RFP 82695 MOBILE GENERATION UNITS
PERFORMANCE PROPOSAL

QUESTIONS		Siemens Energy, Inc Submitted: 09/24/2018	ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018
Guaranteed net unit output (diesel) @ specified conditions without water or steam injection	MW	36.6	22,583	28,643
Guaranteed net unit output (NG) @ specified conditions without water or steam injection	MW	38.2	23,842	30,021
Unit minimum load for continuous operation	MW	0.0	1	Unlimited
Time from shutdown to guaranteed net unit output	minutes	6.3	10	8
Unit Heat Rate (diesel – LHV) Assume 18,646 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	9038.6	9,759	9,393
Unit Heat Rate (NG – LHV) Assume 21,414 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	8894.9	9,574	9,246
(1) If energy price varies with output, provide data related to this variation. Provide output vs. Energy Price curves if applicable.				

RFP 82695 MOBILE GENERATION

PRICE PROPOSAL

ITEM		ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018	Siemens Energy, Inc Submitted: 09/24/2018
Price per unit (including all its BOP equipment and accessories)	unit	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning	unit	$ 1,303,458.00	$ 3,114,450.00	$ 1,784,981.00
Price for Operation and Maintenance as required in this document	2 years	$ 12,946,025.38	$ 19,065,550.00	$ 14,948,273.00
	first addt'l year	$ 4,580,000.00	$ 8,102,240.00	$ 6,116,789.00
	second addt'l year	$ 4,720,000.00	$ 8,530,320.00	$ 5,418,714.00

RFP 82695 MOBILE GENERATION UNITS
PRICE COMPARISON

Costo de energía (20 puntos)	ARG (Pratt & Whitney)	RG Engineering (GE)	Siemens
Net Present Value (Base case 25% C.F.)	$ (159,111,631.87)	$ (190,064,052.57)	$ (219,674,008.21)
Net Present Value 500 hrs (5.7% C.F.)	$ (84,127,900.03)	$ (104,038,111.54)	$ (112,995,213.88)
Equivalent Uniform Annualized Cost (Base case 25% C.F.)	$ (16,205,871.16)	$ (19,358,443.57)	$ (22,374,282.96)
Equivalent Uniform Annualized Cost 500 hrs (5.7% C.F.)	$ (8,568,612.44)	$ 10,596,511.46	$ (11,508,812.12)
Levelized Cost of energy (Base case 25% C.F.) $kWhr	$ 0.2800	$ 0.2637	$ 0.2386
Levelized Cost of energy 500 hrs (5.7% C.F.) $kWhr	$ 0.6494	$ 0.6332	$ 0.5382
Puntuación	15.868	16.470	20.000

Costo por Unidad e Instalación (30 puntos)		
ARG	$ 19,299,166.00	30
RG	$ 20,066,700.00	28.81
Siemens	$ 31,666,666.00	10.78

O&M por Unidad (10 puntos)		
ARG	$ 20,218,012.69	10
RG	$ 35,698,110.00	2.343
Siemens	$ 26,483,776.00	6.901

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,303,458.00	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,299,166.00	$ 20,066,700.00	$ 31,666,666.00

	ARG	Siemens	RG
Mantenimiento primeros 2 años	$ 8,890,000.00	$ 14,948,273.00	$ 19,065,550.00
Piezas Reemplazo por Unidad	$ 2,028,012.69		
Mantenimiento 3er año	$ 4,580,000.00	$ 6,116,789.00	$ 8,102,240.00
Mantenimiento 4to año	$ 4,720,000.00	$ 5,418,714.00	$ 8,530,320.00
Total	$ 20,218,012.69	$ 26,483,776.00	$ 35,698,110.00

Conversión a Valor del Renglón Costo Unidad e Instalación

$$Puntuación\ de\ Proponente = \left[1 - \frac{(Proponente - Proponente\_Mas\ \_Bajo)}{Proponente\_Mas\ \_Bajo}\right] * Valor\ de\ Renglón$$

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(19{,}299{,}166 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 30$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(20{,}066{,}700 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 28.807$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(31{,}666{,}666 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 10.775$$

Conversión a Valor del Renglón Costo O&M

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(20{,}218{,}012.69 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 10$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(35{,}698{,}110 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 2.343$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(26{,}483{,}776 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 6.901$$

Conversión a Valor del Renglón Costo de Energía

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(0.6494 - 0.5382)}{0.5382}\right] * 20 = 15.868$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(0.6332 - 0.5382)}{0.5382}\right] * 20 = 16.470$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(0.5382 - 0.5382)}{0.5382}\right] * 20 = 20.000$$

RFP 82695 MOBILE GENERATION UNITS
PRICE COMPARISON

Costo de energía (20 puntos)	ARG (Pratt & Whitney)	RG Engineering (GE)	Siemens
Net Present Value (Base case 25% C.F.)	$ (159,171,977.15)	$ (190,064,052.57)	$ (219,674,008.21)
Net Present Value 500 hrs (5.7% C.F.)	$ (84,188,245.30)	$ (104,038,111.54)	$ (112,995,213.88)
Equivalent Uniform Annualized Cost (Base case 25% C.F.)	$ (16,212,017.46)	$ (19,358,443.57)	$ (22,374,282.96)
Equivalent Uniform Annualized Cost 500 hrs (5.7% C.F.)	$ (8,574,758.74)	$ (10,596,511.46)	$ (11,508,812.12)
Levelized Cost of energy (Base case 25% C.F.) $kWhr	$ 0.2801	$ 0.2637	$ 0.2386
Levelized Cost of energy 500 hrs (5.7% C.F.) $kWhr	$ 0.6499	$ 0.6332	$ 0.5382
Puntuación	15.849	16.470	20.000

Costo por Unidad e Instalación (30 puntos)		
ARG	$ 19,364,338.90	30
RG	$ 20,066,700.00	28.91
Siemens	$ 31,666,666.00	10.94

O&M por Unidad (10 puntos)		
ARG	$ 20,218,012.69	10
RG	$ 35,698,110.00	2.343
Siemens	$ 26,483,776.00	6.901

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,368,630.90	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,364,338.90	$ 20,066,700.00	$ 31,666,666.00

	ARG	Siemens	RG
Mantenimiento primeros 2 años	$ 8,890,000.00	$ 14,948,273.00	$ 19,065,550.00
Piezas Reemplazo por Unidad	$ 2,028,012.69		
Mantenimiento 3er año	$ 4,580,000.00	$ 6,116,789.00	$ 8,102,240.00
Mantenimiento 4to año	$ 4,720,000.00	$ 5,418,714.00	$ 8,530,320.00
Total	$ 20,218,012.69	$ 26,483,776.00	$ 35,698,110.00

Conversión a Valor del Renglón Costo Unidad e Instalación

$$Puntuación\ de\ Proponente = \left[1 - \frac{(Proponente - Proponente\_Mas\ \_Bajo)}{Proponente\_Mas\ \_Bajo}\right] * Valor\ de\ Renglón$$

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(19{,}364{,}339 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 30$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(20{,}066{,}700 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 28.91$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(31{,}666{,}666 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 10.94$$

Conversión a Valor del Renglón Costo O&M

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(20{,}218{,}012.69 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 10$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(35{,}698{,}110 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 2.343$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(26{,}483{,}776 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 6.901$$

Conversión a Valor del Renglón Costo de Energía

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(0.6499 - 0.5382)}{0.5382}\right] * 20 = 15.849$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(0.6332 - 0.5382)}{0.5382}\right] * 20 = 16.470$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(0.5382 - 0.5382)}{0.5382}\right] * 20 = 20.000$$

RFP 82695 MOBILE GENERATION UNITS
PERFORMANCE PROPOSAL

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Unit Heat Rate (diesel – LHV) Assume 18,646 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	9038.6	9,759	9,393
Unit Heat Rate (NG – LHV) Assume 21,414 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	8894.9	9,574	9,246
(1) If energy price varies with output, provide data related to this variation. Provide output vs. Energy Price curves if applicable.				

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.81	10.78
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.34	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.46	20
Price Proposal Score:	**55.86**	**47.61**	**37.68**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	**4**	**5**	**3**
Compliance with all Applicable Federal, and Puerto Rico Regulations	8	10	6
Total	**87.86**	**82.8099**	**69.4751**

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

The criteria shall be graded using a score of 1 to 5:

1 = **Poor or Inadequate** – does not meet RFP expectations

2 = **Adequate** – criteria are met, below the standards set by the RFP

3 = **Average** – meets the minimum standards set by the RFP

4 = **Good** – meets and exceeds the minimum standards set by the RFP

5 = **Excellent** – meets and substantial exceeds the minimum standards set by the RFP and presents the best proposal for the criteria

PROPONENTS
Price Proposal (60 points)
Units Pricing:
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points)
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)
Shall provide price for Operation and Maintenance as required in this document (10 points)
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)
Price Proposal Score:
Price Proposal Score 1 to 5 Scale:
Price Proposal Score Converted:
Experience and Capacity (15 points)
Offeror's Experience:
Shall submit an abbreviated history of firm
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.
Schedule of Project Delivery:
Shall provide a proposed project schedule based on continuous work with key and critical tasks.
Experience and Capacity Score:
Approach and Methodology (15 points)
Work Plan:
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.
Approach and Methodology Score:
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.
Compliance with all Applicable Federal, and Puerto Rico Regulations:
Total

The criteria shall be graded using a score of 1 to 5:

ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
30	28.81	10.78
10	2.34	6.9
15.86	16.46	20
55.86	47.61	37.68
5	4.00	3.00
60	**48**	**36**
3	4	5
4	4	4
5	5	5
5	5	5
3	4	4
12	**13.2**	**13.8**
4	**4**	**4**
12	**12**	**12**
4	5	3
8	**10**	**6**
92	**83.2**	**67.8**

1 = **Poor or Inadequate** – does not meet RFP expectations

2 = **Adequate** – criteria are met, below the standards set by the RFP

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RFP 82695 MOBILE GENERATION UNITS

SCORING TABLE

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.81	10.78
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.343	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.47	20
Price Proposal Score:	55.86	47.62	37.68
Price Proposal Score 1 to 5 Scale:	5	4.00	4.00
Price Proposal Score Converted:	**60**	**48**	**48**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**79.8**

The criteria shall be graded using a score of 1 to 5:

1 = **Poor or Inadequate** – does not meet RFP expectations

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PROPONENTS
Price Proposal (60 points)
Units Pricing:
Shall submit a price per unit (including all its BOP equipment and accessories)
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning
Shall provide price for Operation and Maintenance as required in this document
Experience and Capacity (15 points)
Offeror's Experience:
Shall submit an abbreviated history of firm
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.
Schedule of Project Delivery:
Shall provide a proposed project schedule based on continuous work with key and critical tasks.
Approach and Methodology (15 points)
Work Plan:
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)
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ARG PRECISION, CORP.	RG ENGINEERING, INC.

SIEMENS

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.81	10.78
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.34	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.46	20
Price Proposal Score:	**55.86**	**47.61**	**37.68**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
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Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	**4**	**5**	**3**
Compliance with all Applicable Federal, and Puerto Rico Regulations	8	10	6
Total	**87.86**	**82.8099**	**69.4751**

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

The criteria shall be graded using a score of 1 to 5:

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Units Pricing:
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points)
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)
Shall provide price for Operation and Maintenance as required in this document (10 points)
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)
Price Proposal Score:
Price Proposal Score 1 to 5 Scale:
Price Proposal Score Converted:
Experience and Capacity (15 points)
Offeror's Experience:
Shall submit an abbreviated history of firm
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.
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Schedule of Project Delivery:
Shall provide a proposed project schedule based on continuous work with key and critical tasks.
Experience and Capacity Score:
Approach and Methodology (15 points)
Work Plan:
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.
Approach and Methodology Score:
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.
Compliance with all Applicable Federal, and Puerto Rico Regulations:
Total

The criteria shall be graded using a score of 1 to 5:

ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
30	28.81	10.78
10	2.34	6.9
15.86	16.46	20
55.86	47.61	37.68
5	4.00	3.00
60	**48**	**36**
3	4	5
4	4	4
5	5	5
5	5	5
3	4	4
12	**13.2**	**13.8**
4	**4**	**4**
12	**12**	**12**
4	5	3
8	**10**	**6**
92	**83.2**	**67.8**

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Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.91	10.94
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.343	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.849	16.470	20.000
Price Proposal Score:	55.849	47.72	37.84
Price Proposal Score 1 to 5 Scale:	5	4.00	4.00
Price Proposal Score Converted:	**60**	**48**	**48**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**79.8**

The criteria shall be graded using a score of 1 to 5:

1 = **Poor or Inadequate** – does not meet RFP expectations

2 = **Adequate** – criteria are met, below the standards set by the RFP

3 = **Average** – meets the minimum standards set by the RFP

4 = **Good** – meets and exceeds the minimum standards set by the RFP

5 = **Excellent** – meets and substantial exceeds the minimum standards set by the RFP and presents the best proposal for the criteria.

PROPONENTS
Price Proposal (60 points)
Units Pricing:
Shall submit a price per unit (including all its BOP equipment and accessories)
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning
Shall provide price for Operation and Maintenance as required in this document
Experience and Capacity (15 points)
Offeror's Experience:
Shall submit an abbreviated history of firm
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.
Schedule of Project Delivery:
Shall provide a proposed project schedule based on continuous work with key and critical tasks.
Approach and Methodology (15 points)
Work Plan:
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.

ARG PRECISION, CORP.	RG ENGINEERING, INC.

SIEMENS

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.81	10.78
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.34	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.46	20
Price Proposal Score:	**55.86**	**47.61**	**37.68**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	**4**	**5**	**3**
Compliance with all Applicable Federal, and Puerto Rico Regulations	8	10	6
Total	**87.86**	**82.8099**	**69.4751**

SCORING CRITIRIA
RFP 82695 MOBILE GENERATION UNITS

The criteria shall be graded using a score of 1 to 5:

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PROPONENTS
Price Proposal (60 points)
Units Pricing:
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points)
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)
Shall provide price for Operation and Maintenance as required in this document (10 points)
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)
Price Proposal Score:
Price Proposal Score 1 to 5 Scale:
Price Proposal Score Converted:
Experience and Capacity (15 points)
Offeror's Experience:
Shall submit an abbreviated history of firm
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.
Schedule of Project Delivery:
Shall provide a proposed project schedule based on continuous work with key and critical tasks.
Experience and Capacity Score:
Approach and Methodology (15 points)
Work Plan:
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.
Approach and Methodology Score:
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.
Compliance with all Applicable Federal, and Puerto Rico Regulations:
Total

The criteria shall be graded using a score of 1 to 5:

ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
30	28.81	10.78
10	2.34	6.9
15.86	16.46	20
55.86	47.61	37.68
5	4.00	3.00
60	**48**	**36**
3	4	5
4	4	4
5	5	5
5	5	5
3	4	4
12	**13.2**	**13.8**
4	**4**	**4**
12	**12**	**12**
4	5	3
8	**10**	**6**
92	**83.2**	**67.8**

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RFP 82695 MOBILE GENERATION UNITS

SCORING TABLE

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.91	10.94
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.343	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.849	16.470	20.000
Price Proposal Score:	55.849	47.72	37.84
Price Proposal Score 1 to 5 Scale:	5	4.00	4.00
Price Proposal Score Converted:	**60**	**48**	**48**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
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Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**79.8**

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ARG PRECISION, CORP.	RG ENGINEERING, INC.

SIEMENS

Mobile Generation Comparison Model
Bid Proposal by General Electric

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by General Electric

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		General Electric
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	28.643

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($104,038,111.54)
Equivalent Uniform Annuallized Cost	EUAC	($10,596,511.46)
LCOE $/kWhr (2018$)	See Eval Tab	$0.6332

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,393
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$16,952,250
Spare Parts	$	$0
Commissioning/Startup	$	$3,114,450
Subtotal-CapEx		**$20,066,700**

Major Maintenance

Maintenance Intervals	Cost
Hot Section Inspection	$2,395,000
Major Inspection	$4,600,000
Maintenance Category 3	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$9,532,775
Year 2	No	$9,532,775
Year 3	No	$8,102,240
Year 4	No	$8,530,320
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Hot Section Inspection	0	25,000
Major Inspection	0	50,000
Maintenance Category 3	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by General Electric

		Count				1
		Date				**2019**
Operating Costs						
Operating Hours		Hours				474
Output		MWhrs				13,587
Fuel Consumption	139,000	BBLs				21,860.56
Total Fuel Costs	**$ 94.75**				$	(2,123,070.35)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1		$	9,532,775.00	0	$	(9,532,775.00)
Year 2		$	9,532,775.00	0	$	-
Year 3		$	8,102,240.00	0	$	-
Year 4		$	8,530,320.00	0	$	-
Year 5+		$	4,720,000.00	0	$	-
Total 3rd-Party O&M Contract Costs					$	(9,532,775.00)
Major Maintenance Costs						
Hot Section Inspection		$	2,395,000.00	1	$	-
Major Inspection		$	4,600,000.00	2	$	-
Maintenance Category 3		$	-	3	$	-
Maintenance Category 4		$	-	4	$	-
Maintenance Category 5		$	-	5	$	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		5%	474.35
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Hot Section Inspection	1	25000	0
Major Inspection	2	50000	0
Maintenance Category 3	3	1000000000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Hot Section Inspection	1	1000000000	0
Major Inspection	2	1000000000	0
Maintenance Category 3	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Hot Section Inspection	1		0
Major Inspection	2		0
Maintenance Category 3	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
476	474	474	474	476	474
13,624	13,587	13,587	13,587	13,624	13,587
21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56
$ (2,182,109.16)	$ (2,230,550.79)	$ (2,286,314.56)	$ (2,343,472.42)	$ (2,408,640.22)	$ (2,462,110.72)
$ -	$ -	$ -	$ -	$ -	$ -
$ (9,532,775.00)	$ -	$ -	$ -	$ -	$ -
$ -	$ (8,102,240.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (8,530,320.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (9,532,775.00)	$ (8,102,240.00)	$ (8,530,320.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
950.01	1424.36	1898.72	2373.07	2848.72	3323.08
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
474	474	476	474	474	474
13,587	13,587	13,624	13,587	13,587	13,587
21,860.56	21,860.56	21,920.45	21,860.56	21,860.56	21,860.56
$ (2,523,663.48)	$ (2,586,755.07)	$ (2,658,688.12)	$ (2,717,709.55)	$ (2,785,652.28)	$ (2,855,293.59)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
3797.43	4271.79	4747.44	5221.79	5696.15	6170.50
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
476	474	474	474	476	474
13,624	13,587	13,587	13,587	13,624	13,587
21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56
$ (2,934,694.22)	$ (2,999,842.83)	$ (3,074,838.90)	$ (3,151,709.87)	$ (3,239,353.31)	$ (3,311,265.18)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
6646.15	7120.51	7594.86	8069.22	8544.87	9019.22
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044
474	-	-	-	-	-	-
13,587	-	-	-	-	-	-
21,860.56	-	-	-	-	-	-
$ (3,394,046.81)	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
9493.58	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27 **2045**	28 **2046**	29 **2047**	30 **2048**	31 **2049**	32 **2050**	33 **2051**
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34 2052	35 2053	36 2054	37 2055	38 2056	39 2057	40 2058
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0.000	0.000	0.000	0.000	0.000	0.000	0.000
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	41 2059	42 2060	43 2061	44 2062	45 2063	46 2064	47 2065
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	2059	2060	2061	2062	2063	2064	2065
	0	0	0	0	0	0	0
	0	0	0	0	0	8,784	8,760
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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0	0	0	0	0	0	0
0	0	0	0	0	0	0

	48 2066	49 2067	50 2068
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2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
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Evaluation
Mobile Generation Comparison Model
Bid Proposal by General Electric

						1 2019
Capital Costs						
Purchase Price		$	16,952,250.00	$	(16,952,250)
Spare Parts		$	-	$	-
Commissioning/Startup		$	3,114,450.00	$	(3,114,450)
Subtotal-CapEx				$	(20,066,700)
Operating Costs					
Total Fuel Costs				$	(2,123,070)
Total 3rd-Party O&M Contract Costs				$	(9,532,775)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(11,655,845)**
Total Costs				**$**	**(31,722,545)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($104,038,111.54)**		
Equivalent Uniform Annual Cost	**9.8181**		**($10,596,511.46)**	**$**	**(10,596,511)**
	chk		**($104,038,111.54)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWhr	$	0.6332	$	0.65
Energy	kWhr				13,586,922
Total Revenue				**$**	**8,818,244**
Total Cost				**$**	**(31,722,545)**
Difference				**$**	**(22,904,301)**
NPV			$0.00		

