



iCAROS phase 1 Complex RD Energy Bid submission

Implementation guide

06/05/24 | Training SA

Agenda for today

Recap of last session

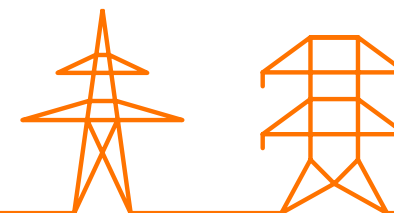
Specificities for RD bids

Complex bidding for RD Energy bid submission:

- How to link bids within a same QH: Exclusive groups
- How to link bids across QH: Conditional linking

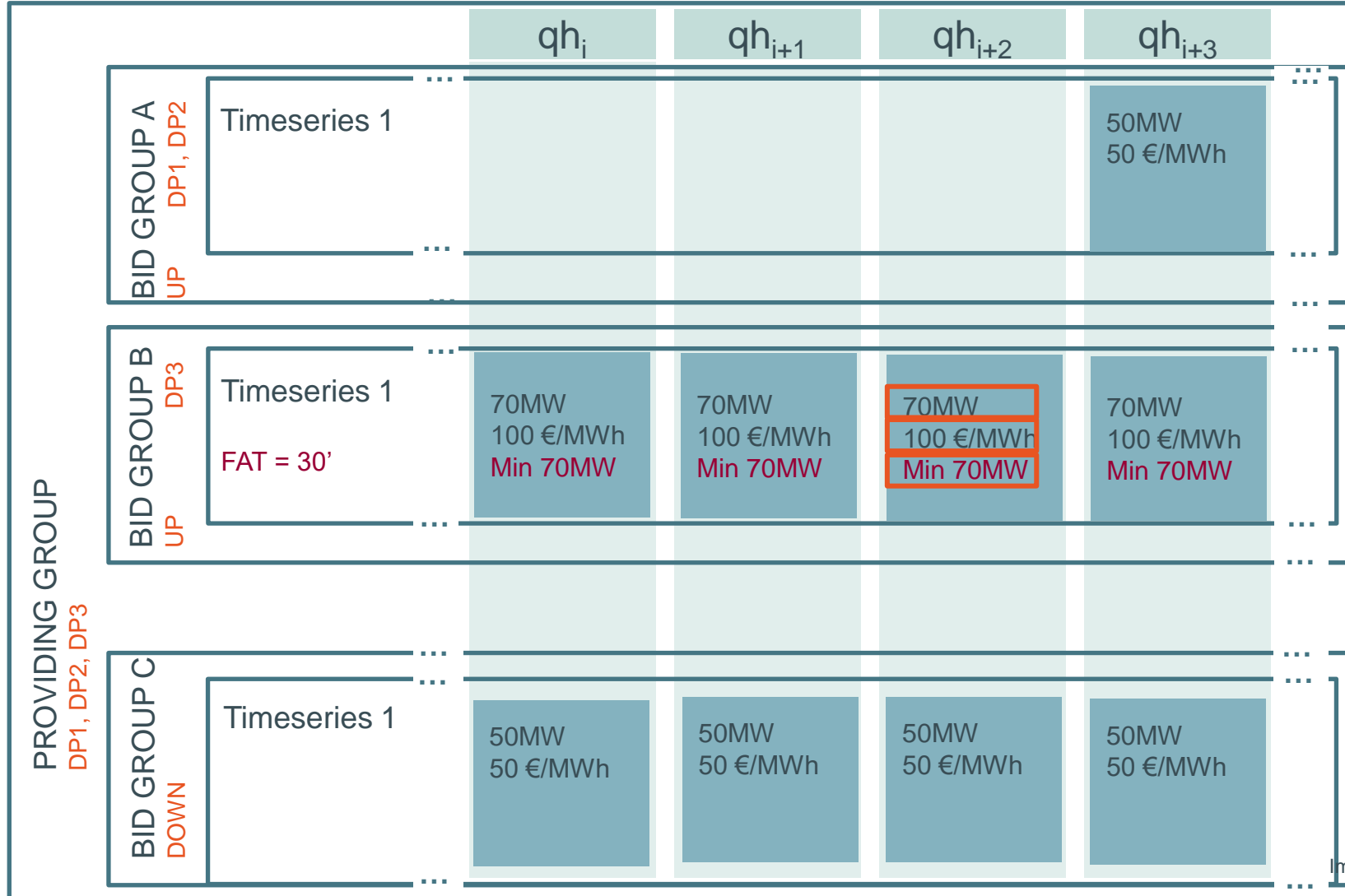
Examples:

- Complex biddings
- Full Activation Time
- Minimum Activation Time



BIDDING STRUCTURE

Price, volume and minimum volume are defined at bid level

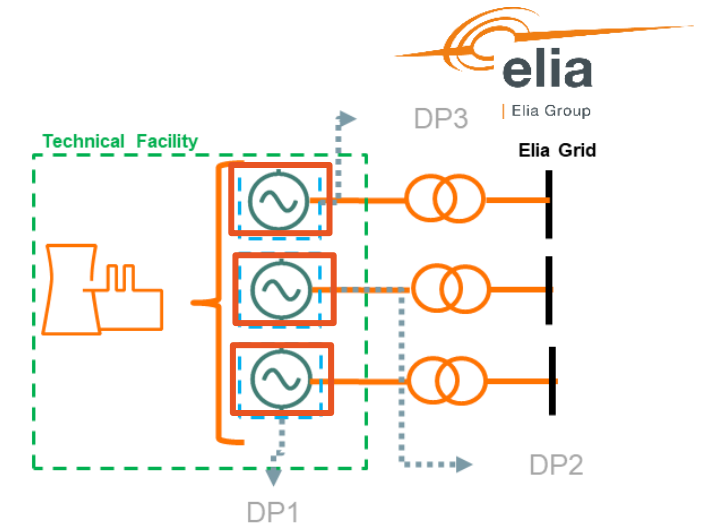


Energy bid characteristics	
Local design	ID
	List of Delivery points
Complex Bidding	Direction
	Bid price
	Bid volume
	Minimum bid volume
	Maximum activation time
Redispatching only	Quarter-hour linking (conditional links)
	Part of exclusive group
	Part of parent/child relation
Redispatching only	Full activation time
	Minimum activation time

BIDDING STRUCTURE

Delivery Points can be defined at multiple levels

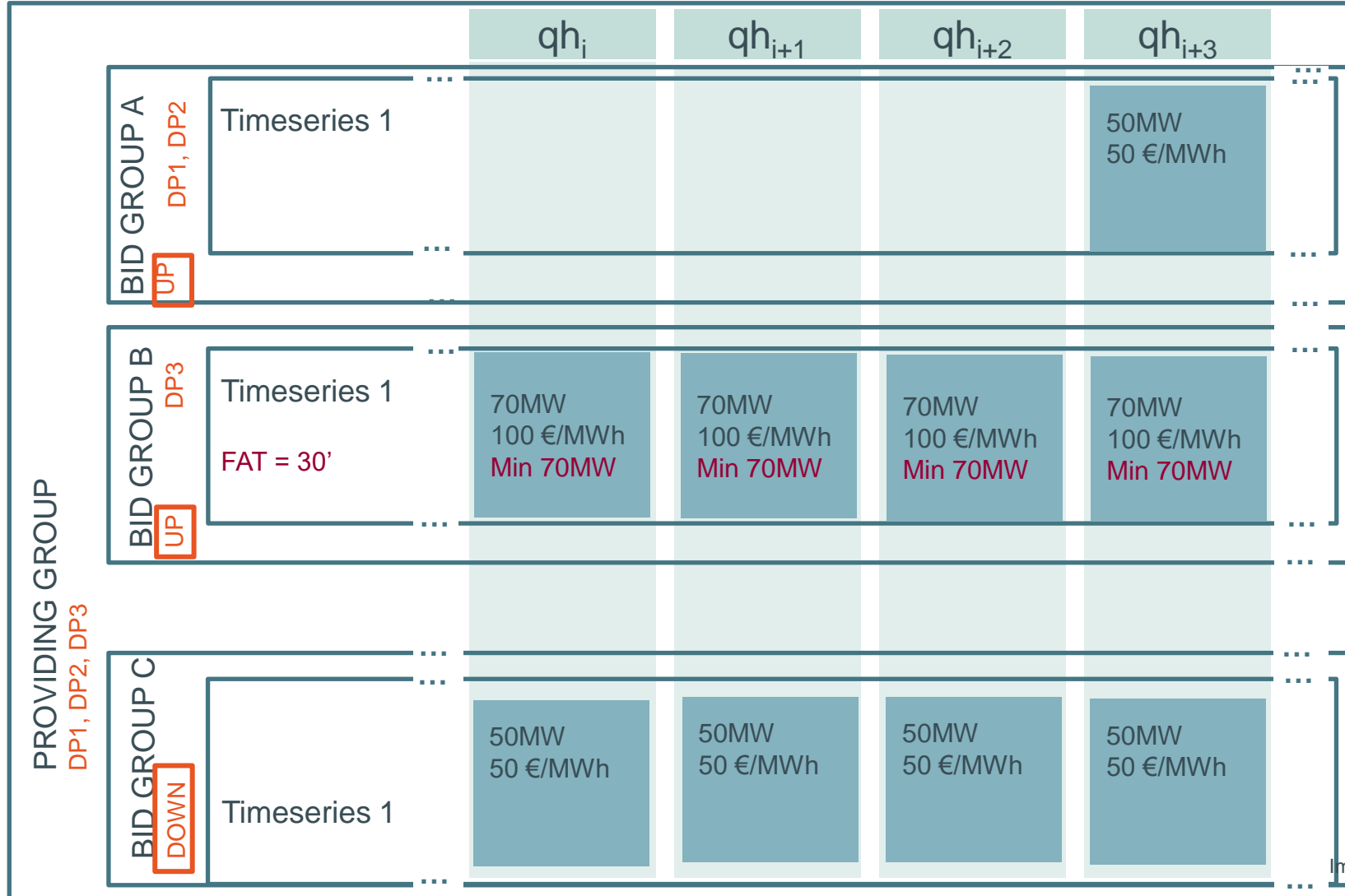
		qh_i	qh_{i+1}	qh_{i+2}
PROVIDING GROUP DP1, DP2, DP3	BID GROUP A UP DP1, DP2	Timeseries 1		50MW 50 €/MWh
	BID GROUP B UP DP3	Timeseries 1 FAT = 30'	70MW 100 €/MWh Min 70MW DP3	70MW 100 €/MWh Min 70MW DP3
	BID GROUP C DOWN DP1, DP2, DP3	Timeseries 1	50MW 50 €/MWh	50MW 50 €/MWh



- Providing group = Technical Facility
- Bid group = Operating mode

BIDDING STRUCTURE

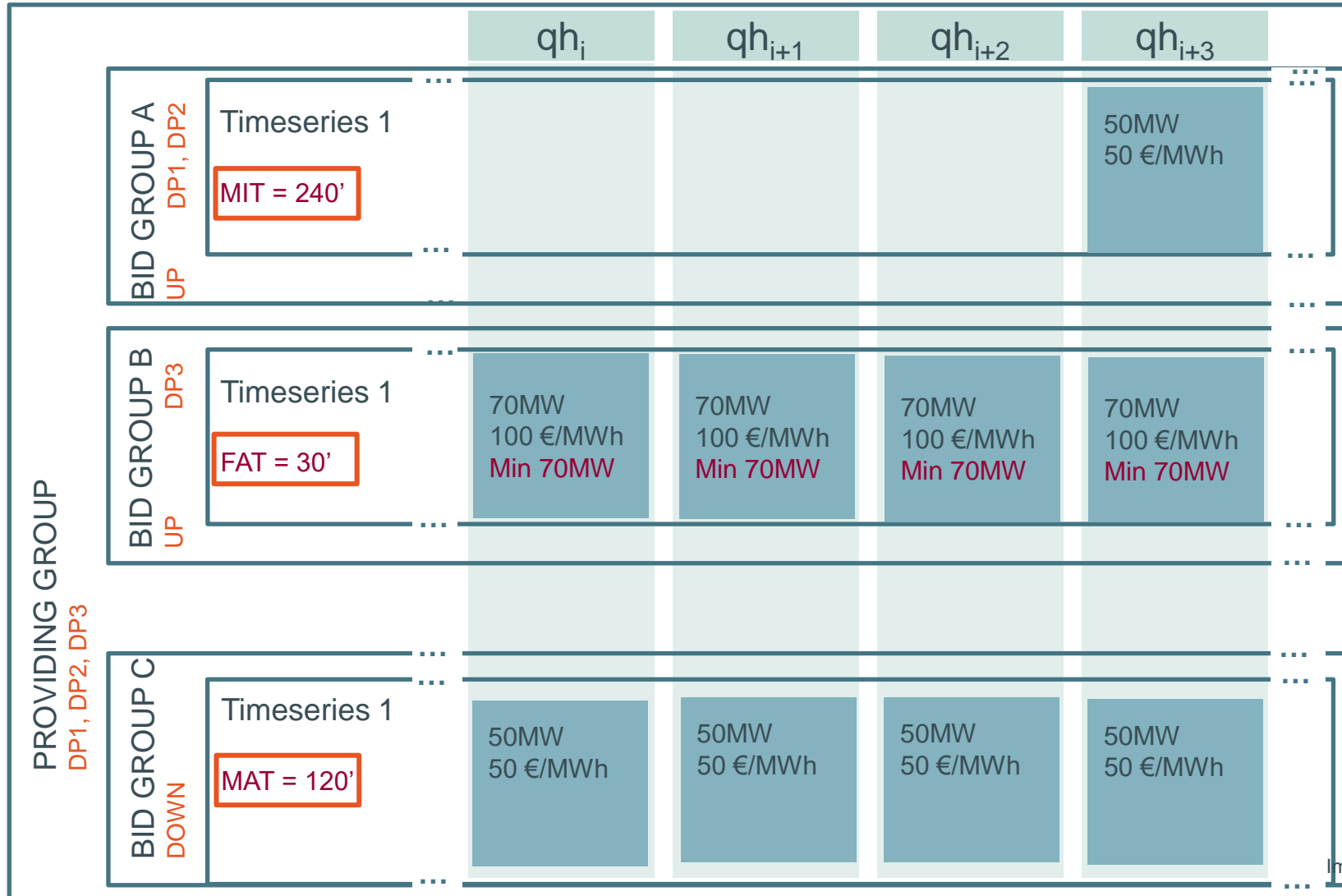
Direction is defined at bid group level



Energy bid characteristics	
Local design	ID
	List of Delivery points
	Direction
	Bid price
	Bid volume
	Minimum bid volume
Complex Bidding	Maximum activation time
	Quarter-hour linking (conditional links)
	Part of exclusive group
Redispatching only	Part of parent/child relation
	Full activation time
	Minimum activation time

BIDDING STRUCTURE

FAT, MAT and MIT are defined at Timeseries level*



Energy bid characteristics	
Local design	ID
	List of Delivery points
Complex Bidding	Direction
	Bid price
	Bid volume
	Minimum bid volume
	Maximum activation time
	Quarter-hour linking (conditional links)
	Part of exclusive group
Redispatching only	Part of parent/child relation
	Full activation time
	Minimum activation time

* MAT design fine-tuning is part of BSP facilitation and bid structure could be updated based on it.

GOAL OF THIS SESSION

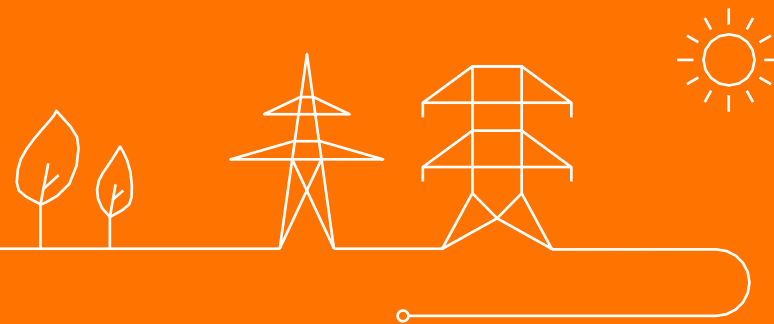
Energy bid characteristics	
Local design	ID
	List of Delivery points
	Direction
	Bid price
	Bid volume
	Minimum bid volume
	Maximum activation time
	Quarter-hour linking (conditional links)
Complexe Bidding	Part of exclusive group
	Part of parent/child relation
Redispatching only	Full activation time
	Minimum activation time

To explain the usage of complex bidding (conditional links, exclusive groups and combination...) to offer flexibility of DPs in different operating modes for RD



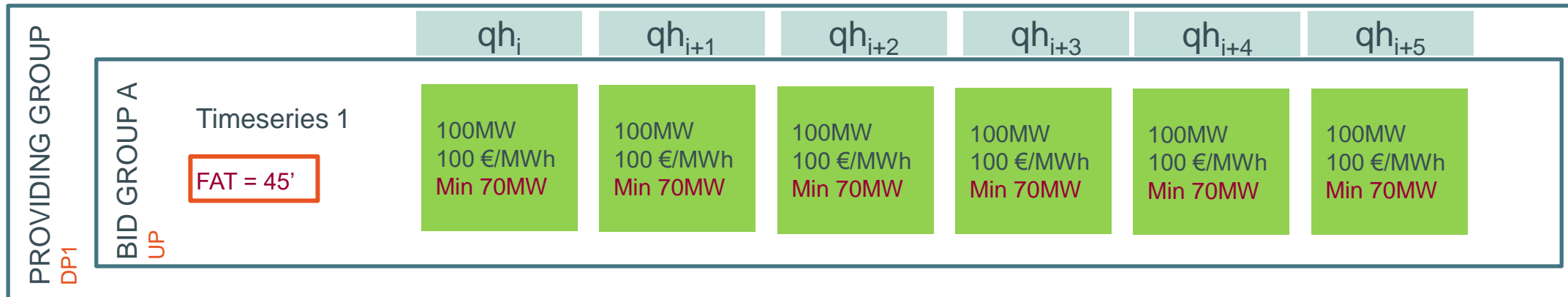
SPECIFICITIES FOR RD BIDS

FAT



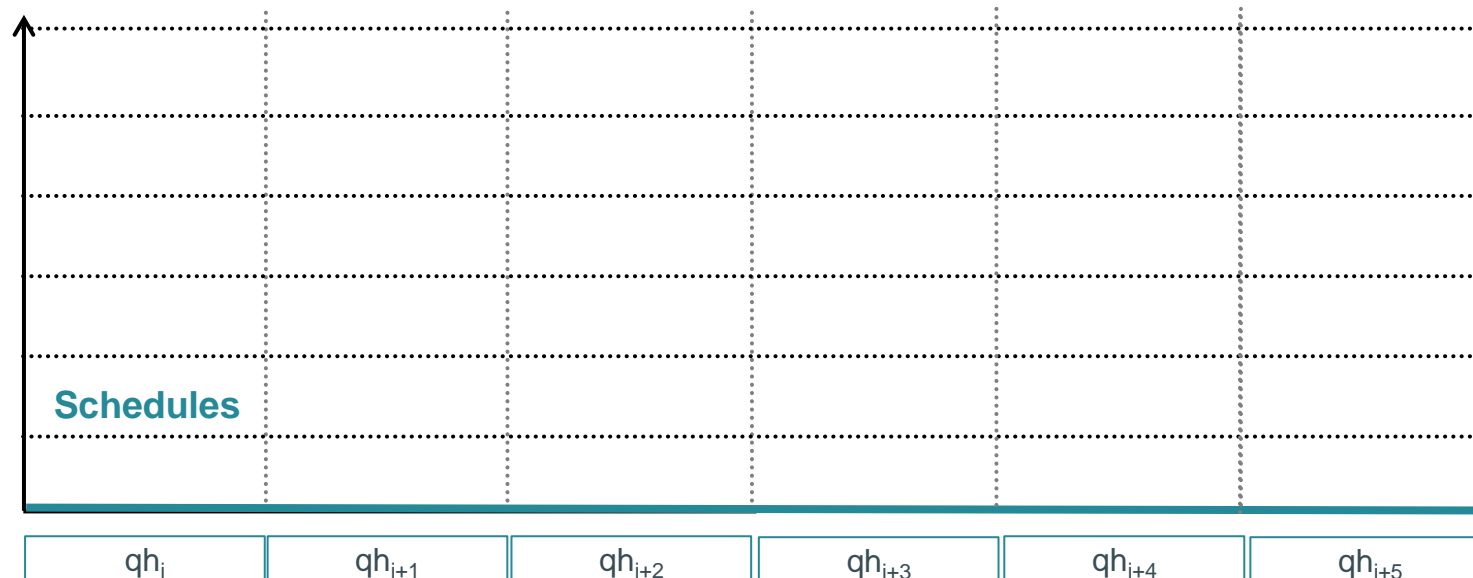
FULL ACTIVATION TIME

Example – initial situation



Initial situation (before activation)

