

SGN Third Party Connections Briefing Note 17

(Typical and Non-Typical Load Classification)

1 Introduction

To ensure a safe and secure gas supply is maintained, SGN must assess new gas demands based on the anticipated profiles they will follow. Where gas usage is predictable, SGN can effectively forecast 'peak' and 'off-peak' gas usage to efficiently manage SGN's Gas Distribution Network.

To better manage SGN's Network further, new and existing gas loads are categorised into Typical and Non-Typical flows, which dictate different minimum information requirements from third parties as well as identifying the requirement for Non-Typical Network Analysis.

'Typical' gas usage is defined as 'temperature sensitive' for 'space heating' or following a 'modulating', predictable pattern only during peak times of the day. Standard Domestic customers with gas-fired heating and hot water and also Standard Commercial supplies using gas in a modulating fashion and not feeding CHP units are considered 'Typical' Loads.

Commercial and Industrial flow patterns are difficult to predict nor follow a typical profile and are therefore considered 'Non-typical'. Domestic customers that utilise a CHP (*Combined Heat and Power*) unit will use gas outside the remit of a 'typical' modulating pattern and are therefore considered Non-Typical.

In cases of 'Non-typical' loads, third parties should populate Non-Typical Load details within Table C.1 of SGN Specification NP/14 and should accompany a Formal Request as minimum information.

Any gas supply that utilises a Compressor to boost the incoming pressure is deemed Non-Typical and will require a supplementary C.2 Table from NP/14 to enable Booster Analysis.

Non-Typical Load requests and those utilising a Compressor/Booster cannot be Fastracked.

NP/14 Section A.2 states:

'Non-typical loads and loads requested from Scottish Independent Undertakings (SIUs) that fall within the solid bold blue boundary must be assessed using full Network Analysis and cannot follow the Fastrack process.'

Third Parties should utilise the Additional Information sections on FM138 and FM153 forms to provide clarity on gas usage patterns and profiles to prevent rejection by SGN.

Example from FM138a form:

Additional Information:

This property is a church. Gas will be used between 10am and 4pm for heating, hot water and catering purposes. This will be mainly on a Sunday.

The below colour-coded version of NP/14 Table A.2 aims to provide guidance on when certain types of Load can be submitted as Fastracks and also whether they require C.1 Tables to accompany the Formal Request form:

Max. Permissible Demand Nominal Diameter	≤173 / ≤16	≤433 / ≤40	≤920 / ≤85	≤1733 / ≤160	≤2167 / ≤200	≤3250 / ≤300	≤4333 / ≤400	≤5416 / ≤500	>5416 / >500
≤ 2" / ≤ 50mm metallic	23	23	23	23	25	26	26	26	Supply pressure to be agreed by negotiation with the customer (or their representative). The values in the previous column must be used as a start point and the agreed values must allow the efficient development of the overall system. 26Mbar will be offered by SGN as standard.
≤ 63mm / ≤ 2" PE									
> 2" - ≤ 4" metallic	23	24	24	24	25	26	26	26	
>50mm - ≤100mm metallic									
> 63 - 125mm PE									
> 2" - 4" PE									
> 4" - ≤ 6" metallic	23	24	25	25	25	26	26	26	
>100 - ≤150mm metallic									
>125-≤180mm PE									
>4" - ≤6" PE									
> 6" - ≤ 8" metallic	23	24	25	25	25	26	26	26	
> 150 - ≤ 200mm metallic									
> 180mm - ≤250mm PE									
> 6" - ≤8" PE									
> 8" - ≤ 12" metallic	23	24	25	25	25	26	26	26	
> 200 - ≤ 300mm metallic									
> 250mm - ≤ 355mm PE									
> 8" - ≤ 12" PE									
> 12" / >300mm metallic	23	24	25	25	25	26	26	26	
> 355mm / >12" PE									

Green Cells (≤U16)

