

1 in 20 peak 2017 increase

What is 1 in 20 peak?

The 1-in-20 gas demand forecast is a forecast of demand that could be expected for the whole country on a very cold day, and is referred to as diversified peak day demand.

Summary of the process

The forecast is done by combining forecast daily demand models with historic weather to produce a set of demands should historic weather be repeated. The forecast demand models are regression based models that use relationships between weather conditions and gas demand, adjusted for climatic changes. Simulations in addition to the actual daily weather out-turns are run for each historic weather year; shifting actual historic weather so that the weather falls on every day of the week, as well as introducing random error terms to reduce variation/bias. For each of the 28 simulations for all the historic years of weather data the maximum daily simulated demands (one for each year) are selected and fitted to a statistical distribution. The 95% value from the distribution is then selected. This is repeated for all 28 simulations with the 1-in-20 peak day gas demand forecast then derived as the average of the demands for all these 28 simulations. Finally gas demand for power generation is adjusted up to reflect a high sensitivity scenario which incorporates assumptions on reduced interconnector imports, low renewable generation and a predominantly gas-first generation merit order, all of which increase gas demand. The full method can be viewed from the link below:

<https://www.nationalgrid.com/sites/default/files/documents/8589937808-Gas%20Demand%20Forecasting%20Methodology.pdf>

The increase in 1 in 20 peak from 2016/17 to 2017/18

The table below provides a comparison of the forecasts of 1 in 20 peak demand components from 2016/17 to 2017/18. The majority of the increase can be seen to be resulting from changes to the NTS Power Generation demand. From the Method document linked above, section 1.3 'Factors Affecting Gas Demand' shows that Gas Power Station Generator Strategy is considered as part of the forecasting process. The biggest determinant of this for the purposes of the process is the relative electricity generation costs of gas and coal fired power stations, combined with the capacities of all generation types. At the time of undertaking the 2017/18 1 in 20 peak modelling, the relative generation costs of gas and coal had changed from when the analysis was undertaken for 2016/17, with gas prices falling, at least in relation to coal prices. This resulted in a larger power generation total being applied to the 1 in 20 peak for 2017/18.

In terms of the actual electricity system modelling, the peak 1 in 20 gas demand for power generation is compiled using a least cost power dispatch optimisation model utilising National Grid Electricity Transmission's own electricity demand forecasts, that incorporates reduced interconnector import assumptions, low renewable generation and a predominantly gas-first generation merit order.

Diversified Peak (mcm/day)			
National	2016/17	2017/18	Differences
0-73.2 MWh	232	242	10
73.2-732 MWh	35	36	2
NDM > 732 MWh	43	37	-5
Total NDM	309	316	7
Total DM	40	37	-3
LDZ Shrinkage	1	1	0
Total LDZ	350	354	4
NTS Industrial	7	6	-1
Exports to Ireland	25	25	0
NTS Power Generation (High Case)	85	116	31
NTS Consumption	117	147	30
NTS Shrinkage	1	1	0
Total excluding IUK	468	502	34
IUK	0	0	0
Diversified Peak (High Power)	468	502	34