

**State-Level Benefits from Potential Federal Appliance Standards**

Louisiana															
Summary of Benefits by Product	Effective Date	Annual Savings in 2020				Annual Savings in 2030				Economics			Cumulative Energy Savings through 2030		
		Annual Savings per Unit	Incremental Cost per Unit <sup>1</sup>	Electricity	Primary Energy	Summer Peak Capacity	Value of Bill Savings <sup>2</sup>	Electricity	Primary Energy	Summer Peak Capacity	Value of Bill Savings <sup>2</sup>	Pay Back Period <sup>3</sup>		Benefit / Cost Ratio <sup>4</sup>	Net Present Value <sup>5</sup>
Products	Year	kWh, (gal), or (therms)	\$	GWh	BBtu	MW	\$Million	GWh	BBtu	MW	\$Million	Years		\$Million (2009\$)	TBtu
<b>Residential</b>															
Battery chargers	2014	4	\$ 1	132.3	1,378.9	18.3	\$ 13.7	132.3	1,330.2	18.3	\$ 13.7	1.4	3.6	\$ 75	19.3
Central AC & HP	2016	545	\$ 255	137.6	1,434.3	185.2	\$ 14.3	443.4	4,458.6	596.6	\$ 46.1	4.0	4.5	\$ 210	35.9
Clothes dryers (total)	2014	-	\$ 50	52.5	597.9	7.8	\$ 6.2	133.2	1,468.8	19.8	\$ 15.8	-	2.1	\$ 53	13.3
(electricity)	2014	93	\$ 50	52.5	547.1	7.8	\$ 5.5	133.2	1,339.7	19.8	\$ 13.8	5.2	2.3	\$ 50	12.2
(gas)	2014	[3.5]	\$ 50	-	50.9	-	\$ 0.8	-	129.1	-	\$ 2.0	9.2	1.3	\$ 3	1.1
Clothes washers (total) <sup>6</sup>	2015	244	\$ 96	55.0	863.2	8.2	\$ 10.2	110.0	1,685.9	16.4	\$ 20.4	-	4.3	\$ 227	18.1
(electricity - machine)	2015	22	\$ 9	10.8	112.4	1.6	\$ 1.1	21.6	216.9	3.2	\$ 2.2	2.2	7.6	\$ 7	2.4
(electricity - water heating)	2015	222	\$ 87	44.2	460.8	6.6	\$ 4.6	88.4	889.1	13.1	\$ 9.2	-	-	\$ 31	9.7
(gas)	2015	[10.1]	\$ 87	-	290.0	-	\$ 4.5	-	579.9	-	\$ 9.0	2.6	5.6	\$ 18	6.1
(water)	2015	[5233.5]	\$ -	Bil. Gal.-->	4.0	-	\$ -	Bil. Gal.-->	7.9	-	\$ -	-	-	\$ 171	-
Direct heaters	2013	48	\$ 326	-	43.1	-	\$ 0.7	-	86.9	-	\$ 1.4	12.4	0.8	\$ (2)	0.9
(gas)	2013	[18.9]	\$ 326	-	51.5	-	\$ 0.8	-	103.1	-	\$ 1.6	11.1	0.9	\$ (1)	1.1
External power supplies	2013	2	\$ 1	30.1	313.4	4.1	\$ 3.1	30.1	302.4	4.1	\$ 3.1	4.5	1.3	\$ 5	4.5
Furnaces (gas)	2013	[22.9]	\$ 520	-	423.1	-	\$ 6.6	-	987.2	-	\$ 15.3	14.7	0.8	\$ (26)	9.1
Furnaces (oil)	2013	[9.4]	\$ 17	-	13.1	-	\$ 0.4	-	30.6	-	\$ 0.5	1.2	35.5	\$ 5	0.3
Furnace fans	2016	612	\$ 100	102.1	1,064.0	111.8	\$ 10.6	328.9	3,307.4	360.4	\$ 34.2	1.6	6.1	\$ 167	26.6
Microwave ovens	2012	16	\$ 2	25.6	267.4	3.8	\$ 2.7	27.2	273.1	4.0	\$ 2.8	1.4	5.2	\$ 19	4.1
Pool heaters	2013	[20]	\$ 44	-	42.7	-	\$ 0.7	-	42.7	-	\$ 0.7	1.4	3.6	\$ 4	0.6
Refrigerators	2014	130	\$ 52	96.3	1,003.4	14.5	\$ 10.0	244.3	2,457.1	36.8	\$ 25.4	3.8	3.1	\$ 111	22.3
Room AC	2014	86	\$ 35	24.6	256.7	34.7	\$ 2.6	47.4	476.3	66.7	\$ 4.9	3.9	2.3	\$ 18	5.3
Water heaters	2013	-	\$ -	112.0	1,857.7	15.5	\$ 22.3	209.0	3,206.6	28.8	\$ 38.9	-	4.4	\$ 210	37.2
(electricity)	2013	220	\$ 65	112.0	1,167.3	15.5	\$ 11.6	209.0	2,102.1	28.8	\$ 21.7	2.8	3.5	\$ 106	24.0
(gas)	2013	[14]	\$ 30	-	690.4	-	\$ 10.7	-	1,104.6	-	\$ 17.1	1.4	6.5	\$ 104	13.3
<b>Commercial</b>															
Beverage vending machines	2012	682	\$ 157	5.0	52.2	1.2	\$ 0.5	8.3	83.0	1.9	\$ 0.8	2.3	4.4	\$ 5	1.0
Commercial boilers	2013	[513.6]	\$ 2,968	-	81.5	-	\$ 1.1	-	190.1	-	\$ 2.6	4.3	3.6	\$ 16	1.8
Clothes washers (total) <sup>6</sup>	2012	-	\$ 503	6.0	98.4	2.0	\$ 1.2	7.5	120.7	2.5	\$ 1.4	6.5	1.0	\$ 1	1.7
(electricity)	2012	208	\$ 446	6.0	62.5	2.0	\$ 0.6	7.5	75.7	2.5	\$ 0.8	-	-	\$ (10)	1.1
(gas)	2012	[26.8]	\$ 57	-	35.8	-	\$ 0.6	-	45.0	-	\$ 0.6	-	-	\$ 4	0.6
(water)	2012	[5827]	\$ -	Bil. Gal.-->	0.2	-	\$ -	Bil. Gal.-->	0.2	-	\$ -	-	-	\$ 6	-
Fluorescent ballasts	2014	18	\$ 2	35.3	367.8	11.5	\$ 3.6	87.1	875.5	28.5	\$ 9.0	1.1	9.5	\$ 47	8.2
Fluorescent lamps	2012	11	\$ 2	368.3	3,839.6	120.5	\$ 37.2	368.3	3,704.0	120.5	\$ 37.2	2.1	2.2	\$ 181	62.8
Incandescent reflector lamps	2012	62	\$ 3	108.9	1,134.8	26.9	\$ 11.0	108.9	1,094.7	26.9	\$ 11.0	0.4	3.0	\$ 75	20.9
BR \ exempted reflector lamps	2013	38	\$ 1	49.4	514.8	12.2	\$ 5.0	49.4	496.7	12.2	\$ 5.0	0.4	3.0	\$ 31	9.5
Liquid-immersed transformers	2016	2	\$ 2	19.8	206.5	2.7	\$ 2.0	63.8	641.9	8.8	\$ 6.4	9.4	1.6	\$ 19	5.2
Low-voltage dry type transformers	2016	25	\$ 5	36.9	384.8	5.1	\$ 3.8	118.9	1,196.1	16.4	\$ 12.0	2.1	7.2	\$ 80	9.6
Metal halide lamp fixtures	2015	360	\$ 35	66.2	689.7	21.7	\$ 6.9	186.5	1,875.0	61.0	\$ 18.8	0.9	13.0	\$ 112	16.1
Reach-in refrigerators and freezers	2016	1,658	\$ 199	11.4	119.0	2.7	\$ 1.2	30.4	306.0	7.1	\$ 3.1	1.2	7.4	\$ 15	2.9
Small electric motors	2015	132	\$ 20	53.9	562.2	8.5	\$ 5.6	68.6	690.3	10.9	\$ 6.9	1.5	3.9	\$ 35	8.9
Walk-in refrigerators and freezers	2015	2,128	\$ 273	8.5	88.6	2.0	\$ 0.9	18.6	186.6	4.3	\$ 1.9	1.3	7.0	\$ 10	1.9
<b>Total</b>				<b>1,538</b>	<b>17,699</b>	<b>621</b>	<b>\$ 184</b>	<b>2,822</b>	<b>31,574</b>	<b>1,453</b>	<b>\$ 339</b>			<b>\$ 1,702</b>	<b>348</b>