- 1 Bid Groups with
 - DP1 initially not running (schedule = 0 MW)
 - FAT = 45 min
- All bids in these Bid Groups are **available**

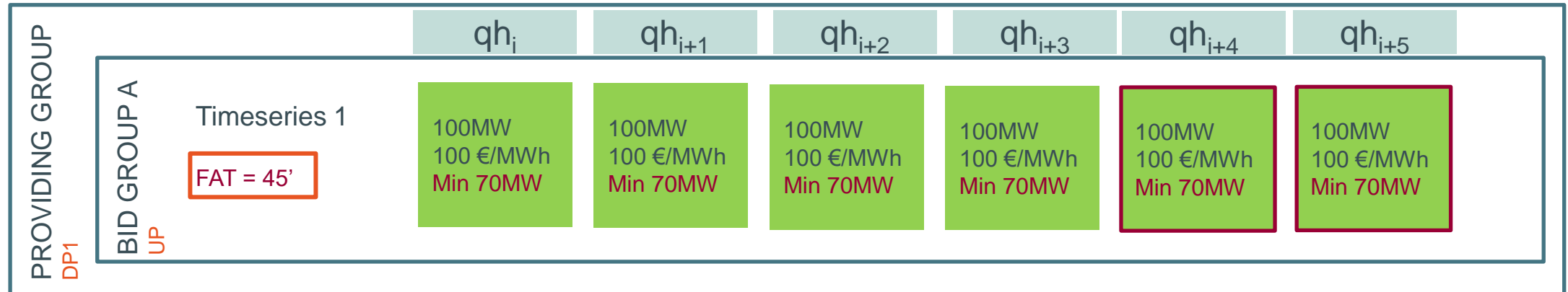


Legend:

Bid available for selection and activation	Bid selected / activated	Bid unavailable for selection and activation
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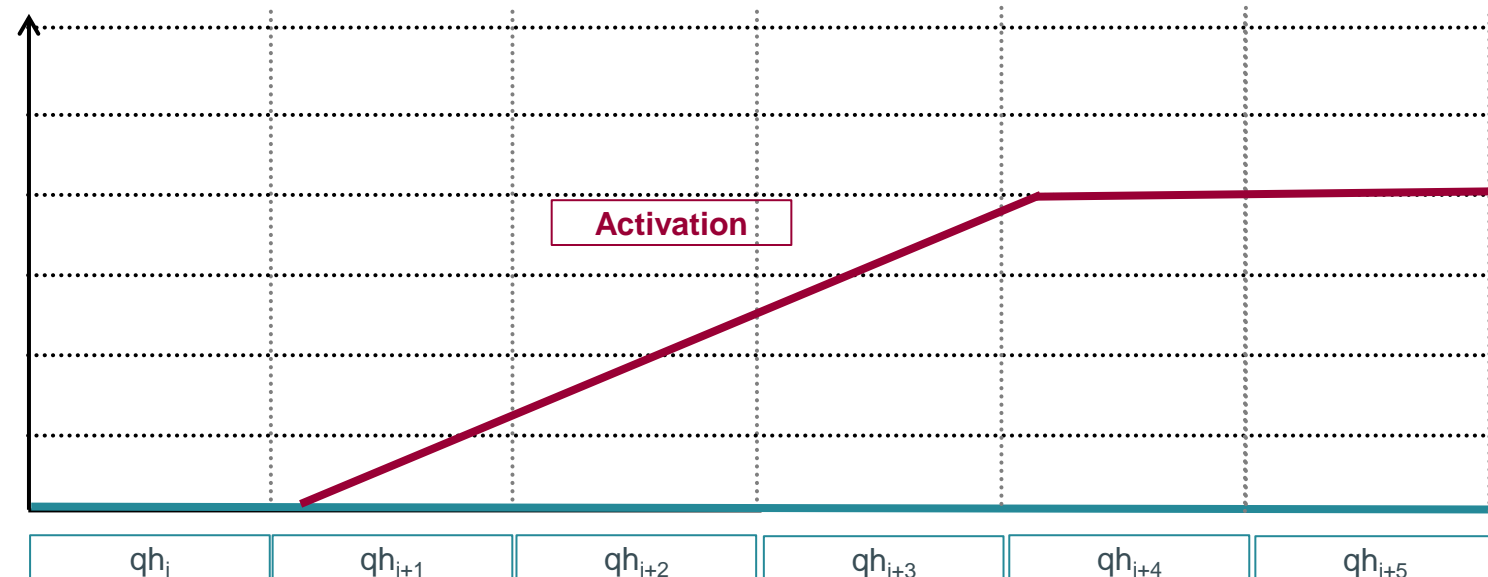
FULL ACTIVATION TIME

Example – final situation



Final situation (at activation)

- Elia activates 100 MW from qh_{i+4} to qh_{i+10}
- Ramp-up start 45' (=FAT) before qh_{i+10}
- 100 MW are reached in qh_{i+10}



Legend:

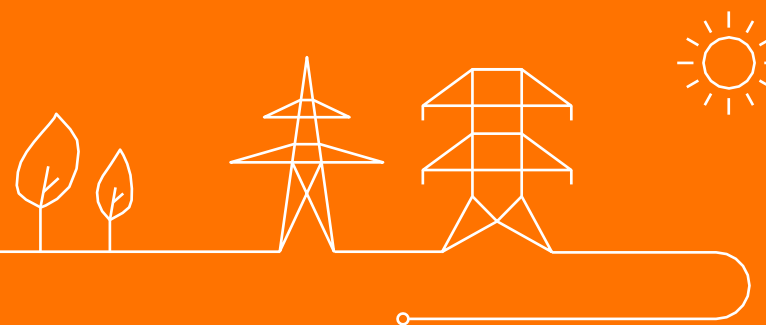
Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

HOW TO LINK BIDS WITHIN THE SAME QH

Exclusive groups & Parent-child relations



HOW TO LINK BIDS WITHIN THE SAME QH

Exclusive groups & Parent-child relation

Simple bid



Simple bids can be linked **within the same quarter hour** to form **complex bids**

- Exclusive Group (=EG)
 - Only one or none** of the bids in an exclusive group can be activated simultaneously
- Parent-child relation
 - The child cannot be activated if the parent has not been activated first

Bids cannot have both an exclusive bid identification and a parent-child identification



EXCLUSIVE GROUPS

Example 1/2



Initial situation (before activation)

- 3 Bid Groups with
 - same DP1
 - different MAT
 - Same Exclusive Group
- All bids in these Bid Groups are **available**

Only 1 bid per qh in this Exclusive Group can be activated

		qh _i	qh _{i+1}	qh _{i+5}	qh _{i+6}	...	
PROVIDING GROUP	BID GROUP A UP	Timeseries 1 200MW 50 €/MWh MAT = 60' Exclusive Group DP1	50MW 50 €/MWh		50MW 50 €/MWh	50MW 50 €/MWh	...
	BID GROUP B UP	Timeseries 1 100MW 150 €/MWh MAT = 120' Exclusive Group DP1	100MW 150 €/MWh		100MW 150 €/MWh	100MW 150 €/MWh	...
	BID GROUP C UP	Timeseries 1 50MW 250 €/MWh MAT = 240' Exclusive Group DP1	50MW 250 €/MWh	50MW 250 €/MWh	50MW 250 €/MWh	50MW 250 €/MWh	...

Legend:

Bid available for selection and activation	Bid unavailable for selection and activation
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EXCLUSIVE GROUPS

Example 2/2



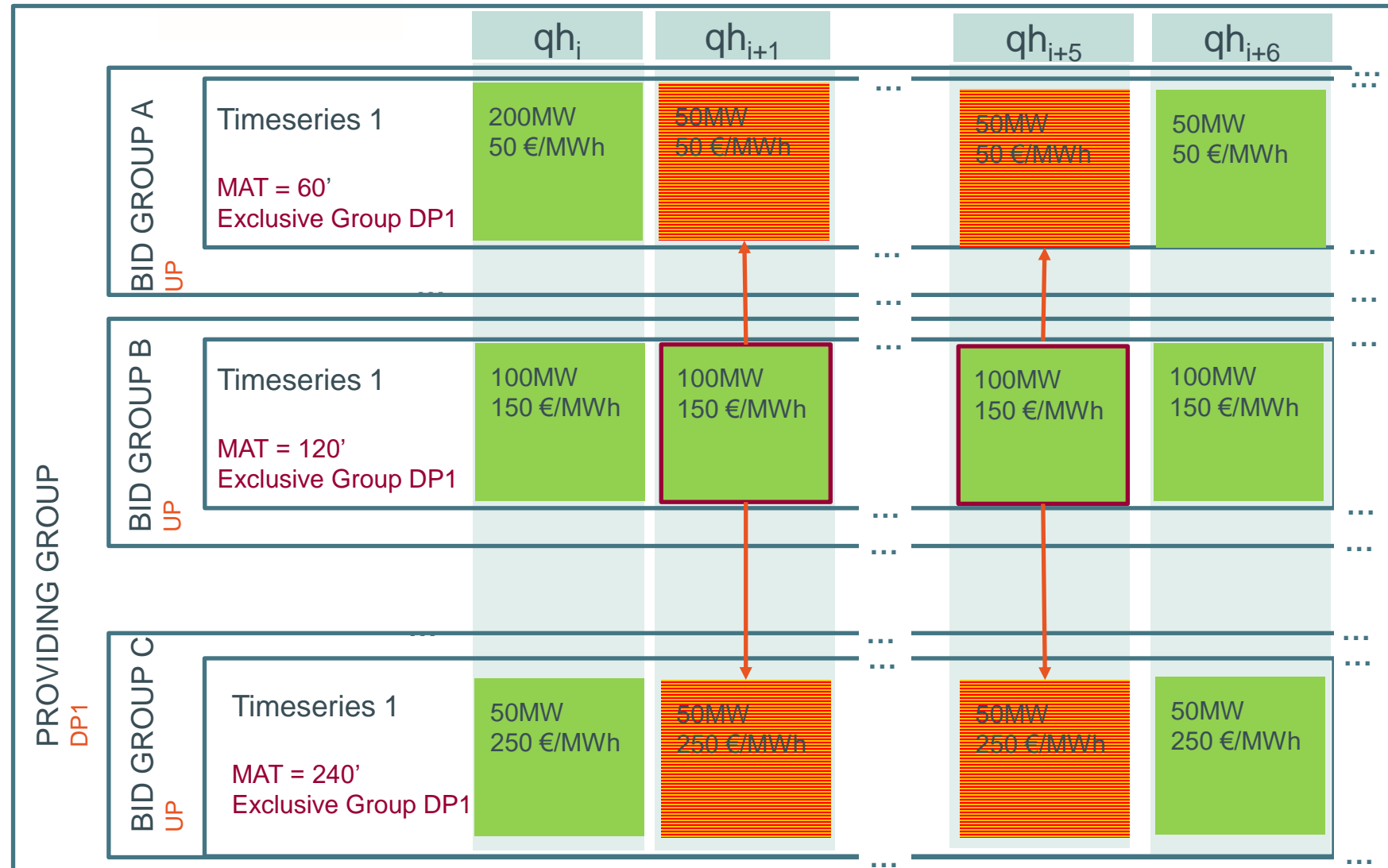
Final situation (at activation)

→ Bid Groups B is selected from qh_{i+1} to qh_{i+5}

→ During this period all other bids in the Bid Groups of the Exclusive Group **cannot be selected**

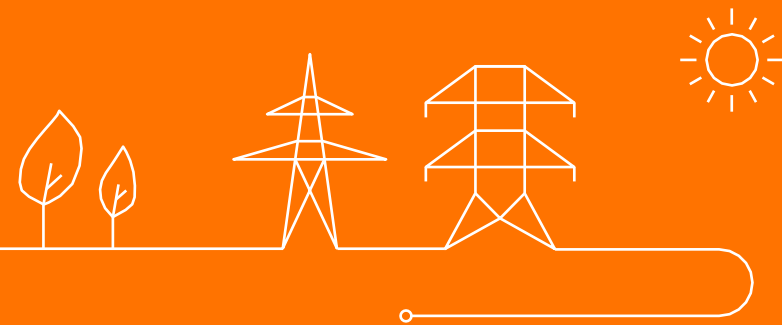
Legend:

Bid available for selection and activation	Bid unavailable for selection and activation
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HOW TO LINK BIDS ACROSS QH

Conditional linking



HOW TO LINK BIDS ACROSS QH

Conditional linking*

Simple bid

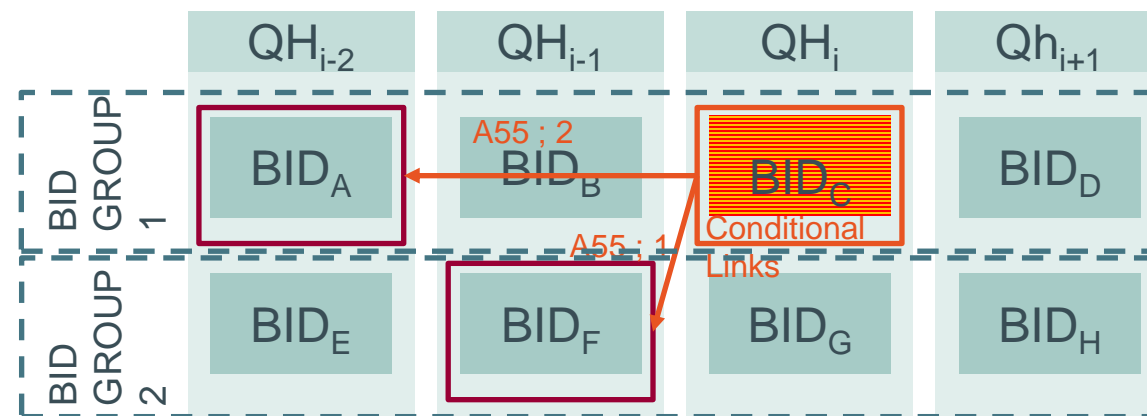


Simple bids can be linked **through different quarter hour** to form **conditionally linked bids**

Maximum 6 links maximum 3 in QH-1 and 3 links in QH-2

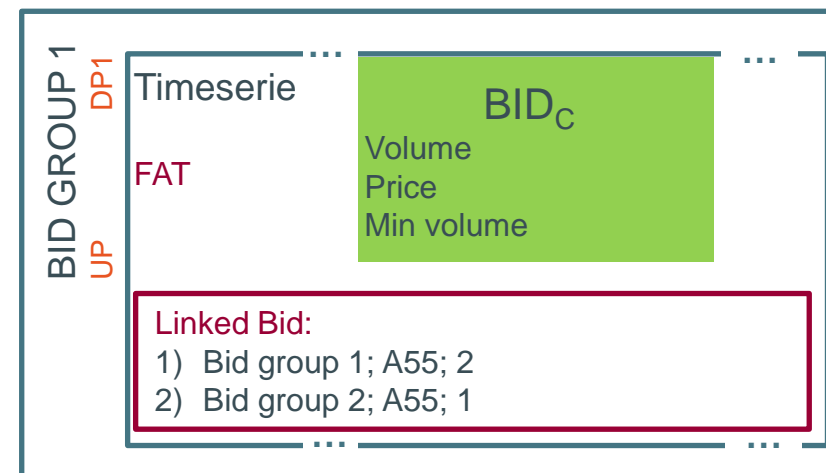
Different type of links:

- A55 link:** Bid initially **available**, becomes **unavailable** if linked bid activated
- A67 link:** Bid initially **unavailable**, becomes **available** if linked bid activated
- A56 link :** Bid initially **available**, becomes **unavailable** if linked bid not activated
- A68 link:** Bid initially **unavailable**, becomes **available** if linked bid not activated



Ex: Bid C is initially available and becomes unavailable

- ➔ if Bid Group 1 is activated in QH-2
- ➔ or if Bid Group 2 is activated in QH-1



* Also called quarter-hour linking

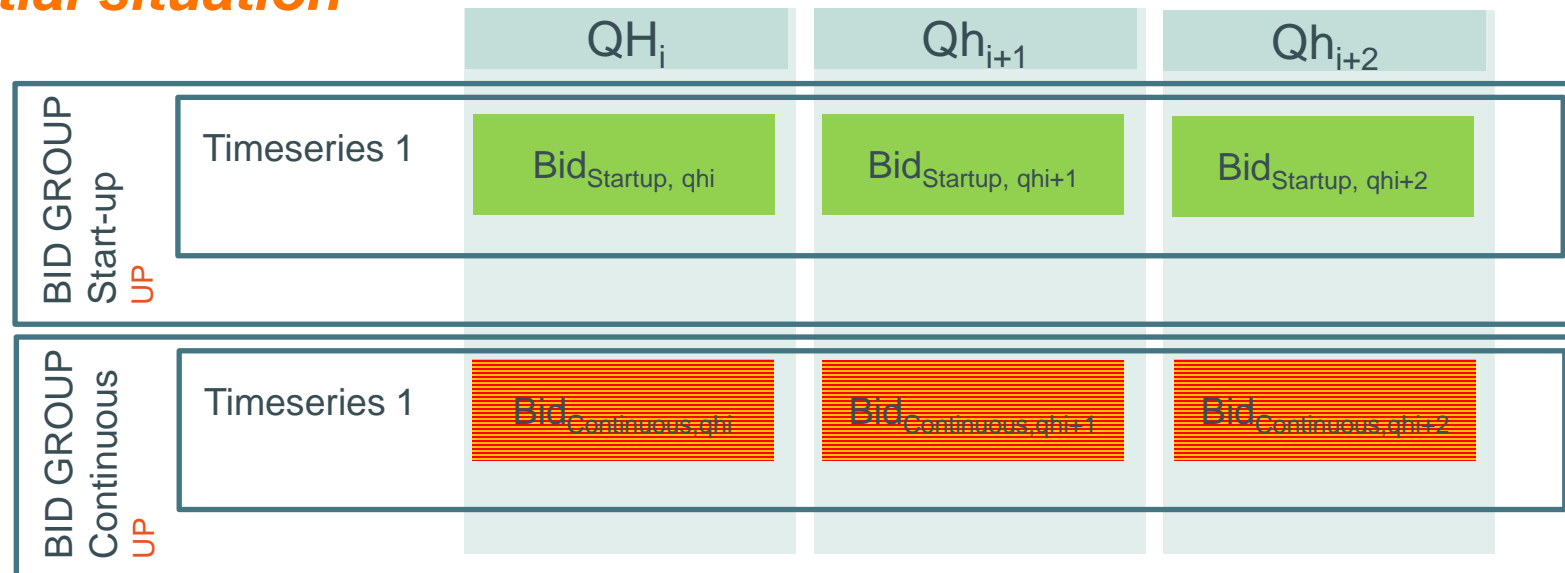
CONDITIONAL LINKING

Example of a start-up – initial situation

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - Must be activated during 1 qh before one Continuous bid becomes available
 - Includes the start-up time in FAT, start-up price...
 - Is initially **available**
- **Continuous bid**
 - Includes all properties of a running DP (FAT, price...)
 - Is initially **unavailable**



Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

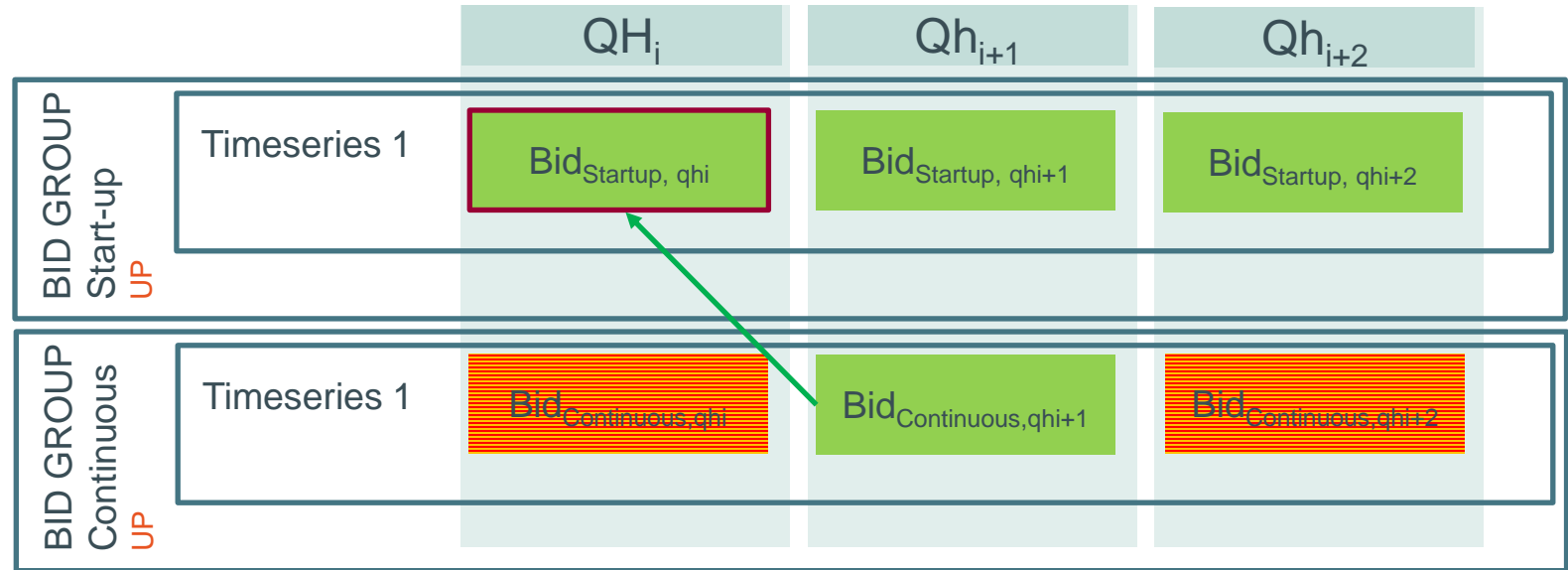
CONDITIONAL LINKING

Example of a start-up – continuous bids

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up** bids
 - initially **available**
- **Continuous** bid is
 - initially **unavailable**
 - Becomes available if Bid_{Startup, qh-1} is activated: **A67 link** →



Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

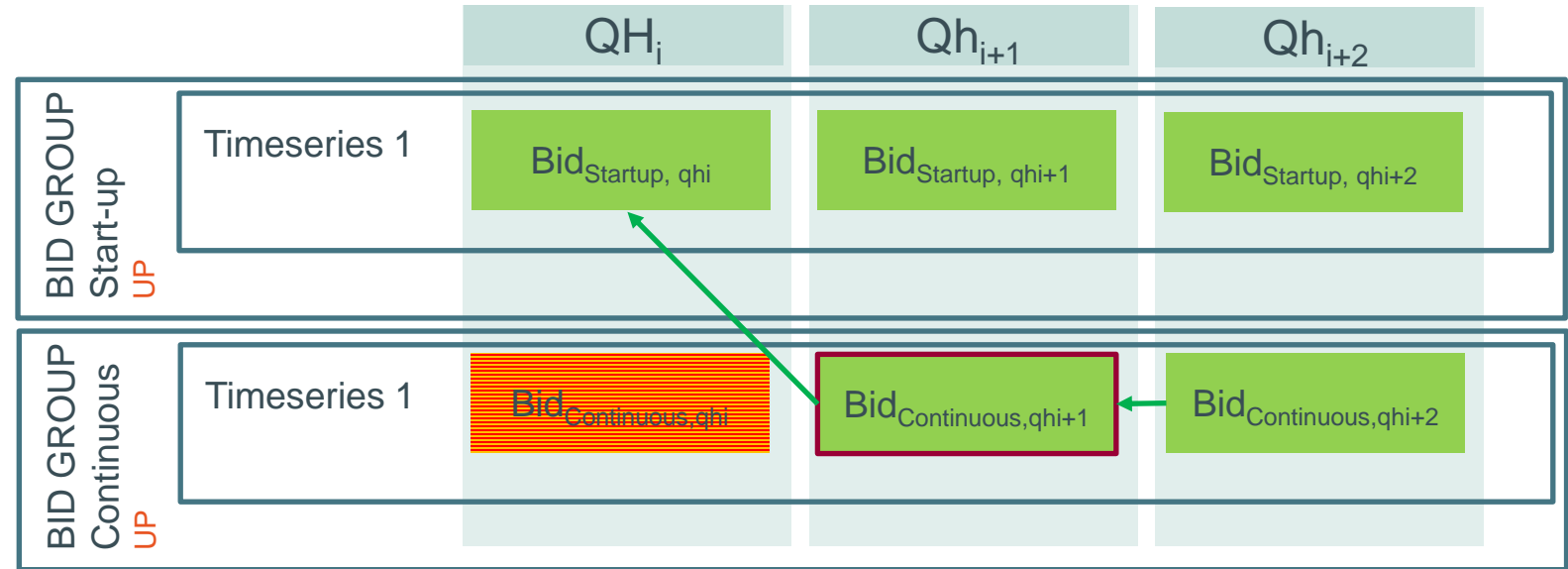
CONDITIONAL LINKING

Example of a start-up – continuous bids

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - initially **available**
- **Continuous bid is**
 - initially **unavailable**
 - Becomes available if Bid_{Startup, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Continuous, qh-1} is activated: **A67 link** →



Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

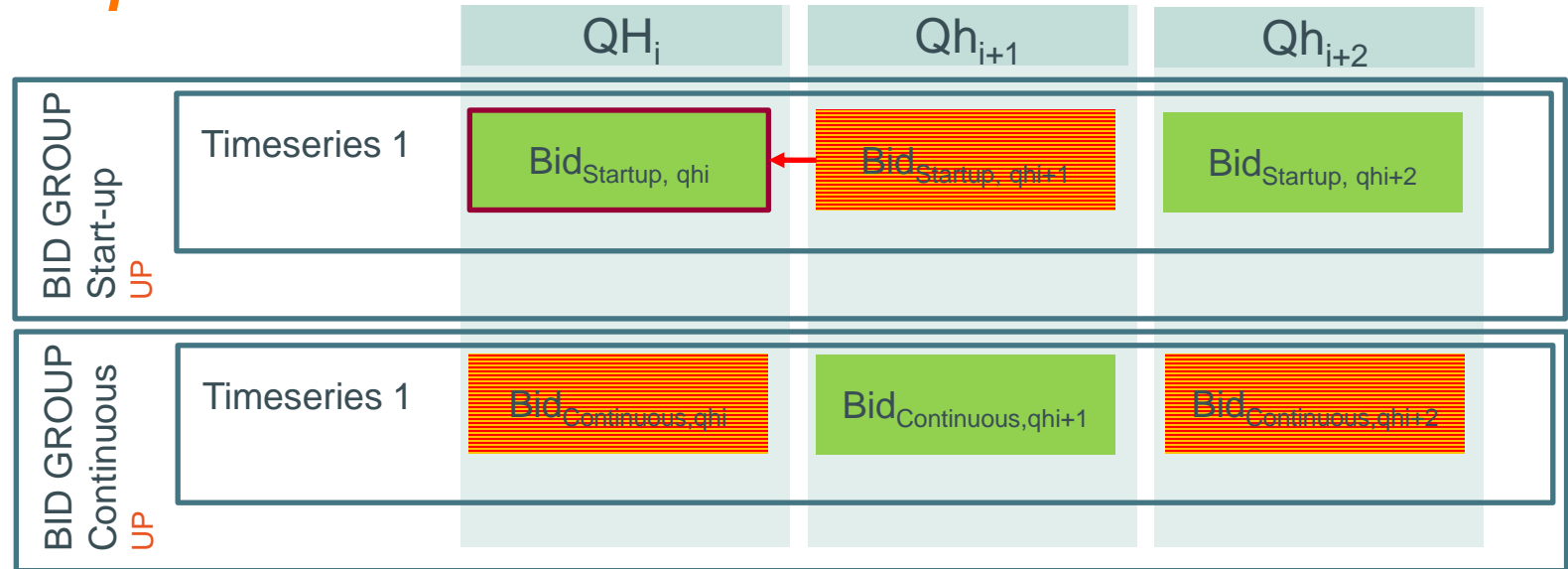
CONDITIONAL LINKING

Example of a start-up – start-up bids

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up** bids
 - initially **available**
 - Becomes **unavailable** if Bid_{Startup, qh-1} is activated: **A55 link** →
- **Continuous** bid is
 - initially **unavailable**



Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

CONDITIONAL LINKING

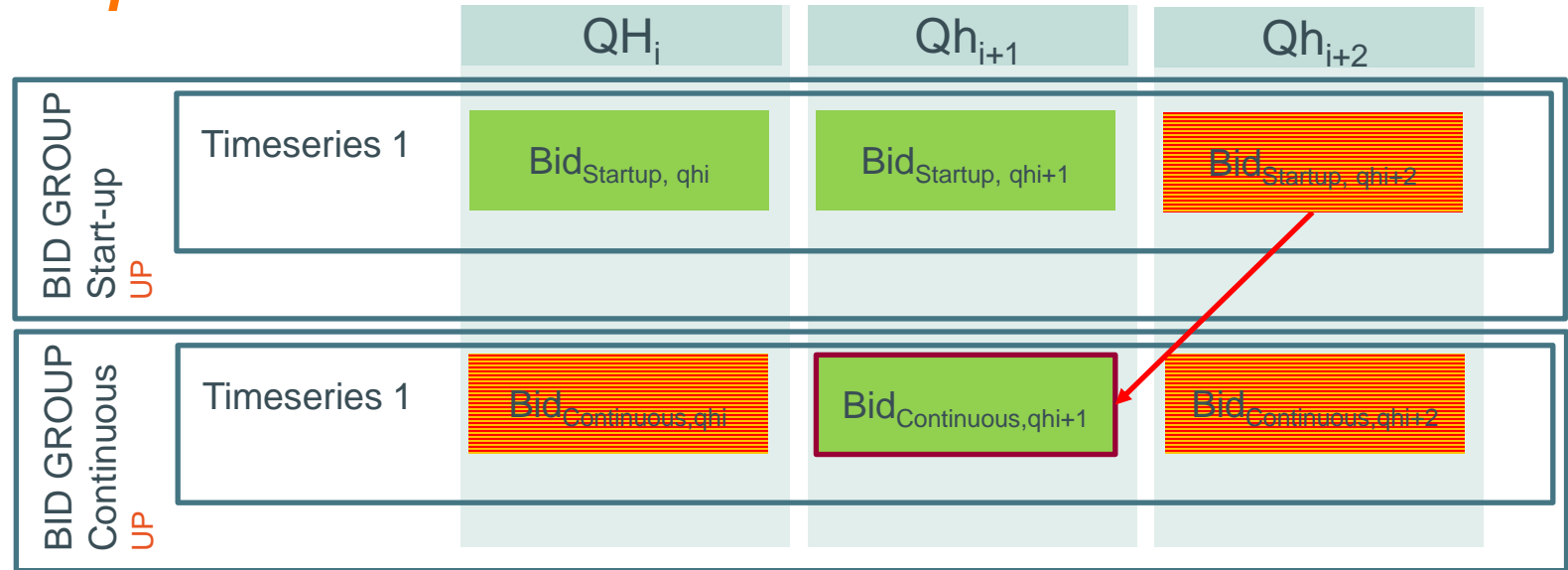
Example of a start-up – start-up bids

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - initially **available**
 - Becomes **unavailable** if Bid_{Startup, qh-1} is activated: **A55 link**
 - Becomes **unavailable** if Bid_{Continuous, qh-1} is activated: **A55 link** →

- **Continuous bid is**
 - initially **unavailable**



Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation

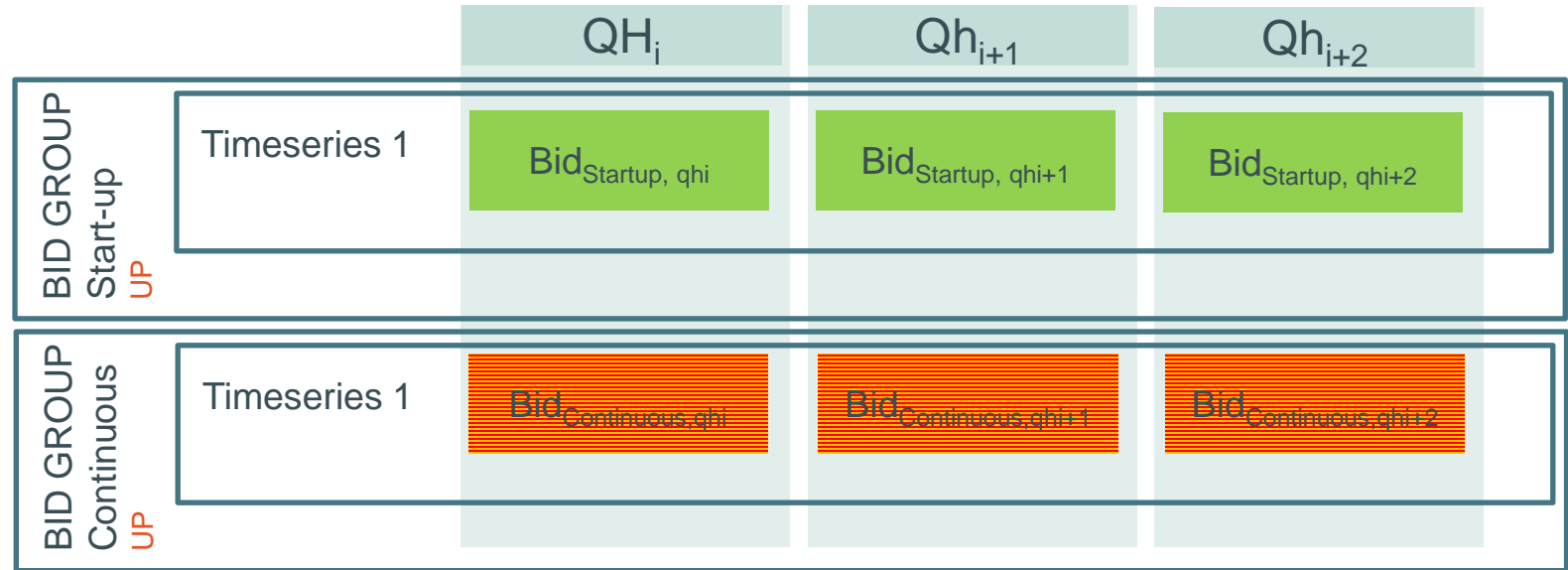
CONDITIONAL LINKING

Example of a start-up – initial situation

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - initially **available**
 - Becomes **unavailable** if Bid_{Startup, qh-1} is activated: **A55 link**
 - Becomes **unavailable** if Bid_{Continuous, qh-1} is activated: **A55 link**
- **Continuous bid**
 - is initially **unavailable**
 - Becomes available if Bid_{Startup, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Continuous, qh-1} is activated: **A67 link**

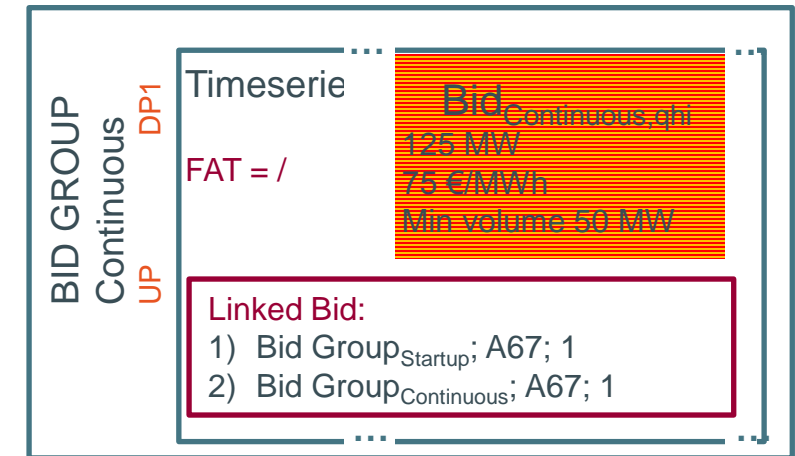
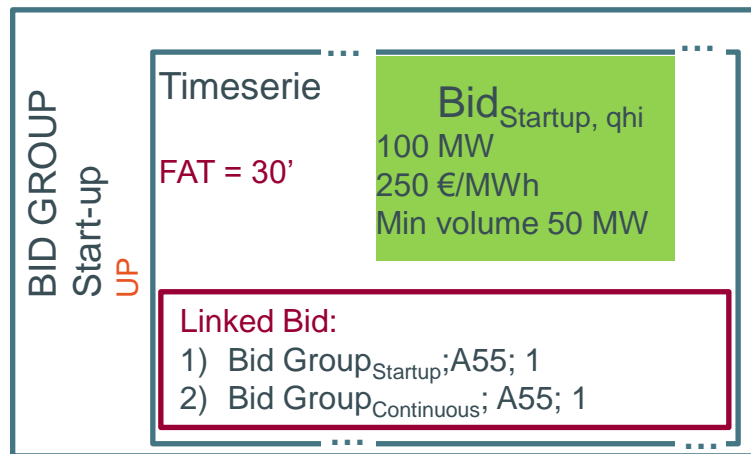


Legend:

Bid **available** for selection and activation

Bid **selected / activated**

Bid **unavailable** for selection and activation



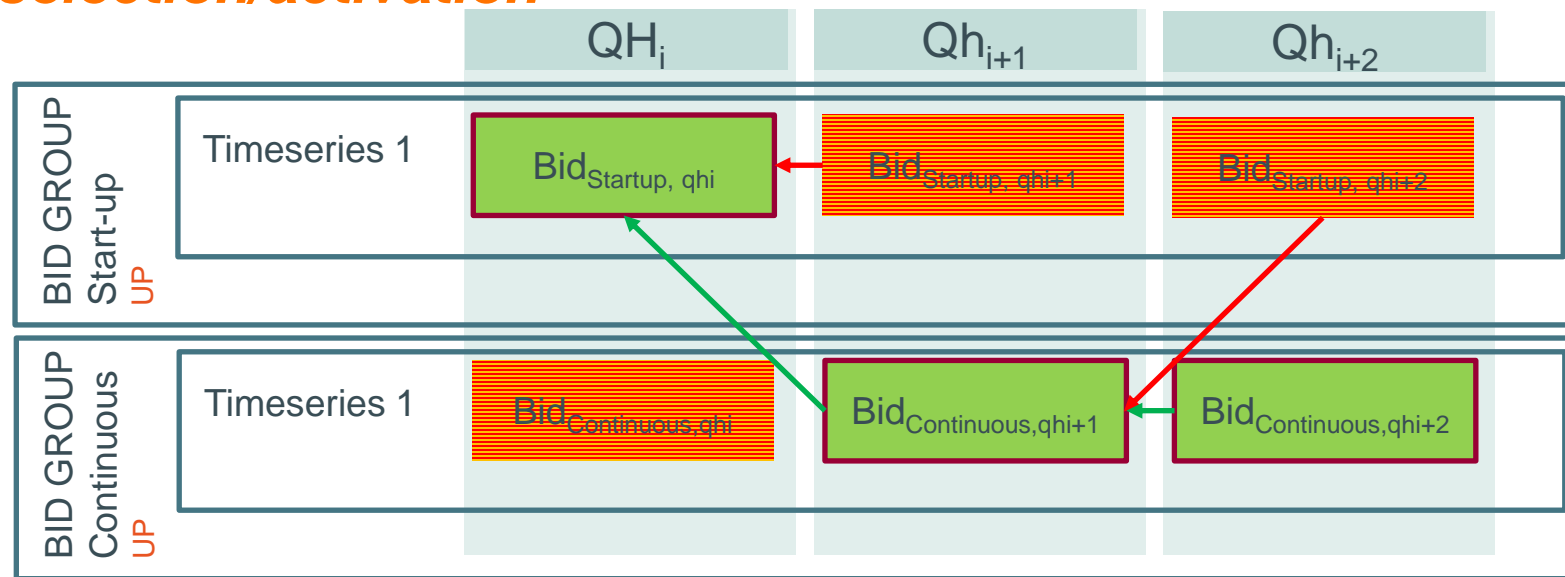
CONDITIONAL LINKING

Example of a start-up – at selection/activation

DP is not running

2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - initially **available**
 - FAT is used to reflect start-up time
 - Becomes **unavailable** if Bid_{Startup, qh-1} is activated: **A55 link**
 - Becomes **unavailable** if Bid_{Continuous, qh-1} is activated: **A55 link**
- **Continuous bid**
 - is initially **unavailable**
 - Becomes available if Bid_{Startup, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Continuous, qh-1} is activated: **A67 link**



Legend:

Bid available for selection and activation	Bid selected / activated	Bid unavailable for selection and activation
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BID GROUP Start-up UP DP1

Timeserie ...

Bid_{Startup, qh}
 100 MW
 250 €/MWh
 Min volume 50 MW

FAT = 30'

Linked Bid:

- 1) Bid Group_{Startup}; A55; 1
- 2) Bid Group_{Continuous}; A55; 1

BID GROUP Continuous UP DP1

Timeserie ...

Bid_{Continuous, qh}
 125 MW
 75 €/MWh
 Min volume 50 MW

FAT = /

Linked Bid:

- 1) Bid Group_{Startup}; A67; 1
- 2) Bid Group_{Continuous}; A67; 1

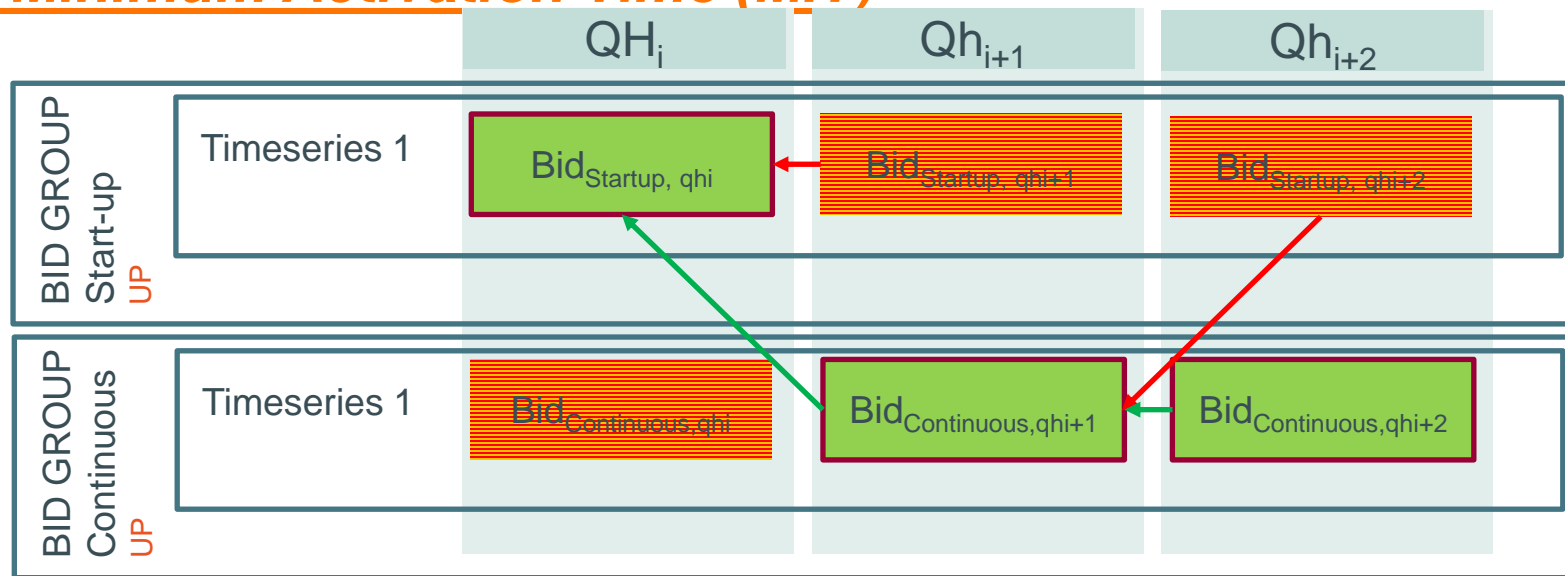
CONDITIONAL LINKING

Example of a start-up with Minimum Activation Time (MIT)

DP is not running

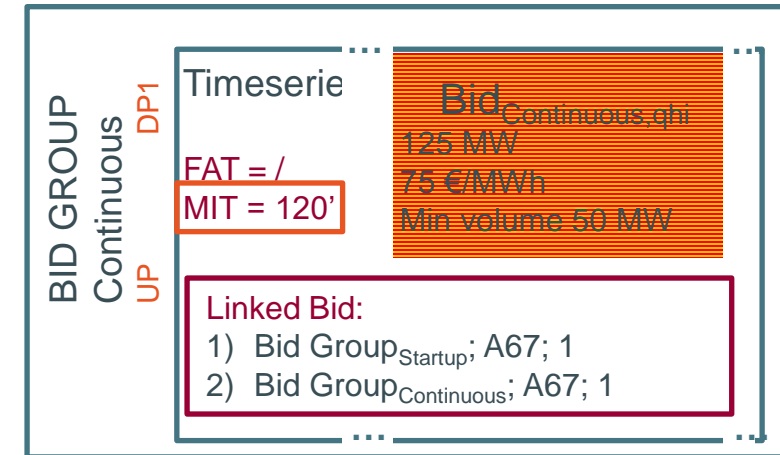
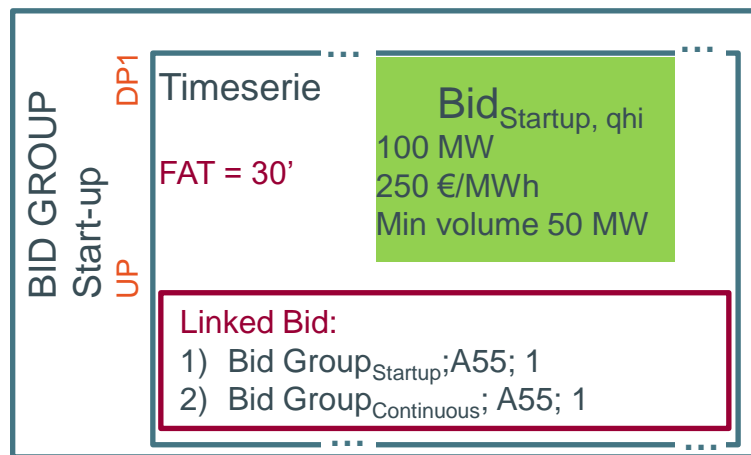
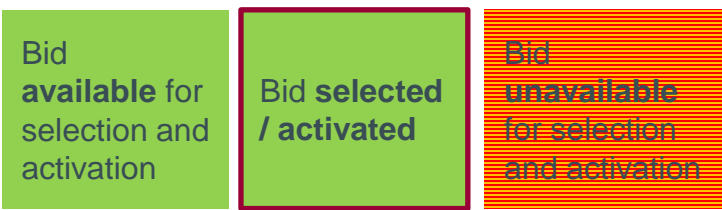
2 Bid Groups to reflect start-ups:

- **Start-up bids**
 - initially **available**
 - Becomes **unavailable** if Bid_{Startup, qh-1} is activated: **A55 link**
 - Becomes **unavailable** if Bid_{Continuous, qh-1} is activated: **A55 link**
- **Continuous bid**
 - is initially **unavailable**
 - **Has a MIT**
 - Becomes available if Bid_{Startup, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Continuous, qh-1} is activated: **A67 link**



Elia guarantees that the continuous bid will always be activated if the start bid is activated

Legend:



CONDITIONAL LINKING

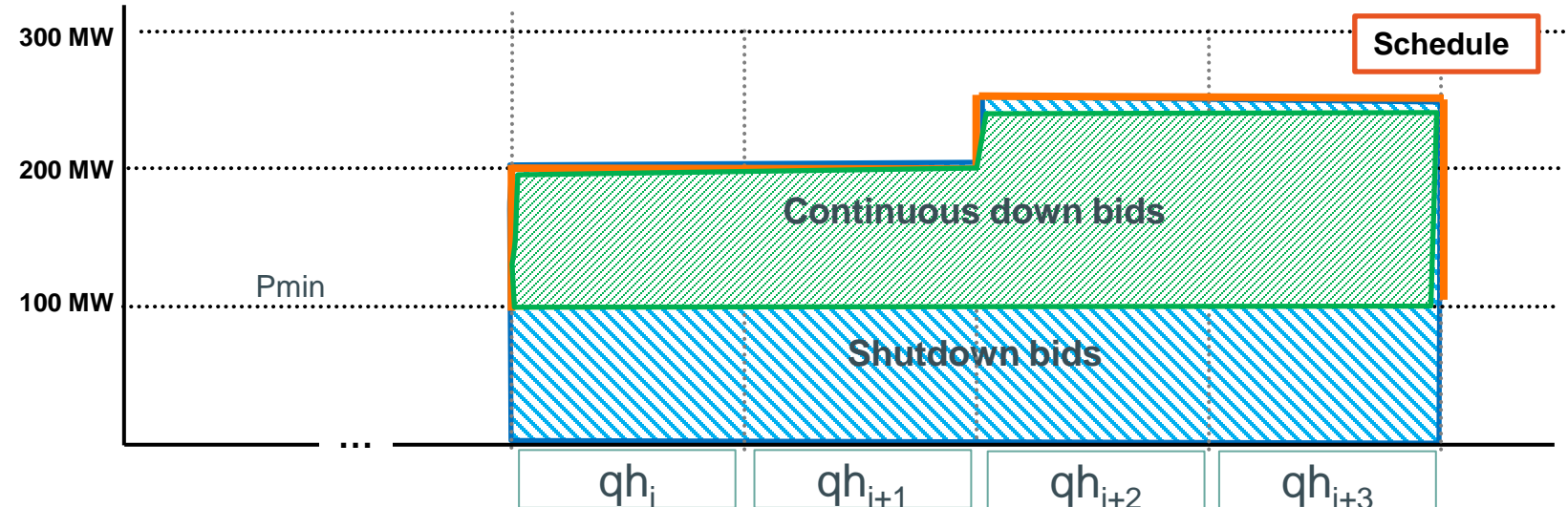
Example of a shut-down

DP is running

$P_{min} = 100$ MW

2 Bid Groups to reflect shut-down:

- **Continuous down bids**
 - initially **available**
 - Volume from Schedule to P_{min}
 - Exclusive Group: EG1
 - Becomes **unavailable** if $Bid_{Shutdown, qh-1}$ is activated
- **Shutdown bid**
 - is initially **unavailable**
 - **Volume from Schedule to 0 MW**
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1
 - Becomes available if $Bid_{Continuous\ down, qh-1}$ is activated
 - Or Becomes available if $Bid_{Shutdown, qh-1}$ is activated



CONDITIONAL LINKING

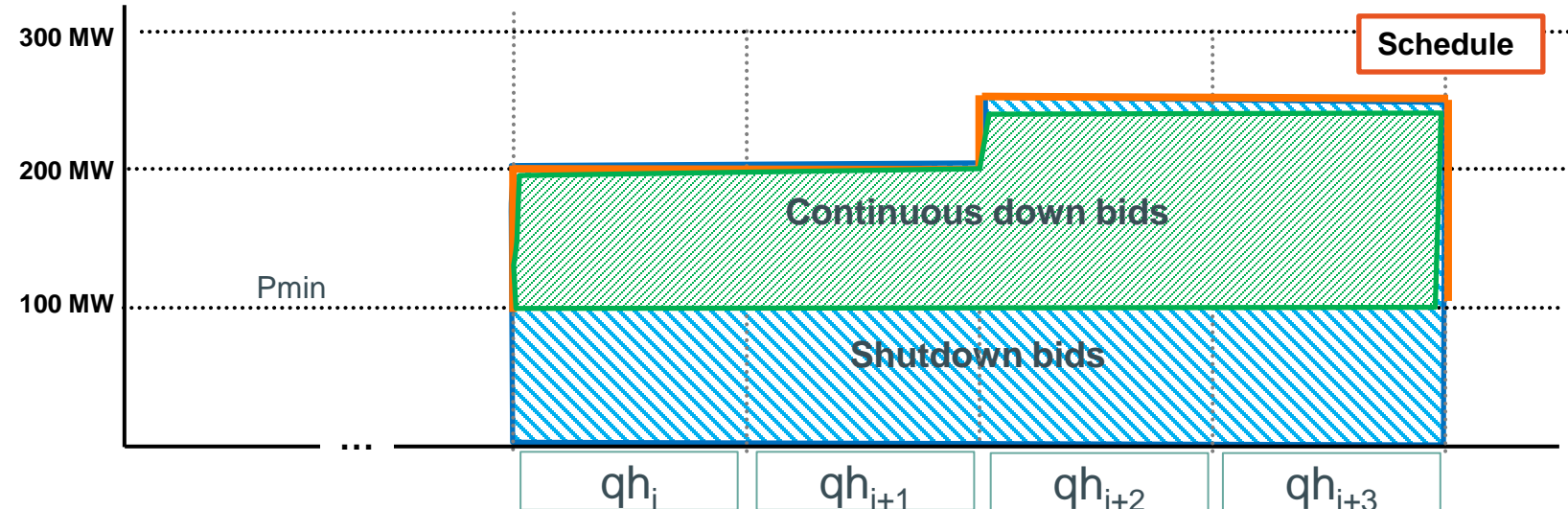
Example of a shut-down with Minimum Activation Time (MIT) 1/3

DP is running

$P_{min} = 100$ MW

2 Bid Groups to reflect shut-down:

- **Continuous down bids**
 - initially **available**
 - Volume from Schedule to P_{min}
 - Exclusive Group: EG1
 - Becomes **unavailable** if $Bid_{Shutdown, qb-1}$ is activated
- **Shutdown bid**
 - is initially **unavailable**
 - **Volume from Schedule to 0 MW**
 - **Has a MIT***
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1
 - Becomes available if $Bid_{Continuous down, qb-1}$ is activated
 - Or Becomes available if $Bid_{Shutdown, qb-1}$ is activated



