USEA’s mission has two pillars of equal importance:

USEA serves as a resource, by convening energy stakeholders to share policy, scientific, and technological information to foster the advancement of the entire energy sector.

Internationally, USEA promotes energy development by expanding access to safe, affordable, sustainable, and environmentally acceptable energy in partnership with the U.S. Government.
Eastern Europe Natural Gas Partnership Members

- SLOVAKIA
- SERBIA
- POLAND
- HUNGARY
- GREECE
- BULGARIA
- BOSNIA
- ALBANIA
- NORTH MACEDONIA
- HERZEGOVINA
- MONTENEGRO
- KOSOVO
- CROATIA
- ROMANIA
- BH-GAS D.O.O.
- Plinacro D.O.O.
- Srbijagas (Observer that has provided data)
- Montenegro Bonus
- Albgaz Sh. a.
- DESFA S.A.
- Transgaz (Observer)
- Bulgartransgaz EAD
- Ministry of Economy and Environment
- GAZ-SYSTEM S.A.
What is Driving Volatility?

• Higher energy demand
• European wind drought
• Reduced base load capacity
• Planned and unplanned generation outages
• Strong Asian natural gas demand
• Natural gas market manipulation
European Gas Import Routes

Source: Bruegel
Ukraine Transit to Europe

Source: ENTSO-G
## Yamal (Poland) Transit to Europe

<table>
<thead>
<tr>
<th>Nord Stream</th>
<th>Ukraine Transit</th>
<th>Yamal (via Poland)</th>
<th>Turkstream</th>
</tr>
</thead>
</table>

![Graph showing gas transit data](chart.png)

Source: ENTSO-G
## Nordstream I Transit

<table>
<thead>
<tr>
<th>Nord Stream</th>
<th>Ukraine Transit</th>
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<tbody>
<tr>
<td><strong>Minimum</strong></td>
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<tr>
<td><strong>Maximum</strong></td>
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<tr>
<td><strong>2021</strong></td>
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<tr>
<td><strong>2022</strong></td>
<td></td>
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</tbody>
</table>

**Source:** ENTSO-G
Total EU Gas Storage

Source: Bruegel
Total EU Gas Storage Supplied by Gazprom

Source: Bruegel
Dutch TTF Natural Gas Trading Price (€/MWH)

Natural Gas EU Dutch TTF (EUR)  76.50  -10.465 (-12.03%)

9/25/18 = €36.2
Day Ahead Electricity Prices (€/MWH)

Day-ahead average prices for 2022-01-18

- **Netherlands**: 244.83 EUR/MWh
- **Belgium**: 240.35 EUR/MWh
- **Germany**: 235.87 EUR/MWh
- **Czech Republic**: 235.87 EUR/MWh
- **Slovakia**: 236.73 EUR/MWh
- **Austria**: 238.06 EUR/MWh
- **Hungary**: 237.56 EUR/MWh
- **Slovenia**: 238.06 EUR/MWh
- **Croatia**: 238.06 EUR/MWh
- **Serbia**: 243.74 EUR/MWh
- **Bulgaria**: 209.54 EUR/MWh
- **Romania**: 199.34 EUR/MWh
- **Portugal**: 222.73 EUR/MWh
- **Spain**: 222.73 EUR/MWh
- **Greece**: 235.11 EUR/MWh

**EUR/MWh**

- 150
- 200
- 250
UK Price Caps More than Double
## UK Supplier Bankruptcies 2021-2022

