

### Input sensitivities and assumptions

- Input Sensitivities
  - PTC: [0, 23] \$/MWh
  - Carbon dioxide price: [none, base, high]
    - None – no carbon costs in the future
    - Base – 15 \$/ton in 2020 to 60 \$/ton in 2040 and continued growth
    - High – 25 \$/ton in 2020 to 90 \$/ton in 2040 and continued growth
  - Natural gas price: [80, 100, 120]% of EIA AEO2014 projections
  - KS wind capacity factor: [50, 55, 60]%
  - MO wind capacity factor: [25, 30, 35]%

Input Sensitivities	Low	Med	High
PTC Value (\$/MWh)	0	<del>23</del>	23
Carbon Dioxide Price (Scenario)	None	Base	High
Natural Gas Price (% of EIA forecast)	80	100	120
KS Wind Capacity Factor (%)	50	55	60
MO Wind Capacity Factor (%)	25	30	35

$2 \times 3^4 = 162$  scenarios considered

The tables on the following pages show the levelized cost of the different generation methods including capacity value for each scenario. The numbers on the 2<sup>nd</sup> through 6<sup>th</sup> columns represent the low (0), med (1), and high (2) case as described above (except for the PTC column where 1 represents the high case). Values are in \$/MWh.

The levelized cost of Grain Belt Express' delivered energy is the cheapest alternative in 87% of all cases. It is lower than Coal, Nuclear, and Solar in every scenario, and is cheaper than Missouri wind in 94% and Gas in 91% of all scenarios.

Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
1	0	0	0	0	0	66.95	90.39	79.70	51.71	102.23	122.20
2	0	0	0	0	1	68.03	77.32	79.70	51.71	102.23	122.20
3	0	0	0	0	2	68.80	67.99	79.70	51.71	102.23	122.20
4	0	0	0	1	0	61.41	90.39	79.70	51.45	102.23	122.20
5	0	0	0	1	1	62.49	77.32	79.70	51.45	102.23	122.20
6	0	0	0	1	2	63.26	67.99	79.70	51.45	102.23	122.20
7	0	0	0	2	0	56.80	90.39	79.70	51.45	102.23	122.20
8	0	0	0	2	1	57.88	77.32	79.70	51.45	102.23	122.20
9	0	0	0	2	2	58.65	67.99	79.70	51.45	102.23	122.20
10	0	0	1	0	0	66.95	90.39	79.70	62.56	102.23	122.20
11	0	0	1	0	1	68.03	77.32	79.70	62.56	102.23	122.20
12	0	0	1	0	2	68.80	67.99	79.70	62.56	102.23	122.20
13	0	0	1	1	0	61.41	90.39	79.70	62.30	102.23	122.20
14	0	0	1	1	1	62.49	77.32	79.70	62.30	102.23	122.20
15	0	0	1	1	2	63.26	67.99	79.70	62.30	102.23	122.20
16	0	0	1	2	0	56.80	90.39	79.70	62.30	102.23	122.20
17	0	0	1	2	1	57.88	77.32	79.70	62.30	102.23	122.20
18	0	0	1	2	2	58.65	67.99	79.70	62.30	102.23	122.20
19	0	0	2	0	0	66.95	90.39	79.70	73.41	102.23	122.20
20	0	0	2	0	1	68.03	77.32	79.70	73.41	102.23	122.20
21	0	0	2	0	2	68.80	67.99	79.70	73.41	102.23	122.20
22	0	0	2	1	0	61.41	90.39	79.70	73.15	102.23	122.20
23	0	0	2	1	1	62.49	77.32	79.70	73.15	102.23	122.20
24	0	0	2	1	2	63.26	67.99	79.70	73.15	102.23	122.20
25	0	0	2	2	0	56.80	90.39	79.70	73.15	102.23	122.20
26	0	0	2	2	1	57.88	77.32	79.70	73.15	102.23	122.20
27	0	0	2	2	2	58.65	67.99	79.70	73.15	102.23	122.20
28	0	1	0	0	0	66.95	90.39	120.05	69.67	102.23	122.20
29	0	1	0	0	1	68.03	77.32	120.05	69.67	102.23	122.20
30	0	1	0	0	2	68.80	67.99	120.05	69.67	102.23	122.20
31	0	1	0	1	0	61.41	90.39	120.05	69.42	102.23	122.20
32	0	1	0	1	1	62.49	77.32	120.05	69.42	102.23	122.20
33	0	1	0	1	2	63.26	67.99	120.05	69.42	102.23	122.20
34	0	1	0	2	0	56.80	90.39	120.05	69.42	102.23	122.20
35	0	1	0	2	1	57.88	77.32	120.05	69.42	102.23	122.20
36	0	1	0	2	2	58.65	67.99	120.05	69.42	102.23	122.20
37	0	1	1	0	0	66.95	90.39	120.05	80.52	102.23	122.20
38	0	1	1	0	1	68.03	77.32	120.05	80.52	102.23	122.20
39	0	1	1	0	2	68.80	67.99	120.05	80.52	102.23	122.20
40	0	1	1	1	0	61.41	90.39	120.05	80.26	102.23	122.20
41	0	1	1	1	1	62.49	77.32	120.05	80.26	102.23	122.20
42	0	1	1	1	2	63.26	67.99	120.05	80.26	102.23	122.20
43	0	1	1	2	0	56.80	90.39	120.05	80.26	102.23	122.20

Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
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Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
44	0	1	1	2	1	57.88	77.32	120.05	80.26	102.23	122.20
45	0	1	1	2	2	58.65	67.99	120.05	80.26	102.23	122.20
46	0	1	2	0	0	66.95	90.39	120.05	91.37	102.23	122.20
47	0	1	2	0	1	68.03	77.32	120.05	91.37	102.23	122.20
48	0	1	2	0	2	68.80	67.99	120.05	91.37	102.23	122.20
49	0	1	2	1	0	61.41	90.39	120.05	91.11	102.23	122.20
50	0	1	2	1	1	62.49	77.32	120.05	91.11	102.23	122.20
51	0	1	2	1	2	63.26	67.99	120.05	91.11	102.23	122.20
52	0	1	2	2	0	56.80	90.39	120.05	91.11	102.23	122.20
53	0	1	2	2	1	57.88	77.32	120.05	91.11	102.23	122.20
54	0	1	2	2	2	58.65	67.99	120.05	91.11	102.23	122.20
55	0	2	0	0	0	66.95	90.39	141.50	79.20	102.23	122.20
56	0	2	0	0	1	68.03	77.32	141.50	79.20	102.23	122.20
57	0	2	0	0	2	68.80	67.99	141.50	79.20	102.23	122.20
58	0	2	0	1	0	61.41	90.39	141.50	78.94	102.23	122.20
59	0	2	0	1	1	62.49	77.32	141.50	78.94	102.23	122.20
60	0	2	0	1	2	63.26	67.99	141.50	78.94	102.23	122.20
61	0	2	0	2	0	56.80	90.39	141.50	78.94	102.23	122.20
62	0	2	0	2	1	57.88	77.32	141.50	78.94	102.23	122.20
63	0	2	0	2	2	58.65	67.99	141.50	78.94	102.23	122.20
64	0	2	1	0	0	66.95	90.39	141.50	90.05	102.23	122.20
65	0	2	1	0	1	68.03	77.32	141.50	90.05	102.23	122.20
66	0	2	1	0	2	68.80	67.99	141.50	90.05	102.23	122.20
67	0	2	1	1	0	61.41	90.39	141.50	89.79	102.23	122.20
68	0	2	1	1	1	62.49	77.32	141.50	89.79	102.23	122.20
69	0	2	1	1	2	63.26	67.99	141.50	89.79	102.23	122.20
70	0	2	1	2	0	56.80	90.39	141.50	89.79	102.23	122.20
71	0	2	1	2	1	57.88	77.32	141.50	89.79	102.23	122.20
72	0	2	1	2	2	58.65	67.99	141.50	89.79	102.23	122.20
73	0	2	2	0	0	66.95	90.39	141.50	100.90	102.23	122.20
74	0	2	2	0	1	68.03	77.32	141.50	100.90	102.23	122.20
75	0	2	2	0	2	68.80	67.99	141.50	100.90	102.23	122.20
76	0	2	2	1	0	61.41	90.39	141.50	100.64	102.23	122.20
77	0	2	2	1	1	62.49	77.32	141.50	100.64	102.23	122.20
78	0	2	2	1	2	63.26	67.99	141.50	100.64	102.23	122.20
79	0	2	2	2	0	56.80	90.39	141.50	100.64	102.23	122.20
80	0	2	2	2	1	57.88	77.32	141.50	100.64	102.23	122.20
81	0	2	2	2	2	58.65	67.99	141.50	100.64	102.23	122.20
82	1	0	0	0	0	38.01	62.61	79.70	51.71	102.23	122.20
83	1	0	0	0	1	39.09	49.55	79.70	51.71	102.23	122.20
84	1	0	0	0	2	39.86	40.22	79.70	51.71	102.23	122.20
85	1	0	0	1	0	32.47	62.61	79.70	51.45	102.23	122.20
86	1	0	0	1	1	33.55	49.55	79.70	51.45	102.23	122.20

Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
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Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
87	1	0	0	1	2	34.33	40.22	79.70	51.45	102.23	122.20
88	1	0	0	2	0	27.86	62.61	79.70	51.45	102.23	122.20
89	1	0	0	2	1	28.94	49.55	79.70	51.45	102.23	122.20
90	1	0	0	2	2	29.71	40.22	79.70	51.45	102.23	122.20
91	1	0	1	0	0	38.01	62.61	79.70	62.56	102.23	122.20
92	1	0	1	0	1	39.09	49.55	79.70	62.56	102.23	122.20
93	1	0	1	0	2	39.86	40.22	79.70	62.56	102.23	122.20
94	1	0	1	1	0	32.47	62.61	79.70	62.30	102.23	122.20
95	1	0	1	1	1	33.55	49.55	79.70	62.30	102.23	122.20
96	1	0	1	1	2	34.33	40.22	79.70	62.30	102.23	122.20
97	1	0	1	2	0	27.86	62.61	79.70	62.30	102.23	122.20
98	1	0	1	2	1	28.94	49.55	79.70	62.30	102.23	122.20
99	1	0	1	2	2	29.71	40.22	79.70	62.30	102.23	122.20
100	1	0	2	0	0	38.01	62.61	79.70	73.41	102.23	122.20
101	1	0	2	0	1	39.09	49.55	79.70	73.41	102.23	122.20
102	1	0	2	0	2	39.86	40.22	79.70	73.41	102.23	122.20
103	1	0	2	1	0	32.47	62.61	79.70	73.15	102.23	122.20
104	1	0	2	1	1	33.55	49.55	79.70	73.15	102.23	122.20
105	1	0	2	1	2	34.33	40.22	79.70	73.15	102.23	122.20
106	1	0	2	2	0	27.86	62.61	79.70	73.15	102.23	122.20
107	1	0	2	2	1	28.94	49.55	79.70	73.15	102.23	122.20
108	1	0	2	2	2	29.71	40.22	79.70	73.15	102.23	122.20
109	1	1	0	0	0	38.01	62.61	120.05	69.67	102.23	122.20
110	1	1	0	0	1	39.09	49.55	120.05	69.67	102.23	122.20
111	1	1	0	0	2	39.86	40.22	120.05	69.67	102.23	122.20
112	1	1	0	1	0	32.47	62.61	120.05	69.42	102.23	122.20
113	1	1	0	1	1	33.55	49.55	120.05	69.42	102.23	122.20
114	1	1	0	1	2	34.33	40.22	120.05	69.42	102.23	122.20
115	1	1	0	2	0	27.86	62.61	120.05	69.42	102.23	122.20
116	1	1	0	2	1	28.94	49.55	120.05	69.42	102.23	122.20
117	1	1	0	2	2	29.71	40.22	120.05	69.42	102.23	122.20
118	1	1	1	0	0	38.01	62.61	120.05	80.52	102.23	122.20
119	1	1	1	0	1	39.09	49.55	120.05	80.52	102.23	122.20
120	1	1	1	0	2	39.86	40.22	120.05	80.52	102.23	122.20
121	1	1	1	1	0	32.47	62.61	120.05	80.26	102.23	122.20
122	1	1	1	1	1	33.55	49.55	120.05	80.26	102.23	122.20
123	1	1	1	1	2	34.33	40.22	120.05	80.26	102.23	122.20
124	1	1	1	2	0	27.86	62.61	120.05	80.26	102.23	122.20
125	1	1	1	2	1	28.94	49.55	120.05	80.26	102.23	122.20
126	1	1	1	2	2	29.71	40.22	120.05	80.26	102.23	122.20
127	1	1	2	0	0	38.01	62.61	120.05	91.37	102.23	122.20
128	1	1	2	0	1	39.09	49.55	120.05	91.37	102.23	122.20
129	1	1	2	0	2	39.86	40.22	120.05	91.37	102.23	122.20

Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
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Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar
130	1	1	2	1	0	32.47	62.61	120.05	91.11	102.23	122.20
131	1	1	2	1	1	33.55	49.55	120.05	91.11	102.23	122.20
132	1	1	2	1	2	34.33	40.22	120.05	91.11	102.23	122.20
133	1	1	2	2	0	27.86	62.61	120.05	91.11	102.23	122.20
134	1	1	2	2	1	28.94	49.55	120.05	91.11	102.23	122.20
135	1	1	2	2	2	29.71	40.22	120.05	91.11	102.23	122.20
136	1	2	0	0	0	38.01	62.61	141.50	79.20	102.23	122.20
137	1	2	0	0	1	39.09	49.55	141.50	79.20	102.23	122.20
138	1	2	0	0	2	39.86	40.22	141.50	79.20	102.23	122.20
139	1	2	0	1	0	32.47	62.61	141.50	78.94	102.23	122.20
140	1	2	0	1	1	33.55	49.55	141.50	78.94	102.23	122.20
141	1	2	0	1	2	34.33	40.22	141.50	78.94	102.23	122.20
142	1	2	0	2	0	27.86	62.61	141.50	78.94	102.23	122.20
143	1	2	0	2	1	28.94	49.55	141.50	78.94	102.23	122.20
144	1	2	0	2	2	29.71	40.22	141.50	78.94	102.23	122.20
145	1	2	1	0	0	38.01	62.61	141.50	90.05	102.23	122.20
146	1	2	1	0	1	39.09	49.55	141.50	90.05	102.23	122.20
147	1	2	1	0	2	39.86	40.22	141.50	90.05	102.23	122.20
148	1	2	1	1	0	32.47	62.61	141.50	89.79	102.23	122.20
149	1	2	1	1	1	33.55	49.55	141.50	89.79	102.23	122.20
150	1	2	1	1	2	34.33	40.22	141.50	89.79	102.23	122.20
151	1	2	1	2	0	27.86	62.61	141.50	89.79	102.23	122.20
152	1	2	1	2	1	28.94	49.55	141.50	89.79	102.23	122.20
153	1	2	1	2	2	29.71	40.22	141.50	89.79	102.23	122.20
154	1	2	2	0	0	38.01	62.61	141.50	100.90	102.23	122.20
155	1	2	2	0	1	39.09	49.55	141.50	100.90	102.23	122.20
156	1	2	2	0	2	39.86	40.22	141.50	100.90	102.23	122.20
157	1	2	2	1	0	32.47	62.61	141.50	100.64	102.23	122.20
158	1	2	2	1	1	33.55	49.55	141.50	100.64	102.23	122.20
159	1	2	2	1	2	34.33	40.22	141.50	100.64	102.23	122.20
160	1	2	2	2	0	27.86	62.61	141.50	100.64	102.23	122.20
161	1	2	2	2	1	28.94	49.55	141.50	100.64	102.23	122.20
162	1	2	2	2	2	29.71	40.22	141.50	100.64	102.23	122.20
Scenario	PTC Value	Carbon Dioxide	Natural Gas	KS Wind CF	MO Wind CF	Grain Belt Project	Missouri Wind	Pulverized Coal	Combined Cycle Gas	Nuclear	Utility-scale Solar