

Fiscal Terms and Auction Format

RI/MA Task Force Meeting

August 8, 2012

Fiscal Terms



Overview

- Annual rent
 - First year's payment due within 45 days of lease execution
 - Subsequent payments due at start of each year until commercial operations on the lease begin
 - Under a phased development rent would be required on the undeveloped sections until the start of commercial operation
- Annual project easement rent
 - Initial payment due upon approval of the COP
 - Subsequent payments due annually thereafter until the lease terminates
- Annual operating fee
 - Initial fee due within 45 days of commercial operations
 - Subsequent payments due annually thereafter until commercial operations cease
- Financial assurance requirements
 - Prior to lease issuance the Lessee must provide assurance for initial financial obligations on the lease

Annual Rent Payment

- Formula: Leased acreage x \$3 per acre
 - Proposed lease sale acreage offshore Rhode Island: 164,750 acres
 - North Zone: 97,498 acres
 - South Zone: 67,252 acres
 - Initial annual rent payment: \$494,250
 - North Zone: \$292,494
 - South Zone: \$201,756
- Rent payments would reflect adjustments for relinquished acreage or phased development at the time a payment is due
- Last rent payment prior to the start of commercial operations will not be pro-rated

Annual Project Easement Rent

- Simplified to same treatment as transmission system
- Formula: \$70 per statute mile x statute miles in easement
- Last annual project easement rent payment prior to lease termination will not be pro-rated

Annual Operating Fee

$$F = M * H * C * P * r$$

Annual Operating Fee	=	M Nameplate Capacity [MW]	*	H Hours Per Year [8,760]	*	C Capacity Factor [0 to 1]	*	P Power Price [\$/MWh]	*	r Operating Fee Rate [0 to 1]
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- Formula is based on the value of the anticipated annual power output of a project in a regional wholesale power market times an operating fee rate

Annual Operating Fee

$$F = M * H * C * P * r$$

Annual Operating Fee	=	M	*	H	*	C	*	P	*	r
		Nameplate Capacity		Hours Per Year		Capacity Factor		Power Price		Operating Fee Rate
		[MW]		[8,760]		[0 to 1]		[\$/MWh]		[0 to 1]

Generation at Continuous Full Power Operation [MWh]

- Nameplate capacity is the planned available capacity measured in megawatts (MW)
 - Based on COP to reflect installation, repowering, and decommissioning activities on the lease
 - “Generation at continuous full power operation” is nameplate capacity times the hours in the year and measured in megawatt-hours (MWh)
 - If 1,000 MW of capacity are available the maximum annual generation at full power operation would be 8.76 million MWh

Annual Operating Fee

$$F = M * H * C * P * r$$

Annual Operating Fee = Nameplate Capacity [MW] * Hours Per Year [8,760] * Capacity Factor [0 to 1] * Power Price [\$/MWh] * Operating Fee Rate [0 to 1]

Anticipated Annual Power Output [MWh]

- The capacity factor is the share of anticipated generation relative to its generation at continuous full power operation
 - Value will be set to 0.400 for the first 8 years of commercial operations
 - Value will be adjusted in 5-year increments thereafter to reflect actual metered generation over the previous 5 years up to a range of +/- 10% of the previous period's value
 - Continuing the example, the anticipated annual power output of the project is 8.76 million MWh times 0.400, or 3.504 million MWh

Annual Operating Fee

$$F = M * H * C * P * r$$

Annual Operating Fee = Nameplate Capacity [MW] * Hours Per Year [8,760] * Capacity Factor [0 to 1] * Power Price [\$/MWh] * Operating Fee Rate [0 to 1]

Estimated Market Value [\$]

- The power price is determined at the time each payment is due based on the latest year's annual spot price index for Mass Hub as reported by FERC measured in \$/MWh
 - Value is adjusted for inflation to the year when the payment is made
 - The 2011 Mass Hub price index is \$43.33/MWh which would be adjusted for one year of inflation to \$46.62/MWh for payments in 2012
 - Continuing the example, the estimated market value in 2012 of the estimated annual power output is 3.504 million MWh times \$46.62/MWh, or \$163,356,480