Standard Domestic Loads:	Can be Fastracked	No C.1 Table required
Standard Commerical Loads:	Can be Fastracked	No C.1 Table required
Non-Typical Commerical Loads:	Cannot be Fastracked	C1 Table Required

Blue Cells

Standard Domestic Loads:	Can be Fastracked	No C.1 Table required
Standard Commerical Loads:	Can be Fastracked*	No C.1 Table required***
Non-Typical Loads:	Cannot be Fastracked	C1 Table Required

Orange Cells

Standard Domestic Loads:	Cannot be Fastracked**	No C.1 Table required
Standard Commerical Loads:	Cannot be Fastracked**	No C.1 Table required***
Non-Typical Loads:	Cannot be Fastracked	C1 Table Required

* Can only be Fastracked if Additional Information Section of Request Form states that load is Typical
 ** Typical Domestic and Typical Commercial Loads that fall within the Green Cells that are submitted off the back of a valid UIP or iGT Enquiry may be Fastracked.
 *** Does not require a C1 Table if Additional Information Section of Request Form states that load is Typical

2 Typical Load Types

'Typical' gas usage is defined as 'temperature sensitive' for 'space heating' or following a 'modulating', predictable pattern only during peak times of the day.

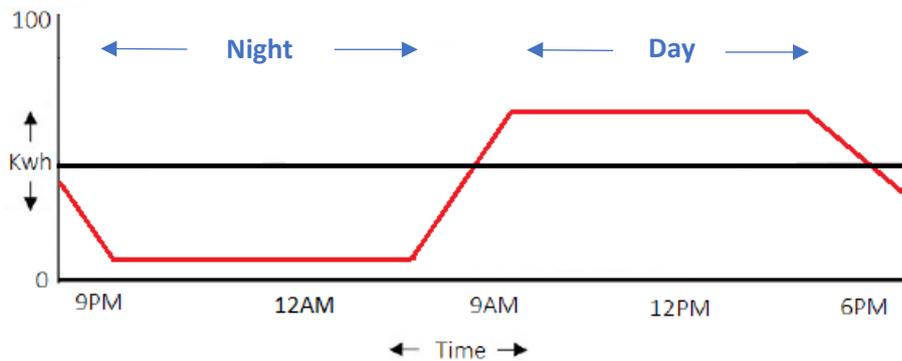
A Standard Domestic Load is deemed to feed Standard Domestic properties, to be used for heating and cooking. Standard Domestic Loads, regardless of size fall into this category and do not require NP/14 C.1 tables to be provided.

A Standard Commercial Load is deemed to feed a single commercial supply that will use gas in a modulating fashion which will not feed a CHP unit. Standard Commercial Loads of any size fall into this category and do not require NP/14 C.1 tables to be provided.

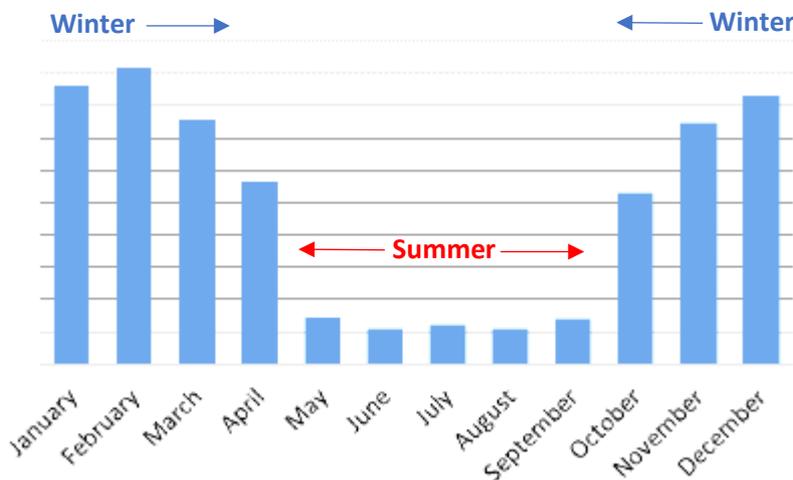
2.1 Standard Domestic Modulating flow

Domestic Modulating flow varies between minimal and peak flow at recurring times of the day, which can be used to predict and evaluate maximum demand times. Typically, Domestic flow gas peaks in the morning, has a lull during the day until the evening when peak flow returns. This is deemed a 'normal space heating profile'.

