

# WP. No 6

## VTG approach on tariff calculation for WP2



Research and Innovation





Dear Colleagues,

In the VTG opinion, the analysis of costs and benefits should definitely include CAPEX and OPEX element costs. Such an approach will allow us to take into account the costs of each infrastructure element in the Upstream and Downstream tariffs, just as we take into account all CAPEX and OPEX in the Midstream tariffs.

Tariffs Upstream and Downstream include the Permanent elements and Variable Elements. The permanent element is the cost of building infrastructure (CAPEX). As Variable elements, we include the cost of gas at the point of receipt from the supplier and the cost of operating infrastructure (OPEX), since OPEX components, such as the cost of energy, water, land rent and others, can be changed.







#### WP 2. VTG approach on tariff calculation

#### **1.** Let's Consider the list of items for Upstream tariffs.

It can be considered in accordance with the type of gas loading, loading from the onshore terminals and from the offshore floating terminals.

#### **1.1 Onshore gas loading terminal.**

The onshore gas loading terminals will be built in:

#### 1.1.1 Mediterranean Sea Region:

1.1.1.1 Gas loading terminal near the *Vasilikos Energy hub (direction to Crete)*; The CAPEX element for onshore loading rates is shown in the table below:

|   | Process parameters         |             |        |   |                |  |
|---|----------------------------|-------------|--------|---|----------------|--|
|   | CNG ship delivery capacity | V, mscm     | 12,00  |   |                |  |
|   | Loading time               | H, hour     | 48,00  |   |                |  |
|   | Loading pressure           | P, bar      | 240,00 |   |                |  |
|   | Gas temperature            | T, °C       | 40,00  |   |                |  |
|   | Те                         | erminal CAP | EX     | • |                |  |
| TOTAL in Scope of Project, EURO         |                            |             |        |   | 213 601 607,21 |  |
| TOTAL out of the scope of Project, EURO |                            |             |        |   | 150 593 450,00 |  |
|   | TOTAL, EURO                |             |        |   |                |  |







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## 1.1.1.2 Gas loading terminal near the *Vasilikos Energy hub (direction to Lebanon)*;

|   | Process parameters         |             |        |  |                |  |  |
|---|----------------------------|-------------|--------|--|----------------|--|--|
|   | CNG ship delivery capacity | V, mscm     | 9,00   |  |                |  |  |
|   | Loading time               | H, hour     | 32,00  |  |                |  |  |
|   | Loading pressure           | P, bar      | 240,00 |  |                |  |  |
|   | Gas temperature            | T, °C       | 40,00  |  |                |  |  |
|   | Те                         | erminal CAP | EX     |  |                |  |  |
|   | 295 268 273,88             |             |        |  |                |  |  |
| TOTAL out of the scope of Project, EURO |                            |             |        |  | 150 593 450,00 |  |  |
|   | TOTAL, EURO                |             |        |  |                |  |  |





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## 1.1.1.3 Gas loading terminal near the *Vasilikos Energy hub (direction to Egypt)*;

| Process parameters                       |                    |  |  |  |  |  |
|--|--------------------|--|--|--|--|--|
| CNG ship delivery capacity V, mscm 12,00 |                    |  |  |  |  |  |
| Loading time H, hour 48,00               |                    |  |  |  |  |  |
| Loading pressure P, bar 240,00           |                    |  |  |  |  |  |
| Gas temperature T, °C 40,00              |                    |  |  |  |  |  |
| Terminal CAPEX                           |                    |  |  |  |  |  |
| TOTAL in Scope of Project, El            | JRO 305 268 273,88 |  |  |  |  |  |
| TOTAL out of the scope of Project, El    | JRO 150 593 450,00 |  |  |  |  |  |
| TOTAL, EL                                | JRO 455 861 723,88 |  |  |  |  |  |







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#### 1.1.3 Black Sea Region:

#### 1.1.3.1 Gas loading terminal near the port of **Poti (direction to Ukraine)**;

|   | Process parameters         |              |        |   |                |  |
|---|----------------------------|--------------|--------|---|----------------|--|
|   | CNG ship delivery capacity | V, mscm      | 12,00  |   |                |  |
|   | Loading time               | H, hour      | 47,00  |   |                |  |
|   | Loading pressure           | P, bar       | 240,00 |   |                |  |
|   | Gas temperature            | T, °C        | 25,00  |   |                |  |
|   | Т                          | erminal CAPI | EX     | • |                |  |
| TOTAL in Scope of Project, EURO         |                            |              |        |   | 823 945 466,72 |  |
| TOTAL out of the scope of Project, EURO |                            |              |        |   | 0,00           |  |
|   | TOTAL, EURO                |              |        |   |                |  |







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#### **1.2 Offshore gas loading terminal.**

The onshore gas loading terminals will be built in:

#### 1.2.1 Mediterranean Sea Region:

1.2.1.1 Gas loading terminal near gas production platforms near the *Cyprus EEZ* (*direction to Crete*);

|   | Process parameters         |                      |        |  |              |  |  |  |  |  |
|---|----------------------------|----------------------|--------|--|--------------|--|--|--|--|--|
|   | CNG ship delivery capacity | V, mscm              | 12,00  |  |              |  |  |  |  |  |
|   | Loading time               | H, hour              | 48,00  |  |              |  |  |  |  |  |
|   | Loading pressure           | P, bar               | 240,00 |  |              |  |  |  |  |  |
|   | Gas temperature            | T, °C                | 40,00  |  |              |  |  |  |  |  |
|   |                            | <b>Terminal CAPI</b> | ÊX     |  |              |  |  |  |  |  |
|   | 236 410 892,72             |                      |        |  |              |  |  |  |  |  |
| TOTAL out of the scope of Project, EURO |                            |                      |        |  | 2 024 967,68 |  |  |  |  |  |
|   | TOTAL, EURO                |                      |        |  |              |  |  |  |  |  |
|   |                            |                      |        |  |              |  |  |  |  |  |







## 1.2.1.2 Gas loading terminal near gas production platforms near the *Cyprus EEZ* (*direction to Lebanon*);

|  | Process parameters         |                      |        |  |  |  |  |
|--|----------------------------|----------------------|--------|--|--|--|--|
|  | CNG ship delivery capacity | V, mscm              | 9,00   |  |  |  |  |
|  | Loading time               | H, hour              | 32,00  |  |  |  |  |
|  | Loading pressure           | P, bar               | 240,00 |  |  |  |  |
|  | Gas temperature            | T, °C                | 40,00  |  |  |  |  |
|  |                            | <b>Terminal CAPI</b> | EX     |  |  |  |  |
|  | 267 124 859,39             |                      |        |  |  |  |  |
|  | 2 024 967,68               |                      |        |  |  |  |  |
|  | TOTAL, EURO                |                      |        |  |  |  |  |







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## 1.2.1.3 Gas loading terminal near gas production platforms near the *Cyprus EEZ* (*direction to Egypt*);

|  | Process parameters |              |        |  |  |  |
|--|--------------------|--------------|--------|--|--|--|
|  | CNG ship capacity  | V, mscm      | 12,00  |  |  |  |
|  | Loading time       | H, hour      | 48,00  |  |  |  |
|  | Loading pressure   | P, bar       | 240,00 |  |  |  |
|  | Gas temperature    | T, °C        | 40,00  |  |  |  |
|  |                    | Terminal CAP | EX     |  |  |  |
|  | 275 832 751,89     |              |        |  |  |  |
|  | 2 024 967,68       |              |        |  |  |  |
|  | TOTAL, EURO        |              |        |  |  |  |







