear vs pay-as-bid

- Government has not yet made a decision on pay-as-clear vs pay-as-bid, but expects to do so shortly
- Both can be delivered under the system which National Grid is developing
- Note that we will not be using bid data to inform future strike prices, due to the potential for this to undermine effective bidding. We are investigating confidentiality mechanisms to ensure bidders are confident DECC and the public will not have access to sealed bid data.



Pay-as-clear vs pay-as-bid

	Sealed bid, pay-as-clear	Sealed bid, pay-as-bid
Value for Money	<ul style="list-style-type: none">• Some projects may receive more than they would accept.• Arguably stronger incentives for cost-reduction and innovation, reducing prices over the longer term.• Possible risk that clearing price is manipulated?	<ul style="list-style-type: none">• Prices for some projects may be lower than under pay-as-clear: providing small, short-term, static gains.• Bidders' strategies adapt, reducing apparent gains.• Outcomes might be less efficient (the wrong projects win) as bids are made tactically.
Ease of use	<ul style="list-style-type: none">• Each project is able to bid its costs.• Avoids any advantage for 'more sophisticated' bidders.• Lower barriers to entry.	<ul style="list-style-type: none">• May be some advantages for larger players with more market information, who are able to bid closer to the clearing price.



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Incentives for Contract Signature and Delivery



Incentives for Contract Signature and Delivery

- We have reviewed risks associated with allocation in light of competition.
- As we now expect competition for some technologies from day 1, it is important to ensure that projects do not distort the price of the auction or take budget away from serious projects.
- Some stakeholders have expressed concerns around the issue of “bedblocking”, where projects apply for a CfD and either fail to sign a contract, or sign a contract and fail to reach SFC.
- We considered the use of bid bonds, but they imposed a cost on developers, and have listened to feedback so will not be using these.
- However, it is important to find ways to mitigate against this effect.



- An additional control is proposed to mitigate ‘early drop out’ risk – i.e. when:
 - (i) an applicant is awarded a CfD, but subsequently fails to sign a contract; or
 - (ii) an applicant signs a CfD, but fails to reach the Milestone Delivery Date
- Ensures applicants only apply once they are committed to fulfilling project commitments.
- Incorporating previous industry feedback that bid bonds are overly strict, the new approach would be a control that:
 - sits within eligibility criteria (i.e. specified in the regulations)
 - uses each project’s unique geographic location identifier
 - prevents an early drop out from being eligible to apply to a number of subsequent allocation rounds.



Questions

- Would this act as a suitable disincentive?
- How many rounds/years should the exclusion last for?
- Is geographic location a sensible identifier?
- Do you have any alternative suggestions for fulfilling this purpose?

Discussion and Feedback



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Auction clearing – overview



Auction clearing

- This auction process would be applied to any technology pot which triggered constrained allocation.
- This worked example shows the most complex case, with both maxima and minima. This is not intended to represent any planned scenario, but simply to illustrate how minima and maxima would operate.
- All numbers are purely illustrative and do not represent any scenario or technology grouping.
- We are proposing separate clearing prices for different delivery years, within an auction.
- As a pay-as-clear auction is a more complex clearing system, this illustration will demonstrate a pay-as-clear model.
- If a pay-as-bid approach was adopted, the auction would work in the same way, but each project below the relevant clearing price (subject to any maxima) would be offered a CfD at its strike price bid.



The first step is to determine the type of allocation...

- Invite applications
- Value bids for each pot
- If budget exceeded¹ move to competitive allocation and request sealed bids
- If not – check maxima² not breached
- Close Round

Unconstrained Allocation

Constrained Allocation

- Invite submission of sealed bids
- Check Minima
- General Auction
- Check Maxima
- Tiebreaker (if needed)

¹If budget is exceeded for any delivery year in the budget profile, run auction for all delivery years

²If Maxima is exceeded but budget is not, run auction only for Maxima technologies.



If Allocation is constrained we will hold an auction

- If budget is exceeded for any delivery year in the budget profile, run auction for all delivery years
- If Maxima is exceeded but budget is not, run auction only for Maxima technologies.



Auction Step 1: Request bids

If Constrained Allocation is triggered:

Project	SP bid	ASP cap	Delivery year	Tech type
A	125	130	18/19	5
B	95	100	17/18	3
C	130	130	18/19	5
D	110	110	18/19	2
E	85	90	16/17	1
F	105	130	16/17	5
G	100	110	17/18	2
H	95	120	16/17	4
I	92	100	15/16	3
J	91	110	15/16	2
K	122	130	16/17	5

The following bids are submitted.
NB: Capacity of bids will also be known, and used to calculate impact on the budget, but is not shown in this example for ease.

SP = Strike Price

ASP = Administrative Strike Price for year of delivery, for that technology



Auction Step 2: Assess 'Minima'

First assess any Minima

Project	SP bid	ASP cap	Delivery year	Tech type
A	125	130	18/19	5
B	95	100	17/18	3
C	130	130	18/19	5
D	110	110	18/19	2
E	85	90	16/17	1
F	105	130	16/17	5
G	100	110	17/18	2
H	95	120	16/17	4
I	92	100	15/16	3
J	91	110	15/16	2
K	122	130	16/17	5

Minima levels will be provided to the Delivery Body by DECC in advance of the auction.

In this case, tech type 5 is subject to a Minimum

SP = Strike Price
ASP = Administrative Strike Price for year of delivery, for that technology

The following projects have submitted bids in the 'Minima' category

If Minima are assessed by Capacity:

	SP bid	ASP cap	D yr	Tech type	Capacity (MW)
A	125	130	18/19	5	20
C	130	130	18/19	5	30
F	105	130	16/17	5	30
K	122	130	16/17	5	40
Sum capacity of bids					120

Available Min Capacity in this case = 100MW

Sum the Capacity of the projects of that technology type. If less than or equal to available Min Capacity and affordable within the budget profile, accept all at ASP.

120MW > 100MW minimum.
Minimum is exceeded.



These are ranked by strike price bid, and accepted up to the 'Minima'

	SP bid	ASP cap	D yr	Tech type	Capacity	Cumulative Capacity
C	130	130	18/19	5	30	120
A	125	130	18/19	5	20	90
K	122	130	16/17	5	40	70
F	105	130	16/17	5	30	30

Accept projects up to but not including the first project which exceeds the Minimum at a provisional clearing price of highest SP for year of delivery.

Minima = 100

Provisional clearing price for Min tech:
With delivery year 16/17 – 122
With delivery year 18/19 - 125

Any projects not accepted will now be considered along with all projects in the pot not subject to a Minima.



Repeat this process for
each technology subject to
a Minimum

Then proceed to the
general auction...



Auction Step 3: Assess bids in general auction

Strike
price bid

Project	SP bid	ASP cap	D yr	Tech type
C	130	130	18/19	5
D	110	110	18/19	2
G	100	110	17/18	2
H	95	120	16/17	4
B	95	100	17/18	3
I	92	100	15/16	3
J	91	110	15/16	2
E	85	90	16/17	1

Rank all bids in order of SP, including those of the technology type subject to a Minima, which weren't accepted within the reserved Minima.

Note the inclusion of project C, which was not accepted under the Minima



Consider the lowest strike price bid

Bids ranked in order of SP

Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			

15/16


16/17

17/18

18/19

Consider lowest SP bid.
Check against any
Maxima, and reject if
exceeds.

SP = 85



Not set

85
(122)

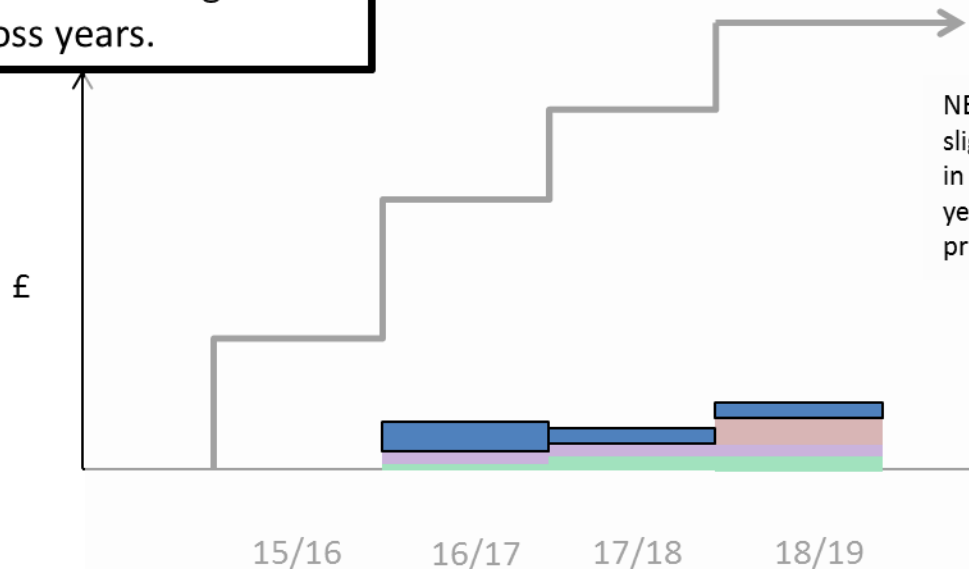
Not set

Not set
(125)



Assess impact on the remaining budget

Look at impact on budget across years for which budget has been provided using valuation formula, factoring in impact of projects already assigned under the Minima. Check if fits under budget profile across years.



