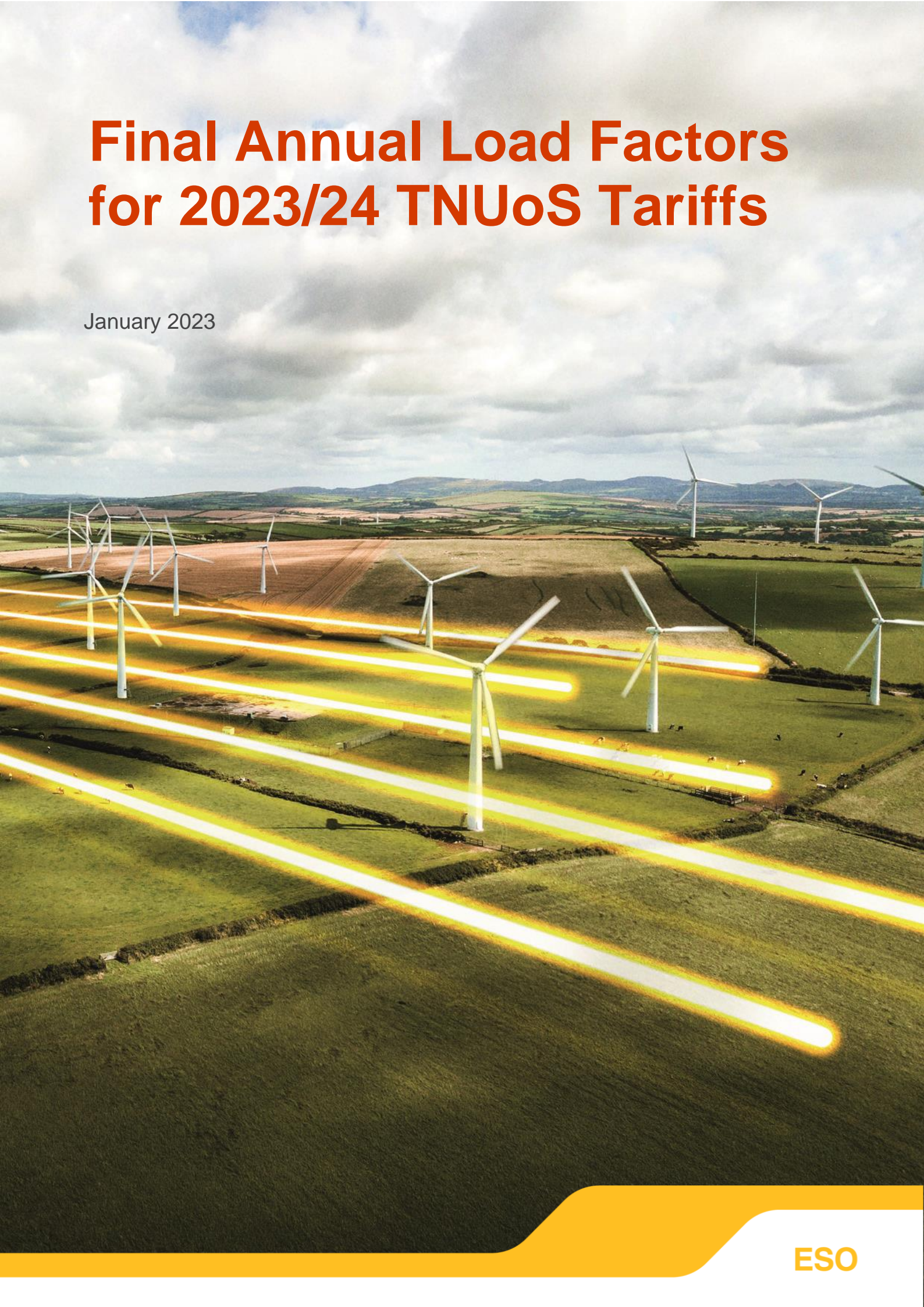


# Final Annual Load Factors for 2023/24 TNUoS Tariffs

January 2023



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# Summary of Annual Load Factors for the 2023/24 charging year

## Executive summary

**These are the final ALFs that will be used for TNUoS charging in 2023/24**

The Electricity System Operator (ESO) is responsible for calculating, billing and collecting the Transmission Network Use of System (TNUoS) charges from generators and suppliers for use of the transmission networks. The TNUoS charges are designed to recover the cost of installing and maintaining the transmission system in England, Wales, Scotland and offshore. The methodologies for TNUoS charges are defined in the Connection and Use of System Code (CUSC). One of the key parameters for the generator TNUoS charges is Annual Load Factors (ALFs).

This document contains the final Annual Load Factors (ALFs) to be used in the calculation of generator TNUoS tariffs for 2023/24, effective from 1 April 2023.

We use generation data from the past five years to calculate the load factor for each generator. The ALFs in this document are based on generation data between 2017/18 and 2021/22.

Where historic data is not available for a new or mothballed station, we use a generic ALF corresponding to the station's generation technology type.

There have been no changes made from the Draft ALFs for 2023/24 which we published on 30th November 2022.

The ALFs for each generator at station level, and the generic ALF for each generation technology type, are published below.

### TNUoS Revenue team

E [TNUoS.Queries@nationalgrideso.com](mailto:TNUoS.Queries@nationalgrideso.com)

## Final Annual Load Factors for 2023/24

The table below shows the final ALFs using data from the 2017/18 to 2021/22 charging years.