*could also have a MAT

CONDITIONAL LINKING

Example of a shut-down with Minimum Activation Time (MIT) 2/3

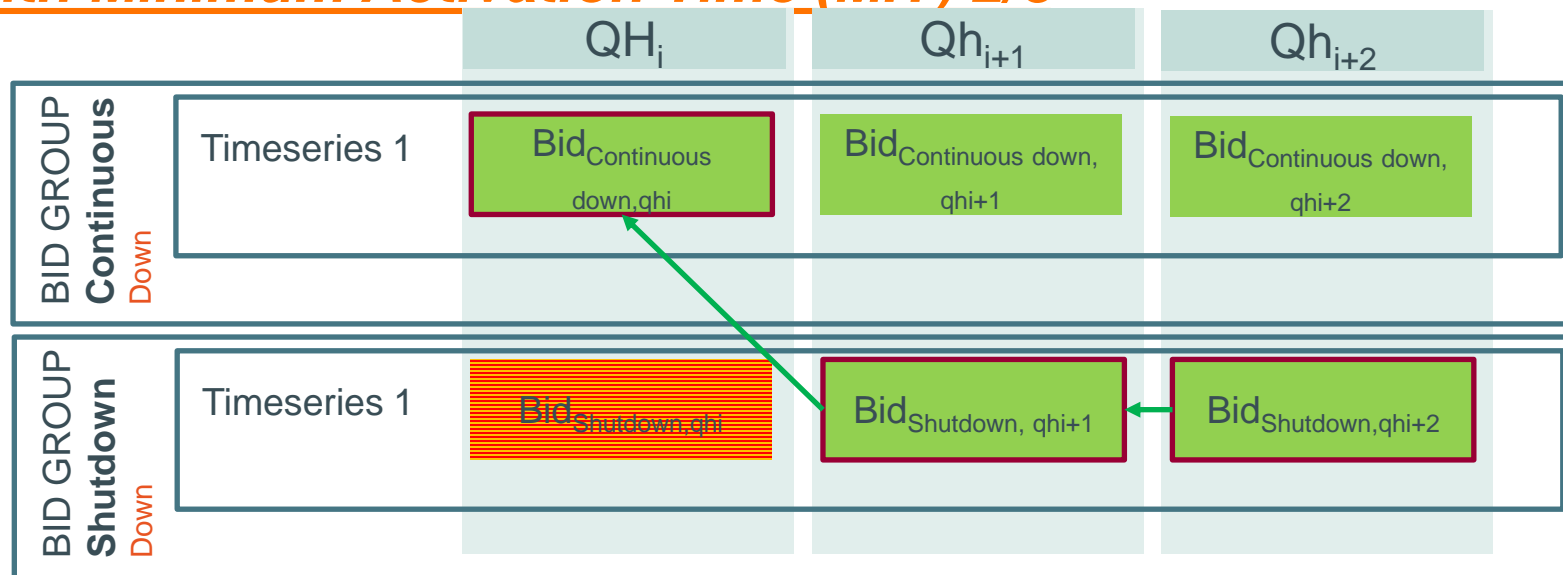
DP is running
Pmin = 100 MW

2 Bid Groups to reflect shut-down:

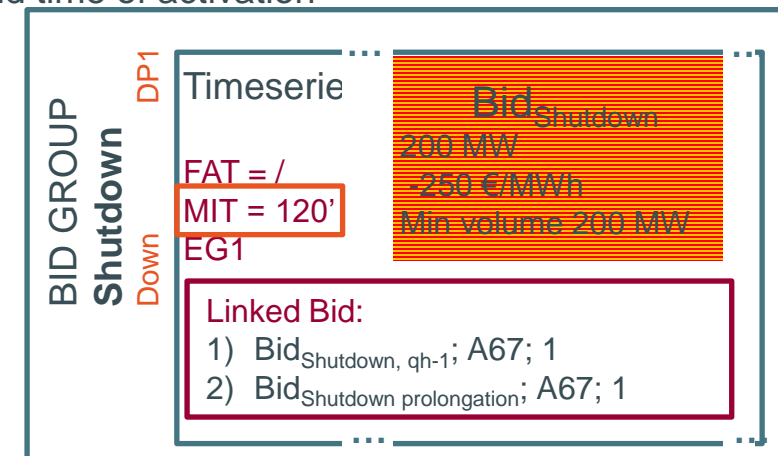
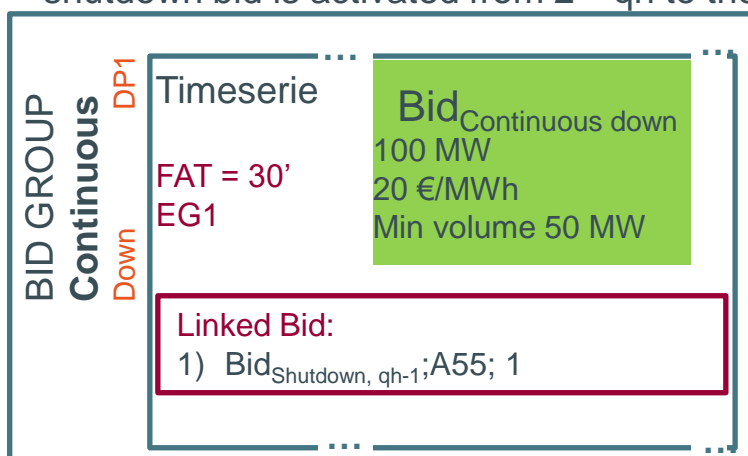
- **Continuous down bids**
 - initially **available**
 - Volume from Schedule to Pmin
 - Exclusive Group: EG1
 - Becomes **unavailable** if Bid_{Shutdown, qh-1} is activated: **A55 link**

- **Shutdown bid**
 - is initially **unavailable**
 - **Volume from Schedule to 0 MW**
 - **Has a MIT***
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1
 - Becomes available if Bid_{Continuous down, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Shutdown, qh-1} is activated: **A67 link**

*could also have a MAT

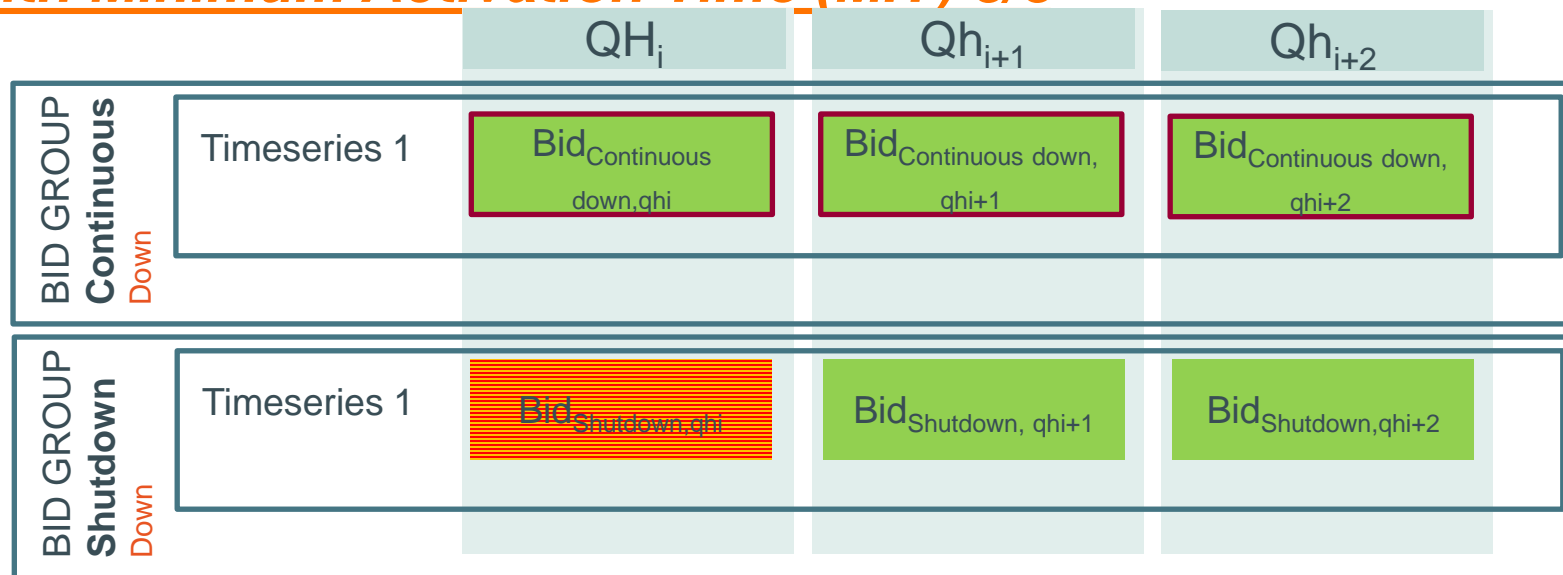


Example of Elia activating to a full shutdown: continuous bid is activated for 1st qh + shutdown bid is activated from 2nd qh to the end time of activation



CONDITIONAL LINKING

Example of a shut-down with Minimum Activation Time (MIT) 3/3

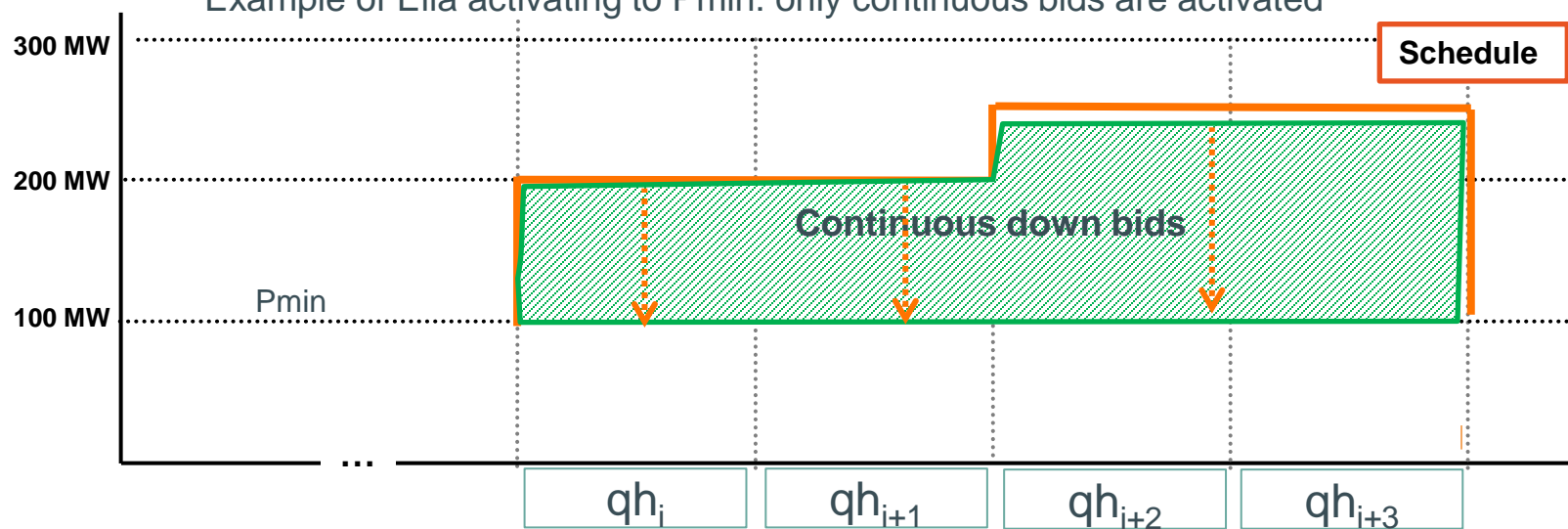


DP is running
P_{min} = 100 MW

2 Bid Groups to reflect shutdown:

- **Continuous down bids**
 - initially **available**
 - Volume from Schedule to P_{min}
 - Exclusive Group: EG1
 - Becomes **unavailable** if Bid_{Shutdown, qh-1} is activated: **A55 link**
- **Shutdown bid**
 - is initially **unavailable**
 - **Volume from Schedule to 0 MW**
 - **Has a MIT***
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1
 - Becomes available if Bid_{Continuous down, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Shutdown, qh-1} is activated: **A67 link**

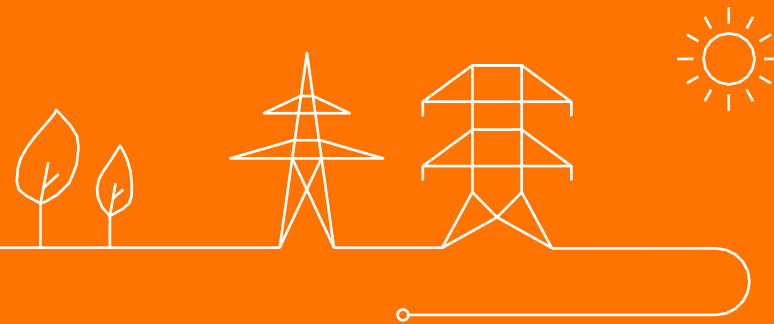
Example of Elia activating to P_{min}: only continuous bids are activated



*could also have a MAT

How to offer flexibility for RD?

Including combination with other products

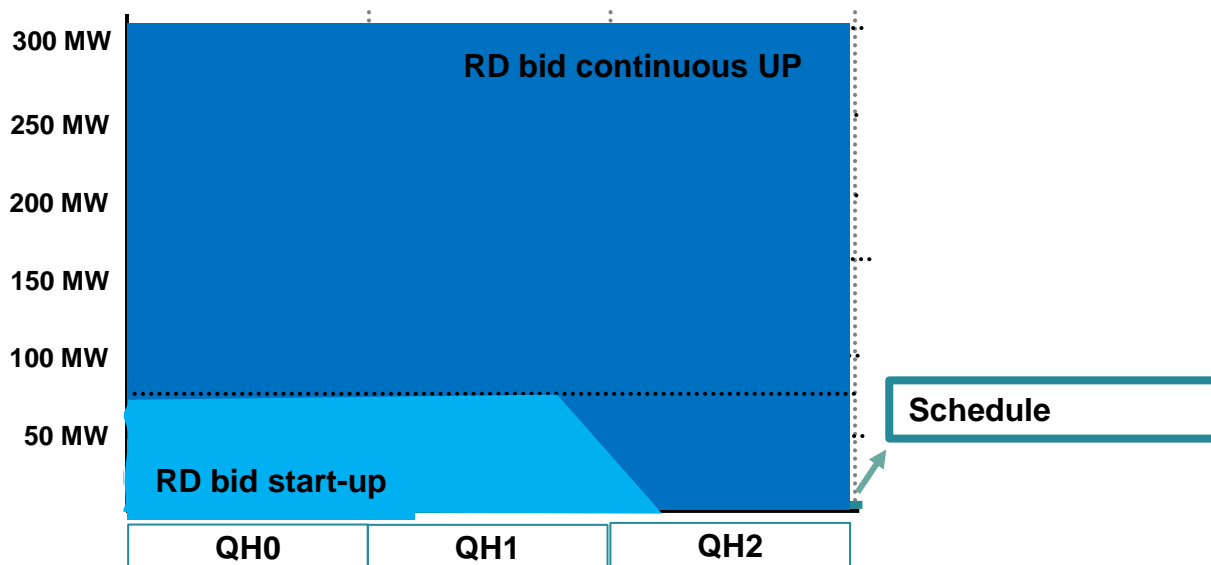


HOW TO OFFER FLEXIBILITY FOR RD

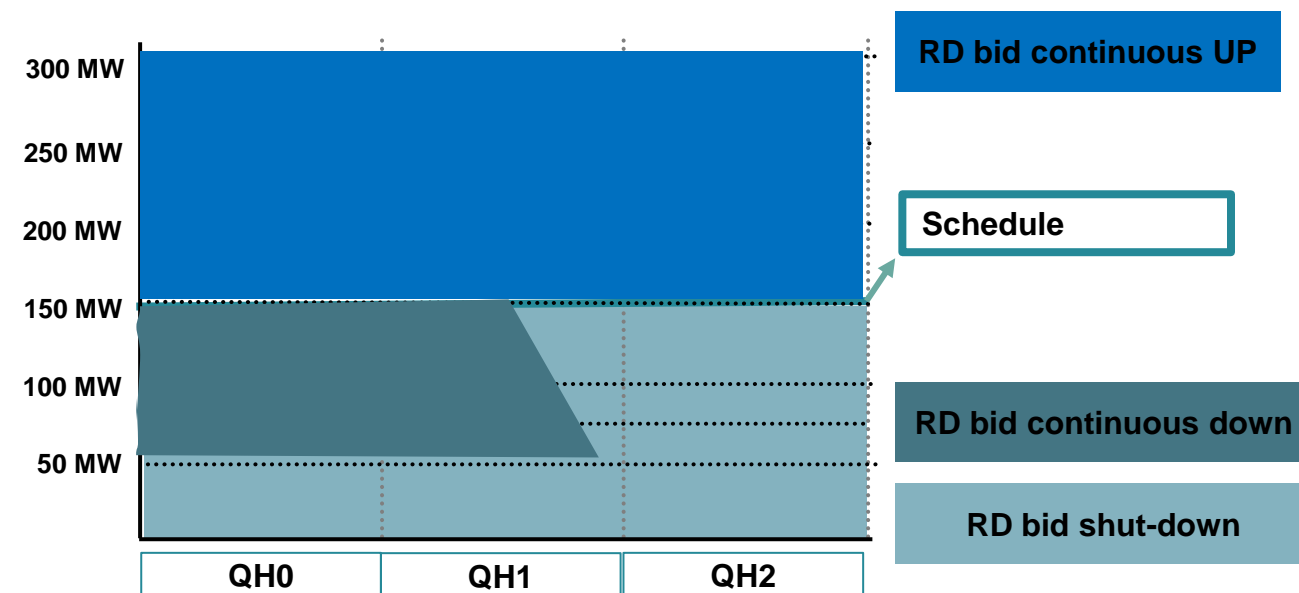
Start-up & Shutdown bids

SA must bid a startup with RD bids (when technically feasible) when the DP is not running

SA must bid a full stop with RD bids (when technically feasible) when the DP is running



	Pmax	Pmin	Schedule
GT1	100 MW	30 MW	0 MW
GT2	100 MW	30 MW	0 MW
ST	100 MW	20 MW	0 MW

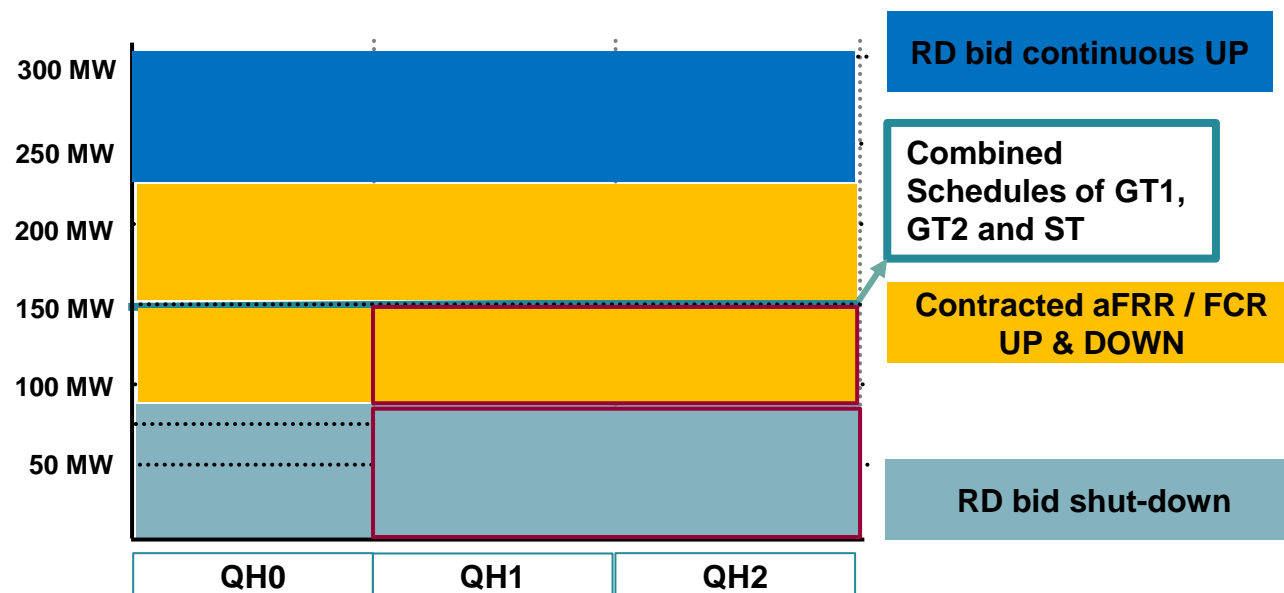


	Pmax	Pmin	Schedule
GT1	100 MW	30 MW	50 MW
GT2	100 MW	30 MW	50 MW
ST	100 MW	20 MW	50 MW

HOW TO OFFER FLEXIBILITY FOR RD

Combination with contracted aFRR (1/4)

	Pmax	Pmin	Schedule
GT1	100 MW	30 MW	50 MW
GT2	100 MW	30 MW	50 MW
ST	100 MW	20 MW	50 MW



SA must bid a full stop with RD bids also if he has an aFRR obligation on the asset

Elia guarantees that the aFRR contracted bid down will always be activated (purpose congestion) if the RD shutdown bids are activated to prevent unfeasible activations