Note faded blocks represent the projects accepted under the Minima

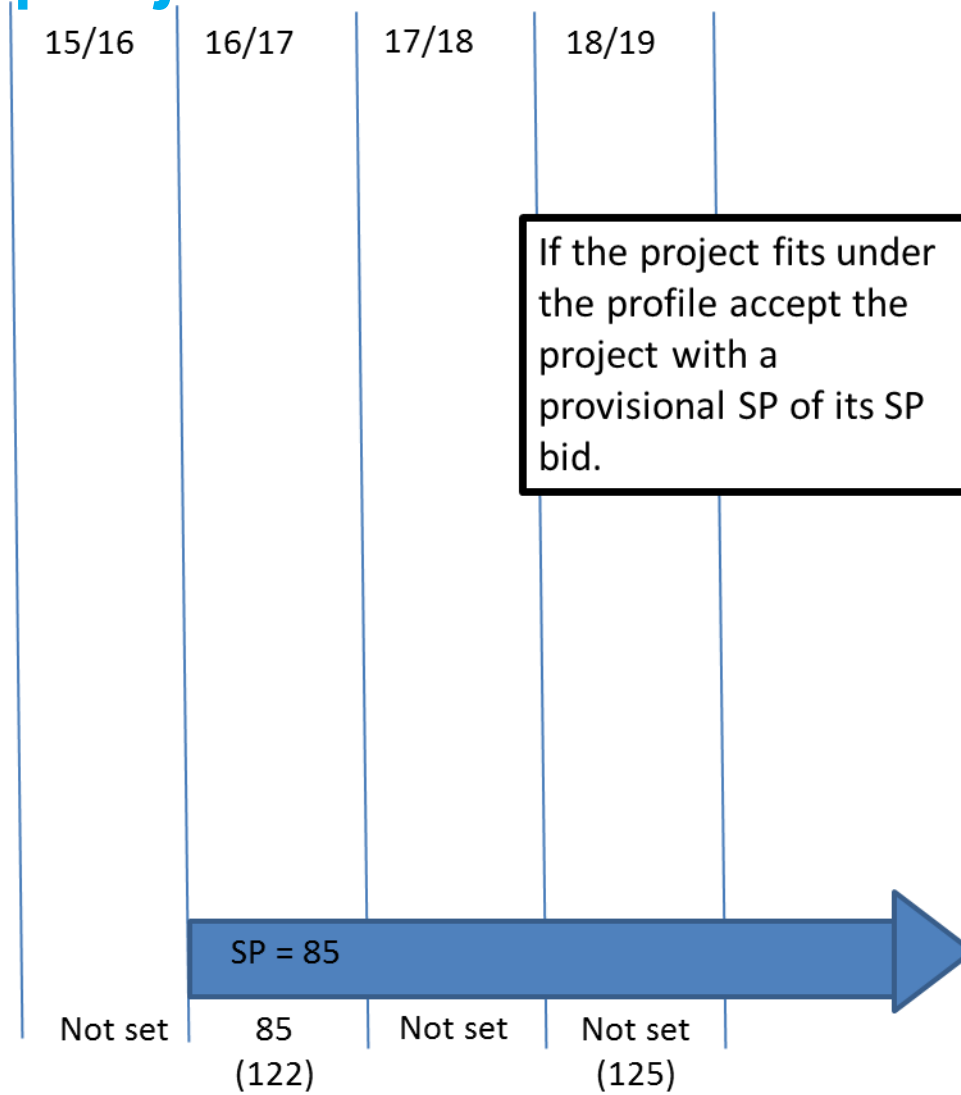
NB – project may have slightly different impact in different years, due to year specific reference prices etc

Budget not exceeded



Accept project

Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			

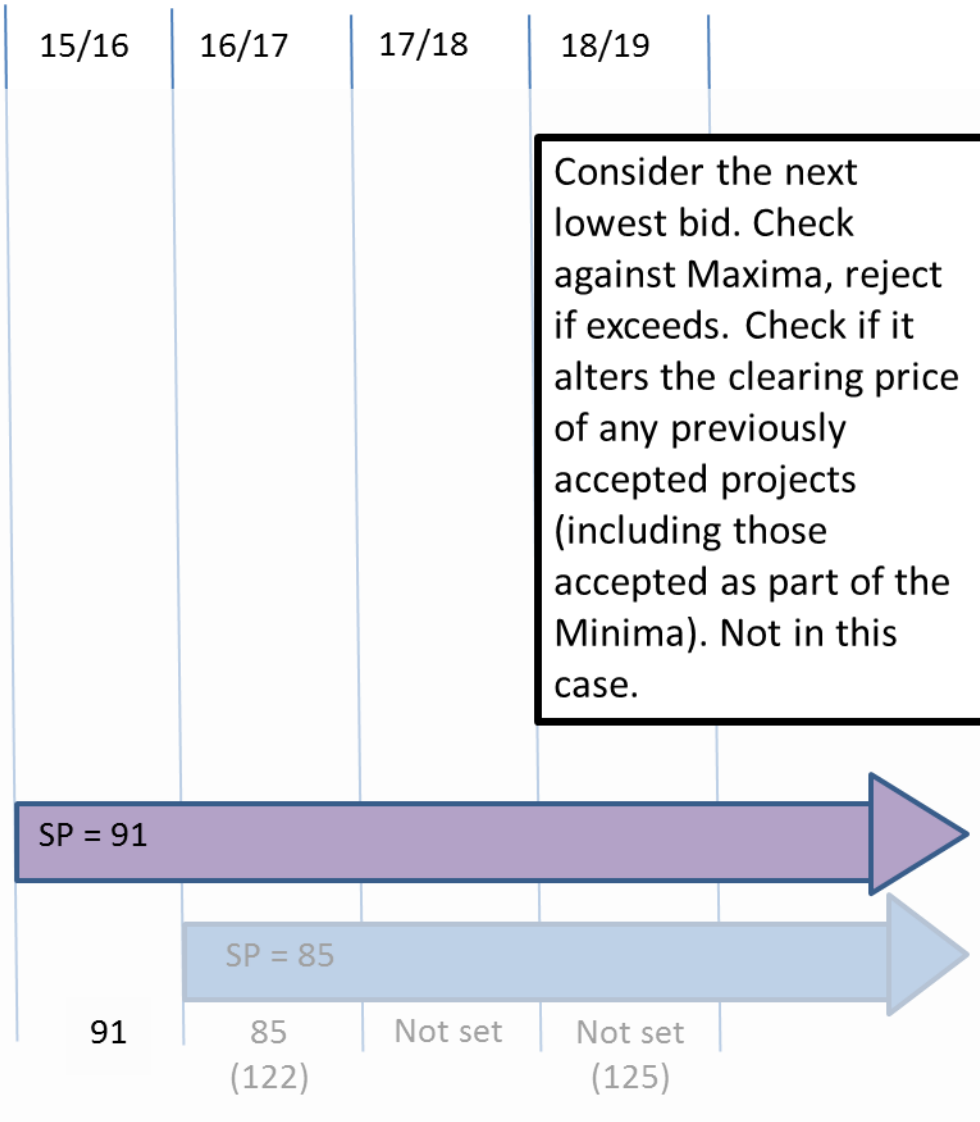




Consider the next lowest strike price

bid

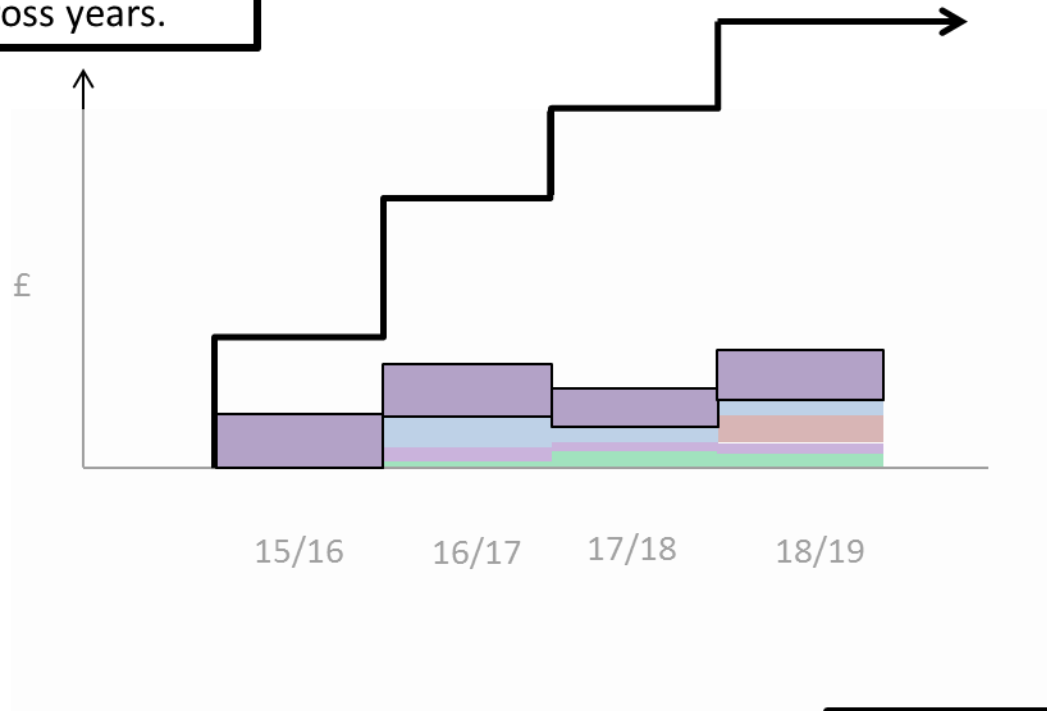
Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





Assess impact on the remaining budget

Look at impact on budget across years of this and all projects accepted so far. Check if fits under budget profile across years.