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
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$ (2,182,109)	$ (2,230,551)	$ (2,286,315)	$ (2,343,472)	$ (2,408,640)	$ (2,462,111)
$ (9,532,775)	$ (8,102,240)	$ (8,530,320)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -	$ -
$ (11,714,884)	**$ (10,332,791)**	**$ (10,816,635)**	**$ (7,063,472)**	**$ (7,128,640)**	**$ (7,182,111)**
$ (11,714,884)	**$ (10,332,791)**	**$ (10,816,635)**	**$ (7,063,472)**	**$ (7,128,640)**	**$ (7,182,111)**
$ (10,596,511)	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**
$ 0.67	$ 0.68	$ 0.70	$ 0.72	$ 0.73	$ 0.75
13,624,146	13,586,922	13,586,922	13,586,922	13,624,146	13,586,922
$ 9,063,464	**$ 9,264,668**	**$ 9,496,285**	**$ 9,733,692**	**$ 10,004,368**	**$ 10,226,460**
$ (11,714,884)	**$ (10,332,791)**	**$ (10,816,635)**	**$ (7,063,472)**	**$ (7,128,640)**	**$ (7,182,111)**
$ (2,651,420)	**$ (1,068,123)**	**$ (1,320,350)**	**$ 2,670,219**	**$ 2,875,728**	**$ 3,044,349**

8 2026	9 2027	10 2028	11 2029	12 2030
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$ (2,523,663)	$ (2,586,755)	$ (2,658,688)	$ (2,717,710)	$ (2,785,652)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (7,243,663)	**$ (7,306,755)**	**$ (7,378,688)**	**$ (7,437,710)**	**$ (7,505,652)**
$ (7,243,663)	**$ (7,306,755)**	**$ (7,378,688)**	**$ (7,437,710)**	**$ (7,505,652)**
$ (10,596,511)	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**
$ 0.77	$ 0.79	$ 0.81	$ 0.83	$ 0.85
13,586,922	13,586,922	13,624,146	13,586,922	13,586,922
$ 10,482,121	**$ 10,744,174**	**$ 11,042,951**	**$ 11,288,098**	**$ 11,570,301**
$ (7,243,663)	**$ (7,306,755)**	**$ (7,378,688)**	**$ (7,437,710)**	**$ (7,505,652)**
$ 3,238,458	**$ 3,437,419**	**$ 3,664,263**	**$ 3,850,389**	**$ 4,064,648**

13 2031	14 2032	15 2033	16 2034	17 2035
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$ -	$ -	$ -	$ -	$ -
$ (2,855,294)	$ (2,934,694)	$ (2,999,843)	$ (3,074,839)	$ (3,151,710)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (7,575,294)	**$ (7,654,694)**	**$ (7,719,843)**	**$ (7,794,839)**	**$ (7,871,710)**
$ (7,575,294)	**$ (7,654,694)**	**$ (7,719,843)**	**$ (7,794,839)**	**$ (7,871,710)**
$ (10,596,511)	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**	**$ (10,596,511)**
$ 0.87	$ 0.89	$ 0.92	$ 0.94	$ 0.96
13,586,922	13,624,146	13,586,922	13,586,922	13,586,922
$ 11,859,558	**$ 12,189,351**	**$ 12,459,948**	**$ 12,771,447**	**$ 13,090,733**
$ (7,575,294)	**$ (7,654,694)**	**$ (7,719,843)**	**$ (7,794,839)**	**$ (7,871,710)**
$ 4,284,265	**$ 4,534,657**	**$ 4,740,106**	**$ 4,976,608**	**$ 5,219,023**

18 2036	19 2037	20 2038	21 2039	22 2040	23 2041
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$ (3,239,353)	$ (3,311,265)	$ (3,394,047)	$ -	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (7,959,353)	**$ (8,031,265)**	**$ (8,114,047)**	**$ -**	**$ -**	**$ -**
$ (7,959,353)	**$ (8,031,265)**	**$ (8,114,047)**	**$ -**	**$ -**	**$ -**
$ (10,596,511)	**$ (10,596,511)**	**$ (10,596,511)**			
$ 0.99	$ 1.01	$ 1.04	$ -	$ -	$ -
13,624,146	13,586,922	13,586,922	-	-	-
$ 13,454,763	**$ 13,753,452**	**$ 14,097,288**	**$ -**	**$ -**	**$ -**
$ (7,959,353)	**$ (8,031,265)**	**$ (8,114,047)**	**$ -**	**$ -**	**$ -**
$ 5,495,410	**$ 5,722,186**	**$ 5,983,241**	**$ -**	**$ -**	**$ -**

	24 **2042**	25 **2043**	26 **2044**	27 **2045**	28 **2046**	29 **2047**	30 **2048**
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	31 2049	32 2050	33 2051	34 2052	35 2053	36 2054	37 2055
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	38 **2056**	39 **2057**	40 **2058**	41 **2059**	42 **2060**	43 **2061**	44 **2062**
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45	46	47	48	49	50
2063	**2064**	**2065**	**2066**	**2067**	**2068**
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Mobile Generation Comparison Model
Bid Proposal by General Electric

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by General Electric

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		General Electric
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	28.643

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($190,064,052.57)
Equivalent Uniform Annuallized Cost	EUAC	($19,358,443.57)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2637

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,393
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$16,952,250
Spare Parts	$	$0
Commissioning/Startup	$	$3,114,450
Subtotal-CapEx		**$20,066,700**

Major Maintenance

Maintenance Intervals	Cost
Hot Section Inspection	$2,395,000
Major Inspection	$4,600,000
Maintenance Category 3	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$9,532,775
Year 2	No	$9,532,775
Year 3	No	$8,102,240
Year 4	No	$8,530,320
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Hot Section Inspection	0	25,000
Major Inspection	0	50,000
Maintenance Category 3	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by General Electric

		Count				1
		Date				**2019**
Operating Costs						
Operating Hours		Hours				2,081
Output		MWhrs				59,592
Fuel Consumption	139,000	BBLs				95,879.65
Total Fuel Costs	**$ 94.75**				$	(9,311,712.08)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1		$	9,532,775.00	0	$	(9,532,775.00)
Year 2		$	9,532,775.00	0	$	-
Year 3		$	8,102,240.00	0	$	-
Year 4		$	8,530,320.00	0	$	-
Year 5+		$	4,720,000.00	0	$	-
Total 3rd-Party O&M Contract Costs					$	(9,532,775.00)
Major Maintenance Costs						
Hot Section Inspection		$	2,395,000.00	1	$	-
Major Inspection		$	4,600,000.00	2	$	-
Maintenance Category 3		$	-	3	$	-
Maintenance Category 4		$	-	4	$	-
Maintenance Category 5		$	-	5	$	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		24%	2080.50
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Hot Section Inspection	1	25000	0
Major Inspection	2	50000	0
Maintenance Category 3	3	1000000000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Hot Section Inspection	1	1000000000	0
Major Inspection	2	1000000000	0
Maintenance Category 3	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Hot Section Inspection	1		0
Major Inspection	2		0
Maintenance Category 3	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
2,086	2,081	2,081	2,081	2,086	2,081
59,755	59,592	59,592	59,592	59,755	59,592
96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65
$ (9,570,654.21)	$ (9,783,117.50)	$ (10,027,695.44)	$ (10,278,387.82)	$ (10,564,211.48)	$ (10,798,731.21)
$ -	$ -	$ -	$ -	$ -	$ -
$ (9,532,775.00)	$ -	$ -	$ -	$ -	$ -
$ -	$ (8,102,240.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (8,530,320.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (9,532,775.00)	$ (8,102,240.00)	$ (8,530,320.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
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2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
4166.70	6247.20	8327.70	10408.20	12494.40	14574.90
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
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0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
2,081	2,081	2,086	2,081	2,081	2,081
59,592	59,592	59,755	59,592	59,592	59,592
95,879.65	95,879.65	96,142.34	95,879.65	95,879.65	95,879.65
$ (11,068,699.49)	$ (11,345,416.97)	$ (11,660,912.82)	$ (11,919,778.71)	$ (12,217,773.18)	$ (12,523,217.51)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ (3,301,533.95)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ (3,301,533.95)

2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
16655.40	18735.90	20822.10	22902.60	24983.10	27063.60
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
0	0	0	0	0	1
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0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
2,086	2,081	2,081	2,081	2,086	2,081
59,755	59,592	59,592	59,592	59,755	59,592
96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65
$ (12,871,465.88)	$ (13,157,205.39)	$ (13,486,135.53)	$ (13,823,288.91)	$ (14,207,689.96)	$ (14,523,092.92)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
29149.80	31230.30	33310.80	35391.30	37477.50	39558.00
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
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0	0	0	0	0	0
0	0	0	0	0	0

20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044
2,081	-	-	-	-	-	-
59,592	-	-	-	-	-	-
95,879.65	-	-	-	-	-	-
$ (14,886,170.24)	$ -	$ -	$ -	$ -	$ -	$ -
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$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
41638.50	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27 **2045**	28 **2046**	29 **2047**	30 **2048**	31 **2049**	32 **2050**	33 **2051**
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2045	2046	2047	2048	2049	2050	2051
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0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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0	0	0	0	0	0	0

34 2052	35 2053	36 2054	37 2055	38 2056	39 2057	40 2058
-	-	-	-	-	-	-
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2052	2053	2054	2055	2056	2057	2058
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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0	0	0	0	0	0	0
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0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

41 **2059**	42 **2060**	43 **2061**	44 **2062**	45 **2063**	46 **2064**	47 **2065**
-	-	-	-	-	-	-
-	-	-	-	-	-	-
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2059	2060	2061	2062	2063	2064	2065
0	0	0	0	0	0	0
0	0	0	0	0	8,784	8,760
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

0	0	0	0	0	0	0
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0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

	48 2066	49 2067	50 2068
	-	-	-
	-	-	-
	-	-	-
$	-	$ -	$ -
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2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
0	0	0
0	0	0
0	0	0

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0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by General Electric

					1
					2019
Capital Costs					
Purchase Price		$	16,952,250.00	$	(16,952,250)
Spare Parts		$	-	$	-
Commissioning/Startup		$	3,114,450.00	$	(3,114,450)
Subtotal-CapEx				$	(20,066,700)
Operating Costs					
Total Fuel Costs				$	(9,311,712)
Total 3rd-Party O&M Contract Costs				$	(9,532,775)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(18,844,487)**
Total Costs				**$**	**(38,911,187)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($190,064,052.57)**		
Equivalent Uniform Annual Cost	**9.8181**		**($19,358,443.57)**	**$**	**(19,358,444)**
	chk		**($190,064,052.57)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWhr	$	0.2637	$	0.27
Energy	kWhr				59,591,762
Total Revenue				**$**	**16,109,782**
Total Cost				**$**	**(38,911,187)**
Difference				**$**	**(22,801,405)**
NPV			$0.00		

2 2020	3 2021	4 2022	5 2023	6 2024
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (9,570,654)	$ (9,783,117)	$ (10,027,695)	$ (10,278,388)	$ (10,564,211)
$ (9,532,775)	$ (8,102,240)	$ (8,530,320)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (19,103,429)	**$ (17,885,357)**	**$ (18,558,015)**	**$ (14,998,388)**	**$ (15,284,211)**
$ (19,103,429)	**$ (17,885,357)**	**$ (18,558,015)**	**$ (14,998,388)**	**$ (15,284,211)**
$ (19,358,444)	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**
$ 0.28	$ 0.28	$ 0.29	$ 0.30	$ 0.31
59,755,027	59,591,762	59,591,762	59,591,762	59,755,027
$ 16,557,766	**$ 16,925,339**	**$ 17,348,473**	**$ 17,782,185**	**$ 18,276,676**
$ (19,103,429)	**$ (17,885,357)**	**$ (18,558,015)**	**$ (14,998,388)**	**$ (15,284,211)**
$ (2,545,663)	**$ (960,018)**	**$ (1,209,543)**	**$ 2,783,797**	**$ 2,992,464**

7 2025	8 2026	9 2027	10 2028	11 2029
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$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (10,798,731)	$ (11,068,699)	$ (11,345,417)	$ (11,660,913)	$ (11,919,779)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (15,518,731)	**$ (15,788,699)**	**$ (16,065,417)**	**$ (16,380,913)**	**$ (16,639,779)**
$ (15,518,731)	**$ (15,788,699)**	**$ (16,065,417)**	**$ (16,380,913)**	**$ (16,639,779)**
$ (19,358,444)	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**
$ 0.31	$ 0.32	$ 0.33	$ 0.34	$ 0.35
59,591,762	59,591,762	59,591,762	59,755,027	59,591,762
$ 18,682,408	**$ 19,149,468**	**$ 19,628,205**	**$ 20,174,030**	**$ 20,621,882**
$ (15,518,731)	**$ (15,788,699)**	**$ (16,065,417)**	**$ (16,380,913)**	**$ (16,639,779)**
$ 3,163,677	**$ 3,360,768**	**$ 3,562,788**	**$ 3,793,117**	**$ 3,982,104**

12 2030	13 2031	14 2032	15 2033	16 2034
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$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -
$ (12,217,773)	$ (12,523,218)	$ (12,871,466)	$ (13,157,205)	$ (13,486,136)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ (3,301,534)	$ -	$ -	$ -
$ (16,937,773)	**$ (20,544,751)**	**$ (17,591,466)**	**$ (17,877,205)**	**$ (18,206,136)**
$ (16,937,773)	**$ (20,544,751)**	**$ (17,591,466)**	**$ (17,877,205)**	**$ (18,206,136)**
$ (19,358,444)	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**
$ 0.35	$ 0.36	$ 0.37	$ 0.38	$ 0.39
59,591,762	59,591,762	59,755,027	59,591,762	59,591,762
$ 21,137,430	**$ 21,665,865**	**$ 22,268,354**	**$ 22,762,700**	**$ 23,331,767**
$ (16,937,773)	**$ (20,544,751)**	**$ (17,591,466)**	**$ (17,877,205)**	**$ (18,206,136)**
$ 4,199,656	**$ 1,121,114**	**$ 4,676,889**	**$ 4,885,494**	**$ 5,125,632**

17 2035	18 2036	19 2037	20 2038	21 2039	22 2040
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (13,823,289)	$ (14,207,690)	$ (14,523,093)	$ (14,886,170)	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (18,543,289)	**$ (18,927,690)**	**$ (19,243,093)**	**$ (19,606,170)**	**$ -**	**$ -**
$ (18,543,289)	**$ (18,927,690)**	**$ (19,243,093)**	**$ (19,606,170)**	**$ -**	**$ -**
$ (19,358,444)	**$ (19,358,444)**	**$ (19,358,444)**	**$ (19,358,444)**		
$ 0.40	$ 0.41	$ 0.42	$ 0.43	$ -	$ -
59,591,762	59,755,027	59,591,762	59,591,762	-	-
$ 23,915,061	**$ 24,580,097**	**$ 25,125,761**	**$ 25,753,905**	**$ -**	**$ -**
$ (18,543,289)	**$ (18,927,690)**	**$ (19,243,093)**	**$ (19,606,170)**	**$ -**	**$ -**
$ 5,371,772	**$ 5,652,407**	**$ 5,882,668**	**$ 6,147,735**	**$ -**	**$ -**

	23 **2041**		24 **2042**		25 **2043**		26 **2044**		27 **2045**		28 **2046**		29 **2047**
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	30 **2048**	31 **2049**	32 **2050**	33 **2051**	34 **2052**	35 **2053**	36 **2054**
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	37 2055	38 2056	39 2057	40 2058	41 2059	42 2060	43 2061
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44	45	46	47	48	49	50
2062	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**
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Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		Pratt & Whitney
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	22.583

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($84,127,900.03)
Equivalent Uniform Annuallized Cost	EUAC	($8,568,612.44)
LCOE $/kWhr (2018$)	See Eval Tab	$0.6494

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,759
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$17,995,708
Spare Parts	$	$0
Commissioning/Startup	$	$1,303,458
Subtotal-CapEx		**$19,299,166**

Major Maintenance

Maintenance Intervals	Cost
Gas Gen Hot Section Inspection	$3,507,500
Major Shop Inspection	$7,187,500
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$4,445,000
Year 2	No	$4,445,000
Year 3	No	$4,580,000
Year 4	No	$4,720,000
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Gas Gen Hot Section Inspection	0	12,500
Major Shop Inspection	0	50,000
Major Overhaul (Class C)	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

		Count				1
		Date				**2019**
Operating Costs						
Operating Hours		Hours				474
Output		MWhrs				10,712
Fuel Consumption	139,000	BBLs				17,907.11
Total Fuel Costs	**$ 94.75**				$	(1,739,115.85)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1		$	4,445,000.00	0	$	(4,445,000.00)
Year 2		$	4,445,000.00	0	$	-
Year 3		$	4,580,000.00	0	$	-
Year 4		$	4,720,000.00	0	$	-
Year 5+		$	4,720,000.00	0	$	-
Total 3rd-Party O&M Contract Costs					$	(4,445,000.00)
Major Maintenance Costs						
Gas Gen Hot Section Inspection		$	3,507,500.00	1	$	-
Major Shop Inspection		$	7,187,500.00	2	$	-
Major Overhaul (Class C)		$	-	3	$	-
Maintenance Category 4		$	-	4	$	-
Maintenance Category 5		$	-	5	$	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		5%	474.35
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Gas Gen Hot Section Inspection	1	12500	0
Major Shop Inspection	2	50000	0
Major Overhaul (Class C)	3	1000000000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Gas Gen Hot Section Inspection	1	1000000000	0
Major Shop Inspection	2	1000000000	0
Major Overhaul (Class C)	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Gas Gen Hot Section Inspection	1		0
Major Shop Inspection	2		0
Major Overhaul (Class C)	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
476	474	474	474	476	474
10,742	10,712	10,712	10,712	10,742	10,712
17,956.17	17,907.11	17,907.11	17,907.11	17,956.17	17,907.11
$ (1,787,477.56)	$ (1,827,158.59)	$ (1,872,837.55)	$ (1,919,658.49)	$ (1,973,040.78)	$ (2,016,841.20)
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,445,000.00)	$ -	$ -	$ -	$ -	$ -
$ -	$ (4,580,000.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (4,720,000.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,445,000.00)	$ (4,580,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
950.01	1424.36	1898.72	2373.07	2848.72	3323.08
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
474	474	476	474	474	474
10,712	10,712	10,742	10,712	10,712	10,712
17,907.11	17,907.11	17,956.17	17,907.11	17,907.11	17,907.11
$ (2,067,262.23)	$ (2,118,943.79)	$ (2,177,867.84)	$ (2,226,215.32)	$ (2,281,870.70)	$ (2,338,917.47)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
3797.43	4271.79	4747.44	5221.79	5696.15	6170.50
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
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0	0	0	0	0	0
0	0	0	0	0	0

14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
476	474	474	474	476	474
10,742	10,712	10,712	10,712	10,742	10,712
17,956.17	17,907.11	17,907.11	17,907.11	17,956.17	17,907.11
$ (2,403,958.60)	$ (2,457,325.17)	$ (2,518,758.30)	$ (2,581,727.25)	$ (2,653,520.49)	$ (2,712,427.20)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
6646.15	7120.51	7594.86	8069.22	8544.87	9019.22
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
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20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044
474	-	-	-	-	-	-
10,712	-	-	-	-	-	-
17,907.11	-	-	-	-	-	-
$ (2,780,237.88)	$ -	$ -	$ -	$ -	$ -	$ -
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$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
9493.58	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27	28	29	30	31	32	33
2045	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
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34	35	36	37	38	39	40
2052	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**
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2052	2053	2054	2055	2056	2057	2058
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41 **2059**	42 **2060**	43 **2061**	44 **2062**	45 **2063**	46 **2064**	47 **2065**
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2059	2060	2061	2062	2063	2064	2065
0	0	0	0	0	0	0
0	0	0	0	0	8,784	8,760
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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	48 2066	49 2067	50 2068
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2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
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Evaluation
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

					1 2019
Capital Costs					
Purchase Price		$	17,995,708.00	$	(17,995,708)
Spare Parts		$	-	$	-
Commissioning/Startup		$	1,303,458.00	$	(1,303,458)
Subtotal-CapEx				$	(19,299,166)
Operating Costs					
Total Fuel Costs				$	(1,739,116)
Total 3rd-Party O&M Contract Costs				$	(4,445,000)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(6,184,116)**
Total Costs				**$**	**(25,483,282)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($84,127,900.03)**		
Equivalent Uniform Annual Cost	**9.8181**		**($8,568,612.44)**	**$**	**(8,568,612)**
	chk		**($84,127,900.03)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWhr	$	0.6494	$	0.67
Energy	kWhr				10,712,336
Total Revenue				**$**	**7,130,660**
Total Cost				**$**	**(25,483,282)**
Difference				**$**	**(18,352,622)**
NPV			$0.00		

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
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$ -	$ -	$ -	$ -	$ -	$ -
$ (1,787,478)	$ (1,827,159)	$ (1,872,838)	$ (1,919,658)	$ (1,973,041)	$ (2,016,841)
$ (4,445,000)	$ (4,580,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -	$ -
$ (6,232,478)	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**
$ (6,232,478)	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**
$ (8,568,612)	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**
$ 0.68	$ 0.70	$ 0.72	$ 0.73	$ 0.75	$ 0.77
10,741,685	10,712,336	10,712,336	10,712,336	10,741,685	10,712,336
$ 7,328,951	**$ 7,491,649**	**$ 7,678,941**	**$ 7,870,914**	**$ 8,089,790**	**$ 8,269,379**
$ (6,232,478)	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**
$ 1,096,473	**$ 1,084,491**	**$ 1,086,103**	**$ 1,231,256**	**$ 1,396,750**	**$ 1,532,538**