<table>
<thead>
<tr>
<th>When</th>
<th>Old supplier</th>
<th>Customer base</th>
<th>New supplier</th>
</tr>
</thead>
</table>
| 18 January 2022 | Together Energy Retail Ltd                       | • 176,000 domestic  
                                 |                                                  | • 1 non-domestic                                 | TBA |
| 1 December 2021 | Zog Energy Limited                                | • 11,700 domestic                                 | EDF from 4 December 2021                          |
| 25 November 2021 | Entice Energy                                     | • 5,400 domestic                                  | Scottish Power from 1 December 2021               |
| 25 November 2021 | Orbit Energy Limited                              | • 65,000 domestic                                  | Scottish Power from 1 December 2021               |
| 16 November 2021 | Neon Reef Limited                                 | • 30,000 domestic                                  | British Gas from 21 November 2021                 |
| 16 November 2021 | Social Energy Supply Ltd                          | • 5,500 domestic                                  | British Gas from 21 November 2021                 |
| 16 November 2021 | Social Energy Supply Ltd                          | • 5,500 domestic                                  | British Gas from 21 November 2021                 |
| 3 November 2021 | CNG Energy Limited                                | • 41,000 non-domestic                             | Positive Energy from 7 November 2021              |
| 2 November 2021 | Omni Energy Limited                               | • c 6,000 domestic                                | Utilita from 7 November 2021                      |
| 2 November 2021 | MA Energy Limited                                 | • c 300 non-domestic                              | SmartestEnergy from 7 November 2021               |
| 2 November 2021 | Zebra Power Limited                               | • c 14,800 domestic                               | British Gas from 7 November 2021                  |
| 2 November 2021 | Ampoweruk Ltd                                     | • c 600 domestic                                  | Yu Energy from 7 November 2021                    |
| 1 November 2021 | Bluegreen Energy Services Limited                 | • c 5,900 domestic  
                                 |                                                  | • non-domestic                                    | British Gas from 7 November 2021 |
| 18 October 2021 | GOTO Energy                                       | • c22,000 domestic  
                                 |                                                  | • non-domestic                                    | Shell Energy from 21 October 2021 |
| 14 October 2021 | Daligas                                           | • c5,000 domestic  
                                 |                                                  | • non-domestic                                    | Shell Energy from 17 October 2021 |
| 13 October 2021 | Pure Planet                                       | • c235,000 domestic  
                                 |                                                  |                                                  | Shell Energy from 17 October 2021 |
| 13 October 2021 | Colorado Energy                                   | • c15,000 domestic  
                                 |                                                  |                                                  | Shell Energy from 17 October 2021 |
| 29 September 2021 | ENSTROGA                                         | • c6,000 domestic                                  | E.ON Next from 3 October 2021                     |
| 29 September 2021 | Igloo Energy                                      | • c179,000 domestic  
                                 |                                                  |                                                  | E.ON Next from 3 October 2021       |
| 29 September 2021 | Symbio Energy                                     | • c48,000 domestic  
                                 |                                                  |                                                  | E.ON Next from 3 October 2021       |
| 22 September 2021 | Avro Energy                                       | • c580,000 domestic  
                                 |                                                  |                                                  | Octopus Energy from 26 September 2021 |
| 22 September 2021 | Green Supplier Limited ('Green')                  | • c255,000 domestic  
                                 |                                                  |                                                  | Shell Energy from 27 September 2021 |
| 14 September 2021 | People’s Energy                                   | • c350,000 domestic  
                                 |                                                  | • c1,000 non-domestic                            | British Gas from 19 September 2021 |
| 14 September 2021 | Utility Point                                     | • c220,000 domestic  
                                 |                                                  |                                                  | EDF from 18 September 2021          |
| 7 September 2021 | PFP Energy                                        | • 82,000 domestic                                  | British Gas from 11 September 2021                |
| 7 September 2021 | MoneyPlus Energy                                  | • c9,000 domestic                                  | British Gas from 11 September 2021                |
Alcoa to curb aluminium output in Spain as energy costs soar

Romanian coalition holds more talks on energy prices

Electricity Prices Skyrocket in Greece, Europe as Winter Sets In

Energy Crunch Hammers French Nuclear Giant EDF

Spain’s rising energy poverty: A cautionary tale for Europe

Natural-Gas Crisis Pushes German Utilities Into Dash for Cash

Bulgarian greenhouses shutting down due to high gas prices

Italy industry may not restart in January amid energy crisis

Greece Grants $452 Million in Energy Financial Relief
Early Responses

- Poland budgeted EUR 1.1bn for 2022 to help vulnerable pensioners and families
- Estonia allocated EUR 75 million to reduce the electricity bill for all consumers and EUR 20 million to help 72,000 vulnerable families
- France will freeze gas prices until the end of 2022 and will limit electricity price increase to 4% -- paid by EDF
- Germany has reduced its tax on renewables by almost 50%
- Czech government eliminated the VAT tax for gas and electricity through 2022, pending EU approval
- Italy provided EUR 3 billion support to persons already benefitting from social aid
- Belgium extended the social energy tariff for vulnerable households through March 2022 and sent an ‘energy cheque’ of EUR 80 to one million families
Energy Security

Lessons of the European Energy Crisis

National Association of Regulatory Utility Commissioners
January 24, 2022
Europe’s Energy More Seasonal Renewables, On-Demand Natural Gas

2020 Europe Primary Energy Mix

- Oil: 36%
- Natural Gas: 25%
- Coal: 11%
- Nuclear energy: 11%
- Hydro electric: 5%
- Renewables: 12%

EU Energy Supply 2009-2019

- Renewables 173% or 10.6% CAGR
- Natural Gas Consumption (0.5%) or (0.1%)
- EU Nuclear generation (7.2%) or (0.7%) CAGR
- Coal Consumption (30.3%) or (3.5%) CAGR
European Storage at 52% of Capacity at Oct 1

![Bar chart showing European storage at 52% of capacity at Oct 1]
US LNG Imports Replace Declining Production
Europe’s Declining Natural Gas Production
Seasonal Storage Solutions are Needed for Reliable Electricity

**Capacity Factors Wind**

Per quarter

- **Denmark**
- **Britain**
- **Germany**

Source: Refinitiv
Spot Pricing vs Energy Security

Dutch Gas Futures Peak at $204.380

Carbon Futures Peak at $91.72/tonne

UK Wholesale Power Futures Peak at $357.00
Taxes constitute majority of Consumer Bills

Source: Ofgem
Affordability Relief in form of Cut in Taxes

In the end all will share in cost
- Government
- Ratepayers
- Utilities
Flattening US Natural Gas Curves – Dominated by Export Capacity

U.S. liquefied natural gas export capacity by project (2016–2022)

- Sabine Pass, Louisiana
- Cove Point, Maryland
- Corpus Christi, Texas
- Cameron, Louisiana
- Elba Island, Georgia
- Freeport, Texas
- Calcasieu Pass, Louisiana

Natural Gas Future Curve

Source: Graph created by the U.S. Energy Information Administration (EIA)
Note: The chart shows U.S. LNG peak export capacity buildout by quarter, project, and liquefaction train.
US Rig Count not Supportive of Production Increases

Source: Graph by the U.S. Energy Information Administration (EIA), based on data from Baker Hughes Company.