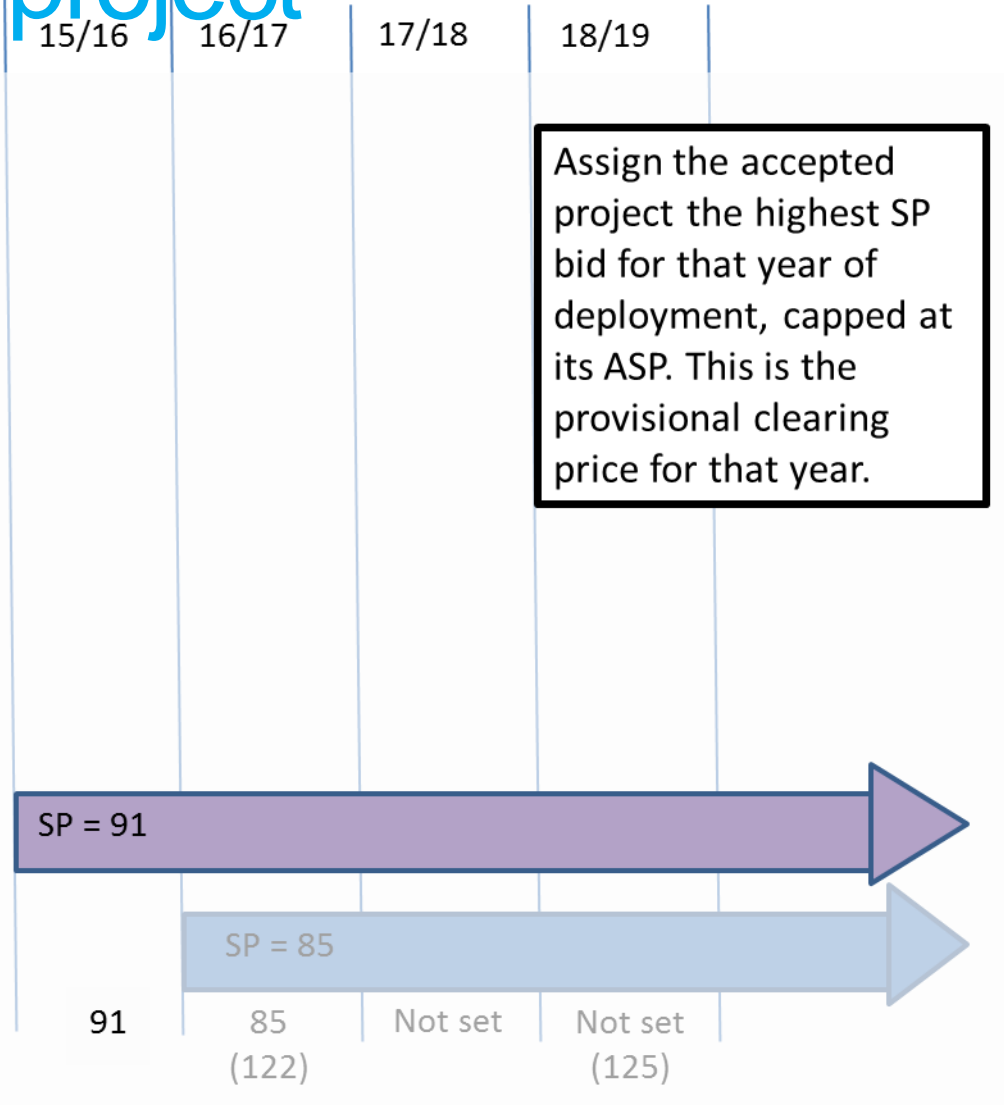


Budget not exceeded



Accept project

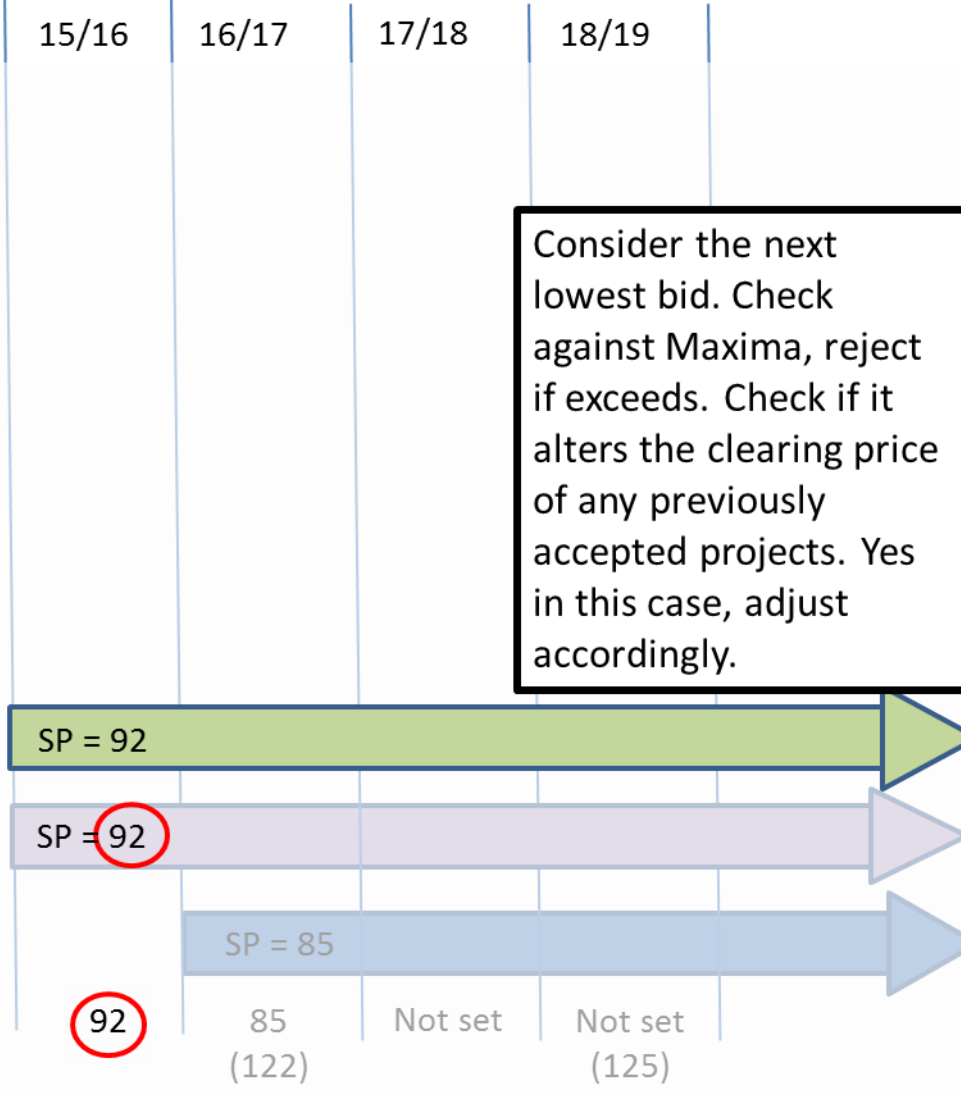
Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





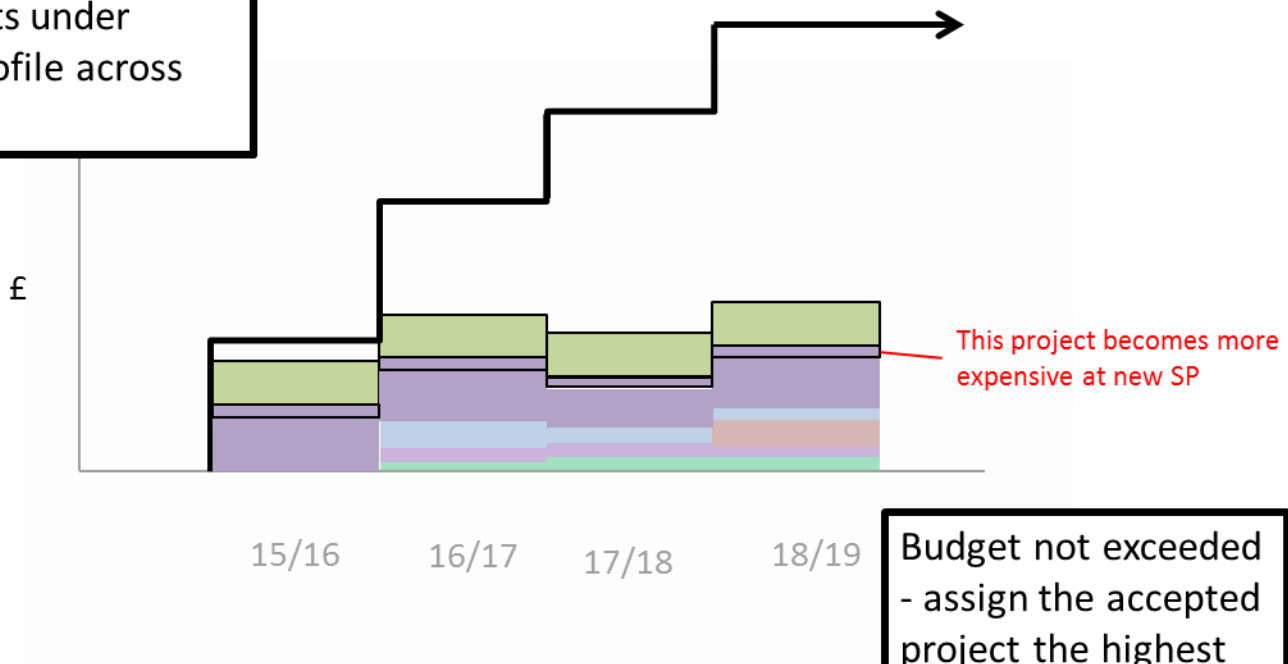
And continue...

Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





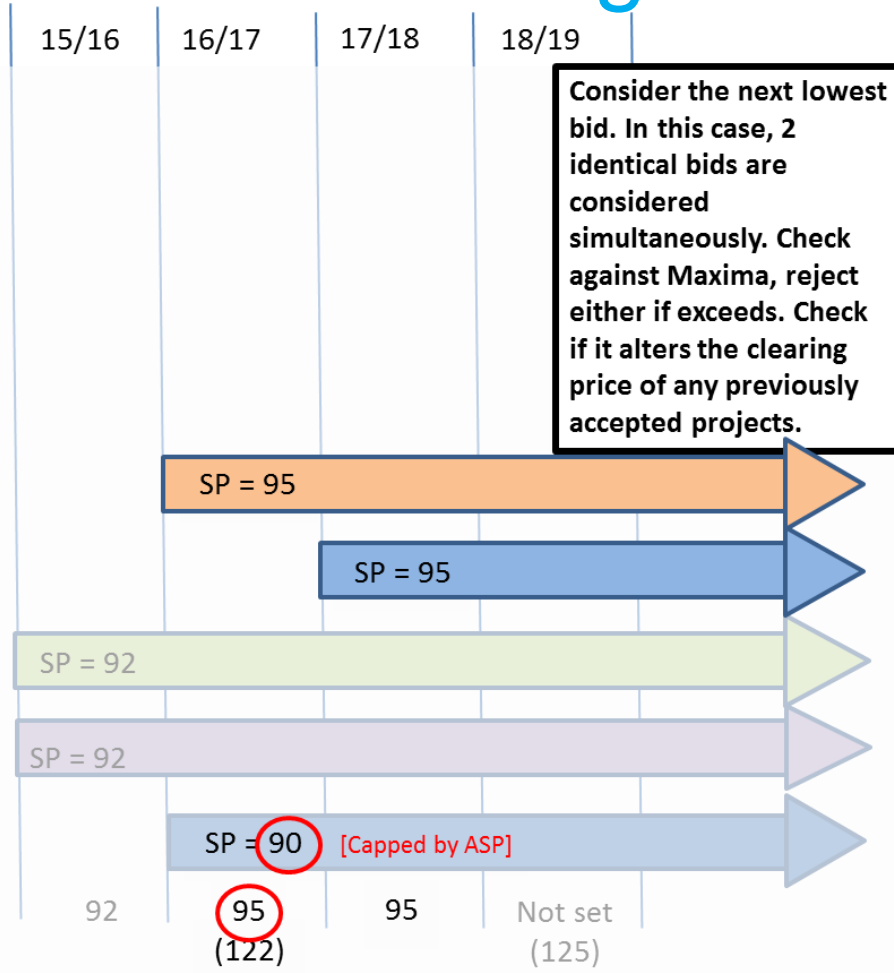
Look at impact on budget across years of this and all projects accepted so far, using the new clearing price. Check if fits under budget profile across years.





