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Project Nexus Workgroup

Unidentified Gas

(Action: NEX0905)

10th February 2015

Forecast LDZ Unidentified Gas

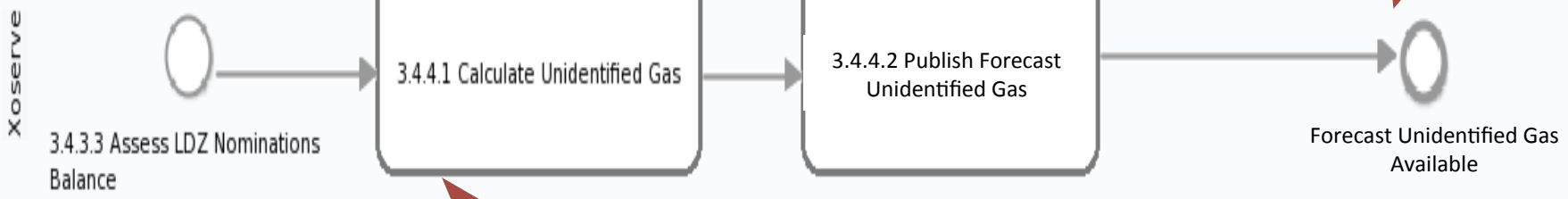
- The LDZ Forecast Unidentified Gas calculated for each LDZ will be apportioned to Shippers within an LDZ using the Allocation Adjustment Factor on D-1 for the Gas Flow Day
- Shippers will be able to view their Forecast Unidentified Gas Quantities on Gemini
  - a new Unidentified Gas 'Meter ID' will be created per Shipper per LDZ/Exit Zone
- LDZ Forecast Unidentified Gas =
  - LDZ Forecast Demand **–** (LDZ Shrinkage **+** Total DM Nominations (actual or estimated) **+** Total NDM Nominations)

Calculate Forecast Unidentified Gas

UNC Ref

H2.6 – Unidentified Gas

The Forecast Unidentified Gas will be apportioned to Shippers using the Allocation Adjustment Factors. A Unidentified Gas 'Meter ID' will be created per Shipper per LDZ / Exit Zone.



The LDZ Forecast Unidentified Gas is calculated at D-1 for the Gas Flow Day.

Calculation

LDZ Forecast Demand – (LDZ shrinkage + Total DM Nominations + Total NDM Nominations)

Settlement BRD Ref: 5.4

Forecast LDZ Unidentified Gas Example

Calculating Forecast Unidenitifed Gas for an LDZ

Step 1 - Shipper Portfolio Base Data for a Gas Day
1 Exit Zone within an LDZ
Example EUC - EZ:E1401 to EZ:E1409

Gemini Data

Class 1 & 2 Nomination Submitted by Shipper for Exit Zone EZ1

Shipper	SMP	EUC	Class	AQ		Meter Type	Meter Id	Nomination
ABC	1010101	EUC09	Class 1	60,894,000		DC	1010101	167,000
ABC	1010102	EUC09	Class 1	76,355,000		DC	1010102	211,493
ABC	11010108	EUC05	Class 2	5,318,318		DF	Z000000011	
ABC	11010109	EUC08	Class 2	42,355,686				
ABC	11010110	EUC06	Class 2					247,092
ABC	11010113	EUC06	Class 2	33,126,334				
ABC	11010115	EUC06	Class 2					
ABC	11010114	EUC07	Class 2	23,992,817				
DEF	1010103	EUC09	Class 1	65,584,000		DC	1010103	181,120
DEF	1010104	EUC09	Class 1	84,176,000		DC	1010104	133,335
GHI	1010105	EUC09	Class 1	53,314,000		DC	1010105	97,718
GHI	1010106	EUC09	Class 1	115,948,000		DC	1010106	43,999
GHI	1010107	EUC09	Class 1	75,110,000		DC	1010107	206,810
GHI	11010111	EUC08	Class 2	70,978,000		DF	Z000000013	194,460
GHI	11010112	EUC08	Class 2					
								1,483,027