#### 1.2.2 Barents Sea Region:

#### 1.2.2.1 Gas loading terminal near gas *Alke gas production platforms (direction*

#### to Nyhamna gas treatment plant);

|   | Process parameters |              |        |  |                |  |
|---|--------------------|--------------|--------|--|----------------|--|
|   | CNG ship capacity  | V, mscm      | 9,00   |  |                |  |
|   | Loading time       | H, hour      | 44,00  |  |                |  |
|   | Loading pressure   | P, bar       | 240,00 |  |                |  |
|   | Gas temperature    | T, °C        | 25,00  |  |                |  |
|   |                    | Terminal CAP | EX     |  |                |  |
| TOTAL in Scope of Project, EURO         |                    |              |        |  | 211 647 527,60 |  |
| TOTAL out of the scope of Project, EURO |                    |              |        |  | 2 024 967,68   |  |
|   | 213 672 495,28     |              |        |  |                |  |





# 1.2.2.2 Gas loading terminal near the *Alke gas production platforms (direction to Aasta Hansteen gas production platforms – enter to the Polarled underwater gas pipeline)*;

|   | Process parameters |               |            |               |                |  |
|---|--------------------|---------------|------------|---------------|----------------|--|
|   | CNG ship capacity  | V, mscm       | 9,00       |               |                |  |
|   | Loading time       | H, hour       | 44,00      |               |                |  |
|   | Loading pressure   | P, bar        | 240,00     |               |                |  |
|   | Gas temperature    | T, °C         | 25,00      |               |                |  |
|   |                    | Terminal CAPI | EX         |               |                |  |
|   |                    | TOTAL in      | Scope of F | Project, EURO | 183 180 860,94 |  |
| TOTAL out of the scope of Project, EURO |                    |               |            |               | 2 024 967,68   |  |
|   | 185 205 828,61     |               |            |               |                |  |





## 1.2.2.3 Gas loading terminal near the *Johan Castberg gas production platforms (direction to Nyhamna gas treatment plant)*;

|   | Process parameters         |                      |        |  |              |  |  |
|---|----------------------------|----------------------|--------|--|--------------|--|--|
|   | CNG ship delivery capacity | V, mscm              | 9,00   |  |              |  |  |
|   | Loading time               | H, hour              | 44,00  |  |              |  |  |
|   | Loading pressure           | P, bar               | 240,00 |  |              |  |  |
|   | Gas temperature            | T, °C                | 25,00  |  |              |  |  |
|   |                            | <b>Terminal CAPI</b> | EX     |  |              |  |  |
|   | 211 440 860,94             |                      |        |  |              |  |  |
| TOTAL out of the scope of Project, EURO |                            |                      |        |  | 2 024 967,68 |  |  |
|   | TOTAL, EURO                |                      |        |  |              |  |  |







## 1.2.2.4 Gas loading terminal near the *Johan Castberg gas production platforms* (*direction to Aasta Hansteen gas production platforms – enter to the Polarled underwater gas pipeline*);

|   | Process parameters         |             |        |  |              |  |
|---|----------------------------|-------------|--------|--|--------------|--|
|   | CNG ship delivery capacity | V, mscm     | 9,00   |  |              |  |
|   | Loading time               | H, hour     | 44,00  |  |              |  |
|   | Loading pressure           | P, bar      | 240,00 |  |              |  |
|   | Gas temperature            | T, °C       | 25,00  |  |              |  |
|   | Те                         | erminal CAP | EX     |  |              |  |
|   | 181 740 860,94             |             |        |  |              |  |
| TOTAL out of the scope of Project, EURO |                            |             |        |  | 2 024 967,68 |  |
|   | TOTAL, EURO                |             |        |  |              |  |





#### 2. Let's Consider the list of items for Downstream tariffs. It can be considered

in accordance with the type of gas unloading, unloading to the onshore terminals and to the offshore floating terminals.