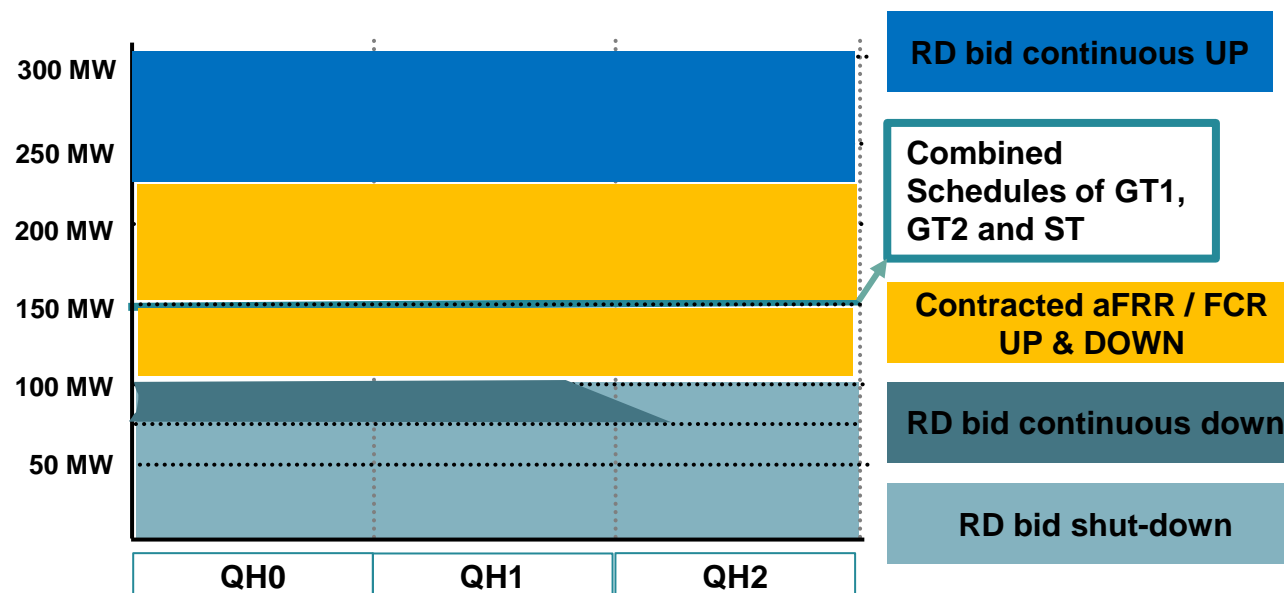
In case contracted aFRR from Schedule to Pmin

- **Shutdown bid**
 - is initially available
 - **Volume Pmin**
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1

HOW TO OFFER FLEXIBILITY FOR RD

Combination with contracted aFRR (2/4)

	Pmax	Pmin	Schedule
GT1	100 MW	30 MW	50 MW
GT2	100 MW	30 MW	50 MW
ST	100 MW	20 MW	50 MW



SA must bid a full stop with RD bids also if he has an aFRR obligation on the asset

RD bids down have the same properties as standard shutdown (slide 25)

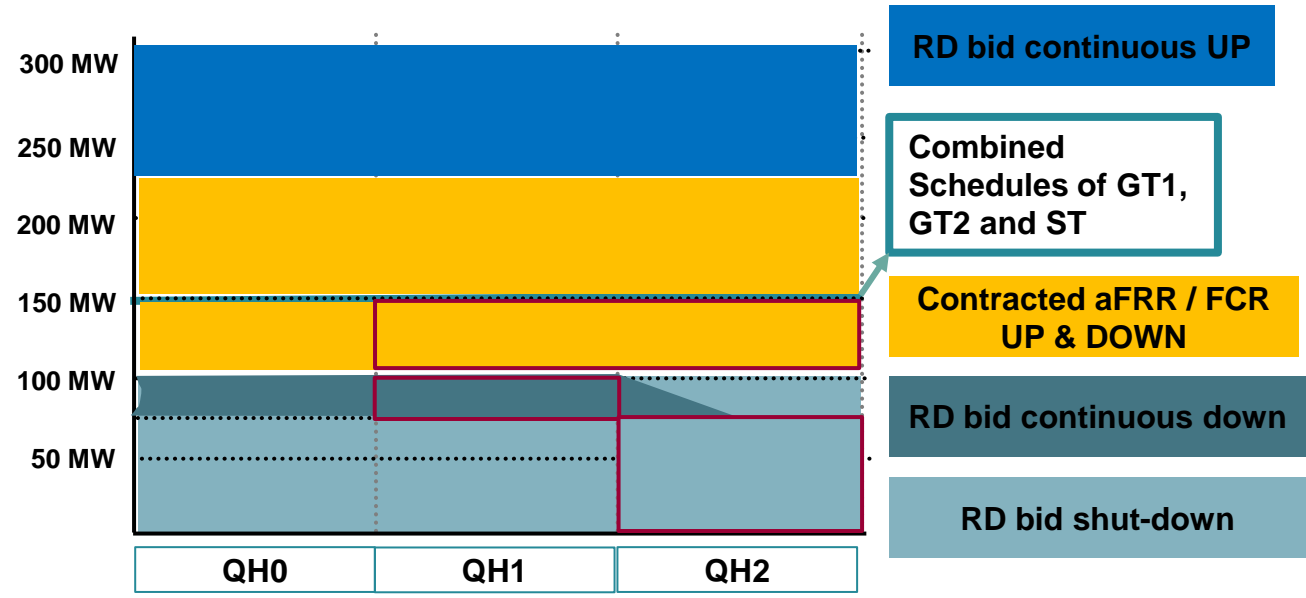
- **Continuous down bids**
 - initially **available**
 - Volume from Schedule - **contracted volume down (aFRR /FCR)** to Pmin Exclusive Group: EG1
 - Becomes unavailable if Bid_{Shutdown, qh-1} is activated: **A55 link**
- **Shutdown bid**
 - is initially unavailable
 - **Volume from Schedule - contracted volume down (aFRR /FCR) to 0 MW**
 - Can have a FAT > 12,5 min
 - Can have a MIT
 - **Minimum volume = maximum volume**
 - Exclusive Group: EG1
 - Becomes available if Bid_{Continuous down, qh-1} is activated: **A67 link**
 - Or Becomes available if Bid_{Shutdown, qh-1} is activated: **A67 link**

HOW TO OFFER FLEXIBILITY FOR RD

Combination with contracted aFRR (3/4)

	Pmax	Pmin	Schedule
GT1	100 MW	30 MW	50 MW
GT2	100 MW	30 MW	50 MW
ST	100 MW	20 MW	50 MW

Elia guarantees that the aFRR contracted bid down will always be activated (purpose congestion) if the RD continuous down & the shutdown bids are activated to prevent unfeasible activations



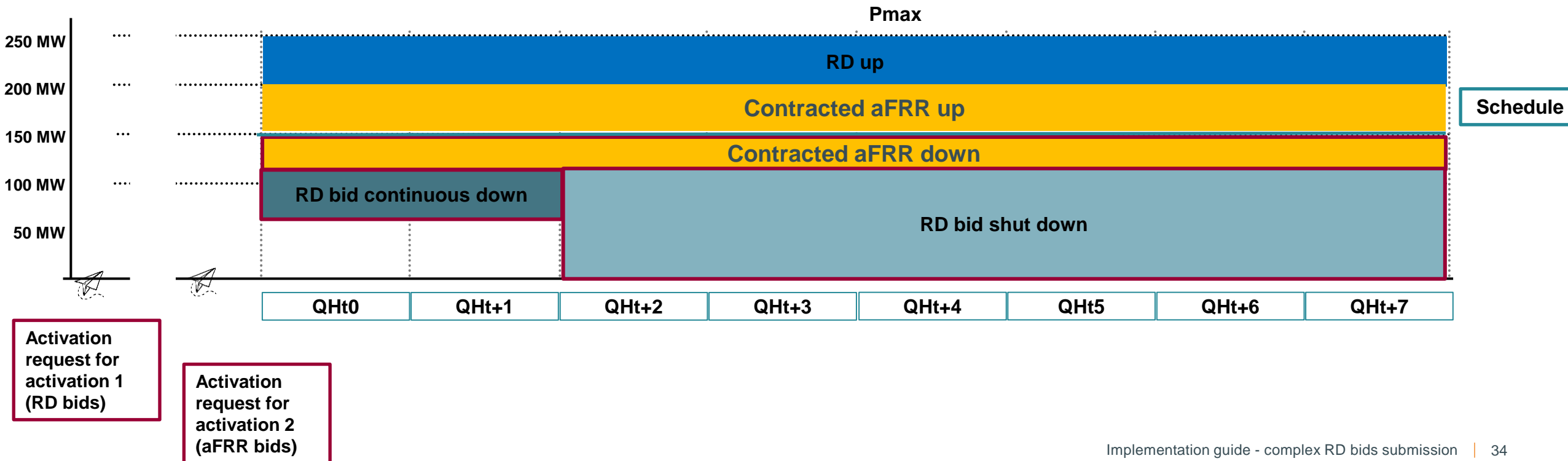
Activations:

Timing

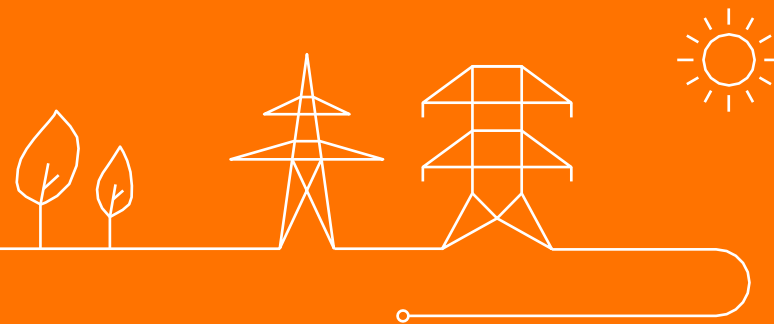
- RD activation including, RD continuous down & shutdown bids, will be sent according to the FAT
- Contracted aFRR activation will be sent at BAL GCT of the first qh of the activation

HOW TO OFFER FLEXIBILITY FOR RD

Combination with contracted aFRR (4/4)

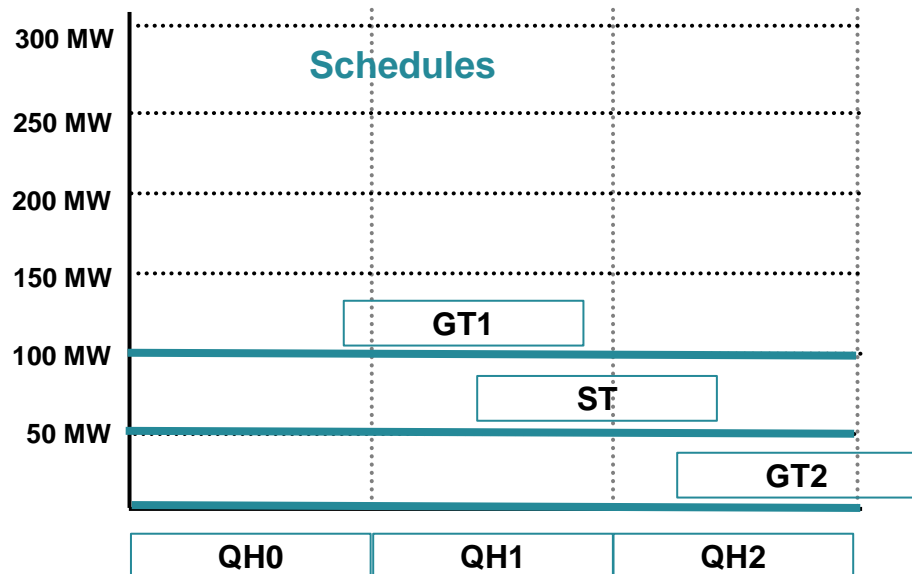
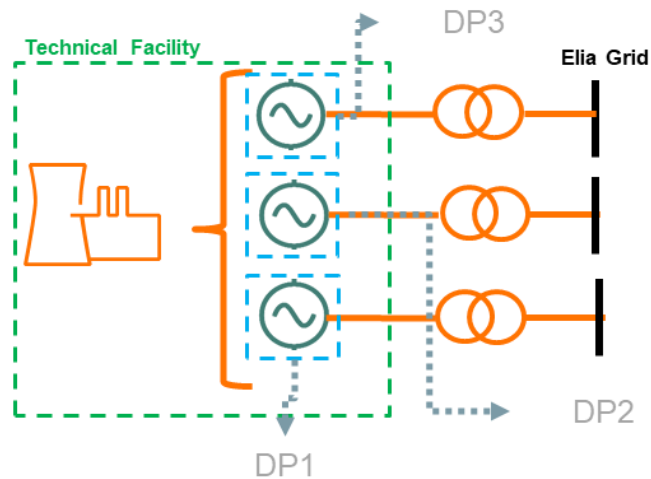


Example of complex biddings



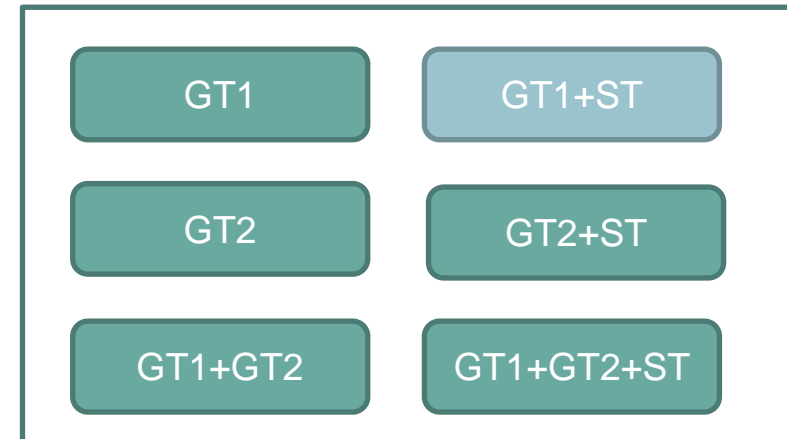
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes*



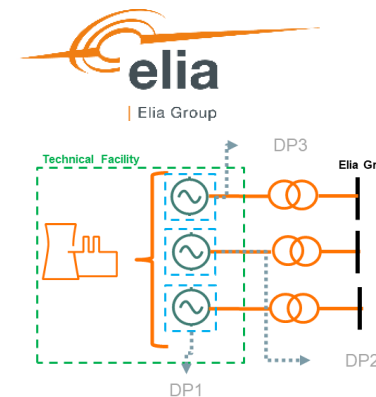
Hypothesis:

- A CCGT with 3 DPs: GT1, GT2 & ST
- This CCGT can technically be operated in multiple Operating modes:



- Current operating mode is (GT1+ST)
- By using the combination of Conditional links and Exclusive Groups, the flexibility of the running operating mode and the all other operating mode can be submitted.

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	50 MW



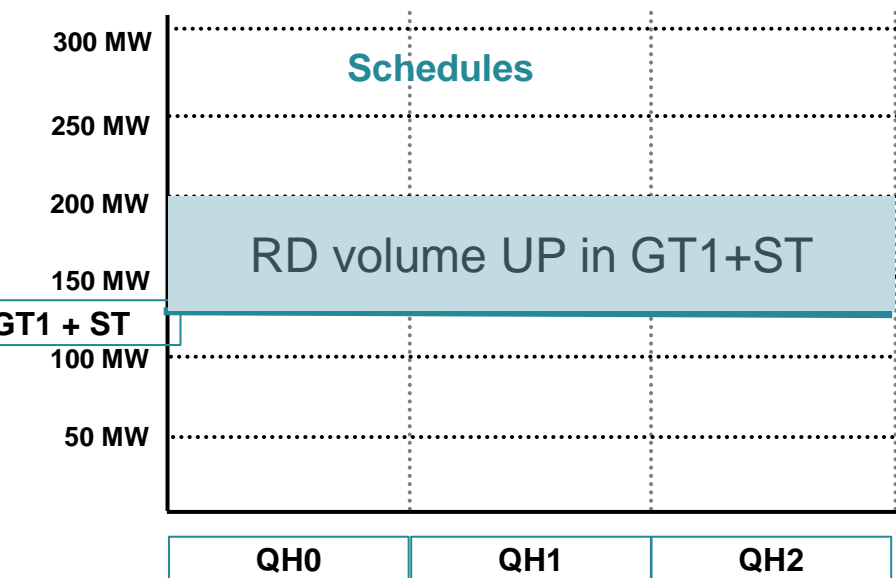
EXAMPLE OF COMPLEX BIDDING

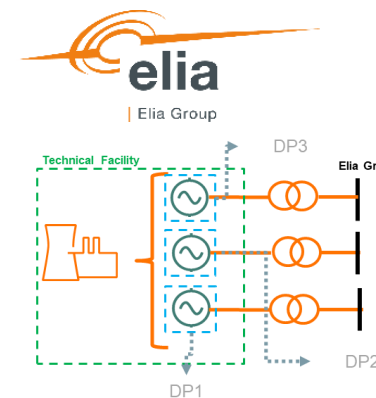
Combination of Conditional links & Exclusive Groups to reflect Operating modes

Current operating mode:

GT1+ST

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	20 MW





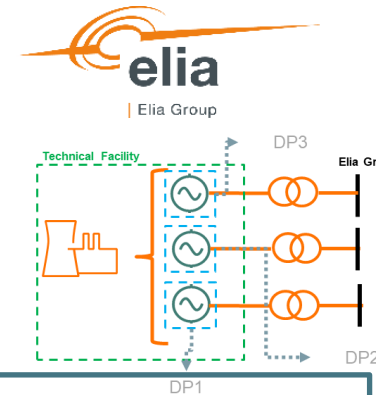
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Current operating mode:

GT1+ST

Bid Group		Status			
Bid Group Id	GT1_ST_continuous	Active			
TimeSeries Id	GT1_ST_continuous-UP-				
Direction	UP				
Contracted/Non Contracted					
Parent Child Id					
Exclusive Group Ids	GT1		00:00	00:15	00:30
Linked Bid Group Id		Volume	80	80	80
Linked Bid Status		Price	150	150	150
Linked Bid Level		Minimum Volume			
Full Activation Time		Activation Type			
Maximum Activation Time		Reason			
Delivery Points	EAN	GT1	TRUE	TRUE	TRUE
	EAN	GT2	TRUE	TRUE	TRUE