Gemini Data

Calculated Class 3 & 4 Nomination for Exit Zone EZ1

Shipper	SMP	Class	EUC	AQ		Meter Type	Meter ID	Nomination
ABC	77777777	EUC03	Class 3	886,500		NA	A000000101	851,362
	88888888	EUC03	Class 3					
	99999999	EUC02	Class 3	256,000				
	10101010	EUC02	Class 4	108,862				
DEF	11111111	EUC05	Class 3	4,570,000		NA	A000000102	10,967,210
	22222222	EUC02	Class 3	88,126				
	33333333	EUC05	Class 4	8,169,275				
	44444444	EUC05	Class 4					
	55555555	EUC05	Class 4					
	66666666	EUC04	Class 4	801,685				
								11,818,572

Sample data used to calculate Unidentified Gas
Unidentified Gas can be a positive or negative value
For illustration purposes only not to scale

Step 2 - Total of all Class Nominations for 1 Exit Zone (EZ1)

Exit Zone	EZ1
Agg. Class 3&4 Nomination	11,818,572
Agg. Class 1&2 Nomination	1,483,027
Agg. Nomination	**13,301,599**

Step 3 - Total of all Exit Zones within an LDZ

Aggregate of Class 1&2 + Class 3&4 at every exit zone

Exit Zone	Agg. Nominations
EZ1	**13,301,599**
EZ2	5,808,809
EZ3	14,522,022
EZ4	45,889,591
EZ5	76,176,721

b **Total LDZ Nomination** **155,698,742** — **AULNQ (b)**

a **Forecast LDZ Demand** **156,326,553** — **AFLD (a)**

Step 4 - Calculate Forecast Unidentified Gas for the LDZ

c **Forecast LDZ Unidentified Gas** **627,811** — **FUIG (c)**

Step 5 - Calculate Forecast Unidentified Gas for the Exit Zone

UIG for Exit Zone EZ1	53,635

Forecast LDZ UIG (627,811) * Nomination for Exit Zone (13,301,599) / Total LDZ Nomination (155,698,742) = 53,635

Forecast Unidentified Gas (FUIG) for an LDZ and a Day is FUIG = AFLD - AULNQ
(c) (a) (b)

New UNC section H 2.6.2

c - FUIG = Unidentified Gas for a LDZ and a Day
a - AFLD = Forecast LDZ Demand (adjusted for LDZ Shrinkage)
b - AULNQ = Aggregate of all Users of the User LDZ Nomination Quantity for the Day

Example displays breakdown of data for one exit zone within the LDZ. The same calculations are performed for all Exit Zones within an LDZ

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Forecast User Unidentified Gas Example

Step 6 - Calculate Forecast User LDZ Unidentified Gas for the Exit Zone

FULUG = FUIG * AULNQ / AAULNQ

(a) (b) (c) (d)

FULUG = Forecast User LDZ Unidentified Gas
FUIG = Forecast Unidentified Gas for a LDZ and a Day
AULNQ = Users Adjusted User LDZ Nomination Quantity
AAULNQ = Aggregate of all Users of the Adjusted User LDZ Nomination Quantity

UNC Section C1.5.3

UIG @ EZ1	53,635

FUIG (b)

AULNQ (c)

FULUG (a)

