

ENERGYGUIDE

EXTRA HIGH EFFICIENCY GROUND WATER HEAT PUMP

MODELS

WPV24

WPV30B

WPV36B

WPV53B

WPV62B

BARD MANUFACTURING COMPANY, BOX 607, BRYAN, OHIO 43506

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**MANUAL 2100-185 REV. A
SUPERSEDES REV.**

ENERGYGUIDE INFORMATION

The cost grids on the fact sheets are based upon representative incremental rates that should correspond to the type of fuel being considered.

IMPORTANT: All cost grid data are "estimated yearly operating costs". Your actual yearly operating costs are dependent upon such factors as weather severity, routine maintenance items affecting operating efficiency (filters, blowers, etc.), actual heat loss of structure, desired indoor temperatures, living patterns of the occupants, and other items affecting operating time of the heating appliance.

To use the cost grids, it is necessary to know the heat loss of your home or building and the energy rate for your area. If not already know, the heat loss can be calculated by the dealer, builder, architect, etc., and the current energy rates obtained from the appropriate local utility.

Even without the specific information listed above, the cost of operation of competitive models can be compared by using similarly rated input models and their respective fact sheets and using the same heat loss of house and energy cost values on each fact sheet.

An example of how to use the enclosed information is as follows:

Geographic Location:	Ohio--From Region Map: Region IV
Heat Loss of Building:	70,000 Btu/h
Heat Appliance Model Desired:	WPV53B

Consulting the Region IV cost grid (1) and moving down the 70,000 Btu/h (2) column to the \$.110 cost per kilowatt hour line (closest value to actual cost determined by contacting local utility) (3), the estimated cost per year to operate is \$1,437.00.(4)

		* HEAT LOSS OF HOUSE (1000 BTU HR) *				
		40	50	60	70(2)	80
		* ESTIMATED \$ PER YEAR TO OPERATE *				
Cost	\$.050	386	470	554	653	770
Per	\$.070	541	658	776	915	1078
Kilowatt	\$.090	695	846	998	1176	1386
Hour	\$.110(3)	850	1034	1219	1437(4)	1693
	\$.130	1004	1222	1441	1698	2001
	\$.150	1158	1409	1662	1959	2309
\$Cost based on region (1)		Heating load hours (2250)				

BARD MANUFACTURING COMPANY
BRYAN, OHIO 43506

EXTRA HIGH EFFICIENCY
GROUND WATER HEAT PUMP

MODEL MPV24

Cooling and Heating Capacity
And Efficiency At
4 Gallons Per Minute
(GPM Water Flow)

Ground Water Temp °F	COOLING	
	BTUH (1) EER	(2) EER
50°	<u>22400</u>	<u>17.9</u> 14.35
70°	<u>21400</u>	<u>14.65</u> 12.10

°F	HEATING	
	BTUH (1) COP	(2) COP
50°	<u>19400</u>	<u>3.80</u> 3.10
70°	<u>24200</u>	<u>4.50</u> 3.85

(1) Unit only rating without well water pump watts included.

(2) Unit rating which includes watt allowance for water pumping in accordance with ARI Standard 325.

ESTIMATED ANNUAL HEATING COST
BASED ON AVERAGE GROUND WATER
TEMPERATURES IN EACH REGION

* HEAT LOSS OF HOUSE(1000 BTU HR) *
10 15
* ESTIMATED \$ PER YEAR TO OPERATE *

COST \$.050
PER \$.070
KILOWATT \$.090
HOURLY \$.110
\$.130
\$.150

\$ COST BASED ON REGION (1) HEATING LOAD HRS. (750)

* HEAT LOSS OF HOUSE(1000 BTU HR) *
10 15 20 25
* ESTIMATED \$ PER YEAR TO OPERATE *

COST \$.050
PER \$.070
KILOWATT \$.090
HOURLY \$.110
\$.130
\$.150

\$ COST BASED ON REGION (2) HEATING LOAD HRS. (1250)

* HEAT LOSS OF HOUSE(1000 BTU HR) *
15 20 25 30
* ESTIMATED \$ PER YEAR TO OPERATE *

COST \$.050
PER \$.070
KILOWATT \$.090
HOURLY \$.110
\$.130
\$.150

\$ COST BASED ON REGION (3) HEATING LOAD HRS. (1750)

* HEAT LOSS OF HOUSE(1000 BTU HR) *
20 25 30 35
* ESTIMATED \$ PER YEAR TO OPERATE *

COST \$.050
PER \$.070
KILOWATT \$.090
HOURLY \$.110
\$.130
\$.150

\$ COST BASED ON REGION (4) HEATING LOAD HRS. (2250)

* HEAT LOSS OF HOUSE(1000 BTU HR) *
20 25 30 35 40
* ESTIMATED \$ PER YEAR TO OPERATE *

COST \$.050
PER \$.070
KILOWATT \$.090
HOURLY \$.110
\$.130
\$.150

\$ COST BASED ON REGION (5) HEATING LOAD HRS. (2750)

These are estimated costs only, presented for comparison purposes and may vary due to actual water temperature, accuracy of heating load estimates and individual living patterns.