If two projects have the same price bid, they are considered together

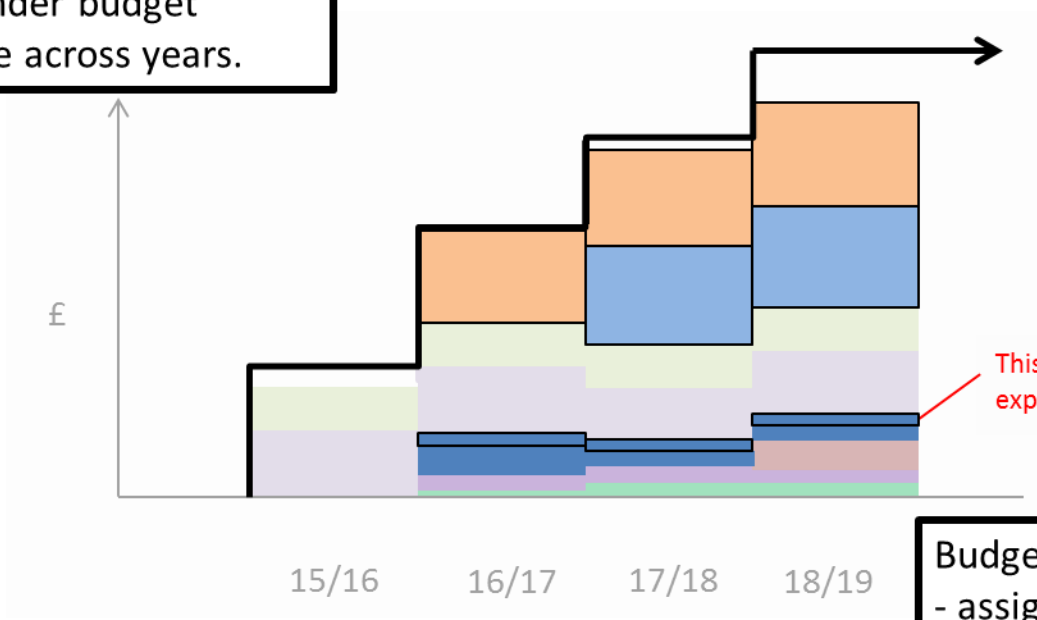
Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





Look at impact on budget across years of this and all projects accepted so far. Check if fits under budget profile across years.

If budget were exceeded in this case, Tiebreaker rules would apply.

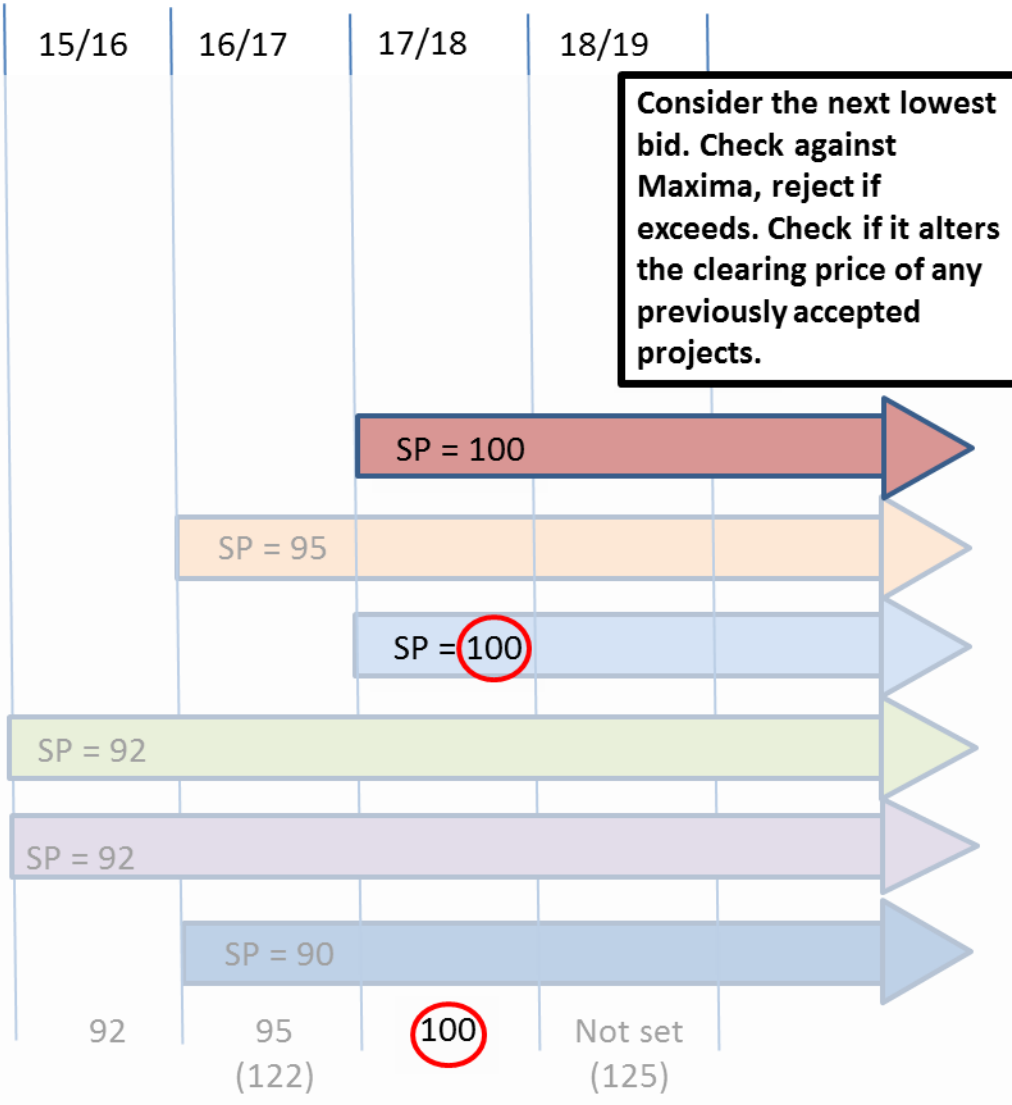


This project becomes more expensive at new SP

Budget not exceeded - assign the accepted projects the highest SP bid for that year of deployment, capped at its ASP.

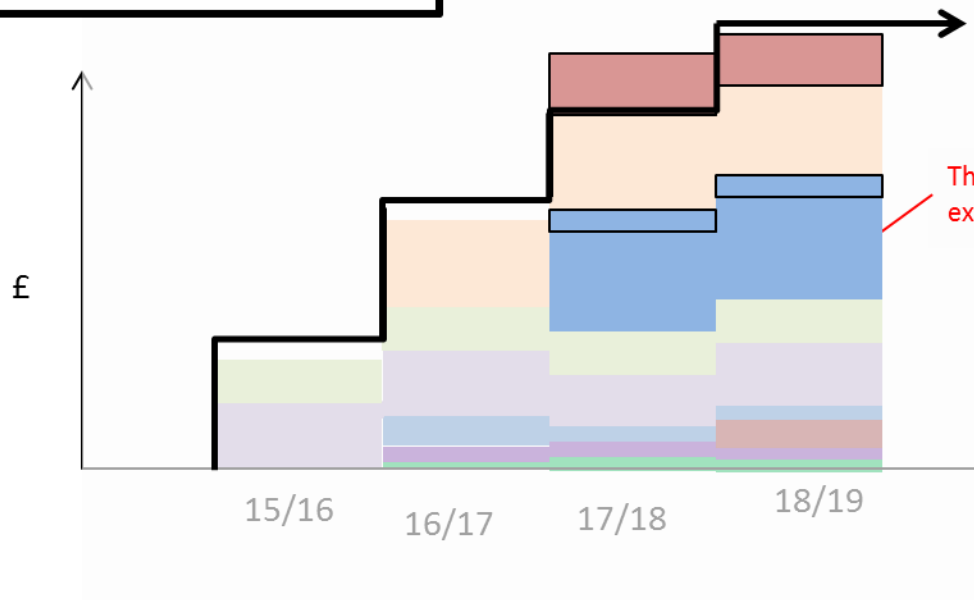


Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





Look at impact on budget across years of this and all projects accepted so far. Check if fits under budget profile across years.

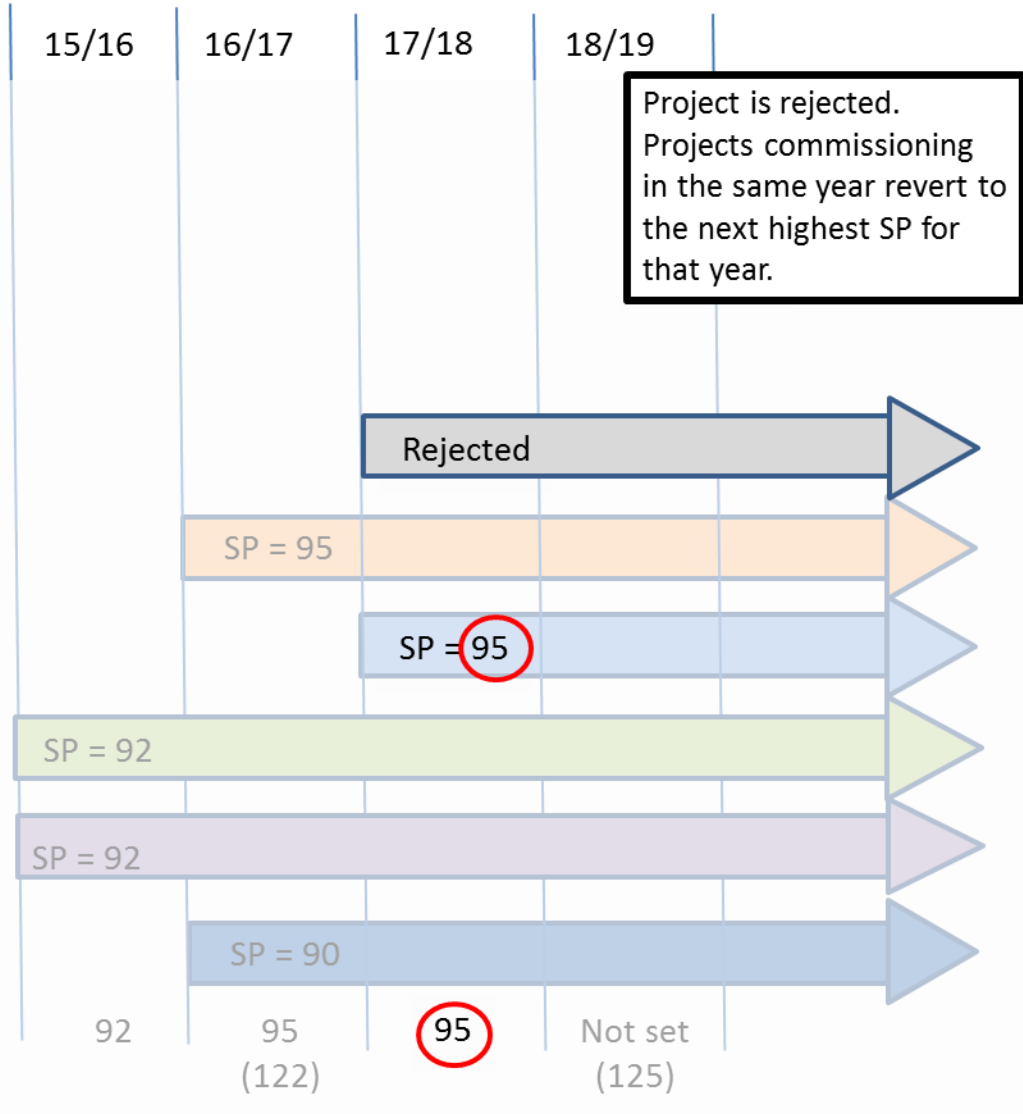


This project becomes more expensive at new SP

Budget for 2017/18 is exceeded. If flexibility exists, test budget with alternative capacity/delivery years. If budget still exceeded, reject this project and all further projects commissioning in this year