Shipper	Meter ID	Meter Type	EUC	Class	Factor	AQ	Aggregate AQ at Meter/EUC	Nomination by Meter	Nomination by EUC	Apportioned Nomination	Adjusted Nominations	Aggregate UIG Share at Class & EUC	UIG Meter ID
ABC	1010101	DC	EUC09	Class 1	1	60,894,000		167,000		167,000	167,000	1,526	
ABC	1010102	DC	EUC09	Class 1	1	76,355,000		211,493		211,493	211,493		
ABC	Z000000011	DF	EUC05	Class 2	1	5,318,318	104,793,155	247,092		12,540	12,540	51	
ABC	Z000000011	DF	EUC08	Class 2	1	42,355,686				99,871	99,871	403	
ABC	Z000000011	DF	EUC06	Class 2	1	33,126,334				78,109	78,109	315	ABCEZ1UG 5,956
ABC	Z000000011	DF	EUC06	Class 2	1								
ABC	Z000000011	DF	EUC07	Class 2	1	23,992,817				56,573	56,573	228	
ABC	A000000101	NA	EUC03	Class 3	1	886,500	886,500	851,362	567,575	567,575	567,575	2,289	
ABC	A000000101	NA	EUC03	Class 3	1								
ABC	A000000101	NA	EUC02	Class 3	1	256,000	364,862		283,787	199,115	199,115	803	
ABC	A000000101	NA	EUC02	Class 4	1	108,862				84,672	84,672	341	
DEF	1010103	DC	EUC09	Class 1	1	65,584,000		181,120		181,120	181,120	1,268	
DEF	1010104	DC	EUC09	Class 1	1	84,176,000		133,335		133,335	133,335		
DEF	A000000102	NA	EUC02	Class 3	1	88,126			241	241	241	1	
DEF	A000000102	NA	EUC05	Class 3	1	4,570,000	12,739,275	10,967,210		3,933,427	3,933,427	15,860	DEFEZ1UG 45,490
DEF	A000000102	NA	EUC05	Class 4	1				10,964,773				
DEF	A000000102	NA	EUC05	Class 4	1	8,169,275				7,031,346	7,031,346	28,352	
DEF	A000000102	NA	EUC05	Class 4	1								
DEF	A000000102	NA	EUC04	Class 4	1	801,685			2,196	2,196	2,196	9	
GHI	1010105	DC	EUC09	Class 1	1	53,314,000		97,718		97,718	97,718		
GHI	1010106	DC	EUC09	Class 1	1	115,948,000		43,999		43,999	43,999	1,405	
GHI	1010107	DC	EUC09	Class 1	1	75,110,000		206,810		206,810	206,810		GHIEZ1UG 2,189
GHI	Z000000013	DF	EUC08	Class 2	1	41,261,000	70,978,000	194,460		194,460	194,460	784	
GHI	Z000000013	DF	EUC08	Class 2	1	29,717,000							
											13,301,600	**53,635**	**53,635**

Shipper ABC has a DF Meter - The Gas Nomination at the Meter 247,092kwh is broken down using the individual AQ value for each Supply Meter Point
Nomination at Meter 247,092 * Individual AQ 5,318,318 / Aggregate AQ value 104,793,155 = Apportioned Nomination 12,540
The Apportion Nomination 12,540 then has the Allocation Factor applied (this is set to 1) by Class&EUC
The Shipper Share of Unidentified Gas is then calculated
12,540 * UIG at Exit Zone 53,635 / Aggregate of all Adjusted Nomination 13,301,600 = **UIG 51**

Shipper DEF has a NA Meter - The Gas Nomination at the Meter 10,967,210kwh is broken down using the AQ value at EUC and Class
System calculates the NA Meter Nomination by EUC: EUC02 241 + EUC05 10,964,773 + EUC04 2,196 = 10,967,210 (Total Nomination at Meter)
This then needs to be broken down by EUC&Class
10,964,773 Nomination at EUC * 4,570,000 AQ at EUC05&Class 3 / 12,739,275 Total AQ at EUC&Class = 3,933,427
The apportioned Nomination 3,933,427 then has the Allocation Factor applied (this is set to 1) by Class&EUC
The Shipper Share of Unidentified Gas is then calculated
3,933,427 * UIG at Exit Zone 53,635 / Aggregate of all Adjusted Nomination 13,301,600 = **UIG 15,860**

Sample data used to calculate Unidentified Gas, Unidentified Gas can be a positive or negative value, For illustration purposes only not to scale