BARD MANUFACTURING COMPANY
BRYAN, OHIO 43506

EXTRA HIGH EFFICIENCY
GROUND WATER HEAT PUMP

MODEL WPV30B

Cooling and Heating Capacity
And Efficiency At
4 Gallons Per Minute
(GPM Water Flow)

Ground Water Temp °F	COOLING	
	BTUH (1) EER	(2) EER
50°	<u>31000</u>	<u>16.1</u> 13.8
70°	<u>27400</u>	<u>12.7</u> 11.0

°F	HEATING	
	BTUH (1) COP	(2) COP
50°	<u>23400</u>	<u>3.43</u> 2.9
70°	<u>30000</u>	<u>3.91</u> 3.4

(1) Unit only rating without well water pump watts included.

(2) Unit rating which includes watt allowance for water pumping in accordance with ARI Standard 325.

ESTIMATED ANNUAL HEATING COST
BASED ON AVERAGE GROUND WATER
TEMPERATURES IN EACH REGION

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	10	15	20	25	30	35
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130	\$.150
* ESTIMATED \$ PER YEAR TO OPERATE *	33	47	61	75	89	103

‡ COST BASED ON REGION (1) HEATING LOAD HRS. (750)

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	15	20	25	30	35
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	79	102	124	147	170

‡ COST BASED ON REGION (2) HEATING LOAD HRS. (1250)

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	15	20	25	30	35
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	111	144	175	207	241

‡ COST BASED ON REGION (3) HEATING LOAD HRS. (1750)

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	20	25	30	35	40
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	188	228	269	315	370

‡ COST BASED ON REGION (4) HEATING LOAD HRS. (2250)

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	20	25	30	35	40	50
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130	\$.150
* ESTIMATED \$ PER YEAR TO OPERATE *	255	312	368	427	497	669

‡ COST BASED ON REGION (5) HEATING LOAD HRS. (2750)

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BARD MANUFACTURING COMPANY
BRYAN, OHIO 43506

EXTRA HIGH EFFICIENCY
GROUND WATER HEAT PUMP

MODEL MPV36B

Cooling and Heating Capacity
And Efficiency At
5 Gallons Per Minute
(GPM Water Flow)

Ground Water Temp °F	COOLING	
	BTUH (1) EER	(2) EER
50°	<u>41000</u>	<u>15.6</u>
70°	<u>36000</u>	<u>12.1</u>
		<u>10.8</u>

°F	HEATING	
	BTUH (1) COP	(2) COP
50°	<u>33600</u>	<u>3.39</u>
70°	<u>42000</u>	<u>3.79</u>
		<u>3.3</u>

(1) Unit only rating without well water pump watts included.

(2) Unit rating white includes watt allowance for water pumping in accordance with ARI Standard 325.

ESTIMATED ANNUAL HEATING COST
BASED ON AVERAGE GROUND WATER
TEMPERATURES IN EACH REGION

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	15	20	25	30
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110
* ESTIMATED \$ PER YEAR TO OPERATE *	48	63	77	91
* HEATING LOAD HRS. (750)	15	20	25	30

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	20	25	30	35	40
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	105	129	151	173	196
* HEATING LOAD HRS. (1250)	20	25	30	35	40

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	25	30	35	40	50
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	182	214	245	276	342
* HEATING LOAD HRS. (1750)	25	30	35	40	50

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	30	35	40	50	60
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130
* ESTIMATED \$ PER YEAR TO OPERATE *	280	320	360	445	551
* HEATING LOAD HRS. (2250)	30	35	40	50	60

* HEAT LOSS OF HOUSE(1000 BTU HR) *

	30	35	40	50	60	70
COST PER KILOWATT HOUR	\$.050	\$.070	\$.090	\$.110	\$.130	\$.150
* ESTIMATED \$ PER YEAR TO OPERATE *	380	437	493	607	741	906
* HEATING LOAD HRS. (2750)	30	35	40	50	60	70

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BRYAN, OHIO 43506

EXTRA HIGH EFFICIENCY
GROUND WATER HEAT PUMP

MODEL WPV53B

Cooling and Heating Capacity
And Efficiency At
6 Gallons Per Minute
(GPM Water Flow)

Ground Water Temp °F	COOLING	
	BTUH (1) EER	(2) EER
50°	<u>56000</u>	<u>16.1</u> 13.4
70°	<u>51000</u>	<u>12.7</u> 10.8

°F	HEATING	
	BTUH (1) COP	(2) COP
50°	<u>44500</u>	<u>3.43</u> 3.0
70°	<u>57000</u>	<u>3.91</u> 3.3

(1) Unit only rating without well water pump watts included.

(2) Unit rating which includes watt allowance for water pumping in accordance with ARI Standard 325.

