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Pathways to Sustainable Energy – Deep dive on Gas Workshop

Improved Understanding on the role of Natural Gas in Achieving
the 2030 Agenda

24 September 2019, Geneva



Potential of Natural Gas and New Markets

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Discussion

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The diversity of UNECE Geography

Prospects for Markets in:

- Southeast Europe
- Russia
- Central Asia
- Turkey

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Opportunities for LNG Trucks

| | | |
|----------|--------------------|-------------------------|
| Europe*: | 6,000 LNG trucks | 200 filling stations. |
| USA: | 25,000 LNG trucks | 120 filling stations. |
| China: | 330,000 LNG trucks | 2000+ filling stations. |

| | |
|----------|------------------------------------|
| China: | One truck for every 4,200 people |
| USA: | One truck for every 13,000 people |
| Europe*: | One truck for every 900,000 people |

China. Truck fleet is growing by around 60,000 vehicles a year and plans 12,000 LNG & CNG stations by 2020.

* European Union, Switzerland and Norway.

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Paradoxes

Advances in technology demonstrate that natural gas is capable of playing a larger role in transportation.

Modelling indicates the role of gas in this key sector is likely to shrink considerably.

Consequence: Both governments and industry will have to work together to craft a clear set of policies and regulations to enable gas to play a major role in the transportation element of the energy transition.

Government and industry will also have to work closely together on basic provision of gas to more remote areas in the UNECE region that currently lack access to gas.

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Gas Use for Transportation & Heating 2015-2050 (in EJ)

| | Scenario | 2015 | 2035 | 2050 | 2015 | 2035 | 2050 | 2015 | 2035 | 2050 |
|------------------------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | UNECE | UNECE | UNECE | RUS | RUS | RUS | BMU | BMU | BMU |
| Gas TPES (EJ) | Actual | 66.73 | | | 15.23 | | | 1.84 | | |
| | P2C | | 70.87 | 81.38 | | 13.68 | 15.32 | | 1.67 | 1.91 |
| | REF | | 81.58 | 94.79 | | 18.39 | 21.26 | | 2.17 | 1.98 |
| District heating | Actual | 3.90% | | | 12.00% | | | 15.90% | | |
| | P2C | | 3.70% | 2.90% | | 6.80% | 4.90% | | 10.90% | 7.70% |
| | REF | | 1.80% | 0.60% | | 4.90% | 0.025 | | 6.70% | 1.00% |
| Transportation | Actual | 3.50% | | | 7.50% | | | 4.60% | | |
| | P2C | | 0.70% | 1.50% | | 2.20% | 1.90% | | 0.10% | 9.80% |
| | REF | | 2.30% | 1.60% | | 5.60% | 0.044 | | 3.40% | 3.30% |
| Industry | Actual | 16.90% | | | 9.80% | | | 9.00% | | |
| | P2C | | 15.70% | 11.60% | | 13.50% | 10.80% | | 11.70% | 12.60% |
| | REF | | 12.20% | 12.10% | | 17.40% | 0.142 | | 15.30% | 16.20% |
| Residential/Commercial | Actual | 28.40% | | | 12.50% | | | 25.70% | | |
| | P2C | | 26.40% | 9.40% | | 15.70% | 4.90% | | 21.30% | 9.50% |
| | REF | | 28.40% | 24.10% | | 17.80% | 0.168 | | 30.70% | 30.30% |
| Other (electricity, exports et al) | Actual | 47.30% | | | 58.20% | | | 44.80% | | |
| | P2C | | 53.50% | 74.55% | | 61.90% | 77.40% | | 56.10% | 60.40% |
| | REF | | 55.20% | 61.70% | | 54.30% | 0.621 | | 43.80% | 49.20% |

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Estimated demand in 2030 for gas in road transport

| Region | Demand in Bcm | |
|-----------|------------------|-----------------|
| | 2017 (estimated) | 2030 (forecast) |
| China | 36 | 30 |
| India | 3 | 10 |
| N America | 2 | 10 |
| Europe | 2 | 15 |
| ROW | 10 | 15 |
| T otal | 53 | 80 |

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Prospects for Marine LNG: Realistic or Optimistic?

IEA forecast (in mt)

| Scenario | 2025 | 2030 | 2040 |
|-------------------------|------|------|------|
| Sustainable Development | 11.6 | 18.8 | 37.0 |
| New Policies | 23.9 | 29.7 | 41.3 |



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Thank you!

Sustainable Energy Division

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