#### 2.1 Onshore gas unloading terminal.

The onshore gas unloading terminals will be built in:

#### 2.1.1 Mediterranean Sea Region:

2.1.1.1 Gas unloading terminal near the port of *Linoperamata on Crete*;

|  | Process parameters              |            |       |  |  |  |  |
|--|---------------------------------|------------|-------|--|--|--|--|
|  | CNG ship delivery capacity      | V, mscm    | 12,00 |  |  |  |  |
|  | Loading time                    | H, hour    | 71,00 |  |  |  |  |
|  | Loading pressure                | P, bar     | 80,00 |  |  |  |  |
|  | Gas temperature                 | T, °C      | 32,00 |  |  |  |  |
|  | Те                              | rminal CAP | EX    |  |  |  |  |
|  | TOTAL in Scope of Project, EURO |            |       |  |  |  |  |
|  | 2 332 245,00                    |            |       |  |  |  |  |
|  | TOTAL, EURO                     |            |       |  |  |  |  |







#### WP 2. VTG approach on tariff calculation

2.1.1.2 Gas unloading terminal near the port of *Zouk in Lebanon*;

|   | Process parameters         |               |       |   |         |        |
|---|----------------------------|---------------|-------|---|---------|--------|
|   | CNG ship delivery capacity | V, mscm       | 9,00  |   |         |        |
|   | Loading time               | H, hour       | 54,00 |   |         |        |
|   | Loading pressure           | P, bar        | 80,00 |   |         |        |
|   | Gas temperature            | T, °C         | 32,00 |   |         |        |
|   | •                          | Terminal CAPI | EX    | • | -       |        |
| TOTAL in Scope of Project, EURO         |                            |               |       |   |         | 126,04 |
| TOTAL out of the scope of Project, EURO |                            |               |       |   | 2 332   | 245,00 |
| TOTAL, EURO                             |                            |               |       |   | 275 733 | 371,04 |







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2.1.1.3 Gas unloading terminal near the port of *Alexandria in Egypt*;

|  | Process parameters              |               |       |   |  |  |
|--|---------------------------------|---------------|-------|---|--|--|
|  | CNG ship delivery capacity      | V, mscm       | 12,00 |   |  |  |
|  | Loading time                    | H, hour       | 71,00 |   |  |  |
|  | Loading pressure                | P, bar        | 80,00 |   |  |  |
|  | Gas temperature                 | T, °C         | 32,00 |   |  |  |
|  | •                               | Terminal CAPE | X     | • |  |  |
|  | TOTAL in Scope of Project, EURO |               |       |   |  |  |
|  | 2 332 245,00                    |               |       |   |  |  |
|  | 288 076 909,44                  |               |       |   |  |  |







#### WP 2. VTG approach on tariff calculation

#### 2.1.2 Barents Sea Region:

#### 2.1.2.1 Gas unloading terminal near the *Nyhamna gas treatment plant in*

#### Norway;

|  | Process parameters              |               |       |  |  |  |
|--|---------------------------------|---------------|-------|--|--|--|
|  | CNG ship delivery capacity      | V, mscm       | 9,00  |  |  |  |
|  | Loading time                    | H, hour       | 70,00 |  |  |  |
|  | Loading pressure                | P, bar        | 80,00 |  |  |  |
|  | Gas temperature                 | T, °C         | 32,00 |  |  |  |
|  | -                               | Terminal CAPI | EX    |  |  |  |
|  | TOTAL in Scope of Project, EURO |               |       |  |  |  |
|  | 2 296 095,00                    |               |       |  |  |  |
|  | 213 486 027,88                  |               |       |  |  |  |







#### 2.1.3 Black Sea Region:

2.1.3.1 Gas unloading terminal near the port of Yuzne in Ukraine;

|  | Process parameters         |              |       |  |  |  |  |
|--|----------------------------|--------------|-------|--|--|--|--|
|  | CNG ship delivery capacity | V, mscm      | 12,00 |  |  |  |  |
|  | Loading time               | H, hour      | 69,00 |  |  |  |  |
|  | Loading pressure           | P, bar       | 80,00 |  |  |  |  |
|  | Gas temperature            | T, °C        | 32,00 |  |  |  |  |
|  |                            | Terminal CAP | EX    |  |  |  |  |
|  | 813 535 827,73             |              |       |  |  |  |  |
|  | 1 068 210,00               |              |       |  |  |  |  |
|  | 814 604 037,73             |              |       |  |  |  |  |