Please note that where there is no data available for a station, the generic ALF for the station’s generation type is used to complete the required data, this is shown as 0% in the table as it represents their actual data for that year.

**Table 1: Final ALFs by generating station**

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
ABERDEEN	Offshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	44.7745%	43.4877%	40.4600%	39.8013%	41.2497%
ACHRUACH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	44.3464%	42.2005%	44.6235%	38.9476%	30.9230%	41.8315%
AFTON	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	34.8738%	37.3713%	54.8712%	44.9021%	31.8944%	45.7149%
AIKENGALL II	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	33.5082%	22.4459%	26.2386%	25.3400%	37.8846%	29.8211%
AN SUIDHE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	41.2323%	36.2945%	38.0034%	36.6430%	36.4042%	37.0169%
ARECLEOCH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	35.1728%	30.6827%	33.7507%	29.8557%	20.7179%	31.4297%
BAD A CHEO	Onshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	21.5538%	44.1803%	40.2060%	38.3828%	40.9230%
BARROW	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	47.0417%	39.0292%	41.0261%	36.8873%	32.7662%	38.9808%
BEATRICE	Offshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	51.8538%	62.4523%	47.4445%	46.4316%	52.1095%
BEAULY CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	21.9937%	34.5072%	38.3073%	33.6181%	33.8611%	33.9955%
BEINNEUN	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	25.8214%	37.9202%	37.8757%	39.9402%	32.9284%	36.2414%
BHLARAIDH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	46.3209%	40.1955%	38.8473%	35.5105%	32.7032%	38.1844%
BLACK LAW	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	21.2137%	26.3658%	26.1492%	18.7236%	21.7779%	23.0469%
BLACKCRAIG WINDFARM	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	36.0208%	40.3666%	50.2739%	48.9036%	42.0617%	47.0797%
BLACKLAW EXTENSION	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	30.4870%	33.9916%	35.2458%	30.8894%	19.3554%	31.7893%
BRIMSDOWN	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	27.6168%	34.1757%	48.5050%	4.9608%	63.6660%	36.7658%
BURBO BANK EXT	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	49.3850%	42.5220%	49.1381%	45.9610%	38.1707%	45.8737%
CARRAIG GHEAL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	45.5371%	45.7472%	49.1331%	45.8985%	42.5664%	45.7276%
CARRINGTON	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	58.8066%	65.4275%	45.6708%	36.5051%	65.5803%	56.6350%
CLUNIE	Hydro	Actual	Actual	Actual	Actual	Actual	32.1699%	36.8500%	47.5977%	40.7445%	35.4478%	37.6808%
CLYDE (NORTH)	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.2619%	41.4890%	43.6042%	37.7586%	34.4795%	39.5031%
CLYDE (SOUTH)	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.1634%	38.7296%	26.6271%	36.3028%	30.9274%	35.3199%
CONNAHS QUAY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	20.0846%	19.0546%	14.7379%	19.8650%	20.5616%	19.6681%
CONON CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	50.8547%	50.7941%	57.4034%	54.2900%	50.3881%	51.9796%



Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
CORBY	CCGT_CHP	Partial	Actual	Actual	Actual	Actual	44.6503%	1.8650%	0.3397%	0.3494%	1.2397%	1.1514%
CORRIEGARTH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	41.2013%	44.7484%	46.1902%	50.5594%	44.1801%	45.0396%
CORRIEMOILLIE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	30.4210%	30.7985%	36.3718%	32.9303%	29.6203%	31.3833%
CORYTON	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	16.4022%	23.4777%	39.0899%	31.1732%	19.1165%	24.5891%
COTTAM DEVELOPMENT CENTRE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	56.3007%	77.5270%	55.5832%	59.6052%	60.2601%	58.7220%
COUR	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	55.4273%	55.6107%	57.8770%	55.7018%	47.6677%	55.5799%
COWES	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.6942%	0.0395%	0.0884%	0.0740%	0.2156%	0.1260%
COWLEY	Battery	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	7.6721%	1.9502%	3.6205%
CROSSDYKES	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	28.1135%	29.9792%	32.5062%
CRUACHAN	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	9.6225%	6.5778%	8.0284%	8.2655%	5.8915%	7.6239%
CRYSTAL RIG II	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	52.5802%	48.7267%	49.7918%	48.4995%	45.9008%	49.0060%
CRYSTAL RIG III	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	51.9020%	49.5314%	53.8704%	52.9482%	48.4103%	51.4605%
DAMHEAD CREEK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	63.5108%	45.2453%	30.0390%	24.5035%	30.2402%	35.1748%
DEESIDE	reactive_Compensatio	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	6.0389%	0.0000%	2.0130%
DERSALLOCH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	39.8576%	35.2052%	37.1058%	32.3152%	30.7585%	34.8754%
DIDCOT B	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	44.1234%	50.9938%	50.2420%	41.8806%	54.9314%	48.4530%
DIDCOT GTS	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.6337%	0.7115%	0.5130%	0.0737%	0.1578%	0.4348%
DINORWIG	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	14.9467%	12.5027%	8.2963%	7.3817%	10.1178%	10.3056%
DORENELL	Onshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	39.7116%	54.8990%	50.4355%	45.9927%	50.4424%
DOUGLAS WEST	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	40.3298%	39.7272%
DRAX	Coal	Actual	Actual	Actual	Actual	Actual	55.8896%	50.9593%	46.7591%	47.3862%	44.2811%	48.3682%
DUDGEON	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	46.9782%	47.2525%	54.1115%	50.4436%	48.3572%	48.6844%
DUNGENESS B	Nuclear	Actual	Actual	Actual	Actual	Actual	68.2086%	39.8945%	0.0000%	0.0000%	0.0000%	13.2982%
DUNLAW EXTENSION	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	31.0840%	28.4604%	29.8704%	26.5288%	24.8042%	28.2865%
DUNMAGLASS	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	75.6936%	51.5228%	50.4246%	41.6275%	40.9001%	47.8583%
EAST ANGLIA 1	Offshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	30.2828%	49.0266%	50.5934%	43.3009%
EDINBANE WIND	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	34.5929%	34.9938%	32.6744%	30.1338%	30.9158%	32.7277%
ERROCHTY	Hydro	Actual	Actual	Actual	Actual	Actual	13.6081%	17.9492%	26.5126%	19.3928%	24.2338%	20.5253%
EWE HILL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	33.1849%	32.9121%	36.6313%	29.5980%	27.8813%	31.8983%
FALLAGO	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	49.4158%	47.9232%	51.8467%	50.9745%	44.0807%	49.4378%
FARR WINDFARM	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	38.3046%	39.5693%	40.9761%	38.1431%	39.7780%	39.2173%
FASNAKYLE G1 & G3	Hydro	Actual	Actual	Actual	Actual	Actual	38.1673%	43.6554%	54.6486%	49.1345%	41.0037%	44.5979%
FAWLEY CHP	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	76.0793%	68.2899%	65.6292%	70.0968%	64.7543%	68.0053%
FFESTINIOG	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	4.2118%	2.9504%	2.1464%	3.6192%	4.2564%	3.5938%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
FINLARIG	Hydro	Actual	Actual	Actual	Actual	Actual	52.6415%	64.1387%	69.5043%	61.4982%	54.8479%	60.1616%
FOYERS	Pumped_Storage	Actual	Actual	Actual	Actual	Actual	14.5333%	14.9278%	7.6086%	12.5348%	11.5561%	12.8748%
FREASDAIL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	38.9709%	40.4607%	42.0718%	38.5290%	35.8249%	39.3202%
GALAWHISTLE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	42.4455%	47.4443%	50.0137%	49.1133%	35.7352%	46.3344%
GALLOPER	Offshore_Wind	Partial	Actual	Actual	Actual	Actual	54.7593%	53.8046%	54.2416%	51.7484%	51.7748%	53.2737%
GARRY CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	60.0010%	54.2012%	57.0471%	63.4954%	53.0632%	57.0831%
GLANDFORD BRIGG	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	1.8418%	1.0295%	0.6378%	0.1233%	0.0000%	0.5969%
GLEN APP	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	24.8393%	22.0870%	26.2184%	25.5772%	18.9414%	24.1678%
GLEN KYLLACHY WIND FARM	Onshore_Wind	Generic	Generic	Generic	Generic	Actual	0.0000%	0.0000%	0.0000%	0.0000%	40.2426%	39.6981%
GLENDOE	Hydro	Actual	Actual	Actual	Actual	Actual	24.0105%	31.6076%	36.0951%	33.8791%	33.5063%	32.9976%
GLENMORISTON	Hydro	Actual	Actual	Actual	Actual	Actual	44.3960%	37.8283%	45.1829%	42.7433%	0.0279%	41.6558%
GORDONBUSH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	34.1762%	38.6227%	41.4003%	31.2278%	37.8413%	36.8801%
GRAIN	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	39.7755%	50.2928%	49.2656%	46.8759%	45.5408%	47.2274%
GRANGEMOUTH	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	58.9786%	63.5659%	62.3434%	54.9758%	47.7542%	58.7659%
GREAT YARMOUTH	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	50.1521%	36.5911%	53.4446%	37.8027%	54.4555%	47.1331%
GREATER GABBARD	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	46.4939%	39.9735%	47.3707%	44.6564%	40.4104%	43.8536%
GRIFFIN WIND	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	28.8970%	27.3684%	27.5826%	24.2980%	23.3292%	26.4163%
GUNFLEET SANDS I	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	47.3019%	39.8080%	45.4945%	42.0515%	37.1512%	42.4513%
GUNFLEET SANDS II	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	46.9928%	39.6453%	45.0419%	41.8400%	38.0427%	42.1757%
GWYNT Y MOR	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	50.4031%	42.8331%	45.3165%	41.7255%	35.5432%	43.2917%
HADYARD HILL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	34.0375%	31.2735%	33.5312%	29.9285%	28.5335%	31.5777%
HALSARY WIND FARM	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	33.4644%	51.6171%	41.5025%
HARESTANES	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	29.0125%	23.8473%	29.0205%	27.9253%	24.1662%	27.0347%
HARTLEPOOL	Nuclear	Actual	Actual	Actual	Actual	Actual	80.6218%	85.4489%	78.3650%	82.6796%	55.8166%	80.5555%
HEYSHAM	Nuclear	Actual	Actual	Actual	Actual	Actual	85.1617%	77.3512%	81.9479%	72.3488%	59.6539%	77.2160%
HINKLEY POINT B	Nuclear	Actual	Actual	Actual	Actual	Actual	83.4643%	79.8462%	72.3339%	8.5019%	73.6931%	75.2911%
HORNSEA 1A	Offshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	35.7733%	50.0278%	49.5545%	45.1186%
HORNSEA 1B	Offshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	39.4929%	56.1660%	52.5372%	49.8309%	52.8447%
HORNSEA 1C	Offshore_Wind	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	45.3217%	50.9526%	49.4558%	48.5767%
HORNSEA 2A	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	3.8606%	32.5769%
HORNSEA 2B	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	15.6889%	36.5196%
HORNSEA 2C	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	28.6342%	40.8347%
HUMBER GATEWAY	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	54.9913%	46.8351%	50.3072%	47.4682%	44.0755%	48.2035%
IMMINGHAM	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	64.3175%	72.9980%	69.2946%	69.7413%	46.2767%	67.7845%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
INDIAN QUEENS	Gas_Oil	Actual	Actual	Actual	Actual	Actual	0.0740%	0.0288%	0.1789%	0.0430%	0.5132%	0.0986%
J G PEARS	CCGT_CHP	Generic	Actual	Actual	Actual	Actual	0.0000%	36.3135%	43.5479%	45.1644%	42.1169%	43.6097%
KEADBY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	38.6957%	40.3687%	27.3173%	29.3689%	14.9634%	31.7940%
KEADBY II CCGT POWER STATION	CCGT_CHP	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	34.1801%	44.3009%
KEITH HILL	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	36.9858%	23.8493%	24.7990%	22.2586%	19.7960%	23.6356%
KEMSLEY	Battery	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	7.2267%	1.6915%	3.3858%
KENNOXHEAD WIND FARM EXTENSION	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	23.0074%	33.9531%
KILBRAUR	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	56.7501%	49.7699%	44.2180%	41.2281%	42.2555%	45.4145%
KILGALLIOCH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	25.3254%	43.3442%	46.4978%	43.4111%	38.7621%	41.8391%
KILLIN CASCADE	Hydro	Actual	Actual	Actual	Actual	Actual	34.9231%	40.4764%	43.1565%	42.0620%	34.9296%	39.1560%
KILLINGHOLME (POWERGEN)	Gas_Oil	Partial	Actual	Actual	Actual	Actual	0.5489%	0.6139%	1.2782%	1.6444%	1.2381%	1.3869%
KINGS LYNN A	CCGT_CHP	Generic	Actual	Actual	Actual	Actual	0.0000%	0.4254%	20.9575%	51.7706%	55.5285%	42.7522%
KYPE MUIR	Onshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	27.7774%	42.8204%	35.5513%	32.0539%	36.8085%
LANGAGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	42.3368%	24.5591%	28.9836%	25.4374%	54.5199%	32.2526%
LINCS WIND FARM	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	51.0911%	46.7412%	50.8056%	48.3981%	44.2258%	48.6483%
LITTLE BARFORD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	66.3067%	63.2342%	38.4787%	38.3298%	28.9830%	46.6809%
LOCHLUICHAIR	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	34.3322%	32.8475%	34.1454%	30.2399%	29.0049%	32.4110%
LONDON ARRAY	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	50.5515%	36.8539%	45.8936%	46.8827%	41.9931%	44.9231%
LYNEMOUTH	Biomass	Actual	Actual	Actual	Actual	Actual	1.0783%	85.6495%	90.7180%	87.1228%	90.7966%	87.8301%
MARCHWOOD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	67.3692%	72.2737%	45.8482%	63.6469%	73.2378%	67.7633%
MARK HILL	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	31.0915%	28.6666%	31.8364%	27.8354%	26.2231%	29.1978%
MEDWAY	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	36.7261%	27.4290%	21.3610%	35.5113%	9.7881%	28.1004%
MIDDLE MUIR	Onshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	29.3669%	50.1156%	37.3334%	26.6592%	38.0361%
MILLENNIUM	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	53.6488%	54.1216%	54.8443%	45.2370%	40.3105%	51.0024%
MINNYGAP	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	30.9962%	32.4279%	34.1156%	32.2366%	28.8148%	31.8869%
MORAY EAST POWER STATIONS	Offshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	33.9646%	42.6115%
NANT	Hydro	Actual	Actual	Actual	Actual	Actual	34.9026%	34.0281%	38.0822%	31.3490%	33.8403%	34.2570%
NURSILING TERTIARY	Battery	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	9.0074%	0.0756%	3.4407%
ORMONDE	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	37.7162%	40.8646%	42.8854%	39.5996%	27.8130%	39.3935%
PEMBROKE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	70.2866%	70.5263%	63.4003%	60.9615%	77.4265%	68.0711%
PEN Y CYMOEDD	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	36.0948%	33.2009%	38.5408%	36.6615%	31.6591%	35.3191%
PETERBOROUGH	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	0.4349%	0.4136%	0.5500%	0.7858%	2.4456%	0.5902%
PETERHEAD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	65.7808%	61.5747%	50.7405%	45.1695%	27.1070%	52.4949%
POGBIE	Onshore_Wind	Generic	Partial	Actual	Actual	Actual	0.0000%	29.0769%	32.0583%	28.6354%	27.6012%	29.4316%



Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
RACE BANK	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	38.1978%	47.1320%	51.5222%	48.5914%	45.0760%	46.9331%
RAMPION	Offshore_Wind	Partial	Actual	Actual	Actual	Actual	40.9885%	35.4891%	35.3948%	46.9187%	42.1023%	41.5034%
RATCLIFFE-ON-SOAR	Coal	Actual	Actual	Actual	Actual	Actual	19.3780%	16.8536%	1.1881%	8.6794%	27.4231%	14.9703%
ROBIN RIGG EAST	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	42.5599%	34.4229%	40.0541%	40.1533%	34.3910%	38.2101%
ROBIN RIGG WEST	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	47.3991%	40.9494%	41.9934%	41.3967%	35.9395%	41.4465%
ROCKSAVAGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	29.8122%	35.6214%	34.7678%	28.4727%	28.3526%	31.0175%
RYE HOUSE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	13.4736%	8.6393%	7.0222%	8.1726%	9.2983%	8.7034%
SALTEND	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	70.1596%	71.3266%	74.0812%	74.1271%	64.4094%	71.8558%
SANQUHAR	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	35.2098%	50.9844%	57.9841%	52.5076%	47.6727%	53.8253%
SEABANK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	55.4606%	32.6753%	22.3590%	27.1891%	28.1000%	29.3215%
SELLAFIELD	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	13.6007%	8.8320%	3.2368%	2.0667%	0.4333%	4.7119%
SEVERN POWER	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	55.6920%	39.5616%	26.2481%	9.2566%	0.0000%	25.0221%
SHERINGHAM SHOAL	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	54.3071%	50.7594%	49.0236%	45.7952%	39.2167%	48.5261%
SHOREHAM	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	64.2994%	12.0983%	7.2596%	26.1252%	34.5515%	24.2583%
SIZEWELL B	Nuclear	Actual	Actual	Actual	Actual	Actual	73.3708%	98.0180%	79.9515%	79.7295%	62.9812%	77.6840%
SLOY G2 & G3	Hydro	Actual	Actual	Actual	Actual	Actual	12.0303%	9.8246%	17.5169%	14.3504%	11.3156%	12.5655%
SOUTH HUMBER BANK	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	34.6174%	31.0569%	55.5443%	78.9930%	35.8557%	42.0058%
SPALDING	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	52.9683%	38.1850%	55.8932%	47.0122%	41.3400%	47.1068%
SPALDING ENERGY EXPANSION	CCGT_CHP	Generic	Generic	Partial	Actual	Actual	0.0000%	0.0000%	13.5062%	3.5577%	3.2713%	6.7784%
STAYTHORPE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	52.0701%	60.3233%	56.1406%	41.6716%	57.3049%	55.1719%
STRATHY NORTH & SOUTH	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	40.2313%	34.0711%	38.3054%	34.4987%	35.0703%	35.9581%
STRONELAIRG	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	37.5366%	48.4638%	47.6741%	33.0353%	39.7871%	45.3083%
SUTTON BRIDGE	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	29.1878%	22.3560%	26.4852%	4.0643%	0.0000%	17.6352%
TAYLORS LANE	Gas_Oil	Actual	Actual	Actual	Actual	Actual	1.1712%	0.1133%	0.0960%	0.3699%	0.5212%	0.3348%
TEES RENEWABLE	Biomass	Generic	Generic	Generic	Actual	Actual	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	14.6383%
THANET	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	38.5069%	35.8373%	41.2821%	39.0315%	35.4464%	37.7919%
TODDLBURN	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	38.0158%	34.7062%	37.2691%	34.7073%	30.5257%	35.5609%
TORNESS	Nuclear	Actual	Actual	Actual	Actual	Actual	86.4413%	85.4632%	96.5546%	83.6090%	68.7405%	85.1711%
TRALORG	Onshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	26.5038%	29.6661%	31.8653%
TRITON KNOLL OFFSHORE WIND FARM	Offshore_Wind	Generic	Generic	Generic	Partial	Actual	0.0000%	0.0000%	0.0000%	8.5859%	41.4188%	32.3132%
TWENTYSHILLING WIND FARM	Onshore_Wind	Generic	Generic	Generic	Generic	Partial	0.0000%	0.0000%	0.0000%	0.0000%	21.0781%	33.3100%
USKMOUTH	Coal	Actual	Actual	Actual	Actual	Actual	0.1000%	0.0108%	0.0000%	0.0128%	0.0000%	0.0079%
WALNEY 4	Offshore_Wind	Partial	Actual	Actual	Actual	Actual	45.2033%	50.3338%	56.1017%	50.4266%	41.8824%	52.2874%
WALNEY I	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	55.9472%	41.6150%	46.5322%	44.2968%	35.3784%	44.1480%