Annual Operating Fee

$$F = M * H * C * P * r$$

Annual Operating Fee	=	M Nameplate Capacity [MW]	*	H Hours Per Year [8,760]	*	C Capacity Factor [0 to 1]	*	P Power Price [\$/MWh]	*	r Operating Fee Rate [0 to 1]
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- Operating fee rate is the share of the estimated market value of the power produced payable to the lessor
 - The operating fee rate is 0.02 through the 8th year of commercial operations on the lease, and 0.04 thereafter
 - Continuing the example, the estimated market value of the power produced of \$163,356,480 is multiplied by 0.02, resulting in an annual operating fee of \$3,267,130

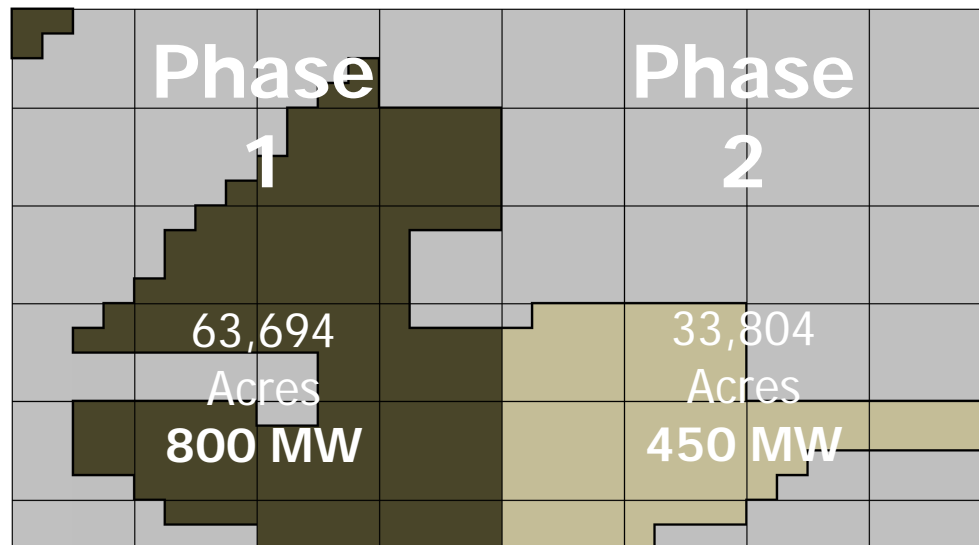
Annual Operating Fee

- Recapping the example

• Nameplate Capacity	1,000 MW
• Hours Per Year	8,760
<i>Generation at continuous full power operation</i>	<i>8.76 million MWh</i>
• Capacity Factor	0.400
<i>Anticipated annual power output</i>	<i>3.504 million MWh</i>
• Power Price	\$46.62/MWh
<i>Estimated market value</i>	<i>\$163,356,480</i>
• Operating Fee Rate	0.02
Annual Operating Fee	\$3,267,130

Phased Development

- Example: Payment at start of commercial operations on the first phase of a development in two distinct phases
 - Phase 1: Annual Operating Fee
 - $800 \text{ MW} * 8,760 \text{ hours} * 0.400 * \$46.62/\text{MWh} * 0.02 = \$2,613,704$
 - Phase 2: Annual Rent
 - $33,804 \text{ acres} * \$3/\text{acre} = \$101,412$
 - Total Payment Due = \$2,715,116



Financial Assurance

- Financial assurance is required to cover all lease obligations
 - Projected payments due over the next 12 months such as rent
 - Past due payment amounts or any other monetary obligations
 - Estimated decommissioning costs
- Financial assurances due prior to lease issuance in the form of a bond or other approved form of assurance include:
 - Initial assurance in the amount of \$100,000
 - Supplemental assurance to guarantee the obligations from annual rental payments (\$494,250 for the area offshore Rhode Island)
 - Total Initial Financial Assurance: \$594,250 (if both leases acquired)
- Additional financial assurances will be required to address decommissioning, operating fees, and other obligations as the Lease progresses