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
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$ (2,067,262)	$ (2,118,944)	$ (2,177,868)	$ (2,226,215)	$ (2,281,871)	$ (2,338,917)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -	$ -
$ (6,787,262)	**$ (6,838,944)**	**$ (6,897,868)**	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**
$ (6,787,262)	**$ (6,838,944)**	**$ (6,897,868)**	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**
$ (8,568,612)	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**
$ 0.79	$ 0.81	$ 0.83	$ 0.85	$ 0.87	$ 0.90
10,712,336	10,712,336	10,741,685	10,712,336	10,712,336	10,712,336
$ 8,476,114	**$ 8,688,017**	**$ 8,929,615**	**$ 9,127,847**	**$ 9,356,044**	**$ 9,589,945**
$ (6,787,262)	**$ (6,838,944)**	**$ (6,897,868)**	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**
$ 1,688,851	**$ 1,849,073**	**$ 2,031,747**	**$ 2,181,632**	**$ 2,354,173**	**$ 2,531,027**

14 2032	15 2033	16 2034	17 2035	18 2036
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$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (2,403,959)	$ (2,457,325)	$ (2,518,758)	$ (2,581,727)	$ (2,653,520)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (7,123,959)	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**
$ (7,123,959)	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**
$ (8,568,612)	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**
$ 0.92	$ 0.94	$ 0.96	$ 0.99	$ 1.01
10,741,685	10,712,336	10,712,336	10,712,336	10,741,685
$ 9,856,624	**$ 10,075,436**	**$ 10,327,322**	**$ 10,585,505**	**$ 10,879,869**
$ (7,123,959)	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**
$ 2,732,665	**$ 2,898,110**	**$ 3,088,563**	**$ 3,283,777**	**$ 3,506,348**

19 2037	20 2038	21 2039	22 2040	23 2041	24 2042
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$ (2,712,427)	$ (2,780,238)	$ -	$ -	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (7,432,427)	**$ (7,500,238)**	**$ -**	**$ -**	**$ -**	**$ -**
$ (7,432,427)	**$ (7,500,238)**	**$ -**	**$ -**	**$ -**	**$ -**
$ (8,568,612)	**$ (8,568,612)**				
$ 1.04	$ 1.06	$ -	$ -	$ -	$ -
10,712,336	10,712,336	-	-	-	-
$ 11,121,396	**$ 11,399,431**	**$ -**	**$ -**	**$ -**	**$ -**
$ (7,432,427)	**$ (7,500,238)**	**$ -**	**$ -**	**$ -**	**$ -**
$ 3,688,969	**$ 3,899,193**	**$ -**	**$ -**	**$ -**	**$ -**

	25 **2043**	26 **2044**	27 **2045**	28 **2046**	29 **2047**	30 **2048**	31 **2049**
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32	33	34	35	36	37	38
2050	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**
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39	40	41	42	43	44	45
2057	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**
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46	47	48	49	50
2064	**2065**	**2066**	**2067**	**2068**
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Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		Pratt & Whitney
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	22.583

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($159,111,631.87)
Equivalent Uniform Annuallized Cost	EUAC	($16,205,871.16)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2800

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,759
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$17,995,708
Spare Parts	$	$0
Commissioning/Startup	$	$1,303,458
Subtotal-CapEx		**$19,299,166**

Major Maintenance

Maintenance Intervals	Cost
Gas Gen Hot Section Inspection	$3,507,500
Major Shop Inspection	$7,187,500
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$4,445,000
Year 2	No	$4,445,000
Year 3	No	$4,580,000
Year 4	No	$4,720,000
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Gas Gen Hot Section Inspection	0	12,500
Major Shop Inspection	0	50,000
Major Overhaul (Class C)	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

			Count			1
			Date			**2019**
Operating Costs						
Operating Hours			Hours			2,081
Output			MWhrs			46,984
Fuel Consumption		139,000	BBLs			78,539.94
Total Fuel Costs	**$**	**94.75**			$	(7,627,701.09)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1			$	4,445,000.00	0 $	(4,445,000.00)
Year 2			$	4,445,000.00	0 $	-
Year 3			$	4,580,000.00	0 $	-
Year 4			$	4,720,000.00	0 $	-
Year 5+			$	4,720,000.00	0 $	-
Total 3rd-Party O&M Contract Costs					$	(4,445,000.00)
Major Maintenance Costs						
Gas Gen Hot Section Inspection			$	3,507,500.00	1 $	-
Major Shop Inspection			$	7,187,500.00	2 $	-
Major Overhaul (Class C)			$	-	3 $	-
Maintenance Category 4			$	-	4 $	-
Maintenance Category 5			$	-	5 $	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		24%	2080.50
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Gas Gen Hot Section Inspection	1	12500	0
Major Shop Inspection	2	50000	0
Major Overhaul (Class C)	3	1000000000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Gas Gen Hot Section Inspection	1	1000000000	0
Major Shop Inspection	2	1000000000	0
Major Overhaul (Class C)	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Gas Gen Hot Section Inspection	1		0
Major Shop Inspection	2		0
Major Overhaul (Class C)	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
2,086	2,081	2,081	2,081	2,086	2,081
47,113	46,984	46,984	46,984	47,113	46,984
78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94
$ (7,839,813.88)	$ (8,013,853.46)	$ (8,214,199.80)	$ (8,419,554.79)	$ (8,653,687.62)	$ (8,845,794.75)
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,445,000.00)	$ -	$ -	$ -	$ -	$ -
$ -	$ (4,580,000.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (4,720,000.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,445,000.00)	$ (4,580,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ (4,169,315.28)
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$ -	$ -	$ -	$ -	$ -	$ (4,169,315.28)

2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
4166.70	6247.20	8327.70	10408.20	12494.40	14574.90
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0

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0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
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0	0	0	0	0	0
0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
2,081	2,081	2,086	2,081	2,081	2,081
46,984	46,984	47,113	46,984	46,984	46,984
78,539.94	78,539.94	78,755.12	78,539.94	78,539.94	78,539.94
$ (9,066,939.62)	$ (9,293,613.11)	$ (9,552,051.94)	$ (9,764,102.28)	$ (10,008,204.83)	$ (10,258,409.96)
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$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ (4,835,127.49)
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$ -	$ -	$ -	$ -	$ -	$ (4,835,127.49)

2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
16655.40	18735.90	20822.10	22902.60	24983.10	27063.60
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
0	0	0	0	0	1
0	0	0	0	0	0
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0	0	0	0	0	1
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0	0	0	0	0	0
0	0	0	0	0	0

14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
2,086	2,081	2,081	2,081	2,086	2,081
47,113	46,984	46,984	46,984	47,113	46,984
78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94
$ (10,543,678.07)	$ (10,777,741.96)	$ (11,047,185.51)	$ (11,323,365.15)	$ (11,638,247.77)	$ (11,896,610.51)
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$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ (5,607,265.53)
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$ -	$ -	$ -	$ -	$ -	$ (5,607,265.53)

2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
29149.80	31230.30	33310.80	35391.30	37477.50	39558.00
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
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0	0	0	0	0	0
0	0	0	0	0	1
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0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044
2,081	-	-	-	-	-	-
46,984	-	-	-	-	-	-
78,539.94	-	-	-	-	-	-
$ (12,194,025.77)	$ -	$ -	$ -	$ -	$ -	$ -
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$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
41638.50	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27 **2045**	28 **2046**	29 **2047**	30 **2048**	31 **2049**	32 **2050**	33 **2051**
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2045	2046	2047	2048	2049	2050	2051
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0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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34 **2052**	35 **2053**	36 **2054**	37 **2055**	38 **2056**	39 **2057**	40 **2058**
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2052	2053	2054	2055	2056	2057	2058
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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0	0	0	0	0	0	0

41 **2059**	42 **2060**	43 **2061**	44 **2062**	45 **2063**	46 **2064**	47 **2065**
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2059	2060	2061	2062	2063	2064	2065
0	0	0	0	0	0	0
0	0	0	0	0	8,784	8,760
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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0	0	0	0	0	0	0

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	48 2066	49 2067	50 2068
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$	-	$ -	$ -
$	-	$ -	$ -
$	-	$ -	$ -

2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
0	0	0
0	0	0
0	0	0

0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

					1
					2019
Capital Costs					
Purchase Price		$	17,995,708.00	$	(17,995,708)
Spare Parts		$	-	$	-
Commissioning/Startup		$	1,303,458.00	$	(1,303,458)
Subtotal-CapEx				$	(19,299,166)
Operating Costs					
Total Fuel Costs				$	(7,627,701)
Total 3rd-Party O&M Contract Costs				$	(4,445,000)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(12,072,701)**
Total Costs				**$**	**(31,371,867)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($159,111,631.87)**		
Equivalent Uniform Annual Cost	**9.818147**		**($16,205,871.16)**	**$**	**(16,205,871)**
	chk		**($159,111,631.87)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWhr	$	0.2800	$	0.29
Energy	kWhr				46,983,932
Total Revenue				**$**	**13,486,262**
Total Cost				**$**	**(31,371,867)**
Difference				**$**	**(17,885,605)**
NPV			$0.00		

2 2020	3 2021	4 2022	5 2023	6 2024
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (7,839,814)	$ (8,013,853)	$ (8,214,200)	$ (8,419,555)	$ (8,653,688)
$ (4,445,000)	$ (4,580,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (12,284,814)	**$ (12,593,853)**	**$ (12,934,200)**	**$ (13,139,555)**	**$ (13,373,688)**
$ (12,284,814)	**$ (12,593,853)**	**$ (12,934,200)**	**$ (13,139,555)**	**$ (13,373,688)**
$ (16,205,871)	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**
$ 0.29	$ 0.30	$ 0.31	$ 0.32	$ 0.32
47,112,655	46,983,932	46,983,932	46,983,932	47,112,655
$ 13,861,291	**$ 14,169,004**	**$ 14,523,229**	**$ 14,886,310**	**$ 15,300,272**
$ (12,284,814)	**$ (12,593,853)**	**$ (12,934,200)**	**$ (13,139,555)**	**$ (13,373,688)**
$ 1,576,477	**$ 1,575,151**	**$ 1,589,030**	**$ 1,746,755**	**$ 1,926,584**

7 2025	8 2026	9 2027	10 2028	11 2029
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (8,845,795)	$ (9,066,940)	$ (9,293,613)	$ (9,552,052)	$ (9,764,102)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ (4,169,315)	$ -	$ -	$ -	$ -
$ (17,735,110)	**$ (13,786,940)**	**$ (14,013,613)**	**$ (14,272,052)**	**$ (14,484,102)**
$ (17,735,110)	**$ (13,786,940)**	**$ (14,013,613)**	**$ (14,272,052)**	**$ (14,484,102)**
$ (16,205,871)	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**
$ 0.33	$ 0.34	$ 0.35	$ 0.36	$ 0.37
46,983,932	46,983,932	46,983,932	47,112,655	46,983,932
$ 15,639,929	**$ 16,030,928**	**$ 16,431,701**	**$ 16,888,637**	**$ 17,263,556**
$ (17,735,110)	**$ (13,786,940)**	**$ (14,013,613)**	**$ (14,272,052)**	**$ (14,484,102)**
$ (2,095,181)	**$ 2,243,988**	**$ 2,418,088**	**$ 2,616,585**	**$ 2,779,453**

12 2030	13 2031	14 2032	15 2033	16 2034
$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -
$ (10,008,205)	$ (10,258,410)	$ (10,543,678)	$ (10,777,742)	$ (11,047,186)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ (4,835,127)	$ -	$ -	$ -
$ (14,728,205)	**$ (19,813,537)**	**$ (15,263,678)**	**$ (15,497,742)**	**$ (15,767,186)**
$ (14,728,205)	**$ (19,813,537)**	**$ (15,263,678)**	**$ (15,497,742)**	**$ (15,767,186)**
$ (16,205,871)	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**
$ 0.38	$ 0.39	$ 0.40	$ 0.41	$ 0.42
46,983,932	46,983,932	47,112,655	46,983,932	46,983,932
$ 17,695,145	**$ 18,137,523**	**$ 18,641,896**	**$ 19,055,735**	**$ 19,532,129**
$ (14,728,205)	**$ (19,813,537)**	**$ (15,263,678)**	**$ (15,497,742)**	**$ (15,767,186)**
$ 2,966,940	**$ (1,676,014)**	**$ 3,378,217**	**$ 3,557,993**	**$ 3,764,943**

17 2035	18 2036	19 2037	20 2038	21 2039	22 2040
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (11,323,365)	$ (11,638,248)	$ (11,896,611)	$ (12,194,026)	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ -	$ -
$ -	$ -	$ (5,607,266)	$ -	$ -	$ -
$ (16,043,365)	**$ (16,358,248)**	**$ (22,223,876)**	**$ (16,914,026)**	**$ -**	**$ -**
$ (16,043,365)	**$ (16,358,248)**	**$ (22,223,876)**	**$ (16,914,026)**	**$ -**	**$ -**
$ (16,205,871)	**$ (16,205,871)**	**$ (16,205,871)**	**$ (16,205,871)**		
$ 0.43	$ 0.44	$ 0.45	$ 0.46	$ -	$ -
46,983,932	47,112,655	46,983,932	46,983,932	-	-
$ 20,020,432	**$ 20,577,165**	**$ 21,033,966**	**$ 21,559,816**	**$ -**	**$ -**
$ (16,043,365)	**$ (16,358,248)**	**$ (22,223,876)**	**$ (16,914,026)**	**$ -**	**$ -**
$ 3,977,067	**$ 4,218,917**	**$ (1,189,910)**	**$ 4,645,790**	**$ -**	**$ -**

	23 **2041**	24 **2042**	25 **2043**	26 **2044**	27 **2045**	28 **2046**	29 **2047**
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	30 **2048**	31 **2049**	32 **2050**	33 **2051**	34 **2052**	35 **2053**	36 **2054**
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	37 **2055**	38 **2056**	39 **2057**	40 **2058**	41 **2059**	42 **2060**	43 **2061**
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44	45	46	47	48	49	50
2062	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**
$ -	$ -	$ -	$ -	$ -	$ -	$ -
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Mobile Generation Comparison Model
Bid Proposal by Siemens

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by Siemens

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		Siemens
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	36.6

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($219,674,008.21)
Equivalent Uniform Annuallized Cost	EUAC	($22,374,282.96)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2386

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,039
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$29,881,685
Spare Parts	$	$0
Commissioning/Startup	$	$1,784,981
Subtotal-CapEx		**$31,666,666**

Major Maintenance

Maintenance Intervals	Cost
Minor Inspection (Class A)	$0
Hot Section Refurbishment (Class B)	$4,725,132
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$7,474,137
Year 2	No	$7,474,137
Year 3	No	$6,116,789
Year 4	No	$5,418,714
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Minor Inspection (Class A)	0	12,500
Hot Section Refurbishment (Class B)	0	25,000
Major Overhaul (Class C)	0	50,000
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Siemens

		Count				1
		Date				**2019**
Operating Costs						
Operating Hours		Hours				2,081
Output		MWhrs				76,146
Fuel Consumption	139,000	BBLs				117,892.42
Total Fuel Costs	**$ 94.75**				$	(11,449,564.45)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1		$	7,474,136.50	0	$	(7,474,136.50)
Year 2		$	7,474,136.50	0	$	-
Year 3		$	6,116,789.00	0	$	-
Year 4		$	5,418,714.00	0	$	-
Year 5+		$	4,720,000.00	0	$	-
Total 3rd-Party O&M Contract Costs					$	(7,474,136.50)
Major Maintenance Costs						
Minor Inspection (Class A)		$	-	1	$	-
Hot Section Refurbishment (Class B)		$	4,725,132.00	2	$	-
Major Overhaul (Class C)		$	-	3	$	-
Maintenance Category 4		$	-	4	$	-
Maintenance Category 5		$	-	5	$	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		24%	2080.50
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Minor Inspection (Class A)	1	12500	0
Hot Section Refurbishment (Class B)	2	25000	0
Major Overhaul (Class C)	3	50000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Minor Inspection (Class A)	1	1000000000	0
Hot Section Refurbishment (Class B)	2	1000000000	0
Major Overhaul (Class C)	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Minor Inspection (Class A)	1		0
Hot Section Refurbishment (Class B)	2		0
Major Overhaul (Class C)	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
2,086	2,081	2,081	2,081	2,086	2,081
76,355	76,146	76,146	76,146	76,355	76,146
118,215.41	117,892.42	117,892.42	117,892.42	118,215.41	117,892.42
$ (11,767,956.45)	$ (12,029,198.65)	$ (12,329,928.62)	$ (12,638,176.83)	$ (12,989,622.03)	$ (13,277,984.54)
$ -	$ -	$ -	$ -	$ -	$ -
$ (7,474,136.50)	$ -	$ -	$ -	$ -	$ -
$ -	$ (6,116,789.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (5,418,714.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (7,474,136.50)	$ (6,116,789.00)	$ (5,418,714.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
4166.70	6247.20	8327.70	10408.20	12494.40	14574.90
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
2,081	2,081	2,086	2,081	2,081	2,081
76,146	76,146	76,355	76,146	76,146	76,146
117,892.42	117,892.42	118,215.41	117,892.42	117,892.42	117,892.42
$ (13,609,934.15)	$ (13,950,182.50)	$ (14,338,112.24)	$ (14,656,410.49)	$ (15,022,820.75)	$ (15,398,391.27)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ (6,513,646.65)
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ (6,513,646.65)

2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
16655.40	18735.90	20822.10	22902.60	24983.10	27063.60
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
0	0	0	0	0	1
0	0	0	0	0	2
0	0	0	0	0	0

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	2
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
2,086	2,081	2,081	2,081	2,086	2,081
76,355	76,146	76,146	76,146	76,355	76,146
118,215.41	117,892.42	117,892.42	117,892.42	118,215.41	117,892.42
$ (15,826,593.11)	$ (16,177,934.83)	$ (16,582,383.20)	$ (16,996,942.78)	$ (17,469,597.49)	$ (17,857,413.01)
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$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
29149.80	31230.30	33310.80	35391.30	37477.50	39558.00
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0

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0	0	0	0	0	0
0	0	0	0	0	1
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0	0	0	0	0	0
0	0	0	0	0	0

20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044
2,081	-	-	-	-	-	-
76,146	-	-	-	-	-	-
117,892.42	-	-	-	-	-	-
$ (18,303,848.34)	$ -	$ -	$ -	$ -	$ -	$ -
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$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
41638.50	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27	28	29	30	31	32	33
2045	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
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2045	2046	2047	2048	2049	2050	2051
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34	35	36	37	38	39	40
2052	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**
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2052	2053	2054	2055	2056	2057	2058
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41 **2059**	42 **2060**	43 **2061**	44 **2062**	45 **2063**	46 **2064**	47 **2065**
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2059	2060	2061	2062	2063	2064	2065
0	0	0	0	0	0	0
0	0	0	0	0	8,784	8,760
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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	48 2066	49 2067	50 2068
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2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
0	0	0
0	0	0
0	0	0

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Evaluation
Mobile Generation Comparison Model
Bid Proposal by Siemens

					1
					2019
Capital Costs					
Purchase Price		$	29,881,685.00	$	(29,881,685)
Spare Parts		$	-	$	-
Commissioning/Startup		$	1,784,981.00	$	(1,784,981)
Subtotal-CapEx				$	(31,666,666)
Operating Costs					
Total Fuel Costs				$	(11,449,564)
Total 3rd-Party O&M Contract Costs				$	(7,474,137)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(18,923,701)**
Total Costs				**$**	**(50,590,367)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($219,674,008.21)**		
Equivalent Uniform Annual Cost	**9.818**		**($22,374,282.96)**	**$**	**(22,374,283)**
	chk		**($219,674,008.21)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWh	$	0.2386	$	0.24
Energy	kWhr				76,146,300
Total Revenue				**$**	**18,619,514**
Total Cost				**$**	**(50,590,367)**
Difference				**$**	**(31,970,853)**
NPV			($0.00)		

2 2020	3 2021	4 2022	5 2023	6 2024
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$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ (11,767,956)	$ (12,029,199)	$ (12,329,929)	$ (12,638,177)	$ (12,989,622)
$ (7,474,137)	$ (6,116,789)	$ (5,418,714)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (19,242,093)	**$ (18,145,988)**	**$ (17,748,643)**	**$ (17,358,177)**	**$ (17,709,622)**
$ (19,242,093)	**$ (18,145,988)**	**$ (17,748,643)**	**$ (17,358,177)**	**$ (17,709,622)**
$ (22,374,283)	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**
$ 0.25	$ 0.26	$ 0.26	$ 0.27	$ 0.28
76,354,920	76,146,300	76,146,300	76,146,300	76,354,920
$ 19,137,290	**$ 19,562,127**	**$ 20,051,180**	**$ 20,552,460**	**$ 21,123,987**
$ (19,242,093)	**$ (18,145,988)**	**$ (17,748,643)**	**$ (17,358,177)**	**$ (17,709,622)**
$ (104,803)	**$ 1,416,139**	**$ 2,302,538**	**$ 3,194,283**	**$ 3,414,365**

