For personal visits, the individual should be able to provide some acceptable identification such as driver's license, or military or other identification card.

CONTESTING RECORD PROCEDURES:

The DLA rules for accessing records and for contesting contents and appealing initial agency determinations are published in DLA Regulation 5400.21; 32 CFR part 323; or may be obtained from the Privacy Act Officer.

RECORD SOURCE CATEGORIES:

The Military Services, DOD Components, the U.S. Coast Guard, and from the subject individual via application into the program.

EXEMPTIONS CLAIMED FOR THE SYSTEM:

None.

[FR Doc. 95–19549 Filed 8–7–95; 8:45 am]
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DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

Energy Conservation Program for Consumer Products: Granting of NORDYNE's Application for Interim Waiver from the Department of Energy's Central Air Conditioner and Central Air Conditioning Heat Pump Test Procedure and Publication of the Petition for Waiver. (Case No. CAC–007)

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notice.

SUMMARY: Today's notice publishes a letter granting an Interim Waiver to NORDYNE from the existing Department of Energy central air conditioner and central air conditioning heat pump test procedure for the company's Powermiser line of heat pumps with integrated domestic water heating.

Today's notice also publishes a ''Petition for Waiver'' from NORDYNE. The Petition for Waiver requests the Department to modify the heat pump test procedure for the NORDYNE Powermiser line of heat pumps which include special design characteristics to incorporate domestic water heating. The Department is soliciting comments, data, and information respecting the Petition for Waiver.

DATES: The Department will accept comments, data, and information not later than September 7, 1995.

ADDRESSES: Written comments and statements shall be sent to: Department of Energy, Office of Energy Efficiency and Renewable Energy, Case No. CAC–007, Mail Stop EE–43, Room 1J–018, Forrestal Building, 1000 Independence Avenue, SW, Washington, DC 20585, (202) 586–7574.

FOR FURTHER INFORMATION CONTACT:

Michael G. Raymond, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Mail Station EE–431, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586–9611

Eugene Margolis, Esq., U.S. Department of Energy, Office of General Counsel, Mail Station GC–72, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586–9507

SUPPLEMENTARY INFORMATION: The Energy Conservation Program for Consumer Products (other than automobiles) was established pursuant to the Energy Policy and Conservation Act (EPCA), Public Law 94–163, 89 Stat. 917, as amended by the National Energy Conservation Policy Act (NECPA), Public Law 95–619, 92 Stat. 3266, the National Appliance Energy Conservation Act of 1987 (NAECA), Public Law 100–12, the National Appliance Energy Conservation Amendments of 1988 (NAECA 1988), Public Law 100–357, and the Energy Policy Act of 1992 (EPACT), Public Law 102–486, 106 Stat. 2776, which requires the Department to prescribe standardized test procedures to measure the energy consumption of certain consumer products, including heat pumps. The intent of the test procedures is to provide a comparable measure of energy consumption that will assist consumers in making purchasing decisions. The test procedures for central air conditioners and central air conditioning heat pumps appear at 10 CFR Part 430, Subpart B, Appendix M.

The Department amended the prescribed test procedures by adding 10 CFR 430.27 on September 26, 1980, creating the waiver process. 45 FR 64108. The Department further amended the appliance test procedure waiver process to allow the Assistant Secretary for Energy Efficiency and Renewable Energy (Assistant Secretary) to grant an Interim Waiver from test procedure requirements to manufacturers that have petitioned the Department for a waiver of such prescribed test procedures. 51 FR 42823, November 26, 1986.

The waiver process allows the Assistant Secretary to temporarily waive test procedures for a particular basic model when a petitioner shows that the basic model contains one or more design characteristics which prevent testing according to the prescribed test procedures, or when the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption as to provide materially inaccurate comparative data. Waivers generally remain in effect until final test procedure amendments become effective, resolving the problem that is the subject of the waiver.

The Interim Waiver provisions added by the 1986 amendment allow the Secretary to grant an Interim Waiver when it is determined that the applicant will experience economic hardship if the Application for Interim Waiver is denied, if it appears likely that the Petition for Waiver will be granted, and/or the Assistant Secretary determines that it would be desirable for public policy reasons to grant immediate relief pending a determination on the Petition for Waiver. An Interim Waiver remains in effect for a period of 180 days, or until the Department issues its determination on the Petition for Waiver, whichever is sooner, and may be extended for an additional 180 days, if necessary.

On January 24, 1995, NORDYNE filed a Petition for Waiver and an Application for Interim Waiver regarding the heat pump tests. NORDYNE's Petition seeks a Waiver from the Department's test procedure because, using the test procedure, the company cannot account for the energy savings associated with integrated water heating. NORDYNE has submitted a modified test procedure to be used for rating its Powermiser heat pumps. NORDYNE proposes to calculate, in addition to the standard SEER and HSPF, a Combined Cooling Performance Factor (CCPF) and a Combined Heating Performance Factor (CHPF). These performance factors reflect the energy efficiency of the heat pump when providing both space conditioning and domestic water heating. The heating and cooling mode test procedures are essentially the same as the current Department central air conditioner test procedures found in 10 CFR Part 430, Subpart B, Appendix M. The NORDYNE test procedures for the heating and cooling modes differ from the Department's in their use of a bin analysis for SEER, and the use of seasonal hours rather than fractional hours for HSPF. NORDYNE states in its Petition that the modified test procedure for SEER and HSPF ''yields a nearly identical result and provides a directly comparable base for use in determining energy savings associated with water heating.'' In addition, NORDYNE submitted tests and a rating procedure to determine the performance of the heat pump when it heats domestic water (whether or not space heating or cooling is also being provided).

NORDYNE also applied for an Interim Waiver, stating:

• The current test procedure does not account for the total energy savings of the Powermiser;

• Carrier Corporation has been granted a similar waiver for its Hydrotech product;

• For public policy reasons, the widespread use of this type of integrated appliance would be in direct support of the President's Climate Change Action Plan, which lists heating and cooling and home appliances as key targets for improvement; and

• Absent a favorable determination on the Application for Interim Waiver, NORDYNE would experience an economic hardship, as discussed in the confidential statement filed simultaneously.

The Department agrees that the current test procedure does not account for the total energy savings of the Powermiser. A previous waiver for this type of equipment was granted by the Department to Carrier Corporation for its HydroTech 2000, 55 FR 13607, April 11, 1990. Thus, it appears likely that the Petition for Waiver will be granted.

In those instances where the likely success of the Petition for Waiver has been demonstrated based upon the Department having granted a waiver for a similar product design, it is in the public interest to have similar products tested and rated for energy consumption on a comparable basis.

Further, NORDYNE has supplied evidence of economic hardship if the Interim Waiver is not granted. NORDYNE's confidential statement claims a substantial investment in the Powermiser for research and development, tooling, production, sales and marketing. The Powermiser investment represents a large fraction of NORDYNE's annual income. Until the Interim Waiver is granted, NORDYNE is not able to realize any return on its investment.

Based on the statements above, the Department is granting an Interim Waiver to NORDYNE for its Powermiser series integrated heat pumps. Pursuant to paragraph (e) of Section 430.27 of the Code of Federal Regulations part 430, the following letter granting the Application for Interim Waiver to NORDYNE was issued.

