

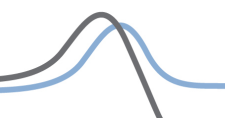
# **BNM C05: Circulators Government Standards Evidence Base 2009: Key Outputs**

**Version 1.1**

This Briefing Note and referenced information is a public consultation document and will be used to inform Government decisions. The information and analysis forms part of the Evidence Base created by Defra's Market Transformation Programme.

## **1 Introduction**

- The aim of this Briefing Note is to provide a year-by-year summary of the main outputs from the Market Transformation Programme (MTP) models. Additional figures can be found in the What-if tool.
- There are four main sections to this Briefing Note, corresponding to the main outputs from the MTP modelling:
  - Stock
  - Sales
  - Energy Consumption
  - Government Standards – Charts and Tables.



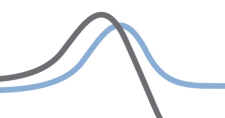
## 2 Stock

- The following table details the MTP modelling outputs in terms of UK installed base of products. Stock numbers remain constant across the three scenarios: Reference, Policy and Best Available Technology (BAT).

Table 1 - Circulators: domestic & non-domestic stock

	Stock (000s)			TOTAL <sup>1</sup>
	Small standalone (domestic)	Boiler integrated (domestic)	Large standalone (non-domestic)	
2000	15,570	4,190	1,860	21,620
2001	15,680	4,730	1,890	22,300
2002	15,750	5,300	1,920	22,960
2003	15,790	5,900	1,940	23,630
2004	15,790	6,510	1,970	24,270
2005	15,750	7,160	2,000	24,910
2006	15,660	7,810	2,030	25,490
2007	15,490	8,460	2,060	26,010
2008	15,270	9,100	2,090	26,460
2009	15,260	9,470	2,110	26,850
2010	15,220	9,820	2,140	27,180
2011	15,130	10,150	2,170	27,460
2012	15,030	10,480	2,200	27,710
2013	14,900	10,800	2,240	27,940
2014	14,760	11,110	2,270	28,140
2015	14,610	11,410	2,300	28,320
2016	14,440	11,710	2,330	28,470
2017	14,260	12,000	2,360	28,620
2018	14,070	12,290	2,400	28,750
2019	13,870	12,570	2,430	28,870
2020	13,660	12,850	2,460	28,980
2021	13,440	13,130	2,500	29,070
2022	13,220	13,400	2,530	29,150
2023	12,990	13,670	2,570	29,230
2024	12,750	13,930	2,600	29,290
2025	12,510	14,190	2,640	29,350
2026	12,270	14,450	2,680	29,400
2027	12,020	14,700	2,720	29,440
2028	11,770	14,950	2,750	29,470
2029	11,520	15,190	2,790	29,500
2030	11,260	15,430	2,830	29,520

<sup>1</sup> Any differences due to rounding



## 3 Sales

- The following table details the MTP modelling outputs in terms of annual UK sales. Sales numbers remain constant across the three scenarios: Reference, Policy and Best Available Technology (BAT).

Table 2<sup>2</sup> - Circulators: domestic & non-domestic sales

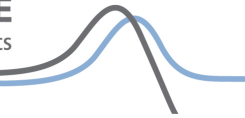
	Sales (000s)			TOTAL <sup>3</sup>
	Small standalone (domestic)	Boiler integrated (domestic)	Large standalone (non-domestic)	
2000	1,540	650	190	2,370
2001	1,520	730	190	2,450
2002	1,470	810	200	2,480
2003	1,460	890	200	2,550
2004	1,440	960	200	2,600
2005	1,430	1,030	210	2,660
2006	1,400	1,080	210	2,680
2007	1,350	1,120	210	2,680
2008	1,310	1,160	210	2,680
2009	1,530	940	210	2,690
2010	1,480	990	220	2,690
2011	1,430	1,040	220	2,690
2012	1,390	1,100	220	2,710
2013	1,350	1,160	230	2,740
2014	1,310	1,210	230	2,760
2015	1,280	1,260	240	2,780
2016	1,250	1,300	240	2,780
2017	1,230	1,320	240	2,800
2018	1,220	1,330	240	2,800
2019	1,210	1,340	250	2,800
2020	1,200	1,340	250	2,800
2021	1,190	1,350	250	2,800
2022	1,170	1,370	260	2,800
2023	1,140	1,400	260	2,800
2024	1,100	1,440	270	2,810
2025	1,070	1,480	270	2,810
2026	1,040	1,510	270	2,820
2027	1,010	1,530	280	2,820
2028	990	1,560	280	2,820
2029	970	1,570	280	2,820
2030	950	1,580	290	2,820