7 2025	8 2026	9 2027	10 2028	11 2029
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$ -	$ -	$ -	$ -	$ -
$ (13,277,985)	$ (13,609,934)	$ (13,950,183)	$ (14,338,112)	$ (14,656,410)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (17,997,985)	**$ (18,329,934)**	**$ (18,670,183)**	**$ (19,058,112)**	**$ (19,376,410)**
$ (17,997,985)	**$ (18,329,934)**	**$ (18,670,183)**	**$ (19,058,112)**	**$ (19,376,410)**
$ (22,374,283)	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**
$ 0.28	$ 0.29	$ 0.30	$ 0.31	$ 0.31
76,146,300	76,146,300	76,146,300	76,354,920	76,146,300
$ 21,592,928	**$ 22,132,751**	**$ 22,686,070**	**$ 23,316,929**	**$ 23,834,552**
$ (17,997,985)	**$ (18,329,934)**	**$ (18,670,183)**	**$ (19,058,112)**	**$ (19,376,410)**
$ 3,594,943	**$ 3,802,817**	**$ 4,015,887**	**$ 4,258,817**	**$ 4,458,142**

12 2030	13 2031	14 2032	15 2033	16 2034
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$ (15,022,821)	$ (15,398,391)	$ (15,826,593)	$ (16,177,935)	$ (16,582,383)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ (6,513,647)	$ -	$ -	$ -
$ (19,742,821)	**$ (26,632,038)**	**$ (20,546,593)**	**$ (20,897,935)**	**$ (21,302,383)**
$ (19,742,821)	**$ (26,632,038)**	**$ (20,546,593)**	**$ (20,897,935)**	**$ (21,302,383)**
$ (22,374,283)	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**
$ 0.32	$ 0.33	$ 0.34	$ 0.35	$ 0.35
76,146,300	76,146,300	76,354,920	76,146,300	76,146,300
$ 24,430,416	**$ 25,041,176**	**$ 25,737,527**	**$ 26,308,886**	**$ 26,966,608**
$ (19,742,821)	**$ (26,632,038)**	**$ (20,546,593)**	**$ (20,897,935)**	**$ (21,302,383)**
$ 4,687,595	**$ (1,590,862)**	**$ 5,190,934**	**$ 5,410,951**	**$ 5,664,225**

17 2035	18 2036	19 2037	20 2038	21 2039	22 2040
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$ -	$ -	$ -	$ -	$ -	$ -
$ (16,996,943)	$ (17,469,597)	$ (17,857,413)	$ (18,303,848)	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (21,716,943)	**$ (22,189,597)**	**$ (22,577,413)**	**$ (23,023,848)**	**$ -**	**$ -**
$ (21,716,943)	**$ (22,189,597)**	**$ (22,577,413)**	**$ (23,023,848)**	**$ -**	**$ -**
$ (22,374,283)	**$ (22,374,283)**	**$ (22,374,283)**	**$ (22,374,283)**		
$ 0.36	$ 0.37	$ 0.38	$ 0.39	$ -	$ -
76,146,300	76,354,920	76,146,300	76,146,300	-	-
$ 27,640,773	**$ 28,409,414**	**$ 29,040,087**	**$ 29,766,090**	**$ -**	**$ -**
$ (21,716,943)	**$ (22,189,597)**	**$ (22,577,413)**	**$ (23,023,848)**	**$ -**	**$ -**
$ 5,923,831	**$ 6,219,816**	**$ 6,462,674**	**$ 6,742,241**	**$ -**	**$ -**

	23 **2041**		24 **2042**		25 **2043**		26 **2044**		27 **2045**		28 **2046**		29 **2047**
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	30 **2048**	31 **2049**	32 **2050**	33 **2051**	34 **2052**	35 **2053**	36 **2054**
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	37 2055	38 2056	39 2057	40 2058	41 2059	42 2060	43 2061
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44	45	46	47	48	49	50
2062	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**
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Mobile Generation Comparison Model
Bid Proposal by Siemens

Model Notes

Model Sensitivities

Model Purpose

WACC Calculation

NPV Assumptions

CapEx Assumptions

CapEx Escalation

Major Maintenance Events

Changeable Model Variables are located on the Inputs&Results Tab

The Model has been developed to evaluate the economic merits of each proposal on a NPV and EUAC basis

PREPA's weighted average cost of capital is assumed to be 8% on a pre-tax basis.

All NPV Calculations are based on WACC as the discount rate.

CapEx assumptions are summarized on the Inputs&Results Tab. The Inputs&Results Tab allows for CapEx sensitiv

The Model allows for CapEx escalation during the term of development and construction

Major Maintenance is limited to 10 Events, by category, and are time sensitive as shown on the O&M Tab.

Mobile Generation Comparison Model
Bid Proposal by Siemens

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
23-Aug-19

Project Summary

Proponent/Bidder		Siemens
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	36.6

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($112,995,213.88)
Equivalent Uniform Annuallized Cost	EUAC	($11,508,812.12)
LCOE $/kWhr (2018$)	See Eval Tab	$0.5382

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,039
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$29,881,685
Spare Parts	$	$0
Commissioning/Startup	$	$1,784,981
Subtotal-CapEx		**$31,666,666**

Major Maintenance

Maintenance Intervals	Cost
Minor Inspection (Class A)	$0
Hot Section Refurbishment (Class B)	$4,725,132
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$7,474,137
Year 2	No	$7,474,137
Year 3	No	$6,116,789
Year 4	No	$5,418,714
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Minor Inspection (Class A)	0	12,500
Hot Section Refurbishment (Class B)	0	25,000
Major Overhaul (Class C)	0	50,000
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Siemens

			Count			1
			Date			**2019**
Operating Costs						
Operating Hours			Hours			474
Output			MWhrs			17,361
Fuel Consumption		139,000	BBLs			26,879.47
Total Fuel Costs	**$**	**94.75**			$	(2,610,500.70)
Operations & Maintenance 3rd-Party Contract				**Esc**		
Year 1			$	7,474,136.50	0 $	(7,474,136.50)
Year 2			$	7,474,136.50	0 $	-
Year 3			$	6,116,789.00	0 $	-
Year 4			$	5,418,714.00	0 $	-
Year 5+			$	4,720,000.00	0 $	-
Total 3rd-Party O&M Contract Costs					$	(7,474,136.50)
Major Maintenance Costs						
Minor Inspection (Class A)			$	-	1 $	-
Hot Section Refurbishment (Class B)			$	4,725,132.00	2 $	-
Major Overhaul (Class C)			$	-	3 $	-
Maintenance Category 4			$	-	4 $	-
Maintenance Category 5			$	-	5 $	-
Total CapEx and Major Maintenance Costs					$	-

Triggers			2019
Operations			1
Available Annual Hours			8,760
Cumulative Operating Hours		5%	474.35
Cumulative Starts		50	50.00
Escalation		2018	
Operations & Maintenance		2.5%	1.025
Major Maintenance		2.5%	1.025
Fuel		2.5%	1.025
Major Maintenance			
Timing Tests		**Hours**	
Minor Inspection (Class A)	1	12500	0
Hot Section Refurbishment (Class B)	2	25000	0
Major Overhaul (Class C)	3	50000	0

Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
		Starts	
Minor Inspection (Class A)	1	1000000000	0
Hot Section Refurbishment (Class B)	2	1000000000	0
Major Overhaul (Class C)	3	1000000000	0
Maintenance Category 4	4	1000000000	0
Maintenance Category 5	5	1000000000	0
Triggers			
Minor Inspection (Class A)	1		0
Hot Section Refurbishment (Class B)	2		0
Major Overhaul (Class C)	3		0
Maintenance Category 4	4		0
Maintenance Category 5	5		0

2 2020	3 2021	4 2022	5 2023	6 2024	7 2025
476	474	474	474	476	474
17,409	17,361	17,361	17,361	17,409	17,361
26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47
$ (2,683,094.07)	$ (2,742,657.29)	$ (2,811,223.73)	$ (2,881,504.32)	$ (2,961,633.82)	$ (3,027,380.47)
$ -	$ -	$ -	$ -	$ -	$ -
$ (7,474,136.50)	$ -	$ -	$ -	$ -	$ -
$ -	$ (6,116,789.00)	$ -	$ -	$ -	$ -
$ -	$ -	$ (5,418,714.00)	$ -	$ -	$ -
$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (7,474,136.50)	$ (6,116,789.00)	$ (5,418,714.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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2020	2021	2022	2023	2024	2025
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
950.01	1424.36	1898.72	2373.07	2848.72	3323.08
100.00	150.00	200.00	250.00	300.00	350.00
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
1.051	1.077	1.104	1.131	1.160	1.189
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0	0	0	0	0	0

8 2026	9 2027	10 2028	11 2029	12 2030	13 2031
474	474	476	474	474	474
17,361	17,361	17,409	17,361	17,361	17,361
26,879.47	26,879.47	26,953.11	26,879.47	26,879.47	26,879.47
$ (3,103,064.99)	$ (3,180,641.61)	$ (3,269,089.59)	$ (3,341,661.59)	$ (3,425,203.13)	$ (3,510,833.21)
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$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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2026	2027	2028	2029	2030	2031
1	1	1	1	1	1
8,760	8,760	8,784	8,760	8,760	8,760
3797.43	4271.79	4747.44	5221.79	5696.15	6170.50
400.00	450.00	500.00	550.00	600.00	650.00
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
1.218	1.249	1.280	1.312	1.345	1.379
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14 2032	15 2033	16 2034	17 2035	18 2036	19 2037
476	474	474	474	476	474
17,409	17,361	17,361	17,361	17,409	17,361
26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47
$ (3,608,463.23)	$ (3,688,569.14)	$ (3,780,783.37)	$ (3,875,302.95)	$ (3,983,068.23)	$ (4,071,490.17)
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$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
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2032	2033	2034	2035	2036	2037
1	1	1	1	1	1
8,784	8,760	8,760	8,760	8,784	8,760
6646.15	7120.51	7594.86	8069.22	8544.87	9019.22
700.00	750.00	800.00	850.00	900.00	950.00
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
1.413	1.448	1.485	1.522	1.560	1.599
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474	-	-	-	-	-	-
17,361	-	-	-	-	-	-
26,879.47	-	-	-	-	-	-
$ (4,173,277.42)	$ -	$ -	$ -	$ -	$ -	$ -
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$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
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2038	2039	2040	2041	2042	2043	2044
1	0	0	0	0	0	0
8,760	0	0	0	0	0	0
9493.58	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	0.00	0.00	0.00	0.00	0.00	0.00
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
1.639	0.000	0.000	0.000	0.000	0.000	0.000
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27	28	29	30	31	32	33
2045	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
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0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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34 2052	35 2053	36 2054	37 2055	38 2056	39 2057	40 2058
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0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
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41 **2059**	42 **2060**	43 **2061**	44 **2062**	45 **2063**	46 **2064**	47 **2065**
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2059	2060	2061	2062	2063	2064	2065
0	0	0	0	0	0	0
0	0	0	0	0	8,784	8,760
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

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0	0	0	0	0	0	0
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0	0	0	0	0	0	0

	48 **2066**	49 **2067**	50 **2068**
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$	-	$ -	$ -

2066	2067	2068
0	0	0
8,760	8,760	8,784
0.00	0.00	0.00
0.00	0.00	0.00
0.000	0.000	0.000
0.000	0.000	0.000
0.000	0.000	0.000
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Evaluation
Mobile Generation Comparison Model
Bid Proposal by Siemens

					1
					2019
Capital Costs					
Purchase Price		$	29,881,685.00	$	(29,881,685)
Spare Parts		$	-	$	-
Commissioning/Startup		$	1,784,981.00	$	(1,784,981)
Subtotal-CapEx				$	(31,666,666)
Operating Costs					
Total Fuel Costs				$	(2,610,501)
Total 3rd-Party O&M Contract Costs				$	(7,474,137)
Total CapEx and Major Maintenance Costs				$	-
Total Operating Costs				**$**	**(10,084,637)**
Total Costs				**$**	**(41,751,303)**
Evaluation Parameters					
PREPA Discount Rate	8.0%				
Evaluation Term (<=50)	20				
Net Present Value			**($112,995,213.88)**		
Equivalent Uniform Annual Cost	**9.81815**		**($11,508,812.12)**	**$**	**(11,508,812)**
	chk		**($112,995,213.88)**		
Levelized Cost of Energy					
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions					
LCOE Assumption	$/kWhr	$	0.5382	$	0.55
Energy	kWhr				17,361,356
Total Revenue				**$**	**9,577,446**
Total Cost				**$**	**(41,751,303)**
Difference				**$**	**(32,173,857)**
NPV			($0.00)		

2 2020	3 2021	4 2022	5 2023	6 2024
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$ (2,683,094)	$ (2,742,657)	$ (2,811,224)	$ (2,881,504)	$ (2,961,634)
$ (7,474,137)	$ (6,116,789)	$ (5,418,714)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (10,157,231)	**$ (8,859,446)**	**$ (8,229,938)**	**$ (7,601,504)**	**$ (7,681,634)**
$ (10,157,231)	**$ (8,859,446)**	**$ (8,229,938)**	**$ (7,601,504)**	**$ (7,681,634)**
$ (11,508,812)	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**
$ 0.57	$ 0.58	$ 0.59	$ 0.61	$ 0.62
17,408,922	17,361,356	17,361,356	17,361,356	17,408,922
$ 9,843,778	**$ 10,062,304**	**$ 10,313,862**	**$ 10,571,708**	**$ 10,865,689**
$ (10,157,231)	**$ (8,859,446)**	**$ (8,229,938)**	**$ (7,601,504)**	**$ (7,681,634)**
$ (313,453)	**$ 1,202,858**	**$ 2,083,924**	**$ 2,970,204**	**$ 3,184,055**

7 2025	8 2026	9 2027	10 2028	11 2029
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$ (3,027,380)	$ (3,103,065)	$ (3,180,642)	$ (3,269,090)	$ (3,341,662)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (7,747,380)	**$ (7,823,065)**	**$ (7,900,642)**	**$ (7,989,090)**	**$ (8,061,662)**
$ (7,747,380)	**$ (7,823,065)**	**$ (7,900,642)**	**$ (7,989,090)**	**$ (8,061,662)**
$ (11,508,812)	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**
$ 0.64	$ 0.66	$ 0.67	$ 0.69	$ 0.71
17,361,356	17,361,356	17,361,356	17,408,922	17,361,356
$ 11,106,901	**$ 11,384,574**	**$ 11,669,188**	**$ 11,993,687**	**$ 12,259,941**
$ (7,747,380)	**$ (7,823,065)**	**$ (7,900,642)**	**$ (7,989,090)**	**$ (8,061,662)**
$ 3,359,521	**$ 3,561,509**	**$ 3,768,546**	**$ 4,004,598**	**$ 4,198,279**

12 2030	13 2031	14 2032	15 2033	16 2034
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$ (3,425,203)	$ (3,510,833)	$ (3,608,463)	$ (3,688,569)	$ (3,780,783)
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
$ -	$ -	$ -	$ -	$ -
$ (8,145,203)	**$ (8,230,833)**	**$ (8,328,463)**	**$ (8,408,569)**	**$ (8,500,783)**
$ (8,145,203)	**$ (8,230,833)**	**$ (8,328,463)**	**$ (8,408,569)**	**$ (8,500,783)**
$ (11,508,812)	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**
$ 0.72	$ 0.74	$ 0.76	$ 0.78	$ 0.80
17,361,356	17,361,356	17,408,922	17,361,356	17,361,356
$ 12,566,439	**$ 12,880,600**	**$ 13,238,787**	**$ 13,532,681**	**$ 13,870,998**
$ (8,145,203)	**$ (8,230,833)**	**$ (8,328,463)**	**$ (8,408,569)**	**$ (8,500,783)**
$ 4,421,236	**$ 4,649,767**	**$ 4,910,324**	**$ 5,124,111**	**$ 5,370,214**

17 2035	18 2036	19 2037	20 2038	21 2039	22 2040
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$ (3,875,303)	$ (3,983,068)	$ (4,071,490)	$ (4,173,277)	$ -	$ -
$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (8,595,303)	**$ (8,703,068)**	**$ (8,791,490)**	**$ (8,893,277)**	**$ -**	**$ -**
$ (8,595,303)	**$ (8,703,068)**	**$ (8,791,490)**	**$ (8,893,277)**	**$ -**	**$ -**
$ (11,508,812)	**$ (11,508,812)**	**$ (11,508,812)**	**$ (11,508,812)**		
$ 0.82	$ 0.84	$ 0.86	$ 0.88	$ -	$ -
17,361,356	17,408,922	17,361,356	17,361,356	-	-
$ 14,217,773	**$ 14,613,144**	**$ 14,937,547**	**$ 15,310,986**	**$ -**	**$ -**
$ (8,595,303)	**$ (8,703,068)**	**$ (8,791,490)**	**$ (8,893,277)**	**$ -**	**$ -**
$ 5,622,470	**$ 5,910,075**	**$ 6,146,057**	**$ 6,417,709**	**$ -**	**$ -**

	23 **2041**	24 **2042**	25 **2043**	26 **2044**	27 **2045**	28 **2046**	29 **2047**
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	30 **2048**	31 **2049**	32 **2050**	33 **2051**	34 **2052**	35 **2053**	36 **2054**
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	37 2055	38 2056	39 2057	40 2058	41 2059	42 2060	43 2061
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44	45	46	47	48	49	50
2062	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**
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Autoridad de Energía Eléctrica

INFORME DE EVALUACIÓN Y SELECCIÓN

Solicitud de Propuestas RFP 82695 Mobile Generation Units

INTRODUCCIÓN

El 20 de septiembre de 2017, el huracán María impactó directamente a Puerto Rico, siendo el mayor desastre natural sobre la isla en los últimos cien años. El huracán ocasionó daños en sobre un 80 por ciento de la infraestructura de transmisión y distribución de la Autoridad, dejando a toda la isla sin servicio eléctrico. El área sureste fue la primera zona geográfica que recibió el impacto del huracán y el balance de daños por reparar aún es sustancial, lo que provoca fallos frecuentes y diversos en la red. La Autoridad posee solo una unidad generadora *Frame V* disponible en el este, en la Estación de Hidro Gas de Yabucoa, que no puede suplir la demanda total de la zona, ni servir de resguardo para alimentar el lazo de transmisión del este en caso de falla del sistema eléctrico. La limitación de generación en la zona norte y este del país y la reparación de líneas de transmisión que proveen redundancia al sistema eléctrico requieren atención inmediata.

La Agencia Federal para Manejo de Emergencias (FEMA, por sus iniciales en inglés) autorizó una misión al Cuerpo de Ingenieros del Ejército de los Estados Unidos (USACE, por sus iniciales en inglés), para proveer generación en el norte y este mediante turbinas móviles. Se instalaron temporeramente dos generadores de 28 MW cada uno en la Central Palo Seco y uno de la misma capacidad en el Centro de Transmisión y Estación Hidro Gas, Yabucoa. Los términos de renta del generador de USACE instalado en Yabucoa ya concluyó y el equipo fue removido. El contrato de los dos generadores instalados en Palo Seco está próximo a concluir y la Autoridad necesita la adquisición inmediata de unidades que puedan sustituir los tres equipos rentados pues la red eléctrica aún está vulnerable y en reparación, lo que aumenta el riesgo de apagones. Comprar nuevas unidades generatrices se convertirá en una economía, pues el costo de renta de las tres unidades provistas por USACE es de unos $4.5 millones mensuales y se estimó el costo total de compra en casi $58 millones por tres unidades de similar capacidad, incluyendo equipos auxiliares e infraestructura.

EL 29 de agosto de 2018, la Junta de Gobierno de la Autoridad de Energía Eléctrica de Puerto Rico mediante la Resolución 4640, autorizó la adquisición de las tres unidades generatrices portátiles mediante el proceso competitivo de RFP, en conformidad con la Sección 15(2) (f) de la Ley Núm. 83.

PROCESO

El 5 de septiembre de 2018, la Autoridad de Energía Eléctrica inició el proceso de Solicitud de Propuestas 82695 para la adquisición de tres unidades generatrices. Se invitaron a través de la plataforma electrónica PowerAdvocate© a las compañías Siemens Energy (Siemens), Pratt & Whitney (PW) y General Electric (GE), tres manufactureros de turbinas en configuración móvil, que cuentan con los rangos de generación requeridos.

Se autorizó a los manufactureros a participar a través de un representante autorizado. Para efecto de este evento, un representante autorizado es una empresa que tiene un contrato con el fabricante para la representación exclusiva de sus equipos. Por tanto, se requirió que de interesar conceder acceso a este evento a un representante exclusivo/autorizado, el fabricante deberá solicitar acceso a este y proporcionar copia del contrato o declaración jurada donde establece la relación contractual de negocios como evidencia. A tales efectos, recibimos declaraciones juradas por parte de GE, identificando su acuerdo comercial con RG Engineering, Inc. (RG) y PW indicando su acuerdo comercial con ARG Precision, Inc. (ARG)

El 24 de septiembre de 2018, cerró dicho evento y se recibieron propuestas por parte de las siguientes compañías:

1. Siemens Energy, Inc.
2. RG Engineering, Inc.
3. ARG Precision, Corp.

Estas tres compañías fueron evaluadas de conformidad con los criterios establecidos en el RFP, los cuales se mencionan más adelante.