Forecast User Unidentified Gas Example

Step 6 - Calculate Forecast User LDZ Unidentified Gas for the Exit Zone

Gemini Screen - Shipper Forecast UIG Share Report

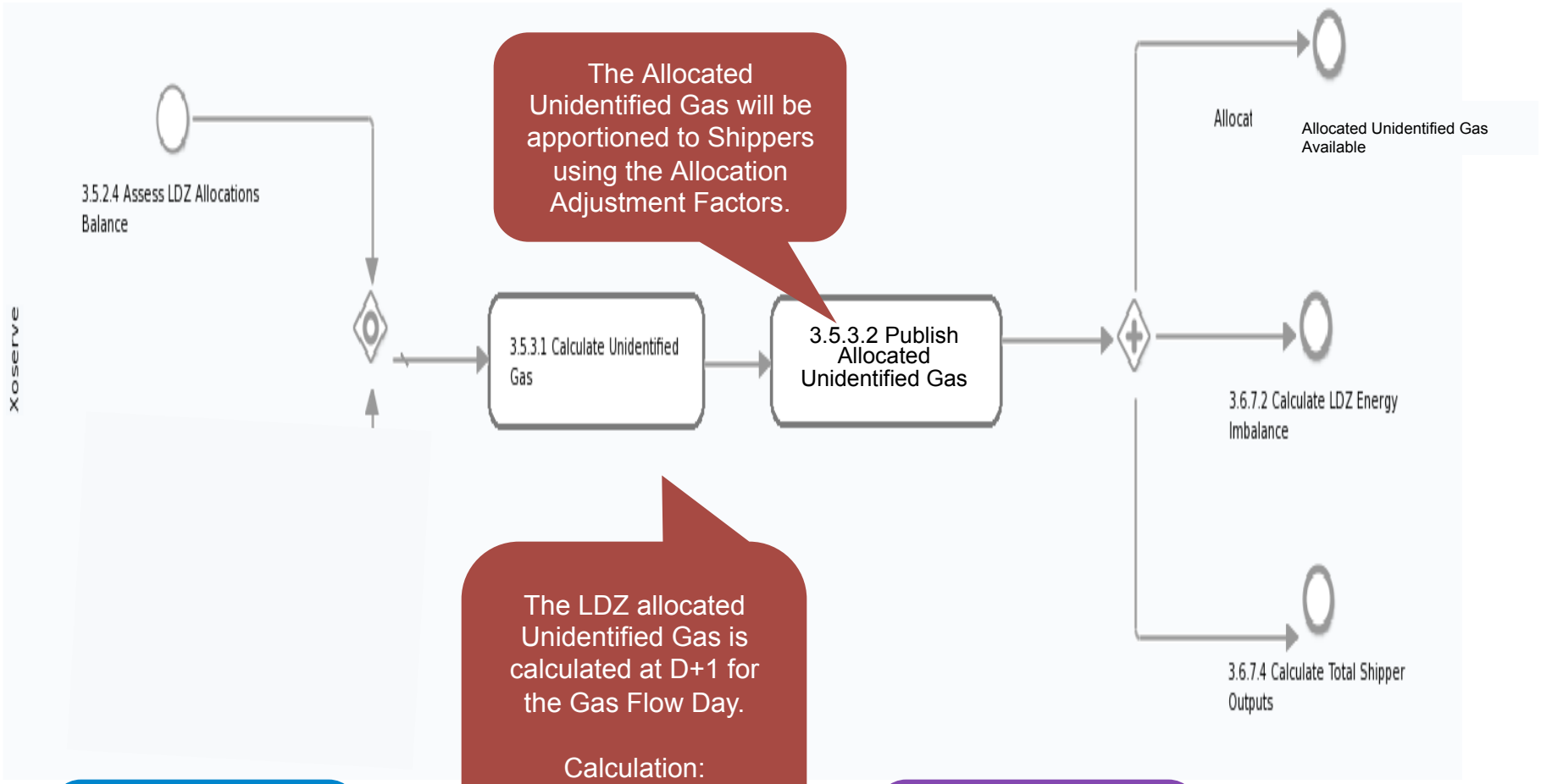
Shipper - ABC **GFD - 01-Oct-15**

Meter Type	Exit Zone	EUC Band	Class	Allocation Factor	UIG (kWh)
DC	EZ1	EZ:E1509	Class 1	1	1,526
DC	EZ1	EZ:E1509	Class 1	1	
DF	EZ1	EZ:E1505	Class 2	1	51
DF	EZ1	EZ:E1508	Class 2	1	403
DF	EZ1	EZ:E1506	Class 2	1	315
DF	EZ1	EZ:E1506	Class 2	1	
DF	EZ1	EZ:E1506	Class 2	1	
DF	EZ1	EZ:E1507	Class 2	1	228
NA	EZ1	EZ:E1503	Class 3	1	2,289
NA	EZ1	EZ:E1503	Class 3	1	
NA	EZ1	EZ:E1502	Class 3	1	803
NA	EZ1	EZ:E1502	Class 4	1	341
			Total UIG for Exit Zone		**5,956**

Allocated LDZ Unidentified Gas

- The Allocated Unidentified Gas calculated for each LDZ will be apportioned to Shippers using the Allocation Adjustment Factor.
  - Calculated on D+1 for the Gas Flow Day
- Shippers will be able to view their Allocated Unidentified Gas Quantities.
  - This will be by Shipper/Exit Zone/EUC/Class
- LDZ Allocated Unidentified Gas =
  - LDZ Demand **-** (LDZ Shrinkage **+** Total DM Allocations **+** Total NDM Allocations)

Calculate Unidentified Gas Allocation



UNC Ref

E1.1.6
E1.1.7

Settlement BRD Ref: 5.4

LDZ Unidentified Gas Example

Calculating Unidenitifed Gas for an LDZ

Step 1 - Shipper Portfolio Base Data for a Gas Day

1 Exit Zone within an LDZ

Example EUC - EZ:E1401 to EZ:E1409

