



Energy Bid Floor Briefing

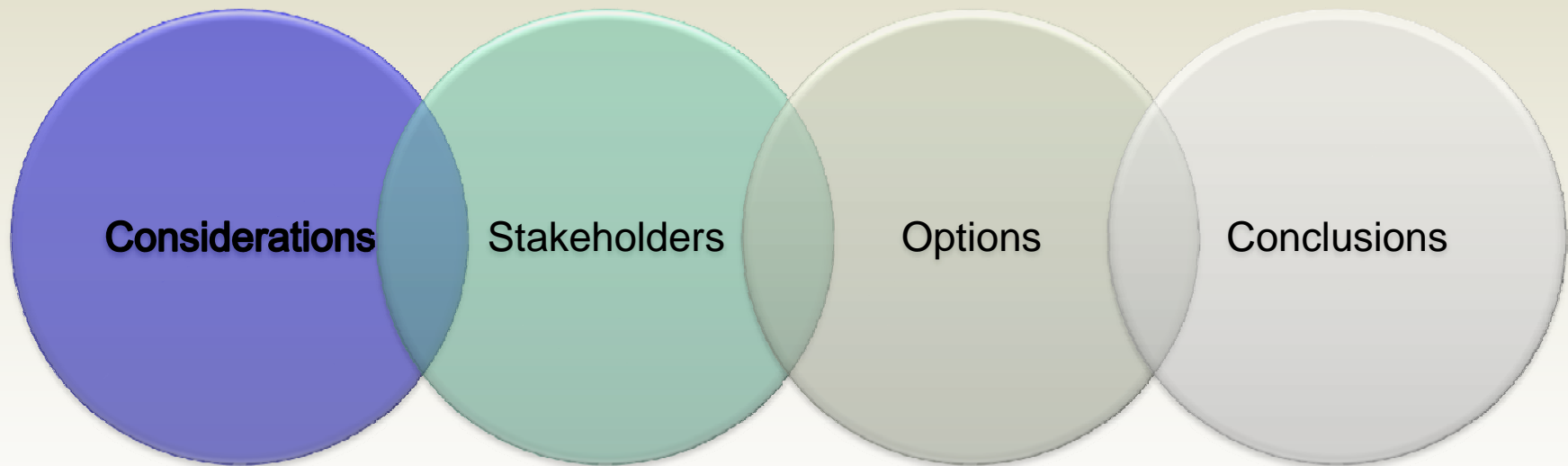
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The current bid floor needs to be re-examined.

- The current energy bid floor is -\$30.
 - VER concerns were not relevant when the floor was set.
- The 20% study showed that more decremental bids are needed.
 - Real-time congestion
 - Overgen conditions
- The bid floor needs to balance:
 - Incentives to produce energy (PTCs, PPAs, RECs)
 - Ability of resources to decrement their output

Considerations



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- Production Tax Credit (PTC) -
 - 2.1¢/KWh (\$21/MWh) for the production of electricity from utility scale wind turbines. Extended to December 2012. The gross up for this incentives guarantee payments to \$37/MWh for VERs.
 - Wind developers can choose 30% Investment Tax Credit for facilities placed in service before 2013 if construction begins before the end of 2010.
- VER output may be subsidized by RECs of up to \$50/MWh
- PPA - @ \$100/MWh per CPUC Market Price Referent

Additional Considerations

- Will a lower the bid floor insure that there will be more dec bids?
- Bid cost recovery smoothes the impact of negative prices, but also increases administrative cost allocations.
- Many older VERs cannot respond to 5 minute decremental dispatches.
- Other ISOs have lower bid floors; generally they are not finding extreme negative prices