EVALUACIÓN Y ANÁLISIS DE LAS PROPUESTAS

Para la evaluación de las propuestas, Principal Oficial Ejecutivo, José F. Ortiz Vázquez, designó mediante memorando con fecha del 24 de septiembre de 2018, un comité evaluador (Comité) compuesto por los siguientes funcionarios:

Miguel A. Del Valle Morales
División de Ingeniería y Servicios Técnicos
Directorado de Generación

José M. Cruz Pérez
División de Ingeniería y Servicios Técnicos
Directorado de Generación

Félix A. Hernández Caban
Directorado de Asuntos Jurídicos

José A. Roque Torres
Directorado de Finanzas

Natalia Martínez Lugo
División de Suministros

Además, el Comité contó con la asesoría de María V. Mercado Rondón de la División de Protección Ambiental y Matt Lee de Filsinger Energy Partners. Las propuestas fueron

Price Proposal (60 points)

PREPA will evaluate the proposals based on the lowest all-inclusive price submitted by the proponent. Part of the evaluation may include analysis of the cost assuming some level of unit dispatch. This evaluation may or may not include incorporating the cost and performance parameters in a system dispatch model to determine PREPA's least cost alternative.

Units Pricing:

a. *Shall submit a price per unit (including all its BOP equipment and accessories)*
b. *Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning*
c. *Shall provide price for Operation and Maintenance as required in this document*

Experience and Capacity (15 points)

Proponents shall demonstrate experience and success in fabricating, installing, testing, and commissioning mobile gas turbines. Proponents that demonstrate all or a portion of the proposed units can be operable in less than specified in Section 2.1 Schedule of Deliveries and Installation will be favored compared to those who need more time, or whose responses are vague.

Offeror's Experience:

a. *Shall submit an abbreviated history of firm*
b. *Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.*
c. *Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.*
d. *Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.*

FHC

Schedule of Project Delivery:

a. *Shall provide a proposed project schedule based on continuous work with key and critical tasks.*

Approach and Methodology (15 points)

Proponents that outline a clear and straightforward approach to providing fast track generation projects will score higher, than those that do not. Proponents shall identify key goals and objectives, and methods for providing the facilities described herein or exceeding these goals. Proponents shall explain how they will be organized to effectively deploy

support for this project clearly identify key personnel responsible for implementing the project.

Work Plan:

a. *Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.*

Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)

Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.

EVALUACIÓN TÉCNICA DE LAS PROPUESTAS

El proceso de evaluación de propuestas efectuado por el Comité, en conformidad con los criterios establecidos en la Sección 3 Selection Criteria de este RFP, requirió el análisis individual de cada propuesta para determinar el cumplimiento de los proponentes. Además, se evaluaron los requisitos para el alcance de trabajo, según indicado en la Sección 2 Scope of Services y cualificaciones de los proponentes requeridos en la Sección 4 Proponent Requirements, Inciso 4.2 Required Qualifications of Proponent. Del análisis realizado se incluye como anejos lo siguiente:

- ***Performance Proposal*** – En esta tabla se resume las capacidades de los generadores incluidos en cada propuesta. Esto incluye la capacidad de generación en mega watts (MW) utilizando diésel y gas natural, tiempo requerido para alcanzar esta capacidad y heat rate de cada modelo propuesto.

- ***Price Proposal*** – Esta tabla indica los precios de cada proponente por generador, su instalación y costos de operación y mantenimiento por los primeros cuatro años.

- ***Comparison Model*** – Se utilizó una hoja de cálculos en Microsoft Excel para comparar las propuestas en termino de *Net Present Value* (NPV), *Equivalent Uniform Annualized Cost* (EUAC) y *Levelized Cost of Energy* (LCOE). La evaluación se realizó con una proyección de 20 años, utilizando diésel como combustible y con factores de capacidad de 25% y 5.7% (500 horas). Para detalles adicionales ver documento *Comparison Model Explanation.*

- ***Price Comparison*** – Para facilitar la comparación de precios, se tabularon los resultados del Comparison Model y se convirtieron los resultados a la escala de 1 al 5, según requerido en la Sección 3.1 Scoring Criteria. Utilizamos los resultados del factor de capacidad de 5.7% porque el permiso requerido es el de fuente generatriz

de emergencia emitido por la Oficina de Gerencia de Permisos (OGPe) y la Junta de Calidad Ambiental (JCA).

- ***Scoring Table*** – Esta tabla muestra las puntaciones provista por el Comité a los proponentes con los resultados obtenidos.

Evaluación de Proponentes:

1. **RG Engineering, Inc.:** La propuesta presentada por esta compañía cumple con todos los criterios establecidos en el RFP. Proveyeron una Declaración Jurada que establece su relación contractual con GE y los autoriza a participar del evento como representante exclusivo de dicha empresa. La evaluación de su capacidad financiera la realizó el representante del Directorado de Finanzas, quien determinó que la compañía tiene la capacidad para cumplir con el financiamiento de este proyecto de acuerdo con la información provista de Camino Group, su compañía matriz. La evaluación de los representantes de Generación indicó que esta propuesta cumple con el alcance técnico requerido en este RFP.

   El precio ofrecido por el proponente por el suplido e instalación de las tres unidades fue de $60,200,100.

2. **ARG Precision, Inc.:** Esta compañía presentó una propuesta que cumple con todos los criterios incluidos en el RFP. PW suministró una declaración jurada en la que certifica su relación contractual con ARG y le autoriza a participar del evento como representante exclusivo de sus equipos. El representante del Directorado de Finanzas evaluó su capacidad financiera a base de los estados financieros de Mitsubishi Heavy Industries Group, compañía matriz de PW, provistos por ARG. Además, esta compañía suministró un compromiso de financiamiento por parte Bostonia Partners con el cual financiaría dicho proyecto en conjunto con PW. En esta se demuestra que la compañía tiene la capacidad para cumplir con el financiamiento del proyecto. La propuesta cumple con los requisitos técnicos del RFP, basado en la evaluación de los representantes del Directorado de Generación.

   El precio ofrecido por el proponente por el suplido e instalación de las tres unidades fue de $57,897,492.

3. **Siemens Energy.:** Esta propuesta cumple con todos los criterios establecidos en el RFP. Se evaluó la capacidad financiera de Siemens a base de la información provista y se determinó que posee el capital para cumplir con el financiamiento del proyecto, según evaluado por el representante del Directorado de Finanzas. La propuesta también cumple técnicamente con lo requerido en los documentos del RFP, conforme a la evaluación realizada por los representantes del Directorado de Generación.

El precio ofrecido por el proponente por el suplido e instalación de las tres unidades fue de $94,999,998.

DETERMINACIÓN

Luego de evaluar las propuestas a base de los criterios de evaluación, según la Sección 3 Scoring Criteria, la propuesta de ARG obtuvo la mejor puntuación. Además, esta propuesta cumple con las especificaciones, términos y condiciones establecidos en el RFP 82695. El Comité, en reunión el 2 de octubre de 2018, seleccionó por unanimidad a la compañía ARG Precision, Corp.

Comité Evaluador:

Miguel A. Del Valle Morales
División de Ingeniería y Servicios Técnicos
Directorado de Generación

José M. Cruz Pérez
División de Ingeniería y Servicios Técnicos
Directorado de Generación

Félix A. Hernández Caban
Directorado de Asuntos Jurídicos

José A. Roque Torres
Directorado de Finanzas

Natalia Martínez Lugo
División de Suministros

RFP 82695 MOBILE GENERATION UNITS
PERFORMANCE PROPOSAL

QUESTIONS		Siemens Energy, Inc Submitted: 09/24/2018	ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018
Guaranteed net unit output (diesel) @ specified conditions without water or steam injection	MW	36.6	22,583	28,643
Guaranteed net unit output (NG) @ specified conditions without water or steam injection	MW	38.2	23,842	30,021
Unit minimum load for continuous operation	MW	0.0	1	Unlimited
Time from shutdown to guaranteed net unit output	minutes	6.3	10	8
Unit Heat Rate (diesel – LHV) Assume 18,646 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	9038.6	9,759	9,393
Unit Heat Rate (NG – LHV) Assume 21,414 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	8894.9	9,574	9,246
(1) If energy price varies with output, provide data related to this variation. Provide output vs. Energy Price curves if applicable.				

AEE_2636

RFP 82695 MOBILE GENERATION

PRICE PROPOSAL

ITEM		ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018	Siemens Energy, Inc Submitted: 09/24/2018
Price per unit (including all its BOP equipment and accessories)	unit	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning	unit	$ 1,303,458.00	$ 3,114,450.00	$ 1,784,981.00
Price for Operation and Maintenance as required in this document	2 years	$ 12,946,025.38	$ 19,065,550.00	$ 14,948,273.00
	first addt'l year	$ 4,580,000.00	$ 8,102,240.00	$ 6,116,789.00
	second addt'l year	$ 4,720,000.00	$ 8,530,320.00	$ 5,418,714.00

AEE_2637

COMPARISON MODEL EXPLANATION

Introduction

PREPA received proposals to provide mobile generators and associated equipment from General Electric, Siemens, and Pratt & Whitney. The proposals were in response to a Request for Proposals (RFP), where PREPA requested pricing for equipment, installation, operations and maintenance (O&M), and major maintenance. As part of the evaluation process, PREPA Staff developed a high-level Alternatives Comparison Model (Model) to evaluate the relative economic merits of the proposals. The Model was developed in Microsoft Excel and was designed to allow for a side-by-side comparison of the options in terms of Net Present Value (NPV), Equivalent Uniform Annualized Cost (EUAC), and Levelized Cost of Energy (LCOE).

The Model is a "high-level" annual cost-based model which means that certain assumptions have been simplified to provide a summary level comparison between proposals. For instance, the model assumes full year availability, the model is pre-tax, and availability is not adjusted to account for major maintenance events.

Model Structure and Functionality

The Model was structured to provide the user with the ability to vary key inputs and evaluate the relative impacts to project results. The single, Microsoft Excel-based model has three "worksheets" that provide for fuel and O&M calculations, capital costs, and financial results. Key model inputs are summarized on a worksheet entitled "Inputs&Results." This worksheet also presents Project results in terms of NPV, EUAC, and LCOE. The following is a brief overview of the Model's worksheets:

- **Inputs&Results** – Key model inputs are consolidated on the Inputs&Resultss worksheet to provide a single location to support analysis of various scenarios. The worksheet allows the user to vary the term, net capacity, capacity factor, availability, starts, heat rate, fuel assumptions, escalation assumptions, major maintenance costs and timing, and annual 3rd-party O&M costs. The Model is also provisioned to allow for sensitivity cases related to changes in capital costs, O&M costs, and major maintenance. The Inputs&Results worksheet provides a summary of calculated results.
- **O&M** – The O&M worksheet calculates the annual operating hours based on the assumed capacity factor, as adjusted by availability. Annual operating hours are then used to calculate the net annual generation (MWhrs) and annual fuel consumption and costs. The proposals' included 3rd-party O&M costs, which are presented on the O&M worksheet on an annual basis. The timing of major maintenance events are based on operating hours, and the O&M worksheet calculates the year in which major maintenance events occur. The O&M worksheet is provisioned to include escalation.
- **Evaluation** – The Evaluation worksheet includes capital and installation costs (year one), and summarizes all operations and maintenance related costs as calculated on the O&M worksheet. The sum of these costs are used to calculate the NPV and EUAC of each proposal. Please note that the EUAC represents a levelized cost that would result in the calculated NPV. The Evaluation worksheet also allows the user to estimate the LCOE of

each proposal. The LCOE calculation is a manual calculation that requires the user to use Microsoft Excel's "goal seek" function to solve for an energy value that results in a NPV of zero. The results calculated on the Evaluation worksheet are linked to the Inputs&Results worksheet.

Changeable inputs to the model are generally coded in blue text. Calculated values are represented in black text. Global changes to capital costs, O&M, major maintenance can be performed on the Inputs&Results worksheet under the section entitled "Sensitivities."

Evaluation Results

PREPA's evaluation team established base-case assumptions and a sensitivity case to evaluate the proposals. The following table provides a summary of base-case assumptions.

Parameter	Base-Case	Comments
Evaluation Term	20 Years	
First Year	2019	Simplified to assume full year
Capacity Factor	25%	
Availability	95%	
Fuel Supply	No. 2 Fuel Oil	
Fuel Heat Content	139,000 Btu/gal	
Fuel Costs	$94.75/bbl	Based on PREPA's August 2018 stored fuel value
Escalation	2.5%	3rd-Party O&M costs were not escalated
Discount Rate	8%	
Heat rate curve	100% load	Assumes emergency conditions favor full-load operation.

The PREPA evaluation team also performed a sensitivity case for each proposal, where the Capacity Factor was reduced to 5.7%. This capacity factor is approximately 500 operating hours per year, and is reflective of a standard air permit's operating limit for emergency generators.

PREPA staff evaluated each proposal in terms of NPV, EUAC, and LCOE. Each Proponent's heat rate, net capacity, O&M, and major maintenance costs were incorporated into the model and evaluated against the base-case and sensitivity case assumptions discussed above. The following table provides a summary of these results.

Proponent	Net Capacity	NPV	EUAC	LCOE
Pratt & Whitney	22.6MW			
• 25% Capacity Factor		($159,111,631.87)	($16,205,871.16)	$0.2800
• 5.7% Capacity Factor		($84,127,900.03)	($8,568,612.44)	$0.6494
General Electric	28.6 MW			
• 25% Capacity Factor		($190,064,052.57)	($19,358,443.57)	$0.2637
• 5.7% Capacity Factor		($104,038,111.54)	($10,596,511.46)	$0.6332
Siemens	36.6 MW			
• 25% Capacity Factor		($219,674,008.21)	($22,374,282.96)	$0.2386
• 5.7% Capacity Factor		($112,995,213.88)	($11,508,812.12)	$0.5382

Please note that the NPV and EUAC results are cost-based, and are therefore negative values. As reflected in the table above, a higher capacity factor results in lower NPV and EUAC due to increased fuel and major maintenance costs. This contrasts with a reduction in LCOE for higher capacity factors, as the costs are "spread-out" over increased annual generation.

Overall, the analysis favors the Pratt & Whitney proposal, as it has the highest NPV and EUAC. These results are largely correlated to lower capital and installation costs of the Pratt & Whitney proposal. These units are also the smallest units. On an LCOE basis, the Siemen's units have the highest net capacity and lowest heat rate, with results in the lowest LCOE.

Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		Pratt & Whitney
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	22.583

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($84,127,900.03)
Equivalent Uniform Annuallized Cost	EUAC	($8,568,612.44)
LCOE $/kWhr (2018$)	See Eval Tab	$0.6494

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,759
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$17,995,708
Spare Parts	$	$0
Commissioning/Startup	$	$1,303,458
Subtotal-CapEx		**$19,299,166**

Major Maintenance

Maintenance Intervals	Cost
Gas Gen Hot Section Inspection	$3,507,500
Major Shop Inspection	$7,187,500
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$4,445,000
Year 2	No	$4,445,000
Year 3	No	$4,580,000
Year 4	No	$4,720,000
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Gas Gen Hot Section Inspection	0	12,500
Major Shop Inspection	0	50,000
Major Overhaul (Class C)	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

			Count	1	2	3	4	5	6	7	8	9	10
			Date	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Costs													
Operating Hours		Hours		474	476	474	474	474	476	474	474	474	476
Output		MWhrs		10,712	10,742	10,712	10,712	10,712	10,742	10,712	10,712	10,712	10,742
Fuel Consumption	139,000	BBLs		17,907.11	17,956.17	17,907.11	17,907.11	17,907.11	17,956.17	17,907.11	17,907.11	17,907.11	17,956.17
Total Fuel Costs	$ 94.75			$ (1,739,115.85)	$ (1,787,477.56)	$ (1,827,158.59)	$ (1,872,837.55)	$ (1,919,658.49)	$ (1,973,040.78)	$ (2,016,841.20)	$ (2,067,262.23)	$ (2,118,943.79)	$ (2,177,867.84)
Operations & Maintenance 3rd-Party Contract			Esc										
Year 1	$ 4,445,000.00	0	$	(4,445,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ 4,445,000.00	0	$	-	$ (4,445,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ 4,580,000.00	0	$	-	$ -	$ (4,580,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ 4,720,000.00	0	$	-	$ -	$ -	$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ 4,720,000.00	0	$	-	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs			$	(4,445,000.00)	$ (4,445,000.00)	$ (4,580,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs													
Gas Gen Hot Section Inspection	$ 3,507,500.00	1	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Shop Inspection	$ 7,187,500.00	2	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -	3	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -	4	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -	5	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs			$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

	11	12	13	14	15	16	17	18	19	20
	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs										
Operating Hours	474	474	474	476	474	474	474	476	474	474
Output	10,712	10,712	10,712	10,742	10,712	10,712	10,712	10,742	10,712	10,712
Fuel Consumption	17,907.11	17,907.11	17,907.11	17,956.17	17,907.11	17,907.11	17,907.11	17,956.17	17,907.11	17,907.11
Total Fuel Costs	$ (2,226,215.32)	$ (2,281,870.70)	$ (2,338,917.47)	$ (2,403,958.60)	$ (2,457,325.17)	$ (2,518,758.30)	$ (2,581,727.25)	$ (2,653,520.49)	$ (2,712,427.20)	$ (2,780,237.88)
Operations & Maintenance 3rd-Party Contract										
Year 1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs										
Gas Gen Hot Section Inspection	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Shop Inspection	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Triggers			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operations			1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,784	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784
Cumulative Operating Hours		5%	474.35	950.01	1424.36	1898.72	2373.07	2848.72	3323.08	3797.43	4271.79	4747.44
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00
Escalation		2014										
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.216	1.249	1.280
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.216	1.249	1.280
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.216	1.249	1.280
Major Maintenance												
Timing Tests		Hours										
Gas Gen Hot Section Inspection	1	12500	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	2	50000	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0
		Starts										
Gas Gen Hot Section Inspection	1	1000000000	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	2	1000000000	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0
Triggers												
Gas Gen Hot Section Inspection	1		0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	2		0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3		0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0

Triggers	29	30	31	32	33	34	35	36	37	38
Operations	1	1	1	1	1	1	1	1	1	1
Available Annual Hours	8,760	8,760	8,760	8,784	8,760	8,760	8,760	8,784	8,760	8,760
Cumulative Operating Hours	5221.79	5696.15	6170.50	6646.15	7120.51	7594.86	8069.22	8544.87	9019.22	9493.58
Cumulative Starts	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation										
Operations & Maintenance	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance										
Timing Tests										
Gas Gen Hot Section Inspection	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0	0
Gas Gen Hot Section Inspection	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0	0
Triggers										
Gas Gen Hot Section Inspection	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price		$ 17,995,708.00	$ (17,995,708)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup		$ 1,303,458.00	$ (1,303,458)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (19,299,166)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (1,739,116)	$ (1,787,478)	$ (1,827,159)	$ (1,872,838)	$ (1,919,658)	$ (1,973,041)	$ (2,016,841)	$ (2,067,262)	$ (2,118,944)	$ (2,177,868)
Total 3rd-Party O&M Contract Costs			$ (4,445,000)	$ (4,445,000)	$ (4,580,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs			**$ (6,184,116)**	**$ (6,232,478)**	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**	**$ (6,787,262)**	**$ (6,838,944)**	**$ (6,897,868)**
Total Costs			**$ (25,483,282)**	**$ (6,232,478)**	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**	**$ (6,787,262)**	**$ (6,838,944)**	**$ (6,897,868)**
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($84,127,900.03)										
Equivalent Uniform Annual Cost	9.8181	($8,568,612.44)	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**
	chk	($84,127,900.03)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/kWhr	$ 0.6494	$ 0.67	$ 0.68	$ 0.70	$ 0.72	$ 0.73	$ 0.75	$ 0.77	$ 0.79	$ 0.81	$ 0.83
Energy	kWhr		10,712,336	10,741,685	10,712,336	10,712,336	10,712,336	10,741,685	10,712,336	10,712,336	10,712,336	10,741,685
Total Revenue			**$ 7,130,660**	**$ 7,328,951**	**$ 7,491,649**	**$ 7,678,941**	**$ 7,870,914**	**$ 8,089,790**	**$ 8,269,379**	**$ 8,476,114**	**$ 8,688,017**	**$ 8,929,615**
Total Cost			**$ (25,483,282)**	**$ (6,232,478)**	**$ (6,407,159)**	**$ (6,592,838)**	**$ (6,639,658)**	**$ (6,693,041)**	**$ (6,736,841)**	**$ (6,787,262)**	**$ (6,838,944)**	**$ (6,897,868)**
Difference			**$ (18,352,622)**	**$ 1,096,473**	**$ 1,084,491**	**$ 1,086,103**	**$ 1,231,256**	**$ 1,396,750**	**$ 1,532,538**	**$ 1,688,851**	**$ 1,849,073**	**$ 2,031,747**
NPV		$0.00										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (2,226,215)	$ (2,281,871)	$ (2,338,917)	$ (2,403,959)	$ (2,457,325)	$ (2,518,758)	$ (2,581,727)	$ (2,653,520)	$ (2,712,427)	$ (2,780,238)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**	**$ (7,123,959)**	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**	**$ (7,432,427)**	**$ (7,500,238)**
Total Costs	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**	**$ (7,123,959)**	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**	**$ (7,432,427)**	**$ (7,500,238)**
Evaluation Parameters										
Equivalent Uniform Annual Cost	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**	**$ (8,568,612)**
Levelized Cost of Energy										
LCOE Assumption	$ 0.85	$ 0.87	$ 0.90	$ 0.92	$ 0.94	$ 0.96	$ 0.99	$ 1.01	$ 1.04	1.06
Energy	10,712,336	10,712,336	10,712,336	10,741,685	10,712,336	10,712,336	10,712,336	10,741,685	10,712,336	10,712,336
Total Revenue	**$ 9,127,847**	**$ 9,356,044**	**$ 9,589,945**	**$ 9,856,624**	**$ 10,075,436**	**$ 10,327,322**	**$ 10,585,505**	**$ 10,879,869**	**$ 11,121,396**	**$ 11,399,431**
Total Cost	**$ (6,946,215)**	**$ (7,001,871)**	**$ (7,058,917)**	**$ (7,123,959)**	**$ (7,177,325)**	**$ (7,238,758)**	**$ (7,301,727)**	**$ (7,373,520)**	**$ (7,432,427)**	**$ (7,500,238)**
Difference	**$ 2,181,632**	**$ 2,354,173**	**$ 2,531,027**	**$ 2,732,665**	**$ 2,898,110**	**$ 3,088,563**	**$ 3,283,777**	**$ 3,506,348**	**$ 3,688,969**	**$ 3,899,193**