#### WP 2. VTG approach on tariff calculation

#### 2.2 Offshore gas unloading terminal.

The onshore gas unloading terminals will be built in:

#### 2.2.2 Barents Sea Region:

#### 2.2.2.1 Gas unloading terminal near the **Aasta Hansteen offshore gas**

#### production platforms – enter to the Polarled underwater gas pipeline;

|   | Process parameters         |             |       |  |  |        |
|---|----------------------------|-------------|-------|--|--|--------|
|   | CNG ship delivery capacity | V, mscm     | 9,00  |  |  |        |
|   | Loading time               | H, hour     | 70,00 |  |  |        |
|   | Loading pressure           | P, bar      | 80,00 |  |  |        |
|   | Gas temperature            | T, °C       | 32,00 |  |  |        |
|   | Т                          | erminal CAP | EX    |  |  |        |
| TOTAL in Scope of Project, EURO         |                            |             |       |  |  | 565,14 |
| TOTAL out of the scope of Project, EURO |                            |             |       |  |  | 155,20 |
| TOTAL, EURO                             |                            |             |       |  |  | 320,34 |







#### WP 2. VTG approach on tariff calculation

As can be seen from the numbers presented in the tables above, the infrastructure of the terminals working on CNG ships loading and unloading has different costs. This is mainly due to the cost of gas storage facilities and the cost of compressor modules operating in various performance modes. In general, for calculating tariffs, VTG proposes to use the maximum cost of the terminal obtained in calculating the maximum productivity and maximum volume of gas storage, since the terminal should be ready to work in all directions of gas supplies.

Below we show a summary table of the cost of terminals, taking into account the maximum performance indicators for loading and unloading of the CNG ships.







#### WP 2. VTG approach on tariff calculation

| Region        | Terminal<br>location | Terminal mode | Site                                      | САРЕХ   |
|---------------|----------------------|---------------|---|---|
|               | Onshore              | Loading       | Vasilikos Energy hub                      | 364 195 057,21<br>445 861 723,88<br><b>455 861 723,88</b> |
| Mediterranean | Offshore             | Loading       | Gas production platforms near EEZ         | 238 435 860,40<br>269 149 827,07<br><b>278 749 327,07</b> |
| Sea           | Onshore              | Unloading     | Port of Linoperamata,<br>Crete            | 192 975 198,36  |
|               | Onshore              | Unloading     | Port of Zouk, Lebanon                     | 275 733 371,04  |
|               | Onshore              | Unloading     | Port of Alexandria,<br>Egypt              | 288 076 909,44  |
|               | Offshore             | Loading       | Alke gas production<br>platform           | <b>213 672 495,28</b><br>185 205 828,61                   |
|               | Offshore             | Loading       | Johan Castberg gas<br>production platform | <b>213 465 828,61</b><br>183 765 828,61                   |
| Barents Sea   | Onshore              | Unloading     | Nyhamna gas<br>trteatment plant           | 213 486 027,88  |
|               | Offshore             | Unloading     | Aasta Hansteen gas production platform    | 176 095 820,34  |
|               | Onshore              | Loading       | Port of Poti, Georgia                     | 823 945 466,72  |
| Black Sea     | Onshore              | Unloading     | Port of Yuzne,<br>Ukraine                 | 814 604 037,73  |







#### WP 2. VTG approach on tariff calculation

#### **3. Facilities out of scope of Project in the Black Sea region.**

In the table below, we present the CAPEX cost of complexes of facilities that are not included in the Project, but which, nevertheless, will need to be taken into account when attraction of investments.

| Region    | Supporting of<br>process of | Name of Complex                | Allocation   | CAPEX          |
|-----------|-----------------------------|--------------------------------|--|----------------|
|           |                             | Head gas<br>compressor station | Vale village, Georgia  | 55 611 347,11  |
| Black Sea | Loading Gas inter           | Gas interconnector             | Head gas compressor station<br>- Gas loading terminal near<br>the port of Poti                           | 180 275 302,60 |
|           | Unloading                   | Gas interconnector             | Gas unloading terminal near<br>the port of Yuzne - Point of<br>connection to the existing gas<br>network | 43 904 774,08  |







Dear Colleagues,

At the tables above, we saw which figures of the cost of the terminals (CAPEX) can be used for tariff calculations.