<sup>2</sup> The variation in small standalone and BI circulator sales in 2009/2010 is most likely due to an anomaly in the stock model approach and will be reviewed in future modelling iterations

<sup>3</sup> Any differences due to rounding

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- The sales are estimated and do not refer to actual market data. They are outputs based upon stock and lifetime inputs.
- Please refer to the relevant Key Inputs GSBN for further details of actual sales/stock data used to calibrate the model.



## 4 Energy Consumption<sup>4</sup>

- The following tables detail the MTP modelling outputs in terms of annual UK energy consumption.
- Note: The Policy Scenario energy consumption corresponds to the Government standards. All scenarios are the same until 2009.

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<sup>4</sup> Energy consumption figures for the non-domestic sector in the 2009/2010 Product policy analysis and projections document 'Saving energy through better products and appliances' were scaled down to match DECC projections for overall energy demand ([www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx](http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx)).

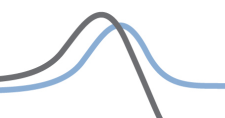
MTP data represents the best currently available information based on a bottom-up modelling approach. MTP's data is the basis for detailed energy calculations in the 2009/2010 Product policy analysis and projections document. However, DECC projections indicate that overall energy demand in the non-domestic sector is lower than projected by MTP's detailed models. MTP has assumed that the differences between the DECC overall projections and its detailed bottom-up projections are due to incomplete data on the following inputs for some of its non-domestic products:

- existing product stock;
- existing product efficiency;
- product usage.

The energy consumption figures in these GSBNs have **not** been scaled down, in order to enable constructive stakeholder comment on the MTP input data, and therefore differ from the ones presented in the 2009/2010 Product policy analysis and projections document.

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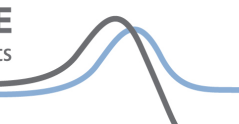
**Table 3 - Circulators: domestic & non-domestic Reference Scenario energy consumption**

	<b>Reference Scenario energy consumption (GWh)</b>			
	<b>Small standalone (domestic)</b>	<b>Boiler integrated (domestic)</b>	<b>Large standalone (non-domestic)</b>	<b>TOTAL<sup>5</sup></b>
2000	2120	820	1630	4560
2001	2110	910	1640	4670
2002	2100	1020	1650	4770
2003	2090	1120	1660	4870
2004	2070	1230	1670	4970
2005	2050	1340	1680	5060
2006	2020	1450	1690	5160
2007	1980	1560	1700	5240
2008	1940	1670	1710	5320
2009	1930	1720	1730	5380
2010	1900	1780	1740	5420
2011	1880	1820	1750	5450
2012	1820	1860	1760	5450
2013	1690	1900	1700	5300
2014	1570	1890	1630	5090
2015	1440	1840	1560	4840
2016	1310	1740	1490	4540
2017	1180	1650	1410	4240
2018	1050	1550	1340	3940
2019	930	1460	1270	3650
2020	820	1340	1200	3360
2021	720	1240	1140	3100
2022	630	1140	1090	2860
2023	570	1050	1060	2670
2024	510	970	1040	2520
2025	480	910	1030	2420
2026	450	870	1030	2350
2027	430	830	1030	2300
2028	420	810	1050	2280
2029	410	800	1060	2270
2030	390	800	1070	2260

<sup>5</sup> Any differences due to rounding

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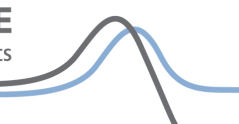
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**Table 4 - Circulators: domestic & non-domestic Policy Scenario energy consumption**