Pursuant to paragraph (b) of 10 CFR Part 430.27, the Department is hereby publishing the ''Petition for Waiver.'' The Petition contains confidential company information; thus, the confidential attachment submitted by NORDYNE is not being published. Due to its length (39 pages), NORDYNE's proposed alternate test procedure is not being published in the **Federal Register**. It is, however, available upon request at the address provided at the beginning of today's notice. NORDYNE has sent a copy of the Petition for Waiver and a copy of the Application for Interim Waiver to all known manufacturers of domestically marketed units of the same product type . A summary of the NORDYNE alternate test procedure is included in the letter to NORDYNE granting the Application for Interim Waiver, which is published with this **Federal Register** Notice.

The Department solicits comments, data, and information respecting the Petition.

Issued in Washington, DC., July 10, 1995.

Christine A. Ervin,

Assistant Secretary, Energy Efficiency and Renewable Energy.

July 10, 1995.

Mr. Wayne R. Reedy, Vice President—Engineering

NORDYNE, 1801 Park 270 Drive, P.O. Box 46911, St. Louis, MO 63146–6911.

Dear Mr. Reedy: This is in response to your letter of January 24, 1995, submitting an Application for Interim Waiver and Petition for Waiver from the Department of Energy's central air conditioner and central air conditioning heat pump test procedure for NORDYNE's Powermiser line of heat pumps, which include special design characteristics to incorporate domestic water heating.

The current test procedure does not account for the energy savings associated with integrated water heating. A previous waiver for this type of equipment has been granted to Carrier Corporation, 55 FR 13607, April 11, 1990. Thus, it appears likely that the Petition for Waiver will be granted.

In those instances where the likely success of the Petition for Waiver has been demonstrated based upon the Department having granted a waiver for a similar product design, it is in the public interest to have similar products tested and rated for energy consumption on a comparable basis.

Further, NORDYNE's Application for Interim Waiver provides sufficient information to determine that NORDYNE has and will continue to experience a severe negative economic impact absent a favorable determination on its Application. NORDYNE's confidential statement claims a substantial investment in the Powermiser for research and development, tooling, production, sales and marketing. The Powermiser investment represents a large fraction of NORDYNE's annual income, and NORDYNE is not able to realize any return on this investment until the Interim Waiver is granted.

Therefore, based on the above, NORDYNE's Application for an Interim Waiver to modify the Department's test procedure for its Powermiser line of heat pumps with integrated domestic water heating is granted.

NORDYNE shall be required to test its Powermiser line of heat pumps on the basis of the test procedures specified in 10 CFR Part 430, Subpart B, Appendix M, as modified by additional tests and ratings described in its proposed alternate test procedure, to determine the performance of the heat pump when it operates for the heating of domestic water, either concurrently with or separate from the space heating and cooling modes.

The alternate test procedure is summarized in Attachment A, attached hereto.

This Interim Waiver is based upon the presumed validity of statements and all allegations submitted by the company. This Interim Waiver may be removed or modified at any time upon a determination that the factual basis underlying the application is incorrect.

The Interim Waiver shall remain in effect for a period of 180 days, or until the Department acts on the Petition for Waiver, whichever is sooner, and may be extended for an additional 180-day period, if necessary.

Best regards,

Christine A. Ervin,

Assistant Secretary, Energy Efficiency and Renewable Energy.

Attachment A

Type of Equipment To Be Covered

The test procedure described herein applies to electrically-driven, single-speed compressor air-to-air heat pumps having a nominal cooling capacity of 65,000 BTU/Hr or less that include an integral heat exchanger and water pump for the heating of domestic water, either concurrent with or separate from the space heating and cooling modes.

Test Points and Procedures

Standard ratings shall be established in accordance with 10 CFR Part 430, Subpart B, Appendix M, ''Uniform Test Method for Measuring the Energy Consumption of Central Air Conditioners.'' Procedures will also be compatible with ''Methods of Testing for Efficiency of Space-Conditioning Water Heating Appliances that include a Desuperheater Water Heater'' ASHRAE Standards Project Committee 137P (under development).

In addition to the standard ratings, tests and a rating procedure are described to determine the performance of the heat pump when it operates for the heating of domestic water, either concurrently with or separate from the space heating and cooling modes.

Table 1 specifies the operating conditions for all of the tests covered by the present test plan, along with their operating and water draw schedules as Tables 2, 3 and 4. These tests are summarized as follows:

Space Cooling Mode, Tests 1, 5, 6 and 7

Test 1 (required) is identical to the Department Test A, Test 5 (required) is identical to Department Test B, Test 6 (optional) is identical to Department Test C, and Test 7 (optional) is identical to Department Test D, except for the following: The refrigerant-to-water heat exchanger is filled with water. In order to not have the water pump cycle on during tests 1 and 5, it may be necessary to disable the water pump. If natural convection within the water system proves significant, it will be necessary to close an isolation valve between the heat pump and the water heater tank.

Space Heating Mode, Tests 11, 12, 13 and 15

Test 11 (required) is identical to the Department High Temperature Test, Test 12 (optional) is identical to the Department Cyclic Test, Test 13 (required) is identical to Department Frost Accumulation Test, and Test 15 (required) is identical to the Department Low Temperature Test, except for the following: the refrigerant-to-water heat exchanger is filled with water. In order to not have the water pump cycle on during tests 11, 13 and 15, it may be necessary to disable the water pump. If natural convection within the water system proves significant, it will be necessary to close an isolation valve between the heat pump and the water heater tank.

Space Cooling/Domestic Water Heating Mode, Tests 2 and 4

Test 2 is the Department Test A, combined with water heating. Air side conditions are held constant and the system runs continuously, while a series of water draws are imposed as outlined in Table 2.

Test 4 is the Department Test D, which involves cyclic operation of the heat pump, with a series of water draws imposed as outlined in Table 3.

The system cyclic schedule is for energizing of the compressor and indoor blower control terminal. Actual system operation will be controlled by the system internal controls. Depending on internal controls, the compressor and one of the system fans may start or continue to run irrespective of the compressor terminal being energized. There shall be no air flow through the coil with the idle fan. When the indoor blower is off, the duct shall be blocked.

Space Heating/Domestic Water Heating Mode, Tests 10 and 14

Test 10 is the Department Cyclic Test with a series of water draws imposed, as outlined in Table 3.

Test 14 is the Department Low Temperature Test combined with water heating. Air side conditions are held constant and the system runs continuously, while a series of water draws are imposed, as outlined in Table 2.

The system cyclic schedule is for energizing of the compressor and indoor blower control terminal. Actual system operation will be controlled by the system internal controls. Depending on internal controls, the compressor and one of the system fans may start or continue to run irrespective of the compressor terminal being energized. There shall be no air flow through the coil with the idle fan. When the indoor blower is off, the duct shall be blocked.

Domestic Water Heating Modes, Tests 3, 8 and 9

Tests 3, 8 and 9 involve cyclic operation of the heat pump in self-controlled response to a series of water draws, as outlined in Table 4.

Test 3 (required) uses the same conditions as the Department Test D, and will result in a cooling effect on the indoor room.

The conditions of Tests 8 and 9 (both required) are specified in Table 1. Their temperatures do not correspond to any Department tests, but, with the exception of the temperatures specified in Table 1, they shall follow the requirements of Department Test D.