Gemini Data

Class 1 & 2 Allocation for Exit Zone EZ1								
Shipper	SMP	EUC	Class	AQ		Meter Type	Meter Id	Allocation
ABC	1010101	EUC09	Class 1	60,894,000		DC	1010101	170,000
ABC	1010102	EUC09	Class 1	76,355,000		DC	1010102	212,243
ABC	11010108	EUC05	Class 2	5,318,318		DF	Z000000011	
ABC	11010109	EUC08	Class 2	42,355,686				
ABC	11010110	EUC06	Class 2					
ABC	11010113	EUC06	Class 2	33,126,334				250,470
ABC	11010115	EUC06	Class 2					
ABC	11010114	EUC07	Class 2	23,992,817				
DEF	1010103	EUC09	Class 1	65,584,000		DC	1010103	182,123
DEF	1010104	EUC09	Class 1	84,176,000		DC	1010104	131,890
GHI	1010105	EUC09	Class 1	53,314,000		DC	1010105	95,520
GHI	1010106	EUC09	Class 1	115,948,000		DC	1010106	44,612
GHI	1010107	EUC09	Class 1	75,110,000		DC	1010107	207,560
GHI	11010111	EUC08	Class 2	70,978,000		DF	Z000000013	194,200
GHI	11010112	EUC08	Class 2					
								1,488,618

Gemini Data

Calculated Class 3 & 4 Allocation for Exit Zone EZ1							
Shipper	SMP	Class	EUC	AQ	Meter Type	Meter ID	Allocation
ABC	77777777	EUC03	Class 3	886,500	NA	A000000101	867,300
	88888888	EUC03	Class 3				
	99999999	EUC02	Class 3	256,000			
	10101010	EUC02	Class 4	108,862			
DEF	11111111	EUC05	Class 3	4,570,000	NA	A000000102	11,690,560
	22222222	EUC02	Class 3	88,126			
	33333333	EUC05	Class 4				
	44444444	EUC05	Class 4	8,169,275			
	55555555	EUC05	Class 4				
	66666666	EUC04	Class 4	801,685			
							12,557,860