Power Station	Technology	Yearly Load Factor Source					Yearly Load Factor Value					Specific ALF
		2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22	
WALNEY II	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	62.8290%	48.7292%	54.7220%	49.7557%	42.6198%	51.0690%
WALNEY III	Offshore_Wind	Partial	Actual	Actual	Actual	Actual	50.1762%	50.7716%	56.2050%	53.1360%	43.1102%	53.3709%
WEST BURTON	Coal	Actual	Actual	Actual	Actual	Actual	11.8199%	6.3690%	10.3006%	5.2432%	0.7669%	7.3043%
WEST BURTON B	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	63.2420%	62.8067%	53.4863%	40.1276%	50.1360%	55.4763%
WEST OF DUDDON SANDS	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	55.4034%	48.9209%	50.7437%	50.6867%	43.4545%	50.1171%
WESTERMOST ROUGH	Offshore_Wind	Actual	Actual	Actual	Actual	Actual	63.4740%	52.5501%	56.1661%	53.1495%	48.2304%	53.9553%
WHITELEE	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	29.6336%	30.7296%	31.3487%	28.2256%	25.0306%	29.5296%
WHITELEE EXTENSION	Onshore_Wind	Actual	Actual	Actual	Actual	Actual	25.1664%	26.6647%	28.4492%	27.0979%	23.9659%	26.3097%
WHITESIDE HILL	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	38.3704%	55.0847%	60.3399%	56.3037%	53.1403%	57.2428%
WILTON	CCGT_CHP	Actual	Actual	Actual	Actual	Actual	15.5750%	21.4515%	17.1525%	28.2414%	22.7866%	20.4635%
WINDY RIG WIND FARM	Onshore_Wind	Generic	Generic	Generic	Generic	Actual	0.0000%	0.0000%	0.0000%	0.0000%	23.7254%	34.1924%
WINDY STANDARD II	Onshore_Wind	Partial	Actual	Actual	Actual	Actual	43.2981%	49.4509%	53.4476%	52.5437%	44.5141%	51.8141%

