**Template for the request for input**

**Proposed TYNDP 2018**

**2030 and 2040 story lines**

**Going from assumptions to figures**

Date: 19 September 2016

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**Note: It is not mandatory to fill in all the tables. Please include only the information you have available.**

1. RENEWABLES

The 2030 EU framework sets binding targets at EU level to increase the share of renewables to at least 27% of EU energy consumption by 2030 and to reach at least 40% cuts in greenhouse gas emissions (from 1990 levels).

However, no binding and specific targets are defined by European Commission for the share of renewables in the electricity generation mix or in gas consumption. Furthermore, some countries may have detailed those targets in national goals.

All the three selected storylines for TYNDP 2018 scenarios assume that Europe reaches 2030 targets in terms of total share of energy from renewables and GHG emissions reduction, but each scenario is positioned in a different way with respect to those targets.

Taking into account the assumptions defined for EU in the three storylines, please:

* 1. **electricity generation**

Specify the share (or range) in electricity generation of wind, solar and biomass at EU and/or at Country level depending of the information you have.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **2030 targets** | **Share/range of RES in electricity generation** | | | **Comments** | **Source** |
| **Wind %** | **Solar %** | **Biomass %** |  |  |
| Sustainable Transition | On track with 2030 targets |  |  |  |  |  |
| Global Climate Action | Beyond 2030 targets |  |  |  |  |  |
| Distributed Generation | Slightly beyond 2030 targets |  |  |  |  |  |

* mention if the data you enter below is for EU/Europe or for a specific country (if so name the country[[1]](#footnote-1))
  1. **gas consumption**

Define the share (or range) of RES gas penetration in the gas consumption (such as bio methane) at EU and/or at Country level

* mention if the data you enter below is for EU/Europe or for a specific country (if so name the country[[2]](#footnote-2))

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scenario storylines** | **2030 targets** | **Share/range of RES in gas generation** | **Comments** | **Source** |
| Sustainable Transition | On track with 2030 targets |  |  |  |
| Global Climate Action | Beyond 2030 targets |  |  |  |
| Distributed Generation | Slightly beyond 2030 targets |  |  |  |

1. NUCLEAR

Except for the Global Climate Action scenario which is characterized by a technology-neutral framework, the Sustainable Transition and the Distributed Generation scenarios consider a reduction in nuclear generation and capacity at EU level in 2030 and 2040. In line with those storylines, please specify the expected level of nuclear generation and capacity in EU and in your Country.

* mention if the data you enter below is for EU/Europe or for a specific country (if so name the country2)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scenario storylines** | **Nuclear generation** | **Share of nuclear in the electricity generation mix**  **%** | **Comments** | **Source** |
| Sustainable Transition | Reduction |  |  |  |
| Global Climate Action | Depending on national policies |  |  |  |
| Distributed Generation | Reduction |  |  |  |

1. RESIDENTIAL:

The three scenarios storylines differ in terms of electricity and gas demand for the residential sector. Two of the main drivers influencing the consumption of electricity and gas in this sector are energy efficiency improvements that may offset the expected increase in consumption and heat pump technologies (electric or hybrid solutions). Depending on the rate of building insulation, hybrid solutions composed by electric heat pumps and a gas boiler may be preferred to electric heat pumps and vice versa.

For each storyline, please indicate what is the more credible:

* 1. **electricity consumption**

The expected growth of electricity consumption with the detail of energy efficiency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** | **Net Growth**  **(% growth)** | **Comments** | **Source** |
| Sustainable Transition |  |  |  |  |  |
| Global Climate Action |  |  |  |  |  |
| Distributed Generation |  |  |  |  |  |

* 1. **gas consumption**

The expected growth of gas consumption with the detail of energy efficiency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** | **Net Growth**  **(% growth)** | **Comments** | **Source** |
| Sustainable Transition |  |  |  |  |  |
| Global Climate Action |  |  |  |  |  |
| Distributed Generation |  |  |  |  |  |