PJM – no bid floor

NYISO - $-\$1000/\text{MWh}$

MISO - $-\$500/\text{MWh}$

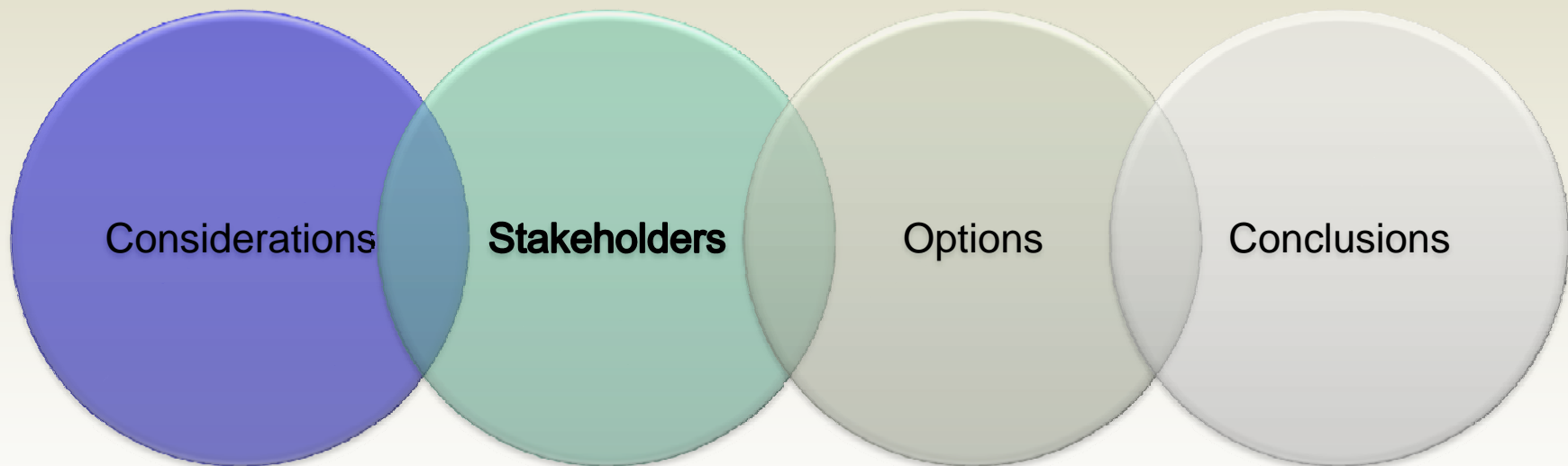
ERCOT - $-\$250/\text{MWh}$

Decremental Bid Insufficiency: April '09 to June '10

	April 1, 2009-March 31, 2010												April 1, 2010-June 30, 2010		
	Apr (Out of 360int/hr)	May (Out of 372int/hr)	Jun (Out of 360int/hr)	Jul (Out of 372int/hr)	Aug (Out of 372int/hr)	Sep (Out of 360int/hr)	Oct (Out of 372int/hr)	Nov (Out of 360int/hr)	Dec (Out of 372int/hr)	Jan (Out of 372int/hr)	Feb (Out of 336int/hr)	Mar (Out of 372int/hr)	Apr (Out of 360int/hr)	May (Out of 372int/hr)	Jun (Out of 360int/hr)
1	36	35	26	15	2	0	1	1	9	2	2	1	0	1	24
2	17	31	25	7	11	4	0	4	6	7	0	5	1	0	20
3	8	24	49	31	9	5	0	20	7	8	9	6	8	2	19
4	24	39	62	62	14	8	2	8	3	7	14	5	24	3	18
5	39	53	34	48	6	9	0	5	3	0	12	10	17	26	72
6	24	57	49	8	4	1	0	1	0	0	0	10	13	19	63
7	17	64	78	55	6	3	0	3	5	3	0	2	41	80	
8	45	14	28	13	5	2	0	3	1	0	0	72	5	13	48
9	6	14	28	28	4	0	0	0	0	0	0	0	0	4	46
10	2	11	11	7	1	0	0	0	0	0	0	0	0	5	22
11	14	7	1	0	0	0	0	0	0	0	0	0	0	0	1
12	18	6	0	0	0	0	0	0	0	0	0	0	0	0	3
13	8	6	8	0	0	0	0	0	0	0	0	0	0	0	7
14	6	4	0	0	0	0	0	0	0	0	0	0	0	0	4
15	7	14	0	0	0	0	0	0	0	0	0	0	0	0	0
16	2	10	7	0	0	1	0	0	0	0	0	0	0	2	0
17	6	1	3	0	0	0	0	0	0	0	0	0	0	2	0
18	11	6	6	0	0	0	0	0	0	0	0	0	0	0	0
19	18	3	12	0	0	0	0	0	0	0	0	1	0	0	2
20	23	0	10	0	0	0	0	0	0	0	0	0	1	0	0
21	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0
22	13	5	1	0	0	0	0	0	0	0	0	0	0	0	0
23	58	19	19	3	1	0	0	1	1	0	0	0	0	2	4
24	22	51	21	12	2	0	0	2	3	4	1	0	0	7	9

