

METHANE EMISSION Calculation for Midstream (TSO, UGS, LNG, DSO)

Level 1
Level 2
Level 3
Level 4
Level 5

Organisation: _____
 Company: _____
 Country: _____
 Emissions for the Year: _____
 Responsible Person: _____

Natural Gas Composition
 Average Methane Content of Natural Gas: _____ % (Vol.)
 Density of Methane: _____ kg/Nm³
 Conversion Factor from m³ Nat Gas to g CH₄: _____ g CH₄ / Nm³ Gas
 Specific Exhaust Gas Volume (dry): _____ m³/Nm³

Calculation	Activity Factors	Emission Factors						Total Emissions				LEVEL 5		Comments			
		Marogaz Range			Company			LEVEL 1/2/3/4		Total Emissions		Natural Gas	Methane				
		Minimum	Average	Maximum	Data	Unit	Natural Gas	Methane	Level	Source for own data							
No.	System Category	Data	Unit	Minimum	Average	Maximum	Data	Unit	Nm ³ /y	kg/y	Please indicate the Level of the data: 1/2/3/4	Measurements	Measurements	Estimation	Estimation	Nm ³ /y	kg/y
<p>1. TSO - Total</p> <p>1.1. Length of network (km) Nm³/km/y</p> <p>1.1.1. TSO - Pipeline Main lines</p> <p>1.1.1.a. Vents</p> <p>1.1.1.a.1. Operational emissions</p> <p>1.1.1.a.2. Vent Commissioning / Decommissioning</p> <p>1.1.1.a.3. Incident / Emergency vents</p> <p>1.1.1.b. Incomplete combustion</p> <p>1.1.1.b.1. Total emission caused by flares</p> <p>1.2. TSO - Compressor station for transmission pipelines (Each one will be reported separately)</p> <p>1.2.a. Fugitive Emissions</p> <p>1.2.a.1. Connections (flanges, seals, joints)</p> <p>1.2.a.2. valves and control valves</p> <p>1.2.a.3. pressure relief valves</p> <p>1.2.a.4. BD-OEL (blow-down open ended line)</p> <p>1.2.a.5. OEL</p> <p>1.2.a.6. Others</p> <p>1.2.b. Vents</p> <p>1.2.b.1. Maintenance vents</p> <p>1.2.b.2. Regular emission tec. devices (pneumatic)</p> <p>Number of valves with pneumatic operation</p> <p>Gas analyser</p> <p>Losses of seals of the compressor units</p> <p>1.2.b.3. Start/stop vents</p> <p>Total emission caused by starts</p> <p>Total emission caused by stops</p> <p>1.2.c. Incomplete combustion</p> <p>1.2.c.1. From flares</p> <p>1.2.c.2. From turbines</p> <p>1.2.c.3. From engines</p> <p>1.2.c.4. From others (heaters/pre-heating system/boilers)</p> <p>1.3. TSO - Reduction & regulating stations / Measurement stations / Valve stations / Consumer supply stations for metering and regulating</p> <p>1.3.a. Fugitive Emissions</p> <p>1.3.a.1. Connections (flanges, seals, joints)</p> <p>1.3.a.2. valves and control valves</p> <p>1.3.a.3. pressure relief valves</p> <p>1.3.a.4. BD-OEL (blow-down open ended line)</p> <p>1.3.a.5. OEL</p> <p>1.3.a.6. Others</p> <p>1.3.b. Vents</p> <p>1.3.b.1. Total emission caused by maintenance</p> <p>1.3.b.2. Total emission caused by incident</p> <p>1.3.b.3. Regular emission tec. devices (pneumatic)</p> <p>Number of valves with pneumatic operation</p> <p>Gas analyser</p> <p>1.3.c. Incomplete combustion</p> <p>1.3.c.1. From flares</p> <p>1.3.c.2. From others (heaters/pre-heating system/boilers)</p> <p>2. UGS (Each one will be reported separately)</p> <p>2.1. UGS - Compressor Stations (Injection / Withdrawal)</p> <p>2.1.a. Fugitive Emissions</p> <p>2.1.a.1. Connections (flanges, seals, joints)</p> <p>2.1.a.2. valves and control valves</p> <p>2.1.a.3. pressure relief valves</p> <p>2.1.a.4. BD-OEL (blow-down open ended line)</p> <p>2.1.a.5. OEL</p> <p>2.1.a.6. Others</p> <p>2.1.b. Vents</p> <p>2.1.b.1. Maintenance vents</p> <p>2.1.b.2. Regular emission tec. devices (pneumatic)</p> <p>Number of valves with pneumatic operation</p> <p>Gas analyser</p> <p>Losses of seals of the compressor units</p> <p>2.1.b.3. Start/stop vents</p> <p>Total emission caused by starts</p> <p>Total emission caused by stops</p> <p>2.1.c. Incomplete combustion</p> <p>2.1.c.1. From flares</p> <p>2.1.c.2. From turbines</p> <p>2.1.c.3. From engines</p> <p>2.1.c.4. From others (heaters/pre-heating system/boilers)</p> <p>2.2. UGS - Treatment & Wells</p> <p>2.2.a. Fugitive Emissions</p> <p>2.2.a.1. Connections (flanges, seals, joints)</p> <p>2.2.a.2. valves and control valves</p> <p>2.2.a.3. pressure relief valves</p> <p>2.2.a.4. BD-OEL (blow-down open ended line)</p> <p>2.2.a.5. OEL</p> <p>2.2.a.6. Others</p> <p>2.2.b. Vents</p> <p>2.2.b.1. Maintenance vents</p> <p>2.2.b.2. Regular emission tec. devices (pneumatic)</p> <p>Number of valves with pneumatic operation</p> <p>Gas analyser</p> <p>2.2.b.3. Incident / Emergency vents</p> <p>2.2.c. Incomplete combustion</p> <p>2.2.c.1. From flares</p> <p>2.2.c.2. Fuel Gas for drying facilities</p> <p>2.2.c.3. Fuel gas consumption heaters</p> <p>3. LNG Terminal (Each one will be reported separately)</p> <p>3.1. With flare - Send out Nm³/m³/y</p> <p>3.1. Without flare - Send out Nm³/m³/y</p> <p>3.1.a. LNG Terminal</p> <p>3.1.a.1. Fugitive Emissions</p> <p>3.1.a.1.1. Connections (flanges, seals, joints)</p> <p>3.1.a.1.2. valves and control valves</p> <p>3.1.a.1.3. pressure relief valves</p> <p>3.1.a.1.4. BD-OEL (blow-down open ended line)</p> <p>3.1.a.1.5. OEL</p> <p>3.1.a.1.6. Others</p> <p>3.1.b. Vents</p> <p>3.1.b.1. Operational vents</p> <p>3.1.b.2. Maintenance vents</p> <p>3.1.b.3. Regular emission tec. devices (pneumatic)</p> <p>Number of valves with pneumatic operation</p> <p>Gas analyser</p> <p>Losses of seals of the compressor units</p> <p>3.1.b.4. Incident / Emergency vents</p> <p>3.1.c. Incomplete combustion</p> <p>3.1.c.1. From flares</p> <p>3.1.c.2. Gas generators</p> <p>3.1.c.3. Fuel gas consumption compressors, heaters / boilers, etc.</p> <p>4. DSO - Total</p> <p>4.1. Length of network (company) (km) Nm³/km/y</p> <p>4.1.1. DSO - Pipelines: Main lines</p> <p>4.1.1.a. Distribution (PE Pipes)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.1.1.b. Distribution (PVC Pipes)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.1.1.c. Distribution (PA Pipes)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.1.1.d. Distribution (Other Non-Metal Pipes)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.1.1.e. Leaks Derived from systematic survey</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.1.b. Vented</p> <p>4.1.b.1. Operational emissions / Maintenance</p> <p>Purging</p> <p>Venting</p> <p>4.1.b.2. Incident / Emergency vents</p> <p>Third party damages (incl. repair)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>Emergency/Warnings (Corrosion...)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.2. DSO - Service lines</p> <p>4.2.a. Fugitives</p> <p>4.2.a.1. Distribution</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.2.a.2. Leaks Derived from systematic survey</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.2.b. Vented</p> <p>4.2.b.1. Operational emissions / Maintenance</p> <p>Purging</p> <p>Venting</p> <p>4.2.b.2. Incident / Emergency vents</p> <p>Third party damages (incl. repair)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>Emergency/Warnings (corrosion...)</p> <p>Pressure range 1</p> <p>Pressure range 2</p> <p>Pressure range 3</p> <p>4.3. DSO - Reducing and/or metering stations; Valve stations; Injection stations; Blending stations</p> <p>4.3.a. Fugitive Emissions (tightness failure)</p> <p>4.3.a.1. Inlet Pressure 1</p> <p>4.3.a.2. Inlet Pressure 2</p> <p>4.3.a.3. Inlet Pressure 3</p> <p>4.3.b. Vented</p> <p>4.3.b.1. Total emission caused by Maintenance (Valves/ Filter cleaning)</p> <p>4.3.b.2. Regular emission technical devices (pneumatic)</p> <p>4.3.b.3. Incident / Emergency vents</p> <p>Total emission caused by emergency</p> <p>4.4. DSO - LNG Satellite stations (in the case that they are owned by the DSO)</p> <p>4.4.a. Fugitive Emissions</p> <p>4.4.a.1. Operational vents</p> <p>4.4.a.2. Incident / Emergency vents</p> <p>4.4.c. Incomplete combustion</p> <p>4.4.c.1. From flares</p> <p>4.5. DSO - Meters</p> <p>4.5.a. Change/Removal installation of Gas meters</p> <p>Domestic, commercial and light industrial</p> <p>Industrial</p>																	