AEE_2643

Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		Pratt & Whitney
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	22.583

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($159,111,631.87)
Equivalent Uniform Annuallized Cost	EUAC	($16,205,871.16)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2800

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,759
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$17,995,708
Spare Parts	$	$0
Commissioning/Startup	$	$1,303,458
Subtotal-CapEx		**$19,299,166**

Major Maintenance

Maintenance Intervals	Cost
Gas Gen Hot Section Inspection	$3,507,500
Major Shop Inspection	$7,187,500
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$4,445,000
Year 2	No	$4,445,000
Year 3	No	$4,580,000
Year 4	No	$4,720,000
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Gas Gen Hot Section Inspection	0	12,500
Major Shop Inspection	0	50,000
Major Overhaul (Class C)	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

		Count		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Date		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs																							
Operating Hours		Hours		2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081
Output		MWhrs		46,984	47,113	46,984	46,984	46,984	47,113	46,984	46,984	46,984	47,113	46,984	46,984	46,984	47,113	46,984	46,984	46,984	47,113	46,984	46,984
Fuel Consumption	139,000	BBLs		78,539.94	78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94	78,539.94	78,539.94	78,755.12	78,539.94	78,539.94
Total Fuel Costs	$ 94.75			$ (7,627,701.09)	$ (7,839,813.88)	$ (8,013,853.46)	$ (8,214,199.80)	$ (8,419,554.79)	$ (8,653,687.62)	$ (8,845,794.75)	$ (9,066,939.62)	$ (9,293,613.11)	$ (9,552,051.94)	$ (9,764,102.28)	$ (10,008,204.83)	$ (10,258,409.96)	$ (10,543,678.07)	$ (10,777,741.96)	$ (11,047,185.51)	$ (11,323,365.15)	$ (11,638,247.77)	$ (11,896,610.51)	$ (12,194,025.77)
Operations & Maintenance 3rd-Party Contract			Esc																				
Year 1	$ 4,445,000.00		0	$ (4,445,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ 4,445,000.00		0	$ -	$ (4,445,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ 4,580,000.00		0	$ -	$ -	$ (4,580,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ 4,720,000.00		0	$ -	$ -	$ -	$ (4,720,000.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ 4,720,000.00		0	$ -	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs				$ (4,445,000.00)	$ (4,445,000.00)	$ (4,580,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs																							
Gas Gen Hot Section Inspection	$ 3,507,500.00		1	$ -	$ -	$ -	$ -	$ -	$ -	$ (4,169,315.28)	$ -	$ -	$ -	$ -	$ -	$ (4,835,127.49)	$ -	$ -	$ -	$ -	$ -	$ (5,607,265.53)	$ -
Major Shop Inspection	$ 7,187,500.00		2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -		3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -		4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -		5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs				$ -	$ -	$ -	$ -	$ -	$ -	$ (4,169,315.28)	$ -	$ -	$ -	$ -	$ -	$ (4,835,127.49)	$ -	$ -	$ -	$ -	$ -	$ (5,607,265.53)	$ -

Triggers			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operations			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760
Cumulative Operating Hours		24%	2080.50	4166.70	6247.20	8327.70	10408.20	12494.40	14574.90	16655.40	18735.90	20822.10	22902.60	24983.10	27063.60	29149.80	31230.30	33310.80	35391.30	37477.50	39558.00	41638.50
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation		2018																				
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance																						
Timing Tests		Hours																				
Gas Gen Hot Section Inspection	1	12500	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
Major Shop Inspection	2	50000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Starts																				
Gas Gen Hot Section Inspection	1	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Shop Inspection	2	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triggers																						
Gas Gen Hot Section Inspection	1		0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
Major Shop Inspection	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by Pratt & Whitney

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price		$ 17,995,708.00	$ (17,995,708)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup		$ 1,303,458.00	$ (1,303,458)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (19,299,166)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (7,627,701)	$ (7,839,814)	$ (8,013,853)	$ (8,214,200)	$ (8,419,555)	$ (8,653,688)	$ (8,845,795)	$ (9,066,940)	$ (9,293,613)	$ (9,552,052)
Total 3rd-Party O&M Contract Costs			$ (4,445,000)	$ (4,445,000)	$ (4,580,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ (4,169,315)	$ -	$ -	$ -
Total Operating Costs			$ (12,072,701)	$ (12,284,814)	$ (12,593,853)	$ (12,934,200)	$ (13,139,555)	$ (13,373,688)	$ (17,735,110)	$ (13,786,940)	$ (14,013,613)	$ (14,272,052)
Total Costs			$ (31,371,867)	$ (12,284,814)	$ (12,593,853)	$ (12,934,200)	$ (13,139,555)	$ (13,373,688)	$ (17,735,110)	$ (13,786,940)	$ (14,013,613)	$ (14,272,052)
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($159,111,631.87)										
Equivalent Uniform Annual Cost	9.81815	($16,205,871.16)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)
	chk	($159,111,631.87)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/kWhr	$ 0.2900	$ 0.29	$ 0.29	$ 0.30	$ 0.31	$ 0.32	$ 0.32	$ 0.33	$ 0.34	$ 0.35	$ 0.36
Energy	kWhr		46,983,932	47,112,655	46,983,932	46,983,932	46,983,932	47,112,655	46,983,932	46,983,932	46,983,932	47,112,655
Total Revenue			$ 13,486,262	$ 13,861,291	$ 14,169,004	$ 14,523,229	$ 14,886,310	$ 15,300,272	$ 15,639,929	$ 16,030,928	$ 16,431,701	$ 16,888,637
Total Cost			$ (31,371,867)	$ (12,284,814)	$ (12,593,853)	$ (12,934,200)	$ (13,139,555)	$ (13,373,688)	$ (17,735,110)	$ (13,786,940)	$ (14,013,613)	$ (14,272,052)
Difference			$ (17,885,605)	$ 1,576,477	$ 1,575,151	$ 1,589,030	$ 1,746,755	$ 1,926,584	$ (2,095,181)	$ 2,243,988	$ 2,418,088	$ 2,616,585
NPV		$0.00										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (9,764,102)	$ (10,008,205)	$ (10,258,410)	$ (10,543,678)	$ (10,777,742)	$ (11,047,186)	$ (11,323,365)	$ (11,638,248)	$ (11,896,611)	$ (12,194,026)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ (4,835,127)	$ -	$ -	$ -	$ -	$ -	$ (5,607,266)	$ -
Total Operating Costs	$ (14,484,102)	$ (14,728,205)	$ (19,813,537)	$ (15,263,678)	$ (15,497,742)	$ (15,767,186)	$ (16,043,365)	$ (16,358,248)	$ (22,223,876)	$ (16,914,026)
Total Costs	$ (14,484,102)	$ (14,728,205)	$ (19,813,537)	$ (15,263,678)	$ (15,497,742)	$ (15,767,186)	$ (16,043,365)	$ (16,358,248)	$ (22,223,876)	$ (16,914,026)
Evaluation Parameters										
PREPA Discount Rate										
Evaluation Term (<=50)										
Net Present Value										
Equivalent Uniform Annual Cost	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)	$ (16,205,871)
Levelized Cost of Energy										
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions										
LCOE Assumption	$ 0.37	$ 0.38	$ 0.39	$ 0.40	$ 0.41	$ 0.42	$ 0.43	$ 0.44	$ 0.45	$ 0.46
Energy	46,983,932	46,983,932	46,983,932	47,112,655	46,983,932	46,983,932	46,983,932	47,112,655	46,983,932	46,983,932
Total Revenue	$ 17,263,556	$ 17,695,145	$ 18,137,523	$ 18,641,896	$ 19,055,735	$ 19,532,129	$ 20,020,432	$ 20,577,165	$ 21,033,966	$ 21,559,816
Total Cost	$ (14,484,102)	$ (14,728,205)	$ (19,813,537)	$ (15,263,678)	$ (15,497,742)	$ (15,767,186)	$ (16,043,365)	$ (16,358,248)	$ (22,223,876)	$ (16,914,026)
Difference	$ 2,779,453	$ 2,966,940	$ (1,676,014)	$ 3,378,217	$ 3,557,993	$ 3,764,943	$ 3,977,067	$ 4,218,917	$ (1,189,910)	$ 4,645,790

Mobile Generation Comparison Model
Bid Proposal by General Electric

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		General Electric
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	28.643

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($104,038,111.54)
Equivalent Uniform Annuallized Cost	EUAC	($10,596,511.46)
LCOE $/kWhr (2018$)	See Eval Tab	$0.6332

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,393
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$16,952,250
Spare Parts	$	$0
Commissioning/Startup	$	$3,114,450
Subtotal-CapEx		**$20,066,700**

Major Maintenance

Maintenance Intervals	Cost
Hot Section Inspection	$2,395,000
Major Inspection	$4,600,000
Maintenance Category 3	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$9,532,775
Year 2	No	$9,532,775
Year 3	No	$8,102,240
Year 4	No	$8,530,320
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Hot Section Inspection	0	25,000
Major Inspection	0	50,000
Maintenance Category 3	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by General Electric

			Count	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Date	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs																												
Operating Hours			Hours	474	476	474	474	474	476	474	474	474	476	474	474	474	476	474	474	474	476	474	474
Output			MWhrs	13,587	13,624	13,587	13,587	13,587	13,624	13,587	13,587	13,587	13,624	13,587	13,587	13,587	13,624	13,587	13,587	13,587	13,624	13,587	13,587
Fuel Consumption		139,000	BBLs	21,860.56	21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56	21,860.56	21,860.56	21,920.45	21,860.56	21,860.56
Total Fuel Costs	$	94.75		$ (2,123,070.35)	$ (2,182,109.16)	$ (2,230,550.79)	$ (2,286,314.56)	$ (2,343,472.42)	$ (2,408,640.22)	$ (2,462,110.72)	$ (2,523,663.48)	$ (2,586,755.07)	$ (2,658,688.12)	$ (2,717,709.55)	$ (2,785,652.28)	$ (2,855,293.59)	$ (2,934,694.22)	$ (2,999,842.83)	$ (3,074,838.90)	$ (3,151,709.87)	$ (3,239,353.31)	$ (3,311,265.18)	$ (3,394,046.81)
Operations & Maintenance 3rd-Party Contract			Esc																				
Year 1	$	9,532,775.00	0	$ (9,532,775.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$	9,532,775.00	0	$ -	$ (9,532,775.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$	8,102,240.00	0	$ -	$ -	$ (8,102,240.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$	8,530,320.00	0	$ -	$ -	$ -	$ (8,530,320.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$	4,720,000.00	0	$ -	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs				$ (9,532,775.00)	$ (9,532,775.00)	$ (8,102,240.00)	$ (8,530,320.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs																							
Hot Section Inspection	$	2,395,000.00	1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Inspection	$	4,600,000.00	2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 3	$	-	3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$	-	4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$	-	5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Triggers			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operations			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760
Cumulative Operating Hours		5%	474.35	950.01	1424.36	1898.72	2373.07	2848.72	3323.08	3797.43	4271.79	4747.44	5221.79	5696.15	6170.50	6648.15	7120.51	7594.86	8069.22	8544.87	9019.22	9493.58
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation		2018																				
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance																						
Timing Tests		Hours																				
Hot Section Inspection	1	25000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Inspection	2	50000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Starts																				
Hot Section Inspection	1	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Inspection	2	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triggers																						
Hot Section Inspection	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Inspection	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by General Electric

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price		$ 16,952,250.00	$ (16,952,250)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup		$ 3,114,450.00	$ (3,114,450)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (20,066,700)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (2,123,070)	$ (2,182,109)	$ (2,230,551)	$ (2,286,315)	$ (2,343,472)	$ (2,408,640)	$ (2,462,111)	$ (2,523,663)	$ (2,586,755)	$ (2,658,688)
Total 3rd-Party O&M Contract Costs			$ (9,532,775)	$ (9,532,775)	$ (8,102,240)	$ (8,530,320)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs			$ (11,655,845)	$ (11,714,884)	$ (10,332,791)	$ (10,816,635)	$ (7,063,472)	$ (7,128,640)	$ (7,182,111)	$ (7,243,663)	$ (7,306,755)	$ (7,378,688)
Total Costs			$ (31,722,545)	$ (11,714,884)	$ (10,332,791)	$ (10,816,635)	$ (7,063,472)	$ (7,128,640)	$ (7,182,111)	$ (7,243,663)	$ (7,306,755)	$ (7,378,688)
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($104,038,111.54)										
Equivalent Uniform Annual Cost	9.8181	($10,596,511.46)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)
	chk	($104,038,111.54)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/kWhr	$ 0.6332	$ 0.65	$ 0.67	$ 0.68	$ 0.70	$ 0.72	$ 0.73	$ 0.75	$ 0.77	$ 0.79	$ 0.81
Energy	kWhr		13,586,922	13,624,146	13,586,922	13,586,922	13,586,922	13,624,146	13,586,922	13,586,922	13,586,922	13,624,146
Total Revenue			$ 8,818,244	$ 9,063,464	$ 9,264,668	$ 9,496,285	$ 9,733,692	$ 10,004,368	$ 10,226,460	$ 10,482,121	$ 10,744,174	$ 11,042,951
Total Cost			$ (31,722,545)	$ (11,714,884)	$ (10,332,791)	$ (10,816,635)	$ (7,063,472)	$ (7,128,640)	$ (7,182,111)	$ (7,243,663)	$ (7,306,755)	$ (7,378,688)
Difference			$ (22,904,301)	$ (2,651,420)	$ (1,068,123)	$ (1,320,350)	$ 2,670,219	$ 2,875,728	$ 3,044,349	$ 3,238,458	$ 3,437,419	$ 3,664,263
NPV		$0.00										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (2,717,710)	$ (2,785,652)	$ (2,855,294)	$ (2,934,694)	$ (2,999,843)	$ (3,074,839)	$ (3,151,710)	$ (3,239,353)	$ (3,311,265)	$ (3,394,047)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	$ (7,437,710)	$ (7,505,652)	$ (7,575,294)	$ (7,654,694)	$ (7,719,843)	$ (7,794,839)	$ (7,871,710)	$ (7,959,353)	$ (8,031,265)	$ (8,114,047)
Total Costs	$ (7,437,710)	$ (7,505,652)	$ (7,575,294)	$ (7,654,694)	$ (7,719,843)	$ (7,794,839)	$ (7,871,710)	$ (7,959,353)	$ (8,031,265)	$ (8,114,047)
Evaluation Parameters										
PREPA Discount Rate										
Evaluation Term (<=50)										
Net Present Value										
Equivalent Uniform Annual Cost	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)	$ (10,596,511)
Levelized Cost of Energy										
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions										
LCOE Assumption	$ 0.83	$ 0.85	$ 0.87	$ 0.89	$ 0.92	$ 0.94	$ 0.96	$ 0.99	$ 1.01	$ 1.04
Energy	13,586,922	13,586,922	13,586,922	13,624,146	13,586,922	13,586,922	13,586,922	13,624,146	13,586,922	13,586,922
Total Revenue	$ 11,288,098	$ 11,570,301	$ 11,859,558	$ 12,189,351	$ 12,459,948	$ 12,771,447	$ 13,090,733	$ 13,454,763	$ 13,753,452	$ 14,097,288
Total Cost	$ (7,437,710)	$ (7,505,652)	$ (7,575,294)	$ (7,654,694)	$ (7,719,843)	$ (7,794,839)	$ (7,871,710)	$ (7,959,353)	$ (8,031,265)	$ (8,114,047)
Difference	$ 3,850,389	$ 4,064,648	$ 4,284,265	$ 4,534,657	$ 4,740,106	$ 4,976,608	$ 5,219,023	$ 5,495,410	$ 5,722,186	$ 5,983,241

AEE_2649

Mobile Generation Comparison Model
Bid Proposal by General Electric

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		General Electric
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	28.643

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($190,064,052.57)
Equivalent Uniform Annuallized Cost	EUAC	($19,358,443.57)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2637

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,393
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$16,952,250
Spare Parts	$	$0
Commissioning/Startup	$	$3,114,450
Subtotal-CapEx		**$20,066,700**

Major Maintenance

Maintenance Intervals	Cost
Hot Section Inspection	$2,395,000
Major Inspection	$4,600,000
Maintenance Category 3	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$9,532,775
Year 2	No	$9,532,775
Year 3	No	$8,102,240
Year 4	No	$8,530,320
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Hot Section Inspection	0	25,000
Major Inspection	0	50,000
Maintenance Category 3	0	0
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by General Electric

		Count		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Date		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs																							
Operating Hours			Hours	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081
Output			MWhrs	59,592	59,755	59,592	59,592	59,592	59,755	59,592	59,592	59,592	59,755	59,592	59,592	59,592	59,755	59,592	59,592	59,592	59,755	59,592	59,592
Fuel Consumption		139,000	BBLs	95,879.65	96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65	95,879.65	95,879.65	96,142.34	95,879.65	95,879.65
Total Fuel Costs	$ 94.75			$ (9,311,712.08)	$ (9,570,654.21)	$ (9,783,117.50)	$ (10,027,695.44)	$ (10,278,387.82)	$ (10,564,211.48)	$ (10,798,731.21)	$ (11,068,699.49)	$ (11,345,416.97)	$ (11,660,912.82)	$ (11,919,778.71)	$ (12,217,773.18)	$ (12,523,217.51)	$ (12,871,465.88)	$ (13,157,205.39)	$ (13,486,135.53)	$ (13,823,288.91)	$ (14,207,689.96)	$ (14,523,092.92)	$ (14,886,170.24)
Operations & Maintenance 3rd-Party Contract			Esc																				
Year 1	$ 9,532,775.00	0	$	(9,532,775.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ 9,532,775.00	0	$	-	$ (9,532,775.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ 8,102,240.00	0	$	-	$ -	$ (8,102,240.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ 8,530,320.00	0	$	-	$ -	$ -	$ (8,530,320.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ 4,720,000.00	0	$	-	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs				$ (9,532,775.00)	$ (9,532,775.00)	$ (8,102,240.00)	$ (8,530,320.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs																							
Hot Section Inspection	$ 2,395,000.00	1	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (3,301,533.95)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Inspection	$ 4,600,000.00	2	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 3	$ -	3	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -	4	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -	5	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs			$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (3,301,533.95)	$ -	$ -	$ -	$ -	$ -	$ -	$ -

			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Triggers																						
Operations			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760
Cumulative Operating Hours		24%	2082.50	4168.70	6247.20	8327.70	10408.20	12494.40	14574.90	16655.40	18735.90	20822.10	22902.60	24983.10	27063.60	29149.80	31230.30	33310.80	35391.30	37477.50	39558.00	41638.50
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation		2018																				
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance																						
Timing Tests		Hours																				
Hot Section Inspection	1	25000	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Major Inspection	2	50000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Starts																				
Hot Section Inspection	1	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Inspection	2	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triggers																						
Hot Section Inspection	1		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Major Inspection	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 3	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by General Electric