	Policy Scenario Energy consumption (GWh)			
	Small standalone (domestic)	Boiler integrated (domestic)	Large standalone (non-domestic)	TOTAL <sup>6</sup>
2009	1,930	1,720	1,730	5,380
2010	1,900	1,770	1,740	5,420
2011	1,870	1,820	1,750	5,440
2012	1,820	1,860	1,750	5,430
2013	1,690	1,890	1,690	5,270
2014	1,560	1,870	1,630	5,050
2015	1,430	1,820	1,550	4,800
2016	1,300	1,730	1,480	4,500
2017	1,170	1,630	1,400	4,200
2018	1,040	1,540	1,330	3,910
2019	920	1,440	1,260	3,620
2020	810	1,330	1,190	3,330
2021	710	1,230	1,130	3,070
2022	630	1,130	1,080	2,840
2023	560	1,040	1,050	2,650
2024	510	970	1,030	2,500
2025	470	910	1,020	2,400
2026	450	860	1,020	2,330
2027	430	830	1,030	2,280
2028	410	810	1,040	2,260
2029	400	800	1,050	2,250
2030	390	790	1,060	2,240

<sup>6</sup> Any differences due to rounding



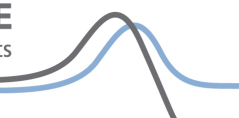
**Table 5 - Circulators: domestic & non-domestic Best Available Technology Scenario energy consumption**

	<b>Best Available Technology Scenario Energy consumption (GWh)</b>			
	<b>Small standalone (domestic)</b>	<b>Boiler integrated (domestic)</b>	<b>Large standalone (non-domestic)</b>	<b>TOTAL<sup>7</sup></b>
2009	1,810	1,620	1,650	5,080
2010	1,680	1,560	1,590	4,830
2011	1,540	1,500	1,510	4,550
2012	1,400	1,420	1,440	4,260
2013	1,250	1,340	1,350	3,940
2014	1,110	1,240	1,260	3,620
2015	980	1,130	1,180	3,290
2016	850	1,020	1,100	2,980
2017	740	920	1,030	2,690
2018	650	830	970	2,440
2019	570	760	920	2,250
2020	510	710	890	2,110
2021	470	670	870	2,010
2022	440	660	860	1,950
2023	420	650	860	1,920
2024	400	640	870	1,910
2025	390	640	870	1,900
2026	380	650	880	1,910
2027	370	650	900	1,910
2028	360	660	910	1,920
2029	350	660	920	1,930
2030	340	670	930	1,940

## 4.1 Differences in energy consumption compared to last published figures

- Circulators have not been modelled in detail before; therefore there are no published figures to compare with.