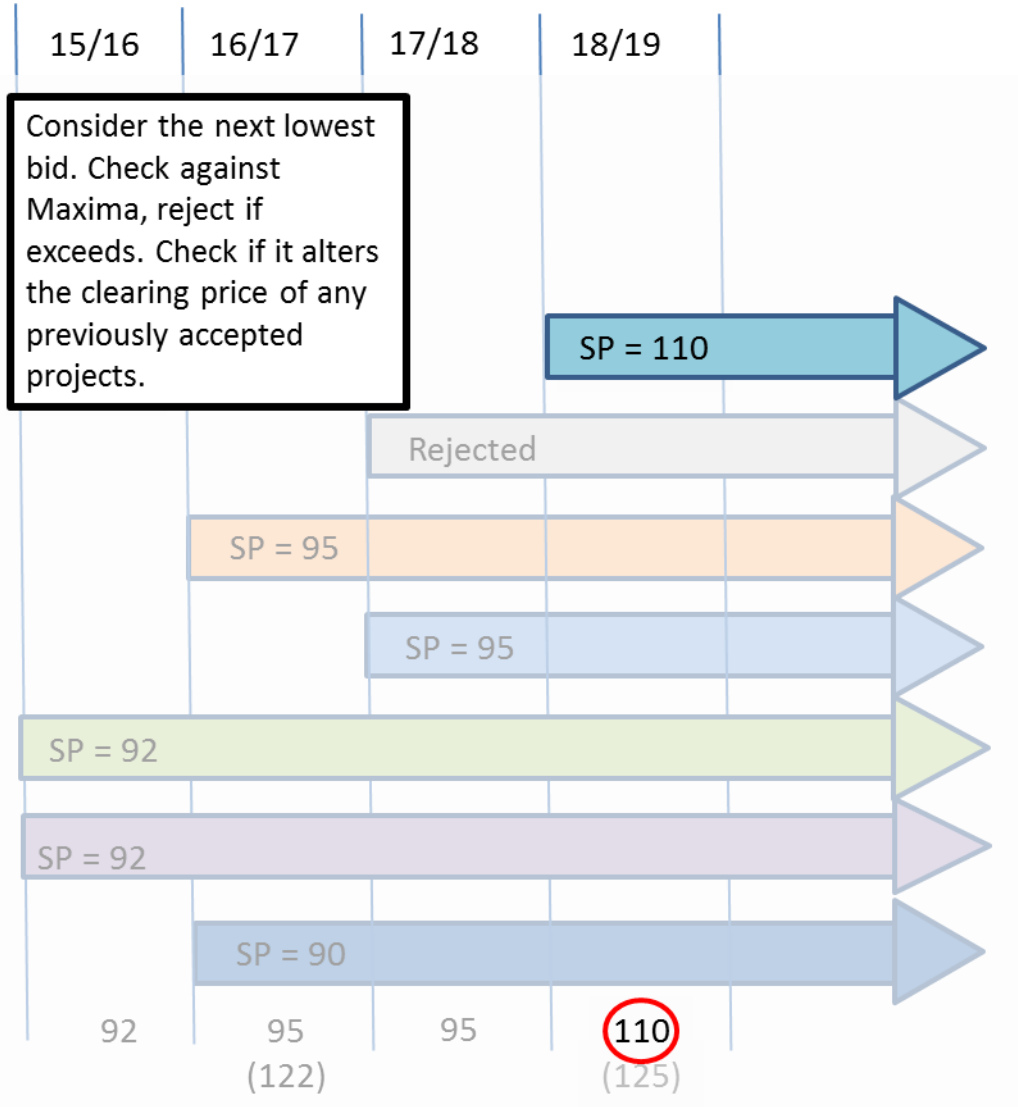


Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			



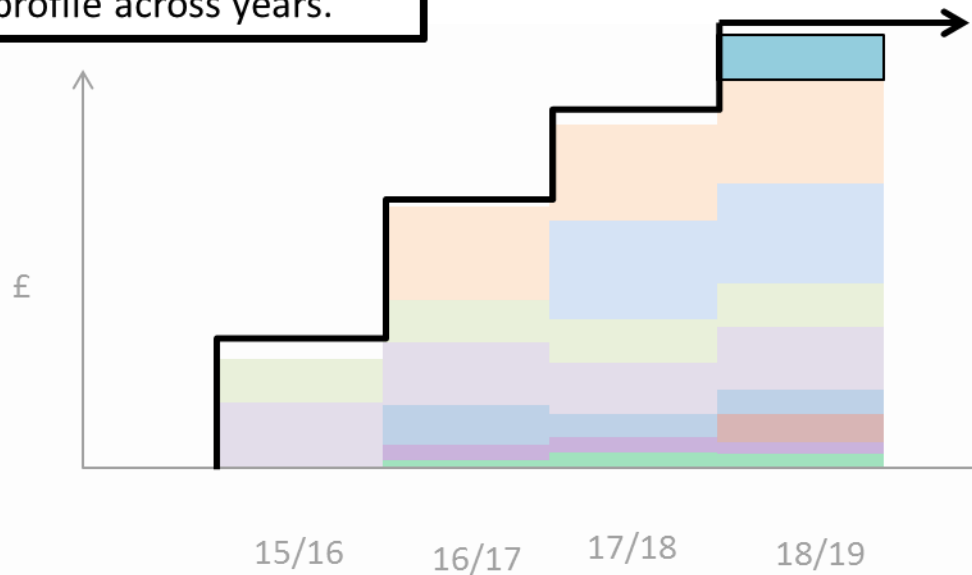


Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			





Look at impact on budget across years of this and all projects accepted so far. Check if fits under budget profile across years.

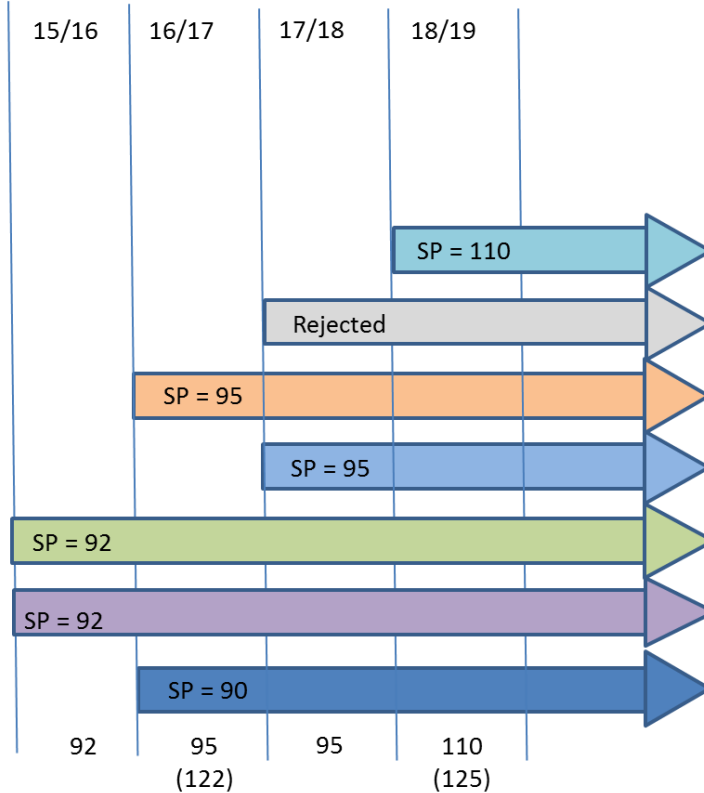


Bid accepted. Process continues until budget has been exceeded for each delivery year. Once the budget has been breached for a given year, projects commissioning in that year are no longer considered.



Assuming the auction has now ended

Project	SP bid	ASP cap	D yr
C	130	130	18/19
D	110	110	18/19
G	100	110	17/18
H	95	120	16/17
B	95	100	17/18
I	92	100	15/16
J	91	110	15/16
E	85	90	16/17
Clearing price for delivery year:			
(Clearing price for Min):			



Final clearing prices:

15/16 – 92

16/17 – 95

17/18 – 95

18/19 – 110

For Minima tech:

16/17 – 122

18/19 – 125

All projects not subject to a Minima are paid the clearing price for their delivery year, capped by their administrative strike price