Tests 8 and 9 will result in a cooling effect on the outdoor room (‘‘O’’ terminal de-energized). When the indoor blower is off, the ductwork shall be blocked.

In addition to the normal components required for indoor space heating and cooling, the unit shall be connected, as specified by the heat pump manufacturer, to a conventional electric domestic hot water storage tank. The hot water storage tank shall have a nominal rated volume of 52 gallons, with an actual internal volume of 47±1 gallons. The hot water storage tank shall have an Energy Factor (EF) rating that is within ±.02 of the EF specified as the Federal Energy Conservation Standard for 52 gallon electric water heaters, (presently 0.87), as determined by the Department test and rating standards, contain two electric heater elements each rated at nominal 4500 Watts and be connected to a source of supply water having a temperature of 58±2 °F. The electrical voltage supplied to the water heater shall be adjusted such that the measured electrical power input is 4275±75W when the lower resistive element is heating water. The water heater instrumentation: six internal thermocouples plus entering and leaving water temperature measurements and energy use, is to be installed according to the standard Department test and rating procedure. The water heater thermostats are to be replaced with manual controls operated to turn off the upper element at 135 °F and on at 115 °F based on the internal thermocouple located closest to the upper thermostat location. The lower element shall be operated, as specified by the heat pump manufacturer, but to turn off and on at not lower than 110 °F and 100 °F respectively (unless a new thermostat is supplied specifically for the purpose) based on the internal thermocouple located closest to the lower thermostat. The lower element shall also be controlled to not operate coincident with the upper element. The purpose of the manual controls is to simulate the normal thermostats, but with improved repeatability. The heat pump system shall be installed per the manufacturers installation instructions. Unless otherwise specified by the manufacturer, the water heater is to be installed in the indoor room, as is the compressor section, if it is separate from the outdoor unit. The water heater is to be connected to the compressor section with 15 feet of interconnecting tubing (30 feet total for two lines), insulated (both) with R4 insulation. The refrigerant sections are to be connected with a total of 25 feet of ¾″ insulated vapor line and 25 feet of ⅜″ uninsulated liquid line. The line lengths between the compressor section and the indoor coil shall be between 5 and 10 feet, with the balance of the 25 feet connected between the compressor section and the outdoor unit, with 10 feet located in the outdoor room.

Calculation of Seasonal Performance Factors

The overall performance of the integrated heat pump system shall be expressed in terms of seasonal performances. In addition to the Seasonal Energy Efficiency Ratio (SEER) and Heating Seasonal Performance Factor (HSPF) currently required by the Department, a Combined Cooling Performance Factor (CCPF) shall be calculated for the cooling season and a Combined Heating Performance Factor (CHPF) shall be calculated for the heating season. These two combined performance factors reflect the energy efficiency of the heat pump when providing both space conditioning and domestic water heating. The CCPF reflects the system's performance during the portion of the year that the outdoor air temperature is above 65 °F and the system will be providing space cooling and/or water heating. CHPF deals with the other portion of the year when the outdoor air temperature is below 65 °F and the system will be providing space heating and/or water heating. Both combined performance factors shall be calculated by means of a bin analysis as used for calculating the Heating Seasonal Performance Factor as described in 10 CFR Part 430, Subpart B, Appendix M, ¶ 5.2. The only changes to the actual referenced bin analysis are to extend it to account for the water heating functions, and to have it reflect calendar hours in addition to cooling and heating load hours, so that the water heating load can be fully accounted for.

The Seasonal Energy Efficiency Ratio (SEER) shall also be calculated by means of the bin analysis used for the Heating Seasonal Performance Factor, the CCPF and the CHPF. This is a slight departure from the referenced procedures method for calculating a SEER for units with single-speed compressors, but yields a nearly identical result and provides a directly comparable base for use in determining energy savings associated with water heating.

The Heating Seasonal Performance Factor (HSPF) shall also be calculated in the manner referenced above, with the exception that it is based on seasonal hours as opposed to fractional hours.

The Combined Cooling Performance Factor (CCPF) shall be calculated using the same general approach as presented in the Department/ARI/ASHRAE standards for non-water-heating equipment. The procedure relates the space cooling and water heating loads and the performance of the heat pump to outdoor air temperature. The output of the heat pump is balanced against the building and water heating load at each outdoor temperature bin above 65 °F to determine: (a) The fractional heat pump operating time spent in each temperature bin performing space cooling only; (b) the fractional heat pump operating time spent in each temperature bin performing combined space cooling and water heating; (c) the fractional heat pump operating time spent in each temperature bin performing dedicated water heating; and (d) the heat pump energy consumption rate for each mode of operation for each temperature bin.

The energy input to the domestic water is assumed to be distributed by temperature bin in proportion to the total hours of occurrence per bin. The performance of the heat pump by bin, and by mode of operation, is based on interpolation of test data taken at representative operating conditions. The total energy consumption of the heat pump will be increased as a result of the domestic water heating load. There will, however, be a net energy savings, which is expressed in terms of a Combined Cooling Performance Factor for space cooling and water heating, designated CCPF. CCPF is the sum of the total space cooling load and the total domestic water heating load during the cooling season, divided by the sum of the total energy consumption used for space cooling and water heating over the same period, expressed in Btu/Wh.

The Combined Cooling Performance Factor for space cooling and water heating shall be calculated similarly to the SEER:

$$\mathrm{CCPF} = \frac{\sum_{j=1}^{8} Q(T_j)}{\sum_{j=1}^{8} E(T_j)}$$

The terms *Q(Tj)* and *E(Tj)* are the system energy outputs and inputs respectively for the j^{th} outdoor temperature bin as defined in the cited Department regulations, and are composed of the various building and water heating loads and system energy inputs as follows:

$$Q(T_j) = BL(T_j) \times n_j + \dot{Q}_{kw}(T_j) \times n_j + \dot{Q}_{kw}(T_j) \times n_{dwcj}$$

Where *BL(Tj)* is the building space cooling load at the j^{th} outdoor bin temperature. $\dot{Q}_{hw}(T_j)$ is the water heating load in Btu/hr at the j^{th} outdoor bin temperature and is calculated from the hot water drawn from the water heater tank. It does not include the tank standby losses. The term n_{dwcj} is the number of extra hours for dedicated water heating with the outdoor temperature above 65 °F, distributed among the first three outdoor temperature bins inversely proportional to the building load. In equation form:

$$n_{dwcj,j=1,3} = N_{dwc} \times \frac{BL(T_{j,j=3,1})}{\sum_{j=1}^{3} BL(T_j)}$$

where N_{dwc} is the number of extra hours for dedicated water heating with the outdoor temperature above 65 °F. *E(Tj)* is the total system energy input for the j^{th} outdoor bin temperature, and is made up of the individual energy inputs for the applicable operating modes as follows:

$$E(T_j) = \frac{\left(X_1(T_j) \times \dot{E}_c(T_j) + X_2(T_j) \times \dot{E}_{ccw}(T_j) + X_3(T_j) \times \dot{E}_{wdc}(T_j)\right) \times n_j}{PLF(T_j)} + E_{auxw} - E_{sav} + E_{dwehc}$$

where:

$\dot{E}_c(T_j)$ = Heat pump steady-state power input in the space cooling only mode for outdoor temperature bin j.
$\dot{E}_{ccw}(T_j)$ = Heat pump steady-state power input in the combined cooling and water heating mode for outdoor temperature bin j.
$\dot{E}_{wdc}(T_j)$ = Heat pump steady-state power input in the dedicated water heating mode during the cooling season for outdoor temperature bin j.
E_{auxw} = Auxiliary energy input for water heating.
E_{sav} = Energy saved due to cooling effect during dedicated water heating.
E_{dwehc} = Energy input for water heating during the dedicated water heating extra hours period above 65 °F.
$X_1(Tj)$ = Load factor for space conditioning only mode for outdoor temperature bin j.
$X_2(Tj)$ = Load factor for combined space conditioning/water heating mode for outdoor temperature bin j.
$X_3(Tj)$ = Load factor for dedicated water heating mode for outdoor temperature bin j.
$PLF(T_j) = 1 - C_d \times (1 - X_1(T_j) \times X_2(T_j) - X_3(T_j))$ = the overall part-load factor for outdoor temperature bin j.
Cd = the coefficient of cyclic degradation for cooling.
n_j = the number of hours in the j^{th} outdoor temperature bin.

The steady-state electrical power input to the heat pump in the space cooling only mode is determined according to:

$$\dot{E}_c(T_j) = \dot{E}_c(82°F) + \frac{\dot{E}_c(95°F) - \dot{E}_c(82°F)}{(95-82)°F} \times (T_j - 82°F)$$

The steady-state heat pump space cooling capacity in the space cooling only mode is determined according to:

$$\dot{Q}_c(T_j) = \dot{Q}_c(82°F) + \frac{\dot{Q}_c(95°F) - \dot{Q}_c(82°F)}{(95-82)°F} \times (T_j - 82°F)$$

The steady-state heat pump space cooling capacity and water heating capacity in the combined cooling/water heating mode is determined according to:

$$\dot{Q}_{ccw}(T_j) = \dot{Q}_{ccw}(82°F) + \frac{\dot{Q}_{ccw}(95°F) - \dot{Q}_{ccw}(82°F)}{(95-82)°F} \times (T_j - 82°F)$$

$$\dot{Q}_{wcc}(T_j) = \dot{Q}_{wcc}(82°F) + \frac{\dot{Q}_{wcc}(95°F) - \dot{Q}_{wcc}(82°F)}{(95-82)°F} \times (T_j - 82°F)$$

The total steady-state electrical power input to the heat pump in the combined cooling/water heating mode is determined according to:

$$\dot{E}_{ccw}(T_j) = \dot{E}_{ccw}(82°F) \times PLF(Test4) + \frac{\dot{E}_{ccw}(95°F) - \dot{E}_{ccw}(82°F) \times PLF(Test4)}{(95-82)°F} \times (T_j - 82°F)$$

where:

$$PLF(Test4) = 1 - C_d \times (1 - LF(Test4))$$

with:

C_d = the cooling season coefficient of cyclic degradation.
LF(Test 4) = 0.5 = the load factor during the 82 °F combined cooling/water heating cyclic test.

The electrical power input to the heat pump at the 82°F cyclic test point is corrected (decreased) by the actual test part load factor (PLF) in order to make it consistent with the 95°F test point which is steady-state. Later bin analysis of energy use will interpolate between the 82°F and 95°F points and have the energy use for each bin increased by that bins' calculated PLF. This approach of the 95°F test being continuous compressor operation and the 82°F test being cyclic is most representative of actual field operation and provides the most representative water side conditions.

The steady-state heat pump water heating capacity in the dedicated water heating mode during the cooling season is determined according to:

$$\dot{Q}_{wdc} = \dot{Q}_{wdc}(82°F)$$

The steady-state electrical power input to the heat pump in the dedicated water heating mode during the cooling season is determined according to:

$$\dot{E}_{wdc}(T_j) = \dot{E}_{wdc}(82°F) \times PLF(Test3)$$

The performance of the heat pump in dedicated water heating during the cooling season is assumed constant because the heat source is the constant temperature indoor air. Because the test is cyclic, the actual test results are again corrected from the PLF of the test to the PLF of each temperature bin in the analysis.

$$\mathrm{PLF}(\mathrm{Test3}) = 1 - C_d \times \left(1 - \frac{t_{on}\,82^\circ\,\mathrm{F}}{t_{total}\,82^\circ\,\mathrm{F}}\right)$$

with:

C_d=the cooling season coefficient of cyclic degradation.

t_{on}82°F=the total compressor on time during the 82°F dedicated water heating cyclic test.

t_{total}82°F=the total time to conclusion of the 82°F dedicated water heating cyclic test.

The load factors for each mode of operation are determined as follows:

$$X_2(T_j) = \left\{ \begin{array}{c} \dfrac{BL(T_j)}{\dot{Q}_{ccw}(T_j)} \\ \text{or} \\ \dfrac{WL(T_j)}{\dot{Q}_{wcc}(T_j)} \end{array} \right\} \text{whichever is least.}$$

Following determination of $X_2(Tj)$,$X_1(Tj)$ and $X_3(Tj)$ are determined as follows:

$$X_1(T_j) = \left\{ \begin{array}{c} \dfrac{BL(T_j) - X_2(T_j) \times \dot{Q}_{ccw}(T_j)}{\dot{Q}_c(T_j)} \\ \text{or} \\ 1 - X_2(T_j) \end{array} \right\} \text{whichever is least.}$$

$$X_3(T_j) = \left\{ \begin{array}{c} \dfrac{WL(T_j) - X_2(T_j) \times \dot{Q}_{wcc}(T_j)}{\dot{Q}_{wdc}(T_j)} \\ \text{or} \\ 1 - X_2(T_j) \end{array} \right\} \text{whichever is least.}$$

The auxiliary energy input for water heating is then determined from:

$$E_{auxw} = \frac{WL(T_j) - X_2(T_j) \times \dot{Q}_{wcc}(T_j) - X_3(T_j) \times \dot{Q}_{wdc}(T_j)}{3.413 \times 0.98} \times n_j$$

Because the dedicated water heating mode during the cooling season removes heat from the space, there is a beneficial cooling effect. The energy saved by this cooling is calculated as:

$$E_{sav} = X_3(T_j) \times \dot{Q}_{cdw}(T_j) \times n_j \times \frac{\dot{E}_c(T_j)}{\dot{Q}_c(T_j)}$$

Lastly, the energy input for water heating during the dedicated water heating extra hours period above 65°F is calculated as:

$$E_{dwehc} = \frac{X_4(T_j) \times \dot{E}_{wdc}(T_j)}{PLF(T_j)} \times n_{dwcj} + E_{auxwehc}$$

where:

$$X_4(T_j) = \frac{WL(T_j)}{\dot{Q}_{wdc}(T_j)}$$

=Load factor for dedicated water heating mode for outdoor temperature bin j.

$\dot{E}_{wdc}(T_j)$=heat pump steady-state power input in the dedicated water heating mode during the cooling season for outdoor temperature bin j.

n_{dwcj}=the number of hours in the jth outdoor temperature bin for the dedicated water heating extra hours period above 65°F.

$PLF(T_j)=1 - C_d \times (1 - X_4(T_j))$=the part-load factor for outdoor temperature bin j.

