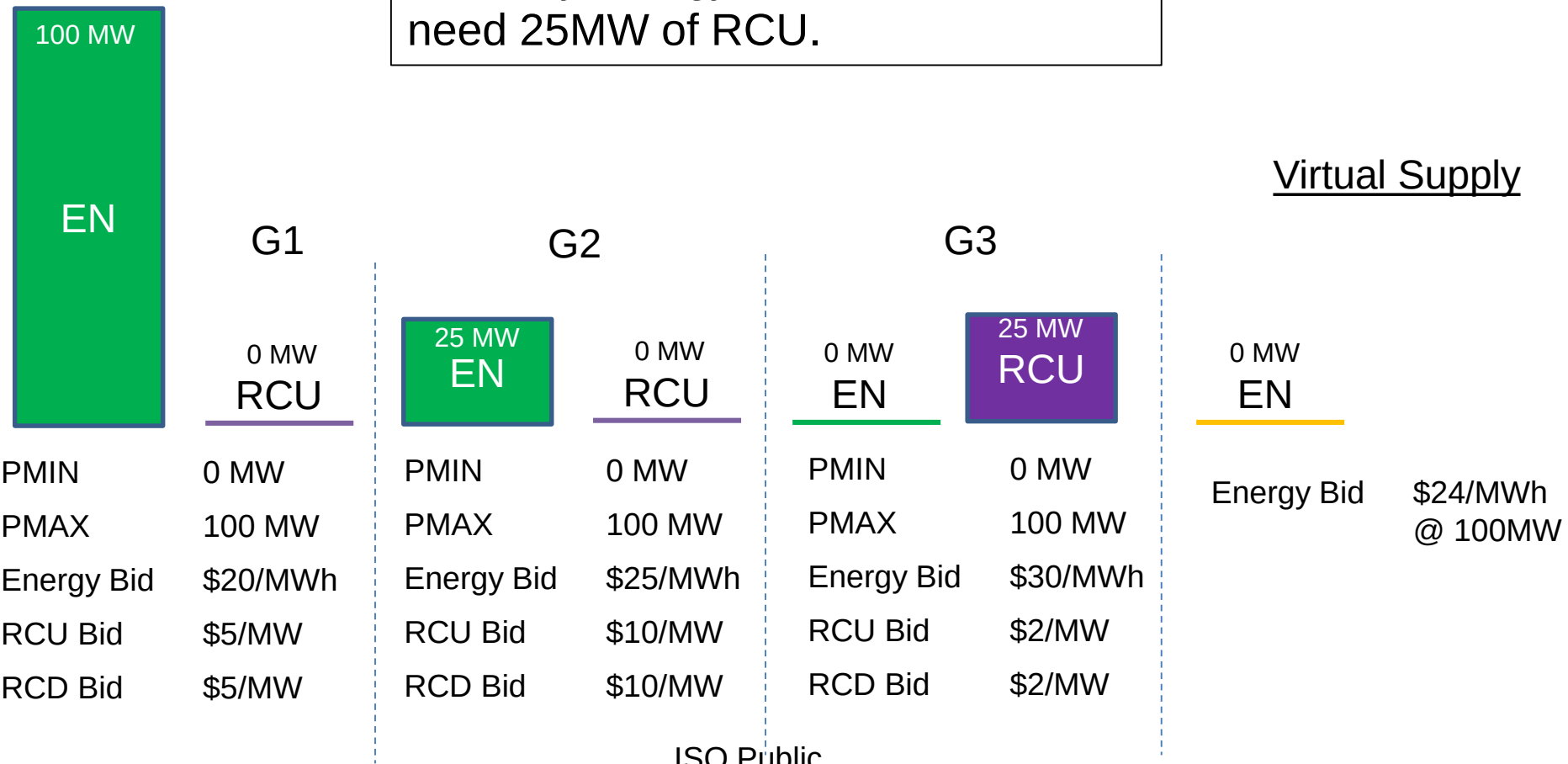
Discussion on updated formulation

June 17, 2020

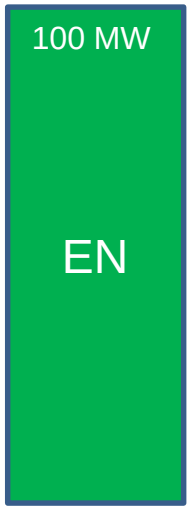
Scenario 1: Load bids 125MW @ $50, Forecast = 150MW

First pass co-optimizes energy with reliability energy and determines we need 25MW of RCU.