## Generic Annual Load Factors

Generic ALFs are used to fill in the gaps for a generator if it does not have three complete years' worth of generation history.

**Table 2: Final Generic ALFs for 2023/24**

Technology	Generic ALF
Battery	1.2391%
Biomass	43.9150%
CCGT_CHP	49.3613%
Coal	17.6627%
Gas_Oil	0.4762%
Hydro	41.6409%
Nuclear	68.2026%
Offshore_Wind	46.9350%
Onshore_Wind	39.4259%
Pumped_Storage	8.5995%
Reactive_Compensation	0.0000%
Solar	10.9000%
Tidal	11.6000%
Wave	2.9000%

Owing to a lack of available actual data, the Generic ALF values for Wave, Tidal and Solar technologies are taken from the BEIS publication 'THE RENEWABLES OBLIGATION FOR 2023/24: Calculating the level of the Renewables Obligation for 2023/24'

We have revised our technology categories to include "Battery" and "Reactive Compensation" which both now have actual data to include in the calculations. These categories will remain under review, in particular in the event of any further decision from Ofgem on their current review of the treatment of Synchronous Condensers<sup>1</sup>.

<sup>1</sup> <https://www.ofgem.gov.uk/publications/call-evidence-correct-regulatory-treatment-assets-dedication-provision-ancillary-services>





**How are ALFs calculated?**

## The ALFs calculation

For each charging year 2017/18 to 2021/22 a Yearly Load Factor has been calculated using the higher of Metered Output (MO), Final Physical Notification (FPN) or zero in each half hour settlement period, divided by the sum of Transmission Entry Capacity (TEC), Short Term TEC (STTEC) and Limited Duration TEC (LDTEC) applicable in the same half hour.

All calculations are in local time, i.e. clock change days have 46 or 50 half hour settlement periods rather than the usual 48. STTEC and LDTEC are daily products so changes occur at midnight.

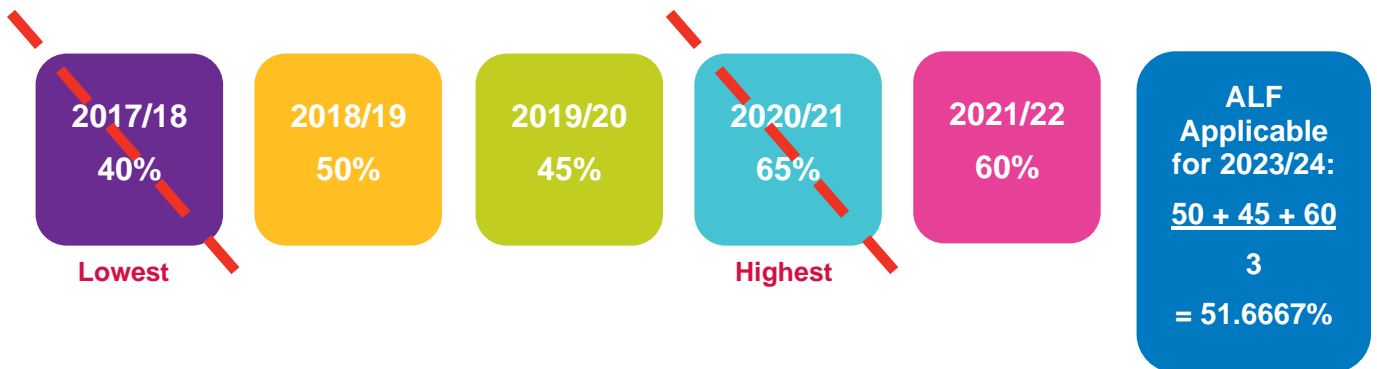
ALFs are calculated at station level, so where a station has multiple Balancing Mechanism Units (BMUs) representing generating units, station demand or trading site demand, the MO and FPN will be the aggregate of these.

For cascade hydro schemes, the ALF is calculated at scheme level, so the MO and FPN will be the aggregate of the BMU associated with the scheme. The scheme ALF is applied to each station in the scheme.

We have presented examples below with different scenarios that show how we calculate ALFs based on the number of years of generation data available for that station.