C_d=the coefficient of cyclic degradation for cooling.

$$E_{auxwehc} = \frac{WL(T_j) - X_4(T_j) \times \dot{Q}_{wdc}(T_j)}{3.413 \times 0.98} \times n_{dwcj}$$

=the auxiliary energy input for water heating during the extra hours period above 65°F.

$\dot{Q}_{wdc}(T_j)$=the cyclic heat pump water heating capacity in the dedicated water heating mode during the cooling season.

The Combined Heating Performance Factor (CHPF) shall be calculated utilizing the same approach as for the CCPF. For the CHPF the building and water heating loads and heat pump performance are evaluated at each outdoor temperature bin below 65°F. CHPF is the sum of the total space heating load and the domestic water heating load during the heating season, divided by the sum of the total energy consumption used for space heating and water heating over the same period, expressed in Btu/Wh.

The Combined Heating Performance Factor for space heating and water heating is calculated as follows:

$$CHPF = \frac{\sum_{j=1}^{15} Q(T_j)}{\sum_{j=1}^{15} E(T_j)}$$

The terms $Q(T_j)$ and $E(T_j)$ are the system energy outputs and inputs, respectively, for the j^{th} outdoor temperature bin as defined in the cited Department regulations and are composed of the various building and water heating loads and system energy inputs as follows:

$$Q(T_j) = BL(T_j) \times n_j + \dot{Q}_{kw}(T_j) \times n_j + \dot{Q}_{kw}(T_j) \times n_{dwhj}$$

where $BL(Tj)$ is the building space heating load at the j^{th} outdoor bin temperature and evaluated for each heating temperature bin Tj, as described in subsection 10.2.2 of ASHRAE Standard 116–83.

$\dot{Q}_{hw}(T_j)$ is the water heating load for the jth outdoor bin temperature.

$E(T_j)$ is the total system energy input for the j^{th} outdoor bin temperature and is made up of the individual energy inputs for the applicable operating modes as follows:

$$E(T_j) = \frac{\left(X_1(T_j) \times \dot{E}_h(T_j) + X_2(T_j) \times \dot{E}_{hcw}(T_j) + X_3(T_j) \times \dot{E}_{wdh}(T_j)\right) \times n_j}{PLF(T_j)} + E_{auxw} + E_{auxs} + E_{dweh}$$

where:

$\dot{E}_h(T_j)$ = Heat pump steady-state power input in the space heating only mode for outdoor temperature bin j.

$\dot{E}_{hcw}(T_j)$ = Heat pump steady-state power input in the combined space heating and water heating mode for outdoor temperature bin j.

$\dot{E}_{wdh}(T_j)$ = Heat pump steady-state power input in the dedicated water heating mode during the heating season for outdoor temperature bin j.

E_{auxw} = Auxiliary energy input for water heating.

E_{auxs} = Auxiliary energy input for space heating.

E_{dwehh} = Energy input for water heating during the dedicated water heating extra hours period below 65 °F

$X_1(Tj)$ = Load factor for space conditioning only mode for outdoor temperature bin j.

$X_2(Tj)$ = Load factor for combined space conditioning/water heating mode for outdoor temperature bin j.

$X_3(Tj)$ = Load factor for dedicated water heating mode for outdoor temperature bin j.

$PLF(T_j) = 1 - C_d \times (1 - X_1(T_j) - X_2(T_j) - X_3(T_j))$ = the overall part-load factor for outdoor temperature bin j.

Cd = the coefficient of cyclic degradation for heating.

n_j = the number of hours in the jth outdoor temperature bin.

The steady-state heat pump space heating capacity in the space heating only mode is determined according to:

$$\dot{Q}_h(T_j) = \begin{cases} \dot{Q}_h(17°F) + \dfrac{\dot{Q}_h(47°F) - \dot{Q}_h(17°F)}{(47-17)°F} \times (T_j - 17°F), \text{ for } T_j \geq 45°F \text{ or } T_j \leq 17°F \\ \text{or} \\ \dot{Q}_h(17°F) + \dfrac{\dot{Q}_h(35°F) - \dot{Q}_h(17°F)}{(35-17)°F} \times (T_j - 17°F), \text{ for } 17°F < T_j < 45°F \end{cases}$$

The steady-state electrical power input to the heat pump in the space heating only mode is determined according to:

$$\dot{E}_h(T_j) = \begin{cases} \dot{E}_h(17°F) + \dfrac{\dot{E}_h(47°F) - \dot{E}_h(17°F)}{(47-17)°F} \times (T_j - 17°F), \text{ for } T_j \geq 45°F \text{ or } T_j \leq 17°F \\ \text{or} \\ \dot{E}_h(17°F) + \dfrac{\dot{E}_h(35°F) - \dot{E}_h(17°F)}{(35-17)°F} \times (T_j - 17°F), \text{ for } 17°F < T_j < 45°F \end{cases}$$

The steady-state heat pump space heating capacity and water heating capacity in the combined heating/water heating mode is determined according to:

$$\dot{Q}_{hcw}(T_j) = \begin{cases} \dot{Q}_{hcw}(17°F) + \dfrac{\dot{Q}_{hcw}(47°F) - \dot{Q}_{hcw}(17°F)}{(47-17)°F} \times (T_j - 17°F), \text{ for } T_j \geq 45°F \text{ or } T_j \leq 17°F \\ \text{or} \\ \dot{Q}_{hcw}(17°F) + \dfrac{\dot{Q}_{hcw}(35°F) - \dot{Q}_{hcw}(17°F)}{(35-17)°F} \times (T_j - 17°F), \text{ for } 17°F < T_j < 45°F \end{cases}$$

$$\dot{Q}_{wch}(T_j) = \begin{cases} \dot{Q}_{wch}(17°F) + \dfrac{\dot{Q}_{wch}(47°F) - \dot{Q}_{wch}(17°F)}{(47-17)°F} \times (T_j - 17°F), \text{ for } T_j \geq 45°F \text{ or } T_j \leq 17°F \\ \text{or} \\ \dot{Q}_{wch}(17°F) + \dfrac{\dot{Q}_{wch}(35°F) - \dot{Q}_{wch}(17°F)}{(35-17)°F} \times (T_j - 17°F), \text{ for } 17°F < T_j < 45°F \end{cases}$$

Where:

$$\dot{Q}_{hcw}(35°F) = \left[\dot{Q}_{hcw}(17°F) + \frac{\dot{Q}_{hcw}(47°F) - \dot{Q}_{hcw}(17°F)}{(47-17)°F} \times (35-17)°F\right] \times \frac{\dot{Q}_h(35°F)}{\dot{Q}_h(17°F) + \dfrac{\dot{Q}_h(47°F) - \dot{Q}_h(17°F)}{(47-17)°F} \times (35-17)°F}$$

and:

$$\dot{Q}_{wch}(35°F) = \left[\dot{Q}_{wch}(17°F) + \frac{\dot{Q}_{wch}(47°F) - \dot{Q}_{wch}(17°F)}{(47-17)°F} \times (35-17)°F\right] \times \frac{\dot{Q}_h(35°F)}{\dot{Q}_h(17°F) + \dfrac{\dot{Q}_h(47°F) - \dot{Q}_h(17°F)}{(47-17)°F} \times (35-17)°F}$$