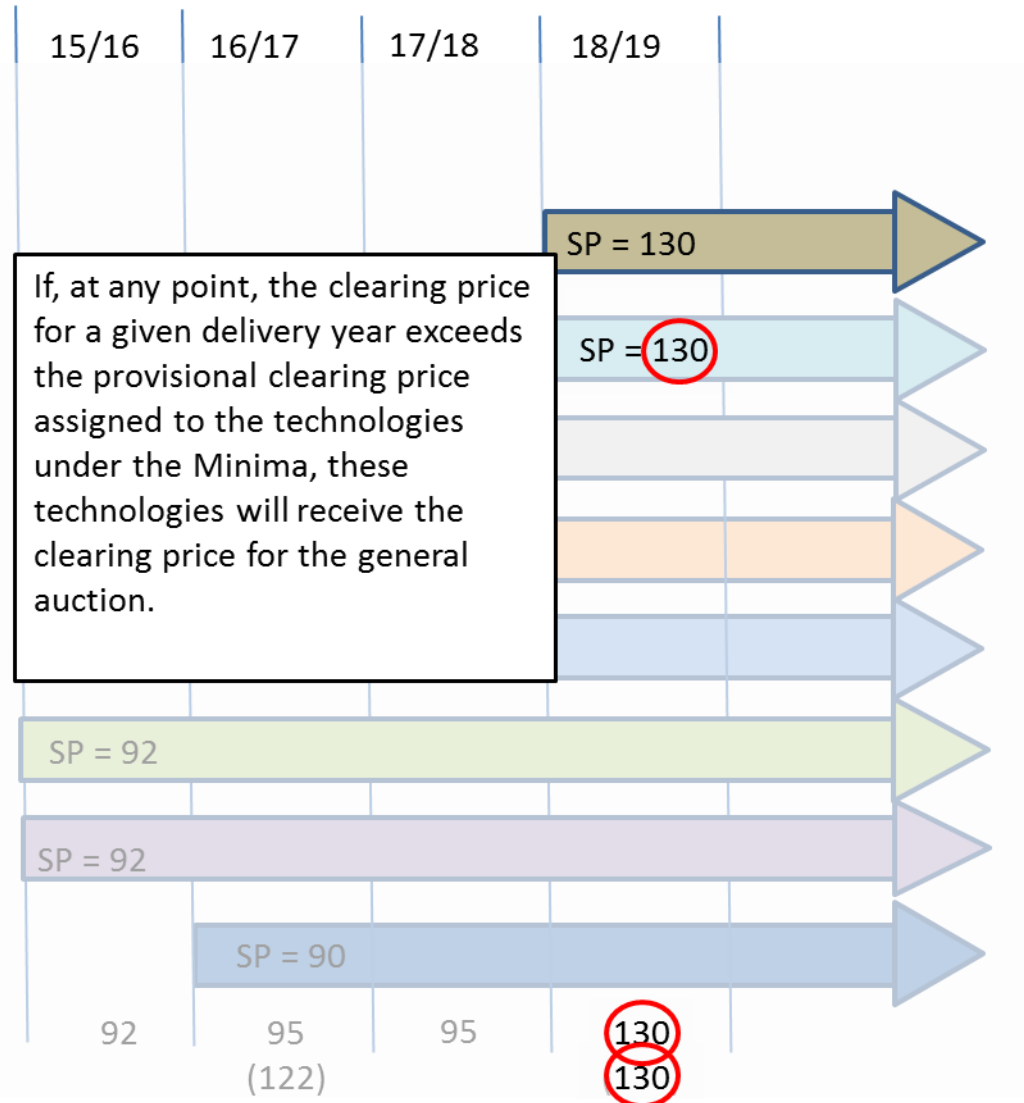


Other considerations



Minima clearing price

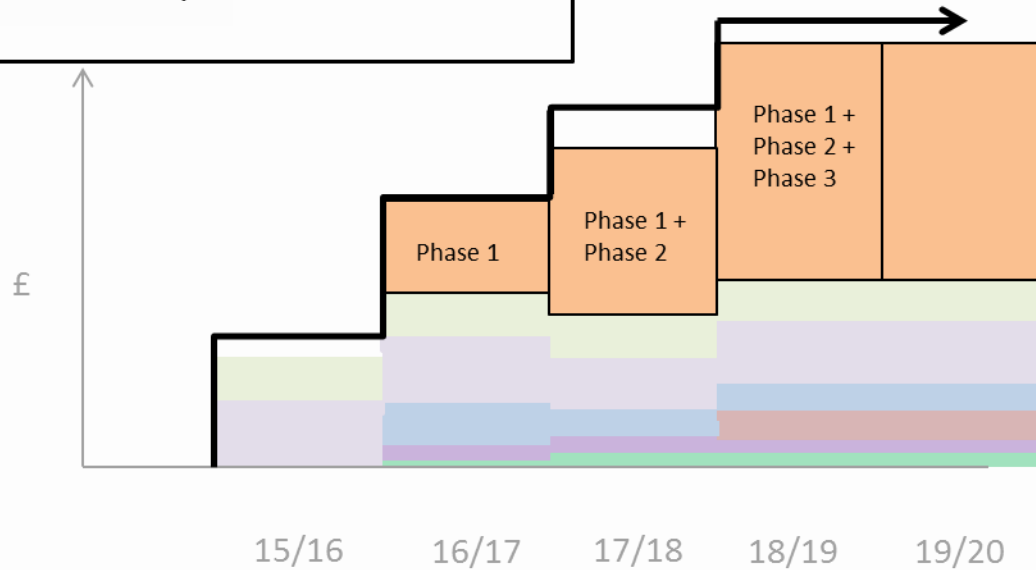
SP bid	ASP cap	Delivery year
130	130	18/19
110	110	18/19
100	110	17/18
95	120	16/17
95	100	17/18
92	100	15/16
91	110	15/16
85	90	16/17
Clearing price for year:		
(Clearing price for Min)		





Phased projects

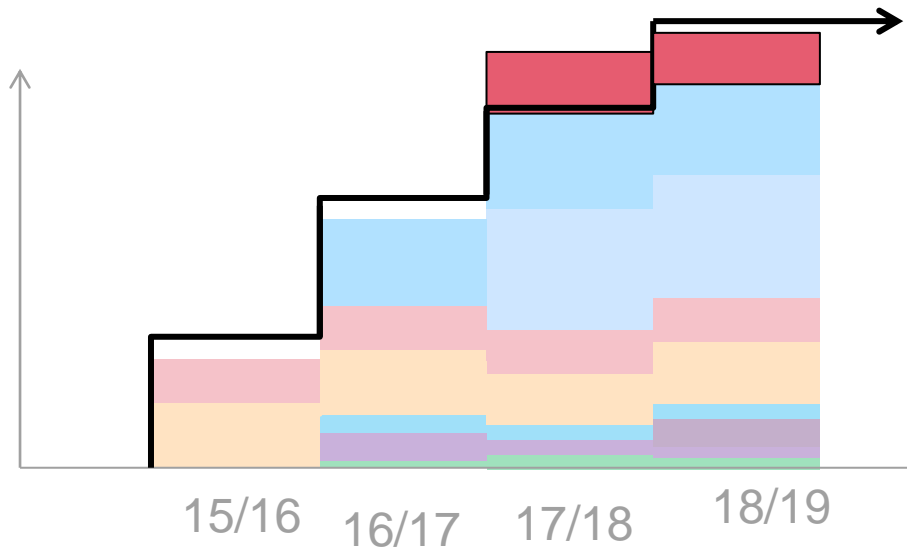
Phased projects will be ranked on their SP bid for their commissioning year, but their entire impact profile will be considered when looking at affordability.





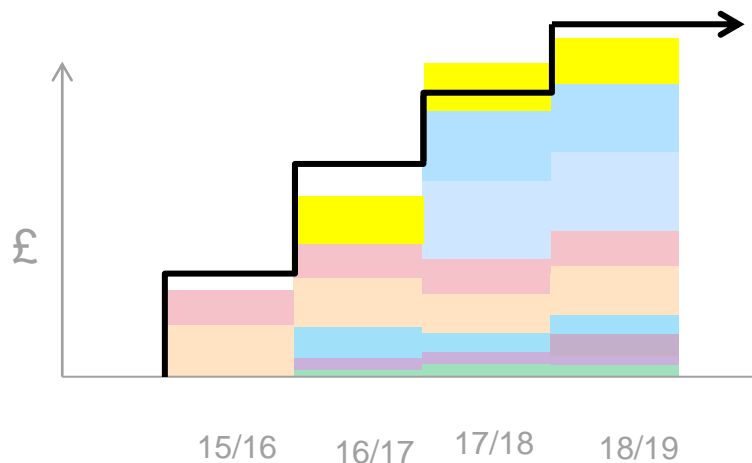
Budget breaches – ending the auction

If a project causes the budget to be breached in its delivery year, we are clear that we will no longer consider other projects commissioning in that year.





However, if a project causes the budget to be breached for any other year, we need to consider whether we:



- Stop considering further projects commissioning in the same delivery year as the project which breached the budget. This would ensure that no project which bid below the clearing strike price for a given delivery year would be allocated a CfD (subject to any Maxima). This may leave some of the budget unfulfilled but will improve vfm on clearing price.
- Stop considering further projects commissioning in the delivery year for which the budget has been breached. This may allow projects commissioning in 16/17 with a higher strike price bid to be awarded a CfD, but may result in maximising use of the budget.
- Some other combination

This is still under development and we welcome your views



Questions

- Do you agree with separating clearing prices across years?
- Do you agree with our treatment of Minima technologies?
- How/when should projects for a given delivery year stop being assessed in relation to budget breaches?
- Any other comments/suggestions/clarifications?



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Auction clearing – Bidder flexibility



Flexibility

Stakeholders have expressed an interest in the provision of flexibility

- Flexibility across delivery years
- Flexibility of capacity
- Flexibility of price

We are currently testing two ideas for offering flexibility:

1. Option 1: flexibility by delivery year and capacity assessed for marginal projects
2. Option 2: offering flexibility across all parameters through multiple bids

These are provisional developments we wish to explore with you, which have not yet been agreed from a systems perspective.

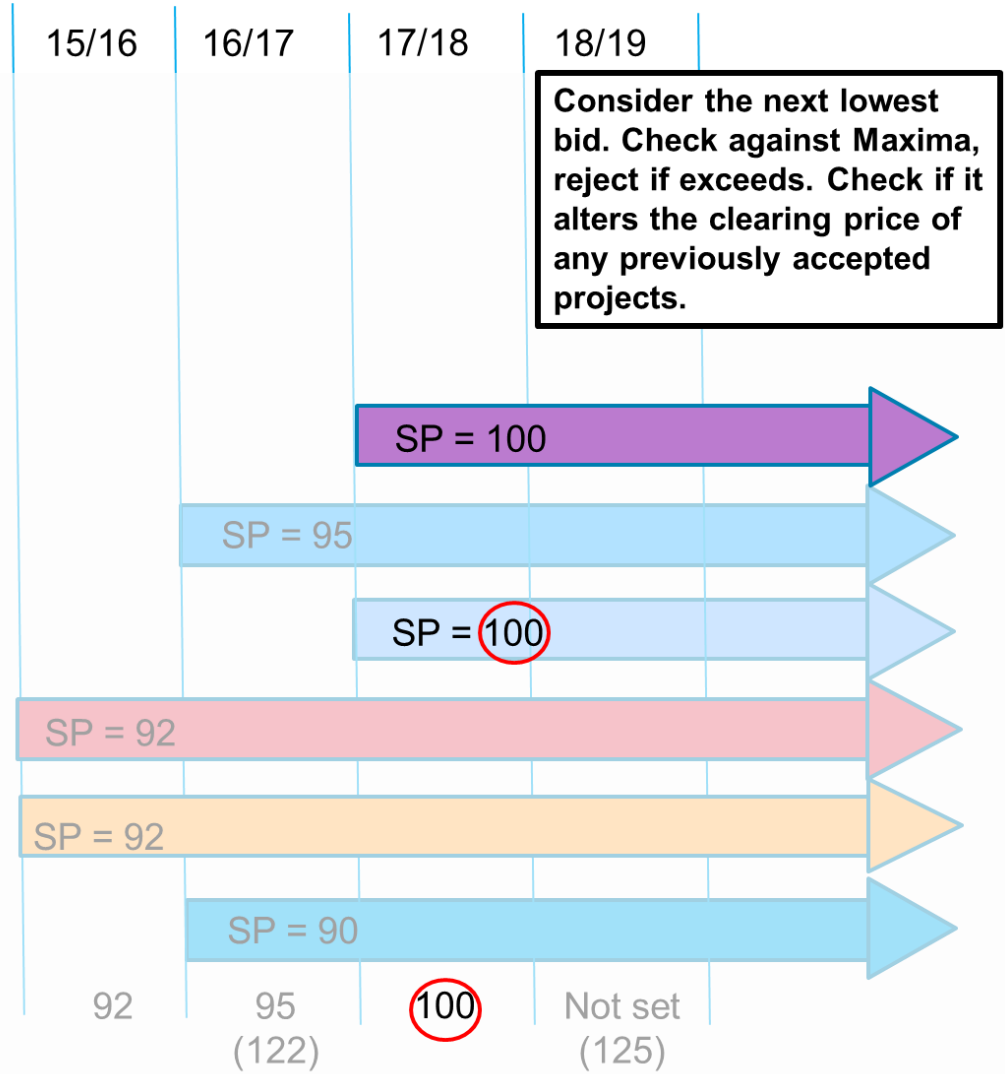


Option 1: - Flexibility by delivery year and capacity – assessed for marginal projects