Product	Emissions Reductions in 2020			Emissions Reductions in 2030 <sup>7</sup>			
	CO2 1000 MT	NOx Tons	SO2 Tons	CO2 1000 MT	NOx Tons	SO2 Tons	
<b>Residential</b>							
Battery chargers	74.2	77.2	355.9	74.2	77.2	355.9	
Central AC & HP	0.1	45.2	208.4	248.7	258.8	1193.0	
Clothes dryers	32.2	32.8	141.2	81.7	83.2	358.5	
	(electricity)	29.4	30.6	141.2	74.7	77.8	358.5
	(gas)	2.8	2.1	0.01	7.0	5.4	0.03
Clothes washers	46.6	44.2	148.0	93.1	88.4	296.1	
Direct heaters <sup>8</sup>	2.3	1.7	-2.2	0.005	3.4	-4.3	
External power supplies	16.9	17.6	80.9	16.9	17.6	80.9	
Furnaces (gas)	22.9	17.7	0.1	53.5	41.3	0.3	
Furnaces (oil)	0.7	0.5	0.004	1.7	1.3	0.01	
Furnace fans	57.3	59.6	274.6	214.2	192.0	885.0	
Microwave ovens	14.4	15.0	69.0	77.3	15.9	73.1	
Pool heaters	2.3	1.8	0.01	2.3	1.8	0.01	
Refrigerators	54.0	56.2	259.0	137.0	142.6	657.5	
Room AC	13.8	14.4	66.3	26.6	27.6	127.4	
Water heaters	100.2	94.5	301.5	177.1	168.2	562.7	
	(electricity)	62.8	65.4	301.3	117.2	122.0	562.4
	(gas)	37.4	28.9	0.2	59.8	46.2	0.3
<b>Commercial</b>							
Beverage vending machines	2.8	2.9	13.5	4.6	4.8	22.2	
Commercial boilers	4.4	3.4	0.02	10.3	7.9	0.05	
Clothes washers	5.3	5.0	16.2	6.7	6.3	20.3	
Fluorescent ballasts	19.8	20.6	94.9	48.8	50.8	234.3	
Fluorescent lamps	206.6	215.0	991.1	206.6	215.0	991.1	
Incandescent reflector lamps	61.1	63.5	292.9	61.1	63.5	292.9	
BR \ exempted reflector lamps	27.7	28.8	132.9	27.7	28.8	132.9	
Liquid-immersed transformers	11.1	11.6	53.3	35.8	37.3	171.8	
Low-voltage dry type transformers	20.7	21.5	99.3	66.7	69.4	320.1	
Metal halide lamp fixtures	37.1	38.6	178.0	104.6	108.8	501.7	
Reach-in refrigerators and freezers	6.4	6.7	30.7	17.1	17.8	81.9	
Small electric motors	30.2	31.5	145.1	38.5	40.1	184.7	
Walk-in refrigerators and freezers	4.8	5.0	22.9	10.4	10.8	49.9	
<b>Total</b>	<b>876</b>	<b>932</b>	<b>3,974</b>	<b>1,843</b>	<b>1,781</b>	<b>7,590</b>	

