

State	Result		Key inputs				Gas CO2 emissions per MMBtu delivered heat					Electricity CO2 emissions per MMBtu delivered heat		
	2020 Purchase - Heat pump vs. gas emissions		City for COP evaluation	Heating season-weighted COP	Electricity region - for emissions intensity	Average electricity emissions intensity, lbs/MWh, 2020-2036	Delivered heat (MMBtu)	Gas AFUE	Gas delivered (MMBtu)	Gas emissions factor (lbs CO2 per MMBtu)	Lbs CO2 emitted	Delivered heat (MWh)	Electric energy delivered (MWh)	Lbs CO2 emitted
AL	-51.5%		Birmingham	3.15	AL	677	1	90%	1.11	117	130	0.29	0.093	63
AR	-35.5%		Little Rock	3.02	MISO/SPP	864	1	90%	1.11	117	130	0.29	0.097	84
AZ	-53.6%		Phoenix	3.45	AZ	710	1	90%	1.11	117	130	0.29	0.085	60
CA	-83.2%		Los Angeles	4.06	CA ISO	303	1	90%	1.11	117	130	0.29	0.072	22
CO	-8.1%	1,055	Denver	2.73	CO	1,055	1	95%	1.05	117	123	0.29	0.107	113
CT	-62.0%		Bridgeport	2.83	ISO NE	451	1	95%	1.05	117	123	0.29	0.104	47
DC	-46.1%		Washington DC	2.98	PJM	712	1	90%	1.11	117	130	0.29	0.098	70
DE	-41.4%		Wilmington	2.89	PJM	712	1	95%	1.05	117	123	0.29	0.101	72
FL	-56.8%		Jacksonville	3.58	FL	686	1	90%	1.11	117	130	0.29	0.082	56
GA	-59.6%		Atlanta	3.10	GA	555	1	90%	1.11	117	130	0.29	0.095	52
IA	-14.9%		Des Moines	2.46	MISO	880	1	95%	1.05	117	123	0.29	0.119	105
ID	-60.7%		Boise	2.91	ID	480	1	95%	1.05	117	123	0.29	0.101	48
IL	-18.9%		Chicago	2.58	MISO	880	1	95%	1.05	117	123	0.29	0.114	100
IN	-18.5%		Indianapolis	2.57	MISO	880	1	95%	1.05	117	123	0.29	0.114	100
KS	-33.8%		Wichita	2.90	SPP	807	1	95%	1.05	117	123	0.29	0.101	82
KY	-39.1%		Louisville	2.87	KY/PJM	735	1	95%	1.05	117	123	0.29	0.102	75
LA	-42.0%		New Orleans	3.42	MISO	880	1	90%	1.11	117	130	0.29	0.086	75
MA	-61.4%		Boston	2.78	ISO NE	451	1	95%	1.05	117	123	0.29	0.105	48
MD	-41.4%		Baltimore	2.89	PJM	712	1	95%	1.05	117	123	0.29	0.101	72
ME	-58.5%		Portland	2.59	ISO NE	451	1	95%	1.05	117	123	0.29	0.113	51
MI	-20.4%		Detroit	2.63	MISO	880	1	95%	1.05	117	123	0.29	0.111	98
MN	-10.5%		Minneapolis	2.34	MISO	880	1	95%	1.05	117	123	0.29	0.125	110
MO	-21.0%		Kansas City	2.60	MISO/SPP	864	1	95%	1.05	117	123	0.29	0.113	97
MS	-37.8%		Jackson	3.19	MISO	880	1	90%	1.11	117	130	0.29	0.092	81
MT	-58.6%		Billings	2.53	MT	440	1	95%	1.05	117	123	0.29	0.116	51
NC	-57.9%		Charlotte	3.12	NC	583	1	90%	1.11	117	130	0.29	0.094	55
ND	-0.2%		Fargo	2.06	MISO/SPP	864	1	95%	1.05	117	123	0.29	0.142	123
NE	-25.3%		Omaha	2.57	SPP	807	1	95%	1.05	117	123	0.29	0.114	92
NH	-60.2%		Manchester	2.70	ISO NE	451	1	95%	1.05	117	123	0.29	0.109	49
NJ	-40.3%		Newark	2.84	PJM	712	1	95%	1.05	117	123	0.29	0.103	73
NM	-38.3%		Albuquerque	2.81	NM	728	1	95%	1.05	117	123	0.29	0.104	76
NV	-52.4%		Las Vegas	2.81	NV	562	1	95%	1.05	117	123	0.29	0.104	59
NY	-75.3%		New York City	2.92	NYISO	303	1	95%	1.05	117	123	0.29	0.100	30
OH	-37.3%		Columbus	2.70	PJM	712	1	95%	1.05	117	123	0.29	0.109	77
OK	-37.9%		Oklahoma City	2.93	SPP	807	1	90%	1.11	117	130	0.29	0.100	81
OR	-87.5%		Portland	3.36	OR	187	1	90%	1.11	117	130	0.29	0.087	16
PA	-40.8%		Philadelphia	2.86	PJM	712	1	95%	1.05	117	123	0.29	0.102	73
RI	-61.5%		Providence	2.79	ISO NE	451	1	95%	1.05	117	123	0.29	0.105	47
SC	-73.5%		Charleston	3.25	SC	382	1	90%	1.11	117	130	0.29	0.090	34
SD	-20.6%		Sioux Falls	2.42	SPP	807	1	95%	1.05	117	123	0.29	0.121	98
TN	-60.7%		Nashville	2.94	TN	513	1	90%	1.11	117	130	0.29	0.100	51
TX	-58.7%		Houston	3.39	TX	621	1	90%	1.11	117	130	0.29	0.086	54
UT	8.7%	1,315	Salt Lake City	2.88	UT	1,315	1	95%	1.05	117	123	0.29	0.102	134
VA	-47.4%		Virginia Beach	3.05	PJM	712	1	90%	1.11	117	130	0.29	0.096	68
VT	-57.0%		Burlington	2.50	ISO NE	451	1	95%	1.05	117	123	0.29	0.117	53
WA	-93.5%		Seattle	2.90	WA	79	1	95%	1.05	117	123	0.29	0.101	8
WI	-16.9%		Milwaukee	2.52	MISO	880	1	95%	1.05	117	123	0.29	0.116	102
WV	-50.6%		Charleston	3.25	PJM	712	1	90%	1.11	117	130	0.29	0.090	64
WY	64.1%	1,780	Cheyenne	2.58	WY	1,780	1	95%	1.05	117	123	0.29	0.114	202