Sample data used to calculate Unidentified Gas
Unidentified Gas can be a positive or negative value
For illustration purposes only not to scale

Step 2 - Total of all Class Allocations for 1 Exit Zone (EZ1)

Exit Zone	EZ1
Agg. Class 3&4 Allocation	12,557,860
Agg. Class 1&2 Allocation	1,488,618
Agg. Allocation	**14,046,478**

Step 3 - Total of all Exit Zones within an LDZ

Aggregate of Class 1&2 + Class 3&4 at every exit zone

	Exit Zone	Agg. Allocations
	EZ1	**14,046,478**
	EZ2	6,208,200
	EZ3	14,523,000
	EZ4	45,889,591
	EZ5	76,176,721
b	**Total LDZ Allocation**	**156,843,990**
a	**LDZ Demand**	**157,500,050**

AULOQ (b)

LDQO (a)

Step 4 - Calculate Unidentified Gas for the LDZ

UIG (c)

c	**LDZ Unidentified Gas**	**656,060**

Step 5 - Calculate Unidentified Gas for the Exit Zone

UIG for Exit Zone EZ1	58,755

LDZ UIG (656,060) * Allocation for Exit Zone (14,046,478) / Total LDZ Allocation (156,843,990) = 58,755

Unidentified Gas (UIG) for an LDZ and a Day is UIG = LDQO - AULOQ
(c) (a) (b)

New UNC section H 2.6.1

c - UIG = Unidentified Gas for a LDZ and a Day
a - LDQO = LDZ Daily Quantity Offtaken
b - AULOQ = Aggregate of all Users of the User LDZ Offtake Quantities for the Day

Example displays breakdown of data for one exit zone within the LDZ. The same calculations are performed for all Exit Zones within an LDZ

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User Unidentified Gas Example

Step 6 - Calculate User LDZ Unidentified Gas for the Exit Zone

ULUG = UIG * AULOQ / AAULOQ

(a) (b) (c) (d)

ULUG = User LDZ Unidentified Gas
UIG = Unidentified Gas for a LDZ and a Day
AULOQ = Users User Adjusted LDZ Offtake Quantity for the LDZ and the Day
AAULOQ = Aggregate of all Users of the Adjusted User Quantities for the LDZ and the Day

UNC Section E1.1.6

UIG (b)

UIG @ EZ1	58,755

AULNQ (c)

FULUG (a)

Shipper	Meter ID	Meter Type	EUC	Class	Factor	AQ	Aggregate AQ at Meter/EUC	Allocation by Meter	Allocation at SMP/ Allocation by EUC	Apportioned Allocation	Adjusted Allocation	Aggregate UIG Share at Class & EUC	UIG Meter ID
ABC	1010101	DC	EUC09	Class 1	1	60,894,000		170,000		170,000	170,000	1,599	ABCEZ1UG 6,265
ABC	1010102	DC	EUC09	Class 1	1	76,355,000		212,243		212,243	212,243		
ABC	Z000000011	DF	EUC05	Class 2	1	5,318,318		250,470	13,100	13,100	13,100	55	
ABC	Z000000011	DF	EUC08	Class 2	1	42,355,686			100,120	100,120	100,120	419	
ABC	Z000000011	DF	EUC06	Class 2	1	33,126,334			80,050	80,050	80,050	335	
ABC	Z000000011	DF	EUC06	Class 2	1								
ABC	Z000000011	DF	EUC06	Class 2	1								
ABC	Z000000011	DF	EUC07	Class 2	1	23,992,817			57,200	57,200	57,200	239	
ABC	A000000101	NA	EUC03	Class 3	1	886,500	886,500	867,300	570,200	570,200	567,575	2,375	
ABC	A000000101	NA	EUC03	Class 3	1								
ABC	A000000101	NA	EUC02	Class 3	1	256,000	364,862		297,100	208,456	208,456	872	
ABC	A000000101	NA	EUC02	Class 4	1	108,862				88,644	88,644	371	
DEF	1010103	DC	EUC09	Class 1	1	65,584,000		182,123		182,123	181,120	1,310	DEFEZ1UG 50,223
DEF	1010104	DC	EUC09	Class 1	1	84,176,000		131,890		131,890	131,890		
DEF	A000000102	NA	EUC02	Class 3	1	88,126		11,690,560	250	250	250	1	
DEF	A000000102	NA	EUC05	Class 3	1	4,570,000	12,739,275		11,688,110	4,192,912	4,192,912	17,543	
DEF	A000000102	NA	EUC05	Class 4	1	8,169,275				7,495,197	7,495,197	31,360	
DEF	A000000102	NA	EUC05	Class 4	1								
DEF	A000000102	NA	EUC04	Class 4	1	801,685			2,200	2,200	2,200	9	
GHI	1010105	DC	EUC09	Class 1	1	53,314,000		95,520		95,520	95,520	1,454	GHIEZ1UG 2,267
GHI	1010106	DC	EUC09	Class 1	1	115,948,000		44,612		44,612	44,612		
GHI	1010107	DC	EUC09	Class 1	1	75,110,000		207,560		207,560	207,560		
GHI	Z000000013	DF	EUC08	Class 2	1	41,261,000	70,978,000	194,200		194,200	194,200	813	
GHI	Z000000013	DF	EUC08	Class 2	1	29,717,000							
											14,042,849		58,755

