

Power Disruptions in Texas and California & Energy Price Shocks in Europe: Implications for Trans-Atlantic Energy Markets

*Global Gas Centre- EPRINC Joint Seminar Virtual Event
Washington DC 2nd February 2022 9:00 to 11:30 AM (EST) / 3:00 to 5:30 PM (CET)*

This joint event of the GGC and EPRINC was held as part of GGC's continuing relationship with EPRINC- now in its third year and held against a backdrop of not only a dramatic fly-up in energy prices across Europe and Asia but also amid concerns of energy security of supply and grid reliability.

A mix of market forces and fuel constraints has brought severe price shocks to European power and energy markets. Power failures in Texas and California in 2021 have raised concerns from policy makers on the stability and resilience of North American electricity grids. While no single event can be identified as the primary cause of this turmoil, energy policies have played an important role and hold important lessons for policy makers across the Atlantic.

While Europe hasn't experienced grid failure of the scale experienced in the US, esp. in Texas and California, it was felt that an experience sharing session that would draw out the lessons learnt from this crisis would be helpful to participants across the Atlantic. An important aspect in these recent experiences was to understand the policy context in these markets, the discontinuities between the objectives or decarbonisation/energy transition and energy system reliability and resilience as well as to understand the role of natural gas in these events.

The event was structured into two individual sessions focused on the US and European markets respectively with scene setting presentations followed by invited comments and discussions. The presentations made at this event are separately available and while it is not possible to capture every single intervention in this brief report, this report captures the key points made at the event. The meeting was held on the record and a full recording is also available on the EPRINC and GGC websites.

The common over-riding conclusions from the workshop were that:

1. In the zeal towards rapid decarbonisation while renewable energy production has emerged as a growing contributor, the issues relating to over system reliability and resilience have been ignored- this has been apparent in the market failure experienced in both Texas and California in the US as well as in the significant price fly-up in natural gas in Western Europe; to a large extent the electricity market integration effort in Europe- driven by the European Directives- has so far worked and avoided the kind of collapse evidenced in the US.

2. The pursuit of the utopian “energy only market” for power, both in the US and in Europe (esp. Germany) is proving to be futile; the market tightness experienced in the electricity markets make a clear case for the necessity of “capacity markets”. Absent the capacity markets, the security and reliability of supply will be jeopardised. This is an important lesson for system/market designers as greater share of renewables get integrated into the grid.
3. In every case discussed in the meeting- Texas, California, and Germany; natural gas/LNG has played a central part in the resolution of the crises. In every instance, the requirement for greater natural gas (and natural gas based CCGT capacity) has been highlighted. This logical assessment however sits at cross-purposes to the protests that have been in evidence from the climate activists. Perhaps the only way out to make this point widely recognised in the energy policy making community and the energy planners is to “shout louder”.
4. The inter-relationships in the gas-electricity market integration also need to be better understood. The inter-relationship does not stop at gas fired power generation, but gas-electric interactions transcend all the way from transmission, all the way to domestic heating supply. Unless a “whole-system” approach to decarbonisation is considered, the systemic risks will continue to grow. E.g. electricity driven gas compressors in gas transport systems cannot work when certain services such as black start capability must be provided. This became an issue in the case of Texas.
5. As far as the role of gas/LNG is concerned, there is a proved case for greater demand, not only in the trans-Atlantic markets but world over. In the current geo-political context of the Russia-Ukraine conflict the security of supply concerns have raised a notch higher, however hard data suggests that contractual volumes are being met and there is sufficient flexibility in the market to allow gas demand to be met; the shifting away from the security/reliability and resilience dimension in evidence in the recent past perhaps calls into question the necessity of long term contracts in gas (which are less of a feature today than has been the case).

The remainder of this report is an attempt to capture the salient points from the individual sessions and are attributed.

Session 1

Lights Out: Energy Transition and Risks to the Power Sector: Ashutosh Shastri, EPRINC/GGC

Scene Setting Presentation: Max Pyziur, EPRINC

1. Natural Gas played a central reinforcing role in the market and system recovery, both in Texas and in California
2. Only natural gas has (and did) provide the back-up flexibility when called upon in the crises
3. US Tax Policies, the PTC incentivised Wind developments while the ITCs incentivised solar developments but given the experience, this wisdom of tax policy driven approach to energy investments needs to be questioned.

Neil Chatterjee, Former Chairman FERC:

1. Zeal towards decarbonisation and transition has led to compromises in energy system security and reliability as evidenced in the Texas and California case
2. Electric reliability has been taken for granted by the US consumers- this got exposed in the Texas and California crises
3. Market and System design issues should be addressed more by the technical specialists and economists than be left solely with policy makers/regulators.

Dan Brouillette, Former Energy Secretary, US DoE & President Sempra Energy:

1. Tax code driven policy making and developments have led to an imbalance in the fuel mix and perverse incentivisation in making technology choices
2. This tax code driven approach has added an additional level of price volatility in the markets- this was in evidence, in both, California and Texas.