<sup>7</sup> Any differences due to rounding

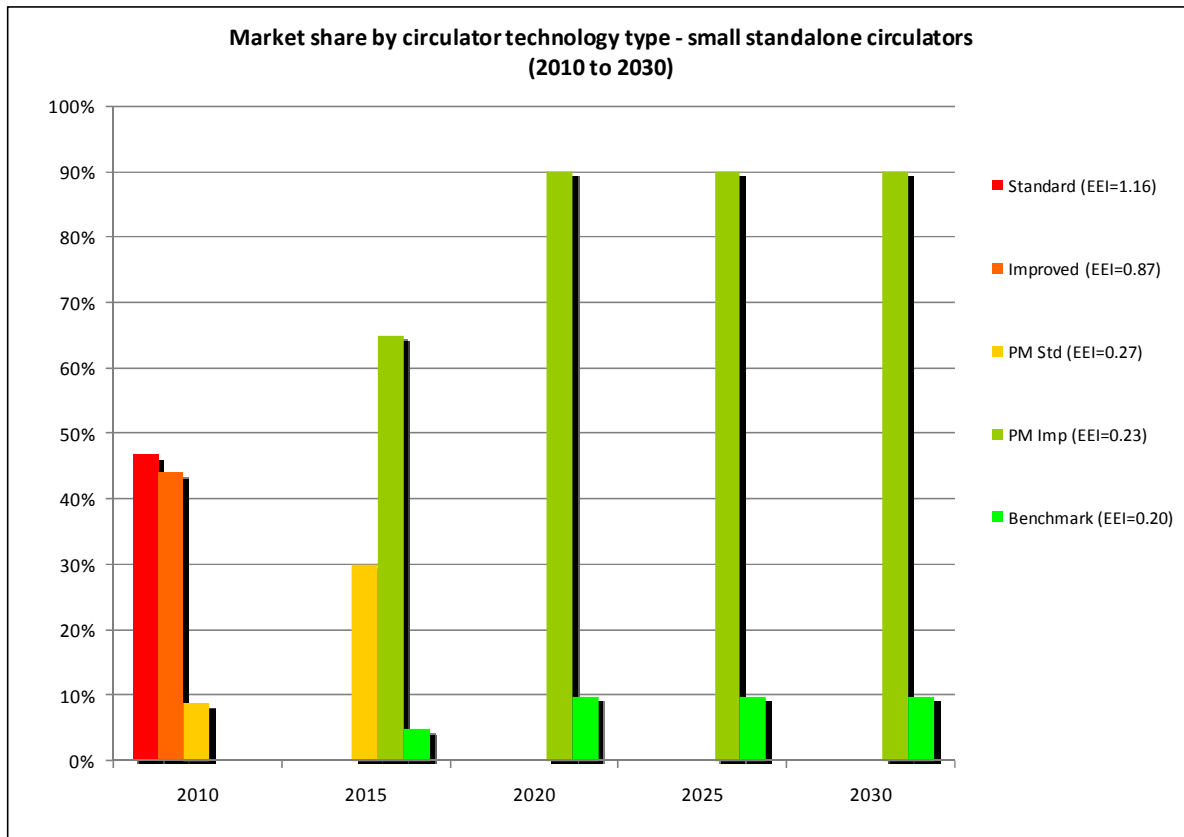
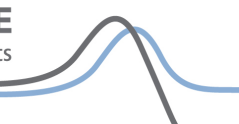


## 5 Government Standards

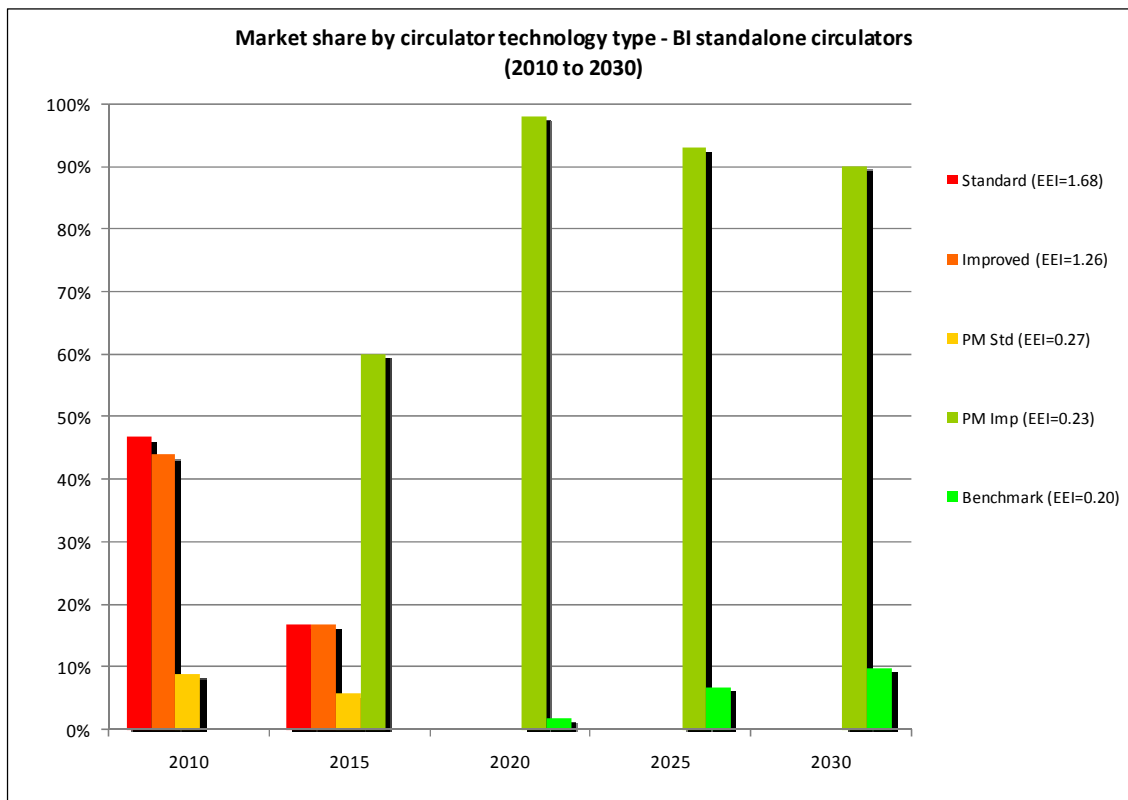
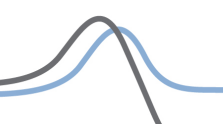
- As part of its commitments in May 2007's Energy White Paper, the Government, via its Market Transformation Programme, is obliged to “publish a series of consultation papers setting out [its] analysis of how the performance of energy-using products will need to improve over the next 10-20 years, including proposals for product standards and targets to phase out the least efficient products”
- In 2009, the Government published its annual Product policy analysis and projections document, 'Saving Energy through Better Products and Appliances'. The proposals for product standards which would achieve the policy scenario for products in the Motors & Circulators annexe of this document are given below. These are represented in both graphical and tabular form, in order to be helpful to a wide range of audiences.