Typical Domestic 24 hour Winter period, with gas used less during the night and more during the day:



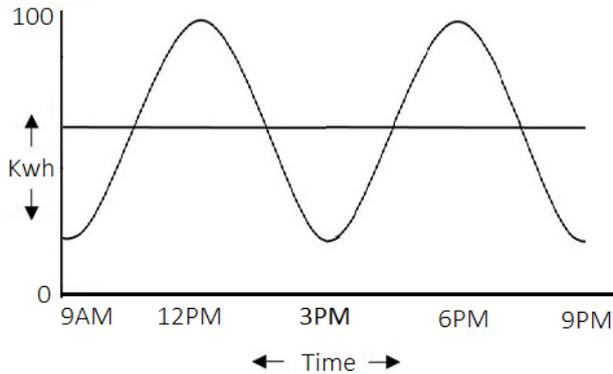
Typical Domestic Yearly period, with gas used more in the Winter Months and less in the Summer Months:



2.2 Standard Commercial Modulating flow

Standard Commercial Modulating flow varies between minimal and peak flow at recurring times of the day, which can be used to predict and evaluate maximum demand times.

This Modulating Flow is considered Typical but must not be used for CCHP purposes:



3 Non-Typical Load Types

A 'Non-Typical' Load is defined as a gas flow not following a 'modulating', predictable pattern, that being gas could be used at any point, continuously over a 24 hour period or specifically during Non-typical Seasonal periods, such as throughout the Summer Months.

Non-Typical Loads are classed as specifically for Commercial or Industrial uses however should a domestic supply be utilised for Combined Heat and Power purposes, then it too is considered Non-Typical.

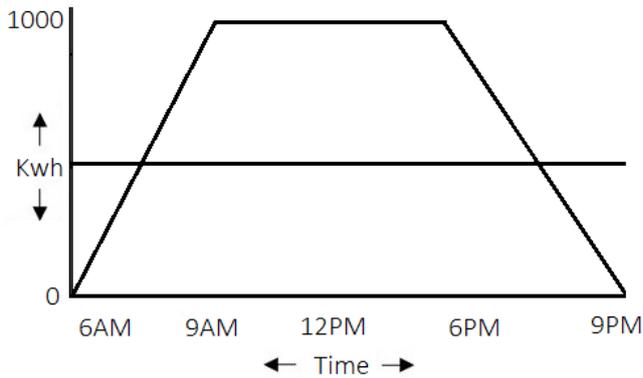
The Main types of Non-Typical Loads fall into the following categories:

- Process Flow
- Constant Flow
- On-Off Flow
- STOR (*Power Generation or Short Term Operating Reserve*)
- CHP/CCHP (*Combined [Cooling] Heat and Power*)
- Seasonal Demands (*MOD458*)
- Compressed/Boosted Flow

3.1 Process flow

A Process Flow Load is identified as using gas for Commercial or Industrial production purposes with a lesser downtime than that of a Standard Commercial Load. Although generally following a consistent on-off pattern, this type of Non-Typical Load will still require C.1 Tables provided to SGN due to use throughout the middle of a 24 hour period and throughout the Year.

The below table outlines a basic example of this model:



3.2 Constant flow

A Constant Flow Load will use gas 24/7, continuously for production purposes.

Despite never having a downtime, Constant Loads still require C.1 Tables to be provided to SGN to confirm the requirement of Non-Typical analysis.