- Subset of data contained in 20% Study Table 4.1
- 5 Min Intervals with all DLAP pricing < -\$30.00
- Nearly 15% of negative price intervals were non-consecutive

Stakeholders' views



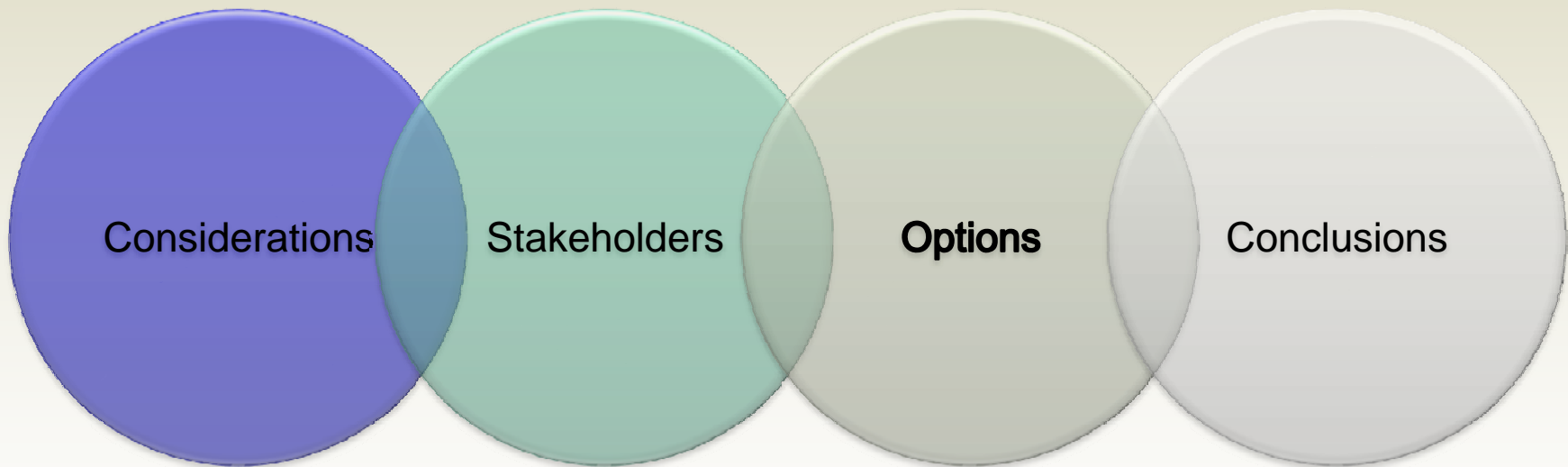
Stakeholder Comments on lowering the bid floor

Entity	Comments
Calpine	<ul style="list-style-type: none">•Single intervals with negative prices will create financial distress.•Support creation of a liquid pool of downward dispatch bids.•Current soft bid floor is adequate.
WPTF	<ul style="list-style-type: none">•Must insulate market participants from harm caused by a lack of DEC bids.•This change will not impact retail consumers to increase consumption.
Dynergy	<ul style="list-style-type: none">•Bid cost recovery should limit exposure for conventional generation, but it will create higher uplifts.
JP Morgan	<ul style="list-style-type: none">•May provide further incentives for marketers to export power.•Examine if reduced bid floor will elicit desired response.
Six Cities	<ul style="list-style-type: none">•Lowering the bid floor to be symmetric with bid cap could impose substantial additional costs.

Stakeholder Comments on lowering the bid floor

Entity	Comments
PG&E	<ul style="list-style-type: none">•Perform economic assessment to find the correct level. No need for symmetry.
NextEra	<ul style="list-style-type: none">•Perform economic assessment to find the correct level. No need for symmetry.
CalWEA/First Solar/The Vote Solar Initiative	<ul style="list-style-type: none">•Supports a symmetrical bid cap and floor.•A phased approach to get to -\$1000 could be implemented.
Powerex	<ul style="list-style-type: none">•Supports a symmetrical bid cap and floor.

