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J.B. HOYT  
DIRECTOR, GOVERNMENT RELATIONS

November 5, 2004

Mr. Richard Karney  
Energy Star Program Manager  
U.S. Department of Energy  
Building Technologies Program  
1000 Independence Avenue, SW  
Washington, DC 20585-0121

Re: Position of Whirlpool Corporation Regarding 2007 ENERGY STAR® Qualifying Levels for Clothes Washers

Dear Mr. Karney:

Whirlpool Corporation appreciates the opportunity to comment on this subject. Please consider these remarks a more complete and comprehensive replacement for those which were submitted to you in early October.

We would be pleased to discuss this issue with you in more detail.

Sincerely,

A handwritten signature in black ink, appearing to read "J.B. Hoyt". The signature is written in a cursive, flowing style.

## **Position of Whirlpool Corporation Regarding 2007 ENERGY STAR® Qualifying Levels for Clothes Washers**

**(Prepared as Comments to the  
Department of Energy—Submitted November 5, 2004)**

**Background:** Whirlpool Corporation appreciates the opportunity to provide input to the Department of Energy regarding this subject. We are sure that all of our competitors are also deeply interested in this matter, however, as the world's leading manufacturer and marketer of home laundry equipment, Whirlpool is uniquely positioned to comment. We produce approximately one out of every two washers sold in the U.S., with the majority of those coming from our manufacturing facility in Clyde, Ohio.

The ENERGY STAR program has served as an excellent means of voluntary market transformation. We agree that the ENERGY STAR qualifying level for clothes washers should be raised effective January 1, 2007 when the minimum federal energy efficiency standard increases. We further agree that the qualification level should incorporate a maximum water factor (WF) at that time. As noted by the Department, increasing MEF alone does not guarantee a level of decline in WF. The addition of a WF should further increase the interest of water utilities in incenting the purchase of more water efficient appliances.

The energy performance and water performance of the appliance should be communicated to prospective purchasers on one label. This will allow the consumer to look at one place to determine both aspects of product efficiency. It minimizes product "clutter", given that manufacturers also have additional product labels for features and other point-of-purchase marketing messages. Finally, one label is a more cost-effective approach for manufacturers.

The Department of Energy has gained considerable experience and familiarity with the program and the various stakeholders as well as with the practical considerations (timing, investment, etc) faced by the home appliance industry. Consequently, we feel that the Department is best suited to manage a combined Energy and water labeling program going forward.

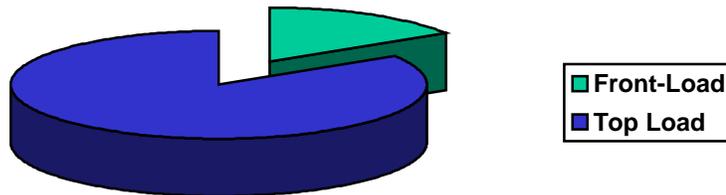
We believe that the goal of the ENERGY STAR program to provide recognition to that volume which represents the 20-25% most efficient products offered in the marketplace continues to be effective in many respects: manufacturers strive to provide high-utility products which achieve this recognition, consumers recognize the ENERGY STAR mark as an indication that they will incur lower operating costs with these products, and the continued success of the program demonstrates the value of market-based transformation initiatives.

The *Market Impact Analysis of Potential Changes to the ENERGY STAR Criteria for Clothes Washers* states that the current penetration of ENERGY STAR washers is 28%, somewhat above the stated target. We respectfully take a different view. Whirlpool has proprietary information which indicates the ENERGY STAR (MEF of at least 1.42) portion of washer sales has just moved above 20% in 2004. Thus, the program is operating on target. Upward revisions to qualifying levels must not be too dramatic in order to maintain performance in the desired "sweet spot" of the 20 – 25% best machines. It is also very important to understand that with respect to high-efficiency washers, possibly as opposed to prior experience with refrigerators, there are some very important tradeoffs in consumer utility at the highest levels of water and energy efficiency, in addition to the obvious differences in price.