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price	$	16,952,250.00	$ (16,952,250)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$	3,114,450.00	$ (3,114,450)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (20,066,700)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (9,311,712)	$ (9,570,654)	$ (9,783,117)	$ (10,027,695)	$ (10,278,388)	$ (10,564,211)	$ (10,798,731)	$ (11,068,699)	$ (11,345,417)	$ (11,660,913)
Total 3rd-Party O&M Contract Costs			$ (9,532,775)	$ (9,532,775)	$ (8,102,240)	$ (8,530,320)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs			$ (18,844,487)	$ (19,103,429)	$ (17,885,357)	$ (18,558,015)	$ (14,998,388)	$ (15,284,211)	$ (15,518,731)	$ (15,788,699)	$ (16,065,417)	$ (16,380,913)
Total Costs			$ (38,911,187)	$ (19,103,429)	$ (17,885,357)	$ (18,558,015)	$ (14,998,388)	$ (15,284,211)	$ (15,518,731)	$ (15,788,699)	$ (16,065,417)	$ (16,380,913)
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($190,064,052.57)										
Equivalent Uniform Annual Cost	9.8181	($19,358,443.57)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)
	chk	($190,064,052.57)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/MWhr	$ 0.2637	$ 0.27	$ 0.28	$ 0.28	$ 0.29	$ 0.30	$ 0.31	$ 0.31	$ 0.32	$ 0.33	$ 0.34
Energy	kWhr		59,591,762	59,755,027	59,591,762	59,591,762	59,591,762	59,755,027	59,591,762	59,591,762	59,591,762	59,755,027
Total Revenue			$ 16,109,782	$ 16,557,766	$ 16,925,339	$ 17,348,473	$ 17,782,185	$ 18,276,676	$ 18,682,408	$ 19,149,468	$ 19,628,205	$ 20,174,030
Total Cost			$ (38,911,187)	$ (19,103,429)	$ (17,885,357)	$ (18,558,015)	$ (14,998,388)	$ (15,284,211)	$ (15,518,731)	$ (15,788,699)	$ (16,065,417)	$ (16,380,913)
Difference			$ (22,801,405)	$ (2,545,663)	$ (960,018)	$ (1,209,543)	$ 2,783,797	$ 2,992,464	$ 3,163,677	$ 3,360,768	$ 3,562,788	$ 3,793,117
NPV		$0.00										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (11,919,779)	$ (12,217,773)	$ (12,523,218)	$ (12,871,466)	$ (13,157,205)	$ (13,486,136)	$ (13,823,289)	$ (14,207,690)	$ (14,523,093)	$ (14,886,170)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ (3,301,534)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	$ (16,639,779)	$ (16,937,773)	$ (20,544,751)	$ (17,591,466)	$ (17,877,205)	$ (18,206,136)	$ (18,543,289)	$ (18,927,690)	$ (19,243,093)	$ (19,606,170)
Total Costs	$ (16,639,779)	$ (16,937,773)	$ (20,544,751)	$ (17,591,466)	$ (17,877,205)	$ (18,206,136)	$ (18,543,289)	$ (18,927,690)	$ (19,243,093)	$ (19,606,170)
Evaluation Parameters										
Equivalent Uniform Annual Cost	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)	$ (19,358,444)
Levelized Cost of Energy										
LCOE Assumption	$ 0.35	$ 0.35	$ 0.36	$ 0.37	$ 0.38	$ 0.39	$ 0.40	$ 0.41	$ 0.42	$ 0.43
Energy	59,591,762	59,591,762	59,591,762	59,755,027	59,591,762	59,591,762	59,591,762	59,755,027	59,591,762	59,591,762
Total Revenue	$ 20,621,882	$ 21,137,430	$ 21,665,865	$ 22,268,354	$ 22,762,700	$ 23,331,767	$ 23,915,061	$ 24,580,097	$ 25,125,761	$ 25,753,905
Total Cost	$ (16,639,779)	$ (16,937,773)	$ (20,544,751)	$ (17,591,466)	$ (17,877,205)	$ (18,206,136)	$ (18,543,289)	$ (18,927,690)	$ (19,243,093)	$ (19,606,170)
Difference	$ 3,982,104	$ 4,199,656	$ 1,121,114	$ 4,676,889	$ 4,885,494	$ 5,125,632	$ 5,371,772	$ 5,652,407	$ 5,882,668	$ 6,147,735

Mobile Generation Comparison Model
Bid Proposal by Siemens

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		Siemens
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	36.6

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($112,995,213.88)
Equivalent Uniform Annuallized Cost	EUAC	($11,508,812.12)
LCOE $/kWhr (2018$)	See Eval Tab	$0.5382

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	5.7%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,039
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$29,881,685
Spare Parts	$	$0
Commissioning/Startup	$	$1,784,981
Subtotal-CapEx		**$31,666,666**

Major Maintenance

Maintenance Intervals	Cost
Minor Inspection (Class A)	$0
Hot Section Refurbishment (Class B)	$4,725,132
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$7,474,137
Year 2	No	$7,474,137
Year 3	No	$6,116,789
Year 4	No	$5,418,714
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Minor Inspection (Class A)	0	12,500
Hot Section Refurbishment (Class B)	0	25,000
Major Overhaul (Class C)	0	50,000
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Siemens

			Count	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Date	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs																														
Operating Hours		Hours		474	476	474	474	474	476	474	474	474	476	474	474	474	476	474	474	474	476	474	474
Output		MWhrs		17,361	17,409	17,361	17,361	17,361	17,409	17,361	17,361	17,361	17,409	17,361	17,361	17,361	17,409	17,361	17,361	17,361	17,409	17,361	17,361
Fuel Consumption	139,000	BBLs		26,879.47	26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47	26,879.47	26,879.47	26,953.11	26,879.47	26,879.47
Total Fuel Costs	$ 94.75			$ (2,610,500.70)	$ (2,683,094.07)	$ (2,742,657.29)	$ (2,811,223.73)	$ (2,881,504.32)	$ (2,961,633.82)	$ (3,027,380.47)	$ (3,103,064.99)	$ (3,180,641.61)	$ (3,269,089.59)	$ (3,341,661.59)	$ (3,425,203.13)	$ (3,510,833.21)	$ (3,608,463.23)	$ (3,688,569.14)	$ (3,780,783.37)	$ (3,875,302.95)	$ (3,983,068.23)	$ (4,071,490.17)	$ (4,173,277.42)
Operations & Maintenance 3rd-Party Contract			Esc																				
Year 1	$ 7,474,136.50	0	$	(7,474,136.50)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ 7,474,136.50	0	$	-	$ (7,474,136.50)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ 6,116,789.00	0	$	-	$ -	$ (6,116,789.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ 5,418,714.00	0	$	-	$ -	$ -	$ (5,418,714.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ 4,720,000.00	0	$	-	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs			$	(7,474,136.50)	(7,474,136.50)	(6,116,789.00)	(5,418,714.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)	(4,720,000.00)
Major Maintenance Costs																							
Minor Inspection (Class A)	$ -	1	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hot Section Refurbishment (Class B)	$ 4,725,132.00	2	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -	3	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -	4	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -	5	$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs			$	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Triggers			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operations			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760
Cumulative Operating Hours		5%	474.35	950.01	1424.36	1898.72	2373.07	2848.72	3323.08	3797.43	4271.79	4747.44	5221.79	5696.15	6170.50	6646.15	7120.51	7594.86	8069.22	8544.87	9019.22	9493.58
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation		2018																				
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance																						
Timing Tests		Hours																				
Minor Inspection (Class A)	1	12500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Section Refurbishment (Class	2	25000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	50000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Starts																				
Minor Inspection (Class A)	1	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Section Refurbishment (Class	2	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triggers																						
Minor Inspection (Class A)	1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Section Refurbishment (Class	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by Siemens

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price		$ 29,881,685.00	$ (29,881,685)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup		$ 1,784,981.00	$ (1,784,981)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (31,666,666)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (2,610,501)	$ (2,683,094)	$ (2,742,657)	$ (2,811,224)	$ (2,881,504)	$ (2,961,634)	$ (3,027,380)	$ (3,103,065)	$ (3,180,642)	$ (3,269,090)
Total 3rd-Party O&M Contract Costs			$ (7,474,137)	$ (7,474,137)	$ (6,116,789)	$ (5,418,714)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs			$ (10,084,637)	$ (10,157,231)	$ (8,859,446)	$ (8,229,938)	$ (7,601,504)	$ (7,681,634)	$ (7,747,380)	$ (7,823,065)	$ (7,900,642)	$ (7,989,090)
Total Costs			$ (41,751,303)	$ (10,157,231)	$ (8,859,446)	$ (8,229,938)	$ (7,601,504)	$ (7,681,634)	$ (7,747,380)	$ (7,823,065)	$ (7,900,642)	$ (7,989,090)
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($112,995,213.88)										
Equivalent Uniform Annual Cost	9.8181	($11,508,812.12)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)
	chk	($112,995,213.88)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/kWhr	$ 0.5382	$ 0.55	$ 0.57	$ 0.58	$ 0.59	$ 0.61	$ 0.62	$ 0.64	$ 0.66	$ 0.67	$ 0.69
Energy	kWhr		17,361,356	17,408,922	17,361,356	17,361,356	17,361,356	17,408,922	17,361,356	17,361,356	17,361,356	17,408,922
Total Revenue			$ 9,577,446	$ 9,843,778	$ 10,062,304	$ 10,313,862	$ 10,571,708	$ 10,865,689	$ 11,106,901	$ 11,384,574	$ 11,669,188	$ 11,993,687
Total Cost			$ (41,751,303)	$ (10,157,231)	$ (8,859,446)	$ (8,229,938)	$ (7,601,504)	$ (7,681,634)	$ (7,747,380)	$ (7,823,065)	$ (7,900,642)	$ (7,989,090)
Difference			$ (32,173,857)	$ (313,453)	$ 1,202,858	$ 2,083,924	$ 2,970,204	$ 3,184,055	$ 3,359,521	$ 3,561,509	$ 3,768,546	$ 4,004,598
NPV		($0.00)										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (3,341,662)	$ (3,425,203)	$ (3,510,833)	$ (3,608,463)	$ (3,688,569)	$ (3,780,783)	$ (3,875,303)	$ (3,983,068)	$ (4,071,490)	$ (4,173,277)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	$ (8,061,662)	$ (8,145,203)	$ (8,230,833)	$ (8,328,463)	$ (8,408,569)	$ (8,500,783)	$ (8,595,303)	$ (8,703,068)	$ (8,791,490)	$ (8,893,277)
Total Costs	$ (8,061,662)	$ (8,145,203)	$ (8,230,833)	$ (8,328,463)	$ (8,408,569)	$ (8,500,783)	$ (8,595,303)	$ (8,703,068)	$ (8,791,490)	$ (8,893,277)
Evaluation Parameters										
PREPA Discount Rate										
Evaluation Term (<=50)										
Net Present Value										
Equivalent Uniform Annual Cost	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)	$ (11,508,812)
Levelized Cost of Energy										
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions										
LCOE Assumption	$ 0.71	$ 0.72	$ 0.74	$ 0.76	$ 0.78	$ 0.80	$ 0.82	$ 0.84	$ 0.86	$ 0.88
Energy	17,361,356	17,361,356	17,361,356	17,408,922	17,361,356	17,361,356	17,361,356	17,408,922	17,361,356	17,361,356
Total Revenue	$ 12,259,941	$ 12,566,439	$ 12,880,600	$ 13,238,787	$ 13,532,681	$ 13,870,998	$ 14,217,773	$ 14,613,144	$ 14,937,547	$ 15,310,986
Total Cost	$ (8,061,662)	$ (8,145,203)	$ (8,230,833)	$ (8,328,463)	$ (8,408,569)	$ (8,500,783)	$ (8,595,303)	$ (8,703,068)	$ (8,791,490)	$ (8,893,277)
Difference	$ 4,198,279	$ 4,421,236	$ 4,649,767	$ 4,910,324	$ 5,124,111	$ 5,370,214	$ 5,622,470	$ 5,910,075	$ 6,146,057	$ 6,417,709

Mobile Generation Comparison Model
Bid Proposal by Siemens

KEY RESULTS AND ASSUMPTIONS

Strictly proprietary & confidential
4-Oct-18

Project Summary

Proponent/Bidder		Siemens
Project Initiation		2019
Evaluation Term (<=50)	Years	20
Net Capacity	MW	36.6

Project Results

PREPA Discount Rate		8.0%
PREPA WACC		8.0%
Net Present Value	NPV	($219,674,008.21)
Equivalent Uniform Annuallized Cost	EUAC	($22,374,282.96)
LCOE $/kWhr (2018$)	See Eval Tab	$0.2386

Sensitivities

Dev + EPC-related Capital Costs	0%
Operations & Maintenance	0%
Major Maintenance Costs	0%

Project Assumptions

(Changeable inputs shown in blue font)

Operating Assumptions

Project Initiation	Year	2019
Refurbish Alternative		
Capacity Factor	%	25.0%
Availability	%	95.0%
Annual Starts		50
Heatrate	Btu/kWhr	9,039
Fuel Heat Content	Btu/gal	139,000
Fuel Costs	$/bbl	$94.75

Financial Parameters

Escalation	
First Year	2018
Operations & Maintenance	2.5%
Major Maintenance	2.5%
Fuel	2.5%
Revenue	2.5%
Weighted Avg Cost of Capital	8.0%

Capital Cost

Initiate & Develop	**Units/Notes**	**Cost**
Purchase Price	$	$29,881,685
Spare Parts	$	$0
Commissioning/Startup	$	$1,784,981
Subtotal-CapEx		**$31,666,666**

Major Maintenance

Maintenance Intervals	Cost
Minor Inspection (Class A)	$0
Hot Section Refurbishment (Class B)	$4,725,132
Major Overhaul (Class C)	$0
Maintenance Category 4	$0
Maintenance Category 5	$0

Operations & Maintenance Costs

O&M Expense	**Escalation?**	**Rebuild**
Year 1	No	$7,474,137
Year 2	No	$7,474,137
Year 3	No	$6,116,789
Year 4	No	$5,418,714
Year 5+	No	$4,720,000

Major Maintenance

Event Intervals	Starts	Hours
Minor Inspection (Class A)	0	12,500
Hot Section Refurbishment (Class B)	0	25,000
Major Overhaul (Class C)	0	50,000
Maintenance Category 4	0	0
Maintenance Category 5	0	0

Drop List
Yes
No

Operations & Maintenance
Mobile Generation Comparison Model
Bid Proposal by Siemens

		Count		1	2	3	4	5	6	7	8	9	10
		Date		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Costs													
Operating Hours		Hours		2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086
Output		MWhrs		76,146	76,355	76,146	76,146	76,146	76,355	76,146	76,146	76,146	76,355
Fuel Consumption	139,000	BBLs		117,892.42	118,215.41	117,892.42	117,892.42	117,892.42	118,215.41	117,892.42	117,892.42	117,892.42	118,215.41
Total Fuel Costs	$ 94.75			$ (11,449,564.45)	$ (11,767,956.45)	$ (12,029,198.65)	$ (12,329,928.62)	$ (12,638,176.83)	$ (12,989,622.03)	$ (13,277,984.54)	$ (13,609,934.15)	$ (13,950,182.50)	$ (14,338,112.24)
Operations & Maintenance 3rd-Party Contract			Esc										
Year 1	$ 7,474,136.50		0	$ (7,474,136.50)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ 7,474,136.50		0	$ -	$ (7,474,136.50)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ 6,116,789.00		0	$ -	$ -	$ (6,116,789.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ 5,418,714.00		0	$ -	$ -	$ -	$ (5,418,714.00)	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ 4,720,000.00		0	$ -	$ -	$ -	$ -	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs				$ (7,474,136.50)	$ (7,474,136.50)	$ (6,116,789.00)	$ (5,418,714.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs													
Minor Inspection (Class A)	$ -		1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hot Section Refurbishment (Class B)	$ 4,725,132.00		2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -		3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -		4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -		5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

	11	12	13	14	15	16	17	18	19	20
	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operating Costs										
Operating Hours	2,081	2,081	2,081	2,086	2,081	2,081	2,081	2,086	2,081	2,081
Output	76,146	76,146	76,146	76,355	76,146	76,146	76,146	76,355	76,146	76,146
Fuel Consumption	117,892.42	117,892.42	117,892.42	118,215.41	117,892.42	117,892.42	117,892.42	118,215.41	117,892.42	117,892.42
Total Fuel Costs	$ (14,656,410.49)	$ (15,022,820.75)	$ (15,398,391.27)	$ (15,826,593.11)	$ (16,177,934.83)	$ (16,582,383.20)	$ (16,996,942.78)	$ (17,469,597.49)	$ (17,857,413.01)	$ (18,303,848.34)
Operations & Maintenance 3rd-Party Contract										
Year 1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Year 5+	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Total 3rd-Party O&M Contract Costs	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)	$ (4,720,000.00)
Major Maintenance Costs										
Minor Inspection (Class A)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hot Section Refurbishment (Class B)	$ -	$ -	$ (6,513,646.65)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Overhaul (Class C)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Maintenance Category 5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total CapEx and Major Maintenance Costs	$ -	$ -	$ (6,513,646.65)	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Triggers			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Operations			1	1	1	1	1	1	1	1	1	1	1
Available Annual Hours			8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760
Cumulative Operating Hours		24%	2080.50	4166.70	6247.20	8327.70	10408.20	12494.40	14574.90	16655.40	18735.90	20822.10	22902.60
Cumulative Starts		50	50.00	100.00	150.00	200.00	250.00	300.00	350.00	400.00	450.00	500.00	550.00
Escalation		2018											
Operations & Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312
Major Maintenance		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312
Fuel		2.5%	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	1.280	1.312
Major Maintenance													
Timing Tests		Hours											
Minor Inspection (Class A)	1	12500	0	0	0	0	0	0	1	0	0	0	0
Hot Section Refurbishment (Class	2	25000	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	50000	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0
		Starts											
Minor Inspection (Class A)	1	1000000000	0	0	0	0	0	0	0	0	0	0	0
Hot Section Refurbishment (Class	2	1000000000	0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3	1000000000	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4	1000000000	0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5	1000000000	0	0	0	0	0	0	0	0	0	0	0
Triggers													
Minor Inspection (Class A)	1		0	0	0	0	0	0	1	0	0	0	0
Hot Section Refurbishment (Class	2		0	0	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	3		0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 4	4		0	0	0	0	0	0	0	0	0	0	0
Maintenance Category 5	5		0	0	0	0	0	0	0	0	0	0	0

	2030	2031	2032	2033	2034	2035	2036	2037	2038
Operations	1	1	1	1	1	1	1	1	1
Available Annual Hours	8,760	8,760	8,754	8,760	8,760	8,760	8,754	8,760	8,760
Cumulative Operating Hours	24983.10	27063.60	29149.80	31230.30	33310.80	35391.30	37477.50	39558.00	41638.50
Cumulative Starts	600.00	650.00	700.00	750.00	800.00	850.00	900.00	950.00	1000.00
Escalation									
Operations & Maintenance	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Fuel	1.345	1.379	1.413	1.448	1.485	1.522	1.560	1.599	1.639
Major Maintenance									
Timing Tests									
Minor Inspection (Class A)	0	1	0	0	0	0	0	1	0
Hot Section Refurbishment (Class	0	2	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0
Minor Inspection (Class A)	0	0	0	0	0	0	0	0	0
Hot Section Refurbishment (Class	0	0	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0
Triggers									
Minor Inspection (Class A)	0	1	0	0	0	0	0	1	0
Hot Section Refurbishment (Class	0	2	0	0	0	0	0	0	0
Major Overhaul (Class C)	0	0	0	0	0	0	0	0	0
Maintenance Category 4	0	0	0	0	0	0	0	0	0
Maintenance Category 5	0	0	0	0	0	0	0	0	0

Evaluation
Mobile Generation Comparison Model
Bid Proposal by Siemens

			1 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	8 2026	9 2027	10 2028
Capital Costs												
Purchase Price		$ 29,881,685.00	$ (29,881,685)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup		$ 1,784,981.00	$ (1,784,981)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx			$ (31,666,666)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs												
Total Fuel Costs			$ (11,449,564)	$ (11,767,956)	$ (12,029,199)	$ (12,329,929)	$ (12,638,177)	$ (12,989,622)	$ (13,277,985)	$ (13,609,934)	$ (13,950,183)	$ (14,338,112)
Total 3rd-Party O&M Contract Costs			$ (7,474,137)	$ (7,474,137)	$ (6,116,789)	$ (5,418,714)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs			$ (18,923,701)	$ (19,242,093)	$ (18,145,988)	$ (17,748,643)	$ (17,358,177)	$ (17,709,622)	$ (17,997,985)	$ (18,329,934)	$ (18,670,183)	$ (19,058,112)
Total Costs			$ (50,590,367)	$ (19,242,093)	$ (18,145,988)	$ (17,748,643)	$ (17,358,177)	$ (17,709,622)	$ (17,997,985)	$ (18,329,934)	$ (18,670,183)	$ (19,058,112)
Evaluation Parameters												
PREPA Discount Rate	8.0%											
Evaluation Term (<=50)	20											
Net Present Value		($219,674,008.21)										
Equivalent Uniform Annual Cost	9.82	($22,374,282.96)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)
	chk	($219,674,008.21)										
Levelized Cost of Energy												
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions												
LCOE Assumption	$/kWh	$ 0.2386	$ 0.24	$ 0.25	$ 0.26	$ 0.26	$ 0.27	$ 0.28	$ 0.28	$ 0.29	$ 0.30	$ 0.31
Energy	kWhr		76,146,300	76,354,920	76,146,300	76,146,300	76,146,300	76,354,920	76,146,300	76,146,300	76,146,300	76,354,920
Total Revenue			$ 18,619,514	$ 19,137,290	$ 19,562,127	$ 20,051,180	$ 20,552,460	$ 21,123,987	$ 21,592,928	$ 22,132,751	$ 22,686,070	$ 23,316,929
Total Cost			$ (50,590,367)	$ (19,242,093)	$ (18,145,988)	$ (17,748,643)	$ (17,358,177)	$ (17,709,622)	$ (17,997,985)	$ (18,329,934)	$ (18,670,183)	$ (19,058,112)
Difference			$ (31,970,853)	$ (104,803)	$ 1,416,139	$ 2,302,538	$ 3,194,283	$ 3,414,365	$ 3,594,943	$ 3,802,817	$ 4,015,887	$ 4,258,817
NPV		($0.00)										