Financial Assurance

- Any bond or other acceptable financial assurance instrument that the lessee provides must:
 - Be payable to BOEM upon demand; and
 - Guarantee compliance with all terms and conditions of the lease, any subsequent approvals and authorizations, and all applicable regulations
- All financial assurance must be in a form approved by BOEM
 - Surety bonds are the primary form of assurance
 - BOEM will consider pledges of other forms of assurance if BOEM determines that the form provides the same protection as a surety bond
 - U.S. Department of Treasury securities, cash, CDs, or savings accounts
 - Negotiable U.S. Government, State, and municipal bonds or
 - Investment-grade rate securities (AAA)
 - Insurance (“superior” rating)
 - BOEM may also consider your financial strength and reliability or third-party guarantor

Auction Format



Overview

- Two zones (leases) will be offered in the sale
- Sale will be conducted using an internet-based auction system
- Bidding will be on a cash bonus basis
- The auction will follow a “simultaneous ascending clock auction” (SACA) format
 - Simple bidding procedure ensures transparent process that is easy for the seller to conduct and bidders to participate
 - Allow for price discovery process encourages bidders to bid up to their valuation of the zone, prevents over-bidding and surprise outcomes, and discourages harmful bidding practices

The Bidding Process

- BOEM will inform you of the stated auction “clock” price for each zone and the number of bidders from the previous round at the opening of each round of bidding
- You must submit a “live” bid or an “exit” bid for either the North, South, or both zones in each round
 - A “live” bid consists of a “Yes” for each zone for which you are willing to pay the round’s stated auction price, *even if the price for your desired zone didn’t change*
 - An “exit” bid is a single price you would be willing to pay between the previous and current rounds stated auction prices for one or both zones
 - Once you submit an exit bid (or fail to submit a bid) in any round of the auction, you will not be allowed to submit any more bids in any of the following auction rounds
 - All of the bids you submit remain active until the conclusion of the auction

The Bidding Process

- You can bid on a different combination of zones from round to round (subject to a few rules, of course)
 - Your eligibility in the opening round is based on your bid deposit
 - Deposit for both zones allows bidding on both zones in opening round
 - Deposit for the larger zone allows bidding on one of the two zones
 - Your eligibility in further rounds is based on your bidding in the last round
 - If you bid on two zones in the last round, you can bid on either one or both zones in the current round
 - If you bid on only one zone in the last round, you can only bid on one zone in the current round
 - Once you go from bidding on two zones to one, you can't go back to bidding on two zones
- Additional rounds occur as long as two or more bidders continue to submit more than one live bid for at least one of the zones in each round, otherwise the auction ends

Sample Bid Form

BOEM SACA Bidding Form

RI/MA AMI Wind Energy Area Lease Sale

Bidder: Mighty Wind

Lease Sale ID: BOEM-001

Final Sale Notice: FR-1234

ROUND 2

Time to Close 53:12

Open 8/6/12 10:46 AM

Close 8/6/12 12:46 PM

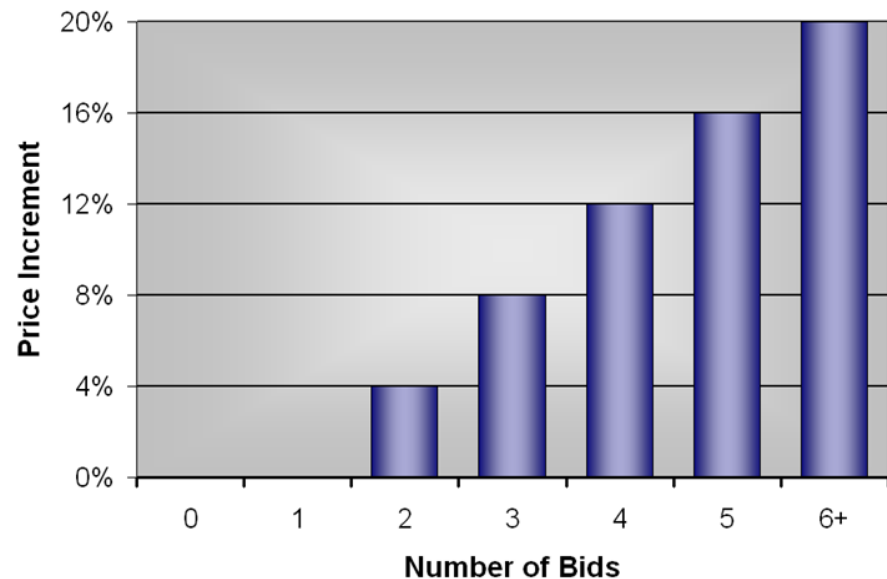
ZONE	ZONE DESCRIPTION	PRICES BY ROUND		LAST ROUND BID COUNT	EXIT BID
		CURRENT	PREVIOUS		<input checked="" type="checkbox"/> YES
<input type="radio"/>	1 North	\$ 709,632	\$ 633,600	4	\$ 625,000
<input checked="" type="radio"/>	2 South	\$ 653,184	\$ 604,800	3	