**Consumer Utility Requirements:** It is important that the Department continue to recognize that the qualification level be set in a manner which will allow the manufacture and sale of products which meet consumers performance and utility expectations. Specifically:

- Consumer behavior shows that they require the flexibility of purchasing either top-loading or front-loading washers. Chart 1 shows that 85% of consumers continue to purchase top-load washers, despite the introduction of more front-load washers over the past several years.

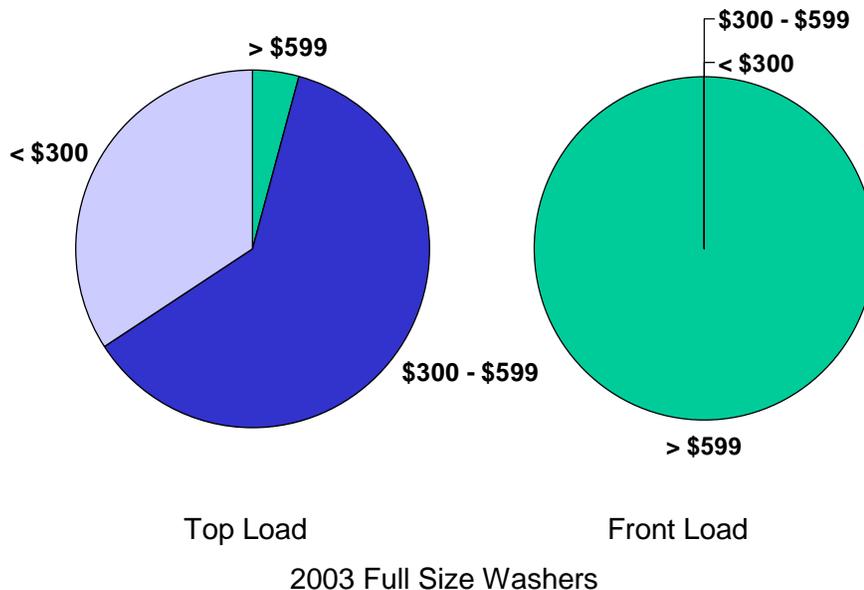
**Chart 1: The Vast Majority of U.S. Consumers Continue to Prefer Top-Load Washers (2003 Data)**



- Also note in Chart 2 that top-load machines cover a broad array of price points, while front-load machines are more costly. The ENERGY STAR qualification level needs to be set in a manner which allows both types of

machines to achieve ENERGY STAR ratings so that consumer choice and utility are retained.

**Chart 2: The Price Mix Differences  
Between TL & FL are Significant**



- Consumers require full-size washers, generally in excess of 3.0 cubic feet, in order to meet the demands of busy families. Several factors demonstrate this point:
  - Each year since 1995 a leading consumer magazine has indicated that capacity is the number one driver of consumer purchase decisions
  - Recent Whirlpool market research shows this continues to be true
  - Research further indicates that consumers increasingly desire to wash more bulky items (pillows, comforters, etc) at home rather than taking time to go to a Laundromat in search of a larger machine

While washers with smaller baskets can more readily achieve higher MEF's and lower WF's, it is important that the ENERGY STAR qualifying level be set in a fashion that allows full-size washers to achieve ENERGY STAR status.

- Consumers require the cleaning performance provided by hot and warm water washes. In order to achieve higher levels of energy efficiency, manufacturers have reduced the wash water temperatures. Taken to an extreme a washer could be produced which does not utilize hot/warm