	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038
Capital Costs										
Purchase Price	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commissioning/Startup	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal-CapEx	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs										
Total Fuel Costs	$ (14,656,410)	$ (15,022,821)	$ (15,398,391)	$ (15,826,593)	$ (16,177,935)	$ (16,582,383)	$ (16,996,943)	$ (17,469,597)	$ (17,857,413)	$ (18,303,848)
Total 3rd-Party O&M Contract Costs	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)	$ (4,720,000)
Total CapEx and Major Maintenance Costs	$ -	$ -	$ (6,513,647)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Costs	$ (19,376,410)	$ (19,742,821)	$ (26,632,038)	$ (20,546,593)	$ (20,897,935)	$ (21,302,383)	$ (21,716,943)	$ (22,189,597)	$ (22,577,413)	$ (23,023,848)
Total Costs	$ (19,376,410)	$ (19,742,821)	$ (26,632,038)	$ (20,546,593)	$ (20,897,935)	$ (21,302,383)	$ (21,716,943)	$ (22,189,597)	$ (22,577,413)	$ (23,023,848)
Evaluation Parameters										
PREPA Discount Rate										
Evaluation Term (<=50)										
Net Present Value										
Equivalent Uniform Annual Cost	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)	$ (22,374,283)
Levelized Cost of Energy										
NOTE: This requires a goal-seek to set NPV to Zero by varying LCOE assumptions										
LCOE Assumption	$ 0.31	$ 0.32	$ 0.33	$ 0.34	$ 0.35	$ 0.35	$ 0.36	$ 0.37	$ 0.38	$ 0.39
Energy	76,146,300	76,146,300	76,146,300	76,354,920	76,146,300	76,146,300	76,146,300	76,354,920	76,146,300	76,146,300
Total Revenue	$ 23,834,552	$ 24,430,416	$ 25,041,176	$ 25,737,527	$ 26,308,886	$ 26,966,608	$ 27,640,773	$ 28,409,414	$ 29,040,087	$ 29,766,090
Total Cost	$ (19,376,410)	$ (19,742,821)	$ (26,632,038)	$ (20,546,593)	$ (20,897,935)	$ (21,302,383)	$ (21,716,943)	$ (22,189,597)	$ (22,577,413)	$ (23,023,848)
Difference	$ 4,458,142	$ 4,687,595	$ (1,590,862)	$ 5,190,934	$ 5,410,951	$ 5,664,225	$ 5,923,831	$ 6,219,816	$ 6,462,674	$ 6,742,241

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RFP 82695 MOBILE GENERATION UNITS
PRICE COMPARISON

Costo de energía (20 puntos)	ARG (Pratt & Whitney)	RG Engineering (GE)	Siemens
Net Present Value (Base case 25% C.F.)	$ (159,111,631.87)	$ (190,064,052.57)	$ (219,674,008.21)
Net Present Value 500 hrs (5.7% C.F.)	$ (84,127,900.03)	$ (104,038,111.54)	$ (112,995,213.88)
Equivalent Uniform Annualized Cost (Base case 25% C.F.)	$ (16,205,871.16)	$ (19,358,443.57)	$ (22,374,282.96)
Equivalent Uniform Annualized Cost 500 hrs (5.7% C.F.)	$ (8,568,612.44)	$ 10,596,511.46	$ (11,508,812.12)
Levelized Cost of energy (Base case 25% C.F.) $kWhr	$ 0.2800	$ 0.2637	$ 0.2386
Levelized Cost of energy 500 hrs (5.7% C.F.) $kWhr	$ 0.6494	$ 0.6332	$ 0.5382
Puntuación	15.868	16.470	20.000

Costo por Unidad e Instalación (30 puntos)		
ARG	$ 19,299,166.00	30
RG	$ 20,066,700.00	28.81
Siemens	$ 31,666,666.00	10.78

O&M por Unidad (10 puntos)		
ARG	$ 20,218,012.69	10
RG	$ 35,698,110.00	2.343
Siemens	$ 26,483,776.00	6.901

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,303,458.00	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,299,166.00	$ 20,066,700.00	$ 31,666,666.00

	ARG	Siemens	RG
Mantenimiento primeros 2 años	$ 8,890,000.00	$ 14,948,273.00	$ 19,065,550.00
Piezas Reemplazo por Unidad	$ 2,028,012.69		
Mantenimiento 3er año	$ 4,580,000.00	$ 6,116,789.00	$ 8,102,240.00
Mantenimiento 4to año	$ 4,720,000.00	$ 5,418,714.00	$ 8,530,320.00
Total	$ 20,218,012.69	$ 26,483,776.00	$ 35,698,110.00

Conversión a Valor del Renglón Costo Unidad e Instalación

$$Puntuación\ de\ Proponente = \left[1 - \frac{(Proponente - Proponente\_Mas\_Bajo)}{Proponente\_Mas\_Bajo}\right] * Valor\ de\ Renglón$$

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(19{,}299{,}166 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 30$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(20{,}066{,}700 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 28.807$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(31{,}666{,}666 - 19{,}299{,}166)}{19{,}299{,}166}\right] * 30 = 10.775$$

Conversión a Valor del Renglón Costo O&M

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(20{,}218{,}012.69 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 10$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(35{,}698{,}110 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 2.343$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(26{,}483{,}776 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 6.901$$

Conversión a Valor del Renglón Costo de Energía

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(0.6494 - 0.5382)}{0.5382}\right] * 20 = 15.868$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(0.6332 - 0.5382)}{0.5382}\right] * 20 = 16.470$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(0.5382 - 0.5382)}{0.5382}\right] * 20 = 20.000$$

RFP 82695 MOBILE GENERATION UNITS

SCORING TABLE

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points)			
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.81	10.78
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.343	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.47	20
Price Proposal Score:	55.86	47.62	37.68
Price Proposal Score 1 to 5 Scale:	5	4.00	4.00
Price Proposal Score Converted:	**60**	**48**	**48**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	4	4	4
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**79.8**

The criteria shall be graded using a score of 1 to 5:

1 = **Poor or Inadequate** – does not meet RFP expectations

2 = **Adequate** – criteria are met, below the standards set by the RFP

3 = **Average** – meets the minimum standards set by the RFP

4 = **Good** – meets and exceeds the minimum standards set by the RFP

5 = **Excellent** – meets and substantial exceeds the minimum standards set by the RFP and presents the best proposal for the criteria.

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Rev. 11/17

GOBIERNO DE PUERTO RICO
Autoridad de Energía Eléctrica de Puerto Rico

6 de noviembre de 2018

Edgardo Diaz Reyes, Jefe
División de Suministros

Natalia Martínez Lugo
Supervisora de Compras

RECOMENDACIÓN ADJUDICACIÓN RFP 82695 ADQUISICIÓN DE TRES UNIDADES GENERATRICES PORTÁTILES

La Autoridad de Energía Eléctrica realizó durante el mes de septiembre una solicitud de propuestas (RFP) para la adquisición e instalación de tres turbinas portátiles. El evento cerró el 24 de septiembre de 2018 y se recibieron propuestas de tres proponentes: ARG Precision/Pratt & Whitney (ARG/P&W), RG Engineering/GE (RG/GE) y Siemens Energy (Siemens).

El 2 de octubre de 2018, los miembros del Comité asignaron un valor a cada renglón de cada propuesta e identificaron a ARG/P&W como el proponente con la mejor puntuación de los criterios de evaluación.

El 30 de octubre de 2018, el Comité se reunió nuevamente, en mayoría de cuatro miembros, para discutir un asunto relacionado a la propuesta de ARG/P&W y un asunto que no fue discutido en las reuniones previas referente al pago de arbitrios municipales. ARG/P&W indica en su propuesta que su precio no incluye el pago de arbitrios municipales, pero sí el pago de patentes.

Luego del ajuste de costos y la reevaluación de las puntuaciones, el Comité, en mayoría ratifica la selección de ARG/P&W como la mejor propuesta. Incluimos Apéndice I con los precios, criterios y resultados ajustados. Basado en estos precios ajustados, el Comité evaluó nuevamente los criterios de evaluación de precio para los proponentes y el resultado no varió la evaluación original, a pesar del aumento en el precio evaluado para la propuesta de ARG/P&W.

Por lo antes expuesto el Comité interesa poder incluir como Apéndice I determinación ratificando la selección de ARG/P&W.

De necesitar información adicional, se puede comunicar a la extensión 1394.

"Somos un patrono con igualdad de oportunidades en el empleo y no discriminamos por razón de raza, color, sexo, edad, origen social o nacional, condición social afiliación política, ideas políticas o religiosas; por ser víctima o ser percibida(o) como víctima de violencia doméstica, agresión sexual o acecho, sin importar estado civil, orientación sexual, identidad de género o estatus migratorio; por impedimento físico, mental o ambos por condición de veterano(a) o por información genética."

RECOMENDACIÓN ADJUDICACIÓN RFP ADQUISICIÓN DE
TRES UNIDADES GENERATRICES PORTÁTILES
RFP 82695

APÉNDICE 1

La Autoridad de Energía Eléctrica realizó durante el mes de septiembre una solicitud de propuestas (RFP) para la adquisición e instalación de tres turbinas portátiles. El evento RFP 82695 *Mobile Generation* cerró el 24 de septiembre de 2018 y se recibieron propuestas de tres proponentes: ARG Precision/Pratt & Whitney (ARG/P&W), RG Engineering/GE (RG/GE) y Siemens Energy (Siemens).

El Comité Evaluador compuesto por cinco (5) miembros nombrados por el CEO/Director Ejecutivo, evaluó las propuestas enviadas en base a los requisitos de cumplimiento requeridos en los documentos del RFP y los métodos preestablecidos para asignar puntuaciones. Se analizaron las propuestas y se otorgaron dichas puntuaciones en renglones como precio, capacidad económica, experiencia, método de trabajo y cumplimiento con regulaciones estatales y federales. Para el renglón de precio por unidad e instalación las propuestas fueron las siguientes:

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,303,458.00	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,299,166.00	$ 20,066,700.00	$ 31,666,666.00

El 2 de octubre de 2018, los miembros del Comité asignaron un valor a cada renglón de cada propuesta e identificaron a ARG/P&W como el proponente con la mejor puntuación de los criterios de evaluación. Los resultados de las puntuaciones fueron los siguientes:

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Price Proposal Score Converted:	60	48	48
Experience and Capacity (15 points)			
Experience and Capacity Score:	12	13.2	13.8
Approach and Methodology (15 points)			
Approach and Methodology Score:	12	12	12
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Compliance with all Applicable Federal, and Puerto Rico Regulations:	8	10	6
Total	92	83.2	79.8

El 30 de octubre de 2018, el Comité se reunió nuevamente, en mayoría de cuatro miembros, para discutir un asunto relacionado a la propuesta de ARG/P&W y un asunto que no fue discutido en las reuniones previas referente al pago de arbitrios municipales. ARG/P&W indica en su propuesta que su precio no incluye el pago de arbitrios

municipales, pero sí el pago de patentes. Es responsabilidad de cada contratista que realiza proyectos para la Autoridad que pague los arbitrios de construcción en cada municipio donde realiza los trabajos. En este caso los contratistas deberán ser responsables por el pago de instalación de dos turbinas en el Municipio de Toa Baja (Central Palo Seco) y una en el Municipio de Yabucoa (Estación Hidro Gas Yabucoa). El porcentaje de arbitrios para cada uno de estos municipios es de 5% del costo de construcción.

El Comité determinó que, ya que el contratista que realce el trabajo deberá ser responsable de pagar los arbitrios, este costo debería ser incluido en el precio propuesto. También determinó que el costo de 5% debería ser aplicado al precio de construcción e instalación de cada unidad y no así al precio de las turbinas y sus equipos auxiliares, ya que las mismas son unidades portátiles que pudieran ser instalados en diferentes instalaciones de la Autoridad. Basado en esta determinación, el Comité calculó nuevamente el precio de la propuesta de ARG/P&W, pero aumentando un 5% el costo de instalación por unidad de $1,303,458.00. Los precios ajustados fueron los siguientes.

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,368,630.90	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,364,338.90	$ 20,066,700.00	$ 31,666,666.00

Basado en estos precios ajustados, el Comité evaluó nuevamente los criterios de evaluación de precio para los proponentes y el resultado no varió de la evaluación original, a pesar del aumento en el precio evaluado para la propuesta de ARG/P&W. Luego del ajuste de costos y la reevaluación de las puntuaciones, el Comité, en mayoría ratifica la selección de ARG/P&W como la mejor propuesta.

Se incluyen los resultados de la evaluación como anejos.

RFP 82695 MOBILE GENERATION UNITS

SCORING TABLE

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points) Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)	30	28.91	10.94
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.343	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.849	16.470	20.000
Price Proposal Score:	55.849	47.72	37.84
Price Proposal Score 1 to 5 Scale:	5	4.00	4.00
Price Proposal Score Converted:	**60**	**48**	**48**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	4	4	4
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**79.8**

The criteria shall be graded using a score of 1 to 5:

1 = **Poor or Inadequate** – does not meet RFP expectations

2 = **Adequate** – criteria are met, below the standards set by the RFP

3 = **Average** – meets the minimum standards set by the RFP

4 = **Good** – meets and exceeds the minimum standards set by the RFP

5 = **Excellent** – meets and substantial exceeds the minimum standards set by the RFP and presents the best proposal for the criteria.

RFP 82695 MOBILE GENERATION UNITS
PRICE COMPARISON

Costo de energía (20 puntos)	ARG (Pratt & Whitney)	RG Engineering (GE)	Siemens
Net Present Value (Base case 25% C.F.)	$ (159,171,977.15)	$ (190,064,052.57)	$ (219,674,008.21)
Net Present Value 500 hrs (5.7% C.F.)	$ (84,188,245.30)	$ (104,038,111.54)	$ (112,995,213.88)
Equivalent Uniform Annualized Cost (Base case 25% C.F.)	$ (16,212,017.46)	$ (19,358,443.57)	$ (22,374,282.96)
Equivalent Uniform Annualized Cost 500 hrs (5.7% C.F.)	$ (8,574,758.74)	$ (10,596,511.46)	$ (11,508,812.12)
Levelized Cost of energy (Base case 25% C.F.) $kWhr	$ 0.2801	$ 0.2637	$ 0.2386
Levelized Cost of energy 500 hrs (5.7% C.F.) $kWhr	$ 0.6499	$ 0.6332	$ 0.5382
Puntuación	15.849	16.470	20.000

Costo por Unidad e Instalación (30 puntos)		
ARG	$ 19,364,338.90	30
RG	$ 20,066,700.00	28.91
Siemens	$ 31,666,666.00	10.94

	ARG	RG	Siemens
Costo Instalación por Unidad	$ 1,368,630.90	$ 3,114,450.00	$ 1,784,981.00
Costo por Unidad	$ 17,995,708.00	$ 16,952,250.00	$ 29,881,685.00
Total	$ 19,364,338.90	$ 20,066,700.00	$ 31,666,666.00

O&M por Unidad (10 puntos)		
ARG	$ 20,218,012.69	10
RG	$ 35,698,110.00	2.343
Siemens	$ 26,483,776.00	6.901

	ARG	Siemens	RG
Mantenimiento primeros 2 años	$ 8,890,000.00	$ 14,948,273.00	$ 19,065,550.00
Piezas Reemplazo por Unidad	$ 2,028,012.69		
Mantenimiento 3er año	$ 4,580,000.00	$ 6,116,789.00	$ 8,102,240.00
Mantenimiento 4to año	$ 4,720,000.00	$ 5,418,714.00	$ 8,530,320.00
Total	$ 20,218,012.69	$ 26,483,776.00	$ 35,698,110.00

Conversión a Valor del Renglón Costo Unidad e Instalación

$$Puntuación\ de\ Proponente = \left[1 - \frac{(Proponente - Proponente\_Mas\_Bajo)}{Proponente\_Mas\_Bajo}\right] * Valor\ de\ Renglón$$

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(19{,}364{,}339 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 30$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(20{,}066{,}700 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 28.91$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(31{,}666{,}666 - 19{,}364{,}339)}{19{,}364{,}339}\right] * 30 = 10.94$$

Conversión a Valor del Renglón Costo O&M

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(20{,}218{,}012.69 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 10$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(35{,}698{,}110 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 2.343$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(26{,}483{,}776 - 20{,}218{,}012.69)}{20{,}218{,}012.69}\right] * 10 = 6.901$$

Conversión a Valor del Renglón Costo de Energía

$$Puntuación\ de\ Proponente_{ARG} = \left[1 - \frac{(0.6499 - 0.5382)}{0.5382}\right] * 20 = 15.849$$

$$Puntuación\ de\ Proponente_{RG} = \left[1 - \frac{(0.6332 - 0.5382)}{0.5382}\right] * 20 = 16.470$$

$$Puntuación\ de\ Proponente_{SIEMENS} = \left[1 - \frac{(0.5382 - 0.5382)}{0.5382}\right] * 20 = 20.000$$

RFP 82695 MOBILE GENERATION UNITS
PERFORMANCE PROPOSAL

QUESTIONS		Siemens Energy, Inc Submitted: 09/24/2018	ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018
Guaranteed net unit output (diesel) @ specified conditions without water or steam injection	MW	36.6	22,583	28,643
Guaranteed net unit output (NG) @ specified conditions without water or steam injection	MW	38.2	23,842	30,021
Unit minimum load for continuous operation	MW	0.0	1	Unlimited
Time from shutdown to guaranteed net unit output	minutes	6.3	10	8
Unit Heat Rate (diesel – LHV) Assume 18,646 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	9038.6	9,759	9,393
Unit Heat Rate (NG – LHV) Assume 21,414 BTU/Lb energy content @ guaranteed net unit output	BTU/KW-hr	8894.9	9,574	9,246
(1) If energy price varies with output, provide data related to this variation. Provide output vs. Energy Price curves if applicable.				

RFP 82695 MOBILE GENERATION
PRICE PROPOSAL

QUESTIONS		Siemens Energy, Inc Submitted: 09/24/2018	ARG Precision Submitted: 09/24/2018	RG ENGINEERING, INC. Submitted: 09/24/2018
Price per unit (including all its BOP equipment and accessories)	unit	29,881,685 USD	17,995,708	$16,952,250.00
Installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning	unit	1,784,981 USD	1,303,458	$3,114,450.00
Price for Operation and Maintenance as required in this document	2 years	14,948,273 USD	8,890,000	$19,065,550.00
	first addt'l year	6,116,789 USD	4,580,000	$8,102,240.00
	second addt'l year	5,418,714USD	4,720,000	$8,530,320.00

RFP 82695 MOBILE GENERATION UNITS
SCORING CRITERIA

PROPONENTS	ARG PRECISION, CORP.	RG ENGINEERING, INC.	SIEMENS
Price Proposal (60 points)			
Units Pricing:			
Shall submit a price per unit (including all its BOP equipment and accessories) (20 points)	30	28.81	10.78
Shall provide an installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (10 points)			
Shall provide price for Operation and Maintenance as required in this document (10 points)	10	2.34	6.9
Levelized Cost of Energy (LCOE) $/kW-hr (20 points)	15.86	16.46	20
Price Proposal Score:	55.86	47.61	37.68
Price Proposal Score 1 to 5 Scale:	5	4.00	3.00
Price Proposal Score Converted:	**60**	**48**	**36**
Experience and Capacity (15 points)			
Offeror's Experience:			
Shall submit an abbreviated history of firm	3	4	5
Shall provide evidence of applicable experience and performance in at least two related scope projects within the past five years, and references.	4	4	4
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the proponent with at least ten (10) years of experience in similar projects.	5	5	5
Shall provide qualifications and resumes of experienced key personnel (project manager, engineers, supervisors, etc.) of the installation subcontractor (if any) with at least five (5) years of experience in similar projects.	5	5	5
Schedule of Project Delivery:			
Shall provide a proposed project schedule based on continuous work with key and critical tasks.	3	4	4
Experience and Capacity Score:	**12**	**13.2**	**13.8**
Approach and Methodology (15 points)			
Work Plan:			
Shall submit a description of the proposed working plan, including working methods, logistics, list of resources (manpower and equipment), and subcontractors, if any.	**4**	**4**	**4**
Approach and Methodology Score:	**12**	**12**	**12**
Compliance with all Applicable Federal, and Puerto Rico Regulations (10 points)			
Proponents who demonstrate compliance with all applicable federal and Puerto Rico regulations. Adherence to strong ethical and integrity practices and unequivocal commitment to solid administrative practices is essential for PREPA. Understanding of federal and local requirements is essential and will be highly considered.	4	5	3
Compliance with all Applicable Federal, and Puerto Rico Regulations:	**8**	**10**	**6**
Total	**92**	**83.2**	**67.8**

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RFP 82695 MOBILE GENERATION UNITS			
QUESTIONS	**Siemens Energy, Inc** **Submitted: 09/24/2018**	**ARG Precision** **Submitted: 09/24/2018**	**RG ENGINEERING, INC.** **Submitted: 09/24/2018**
Price per unit (including all its BOP equipment and accessories) (unit)	29,881,685 USD	17,995,708	$16,952,250.00
Installation price per unit, with all necessary equipment, materials, labor, testing, and commissioning (unit)	1,784,981 USD	1,303,458	$3,114,450.00
Price for Operation and Maintenance as required in this document			
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