Shipper ABC has a DF Meter - The total Allocation at the Meter 250,470kwh is calculated by Class&EUC using the Supply Meter Point Allocation
Each Allocation has the Allocation Factor applied (this is set to 1) by Class&EUC
The Shipper Share of Unidentified Gas is then calculated
13,100 * UIG at Exit Zone 58,755 / Aggregate of all Adjusted Allocations 14,042,849 = **UIG 55**

Shipper DEF has a NA Meter - The total Allocation at the Meter 11,690,560kwh is calculated using the AQ value at EUC&Class
System calculates the NA Meter Allocation by EUC: EUC02 250 + EUC05 11,688,110 + EUC04 2,200 = 11,690,560 (Total Allocation at Meter)
This then needs to be calculated by EUC&Class
11,688,110 Allocation at EUC * 4,570,000 AQ at EUC05&Class 3 / 12,739,275 Total AQ at EUC&Class = 4,192,912
The apportioned Allocation 4,192,912 then has the Allocation Factor applied (this is set to 1) by Class&EUC
The Shipper Share of Unidentified Gas is then calculated
4,192,912 * UIG at Exit Zone 58,755 / Aggregate of all Adjusted Allocations 14,042,849 = **UIG 17,543**

Sample data used to calculate Unidentified Gas, Unidentified Gas can be a positive or negative value, For illustration purposes only not to scale

User Unidentified Gas Example

Step 6 - Calculate User LDZ Unidentified Gas for the Exit Zone

Gemini Screen - Shipper Allocation UIG Share Report

Shipper - ABC **GFD - 01-Oct-15**

Meter Type	Exit Zone	EUC Band	Class	Allocation Factor	UIG (kWh)
DC	EZ1	EZ:E1509	Class 1	1	1,599
DC	EZ1	EZ:E1509	Class 1	1	
DF	EZ1	EZ:E1505	Class 2	1	55
DF	EZ1	EZ:E1508	Class 2	1	419
DF	EZ1	EZ:E1506	Class 2	1	335
DF	EZ1	EZ:E1506	Class 2	1	
DF	EZ1	EZ:E1506	Class 2	1	
DF	EZ1	EZ:E1507	Class 2	1	239
NA	EZ1	EZ:E1503	Class 3	1	2,375
NA	EZ1	EZ:E1503	Class 3	1	
NA	EZ1	EZ:E1502	Class 3	1	872
NA	EZ1	EZ:E1502	Class 4	1	371
			Total UIG for Exit Zone		**6,265**