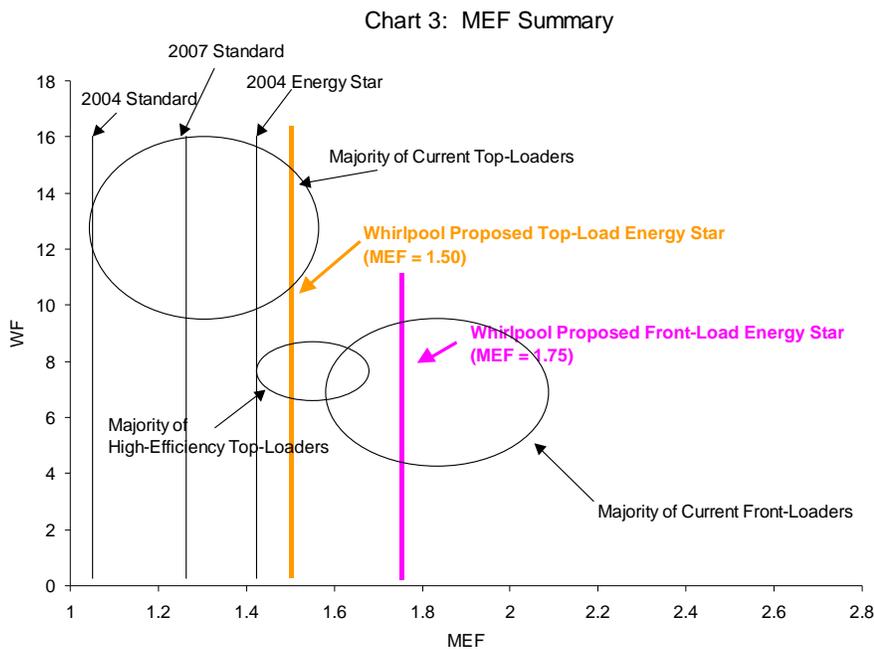
water. However, such a unit would not provide the cleaning performance consumers demand. Similarly, reducing the water levels in a top-load washer will reduce the WF, but at the risk of increased fabric damage, insufficient rinsing of detergent and soils, and poor cleaning performance. The ENERGY STAR qualifying levels need to be set in a manner which allows qualification to be achieved while retaining the cleaning performance that consumers demand.

**Position—MEF:** The MEF is an excellent measure of laundry energy consumption, developed through collaboration between the Department, energy advocates and the appliance industry. Because it captures system-wide energy use, it allows manufacturers to make tradeoffs between the washing and drying processes that improve both product performance and energy efficiency.

Whirlpool proposes that the Department create separate classes of products for top-load and front-load washers, each with an appropriate qualifying level. The use of product classes is contemplated by NAECA and is consistent with other products such as refrigerator-freezers. Use of product classes allows the ENERGY STAR program to:

- Recognize the desire of the 85% of consumers (currently) to purchase top-load washers while still encouraging those buyers to seek more energy-efficient machines
- Create the incentive for manufacturers to build, and retailers to promote, washers which sell at price points which are more affordable to a broader range of consumers

Through an assessment of ENERGY STAR, FTC and proprietary industry information, we are able to construct the following chart depicting the MEF performance of today's top-load machines:



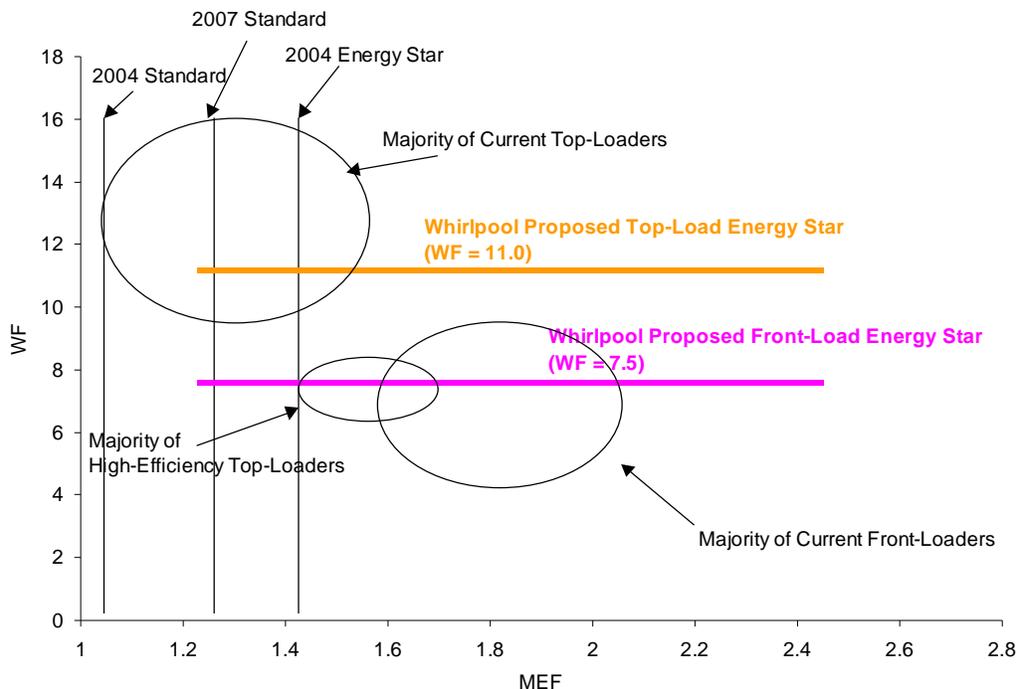
This chart depicts the 2004 Minimum Standard, 2004 ENERGY STAR level and the 2007 Minimum Standard. The circular areas approximate the range the vast majority of current top-load and front-load machines. (More specific data is not shown due to the proprietary nature of some of the data.)