- Bid form will prevent invalid bids from being submitted
 - Bidding on two zones when only eligible to bid on one
 - Submitting a bid once an exit (or no) bid received in a prior round
 - Submitting an exit bid for an amount outside the range of the previous and current round's stated auction prices

Price Determination

- Prices for each zone are set to control the pace of the auction and allow adequate price discovery
- The opening prices for each zone correspond to the minimum bid prices
- A percentage increase is applied to each zone's price in the previous round based on the level of demand and the pace of the auction
- If one or zero bidders bid on a zone in the previous round the price remains unchanged

Illustrative Default Increment Percentages for a Clock Auction



Ausubel and Cramton (2011c), p. 39.

Winner Determination: Stage 1

- **Stage 1 – Final Round Live Bid Awards**
 - Each zone is awarded to the sole bidder submitting a live bid that included the zone in the final round of the auction at that round's stated auction price
 - If both zones are awarded at the end of this stage the auction ends
 - Your awarded zones in this stage will not be affected by Stages 2 or 3

Winner Determination: Stage 2

- **Stage 2 – Final Round Exit Bid Awards**

- Exit bids that include a zone awarded in Stage 1 are eliminated
- Unsold zones are awarded to bidders whose exit bids in the final round yield the highest auction revenue to BOEM
- If both zones are awarded at the end of this stage the auction ends (Stage 3 will not change the awards)
- Ties among high exit bids are resolved by a random draw
- Example where the North Zone was awarded in Stage 1
 - Bidder A: Exit bid of \$1,600,000 for both North and South Zones
 - *Eliminated from consideration since it contains the North Zone*
 - Bidder B: Exit bid of \$1,000,000 for the South Zone
 - *Not chosen since the bid amount is less than Bidder C's exit bid*
 - Bidder C: Exit bid of \$1,100,000 for the South Zone (AWARDED)

Sample SACA Auction: Round 5

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 793,409
South	\$ 336,260	\$ 363,161	\$ 392,214	\$ 423,591	\$ 440,535
Both	\$ 823,720	\$ 928,615	\$ 1,048,141	\$ 1,158,229	\$ 1,233,944

Zone	Winning Bidders	Price
North	Big Wind	\$ 793,409
South	Fresh Wind	\$ 440,535
Total Auction Revenue		\$ 1,233,944

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes		
Mighty Wind	North	Yes	Yes	Yes	Exit		\$ 1,100,000
	South	Yes	Yes	Yes	Exit		
Fresh Wind	North	Yes	Yes	Yes	Yes		NA
	South	Yes	Yes			Yes	
Light Wind	North	Yes	Yes				\$ 430,000
	South			Yes	Yes	Exit	
Dead Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 760,000
	South						

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	5	5	4	3	1
South	3	3	3	2	1
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	16%	16%	12%	8%	NA
South	8%	8%	8%	4%	NA

Sample SACA: Stage 2 Ex. 1

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 793,409
South	\$ 336,260	\$ 363,161	\$ 392,214	\$ 423,591	\$ 440,535
Both	\$ 823,720	\$ 928,615	\$ 1,048,141	\$ 1,158,229	\$ 1,233,944

