This PDF shows the following definitions and explanations of the data in Electricity Demand Summary (ED1)

Contents

ESO

Annual Demand Breakdown

The table below shows the aggregation method for each component of annual demand.

Level 1	Level 2	Level 3	Level 4	Level 5: Supplementary Components
GBFES System Demand: Total				
(+) →	GBFES Customer Demand: Residential			Residential
	(+) →	Residential Appliance Demand		Residential Micro-generation
	(+) →	Residential Storage Heat		
	(+) →	Residential Resistive Heat Demand		
	(+) →	Residential Resistive Hot Water		
	(+) →	Residential Light		
	(-) →	Residential Smart Metering - Demand Reduction		
	(+) →	Residential Heat Pumps		
	(+) →	Residential Electric Vehicles Demand (EVs)		
	(+) →	Residential Air Conditioning Demand		
	(+) →	Residential District Heat Demand		
(+) →	GBFES Customer Demand: Total Industrial (Electrolysis & District Heat included)			Industrial
	(+) →	GBFES Customer Demand: Deduct Networked Electrolysis from Industrial		Industrial District Heat Demand
	(+) →	GBFES Customer Demand: Total Industrial (Excluding Electrolysis)		
(+) →	GBFES Customer Demand: Commercial with Micro-generation Included			Commercial
	(+) →	Commercial Micro-generation		I&C Rail Traction Demand
				Commercial District Heat Demand
	(+) →	GBFES Customer Demand: Commercial with Micro-generation deducted		Commercial Heat Pump Demand
		(+) →	Total Commercial Demand inc EV, Heat Pumps, District Heat, Rail Traction, No directs	GB Customer Demand: Commercial Data Centres - Direct Transmission Customers
				GB Customer Demand: Commercial Data Centres - Distribution System Customers
		(+) →	Commercial Electric Vehicles Demand (EVs)	
		(-) →	Commercial Micro-generation	
(+) →	GBFES System Losses: Transmission			System
(+) →	GBFES System Losses: Distribution			
(+) →	GBFES Customer Demand: Direct Transmission Customers			

Peak Demand Breakdown

The table below shows the aggregation method for each component of peak demand.

Level 1	Level 2	Level 3	Level 4	Level 5: Supplementary Components
GBFES Peak Customer Demand: Total Consumption plus Losses				
(+) →	GBFES Peak System Demand: All Residential plus Losses (Smart EV Charging, no Micro-generation)			Residential
	(+) →	Residential Peak Sub Total (Appliances, Light, Resistive Heat)		
	(+) →	Residential Peak Shifting (Smart/TOUTs effect)		
	(+) →	Residential EVs at Peak		
	(+) →	Residential Resistive Heat at Peak		
	(+) →	Residential Storage Heat at Peak		
	(+) →	Residential Heat Pumps at Peak		
	(+) →	Residential District Heat at Peak		
	(+) →	Residential Losses		
(+) →	GBFES Peak System Demand: All Industrial except Electrolysis, plus Losses			Industrial
	(+) →	Industrial Peak (No Losses)		
	(+) →	Industrial Resistive Heat at Peak		
	(+) →	Industrial Storage Heat at Peak		
	(+) →	Industrial District Heat at Peak		
	(+) →	Industrial Losses		
(+) →	GBFES Peak System Demand: Commercial inc. Rail and District Heat, +EVs +HPs +Losses ignoring Microgen			Commercial
	(+) →	Commercial Heat Pumps at Peak		
	(+) →	Initial Commercial Component inc. District Heat inc. Rail (No Losses)		
	(+) →	Commercial Resistive Heat at Peak		
	(+) →	Commercial Storage Heat at Peak		
	(+) →	Commercial District Heat at Peak		
	(+) →	Commercial EVs at Peak		
	(+) →	Commercial Losses		
(+) →	GB FES System Demand: Direct Connects			System

Minimum Demand Breakdown

Table below shows the aggregation method for each component of minimum demand. (Unrestricted National Demand - no transmission pumping)

Level 1	Level 2	Level 3	Level 4	Level 5: Supplementary Components
GBFES System Demand: Total Summer Minimum Demand				
(+) →	GBFES Customer Demand: Residential including losses			Residential
	(+) →	Residential Sub Total (Appliances, Light, Resistive Heat)		
	(+) →	Residential Demand Shifting (Smart/TOUTs effect)		
	(+) →	Residential EV Summer Min		
	(+) →	Residential Heat Pump Summer Min		
	(+) →	Residential Resistive Heat Summer Min		
	(+) →	Residential Storage Heat Summer Min		
	(+) →	Residential District Heat Summer Min		
	(+) →	Residential Losses		
(+) →	GBFES Customer Demand: Industrial including losses			Industrial
	(+) →	Industrial Sub Total (Heat components plus losses)		
	(+) →	Industrial Resistive Heat Summer Min		
	(+) →	Industrial Storage Heat Summer Min		
	(+) →	Industrial District Heat Summer Min		
	(+) →	Industrial Losses		
(+) →	GBFES Customer Demand: Commercial including losses			Commercial
	(+) →	Commercial Sub Total (Heat components plus losses)		
	(+) →	Commercial EVs at Peak		
	(+) →	Commercial Resistive Heat Summer Min		
	(+) →	Commercial Storage Heat Summer Min		
	(+) →	Commercial District Heat Summer Min		
	(+) →	Commercial Heat Pumps at Peak		
	(+) →	Commercial Losses		
(+) →	GBFES Customer Demand: On Grid Electrolysis (PM only)			System
(+) →	GBFES Customer Demand: Direct Transmission Customers			

Explanation of the above Demand Breakdowns.