ESTIMATED ANNUAL HEATING COST
BASED ON AVERAGE GROUND WATER
TEMPERATURES IN EACH REGION

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	20	25	30	35	40
\$.050	67	82	97	111	125
\$.070	94	115	136	156	175
\$.090	120	148	174	200	225
\$.110	147	180	213	244	275
\$.130	173	213	251	288	325
\$.150	200	246	290	333	375

* COST BASED ON REGION (1) HEATING LOAD HRS. (750)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	25	30	35	40	50
\$.050	137	162	186	209	255
\$.070	192	227	260	293	357
\$.090	247	291	335	377	459
\$.110	301	356	409	460	561
\$.130	356	421	483	544	663
\$.150	411	485	557	627	765

* COST BASED ON REGION (2) HEATING LOAD HRS. (1250)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	35	40	50	60	70
\$.050	263	296	360	427	501
\$.070	367	414	504	597	702
\$.090	472	532	648	767	902
\$.110	577	650	792	938	1103
\$.130	682	768	936	1108	1303
\$.150	787	886	1080	1279	1503

* COST BASED ON REGION (3) HEATING LOAD HRS. (1750)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	40	50	60	70	80
\$.050	386	470	554	653	770
\$.070	541	658	776	915	1078
\$.090	695	846	998	1176	1386
\$.110	850	1034	1219	1437	1693
\$.130	1004	1222	1441	1698	2001
\$.150	1158	1409	1662	1959	2309

* COST BASED ON REGION (4) HEATING LOAD HRS. (2250)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	40	50	60	70	80
\$.050	522	639	755	879	1027
\$.070	732	895	1057	1231	1438
\$.090	941	1150	1359	1582	1848
\$.110	1150	1406	1661	1934	2259
\$.130	1359	1661	1963	2285	2669
\$.150	1568	1917	2265	2636	3080

* COST BASED ON REGION (5) HEATING LOAD HRS. (2750)

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EXTRA HIGH EFFICIENCY
GROUND WATER HEAT PUMP

MODEL MPV62B

Cooling and Heating Capacity
And Efficiency At
8 Gallons Per Minute
(GPM Water Flow)

Ground Water Temp °F	COOLING	
	BTUH (1) EER	(2) EER
50°	<u>64000</u>	<u>14.1</u> <u>12.5</u>
70°	<u>59000</u>	<u>11.2</u> <u>10.0</u>

°F	HEATING	
	BTUH (1) COP	(2) COP
50°	<u>52000</u>	<u>3.03</u> <u>2.7</u>
70°	<u>67000</u>	<u>3.29</u> <u>3.0</u>

(1) Unit only rating without well water
pump watts included.

(2) Unit rating which includes watt allowance
for water pumping in accordance with ARI
Standard 325.

ESTIMATED ANNUAL HEATING COST
BASED ON AVERAGE GROUND WATER
TEMPERATURES IN EACH REGION

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	20	25	30	35	40
\$.050	73	89	106	121	137
\$.070	102	125	148	170	191
\$.090	130	160	190	216	246
\$.110	159	196	232	267	300
\$.130	188	232	274	315	355
\$.150	217	267	316	363	409

* ESTIMATED \$ PER YEAR TO OPERATE *

\$ COST BASED ON REGION (1) HEATING LOAD HRS. (750)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	30	35	40	50	60
\$.050	177	203	229	279	328
\$.070	247	284	320	390	459
\$.090	317	365	412	502	590
\$.110	388	446	503	613	721
\$.130	458	527	595	724	852
\$.150	529	608	686	836	983

* ESTIMATED \$ PER YEAR TO OPERATE *

\$ COST BASED ON REGION (2) HEATING LOAD HRS. (1250)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	40	50	60	70	80
\$.050	323	394	463	534	611
\$.070	452	551	648	747	855
\$.090	581	708	833	960	1100
\$.110	710	866	1018	1174	1344
\$.130	839	1023	1203	1387	1588
\$.150	968	1180	1388	1600	1832

* ESTIMATED \$ PER YEAR TO OPERATE *

\$ COST BASED ON REGION (3) HEATING LOAD HRS. (1750)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	50	60	70	80	90
\$.050	514	603	693	795	912
\$.070	719	843	970	1113	1277
\$.090	924	1084	1247	1431	1642
\$.110	1129	1325	1523	1749	2007
\$.130	1335	1566	1800	2067	2371
\$.150	1540	1807	2077	2385	2736

* ESTIMATED \$ PER YEAR TO OPERATE *

\$ COST BASED ON REGION (4) HEATING LOAD HRS. (2250)

COST PER KILOWATT HOUR	* HEAT LOSS OF HOUSE(1000 BTU HR) *				
	50	60	70	80	90
\$.050	689	812	934	1062	1210
\$.070	965	1136	1307	1487	1694
\$.090	1240	1460	1681	1912	2178
\$.110	1515	1785	2054	2336	2661
\$.130	1791	2109	2428	2761	3145
\$.150	2066	2434	2801	3185	3629

* ESTIMATED \$ PER YEAR TO OPERATE *

\$ COST BASED ON REGION (5) HEATING LOAD HRS. (2750)

These are estimated costs only, presented
for comparison purposes and may vary due to
actual water temperature, accuracy of heating
load estimates and individual living patterns.