Zone	Winning Bidders	Price
North	Big Wind	\$ 793,409
South	Light Wind	\$ 430,000
Total Auction Revenue		\$ 1,223,409

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes		
Mighty Wind	North	Yes	Yes	Yes	Exit		\$ 1,100,000
	South	Yes	Yes	Yes	Exit		
Fresh Wind	North	Yes	Yes	Yes	Yes		\$ 425,000
	South	Yes	Yes			Exit	
Light Wind	North	Yes	Yes				\$ 430,000
	South			Yes	Yes	Exit	
Dead Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 760,000
	South						

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	5	5	4	3	1
South	3	3	3	2	0
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	16%	16%	12%	8%	NA
South	8%	8%	8%	4%	NA

Sample SACA: Stage 2 Ex. 2

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 793,409
South	\$ 336,260	\$ 363,161	\$ 392,214	\$ 423,591	\$ 440,535
Both	\$ 823,720	\$ 928,615	\$ 1,048,141	\$ 1,158,229	\$ 1,233,944

Zone	Winning Bidders	Price
North	Big Wind	\$ 1,200,000
South	Big Wind	
Total Auction Revenue		\$ 1,200,000

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 1,200,000
	South	Yes	Yes	Yes	Yes	Exit	
Mighty Wind	North	Yes	Yes	Yes	Exit		\$ 1,100,000
	South	Yes	Yes	Yes	Exit		
Fresh Wind	North	Yes	Yes	Yes	Yes		\$ 425,000
	South	Yes	Yes			Exit	
Light Wind	North	Yes	Yes				\$ 430,000
	South			Yes	Yes	Exit	
Dead Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 760,000
	South						

\$1,190,000

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	5	5	4	3	0
South	3	3	3	2	0
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	16%	16%	12%	8%	NA
South	8%	8%	8%	4%	NA

Sample SACA: Stage 2 Ex. 3

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 793,409
South	\$ 336,260	\$ 363,161	\$ 392,214	\$ 423,591	\$ 440,535
Both	\$ 823,720	\$ 928,615	\$ 1,048,141	\$ 1,158,229	\$ 1,233,944

Zone	Winning Bidders	Price
North	Dead Wind	\$ 760,000
South	Fresh Wind	\$ 440,535
Total Auction Revenue		\$ 1,200,535

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 1,225,000
	South	Yes	Yes	Yes	Yes	Exit	
Mighty Wind	North	Yes	Yes	Yes	Exit		\$ 1,100,000
	South	Yes	Yes	Yes	Exit		
Fresh Wind	North	Yes	Yes	Yes	Yes		NA
	South	Yes	Yes			Yes	
Light Wind	North	Yes	Yes				\$ 430,000
	South			Yes	Yes	Exit	
Dead Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 760,000
	South						

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	5	5	4	3	0
South	3	3	3	2	1
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	16%	16%	12%	8%	NA
South	8%	8%	8%	4%	NA

Winner Determination: Stage 3

- **Stage 3 – Pre-Final Round Bid Awards**
 - All live and exit bids from previous rounds are considered
 - Live bids are considered in the same way as exit bids and an aggregate price is assigned based on the prices in the round when each live bid was submitted
 - Bids must not conflict with Stage 1 and 2 awards
 - Bids from bidders who were not awarded zones in either Stage 1 or 2 are eliminated if they contain zones that were already awarded
 - Bids from bidders who were awarded zones in either Stage 1 or 2 are eliminated if they do not contain the all of the zones the bidder was already awarded or if award would actually reduce auction revenues
 - Unsold zones are awarded to bidders whose bids in previous rounds yield the highest auction revenue to BOEM
 - Ties among high exit bids are resolved by a random draw

Sample SACA: Stage 3 Ex. 1

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 545,955	\$ 611,470	\$ 660,388	\$ 686,804
South	\$ 336,260	\$ 376,611	\$ 421,804	\$ 455,548	\$ 455,548
Both	\$ 823,720	\$ 922,566	\$ 1,033,274	\$ 1,115,936	\$ 1,142,352

Zone	Winning Bidders	Price
North	Fresh Wind	\$ 686,804
South	Dead Wind	\$ 450,000
Total Auction Revenue		\$ 1,136,804