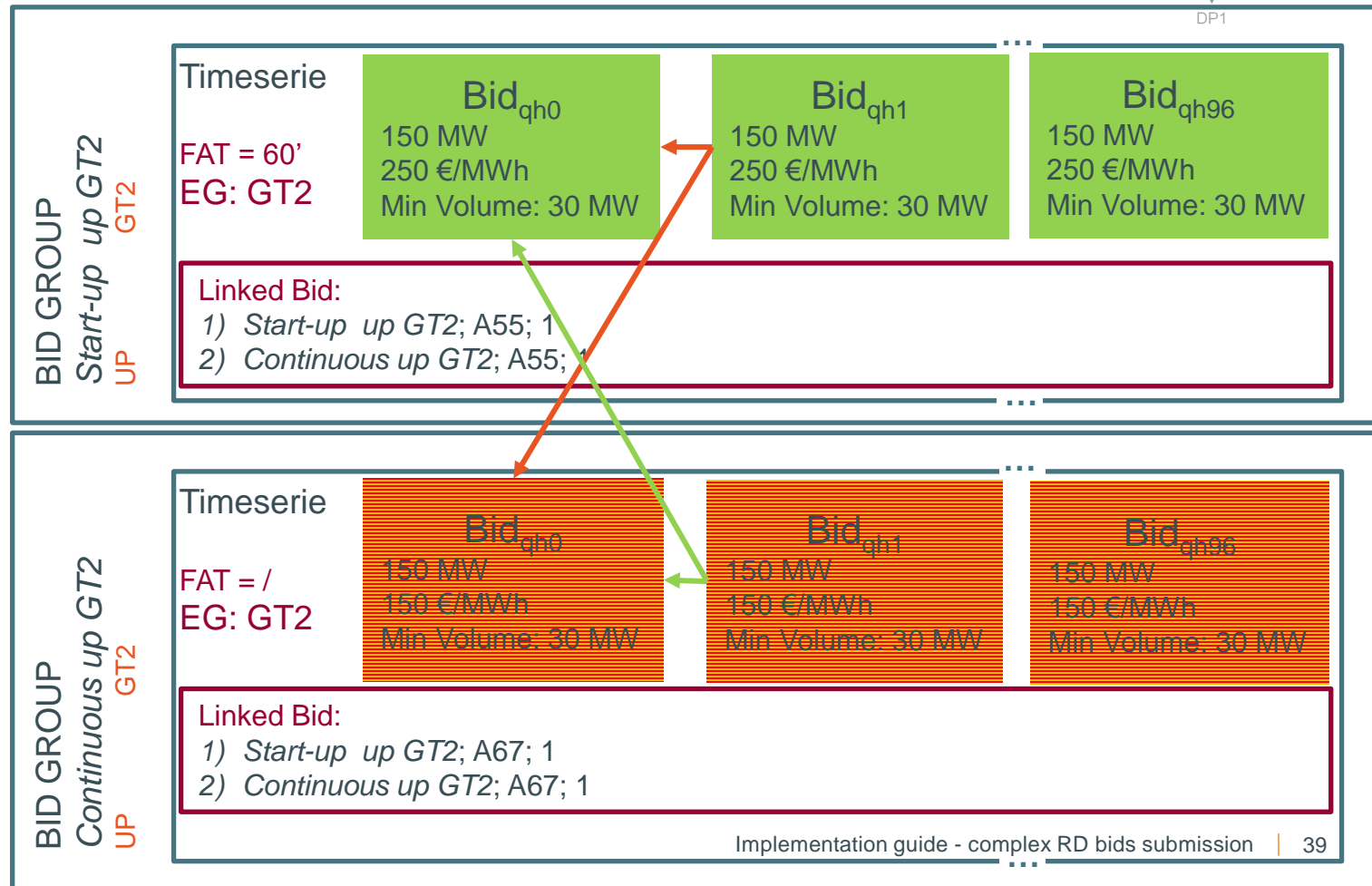
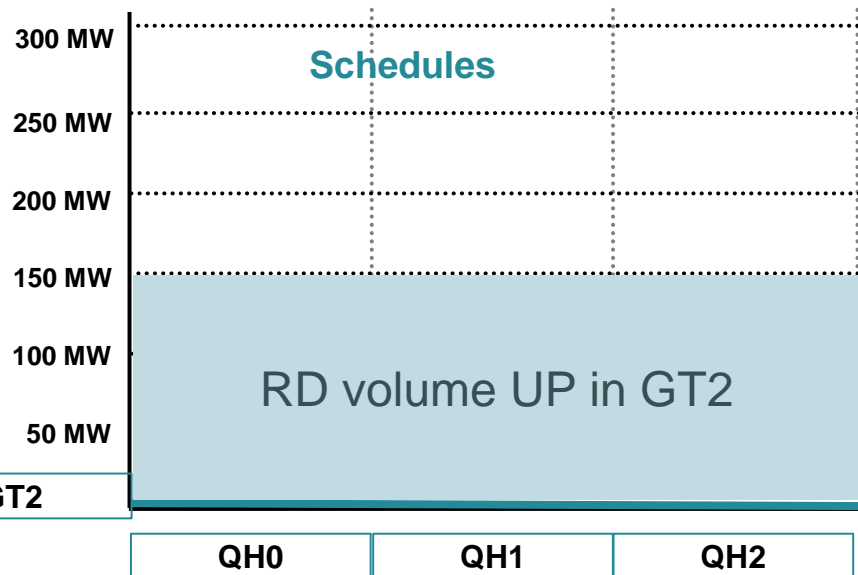
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Start-up of other operating mode:

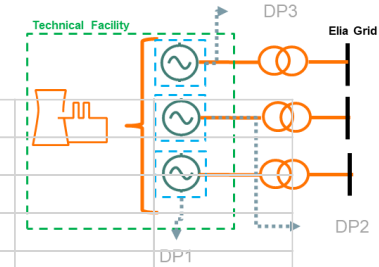
GT2

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	20 MW



EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

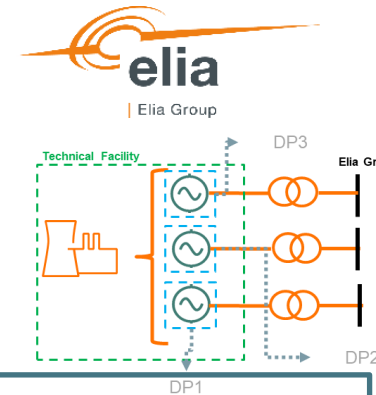


Start-up of other operating mode:

GT2

Bid Group		Status				
Bid Group Id	GT2_startup	Active				
TimeSeries Id	GT2_startup-UP-					
Direction	UP					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT2		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT2_startup;GT2_continuous	Volume	150	150	150	150
Linked Bid Status	A55;A55	Price	250	250	250	250
Linked Bid Level	1;1	Minimum Volume	30	30	30	30
Full Activation Time	30	Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT2	TRUE	TRUE	TRUE	TRUE

Bid Group		Status				
Bid Group Id	GT2_continuous	Active				
TimeSeries Id	GT2_continuous-UP-					
Direction	UP					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT2		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT2_startup;GT2_continuous	Volume	150	150	150	150
Linked Bid Status	A67;A67	Price	150	150	150	150
Linked Bid Level	1;1	Minimum Volume	30	30	30	30
Full Activation Time		Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT2	TRUE	TRUE	TRUE	TRUE



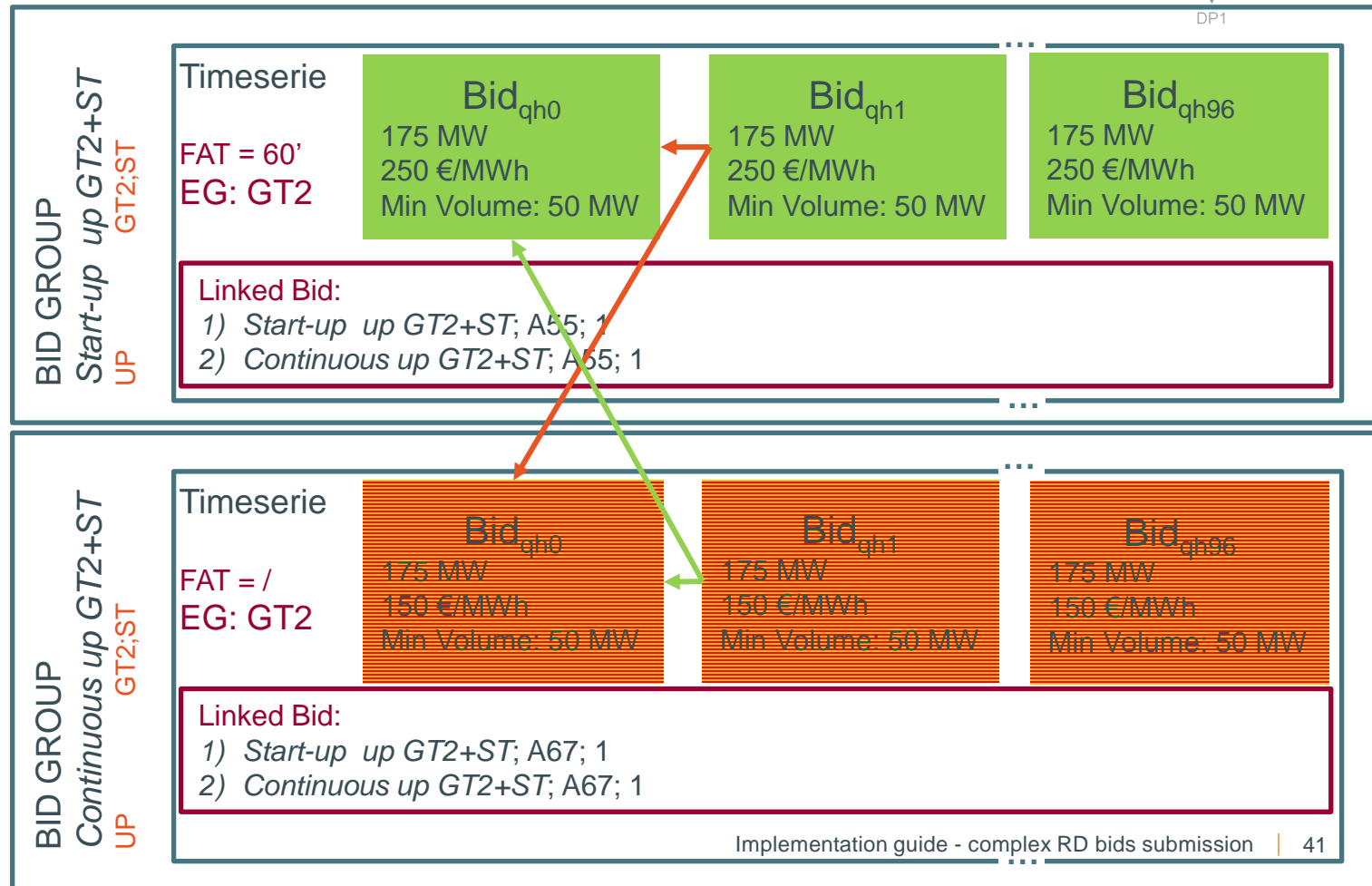
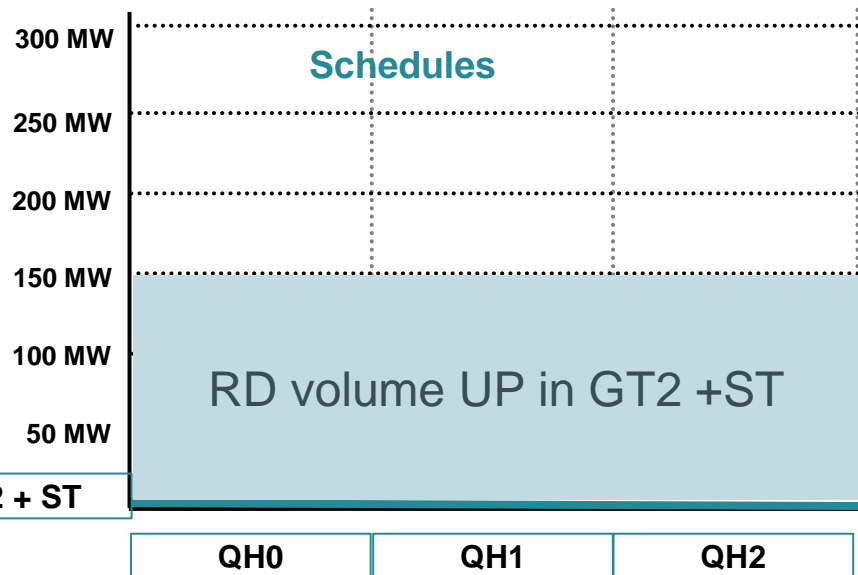
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Start-up of other operating mode:

GT2 + ST

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	20 MW

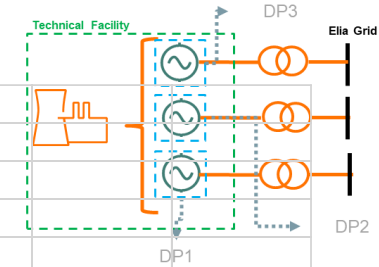


EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Start-up of other operating mode:

GT2 + ST



Bid Group		Status				
Bid Group Id	GT2_ST_startup	Active				
TimeSeries Id	GT2_ST_startup-UP-					
Direction	UP					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT2		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT2_ST_startup;GT2_ST_continuous	Volume	175	175	175	175
Linked Bid Status	A55;A55	Price	250	250	250	250
Linked Bid Level	1;1	Minimum Volume	50	50	50	50
Full Activation Time	60	Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT2	TRUE	TRUE	TRUE	TRUE
	EAN	ST	TRUE	TRUE	TRUE	TRUE

Bid Group		Status				
Bid Group Id	GT2_ST_continuous	Active				
TimeSeries Id	GT2_ST_continuous-UP-					
Direction	UP					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT2		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT2_ST_startup;GT2_ST_continuous	Volume	175	175	175	175
Linked Bid Status	A67;A67	Price	150	150	150	150
Linked Bid Level	1;1	Minimum Volume	50	50	50	50
Full Activation Time		Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT2	TRUE	TRUE	TRUE	TRUE
	EAN	ST	TRUE	TRUE	TRUE	TRUE

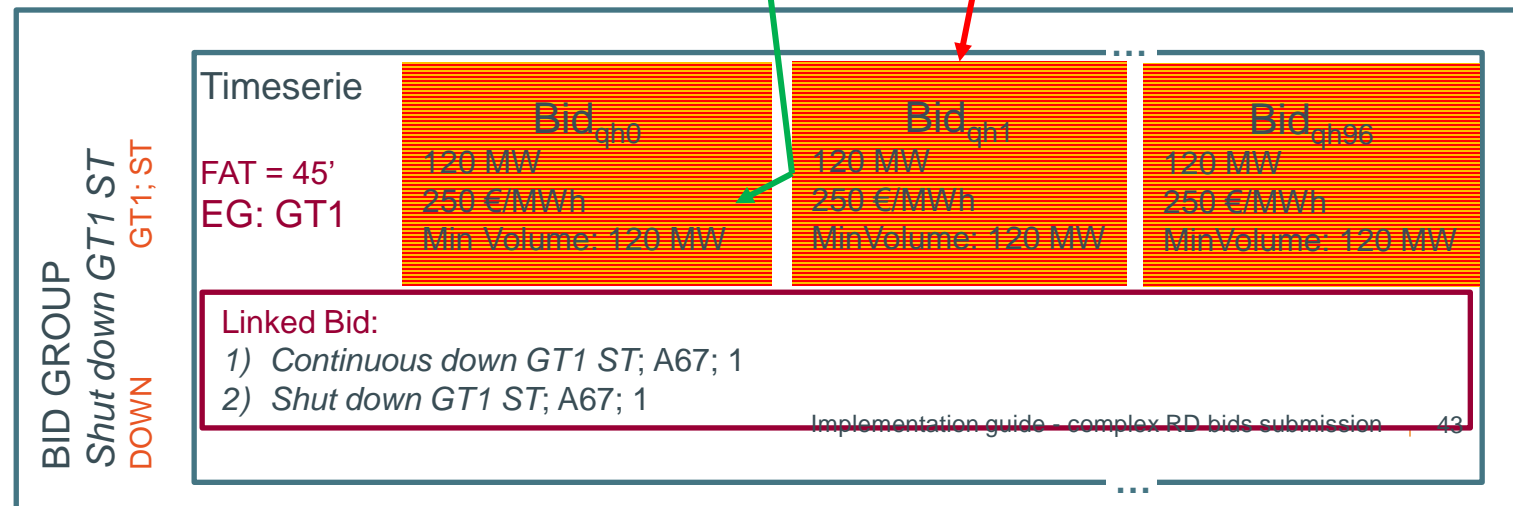
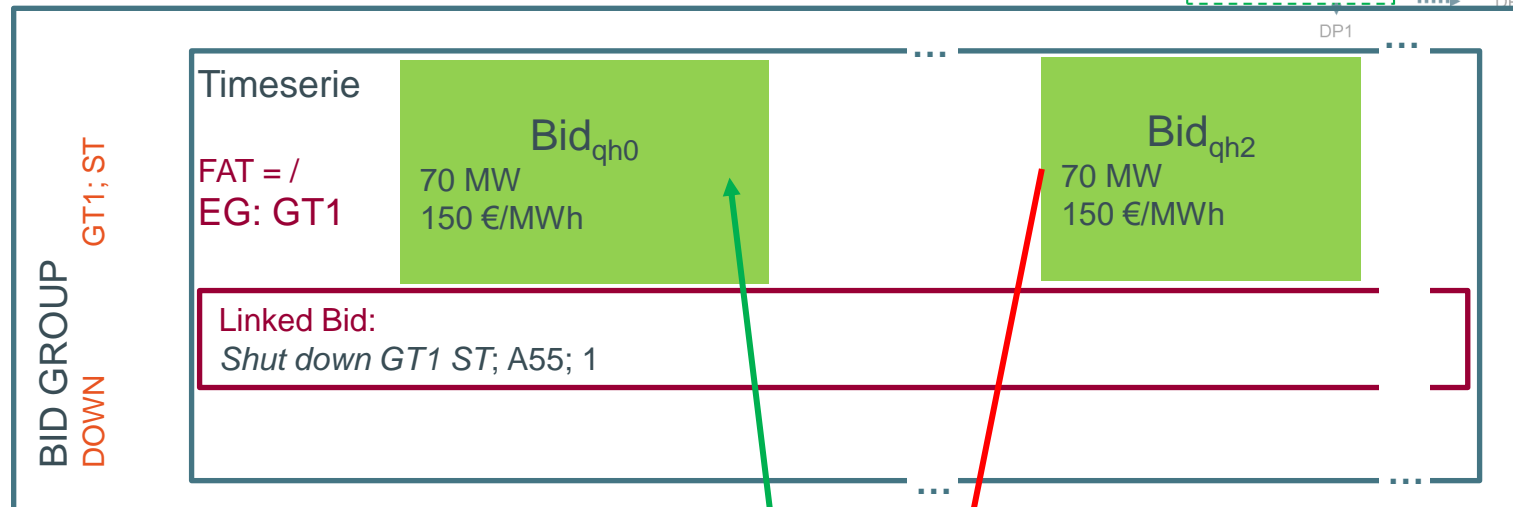
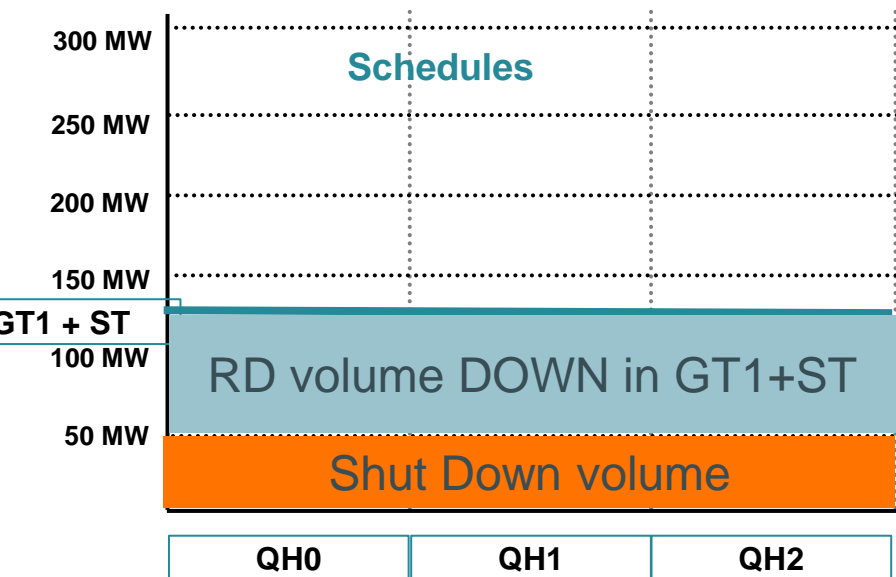
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Current operating mode: → special case of shut down