3.3 CHP/CCHP (*Combined [Cooling] Heat and Power*)

Combined [Cooling] Heat and Power (*CCHP*) is the process of burning gas to generate heat and electricity simultaneously. This can also incorporate a subsequent use for Cooling/Air Conditioning.

Commercial/Industrial CHP Loads are typically be large in quantity, but smaller CHP units are also common in Student accommodation and Domestic premises. As a Domestic ‘Mini-CHP’ unit uses gas to generate electricity at any point within a 24 hour period, it is deemed Non-Typical and require C.1 Tables to be provided to SGN to confirm the requirement of Non-Typical analysis.

3.4 STOR (*Short Term Operating Reserve*)

Short Term Operating Reserve (STOR) Sites use large quantities of gas to produce electricity as a means to safeguard security of supply to the National Electricity Grid system.

Due to the nature of these Power Stations burning gas at peak flow within a relatively short period of time, usage is unpredictable and therefore requires C.1 Tables to be provided to SGN to warrant Non-Typical Analysis.

3.5 On-Off flow

A Commercial/Industrial On-Off Flow Load is similar to a Process Load yet not used for production purposes therefore less predictable and vary widely in size.

It should not be used to classify a CHP nor a STOR site, but will require C.1 Tables to be provided to SGN to warrant Non-Typical Analysis.

3.6 MOD458 Seasonal Demands

UNC MOD458 Loads use gas only for a limited period of a calendar year, traditionally during the Summer Months for Commercial and Industrial purposes.

Due to the constant use of gas during these off-peak time periods, C.1 Tables must be provided to SGN to warrant Non-Typical Analysis.

3.7 Compressed/Boosted Loads

Any gas supply that utilises a Compressor to boost the incoming pressure is deemed Non-Typical and will require a supplementary C.2 Table from NP/14 to enable Booster Analysis.

Where applicable, Compressed/Boosted Loads will also require C.1 Tables to be provided to SGN to warrant Non-Typical Analysis.

4 Appendix A: NP/14 C.1 Table

For use by third parties to submit Non-Typical Gas usage to SGN alongside a formal Request Form

<p>To identify the proposed profile of gas use, it is necessary to understand the time(s) of day and year at which the gas demand is required and if the demand varies from this level at the other key times/conditions of the day and year.</p>				
<p>Please complete the following boxes as is appropriate for the demand.</p>				
<p>Period</p>	<p>Please indicate with a tick the times of the day and year when demand usage may occur</p>			
	<p>0600-1000</p>	<p>1000-1600</p>	<p>1600-2000</p>	<p>2000-0600</p>
<p>Beginning October – end March (Winter)</p>				
<p>Beginning June – end August (Summer)</p>				
<p>Other periods of the year</p>				

5 Appendix B: NP/14 C.2 Table

For use by third parties to submit Compressor/Booster information alongside a formal Request Form

To identify the proposed profile of gas use, it is necessary to understand the time(s) of day and year at which the gas demand is required and if the demand varies from this level at the other key times/conditions of the day and year.

Peak Instantaneous Demand to be compressed and the pressure required:kW/m ³ /hr	mbar/bar	
Compressor Types (Reciprocating/Fan/Screw/Booster/Other):			
Number of Compressors/Boosters and the Peak Instantaneous Demand to each excluding standby:	No.:		Flow:	Plant 1kW/m ³ /hr Plant 2..... kW/m ³ /hr Plant 3.....kW/m ³ /hr
Time taken to achieve full load from start up	Time taken seconds			
Profile provided for non linear start up profile	Y/N/NA			
Number of burners to be installed?				
Will burners be operated in parallel?	Y/N/NA			
Typical burner stages	Start up / Pre-purge	Pilot fire	Low fire	High fire
Flow as % of burner's PID – burner 1				
Minimum time for each stage (s) – burner 1				
Flow as % of burner's PID – burner 2				
Minimum time for each stage (s) – burner 2				
Flow as % of burner's PID – burner 3				
Minimum time for each stage (s) – burner 3				