### 5.1 Charts

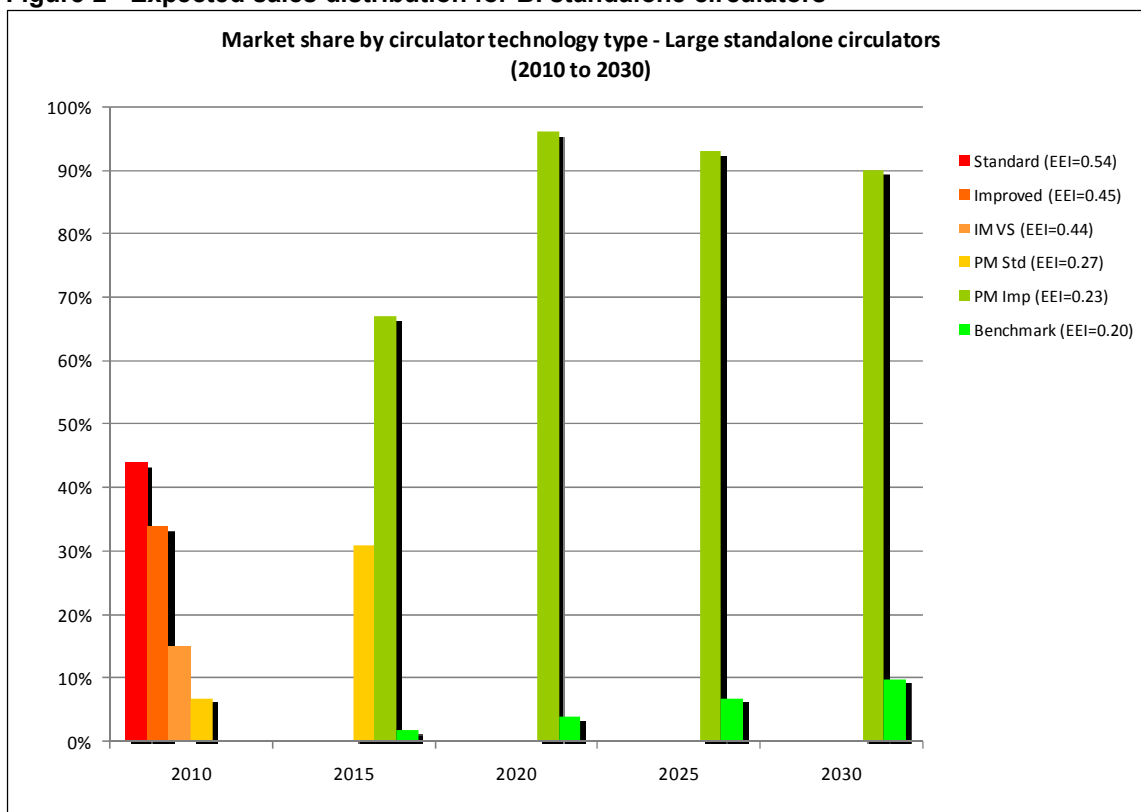
- The following charts illustrate the expected market distribution over time of the products addressed against the relevant efficiency metric for that product. Exact presentation of these charts will vary between product areas, due to variation in efficiency metric applicable.