Column	Category	Description
Aggregation Level	01/04/2023	Each level represents a level of aggregation descending order. For example, level 1 is the aggregation of all levels 2 component. The contribution (addition or subtraction) of each element is given adjacent to the element description in the data breakdown below.
Aggregation Level	5	Level 5 data is supplementary. It is not included in aggregation totals in the data breakdown but relates to one or more of the aggregated components.
Peak/Annual /Minimum	Peak	Data for Winter Peak, 5pm-6pm. Traditionally the highest GB demand period.
Peak/Annual /Minimum	Summer 0600hrs	Data for Summer Sunday, 5am-6am. Traditional GB minimum demand period.
Peak/Annual /Minimum	Summer 1400hrs	Data for Summer Sunday, 1pm-2pm. Analysis period when high solar output interacts with falling demand (after lunchtime)
Peak/Annual /Minimum	Annual	Annual Data, usually Fiscal Year
Data Item	Commercial EV Charging	Non residential EV charging including on-street, public and forecourt charging
Data Item	Commercial Rail Traction	BEIS ECUK: Traction demand from rail transport
Data Item	Appliances: Cold	BEIS ECUK: Home refrigeration and freezing
Data Item	Appliances: Computing	BEIS ECUK: Laptops, Desktops, Monitors
Data Item	Appliances: Consumer	BEIS ECUK: TVs, Set top boxes, Games Consoles, DVD/VCR players
Data Item	Appliances: Cooking	BEIS ECUK Hobs, ovens, microwaves, kettles
Data Item	Appliances: Light	BEIS ECUK: Light bulbs
Data Item	Appliances: Wet	BEIS ECUK: Washing machines, tumble driers, washing machines
Data Item	Appliances: Other	BEIS ECUK. Uncategorised demands. Difference between electricity demands in total ends use consumer demand and the appliance tables of ECUK. Data in this category under review
Data Item	Residential Air Conditioning	Assumptions based on current 1% residential. Assume portable air-con unit at 500kWh/year (191 hours at 2.7kW max capacity. Units on for 20 days a year). Each unit assumed to be consuming 1KW on an average diversified basis during main cooling period, and 0.1kW at 0600hrs
Data Item	Residential District Heat	Large scale plants assumed to act in a similar manner to air source heat pumps, but with some top up heating or thermal storage to peak shave
Data Item	GB Electricity losses	Distribution and Transmission line losses ~8% a year. Assumed to be similar at peak.
Data Item	Industrial & Commercial Triad Avoidance	Demand reduction at peak due to behind meter generation, and pure demand side response (demand reduction or shifting)
Data Item	Industrial & Commercial Pure Demand Side Response	Demand reduction at peak due demand reduction or shifting
Data item	GBFES Customer Demand: On Grid Electrolysis (PM only)	Electrolysis demand for electricity used for GB Hydrogen demand only

Demand Definitions

The table below shows the components within various electricity demand definitions.

Demand Definition	Used In FES?	Total Demand: Conditions	(Metered) Transmission and Large Distribution Generation	Demand met by "Un-Metered" Generation	Electricity Losses ~8%	Interconnector Exports	Pumping Demand	Station Demand
Consumer Demand (FES Customer Demand)	Yes - WS Sheets	Weather Corrected Annual Average	Yes	Yes	No	No	No	No
Bid3 Annual Generation Output	Yes - Electricity Supply Chapter	Selected Weather Year 2013	Yes	Yes	Yes	Yes	Yes	No
FES Underlying (System)Demand	Yes - Table ED1	Peak: ACS. Summer: Average	Yes	Yes	Yes	No	No	No
National Demand	Yes - Table ED1 and Sheet ES2	Observed, weather corrected or reconciled	Yes	No	Yes	No	No	No
Transmission System Demand	No	Observed, weather corrected or reconciled	Yes	No	Yes	Yes	Yes	Yes

Demand Terminology

	Notes
Observed Demand	National Grid ESO operational metering data (NGESO)
Weather Corrected	NGESO weather corrected operational metering data
Reconciled Demand	Produced by Elexon: Reconciled data for billing
Restricted Demand	Peak Demand taking into account triad avoidance
Unrestricted Demand	Peak Demand without triad avoidance deducted
Triad Avoidance	Demand reduction at peak due to behind meter generation, and pure demand side response (demand reduction or shifting)
Pure Demand Side Response (behind meter Generation and Storage does not count as pure DSR)	Demand reduction at peak due demand reduction or shifting
Pumping Demand	Net Demand from pumped storage generation ~5TWh/year
Station Demand	Demand from power stations. Generation output is assumed to be net of station demand under several demand definitions. Not added to FES data.
Station Demand	~5TWh/year. Assumed to be 600MW at peak and 500MW at other times. Not added to FES data.
Metered Generation	Transmission generation and large DNO generation
Unmetered Generation	Generation not metered by NGESO (DNO and behind meter generation)
Electricity Losses	Distribution and Transmission line losses ~8% a year. Assumed to be similar at peak.