Now let's try to determine the variable data that are included in the calculation of OPEX.

The table below shows the values and components of the gas Tariffs for the Mediterranean region.

The line "OPEX Terminal" may consist of several indicators:

- the costs of maintaining the infrastructure (0,5%/year);
- amortization (5%/year);
- taxes, cost of a land (0,55%/year);
- the cost of water supply, sanitation (0,05%/year);
- fuel costs (0,4%/year);
- the repayment of credit for the construction of a terminal or system (7%/year).







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| Region        | Country | Tariff     | Site                    | Tariff component                | Value,    |
|---------------|---------|------------|-------------------------|---------------------------------|-----------|
|               |         |            |                         | Cost of gas                     |           |
|               |         |            |                         | Storage tariff C/cub. m per day | 0,0000065 |
|               |         |            | Vasilikos Energy        | Loading tariff                  | 0,00425   |
|               |         |            | nub                     | Terminal OPEX                   | 0,009918  |
|               | Cummus  | Unstroom   |                         | TOTAL Upstream tariff           |           |
|               | Cyprus  | opstream   |                         | Cost of gas                     |           |
|               |         |            | Gas production          | Storage tariff E/cub. m per day | 0,0000065 |
|               |         |            | platforms near          | Loading tariff                  | 0,00425   |
|               |         |            | EEZ                     | Terminal OPEX                   | 0,006064  |
|               |         |            |                         | TOTAL Upstream tariff           |           |
| Mediterranean |         | Midstream  | CNG ship                | TOTAL Midstream tariff          | XXXXXXXXX |
| Sea           | Crete   | Downstream | Port of<br>Linoperamata | Unloading tariff                | 0,00442   |
|               |         |            |                         | Storage tariff E/cub. m per day | 0,0000065 |
|               |         |            |                         | Terminal OPEX                   | 0,050981  |
|               |         |            |                         | TOTAL Downstream tariff         |           |
|               |         |            |                         | Unloading tariff                | 0,00442   |
|               | Lebanon | Downstream | Port of Zouk            | Terminal OPEX                   | 0,027563  |
|               |         |            |                         | TOTAL Downstream tariff         |           |
|               |         |            |                         | Unloading tariff                | 0,00442   |
|               | Equat   | Downstream | Port of                 | Storage tariff E/cub. m per day | 0,0000065 |
|               | Laybr   | Downstream | Alexandria              | Terminal OPEX                   | 0,006367  |
|               |         |            |                         | TOTAL Downstream tariff         |           |







#### WP 2. VTG approach on tariff calculation

The same breakdown and tariff structure can be shown for the Barents and Black Sea region.

