UNITED NATIONS

E

Economic and Social Council

Distr.
GENERAL

ENERGY/WP.3/GE.5/2003/5
12 November 2002

ORIGINAL: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

COMMITTEE ON SUSTAINABLE ENERGY

Working Party On Gas

Ad Hoc Group of Experts on the Supply and Use of Gas
Fourth session, 23 January 2003

GAS NETWORKS BALANCING

Note by the secretariat

1. At its third session in January 2002 the Ad Hoc Group of Experts accepted a proposal by the delegation of Hungary to include in the programme of work a project on "Gas networks balancing". It was also decided to invite Mr. Sandor BOGOLY, of the Hungarian Oil and Gas Company MOL, to serve as rapporteur for this topic and to prepare a draft questionnaire for consideration at the fourth session of the Ad Hoc Group of Experts.

2. The draft questionnaire is reproduced below. You are kindly requested to review the questionnaire and send your comments and observations to Mr. S. Bogoly, Head of Capacity Management, MOL, Bathany u. 2/a, 8600 Sidrou, Hungary, Fax: +36 84 505 218, with a copy to the secretariat.

3. Gas demand, which changes hourly, depends on season, temperature and other factors. The task of a transmission system operator is to match supply with demand in order to maintain the system integrity.

4. Pipeline systems are designed in such a way that they can balance daily and hour peak demands. Pipeline system capacity depends on many parameters: demand and supply, the topography of the pipeline system, pipeline diameter, location of delivery stations and supply points, inlet and outlet pressures, capacity of compressor stations, etc.

5. Transmission companies have to maintain and upgrade the pipeline system every year according to the strategy and the expected transmission demand, but the philosophy may be different from country to country. For example in Hungary supply resources and the transmission system have to be prepared for the expected demand at –8 C° daily average temperature.

6. The structure of natural gas consumers (households, power plants, industry) determines the temperature dependency. The bigger the share of households in the overall consumption pattern, the more difficult the forecast for the expected peak day/hour demand. Flexibility of supply points has to meet demand.

7. What kind of software and information do the traders and system operators use in order to determine the demand and supply of the next day and week? Do the gas distribution companies and traders determine the demand for the system operators? What is the accepted measurement to determine capacity overrun?

8. Transparent flexibility services are needed for market players and especially for transmission system operators for the day-to-day operational management of their systems. For example, line pack is mainly used by system operators to ensure the integrity of the network. Access to flexibility services should be limited.

9. Different network balancing policy is applied according to whether the market is monopolistic or liberalized. Peak management tools are flexible storage facilities, flexible import sources, flexible domestic production, interruptible customers and temporary capacity restrictions.

10. The draft questionnaire will be discussed at the forthcoming session of the Ad Hoc Group, in January 2003.

DRAFT QUESTIONNAIRE: NETWORK BALANCING			
Network balancing			
Country			
Fill in each independent gas supply system			
Gas supply system 1 (31.12.2002)			
Number of gas traders (wholesaler)	pieces		
Number of transmission system operators	pieces		
Number of distribution company	pieces		
Number of independent producers	pieces		
Integrated service			
Length of transmission system	km		
Average distance of transmission	km		
Number of gas delivery stations	pieces		
Typical outlet pressures	barg		
Typical delivery station is equipped with			
Number of domestic production supply intake points	pieces		
Number of storage supply intake points	pieces		
Number of import supply intake points	pieces		
Map of pipeline system	Attachment_		
Gas consumption in 2001	Bcm/y		
Domestic production	Bcm/y		
Import	Bcm/y		
Supplied from underground storage (UGS)	Bcm/y		
Number of UGS	pieces		
		Used max.	Target max.
Peak consumption 2001.xx.xx Tdaily_average= -y C	MMcm/d		
Domestic production	MMcm/d		
Import	MMcm/d		
Local UGS	MMcm/d		
UGS Service imported	MMcm/d		
LNG	MMcm/d		
Peak consumption	MMcm/h		
Domestic production	MMcm/h		
Import	MMcm/h		
Local UGS	MMcm/h		
UGS Service imported	MMcm/h		
LNG	MMcm/h		

Transit	Bcm/y		
Daily peak	MMcm/d		
Hourly peak	MMcm/h		
Normal linepack	MMcm		
Flexibility	MMcm	± x	
Balancing period			
Capacity binding			
Flexibility service			
Imbalance charge			
Imbalance charge by 1% overrun			
Profile of yearly transmission in 2001	Attachment		
Peak day profile 2001	Attachment		
Average peak usage hours (peak day Q/ peak hour q)			
Average peak usage days (Q annual / peak day Q)			
Consumption vs.temperature, in 2001	Attachment		
Take measures to balance demand and supply			
Interruptible consumers (power stations, industrial customers)	MMcm/d		
	MMcm/h		
Capacity/flow restriction			
Temporary capacity restriction			
Domestic production flexibility	MMcm/h/h		
Import flexibility according to nomination	%		
Storage flexibility	MMcm/h/h		
Distribution Companies storage capacity	MMcm/d		
Distribution Companies interruptible consumers	MMcm/h/h		
Target peak demand 2001	MMcm/d		
Target peak demand 2001	MMcm/h		
Supply obligation, target demand		demand at -8 C	
	or	1:20	
Who decides the target peak demand?			
What is the typical time period for demand forecast?	years	n, n+1, n+2, n+3, n+4, n+9, n+14	
Rules of nomination		Weekly forecast, nomination before gasday until 14-00,	

		Verification until 16-00	
Monitoring capacity overrun		Measurement at the gas delivery station, information stored by SCADA system	
Software forecast demand			
Source of the temperature expected for the next day/week?			