Check Your Solution

Bid Amount (MW)					
	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5
Energy	10MW	190MW	10MW	10MW	10MW
Spinning Reserve	10MW				190MW
Freq. Reg.		10MW	50MW	10MW	
Revenue Generated:	$7,620				

How can you solve this with Gurobi?

For the Objective Function:

$$Maximize \sum_{t=1}^{5} \sum_{C=En,Sr,Reg} price_{c,t} \cdot x_{c,t}, \quad \forall_{c,t}$$

where

$Price_{c,t}$ *is the price per MWh for commodity c at hour* $t, \forall_{c,t}$

$x_{c,t}$ *is the MW commited for commodity c at hour* $t, \forall_{c,t}$

Subject to:

Hourly total capacity limit $\sum_c x_{c,t} \leq 200MW, \forall_t$

Total energy discharge limit $\sum_{t,c} x_{c,t} \leq 500MWh$

Binary activation of commodities

$$x_{c,t} \geq 10MWh \cdot y_{c,t}, \forall_{c,t}$$

$$x_{c,t} \leq 200MWh \cdot y_{c,t}, \forall_{c,t}$$

At least two commodities selected per hour $\sum_c y_{c,t} \geq 2, \forall_t$

Energy must be selected per hour $y_{Energy,t} = 1, \forall_t$

Out of 2^{15} combinations, Gurobi found the provably optimal solution in .01 seconds!