The total steady-state electrical power input to the heat pump in the combined heating/waterheating mode is determined according to:

$$\dot{E}_{hcw}(T_j) = \begin{cases} \dot{E}_{hcw}(17°F) + \dfrac{\dot{E}_{hcw}(47°F) \times PLF(Test10) - \dot{E}_{hcw}(17°F)}{(47-17)°F} \times (T_j - 17°F), \text{ for } T_j \geq 45°F \text{ or } T_j \leq 17°F \\ \text{or} \\ \dot{E}_{hcw}(17°F) + \dfrac{\dot{E}_{hcw}(35°F) - \dot{E}_{hcw}(17°F)}{(35-17)°F} \times (T_j - 17°F), \text{ for } 17°F < T_j < 45°F \end{cases}$$

where:

$$\dot{E}_{hcw}(35°F) = \left[\dot{E}_{hcw}(17°F) + \frac{\dot{E}_{hcw}(47°F) - \dot{E}_{hcw}(17°F)}{(47-17)°F} \times (35-17)°F\right] \times \frac{\dot{E}_h(35°F)}{\dot{E}_h(17°F) + \frac{\dot{E}_h(47°F) - \dot{E}_h(17°F)}{(47-17)°F} \times (35-17)°F}$$

and:

PLF (Test10) = 1 − (Cd × (1 − LF (Test10)))

With:

C_d = the heating season cyclic degradation coefficient.

LF (Test 10) = 0.5 = the load factor during the 47 °F combined heating/water heating cyclic test.

The electrical power input to the heat pump at the 47 °F cyclic test point is corrected (decreased) by the actual test part load factor (PLF) in order to make it consistent with the 17 °F test point which is steady-state.

Later bin analysis of energy use will interpolate between the 17 °F and 47 °F points and have the energy use for each bin increased by that bins calculated PLF. This approach of the 17 °F test being continuous compressor operation and the 47 °F test being cyclic is most representative of actual field operation and provides the most representative water side conditions.

The cyclic heat pump water heating capacity in the dedicated water heating mode during the heating season is determined according to:

$$\dot{Q}_{wdh}(T_j) = \dot{Q}_{wdh}(47°F) + \frac{\dot{Q}_{wdh}(67°F) - \dot{Q}_{wdh}(47°F)}{(67-47)°F} \times (T_j - 47°F)$$

The steady-state electrical power input to the heat pump in the dedicated water heating mode during the heating season is determined according to:

$$\dot{E}_{wdh}(T_j) = \dot{E}_{wdh}(47°F) \times PLF(Test9) + \left[\frac{\dot{E}_{wdh}(67°F) \times PLF(Test8) - \dot{E}_{wdh}(47°F) \times PLF(Test9)}{(67-47)°F} \times (T_j - 47°F)\right]$$

Because the tests are cyclic, the actual test results are again corrected from the PLF of the specific test to the PLF of each temperature bin in the analysis, where:

$$PLF(Test9) = 1 - C_d \times \left(1 - \frac{t_{on}\,47°F}{t_{total}\,47°F}\right)$$

$$PLF(Test8) = 1 - C_d \times \left(1 - \frac{t_{on}\,67°F}{t_{total}\,67°F}\right)$$

with:

C_d = the heating season cyclic degradation coefficient.

t_{on}47 °F = the total compressor on time during the 47 °F dedicated water heating cyclic test.

t_{total}47 °F = the total time to conclusion of the 47 °F dedicated water heating cyclic test.

t_{on}67 °F = the total compressor on time during the 67 °F dedicated water heating cyclic test.

t_{total}67 °F = the total time to conclusion of the 67 °F dedicated water heating cyclic test.

The load factors for each mode of operation are determined as follows:

$$X_2(T_j) = \left\{\begin{matrix} \dfrac{BL(T_j)}{\dot{Q}_{hcw}(T_j)} \\ \text{or} \\ \dfrac{WL(T_j)}{\dot{Q}_{wch}(T_j)} \end{matrix}\right\} \text{whichever is least.}$$

or

$$X_2(T_j) = 0 \ \text{ if } \ \frac{BL(T_j)}{\dot{Q}_h(T_j)} > 1.0$$

Following determination of $X_2(T_j)$, $X_1(T_j)$ and $X_3(T_j)$ are determined as follows:

$$X_1(T_j) = \left\{ \begin{array}{c} \dfrac{BL(T_j) - X_2(T_j) \times \dot{Q}_{hcw}(T_j)}{\dot{Q}_h(T_j)} \\ \text{or} \\ 1 - X_2(T_j) \end{array} \right\} \text{whichever is least.}$$

$$X_3(T_j) = \left\{ \begin{array}{c} \dfrac{WL(T_j) - X_2(T_j) \times \dot{Q}_{wch}(T_j)}{\dot{Q}_{wdh}(T_j)} \\ \text{or} \\ 1 - X_2(T_j) \end{array} \right\} \text{whichever is least.}$$

The auxiliary energy input for water heating is then determined from:

$$E_{auxw} = \frac{WL(T_j) - X_2(T_j) \times \dot{Q}_{wch}(T_j) - X_3(T_j) \times \dot{Q}_{wdh}(T_j)}{3.413 \times 0.98} \times n_j$$

The auxiliary energy input for space heating is then determined from:

$$E_{auxs} = \frac{BL(T_j) - X_1(T_j) \times \dot{Q}_h(T_j) - X_2(T_j) \times \dot{Q}_{hcw}(T_j)}{3.413} \times n_j$$

Lastly, the energy input for water heating during the dedicated water heating extra hours period below 65 °F is calculated as:

$$E_{dwehh} = \frac{X_4(T_j) \times \dot{E}_{wdh}(T_j)}{PLF(T_j)} \times n_{dwhj} + E_{auxwehh}$$

where:

$$X_4(T_j) = \frac{WL(T_j)}{\dot{Q}_{wdh}(T_j)}$$

= Load factor for dedicated water heating mode for outdoor temperature bin j.

$\dot{E}_{wdh}(T_j)$ = heat pump steady-state power input in the dedicated water heating mode during the heating season for outdoor temperature bin j.

n_{dwhj} = the number of hours in the j^{th} outdoor temperature bin for the dedicated water heating extra hours period below 65 °F.

$PLF(T) = 1 - C_d \times (1 - X_4(T_j))$ = the part-load factor for outdoor temperature bin j.

C_d = the heating season cyclic degradation coefficient.

$$E_{auxwehh} = \frac{WL(T_j) - X_4(T_j) \times \dot{Q}_{wdh}(T_j)}{3.413 \times 0.98} \times n_{dwhj}$$

= the auxiliary energy input for water heating during the extra hours period below 65 °F.

$\tilde{Q}_{wdh}(T_j)$ = the cyclic heat pump water heating capacity in the dedicated water heating mode during the heating season.