1. INDUSTRY

As was done for the residential sector, please indicate:

* 1. **growth of electricity in the industrial sector**

The expected growth of electricity in the industrial sector with the detail of energy efficiency, if available:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** | **Net Growth**  **(% growth)** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** |
| Sustainable Transition |  |  |  |  |  |
| Global Climate Action |  |  |  |  |  |
| Distributed Generation |  |  |  |  |  |

* 1. **growth of gas in the industrial sector**

The expected growth of gas in the industrial sector with the detail of energy efficiency, if available:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** | **Net Growth**  **(% growth)** | **Gross growth (% growth)** | **Energy efficiency (% reduction)** |
| Sustainable Transition |  |  |  |  |  |
| Global Climate Action |  |  |  |  |  |
| Distributed Generation |  |  |  |  |  |

1. TRANSPORT

Transport still represents a significant part of Europe's greenhouse gas emissions. Depending also on fuel prices and the future technology development, a different combination of electricity and gas as transport fuel can support the emission reduction challenge, replacing a more polluting fuels such as oil. The three storylines consider therefore a different penetration of electricity and gas in passenger cars, small commercial vehicles and other transport sectors (heavy duty, shipping, etc.).

Referring to those storylines, please indicate a credible share (range) for electricity and gas vehicles.

* mention if the data you enter below is for EU/Europe or for a specific country (if so name the country[[3]](#footnote-3))

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scenario storylines** | **Passenger cars & small commercials**  **% EV or Plugin in hybrid / % natural gas** | **Comments** | **Source** | **Others transports**  **% EV or Plugin in hybrid / % natural gas** | **Comments** | **Source** |
| Sustainable Transition |  |  |  |  |  |  |
| Global Climate Action |  |  |  |  |  |  |
| Distributed Generation |  |  |  |  |  |  |

1. TECHNOLOGY and FUEL PRICES

Information on technology costs, fuel and CO2 prices are essential input for modelling the electricity dispatch and the assessment of the merit order between coal and gas. Depending on the considered storylines, renewables may be more or less expensive or gas may be more economic than coal (and vice versa).

For technology cost and fuel prices, the TYNDP 2018 scenario elaboration process is based on public sources. Please indicate if you know any source that could be recommended

|  |  |  |  |
| --- | --- | --- | --- |
| **Scenario storylines** |  | **Source** | **Comments** |
| Sustainable Transition  Fuel price | Technology cost |  |  |
| Fuel price |  |  |
| Global Climate Action | Technology cost |  |  |
| Fuel price |  |  |
| Distributed Generation | Technology cost |  |  |
| Fuel price |  |  |

1. DEMAND FLEXIBILITY

Smart technologies in the home and contractual agreements for industry enable demand to be reduced at peak time, given the storylines, what is a credible range of percentage of demand that could be reduced or shifted during a day using these measures?

|  |  |  |  |
| --- | --- | --- | --- |
| **Scenario storylines** | **Flexible demand**  **% of total demand** | **Comments** | **Source** |
| Sustainable Transition |  |  |  |
| Global Climate Action |  |  |  |
| Distributed Generation |  |  |  |
|  |  |  |  |

1. Full Load Hours

The continuous evolution of Wind Turbine technology is expected to result in an increase of Expected Full Load Hours. Which will be, accordingly to your knowledge, the percentage [%] increase of EFLH by 2030 and which by 2040?

|  |  |  |
| --- | --- | --- |
|  | Increase [%] of EFLH in 2030 under same average climate condition | Increase [%] of EFLH in 2040 under same average climate condition |
| **Wind On-shore** |  |  |
| **Wind Off-shore** |  |  |
| **PV** |  |  |

1. If you have data for more countries please copy paste the table template for each of the countries [↑](#footnote-ref-1)
2. If you have data for more countries please copy paste the table template for each of the countries [↑](#footnote-ref-2)
3. If you have data for more countries please copy paste the table template for each of the countries [↑](#footnote-ref-3)