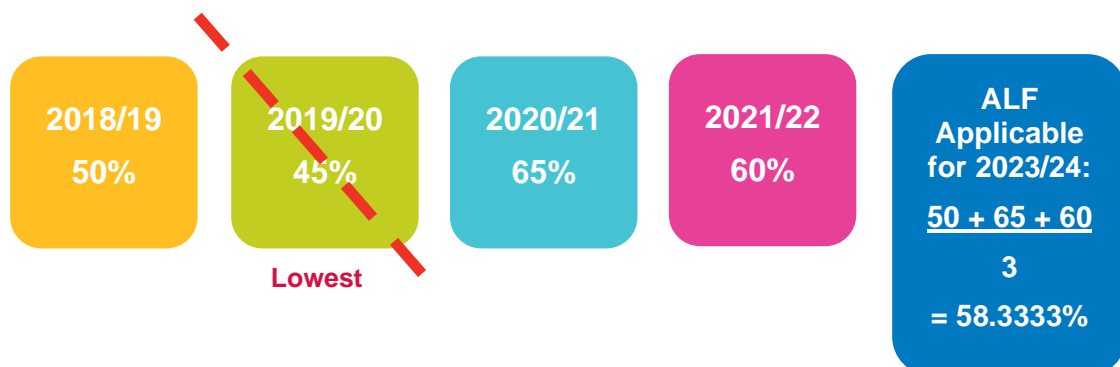
### Five years of data

If your station has full ALF data over the past five years, then the highest and lowest years are discounted. Your ALF is then calculated by averaging the output from the remaining three years.



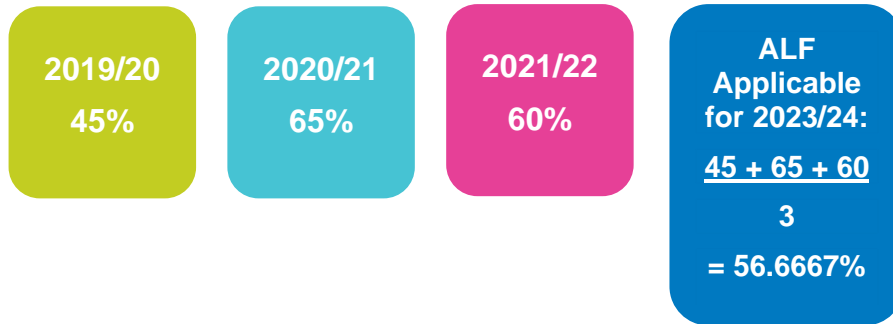
### Four years of data

If your station has full ALF data over the past four years, then the lowest year is discounted. Your ALF is then calculated by averaging the output from the remaining three years. If you have four complete years and one partial year, the partial year is ignored.



### Three years of data

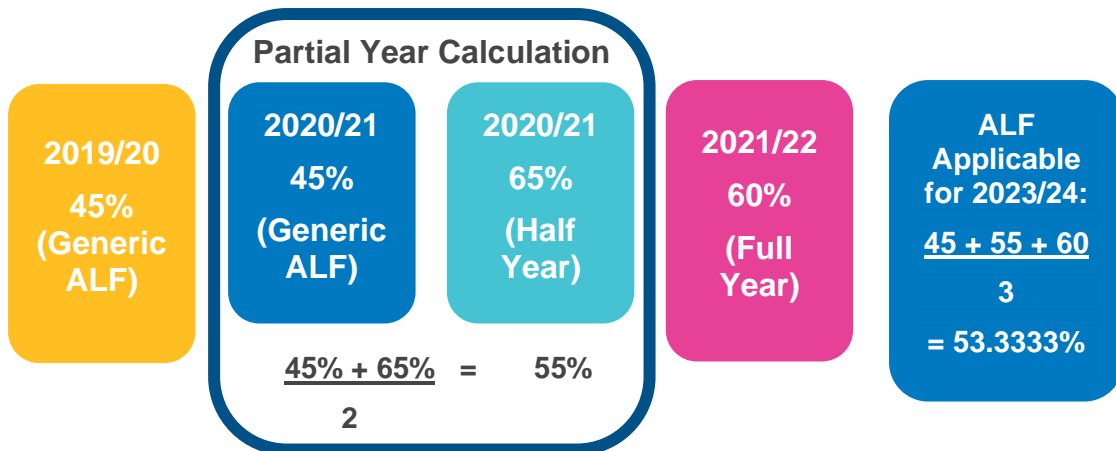
If your station has full ALF data over the past three years, then your ALF is the average of these three years. If you have three complete years and one partial year, the partial year is ignored.



### Fewer than three years of data

If your station has fewer than three complete years of ALF data available, then any complete years are used. Any gaps in the generation data from partial years are filled in using the generic ALF for the station’s generation type.

In the example below it is assumed that there is half a year of generation data available from 2020/21.



Any years with no data at all are filled in full by the generic ALF until there are at least three years of data available.

### Calculation of partial year ALFs

Each partial year ALF is calculated using a combination of actual station data and the generic ALF for the relevant year. This means that the partial year ALF will remain the same for each year that it is used, rather than being updated each year using the most recently calculated ALF.

For new generators, the station specific load factor is calculated from the earliest date on which TEC is held. The generic ALF is used for the period prior to TEC being held to form a ‘partial’ year of ALF data for that power station.



Commissioning years are determined by referring to Transmission Entry Capacity effective dates, Metered Output and Final Physical Notification data.

## Generic ALFs

For a generator with no output data history, the generic ALF for that generation technology type will be used.

Generic ALFs are calculated from the ten most recently commissioned generators from each technology (where available).

## Next Steps

The ALFs in this document will be used in the calculation of 2023/24 TNUoS Tariffs. If you have any comments or questions, please get in touch using the contact details below.