TABLE 1.—TEST SUMMARY—INTEGRATED HEAT PUMP SYSTEM TESTS

Test	Description	Test type		Air temperatures (F)				Water draw	Data reduction notes
				ODDB	ODWB	IDDB	IDWB		
1	COOLING	STEADY-STATE.	REQUIRED	95		80	67		1
2	COOLING + WH.	STEADY-STATE.	REQUIRED	95		80	67	TABLE 2	1,2,3,6
3	WH (COOLING)	CYCLIC	REQUIRED	82		80	67	TABLE 4	1,2,5,6
4	COOLING + WH.	CYCLIC	REQUIRED	82		80	67	TABLE 3	1,2,4,6
5	COOLING	STEADY-STATE.	REQUIRED	82		80	67		1
6	COOLING	STEADY-STATE.	OPTIONAL	82		80	57		1
7	COOLING CYCLIC.	CYCLIC	OPTIONAL	82		80	57		1
8	WH (HEATING)	CYCLIC	REQUIRED	67	61	70		TABLE 4	1,2,7
9	WH (HEATING)	CYCLIC	REQUIRED	47	43	70		TABLE 4	1,2,7
10	HEATING + WH	CYCLIC	REQUIRED	47	43	70		TABLE 3	1,2,4,6
11	HEATING	STEADY-STATE.	REQUIRED	47	43	70			1
12	HEATING CYCLIC.	CYCLIC	OPTIONAL	47	43	70			
13	HEATING DEFROST.	STEADY-STATE.	REQUIRED	35	33	70			1
14	HEATING + WH	STEADY-STATE.	REQUIRED	17	15	70		TABLE 2	1,2,3,6
15	HEATING	STEADY-STATE.	REQUIRED	17	15	70			1

Data Reduction Notes for Table 1

1. Data recorded per ASHRAE Standard 116–83.

2. Water heating capacity is calculated as the net water energy withdrawn plus the tank standby loss during the test duration, divided by the length of time that the water pump and/or auxiliary water heater elements operate and expressed as BTU/hr. Test duration is defined as starting at t=0 and ending at the conclusion of water heating from all sources. Makeup and supply water temperatures are to be recorded every 5 seconds during water draws.

3. The steady-state cooling or heating capacity coincident with water heating is calculated as the total air side capacity delivered during the period of time that the water pump and/or auxiliary water heater elements operate, divided by the length of time that the water pump and/or auxiliary water heater elements operate and expressed as BTU/hr.

4. The cyclic cooling or heating capacity coincident with water heating is calculated as the air side capacity delivered during the period of time that both the water pump and indoor blower and/or both the auxiliary water heater elements and indoor blower operate, divided by the length of time that both the water pump and indoor blower and/or both the auxiliary water heater elements and indoor blower operate and expressed as Btu/hr.

5. The cyclic cooling capacity associated with dedicated water heating is calculated as the air side capacity delivered during the period of time that the indoor blower operates, divided by the length of time that the indoor blower operates, and expressed as Btu/hr.

6. The power used with the cooling or heating capacity associated with water heating is calculated as the total energy consumed by all components, including the heat pump, water pump, and auxiliary water heater elements, etc., during the length of time that the air side capacity is integrated, divided by the same length of time, and expressed as Watts.

7. The power used with the dedicated water heating capacity is calculated as the total energy consumed by all components, including the heat pump, water pump, and auxiliary water heater elements, etc., during the duration of the test, divided by the period of time used in determining the associated water heating capacity determination.

TABLE 2.—STEADY-STATE COMBINED OPERATION & WATER DRAW SCHEDULE

Sequence	
1	FILL WATER HEATER (or draw until both upper and lower thermostat water temperatures are below their turn on points).
2	RESISTIVE OPERATION TO CONCLUSION.
3	HEAT PUMP OPERATION TO CONCLUSION OF WATER HEATING (heat pump continues to operate in space conditioning mode).
4	CONDITION WITH 11 GALLON DRAW.
5	HEAT PUMP AND/OR RESISTIVE OPERATION TO CONCLUSION OF WATER HEATING.
6	HEAT PUMP CONTINUES TO OPERATE IN SPACE CONDITIONING MODE FOR 10 MINUTES.
7	t=0 , DRAW 5.4 GALLONS.

TABLE 2.—STEADY-STATE COMBINED OPERATION & WATER DRAW SCHEDULE—Continued

Sequence	
8	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS (heat pump continues to operate in space conditioning mode).
9	t=68 MINUTES, DRAW 16.1 GALLONS.
10	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS (heat pump continues to operate in space conditioning mode).
11	t=118 MINUTES, DRAW 10.7 GALLONS.
12	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS TO CONCLUSION OF WATER HEATING.

TABLE 3.—CYCLIC COMBINED OPERATION & WATER DRAW SCHEDULE

Sequence	
1	FILL WATER HEATER (or draw until both upper and lower thermostat water temperatures are below their turn on points).
2	RESISTIVE OPERATION TO CONCLUSION.
3	HEAT PUMP OPERATION TO CONCLUSION OF WATER HEATING.
4	CONDITION WITH 11 GALLON DRAW.
5	HEAT PUMP AND/OR RESISTIVE OPERATION TO CONCLUSION OF WATER HEATING.
6	COMPRESSOR OFF FOR 10 MINUTES.
7	t=0 , DRAW 5.4 GALLONS.
8	t=10 MINUTES, Tstat ON; @ t=20 MINUTES, Tstat OFF.
9	t=30 MINUTES, Tstat ON; @ t=40 MINUTES, Tstat OFF.
10	t=50 MINUTES, Tstat ON; @ t=60 MINUTES, Tstat OFF.
11	t=68 MINUTES, DRAW 16.1 GALLONS.
12	t=70 MINUTES, Tstat ON; @ t=80 MINUTES, Tstat OFF.
13	t=90 MINUTES, Tstat ON; @ t=100 MINUTES, Tstat OFF.
14	t=110 MINUTES, Tstat ON.
15	t=118 MINUTES, DRAW 10.7 GALLONS.
16	t=120 MINUTES, Tstat OFF.
17	t=130 MINUTES, Tstat ON; @ t=140 MINUTES, Tstat OFF.
18	t=150 MINUTES, Tstat ON; @ t=160 MINUTES, Tstat OFF.
19	t=170 MINUTES, Tstat ON TO CONCLUSION OF WATER HEATING.

Note: Tstat refers to indoor space thermostat.

TABLE 4.—DEDICATED WATER HEATING OPERATION & WATER DRAW SCHEDULE

Sequence	
1	FILL WATER HEATER (or draw until both upper and lower thermostat water temperatures are below their turn on points).
2	RESISTIVE OPERATION TO CONCLUSION.
3	HEAT PUMP OPERATION TO CONCLUSION OF WATER HEATING.
4	CONDITION WITH 11 GALLON DRAW.
5	HEAT PUMP AND/OR RESISTIVE OPERATION TO CONCLUSION OF WATER HEATING.
6	COMPRESSOR OFF FOR 10 MINUTES.
7	t=0 , DRAW 5.4 GALLONS.
8	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS.
9	t=68 MINUTES, DRAW 16.1 GALLONS.
10	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS.
11	t=118 MINUTES, DRAW 10.7 GALLONS.
12	HEAT PUMP AND RESISTIVE OPERATE ON INTERNAL CONTROLS TO CONCLUSION OF WATER HEATING.

January 24, 1995.

The Assistant Secretary for Conservation and Renewable Energy,

United States Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585.

Subject: Petition For Waiver and Application for Interim Waiver.

Gentlemen: This is a Petition for Waiver and Application for Interim Waiver submitted pursuant to Title 10 CFR 430.27, as amended November 14, 1986. Waiver is requested from the existing Test Method for Measuring the Energy Consumption of Central Air Conditioners, including heat pumps as found in Appendix M to Subpart B of Part 430.