GT1+ST

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	20 MW



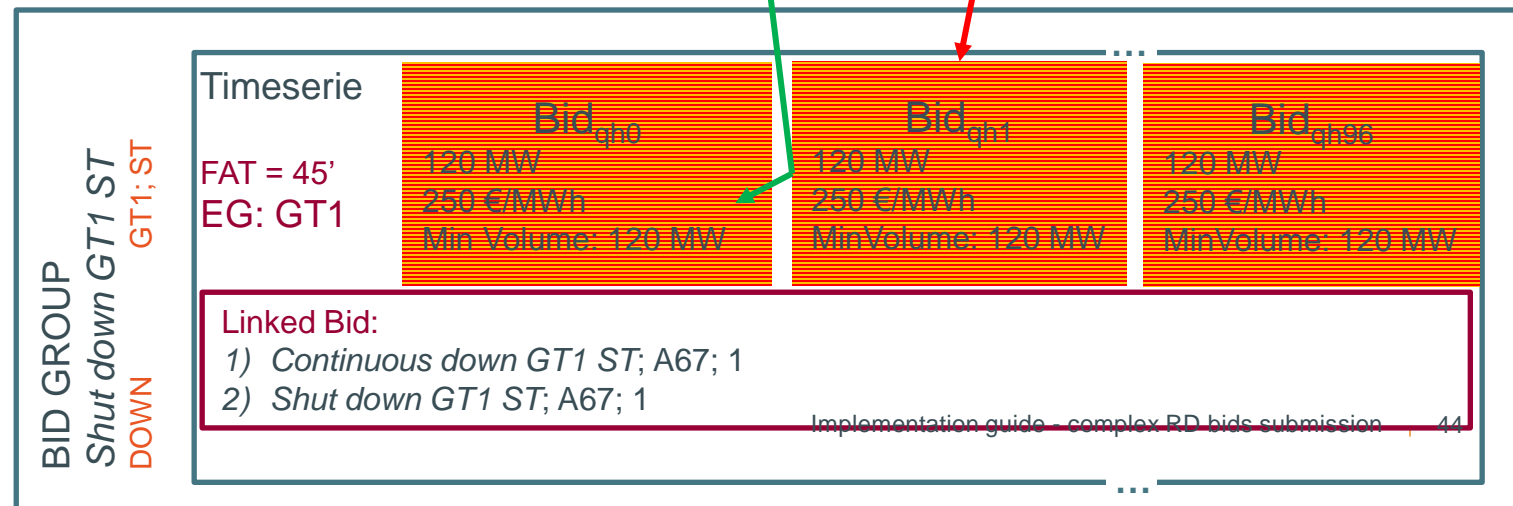
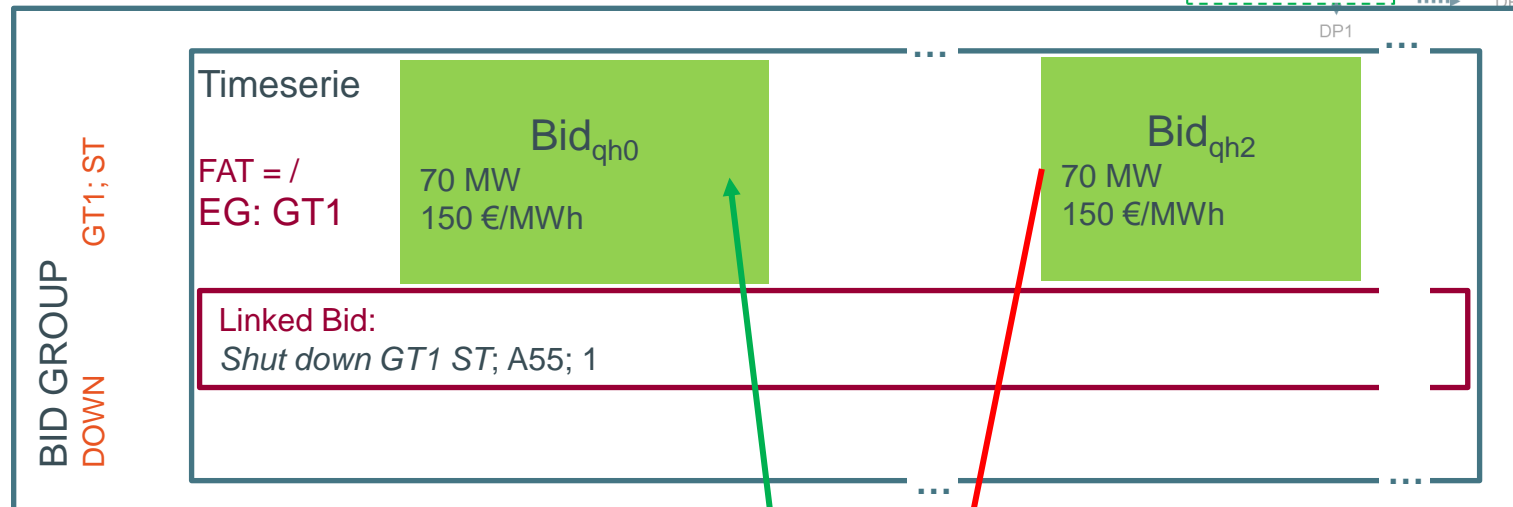
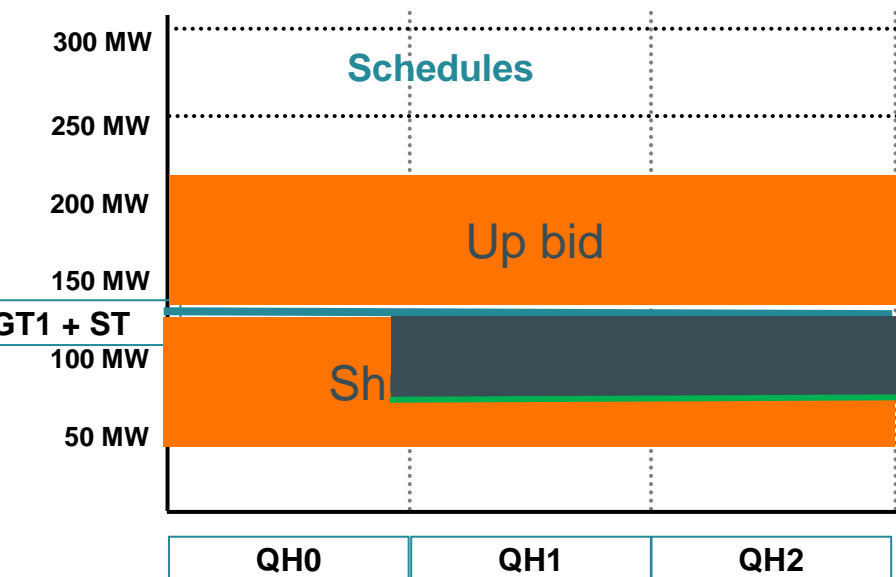
EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

Current operating mode: → special case of shut down

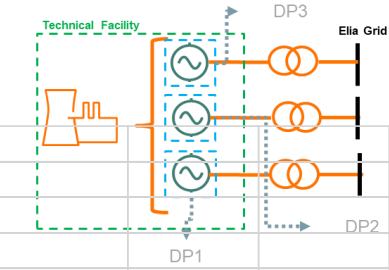
GT1+ST

	Pmax	Pmin	Schedule
GT1	150 MW	30 MW	100 MW
GT2	150 MW	30 MW	0 MW
ST	100 MW	20 MW	20 MW



EXAMPLE OF COMPLEX BIDDING

Combination of Conditional links & Exclusive Groups to reflect Operating modes

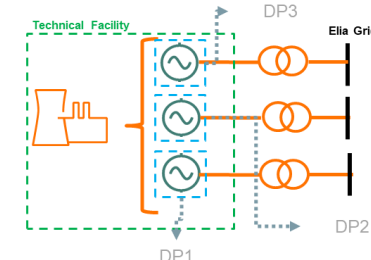


Current operating mode: → special case of shut down

GT1+ST

Bid Group		Status				
Bid Group Id	GT1_ST_continuous_down	Active				
TimeSeries Id	GT1_ST_continuous_down-DOWN-					
Direction	DOWN					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT1		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT1_ST_shut_down	Volume	70	70	70	70
Linked Bid Status	A55	Price	150	150	150	150
Linked Bid Level	1	Minimum Volume				
Full Activation Time		Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT1	TRUE	TRUE	TRUE	TRUE
	EAN	ST	TRUE	TRUE	TRUE	TRUE

Bid Group		Status				
Bid Group Id	GT1_ST_shut_down	Active				
TimeSeries Id	GT1_ST_shut_down-DOWN-					
Direction	DOWN					
Contracted/Non Contracted						
Parent Child Id						
Exclusive Group Ids	GT1		00:00	00:15	00:30	00:45
Linked Bid Group Id	GT1_ST_continuous_down;GT1_ST_shut_down	Volume	120	120	120	120
Linked Bid Status	A67;A67	Price	250	250	250	250
Linked Bid Level	1;1	Minimum Volume	120	120	120	120
Full Activation Time	60	Activation Type				
Maximum Activation Time		Reason				
Delivery Points	EAN	GT1	TRUE	TRUE	TRUE	TRUE
	EAN	ST	TRUE	TRUE	TRUE	TRUE



EXAMPLE OF COMPLEX BIDDING

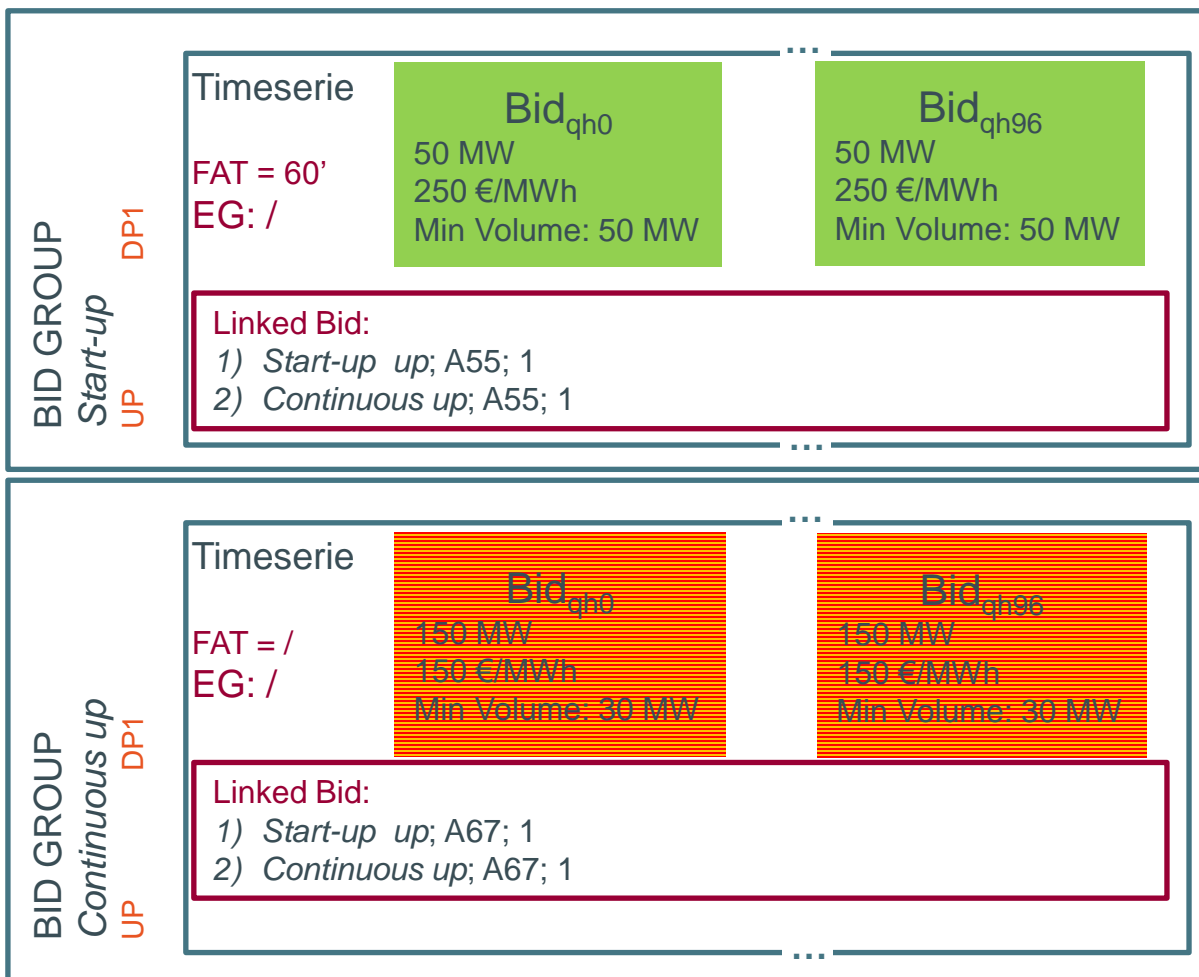
Combination of Conditional links & Exclusive Groups to reflect Operating modes

Summary

BID GROUP Continuous up GT1 ST UP GT1;ST	Timeserie FAT = / EG: GT1 Bid _{qhi} 80 MW 150 €/MWh	Linked Bid: /
	Timeserie FAT = 60' EG: GT2 Bid _{qhi} 150 MW 250 €/MWh Min Volume: 30 MW	
BID GROUP DOWN GT1;ST	Timeserie FAT = / EG: GT1 Bid _{qhi} 70 MW 150 €/MWh	Linked Bid: Shut down GT1 ST; A55; 1
	Timeserie FAT = / EG: GT2 Bid _{qhi} 150 MW 150 €/MWh Min Volume: 30 MW	
BID GROUP Shut down GT1 ST DOWN GT1;ST	Timeserie FAT = 45' EG: GT1 Bid _{qhi} 120 MW 250 €/MWh Min Volume: 120 MW	Linked Bid: 1) Continuous down GT1 ST; A67; 1 2) Shut down GT1 ST; A67; 1
	Timeserie FAT = 60' EG: GT2 Bid _{qhi} 175 MW 250 €/MWh Min Volume: 50 MW	
BID GROUP Continuous up GT2+ST UP GT2;ST	Timeserie FAT = / EG: GT2 Bid _{qhi} 175 MW 150 €/MWh Min Volume: 50 MW	Linked Bid: 1) Start-up up GT2+ST; A67; 1 2) Continuous up GT2+ST; A67; 1
	Timeserie FAT = / EG: GT2 Bid _{qhi} 175 MW 250 €/MWh Min Volume: 50 MW	

EXAMPLE OF START-UP

Combination of Conditional links & FAT to reflect slow start-ups

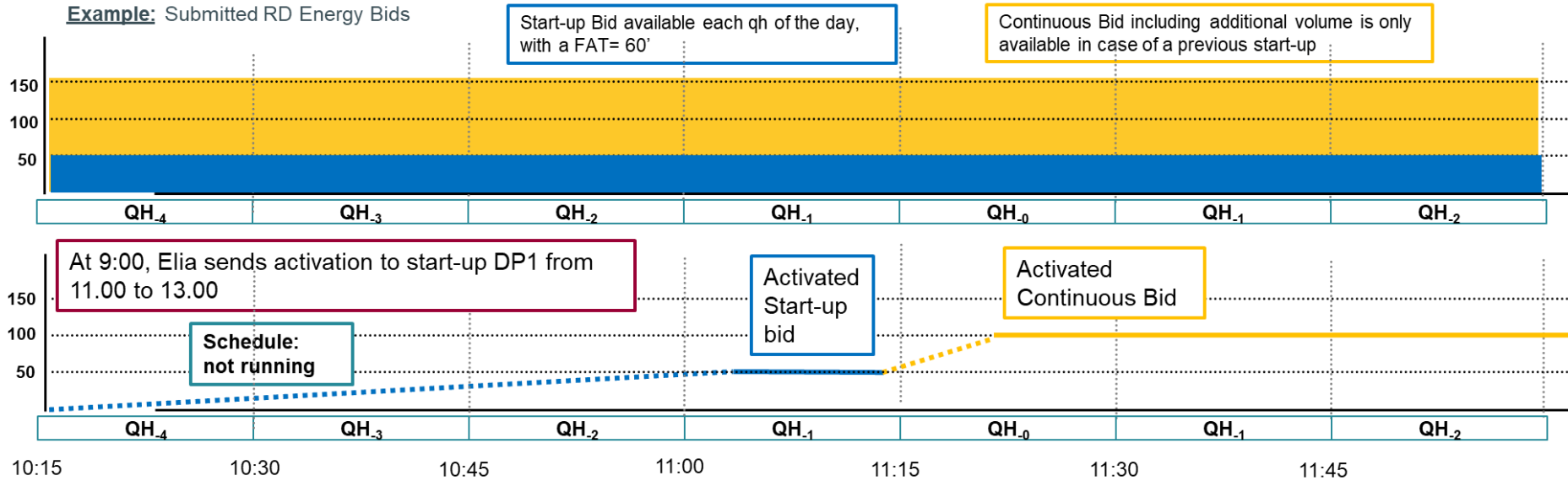


Hypothesis:

- 1 DP not running for the full day
- 2 Bid groups submitted
 - **Start-up bids**
 - initially **available**
 - Becomes **unavailable** if Bid_{Startup, qh-1} or if Bid_{Continuous, qh-1} is activated: **A55 link**
 - Includes a **FAT reflecting the ramp-up** of the start-up until Pmin (50 MW). FAT = 60'
 - **Continuous bid**
 - is initially **unavailable**
 - Becomes **available** if Bid_{Startup, qh-1} or if Bid_{Continuous, qh-1} **A55 link**
 - **FAT = 12,5'**

EXAMPLE OF START-UP

Combination of Conditional links & FAT to reflect slow start-ups



Activation:

- At 9:00, Elia sends activation to start-up DP1 from 11:00 to 13:00
- Activated bids:
 - Start-up bid of qh₁ (11:00 to 11:15)
 - Continuous bids from qh₀ to qh₇ (11:15 to 13:00)
- DP1 must reached 50 MW in qh₁ and 100 MW in qh₀

BID GROUP Start-up UP	Timeserie	Bid _{qh-3}	Bid _{qh-2}	Bid _{qh-1}	Bid _{qh0}	Bid _{qh1}	Bid _{qh2}
	FAT = 60' EG: /	50 MW 250 €/MWh Min Vol: 50 MW	50 MW 250 €/MWh Min Vol: 50 MW	50 MW 250 €/MWh Min Vol: 50 MW	50 MW 250 €/MWh Min Vol: 50 MW	50 MW 250 €/MWh Min Vol: 50 MW	50 MW 250 €/MWh Min Vol: 50 MW
Linked Bid: 1) Start-up up; A55; 1 & 2) Continuous up; A55; 1							

BID GROUP Continuous up UP	Timeserie	Bid _{qh-3}	Bid _{qh-2}	Bid _{qh-1}	Bid _{qh0}	Bid _{qh1}	Bid _{qh2}
	FAT = / EG: /	150 MW 150 €/MWh Min Vol: 50 MW	150 MW 150 €/MWh Min Vol: 50 MW	150 MW 150 €/MWh Min Vol: 50 MW	150 MW 150 €/MWh Min Vol: 50 MW	150 MW 150 €/MWh Min Vol: 50 MW	150 MW 150 €/MWh Min Vol: 50 MW
Linked Bid: 1) Start-up up; A67; 1 & 2) Continuous up; A67; 1							

COMPLEMENTARY INFORMATION

- ❑ [Link](#) to the Manual on Energy Bidding
- ❑ Bilateral implementation or testing session can be organized.

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Thank you.