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Exit		\$ 1,065,000
	South	Yes	Yes	Yes	Exit		
Mighty Wind	North	Yes	Yes	Exit			\$ 1,000,000
	South	Yes	Yes	Exit			
Fresh Wind	North	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes		
Light Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 675,000
	South						
Dead Wind	North						\$ 450,000
	South	Yes	Yes	Yes	Exit		

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	4	4	3	2	1
South	4	4	3	1	0
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	12%	12%	8%	4%	NA
South	12%	12%	8%	0%	NA

Sample SACA: Stage 3 Ex. 2

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 545,955	\$ 611,470	\$ 660,388	\$ 686,804
South	\$ 336,260	\$ 376,611	\$ 406,740	\$ 423,010	\$ 423,010
Both	\$ 823,720	\$ 922,566	\$ 1,018,210	\$ 1,083,398	\$ 1,109,814

Zone	Winning Bidders	Price
North	Fresh Wind	\$ 1,083,398
South	Fresh Wind	
Total Auction Revenue		\$ 1,083,398

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes	Exit		\$ 1,065,000
	South	Yes	Yes	Yes	Exit		
Mighty Wind	North	Yes	Yes	Exit			\$ 1,000,000
	South	Yes	Yes	Exit			
Fresh Wind	North	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes		
Light Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 675,000
	South						
Dead Wind	North						\$ 375,000
	South	Yes	Exit				

\$1,061,804

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	4	4	3	2	1
South	4	3	2	1	0
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	12%	12%	8%	4%	NA
South	12%	8%	4%	0%	NA

Bidder Default

- Winning bidder would forfeit their deposit if the lease is not executed and returned within 10 days of receipt from BOEM, or if the bidder fails to comply with applicable regulations or terms of the Final Sale Notice
- The affected zone or zones would be offered again through a subsequent auction process
- If each of the zones is awarded to a different bidder, default by one bidder will not affect the award of the other zone to the other, non-defaulting bidder

Audience Participation

- 5 volunteers from the audience will pose as bidders with varying plans and budgets entering the auction
 - *Only #1 – Big Wind limited to one zone in opening round based*
 - **#1 – Big Wind:** Only wants one zone; will settle for either but prefers North to South up to its budget of \$665,000 for the North and \$475,000 for the South
 - **#2 – Mighty Wind:** Would like both zones but will settle for only North up to its budget of \$1,250,000
 - **#3 – Fresh Wind:** Only wants both zones or none at all up to its budget of \$1,150,000
 - **#4 – Light Wind:** Would like both zones for up to \$1,200,000 but will settle for only North up to its budget of \$750,000
 - **#5 – Dead Wind:** Would like both zones for up to \$1,000,000 but will settle for only South up to its budget of \$500,000

Round 5 Results

Zone Prices by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 764,024
South	\$ 336,260	\$ 376,611	\$ 421,804	\$ 472,420	\$ 510,214
Both	\$ 823,720	\$ 942,065	\$ 1,077,731	\$ 1,207,058	\$ 1,274,238

Zone	Winning Bidders	Price
North	Mighty Wind	\$ 764,024
South	Dead Wind	\$ 500,000
Total Auction Revenue		\$ 1,264,024

Zone Selection by Round

Bidder	Zone	Round					Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
Big Wind	North	Yes	Yes	Yes			\$ 475,000
	South				Yes	Exit	
Mighty Wind	North	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes		
Fresh Wind	North	Yes	Yes	Yes	Exit		\$ 1,150,000
	South	Yes	Yes	Yes	Exit		
Light Wind	North	Yes	Yes	Yes	Yes	Exit	\$ 750,000
	South	Yes	Yes	Yes			
Dead Wind	North	Yes	Yes				\$ 500,000
	South	Yes	Yes	Yes	Yes	Exit	

Zone Demand by Round

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	5	5	4	2	1
South	4	4	4	3	0
End Auction?	NO	NO	NO	NO	YES

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Zone Price Increase

Zone	Round				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
North	16%	16%	12%	4%	NA
South	12%	12%	12%	8%	NA