| Region             | Country    | Tariff         | Site                           | Tariff component                          | Value,<br>€/cub. m |
|--------------------|------------|----------------|--------------------------------|---|--------------------|
|                    |            |                |                                | Cost of gas                               |                    |
|                    |            |                | Alke gas                       | Storage tariff E/cub. m per day           | 0,0000065          |
|                    |            |                | production                     | Loading tariff                            | 0,00425            |
|                    |            |                | platform                       | Terminal OPEX                             | 0,066974           |
|                    | Newwey     | Unstranza      |                                | TOTAL Upstream tariff                     |                    |
|                    | Norway Ups | Opstream       |                                | Cost of gas                               |                    |
|                    |            |                | Johan Castberg                 | Storage tariff E/cub. m per day           | 0,0000065          |
|                    |            |                | gas production<br>platform     | Loading tariff                            | 0,00425            |
|                    |            |                |                                | Terminal OPEX                             | 0,061204           |
| <b>Barents Sea</b> |            |                |                                | TOTAL Upstream tariff                     |                    |
|                    |            | Midstream      | CNG ship                       | TOTAL Midstream tariff                    | XXXXXXXXX          |
|                    | Norway     | Downstrea<br>m |                                | Unloading tariff                          |                    |
|                    |            |                | Nyhamna gas<br>treatment plant | Storage tariff E/cub. m per day           | 0,0000065          |
|                    |            |                |                                | Terminal OPEX                             | 0,061209           |
|                    |            |                |                                | TOTAL Downstream tariff                   |                    |
|                    |            |                |                                | Unloading tariff                          |                    |
|                    | Lehenen    | Downstrea      | Aasta Hansteen                 | Storage tariff $\epsilon$ /cub. m per day | 0,0000065          |
|                    | Lebanon    | m              | yas production                 | Terminal OPEX                             | 0,050489           |
|                    |            |                | platform                       | TOTAL Downstream tariff                   |                    |







#### WP 2. VTG approach on tariff calculation

For the Black Sea region, in particular for Ukraine, the tariff components will be as follows:

| Pagion    | Region Country Tariff |   | Sito             | Tariff component                  | Value,    |
|-----------|-----------------------|---|------------------|-----------------------------------|-----------|
| Region    | Country               | Tarini                                    | Sile             |                                   | €/cub. m  |
|           |                       |   |                  | Cost of gas (point of connection) | 0,08236   |
|           |                       |   |                  | Gas transport to Poti             | 0,008224  |
|           |                       | Storage tariff $\epsilon$ /cub. m per day | 0,0000065        |                                   |           |
|           |                       | Dort of Doti                              | Loading tariff   | 0,00425                           |           |
|           | Georgia               | Upstream                                  | Port of Poti     | Terminal OPEX                     | 0,048372  |
|           |                       |   |                  | CS OPEX                           | 0,00293   |
|           |                       |   |                  | Interconnector OPEX               | 0,009838  |
| Black Sea |                       |   |                  | TOTAL Upstream tariff             | 0,2206005 |
|           |                       | Midstream                                 | CNG ship         | TOTAL Midstream tariff            | XXXXXXXXX |
|           |                       |   |                  | Unloading tariff                  | 0,00442   |
|           |                       |   |                  | Storage tariff C/cub. m per day   | 0,0000065 |
|           |                       | <b>D</b>                                  | Death of Marries | Terminal OPEX                     | 0,047824  |
|           | Ukraine               | Downstream                                | Port of Yuzne    | Gas transport to Berezivka        | 0,0023962 |
|           |                       |   |                  | Entry point tariff                | 0,00563   |
|           |                       |   |                  | TOTAL Downstream tariff           | 0,0602767 |

Data as of 01/01/2020\*







#### WP 2. VTG approach on tariff calculation

The calculation of operating costs (OPEX) is quite complicated, therefore, the simplified formula for summing up the percentages shown on slide number 23. is applied.

The calculation does not include the profit from the sale of gas, although the profit is indirectly included in the transportation of gas through the pipeline or in the costs of maintaining the infrastructure. The following formulas were used to calculate the tariff components:

- OPEX for the terminals, CS the total amount of all indicated indicators, makes up the 13,5% of CAPEX;
- OPEX for the interconnectors the total amount of all indicated indicators, without the percent of water supply, sanitation and fuel costs, makes up the 13,05% of CAPEX .

The value of the components was calculated taking into account the annual gas supply, in each region and for each consumer are different. For the Mediterranean and Barents Sea regions, similar indicators can be obtained from colleagues of Nicholas and Agatha.







#### WP 2. VTG approach on tariff calculation

For the Mediterranean and Barents Sea regions, similar indicators of Upstream and Downstream tariffs can be obtained from colleagues from CHC and SINTEF. According to the transportation tariff (Midstream), Navalprogetti can provide the data.





# Thank you for attention