- Projects submit their first choice capacity (C_1) and year of delivery (Y_1).
- They are also able to submit a second choice capacity (C_2) and year of delivery (Y_2).
- Along with their sealed bid, they will specify an order preference for each combination, eg
 - 1st Choice: $C_1 Y_1$
 - 2nd Choice: $C_1 Y_2$
 - 3rd Choice: $C_2 Y_1$
 - 4th Choice: $C_2 Y_2$
- Strike price bid must be the same for all choices.
- The auction will initially run using first choices.
- If a project would be rejected using its first choice (either due to a breach in budget or maxima), it would be considered against its other choices in order.

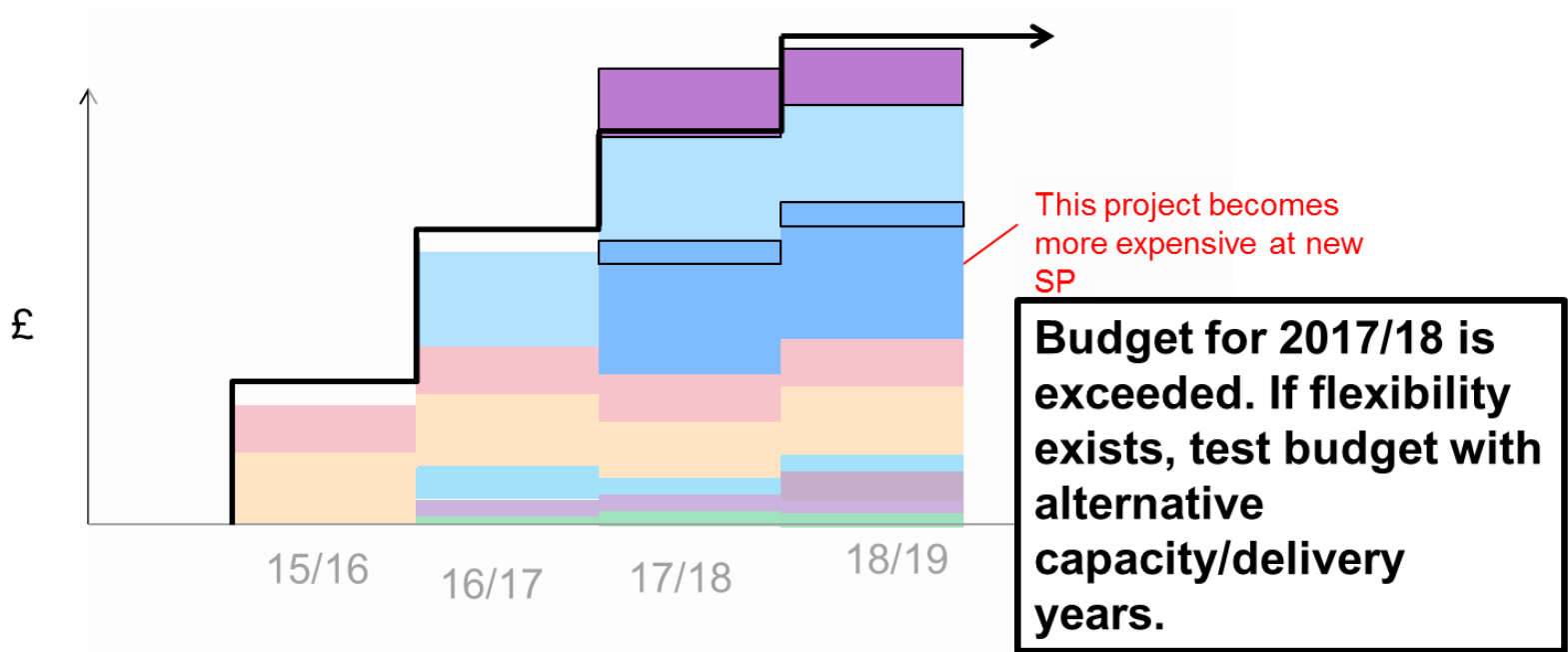


SP bid	ASP cap	Delivery year
130	130	18/19
110	110	18/19
100	110	17/18
95	120	16/17
95	100	17/18
92	100	15/16
91	110	15/16
85	90	16/17
Clearing price for year:		
(Clearing price for Min)		



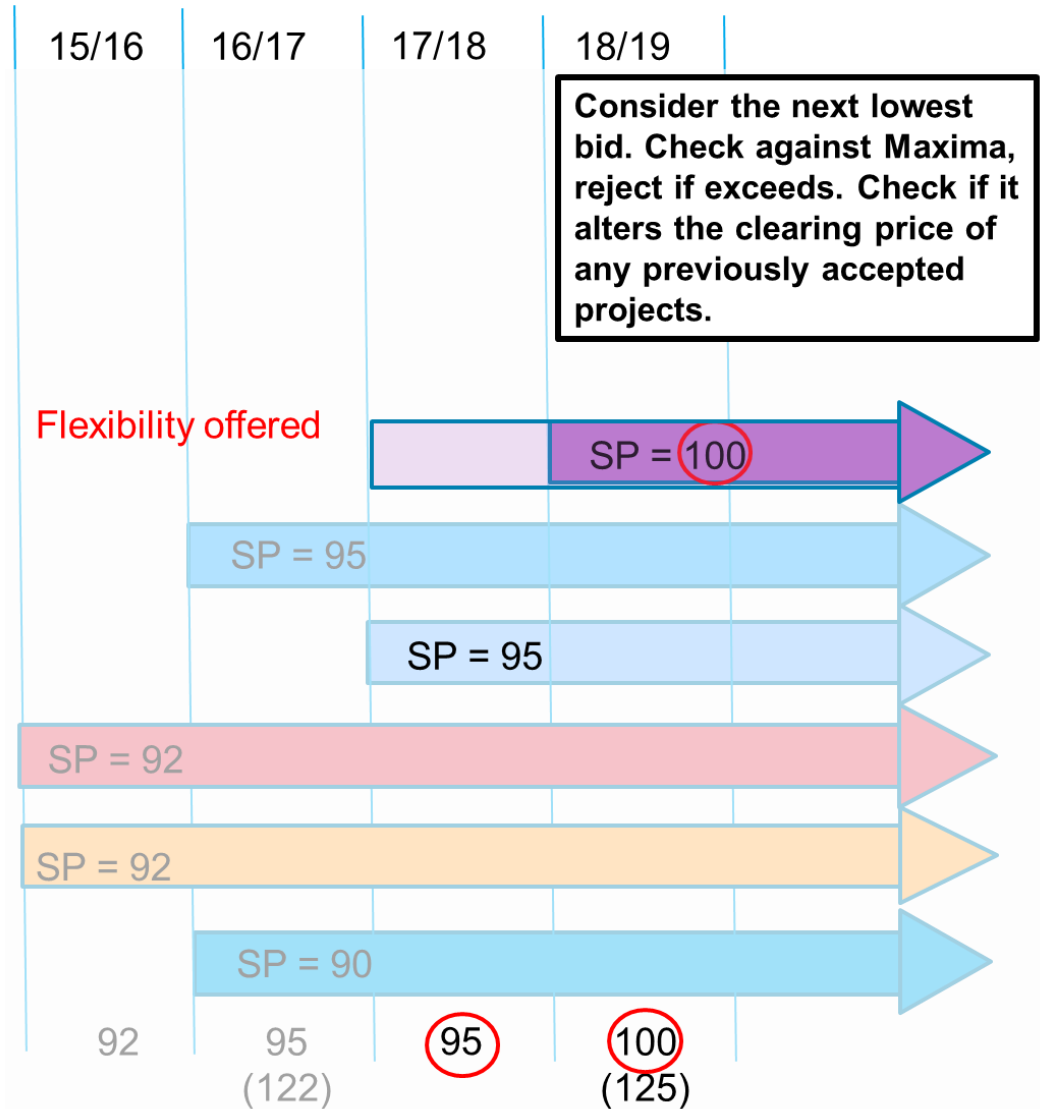


**Look at impact on budget
across years of this and all
projects accepted so far.
Check if fits under budget
profile across years.**