### TNUoS Revenue team

E [TNUoS.Queries@nationalgrideso.com](mailto:TNUoS.Queries@nationalgrideso.com)



# Generation charging principles

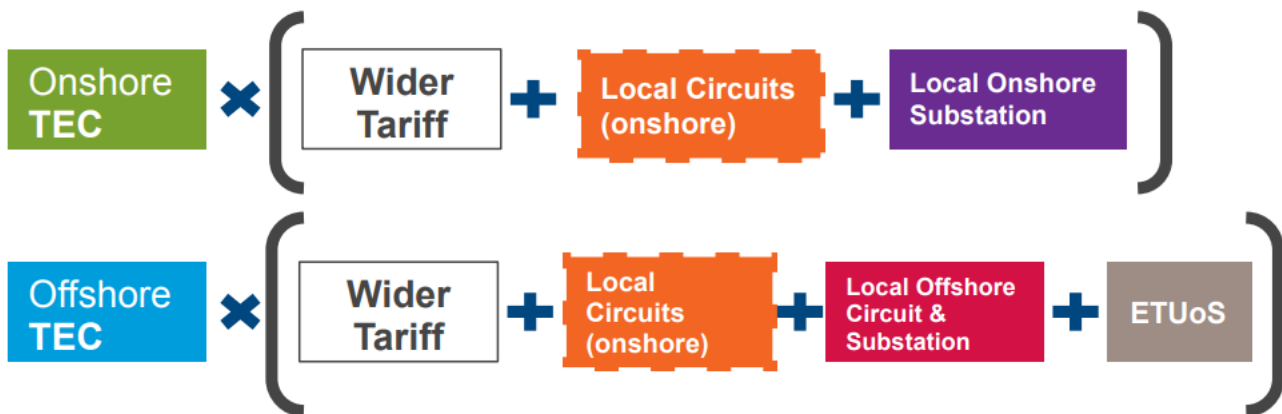
## Generation charging principles

Transmission Network Use of System Charges (TNUoS) recover the money that GB Transmission Owners (TOs) spend on building, owning and maintaining transmission assets. Generators and suppliers are set charges which differ depending on where in the country they are located, and also by how they use the transmission network. TNUoS tariffs are calculated, set and billed by the Electricity System Operator (ESO), who recover revenue from generators and suppliers and pay it to the TOs.

Generators which pay generation TNUoS will be charged several components, depending on their characteristics. The wider tariff applies differently depending on several factors, and the local elements differ according to the specific arrangements by which the generator is connected to the transmission network.

Different charges may apply to onshore generators compared to offshore generators.

The wider and local components are shown below



All components of TNUoS tariffs are multiplied by the TEC of the generator to calculate the annual TNUoS liability.

There are four factors that affect what charges apply to each generator:

- **TEC:** the amount of capacity (in kW) that the generator can use to connect to the transmission system according to their connection agreement
- **Geographic location:** currently there are 27 generation zones in Great Britain; this determines the wider tariff that applies to the generator
- **Generator fuel type:** whether a generator is gas-fired or wind powered, for example, will determine how the wider tariff applies to them. Where a generator is new or recently commissioned and has limited or no data available, a generic ALF is used (dictated by the fuel type).
- **Connection voltage:** generators connecting at 400kV and 275kV in England and Wales, or at 400kV, 275kV and 132kV in Scotland are directly connected to the electricity transmission system, and so will be charged TNUoS. Generators connected at lower voltages are embedded, and will pay TNUoS if they have 100MW or more TEC.



## The wider tariff

The wider tariff is made up of several parts to reflect the cost of different generator types connecting to the transmission system in different parts of the country.

There are four parts that make up the wider tariff: **The Peak**, **Year Round Shared**, **Year Round Not Shared**, and the **Adjustment**. These apply differently to each generator, depending on the type of generator.

The Peak element is paid only by generators which are designed to run at Peak times. The Year Round Elements are paid by all generators to reflect year round system usage. Depending on the generator classification, some of the Year Round elements are multiplied by the **Annual Load Factor (ALF)** of the generator.

The Adjustment is a non-locational element and so is the same in every zone.

How these components apply to different generators is represented in the diagram below.

### Intermittent e.g. Wind, Tidal, Solar



### Conventional Low Carbon, e.g. Nuclear, Hydro (run-of-river)



### Conventional Carbon, e.g. Coal, CCGT, Biomass, Pump Storage, Battery



## Generation classifications

All generators are classified according to how they use the transmission system:

- **Intermittent:** these generators are unable to control when they run, instead they run when their fuel is available. They are unlikely to be near full capacity at peak times.
- **Conventional Low Carbon:** these generators are conventional generators which are designed to be run as baseload, but they are less controllable than other types of generator. This could be because their fuel type dictates when they must run, or because they are very difficult to switch off. They are very likely to be generating at peak times.
- **Conventional Carbon:** these generators are more easily controllable than other generators and can be instructed to increase or decrease their output easily. They will almost certainly be running at peak times as their flexibility means they can run at times when electricity prices are highest.

Reactive Compensation is currently treated as Storage<sup>2</sup>, and so is considered to be a Conventional Carbon generator.

Solar, Wave and Tidal would be considered as an Intermittent generator.

For more in-depth guidance on TNUoS Charging, please visit the ESO [website](#).

<sup>2</sup> Pending the conclusion of Ofgem’s review of the treatment of Synchronous Condensers: <https://www.ofgem.gov.uk/publications/call-evidence-correct-regulatory-treatment-assets-dedication-provision-ancillary-services>





Faraday House, Warwick Technology Park,  
Gallows Hill, Warwick, CV346DA

[nationalgrideso.com](http://nationalgrideso.com)

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