Renee Pirrong, Tellurian:

1. Energy and electricity demand is insatiable from non-OECD nations, requiring stupendous growth in LNG and natural gas production capacity.
2. Unfortunately, investment in energy-dense traditional fuels has fallen behind renewables, creating a structural deficit that will be challenging to reverse in the near-term.
3. If natural gas and LNG prices don't return to equilibrium, we will continue to burn more coal and will fail our climate goals and commitments.

Thomas Popik:

1. Of the 29GW of deficit experienced in Texas, 10GW resulted just from demand response- driven largely by a singular focus on electrification of home heating policy, implying that outcomes of individual policy choices made were being felt in other parts of the energy system.
2. Similarly in the case of offering black start capability, the compressors designed to flow gas to the power stations were converted from gas to electricity operated- which as a result could not be used to deliver the black start capability when it was required. This “electrification at all costs to decarbonise” approach needs a rethink.

Tom Pyle:

1. Political zeal for decarbonising is coming at a huge cost- in the case of Texas and California it has come at a human cost. The “heat or eat” is now becoming a real dilemma that public policy appears to be ignoring.
2. Have RTOs proved to have delivered their promises of reducing end user costs and system reliability? It would appear from the recent examples that they have not, and inter-regional power flows still are a significant hurdle.

Session 2

The Energy Crisis in Europe: Lessons for Policy Makers, Trisha Curtis *EPRINC*

Scene Setting Presentation: Arno Bux, *FLUXYS*

1. Low availability of Renewables and Nuclear led to greater demand on Natural Gas in Europe, where supplies were maxxed out and additionally the spot market flexibility usually on offer had vanished.
2. Low levels of gas storage in Europe- these reflected some long-standing problems relating to gas storage policy and regulations as well as relatively poor demand response; but somehow, no major disruptions or security of supply alerts were in evidence.
3. Higher Geo-political risk premium now in European gas markets in the short term- esp. given the Russia-Ukraine conflict and the likely sanctions on NordStream-2.
4. LNG and its importance to Europe has come into sharp focus.

Camille Bonenfant-Jeanneney, Storengy

1. Long hard winter of 2021 and warmer than usual summer had a significant pressure on the gas storage business in Europe, reducing gas injection windows.
2. Lower than usual summer-winter spread in gas prices too played a role in storage volumes lower than previous years, this was especially true in North-Western Europe- a steeper decline in seasonal storage levels was in evidence.
3. Structural and policy related problems- some of them long standing- remain unresolved in Europe although these are also a driven in part by the varying national contexts within the EU where the storages operate; given the subsidiarity principle some variation in gas storage operations is bound to remain.

Dirk Biermann, 50 Hertz

1. The pursuit of an “energy only market” is still a mirage and recent price developments in Europe, esp. Germany prove that capacity markets are required.
2. Despite a large and still growing share of renewable electricity Germany still has one of the lowest balancing costs in Europe, this is more a function of the maturity and liquidity in the various products available in the balancing market and contributed by the continuing reinforcing investments being carried out by the German TSOs.
3. Having considered all possible contributions from demand response, optimised dispatch and interconnection capacity projection, Germany will still require an additional minimum 10GW of new CCGT capacity by 2030; this is not only counterintuitive given the speed of renewables deployment but also highly challenging to deliver.
4. How this 10GW of capacity, huge new investments in grid reinforcements are going to be financed in addition to a renewable capacity projection going from 140GW to 700 GW is a question that few are willing to answer.

Timm Kehler, ZuKunft Gas

1. German Government is soldiering on with the stated 2045 target for decarbonisation and while prices have already risen substantially, it appears that the consumer unrest is non-existent or at best, muted. This is surprising.
2. As greater electrification of the German economy picks up momentum, studies indicate huge rise in peak demand and the rate of peak demand growth but this obscures the necessity of dispatchable reliable power- this will come at a premium but unclear what fuel source this new baseload will be.
3. The nuclear and coal shutdowns, if executed as planned, will leave a significant gap in this new requirement of baseload electricity.

Thierry Bros, Sciences Po

1. In European Energy policy today, the reality does not matter:
 - a. Natural Gas is now “Fossil Gas”
 - b. H2 dream is ready on paper but not yet any additional molecule of H2
 - c. Belief in the “Happy Days of Future Sobriety” (we will all consume less in future)
 - d. Guarantees of Origin for Luxembourg from Iceland!
 - e. IEA statements on European Net Zero
 - f. Recent ENTSOG guidance on Gas Storage which completely ignored existing reality of gas storage volumes
2. Russian Gas Supply will continue to remain critical for European energy mix in addition to new LNG. Long Term Contracts that have gone out of fashion of late will have to return and Europe will have to accept these if security of supply from new LNG sources such as US or Qatar are to be realised.

*Ashutosh Shastri, Senior Advisor
Global Gas Centre
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