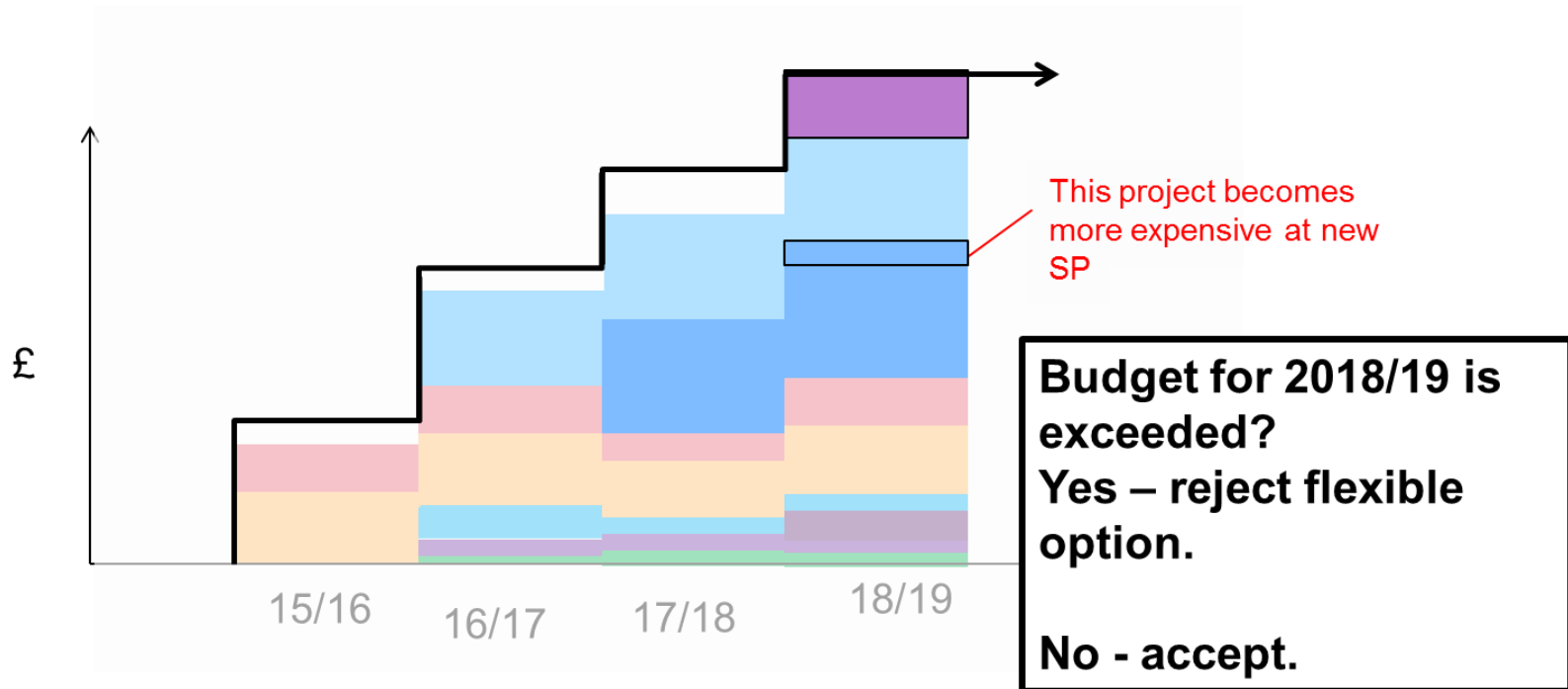


SP bid	ASP cap	Delivery year
130	130	18/19
110	110	18/19
100	110	18/19
95	120	16/17
95	100	17/18
92	100	15/16
91	110	15/16
85	90	16/17
Clearing price for year:		
(Clearing price for Min)		





**Look at impact on budget
across years of this and all
projects accepted so far.
Check if fits under budget
profile across years.**





Option 2: - Flexibility across all parameters by allowing multiple bids

- Projects submit their X multiple bids for the same project. Allowed to vary capacity (C_1), year of delivery (Y_1) and price (P_1), eg project A would submit bids A1, A2, A3 etc.
- All bids are included in auction and ranked by strike price.
- Projects with the lowest strike price bid will be assessed first, and therefore must be the first choice bid.
- When project accepted all other bids for the same project are removed from stack.
- Note that each strike price bid must be marginally different in order for the system to know which order to assess them. (This can be a single pence in the strike price bid.)



Project	SP bid	ASP cap	Delive ry year
D2	95	100	18/19
D1	94	100	17/18
C2*	92	100	15/16
C1	91	100	15/16
B2*	91	110	15/16
B1	90	110	15/16
A2	86	90	17/18
A1	85	90	16/17

15/16

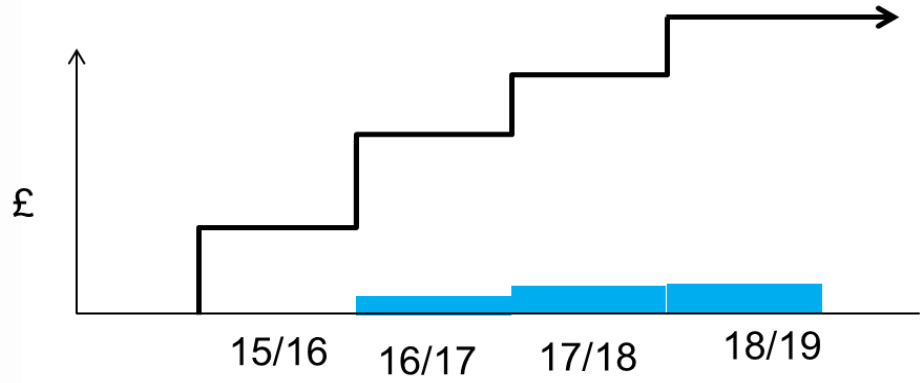
16/17

17/18

18/19

*Different Capacity

Proceed as before with auction, but when a bid is accepted, remove all other bids associated with that project



Remove

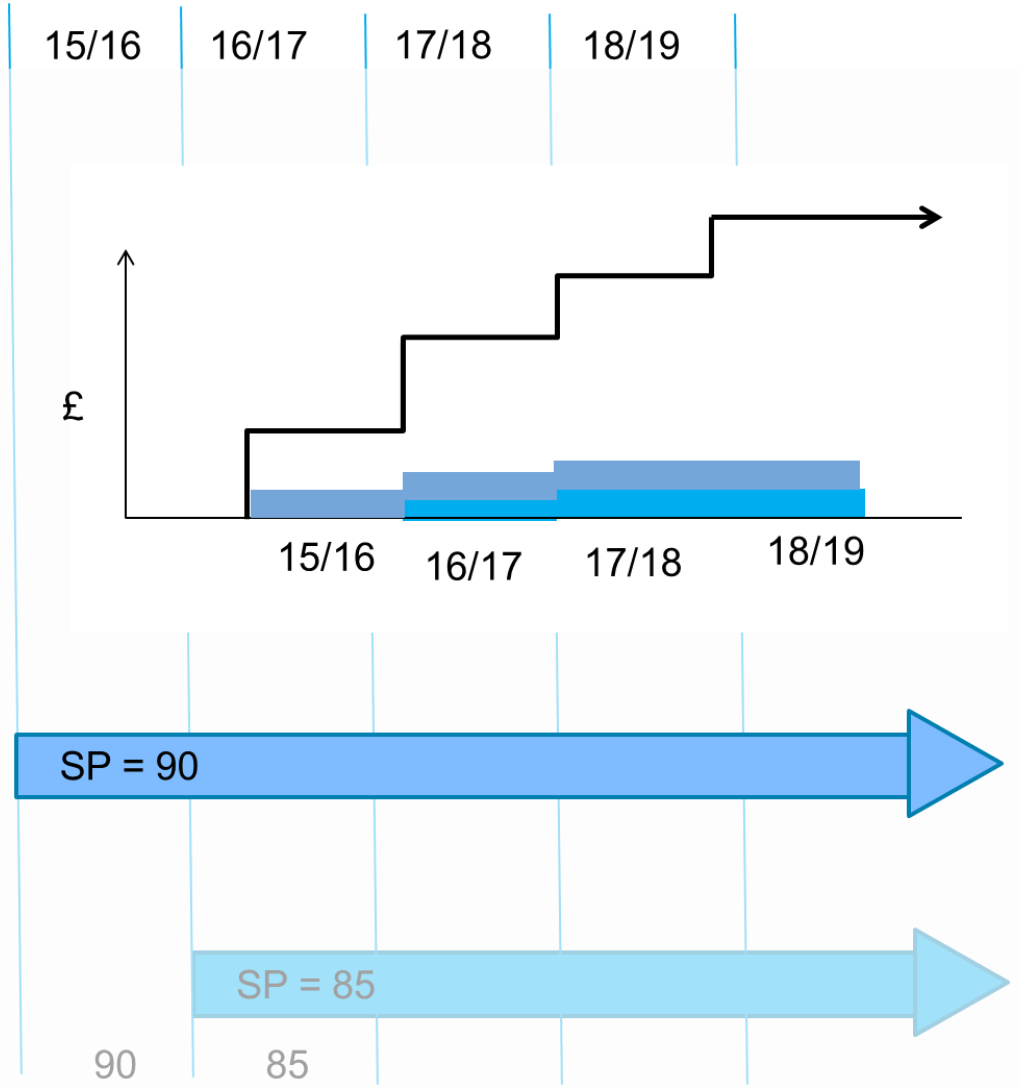
Accept

SP = 85

85



Project	SP bid	ASP cap	Delive ry year
D2	95	100	18/19
D1	94	100	17/18
C2	92	100	15/16
C1	91	100	15/16
B2	91	110	15/16
B1	90	110	15/16
A2	86	90	17/18
A1	85	90	16/17





If a project were unaffordable at its first choice option

- There is a scenario where a project might be unaffordable with one bid, but be affordable for a marginally higher-priced, smaller project.
- If C1 were unaffordable within the budget, we would see if the next lowest strike price bid project was from the same project – in this example it is, as C2 is the same project and the next-priced bid.
- If not, we stop looking at projects commissioning in that year, as in the auction clearing demonstration.
- However, if the next lowest bid were C2, we would consider it. If C2 were a smaller capacity and therefore affordable, it would be accepted.
- If related projects are not the next lowest strike price bid but are commissioning in a different year, they will be considered when their strike price bid is reached, as in the auction clearing demonstration.



Implications of Flexibility option 2:

- Second (and third etc) choice projects will only be considered if the first (and second etc) choice project has been rejected.
- For a second choice project to be considered in the same delivery year but at a lower capacity, it would need to have a similar (i.e. only slightly higher) strike price bid than the first choice project. If it is not the next strike price bid, it will be rejected, and the auction will close for that delivery year.
- If a second (or third) choice project is commissioning in a different delivery year to the first choice, it will be treated as any other project and accepted if its strike price bid is below the clearing price for that year.



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Auction clearing – Tiebreaker rules



Tiebreaker rules

We propose that we adopt the following tiebreaker rules:

A first rule intended to minimise any slack in a binding constraint: select the (combination of) projects that most closely satisfies the constraint. For example if two (or more) projects have identical Strike Price bids and:

- (In simplified terms), there is £100 of budget left. If project A costs £90, and project B costs £20, we would accept project A.

If, based on the first rule there is still a tie between more than one combination of projects, then use random allocation as a last resort.

The Secretary of State reserves the power to increase the budget in order assign both or all tied projects.



Tie-breaker rules - example

There are three projects with identical strike prices, where there is not enough budget to pay for all projects. There is enough budget for 62MW capacity.

Projects: A – 40MW; B – 50MW; C – 10MW

All combinations of projects are examined, and combination that best uses remaining budget is accepted.

A	B	C	MW
1			40
	1		50
		1	10
1	1		90
1		1	50
	1	1	60
1	1	1	100

Combinations shaded red
exceed available budget.

← Combination accepted – Projects B & C



Questions

- Which flexibilities are most beneficial?
- Which model of flexibility is preferable?
- Any issues with either model?

- Are the tiebreak rules fair?
- In the event of a tie, should the budget simply not be spent, and be available the next year?



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Way forward



Next Steps

- Developing implementation of auction design with National Grid
- We will be setting out further auction design detail in the Allocation Framework
- We welcome any further detailed feedback on the issues we have covered today
- DECC will be responding to the January consultation
- Announcement of budget details
- Consultation on Min/Max



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Close