Given the product offerings in top-load and front-load machines, along with known product plans, Whirlpool proposes the ENERGY STAR qualifying levels be set at an MEF of 1.5 for the top-load class and 1.75 for the front-load class. This proposal allows recognition of the most efficient models likely to be offered in each product class in 2007. Whirlpool believes this meets the needs of utilities and energy advocates by designating these very efficient units as ENERGY STAR, while allowing consumers to purchase very efficient machines in the product configuration of their choice. Whirlpool's product development and engineering expertise suggest that any MEF in excess of 1.50 and 1.75 would significantly adversely impact the consumer utility issues of capacity and rinse performance. The proposed level includes more of the existing front-load range due to the high efficiency nature of existing models.

Again, Whirlpool has substantial reason to believe that the percentage of ENERGY STAR qualified washers shipped in the first half of 2004 has exceeded 20% for the first time, just now meeting the Department's goal of 20 – 25%. The values proposed above will trim the ENERGY STAR percentage of shipments well below the 20% threshold for some time until new product offerings increase this volume.

**Position—WF:** While specific industry data is unavailable, Whirlpool believes that in 2003 the average washer WF was approximately 12.0. Following the scheme introduced in the MEF discussion, we offer the following chart:

Chart 4: Water Factor Summary



Given the existing product offerings in top-load and front-load machines, along with known product plans, Whirlpool proposes the ENERGY STAR qualifying levels be set at an WF of 11.0 for the top-load class and 7.5 for the front-load class. Again, this proposal allows recognition of the most efficient models likely to be offered in each product class in 2007. Whirlpool believes this meets the needs of utilities and energy advocates by designating these very efficient units as ENERGY STAR, while allowing consumers to purchase very efficient machines in the product configuration of their choice. Whirlpool's product development and engineering expertise suggest that any WF less than 11.0 and 7.5 would significantly adversely impact the consumer utility issues of capacity and rinse performance. Again, the proposed level includes more of the existing front-load range due to the high efficiency nature of existing models.

A key design consideration for top load washers is to assure adequate rinsing of the washed clothes in order to flush away all detergent and soil. Traditionally, this is done in a deep-fill rinse. One method of reducing WF is to utilize a spray rinse approach. While this uses less water, it also prohibits the use of liquid fabric softeners, as there is insufficient water to properly disperse the softener. This is an example of the design and consumer utility tradeoff issues that must be evaluated by manufacturers and consumers alike when developing or purchasing more energy and water efficient appliances.

Whirlpool and other manufacturers have been working with the MEF for some time. Because of this experience, we are relatively familiar with how various design, feature and engineering options will affect product performance and consumer utility. On the other hand, our experience with WF is much less. Because the relationship between design options and product performance is less well known for WF, we request that the initial level-setting efforts not be overly aggressive. This will allow manufacturers to improve water efficiency while maintaining high consumer utility. As a result, we recognize that the WF qualifying level may go through more frequent adjustment as all interested parties climb the learning curve.