**Notes:**

- <sup>1</sup> For purposes of the analyses, incremental costs for residential and commercial clothes washers are apportioned based on the individual components' contribution to overall energy consumption.
- <sup>2</sup> Value of bill savings is based on energy savings in 2020 or 2030 and current average state energy prices. This value does not take account of the incremental cost of more efficient products.
- <sup>3</sup> Payback period is the length of time required to recoup any increase in product cost from advances in efficiency.
- <sup>4</sup> The benefit / cost ratio is a measure of the annual energy bill savings of an efficient product versus its incremental cost.
- <sup>5</sup> Net present value is the total monetary value of bill savings achieved by products sold under the standards between now and 2030 minus the total incremental product cost incurred by purchasers as a result of the standards over the same period expressed in current dollars. Both costs and savings are discounted using a 5% real discount rate.
- <sup>6</sup> The payback period and benefit / cost ratios for residential and commercial clothes washers take into account savings from the machine, water heating, and water consumption. For residential clothes washers, the two payback periods were calculated for a clothes washer utilizing electricity vs. natural gas for water heating. Benefit / cost ratios were calculated for total savings and costs (electric, natural gas, and water) as well as for clothes washers utilizing electricity vs. natural gas for water heating. For commercial clothes washers, we assume that only natural gas is used for water heating. Therefore only one payback period and benefit / cost ratio were calculated.
- <sup>7</sup> 2030 emissions reductions for NOx and SO2 are calculated using 2020 emission factors.
- <sup>8</sup> Negative savings for direct heaters represent the emissions generated from the incorporation of electronic ignition, a technology that is not included in the current federal standard.