ENERGY STAR Criteria for Dishwashers
Market Impact Analysis

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Background of Federal Standard

- No Federal standard change since May 14, 1994, minimum Energy Factor (EF) level is still 0.46.
- Estimated number of cycles per year decreased from 322 to 264 in June 2002. Definition of full-size also changed from 22 inches to 8 place settings.
- New Federal soil-sensing test procedure was announced in August 2003 and all manufacturers had to use by February 2004.
- New test procedure also lowered estimated cycles per year to 215 and included standby power in the kWh/year number, but not in the EF calculation.

ENERGY STAR History

- **First criteria level adopted in 1997**: Minimum EF of 0.52 (13% above Federal standard).

- **Criteria revised on January 1, 2001**: Minimum EF of 0.58 (26% above Federal standard).

- Only standard (full-size) dishwashers are eligible for ENERGY STAR qualification.

Current Dishwasher Market

- National retail sales data shows that ENERGY STAR qualified dishwashers currently represent almost **86% of sales**.
- 433 out of 474 or 91% of available products are ENERGY STAR qualified.
- New DOE test procedure includes a separate soil-sensor method, has been in effect for more than a year with a minimal impact on energy factors.
- Energy and water efficiency is a key purchasing factor for consumers, ranked third behind cleaning ability and reliability*.

**Appliance Magazine. February 2005.*

ENERGY STAR Qualified Dishwasher Market Penetration

Year	ENERGY STAR market penetration	Estimated ENERGY STAR qualified dishwasher shipments
1996	1.51%	69,055
1997	5.74%	275,040
1998	19.34%	954,626
1999	12.36%	706,135
2000	10.85%	629,220
2001	19.89%	1,171,846
2002	36.44%	2,261,755
2003	56.87%	3,656,047
2004	78.20%	5,556,501

Current Market by Energy Factor

Energy Factor (EF)	0.46	0.58	0.62	0.63	0.64	0.68	0.72	0.76	0.80	0.84
Total Number of Available Products	474	433	196	110	91	37	30	22	18	10
Percent of Available Models	100%	91%	41%	23%	19%	8%	6%	5%	4%	2%

Dishwasher Water Use

- The average non-qualified dishwashers uses about 9 gallons per cycle (1,935 gallons per year).

- Water use is not currently reported to either the Federal Trade Commission or with the ENERGY STAR product submissions.

- The Department's initial understanding is water and energy use are very closely related so raising the energy efficiency will automatically increase the water efficiency.

- However, the State of Oregon now includes a maximum water consumption of **6.5 gallons per cycle** for qualification for its tax credit.

Standby Power

- The new Federal test procedure includes standby power in kWh/year as part of the total Estimated Annual Energy Consumption.

- Out of the available dishwasher models:
  - 310 out of 474 models use some standby power
  - 163 models have standby power usage of more than 1 kWh/year
  - 82 models use standby power of more than $1 per year (11.6 kWh/year with 8.6 cents per kWh).

- The highest standby power use is 25 kWh/year.

Other Issues for Consideration

- Timing of any criteria revision and its Effective Date

- Possible performance issues raised with a higher minimum EF or introduction of a Water Factor

- Whether models will be available across all consumer preferred sizes and characteristics
  -- 24 inch models
  -- Automatic filters

Current Market by Energy Factor (Models of at Least 24 Inches Wide)

Energy Factor (EF)	0.46	0.58	0.62	0.63	0.64	0.68	0.72	0.76	0.80	0.84
Total Number of Available Products	461	420	183	97	80	26	26	20	18	10
Percent of Available Models	100%	91%	40%	21%	17%	6%	6%	4%	4%	2%

Comment Period

- DOE welcomes all partner and stakeholder comments today or by **August 15, 2005**.

- All formal comments must be submitted in writing to Richard Karney at Richard.Karney@EE.DOE.GOV.