Scenario 1: Load bids 125MW @ $50, Forecast = 150MW

Last pass fixes the unit commitment from first with RCU requirement at 25 MW. VS is scheduled instead of G2. Only 125 MW of physical energy + RCU is committed, which does not meet forecast.



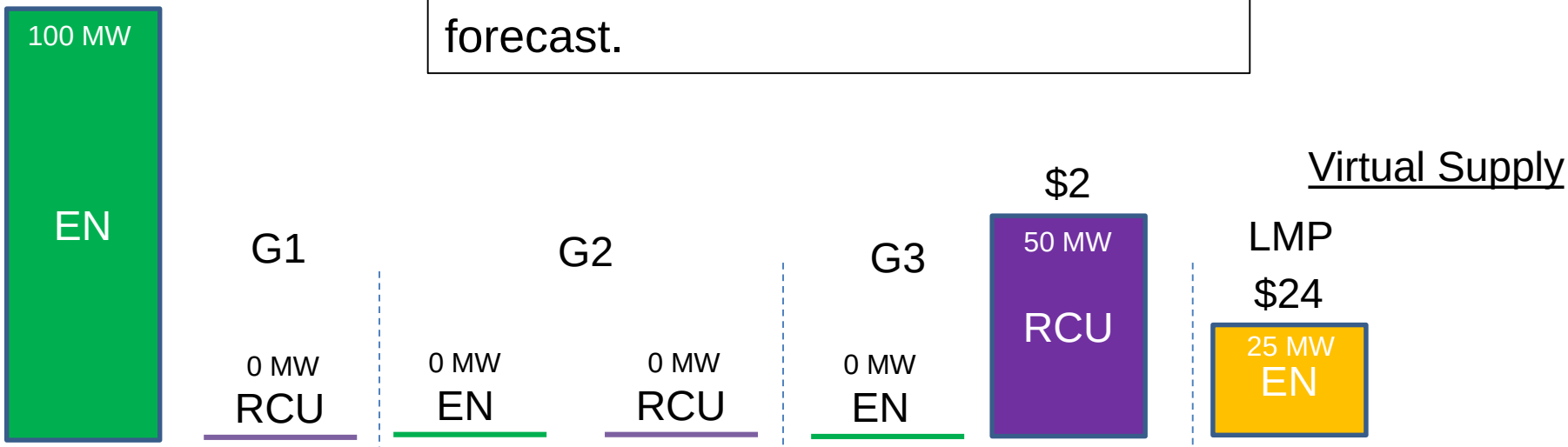
	G1	G2		G3		LMP
	0 MW RCU	0 MW EN	0 MW RCU	0 MW EN	$2 25 MW RCU	$24 25 MW EN
PMIN	0 MW	PMIN	0 MW	PMIN	0 MW	
PMAX	100 MW	PMAX	100 MW	PMAX	100 MW	
Energy Bid	$20/MWh	Energy Bid	$25/MWh	Energy Bid	$30/MWh	
RCU Bid	$5/MW	RCU Bid	$10/MW	RCU Bid	$2/MW	
RCD Bid	$5/MW	RCD Bid	$10/MW	RCD Bid	$2/MW	

Virtual Supply

Energy Bid	$24/MWh @ 100MW

Scenario 1: Load bids 125MW @ $50, Forecast = 150MW

Since physical supply displaced by virtual supply. Additional 25MW RCU needs to be awarded to meet 150MW forecast.



PMIN	0 MW	PMIN	0 MW	PMIN	0 MW	Energy Bid	$24/MWh @ 100MW
PMAX	100 MW	PMAX	100 MW	PMAX	100 MW		
Energy Bid	$20/MWh	Energy Bid	$25/MWh	Energy Bid	$30/MWh		
RCU Bid	$5/MW	RCU Bid	$10/MW	RCU Bid	$2/MW		
RCD Bid	$5/MW	RCD Bid	$10/MW	RCD Bid	$2/MW		

Revised DAME formulation steps

❶ Full solution with EN/RC coupling and submitted bids; Market Power Mitigation

❷ Full solution with EN/RC coupling and mitigated bids; calculate RC requirements

❸ Full solution with fixed RC requirements; calculate updated RC requirements due to non-VER supply displacement

❹ Full solution with updated RC requirements; calculate marginal prices