Bid Floor Options



-\$35 to -\$150 Bid Floor

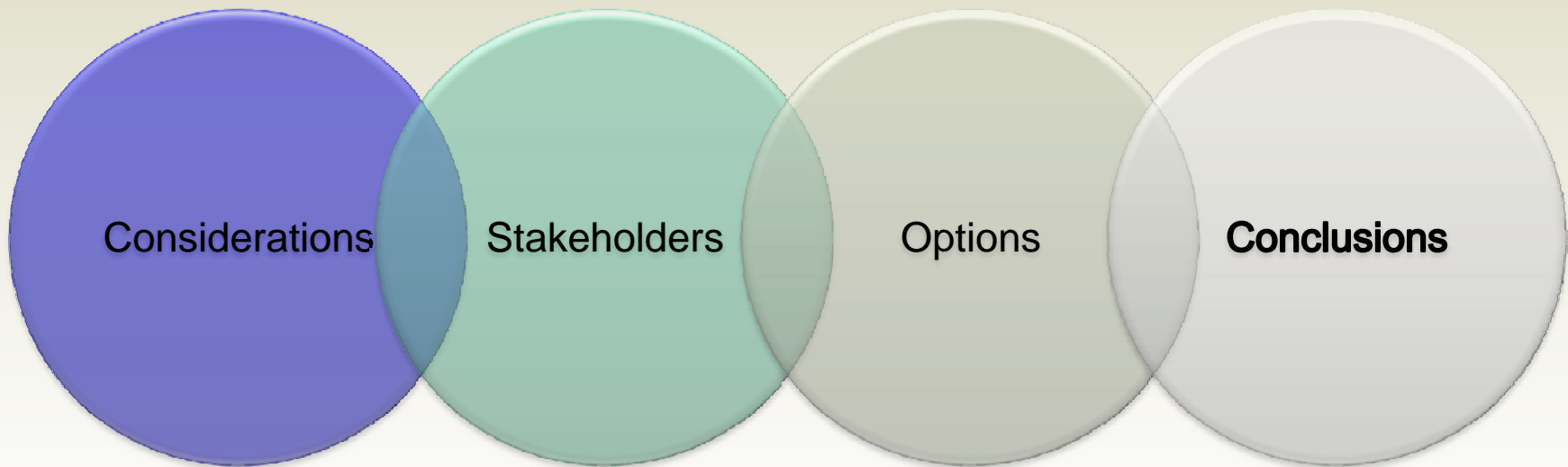
Pros	Cons
Provides incentive for renewables. Covers production tax credit (PTC) incentives for wind (~ -\$37/MWh)	Some stakeholders concerned about increased price risk for resources with constraints that hinder their ability to decrement their output
Covers the amount output subsidized by RECs (~ -\$50/MWh)	May not increase the amount of dec bids.
Provides incentive for renewables. Covers PPA must take contracts (~ -\$100/MWh)	Not symmetric with bid ceiling for purposes of scheduling run and pricing run.
May be enough to incent resources to dec bid even if price is negative in only 2 or 3 intervals/hour	Participants paying a higher price for resources to reduce their output when other options may be available.
Provides additional incentive for exporting power in overgen situations.	

-\$1000 Bid Floor

- Bid floor is symmetric to bid ceiling

Pros	Cons
Reduces inconsistencies between the parameter values in the scheduling and pricing run in each market	Could cost more for no additional value.
Entities' bidding levels are unlikely to be limited by bid floor.	May not increase the amount of dec bids (any more than a less extreme bid floor).
Advocated by some stakeholders and the MSC at start up of the new market.	Possibly more opportunity for gaming.
Consistent with some other ISOs price floor levels.	Some stakeholders question the need for symmetry.

Conclusions



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- To incent VERs to participate in DEC market, the energy bid floor should be an amount below $-\$100/\text{MWh}$ to cover their current incentives to produce.
- Other ISO's have lower bid floors than ours, yet prices are not approaching these extremely low levels; the bid floor may not need to be as low as $-\$1000/\text{MWh}$ to incent participation.
- The short durations of negative prices may indicate that prices are being affected by uneconomic adjustments. With a more liquid DEC market, these fleeting price drops will likely lessen and dispatch would be smoother.