**Result:** The ENERGY STAR data (as of October 19, 2004) lists 198 qualifying models. If one eliminates machines with: (i) baskets under 3.0 cubic feet, (ii) MEF under 1.50, (iii) and WF over 11.0, only 59 of those models would qualify for ENERGY STAR status. These are all believed to be either high-efficiency top-load or front-load models. This suggests that the above proposal would continue to target only the elite performing washers. Considerable volume growth would be required before the target range of 20 – 25% of total volume meeting ENERGY STAR qualification would be exceeded. (Note: These comments reflect only the number of models, not the volume of those models. However, based on an empirical assessment of the remaining 59 models, Whirlpool believes the current volume of these units to be substantially below the 20% threshold.)

The overall goal of adding a WF to the ENERGY STAR program is to drive market transformation in terms of water consumption. Simply taking the average WF of a clothes washer from 13 to 11 would save 2352 gallons of water per household per year (based on a 3.0 cubic foot basket). In 2003 the appliance industry sold more

than 8 million washers, of which 80% or 6.4 million were not ENERGY STAR qualified. Were this annual savings of 2352 gallons applied to those 6.4 million washers, the savings would amount to over 15 billion gallons per year. This enough water to supply the entire water needs of every household in Birmingham, AL for 13 months or Tucson, AZ for 7 months.

If the ENERGY STAR program can drive early replacement of existing washers, the savings story could be even greater. Over 90 million washers exist in U.S. households today. The older units are all far less water efficient than machines at the level Whirlpool is proposing for ENERGY STAR in 2007. Use of product classes would maintain consumer utility while driving elimination of older units at a faster rate-a true market transformation. Shortening the usual lifespan of these products by only two years through education of consumers on the benefits of replacing them with newer ENERGY STAR models could potentially yield an additional 2.3 billion gallons of Water savings.

**Energy Savings:** In the *Market Impact Analysis of Potential Changes to the ENERGY STAR Criteria for Clothes Washers* the Department provides Tables 4, 5, and 6 which show the potential savings at various MEF's. The incremental savings and percent change are summarized below:

Table	MEF	Aggregate Savings (MW h/yr)	Percent Change
4	1.60	397,515	--
5	1.70	415,436	4.5%
6	1.80	426,840	2.6%

The theoretical savings at higher MEF levels are quite modest, as shown in the last column above. Further, these tables assume that the ENERGY STAR program achieves 20% penetration in all cases. Yet the only washers capable of achieving higher MEF's are more expensive front-load machines (see Charts 2 & 3). Hence, it is highly unlikely that a 20% penetration would be achieved at MEF's above 1.50TL/1.75FL. As penetration levels decline, the savings at higher MEF levels would be less than those projected at an MEF of 1.60 in the above summary table.

**Other Points:** In the *Market Impact Analysis of Potential Changes to the ENERGY STAR Criteria for Clothes Washers* the number of ENERGY STAR qualifying models are shown at different MEF levels. It is important to note that the number of models is not necessarily reflective of volume. The recent increase in the number of qualifying models reflects the creation of variation lines by manufacturers as well as the introduction of truly differentiated product offerings. Further, an analysis of the ENERGY STAR website data shows that many of the higher MEF machines have basket volumes well under 3.0 cubic feet. Baskets of this size do not provide the load capacity that consumer's demand in today's washers.

Public data on manufacturing capabilities shows that top-load washers are currently manufactured primarily in these States:

- Arkansas
- Illinois
- Iowa
- Kentucky
- Ohio
- Wisconsin

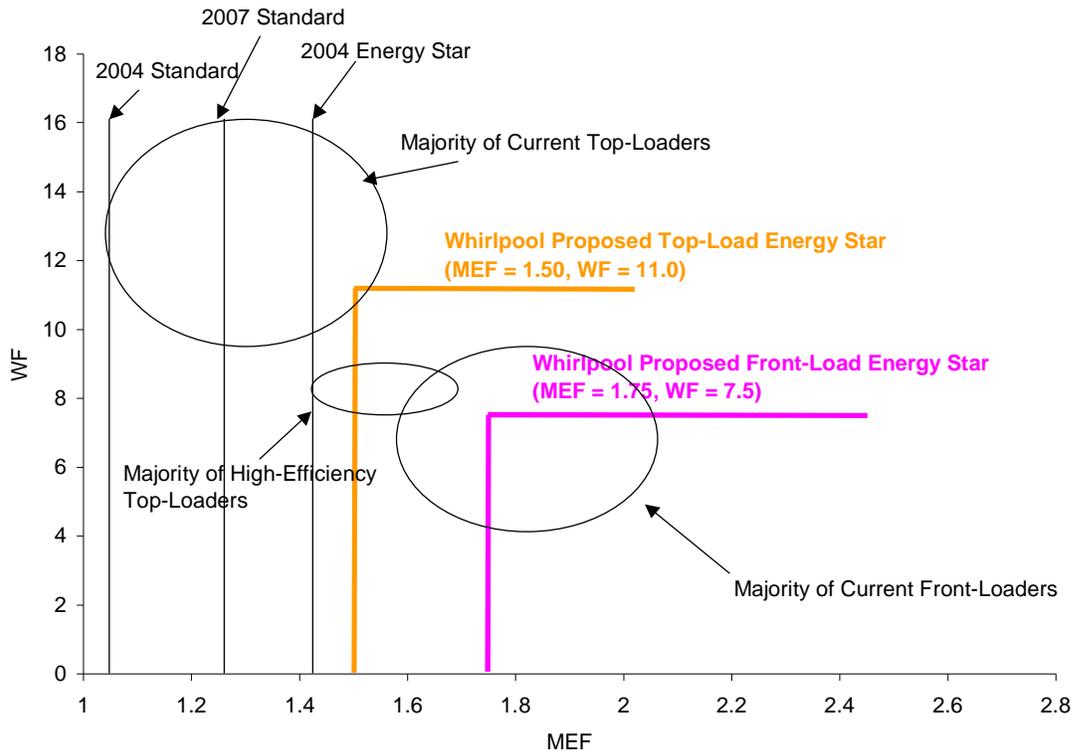
Should the ENERGY STAR levels be such that top-load machines no longer were able to qualify, new tooling investments would be required by at least some of the manufacturers. This would raise the question of whether this new tooling investment should be made in the United States, possibly placing pressure on jobs in the above markets. Establishing the ENERGY STAR levels by class would yield substantial energy and water savings, while retaining the investment in existing U.S. manufacturing locations. While it is true that the ENERGY STAR program is not mandatory as is a standard, the two have been inextricably linked and manufacturers would have to reevaluate long term manufacturing strategies to reflect that reality.

Whirlpool urges the Department to move forward promptly with the decision on 2007 ENERGY STAR qualifying levels. Resources are already being dedicated to the design and development of the 2007 model line required to meet the new minimum energy efficiency standard. Scarce engineering resources will need to be dedicated to meeting the new ENERGY STAR levels. Should tooling or other long lead-time items be required as well, specifications must be developed promptly and orders placed soon thereafter. Finally, adequate time for consumer testing is required to assure that these products meet the consumer performance and usability requirements. The sooner we know what the ENERGY STAR qualifying levels will be, the greater the likelihood that Whirlpool can have appropriate product in the marketplace in a timely manner.

**Summary:** Whirlpool Corporation supports the raising to the 2007 ENERGY STAR qualification level for washers. Further, we support the inclusion of a water factor in the qualifications. Care must be taken in establishing the levels to retain consumer utility in: machine configuration (top-load and front-load), full-size capacity and use of hot/warm water washes.

Specifically we recommend a top-load qualification level of MEF = 1.50, WF = 11.0; a front-load qualification of MEF = 1.75, WF = 7.5. This will incent the creation of products which meet the ENERGY STAR criteria of being: among the most efficient, commercially available and not dependent on proprietary technology, cost-effective price premium, and performance meeting or exceeding that of existing products. The resultant picture is:

Chart 5: MEF & Water Factor Combined



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