Discount Factor

- Prior to the ascending bidding phase, BOEM will conduct a technical evaluation phase to determine each bidder's eligibility for a percentage discount
- Each bidder will be informed of their individual discount prior to the ascending bidding phase so they can account for it in their bidding
- Discount taken on the highest-price zone awarded to the bidder at the conclusion of the auction
 - If award based on an exit bid for both zones, the discount will be valued based on the highest-price zone in the round before the exit bid was entered
 - If award based on a previous-round bid for both zones in Stage 3, the discount will be valued based on the highest-price zone in that round

Criteria for Awarding Discounts

- The discount awarded will be based on the greater of the following two conditions associated with development activities within the Rhode Island lease sale area:
 - A bidder having entered into one or more qualified joint development agreements (JDAs) is eligible to receive a maximum discount of up to 10% pro-rated to a capacity of 350 MW based on the total capacity covered under the JDAs; or
 - A bidder having entered into one or more Power Purchase Agreements (PPAs) is eligible to receive a maximum discount of up to 25% pro-rated to a capacity of 350 MW based on the total capacity under contract

Example of Discount Factor

- Consider a scenario in which a bidder's winning price for their highest-priced zone is \$1,000,000 and the bidder has entered into a JDA for 400 MW and a PPA of 70 MW
 - Under the first condition, the JDA would receive the full discount of 10% since the capacity under the JDA exceeds the 350 MW threshold
 - Under the second condition, the PPA would only receive a 5% discount since the capacity falls below the 350 MW threshold and is prorated accordingly ($25\% * 70 \text{ MW} / 350 \text{ MW}$)
- The bidder receives the greater of the two discounts, which is 10% in this example

Audience Ex.: Big Wind w/ JDA

Zone Prices by Round

Zone	Round					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
North	\$ 487,460	\$ 565,454	\$ 655,927	\$ 734,638	\$ 793,409	\$ 793,409
South	\$ 336,260	\$ 376,611	\$ 421,804	\$ 472,420	\$ 491,317	\$ 510,970
Both	\$ 823,720	\$ 942,065	\$ 1,077,731	\$ 1,207,058	\$ 1,284,726	\$ 1,304,379

Zone	Winning Bidders	Price
North	Mighty Wind	\$ 793,409
South	Big Wind	\$ 510,970
Total Auction Revenue		\$ 1,304,379

Zone Selection by Round

Bidder	Zone	Round						Exit Bid Price
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	
Big Wind	North	Yes	Yes	Yes	Yes			NA
	South					Yes	Yes	
Mighty Wind	North	Yes	Yes	Yes	Yes	Yes	Yes	NA
	South	Yes	Yes	Yes	Yes			
Fresh Wind	North	Yes	Yes	Yes	Exit			\$ 1,150,000
	South	Yes	Yes	Yes	Exit			
Light Wind	North	Yes	Yes	Yes	Yes	Exit		\$ 750,000
	South	Yes	Yes	Yes				
Dead Wind	North	Yes	Yes					\$ 500,000
	South	Yes	Yes	Yes	Yes	Yes	Exit	

Big Wind only pays 90% of auction price: \$459,876 (<\$475K budget)

Zone Demand by Round

Zone	Round					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
North	5	5	4	3	1	0
South	4	4	4	2	2	0
End Auction?	NO	NO	NO	NO	NO	YES

Zone Price Increase

Zone	Round					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
North	16%	16%	12%	8%	NA	NA
South	12%	12%	12%	4%	NA	NA

Demand	Price Inc
0	0%
1	0%
2	4%
3	8%
4	12%
5	16%
6	20%

Alternatives and Definitions

- BOEM considered an alternative whereby the maximum discount for the JDA and PPA would be 10% and 15% with the total discount represented as the sum
- Few bidders are expected to have entered into valid PPA at the time of the lease sale, but is included here to obtain feedback applicable to the current and future lease sales
- Preliminary definitions of JDA and PPA are included in the draft PSN

Questions and Comments

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BOEM Auction Format Research

<http://www.boem.gov/Renewable-Energy-Program/Regulatory-Information/Renewable-Energy-Auction-Formats.aspx>