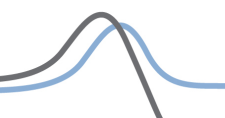
**Figure 1 - Expected sales distribution for small standalone circulators**



**Figure 2 - Expected sales distribution for BI standalone circulators**



**Figure 3 - Expected sales distribution for large standalone circulators**

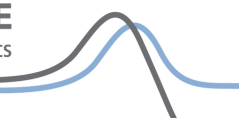


## 5.2 Tables

- The market distributions illustrated in the previous section, translate to measurements of average sales efficiency over time (stated in terms of power consumption).
- The following tables illustrate the expected change in average power consumption over time of the products addressed. Note: These tables reflect one possible mix of sales distributions to achieve the Government Standards.

**Table 6 - Circulators: domestic & non-domestic Government Standard sales market average**

Year	Average power consumption (W)		
	Small standalone (domestic)	Boiler integrated (domestic)	Large standalone (non-domestic)
2000	112.3	162.9	368.2
2001	112.0	162.4	364.2
2002	111.7	162.0	360.2
2003	110.9	160.7	356.2
2004	110.0	159.5	352.2
2005	109.1	158.3	348.1
2006	108.3	157.0	348.1
2007	107.4	155.8	348.1
2008	106.6	154.5	348.1
2009	105.7	153.3	345.5
2010	104.2	151.1	341.6
2011	98.6	148.1	335.5
2012	87.6	144.3	323.5
2013	39.7	142.2	191.2
2014	38.5	106.1	183.2
2015	36.2	88.3	173.3
2016	34.8	61.9	164.2
2017	34.8	61.9	164.0
2018	34.7	61.9	164.0
2019	34.7	61.9	163.8
2020	34.6	50.8	163.8
2021	34.6	50.8	163.5
2022	34.6	50.7	163.5
2023	34.6	50.6	163.3
2024	34.6	50.5	163.3
2025	34.6	50.4	163.1
2026	34.6	50.4	163.1
2027	34.6	50.4	162.9
2028	34.6	50.3	162.9
2029	34.6	50.3	162.7
2030	34.6	50.2	162.5



## Related MTP information

- BNM C01: Circulators Government Standards Evidence Base 2009: Key Inputs
- BNM C02: Circulators Government Standards Evidence Base 2009: Reference Scenario
- BNM C03: Circulators Government Standards Evidence Base 2009: Policy Scenario
- BNM C04: Circulators Government Standards Evidence Base 2009: Best Available Technology Scenario
- BNDH B01: Domestic Boilers Government Standards Evidence Base 2009: Key Inputs
- BNDH B02: Domestic Boilers Government Standards Evidence Base 2009: Reference Scenario
- BNDH B03: Domestic Boilers Government Standards Evidence Base 2009: Policy Scenario
- BNDH B04: Domestic Boilers Government Standards Evidence Base 2009: Best Available Technology Scenario
- BNDH B05: Domestic Boilers Government Standards Evidence Base 2009: Key Outputs

## Changes from previous version

- Minor changes to template.

## Consultation and further information

Stakeholders are encouraged to review this document and provide suggestions that may improve the quality of information provided, email [info@mtprog.com](mailto:info@mtprog.com) quoting the document reference, or call the MTP enquiry line on +44 (0) 845 600 8951.

For further information on related issues visit <http://efficient-products.defra.gov.uk>