Under the existing Test Procedure, heat pump energy consumption is measured relative only to space heating and cooling. NORDYNE requests a waiver to the existing test procedure as detailed in the attached ''Requested Test and Rating Procedure Modifications for Electrically Driven, Single-Speed Compressor, Air-to-Air Heat Pumps With Integrated Water Heating'', for use in the testing and rating of its Powermiser line of heat pumps which include special design characteristics to incorporate domestic water heating.

The current test procedure clearly cannot account for the energy savings associated with integrated water heating.

NORDYNE is confident that a waiver will be granted and requests that an interim waiver be granted. NORDYNE's confidence is based on:

(1) The current test procedure does not account for the total energy savings of the Powermiser.

(2) Carrier Corporation has been granted a similar waiver for its Hydrotech product.

(3) For public policy, the widespread use of this type of integrated appliance would be in direct support of the President's Climate Change Action Plan, which lists heating and cooling and home appliances as key targets for improvement.

(4) Absent a favorable determination on the Application for Interim Waiver, NORDYNE would experience an economic hardship, as discussed in the confidential attachment.

Known manufacturers of domestically marketed units of the same product type are being notified in writing of this Petition for Waiver and Application for Interim Waiver. A list of the names and addresses of each person to whom a notice is being sent is attached.

Sincerely,

Wayne Reedy,

Vice President Engineering.

WRR:pdr
Enclosure

[FR Doc. 95–19203 Filed 8–7–95; 8:45 am]

BILLING CODE 6450–01–P

Federal Energy Regulatory Commission

[Docket No. EF95–2011–000, et al.]

United States Department of Energy—Bonneville Power Administration, et al.; Electric Rate and Corporate Regulation Filings

August 2, 1995.

Take notice that the following filings have been made with the Commission:

1. United States Department of Energy—Bonneville Power Administration

[Docket Nos. EF95–2011–000, EF95–2101–001, EF95–2021–000 and EF95–2041–000]

Take notice that on August 1, 1995, the Bonneville Power Administration of the United States Department of Energy (BPA) tendered for filing proposed rate adjustments for its wholesale power and transmission rates pursuant to Section 7(a)(2) of the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. 839e(a)(2). BPA seeks interim approval of its proposed rates effective October 1, 1995, pursuant to Commission Regulation, 18 CFR 300.20. BPA further states that pursuant to Commission Regulation, 18 CFR 300.21, BPA seeks final confirmation of the proposed rates for the periods set forth in this notice.

According to BPA, its wholesale power and transmission rates are proposed to be increased, with BPA's wholesale power rates designed to increase revenues over the 1-year test period by approximately $61.0 million (excluding the residential exchange), which represents an increase of approximately 3.2 percent. BPA further states that its transmission rates are designed to increase revenues by approximately $19 million, or 3.45 percent. BPA states that with these increases its total test period revenues (excluding the residential exchange) will be approximately $2.5 billion. BPA states that these revenue increases are achieved through a 4 percent increase in its current, adjustable power and transmission rates.

BPA requests approval effective October 1, 1995 through September 30, 1996 for the following proposed wholesale power rates and their associated General Rate Schedule Provisions: PF–95 Priority Firm Power Rate; IP–95 Industrial Firm Power Rate; SI–95 Special Industrial Firm Power Rate; CE–95 Emergency Capacity Rate; NR–95 New Resource Firm Power Rate; NF–95 Nonfirm Energy Rate; SS–95 Share-the-Savings Energy Rate; RP–95 Reserve Power Rate; PS–95 Power Shortage Rate; and VI–95 Variable Industrial Rate. BPA requests final approval for amended Pacific Northwest Coordination Agreement charges granted interim approval by the Commission on July 21, 1995 in Docket No. EF95–2101–000.

BPA requests approval October 1, 1995 through September 30, 1996 for the following proposed transmission rate schedules and their associated General Transmission Rate Schedule Provisions: FPT–95.1 Formula Power Transmission; IR–95 Integration of Resources; IS–95 Southern Intertie Transmission; IN–95 Northern Intertie Transmission; IE–95 Eastern Intertie Transmission; ET–95 Energy Transmission; MT–95 Market Transmission; FPT–95.3 Formula Power Transmission; UFT–95 Use-of-Facilities Transmission; TGT–95 Townsend-Garrison Transmission. BPA requests approval for the AC–95 Southern Intertie Annual Costs rate for the term of the contracts which is life of facilities.

Comment date: August 15, 1995, in accordance with Standard Paragraph E at the end of this notice.

2. Empresa Guaracachi S.A.

[Docket No. EG95–61–000]

On July 28, 1995, Empresa Guaracachi S.A. (''Applicant'') filed with the Federal Energy Regulatory Commission (the ''Commission'') an application for determination of exempt wholesale generator status pursuant to 18 CFR Part 365 of the Commission's Regulations. Applicant states that its sole business purpose is to own and operate one or more electric generating facilities in the Republic of Bolivia. Fifty (50) percent of the capital stock of Applicant is owned by Guaracachi America, Inc., an indirect wholly-owned subsidiary of General Public Utilities Corporation, a registered holding company as defined in Section 2(a)(7) of the Public Utility Holding Company Act of 1935.

Comment date: August 21, 1995, in accordance with Standard Paragraph E at the end of this notice.

3. PMDC Energia Ltd.

[Docket No. EG95–66–000]

PMDC Energia Ltd. (''Energia'') (c/o Richard F. Allen, PMDC Energia Ltd. 11350 Random Hills Road, Suite 800 Fairfax, VA 22030) filed with the Federal Energy Regulatory Commission an application on July 28, 1995, for determination of exempt wholesale generator status pursuant to 18 CFR Part 365 of the Commission's Regulations.

Energia is a Cayman Islands company formed to develop, own, and/or operate eligible facilities. Energia will own an interest in two electric generating facilities in Bolivia. Energia states that is also may engage in project development activities associated with its development or acquisition of operating or ownership interests in additional as-yet unidentified eligible facilities and/or exempt wholesale generators that meet the criteria in Section 32 of the Public Utility Holding Company Act.

Comment date: August 15, 1995, in accordance with Standard Paragraph E at the end of this notice.

4. OPDB, Ltd.

[Docket No. EG95–67–000]

On July 28, 1995, OPDB, Ltd. (''OPDB''), with its address at 40 Lane Road, Fairfield, NJ 07007–2615 filed with the Federal Energy Regulatory Commission (''FERC'' or the ''Commission'') an application for determination of exempt wholesale generator status pursuant to 18 CFR Part 365 of the Commission's Regulations.

OPDB is a Cayman Island limited liability company that will be engaged indirectly through one or more affiliates as defined in Section 2(a)(11)(b) of the Public Utility Holding Company Act of 1935, as amended (''PUHCA'') and exclusively in the business of owning or operating, or both owning and operating, all or part of one or more eligible facilities located in Bolivia. The eligible facilities consist of approximately 87.2 MW of existing gas fired generation units and related interconnection facilities and approximately 126 MW of gas fired electric generation units and related interconnection facilities that are currently under construction. The output of the eligible facilities is, or will be, sold at wholesale except that to the extent permitted by Bolivian law retail power sales will be made to consumers located in Bolivia.